

Dennis Underwood Conservation Area

Draft Environmental Assessment/Initial Study with a Negative Declaration

Appendix B

Dennis Underwood Conservation Area Project- Air Quality and Greenhouse Gas Study



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Air Quality and Greenhouse Gas Study

prepared by

The Metropolitan Water District of Southern California

700 North Alameda Street

Los Angeles, California 90012

Contact: Michelle Morrison, Associate Environmental Specialist

prepared with the assistance of

Rincon Consultants, Inc.

250 East First Street, Suite 301

Los Angeles, California 90012

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1 Introduction

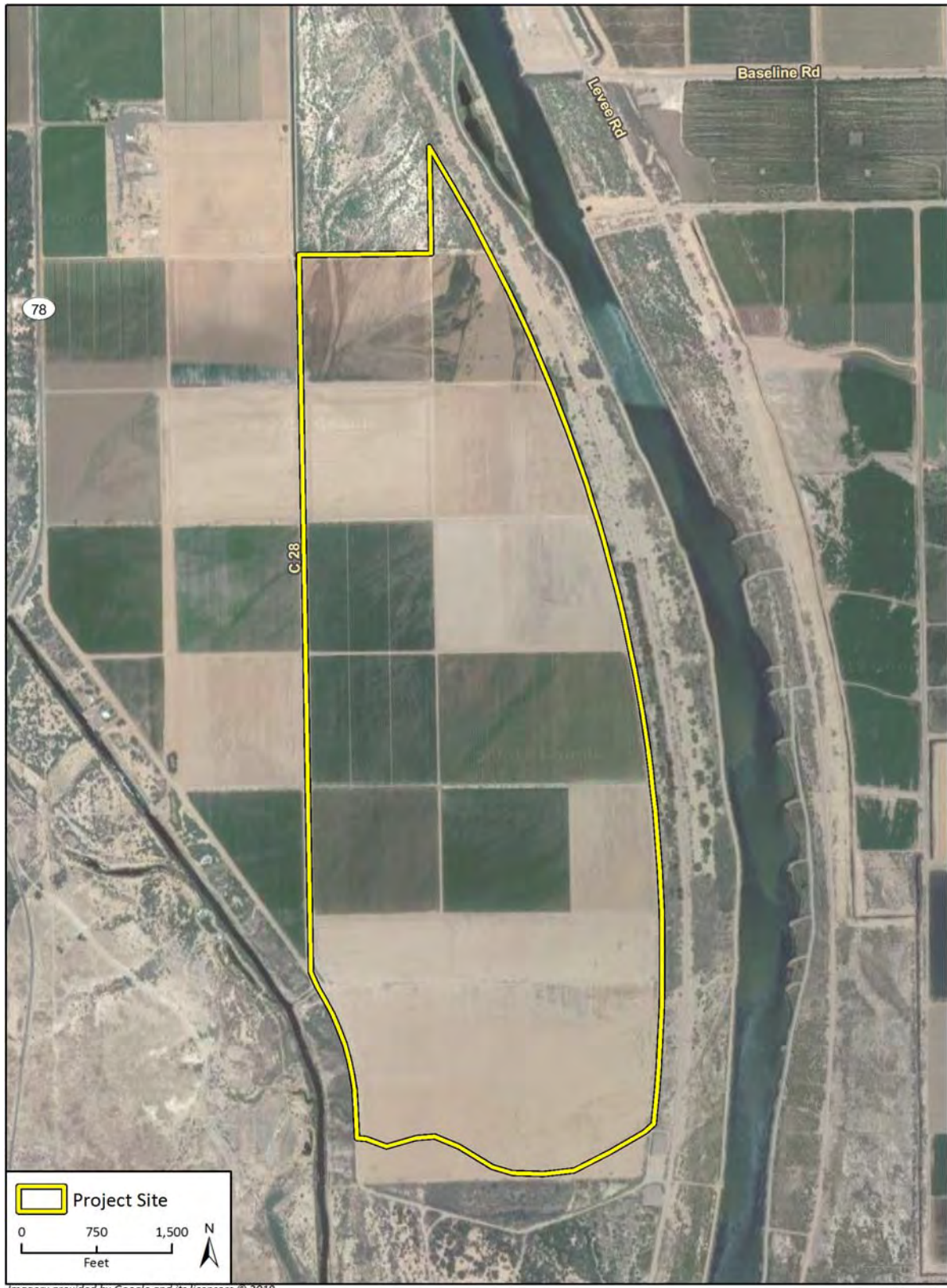
This report is an analysis of the potential air quality and greenhouse gas (GHG) impacts of the proposed Dennis Underwood Conservation Area Project located in Imperial County, California. The report has been prepared by Rincon Consultants, Inc. under contract to the Metropolitan Water District of Southern California (Metropolitan) for use in support of environmental documentation being prepared pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). This analysis considers both temporary impacts that would result from project construction (earthwork and mass transplanting activities) and long-term impacts associated with operation of the conservation area (site management and maintenance activities).

1.1 Project Description

The project site is in the Palo Verde Valley in Imperial County, south of Interstate 10 and the city of Blythe. The project is directly adjacent to the Colorado River (River Miles 97-99). The total area of the project site is 635 acres. The purpose of the project is to satisfy a component of the Lower Colorado River Multi-Species Conservation Program (LCR MSCP) to conserve habitat and work toward the recovery of threatened and endangered species, as well as reduce the likelihood of additional species being listed. Following the execution of a lease agreement by Metropolitan to the United States Bureau of Reclamation (BOR), BOR will be responsible for returning the 635 acres of fallowed farmland into native riverine habitat. Project activities for the habitat restoration efforts would be in three phases, as follows.

- Phase 1 activities entail excavation, land preparation, and irrigation installation. A series of channels will be constructed to provide moist growing sites for future planting. This series of channels will be oriented in a north-south direction in alternating fields. The channels will vary between 600 to 1,200 feet in length, be a maximum of 100 feet wide, and 3 to 4 feet deep. The channels will be created using dry-cutting (dry land excavation) methods. Dry-cutting earthwork will include: excavation, grading, and contouring the channels within each field. Irrigation is already installed at the project site; however, additional components to the irrigation system may be installed during this phase.
- Phase 2 activities include the design and subsequent hand or mass transplanting of cottonwood-willow and honey mesquite land cover types.
- Phase 3 activities include site management, operation, and maintenance by BOR. These activities include, but are not limited to, irrigation repair and replacement, existing road maintenance, installation of six monitoring wells, and invasive species removal.

Figure 1 Project Site



2 Air Quality

2.1 Background

2.1.1 Local Climate and Meteorology

The project site is within the Salton Sea Air Basin (SSAB), which is comprised of portions of central Riverside County and all of Imperial County. The basin extends generally from the Little San Bernardino Mountains in the north to the Mexico-United States border in the south, and from the Colorado River in the east to the Imperial County-San Diego County line in the west. The SSAB is located in the Colorado Desert, and while there are some mountainous regions, most of the basin lies below 1,000 feet elevation (Imperial County Air Pollution Control District [ICAPCD] 2017a). The region is characterized by extremely hot summers, mild winters, and minimal precipitation, with average annual rainfall totaling just over three inches (ICAPCD 2017b).

Atmospheric stability plays a key role in air pollutant dispersion and, consequently, surface level air quality in the SSAB. Imperial County experiences frequent surface inversions caused by rapid cooling of air near the Earth's surface at night. These weak inversions may briefly limit pollutant dispersion in valleys and low lying portions of the basin, but rapid surface heating generally breaks this condition relatively quickly during the day. While less common, much more persistent subsidence inversions can occur when the Pacific high pressure cell results in warmer temperatures aloft than at the surface. These conditions severely inhibit vertical mixing of pollutants and are commonly associated with the worst air pollutant levels in the basin (ICAPCD 2017b).

Air pollutant emissions within the SSAB are generated primarily by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources occur at a specific location and are often identified by an exhaust vent or stack. Examples include boilers or combustion equipment that produce electricity or generate heat. Area sources are widely distributed and include such sources as residential and commercial water heaters, painting operations, lawn mowers, agricultural fields, landfills, and some consumer products. Mobile sources refer to emissions from motor vehicles, including tailpipe and evaporative emissions, and are classified as either on-road or off-road. On-road sources may be legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment. Air pollutants can also be generated by the natural environment, such as when high winds suspend fine dust particles.

2.1.2 Air Pollutants of Primary Concern

The federal and State Clean Air Acts mandate the control and reduction of certain air pollutants. Under these Acts, the U.S. Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB) have established ambient air quality standards for certain criteria pollutants. Ambient air pollutant concentrations are affected by the rates and distributions of corresponding air pollutant emissions, as well as by the climate and topographic influences discussed above. The primary determinant of concentrations of non-reactive pollutants (such as carbon monoxide and suspended particulate matter) is proximity to major sources. In particular, ambient carbon

monoxide levels usually closely follow the spatial and temporal distributions of vehicular traffic. A discussion of primary criteria pollutants is provided below.

Ozone

Ozone is produced by a photochemical reaction (triggered by sunlight) between nitrogen oxides (NO_x) and reactive organic gases (ROG). NO_x is formed during the combustion of fuels, while ROG is formed during combustion and evaporation of organic solvents. Because ozone requires sunlight to form, it mostly occurs in substantial concentrations between the months of April and October. Ozone is a pungent, colorless, toxic gas with direct health effects on humans including respiratory and eye irritation and possible changes in lung functions. Groups most sensitive to ozone include children, the elderly, people with respiratory disorders, and people who exercise strenuously outdoors.

Carbon Monoxide

Carbon monoxide (CO) is a local pollutant that is found in high concentrations only near fuel combustion equipment and other sources of carbon monoxide. The primary source of CO, a colorless, odorless, poisonous gas, is automobile traffic. Elevated concentrations, therefore, are usually only found near areas of high traffic volumes. The health effects of CO are related to its affinity for hemoglobin in the blood. At high concentrations, CO reduces the amount of oxygen in the blood, causing heart difficulty in people with chronic diseases, reduced lung capacity, and impaired mental abilities.

Nitrogen Dioxide

Nitrogen dioxide (NO_2) is a by-product of fuel combustion, with the primary source being motor vehicles and industrial boilers and furnaces. The principal form of nitrogen oxide produced by combustion is nitric oxide (NO), but NO reacts rapidly to form NO_2 , creating the mixture of NO and NO_2 commonly called NO_x . Nitrogen dioxide is an acute irritant. A relationship between NO_2 and chronic pulmonary fibrosis may exist, and an increase in bronchitis in young children at concentrations below 0.3 parts per million (ppm) may occur. NO_2 absorbs blue light and causes a reddish brown cast to the atmosphere and reduced visibility. It can also contribute to the formation of PM_{10} (see below) and acid rain.

Suspended Particulates

Atmospheric particulate matter is comprised of finely divided solids and liquids such as dust, soot, aerosols, fumes, and mists. The particulates that are of particular concern are PM_{10} (which measures no more than 10 microns in diameter) and $\text{PM}_{2.5}$ (a fine particulate measuring no more than 2.5 microns in diameter). The characteristics, sources, and potential health effects associated with the small particulates (those between 2.5 and 10 microns in diameter) and $\text{PM}_{2.5}$ can be different. Major man-made sources of PM_{10} are agricultural operations, industrial processes, combustion of fossil fuels, construction, demolition operations, and entrainment of road dust into the atmosphere. Natural sources include windblown dust, wildfire smoke, and sea spray salt. The finer, $\text{PM}_{2.5}$ particulates are generally associated with combustion processes as well as being formed in the atmosphere as a secondary pollutant through chemical reactions. $\text{PM}_{2.5}$ is more likely to penetrate deeply into the lungs and poses a serious health threat to all groups, but particularly to the elderly, children, and those with respiratory problems. More than half of the small and fine particulate matter that is inhaled into the lungs remains there, which can cause permanent lung damage. These

materials can damage health by interfering with the body’s mechanisms for clearing the respiratory tract or by acting as carriers of an absorbed toxic substance (U.S. EPA 2017a).

2.1.3 Current Ambient Air Quality

The ARB and the U.S. EPA establish ambient air quality standards for major pollutants at levels intended to protect public health. Federal and State standards have been established for ozone, CO, NO₂, sulfur dioxide (SO₂), lead, and fine particulates (PM₁₀ and PM_{2.5}). Standards have been set at levels intended to be protective of public health. California standards are typically more restrictive than federal standards.

Local air districts and the ARB monitor ambient air quality to assure that air quality standards are met, and if they are not met, develop strategies to meet the standards. Air quality monitoring stations measure pollutant ground-level concentrations (typically, ten feet above ground level). Depending on whether the standards are met or exceeded, the SSAB is classified as in “attainment” or “nonattainment.” Some areas are unclassified, which means no monitoring data are available. Unclassified areas are considered to be in attainment. The project is located within the jurisdiction of ICAPCD. The area of the SSAB that the project site is located is currently in nonattainment for State and federal ozone, as well as State PM₁₀ (ARB 2017a). Table 1 lists the current federal and State standards for regulated pollutants.

Table 1 Federal and State Ambient Air Quality Standards

| Pollutant | Averaging Time | Federal Standards | California Standards |
|-------------------|-----------------|------------------------|-----------------------|
| Ozone | 1-Hour | – | 0.09 ppm |
| | 8-Hour | 0.070 ppm | 0.070 ppm |
| Carbon Monoxide | 8-Hour | 9.0 ppm | 9.0 ppm |
| | 1-Hour | 35.0 ppm | 20.0 ppm |
| Nitrogen Dioxide | Annual | 0.053 ppm | 0.030 ppm |
| | 1-Hour | 0.100 ppm | 0.18 ppm |
| Sulfur Dioxide | Annual | – | – |
| | 24-Hour | – | 0.04 ppm |
| | 1-Hour | 0.075 ppm | 0.25 ppm |
| PM ₁₀ | Annual | – | 20 µg/m ³ |
| | 24-Hour | 150 µg/m ³ | 50 µg/m ³ |
| PM _{2.5} | Annual | 12 µg/m ³ | 12 µg/m ³ |
| | 24-Hour | 35 µg/m ³ | – |
| Lead | 30-Day Average | – | 1.5 µg/m ³ |
| | 3-Month Average | 0.15 µg/m ³ | – |

ppm = parts per million; µg/m³ = micrograms per cubic meter

Source: ARB 2016a.

The Niland-English Road Monitoring Station is the closest ICAPCD-operated monitoring station, located approximately 49 miles southwest of the project site. Table 2 summarizes the representative annual air quality data at the Niland-English Road Monitoring Station, or other

closest monitoring station with available data, between the years 2014 and 2016 for all criteria pollutants.

Table 2 Ambient Air Quality at the Nearest Monitoring Stations

| Pollutant | | | |
|--|-------|----------------|-------|
| Ozone (ppm), Worst 1-Hour | 0.081 | 0.091 | 0.079 |
| Number of days of State exceedances (>0.09 ppm) | 0 | 0 ^a | 0 |
| Ozone (ppm), 8-Hour Average | 0.075 | 0.074 | 0.066 |
| Number of days of State exceedances (>0.07 ppm) | 2 | 5 | 0 |
| Number of days of Federal exceedances (>0.07 ppm) | 2 | 5 | 0 |
| Nitrogen Dioxide (ppm), Worst 1-Hour ^b | 0.059 | 0.059 | 0.051 |
| Number of days of State exceedances (>0.25 ppm) | 0 | 0 | 0 |
| Number of days of Federal exceedances (>0.075 ppm) | 0 | 0 | 0 |
| Particulate Matter <10 microns, µg/m ³ , Worst 24 Hours | 173.1 | 250.4 | 225.7 |
| Number of days above State standard (>50 µg/m ³) | 190 | 17 | 14 |
| Number of days above Federal standard (>150 µg/m ³) | 1 | 1 | 1 |
| Particulate Matter <2.5 microns, µg/m ³ , Worst 24 Hours ^c | 24.3 | 29.5 | 57.9 |
| Number of days above Federal standard (>35 µg/m ³) | 0 | 0 | 2 |

ppm = parts per million; µg/m³ = micrograms per cubic meter

^a According to ARB’s monitoring station report, this measurement did not result in a recorded day of state exceedance.

^b No nitrogen dioxide data was available for the Niland-English Road Station. Values were recorded from the next closest station for which data was available—El Centro-9th Street Monitoring Station, located approximately 63 miles southwest of the project site.

^c No particulate matter <2.5 microns data was available for the Niland-English Road Station. Values were recorded from the next closest station for which data was available—Brawley – 220 Main Street Monitoring Station, located approximately 55 miles southwest of the project site.

State and federal statistics may differ for the following reasons: (1) National 8-hour averages are truncated to three decimal places; State 8-hour averages are rounded to three decimal places, and/or (2) State criteria for ensuring that data are sufficiently complete for calculating 8-hour averages are more stringent than the federal criteria.

Source: ARB 2017b

The data collected at the monitoring stations indicate that there were no federal or State exceedances of 1-hour ozone standards or 1-hour nitrogen dioxide standards. Exceedances were recorded for 8-hour ozone, 24-hour PM₁₀, and 24-hour PM_{2.5} standards between 2014 and 2016. In 2014, PM₁₀ measurements exceeded State standards a total of 190 days.

2.1.4 Air Quality Plan

Under State law, the ICAPCD is required to prepare a plan to improve air quality for pollutants for which the Basin is in nonattainment. ICAPCD has adopted numerous attainment plans to reduce ozone and particulate precursor emissions. Most recently, following a reclassification from marginal nonattainment to moderate nonattainment, ICAPCD adopted the 2017 State Implementation Plan (SIP) for the 75 parts per billion (equivalent to 0.075 ppm) 8-hour ozone standard to bring the Imperial County portion of the SSAB into attainment of the federal 2008 8-hour ozone standard by July 20, 2018. The SIP describes the stationary, area, and transportation source control measures in place in the SSAB to reduce ozone emissions, as well as cooperative initiatives between the ICAPCD and agency counterparts in Mexico to improve air quality in the border region (ICAPCD 2017a).

In addition to the recently adopted SIP, the ICAPCD prepared SIPs for the PM_{2.5} and PM₁₀ standards in 2013 and 2009, respectively. The 2009 PM₁₀ SIP demonstrates attainment of the federal PM₁₀ standard “but-for” international emissions originating in the Mexicali metropolitan area to the south (ICAPCD 2009). The 2013 SIP for the 2006 federal PM_{2.5} standard includes a source inventory and discussion of control technologies to reduce PM_{2.5} emissions in the portion of the Imperial County portion of the SSAB determined to be in nonattainment. This region includes populated portions of Imperial County south of the Salton Sea, but does not include the project site (ICAPCD 2014).

2.1.5 Sensitive Receptors

Ambient air quality standards have been established to represent the levels of air quality considered sufficient, with an adequate margin of safety, to protect public health and welfare. They are designed to protect people most susceptible to respiratory distress, such as: children under 14; persons over 65; persons engaged in strenuous work or exercise; and people with cardiovascular and chronic respiratory diseases. Though ICAPCD does not explicitly define sensitive receptors, it explicitly mentions schools, day care centers, hospitals, retirement homes, convalescence facilities and residences as susceptible to air quality impacts (ICAPCD 2017c). The project site is located in a remote area of Imperial County at the southern edge of the Palo Verde Valley. The site is surrounded by agricultural uses and open space. The nearest zoned residential land uses are located in the community of Palo Verde, approximately five miles north of the project site. No sensitive receptors were identified within 1,000 feet of the project site boundary.

2.2 Impact Analysis

2.2.1 Methodology and Significance Thresholds

This air quality analysis conforms to the methodologies recommended in the ICAPCD’s *CEQA Air Quality Handbook* (ICAPCD 2017c). The guidance document includes thresholds for emissions associated with both construction and operation of the project.

Methodology

Project construction would generate diesel emissions and dust. Construction of the project would involve large amounts of grading that would require use of construction equipment that may generate criteria air pollutants. Detailed construction schedules and grading estimates were provided by Metropolitan and BOR and are summarized in Table 3.

Table 3 Construction Summary

| Construction Schedule | Activity | Duration | Frequency | Worker Count |
|--|---|-------------------------|---------------------------|--------------|
| Phase 1: Site Preparation | Excavation of channels, land preparation, and irrigation installation | July 2018 – March 2019 | 32 construction work days | 12 |
| Phase 2: Establishment/Re-Vegetation | Design and subsequent hand or mass transplanting of cottonwood-willow and honey mesquite land cover types | March 2019 – April 2020 | 8 construction work days | 11 |

Operation of the project would occur in Phase 3. Phase 3 activities include pre- and post-development monitoring for LCR MSCP species, site management, and operation and maintenance activities. Species monitoring and ongoing irrigation will commence in October 2019 and continue throughout the life of the project; the LCR MSCP program is assumed to end in 2055. Metropolitan and BOR provided estimated numbers of vehicle trips and personnel for Phase 3 activities. It is assumed that Phase 3 will require six workers and will occur, at most, five days per week on a bi-weekly basis.

The project’s construction and operational emissions were calculated using the California Emissions Estimator Model (CalEEMod) software version 2016.3.2. Construction activities would occur between July 2018 and April 2020. To provide a conservative estimate of emissions, construction activities were modeled to occur consecutively within each phase (i.e. all 32 days of construction work within Phase 1 would occur consecutively within one year) rather than spread across separate years. All grading activities would be balanced on site and would not require import or export of soil materials. It was assumed that vehicle speeds on unpaved roads would be limited to 15 miles per hour (mph) in compliance with ICAPCD Regulation VIII.

Metropolitan and BOR provided the number of construction days and construction equipment required for each phase. Table 4 summarizes the construction equipment for the project.

Table 4 Anticipated Construction Equipment

| Construction Phase | Equipment Type |
|--|------------------------------------|
| Phase 1: Site Preparation | 1 D6R Dozer |
| | 3 John Deere 9630 Tractor Scrapers |
| | 1 345 Excavator |
| | 1 6,000 Gallon Water Truck |
| | 1 Tractor |
| Phase 2: Establishment/Re-Vegetation | 1 Forklift |
| | 1 Mass Transplanter |

Hours of operation were assumed to be a maximum of ten hours per day, the expected length of the construction work day. All equipment staging areas would be located on the project site. CalEEMod defaults were used for equipment horsepower and load factors. Phase 3 would not require the use of any heavy duty construction equipment.

The CalEEMod analysis also took into account material delivery trips and worker trips to the project site for all construction and operational phases, including fugitive dust emissions generated by vehicle use on unpaved roads. During Phase 1, construction personnel will travel to the project site from Provo, Utah. Since ICAPCD regional thresholds are only applicable to emissions generated within the basin, this air quality analysis accounted for vehicle trip lengths to the project site from the boundary of the SSAB, approximately 5.1 miles. Palo Verde, the nearest town to the project site, is located near this boundary. It was assumed that workers staying near the project site for the duration of work would be commuting the same distance (Palo Verde to project site) daily. During Phase 2 of construction, an estimated six heavy-duty delivery trucks will travel from Arroyo Grande to the project site. The trucks will travel approximately 160 miles within the SSAB to reach the project site. Complete CalEEMod assumptions and results are contained in Appendix A. Operational area emissions were calculated in CalEEMod but were not included in this analysis.

Regional Thresholds

According to Appendix G of the *State CEQA Guidelines*, air quality impacts related to the project would be considered significant if the project would:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

Appendix G of the *State CEQA Guidelines* further states that the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the determinations.

The ICAPCD has established significance thresholds to assist Lead Agencies in determining whether a proposed project may have a significant impact to air quality. Individual projects with emissions below threshold levels would not contribute significantly to cumulative air quality impacts within the SSAB in Imperial County. ICAPCD provides the quantitative criteria shown in Table 5 in the form of thresholds for temporary construction activities and long-term project operation within the SSAB in Imperial County (ICAPCD 2017c).

Table 5 ICAPCD Thresholds of Significance

| Pollutant | Construction Thresholds (pounds/day) | Operational Thresholds (pounds/day) |
|-------------------|---|--|
| NO _x | 100 | 137 |
| ROG | 75 | 137 |
| PM ₁₀ | 150 | 150 |
| PM _{2.5} | NA | 550 |
| SO _x | NA | 150 |
| CO | 550 | 550 |

ICAPCD: Imperial County Air Pollution Control District; ROG: reactive organic gases; NO_x: nitrogen oxides; CO: carbon monoxide; SO_x: sulfur oxides; PM₁₀: particulate matter less than 10 microns in size; PM_{2.5}: particulate matter less than 2.5 microns in size; NA: not available

Source: ICAPCD 2017c

Regulatory Requirements

The project would be required to comply with all applicable regulatory standards. In particular, compliance with ICAPCD Regulation VIII is required, which contains a variety of fugitive dust control

measures to help bring the SSAB into compliance with the National Ambient Air Quality Standards (NAAQS).

For projects that fall below the level of significance for construction emissions, the ICAPCD requires implementation of the following standard best management practices (BMPs) for construction equipment and fugitive dust; these are described in full under Section 7.1 of the ICAPCD (2017c) *CEQA Air Quality Handbook*. Project construction activities would be required to comply with the following measures.

Fugitive PM₁₀ Control

- a. All disturbed areas, including Bulk Material storage which is not being actively utilized, shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by using water, chemical stabilizers, dust suppressants, tarps or other suitable material such as vegetative ground cover.
- b. All on-site and off-site unpaved roads will be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.
- c. All unpaved traffic areas one (1) acre or more with 75 or more average vehicle trips per day will be effectively stabilized and visible emission shall be limited to no greater than 20% opacity for dust emissions by paving, chemical stabilizers, dust suppressants and/or watering.
- d. The transport of Bulk Materials shall be completely covered unless six inches of freeboard space from the top of the container is maintained with no spillage and loss of Bulk Material. In addition, the cargo compartment of all Haul Trucks is to be cleaned and/or washed at delivery site after removal of Bulk Material.
- e. All Track-Out or Carry-Out will be cleaned at the end of each workday or immediately when mud or dirt extends a cumulative distance of 50 linear feet or more onto a paved road within an Urban area.
- f. Movement of Bulk Material handling or transfer shall be stabilized prior to handling or at points of transfer with application of sufficient water, chemical stabilizers or by sheltering or enclosing the operation and transfer line.
- g. The construction of any new Unpaved Road is prohibited within any area with a population of 500 or more unless the road meets the definition of a Temporary Unpaved Road. Any temporary unpaved road shall be effectively stabilized and visible emissions shall be limited to no greater than 20% opacity for dust emission by paving, chemical stabilizers, dust suppressants and/or watering.

Construction Combustion Equipment

- a. Use of alternative fueled or catalyst equipped diesel construction equipment, including all off-road and portable diesel powered equipment.
- b. Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to 5 minutes as a maximum.
- c. Limit, to the extent feasible, the hours of operation of heavy duty equipment and/or the amount of equipment in used.

- d. Replace fossil fueled equipment with electrically driven equivalents (provided they are not run via a portable generator set).

As the project would be required by ICAPCD to implement the BMPs described above during construction, the CalEEMod emissions estimates for the project include watering active portions of the site three times per day. It was also assumed that vehicle speeds on unpaved roads would be limited to 15 mph. In addition, ICAPCD also recommends that projects develop dust control plans to ensure compliance with ICAPCD Rule 801.

2.2.2 Project Impacts

Construction Impacts

Construction would consist of excavation, land preparation, grading, and mass transplanting. These activities would generate temporary air pollutant emissions, including fugitive dust (PM₁₀ and PM_{2.5}) and exhaust emissions from heavy construction vehicles. Table 6 summarizes daily emissions of criteria pollutants associated with construction of the proposed project as compared to ICAPCD thresholds and include implementation of BMPs required by ICAPCD Regulation VIII. As shown in Table 6, construction emissions associated with the proposed project would not exceed ICAPCD daily construction thresholds. As described under Regulatory Requirements, the ICAPCD recommends that projects develop dust control plans to ensure compliance with ICAPCD Rule 801. As shown below, the project would not result in exceedances of particulate matter thresholds; therefore, a dust control plan is not necessary to ensure compliance with Rule 801.

Table 6 Estimated Construction Emissions for Criteria Pollutants

| | Estimated Maximum Daily Emissions (pounds/day) | | | | | |
|---------------------|--|-----------------|------|-----------------|------------------|-------------------|
| | ROG | NO _x | CO | SO _x | PM ₁₀ | PM _{2.5} |
| Maximum | 5.0 | 50.0 | 28.7 | 0.1 | 105.1 | 10.9 |
| ICAPCD Thresholds | 75 | 100 | 550 | n/a | 150 | n/a |
| Threshold Exceeded? | No | No | No | n/a | No | n/a |

ICAPCD: Imperial County Air Pollution Control District; ROG: reactive organic gases; NO_x: nitrogen oxides; CO: carbon monoxide; SO_x: sulfur oxides; PM₁₀: particulate matter less than 10 microns in size; PM_{2.5}: particulate matter less than 2.5 microns in size

See Appendix A for modeling details and CalEEMod results.

Notes: Emissions presented are the highest of the winter and summer modeled emissions. Emission data is from "mitigated" results, which include BMPs that will be implemented during project construction in compliance with ICAPCD rules.

Operational Impacts

During Phase 3 of the project, personnel would travel to the site to conduct management and maintenance activities. Their vehicles will generate operational mobile emissions, including fugitive dust (PM₁₀ and PM_{2.5}) and exhaust emissions. Ongoing and regular use of heavy duty construction equipment is not expected. Table 7 summarizes daily mobile emissions of criteria pollutants associated with Phase 3 of the proposed project. As shown in Table 7, operational emissions generated in Phase 3 of the project would not exceed ICAPCD daily operational thresholds.

Table 7 Estimated Operational Emissions for Criteria Pollutants

| | Estimated Maximum Daily Emissions (pounds/day) | | | | | |
|---------------------|--|-----------------|-----|-----------------|------------------|-------------------|
| | ROG | NO _x | CO | SO _x | PM ₁₀ | PM _{2.5} |
| Maximum | <0.1 | 0.1 | 0.2 | <0.1 | 15.1 | 1.5 |
| ICAPCD Thresholds | 137 | 137 | 550 | 150 | 150 | 550 |
| Threshold Exceeded? | No | No | No | No | No | No |

ICAPCD: Imperial County Air Pollution Control District; ROG: reactive organic gases; NO_x: nitrogen oxides; CO: carbon monoxide; SO_x: sulfur oxides; PM₁₀: particulate matter less than 10 microns in size; PM_{2.5}: particulate matter less than 2.5 microns in size

See Appendix A for modeling details and CalEEMod results.

Notes: Emissions presented are the highest of the winter and summer modeled mobile emissions.

Long-Term Regional Impacts

Air Quality Plan Consistency

A project may be inconsistent with the ICAPCD’s 2017 Ozone Plan, or other SIPs, if it would generate population, housing, or employment growth exceeding the forecasts used in the development of the plans. The project is the restoration and management of a conservation area and would not generate population or housing. During Phase 3 of the proposed project, six part-time employees would conduct ongoing species monitoring and irrigation activities. This analysis accounted for Phase 3 worker trips to and from the project site from the nearby community of Palo Verde and it is likely that employees would be hired from the local workforce. The proposed project would incrementally increase jobs in the project area and is not expected to generate employment growth exceeding local employment forecasts. Therefore, the project would be consistent with ICAPCD’s air quality plans.

Toxic Air Contaminants (TACs)

The ARB’s (2005) *Air Quality and Land Use Handbook: A Community Health Perspective* recommends against siting sensitive receptors within 500 feet of a freeway, urban roads with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day. The project does not involve development of any new sensitive receptors. Additionally, there are no sensitive receptors located within 1,000 feet of the project site boundary and, as a conservation area, the project would not be a substantial generator of toxic air contaminants. Therefore, the project would not expose sensitive receptors to substantial pollutant concentrations.

Odors

The ICAPCD’s (2017c) *CEQA Air Quality Handbook* identifies a one mile screening distance for types of operations that commonly emit odors, including wastewater treatment plants, sanitary landfills, composting stations, feedlots, asphalt plants, auto body shops, and rendering plants. The project involves restoration of riverine habitat, which would not result in substantial emissions of odorous compounds. During construction activities, only short-term, temporary odors from vehicle exhaust and construction equipment engines would occur. As previously discussed, there are no sensitive receptors located within 1,000 feet of the project site. Furthermore, construction-related odors

disperse and dissipate over relatively short distances. Therefore, the project would not expose sensitive receptors to substantial odor impacts.

3 Greenhouse Gas Emissions/ Climate Change Background

3.1 Background

3.1.1 Climate Change and Greenhouse Gases

Gases that absorb and re-emit infrared radiation in the atmosphere are called greenhouse gases (GHGs). The GHGs that are widely seen as the principal contributors to human-induced climate change include carbon dioxide (CO₂), methane (CH₄), nitrous oxides (N₂O), fluorinated gases such as hydrofluorocarbons (HFCs) and perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). Water vapor is excluded from the list of GHGs because it is short-lived in the atmosphere and its atmospheric concentrations are primarily determined by natural processes, such as oceanic evaporation.

GHGs are emitted by both natural processes and human activities. Of these gases, CO₂, CH₄, and N₂O are emitted in the greatest quantities from human activities. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing associated with agricultural practices and landfills. N₂O is produced by microbial processes in soil and water, including those reactions that occur in fertilizers that contain nitrogen, fossil fuel combustion, and other chemical processes.

Man-made GHGs, many of which have greater heat-absorption potential than CO₂, include fluorinated gases and SF₆ (California Environmental Protection Agency [CalEPA] 2006). Different types of GHGs have varying global warming potentials (GWPs). The GWP of a GHG is the potential of a gas or aerosol to trap heat in the atmosphere over a specified timescale (generally, 100 years). Because GHGs absorb different amounts of heat, a common reference gas (CO₂) is used to relate the amount of heat absorbed to the amount of the gas emissions, referred to as “carbon dioxide equivalent” (CO₂e), and is the amount of a GHG emitted multiplied by its GWP. CO₂ has a 100-year GWP of one. By contrast, CH₄ has a GWP of 25, meaning its global warming effect is 25 times greater than CO₂ on a molecule per molecule basis (Intergovernmental Panel on Climate Change [IPCC] 2007).

3.1.2 Greenhouse Gas Emissions Inventories

Federal Emissions Inventory

Total U.S. GHG emissions were 6,586.7 million metric tons (MMT or gigatonne) CO₂e in 2015 (U.S. EPA 2017b). Total U.S. emissions have increased by 3.5 percent since 1990; emissions decreased by 2.3 percent from 2014 to 2015 (U.S. EPA 2017b). The decrease from 2014 to 2015 was a result of multiple factors, including: (1) movement from coal to natural gas consumption in the electric power sector; (2) warmer winter conditions in 2015 resulting in a decreased demand for heating fuel in the residential and commercial sectors; and (3) a slight decrease in electricity demand (U.S. EPA 2017b). Since 1990, U.S. emissions have increased at an average annual rate of 0.2 percent. In 2015, the industrial and transportation end-use sectors accounted for 29 percent and 27 percent of CO₂ emissions (with electricity-related emissions distributed), respectively. Meanwhile, the

residential and commercial end-use sectors accounted for 16 percent and 17 percent of CO₂ emissions, respectively (U.S. EPA 2017b).

California Emissions Inventory

Based on the ARB California Greenhouse Gas Inventory for 2000-2014, California produced 441.5 MMT CO₂e in 2014 (ARB 2016b). The largest single source of GHG in California is transportation, contributing 37 percent of the State's total GHG emissions. Industrial sources are the second largest source of the state's GHG emissions, contributing 24 percent of the state's GHG emissions (ARB 2016b). California emissions are due in part to its large size and large population compared to other states. However, the state's mild climate reduces California's per capita fuel use and GHG emissions as compared to other states. The ARB has projected statewide unregulated GHG emissions for the year 2020 will be 509.4 MMT CO₂e (ARB 2016b). These projections represent the emissions that would be expected to occur in the absence of any GHG reduction actions.

3.1.3 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through potential impacts related to future air temperatures and precipitation patterns. Scientific modeling predicts that continued GHG emissions at or above current rates would induce more extreme climate changes during the 21st century than were observed during the 20th century. Long-term trends have found that each of the past three decades has been warmer than all the previous decades in the instrumental record, and the decade from 2000 through 2010 has been the warmest. The global combined land and ocean temperature data show an increase of about 0.89°C (C; 0.69°C–1.08°C) over the period 1901–2012 and about 0.72°C (0.49°C–0.89°C) over the period 1951–2012 when described by a linear trend. Several independently analyzed data records of global and regional Land-Surface Air Temperature (LSAT) obtained from station observations are in agreement that LSAT as well as sea surface temperatures have increased. In addition to these findings, there are identifiable signs that global warming is currently taking place, including substantial ice loss in the Arctic over the past two decades (IPCC 2014).

Potential impacts of climate change in California may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years (CalEPA 2010). Below is a summary of some of the potential effects that could be experienced in California as a result of climate change.

Air Quality

Higher temperatures, which are conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thereby ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the state (California Energy Commission 2009).

Water Supply

Analysis of paleoclimatic data (such as tree-ring reconstructions of stream flow and precipitation) indicates a history of naturally and widely varying hydrologic conditions in California and the west, including a pattern of recurring and extended droughts. Uncertainty remains with respect to the overall impact of climate change on future water supplies in California. However, the average early spring snowpack in the Sierra Nevada decreased by about 10 percent during the last century, a loss of 1.5 million acre-feet of snowpack storage. During the same period, sea level rose eight inches along California's coast. California's temperature has risen 1°F Fahrenheit (F), mostly at night and during the winter, with higher elevations experiencing the highest increase. Many Southern California cities have experienced their lowest recorded annual precipitation twice between 2000 and 2010.

This uncertainty complicates the analysis of future water demand, especially where the relationship between climate change and its potential effect on water demand is not well understood. The Sierra snowpack provides the majority of California's water supply by accumulating snow during the state's wet winters and releasing it slowly during the state's dry springs and summers. Based on historical data and modeling, DWR projects that the Sierra snowpack will experience a 25 to 40 percent reduction from its historic average by 2050. Climate change is also anticipated to bring warmer storms that result in less snowfall at lower elevations, reducing the total snowpack (DWR 2008).

Hydrology and Sea Level Rise

As discussed above, climate change could potentially affect the amount of snowfall, rainfall, and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. According to CCCC (2009) report, *The Impacts of Sea-Level Rise on the California Coast*, climate change has the potential to induce substantial sea level rise in the coming century. The rising sea level increases the likelihood and risk of flooding. The rate of increase of global mean sea levels over the 2001-2010 decade, as observed by satellites, ocean buoys and land gauges, was approximately 3.2 mm per year, which is double the observed 20th century trend of 1.6 millimeters per year (World Meteorological Organization [WMO] 2013). As a result, sea levels averages over the last decade were about 8 inches higher than those of 1880 (WMO 2013). Sea levels are rising faster now than in the previous two millennia, and the rise is expected to accelerate, even with robust GHG emission control measures. The most recent IPCC (2013) report predicts a mean sea-level rise of 11-38 inches by 2100. This prediction is more than 50 percent higher than earlier projections of 7-23 inches, when comparing the same emissions scenarios and time periods. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply due to salt water intrusion. In addition, increased CO₂ emissions can cause oceans to acidify due to the carbonic acid it forms. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture

California has a \$30 billion annual agricultural industry that produces approximately half of the country's fruits and vegetables. Higher CO₂ levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase, crop-yield could be threatened by a less reliable water supply, and greater air pollution could render plants more susceptible to pest and disease outbreaks. In addition,

temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thereby affect their quality (CCCC 2006).

Ecosystems and Wildlife

Climate change and the potential resulting changes in weather patterns could have ecological effects on a global, regional, and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists project that the average global surface temperature could rise by 1.0-4.5°F (0.6-2.5°C) in the next 50 years, and 2.2-10°F (1.4-5.8°C) in the next century, with substantial regional variation. Soil moisture is likely to decline in many regions, and intense rainstorms are likely to become more frequent. According to Parmesan (2006), rising temperatures could have four major impacts on plants and animals:

- Timing of ecological events
- Geographic range
- Species' composition within communities
- Ecosystem processes, such as carbon cycling and storage

3.1.4 Regulatory Setting

California Regulations

The ARB is responsible for the coordination and oversight of State and local air pollution control programs in California. California has several regulations aimed at reducing the state's GHG emissions. These initiatives are summarized below.

California Advanced Clean Cars Program

Assembly Bill (AB) 1493 (2002), California's Advanced Clean Cars program (referred to as "Pavley"), requires the ARB to develop and adopt regulations to achieve "the maximum feasible and cost-effective reduction of GHG emissions from motor vehicles." On June 30, 2009, U.S. EPA granted the waiver of Clean Air Act preemption to California for its greenhouse gas emission standards for motor vehicles beginning with the 2009 model year. Pavley I regulates model years from 2009 to 2016 and Pavley II, which is now referred to as "LEV (Low Emission Vehicle) III GHG", regulates model years from 2017 to 2025. The Advanced Clean Cars program coordinates the goals of the Low Emissions Vehicles (LEV), Zero Emissions Vehicles (ZEV), and Clean Fuels Outlet programs, and would provide major reductions in GHG emissions. By 2025, when the rules will be fully implemented, new automobiles will emit 34 percent fewer GHGs and 75 percent fewer smog-forming emissions from their model year 2016 levels (ARB 2011).

Assembly Bill 32

California's major initiative for reducing GHG emissions is outlined in Assembly Bill 32 (AB 32), the "California Global Warming Solutions Act of 2006," signed into law in 2006. AB 32 codifies the statewide goal of reducing GHG emissions to 1990 levels by 2020 and requires the ARB to prepare a Scoping Plan that outlines the main State strategies for reducing GHGs to meet the 2020 deadline. In addition, AB 32 requires ARB to adopt regulations to require reporting and verification of statewide GHG emissions. Based on this guidance, ARB approved a 1990 statewide GHG level and 2020 limit of 427 MMT CO₂e. The Scoping Plan was approved by ARB on December 11, 2008, and included measures to address GHG emission reduction strategies related to energy efficiency, water

use, and recycling and solid waste, among other measures. Many of the GHG reduction measures included in the Scoping Plan (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted since approval of the Scoping Plan.

In May 2014, ARB approved the first update to the AB 32 Scoping Plan. The 2013 Scoping Plan update defines ARB's climate change priorities for the next five years and sets the groundwork to reach post-2020 statewide goals. The update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the original Scoping Plan. It also evaluates how to align the State's longer-term GHG reduction strategies with other State policy priorities, such as for water, waste, natural resources, clean energy and transportation, and land use (ARB 2014).

On December 14, 2017, ARB adopted the 2017 Scoping Plan, which relies on the continuation and expansion of existing policies and regulations, such as the Cap-and-Trade Program, as well as implementation of recently adopted policies and policies, such as SB 1383 (see below).

Senate Bill 97

Senate Bill (SB) 97, signed in August 2007, acknowledges that climate change is an environmental issue that requires analysis in CEQA documents. In March 2010, the California Resources Agency (Resources Agency) adopted amendments to the *State CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted guidelines give lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHG and climate change impacts.

Senate Bill 375

Senate Bill (SB) 375, signed in August 2008, enhances the State's ability to reach AB 32 goals by directing the ARB to develop regional GHG emission reduction targets to be achieved from passenger vehicles for 2020 and 2035. In addition, SB 375 directs each of the state's 18 major Metropolitan Planning Organizations (MPO) to prepare a "sustainable communities strategy" (SCS) that contains a growth strategy to meet these emission targets for inclusion in the Regional Transportation Plan (RTP). On September 23, 2010, the ARB adopted final regional targets for reducing GHG emissions from 2005 levels by 2020 and 2035. The Southern California Association of Governments (SCAG) was assigned targets of an 8% reduction in GHGs from transportation sources by 2020 and a 13% reduction in GHGs from transportation sources by 2035. In the SCAG region, SB 375 also provides the option for the coordinated development of subregional plans by the subregional councils of governments and the county transportation commissions to meet SB 375 requirements (ARB 2013).

Senate Bill 32

On September 8, 2016, the governor signed Senate Bill 32 (SB 32) into law, extending AB 32 by requiring the State to further reduce GHGs to 40 percent below 1990 levels by 2030 (the other provisions of AB 32 remain unchanged). On December 14, 2017, ARB adopted the 2017 Scoping Plan, which provides a framework for achieving the 2030 target. The 2017 Scoping Plan puts an increased emphasis on innovation, adoption of existing technology, and strategic investment to support its strategies. As with the 2013 Scoping Plan Update, the 2017 Scoping Plan does not provide project-level thresholds for land use development. Instead, it recommends that lead agencies adopt policies and locally-appropriate quantitative thresholds consistent with a statewide per capita goal of six metric tons (MT) CO₂e by 2030 and two MT CO₂e by 2050 (ARB 2017c). As

stated in the 2017 Scoping Plan, these goals may be appropriate for plan-level analyses (city, county, subregional, or regional level), but not for specific individual projects because they include all emissions sectors in the state.

Senate Bill 1383

Adopted in September 2016, SB 1383 requires the ARB to approve and begin implementing a comprehensive strategy to reduce emissions of short-lived climate pollutants. The bill requires the strategy to achieve the following reduction targets by 2030:

- Methane – 40% below 2013 levels
- Hydrofluorocarbons – 40% below 2013 levels
- Anthropogenic black carbon – 50% below 2013 levels

The bill also requires CalRecycle, in consultation with the State board, to adopt regulations that achieve specified targets for reducing organic waste in landfills.

For more information on the Senate and Assembly Bills, Executive Orders, and reports discussed above, and to view reports and research referenced above, please refer to the following websites: www.climatechange.ca.gov and www.arb.ca.gov/cc/cc.htm.

California Environmental Quality Act

Pursuant to the requirements of SB 97, the Resources Agency has adopted amendments to the *State CEQA Guidelines* for the feasible mitigation of GHG emissions or the effects of GHG emissions. The adopted *State CEQA Guidelines* provide general regulatory guidance on the analysis and mitigation of GHG emissions in CEQA documents, while giving lead agencies the discretion to set quantitative or qualitative thresholds for the assessment and mitigation of GHGs and climate change impacts. To date, a variety of air districts have adopted quantitative significance thresholds for GHGs. The ICAPCD has not yet adopted such thresholds.

3.2 Impact Analysis

3.2.1 Methodology and Significance Thresholds

Significance Thresholds

Based on Appendix G of the *State CEQA Guidelines*, impacts related to GHG emissions from the project would be significant if the project would:

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

With regard to environmental impacts, there are no established federal, state, or local quantitative thresholds applicable to the proposed program to determine the quantity of GHG emissions that may have a significant effect on the environment. ARB, SCAQMD, and various cities and agencies have proposed, or adopted on an interim basis, thresholds of significance that require the implementation of GHG emission reduction measures.

The vast majority of individual projects do not generate sufficient GHG emissions to directly influence climate change. However, physical changes caused by a project can contribute incrementally to cumulative effects that are significant, even if individual changes resulting from a project are limited. The issue of climate change typically involves an analysis of whether a project's contribution towards an impact would be cumulatively considerable. "Cumulatively considerable" means that the incremental effects of an individual project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects (CEQA Guidelines, Section 15064[h][1]).

For future projects, the significance of GHG emissions may be evaluated based on adopted quantitative thresholds, or consistency with a regional GHG reduction plan (such as a Climate Action Plan). However, neither Imperial County nor the ICAPCD have adopted a qualified GHG reduction plan or a quantitative threshold for GHG emissions that is applicable to non-stationary sources. For the proposed project, the most appropriate screening threshold for determining GHG emission impacts is the South Coast Air Quality Management District (SCAQMD) proposed interim Tier 3 screening threshold (SCAQMD 2008). SCAQMD regulates air pollution in the South Coast Air Basin (SCAB), which lies adjacent to the SSAB to the northwest. Based on SCAQMD guidance, construction emissions are amortized over the life of the project, which is defined by SCAQMD as 30 years, and compared to the applicable interim GHG significance threshold tier.

In guidance provided by the SCAQMD's GHG CEQA Significance Threshold Working Group in September 2010, the SCAQMD considered a tiered approach to determine the significance of residential and commercial projects. The draft tiered approach is outlined in meeting minutes dated September 28, 2010 (SCAQMD 2010).

Tier 1. If the project is exempt from further environmental analysis under existing statutory or categorical exemptions, there is a presumption of less than significant impacts with respect to climate change. If not, then the Tier 2 threshold should be considered.

Tier 2. Consists of determining whether or not the project is consistent with a GHG reduction plan that may be part of a local general plan, for example. The concept embodied in this tier is equivalent to the existing concept of consistency in CEQA Guidelines section 15064(h)(3), 15125(d) or 15152(a). Under this Tier, if the proposed project is consistent with the qualifying local GHG reduction plan, it is not significant for GHG emissions. If there is not an adopted plan, then a Tier 3 approach would be appropriate.

Tier 3. Establishes a screening significance threshold level to determine significance. The Working Group has provided a recommendation of 3,000 metric tons (MT) of CO₂e per year for mixed use projects.

Tier 4. Establishes a service population threshold to determine significance. The Working Group has provided a recommendation of 4.8 MT of CO₂e [carbon dioxide equivalent] per year for land use projects.

The Tier 3 threshold is the most appropriate screening threshold for the proposed project, as Imperial County and the ICAPCD have not adopted GHG emissions reduction plans (Tier 2), nor is the project a high-density development whose impacts would be more appropriately quantified by a service population threshold (Tier 4). The Tier 3 SCAQMD interim recommended screening threshold was designed to capture 90 percent of all emissions associated with projects in the SCAB and require implementation of mitigation so that a considerable amount of emissions from new projects would be reduced. According to the California Air Pollution Control Officers Association

(CAPCOA 2008) white paper, *CEQA & Climate Change*, a quantitative threshold based on a 90 percent market capture rate is generally consistent with AB 32 and Executive Order S-3-05, which set a statewide target of 80% below 1990 by 2050; the underlying reasoning is that the amount of reductions required by captured projects may be adjusted over time to achieve target reductions for different time horizons (CAPCOA 2008) rather than the number of projects captured, as smaller projects provide fewer reductions. Projects with emissions below the SCAQMD threshold are not expected to require reductions for State mandates to be achieved. Therefore, the project's contribution to cumulative impacts related to GHG emissions and climate change would be cumulatively considerable if emissions exceed the SCAQMD threshold of 3,000 MT of CO₂e per year.

The project would generate GHG emissions from construction equipment and truck trips, as well as ongoing operational vehicle trips. The proposed GHG emissions were estimated using CalEEMod version 2016.3.2.

Construction Methodology

Although construction activity is addressed in this analysis, CAPCOA does not discuss whether any of the suggested threshold approaches adequately address impacts from temporary construction activity. As stated in the *CEQA and Climate Change* white paper, "more study is needed to make this assessment or to develop separate thresholds for construction activity" (CAPCOA 2008).

Nevertheless, air districts such as the SCAQMD (2008) have recommended amortizing construction-related emissions over a 30-year period in conjunction with the proposed project's operational emissions. The proposed project is anticipated to extend from 2020 to 2055, a total of 35 years. A 30-year amortization is therefore a conservative analysis.

Construction of the proposed project would generate temporary GHG emissions primarily as a result of operation of construction equipment on-site, as well as from worker trips and material deliveries. During Phase 1 of the proposed project, workers would travel from Provo, Utah, to the project site and heavy duty trucks will deliver material from Arroyo Grande, California. Unlike ICAPCD's regional thresholds for criteria pollutants, which are applicable to emissions generated within the SSAB, GHG emissions are global in nature and thresholds are applicable to GHG emissions generated both within and outside of the SSAB. This analysis therefore calculates GHG emissions associated with vehicle trips both inside and outside the SSAB. Project GHG emissions generated within the SSAB were calculated in CalEEMod and are provided in Appendix A. Mobile GHG emissions generated outside of the SSAB were calculated using emission factors from CalEEMod and the California Climate Action Registry General Reporting Protocol and are provided in Appendix B. CalEEMod provides an estimate of emissions associated with the construction period, based on parameters such as the duration of construction activity, area of disturbance, and anticipated equipment usage during construction. These inputs were provided by Metropolitan and BOR. Inputs and assumptions are also detailed under Air Quality Section 2.2, Methodology and Significance Thresholds.

Construction activity would occur over a period of approximately 21 months, commencing in July 2018 and finishing by April 2020. To provide a conservative estimate of emissions, construction activities were modeled to occur consecutively within each phase rather than spread across separate years. Therefore, emissions are modeled for 2018 and 2019. In actual implementation, emissions will likely actually be distributed across multiple years into 2020.

Operational Methodology

The project will generate operational GHG emissions via mobile combustion from vehicle trips to and from the project site as personnel visit the site during Phase 3. Operational area emissions

calculated in CalEEMod are not applicable to the proposed project and were not included in this analysis. Estimated vehicle trip numbers were provided by Metropolitan and BOR. At the most, operational trips will require six workers to travel to and from the project site five days per week, on a bi-weekly basis. Since CalEEMod calculates operational vehicle trips on a weekly basis, this analysis takes a conservative approach and calculates these operational trips as taking place weekly rather than bi-weekly. The overall GHG emissions from operational vehicle trips will therefore be at least 50 percent lower than those modeled.

A limitation of the quantitative analysis of emissions from mobile combustion is that emission models, such as CalEEMod, evaluate aggregate emissions, meaning that all vehicle trips and related emissions assigned to a project are assumed to be new trips and emissions generated by the project itself. Such models do not demonstrate, with respect to a regional air quality impact, what proportion of these emissions are actually “new” emissions, specifically attributable to the project in question. For most projects, the main contributor to regional air quality emissions is from motor vehicles; however, the quantity of vehicle trips appropriately characterized as “new” is usually uncertain as traffic associated with a project may be relocated trips from other locales. Therefore, because the proportion of “new” versus relocated trips is unknown, the estimate generated by CalEEMod is used as a conservative, “reasonable worst-case” estimate.

3.2.2 Project Impacts

As shown in Table 8, construction activity for the project would generate an estimated total of 84.8 MT of CO₂e over the construction period. In accordance with the SCAQMD’s recommendation, GHG emissions from project construction were amortized over a 30-year period and added to annual operational emissions to determine the project’s total annual GHG emissions. Amortized over 30 years, construction emissions total 2.8 MT CO₂e per year. Operational emissions total 6.6 MT of CO₂e per year. In total, the project would conservatively generate 9.4 MT of CO₂e per year, which is well below SCAQMD’s recommended significance threshold of 3,000 MT of CO₂e per year. Therefore, impacts related to operational and construction GHG emissions would be less than significant.

Table 8 Estimated Construction Emissions of Greenhouse Gases

| | GHG Emissions (CO₂e) |
|--|--|
| Total Construction Emissions Inside SSAB | 79.5 MT |
| Total Mobile Emissions Outside SSAB ¹ | 5.3 MT |
| Total Construction Emissions | 84.8 MT |
| Amortized Construction Emissions (over 30 years) | 2.8 MT/year |
| Total Annual Operational Emissions | 6.6 MT/year |
| Total Annual Emissions | 9.4 MT/year |
| <i>SCAQMD Interim Recommended Threshold</i> | <i>3,000 MT/year</i> |
| <i>Exceed Threshold?</i> | <i>No</i> |

CO₂e: carbon dioxide equivalent; SSAB: Salton Sea Air Basin; MT: metric tons; SCAQMD: South Coast Air Quality Management District

¹See Appendix B for GHG Emission Worksheet for Outside of Basin Vehicle Miles Traveled

See Appendix A for CalEEMod output. Values are approximations and have been rounded.

Land Use Change Sequestration

The project will convert 635 acres of fallowed farmland to native riverine habitat. This change in land use type would result in changes in CO₂ sequestration. *Appendix A: Calculation Details for CalEEMod* of the *CalEEMod User Guide* provides the following equation for overall change in sequestered CO₂ due to land-type change (CAPCOA 2013):

$$Overall\ Change = \sum_i (SeqCO_2)_i \times (area)_i - \sum_j (SeqCO_2)_j \times (area)_j$$

Where:

- SeqCO₂ = mass of sequestered CO₂ per unit area [MT CO₂/acre]
- area = area of land for specific land use type [acre]
- i = index for final land use type
- j = index for initial land use type

The default CO₂ accumulation rates per acre of cropland and forest land (trees) are 6.20 and 111 MT CO₂ per acre, respectively. Therefore, a conversion of 635 acres of cropland to native riverine habitat of cottonwood-willow and honey mesquite land cover types is estimated to result in a one-time sequestration gain of approximately 66,548 MT CO₂ due to the project.

The actual amount of sequestered carbon will vary depending on a number of factors, including final number of trees planted. The above calculation primarily serves to exemplify the scale at which change in land cover type could potentially impact GHG emissions on the project site and the benefits of restoration as compared to the existing land use.

Consistency with GHG Reduction Plans and Policies

As discussed in Section 3.1.4, California has established a policy framework to reduce GHG emissions statewide through implementation of policies including AB 32. The 2017 Scoping Plan identifies GHG reduction strategies, focusing on energy, transportation, agriculture, water, waste management, and natural and working lands. The 2050 Vision for the Natural and Working Lands Sector is to reduce GHG emissions and maintain and enhance the capacity of natural and working lands to store carbon. Restoration activities are identified as a strategy for achieving the 2050 Vision (ARB 2017c).

The project would return 635 acres of fallowed cropland to native riverine habitat through restoration and re-vegetation activities. Therefore, the project would directly contribute to the 2050 Vision and would be consistent with ARB's Scoping Plan.

Cumulative Impacts

GHG emissions and their contribution to climate change are by definition cumulative impacts, as they affect the accumulation of greenhouse gases in the global atmosphere. As discussed above, the project would actively store carbon and would be consistent with applicable State plans and programs designed to reduce GHG emissions.

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Appendix A

CalEEMod and Mobile N₂O Results

Dennis Underwood Conservation Area Project - Imperial County, Annual

**Dennis Underwood Conservation Area Project
Imperial County, Annual**

1.0 Project Characteristics

1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|----------------------------|--------|--------|-------------|--------------------|------------|
| Other Non-Asphalt Surfaces | 635.00 | Acre | 635.00 | 27,660,600.00 | 0 |

1.2 Other Project Characteristics

| | | | | | |
|---------------------------------|------------------------------|---------------------------------|-------|----------------------------------|-------|
| Urbanization | Rural | Wind Speed (m/s) | 3.4 | Precipitation Freq (Days) | 12 |
| Climate Zone | 15 | | | Operational Year | 2021 |
| Utility Company | Imperial Irrigation District | | | | |
| CO2 Intensity (lb/MW hr) | 1270.9 | CH4 Intensity (lb/MW hr) | 0.029 | N2O Intensity (lb/MW hr) | 0.006 |

1.3 User Entered Comments & Non-Default Data

Dennis Underwood Conservation Area Project - Imperial County, Annual

Project Characteristics - Climate Zone 15 or 10

Land Use -

Construction Phase - Phase 1: one year, Phase 2: two years. To provide a conservative estimate of emissions, construction activities are modeled to occur consecutively, even if they'd be spread out over separate years.

Off-road Equipment - Equipment list provided by client. Max 10 hrs/day

Off-road Equipment - Equipment list provided by client. Max 10 hrs/day

Trips and VMT - Worker trip assumptions provided by client. Assumed 10 mile trip length (RT distance to nearest town, Palo Verde, and to edge of SSAB).

Grading - Total disturbed area during Phase 1 = 635. Default area used for Phase 2.

Vehicle Trips - 6 workers, 5 days a week (bi-weekly basis). Modeled weekly for conservative estimate. Trip lengths and percentages imported from CalEEMod defaults for rural park maintenance.

Consumer Products - No operational area emissions expected.

Area Coating - Project site will not actually serve as parking - sq. footage changed to 0.

Energy Use -

Land Use Change -

Construction Off-road Equipment Mitigation - Phase 1 includes installation of irrigation and modeling assumes watering would be conducted to retain soil moisture throughout construction. Vehicle speed shall be reduced to 15 mph on unpaved roads in order to comply with ICAPCD Rule 805.

| Table Name | Column Name | Default Value | New Value |
|------------------------|--------------------------------------|---------------|-----------|
| tblAreaCoating | Area_Parking | 1659636 | 0 |
| tblConstDustMitigation | WaterExposedAreaPM10PercentReduction | 61 | 68 |
| tblConstDustMitigation | WaterExposedAreaPM25PercentReduction | 61 | 68 |
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 1,085.00 | 8.00 |
| tblConstructionPhase | NumDays | 420.00 | 32.00 |
| tblConstructionPhase | NumDaysWeek | 5.00 | 7.00 |
| tblConstructionPhase | NumDaysWeek | 5.00 | 7.00 |
| tblGrading | AcresOfGrading | 0.00 | 20.00 |
| tblGrading | AcresOfGrading | 120.00 | 635.00 |
| tblOffRoadEquipment | HorsePower | 89.00 | 158.00 |

Dennis Underwood Conservation Area Project - Imperial County, Annual

| | | | |
|---------------------------|----------------------------|--------|--------|
| tblOffRoadEquipment | HorsePower | 367.00 | 97.00 |
| tblOffRoadEquipment | LoadFactor | 0.20 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.48 | 0.37 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 4.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 10.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 10.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 10.00 |
| tblProjectCharacteristics | UrbanizationLevel | Urban | Rural |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 160.00 |
| tblTripsAndVMT | HaulingTripNumber | 0.00 | 6.00 |
| tblTripsAndVMT | WorkerTripLength | 10.20 | 10.00 |
| tblTripsAndVMT | WorkerTripLength | 10.20 | 10.00 |
| tblTripsAndVMT | WorkerTripNumber | 18.00 | 12.00 |
| tblTripsAndVMT | WorkerTripNumber | 5.00 | 11.00 |
| tblVehicleTrips | CC_TL | 9.50 | 6.20 |
| tblVehicleTrips | CC_TTP | 0.00 | 48.00 |
| tblVehicleTrips | CNW_TL | 11.90 | 6.20 |

Dennis Underwood Conservation Area Project - Imperial County, Annual

| | | | |
|-----------------|---------|-------|-------|
| tblVehicleTrips | CNW_TTP | 0.00 | 19.00 |
| tblVehicleTrips | CW_TL | 16.40 | 13.80 |
| tblVehicleTrips | CW_TTP | 0.00 | 33.00 |
| tblVehicleTrips | DV_TP | 0.00 | 28.00 |
| tblVehicleTrips | PB_TP | 0.00 | 6.00 |
| tblVehicleTrips | PR_TP | 0.00 | 66.00 |
| tblVehicleTrips | WD_TR | 0.00 | 0.01 |

2.0 Emissions Summary

Dennis Underwood Conservation Area Project - Imperial County, Annual

| Quarter | Start Date | End Date | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---------|------------|------------|--|--|
| 2 | 4-23-2018 | 7-22-2018 | 0.5779 | 0.5779 |
| 3 | 7-23-2018 | 10-22-2018 | 0.3027 | 0.3027 |
| 5 | 1-23-2019 | 4-22-2019 | 0.0397 | 0.0397 |
| | | Highest | 0.5779 | 0.5779 |

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 | 1.7886 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0114 | 0.0114 | 3.0000e-005 | 0.0000 | 0.0121 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 2.4300e-003 | 0.0187 | 0.0267 | 7.0000e-005 | 1.9570 | 5.0000e-005 | 1.9571 | 0.1953 | 5.0000e-005 | 0.1954 | 0.0000 | 6.5755 | 6.5755 | 5.2000e-004 | 0.0000 | 6.5886 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 1.7910 | 0.0187 | 0.0325 | 7.0000e-005 | 1.9570 | 7.0000e-005 | 1.9571 | 0.1953 | 7.0000e-005 | 0.1954 | 0.0000 | 6.5869 | 6.5869 | 5.5000e-004 | 0.0000 | 6.6007 |

Dennis Underwood Conservation Area Project - Imperial County, Annual

2.2 Overall Operational

Mitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 1.7886 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0114 | 0.0114 | 3.0000e-005 | 0.0000 | 0.0121 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 2.4300e-003 | 0.0187 | 0.0267 | 7.0000e-005 | 1.9570 | 5.0000e-005 | 1.9571 | 0.1953 | 5.0000e-005 | 0.1954 | 0.0000 | 6.5755 | 6.5755 | 5.2000e-004 | 0.0000 | 6.5886 |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | 1.7910 | 0.0187 | 0.0325 | 7.0000e-005 | 1.9570 | 7.0000e-005 | 1.9571 | 0.1953 | 7.0000e-005 | 0.1954 | 0.0000 | 6.5869 | 6.5869 | 5.5000e-004 | 0.0000 | 6.6007 |

| | ROG | NOx | CO | SO2 | 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 | Site Preparation | Site Preparation | 7/2/2018 | 8/2/2018 | 7 | 32 | Phase 1 |
| 2 | Grading | Grading | 3/4/2019 | 3/11/2019 | 7 | 8 | Phase 2 |

Dennis Underwood Conservation Area Project - Imperial County, Annual

Acres of Grading (Site Preparation Phase): 635

Acres of Grading (Grading Phase): 20

Acres of Paving: 635

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

OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|------------------|---------------------------|--------|-------------|-------------|-------------|
| Site Preparation | Excavators | 1 | 10.00 | 158 | 0.38 |
| Site Preparation | Off-Highway Trucks | 1 | 10.00 | 402 | 0.38 |
| Site Preparation | Rubber Tired Dozers | 1 | 10.00 | 247 | 0.40 |
| Site Preparation | Scrapers | 3 | 10.00 | 97 | 0.37 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 10.00 | 97 | 0.37 |
| Grading | Excavators | 0 | 0.00 | 158 | 0.38 |
| Grading | Forklifts | 1 | 10.00 | 158 | 0.38 |
| Grading | Graders | 0 | 0.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 0 | 0.00 | 247 | 0.40 |
| Grading | Scrapers | 0 | 0.00 | 367 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | 1 | 10.00 | 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 |
|------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Site Preparation | 7 | 12.00 | 0.00 | 0.00 | 10.00 | 11.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 2 | 11.00 | 0.00 | 6.00 | 10.00 | 11.90 | 160.00 | LD_Mix | HDT_Mix | HHDT |

3.1 Mitigation Measures Construction

Dennis Underwood Conservation Area Project - Imperial County, Annual

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|----------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.4572 | 0.0000 | 0.4572 | 0.1026 | 0.0000 | 0.1026 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0780 | 0.7994 | 0.4435 | 7.9000e-004 | | 0.0456 | 0.0456 | | 0.0420 | 0.0420 | 0.0000 | 72.1576 | 72.1576 | 0.0225 | 0.0000 | 72.7192 |
| Total | 0.0780 | 0.7994 | 0.4435 | 7.9000e-004 | 0.4572 | 0.0456 | 0.5028 | 0.1026 | 0.0420 | 0.1445 | 0.0000 | 72.1576 | 72.1576 | 0.0225 | 0.0000 | 72.7192 |

Dennis Underwood Conservation Area Project - Imperial County, Annual

3.2 Site Preparation - 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 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.5900e-003 | 1.3600e-003 | 0.0121 | 1.0000e-005 | 1.3672 | 1.0000e-005 | 1.3672 | 0.1366 | 1.0000e-005 | 0.1366 | 0.0000 | 1.2879 | 1.2879 | 1.1000e-004 | 0.0000 | 1.2907 |
| Total | 1.5900e-003 | 1.3600e-003 | 0.0121 | 1.0000e-005 | 1.3672 | 1.0000e-005 | 1.3672 | 0.1366 | 1.0000e-005 | 0.1366 | 0.0000 | 1.2879 | 1.2879 | 1.1000e-004 | 0.0000 | 1.2907 |

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 | | | | | 0.1463 | 0.0000 | 0.1463 | 0.0328 | 0.0000 | 0.0328 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 0.0780 | 0.7994 | 0.4435 | 7.9000e-004 | | 0.0456 | 0.0456 | | 0.0420 | 0.0420 | 0.0000 | 72.1576 | 72.1576 | 0.0225 | 0.0000 | 72.7192 |
| Total | 0.0780 | 0.7994 | 0.4435 | 7.9000e-004 | 0.1463 | 0.0456 | 0.1919 | 0.0328 | 0.0420 | 0.0748 | 0.0000 | 72.1576 | 72.1576 | 0.0225 | 0.0000 | 72.7192 |

Dennis Underwood Conservation Area Project - Imperial County, Annual

3.2 Site Preparation - 2018

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|---------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 1.5900e-003 | 1.3600e-003 | 0.0121 | 1.0000e-005 | 0.8374 | 1.0000e-005 | 0.8374 | 0.0836 | 1.0000e-005 | 0.0836 | 0.0000 | 1.2879 | 1.2879 | 1.1000e-004 | 0.0000 | 1.2907 |
| Total | 1.5900e-003 | 1.3600e-003 | 0.0121 | 1.0000e-005 | 0.8374 | 1.0000e-005 | 0.8374 | 0.0836 | 1.0000e-005 | 0.0836 | 0.0000 | 1.2879 | 1.2879 | 1.1000e-004 | 0.0000 | 1.2907 |

3.3 Grading - 2019

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|--------------------|---------------|---------------|--------------------|---------------|--------------------|---------------|--------------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 0.0106 | 0.0000 | 0.0106 | 1.1500e-003 | 0.0000 | 1.1500e-003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 3.1900e-003 | 0.0322 | 0.0289 | 4.0000e-005 | | 1.8900e-003 | 1.8900e-003 | | 1.7400e-003 | 1.7400e-003 | 0.0000 | 3.7130 | 3.7130 | 1.1700e-003 | 0.0000 | 3.7424 |
| Total | 3.1900e-003 | 0.0322 | 0.0289 | 4.0000e-005 | 0.0106 | 1.8900e-003 | 0.0125 | 1.1500e-003 | 1.7400e-003 | 2.8900e-003 | 0.0000 | 3.7130 | 3.7130 | 1.1700e-003 | 0.0000 | 3.7424 |

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3.3 Grading - 2019

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 8.0000e-005 | 3.6500e-003 | 4.9000e-004 | 2.0000e-005 | 0.3419 | 2.0000e-005 | 0.3419 | 0.0342 | 2.0000e-005 | 0.0342 | 0.0000 | 1.4445 | 1.4445 | 1.0000e-005 | 0.0000 | 1.4449 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.4000e-004 | 2.8000e-004 | 2.5200e-003 | 0.0000 | 0.3133 | 0.0000 | 0.3133 | 0.0313 | 0.0000 | 0.0313 | 0.0000 | 0.2860 | 0.2860 | 2.0000e-005 | 0.0000 | 0.2866 |
| Total | 4.2000e-004 | 3.9300e-003 | 3.0100e-003 | 2.0000e-005 | 0.6552 | 2.0000e-005 | 0.6552 | 0.0655 | 2.0000e-005 | 0.0655 | 0.0000 | 1.7306 | 1.7306 | 3.0000e-005 | 0.0000 | 1.7315 |

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 | | | | | 3.3900e-003 | 0.0000 | 3.3900e-003 | 3.7000e-004 | 0.0000 | 3.7000e-004 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Off-Road | 3.1900e-003 | 0.0322 | 0.0289 | 4.0000e-005 | | 1.8900e-003 | 1.8900e-003 | | 1.7400e-003 | 1.7400e-003 | 0.0000 | 3.7130 | 3.7130 | 1.1700e-003 | 0.0000 | 3.7424 |
| Total | 3.1900e-003 | 0.0322 | 0.0289 | 4.0000e-005 | 3.3900e-003 | 1.8900e-003 | 5.2800e-003 | 3.7000e-004 | 1.7400e-003 | 2.1100e-003 | 0.0000 | 3.7130 | 3.7130 | 1.1700e-003 | 0.0000 | 3.7424 |

Dennis Underwood Conservation Area Project - Imperial County, Annual

3.3 Grading - 2019

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|--------------------|--------------------|--------------------|--------------------|---------------|--------------------|---------------|----------------|--------------------|---------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 8.0000e-005 | 3.6500e-003 | 4.9000e-004 | 2.0000e-005 | 0.2094 | 2.0000e-005 | 0.2094 | 0.0209 | 2.0000e-005 | 0.0209 | 0.0000 | 1.4445 | 1.4445 | 1.0000e-005 | 0.0000 | 1.4449 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Worker | 3.4000e-004 | 2.8000e-004 | 2.5200e-003 | 0.0000 | 0.1919 | 0.0000 | 0.1919 | 0.0192 | 0.0000 | 0.0192 | 0.0000 | 0.2860 | 0.2860 | 2.0000e-005 | 0.0000 | 0.2866 |
| Total | 4.2000e-004 | 3.9300e-003 | 3.0100e-003 | 2.0000e-005 | 0.4013 | 2.0000e-005 | 0.4013 | 0.0401 | 2.0000e-005 | 0.0401 | 0.0000 | 1.7306 | 1.7306 | 3.0000e-005 | 0.0000 | 1.7315 |

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Dennis Underwood Conservation Area Project - Imperial County, Annual

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 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 | 2.4300e-003 | 0.0187 | 0.0267 | 7.0000e-005 | 1.9570 | 5.0000e-005 | 1.9571 | 0.1953 | 5.0000e-005 | 0.1954 | 0.0000 | 6.5755 | 6.5755 | 5.2000e-004 | 0.0000 | 6.5886 |
| Unmitigated | 2.4300e-003 | 0.0187 | 0.0267 | 7.0000e-005 | 1.9570 | 5.0000e-005 | 1.9571 | 0.1953 | 5.0000e-005 | 0.1954 | 0.0000 | 6.5755 | 6.5755 | 5.2000e-004 | 0.0000 | 6.5886 |

4.2 Trip Summary Information

| Land Use | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|----------------------------|-------------------------|----------|--------|-------------|------------|
| | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Other Non-Asphalt Surfaces | 6.35 | 0.00 | 0.00 | 10,505 | 10,505 |
| Total | 6.35 | 0.00 | 0.00 | 10,505 | 10,505 |

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 |
| Other Non-Asphalt Surfaces | 13.80 | 6.20 | 6.20 | 33.00 | 48.00 | 19.00 | 66 | 28 | 6 |

4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Other Non-Asphalt Surfaces | 0.509486 | 0.032430 | 0.160670 | 0.124446 | 0.017653 | 0.005129 | 0.019157 | 0.119824 | 0.003361 | 0.001189 | 0.005223 | 0.000739 | 0.000694 |

5.0 Energy Detail

Historical Energy Use: N

Dennis Underwood Conservation Area Project - Imperial County, Annual

5.2 Energy by Land Use - Natural Gas

Mitigated

| | Natural Gas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|----------------------------|-----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

5.3 Energy by Land Use - Electricity

Unmitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|----------------------------|-----------------|---------------|---------------|---------------|---------------|
| Land Use | kWh/yr | MT/yr | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

Dennis Underwood Conservation Area Project - Imperial County, Annual

5.3 Energy by Land Use - Electricity

Mitigated

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|----------------------------|-----------------|---------------|---------------|---------------|---------------|
| Land Use | kWh/yr | MT/yr | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

6.0 Area Detail

6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|---------|-------------|-------------|--------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|--------|--------|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 1.7886 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0114 | 0.0114 | 3.0000e-005 | 0.0000 | 0.0121 |
| Unmitigated | 1.7886 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0114 | 0.0114 | 3.0000e-005 | 0.0000 | 0.0121 |

Dennis Underwood Conservation Area Project - Imperial County, Annual

6.2 Area by SubCategory

Unmitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|---------------|--------------------|--------------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|---------------|---------------|---------------|--------------------|---------------|---------------|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Consumer Products | 1.7880 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 5.5000e-004 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0114 | 0.0114 | 3.0000e-005 | 0.0000 | 0.0121 |
| Total | 1.7886 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0114 | 0.0114 | 3.0000e-005 | 0.0000 | 0.0121 |

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 | 1.7880 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Landscaping | 5.5000e-004 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0114 | 0.0114 | 3.0000e-005 | 0.0000 | 0.0121 |
| Total | 1.7886 | 5.0000e-005 | 5.8600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | 0.0000 | 0.0114 | 0.0114 | 3.0000e-005 | 0.0000 | 0.0121 |

7.0 Water Detail

Dennis Underwood Conservation Area Project - Imperial County, Annual

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|----------------------------|--------------------|---------------|---------------|---------------|---------------|
| Land Use | Mgal | MT/yr | | | |
| Other Non-Asphalt Surfaces | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

Dennis Underwood Conservation Area Project - Imperial County, Annual

7.2 Water by Land Use

Mitigated

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|----------------------------|--------------------|---------------|---------------|---------------|---------------|
| Land Use | Mgal | MT/yr | | | |
| Other Non-Asphalt Surfaces | 0 / 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

Dennis Underwood Conservation Area Project - Imperial County, Annual

8.2 Waste by Land Use

Unmitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|----------------------------|----------------|---------------|---------------|---------------|---------------|
| Land Use | tons | MT/yr | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

Mitigated

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|----------------------------|----------------|---------------|---------------|---------------|---------------|
| Land Use | tons | MT/yr | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Total | | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

9.0 Operational Offroad

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

Dennis Underwood Conservation Area Project - Imperial County, Annual

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

| Equipment Type | Number |
|----------------|--------|
|----------------|--------|

11.0 Vegetation

Dennis Underwood Conservation Area Project - Imperial County, Summer

**Dennis Underwood Conservation Area Project
Imperial County, Summer**

1.0 Project Characteristics

1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|----------------------------|--------|--------|-------------|--------------------|------------|
| Other Non-Asphalt Surfaces | 635.00 | Acre | 635.00 | 27,660,600.00 | 0 |

1.2 Other Project Characteristics

| | | | | | |
|---------------------------------|------------------------------|---------------------------------|-------|----------------------------------|-------|
| Urbanization | Rural | Wind Speed (m/s) | 3.4 | Precipitation Freq (Days) | 12 |
| Climate Zone | 15 | | | Operational Year | 2021 |
| Utility Company | Imperial Irrigation District | | | | |
| CO2 Intensity (lb/MW hr) | 1270.9 | CH4 Intensity (lb/MW hr) | 0.029 | N2O Intensity (lb/MW hr) | 0.006 |

1.3 User Entered Comments & Non-Default Data

Dennis Underwood Conservation Area Project - Imperial County, Summer

Project Characteristics - Climate Zone 15 or 10

Land Use -

Construction Phase - Phase 1: one year, Phase 2: two years. To provide a conservative estimate of emissions, construction activities are modeled to occur consecutively, even if they'd be spread out over separate years.

Off-road Equipment - Equipment list provided by client. Max 10 hrs/day

Off-road Equipment - Equipment list provided by client. Max 10 hrs/day

Trips and VMT - Worker trip assumptions provided by client. Assumed 10 mile trip length (RT distance to nearest town, Palo Verde, and to edge of SSAB).

Grading - Total disturbed area during Phase 1 = 635. Default area used for Phase 2.

Vehicle Trips - 6 workers, 5 days a week (bi-weekly basis). Modeled weekly for conservative estimate. Trip lengths and percentages imported from CalEEMod defaults for rural park maintenance.

Consumer Products - No operational area emissions expected.

Area Coating - Project site will not actually serve as parking - sq. footage changed to 0.

Energy Use -

Land Use Change -

Construction Off-road Equipment Mitigation - Phase 1 includes installation of irrigation and modeling assumes watering would be conducted to retain soil moisture throughout construction. Vehicle speed shall be reduced to 15 mph on unpaved roads in order to comply with ICAPCD Rule 805.

| Table Name | Column Name | Default Value | New Value |
|------------------------|--------------------------------------|---------------|-----------|
| tblAreaCoating | Area_Parking | 1659636 | 0 |
| tblConstDustMitigation | WaterExposedAreaPM10PercentReduction | 61 | 68 |
| tblConstDustMitigation | WaterExposedAreaPM25PercentReduction | 61 | 68 |
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 1,085.00 | 8.00 |
| tblConstructionPhase | NumDays | 420.00 | 32.00 |
| tblConstructionPhase | NumDaysWeek | 5.00 | 7.00 |
| tblConstructionPhase | NumDaysWeek | 5.00 | 7.00 |
| tblGrading | AcresOfGrading | 0.00 | 20.00 |
| tblGrading | AcresOfGrading | 120.00 | 635.00 |
| tblOffRoadEquipment | HorsePower | 89.00 | 158.00 |

Dennis Underwood Conservation Area Project - Imperial County, Summer

| | | | |
|---------------------------|----------------------------|--------|--------|
| tblOffRoadEquipment | HorsePower | 367.00 | 97.00 |
| tblOffRoadEquipment | LoadFactor | 0.20 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.48 | 0.37 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 4.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 10.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 10.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 10.00 |
| tblProjectCharacteristics | UrbanizationLevel | Urban | Rural |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 160.00 |
| tblTripsAndVMT | HaulingTripNumber | 0.00 | 6.00 |
| tblTripsAndVMT | WorkerTripLength | 10.20 | 10.00 |
| tblTripsAndVMT | WorkerTripLength | 10.20 | 10.00 |
| tblTripsAndVMT | WorkerTripNumber | 18.00 | 12.00 |
| tblTripsAndVMT | WorkerTripNumber | 5.00 | 11.00 |
| tblVehicleTrips | CC_TL | 9.50 | 6.20 |
| tblVehicleTrips | CC_TTP | 0.00 | 48.00 |
| tblVehicleTrips | CNW_TL | 11.90 | 6.20 |

Dennis Underwood Conservation Area Project - Imperial County, Summer

| | | | |
|-----------------|---------|-------|-------|
| tblVehicleTrips | CNW_TTP | 0.00 | 19.00 |
| tblVehicleTrips | CW_TL | 16.40 | 13.80 |
| tblVehicleTrips | CW_TTP | 0.00 | 33.00 |
| tblVehicleTrips | DV_TP | 0.00 | 28.00 |
| tblVehicleTrips | PB_TP | 0.00 | 6.00 |
| tblVehicleTrips | PR_TP | 0.00 | 66.00 |
| tblVehicleTrips | WD_TR | 0.00 | 0.01 |

2.0 Emissions Summary

Dennis Underwood Conservation Area Project - Imperial County, Summer

2.2 Overall Operational

Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|----------------|--------------------|----------------|----------------|--------------------|---------------|----------|----------------|----------------|--------------------|---------------|----------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 9.8035 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0224 | 0.1417 | 0.2426 | 5.8000e-004 | 15.0539 | 3.9000e-004 | 15.0543 | 1.5025 | 3.7000e-004 | 1.5028 | | 59.0784 | 59.0784 | 4.5600e-003 | | 59.1923 |
| Total | 9.8259 | 0.1423 | 0.3076 | 5.8000e-004 | 15.0539 | 6.2000e-004 | 15.0545 | 1.5025 | 6.0000e-004 | 1.5030 | | 59.2174 | 59.2174 | 4.9300e-003 | 0.0000 | 59.3405 |

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 | 9.8035 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0224 | 0.1417 | 0.2426 | 5.8000e-004 | 15.0539 | 3.9000e-004 | 15.0543 | 1.5025 | 3.7000e-004 | 1.5028 | | 59.0784 | 59.0784 | 4.5600e-003 | | 59.1923 |
| Total | 9.8259 | 0.1423 | 0.3076 | 5.8000e-004 | 15.0539 | 6.2000e-004 | 15.0545 | 1.5025 | 6.0000e-004 | 1.5030 | | 59.2174 | 59.2174 | 4.9300e-003 | 0.0000 | 59.3405 |

Dennis Underwood Conservation Area Project - Imperial County, Summer

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

3.0 Construction Detail

Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|--------------|------------------|------------------|------------|-----------|---------------|----------|-------------------|
| 1 | Site Preparation | Site Preparation | 7/2/2018 | 8/2/2018 | 7 | 32 | Phase 1 |
| 2 | Grading | Grading | 3/4/2019 | 3/11/2019 | 7 | 8 | Phase 2 |

Acres of Grading (Site Preparation Phase): 635

Acres of Grading (Grading Phase): 20

Acres of Paving: 635

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

OffRoad Equipment

Dennis Underwood Conservation Area Project - Imperial County, Summer

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|------------------|---------------------------|--------|-------------|-------------|-------------|
| Site Preparation | Excavators | 1 | 10.00 | 158 | 0.38 |
| Site Preparation | Off-Highway Trucks | 1 | 10.00 | 402 | 0.38 |
| Site Preparation | Rubber Tired Dozers | 1 | 10.00 | 247 | 0.40 |
| Site Preparation | Scrapers | 3 | 10.00 | 97 | 0.37 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 10.00 | 97 | 0.37 |
| Grading | Excavators | 0 | 0.00 | 158 | 0.38 |
| Grading | Forklifts | 1 | 10.00 | 158 | 0.38 |
| Grading | Graders | 0 | 0.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 0 | 0.00 | 247 | 0.40 |
| Grading | Scrapers | 0 | 0.00 | 367 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | 1 | 10.00 | 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 |
|------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Site Preparation | 7 | 12.00 | 0.00 | 0.00 | 10.00 | 11.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 2 | 11.00 | 0.00 | 6.00 | 10.00 | 11.90 | 160.00 | LD_Mix | HDT_Mix | HHDT |

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Dennis Underwood Conservation Area Project - Imperial County, Summer

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|----------------|----------------|---------------|----------------|---------------|----------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 28.5719 | 0.0000 | 28.5719 | 6.4101 | 0.0000 | 6.4101 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.8756 | 49.9641 | 27.7179 | 0.0494 | | 2.8514 | 2.8514 | | 2.6233 | 2.6233 | | 4,971.2614 | 4,971.2614 | 1.5476 | | 5,009.9520 |
| Total | 4.8756 | 49.9641 | 27.7179 | 0.0494 | 28.5719 | 2.8514 | 31.4233 | 6.4101 | 2.6233 | 9.0334 | | 4,971.2614 | 4,971.2614 | 1.5476 | | 5,009.9520 |

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|----------------|--------------------|----------------|----------------|--------------------|---------------|----------|----------------|----------------|--------------------|-----|----------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.1171 | 0.0817 | 0.9336 | 9.9000e-004 | 88.3523 | 6.3000e-004 | 88.3530 | 8.8258 | 5.8000e-004 | 8.8264 | | 98.0879 | 98.0879 | 9.1200e-003 | | 98.3160 |
| Total | 0.1171 | 0.0817 | 0.9336 | 9.9000e-004 | 88.3523 | 6.3000e-004 | 88.3530 | 8.8258 | 5.8000e-004 | 8.8264 | | 98.0879 | 98.0879 | 9.1200e-003 | | 98.3160 |

Dennis Underwood Conservation Area Project - Imperial County, Summer

3.2 Site Preparation - 2018

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|-------------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 9.1430 | 0.0000 | 9.1430 | 2.0512 | 0.0000 | 2.0512 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.8756 | 49.9641 | 27.7179 | 0.0494 | | 2.8514 | 2.8514 | | 2.6233 | 2.6233 | 0.0000 | 4,971.2614 | 4,971.2614 | 1.5476 | | 5,009.9520 |
| Total | 4.8756 | 49.9641 | 27.7179 | 0.0494 | 9.1430 | 2.8514 | 11.9944 | 2.0512 | 2.6233 | 4.6745 | 0.0000 | 4,971.2614 | 4,971.2614 | 1.5476 | | 5,009.9520 |

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|----------------|--------------------|----------------|----------------|--------------------|---------------|----------|----------------|----------------|--------------------|-----|----------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.1171 | 0.0817 | 0.9336 | 9.9000e-004 | 54.1136 | 6.3000e-004 | 54.1142 | 5.4019 | 5.8000e-004 | 5.4025 | | 98.0879 | 98.0879 | 9.1200e-003 | | 98.3160 |
| Total | 0.1171 | 0.0817 | 0.9336 | 9.9000e-004 | 54.1136 | 6.3000e-004 | 54.1142 | 5.4019 | 5.8000e-004 | 5.4025 | | 98.0879 | 98.0879 | 9.1200e-003 | | 98.3160 |

Dennis Underwood Conservation Area Project - Imperial County, Summer

3.3 Grading - 2019

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 2.6513 | 0.0000 | 2.6513 | 0.2863 | 0.0000 | 0.2863 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.7971 | 8.0371 | 7.2309 | 0.0103 | | 0.4732 | 0.4732 | | 0.4354 | 0.4354 | | 1,023.2201 | 1,023.2201 | 0.3237 | | 1,031.3135 |
| Total | 0.7971 | 8.0371 | 7.2309 | 0.0103 | 2.6513 | 0.4732 | 3.1245 | 0.2863 | 0.4354 | 0.7217 | | 1,023.2201 | 1,023.2201 | 0.3237 | | 1,031.3135 |

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 | 0.0201 | 0.8401 | 0.1221 | 3.8000e-003 | 88.3661 | 5.0100e-003 | 88.3711 | 8.8304 | 4.8000e-003 | 8.8352 | | 398.8295 | 398.8295 | 3.8400e-003 | | 398.9254 |
| 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 | 0.0990 | 0.0679 | 0.7813 | 8.8000e-004 | 80.9896 | 5.6000e-004 | 80.9902 | 8.0903 | 5.2000e-004 | 8.0908 | | 87.1578 | 87.1578 | 7.6700e-003 | | 87.3495 |
| Total | 0.1190 | 0.9080 | 0.9034 | 4.6800e-003 | 169.3557 | 5.5700e-003 | 169.3613 | 16.9207 | 5.3200e-003 | 16.9260 | | 485.9873 | 485.9873 | 0.0115 | | 486.2749 |

Dennis Underwood Conservation Area Project - Imperial County, Summer

3.3 Grading - 2019

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|-------------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.8484 | 0.0000 | 0.8484 | 0.0916 | 0.0000 | 0.0916 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.7971 | 8.0371 | 7.2309 | 0.0103 | | 0.4732 | 0.4732 | | 0.4354 | 0.4354 | 0.0000 | 1,023.2201 | 1,023.2201 | 0.3237 | | 1,031.3135 |
| Total | 0.7971 | 8.0371 | 7.2309 | 0.0103 | 0.8484 | 0.4732 | 1.3216 | 0.0916 | 0.4354 | 0.5270 | 0.0000 | 1,023.2201 | 1,023.2201 | 0.3237 | | 1,031.3135 |

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 | 0.0201 | 0.8401 | 0.1221 | 3.8000e-003 | 54.1274 | 5.0100e-003 | 54.1324 | 5.4065 | 4.8000e-003 | 5.4113 | | 398.8295 | 398.8295 | 3.8400e-003 | | 398.9254 |
| 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 | 0.0990 | 0.0679 | 0.7813 | 8.8000e-004 | 49.6041 | 5.6000e-004 | 49.6047 | 4.9517 | 5.2000e-004 | 4.9523 | | 87.1578 | 87.1578 | 7.6700e-003 | | 87.3495 |
| Total | 0.1190 | 0.9080 | 0.9034 | 4.6800e-003 | 103.7315 | 5.5700e-003 | 103.7371 | 10.3582 | 5.3200e-003 | 10.3636 | | 485.9873 | 485.9873 | 0.0115 | | 486.2749 |

4.0 Operational Detail - Mobile

Dennis Underwood Conservation Area Project - Imperial County, Summer

4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-----|---------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.0224 | 0.1417 | 0.2426 | 5.8000e-004 | 15.0539 | 3.9000e-004 | 15.0543 | 1.5025 | 3.7000e-004 | 1.5028 | | 59.0784 | 59.0784 | 4.5600e-003 | | 59.1923 |
| Unmitigated | 0.0224 | 0.1417 | 0.2426 | 5.8000e-004 | 15.0539 | 3.9000e-004 | 15.0543 | 1.5025 | 3.7000e-004 | 1.5028 | | 59.0784 | 59.0784 | 4.5600e-003 | | 59.1923 |

4.2 Trip Summary Information

| Land Use | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|----------------------------|-------------------------|----------|--------|-------------|------------|
| | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Other Non-Asphalt Surfaces | 6.35 | 0.00 | 0.00 | 10,505 | 10,505 |
| Total | 6.35 | 0.00 | 0.00 | 10,505 | 10,505 |

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 |
| Other Non-Asphalt Surfaces | 13.80 | 6.20 | 6.20 | 33.00 | 48.00 | 19.00 | 66 | 28 | 6 |

4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Other Non-Asphalt Surfaces | 0.509486 | 0.032430 | 0.160670 | 0.124446 | 0.017653 | 0.005129 | 0.019157 | 0.119824 | 0.003361 | 0.001189 | 0.005223 | 0.000739 | 0.000694 |

Dennis Underwood Conservation Area Project - Imperial County, Summer

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

Dennis Underwood Conservation Area Project - Imperial County, Summer

5.2 Energy by Land Use - Natural Gas

Unmitigated

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

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

Dennis Underwood Conservation Area Project - Imperial County, Summer

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|--------|-------------|--------|--------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-----|--------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 9.8035 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |
| Unmitigated | 9.8035 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |

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 | 9.7974 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 6.0800e-003 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |
| Total | 9.8035 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |

Dennis Underwood Conservation Area Project - Imperial County, Summer

6.2 Area by SubCategory

Mitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|-----|---------------|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 9.7974 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 6.0800e-003 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |
| Total | 9.8035 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Dennis Underwood Conservation Area Project - Imperial County, Summer

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

Boilers

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

User Defined Equipment

| Equipment Type | Number |
|----------------|--------|
|----------------|--------|

11.0 Vegetation

Dennis Underwood Conservation Area Project - Imperial County, Winter

Dennis Underwood Conservation Area Project
Imperial County, Winter

1.0 Project Characteristics

1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|----------------------------|--------|--------|-------------|--------------------|------------|
| Other Non-Asphalt Surfaces | 635.00 | Acre | 635.00 | 27,660,600.00 | 0 |

1.2 Other Project Characteristics

| | | | | | |
|---------------------------------|------------------------------|---------------------------------|-------|----------------------------------|-------|
| Urbanization | Rural | Wind Speed (m/s) | 3.4 | Precipitation Freq (Days) | 12 |
| Climate Zone | 15 | | | Operational Year | 2021 |
| Utility Company | Imperial Irrigation District | | | | |
| CO2 Intensity (lb/MW hr) | 1270.9 | CH4 Intensity (lb/MW hr) | 0.029 | N2O Intensity (lb/MW hr) | 0.006 |

1.3 User Entered Comments & Non-Default Data

Dennis Underwood Conservation Area Project - Imperial County, Winter

Project Characteristics - Climate Zone 15 or 10

Land Use -

Construction Phase - Phase 1: one year, Phase 2: two years. To provide a conservative estimate of emissions, construction activities are modeled to occur consecutively, even if they'd be spread out over separate years.

Off-road Equipment - Equipment list provided by client. Max 10 hrs/day

Off-road Equipment - Equipment list provided by client. Max 10 hrs/day

Trips and VMT - Worker trip assumptions provided by client. Assumed 10 mile trip length (RT distance to nearest town, Palo Verde, and to edge of SSAB).

Grading - Total disturbed area during Phase 1 = 635. Default area used for Phase 2.

Vehicle Trips - 6 workers, 5 days a week (bi-weekly basis). Modeled weekly for conservative estimate. Trip lengths and percentages imported from CalEEMod defaults for rural park maintenance.

Consumer Products - No operational area emissions expected.

Area Coating - Project site will not actually serve as parking - sq. footage changed to 0.

Energy Use -

Land Use Change -

Construction Off-road Equipment Mitigation - Phase 1 includes installation of irrigation and modeling assumes watering would be conducted to retain soil moisture throughout construction. Vehicle speed shall be reduced to 15 mph on unpaved roads in order to comply with ICAPCD Rule 805.

| Table Name | Column Name | Default Value | New Value |
|------------------------|--------------------------------------|---------------|-----------|
| tblAreaCoating | Area_Parking | 1659636 | 0 |
| tblConstDustMitigation | WaterExposedAreaPM10PercentReduction | 61 | 68 |
| tblConstDustMitigation | WaterExposedAreaPM25PercentReduction | 61 | 68 |
| tblConstDustMitigation | WaterUnpavedRoadVehicleSpeed | 0 | 15 |
| tblConstructionPhase | NumDays | 1,085.00 | 8.00 |
| tblConstructionPhase | NumDays | 420.00 | 32.00 |
| tblConstructionPhase | NumDaysWeek | 5.00 | 7.00 |
| tblConstructionPhase | NumDaysWeek | 5.00 | 7.00 |
| tblGrading | AcresOfGrading | 0.00 | 20.00 |
| tblGrading | AcresOfGrading | 120.00 | 635.00 |
| tblOffRoadEquipment | HorsePower | 89.00 | 158.00 |

Dennis Underwood Conservation Area Project - Imperial County, Winter

| | | | |
|---------------------------|----------------------------|--------|--------|
| tblOffRoadEquipment | HorsePower | 367.00 | 97.00 |
| tblOffRoadEquipment | LoadFactor | 0.20 | 0.38 |
| tblOffRoadEquipment | LoadFactor | 0.48 | 0.37 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 3.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 4.00 | 1.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 2.00 | 1.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 10.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 0.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 10.00 |
| tblOffRoadEquipment | UsageHours | 8.00 | 10.00 |
| tblProjectCharacteristics | UrbanizationLevel | Urban | Rural |
| tblTripsAndVMT | HaulingTripLength | 20.00 | 160.00 |
| tblTripsAndVMT | HaulingTripNumber | 0.00 | 6.00 |
| tblTripsAndVMT | WorkerTripLength | 10.20 | 10.00 |
| tblTripsAndVMT | WorkerTripLength | 10.20 | 10.00 |
| tblTripsAndVMT | WorkerTripNumber | 18.00 | 12.00 |
| tblTripsAndVMT | WorkerTripNumber | 5.00 | 11.00 |
| tblVehicleTrips | CC_TL | 9.50 | 6.20 |
| tblVehicleTrips | CC_TTP | 0.00 | 48.00 |
| tblVehicleTrips | CNW_TL | 11.90 | 6.20 |

Dennis Underwood Conservation Area Project - Imperial County, Winter

| | | | |
|-----------------|---------|-------|-------|
| tblVehicleTrips | CNW_TTP | 0.00 | 19.00 |
| tblVehicleTrips | CW_TL | 16.40 | 13.80 |
| tblVehicleTrips | CW_TTP | 0.00 | 33.00 |
| tblVehicleTrips | DV_TP | 0.00 | 28.00 |
| tblVehicleTrips | PB_TP | 0.00 | 6.00 |
| tblVehicleTrips | PR_TP | 0.00 | 66.00 |
| tblVehicleTrips | WD_TR | 0.00 | 0.01 |

2.0 Emissions Summary

Dennis Underwood Conservation Area Project - Imperial County, Winter

2.2 Overall Operational

Unmitigated Operational

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|----------------|--------------------|----------------|----------------|--------------------|---------------|----------|----------------|----------------|--------------------|---------------|----------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 9.8035 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0172 | 0.1422 | 0.1965 | 5.2000e-004 | 15.0539 | 4.0000e-004 | 15.0543 | 1.5025 | 3.8000e-004 | 1.5028 | | 53.0264 | 53.0264 | 4.4800e-003 | | 53.1385 |
| Total | 9.8207 | 0.1428 | 0.2616 | 5.2000e-004 | 15.0539 | 6.3000e-004 | 15.0545 | 1.5025 | 6.1000e-004 | 1.5031 | | 53.1654 | 53.1654 | 4.8500e-003 | 0.0000 | 53.2867 |

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 | 9.8035 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Mobile | 0.0172 | 0.1422 | 0.1965 | 5.2000e-004 | 15.0539 | 4.0000e-004 | 15.0543 | 1.5025 | 3.8000e-004 | 1.5028 | | 53.0264 | 53.0264 | 4.4800e-003 | | 53.1385 |
| Total | 9.8207 | 0.1428 | 0.2616 | 5.2000e-004 | 15.0539 | 6.3000e-004 | 15.0545 | 1.5025 | 6.1000e-004 | 1.5031 | | 53.1654 | 53.1654 | 4.8500e-003 | 0.0000 | 53.2867 |

Dennis Underwood Conservation Area Project - Imperial County, Winter

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

3.0 Construction Detail

Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|--------------|------------------|------------------|------------|-----------|---------------|----------|-------------------|
| 1 | Site Preparation | Site Preparation | 7/2/2018 | 8/2/2018 | 7 | 32 | Phase 1 |
| 2 | Grading | Grading | 3/4/2019 | 3/11/2019 | 7 | 8 | Phase 2 |

Acres of Grading (Site Preparation Phase): 635

Acres of Grading (Grading Phase): 20

Acres of Paving: 635

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

OffRoad Equipment

Dennis Underwood Conservation Area Project - Imperial County, Winter

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|------------------|---------------------------|--------|-------------|-------------|-------------|
| Site Preparation | Excavators | 1 | 10.00 | 158 | 0.38 |
| Site Preparation | Off-Highway Trucks | 1 | 10.00 | 402 | 0.38 |
| Site Preparation | Rubber Tired Dozers | 1 | 10.00 | 247 | 0.40 |
| Site Preparation | Scrapers | 3 | 10.00 | 97 | 0.37 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 10.00 | 97 | 0.37 |
| Grading | Excavators | 0 | 0.00 | 158 | 0.38 |
| Grading | Forklifts | 1 | 10.00 | 158 | 0.38 |
| Grading | Graders | 0 | 0.00 | 187 | 0.41 |
| Grading | Rubber Tired Dozers | 0 | 0.00 | 247 | 0.40 |
| Grading | Scrapers | 0 | 0.00 | 367 | 0.48 |
| Grading | Tractors/Loaders/Backhoes | 1 | 10.00 | 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 |
|------------------|-------------------------|--------------------|--------------------|---------------------|--------------------|--------------------|---------------------|----------------------|----------------------|-----------------------|
| Site Preparation | 7 | 12.00 | 0.00 | 0.00 | 10.00 | 11.90 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 2 | 11.00 | 0.00 | 6.00 | 10.00 | 11.90 | 160.00 | LD_Mix | HDT_Mix | HHDT |

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Dennis Underwood Conservation Area Project - Imperial County, Winter

3.2 Site Preparation - 2018

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|----------------|----------------|---------------|----------------|---------------|----------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 28.5719 | 0.0000 | 28.5719 | 6.4101 | 0.0000 | 6.4101 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.8756 | 49.9641 | 27.7179 | 0.0494 | | 2.8514 | 2.8514 | | 2.6233 | 2.6233 | | 4,971.2614 | 4,971.2614 | 1.5476 | | 5,009.9520 |
| Total | 4.8756 | 49.9641 | 27.7179 | 0.0494 | 28.5719 | 2.8514 | 31.4233 | 6.4101 | 2.6233 | 9.0334 | | 4,971.2614 | 4,971.2614 | 1.5476 | | 5,009.9520 |

Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|----------------|--------------------|----------------|----------------|--------------------|---------------|----------|----------------|----------------|--------------------|-----|----------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0972 | 0.0862 | 0.6854 | 8.3000e-004 | 88.3523 | 6.3000e-004 | 88.3530 | 8.8258 | 5.8000e-004 | 8.8264 | | 82.1890 | 82.1890 | 7.2300e-003 | | 82.3697 |
| Total | 0.0972 | 0.0862 | 0.6854 | 8.3000e-004 | 88.3523 | 6.3000e-004 | 88.3530 | 8.8258 | 5.8000e-004 | 8.8264 | | 82.1890 | 82.1890 | 7.2300e-003 | | 82.3697 |

Dennis Underwood Conservation Area Project - Imperial County, Winter

3.2 Site Preparation - 2018

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|----------------|----------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|-------------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 9.1430 | 0.0000 | 9.1430 | 2.0512 | 0.0000 | 2.0512 | | | 0.0000 | | | 0.0000 |
| Off-Road | 4.8756 | 49.9641 | 27.7179 | 0.0494 | | 2.8514 | 2.8514 | | 2.6233 | 2.6233 | 0.0000 | 4,971.2614 | 4,971.2614 | 1.5476 | | 5,009.9520 |
| Total | 4.8756 | 49.9641 | 27.7179 | 0.0494 | 9.1430 | 2.8514 | 11.9944 | 2.0512 | 2.6233 | 4.6745 | 0.0000 | 4,971.2614 | 4,971.2614 | 1.5476 | | 5,009.9520 |

Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|--------------|---------------|---------------|---------------|--------------------|----------------|--------------------|----------------|----------------|--------------------|---------------|----------|----------------|----------------|--------------------|-----|----------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | 0.0000 | | 0.0000 |
| Worker | 0.0972 | 0.0862 | 0.6854 | 8.3000e-004 | 54.1136 | 6.3000e-004 | 54.1142 | 5.4019 | 5.8000e-004 | 5.4025 | | 82.1890 | 82.1890 | 7.2300e-003 | | 82.3697 |
| Total | 0.0972 | 0.0862 | 0.6854 | 8.3000e-004 | 54.1136 | 6.3000e-004 | 54.1142 | 5.4019 | 5.8000e-004 | 5.4025 | | 82.1890 | 82.1890 | 7.2300e-003 | | 82.3697 |

Dennis Underwood Conservation Area Project - Imperial County, Winter

3.3 Grading - 2019

Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|----------|-------------------|-------------------|---------------|-----|-------------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 2.6513 | 0.0000 | 2.6513 | 0.2863 | 0.0000 | 0.2863 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.7971 | 8.0371 | 7.2309 | 0.0103 | | 0.4732 | 0.4732 | | 0.4354 | 0.4354 | | 1,023.2201 | 1,023.2201 | 0.3237 | | 1,031.3135 |
| Total | 0.7971 | 8.0371 | 7.2309 | 0.0103 | 2.6513 | 0.4732 | 3.1245 | 0.2863 | 0.4354 | 0.7217 | | 1,023.2201 | 1,023.2201 | 0.3237 | | 1,031.3135 |

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 | 0.0203 | 0.9173 | 0.1255 | 3.7900e-003 | 88.3661 | 5.0300e-003 | 88.3711 | 8.8304 | 4.8100e-003 | 8.8352 | | 397.0327 | 397.0327 | 4.1200e-003 | | 397.1358 |
| 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 | 0.0822 | 0.0715 | 0.5721 | 7.4000e-004 | 80.9896 | 5.6000e-004 | 80.9902 | 8.0903 | 5.2000e-004 | 8.0908 | | 73.0106 | 73.0106 | 6.0600e-003 | | 73.1622 |
| Total | 0.1025 | 0.9888 | 0.6976 | 4.5300e-003 | 169.3557 | 5.5900e-003 | 169.3613 | 16.9207 | 5.3300e-003 | 16.9260 | | 470.0433 | 470.0433 | 0.0102 | | 470.2980 |

Dennis Underwood Conservation Area Project - Imperial County, Winter

3.3 Grading - 2019

Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|---------------|-------------------|-------------------|---------------|-----|-------------------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 0.8484 | 0.0000 | 0.8484 | 0.0916 | 0.0000 | 0.0916 | | | 0.0000 | | | 0.0000 |
| Off-Road | 0.7971 | 8.0371 | 7.2309 | 0.0103 | | 0.4732 | 0.4732 | | 0.4354 | 0.4354 | 0.0000 | 1,023.2201 | 1,023.2201 | 0.3237 | | 1,031.3135 |
| Total | 0.7971 | 8.0371 | 7.2309 | 0.0103 | 0.8484 | 0.4732 | 1.3216 | 0.0916 | 0.4354 | 0.5270 | 0.0000 | 1,023.2201 | 1,023.2201 | 0.3237 | | 1,031.3135 |

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 | 0.0203 | 0.9173 | 0.1255 | 3.7900e-003 | 54.1274 | 5.0300e-003 | 54.1324 | 5.4065 | 4.8100e-003 | 5.4113 | | 397.0327 | 397.0327 | 4.1200e-003 | | 397.1358 |
| 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 | 0.0822 | 0.0715 | 0.5721 | 7.4000e-004 | 49.6041 | 5.6000e-004 | 49.6047 | 4.9517 | 5.2000e-004 | 4.9523 | | 73.0106 | 73.0106 | 6.0600e-003 | | 73.1622 |
| Total | 0.1025 | 0.9888 | 0.6976 | 4.5300e-003 | 103.7315 | 5.5900e-003 | 103.7371 | 10.3582 | 5.3300e-003 | 10.3636 | | 470.0433 | 470.0433 | 0.0102 | | 470.2980 |

4.0 Operational Detail - Mobile

Dennis Underwood Conservation Area Project - Imperial County, Winter

4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|--------|--------|--------|-------------|---------------|--------------|------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-----|---------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.0172 | 0.1422 | 0.1965 | 5.2000e-004 | 15.0539 | 4.0000e-004 | 15.0543 | 1.5025 | 3.8000e-004 | 1.5028 | | 53.0264 | 53.0264 | 4.4800e-003 | | 53.1385 |
| Unmitigated | 0.0172 | 0.1422 | 0.1965 | 5.2000e-004 | 15.0539 | 4.0000e-004 | 15.0543 | 1.5025 | 3.8000e-004 | 1.5028 | | 53.0264 | 53.0264 | 4.4800e-003 | | 53.1385 |

4.2 Trip Summary Information

| Land Use | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|----------------------------|-------------------------|----------|--------|-------------|------------|
| | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Other Non-Asphalt Surfaces | 6.35 | 0.00 | 0.00 | 10,505 | 10,505 |
| Total | 6.35 | 0.00 | 0.00 | 10,505 | 10,505 |

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 |
| Other Non-Asphalt Surfaces | 13.80 | 6.20 | 6.20 | 33.00 | 48.00 | 19.00 | 66 | 28 | 6 |

4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|----------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Other Non-Asphalt Surfaces | 0.509486 | 0.032430 | 0.160670 | 0.124446 | 0.017653 | 0.005129 | 0.019157 | 0.119824 | 0.003361 | 0.001189 | 0.005223 | 0.000739 | 0.000694 |

Dennis Underwood Conservation Area Project - Imperial County, Winter

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

Dennis Underwood Conservation Area Project - Imperial County, Winter

5.2 Energy by Land Use - Natural Gas

Unmitigated

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

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

Dennis Underwood Conservation Area Project - Imperial County, Winter

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-------------|--------|-------------|--------|--------|---------------|--------------|-------------|----------------|---------------|-------------|----------|-----------|-----------|-------------|-----|--------|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 9.8035 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |
| Unmitigated | 9.8035 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |

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 | 9.7974 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 6.0800e-003 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |
| Total | 9.8035 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |

Dennis Underwood Conservation Area Project - Imperial County, Winter

6.2 Area by SubCategory

Mitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|-----------------------|---------------|--------------------|---------------|---------------|---------------|--------------------|--------------------|----------------|--------------------|--------------------|----------|---------------|---------------|--------------------|-----|---------------|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.0000 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Consumer Products | 9.7974 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | 0.0000 | | | 0.0000 |
| Landscaping | 6.0800e-003 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |
| Total | 9.8035 | 6.0000e-004 | 0.0651 | 0.0000 | | 2.3000e-004 | 2.3000e-004 | | 2.3000e-004 | 2.3000e-004 | | 0.1390 | 0.1390 | 3.7000e-004 | | 0.1482 |

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Dennis Underwood Conservation Area Project - Imperial County, Winter

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

Boilers

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

User Defined Equipment

| Equipment Type | Number |
|----------------|--------|
|----------------|--------|

11.0 Vegetation

Greenhouse Gas Emission Worksheet

N₂O Mobile Emissions

Underwood Conservation Area Project

From CalEEMod Vehicle Fleet Mix Output:

Annual VMT: 10,505

| Vehicle Type | Percent Type** | CH ₄ Emission Factor (g/mile)* | CH ₄ Emission (g/mile)** | N ₂ O Emission Factor (g/mile)* | N ₂ O Emission (g/mile)** |
|-------------------------------------|----------------|---|-------------------------------------|--|--------------------------------------|
| Light Auto | 51.0% | 0.04 | 0.02038 | 0.04 | 0.02038 |
| Light Truck < 3750 lbs | 3.2% | 0.05 | 0.00162 | 0.06 | 0.001944 |
| Light Truck 3751-5750 lbs | 16.1% | 0.05 | 0.008035 | 0.06 | 0.009642 |
| Med Truck 5751-8500 lbs | 12.4% | 0.12 | 0.014928 | 0.2 | 0.02488 |
| Lite-Heavy Truck 8501-10,000 lbs | 1.8% | 0.12 | 0.002124 | 0.2 | 0.00354 |
| Lite-Heavy Truck 10,001-14,000 lbs | 0.5% | 0.09 | 0.000459 | 0.125 | 0.000638 |
| Med-Heavy Truck 14,001-33,000 lbs | 1.9% | 0.06 | 0.001152 | 0.05 | 0.00096 |
| Heavy-Heavy Truck 33,001-60,000 lbs | 12.0% | 0.06 | 0.007188 | 0.05 | 0.00599 |
| Other Bus | 0.3% | 0.06 | 0.000204 | 0.05 | 0.00017 |
| Urban Bus | 0.1% | 0.06 | 0.000066 | 0.05 | 0.000055 |
| Motorcycle | 0.5% | 0.09 | 0.000468 | 0.01 | 0.000052 |
| School Bus | 0.1% | 0.06 | 0.000042 | 0.05 | 0.000035 |
| Motor Home | 0.1% | 0.09 | 0.000054 | 0.125 | 0.000075 |
| Total | 100.0% | | 0.05672 | | 0.068361 |

Conversion to Carbon Dioxide Equivalency (CO₂e) Units based on Global Warming Potential (GWP)****

CH₄ 21 GWP
 N₂O 310 GWP
 1 ton (short, US) = 0.90718474 metric ton

Annual Mobile Emissions:

Total Emissions (metric tons) = Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

| | Total Emissions | Total CO ₂ e units |
|-----------------------------|-------------------------------------|------------------------------------|
| N ₂ O Emissions: | 0.0007 metric tons N ₂ O | 0.22 metric tons CO ₂ e |

| | |
|-----------------------|---|
| Project Total: | 0.22 metric tons CO₂e |
|-----------------------|---|

References

- * from Table C.4: Methane and Nitrous Oxide Emission Factors for Mobile Sources by Vehicle and Fuel Type (g/mile). in California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009. Assume Model year 2000-present, gasoline fueled.
- ** Source: California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
- *** From CalEEMod results for mobile sources
- ****GWPs are based on the 2007 IPCC's Fourth Assessment Report (AR4), and are consistent with 2014 CARB's Scoping Plan Update

Appendix B

GHG Emission Worksheet for Outside of Basin VMT

Greenhouse Gas Emission Worksheet for Outside of Basin VMT¹

Underwood Conservation Area Project

Annual VMT Outside of Basin:

Phase 1 Worker Trips from Provo, Utah
 Phase 2 Hauling Trips from Arroyo Grande

Vehicle Type:

4,888 (Light Truck <3750 lbs)
 2,550 (Heavy-Heavy Truck 33,001-60,000 lbs)
Total 7,438

| Vehicle Type | Percent Fleet Mix | CO ₂ Emission Factor (g/mile) ² | CO ₂ Emission (g/mile)** | CH ₄ Emission Factor (g/mile) ³ | CH ₄ Emission (g/mile)** | N ₂ O Emission Factor (g/mile) ³ | N ₂ O Emission (g/mile)** |
|---|-------------------|---|-------------------------------------|---|-------------------------------------|--|--------------------------------------|
| Light Truck < 3750 lbs (LDT1) | 66% | 314.374593 | 206.59626 | 0.05 | 0.032858 | 0.06 | 0.03943 |
| Heavy-Heavy Truck 33,001-60,000 lbs (HHD) | 34% | 1424.598168 | 488.40082 | 0.06 | 0.02057 | 0.05 | 0.017142 |
| Total | 100% | | 694.99709 | | 0.053428 | | 0.056572 |

Conversion to Carbon Dioxide Equivalency (CO₂e) Units based on Global Warming Potential (GWP)⁴

CH₄ 21 GWP
 N₂O 310 GWP
 1 ton (short, US) = 0.90718474 metric ton

Annual Mobile Emissions:

Total Emissions (metric tons) = Emission Factor by Vehicle Mix (g/mi) x Annual VMT(mi) x 0.000001 metric tons/g

| | Total Emissions | Total CO ₂ e units |
|-----------------------------|-----------------|------------------------------------|
| CO ₂ Emissions: | 5.1694 MT | 5.17 metric tons CO ₂ e |
| CH ₄ Emissions: | 0.0004 MT | 0.01 metric tons CO ₂ e |
| N ₂ O Emissions: | 0.0004 MT | 0.13 metric tons CO ₂ e |

Project Total: 5.31 metric tons CO₂e

Footnotes

1. Emissions calculated here account for emissions outside of the SSAB; All emissions within the SSAB were calculated using CalEEMod.
2. Emission factor for CO₂ from CalEEMod default annual CO₂ factor for runtime "Co2_NBIO_Runex"; idling and start up emission factors considered de minimis.
3. California Climate Action Registry General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009.
4. GWPs are based on the 2007 IPCC's Fourth Assessment Report (AR4), and are consistent with 2014 CARB's Scoping Plan Update