

**APPENDIX A**

**AIR QUALITY AND GREENHOUSE GAS IMPACT ANALYSIS**

## **Air Quality and Greenhouse Gas Emissions Impact Analysis**

### **Santa Anita Stormwater Management and Seismic Strengthening Project, Los Angeles County, California**

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## **1.0 INTRODUCTION**

This Air Quality Emissions Impact Analysis has been prepared to analyze the potential regional and localized air quality impacts associated with the Santa Anita Stormwater Management and Seismic Strengthening Project (hereinafter referred to as “the Project”), in accordance with the requirements of the California Environmental Quality Act (CEQA). This information has been reported in accordance with accepted technical standards consistent with the requirements of the South Coast Air Quality Management District (SCAQMD). This study evaluates air quality and greenhouse gas (GHG) emissions impacts related to implementation of the Project.

## **2.0 PROJECT DESCRIPTION**

### **2.1 PROJECT LOCATION**

The Project study area is located within the jurisdictions of the City of Arcadia, City of Monrovia, and a County-owned inholding within the U.S. Forest Service (USFS) boundary, and property within the USFS Angeles National Forest. The Project site is located in the foothills of the San Gabriel Mountains, in the western San Gabriel Valley in Los Angeles County, approximately 15 miles northeast of downtown Los Angeles, as depicted in Exhibit 1, Regional Location and Local Vicinity Map. Land uses adjacent to the Project area include the natural open space and mountains within the Angeles National Forest (i.e., San Gabriel Mountains) to the north, the recreational and open space uses associated with the City of Arcadia Wilderness Park and City of Monrovia to the east, and City of Arcadia single-family residential uses to the south and west.

Exhibit 1 shows the existing locations of the various Project components. The Project is located in Santa Anita Canyon at the southern margin of the San Gabriel Mountains. Santa Anita Dam is at the north end of the Project site, located in the Angeles National Forest and accessed via a private road off Chantry Flats Road, approximately 2.5 miles north of the City of Arcadia. The Headworks structure is located approximately 0.5 mile downstream of the Dam on the border of the Angeles National Forest and the City of Arcadia and accessed off Highland Oaks Drive. The Debris Dam is located approximately 0.5 mile downstream of the Headworks in the City of Arcadia; a portion of the Debris Dam’s eastern slope is located in the City of Monrovia and can be accessed via a maintenance road that runs along the channel.

For air quality considerations, the Project site is located within the South Coast Air Basin (SoCAB), so named because its geographical formation is that of a basin with the surrounding mountains trapping the air and its pollutants in the valleys and basins. The SoCAB includes Orange County in its entirety and the non-desert portions of Los Angeles, San Bernardino, and Riverside Counties.

### **2.2 PROPOSED PROJECT**

The Los Angeles County Flood Control District’s (LACFCD) Project would modify existing flood management and water conservation facilities along the Santa Anita Canyon Watershed, including the Santa Anita Dam, Santa Anita Headworks, Wilderness Park Culvert Crossing, and the Santa Anita Debris Dam. The Project benefits and the contributing LACFCD facility improvements are as follows:

- Reduce flood risk to downstream communities by:

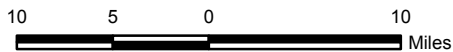


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## Regional Location

*Santa Anita Stormwater Flood Management and Seismic Strengthening Project*

**Exhibit 1**



- Modifying the Santa Anita Dam spillway to safely pass the Probable Maximum Flood
- Remediating seismic safety issues at the Santa Anita Dam and Debris Dam
- Enhance sustainability of the local water supply and increase recharge to the groundwater basin by over 500 acre-feet per year by:
  - Restoring storage capacity at Santa Anita Debris Dam
  - Rehabilitating the Santa Anita Headworks for more reliable diversion of stormwater runoff to the spreading grounds
  - Modernizing facilities and implementing new monitoring and control systems
- Improve all-weather access to the Arcadia Wilderness Park by constructing a new culvert crossing

### 2.2.1 **Dam**

The Dam would be structurally altered to accommodate a new spillway with sufficient capacity to pass the probable maximum flood (PMF) of 26,100 cubic feet per second (cfs) in order to reduce the risk of Dam failure from uncontrolled overtopping during major storm events. The proposed improvements to the Dam would not result in changes to the existing maximum water surface elevation restrictions; therefore, the reservoir's capacity to retain water would not be altered by Project implementation.

The spillway modification would consist of cutting a “notch” in the Dam crest to allow the PMF to overtop in a controlled manner. The proposed notch would be centered on the crest of the Dam, similar to the existing emergency crest spillway, and would require concrete removal from the Dam. An existing spillway on the far western edge of the Dam would remain and be unaltered by the Project; however, the existing auxiliary orifice spillway beneath the proposed new spillway would be removed. A new pedestrian bridge would be constructed over the notch and the existing hoist system would be upgraded to have a higher load capacity and re-aligned to accommodate the new spillway. The upgrade work includes the relocation of the lower hoist tower along the Dam crest (and potentially cantilevered of the back side, if necessary). The proposed improvements would not change the height of the Dam; the crest of the Dam would remain at an elevation of 1,325 feet above mean sea level (msl) and the parapet wall would remain at an elevation of 1,328 feet above msl.

To better manage stormwater runoff and to ensure reliability and efficiency of operations, six of the existing valves would be replaced (three control valves and three backup valves), along with new electrical and control systems. The Dam's structural concrete would be repaired to ensure that it meets acceptable standards consistent with the required seismic performance of the Dam.

The downstream canyon walls and the toe of the Dam would be re-armored with additional reinforced gunite or equivalent concrete erosion protection to dissipate the energy from the potential overtopping water as the flow cascades through the spillway notch and the orifice spillway or sluiceway. The flow would be directed onto the downstream armoring before flowing into the channel downstream of the Dam. The new re-armoring would reinforce the existing armoring that extends approximately 100 feet downstream from the toe of the Dam. The re-armoring would be held in position with tie-back anchors to be drilled and grouted into the bedrock. The tie-ins for the re-armoring may include superficial rock excavation, grading, and subsurface



pressure grouting. The color of the material used for re-armoring would be the same as the existing concrete.

The Project would also include improvements to ancillary facilities of the Dam. The existing garage/storage shed would be demolished and replaced with a new three-bay garage (the third bay would house a new back-up generator). The existing Dam Operator's house would be removed and replaced with a helipad to provide aerial access to the Dam in the event of an emergency. It is anticipated that the helipad would only be used 1 or 2 times per year. The existing relief quarters and control house would remain to serve as an office. Although the Dam Operator would no longer reside at the Dam, he/she would still be on-site daily and available on-call after hours. The Project would include remote control capabilities that provide redundant control options from multiple off-site locations. The Dam also has a built-in safety mechanism to automatically pass water through the Dam once the reservoir surface level reaches the California Department of Water Resources, Division of Safety of Dams (DSOD) restriction.

The existing potable water system that serves the Dam site would be replaced. The water system currently consists of a 60,000-gallon upper tank located off Chantry Flats Road that connects to two 5,000-gallon lower tanks located near the Dam access road via a pipeline that runs down the mountainside. The slope adjacent to the upper tank has erosion damage and would be repaired as part of the Project. To repair the slope, an approximate 216-square-foot eroded gully located near the tank's foundation would be grubbed and stabilized with engineered fill and geotextile fabric or with support piles. The exposed portions of the existing water pipeline would be removed while any underground portions would be capped and abandoned in place. The replacement pipeline would run along the same general alignment as the existing pipeline. The two lower tanks would be removed and would not require replacement.

The existing manual swing gate at Chantry Flats Road that provides secured entry to the Dam access road would be replaced with a new electric slide gate. In order to provide electricity to the gate and new lighting/intercom systems, a power line would be strung on up to 7 new power poles to be installed along the outer edge of the Dam's access road, or where possible, in conduit along the inner slope of the access road.

## **2.2.2 Headworks and Wilderness Park Culvert Crossing**

### ***Headworks***

The Headworks structure would be replaced and the associated earthen levee would be partially reconstructed to better manage the diversion of flows to the downstream spreading grounds and the downstream Debris Dam. A rehabilitation of the Headworks is needed to protect facilities from stormwater damage and to direct stormwater runoff to the spreading grounds for groundwater recharge. Redevelopment of the Headworks would include reconstruction of the levee to ensure it can withstand flows produced by a 25-year storm event and replacement of the existing tainter gate (used to divert flows) with a new rubber diversion structure. The new rubber diversion structure would be a pneumatically operated, bottom hinged, spillway gate system.

The majority of the existing Headworks structure would be demolished and removed, including the tainter gate, supporting walls, catwalk, and keys. The new facility would increase the width of the structure by approximately 20 feet in order to house the 34-foot rubber diversion structure. Operation of the rubber diversion structure would result in the retention of waters behind the levee to allow for the diversion of flows through the intake gates and into the existing 30-inch RCP leading to the Santa Anita Spreading Grounds and/or Sierra Madre Spreading Grounds. The pool created by the new rubber diversion structure would remain the same as under existing conditions. Construction of the new diversion structure would require work in the creekbed

extending approximately 25 feet downstream of the Headworks, including the placement of new riprap on the downstream side.

The rehabilitation of the Headworks would also include a new control system, including remote operation capabilities, to increase efficiency of water conservation operations. Currently, the response time required for County personnel to drive to the Headworks and manually operate the tainter gate, along with the limited flow rates that can be bypassed, results in the loss of a water conservation opportunity. A new control system integrated with the control system of the other Project components would optimize water conservation. A control house for the rubber diversion structure would be constructed on the other side of the channel next to the access road.

The earthen levee would be reinforced and raised approximately five feet higher to match the height of the Headworks structure by removing and under-excavating the existing levee and rebuilding the new levee using a combination of imported fill and suitable material from the existing levee. It would then be recompacted to the proposed height. The access road leading to the facility would be modified to match the height of the reinforced earthen levee. The existing riprap on the upstream side of the levee would be reinforced. A subsurface conduit would be installed along the length of the levee to connect the rubber diversion structure to the control house on the other side.

### ***Wilderness Park Culvert Crossing***

In addition to the improvements at the Headworks, armoring of the roadway and construction of a replacement culvert crossing to the Wilderness Park is needed to ensure that the structure can withstand flows produced by a larger storm event. The existing Culvert Crossing located approximately 450 feet downstream of the Headworks, including the concrete slab and corrugated metal culverts, would be removed and replaced with a new crossing structure.

The Culvert Crossing would be approximately 30 feet wide on the deck plate, allowing for two-way traffic. The new Culvert Crossing would be built on top of a new abutment and would be designed with a permanent guard rail and flexible pavement driving surface adequate for emergency vehicles. The new roadway elevation of the Culvert Crossing would be raised above the existing roadway elevation by approximately 4.5 feet to accommodate higher flows. Approximately 1,800 square feet of the roadways leading to and from the Culvert Crossing would be repaved and sloped to join the existing grade.

Approximately 30 feet of the channel upstream and downstream of the existing Culvert Crossing would be grubbed and graded to accommodate the new Culvert Crossing. It is anticipated that adequate vehicular and pedestrian access could be provided to the Arcadia Wilderness Park for the majority of the construction period for the Culvert Crossing, with only occasional closures required for periods of about a week or less at any given time during construction. Notification of any temporary closures would be posted at the entrance to the Wilderness Park. Those brief closures would avoid important events at the Wilderness Park, such as the overnight Boy Scout campouts every Friday and Saturday and youth day camps every weekday between mid-June to late-August. However, in order to provide a conservative analysis, the assembly of a temporary bypass crossing located north of the existing Culvert Crossing, which could require removal of a sycamore tree, has been assumed and assessed, to account for the event that the temporary crossing is used.

Therefore, access to the Wilderness Park would be maintained throughout construction with minimal interruptions to access. Two existing sycamore trees located adjacent to the crossing on the eastern shore of the Wash, south of the Culvert Crossing, would need to be removed. One sycamore located on the eastern shore of the Wash, north of the Culvert Crossing, may need to

be removed, depending on whether or not the temporary bypass crossing is installed. In order to provide a conservative analysis, this IS/MND assumes that all three upstream and downstream sycamore trees would be removed.

The LACFCD may transplant the root ball(s) of the sycamores to a suitable riparian location, and/or utilize the woody debris from the sycamore to enhance habitat value at another nearby location, if determined to be feasible and if approved by the County and other appropriate parties. In addition, new sycamore trees would be planted within a 100-foot radius of the original location of any removed existing trees.

New riprap would be installed upstream and downstream of the Culvert Crossing. The roadways leading to and from the Culvert Crossing would be armored, 36 feet on the upstream side and 84 feet on the downstream side, to withstand flows and sloped to join the existing grade. The existing water and sewer lines that run through the current Culvert Crossing would need to be relocated to the new height and alignment of the structure. The sewer force main is on the downstream surface of the Culvert Crossing and the water line is on the upstream surface of the Culvert Crossing. Additionally, the fire hydrant, vault, water valve and standpipe would be demolished and relocated approximately 15 feet to the north in the case that the temporary bypass crossing is utilized. All utility trenching and relocations would remain within the area anticipated for impacts by the Culvert Crossing construction activities, and there would be no changes in water/sewer quantities or demands as a result of the Project.

### **2.2.3 Debris Dam**

Remediation of the seismic deficiencies at the Debris Dam would involve improvements to the existing structures, including the intake tower and embankment. As a result of the loss of water conservation capacity from the DSOD restrictions on the Dam, there is an increased need to capture as much stormwater runoff as possible in facilities below the Dam. As a result, the Debris Dam would also be enlarged by raising the existing spillway by four feet. Remediating the seismic deficiencies at the Debris Dam would result in the DSOD removing the operational restrictions on the facility, thereby restoring 119 acre-feet of water conservation capacity. Enlarging the Debris Dam would create an additional 40 acre-feet of additional storage capacity, for a total of 159 acre-feet. When captured stormwater is released from the Dam to the spreading grounds for groundwater recharge, the Debris Dam can then capture more runoff, which would allow for water storage capacity multiple times in a single season depending on the frequency, duration, and intensity of storm events.

The intake tower located in the Debris Dam is unable to resist seismic loading and would be strengthened or replaced. The improved intake tower would be connected to the existing 48-inch outlet pipe (being lined as part of this Project). The outlet pipe has an existing junction box, which is used to deliver water either into the spillway channel or into the spreading grounds. The upstream and downstream portions of the Debris Dam embankment and alluvial foundation material that are subject to potential liquefaction would be reinforced with structural buttressing. Currently, a cross-section of the Debris Dam resembles a triangle (e.g., sloped sides on the upstream and downstream sides of the dam) with a flat top (e.g., flattened to accommodate vehicular access). The top of the embankment ranges from an elevation of 796 feet above msl at its center to an elevation of 811 feet above msl at the western edge. The construction activities would involve the removal of the existing riprap exterior surface on portions of both the upstream (approximately 0.69 acre) and downstream (approximately 0.89 acre) slopes. Engineered fill materials beneath the riprap would be excavated and removed, and an engineered buttress would be constructed. Upon completion of construction activities, the sloped upstream and downstream surfaces of the Debris Dam would be reconfigured into a single stair-stepped terrace. The surface of the Debris Dam would be completed with a riprap similar to the existing condition.

As part of the improvements, six non-native deodar cedar trees located at the downstream toe of the embankment would be removed as mandated by the DSOD to ensure the structural integrity of the Debris Dam.

A new automated outlet gate and control system would be constructed to modernize operations and to ensure compatibility with other Project components. Upon completion of these improvements, the DSOD would issue a new certificate for the facility and remove the current operating restriction on the Debris Dam, which would increase the Debris Dam's available and allowable water conservation storage capacity from 0 acre-feet to 159 acre-feet.

### **3.0 AIR POLLUTANTS**

#### **3.1 CRITERIA POLLUTANTS**

Air quality regulations were first promulgated with the Federal Clean Air Act (CAA) of 1970. Air quality is defined by ambient air concentrations of seven "criteria air pollutants", which are a group of common air pollutants identified by the U.S. Environmental Protection Agency (USEPA) to be of concern with respect to the health and welfare of the general public. Federal and State governments regulate criteria air pollutants by using ambient standards based on criteria regarding the health and/or environmental effects of each pollutant. The criteria pollutants are defined as follows: nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), particulate matter (including both respirable particulate matter with a diameter of 10 microns or less [PM<sub>10</sub>] and fine particulate matter with a diameter of 2.5 microns or less [PM<sub>2.5</sub>]), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), and lead. A description of each criteria air pollutant, including source types and health effects, is provided below.

##### **3.1.1 Nitrogen Dioxide**

Nitrogen gas, normally relatively inert (nonreactive), comprises about 80 percent of the air. At high temperatures (e.g., in a combustion process) and under certain other conditions, nitrogen can combine with oxygen to form several different gaseous compounds collectively called nitrogen oxides (NO<sub>x</sub>). Nitric oxide (NO), NO<sub>2</sub>, and nitrous oxide (N<sub>2</sub>O) are important constituents of NO<sub>x</sub>. NO is converted to NO<sub>2</sub> in the atmosphere. Motor vehicle emissions are the main source of NO<sub>x</sub> in urban areas.

NO<sub>2</sub> is a red-brown pungent gas and is toxic to various animals and to humans because of its ability to form nitric acid with water in the eyes, lungs, mucus membranes, and skin. In animals, long-term exposure to NO<sub>x</sub> increases susceptibility to respiratory infections, lowering resistance to such diseases as pneumonia and influenza. Laboratory studies show that susceptible humans, such as asthmatics, who are exposed to high concentrations of NO<sub>2</sub> can suffer lung irritation and potentially lung damage. Epidemiological studies have also shown associations between NO<sub>2</sub> concentrations and (1) daily mortality from respiratory and cardiovascular causes and (2) hospital admissions for respiratory conditions.

Although the National Ambient Air Quality Standards (NAAQS) only address NO<sub>2</sub>, NO and NO<sub>2</sub> are both O<sub>3</sub> and PM<sub>2.5</sub> precursor emissions, as discussed below. Because of this and the fact that NO emissions largely convert to NO<sub>2</sub>, NO<sub>x</sub> emissions are typically examined when assessing potential air quality impacts.

### 3.1.2 Ozone

Ozone is a secondary pollutant, meaning that it is not directly emitted. It is a gas that is formed when volatile organic compounds (VOCs) (also referred to as reactive organic gases or “ROGs”) and NO<sub>x</sub> undergo photochemical reactions that occur only in the presence of sunlight. The primary source of VOC emissions is unburned hydrocarbons in motor vehicle and other internal combustion engine exhaust. NO<sub>x</sub> forms as a result of the combustion process, most notably due to the operation of motor vehicles. Sunlight and hot weather cause ground-level O<sub>3</sub> to form;<sup>1</sup> as a result, ozone is known as a summertime air pollutant. Ground-level O<sub>3</sub> is the primary constituent of smog. Because O<sub>3</sub> formation occurs over extended periods of time, both O<sub>3</sub> and its precursors are transported by wind, and high O<sub>3</sub> concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when O<sub>3</sub> levels exceed ambient air quality standards. Numerous scientific studies have linked ground-level O<sub>3</sub> exposure to a variety of problems, including:

- lung irritation that can cause inflammation much like a sunburn;
- wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities;
- permanent lung damage to those with repeated exposure to O<sub>3</sub> pollution; and
- aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

### 3.1.3 Particulate Matter

Particulate matter includes both aerosols and solid particles with a wide range of size and composition. Of particular concern are those particles smaller than 10 microns in diameter (PM<sub>10</sub>) and smaller than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>). Particulate matter size refers to the aerodynamic diameter of the particle. Smaller particles are of greater concern because they can penetrate deeper into the lungs than large particles.

Particulate matter tends to occur primarily in the form of fugitive dust. Fugitive dust is generated by both local and regional sources, the latter during moderate to high wind episodes. The principal sources of dust in urban areas are from grading, construction, disturbed areas of soil, and dust entrained by vehicles on roadways.

PM<sub>10</sub> is generally emitted directly as a result of mechanical processes that crush or grind larger particles or from the re-suspension of dusts, most typically through construction activities and vehicular entrainment. PM<sub>10</sub> generally settles out of the atmosphere rapidly and is not readily transported over large distances.

PM<sub>2.5</sub> is directly emitted in combustion exhaust and formed in atmospheric reactions between various gaseous pollutants including NO<sub>x</sub>, sulfur oxides (SO<sub>x</sub>), and VOCs. PM<sub>2.5</sub> can remain suspended in the atmosphere for days and/or weeks and can be transported long distances.

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<sup>1</sup> Ground-level O<sub>3</sub> is not to be confused with atmospheric O<sub>3</sub> or the “ozone layer”, which occurs very high in the atmosphere and shields the planet from some ultraviolet rays.

The principal health effects of airborne particulate matter are on the respiratory system. Short-term exposures to high PM<sub>2.5</sub> and PM<sub>10</sub> levels are associated with premature mortality and increased hospital admissions and emergency room visits; increased respiratory symptoms are also associated with short-term exposures to high PM<sub>10</sub> levels. Long-term exposures to high PM<sub>2.5</sub> levels are associated with premature mortality and development of chronic respiratory disease. According to the USEPA, some people are much more sensitive than others to breathing PM<sub>10</sub> and PM<sub>2.5</sub>. People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worse illnesses; people with bronchitis can expect aggravated symptoms; and children may experience decline in lung function due to breathing in PM<sub>10</sub> and PM<sub>2.5</sub>. Other groups considered sensitive include smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths (USEPA 2013c)

### **3.1.4 Carbon Monoxide**

Carbon monoxide (CO) is a colorless and odorless gas which, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can cause headaches; aggravate cardiovascular disease; and impair central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near congested intersections; along heavily used roadways carrying slow-moving traffic; and at or near ground level. Even under the most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (i.e., up to 600 feet or 185 meters) of heavily traveled roadways. Overall, CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973. CO levels in the SoCAB are in compliance with State and federal one-hour and eight-hour standards (CARB 2012b).

### **3.1.5 Sulfur Dioxide**

Sulfur oxides (SO<sub>x</sub>) constitute a class of compounds of which sulfur dioxide (SO<sub>2</sub>) and sulfur trioxide (SO<sub>3</sub>) are of greatest importance. Ninety-five percent of pollution-related SO<sub>x</sub> emissions are in the form of SO<sub>2</sub>. SO<sub>x</sub> emissions are typically examined when assessing potential air quality impacts of SO<sub>2</sub>. The primary contributor of SO<sub>x</sub> emissions is fossil fuel combustion for generating electric power. Industrial processes, such as nonferrous metal smelting, also contribute to SO<sub>x</sub> emissions. SO<sub>x</sub> is also formed during combustion of motor fuels; however, most of the sulfur has been removed from fuels, greatly reducing SO<sub>x</sub> emissions from vehicles.

SO<sub>2</sub> combines easily with water vapor, forming aerosols of sulfurous acid (H<sub>2</sub>SO<sub>3</sub>), a colorless, mildly corrosive liquid. This liquid may then combine with oxygen in the air, forming the even more irritating and corrosive sulfuric acid (H<sub>2</sub>SO<sub>4</sub>). Peak levels of SO<sub>2</sub> in the air can cause temporary breathing difficulty for people with asthma who are active outdoors. Longer-term exposures to high levels of SO<sub>2</sub> gas and particles cause respiratory illness and aggravate existing heart disease. SO<sub>2</sub> reacts with other chemicals in the air to form tiny sulfate particles, which are measured as PM<sub>2.5</sub>.

### **3.1.6 Lead**

Lead is a stable compound that persists and accumulates both in the environment and in animals. In humans, it affects the body's blood-forming (or hematopoietic), nervous, and renal systems. In addition, lead has been shown to affect the normal functions of the reproductive, endocrine, hepatic, cardiovascular, immunological and gastrointestinal systems, although there is significant

individual variability in response to lead exposure. Since 1975, lead emissions have been in decline due in part to the introduction of catalyst-equipped vehicles and the use of unleaded gasoline. In general, an analysis of lead is limited to projects that emit significant quantities of the pollutant (i.e., lead smelters and battery manufacturers) and are not applied to residential or commercial development, or infrastructure projects.

### **3.2 TOXIC AIR CONTAMINANTS**

Toxic air contaminants (TACs) are a diverse group of air pollutants that may cause or contribute to an increase in deaths or in serious illness or that may pose a present or potential hazard to human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources, including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. TACs are different than the “criteria” pollutants previously discussed because ambient air quality standards have not been established for TACs. TACs occurring at extremely low levels may still cause health effects, and it is typically difficult to identify levels of exposure that do not produce adverse health effects. TAC impacts are described by carcinogenic risk and by chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health.

Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The solid emissions in diesel exhaust are known as diesel particulate matter (diesel PM). In 1998, California identified diesel PM as a TAC based on its potential to cause cancer, premature death, and other health problems (e.g., asthma attacks and other respiratory symptoms). Those most vulnerable are children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California’s known cancer risk from outdoor air pollutants. Diesel engines also contribute to California’s PM<sub>2.5</sub> air quality problems. In addition, diesel soot causes visibility reduction (CARB 2010a).

Carcinogenic risks (i.e., cancer risks) are estimated as the incremental probability that an individual will develop cancer over his/her lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a probability (e.g., 10 in 1 million). A risk level of 1 in 1 million implies a likelihood that up to 1 person out of 1 million equally exposed people would contract cancer if exposed continuously (24 hours per day) to the specific concentration over 70 years (an assumed lifetime). This would be in addition to those cancer cases that would normally occur in an unexposed population of 1 million people (USEPA 2011a). The Hazard Index (HI) expresses the potential for chemicals to result in non-cancer-related health impacts. HIs are expressed using decimal notation (e.g., 0.001). A calculated HI exposure of less than 1.0 will likely not result in adverse non-cancer-related health effects over a lifetime of exposure. Conversely, an HI greater than 1.0 does not necessarily mean that adverse effects will occur (USEPA 2011a).

### **3.3 GLOBAL CLIMATE CHANGE AND GREENHOUSE GASES**

#### **3.3.1 Description of Global Climate Change**

Global climate change is an important environmental, economic, and political issue. It is noted that some persons reject or doubt the conclusions of the Intergovernmental Panel on Climate Change describing the effects of greenhouse gas (GHG) emissions and climate change. However, scientific research indicates very high confidence (i.e., at least 90 percent) that the rate and magnitude of current global temperature changes are anthropogenic<sup>2</sup> and that global warming will lead to adverse climate change effects around the globe (IPCC 2007). GHG emissions are primarily associated with (1) the burning of fossil fuels during motorized transport, electricity generation, natural gas consumption, industrial activity, manufacturing, and other activities; (2) deforestation; (3) agricultural activity; and (4) solid waste decomposition. This increasing temperature phenomenon is known as “global warming”, and the climatic effect is known as “climate change” or “global climate change”.

Climate change is a recorded change in the Earth’s average weather measured by variables such as wind patterns, storms, precipitation, and temperature. Historical records show that global temperature changes have occurred naturally in the past, such as during previous ice ages. Eleven of the 12 years from 1995 to 2006 rank among the warmest years in the instrumental record of global surface temperature (since 1850). An increase in global surface temperature of 0.74 degree Celsius (°C) (1.33 degrees Fahrenheit [°F]) occurred during the 100-year period from 1906 to 2005. Current data from the National Aeronautics and Space Administration (NASA) indicates that 2010 tied 2005 as the warmest on record, being approximately 1.13°F warmer than the average global surface temperature from 1951 to 1980. Even for a near record-breaking year like 2010, the broader context is more important than a single year. To measure climate change, scientists look at long-term trends. The temperature trend, including data from 2010, shows the climate has warmed by approximately 0.36°F per decade since the late 1970s (NASA 2011).

#### **3.3.2 Greenhouse Gases**

GHGs are comprised of atmospheric gases and clouds within the atmosphere that influence the Earth’s temperature by absorbing most of the infrared radiation that rises from the sun-warmed surface and that would otherwise escape into space. This process is commonly known as the “Greenhouse Effect”. GHGs are emitted by natural processes and human activities. The Earth’s surface temperature averages about 58°F because of the Greenhouse Effect. Without it, the Earth’s average surface temperature would be somewhere around an uninhabitable 0°F. The resulting balance between incoming solar radiation and outgoing radiation from both the Earth’s surface and the atmosphere maintains the planet’s habitability.

GHGs, as defined under California’s Assembly Bill (AB) 32, include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). General discussions on climate change often include water vapor, atmospheric O<sub>3</sub>, and aerosols in the GHG category. Water vapor and atmospheric O<sub>3</sub> are not formed directly in the construction or operation of development projects, nor can they be controlled in these projects. Aerosols are not gases. While these elements have a role in climate change, they are not considered by either regulatory bodies (e.g., CARB) or climate change groups (e.g., the California Climate Action Registry [CCAR]) as gases to be reported or analyzed for control. Therefore, no further discussion of water vapor, O<sub>3</sub>, or aerosols is provided.

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<sup>2</sup> Anthropogenic effects, processes, objects, or materials are those that are derived from human activities, as opposed to those occurring in natural environments without human influence.



Anthropogenic emissions of GHGs into the atmosphere enhance the Greenhouse Effect by absorbing radiation from other atmospheric GHGs that would otherwise escape into space, thereby trapping more radiation in the atmosphere and causing temperatures to increase. CO<sub>2</sub> is the most important and common anthropogenic GHG. The global atmospheric concentration of CO<sub>2</sub> has increased from a pre-industrial (roughly 1750) value of about 280 parts per million (ppm) to 387 ppm in 2009, primarily due to fossil fuel use, with land use change providing a significant but smaller contribution (USEPA 2011b). As of July 2014, the CO<sub>2</sub> concentration exceeded 396 ppm (ESRL 2014). The annual growth rate in CO<sub>2</sub> concentrations continues to increase, with a larger annual CO<sub>2</sub> concentration growth rate average during the ten-year period between 1995 and 2005 than since the beginning of continuous direct measurements in 1960.

CO<sub>2</sub> constitutes approximately 84 percent of all GHG emissions in California (CEC 2006). Worldwide, California ranks as about the 12<sup>th</sup> largest emitter of CO<sub>2</sub> and is responsible for approximately 2 percent of the world's CO<sub>2</sub> emissions (CEC 2007, 2006). However, throughout the United States, California is the fourth lowest in CO<sub>2</sub> emissions per capita (CEC 2006).

GHGs are global pollutants and are unlike air pollutants such as O<sub>3</sub>, particulate matter and TACs, which are pollutants of regional and local concern. While air pollutants with localized air quality effects have relatively short atmospheric lifetimes (generally a few days), GHGs have long atmospheric lifetimes that range from one year to several thousand years. Long atmospheric lifetimes allow for GHGs to disperse around the globe.

Since GHGs vary widely in the power of their climatic effects, climate scientists have established a unit called global warming potential (GWP). The GWP of a gas is a measure of both potency and lifespan in the atmosphere as compared to CO<sub>2</sub>. For example, since CH<sub>4</sub> and N<sub>2</sub>O are approximately 25 and 298 times more powerful than CO<sub>2</sub>, respectively, in their ability to trap heat in the atmosphere; they have GWPs of 25 and 298, respectively (CO<sub>2</sub> has a GWP of 1). Carbon dioxide equivalent (CO<sub>2</sub>e) is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the prevalence of that gas to produce CO<sub>2</sub>e. The atmospheric lifetime and GWP of selected GHGs are summarized in Table 1.

**TABLE 1  
GLOBAL WARMING POTENTIALS AND ATMOSPHERIC LIFETIMES**

Greenhouse Gas	Atmospheric Lifetime (years)	Global Warming Potential (100-year time horizon)
Carbon Dioxide (CO <sub>2</sub> )	50–200	1
Methane (CH <sub>4</sub> )	12	25
Nitrous Oxide (N <sub>2</sub> O)	114	298
HFC-134a	14	1,430
PFC: Tetrafluoromethane (CF <sub>4</sub> )	50,000	7,390
PFC: Hexafluoroethane (C <sub>2</sub> F <sub>6</sub> )	10,000	12,200
Sulfur Hexafluoride (SF <sub>6</sub> )	3,200	22,800
HFC: hydrofluorocarbon; PFC: perfluorocarbon		
Source: IPCC 2007.		

### 3.3.3 Global, National, State, and Regional Contributions to Greenhouse Gas Emissions

Table 2 shows the magnitude of GHG emissions on the global, national, State, and regional scale.

**TABLE 2  
COMPARISON OF WORLDWIDE GHG EMISSIONS**

Area and Data Year	Annual GHG Emissions (MMTCO <sub>2e</sub> )
World (2011)	29,986
United States (2012)	6,501
California (2012)	459
Los Angeles County (2008)	93
MMTCO <sub>2e</sub> : million metric tons of CO <sub>2e</sub> ; GHG: greenhouse gas(es)	
Source: WRI 2012; USEPA 2014; CARB 2013c; SCAG 2011.	

### 3.3.4 Federal Recognition of Greenhouse Gas as an Air Pollutant

On April 2, 2007, in *Massachusetts v. EPA* (549 U.S. 497 [2007]), the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The Court held that the Administrator of the USEPA must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

On April 17, 2009, the Administrator of the USEPA signed a proposal with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act (USEPA 2010b):

- The Administrator is proposing to find that the current and projected concentrations of the mix of six key greenhouse gases—carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>)—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the endangerment finding.
- The Administrator is further proposing to find that the combined emissions of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, and HFCs from new motor vehicles and motor vehicle engines contribute to the atmospheric concentrations of these key greenhouse gases and hence to the threat of climate change. This is referred to as the cause or contribute finding.

The findings do not include any proposed regulations.

## 4.0 REGULATORY SETTING AND AIR QUALITY STANDARDS

Federal and State ambient air quality standards have been set to protect the most sensitive persons from illness or discomfort. Residential areas, schools, playgrounds, child care centers, athletic facilities, hospitals, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes are especially likely to include persons sensitive to air pollutants.

### 4.1 FEDERAL

#### 4.1.1 Criteria Pollutants

The USEPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for criteria pollutants. The standards are shown in Table 3, which also includes California standards. The USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. The USEPA's air quality mandates are drawn primarily from the Clean Air Act (CAA), which was

enacted in 1970. The most recent major amendments made by Congress were in 1990. As part of its enforcement responsibilities, the USEPA requires each State with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain and maintain the federal standards. The SIP must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution by using a combination of performance standards and market-based programs within the SIP-identified timeframe.

**TABLE 3  
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY  
STANDARDS**

Pollutant	Averaging Time	California Standards	Federal Standards	
			Primary <sup>a</sup>	Secondary <sup>b</sup>
O <sub>3</sub>	1 Hour	0.09 ppm (180 µg/m <sup>3</sup> )	–	–
	8 Hour	0.070 ppm (137 µg/m <sup>3</sup> )	0.075 ppm (147 µg/m <sup>3</sup> )	Same as Primary
PM10	24 Hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	Same as Primary
	AAM	20 µg/m <sup>3</sup>	–	Same as Primary
PM2.5	24 Hour	–	35 µg/m <sup>3</sup>	Same as Primary
	AAM	12 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup>	Same as Primary
CO	1 Hour	20 ppm (23 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )	–
	8 Hour	9.0 ppm (10 mg/m <sup>3</sup> )	9 ppm (10 mg/m <sup>3</sup> )	–
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )	–	–
NO <sub>2</sub>	AAM	0.030 ppm (57 µg/m <sup>3</sup> )	0.053 ppm (100 µg/m <sup>3</sup> )	Same as Primary
	1 Hour	0.18 ppm (339 µg/m <sup>3</sup> )	0.100 ppm (188 µg/m <sup>3</sup> )	–
SO <sub>2</sub>	24 Hour	0.04 ppm (105 µg/m <sup>3</sup> )	–	–
	3 Hour	–	–	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1 Hour	0.25 ppm (655 µg/m <sup>3</sup> )	0.075 ppm (196 µg/m <sup>3</sup> )	–
Lead	30-day Avg.	1.5 µg/m <sup>3</sup>	–	–
	Calendar Quarter	–	1.5 µg/m <sup>3</sup>	Same as Primary
	Rolling 3-month Avg.	–	0.15 µg/m <sup>3</sup>	
Visibility Reducing Particles	8 hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles (0.07 per km – ≥30 miles for Lake Tahoe)	<b>No Federal Standards</b>	
Sulfates	24 Hour	25 µg/m <sup>3</sup>		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m <sup>3</sup> )		
<p>O<sub>3</sub>: ozone; ppm: parts per million; µg/m<sup>3</sup>: micrograms per cubic meter; PM10: large particulate matter; AAM: Annual Arithmetic Mean; PM2.5: fine particulate matter; CO: carbon monoxide; mg/m<sup>3</sup>: milligrams per cubic meter; NO<sub>2</sub>: nitrogen dioxide; SO<sub>2</sub>: sulfur dioxide; km: kilometer; –: No Standard.</p> <p><sup>a</sup> National Primary Standards: The levels of air quality necessary, within an adequate margin of safety, to protect the public health.</p> <p><sup>b</sup> National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.</p>				

**TABLE 3  
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY  
STANDARDS**

Pollutant	Averaging Time	California Standards	Federal Standards	
			Primary <sup>a</sup>	Secondary <sup>b</sup>
Note: More detailed information in the data presented in this table can be found at the CARB website (www.arb.ca.gov).				
Source: CARB 2013c.				

Based on monitored air pollutant concentrations, the USEPA designates an area’s status in attaining the NAAQS. Table 4 summarizes the attainment status in the SoCAB for the criteria pollutants. Table 4 also includes State attainment designations. When an area has been reclassified from a nonattainment to an attainment area for a federal standard, the status is identified as “maintenance”, and there must be a plan and measures that will keep the region in attainment for the following ten years.

**TABLE 4  
ATTAINMENT STATUS OF CRITERIA POLLUTANTS  
IN THE SOUTH COAST AIR BASIN**

Pollutant	State	Federal
O <sub>3</sub> (1 hour)	Nonattainment	No standard
O <sub>3</sub> (8 hour)		Extreme Nonattainment
PM10	Nonattainment	Attainment/Maintenance <sup>a</sup>
PM2.5	Nonattainment	Nonattainment
CO	Attainment	Attainment/Maintenance
NO <sub>2</sub>	Attainment <sup>b</sup>	Attainment/Maintenance
SO <sub>2</sub>	Attainment	Attainment
Lead*	Attainment <sup>b</sup>	Attainment <sup>c</sup>
All others	Attainment/Unclassified	No standards

O<sub>3</sub>: ozone; PM10: particulate matter 10 microns or less in diameter; PM2.5: particulate matter 2.5 microns or less in diameter; CO: carbon monoxide; NO<sub>2</sub>: nitrogen dioxide; SO<sub>2</sub>: sulfur dioxide.

<sup>a</sup> Federal standard: The SoCAB was redesignated for PM10 from nonattainment to attainment-maintenance effective July 26, 2013.

<sup>b</sup> State standard: CARB Executive Order R-14-001 of February 25, 2014 reclassified the SoCAB to Attainment for NO<sub>2</sub> and Los Angeles County to Attainment for Lead effective July 1, 2014.

<sup>c</sup> Federal standard: Los Angeles County is classified nonattainment for lead; the remainder of the SoCAB is in attainment of the State and federal standards.

Source: CARB 2012b; USEPA 2012; USEPA 2013d.

The SoCAB is a federal nonattainment area for O<sub>3</sub> and PM2.5, as shown in Table 4. Therefore, the state of California is required to prepare and update SIPs for these pollutants. The SIPs are comprised of individual plans prepared by the agencies responsible for air quality management in each nonattainment area. In the SoCAB, the SCAQMD is the responsible agency and the plans to attain or maintain federal air quality standards are called Air Quality Management Plans (AQMPs).

#### 4.1.2 Greenhouse Gases

There are no federal regulations for GHG emissions that are applicable to the Project.

## 4.2 STATE OF CALIFORNIA

CARB, a part of the State of California Environmental Protection Agency, is responsible for the coordination and administration of both federal and State air pollution control programs in California. In this capacity, CARB conducts research; sets the California Ambient Air Quality Standards (CAAQS); compiles emission inventories; develops suggested control measures; and oversees local programs, including those relevant to climate change and global warming. The CAAQS are included in Table 3.

### 4.2.1 Criteria Pollutants

For regions that do not attain the CAAQS (Table 3), CARB requires the applicable air district (SCAQMD) to prepare plans for attaining the standards. These plans are then integrated into the State SIP. Table 4 also includes State attainment designations; the SoCAB is a State nonattainment area for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Therefore, the SCAQMD AQMPs must also address the attainment and maintenance of the CAAQS. CARB establishes emissions standards for motor vehicles sold in California; consumer products (e.g., hair spray, aerosol paints, and barbecue lighter fluid); and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

### 4.2.2 Greenhouse Gases

There are numerous State plans, policies, regulations, and laws related to GHGs and global climate change. Following is a discussion of some of these plans, policies, and regulations that (1) establish overall State policies and GHG reduction targets; (2) require State or local actions that result in direct or indirect GHG emission reductions for the Project; and (3) require CEQA analysis of GHG emissions.

#### ***Assembly Bill 1493 – Clean Car Standards***

Assembly Bill (AB) 1493 (Pavley) required CARB to develop and adopt, by January 1, 2005, regulations that achieve “the maximum feasible reduction of GHGs emitted by passenger vehicles and light-duty truck and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state”. Implementation of AB 1493 was delayed until 2009 by prolonged litigation and USEPA actions. On September 24, 2009, CARB adopted amendments to the AB 1493 regulations that reduce GHG emissions in new passenger vehicles from 2009 through 2016. The amendments bind California’s enforcement of AB 1493 (starting in 2009) while providing vehicle manufacturers with new compliance flexibility. The amendments also prepare California to merge its rules with the federal Corporate Average Fuel Economy (CAFE) rules for passenger vehicles (CARB 2010c).

#### ***Executive Order S-3-05***

On June 1, 2005, former Governor Arnold Schwarzenegger signed Executive Order S-3-05, which proclaims that California is vulnerable to climate change impacts. It declares that increased temperatures could reduce snowpack in the Sierra Nevadas; further exacerbate California’s air quality problems; and potentially cause a rise in sea levels. In an effort to avoid or reduce climate change impacts, Executive Order S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

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### **Assembly Bill 32, the California Global Warming Solutions Act of 2006**

The California Legislature adopted the public policy position that global warming is “a serious threat to the economic well-being, public health, natural resources, and the environment of California” (*California Health and Safety Code* §38501). Furthermore, the State Legislature has determined that:

the potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra Nevada snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious disease, asthma, and other human health-related problems.

These public policy statements became law with the enactment of AB 32, the California Global Warming Solutions Act of 2006, signed by former Governor Arnold Schwarzenegger in September 2006. AB 32 is now codified as Sections 38500–38599 of the *California Health and Safety Code*. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020.

### **Senate Bill 97 and Amendments to the State CEQA Guidelines**

SB 97 directed the California Natural Resources Agency (CNRA) to adopt amendments to the CEQA Guidelines that require evaluation of GHG emissions or the effects of GHG emissions by January 1, 2010. The CNRA has done so, and the amendments to the State CEQA Guidelines, in a new Section 15064.4, entitled Determining the Significance of Impacts from Greenhouse Gas Emissions, provide that (CNRA 2009):

- (a) The determination of the significance of greenhouse gas emissions calls for a careful judgment by the lead agency consistent with the provisions in Section 15064. A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project.
  
- (b) A lead agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:
  - (1) The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
  - (2) Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project;
  - (3) The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project’s incremental contribution of greenhouse gas emissions.

The amendments also add a new Section 15126.4(c), Mitigation Measures Related to Greenhouse Gas Emissions.

## **CARB GHG Emissions Data and Scoping Plan**

In December 2007, CARB published California's GHG inventory, which compiled statewide anthropogenic GHG emissions and sinks for 1990 through 2004. The estimated statewide GHG 1990 emissions level, and therefore the 2020 emissions target, is 427 million metric tons of carbon dioxide equivalent (MMT $\text{CO}_2\text{e}$ ).<sup>3</sup>

AB 32 requires CARB to develop a Scoping Plan to lower the State's GHG emissions to meet the 2020 limit. The Scoping Plan was approved at the December 2008 CARB meeting, and the measures in the Scoping Plan have been developed. Statewide measures addressing vehicle emissions, energy efficiency, vehicle fuel, and power generation are planned to achieve the greater amounts of emissions reductions. However, reductions at all levels will be needed to reach the 2020 targets.

Key elements of the Scoping Plan include (1) expanding and strengthening existing energy efficiency programs and building and appliance standards; (2) achieving a statewide renewable energy mix of 33 percent; (3) developing a California cap and trade program linked with other similar programs; (4) establishing targets for transportation-related GHG emissions for regions throughout California and pursuing policies and incentives to achieve those targets; (5) implementing existing laws and standards such as California's clean car standards (identified in the Scoping Plan as Light Duty Vehicle GHG Standards and described above under the discussion of AB 1493), goods movement measures, and the Low Carbon Fuel Standard (LCFS); and (6) issuing targeted fees to fund the State's long-term commitment to AB 32 administration (CARB 2008).

The estimated 2020 GHG emissions reductions for measures described in the 2008 Scoping Plan were based on the best available information as of December 2008. CARB staff has since revised the expected 2020 emission reductions in consideration of the economic recession and the availability of updated information from development of measure-specific regulations. In addition, CARB moved the Light Duty Vehicle and renewable portfolio standards into the baseline calculation. Based on these revisions, the AB 32 2020 baseline is now forecasted to be 507 MMT $\text{CO}_2\text{e}$ . Reductions of an estimated 80 MMT $\text{CO}_2\text{e}$  are necessary to reduce statewide emissions to the AB 32 Target of 427 MMT $\text{CO}_2\text{e}$  by 2020. The forecasted reductions for the individual scoping plan measures have been or are being reevaluated. For example, the estimated reductions from energy efficiency and conservation have been revised from 19.5 to 11.9 MMT $\text{CO}_2\text{e}$ , and reductions from regional, transportation-related GHG targets have been revised from 5.0 to 3.0 MMT $\text{CO}_2\text{e}$  (CARB 2011).

### **4.3 SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT**

The project is located in Los Angeles County. Air quality in the non-desert portion of Los Angeles County, which includes Arcadia, is regulated by the SCAQMD. As a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), County transportation commissions, and local governments and cooperates actively with all federal and State government agencies. The SCAQMD develops rules and regulations;

<sup>3</sup>  $\text{CO}_2\text{e}$  emissions are commonly expressed in metric tons of carbon dioxide equivalent (MTC $\text{CO}_2\text{e}$ ). Larger quantities of emissions, such as on the State or world scale, are expressed in million metric tons (or "tonnes") of carbon dioxide equivalent (MMT $\text{CO}_2\text{e}$ ). The  $\text{CO}_2\text{e}$  for a gas is derived by multiplying the tons of the gas by the associated GWP such that  $\text{MMT}\text{CO}_2\text{e} = (\text{million metric tons of a GHG}) \times (\text{GWP of the GHG})$ . For example, the GWP for  $\text{CH}_4$  is 21. This means that emissions of 1 million metric tons of  $\text{CH}_4$  are equivalent to the emissions of 21 million metric tons of  $\text{CO}_2$ .

establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary.

#### **4.3.1 Criteria Pollutants**

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of Air Quality Management Plans (AQMPs). An AQMP establishes a program of rules and regulations directed at attaining the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The regional plan applicable to the Project is the SCAQMD's AQMP.

On December 7, 2012, the SCAQMD adopted the 2012 AQMP, which is a regional and multi-agency effort (SCAQMD, CARB, SCAG, and USEPA). The 2012 AQMP incorporates the latest scientific and technical information and planning assumptions, including SCAG's 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS); updated emission inventory methodologies for various source categories; and SCAG's latest growth forecasts (SCAQMD 2013a). On December 20, 2012, the 2012 AQMP was submitted to CARB and the USEPA for concurrent review and approval for inclusion in the SIP (SCAQMD 2013a). The 2012 AQMP was approved by the CARB on January 25, 2013 (CARB 2013a).

#### **4.3.2 Greenhouse Gases**

Beginning in April 2008, the SCAQMD convened a Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. The Working Group is scheduled to meet once per month. On December 5, 2008, the SCAQMD Governing Board adopted its staff proposal for an interim CEQA GHG significance threshold of 10,000 metric tons of CO<sub>2</sub> equivalent per year (MTCO<sub>2</sub>e /yr) for projects where the SCAQMD is the lead agency. The policy objective for establishing this significance threshold and the recommended screening thresholds, below, is to capture projects that represent approximately 90 percent of GHG emissions from new sources (SCAQMD 2008a). These projects would be subject to further analysis and the incorporation of measures to reduce GHG emissions.

In September 2010, the Working Group presented a revised tiered approach to determining GHG significance for residential and commercial projects (SCAQMD 2010). These proposals have not yet been considered by the SCAQMD Board.

At Tier 1, GHG emissions impacts would be less than significant if the project qualifies under a categorical or statutory CEQA exemption. At Tier 2, for projects that do not meet the Tier 1 criteria, the GHG emissions impact would be less than significant if the project is consistent with a previously adopted GHG reduction plan that meets specific requirements. At Tier 3, the Working Group proposes extending the 10,000 metric tons of carbon dioxide equivalent per year (MTCO<sub>2</sub>e/yr) screening threshold currently applicable to industrial projects where the SCAQMD is the lead agency, described above, to other lead agency industrial projects. For residential and commercial projects, the Working Group proposes the following Tier 3 screening values: either (1) a single 3,000 MTCO<sub>2</sub>e/yr threshold for all land use types or (2) separate thresholds of 3,500 MTCO<sub>2</sub>e/yr for residential projects, 1,400 MTCO<sub>2</sub>e/yr for commercial projects, and 3,000 MTCO<sub>2</sub>e/yr for mixed-use projects. A project with emissions less than the applicable screening value would be considered to have less than significant GHG emissions.



## 4.4 CLIMATE AND METEOROLOGY

The Project site is located in the SoCAB, which is arid with little rainfall and abundant sunshine during the summer months. It has light winds and poor vertical mixing compared to the other large urban areas in the United States. The combination of poor dispersion and abundant sunshine provides conditions especially favorable to the formation of photochemical smog. The SoCAB is bound to the north and east by mountains with elevations exceeding 10,000 feet above msl. The unfavorable combination of meteorology, topography, and emissions from the nation's second largest urban area (i.e., Los Angeles metropolitan area) results in the SoCAB having the worst air quality in the U.S. (SCAQMD 2007).

The annual average maximum temperature as measured at the Sierra Madre Henszey climatic station is 75.3°F. The highest monthly average maximum temperature (88.5°F) occurs in August, and the lowest monthly average minimum temperature (45.1°F) occurs in January. The average annual precipitation is 24.01 inches (WRCC 2013).

## 4.5 EXISTING AIR QUALITY

### 4.5.1 Criteria Pollutants

#### *Attainment Designations*

Attainment designations are discussed in Sections 4.1.1 and 4.2.1 and Table 4. The SoCAB is a federal and State nonattainment area for O<sub>3</sub> and PM<sub>2.5</sub>. The SoCAB is also a State nonattainment area for PM<sub>10</sub>.

#### *Monitored Air Quality*

Criteria air pollutant concentrations are measured at several monitoring stations in Los Angeles County. The closest station to the Project site is identified as the Azusa Monitoring Station, located at 803 North Loren Avenue approximately 7 miles southeast of the Project site. Equipment at the station measures O<sub>3</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, CO, and NO<sub>2</sub> levels. Table 5 summarizes the air quality data from this station for the most recent three-year period (2011–2013).

The data show violations of the federal and State 8-hour O<sub>3</sub> standards and the 1-hour O<sub>3</sub> State standard in each year. The levels of CO and NO<sub>2</sub> did not exceed State or federal standards in the last three years. PM<sub>10</sub> levels exceeded the State 24 hour and annual standards in each of the three years. PM<sub>2.5</sub> levels exceeded the federal 24 hour standard in 2011 and 2012.

**TABLE 5  
AMBIENT AIR QUALITY AT AZUSA MONITORING STATION**

Pollutant	Averaging Time	Federal Primary Standards	California Standards	Maximum Concentrations <sup>a</sup>			Number of Days Exceeding Federal Standard <sup>b</sup>			Number of Days Exceeding State Standard <sup>b</sup>		
				2011	2012	2013	2011	2012	2013	2011	2012	2013
O <sub>3</sub> <sup>c</sup>	1 hour	none	0.09 ppm	0.111	0.134	0.115	-	-	-	13	18	7
	8 hour	0.075 ppm	0.07 ppm	0.092	0.095	0.085	12	10	6	19	20	15
PM <sub>2.5</sub>	24 hours	35 µg/m <sup>3</sup>	none	94.6	39.6	29.6	2	1	0	-	-	-
	Annual	15 µg/m <sup>3</sup>	12 µg/m <sup>3</sup>	12.1	11.0	11.5	0	0	0	0	0	0
PM <sub>10</sub>	24 hours	150 µg/m <sup>3</sup>	50 µg/m <sup>3</sup>	65.0	78.0	76	0	0	0	8	6	6
	Annual	none	20 µg/m <sup>3</sup>	31.9	29.6	32.3	0	0	0	1	1	1
CO	8 hour	9 ppm	9.0 ppm	1.36	1.13	*	0	0	*	0	0	*
NO <sub>2</sub>	1 hour	0.100 ppm	0.18 ppm	0.080	0.072	0.077	0	0	0	0	0	0
	Annual	0.053 ppm	0.030 ppm	*	0.019	0.017	0	0	0	0	0	0

O<sub>3</sub>: ozone; ppm: parts per million; \*: there was insufficient data to determine the value; -: data not available or applicable; PM<sub>2.5</sub>: fine particulate matter with a diameter of 2.5 microns or less; µg/m<sup>3</sup>: micrograms per cubic meter; PM<sub>10</sub>: respirable particulate matter with a diameter of 10 microns or less; CO: carbon monoxide; NO<sub>2</sub>: nitrogen dioxide.

<sup>a</sup> Concentration units for O<sub>3</sub>, CO, and NO<sub>2</sub> are in ppm. Concentration units for PM<sub>2.5</sub> are in µg/m<sup>3</sup>.

<sup>b</sup> For annual standards, a value of 1 indicates that the standard has been exceeded.

<sup>c</sup> O<sub>3</sub> data are recorded separately for federal and State purposes because USEPA and California methods are slightly different. Federal values are shown.

Source: CARB 2014b.

#### 4.5.2 Toxic Air Contaminants

The Multiple Air Toxics Exposure Study III (MATES III) is a monitoring and evaluation study conducted in the SoCAB and is part of the SCAQMD Governing Board's 2003–2004 Environmental Justice Workplan. The study focuses on the carcinogenic risk from exposure to air toxics. It does not estimate mortality or other adverse health effects from particulate exposures.

The MATES III Study consists of several elements, including a monitoring program; an updated emissions inventory of toxic air contaminants; and a modeling effort to characterize risk across the SoCAB. The MATES III study estimates that the average carcinogenic risk from air toxics in the SoCAB is about 1,200 per 1 million. This risk refers to the expected number of additional cancers in a population of 1 million individuals that are exposed over a 70-year lifetime. Using the MATES III methodology, about 94 percent of the risk is attributed to emissions associated with mobile sources, and about 6 percent of the risk is attributed to toxics emitted from stationary sources, which include industries and businesses such as dry cleaners and chrome plating operations. The results indicate that diesel exhaust is the major contributor to air toxics risk and accounts on average for about 84 percent of the total (SCAQMD 2008b).

The MATES III study used monitored data to model risk throughout the SoCAB. The modeled carcinogenic risk for the area, including the project site is 174 per 1 million, which is substantially less than the SoCAB average of about 1,200 per 1 million (SCAQMD 2008c).

## 5.0 REGULATORY REQUIREMENTS

**RR AQ-1** All construction activities shall be conducted in compliance with South Coast Air Quality Management District Rule 403, Fugitive Dust, for controlling fugitive dust and avoiding nuisance. Compliance with this rule will reduce short-term particulate pollutant emissions. Contractor compliance with Rule 403 requirements shall be mandated in the contractor's specifications.

**RR AQ-2** All construction activities shall be conducted in compliance with South Coast Air Quality Management District Rule 402, Nuisance, which states that a Project shall not "discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property".

## 6.0 AIR QUALITY IMPACTS

### 6.1 THRESHOLDS OF SIGNIFICANCE

#### 6.1.1 Criteria and Toxic Air Pollutants

The following significance criteria are included in Appendix G of the State CEQA Guidelines. The project may result in a significant impact related to air quality if it 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 which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Appendix G of the State CEQA Guidelines states that the significance criteria established by the applicable air quality management or air pollution control LACFCD may be relied upon to make the above determinations. The SCAQMD has established significance thresholds to assess the regional and localized impacts of project-related air pollutant emissions. The significance thresholds are updated, as needed, to appropriately represent the most current technical information and attainment status in the SoCAB. Table 6 presents the most current significance thresholds, including regional daily thresholds for short-term construction and long-term operational emissions; maximum incremental cancer risk and hazard indices for TACs; and maximum ambient concentrations for exposure of sensitive receptors to localized pollutants. A project with daily emission rates, risk values, or concentrations below these thresholds is generally considered to have a less than significant effect on air quality.

**TABLE 6  
SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS**

Mass Daily Thresholds (lbs/day)		
Pollutant	Construction	Operation
VOC	75	55
NOx	100	55
CO	550	550
PM10	150	150
PM2.5	55	55
SOx	150	150
Lead	3	3
Toxic Air Contaminants		
TACs <sup>a</sup>	Maximum Incremental Cancer Risk $\geq$ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas $\geq$ 1 in 1 million) Chronic & Acute Hazard Index $\geq$ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to Rule 402	
GHG	10,000 MT/yr CO <sub>2</sub> e for industrial facilities	
Ambient Air Quality For Criteria Pollutants <sup>b</sup>		
NO <sub>2</sub>	1-hour average $\geq$ 0.18 ppm Annual average $\geq$ 0.03 ppm	
CO	1-hour average $\geq$ 20.0 ppm (State) 8-hour average $\geq$ 9.0 ppm (State/federal)	
PM10	24-hour average $\geq$ 10.4 $\mu\text{g}/\text{m}^3$ (construction) 24-hour average $\geq$ 2.5 $\mu\text{g}/\text{m}^3$ (operation) Annual average $\geq$ 1.0 $\mu\text{g}/\text{m}^3$	
PM2.5	24-hour average $\geq$ 10.4 $\mu\text{g}/\text{m}^3$ (construction) 24-hour average $\geq$ 2.5 $\mu\text{g}/\text{m}^3$ (operation)	
Sulfate	24-hour average $\geq$ 1.0 $\mu\text{g}/\text{m}^3$	
lbs/day: pounds per day; VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SOx: sulfur oxides; TACs: toxic air contaminants; GHG: greenhouse gas emissions; MT/yr: metric tons per year; CO <sub>2</sub> e: carbon dioxide equivalent; NO <sub>2</sub> : nitrogen dioxide; ppm: parts per million; $\mu\text{g}/\text{m}^3$ : micrograms per cubic meter.		
<sup>a</sup> TACs (carcinogenic and noncarcinogenic) <sup>b</sup> Ambient air quality threshold based on SCAQMD Rule 403.		
Source: SCAQMD 2011a.		

## 6.2 METHODOLOGY

### 6.2.1 Construction Mass Emissions

Construction emissions were calculated by using California Emissions Estimator Model (CalEEMod) version 2013.2.2 (SCAQMD 2013b). CalEEMod is a computer program accepted by the SCAQMD that can be used to estimate anticipated emissions associated with land development projects in California. CalEEMod has separate databases for specific counties and air districts. The Los Angeles County database was used for the Project. The model calculates emissions of CO, PM10, and PM2.5 and the O<sub>3</sub> precursors VOC and NOx.<sup>4</sup> The results are expressed in pounds per day (lbs/day) and are compared with the SCAQMD mass daily thresholds to determine impact significance.

<sup>4</sup> CalEEMod also calculates emissions of lead, SO<sub>2</sub>, CO<sub>2</sub>, and other pollutants. Lead and SO<sub>2</sub> emissions data are not used for the Project because emissions of these pollutants would be negligible.

Specific inputs to CalEEMod include land uses and building areas. Construction input data include but are not limited to (1) the anticipated start and finish dates of each project construction activity (e.g., demolition, grading, building, and paving); (2) inventories of construction equipment to be used during each activity; (3) areas to be excavated and graded for development; (4) volumes of materials to be exported from and imported to the project area; and (5) areas to be paved. The input data and assumptions are discussed in Section 6.3.1 below and in Appendix A. The CalEEMod model has the capability to calculate reductions in construction emissions from the effects of dust control, diesel-engine classifications, and other selected emissions reduction measures. CalEEMod was developed using EMFAC 2011 and OFFROAD 2011 for calculating emissions from on-road vehicles and off-road construction equipment, respectively.

## **6.2.2 Local Concentrations of Criteria Pollutants From On-Site Emissions**

As part of the SCAQMD's environmental justice program, more attention has been focused on localized air quality effects. In addition to existing CEQA significance thresholds for mass daily emissions and regional conditions, the SCAQMD has established thresholds for ambient air quality (Table 4) to address localized impacts. Also, while regional impact analysis is based on attaining or maintaining regional emissions standards, localized impact analysis compares the concentration of a pollutant at a receptor site to a health-based standard.

SCAQMD staff then developed localized significance threshold (LST) methodology and mass rate look-up tables by source receptor area (SRA) that can be used by public agencies to determine whether a project may generate significant adverse localized air quality impacts. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standard; they are developed based on the ambient concentrations of that pollutant for each SRA (SCAQMD 2008d). The LST methodology translates the concentration standards into emissions thresholds that are a function of project site area, source to receptor distance, and the location within the SoCAB. The LST methodology is recommended to be limited to projects of five acres or less and to avoid the need for complex dispersion modeling. The method was used for the project because construction near any individual receptor would occur in an area of less than five acres.

The local concentration analysis is performed for project construction activities. The analysis is not performed for operations because there would be no substantial on-site long-term sources of pollutants.

## **6.3 AIR QUALITY IMPACT ANALYSIS**

### **6.3.1 Conformance to Federal and State Ambient Air Quality Standards**

#### ***Construction Emissions***

Table 7, Project Construction Schedule, shows the projected construction start dates and duration for the various Project components. As shown in Table 7, construction of the Project is anticipated to commence in the winter of 2015 and end in the fall of 2016. Certain elements of each Project component would likely not be performed during the wet season (October to April) in order to ensure flood control and water conservation efforts can proceed satisfactorily. While the schedule may be modified due to the date of Project approval and receipt of required permits, this table illustrates the approximate duration of major Project activities. As shown, it is anticipated that work would proceed at multiple facilities at one time.

It is possible that the Debris Dam construction would require longer than the 6-month time period shown in Table 7. If the construction period of the Debris Dam were to be extended, this would spread out the construction activities over a longer period of time, resulting in less “intensity” of impacts. All Project-related impacts would be less than significant (some requiring mitigation), and extending the duration of construction activities at the Debris Dam would not increase the level of significance. Decreasing the intensity and spreading out construction activities would generally reduce impacts. Therefore, in order to provide a more conservative impact analysis, the more condensed construction period for the Debris Dam, as shown in Table 7, has been assumed throughout this analysis.

**TABLE 7  
PROJECT CONSTRUCTION SCHEDULE**

<b>Construction Phase</b>	<b>Estimated Construction Start</b>	<b>Anticipated Duration</b>
<b>Dam</b>	<b>December 2015</b>	<b>10 months</b>
Armor Canyon/Dam	December 2015	2 weeks
Garage, Helipad, Water System	December 2015	6 weeks
Remove/Replace Jib Crane	February 2016	2 weeks
Repair Concrete	February 2016	2 weeks
Hoist	March 2016	4 weeks
Construct New Spillway	April 2016	6 months
Install Valves	April 2016	2 weeks
Electrical	April 2016	4 weeks
<b>Headworks and Wilderness Park Culvert Crossing</b>	<b>March 2016</b>	<b>6 months</b>
Headworks Demolition	March 2016	1 week
Rubber Dam	March 2016	1 week
Construct Levee	March 2016	2 weeks
Culvert Crossing Demolition	April 2016	2 weeks
Site Clear/Grub	April 2016	4 weeks
Grading/Implement Temporary Access	May 2016	2 weeks
Abutments and Wing Walls	June 2016	4 weeks
Construct Culvert Crossing Deck	July 2016	6 weeks
Paving Culvert Crossing	August 2016	2 weeks
<b>Debris Dam</b>	<b>April 2016</b>	<b>6 months</b>
Modify Spillway	April 2016	2 months
Construct Buttresses	June 2016	2.5 months
Construct New Subdrain	August 2016	1 month
Remove/Construct Outlet Tower(s)	September 2016	2 weeks

Trip generation for employees and delivery trucks would vary depending on the phase of construction. During the peak of construction, a typical day would include the transportation of workers; movement of heavy equipment; and transportation of materials. Detailed construction equipment and trip generation are shown in Table 8.

**TABLE 8  
ESTIMATED PROJECT CONSTRUCTION EQUIPMENT AND TRIP  
GENERATION**

Construction Phase	Offroad Equipment	Worker Trips <sup>a</sup>	Truck Trips <sup>a</sup>
<b>Dam</b>			
Armor Canyon/Dam	1 Concrete Pump	3	500
Garage, Helipad, Water System	1 Concrete Pump, 1 Loader/Backhoe	5	10
Remove/Replace Jib Crane	1 Crane	3	5
Repair Concrete	1 Concrete Pump	3	5
Hoist	1 Crane	3	10
Construct New Spillway	1 Backhoe, 1 Concrete Pump, 1, Crane, 1 Loader, 1 Concrete Saw	8	56
Install Valves	1 Crane	3	5
Electrical	1 Crane	3	10
<b>Headworks and Wilderness Park Culvert Crossing</b>			
Headworks Demolition	1 Concrete Saw, 1 Excavator, 1 Backhoe	5	10
Rubber Dam	2 Backhoes	3	3
Construct Levee	1 Backhoe, 1 Concrete Pump	3	19
Culvert Crossing Demolition	1 Concrete Saw, 1 Excavator, 1 Backhoe	5	14
Site Clear/Grub	1 Backhoe	3	210
Grading/ Implement Temporary Access	2 Backhoes	5	--
Abutments and Wing Walls	2 Concrete Pumps	4	46
Construct Culvert Crossing Deck	1 Concrete Pump	3	18
Paving Culvert Crossing	1 Roller	3	15
<b>Debris Dam</b>			
Modify Spillway	1 Concrete Pump, 1 Concrete Saw, 1 Drilling Rig	4	63
<b>Dam</b>			
Construct Buttresses <sup>b</sup>	1 Excavator, 1 Dozer, 1 Backhoe, 1 Loader, 1 Water Truck	5	4,063
Construct New Subdrain	2 Loaders	3	157
Remove Outlet Tower	2 Backhoes, 1 Water Truck	3	5
<sup>a</sup> All trips are round trips. <sup>b</sup> The 4,063 number of trips was estimated based on 65,000 cubic yards of material required for the buttressing, assuming use of 16 cubic yard trucks occurring over 55 workdays (i.e. 2.5 months). Approximately half of this material (32,500 cubic yards) is estimated to be harvested from the adjacent Sediment Placement Site (SPS); therefore, the first 27 workdays (i.e. 5 weeks) of the sediment/fill truck trips would occur on-site between the SPS and the Debris Dam, and would not affect local residential roadways. Once fill from the SPS is exhausted, the remaining fill amount would be imported to the Debris Dam site, requiring off-site trucking for approximately 5 weeks.			

Emissions were calculated using the CalEEMod emissions inventory model (SCAQMD 2013b). Dust control by watering was assumed, consistent with the requirements of SCAQMD Rule 403 (RR AQ-1). The quantity, duration, and the intensity of construction activity have an effect on the

amount of construction emissions and their related pollutant concentrations that occur at any one time. As such, the emission forecasts provided herein reflect a specific set of conservative assumptions based on the expected construction scenario wherein a relatively large amount of construction is occurring in a relatively intensive manner. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner-burning construction equipment fleet mix, and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval).

### Mass Emissions Thresholds

The results of the criteria pollutant calculations for project construction are shown in Table 9. The data are presented as the maximum anticipated daily emissions for comparison with the SCAQMD mass daily thresholds.

**TABLE 9  
ESTIMATED MAXIMUM DAILY CONSTRUCTION EMISSIONS (LBS/DAY)**

Year	VOC	NOx	CO	PM10	PM2.5
Maximum daily emissions in 2015	4	46	35	3	2
Maximum daily emissions in 2016	8	92	73	9	5
<i>SCAQMD Thresholds (Table 4)</i>	<i>75</i>	<i>100</i>	<i>550</i>	<i>150</i>	<i>55</i>
<b>Exceed Threshold?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management LACFCD.					

Based on the anticipated Project phasing and equipment, the estimated peak day (worst case) emissions of all pollutants—VOC, NOx, CO, PM10, and PM2.5—would occur during the approximate one month period in 2016 when construction of the Dam spillway is assumed to be concurrent with construction of the Debris Dam buttresses and the construction of the Culvert Crossing abutments and wing walls. This scenario, which represents the overlap of activities that would result in the reasonably worst case for NOx emissions, is detailed below:

#### **Dam Spillway**

- *Off-road equipment:* 1, backhoe, 1 concrete pump, 1 crane, 1 loader, 1 concrete saw
- *On-road equipment:* 56 concrete/material truck round trips over a 6-month period
- *Worker trips:* 8 daily round trips

#### **Culvert Crossing Abutments and Wing Walls**

- *Off-road equipment:* 2 concrete pumps
- *On-road equipment:* 46 material truck round trips in a one month period
- *Worker trips:* 4 daily round trips



### Debris Dam Buttresses

- *Off-road equipment:* 1 excavator, 1 dozer, 1 backhoe, 1 loader, 1 water truck
- *On-road equipment:* 4,063 material truck round trips over a 2 ½ month period
- *Worker trips:* 5 daily round trips

As shown in Table 9, all criteria pollutant emissions would be less than their respective SCAQMD thresholds. Emissions from proposed construction would not violate any air quality standard or substantially contribute to an existing or projected air quality violation. Impacts would be less than significant and no mitigation is required.

### Ambient Air Quality – Local Significance Thresholds

The localized effects from the on-site portion of daily emissions were evaluated at sensitive receptor locations potentially impacted by the Project according to the SCAQMD’s localized significance threshold (LST) methodology, which utilizes on-site mass emissions rate look up tables and Project-specific modeling, where appropriate. LSTs are applicable to the following criteria pollutants: NO<sub>2</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor. For PM<sub>10</sub> and PM<sub>2.5</sub>, LSTs were derived based on requirements in SCAQMD Rule 403, Fugitive Dust. The mass rate look-up tables were developed for each source receptor area and can be used to determine whether or not a project may generate significant adverse localized air quality impacts. SCAQMD provides LST mass rate look-up tables for projects that are less than or equal to five acres.

When quantifying mass emissions for localized analysis, only emissions that occur on-site are considered. Consistent with the SCAQMD Localized Significance Threshold (LST) methodology guidelines, emissions related to off-site delivery/haul truck activity and employee trips are not considered in the evaluation of localized impacts. The LSTs for a 1-acre site with receptors at a distance of 25 meters were used; these are the most conservative thresholds. As shown in Table 10, localized emissions for all criteria pollutants would remain below their respective SCAQMD LSTs for all pollutants. Thus, impacts would be less than significant and no mitigation is required.

**TABLE 10  
LOCAL SIGNIFICANCE THRESHOLD EMISSIONS**

	NO <sub>x</sub>	CO	PM <sub>10</sub>	PM <sub>2.5</sub>
	Emissions (lbs/day)			
Dam	20	13	1	1
Wilderness Park Culvert Crossing	11	8	1	1
Debris Dam	19	14	3	2
Headworks	11	8	1	1
<i>LST Thresholds</i>	89	623	5	3
<b><i>Exceed Threshold?</i></b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<small>lbs/day: pounds per day; NO<sub>x</sub>: nitrogen oxides; CO: carbon monoxide; PM<sub>10</sub>: respirable particulate matter with a diameter of 10 microns or less; PM<sub>2.5</sub>: fine particulate matter with a diameter of 2.5 microns or less; LST: Local Significance Threshold. Source: SCAQMD 2009.</small>				

## **Operational Emissions**

Once the Project is complete, there would be no long-term changes to the regular inspection and maintenance operations at the Dam, Headworks, or Debris Dam. The helipad at the Dam would be used only in the event of an emergency. It is expected that helipad operations would only result in one or two helicopter trips per year. Therefore, any Project-generated change in pollutant emissions would be nominal. Impacts would be less than significant.

## **Summary**

Construction mass emissions of criteria pollutants would be less than the SCAQMD CEQA significance thresholds. On-site construction emissions would not exceed SCAQMD emissions thresholds related to local concentration limits. Operational emissions would be less than the SCAQMD CEQA significance thresholds. Construction and operational emissions would be less than significant.

### **6.3.2 Exposure of Sensitive Receptors to Substantial Pollutant Concentrations**

#### ***Carbon Monoxide Hotspots***

A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. If a project increases average delay at signalized intersections operating at level of service (LOS) E or F or causes an intersection that would operate at LOS D or better without the project to operate at LOS E or F with the project, a quantitative screening is required.

As discussed previously, the project would not generate new traffic. Therefore, the project is not anticipated to increase congestion at major signalized intersections in the area. There would be no impact and no exposure of sensitive receptors to project-generated local CO emissions. Mitigation is not required.

#### ***Criteria Pollutants From On-Site Construction***

As described in the Ambient Air Quality – Local Significance Thresholds discussion in Section 6.3.1, project construction would not expose sensitive receptors to emissions that would exceed the applicable 1-hour and 24-hour ambient air quality standards.

#### ***Toxic Air Contaminants***

##### **Pollutants Generated On Site**

The greatest potential for TAC emissions during construction would be related to diesel particulate emissions associated with heavy equipment operations during earth-moving activities. The SCAQMD does not consider diesel-related cancer risks from construction equipment to be an issue due to the short-term nature of construction activities, by definition. Construction activities associated with the Project would be sporadic, transitory, and short term in nature (no more than two years). The assessment of cancer risk is typically based on a 70-year exposure period. Because exposure to diesel exhaust would be well below the 70-year exposure period, construction of the Project is not anticipated to result in an elevated cancer risk to exposed persons due to the short-term nature of construction. As such, Project-related toxic emission impacts during construction would not be significant and no mitigation is required.

### **6.3.3 Cumulatively Considerable Net Increase of Nonattainment Criteria Pollutants**

The region is a federal and/or State nonattainment area for PM<sub>10</sub>, PM<sub>2.5</sub>, and O<sub>3</sub>. The project would contribute particulates and the O<sub>3</sub> precursors VOC and NO<sub>x</sub> to the area during short-term project construction. As described in Section 6.3.1, regional emissions during construction would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. Construction emissions would be less than the SCAQMD CEQA significance thresholds (Table 9). Therefore, regional construction emissions would not be cumulatively considerable, and the impact would be less than significant.

With respect to local impacts, cumulative construction particulate impacts are considered when projects may be within a few hundred yards of each other. No projects have been identified in the vicinity of the project site that would be under construction concurrently with the Project. Further, as shown in Table 10, local emissions from the Project would be less than half of the screening thresholds. Therefore, local construction emissions would not be cumulatively considerable, and the impact would be less than significant.

Once the Project is complete, there would be no long-term changes to the regular inspection and maintenance operations at the Santa Anita Dam, Headworks, or Debris Dam. Therefore, there would be no Project-generated change in pollutant emissions. The long-term cumulative impact would be less than significant.

### **6.3.4 Air Quality Management Plan Conformance**

The main purpose of an AQMP is to bring an area into compliance with the requirements of federal and State air quality standards. For a project to be consistent with the AQMP, the pollutants emitted from the project should not exceed the SCAQMD CEQA air quality significance thresholds or cause a significant impact on air quality. As shown above, pollutant emissions from the Project would be less than the SCAQMD thresholds and would not result in a significant impact. Further, the Project, being structural improvements to existing facilities without changes in operations, would not result in development that may not have been anticipated in the AQMP. No conflict with the 2012 AQMP would occur with the Project.

### **6.3.5 Odors**

Project construction equipment and activities would generate odors. Potential construction odors include diesel exhaust emissions and paving operations. There may be situations where construction activity odors will be noticeable by persons working at or visiting nearby facilities, but these odors would not be unfamiliar or necessarily objectionable. The odors would be temporary and would dissipate rapidly from the source with an increase in distance. Therefore, the impacts would be short-term; would not be objectionable to a substantial number of people; and would be less than significant. Long-term odors would be the same as for the existing conditions. There would be no impact.

## **7.0 GREENHOUSE GAS EMISSIONS IMPACTS**

### **7.1 THRESHOLDS OF SIGNIFICANCE**

#### **7.1.1 Greenhouse Gas Emissions**

Because the magnitude of global GHG emissions is extremely large when compared with the emissions of typical local infrastructure projects, it is accepted as very unlikely that any individual project would have GHG emissions of a magnitude to directly impact global climate change. CAPCOA's *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act* states, "GHG impacts are exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective" (CAPCOA 2008). As noted in the CNRA's *Final Statement of Reasons for Regulatory Action, Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97*, "Due to the global nature of GHG emissions and their potential effects, GHG emissions will typically be addressed in a cumulative impacts analysis" (CNRA 2009). Therefore, the GHG impact analysis represents the cumulative impact analysis for the project related to GHG emissions.

The following significance criteria are from Appendix G of the State CEQA Guidelines. These significance criteria are used as the thresholds of significance to determine whether project impacts would be significant and unavoidable or less than significant. The project would result in a significant impact related to GHG emissions if it would:

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

There are no established federal, State, or local quantitative thresholds applicable to the project to determine the quantity of GHG emissions that may have a significant effect on the environment. CARB, the SCAQMD, and various cities and agencies have proposed, or adopted on an interim basis, thresholds of significance or threshold levels that require the implementation of GHG emission reduction measures. Because the Project is not a residential or commercial land use development project, the SCAQMD adopted interim threshold of 10,000 MTCO<sub>2</sub>e for industrial projects is considered (SCAQMD 2008a).

### **7.2 METHODOLOGY**

#### **7.2.1 Amortization of Construction GHG Emissions**

Because GHG emission reduction measures for construction equipment are relatively limited, SCAQMD, in its *Draft Guidance Document – Interim CEQA GHG Significance Thresholds*, recommends that construction emissions be amortized over a 30-year project lifetime and considered to be an element of operational emissions (SCAQMD 2008a).

## 7.3 GREENHOUSE GAS IMPACT ANALYSIS

### 7.3.1 Calculated Greenhouse Gas Emissions

#### **Construction Emissions**

GHGs would be emitted by off-road and on-road construction equipment and worker vehicles. Construction emissions were calculated using CalEEMod, as described in the Methodology section (Section 6.2). The details of phasing, selection of construction equipment, and other input parameters are included in Section 6.3.1 and Appendix A of this report. GHGs for each phase of construction are shown in Table 11. The 30-year amortized GHGs from project construction are estimated at 23 MTCO<sub>2</sub>e.

**TABLE 11  
ESTIMATED GHG EMISSIONS FROM PROJECT CONSTRUCTION**

Phase and Year	Emissions (MTCO <sub>2</sub> e)
2015	43
2016	604
<b>Total</b>	<b>648</b>
<b>Annual Emissions*</b>	<b>22</b>
MTCO <sub>2</sub> e: metric tons of carbon dioxide equivalent	
Total does not add due to rounding.	
* Combined total amortized over 30 years	

#### **Operational Emissions**

Once the Project is complete, there would be no long-term changes to the regular inspection and maintenance operations at the Santa Anita Dam, Headworks, or Debris Dam. Helipad operations would only result in one or two helicopter trips per year. Therefore, any Project-generated change in GHG emissions would be nominal.

As described in Section 6.2.3 (Methodology), the impact of construction emissions is considered by amortizing the emissions over an assumed 30-year project lifetime. Therefore, the increase in long-term GHG emissions would be approximately 22 MTCO<sub>2</sub>e per year. This value is substantially less than the threshold of 10,000 MTCO<sub>2</sub>e per year that has been proposed by SCAQMD. The project GHG emissions would not be cumulatively considerable, and the impact would be less than significant. No mitigation measures would be required.

### 7.3.2 Conformance with Applicable Plans, Policies, and Regulations

As discussed above, the principal State plan and policy adopted for the purpose of reducing GHG emissions is AB 32. The quantitative goal of AB 32 is to reduce GHG emissions to 1990 levels by 2020. Statewide plans and regulations, such as GHG emissions standards for vehicles and the Low Carbon Fuel Standard, are being implemented at the statewide level, and compliance at the specific plan or project level is not addressed. Therefore, the Project does not conflict with these plans and regulations.

The Project would contribute to regional efforts to reduce dependence on imported water supplies by providing increased opportunities to recharge storm flows emanating from the Santa Anita Canyon Watershed. The Project has been identified as a regional-level project that could help to

increase recharge of the local groundwater basin and thereby increase local water supplies. Thus, the Project would reduce the GHG emissions associated with importing water from outside of the LACFCD.

As the Project does not conflict with State or County plans and regulations, it would result in a less than significant impact.

## 8.0 REFERENCES

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**APPENDIX A**

**AIR QUALITY AND GREENHOUSE GAS EMISSIONS CALCULATIONS**



Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

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Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Trips and VMT - Assumptions based on "Revised Santa Anita data needs 082014.xls" and CalEEMod Appx A

Demolition - Assumptions based on "Revised Santa Anita data needs 032014.xlsx"

Grading - Assumptions based on "Revised Santa Anita data needs 082014.xlsx"

Construction Off-road Equipment Mitigation -

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### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	SAD Helipad and Water System	Building Construction	12/15/2015	1/25/2016	5	30	
2	SAD Armor Canyon/Dam	Building Construction	12/15/2015	12/28/2015	5	10	
3	SAD Repair Leaks	Building Construction	2/1/2016	2/12/2016	5	10	
4	SAD Remove/Replace Jib Crane	Building Construction	2/13/2016	2/26/2016	5	10	
5	SAD Hoist	Building Construction	3/1/2016	3/28/2016	5	20	
6	SAHW Demo	Demolition	3/7/2016	3/11/2016	5	5	
7	SAHW Rubber Dam	Building Construction	3/12/2016	3/18/2016	5	5	
8	SAHW Construct Levee	Building Construction	3/19/2016	4/1/2016	5	10	
9	SAD Construct New Spillway	Grading	4/1/2016	9/30/2016	5	131	
10	SADD Construct New Spillway	Grading	4/1/2016	5/30/2016	5	42	
11	WPB Demo	Demolition	4/2/2016	4/15/2016	5	10	
12	SAD Install Valves	Building Construction	4/2/2016	4/15/2016	5	10	
13	SAD Electrical	Building Construction	4/2/2016	4/29/2016	5	20	
14	WPB Clear/Grub	Site Preparation	4/16/2016	5/14/2016	5	20	
15	WPB Grading	Grading	5/15/2016	5/28/2016	5	10	
16	WPB Abutments and Wing Walls	Building Construction	5/29/2016	6/29/2016	5	23	
17	SADD Construct Downstream Buttress	Grading	6/1/2016	8/15/2016	5	54	
18	WPB Construct Deck	Building Construction	6/30/2016	8/10/2016	5	30	
19	WPB Pave Bridge	Paving	8/15/2016	8/26/2016	5	10	
20	SADD Construct New Subdrain	Grading	8/16/2016	9/15/2016	5	23	
21	SADD Remove Outlet Tower	Grading	9/16/2016	9/30/2016	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
SAHW Demo	Concrete/Industrial Saws	1	8.00	81	0.73
SAHW Demo	Excavators	1	6.00	162	0.38
SAHW Demo	Tractors/Loaders/Backhoes	1	6.00	97	0.37
SAHW Rubber Dam	Tractors/Loaders/Backhoes	2	8.00	97	0.37
SAHW Construct Levee	Pumps	1	8.00	84	0.74
SAHW Construct Levee	Tractors/Loaders/Backhoes	1	8.00	97	0.37
WPB Demo	Concrete/Industrial Saws	1	8.00	81	0.73
WPB Demo	Excavators	1	6.00	162	0.38
WPB Demo	Tractors/Loaders/Backhoes	1	6.00	97	0.37
WPB Clear/Grub	Tractors/Loaders/Backhoes	1	8.00	97	0.37
WPB Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
WPB Abutments and Wing Walls	Pumps	2	8.00	84	0.74
WPB Construct Deck	Pumps	1	8.00	84	0.74
SAD Helipad and Water System	Pumps	1	6.00	84	0.74
SAD Helipad and Water System	Tractors/Loaders/Backhoes	1	8.00	97	0.37
SAD Armor Canyon/Dam	Pumps	1	8.00	84	0.74
WPB Pave Bridge	Rollers	1	7.00	80	0.38
SAD Repair Leaks	Pumps	1	8.00	84	0.74
SAD Remove/Replace Jib Crane	Cranes	1	4.00	226	0.29
SAD Hoist	Cranes	1	4.00	226	0.29
SAD Construct New Spillway	Concrete/Industrial Saws	1	8.00	81	0.73
SAD Construct New Spillway	Cranes	1	4.00	226	0.29
SAD Construct New Spillway	Pumps	1	8.00	84	0.74
SAD Construct New Spillway	Tractors/Loaders/Backhoes	2	6.00	97	0.37
SADD Construct New Spillway	Bore/Drill Rigs	1	6.00	205	0.50
SADD Construct New Spillway	Concrete/Industrial Saws	1	8.00	81	0.73
SADD Construct New Spillway	Pumps	1	6.00	84	0.74
SAD Install Valves	Cranes	1	4.00	226	0.29

SAD Electrical	Cranes	1	4.00	226	0.29
SADD Construct Downstream Buttress	Excavators	1	6.00	162	0.38
SADD Construct Downstream Buttress	Rubber Tired Dozers	1	6.00	255	0.40
SADD Construct Downstream Buttress	Tractors/Loaders/Backhoes	2	6.00	97	0.37
SADD Construct New Subdrain	Tractors/Loaders/Backhoes	2	8.00	97	0.37
SADD Remove Outlet Tower	Tractors/Loaders/Backhoes	2	6.00	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
SAHW Demo	3	10.00	0.00	20.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAHW Rubber Dam	2	6.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAHW Construct	2	6.00	0.00	38.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
WPB Demo	3	10.00	0.00	28.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
WPB Clear/Grub	1	6.00	0.00	420.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
WPB Grading	2	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
WPB Abutments and Wing Walls	2	8.00	0.00	92.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
WPB Construct Deck	1	6.00	0.00	36.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Helipad and Water System	2	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Armor Canyon/Dam	1	6.00	0.00	1,000.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
WPB Pave Bridge	1	6.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Repair Leaks	1	6.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Remove/Replace Lift Crane	1	6.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Hoist	1	6.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Construct New Spillway	5	16.00	0.00	112.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SADD Construct New Spillway	3	10.00	0.00	126.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Install Valves	1	6.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Electrical	1	6.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SADD Construct Downstream Buttress	4	10.00	0.00	8,125.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SADD Construct New Subdrain	2	6.00	0.00	313.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

SADD Remove Outlet Tower	2	10.00	0.00	10.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
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### 3.1 Mitigation Measures Construction

Water Exposed Area

### 3.2 SAD Helipad and Water System - 2015

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9187	7.4134	5.3478	8.0500e-003		0.5679	0.5679		0.5464	0.5464		794.7644	794.7644	0.1479		797.8708
<b>Total</b>	<b>0.9187</b>	<b>7.4134</b>	<b>5.3478</b>	<b>8.0500e-003</b>		<b>0.5679</b>	<b>0.5679</b>		<b>0.5464</b>	<b>0.5464</b>		<b>794.7644</b>	<b>794.7644</b>	<b>0.1479</b>		<b>797.8708</b>

#### 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	0.0106	0.1014	0.1334	2.2000e-004	6.2300e-003	1.6800e-003	7.9100e-003	1.7700e-003	1.5400e-003	3.3200e-003		22.0778	22.0778	1.8000e-004		22.0817
Worker	0.0514	0.0688	0.7205	1.3700e-003	0.1118	1.1200e-003	0.1129	0.0296	1.0200e-003	0.0307		120.0108	120.0108	7.2600e-003		120.1631
<b>Total</b>	<b>0.0620</b>	<b>0.1702</b>	<b>0.8539</b>	<b>1.5900e-003</b>	<b>0.1180</b>	<b>2.8000e-003</b>	<b>0.1208</b>	<b>0.0314</b>	<b>2.5600e-003</b>	<b>0.0340</b>		<b>142.0886</b>	<b>142.0886</b>	<b>7.4400e-003</b>		<b>142.2448</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9187	7.4134	5.3478	8.0500e-003		0.5679	0.5679		0.5464	0.5464	0.0000	794.7644	794.7644	0.1479		797.8708
<b>Total</b>	<b>0.9187</b>	<b>7.4134</b>	<b>5.3478</b>	<b>8.0500e-003</b>		<b>0.5679</b>	<b>0.5679</b>		<b>0.5464</b>	<b>0.5464</b>	<b>0.0000</b>	<b>794.7644</b>	<b>794.7644</b>	<b>0.1479</b>		<b>797.8708</b>

**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	0.0106	0.1014	0.1334	2.2000e-004	6.2300e-003	1.6800e-003	7.9100e-003	1.7700e-003	1.5400e-003	3.3200e-003		22.0778	22.0778	1.8000e-004		22.0817
Worker	0.0514	0.0688	0.7205	1.3700e-003	0.1118	1.1200e-003	0.1129	0.0296	1.0200e-003	0.0307		120.0108	120.0108	7.2600e-003		120.1631
<b>Total</b>	<b>0.0620</b>	<b>0.1702</b>	<b>0.8539</b>	<b>1.5900e-003</b>	<b>0.1180</b>	<b>2.8000e-003</b>	<b>0.1208</b>	<b>0.0314</b>	<b>2.5600e-003</b>	<b>0.0340</b>		<b>142.0886</b>	<b>142.0886</b>	<b>7.4400e-003</b>		<b>142.2448</b>

**3.2 SAD Helipad and Water System - 2016**

**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
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Category	lb/day										lb/day					
Off-Road	0.8421	6.9370	5.3094	8.0500e-003		0.5179	0.5179		0.4978	0.4978		790.9532	790.9532	0.1429		793.9532
<b>Total</b>	<b>0.8421</b>	<b>6.9370</b>	<b>5.3094</b>	<b>8.0500e-003</b>		<b>0.5179</b>	<b>0.5179</b>		<b>0.4978</b>	<b>0.4978</b>		<b>790.9532</b>	<b>790.9532</b>	<b>0.1429</b>		<b>793.9532</b>

**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	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004		21.8427
Worker	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>0.0556</b>	<b>0.1519</b>	<b>0.7752</b>	<b>1.5900e-003</b>	<b>0.1180</b>	<b>2.4400e-003</b>	<b>0.1205</b>	<b>0.0314</b>	<b>2.2400e-003</b>	<b>0.0337</b>		<b>137.8423</b>	<b>137.8423</b>	<b>6.8600e-003</b>		<b>137.9863</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8421	6.9370	5.3094	8.0500e-003		0.5179	0.5179		0.4978	0.4978	0.0000	790.9532	790.9532	0.1429		793.9532
<b>Total</b>	<b>0.8421</b>	<b>6.9370</b>	<b>5.3094</b>	<b>8.0500e-003</b>		<b>0.5179</b>	<b>0.5179</b>		<b>0.4978</b>	<b>0.4978</b>	<b>0.0000</b>	<b>790.9532</b>	<b>790.9532</b>	<b>0.1429</b>		<b>793.9532</b>

**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	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004		21.8427
Worker	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>0.0556</b>	<b>0.1519</b>	<b>0.7752</b>	<b>1.5900e-003</b>	<b>0.1180</b>	<b>2.4400e-003</b>	<b>0.1205</b>	<b>0.0314</b>	<b>2.2400e-003</b>	<b>0.0337</b>		<b>137.8423</b>	<b>137.8423</b>	<b>6.8600e-003</b>		<b>137.9863</b>

**3.3 SAD Armor Canyon/Dam - 2015**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7444	5.3084	3.8963	6.5800e-003		0.3991	0.3991		0.3991	0.3991		623.0357	623.0357	0.0669		624.4400
<b>Total</b>	<b>0.7444</b>	<b>5.3084</b>	<b>3.8963</b>	<b>6.5800e-003</b>		<b>0.3991</b>	<b>0.3991</b>		<b>0.3991</b>	<b>0.3991</b>		<b>623.0357</b>	<b>623.0357</b>	<b>0.0669</b>		<b>624.4400</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.1270	32.8466	24.7919	0.0746	1.7411	0.5249	2.2660	0.4767	0.4828	0.9595		7,593.0996	7,593.0996	0.0626		7,594.4146
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	0.0308	0.0413	0.4323	8.2000e-004	0.0671	6.7000e-004	0.0677	0.0178	6.1000e-004	0.0184		72.0065	72.0065	4.3500e-003		72.0979
<b>Total</b>	<b>2.1579</b>	<b>32.8879</b>	<b>25.2241</b>	<b>0.0755</b>	<b>1.8082</b>	<b>0.5256</b>	<b>2.3337</b>	<b>0.4945</b>	<b>0.4834</b>	<b>0.9779</b>		<b>7,665.1060</b>	<b>7,665.1060</b>	<b>0.0670</b>		<b>7,666.5125</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7444	5.3084	3.8963	6.5800e-003		0.3991	0.3991		0.3991	0.3991	0.0000	623.0357	623.0357	0.0669		624.4400
<b>Total</b>	<b>0.7444</b>	<b>5.3084</b>	<b>3.8963</b>	<b>6.5800e-003</b>		<b>0.3991</b>	<b>0.3991</b>		<b>0.3991</b>	<b>0.3991</b>	<b>0.0000</b>	<b>623.0357</b>	<b>623.0357</b>	<b>0.0669</b>		<b>624.4400</b>

**Mitigated Construction Off-Site**

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



Hauling	2.1270	32.8466	24.7919	0.0746	1.7411	0.5249	2.2660	0.4767	0.4828	0.9595		7,593.0996	7,593.0996	0.0626		7,594.4146
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	0.0308	0.0413	0.4323	8.2000e-004	0.0671	6.7000e-004	0.0677	0.0178	6.1000e-004	0.0184		72.0065	72.0065	4.3500e-003		72.0979
<b>Total</b>	<b>2.1579</b>	<b>32.8879</b>	<b>25.2241</b>	<b>0.0755</b>	<b>1.8082</b>	<b>0.5256</b>	<b>2.3337</b>	<b>0.4945</b>	<b>0.4834</b>	<b>0.9779</b>		<b>7,665.1060</b>	<b>7,665.1060</b>	<b>0.0670</b>		<b>7,666.5125</b>

### 3.4 SAD Repair Leaks - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6688	4.9093	3.8623	6.5800e-003		0.3563	0.3563		0.3563	0.3563		623.0346	623.0346	0.0603		624.3008
<b>Total</b>	<b>0.6688</b>	<b>4.9093</b>	<b>3.8623</b>	<b>6.5800e-003</b>		<b>0.3563</b>	<b>0.3563</b>		<b>0.3563</b>	<b>0.3563</b>		<b>623.0346</b>	<b>623.0346</b>	<b>0.0603</b>		<b>624.3008</b>

#### 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	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004		21.8427
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0371</b>	<b>0.1270</b>	<b>0.5146</b>	<b>1.0400e-003</b>	<b>0.0733</b>	<b>2.0100e-003</b>	<b>0.0753</b>	<b>0.0196</b>	<b>1.8500e-003</b>	<b>0.0214</b>		<b>91.4411</b>	<b>91.4411</b>	<b>4.1800e-003</b>		<b>91.5289</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6688	4.9093	3.8623	6.5800e-003		0.3563	0.3563		0.3563	0.3563	0.0000	623.0346	623.0346	0.0603		624.3008
<b>Total</b>	<b>0.6688</b>	<b>4.9093</b>	<b>3.8623</b>	<b>6.5800e-003</b>		<b>0.3563</b>	<b>0.3563</b>		<b>0.3563</b>	<b>0.3563</b>	<b>0.0000</b>	<b>623.0346</b>	<b>623.0346</b>	<b>0.0603</b>		<b>624.3008</b>

**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	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004		21.8427
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0371</b>	<b>0.1270</b>	<b>0.5146</b>	<b>1.0400e-003</b>	<b>0.0733</b>	<b>2.0100e-003</b>	<b>0.0753</b>	<b>0.0196</b>	<b>1.8500e-003</b>	<b>0.0214</b>		<b>91.4411</b>	<b>91.4411</b>	<b>4.1800e-003</b>		<b>91.5289</b>

**3.5 SAD Remove/Replace Jib Crane - 2016**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3600	4.2658	1.4924	2.8200e-003		0.1936	0.1936		0.1781	0.1781		293.1174	293.1174	0.0884		294.9741
<b>Total</b>	<b>0.3600</b>	<b>4.2658</b>	<b>1.4924</b>	<b>2.8200e-003</b>		<b>0.1936</b>	<b>0.1936</b>		<b>0.1781</b>	<b>0.1781</b>		<b>293.1174</b>	<b>293.1174</b>	<b>0.0884</b>		<b>294.9741</b>

**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	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004		21.8427
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0371</b>	<b>0.1270</b>	<b>0.5146</b>	<b>1.0400e-003</b>	<b>0.0733</b>	<b>2.0100e-003</b>	<b>0.0753</b>	<b>0.0196</b>	<b>1.8500e-003</b>	<b>0.0214</b>		<b>91.4411</b>	<b>91.4411</b>	<b>4.1800e-003</b>		<b>91.5289</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3600	4.2658	1.4924	2.8200e-003		0.1936	0.1936		0.1781	0.1781	0.0000	293.1174	293.1174	0.0884		294.9741

<b>Total</b>	<b>0.3600</b>	<b>4.2658</b>	<b>1.4924</b>	<b>2.8200e-003</b>		<b>0.1936</b>	<b>0.1936</b>		<b>0.1781</b>	<b>0.1781</b>	<b>0.0000</b>	<b>293.1174</b>	<b>293.1174</b>	<b>0.0884</b>		<b>294.9741</b>
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**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	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004		21.8427
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0371</b>	<b>0.1270</b>	<b>0.5146</b>	<b>1.0400e-003</b>	<b>0.0733</b>	<b>2.0100e-003</b>	<b>0.0753</b>	<b>0.0196</b>	<b>1.8500e-003</b>	<b>0.0214</b>		<b>91.4411</b>	<b>91.4411</b>	<b>4.1800e-003</b>		<b>91.5289</b>

**3.6 SAD Hoist - 2016**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3600	4.2658	1.4924	2.8200e-003		0.1936	0.1936		0.1781	0.1781		293.1174	293.1174	0.0884		294.9741
<b>Total</b>	<b>0.3600</b>	<b>4.2658</b>	<b>1.4924</b>	<b>2.8200e-003</b>		<b>0.1936</b>	<b>0.1936</b>		<b>0.1781</b>	<b>0.1781</b>		<b>293.1174</b>	<b>293.1174</b>	<b>0.0884</b>		<b>294.9741</b>

**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	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004		21.8427
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0371</b>	<b>0.1270</b>	<b>0.5146</b>	<b>1.0400e-003</b>	<b>0.0733</b>	<b>2.0100e-003</b>	<b>0.0753</b>	<b>0.0196</b>	<b>1.8500e-003</b>	<b>0.0214</b>		<b>91.4411</b>	<b>91.4411</b>	<b>4.1800e-003</b>		<b>91.5289</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3600	4.2658	1.4924	2.8200e-003		0.1936	0.1936		0.1781	0.1781	0.0000	293.1174	293.1174	0.0884		294.9741
<b>Total</b>	<b>0.3600</b>	<b>4.2658</b>	<b>1.4924</b>	<b>2.8200e-003</b>		<b>0.1936</b>	<b>0.1936</b>		<b>0.1781</b>	<b>0.1781</b>	<b>0.0000</b>	<b>293.1174</b>	<b>293.1174</b>	<b>0.0884</b>		<b>294.9741</b>

**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	0.0000
Vendor	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004	21.8427
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003	69.6862
<b>Total</b>	<b>0.0371</b>	<b>0.1270</b>	<b>0.5146</b>	<b>1.0400e-003</b>	<b>0.0733</b>	<b>2.0100e-003</b>	<b>0.0753</b>	<b>0.0196</b>	<b>1.8500e-003</b>	<b>0.0214</b>		<b>91.4411</b>	<b>91.4411</b>	<b>4.1800e-003</b>	<b>91.5289</b>

### 3.7 SAHW Demo - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1669	0.0000	0.1669	0.0253	0.0000	0.0253			0.0000			0.0000
Off-Road	1.1932	10.3864	8.1560	0.0126		0.6988	0.6988		0.6706	0.6706		1,247.8622	1,247.8622	0.2550		1,253.2170
<b>Total</b>	<b>1.1932</b>	<b>10.3864</b>	<b>8.1560</b>	<b>0.0126</b>	<b>0.1669</b>	<b>0.6988</b>	<b>0.8657</b>	<b>0.0253</b>	<b>0.6706</b>	<b>0.6959</b>		<b>1,247.8622</b>	<b>1,247.8622</b>	<b>0.2550</b>		<b>1,253.2170</b>

#### 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	0.0746	1.1607	0.9223	2.9800e-003	0.0697	0.0166	0.0863	0.0191	0.0153	0.0344		300.3670	300.3670	2.2500e-003		300.4143
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	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>0.1209</b>	<b>1.2229</b>	<b>1.5736</b>	<b>4.3500e-003</b>	<b>0.1814</b>	<b>0.0177</b>	<b>0.1991</b>	<b>0.0487</b>	<b>0.0163</b>	<b>0.0650</b>		<b>416.3701</b>	<b>416.3701</b>	<b>8.9400e-003</b>		<b>416.5579</b>

**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					0.0651	0.0000	0.0651	9.8600e-003	0.0000	9.8600e-003			0.0000			0.0000
Off-Road	1.1932	10.3864	8.1560	0.0126		0.6988	0.6988		0.6706	0.6706	0.0000	1,247.8622	1,247.8622	0.2550		1,253.2170
<b>Total</b>	<b>1.1932</b>	<b>10.3864</b>	<b>8.1560</b>	<b>0.0126</b>	<b>0.0651</b>	<b>0.6988</b>	<b>0.7639</b>	<b>9.8600e-003</b>	<b>0.6706</b>	<b>0.6805</b>	<b>0.0000</b>	<b>1,247.8622</b>	<b>1,247.8622</b>	<b>0.2550</b>		<b>1,253.2170</b>

**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	0.0746	1.1607	0.9223	2.9800e-003	0.0697	0.0166	0.0863	0.0191	0.0153	0.0344		300.3670	300.3670	2.2500e-003		300.4143
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	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>0.1209</b>	<b>1.2229</b>	<b>1.5736</b>	<b>4.3500e-003</b>	<b>0.1814</b>	<b>0.0177</b>	<b>0.1991</b>	<b>0.0487</b>	<b>0.0163</b>	<b>0.0650</b>		<b>416.3701</b>	<b>416.3701</b>	<b>8.9400e-003</b>		<b>416.5579</b>

**3.8 SAHW Rubber Dam - 2016**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6812	6.5101	4.8252	6.2300e-003		0.5012	0.5012		0.4611	0.4611		647.3546	647.3546	0.1953		651.4551
<b>Total</b>	<b>0.6812</b>	<b>6.5101</b>	<b>4.8252</b>	<b>6.2300e-003</b>		<b>0.5012</b>	<b>0.5012</b>		<b>0.4611</b>	<b>0.4611</b>		<b>647.3546</b>	<b>647.3546</b>	<b>0.1953</b>		<b>651.4551</b>

**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	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004		21.8427
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0371</b>	<b>0.1270</b>	<b>0.5146</b>	<b>1.0400e-003</b>	<b>0.0733</b>	<b>2.0100e-003</b>	<b>0.0753</b>	<b>0.0196</b>	<b>1.8500e-003</b>	<b>0.0214</b>		<b>91.4411</b>	<b>91.4411</b>	<b>4.1800e-003</b>		<b>91.5289</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6812	6.5101	4.8252	6.2300e-003		0.5012	0.5012		0.4611	0.4611	0.0000	647.3546	647.3546	0.1953		651.4551



<b>Total</b>	<b>0.6812</b>	<b>6.5101</b>	<b>4.8252</b>	<b>6.2300e-003</b>		<b>0.5012</b>	<b>0.5012</b>		<b>0.4611</b>	<b>0.4611</b>	<b>0.0000</b>	<b>647.3546</b>	<b>647.3546</b>	<b>0.1953</b>		<b>651.4551</b>
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**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	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004		21.8427
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0371</b>	<b>0.1270</b>	<b>0.5146</b>	<b>1.0400e-003</b>	<b>0.0733</b>	<b>2.0100e-003</b>	<b>0.0753</b>	<b>0.0196</b>	<b>1.8500e-003</b>	<b>0.0214</b>		<b>91.4411</b>	<b>91.4411</b>	<b>4.1800e-003</b>		<b>91.5289</b>

**3.9 SAHW Construct Levee - 2016**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0093	8.1644	6.2749	9.6900e-003		0.6069	0.6069		0.5869	0.5869		946.7119	946.7119	0.1579		950.0284
<b>Total</b>	<b>1.0093</b>	<b>8.1644</b>	<b>6.2749</b>	<b>9.6900e-003</b>		<b>0.6069</b>	<b>0.6069</b>		<b>0.5869</b>	<b>0.5869</b>		<b>946.7119</b>	<b>946.7119</b>	<b>0.1579</b>		<b>950.0284</b>

**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	0.0709	1.1027	0.8762	2.8300e-003	0.0662	0.0158	0.0820	0.0181	0.0145	0.0327		285.3486	285.3486	2.1400e-003		285.3936
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	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0987</b>	<b>1.1400</b>	<b>1.2670</b>	<b>3.6500e-003</b>	<b>0.1332</b>	<b>0.0164</b>	<b>0.1497</b>	<b>0.0359</b>	<b>0.0151</b>	<b>0.0510</b>		<b>354.9505</b>	<b>354.9505</b>	<b>6.1500e-003</b>		<b>355.0798</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0093	8.1644	6.2749	9.6900e-003		0.6069	0.6069		0.5869	0.5869	0.0000	946.7119	946.7119	0.1579		950.0284
<b>Total</b>	<b>1.0093</b>	<b>8.1644</b>	<b>6.2749</b>	<b>9.6900e-003</b>		<b>0.6069</b>	<b>0.6069</b>		<b>0.5869</b>	<b>0.5869</b>	<b>0.0000</b>	<b>946.7119</b>	<b>946.7119</b>	<b>0.1579</b>		<b>950.0284</b>

**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	0.0709	1.1027	0.8762	2.8300e-003	0.0662	0.0158	0.0820	0.0181	0.0145	0.0327		285.3486	285.3486	2.1400e-003		285.3936
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	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0987</b>	<b>1.1400</b>	<b>1.2670</b>	<b>3.6500e-003</b>	<b>0.1332</b>	<b>0.0164</b>	<b>0.1497</b>	<b>0.0359</b>	<b>0.0151</b>	<b>0.0510</b>		<b>354.9505</b>	<b>354.9505</b>	<b>6.1500e-003</b>		<b>355.0798</b>

### 3.10 SAD Construct New Spillway - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.1862	18.6797	12.7489	0.0203		1.2731	1.2731		1.2275	1.2275		1,994.3335	1,994.3335	0.3525		2,001.7364
<b>Total</b>	<b>2.1862</b>	<b>18.6797</b>	<b>12.7489</b>	<b>0.0203</b>	<b>0.0000</b>	<b>1.2731</b>	<b>1.2731</b>	<b>0.0000</b>	<b>1.2275</b>	<b>1.2275</b>		<b>1,994.3335</b>	<b>1,994.3335</b>	<b>0.3525</b>		<b>2,001.7364</b>

#### 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	0.0160	0.2481	0.1971	6.4000e-004	0.0149	3.5600e-003	0.0185	4.0800e-003	3.2700e-003	7.3500e-003		64.2006	64.2006	4.8000e-004		64.2107
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	0.0741	0.0995	1.0422	2.1900e-003	0.1788	1.6900e-003	0.1805	0.0474	1.5500e-003	0.0490		185.6050	185.6050	0.0107		185.8298
<b>Total</b>	<b>0.0901</b>	<b>0.3475</b>	<b>1.2393</b>	<b>2.8300e-003</b>	<b>0.1937</b>	<b>5.2500e-003</b>	<b>0.1990</b>	<b>0.0515</b>	<b>4.8200e-003</b>	<b>0.0563</b>		<b>249.8056</b>	<b>249.8056</b>	<b>0.0112</b>		<b>250.0405</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.1862	18.6797	12.7489	0.0203		1.2731	1.2731		1.2275	1.2275	0.0000	1,994.3335	1,994.3335	0.3525		2,001.7364
<b>Total</b>	<b>2.1862</b>	<b>18.6797</b>	<b>12.7489</b>	<b>0.0203</b>	<b>0.0000</b>	<b>1.2731</b>	<b>1.2731</b>	<b>0.0000</b>	<b>1.2275</b>	<b>1.2275</b>	<b>0.0000</b>	<b>1,994.3335</b>	<b>1,994.3335</b>	<b>0.3525</b>		<b>2,001.7364</b>

**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	0.0160	0.2481	0.1971	6.4000e-004	0.0149	3.5600e-003	0.0185	4.0800e-003	3.2700e-003	7.3500e-003		64.2006	64.2006	4.8000e-004		64.2107
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	0.0741	0.0995	1.0422	2.1900e-003	0.1788	1.6900e-003	0.1805	0.0474	1.5500e-003	0.0490		185.6050	185.6050	0.0107		185.8298
<b>Total</b>	<b>0.0901</b>	<b>0.3475</b>	<b>1.2393</b>	<b>2.8300e-003</b>	<b>0.1937</b>	<b>5.2500e-003</b>	<b>0.1990</b>	<b>0.0515</b>	<b>4.8200e-003</b>	<b>0.0563</b>		<b>249.8056</b>	<b>249.8056</b>	<b>0.0112</b>		<b>250.0405</b>

**3.11 SADD Construct New Spillway - 2016**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.4092	12.2388	8.2081	0.0178		0.7300	0.7300		0.7208	0.7208		1,740.7482	1,740.7482	0.3079		1,747.2149
<b>Total</b>	<b>1.4092</b>	<b>12.2388</b>	<b>8.2081</b>	<b>0.0178</b>	<b>0.0000</b>	<b>0.7300</b>	<b>0.7300</b>	<b>0.0000</b>	<b>0.7208</b>	<b>0.7208</b>		<b>1,740.7482</b>	<b>1,740.7482</b>	<b>0.3079</b>		<b>1,747.2149</b>

**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	0.0560	0.8705	0.6917	2.2400e-003	0.0522	0.0125	0.0647	0.0143	0.0115	0.0258		225.2752	225.2752	1.6900e-003		225.3107
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	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>0.1023</b>	<b>0.9327</b>	<b>1.3431</b>	<b>3.6100e-003</b>	<b>0.1640</b>	<b>0.0135</b>	<b>0.1776</b>	<b>0.0439</b>	<b>0.0125</b>	<b>0.0564</b>		<b>341.2783</b>	<b>341.2783</b>	<b>8.3800e-003</b>		<b>341.4543</b>

**Mitigated Construction On-Site**

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

Off-Road	1.4092	12.2388	8.2081	0.0178		0.7300	0.7300		0.7208	0.7208	0.0000	1,740.7482	1,740.7482	0.3079		1,747.2149
<b>Total</b>	<b>1.4092</b>	<b>12.2388</b>	<b>8.2081</b>	<b>0.0178</b>	<b>0.0000</b>	<b>0.7300</b>	<b>0.7300</b>	<b>0.0000</b>	<b>0.7208</b>	<b>0.7208</b>	<b>0.0000</b>	<b>1,740.7482</b>	<b>1,740.7482</b>	<b>0.3079</b>		<b>1,747.2149</b>

**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	0.0560	0.8705	0.6917	2.2400e-003	0.0522	0.0125	0.0647	0.0143	0.0115	0.0258		225.2752	225.2752	1.6900e-003		225.3107
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	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>0.1023</b>	<b>0.9327</b>	<b>1.3431</b>	<b>3.6100e-003</b>	<b>0.1640</b>	<b>0.0135</b>	<b>0.1776</b>	<b>0.0439</b>	<b>0.0125</b>	<b>0.0564</b>		<b>341.2783</b>	<b>341.2783</b>	<b>8.3800e-003</b>		<b>341.4543</b>

**3.12 WPB Demo - 2016**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.2300	0.0000	0.2300	0.0348	0.0000	0.0348			0.0000			0.0000
Off-Road	1.1932	10.3864	8.1560	0.0126		0.6988	0.6988		0.6706	0.6706		1,247.8622	1,247.8622	0.2550		1,253.2170
<b>Total</b>	<b>1.1932</b>	<b>10.3864</b>	<b>8.1560</b>	<b>0.0126</b>	<b>0.2300</b>	<b>0.6988</b>	<b>0.9288</b>	<b>0.0348</b>	<b>0.6706</b>	<b>0.7055</b>		<b>1,247.8622</b>	<b>1,247.8622</b>	<b>0.2550</b>		<b>1,253.2170</b>

**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	0.0522	0.8125	0.6456	2.0900e-003	0.0488	0.0117	0.0604	0.0134	0.0107	0.0241		210.2569	210.2569	1.5800e-003		210.2900
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	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>0.0986</b>	<b>0.8747</b>	<b>1.2970</b>	<b>3.4600e-003</b>	<b>0.1605</b>	<b>0.0127</b>	<b>0.1732</b>	<b>0.0430</b>	<b>0.0117</b>	<b>0.0547</b>		<b>326.2600</b>	<b>326.2600</b>	<b>8.2700e-003</b>		<b>326.4336</b>

**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					0.0897	0.0000	0.0897	0.0136	0.0000	0.0136			0.0000			0.0000
Off-Road	1.1932	10.3864	8.1560	0.0126		0.6988	0.6988		0.6706	0.6706	0.0000	1,247.8622	1,247.8622	0.2550		1,253.2170
<b>Total</b>	<b>1.1932</b>	<b>10.3864</b>	<b>8.1560</b>	<b>0.0126</b>	<b>0.0897</b>	<b>0.6988</b>	<b>0.7885</b>	<b>0.0136</b>	<b>0.6706</b>	<b>0.6842</b>	<b>0.0000</b>	<b>1,247.8622</b>	<b>1,247.8622</b>	<b>0.2550</b>		<b>1,253.2170</b>

**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	0.0522	0.8125	0.6456	2.0900e-003	0.0488	0.0117	0.0604	0.0134	0.0107	0.0241		210.2569	210.2569	1.5800e-003		210.2900
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	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>0.0986</b>	<b>0.8747</b>	<b>1.2970</b>	<b>3.4600e-003</b>	<b>0.1605</b>	<b>0.0127</b>	<b>0.1732</b>	<b>0.0430</b>	<b>0.0117</b>	<b>0.0547</b>		<b>326.2600</b>	<b>326.2600</b>	<b>8.2700e-003</b>		<b>326.4336</b>

### 3.13 SAD Install Valves - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3600	4.2658	1.4924	2.8200e-003		0.1936	0.1936		0.1781	0.1781		293.1174	293.1174	0.0884		294.9741
<b>Total</b>	<b>0.3600</b>	<b>4.2658</b>	<b>1.4924</b>	<b>2.8200e-003</b>		<b>0.1936</b>	<b>0.1936</b>		<b>0.1781</b>	<b>0.1781</b>		<b>293.1174</b>	<b>293.1174</b>	<b>0.0884</b>		<b>294.9741</b>

#### 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	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004		21.8427
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0371</b>	<b>0.1270</b>	<b>0.5146</b>	<b>1.0400e-003</b>	<b>0.0733</b>	<b>2.0100e-003</b>	<b>0.0753</b>	<b>0.0196</b>	<b>1.8500e-003</b>	<b>0.0214</b>		<b>91.4411</b>	<b>91.4411</b>	<b>4.1800e-003</b>		<b>91.5289</b>



**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3600	4.2658	1.4924	2.8200e-003		0.1936	0.1936		0.1781	0.1781	0.0000	293.1174	293.1174	0.0884		294.9741
<b>Total</b>	<b>0.3600</b>	<b>4.2658</b>	<b>1.4924</b>	<b>2.8200e-003</b>		<b>0.1936</b>	<b>0.1936</b>		<b>0.1781</b>	<b>0.1781</b>	<b>0.0000</b>	<b>293.1174</b>	<b>293.1174</b>	<b>0.0884</b>		<b>294.9741</b>

**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	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004		21.8427
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0371</b>	<b>0.1270</b>	<b>0.5146</b>	<b>1.0400e-003</b>	<b>0.0733</b>	<b>2.0100e-003</b>	<b>0.0753</b>	<b>0.0196</b>	<b>1.8500e-003</b>	<b>0.0214</b>		<b>91.4411</b>	<b>91.4411</b>	<b>4.1800e-003</b>		<b>91.5289</b>

**3.14 SAD Electrical - 2016**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3600	4.2658	1.4924	2.8200e-003		0.1936	0.1936		0.1781	0.1781		293.1174	293.1174	0.0884		294.9741
<b>Total</b>	<b>0.3600</b>	<b>4.2658</b>	<b>1.4924</b>	<b>2.8200e-003</b>		<b>0.1936</b>	<b>0.1936</b>		<b>0.1781</b>	<b>0.1781</b>		<b>293.1174</b>	<b>293.1174</b>	<b>0.0884</b>		<b>294.9741</b>

**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	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004		21.8427
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0371</b>	<b>0.1270</b>	<b>0.5146</b>	<b>1.0400e-003</b>	<b>0.0733</b>	<b>2.0100e-003</b>	<b>0.0753</b>	<b>0.0196</b>	<b>1.8500e-003</b>	<b>0.0214</b>		<b>91.4411</b>	<b>91.4411</b>	<b>4.1800e-003</b>		<b>91.5289</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3600	4.2658	1.4924	2.8200e-003		0.1936	0.1936		0.1781	0.1781	0.0000	293.1174	293.1174	0.0884		294.9741

<b>Total</b>	<b>0.3600</b>	<b>4.2658</b>	<b>1.4924</b>	<b>2.8200e-003</b>		<b>0.1936</b>	<b>0.1936</b>		<b>0.1781</b>	<b>0.1781</b>	<b>0.0000</b>	<b>293.1174</b>	<b>293.1174</b>	<b>0.0884</b>		<b>294.9741</b>
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**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	9.2900e-003	0.0897	0.1238	2.2000e-004	6.2400e-003	1.3800e-003	7.6200e-003	1.7700e-003	1.2700e-003	3.0500e-003		21.8392	21.8392	1.7000e-004		21.8427
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0371</b>	<b>0.1270</b>	<b>0.5146</b>	<b>1.0400e-003</b>	<b>0.0733</b>	<b>2.0100e-003</b>	<b>0.0753</b>	<b>0.0196</b>	<b>1.8500e-003</b>	<b>0.0214</b>		<b>91.4411</b>	<b>91.4411</b>	<b>4.1800e-003</b>		<b>91.5289</b>

**3.15 WPB Clear/Grub - 2016**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3406	3.2551	2.4126	3.1100e-003		0.2506	0.2506		0.2306	0.2306		323.6773	323.6773	0.0976		325.7276
<b>Total</b>	<b>0.3406</b>	<b>3.2551</b>	<b>2.4126</b>	<b>3.1100e-003</b>	<b>0.0000</b>	<b>0.2506</b>	<b>0.2506</b>	<b>0.0000</b>	<b>0.2306</b>	<b>0.2306</b>		<b>323.6773</b>	<b>323.6773</b>	<b>0.0976</b>		<b>325.7276</b>

**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	0.3917	6.0937	4.8419	0.0157	0.3657	0.0874	0.4531	0.1001	0.0804	0.1805		1,576.9265	1,576.9265	0.0118		1,577.1751
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	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.4195</b>	<b>6.1310</b>	<b>5.2328</b>	<b>0.0165</b>	<b>0.4328</b>	<b>0.0880</b>	<b>0.5208</b>	<b>0.1179</b>	<b>0.0810</b>	<b>0.1989</b>		<b>1,646.5284</b>	<b>1,646.5284</b>	<b>0.0159</b>		<b>1,646.8613</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3406	3.2551	2.4126	3.1100e-003		0.2506	0.2506		0.2306	0.2306	0.0000	323.6773	323.6773	0.0976		325.7276
<b>Total</b>	<b>0.3406</b>	<b>3.2551</b>	<b>2.4126</b>	<b>3.1100e-003</b>	<b>0.0000</b>	<b>0.2506</b>	<b>0.2506</b>	<b>0.0000</b>	<b>0.2306</b>	<b>0.2306</b>	<b>0.0000</b>	<b>323.6773</b>	<b>323.6773</b>	<b>0.0976</b>		<b>325.7276</b>

**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	0.3917	6.0937	4.8419	0.0157	0.3657	0.0874	0.4531	0.1001	0.0804	0.1805		1,576.9265	1,576.9265	0.0118		1,577.1751
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	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.4195</b>	<b>6.1310</b>	<b>5.2328</b>	<b>0.0165</b>	<b>0.4328</b>	<b>0.0880</b>	<b>0.5208</b>	<b>0.1179</b>	<b>0.0810</b>	<b>0.1989</b>		<b>1,646.5284</b>	<b>1,646.5284</b>	<b>0.0159</b>		<b>1,646.8613</b>

### 3.16 WPB Grading - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.5109	4.8826	3.6189	4.6700e-003		0.3759	0.3759		0.3459	0.3459		485.5159	485.5159	0.1465		488.5913
<b>Total</b>	<b>0.5109</b>	<b>4.8826</b>	<b>3.6189</b>	<b>4.6700e-003</b>	<b>0.0000</b>	<b>0.3759</b>	<b>0.3759</b>	<b>0.0000</b>	<b>0.3459</b>	<b>0.3459</b>		<b>485.5159</b>	<b>485.5159</b>	<b>0.1465</b>		<b>488.5913</b>

#### 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	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>0.0463</b>	<b>0.0622</b>	<b>0.6514</b>	<b>1.3700e-003</b>	<b>0.1118</b>	<b>1.0600e-003</b>	<b>0.1128</b>	<b>0.0296</b>	<b>9.7000e-004</b>	<b>0.0306</b>		<b>116.0031</b>	<b>116.0031</b>	<b>6.6900e-003</b>		<b>116.1436</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.5109	4.8826	3.6189	4.6700e-003		0.3759	0.3759		0.3459	0.3459	0.0000	485.5159	485.5159	0.1465		488.5913
<b>Total</b>	<b>0.5109</b>	<b>4.8826</b>	<b>3.6189</b>	<b>4.6700e-003</b>	<b>0.0000</b>	<b>0.3759</b>	<b>0.3759</b>	<b>0.0000</b>	<b>0.3459</b>	<b>0.3459</b>	<b>0.0000</b>	<b>485.5159</b>	<b>485.5159</b>	<b>0.1465</b>		<b>488.5913</b>

**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	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>0.0463</b>	<b>0.0622</b>	<b>0.6514</b>	<b>1.3700e-003</b>	<b>0.1118</b>	<b>1.0600e-003</b>	<b>0.1128</b>	<b>0.0296</b>	<b>9.7000e-004</b>	<b>0.0306</b>		<b>116.0031</b>	<b>116.0031</b>	<b>6.6900e-003</b>		<b>116.1436</b>

**3.17 WPB Abutments and Wing Walls - 2016**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3375	9.8186	7.7246	0.0132		0.7126	0.7126		0.7126	0.7126		1,246.0691	1,246.0691	0.1206		1,248.6016
<b>Total</b>	<b>1.3375</b>	<b>9.8186</b>	<b>7.7246</b>	<b>0.0132</b>		<b>0.7126</b>	<b>0.7126</b>		<b>0.7126</b>	<b>0.7126</b>		<b>1,246.0691</b>	<b>1,246.0691</b>	<b>0.1206</b>		<b>1,248.6016</b>

**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	0.0746	1.1607	0.9223	2.9800e-003	0.0697	0.0166	0.0863	0.0191	0.0153	0.0344		300.3670	300.3670	2.2500e-003		300.4143
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	0.0371	0.0497	0.5211	1.1000e-003	0.0894	8.5000e-004	0.0903	0.0237	7.8000e-004	0.0245		92.8025	92.8025	5.3500e-003		92.9149
<b>Total</b>	<b>0.1117</b>	<b>1.2104</b>	<b>1.4434</b>	<b>4.0800e-003</b>	<b>0.1591</b>	<b>0.0175</b>	<b>0.1766</b>	<b>0.0428</b>	<b>0.0161</b>	<b>0.0589</b>		<b>393.1695</b>	<b>393.1695</b>	<b>7.6000e-003</b>		<b>393.3292</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3375	9.8186	7.7246	0.0132		0.7126	0.7126		0.7126	0.7126	0.0000	1,246.0691	1,246.0691	0.1206		1,248.6016

<b>Total</b>	<b>1.3375</b>	<b>9.8186</b>	<b>7.7246</b>	<b>0.0132</b>		<b>0.7126</b>	<b>0.7126</b>		<b>0.7126</b>	<b>0.7126</b>	<b>0.0000</b>	<b>1,246.0691</b>	<b>1,246.0691</b>	<b>0.1206</b>		<b>1,248.6016</b>
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**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	0.0746	1.1607	0.9223	2.9800e-003	0.0697	0.0166	0.0863	0.0191	0.0153	0.0344		300.3670	300.3670	2.2500e-003		300.4143
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	0.0371	0.0497	0.5211	1.1000e-003	0.0894	8.5000e-004	0.0903	0.0237	7.8000e-004	0.0245		92.8025	92.8025	5.3500e-003		92.9149
<b>Total</b>	<b>0.1117</b>	<b>1.2104</b>	<b>1.4434</b>	<b>4.0800e-003</b>	<b>0.1591</b>	<b>0.0175</b>	<b>0.1766</b>	<b>0.0428</b>	<b>0.0161</b>	<b>0.0589</b>		<b>393.1695</b>	<b>393.1695</b>	<b>7.6000e-003</b>		<b>393.3292</b>

**3.18 SADD Construct Downstream Buttress - 2016**

**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					4.6527	0.0000	4.6527	2.5033	0.0000	2.5033			0.0000			0.0000
Off-Road	1.7307	18.6087	14.0540	0.0153		1.0235	1.0235		0.9416	0.9416		1,590.5285	1,590.5285	0.4798		1,600.6035
<b>Total</b>	<b>1.7307</b>	<b>18.6087</b>	<b>14.0540</b>	<b>0.0153</b>	<b>4.6527</b>	<b>1.0235</b>	<b>5.6762</b>	<b>2.5033</b>	<b>0.9416</b>	<b>3.4449</b>		<b>1,590.5285</b>	<b>1,590.5285</b>	<b>0.4798</b>		<b>1,600.6035</b>

**Unmitigated Construction Off-Site**



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.8064	43.6609	34.6920	0.1122	2.6202	0.6260	3.2462	0.7174	0.5759	1.2933		11,298.5256	11,298.5256	0.0848		11,300.3065
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	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>2.8527</b>	<b>43.7230</b>	<b>35.3434</b>	<b>0.1136</b>	<b>2.7320</b>	<b>0.6271</b>	<b>3.3590</b>	<b>0.7471</b>	<b>0.5768</b>	<b>1.3239</b>		<b>11,414.5287</b>	<b>11,414.5287</b>	<b>0.0915</b>		<b>11,416.4501</b>

**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					1.8146	0.0000	1.8146	0.9763	0.0000	0.9763			0.0000			0.0000
Off-Road	1.7307	18.6087	14.0540	0.0153		1.0235	1.0235		0.9416	0.9416	0.0000	1,590.5285	1,590.5285	0.4798		1,600.6035
<b>Total</b>	<b>1.7307</b>	<b>18.6087</b>	<b>14.0540</b>	<b>0.0153</b>	<b>1.8146</b>	<b>1.0235</b>	<b>2.8380</b>	<b>0.9763</b>	<b>0.9416</b>	<b>1.9179</b>	<b>0.0000</b>	<b>1,590.5285</b>	<b>1,590.5285</b>	<b>0.4798</b>		<b>1,600.6035</b>

**Mitigated Construction Off-Site**

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

Hauling	2.8064	43.6609	34.6920	0.1122	2.6202	0.6260	3.2462	0.7174	0.5759	1.2933		11,298.5256	11,298.5256	0.0848		11,300.3065
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	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>2.8527</b>	<b>43.7230</b>	<b>35.3434</b>	<b>0.1136</b>	<b>2.7320</b>	<b>0.6271</b>	<b>3.3590</b>	<b>0.7471</b>	<b>0.5768</b>	<b>1.3239</b>		<b>11,414.5287</b>	<b>11,414.5287</b>	<b>0.0915</b>		<b>11,416.4501</b>

### 3.19 WPB Construct Deck - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6688	4.9093	3.8623	6.5800e-003		0.3563	0.3563		0.3563	0.3563		623.0346	623.0346	0.0603		624.3008
<b>Total</b>	<b>0.6688</b>	<b>4.9093</b>	<b>3.8623</b>	<b>6.5800e-003</b>		<b>0.3563</b>	<b>0.3563</b>		<b>0.3563</b>	<b>0.3563</b>		<b>623.0346</b>	<b>623.0346</b>	<b>0.0603</b>		<b>624.3008</b>

#### 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	0.0224	0.3482	0.2767	8.9000e-004	0.0209	4.9900e-003	0.0259	5.7200e-003	4.5900e-003	0.0103		90.1101	90.1101	6.8000e-004		90.1243
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	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0502</b>	<b>0.3855</b>	<b>0.6675</b>	<b>1.7100e-003</b>	<b>0.0880</b>	<b>5.6200e-003</b>	<b>0.0936</b>	<b>0.0235</b>	<b>5.1700e-003</b>	<b>0.0287</b>		<b>159.7120</b>	<b>159.7120</b>	<b>4.6900e-003</b>		<b>159.8105</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6688	4.9093	3.8623	6.5800e-003		0.3563	0.3563		0.3563	0.3563	0.0000	623.0346	623.0346	0.0603		624.3008
<b>Total</b>	<b>0.6688</b>	<b>4.9093</b>	<b>3.8623</b>	<b>6.5800e-003</b>		<b>0.3563</b>	<b>0.3563</b>		<b>0.3563</b>	<b>0.3563</b>	<b>0.0000</b>	<b>623.0346</b>	<b>623.0346</b>	<b>0.0603</b>		<b>624.3008</b>

**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	0.0224	0.3482	0.2767	8.9000e-004	0.0209	4.9900e-003	0.0259	5.7200e-003	4.5900e-003	0.0103		90.1101	90.1101	6.8000e-004		90.1243
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	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0502</b>	<b>0.3855</b>	<b>0.6675</b>	<b>1.7100e-003</b>	<b>0.0880</b>	<b>5.6200e-003</b>	<b>0.0936</b>	<b>0.0235</b>	<b>5.1700e-003</b>	<b>0.0287</b>		<b>159.7120</b>	<b>159.7120</b>	<b>4.6900e-003</b>		<b>159.8105</b>

**3.20 WPB Pave Bridge - 2016**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2947	2.7237	1.7618	2.2900e-003		0.2006	0.2006		0.1845	0.1845		238.4182	238.4182	0.0719		239.9284
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.2947</b>	<b>2.7237</b>	<b>1.7618</b>	<b>2.2900e-003</b>		<b>0.2006</b>	<b>0.2006</b>		<b>0.1845</b>	<b>0.1845</b>		<b>238.4182</b>	<b>238.4182</b>	<b>0.0719</b>		<b>239.9284</b>

**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	0.0279	0.2691	0.3714	6.5000e-004	0.0187	4.1500e-003	0.0229	5.3200e-003	3.8100e-003	9.1400e-003		65.5176	65.5176	5.0000e-004		65.5281
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0557</b>	<b>0.3064</b>	<b>0.7622</b>	<b>1.4700e-003</b>	<b>0.0858</b>	<b>4.7800e-003</b>	<b>0.0906</b>	<b>0.0231</b>	<b>4.3900e-003</b>	<b>0.0275</b>		<b>135.1195</b>	<b>135.1195</b>	<b>4.5100e-003</b>		<b>135.2143</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2947	2.7237	1.7618	2.2900e-003		0.2006	0.2006		0.1845	0.1845	0.0000	238.4182	238.4182	0.0719		239.9284

Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.2947</b>	<b>2.7237</b>	<b>1.7618</b>	<b>2.2900e-003</b>		<b>0.2006</b>	<b>0.2006</b>		<b>0.1845</b>	<b>0.1845</b>	<b>0.0000</b>	<b>238.4182</b>	<b>238.4182</b>	<b>0.0719</b>		<b>239.9284</b>

**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	0.0279	0.2691	0.3714	6.5000e-004	0.0187	4.1500e-003	0.0229	5.3200e-003	3.8100e-003	9.1400e-003		65.5176	65.5176	5.0000e-004		65.5281
Worker	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.0557</b>	<b>0.3064</b>	<b>0.7622</b>	<b>1.4700e-003</b>	<b>0.0858</b>	<b>4.7800e-003</b>	<b>0.0906</b>	<b>0.0231</b>	<b>4.3900e-003</b>	<b>0.0275</b>		<b>135.1195</b>	<b>135.1195</b>	<b>4.5100e-003</b>		<b>135.2143</b>

**3.21 SADD Construct New Subdrain - 2016**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6812	6.5101	4.8252	6.2300e-003		0.5012	0.5012		0.4611	0.4611		647.3546	647.3546	0.1953		651.4551
<b>Total</b>	<b>0.6812</b>	<b>6.5101</b>	<b>4.8252</b>	<b>6.2300e-003</b>	<b>0.0000</b>	<b>0.5012</b>	<b>0.5012</b>	<b>0.0000</b>	<b>0.4611</b>	<b>0.4611</b>		<b>647.3546</b>	<b>647.3546</b>	<b>0.1953</b>		<b>651.4551</b>

**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	0.2538	3.9489	3.1377	0.0102	0.2370	0.0566	0.2936	0.0649	0.0521	0.1170		1,021.9006	1,021.9006	7.6700e-003		1,022.0617
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	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.2816</b>	<b>3.9862</b>	<b>3.5286</b>	<b>0.0110</b>	<b>0.3041</b>	<b>0.0573</b>	<b>0.3613</b>	<b>0.0827</b>	<b>0.0527</b>	<b>0.1353</b>		<b>1,091.5025</b>	<b>1,091.5025</b>	<b>0.0117</b>		<b>1,091.7479</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6812	6.5101	4.8252	6.2300e-003		0.5012	0.5012		0.4611	0.4611	0.0000	647.3546	647.3546	0.1953		651.4551
<b>Total</b>	<b>0.6812</b>	<b>6.5101</b>	<b>4.8252</b>	<b>6.2300e-003</b>	<b>0.0000</b>	<b>0.5012</b>	<b>0.5012</b>	<b>0.0000</b>	<b>0.4611</b>	<b>0.4611</b>	<b>0.0000</b>	<b>647.3546</b>	<b>647.3546</b>	<b>0.1953</b>		<b>651.4551</b>

**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	0.2538	3.9489	3.1377	0.0102	0.2370	0.0566	0.2936	0.0649	0.0521	0.1170		1,021.9006	1,021.9006	7.6700e-003		1,022.0617
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	0.0278	0.0373	0.3908	8.2000e-004	0.0671	6.3000e-004	0.0677	0.0178	5.8000e-004	0.0184		69.6019	69.6019	4.0100e-003		69.6862
<b>Total</b>	<b>0.2816</b>	<b>3.9862</b>	<b>3.5286</b>	<b>0.0110</b>	<b>0.3041</b>	<b>0.0573</b>	<b>0.3613</b>	<b>0.0827</b>	<b>0.0527</b>	<b>0.1353</b>		<b>1,091.5025</b>	<b>1,091.5025</b>	<b>0.0117</b>		<b>1,091.7479</b>

### 3.22 SADD Remove Outlet Tower - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.5109	4.8826	3.6189	4.6700e-003		0.3759	0.3759		0.3459	0.3459		485.5159	485.5159	0.1465		488.5913
<b>Total</b>	<b>0.5109</b>	<b>4.8826</b>	<b>3.6189</b>	<b>4.6700e-003</b>	<b>0.0000</b>	<b>0.3759</b>	<b>0.3759</b>	<b>0.0000</b>	<b>0.3459</b>	<b>0.3459</b>		<b>485.5159</b>	<b>485.5159</b>	<b>0.1465</b>		<b>488.5913</b>

#### 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	0.0170	0.2638	0.2096	6.8000e-004	0.0158	3.7800e-003	0.0196	4.3300e-003	3.4800e-003	7.8100e-003		68.2652	68.2652	5.1000e-004		68.2760
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	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>0.0633</b>	<b>0.3260</b>	<b>0.8610</b>	<b>2.0500e-003</b>	<b>0.1276</b>	<b>4.8400e-003</b>	<b>0.1324</b>	<b>0.0340</b>	<b>4.4500e-003</b>	<b>0.0384</b>		<b>184.2683</b>	<b>184.2683</b>	<b>7.2000e-003</b>		<b>184.4196</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.5109	4.8826	3.6189	4.6700e-003		0.3759	0.3759		0.3459	0.3459	0.0000	485.5159	485.5159	0.1465		488.5913
<b>Total</b>	<b>0.5109</b>	<b>4.8826</b>	<b>3.6189</b>	<b>4.6700e-003</b>	<b>0.0000</b>	<b>0.3759</b>	<b>0.3759</b>	<b>0.0000</b>	<b>0.3459</b>	<b>0.3459</b>	<b>0.0000</b>	<b>485.5159</b>	<b>485.5159</b>	<b>0.1465</b>		<b>488.5913</b>

**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	0.0170	0.2638	0.2096	6.8000e-004	0.0158	3.7800e-003	0.0196	4.3300e-003	3.4800e-003	7.8100e-003		68.2652	68.2652	5.1000e-004		68.2760
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	0.0463	0.0622	0.6514	1.3700e-003	0.1118	1.0600e-003	0.1128	0.0296	9.7000e-004	0.0306		116.0031	116.0031	6.6900e-003		116.1436
<b>Total</b>	<b>0.0633</b>	<b>0.3260</b>	<b>0.8610</b>	<b>2.0500e-003</b>	<b>0.1276</b>	<b>4.8400e-003</b>	<b>0.1324</b>	<b>0.0340</b>	<b>4.4500e-003</b>	<b>0.0384</b>		<b>184.2683</b>	<b>184.2683</b>	<b>7.2000e-003</b>		<b>184.4196</b>





Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

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Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Off-road Equipment - Equipment based on "Revised Santa Anita data needs 082014.xls"

Trips and VMT - Assumptions based on "Revised Santa Anita data needs 082014.xls" and CalEEMod Appx A

Demolition - Assumptions based on "Revised Santa Anita data needs 032014.xlsx"

Grading - Assumptions based on "Revised Santa Anita data needs 082014.xlsx"

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	NumDays	0.00	5.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	23.00
tblConstructionPhase	NumDays	0.00	30.00
tblConstructionPhase	NumDays	0.00	30.00
tblConstructionPhase	NumDays	0.00	5.00

tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	131.00
tblConstructionPhase	NumDays	0.00	42.00
tblConstructionPhase	NumDays	0.00	54.00
tblConstructionPhase	NumDays	0.00	23.00
tblConstructionPhase	NumDays	0.00	11.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	10.00
tblConstructionPhase	NumDays	0.00	20.00
tblConstructionPhase	PhaseEndDate	2/8/2016	12/28/2015
tblConstructionPhase	PhaseEndDate	1/11/2016	2/12/2016
tblConstructionPhase	PhaseEndDate	3/25/2016	3/28/2016
tblConstructionPhase	PhaseEndDate	4/29/2016	4/15/2016
tblConstructionPhase	PhaseEndDate	5/13/2016	4/29/2016
tblConstructionPhase	PhaseEndDate	9/26/2016	8/10/2016
tblConstructionPhase	PhaseEndDate	4/4/2016	3/11/2016
tblConstructionPhase	PhaseEndDate	6/13/2016	4/15/2016
tblConstructionPhase	PhaseEndDate	10/3/2016	9/30/2016
tblConstructionPhase	PhaseEndDate	11/29/2016	5/30/2016
tblConstructionPhase	PhaseEndDate	9/13/2016	8/15/2016
tblConstructionPhase	PhaseEndDate	9/28/2016	9/15/2016
tblConstructionPhase	PhaseEndDate	5/27/2016	5/28/2016
tblConstructionPhase	PhaseEndDate	8/24/2016	8/26/2016
tblConstructionPhase	PhaseEndDate	5/27/2016	5/14/2016
tblConstructionPhase	PhaseStartDate	1/26/2016	12/15/2015
tblConstructionPhase	PhaseStartDate	12/29/2015	2/1/2016
tblConstructionPhase	PhaseStartDate	2/27/2016	3/1/2016
tblConstructionPhase	PhaseStartDate	4/16/2016	4/2/2016
tblConstructionPhase	PhaseStartDate	4/16/2016	4/2/2016
tblConstructionPhase	PhaseStartDate	8/16/2016	6/30/2016

tblConstructionPhase	PhaseStartDate	3/29/2016	3/7/2016
tblConstructionPhase	PhaseStartDate	5/31/2016	4/2/2016
tblConstructionPhase	PhaseStartDate	4/2/2016	4/1/2016
tblConstructionPhase	PhaseStartDate	10/1/2016	4/1/2016
tblConstructionPhase	PhaseStartDate	6/30/2016	6/1/2016
tblConstructionPhase	PhaseStartDate	8/27/2016	8/16/2016
tblConstructionPhase	PhaseStartDate	8/11/2016	8/15/2016
tblConstructionPhase	PhaseStartDate	4/30/2016	4/16/2016
tblGrading	MaterialImported	0.00	65,000.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	UsageHours	1.00	6.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2016
tblTripsAndVMT	HaulingTripNumber	4.00	20.00
tblTripsAndVMT	HaulingTripNumber	0.00	1,000.00
tblTripsAndVMT	HaulingTripNumber	0.00	112.00
tblTripsAndVMT	HaulingTripNumber	0.00	126.00
tblTripsAndVMT	HaulingTripNumber	0.00	313.00
tblTripsAndVMT	HaulingTripNumber	0.00	10.00
tblTripsAndVMT	HaulingTripNumber	0.00	38.00
tblTripsAndVMT	HaulingTripNumber	11.00	28.00
tblTripsAndVMT	HaulingTripNumber	0.00	420.00
tblTripsAndVMT	HaulingTripNumber	0.00	92.00
tblTripsAndVMT	HaulingTripNumber	0.00	36.00
tblTripsAndVMT	VendorTripNumber	0.00	3.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00

tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	1.00
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	3.00	6.00
tblTripsAndVMT	WorkerTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	13.00	16.00
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	5.00	6.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	8.00	10.00
tblTripsAndVMT	WorkerTripNumber	3.00	6.00
tblTripsAndVMT	WorkerTripNumber	5.00	10.00
tblTripsAndVMT	WorkerTripNumber	0.00	8.00
tblTripsAndVMT	WorkerTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	0.00	10.00



### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	SAD Helipad and Water System	Building Construction	12/15/2015	1/25/2016	5	30	
2	SAD Armor Canyon/Dam	Building Construction	12/15/2015	12/28/2015	5	10	
3	SAD Repair Leaks	Building Construction	2/1/2016	2/12/2016	5	10	
4	SAD Remove/Replace Jib Crane	Building Construction	2/13/2016	2/26/2016	5	10	
5	SAD Hoist	Building Construction	3/1/2016	3/28/2016	5	20	
6	SAHW Demo	Demolition	3/7/2016	3/11/2016	5	5	
7	SAHW Rubber Dam	Building Construction	3/12/2016	3/18/2016	5	5	
8	SAHW Construct Levee	Building Construction	3/19/2016	4/1/2016	5	10	
9	SAD Construct New Spillway	Grading	4/1/2016	9/30/2016	5	131	
10	SADD Construct New Spillway	Grading	4/1/2016	5/30/2016	5	42	
11	WPB Demo	Demolition	4/2/2016	4/15/2016	5	10	
12	SAD Install Valves	Building Construction	4/2/2016	4/15/2016	5	10	
13	SAD Electrical	Building Construction	4/2/2016	4/29/2016	5	20	
14	WPB Clear/Grub	Site Preparation	4/16/2016	5/14/2016	5	20	
15	WPB Grading	Grading	5/15/2016	5/28/2016	5	10	
16	WPB Abutments and Wing Walls	Building Construction	5/29/2016	6/29/2016	5	23	
17	SADD Construct Downstream	Grading	6/1/2016	8/15/2016	5	54	
18	WPB Construct Deck	Building Construction	6/30/2016	8/10/2016	5	30	
19	WPB Pave Bridge	Paving	8/15/2016	8/26/2016	5	10	
20	SADD Construct New Subdrain	Grading	8/16/2016	9/15/2016	5	23	
21	SADD Remove Outlet Tower	Grading	9/16/2016	9/30/2016	5	11	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
SAHW Demo	Concrete/Industrial Saws	1	8.00	81	0.73
SAHW Demo	Excavators	1	6.00	162	0.38
SAHW Demo	Tractors/Loaders/Backhoes	1	6.00	97	0.37
SAHW Rubber Dam	Tractors/Loaders/Backhoes	2	8.00	97	0.37
SAHW Construct Levee	Pumps	1	8.00	84	0.74
SAHW Construct Levee	Tractors/Loaders/Backhoes	1	8.00	97	0.37
WPB Demo	Concrete/Industrial Saws	1	8.00	81	0.73
WPB Demo	Excavators	1	6.00	162	0.38
WPB Demo	Tractors/Loaders/Backhoes	1	6.00	97	0.37
WPB Clear/Grub	Tractors/Loaders/Backhoes	1	8.00	97	0.37
WPB Grading	Tractors/Loaders/Backhoes	2	6.00	97	0.37
WPB Abutments and Wing Walls	Pumps	2	8.00	84	0.74
WPB Construct Deck	Pumps	1	8.00	84	0.74
SAD Helipad and Water System	Pumps	1	6.00	84	0.74
SAD Helipad and Water System	Tractors/Loaders/Backhoes	1	8.00	97	0.37
SAD Armor Canyon/Dam	Pumps	1	8.00	84	0.74
WPB Pave Bridge	Rollers	1	7.00	80	0.38
SAD Repair Leaks	Pumps	1	8.00	84	0.74
SAD Remove/Replace Jib Crane	Cranes	1	4.00	226	0.29
SAD Hoist	Cranes	1	4.00	226	0.29
SAD Construct New Spillway	Concrete/Industrial Saws	1	8.00	81	0.73
SAD Construct New Spillway	Cranes	1	4.00	226	0.29
SAD Construct New Spillway	Pumps	1	8.00	84	0.74
SAD Construct New Spillway	Tractors/Loaders/Backhoes	2	6.00	97	0.37
SADD Construct New Spillway	Bore/Drill Rigs	1	6.00	205	0.50
SADD Construct New Spillway	Concrete/Industrial Saws	1	8.00	81	0.73



SADD Construct New Spillway	Pumps	1	6.00	84	0.74
SAD Install Valves	Cranes	1	4.00	226	0.29
SAD Electrical	Cranes	1	4.00	226	0.29
SADD Construct Downstream Buttress	Excavators	1	6.00	162	0.38
SADD Construct Downstream Buttress	Rubber Tired Dozers	1	6.00	255	0.40
SADD Construct Downstream Buttress	Tractors/Loaders/Backhoes	2	6.00	97	0.37
SADD Construct New Subdrain	Tractors/Loaders/Backhoes	2	8.00	97	0.37
SADD Remove Outlet Tower	Tractors/Loaders/Backhoes	2	6.00	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
SAHW Demo	3	10.00	0.00	20.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAHW Rubber Dam	2	6.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAHW Construct Level	2	6.00	0.00	38.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
WPB Demo	3	10.00	0.00	28.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
WPB Clear/Grub	1	6.00	0.00	420.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
WPB Grading	2	10.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
WPB Abutments and Wing Walls	2	8.00	0.00	92.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
WPB Construct Deck	1	6.00	0.00	36.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Helipad and Water System	2	10.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Armor Canyon/Dam	1	6.00	0.00	1,000.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
WPB Pave Bridge	1	6.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Repair Leaks	1	6.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Remove/Replace Lift Crane	1	6.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Hoist	1	6.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Construct New Spillway	5	16.00	0.00	112.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SADD Construct New Spillway	3	10.00	0.00	126.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Install Valves	1	6.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
SAD Electrical	1	6.00	1.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

SADD Construct	4	10.00	0.00	8,125.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Downstream Buttress										
SADD Construct New	2	6.00	0.00	313.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Subdrain										
SADD Remove Outlet	2	10.00	0.00	10.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Tower										

### 3.1 Mitigation Measures Construction

Water Exposed Area

### 3.2 SAD Helipad and Water System - 2015

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9700e-003	0.0482	0.0348	5.0000e-005		3.6900e-003	3.6900e-003		3.5500e-003	3.5500e-003	0.0000	4.6865	4.6865	8.7000e-004	0.0000	4.7048
<b>Total</b>	<b>5.9700e-003</b>	<b>0.0482</b>	<b>0.0348</b>	<b>5.0000e-005</b>		<b>3.6900e-003</b>	<b>3.6900e-003</b>		<b>3.5500e-003</b>	<b>3.5500e-003</b>	<b>0.0000</b>	<b>4.6865</b>	<b>4.6865</b>	<b>8.7000e-004</b>	<b>0.0000</b>	<b>4.7048</b>

#### 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	7.0000e-005	6.7000e-004	8.3000e-004	0.0000	4.0000e-005	1.0000e-005	5.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1308	0.1308	0.0000	0.0000	0.1308
Worker	3.2000e-004	4.6000e-004	4.7800e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.7190	0.7190	4.0000e-005	0.0000	0.7199

<b>Total</b>	<b>3.9000e-004</b>	<b>1.1300e-003</b>	<b>5.6100e-003</b>	<b>1.0000e-005</b>	<b>7.5000e-004</b>	<b>2.0000e-005</b>	<b>7.7000e-004</b>	<b>2.0000e-004</b>	<b>2.0000e-005</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>0.8499</b>	<b>0.8499</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.8508</b>
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**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.9700e-003	0.0482	0.0348	5.0000e-005		3.6900e-003	3.6900e-003		3.5500e-003	3.5500e-003	0.0000	4.6865	4.6865	8.7000e-004	0.0000	4.7048
<b>Total</b>	<b>5.9700e-003</b>	<b>0.0482</b>	<b>0.0348</b>	<b>5.0000e-005</b>		<b>3.6900e-003</b>	<b>3.6900e-003</b>		<b>3.5500e-003</b>	<b>3.5500e-003</b>	<b>0.0000</b>	<b>4.6865</b>	<b>4.6865</b>	<b>8.7000e-004</b>	<b>0.0000</b>	<b>4.7048</b>

**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	7.0000e-005	6.7000e-004	8.3000e-004	0.0000	4.0000e-005	1.0000e-005	5.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.1308	0.1308	0.0000	0.0000	0.1308
Worker	3.2000e-004	4.6000e-004	4.7800e-003	1.0000e-005	7.1000e-004	1.0000e-005	7.2000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.7190	0.7190	4.0000e-005	0.0000	0.7199
<b>Total</b>	<b>3.9000e-004</b>	<b>1.1300e-003</b>	<b>5.6100e-003</b>	<b>1.0000e-005</b>	<b>7.5000e-004</b>	<b>2.0000e-005</b>	<b>7.7000e-004</b>	<b>2.0000e-004</b>	<b>2.0000e-005</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>0.8499</b>	<b>0.8499</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.8508</b>

### 3.2 SAD Helipad and Water System - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.1600e-003	0.0590	0.0451	7.0000e-005		4.4000e-003	4.4000e-003		4.2300e-003	4.2300e-003	0.0000	6.0991	6.0991	1.1000e-003	0.0000	6.1222
<b>Total</b>	<b>7.1600e-003</b>	<b>0.0590</b>	<b>0.0451</b>	<b>7.0000e-005</b>		<b>4.4000e-003</b>	<b>4.4000e-003</b>		<b>4.2300e-003</b>	<b>4.2300e-003</b>	<b>0.0000</b>	<b>6.0991</b>	<b>6.0991</b>	<b>1.1000e-003</b>	<b>0.0000</b>	<b>6.1222</b>

#### 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	8.0000e-005	7.8000e-004	1.0100e-003	0.0000	5.0000e-005	1.0000e-005	6.0000e-005	1.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.1692	0.1692	0.0000	0.0000	0.1693
Worker	3.7000e-004	5.4000e-004	5.6500e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.4000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.9089	0.9089	5.0000e-005	0.0000	0.9100
<b>Total</b>	<b>4.5000e-004</b>	<b>1.3200e-003</b>	<b>6.6600e-003</b>	<b>1.0000e-005</b>	<b>9.8000e-004</b>	<b>2.0000e-005</b>	<b>1.0000e-003</b>	<b>2.6000e-004</b>	<b>2.0000e-005</b>	<b>2.9000e-004</b>	<b>0.0000</b>	<b>1.0781</b>	<b>1.0781</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>1.0792</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	7.1600e-003	0.0590	0.0451	7.0000e-005		4.4000e-003	4.4000e-003		4.2300e-003	4.2300e-003	0.0000	6.0991	6.0991	1.1000e-003	0.0000	6.1222
<b>Total</b>	<b>7.1600e-003</b>	<b>0.0590</b>	<b>0.0451</b>	<b>7.0000e-005</b>		<b>4.4000e-003</b>	<b>4.4000e-003</b>		<b>4.2300e-003</b>	<b>4.2300e-003</b>	<b>0.0000</b>	<b>6.0991</b>	<b>6.0991</b>	<b>1.1000e-003</b>	<b>0.0000</b>	<b>6.1222</b>

**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	8.0000e-005	7.8000e-004	1.0100e-003	0.0000	5.0000e-005	1.0000e-005	6.0000e-005	1.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.1692	0.1692	0.0000	0.0000	0.1693
Worker	3.7000e-004	5.4000e-004	5.6500e-003	1.0000e-005	9.3000e-004	1.0000e-005	9.4000e-004	2.5000e-004	1.0000e-005	2.6000e-004	0.0000	0.9089	0.9089	5.0000e-005	0.0000	0.9100
<b>Total</b>	<b>4.5000e-004</b>	<b>1.3200e-003</b>	<b>6.6600e-003</b>	<b>1.0000e-005</b>	<b>9.8000e-004</b>	<b>2.0000e-005</b>	<b>1.0000e-003</b>	<b>2.6000e-004</b>	<b>2.0000e-005</b>	<b>2.9000e-004</b>	<b>0.0000</b>	<b>1.0781</b>	<b>1.0781</b>	<b>5.0000e-005</b>	<b>0.0000</b>	<b>1.0792</b>

### 3.3 SAD Armor Canyon/Dam - 2015

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.7200e-003	0.0265	0.0195	3.0000e-005		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	2.8260	2.8260	3.0000e-004	0.0000	2.8324
<b>Total</b>	<b>3.7200e-003</b>	<b>0.0265</b>	<b>0.0195</b>	<b>3.0000e-005</b>		<b>2.0000e-003</b>	<b>2.0000e-003</b>		<b>2.0000e-003</b>	<b>2.0000e-003</b>	<b>0.0000</b>	<b>2.8260</b>	<b>2.8260</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>2.8324</b>

#### 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	0.0104	0.1672	0.1206	3.7000e-004	8.5600e-003	2.6200e-003	0.0112	2.3500e-003	2.4100e-003	4.7600e-003	0.0000	34.4886	34.4886	2.8000e-004	0.0000	34.4945
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	1.5000e-004	2.1000e-004	2.2100e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3319	0.3319	2.0000e-005	0.0000	0.3323
<b>Total</b>	<b>0.0106</b>	<b>0.1674</b>	<b>0.1228</b>	<b>3.7000e-004</b>	<b>8.8900e-003</b>	<b>2.6200e-003</b>	<b>0.0115</b>	<b>2.4400e-003</b>	<b>2.4100e-003</b>	<b>4.8500e-003</b>	<b>0.0000</b>	<b>34.8205</b>	<b>34.8205</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>34.8268</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.7200e-003	0.0265	0.0195	3.0000e-005		2.0000e-003	2.0000e-003		2.0000e-003	2.0000e-003	0.0000	2.8260	2.8260	3.0000e-004	0.0000	2.8324
<b>Total</b>	<b>3.7200e-003</b>	<b>0.0265</b>	<b>0.0195</b>	<b>3.0000e-005</b>		<b>2.0000e-003</b>	<b>2.0000e-003</b>		<b>2.0000e-003</b>	<b>2.0000e-003</b>	<b>0.0000</b>	<b>2.8260</b>	<b>2.8260</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>2.8324</b>

**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	0.0104	0.1672	0.1206	3.7000e-004	8.5600e-003	2.6200e-003	0.0112	2.3500e-003	2.4100e-003	4.7600e-003	0.0000	34.4886	34.4886	2.8000e-004	0.0000	34.4945
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	1.5000e-004	2.1000e-004	2.2100e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3319	0.3319	2.0000e-005	0.0000	0.3323
<b>Total</b>	<b>0.0106</b>	<b>0.1674</b>	<b>0.1228</b>	<b>3.7000e-004</b>	<b>8.8900e-003</b>	<b>2.6200e-003</b>	<b>0.0115</b>	<b>2.4400e-003</b>	<b>2.4100e-003</b>	<b>4.8500e-003</b>	<b>0.0000</b>	<b>34.8205</b>	<b>34.8205</b>	<b>3.0000e-004</b>	<b>0.0000</b>	<b>34.8268</b>

### 3.4 SAD Repair Leaks - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.3400e-003	0.0246	0.0193	3.0000e-005		1.7800e-003	1.7800e-003		1.7800e-003	1.7800e-003	0.0000	2.8260	2.8260	2.7000e-004	0.0000	2.8318
<b>Total</b>	<b>3.3400e-003</b>	<b>0.0246</b>	<b>0.0193</b>	<b>3.0000e-005</b>		<b>1.7800e-003</b>	<b>1.7800e-003</b>		<b>1.7800e-003</b>	<b>1.7800e-003</b>	<b>0.0000</b>	<b>2.8260</b>	<b>2.8260</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>2.8318</b>

#### 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	4.0000e-005	4.6000e-004	5.9000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.0995	0.0995	0.0000	0.0000	0.0996
Worker	1.3000e-004	1.9000e-004	2.0000e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3208	0.3208	2.0000e-005	0.0000	0.3212
<b>Total</b>	<b>1.7000e-004</b>	<b>6.5000e-004</b>	<b>2.5900e-003</b>	<b>0.0000</b>	<b>3.6000e-004</b>	<b>1.0000e-005</b>	<b>3.7000e-004</b>	<b>1.0000e-004</b>	<b>1.0000e-005</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.4203</b>	<b>0.4203</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.4207</b>



**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.3400e-003	0.0246	0.0193	3.0000e-005		1.7800e-003	1.7800e-003		1.7800e-003	1.7800e-003	0.0000	2.8260	2.8260	2.7000e-004	0.0000	2.8318
<b>Total</b>	<b>3.3400e-003</b>	<b>0.0246</b>	<b>0.0193</b>	<b>3.0000e-005</b>		<b>1.7800e-003</b>	<b>1.7800e-003</b>		<b>1.7800e-003</b>	<b>1.7800e-003</b>	<b>0.0000</b>	<b>2.8260</b>	<b>2.8260</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>2.8318</b>

**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	4.0000e-005	4.6000e-004	5.9000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.0995	0.0995	0.0000	0.0000	0.0996
Worker	1.3000e-004	1.9000e-004	2.0000e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3208	0.3208	2.0000e-005	0.0000	0.3212
<b>Total</b>	<b>1.7000e-004</b>	<b>6.5000e-004</b>	<b>2.5900e-003</b>	<b>0.0000</b>	<b>3.6000e-004</b>	<b>1.0000e-005</b>	<b>3.7000e-004</b>	<b>1.0000e-004</b>	<b>1.0000e-005</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.4203</b>	<b>0.4203</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.4207</b>

### 3.5 SAD Remove/Replace Jib Crane - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-003	0.0213	7.4600e-003	1.0000e-005		9.7000e-004	9.7000e-004		8.9000e-004	8.9000e-004	0.0000	1.3296	1.3296	4.0000e-004	0.0000	1.3380
<b>Total</b>	<b>1.8000e-003</b>	<b>0.0213</b>	<b>7.4600e-003</b>	<b>1.0000e-005</b>		<b>9.7000e-004</b>	<b>9.7000e-004</b>		<b>8.9000e-004</b>	<b>8.9000e-004</b>	<b>0.0000</b>	<b>1.3296</b>	<b>1.3296</b>	<b>4.0000e-004</b>	<b>0.0000</b>	<b>1.3380</b>

#### 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	4.0000e-005	4.6000e-004	5.9000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.0995	0.0995	0.0000	0.0000	0.0996
Worker	1.3000e-004	1.9000e-004	2.0000e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3208	0.3208	2.0000e-005	0.0000	0.3212
<b>Total</b>	<b>1.7000e-004</b>	<b>6.5000e-004</b>	<b>2.5900e-003</b>	<b>0.0000</b>	<b>3.6000e-004</b>	<b>1.0000e-005</b>	<b>3.7000e-004</b>	<b>1.0000e-004</b>	<b>1.0000e-005</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.4203</b>	<b>0.4203</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.4207</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-003	0.0213	7.4600e-003	1.0000e-005		9.7000e-004	9.7000e-004		8.9000e-004	8.9000e-004	0.0000	1.3296	1.3296	4.0000e-004	0.0000	1.3380
<b>Total</b>	<b>1.8000e-003</b>	<b>0.0213</b>	<b>7.4600e-003</b>	<b>1.0000e-005</b>		<b>9.7000e-004</b>	<b>9.7000e-004</b>		<b>8.9000e-004</b>	<b>8.9000e-004</b>	<b>0.0000</b>	<b>1.3296</b>	<b>1.3296</b>	<b>4.0000e-004</b>	<b>0.0000</b>	<b>1.3380</b>

**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	4.0000e-005	4.6000e-004	5.9000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.0995	0.0995	0.0000	0.0000	0.0996
Worker	1.3000e-004	1.9000e-004	2.0000e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3208	0.3208	2.0000e-005	0.0000	0.3212
<b>Total</b>	<b>1.7000e-004</b>	<b>6.5000e-004</b>	<b>2.5900e-003</b>	<b>0.0000</b>	<b>3.6000e-004</b>	<b>1.0000e-005</b>	<b>3.7000e-004</b>	<b>1.0000e-004</b>	<b>1.0000e-005</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.4203</b>	<b>0.4203</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.4207</b>

### 3.6 SAD Hoist - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.6000e-003	0.0427	0.0149	3.0000e-005		1.9400e-003	1.9400e-003		1.7800e-003	1.7800e-003	0.0000	2.6591	2.6591	8.0000e-004	0.0000	2.6760
<b>Total</b>	<b>3.6000e-003</b>	<b>0.0427</b>	<b>0.0149</b>	<b>3.0000e-005</b>		<b>1.9400e-003</b>	<b>1.9400e-003</b>		<b>1.7800e-003</b>	<b>1.7800e-003</b>	<b>0.0000</b>	<b>2.6591</b>	<b>2.6591</b>	<b>8.0000e-004</b>	<b>0.0000</b>	<b>2.6760</b>

#### 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	9.0000e-005	9.1000e-004	1.1900e-003	0.0000	6.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.1991	0.1991	0.0000	0.0000	0.1991
Worker	2.6000e-004	3.8000e-004	3.9900e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.6000e-004	1.7000e-004	1.0000e-005	1.8000e-004	0.0000	0.6416	0.6416	4.0000e-005	0.0000	0.6423
<b>Total</b>	<b>3.5000e-004</b>	<b>1.2900e-003</b>	<b>5.1800e-003</b>	<b>1.0000e-005</b>	<b>7.2000e-004</b>	<b>2.0000e-005</b>	<b>7.4000e-004</b>	<b>1.9000e-004</b>	<b>2.0000e-005</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>0.8407</b>	<b>0.8407</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.8415</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.6000e-003	0.0427	0.0149	3.0000e-005		1.9400e-003	1.9400e-003		1.7800e-003	1.7800e-003	0.0000	2.6591	2.6591	8.0000e-004	0.0000	2.6760
<b>Total</b>	<b>3.6000e-003</b>	<b>0.0427</b>	<b>0.0149</b>	<b>3.0000e-005</b>		<b>1.9400e-003</b>	<b>1.9400e-003</b>		<b>1.7800e-003</b>	<b>1.7800e-003</b>	<b>0.0000</b>	<b>2.6591</b>	<b>2.6591</b>	<b>8.0000e-004</b>	<b>0.0000</b>	<b>2.6760</b>

**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	9.0000e-005	9.1000e-004	1.1900e-003	0.0000	6.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.1991	0.1991	0.0000	0.0000	0.1991
Worker	2.6000e-004	3.8000e-004	3.9900e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.6000e-004	1.7000e-004	1.0000e-005	1.8000e-004	0.0000	0.6416	0.6416	4.0000e-005	0.0000	0.6423
<b>Total</b>	<b>3.5000e-004</b>	<b>1.2900e-003</b>	<b>5.1800e-003</b>	<b>1.0000e-005</b>	<b>7.2000e-004</b>	<b>2.0000e-005</b>	<b>7.4000e-004</b>	<b>1.9000e-004</b>	<b>2.0000e-005</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>0.8407</b>	<b>0.8407</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.8415</b>

### 3.7 SAHW Demo - 2016

#### 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					4.2000e-004	0.0000	4.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9800e-003	0.0260	0.0204	3.0000e-005		1.7500e-003	1.7500e-003		1.6800e-003	1.6800e-003	0.0000	2.8301	2.8301	5.8000e-004	0.0000	2.8423
<b>Total</b>	<b>2.9800e-003</b>	<b>0.0260</b>	<b>0.0204</b>	<b>3.0000e-005</b>	<b>4.2000e-004</b>	<b>1.7500e-003</b>	<b>2.1700e-003</b>	<b>6.0000e-005</b>	<b>1.6800e-003</b>	<b>1.7400e-003</b>	<b>0.0000</b>	<b>2.8301</b>	<b>2.8301</b>	<b>5.8000e-004</b>	<b>0.0000</b>	<b>2.8423</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.8000e-004	2.9500e-003	2.2400e-003	1.0000e-005	1.7000e-004	4.0000e-005	2.1000e-004	5.0000e-005	4.0000e-005	9.0000e-005	0.0000	0.6822	0.6822	1.0000e-005	0.0000	0.6823
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	1.1000e-004	1.6000e-004	1.6600e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2673	0.2673	2.0000e-005	0.0000	0.2676
<b>Total</b>	<b>2.9000e-004</b>	<b>3.1100e-003</b>	<b>3.9000e-003</b>	<b>1.0000e-005</b>	<b>4.4000e-004</b>	<b>4.0000e-005</b>	<b>4.9000e-004</b>	<b>1.2000e-004</b>	<b>4.0000e-005</b>	<b>1.7000e-004</b>	<b>0.0000</b>	<b>0.9495</b>	<b>0.9495</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.9499</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.6000e-004	0.0000	1.6000e-004	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9800e-003	0.0260	0.0204	3.0000e-005		1.7500e-003	1.7500e-003		1.6800e-003	1.6800e-003	0.0000	2.8301	2.8301	5.8000e-004	0.0000	2.8422
<b>Total</b>	<b>2.9800e-003</b>	<b>0.0260</b>	<b>0.0204</b>	<b>3.0000e-005</b>	<b>1.6000e-004</b>	<b>1.7500e-003</b>	<b>1.9100e-003</b>	<b>2.0000e-005</b>	<b>1.6800e-003</b>	<b>1.7000e-003</b>	<b>0.0000</b>	<b>2.8301</b>	<b>2.8301</b>	<b>5.8000e-004</b>	<b>0.0000</b>	<b>2.8422</b>

**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	1.8000e-004	2.9500e-003	2.2400e-003	1.0000e-005	1.7000e-004	4.0000e-005	2.1000e-004	5.0000e-005	4.0000e-005	9.0000e-005	0.0000	0.6822	0.6822	1.0000e-005	0.0000	0.6823
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	1.1000e-004	1.6000e-004	1.6600e-003	0.0000	2.7000e-004	0.0000	2.8000e-004	7.0000e-005	0.0000	8.0000e-005	0.0000	0.2673	0.2673	2.0000e-005	0.0000	0.2676
<b>Total</b>	<b>2.9000e-004</b>	<b>3.1100e-003</b>	<b>3.9000e-003</b>	<b>1.0000e-005</b>	<b>4.4000e-004</b>	<b>4.0000e-005</b>	<b>4.9000e-004</b>	<b>1.2000e-004</b>	<b>4.0000e-005</b>	<b>1.7000e-004</b>	<b>0.0000</b>	<b>0.9495</b>	<b>0.9495</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.9499</b>

### 3.8 SAHW Rubber Dam - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.7000e-003	0.0163	0.0121	2.0000e-005		1.2500e-003	1.2500e-003		1.1500e-003	1.1500e-003	0.0000	1.4682	1.4682	4.4000e-004	0.0000	1.4775
<b>Total</b>	<b>1.7000e-003</b>	<b>0.0163</b>	<b>0.0121</b>	<b>2.0000e-005</b>		<b>1.2500e-003</b>	<b>1.2500e-003</b>		<b>1.1500e-003</b>	<b>1.1500e-003</b>	<b>0.0000</b>	<b>1.4682</b>	<b>1.4682</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>1.4775</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	2.3000e-004	3.0000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0498	0.0498	0.0000	0.0000	0.0498
Worker	7.0000e-005	1.0000e-004	1.0000e-003	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.1604	0.1604	1.0000e-005	0.0000	0.1606
<b>Total</b>	<b>9.0000e-005</b>	<b>3.3000e-004</b>	<b>1.3000e-003</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.9000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.2102</b>	<b>0.2102</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2104</b>



**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.7000e-003	0.0163	0.0121	2.0000e-005		1.2500e-003	1.2500e-003		1.1500e-003	1.1500e-003	0.0000	1.4682	1.4682	4.4000e-004	0.0000	1.4775
<b>Total</b>	<b>1.7000e-003</b>	<b>0.0163</b>	<b>0.0121</b>	<b>2.0000e-005</b>		<b>1.2500e-003</b>	<b>1.2500e-003</b>		<b>1.1500e-003</b>	<b>1.1500e-003</b>	<b>0.0000</b>	<b>1.4682</b>	<b>1.4682</b>	<b>4.4000e-004</b>	<b>0.0000</b>	<b>1.4775</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.0000e-005	2.3000e-004	3.0000e-004	0.0000	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	1.0000e-005	0.0000	0.0498	0.0498	0.0000	0.0000	0.0498
Worker	7.0000e-005	1.0000e-004	1.0000e-003	0.0000	1.6000e-004	0.0000	1.7000e-004	4.0000e-005	0.0000	5.0000e-005	0.0000	0.1604	0.1604	1.0000e-005	0.0000	0.1606
<b>Total</b>	<b>9.0000e-005</b>	<b>3.3000e-004</b>	<b>1.3000e-003</b>	<b>0.0000</b>	<b>1.8000e-004</b>	<b>0.0000</b>	<b>1.9000e-004</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>0.2102</b>	<b>0.2102</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.2104</b>

### 3.9 SAHW Construct Levee - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.0500e-003	0.0408	0.0314	5.0000e-005		3.0300e-003	3.0300e-003		2.9300e-003	2.9300e-003	0.0000	4.2942	4.2942	7.2000e-004	0.0000	4.3093
<b>Total</b>	<b>5.0500e-003</b>	<b>0.0408</b>	<b>0.0314</b>	<b>5.0000e-005</b>		<b>3.0300e-003</b>	<b>3.0300e-003</b>		<b>2.9300e-003</b>	<b>2.9300e-003</b>	<b>0.0000</b>	<b>4.2942</b>	<b>4.2942</b>	<b>7.2000e-004</b>	<b>0.0000</b>	<b>4.3093</b>

#### 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	3.5000e-004	5.6100e-003	4.2500e-003	1.0000e-005	3.3000e-004	8.0000e-005	4.0000e-004	9.0000e-005	7.0000e-005	1.6000e-004	0.0000	1.2961	1.2961	1.0000e-005	0.0000	1.2963
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	1.3000e-004	1.9000e-004	2.0000e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3208	0.3208	2.0000e-005	0.0000	0.3212
<b>Total</b>	<b>4.8000e-004</b>	<b>5.8000e-003</b>	<b>6.2500e-003</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>8.0000e-005</b>	<b>7.3000e-004</b>	<b>1.8000e-004</b>	<b>7.0000e-005</b>	<b>2.5000e-004</b>	<b>0.0000</b>	<b>1.6169</b>	<b>1.6169</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>1.6175</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.0500e-003	0.0408	0.0314	5.0000e-005		3.0300e-003	3.0300e-003		2.9300e-003	2.9300e-003	0.0000	4.2942	4.2942	7.2000e-004	0.0000	4.3093
<b>Total</b>	<b>5.0500e-003</b>	<b>0.0408</b>	<b>0.0314</b>	<b>5.0000e-005</b>		<b>3.0300e-003</b>	<b>3.0300e-003</b>		<b>2.9300e-003</b>	<b>2.9300e-003</b>	<b>0.0000</b>	<b>4.2942</b>	<b>4.2942</b>	<b>7.2000e-004</b>	<b>0.0000</b>	<b>4.3093</b>

**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	3.5000e-004	5.6100e-003	4.2500e-003	1.0000e-005	3.3000e-004	8.0000e-005	4.0000e-004	9.0000e-005	7.0000e-005	1.6000e-004	0.0000	1.2961	1.2961	1.0000e-005	0.0000	1.2963
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	1.3000e-004	1.9000e-004	2.0000e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3208	0.3208	2.0000e-005	0.0000	0.3212
<b>Total</b>	<b>4.8000e-004</b>	<b>5.8000e-003</b>	<b>6.2500e-003</b>	<b>1.0000e-005</b>	<b>6.6000e-004</b>	<b>8.0000e-005</b>	<b>7.3000e-004</b>	<b>1.8000e-004</b>	<b>7.0000e-005</b>	<b>2.5000e-004</b>	<b>0.0000</b>	<b>1.6169</b>	<b>1.6169</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>1.6175</b>

### 3.10 SAD Construct New Spillway - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1432	1.2235	0.8351	1.3300e-003		0.0834	0.0834		0.0804	0.0804	0.0000	118.5045	118.5045	0.0210	0.0000	118.9444
<b>Total</b>	<b>0.1432</b>	<b>1.2235</b>	<b>0.8351</b>	<b>1.3300e-003</b>	<b>0.0000</b>	<b>0.0834</b>	<b>0.0834</b>	<b>0.0000</b>	<b>0.0804</b>	<b>0.0804</b>	<b>0.0000</b>	<b>118.5045</b>	<b>118.5045</b>	<b>0.0210</b>	<b>0.0000</b>	<b>118.9444</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0300e-003	0.0165	0.0125	4.0000e-005	9.6000e-004	2.3000e-004	1.1900e-003	2.6000e-004	2.1000e-004	4.8000e-004	0.0000	3.8200	3.8200	3.0000e-005	0.0000	3.8206
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	4.5800e-003	6.6900e-003	0.0697	1.5000e-004	0.0115	1.1000e-004	0.0116	3.0500e-003	1.0000e-004	3.1500e-003	0.0000	11.2061	11.2061	6.4000e-004	0.0000	11.2194
<b>Total</b>	<b>5.6100e-003</b>	<b>0.0232</b>	<b>0.0822</b>	<b>1.9000e-004</b>	<b>0.0124</b>	<b>3.4000e-004</b>	<b>0.0128</b>	<b>3.3100e-003</b>	<b>3.1000e-004</b>	<b>3.6300e-003</b>	<b>0.0000</b>	<b>15.0261</b>	<b>15.0261</b>	<b>6.7000e-004</b>	<b>0.0000</b>	<b>15.0401</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1432	1.2235	0.8351	1.3300e-003		0.0834	0.0834		0.0804	0.0804	0.0000	118.5044	118.5044	0.0210	0.0000	118.9442
<b>Total</b>	<b>0.1432</b>	<b>1.2235</b>	<b>0.8351</b>	<b>1.3300e-003</b>	<b>0.0000</b>	<b>0.0834</b>	<b>0.0834</b>	<b>0.0000</b>	<b>0.0804</b>	<b>0.0804</b>	<b>0.0000</b>	<b>118.5044</b>	<b>118.5044</b>	<b>0.0210</b>	<b>0.0000</b>	<b>118.9442</b>

**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	1.0300e-003	0.0165	0.0125	4.0000e-005	9.6000e-004	2.3000e-004	1.1900e-003	2.6000e-004	2.1000e-004	4.8000e-004	0.0000	3.8200	3.8200	3.0000e-005	0.0000	3.8206
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	4.5800e-003	6.6900e-003	0.0697	1.5000e-004	0.0115	1.1000e-004	0.0116	3.0500e-003	1.0000e-004	3.1500e-003	0.0000	11.2061	11.2061	6.4000e-004	0.0000	11.2194
<b>Total</b>	<b>5.6100e-003</b>	<b>0.0232</b>	<b>0.0822</b>	<b>1.9000e-004</b>	<b>0.0124</b>	<b>3.4000e-004</b>	<b>0.0128</b>	<b>3.3100e-003</b>	<b>3.1000e-004</b>	<b>3.6300e-003</b>	<b>0.0000</b>	<b>15.0261</b>	<b>15.0261</b>	<b>6.7000e-004</b>	<b>0.0000</b>	<b>15.0401</b>

### 3.11 SADD Construct New Spillway - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0296	0.2570	0.1724	3.7000e-004		0.0153	0.0153		0.0151	0.0151	0.0000	33.1628	33.1628	5.8700e-003	0.0000	33.2860
<b>Total</b>	<b>0.0296</b>	<b>0.2570</b>	<b>0.1724</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>0.0153</b>	<b>0.0153</b>	<b>0.0000</b>	<b>0.0151</b>	<b>0.0151</b>	<b>0.0000</b>	<b>33.1628</b>	<b>33.1628</b>	<b>5.8700e-003</b>	<b>0.0000</b>	<b>33.2860</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1500e-003	0.0186	0.0141	5.0000e-005	1.0800e-003	2.6000e-004	1.3400e-003	3.0000e-004	2.4000e-004	5.4000e-004	0.0000	4.2976	4.2976	3.0000e-005	0.0000	4.2982
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	9.2000e-004	1.3400e-003	0.0140	3.0000e-005	2.3000e-003	2.0000e-005	2.3200e-003	6.1000e-004	2.0000e-005	6.3000e-004	0.0000	2.2455	2.2455	1.3000e-004	0.0000	2.2482
<b>Total</b>	<b>2.0700e-003</b>	<b>0.0200</b>	<b>0.0281</b>	<b>8.0000e-005</b>	<b>3.3800e-003</b>	<b>2.8000e-004</b>	<b>3.6600e-003</b>	<b>9.1000e-004</b>	<b>2.6000e-004</b>	<b>1.1700e-003</b>	<b>0.0000</b>	<b>6.5430</b>	<b>6.5430</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>6.5464</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0296	0.2570	0.1724	3.7000e-004		0.0153	0.0153		0.0151	0.0151	0.0000	33.1628	33.1628	5.8700e-003	0.0000	33.2859
<b>Total</b>	<b>0.0296</b>	<b>0.2570</b>	<b>0.1724</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>0.0153</b>	<b>0.0153</b>	<b>0.0000</b>	<b>0.0151</b>	<b>0.0151</b>	<b>0.0000</b>	<b>33.1628</b>	<b>33.1628</b>	<b>5.8700e-003</b>	<b>0.0000</b>	<b>33.2859</b>

**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	1.1500e-003	0.0186	0.0141	5.0000e-005	1.0800e-003	2.6000e-004	1.3400e-003	3.0000e-004	2.4000e-004	5.4000e-004	0.0000	4.2976	4.2976	3.0000e-005	0.0000	4.2982
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	9.2000e-004	1.3400e-003	0.0140	3.0000e-005	2.3000e-003	2.0000e-005	2.3200e-003	6.1000e-004	2.0000e-005	6.3000e-004	0.0000	2.2455	2.2455	1.3000e-004	0.0000	2.2482
<b>Total</b>	<b>2.0700e-003</b>	<b>0.0200</b>	<b>0.0281</b>	<b>8.0000e-005</b>	<b>3.3800e-003</b>	<b>2.8000e-004</b>	<b>3.6600e-003</b>	<b>9.1000e-004</b>	<b>2.6000e-004</b>	<b>1.1700e-003</b>	<b>0.0000</b>	<b>6.5430</b>	<b>6.5430</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>6.5464</b>

### 3.12 WPB Demo - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.1500e-003	0.0000	1.1500e-003	1.7000e-004	0.0000	1.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9700e-003	0.0519	0.0408	6.0000e-005		3.4900e-003	3.4900e-003		3.3500e-003	3.3500e-003	0.0000	5.6602	5.6602	1.1600e-003	0.0000	5.6845
<b>Total</b>	<b>5.9700e-003</b>	<b>0.0519</b>	<b>0.0408</b>	<b>6.0000e-005</b>	<b>1.1500e-003</b>	<b>3.4900e-003</b>	<b>4.6400e-003</b>	<b>1.7000e-004</b>	<b>3.3500e-003</b>	<b>3.5200e-003</b>	<b>0.0000</b>	<b>5.6602</b>	<b>5.6602</b>	<b>1.1600e-003</b>	<b>0.0000</b>	<b>5.6845</b>

#### 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	2.6000e-004	4.1300e-003	3.1300e-003	1.0000e-005	2.4000e-004	6.0000e-005	3.0000e-004	7.0000e-005	5.0000e-005	1.2000e-004	0.0000	0.9550	0.9550	1.0000e-005	0.0000	0.9552
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	2.2000e-004	3.2000e-004	3.3300e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5346	0.5346	3.0000e-005	0.0000	0.5353
<b>Total</b>	<b>4.8000e-004</b>	<b>4.4500e-003</b>	<b>6.4600e-003</b>	<b>2.0000e-005</b>	<b>7.9000e-004</b>	<b>7.0000e-005</b>	<b>8.5000e-004</b>	<b>2.2000e-004</b>	<b>5.0000e-005</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>1.4897</b>	<b>1.4897</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>1.4904</b>



**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					4.5000e-004	0.0000	4.5000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9700e-003	0.0519	0.0408	6.0000e-005		3.4900e-003	3.4900e-003		3.3500e-003	3.3500e-003	0.0000	5.6602	5.6602	1.1600e-003	0.0000	5.6845
<b>Total</b>	<b>5.9700e-003</b>	<b>0.0519</b>	<b>0.0408</b>	<b>6.0000e-005</b>	<b>4.5000e-004</b>	<b>3.4900e-003</b>	<b>3.9400e-003</b>	<b>7.0000e-005</b>	<b>3.3500e-003</b>	<b>3.4200e-003</b>	<b>0.0000</b>	<b>5.6602</b>	<b>5.6602</b>	<b>1.1600e-003</b>	<b>0.0000</b>	<b>5.6845</b>

**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	2.6000e-004	4.1300e-003	3.1300e-003	1.0000e-005	2.4000e-004	6.0000e-005	3.0000e-004	7.0000e-005	5.0000e-005	1.2000e-004	0.0000	0.9550	0.9550	1.0000e-005	0.0000	0.9552
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	2.2000e-004	3.2000e-004	3.3300e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5346	0.5346	3.0000e-005	0.0000	0.5353
<b>Total</b>	<b>4.8000e-004</b>	<b>4.4500e-003</b>	<b>6.4600e-003</b>	<b>2.0000e-005</b>	<b>7.9000e-004</b>	<b>7.0000e-005</b>	<b>8.5000e-004</b>	<b>2.2000e-004</b>	<b>5.0000e-005</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>1.4897</b>	<b>1.4897</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>1.4904</b>

### 3.13 SAD Install Valves - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-003	0.0213	7.4600e-003	1.0000e-005		9.7000e-004	9.7000e-004		8.9000e-004	8.9000e-004	0.0000	1.3296	1.3296	4.0000e-004	0.0000	1.3380
<b>Total</b>	<b>1.8000e-003</b>	<b>0.0213</b>	<b>7.4600e-003</b>	<b>1.0000e-005</b>		<b>9.7000e-004</b>	<b>9.7000e-004</b>		<b>8.9000e-004</b>	<b>8.9000e-004</b>	<b>0.0000</b>	<b>1.3296</b>	<b>1.3296</b>	<b>4.0000e-004</b>	<b>0.0000</b>	<b>1.3380</b>

#### 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	4.0000e-005	4.6000e-004	5.9000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.0995	0.0995	0.0000	0.0000	0.0996
Worker	1.3000e-004	1.9000e-004	2.0000e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3208	0.3208	2.0000e-005	0.0000	0.3212
<b>Total</b>	<b>1.7000e-004</b>	<b>6.5000e-004</b>	<b>2.5900e-003</b>	<b>0.0000</b>	<b>3.6000e-004</b>	<b>1.0000e-005</b>	<b>3.7000e-004</b>	<b>1.0000e-004</b>	<b>1.0000e-005</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.4203</b>	<b>0.4203</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.4207</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.8000e-003	0.0213	7.4600e-003	1.0000e-005		9.7000e-004	9.7000e-004		8.9000e-004	8.9000e-004	0.0000	1.3296	1.3296	4.0000e-004	0.0000	1.3380
<b>Total</b>	<b>1.8000e-003</b>	<b>0.0213</b>	<b>7.4600e-003</b>	<b>1.0000e-005</b>		<b>9.7000e-004</b>	<b>9.7000e-004</b>		<b>8.9000e-004</b>	<b>8.9000e-004</b>	<b>0.0000</b>	<b>1.3296</b>	<b>1.3296</b>	<b>4.0000e-004</b>	<b>0.0000</b>	<b>1.3380</b>

**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	4.0000e-005	4.6000e-004	5.9000e-004	0.0000	3.0000e-005	1.0000e-005	4.0000e-005	1.0000e-005	1.0000e-005	2.0000e-005	0.0000	0.0995	0.0995	0.0000	0.0000	0.0996
Worker	1.3000e-004	1.9000e-004	2.0000e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3208	0.3208	2.0000e-005	0.0000	0.3212
<b>Total</b>	<b>1.7000e-004</b>	<b>6.5000e-004</b>	<b>2.5900e-003</b>	<b>0.0000</b>	<b>3.6000e-004</b>	<b>1.0000e-005</b>	<b>3.7000e-004</b>	<b>1.0000e-004</b>	<b>1.0000e-005</b>	<b>1.1000e-004</b>	<b>0.0000</b>	<b>0.4203</b>	<b>0.4203</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.4207</b>

### 3.14 SAD Electrical - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.6000e-003	0.0427	0.0149	3.0000e-005		1.9400e-003	1.9400e-003		1.7800e-003	1.7800e-003	0.0000	2.6591	2.6591	8.0000e-004	0.0000	2.6760
<b>Total</b>	<b>3.6000e-003</b>	<b>0.0427</b>	<b>0.0149</b>	<b>3.0000e-005</b>		<b>1.9400e-003</b>	<b>1.9400e-003</b>		<b>1.7800e-003</b>	<b>1.7800e-003</b>	<b>0.0000</b>	<b>2.6591</b>	<b>2.6591</b>	<b>8.0000e-004</b>	<b>0.0000</b>	<b>2.6760</b>

#### 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	9.0000e-005	9.1000e-004	1.1900e-003	0.0000	6.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.1991	0.1991	0.0000	0.0000	0.1991
Worker	2.6000e-004	3.8000e-004	3.9900e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.6000e-004	1.7000e-004	1.0000e-005	1.8000e-004	0.0000	0.6416	0.6416	4.0000e-005	0.0000	0.6423
<b>Total</b>	<b>3.5000e-004</b>	<b>1.2900e-003</b>	<b>5.1800e-003</b>	<b>1.0000e-005</b>	<b>7.2000e-004</b>	<b>2.0000e-005</b>	<b>7.4000e-004</b>	<b>1.9000e-004</b>	<b>2.0000e-005</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>0.8407</b>	<b>0.8407</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.8415</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	3.6000e-003	0.0427	0.0149	3.0000e-005		1.9400e-003	1.9400e-003		1.7800e-003	1.7800e-003	0.0000	2.6591	2.6591	8.0000e-004	0.0000	2.6760
<b>Total</b>	<b>3.6000e-003</b>	<b>0.0427</b>	<b>0.0149</b>	<b>3.0000e-005</b>		<b>1.9400e-003</b>	<b>1.9400e-003</b>		<b>1.7800e-003</b>	<b>1.7800e-003</b>	<b>0.0000</b>	<b>2.6591</b>	<b>2.6591</b>	<b>8.0000e-004</b>	<b>0.0000</b>	<b>2.6760</b>

**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	9.0000e-005	9.1000e-004	1.1900e-003	0.0000	6.0000e-005	1.0000e-005	8.0000e-005	2.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.1991	0.1991	0.0000	0.0000	0.1991
Worker	2.6000e-004	3.8000e-004	3.9900e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.6000e-004	1.7000e-004	1.0000e-005	1.8000e-004	0.0000	0.6416	0.6416	4.0000e-005	0.0000	0.6423
<b>Total</b>	<b>3.5000e-004</b>	<b>1.2900e-003</b>	<b>5.1800e-003</b>	<b>1.0000e-005</b>	<b>7.2000e-004</b>	<b>2.0000e-005</b>	<b>7.4000e-004</b>	<b>1.9000e-004</b>	<b>2.0000e-005</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>0.8407</b>	<b>0.8407</b>	<b>4.0000e-005</b>	<b>0.0000</b>	<b>0.8415</b>

### 3.15 WPB Clear/Grub - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4100e-003	0.0326	0.0241	3.0000e-005		2.5100e-003	2.5100e-003		2.3100e-003	2.3100e-003	0.0000	2.9364	2.9364	8.9000e-004	0.0000	2.9550
<b>Total</b>	<b>3.4100e-003</b>	<b>0.0326</b>	<b>0.0241</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>2.5100e-003</b>	<b>2.5100e-003</b>	<b>0.0000</b>	<b>2.3100e-003</b>	<b>2.3100e-003</b>	<b>0.0000</b>	<b>2.9364</b>	<b>2.9364</b>	<b>8.9000e-004</b>	<b>0.0000</b>	<b>2.9550</b>

#### 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	3.8500e-003	0.0620	0.0470	1.6000e-004	3.5900e-003	8.7000e-004	4.4700e-003	9.9000e-004	8.0000e-004	1.7900e-003	0.0000	14.3252	14.3252	1.1000e-004	0.0000	14.3274
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	2.6000e-004	3.8000e-004	3.9900e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.6000e-004	1.7000e-004	1.0000e-005	1.8000e-004	0.0000	0.6416	0.6416	4.0000e-005	0.0000	0.6423
<b>Total</b>	<b>4.1100e-003</b>	<b>0.0624</b>	<b>0.0510</b>	<b>1.7000e-004</b>	<b>4.2500e-003</b>	<b>8.8000e-004</b>	<b>5.1300e-003</b>	<b>1.1600e-003</b>	<b>8.1000e-004</b>	<b>1.9700e-003</b>	<b>0.0000</b>	<b>14.9667</b>	<b>14.9667</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>14.9697</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.4100e-003	0.0326	0.0241	3.0000e-005		2.5100e-003	2.5100e-003		2.3100e-003	2.3100e-003	0.0000	2.9364	2.9364	8.9000e-004	0.0000	2.9550
<b>Total</b>	<b>3.4100e-003</b>	<b>0.0326</b>	<b>0.0241</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>2.5100e-003</b>	<b>2.5100e-003</b>	<b>0.0000</b>	<b>2.3100e-003</b>	<b>2.3100e-003</b>	<b>0.0000</b>	<b>2.9364</b>	<b>2.9364</b>	<b>8.9000e-004</b>	<b>0.0000</b>	<b>2.9550</b>

**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	3.8500e-003	0.0620	0.0470	1.6000e-004	3.5900e-003	8.7000e-004	4.4700e-003	9.9000e-004	8.0000e-004	1.7900e-003	0.0000	14.3252	14.3252	1.1000e-004	0.0000	14.3274
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	2.6000e-004	3.8000e-004	3.9900e-003	1.0000e-005	6.6000e-004	1.0000e-005	6.6000e-004	1.7000e-004	1.0000e-005	1.8000e-004	0.0000	0.6416	0.6416	4.0000e-005	0.0000	0.6423
<b>Total</b>	<b>4.1100e-003</b>	<b>0.0624</b>	<b>0.0510</b>	<b>1.7000e-004</b>	<b>4.2500e-003</b>	<b>8.8000e-004</b>	<b>5.1300e-003</b>	<b>1.1600e-003</b>	<b>8.1000e-004</b>	<b>1.9700e-003</b>	<b>0.0000</b>	<b>14.9667</b>	<b>14.9667</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>14.9697</b>

### 3.16 WPB Grading - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5500e-003	0.0244	0.0181	2.0000e-005		1.8800e-003	1.8800e-003		1.7300e-003	1.7300e-003	0.0000	2.2023	2.2023	6.6000e-004	0.0000	2.2162
<b>Total</b>	<b>2.5500e-003</b>	<b>0.0244</b>	<b>0.0181</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>1.8800e-003</b>	<b>1.8800e-003</b>	<b>0.0000</b>	<b>1.7300e-003</b>	<b>1.7300e-003</b>	<b>0.0000</b>	<b>2.2023</b>	<b>2.2023</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>2.2162</b>

#### 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	2.2000e-004	3.2000e-004	3.3300e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5346	0.5346	3.0000e-005	0.0000	0.5353
<b>Total</b>	<b>2.2000e-004</b>	<b>3.2000e-004</b>	<b>3.3300e-003</b>	<b>1.0000e-005</b>	<b>5.5000e-004</b>	<b>1.0000e-005</b>	<b>5.5000e-004</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>0.5346</b>	<b>0.5346</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.5353</b>



**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.5500e-003	0.0244	0.0181	2.0000e-005		1.8800e-003	1.8800e-003		1.7300e-003	1.7300e-003	0.0000	2.2023	2.2023	6.6000e-004	0.0000	2.2162
<b>Total</b>	<b>2.5500e-003</b>	<b>0.0244</b>	<b>0.0181</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>1.8800e-003</b>	<b>1.8800e-003</b>	<b>0.0000</b>	<b>1.7300e-003</b>	<b>1.7300e-003</b>	<b>0.0000</b>	<b>2.2023</b>	<b>2.2023</b>	<b>6.6000e-004</b>	<b>0.0000</b>	<b>2.2162</b>

**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	2.2000e-004	3.2000e-004	3.3300e-003	1.0000e-005	5.5000e-004	1.0000e-005	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.5346	0.5346	3.0000e-005	0.0000	0.5353
<b>Total</b>	<b>2.2000e-004</b>	<b>3.2000e-004</b>	<b>3.3300e-003</b>	<b>1.0000e-005</b>	<b>5.5000e-004</b>	<b>1.0000e-005</b>	<b>5.5000e-004</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>0.5346</b>	<b>0.5346</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.5353</b>

### 3.17 WPB Abutments and Wing Walls - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0154	0.1129	0.0888	1.5000e-004		8.1900e-003	8.1900e-003		8.1900e-003	8.1900e-003	0.0000	12.9998	12.9998	1.2600e-003	0.0000	13.0262
<b>Total</b>	<b>0.0154</b>	<b>0.1129</b>	<b>0.0888</b>	<b>1.5000e-004</b>		<b>8.1900e-003</b>	<b>8.1900e-003</b>		<b>8.1900e-003</b>	<b>8.1900e-003</b>	<b>0.0000</b>	<b>12.9998</b>	<b>12.9998</b>	<b>1.2600e-003</b>	<b>0.0000</b>	<b>13.0262</b>

#### 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	8.4000e-004	0.0136	0.0103	3.0000e-005	7.9000e-004	1.9000e-004	9.8000e-004	2.2000e-004	1.8000e-004	3.9000e-004	0.0000	3.1379	3.1379	2.0000e-005	0.0000	3.1384
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	4.0000e-004	5.9000e-004	6.1200e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9837	0.9837	6.0000e-005	0.0000	0.9849
<b>Total</b>	<b>1.2400e-003</b>	<b>0.0142</b>	<b>0.0164</b>	<b>4.0000e-005</b>	<b>1.8000e-003</b>	<b>2.0000e-004</b>	<b>2.0000e-003</b>	<b>4.9000e-004</b>	<b>1.9000e-004</b>	<b>6.7000e-004</b>	<b>0.0000</b>	<b>4.1216</b>	<b>4.1216</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>4.1233</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0154	0.1129	0.0888	1.5000e-004		8.1900e-003	8.1900e-003		8.1900e-003	8.1900e-003	0.0000	12.9998	12.9998	1.2600e-003	0.0000	13.0262
<b>Total</b>	<b>0.0154</b>	<b>0.1129</b>	<b>0.0888</b>	<b>1.5000e-004</b>		<b>8.1900e-003</b>	<b>8.1900e-003</b>		<b>8.1900e-003</b>	<b>8.1900e-003</b>	<b>0.0000</b>	<b>12.9998</b>	<b>12.9998</b>	<b>1.2600e-003</b>	<b>0.0000</b>	<b>13.0262</b>

**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	8.4000e-004	0.0136	0.0103	3.0000e-005	7.9000e-004	1.9000e-004	9.8000e-004	2.2000e-004	1.8000e-004	3.9000e-004	0.0000	3.1379	3.1379	2.0000e-005	0.0000	3.1384
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	4.0000e-004	5.9000e-004	6.1200e-003	1.0000e-005	1.0100e-003	1.0000e-005	1.0200e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.9837	0.9837	6.0000e-005	0.0000	0.9849
<b>Total</b>	<b>1.2400e-003</b>	<b>0.0142</b>	<b>0.0164</b>	<b>4.0000e-005</b>	<b>1.8000e-003</b>	<b>2.0000e-004</b>	<b>2.0000e-003</b>	<b>4.9000e-004</b>	<b>1.9000e-004</b>	<b>6.7000e-004</b>	<b>0.0000</b>	<b>4.1216</b>	<b>4.1216</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>4.1233</b>

### 3.18 SADD Construct Downstream Buttress - 2016

#### 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					0.1256	0.0000	0.1256	0.0676	0.0000	0.0676	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0467	0.5024	0.3795	4.1000e-004		0.0276	0.0276		0.0254	0.0254	0.0000	38.9584	38.9584	0.0118	0.0000	39.2052
<b>Total</b>	<b>0.0467</b>	<b>0.5024</b>	<b>0.3795</b>	<b>4.1000e-004</b>	<b>0.1256</b>	<b>0.0276</b>	<b>0.1533</b>	<b>0.0676</b>	<b>0.0254</b>	<b>0.0930</b>	<b>0.0000</b>	<b>38.9584</b>	<b>38.9584</b>	<b>0.0118</b>	<b>0.0000</b>	<b>39.2052</b>

#### 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	0.0744	1.1998	0.9093	3.0300e-003	0.0695	0.0169	0.0864	0.0191	0.0155	0.0346	0.0000	277.1237	277.1237	2.0600e-003	0.0000	277.1670
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	1.1800e-003	1.7200e-003	0.0180	4.0000e-005	2.9600e-003	3.0000e-005	2.9900e-003	7.9000e-004	3.0000e-005	8.1000e-004	0.0000	2.8871	2.8871	1.6000e-004	0.0000	2.8905
<b>Total</b>	<b>0.0756</b>	<b>1.2015</b>	<b>0.9273</b>	<b>3.0700e-003</b>	<b>0.0725</b>	<b>0.0169</b>	<b>0.0894</b>	<b>0.0199</b>	<b>0.0156</b>	<b>0.0354</b>	<b>0.0000</b>	<b>280.0107</b>	<b>280.0107</b>	<b>2.2200e-003</b>	<b>0.0000</b>	<b>280.0575</b>

**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					0.0490	0.0000	0.0490	0.0264	0.0000	0.0264	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0467	0.5024	0.3795	4.1000e-004		0.0276	0.0276		0.0254	0.0254	0.0000	38.9583	38.9583	0.0118	0.0000	39.2051
<b>Total</b>	<b>0.0467</b>	<b>0.5024</b>	<b>0.3795</b>	<b>4.1000e-004</b>	<b>0.0490</b>	<b>0.0276</b>	<b>0.0766</b>	<b>0.0264</b>	<b>0.0254</b>	<b>0.0518</b>	<b>0.0000</b>	<b>38.9583</b>	<b>38.9583</b>	<b>0.0118</b>	<b>0.0000</b>	<b>39.2051</b>

**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	0.0744	1.1998	0.9093	3.0300e-003	0.0695	0.0169	0.0864	0.0191	0.0155	0.0346	0.0000	277.1237	277.1237	2.0600e-003	0.0000	277.1670
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	1.1800e-003	1.7200e-003	0.0180	4.0000e-005	2.9600e-003	3.0000e-005	2.9900e-003	7.9000e-004	3.0000e-005	8.1000e-004	0.0000	2.8871	2.8871	1.6000e-004	0.0000	2.8905
<b>Total</b>	<b>0.0756</b>	<b>1.2015</b>	<b>0.9273</b>	<b>3.0700e-003</b>	<b>0.0725</b>	<b>0.0169</b>	<b>0.0894</b>	<b>0.0199</b>	<b>0.0156</b>	<b>0.0354</b>	<b>0.0000</b>	<b>280.0107</b>	<b>280.0107</b>	<b>2.2200e-003</b>	<b>0.0000</b>	<b>280.0575</b>

### 3.19 WPB Construct Deck - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0100	0.0736	0.0579	1.0000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003	0.0000	8.4781	8.4781	8.2000e-004	0.0000	8.4953
<b>Total</b>	<b>0.0100</b>	<b>0.0736</b>	<b>0.0579</b>	<b>1.0000e-004</b>		<b>5.3400e-003</b>	<b>5.3400e-003</b>		<b>5.3400e-003</b>	<b>5.3400e-003</b>	<b>0.0000</b>	<b>8.4781</b>	<b>8.4781</b>	<b>8.2000e-004</b>	<b>0.0000</b>	<b>8.4953</b>

#### 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	3.3000e-004	5.3200e-003	4.0300e-003	1.0000e-005	3.1000e-004	7.0000e-005	3.8000e-004	8.0000e-005	7.0000e-005	1.5000e-004	0.0000	1.2279	1.2279	1.0000e-005	0.0000	1.2281
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	3.9000e-004	5.7000e-004	5.9900e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9624	0.9624	5.0000e-005	0.0000	0.9635
<b>Total</b>	<b>7.2000e-004</b>	<b>5.8900e-003</b>	<b>0.0100</b>	<b>2.0000e-005</b>	<b>1.3000e-003</b>	<b>8.0000e-005</b>	<b>1.3800e-003</b>	<b>3.4000e-004</b>	<b>8.0000e-005</b>	<b>4.2000e-004</b>	<b>0.0000</b>	<b>2.1902</b>	<b>2.1902</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>2.1916</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0100	0.0736	0.0579	1.0000e-004		5.3400e-003	5.3400e-003		5.3400e-003	5.3400e-003	0.0000	8.4781	8.4781	8.2000e-004	0.0000	8.4953
<b>Total</b>	<b>0.0100</b>	<b>0.0736</b>	<b>0.0579</b>	<b>1.0000e-004</b>		<b>5.3400e-003</b>	<b>5.3400e-003</b>		<b>5.3400e-003</b>	<b>5.3400e-003</b>	<b>0.0000</b>	<b>8.4781</b>	<b>8.4781</b>	<b>8.2000e-004</b>	<b>0.0000</b>	<b>8.4953</b>

**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	3.3000e-004	5.3200e-003	4.0300e-003	1.0000e-005	3.1000e-004	7.0000e-005	3.8000e-004	8.0000e-005	7.0000e-005	1.5000e-004	0.0000	1.2279	1.2279	1.0000e-005	0.0000	1.2281
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	3.9000e-004	5.7000e-004	5.9900e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.9624	0.9624	5.0000e-005	0.0000	0.9635
<b>Total</b>	<b>7.2000e-004</b>	<b>5.8900e-003</b>	<b>0.0100</b>	<b>2.0000e-005</b>	<b>1.3000e-003</b>	<b>8.0000e-005</b>	<b>1.3800e-003</b>	<b>3.4000e-004</b>	<b>8.0000e-005</b>	<b>4.2000e-004</b>	<b>0.0000</b>	<b>2.1902</b>	<b>2.1902</b>	<b>6.0000e-005</b>	<b>0.0000</b>	<b>2.1916</b>

### 3.20 WPB Pave Bridge - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.4700e-003	0.0136	8.8100e-003	1.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	1.0815	1.0815	3.3000e-004	0.0000	1.0883
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.4700e-003</b>	<b>0.0136</b>	<b>8.8100e-003</b>	<b>1.0000e-005</b>		<b>1.0000e-003</b>	<b>1.0000e-003</b>		<b>9.2000e-004</b>	<b>9.2000e-004</b>	<b>0.0000</b>	<b>1.0815</b>	<b>1.0815</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>1.0883</b>

#### 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	1.3000e-004	1.3700e-003	1.7800e-003	0.0000	9.0000e-005	2.0000e-005	1.1000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.2986	0.2986	0.0000	0.0000	0.2987
Worker	1.3000e-004	1.9000e-004	2.0000e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3208	0.3208	2.0000e-005	0.0000	0.3212
<b>Total</b>	<b>2.6000e-004</b>	<b>1.5600e-003</b>	<b>3.7800e-003</b>	<b>0.0000</b>	<b>4.2000e-004</b>	<b>2.0000e-005</b>	<b>4.4000e-004</b>	<b>1.2000e-004</b>	<b>2.0000e-005</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>0.6194</b>	<b>0.6194</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.6198</b>



**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	1.4700e-003	0.0136	8.8100e-003	1.0000e-005		1.0000e-003	1.0000e-003		9.2000e-004	9.2000e-004	0.0000	1.0815	1.0815	3.3000e-004	0.0000	1.0883
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>1.4700e-003</b>	<b>0.0136</b>	<b>8.8100e-003</b>	<b>1.0000e-005</b>		<b>1.0000e-003</b>	<b>1.0000e-003</b>		<b>9.2000e-004</b>	<b>9.2000e-004</b>	<b>0.0000</b>	<b>1.0815</b>	<b>1.0815</b>	<b>3.3000e-004</b>	<b>0.0000</b>	<b>1.0883</b>

**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	1.3000e-004	1.3700e-003	1.7800e-003	0.0000	9.0000e-005	2.0000e-005	1.1000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.2986	0.2986	0.0000	0.0000	0.2987
Worker	1.3000e-004	1.9000e-004	2.0000e-003	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.3208	0.3208	2.0000e-005	0.0000	0.3212
<b>Total</b>	<b>2.6000e-004</b>	<b>1.5600e-003</b>	<b>3.7800e-003</b>	<b>0.0000</b>	<b>4.2000e-004</b>	<b>2.0000e-005</b>	<b>4.4000e-004</b>	<b>1.2000e-004</b>	<b>2.0000e-005</b>	<b>1.4000e-004</b>	<b>0.0000</b>	<b>0.6194</b>	<b>0.6194</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.6198</b>

### 3.21 SADD Construct New Subdrain - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8300e-003	0.0749	0.0555	7.0000e-005		5.7600e-003	5.7600e-003		5.3000e-003	5.3000e-003	0.0000	6.7536	6.7536	2.0400e-003	0.0000	6.7964
<b>Total</b>	<b>7.8300e-003</b>	<b>0.0749</b>	<b>0.0555</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>5.7600e-003</b>	<b>5.7600e-003</b>	<b>0.0000</b>	<b>5.3000e-003</b>	<b>5.3000e-003</b>	<b>0.0000</b>	<b>6.7536</b>	<b>6.7536</b>	<b>2.0400e-003</b>	<b>0.0000</b>	<b>6.7964</b>

#### 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	2.8700e-003	0.0462	0.0350	1.2000e-004	2.6800e-003	6.5000e-004	3.3300e-003	7.3000e-004	6.0000e-004	1.3300e-003	0.0000	10.6757	10.6757	8.0000e-005	0.0000	10.6773
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	4.4000e-004	4.5900e-003	1.0000e-005	7.6000e-004	1.0000e-005	7.6000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	0.7378	0.7378	4.0000e-005	0.0000	0.7387
<b>Total</b>	<b>3.1700e-003</b>	<b>0.0467</b>	<b>0.0396</b>	<b>1.3000e-004</b>	<b>3.4400e-003</b>	<b>6.6000e-004</b>	<b>4.0900e-003</b>	<b>9.3000e-004</b>	<b>6.1000e-004</b>	<b>1.5400e-003</b>	<b>0.0000</b>	<b>11.4135</b>	<b>11.4135</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>11.4160</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8300e-003	0.0749	0.0555	7.0000e-005	5.7600e-003	5.7600e-003		5.3000e-003	5.3000e-003		0.0000	6.7536	6.7536	2.0400e-003	0.0000	6.7964
<b>Total</b>	<b>7.8300e-003</b>	<b>0.0749</b>	<b>0.0555</b>	<b>7.0000e-005</b>	<b>0.0000</b>	<b>5.7600e-003</b>	<b>5.7600e-003</b>	<b>0.0000</b>	<b>5.3000e-003</b>	<b>5.3000e-003</b>	<b>0.0000</b>	<b>6.7536</b>	<b>6.7536</b>	<b>2.0400e-003</b>	<b>0.0000</b>	<b>6.7964</b>

**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	2.8700e-003	0.0462	0.0350	1.2000e-004	2.6800e-003	6.5000e-004	3.3300e-003	7.3000e-004	6.0000e-004	1.3300e-003	0.0000	10.6757	10.6757	8.0000e-005	0.0000	10.6773
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	4.4000e-004	4.5900e-003	1.0000e-005	7.6000e-004	1.0000e-005	7.6000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	0.7378	0.7378	4.0000e-005	0.0000	0.7387
<b>Total</b>	<b>3.1700e-003</b>	<b>0.0467</b>	<b>0.0396</b>	<b>1.3000e-004</b>	<b>3.4400e-003</b>	<b>6.6000e-004</b>	<b>4.0900e-003</b>	<b>9.3000e-004</b>	<b>6.1000e-004</b>	<b>1.5400e-003</b>	<b>0.0000</b>	<b>11.4135</b>	<b>11.4135</b>	<b>1.2000e-004</b>	<b>0.0000</b>	<b>11.4160</b>

### 3.22 SADD Remove Outlet Tower - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8100e-003	0.0269	0.0199	3.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003	0.0000	2.4225	2.4225	7.3000e-004	0.0000	2.4378
<b>Total</b>	<b>2.8100e-003</b>	<b>0.0269</b>	<b>0.0199</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>2.0700e-003</b>	<b>2.0700e-003</b>	<b>0.0000</b>	<b>1.9000e-003</b>	<b>1.9000e-003</b>	<b>0.0000</b>	<b>2.4225</b>	<b>2.4225</b>	<b>7.3000e-004</b>	<b>0.0000</b>	<b>2.4378</b>

#### 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	9.0000e-005	1.4800e-003	1.1200e-003	0.0000	9.0000e-005	2.0000e-005	1.1000e-004	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.3411	0.3411	0.0000	0.0000	0.3411
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	2.4000e-004	3.5000e-004	3.6600e-003	1.0000e-005	6.0000e-004	1.0000e-005	6.1000e-004	1.6000e-004	1.0000e-005	1.7000e-004	0.0000	0.5881	0.5881	3.0000e-005	0.0000	0.5888
<b>Total</b>	<b>3.3000e-004</b>	<b>1.8300e-003</b>	<b>4.7800e-003</b>	<b>1.0000e-005</b>	<b>6.9000e-004</b>	<b>3.0000e-005</b>	<b>7.2000e-004</b>	<b>1.8000e-004</b>	<b>3.0000e-005</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>0.9292</b>	<b>0.9292</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.9299</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.8100e-003	0.0269	0.0199	3.0000e-005		2.0700e-003	2.0700e-003		1.9000e-003	1.9000e-003	0.0000	2.4225	2.4225	7.3000e-004	0.0000	2.4378
<b>Total</b>	<b>2.8100e-003</b>	<b>0.0269</b>	<b>0.0199</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>2.0700e-003</b>	<b>2.0700e-003</b>	<b>0.0000</b>	<b>1.9000e-003</b>	<b>1.9000e-003</b>	<b>0.0000</b>	<b>2.4225</b>	<b>2.4225</b>	<b>7.3000e-004</b>	<b>0.0000</b>	<b>2.4378</b>

**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	9.0000e-005	1.4800e-003	1.1200e-003	0.0000	9.0000e-005	2.0000e-005	1.1000e-004	2.0000e-005	2.0000e-005	4.0000e-005	0.0000	0.3411	0.3411	0.0000	0.0000	0.3411
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	2.4000e-004	3.5000e-004	3.6600e-003	1.0000e-005	6.0000e-004	1.0000e-005	6.1000e-004	1.6000e-004	1.0000e-005	1.7000e-004	0.0000	0.5881	0.5881	3.0000e-005	0.0000	0.5888
<b>Total</b>	<b>3.3000e-004</b>	<b>1.8300e-003</b>	<b>4.7800e-003</b>	<b>1.0000e-005</b>	<b>6.9000e-004</b>	<b>3.0000e-005</b>	<b>7.2000e-004</b>	<b>1.8000e-004</b>	<b>3.0000e-005</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>0.9292</b>	<b>0.9292</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.9299</b>