COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
"To Enrich Lives Through Effective and Caring Service"

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ALHAMBRA, CALIFORNIA 91803-1331
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MARK PESTRELLA, Director

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

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ADOPTED

BOARD OF SUPERVISORS
COUNTY OF LOS ANGELES

49 November 10, 2020

CELIA ZAVALA
EXECUTIVE OFFICER

November 10, 2020

The Honorable Board of Supervisors
County of Los Angeles
383 Kenneth Hahn Hall of Administration
500 West Temple Street
Los Angeles, California 90012

Dear Supervisors:

CONSTRUCTION CONTRACT
WATER RESOURCES CORE SERVICE AREA
ADOPT, ADVERTISE, AND AWARD
SUN VALLEY WATERSHED UPPER STORM DRAIN SYSTEM, PHASE 1
PROJECT ID NO. FCC0001221
IN THE CITY OF LOS ANGELES
(SUPERVISORIAL DISTRICT 3)
(3 VOTES)

SUBJECT

Public Works is seeking Board approval to procure a construction contract for the Sun Valley Watershed Upper Storm Drain System, Phase 1 project in the City of Los Angeles.

IT IS RECOMMENDED THAT THE BOARD ACTING AS THE GOVERNING BODY OF THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT:

1. Certify that the Addendum to the previously certified Final Environmental Impact Report for the Sun Valley Watershed Management Plan has been completed in compliance with the California Environmental Quality Act and reflects the independent judgment and analysis of the Los Angeles County Flood Control District; find that the Board, acting as the governing body for the Los Angeles County Flood Control District, has reviewed and considered the information contained in the Addendum with the Final Environmental Impact Report prior to approving the project and approve the Addendum.

2. Determine that the recommended actions are within the scope of the Sun Valley Watershed Upper Storm Drain System, Phase 1 project impacts analyzed in an Addendum to the Final Environmental Impact Report previously certified by the Board.

BIDS: December 15, 2020 at 11:00 a.m.

3. Approve the project and adopt the plans and specifications that are on file in Project Management Division III of Public Works for the Sun Valley Watershed Upper Storm Drain System, Phase 1 project at an estimated construction contract cost between $9,000,000 and $14,000,000, and an estimated total project cost of $16,200,000.

4. Instruct the Executive Officer of the Board of Supervisors to advertise for bids in accordance with the Instruction Sheet for Publishing Legal Advertisement and which are to be received before 11 a.m. on December 15, 2020, in accordance with the Notice Inviting Bids.

5. Delegate authority to the Chief Engineer of the Los Angeles County Flood Control District or his designee to determine whether the bid of the apparent responsible contractor with the lowest apparent responsive bid is, in fact, responsive and, if not responsive, to determine which apparent responsible contractor submitted the lowest responsive bid.

6. Delegate authority to the Chief Engineer of the Los Angeles County Flood Control District or his designee to award and execute a construction contract for the Sun Valley Watershed Upper Storm Drain System, Phase 1 project with the responsible contractor with the lowest responsive bid within or less than the estimated cost range of $9,000,000 and $14,000,000.

7. Delegate to the Chief Engineer of the Los Angeles County Flood Control District or his designee the following authority in connection with this contract: (1) extend the date and time for the receipt of bids consistent with the requirements of State Public Contract Code, Section 4104.5; (2) allow substitution of subcontractors and relief of bidders upon demonstration of the grounds set forth in State Public Contract Code, Sections 4100 et seq. and 5100 et seq., respectively; (3) approve and execute change orders within the same monetary limits delegated to the Director of Public Works or his designee under Section 2.18.050 of the Los Angeles County Code relative to the construction of County buildings; (4) accept the project upon its final completion; and (5) release retention money withheld consistent with the requirements of State Public Contract Code, Sections 7107 and 9203.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

Approval of the recommended actions will approve an Addendum to a previously certified Final Program Environmental Impact Report and allow Public Works to construct a new storm drain system along Tujunga Avenue, Penrose Street, and Goss Street in the City of Los Angeles (see enclosed map). The project includes the construction of 4,300 feet of reinforced concrete pipe, catch basins, connector pipes, and other drainage elements.

The Sun Valley Watershed contains an area of approximately 4.4 square miles in the Sun Valley and North Hollywood communities of the City of Los Angeles. This is one of the few remaining areas within the County prone to flooding as there are no major storm drain systems within the watershed. Flooding issues are a community concern even during minor low intensity rain events.

The Los Angeles County Flood Control District (District) began working towards a multi-purpose solution to area flooding in November 1998. The District held regular meetings and engaged over 65 stakeholders comprised of Federal, State, and local agencies, and nonprofit and community groups interested in the Sun Valley Watershed area. By 2004 the District, with input from the stakeholders, had developed the Sun Valley Watershed Management Plan (SVWMP) and held several town hall meetings with the Third Supervisorial District to present and discuss the SVWMP with the community. The community and stakeholders have been very supportive of the SVWMP and are

eager for plan implementation.

The SVWMP identified 18 best management practice projects that focused on flood protection, increased water conservation, improved water quality, increased habitat restoration, and enhanced recreational opportunities for underserved areas. Included in the SVWMP project list is the construction of the Sun Valley Upper Storm Drain System (Drain).

The Drain will be constructed in four phases. Approval of the recommended actions will allow the District to construct the first phase. Future phases of the Drain and construction of the Rory M. Shaw Wetlands Park Project will be carried out under separate Board authorization. Any completed phases of the Drain will remain sealed and offline until the Rory M. Shaw Wetlands Park Project is complete.

When completed, the Drain will capture storm flows from the upper portion of the Sun Valley Watershed and deliver the stormwater to the future Rory M. Shaw Wetlands Park facility where water will be stored in a detention pond, routed through engineered wetlands for pollutant removal, and used for groundwater recharge in the existing infiltration basins at Sun Valley Park.

It is anticipated the work to construct the first phase of the Drain will start in April 2021 and be completed in March 2022.

Implementation of Strategic Plan Goals

These recommendations support the County Strategic Plan: Strategy III.3, Pursue Operational Effectiveness, Fiscal Responsibility, and Accountability, Objective III.3.2, Manage and Maximize County Assets, by supporting ongoing efforts to manage and improve public infrastructure assets.

FISCAL IMPACT/FINANCING

There will be no impact to the County General Fund.

The estimated construction contract cost to complete this project is in the range of $9,000,000 to $14,000,000. The total project cost is estimated to be $16,200,000. In addition to the construction contract cost, the total project cost includes the preparation of plans and specifications, construction engineering, inspection, contract administration, change order contingency, environmental compliance, and other County services.

Funding for this project is included in the Flood Control District Fund Fiscal Year 2020-21 Budget.

FACTS AND PROVISIONS/LEGAL REQUIREMENTS

This project will be advertised in accordance with Section 20991 of the State Public Contract Code.

The contract award will comply with applicable Federal and State requirements and Board policies and mandates. The contract documents will require the contractor to comply with these same requirements, policies, and mandates. The construction contract will be in the form previously reviewed and approved as to form by County Counsel.

As required by Board Policy No. 5.140, information such as defaulted contracts with the County, complaints filed with the Contractors State License Board, labor violations, and debarment actions will be considered before a contract is awarded.

ENVIRONMENTAL DOCUMENTATION

The District adopted the SVWMP and the SVWMP Final Environmental Impact Report (2004 FEIR) on June 29, 2004. In 2013, an Addendum to the 2004 FEIR was prepared for two of the components of the SVWMP (the Strathern Pit component and a portion of the Storm Drain component) to address minor changes to the project. The 2013 Addendum concluded that the project modifications would not result in any new significant effect on the environment that were not identified in the 2004 FEIR. The Strathern Pit project (also known as the Strathern Wetlands Park Project) underwent a name change to the Rory M. Shaw Wetlands Park Project after the adoption of the 2004 FEIR.

Since the adoption of the 2013 Addendum, the Storm Drain component of the project has been further modified. To address these modifications, the California Environmental Quality Act (CEQA) provides that an Addendum to an EIR shall be prepared if none of the conditions described in Sections 15162 and 15163 of the CEQA Guidelines calling for a Subsequent or Supplemental EIR have occurred. The 2004 FEIR found that on the basis of the whole record before the Board that the significant adverse effects of the project have either been reduced to an acceptable level or are outweighed by the specific considerations of the project as outlined in the Findings of Fact and Statement of Overriding Considerations in accordance with the provisions of the CEQA. The Sun Valley Watershed Upper Storm Drain System, Phase 1 project has been reviewed by the District in light of Sections 15162 and 15163 of the CEQA Guidelines. As the CEQA Lead Agency, the District has determined, based on the analysis of the project, none of the conditions apply, which would require preparation of a Subsequent or Supplemental EIR and that an Addendum to the certified SVWMP 2004 FEIR is the appropriate environmental documentation under CEQA for the recent modifications.

In accordance with Sections 15162 and 15164(a) of the CEQA Guidelines, the enclosed Addendum to the 2004 FEIR was prepared since there are only minor technical changes or additions that do not result in any new significant effect on the environment not included in the previously adopted 2004 FEIR. The changes are identified in the Addendum.

There are no changes to the project or to the circumstances under which the project is undertaken that require further review under the CEQA. The required fee, if any, to the California Department of Fish and Wildlife was paid for the previously certified Environmental Impact Report. Upon your Board's approval of the project, the District will file a Notice of Determination with the Registrar-Recorder/County Clerk in accordance with Section 21152 of the California Public Resources Code.

The location of the Addendum and 2004 FEIR and other materials constituting the record of the proceedings upon which the Board's decision is based in this matter is Public Works, 900 South Fremont Avenue, 11th Floor, Alhambra, CA 91803, and at the Public Works website at this location:

https://pw.lacounty.gov/wmd/svw/resources

The custodian of such documents and materials is the Transportation Planning and Programs Division, Environmental Planning Section.

CONTRACTING PROCESS

In accordance with the Board’s consolidated Local and Targeted Worker Hire Policy, the contract documents will require that at least 30 percent of the total California craft worker hours for

construction of the project be performed by Local Residents and at least 10 percent be performed by Targeted Workers facing employment barriers.

To increase contractor awareness of Public Works' program to contract work out to the private sector, this project will be listed on both the County's "Doing Business with the County" and "Do Business with Public Works" websites for open bids:

http://www.lacounty.gov/business/doing-business-with-the-county

http://pw.lacounty.gov/general/contracts/opportunities

Also, the contract solicitation will be advertised through web-based and social media platforms, including Twitter.

In addition, in order to increase opportunities for small businesses, Public Works will be coordinating with the Office of Small Business at the Department of Consumer and Business Affairs to maximize outreach, as well as offering preferences to Local Small Business Enterprises, Social Enterprises and Disabled Veteran Business Enterprises in compliance with Los Angeles County Code, Chapters 2.204, 2.205, and 2.211.

IMPACT ON CURRENT SERVICES (OR PROJECTS)

When the Drain and Rory M. Shaw Wetlands Park project are completed, the storm drain system will have a positive impact by solving the local flooding problem while retaining all stormwater runoff from the watershed, increasing water conservation, and reducing stormwater pollution.

CONCLUSION

Please return an adopted copy of this letter to Public Works, Project Management III Division.

Respectfully submitted,

MARK PESTRELLA
Director

MP:SRB:ml

Enclosures

c: Chief Executive Office (Chia-Ann Yen)
County Counsel
Executive Office
Internal Services Department (Countywide Contract Compliance)

ENCLOSURE

Public Works
LOS ANGELES COUNTY

Public Works
LOS ANGELES COUNTY

Sun Valley Watershed Upper Storm Drain System Phase 1

Overview Map

Data contained in this map is produced in whole or part from the Los Angeles County Department of Public Works' digital database.

Addendum is 741 pages

Addendum to the

Final Sun Valley Watershed Management Plan EIR

(Sun Valley Watershed Upper Storm Drain System)

State Clearinghouse No. 2002111051

Lead Agency:

Los Angeles County Flood Control District
900 S. Freemont Ave.
Alhambra, CA 91803

Prepared by:

Impact Sciences, Inc.
811 W. 7th Street, Suite 200
Los Angeles, CA 90017

June 2020

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1.0 INTRODUCTION

1.1 SUMMARY

This is an Addendum, prepared by the Los Angeles County Flood Control District to the Sun Valley Watershed Management Plan Final Environmental Impact Report Declaration (2004 FEIR) (SCH No. 2002111051) approved by County of Los Angeles Board of Supervisors on June 29, 2004. This introduction describes the purpose of an Addendum, substantiates why an Addendum is appropriate for the Proposed Project, and provides a summary of the background of the planning and environmental review process conducted by Los Angeles County Department of Public Works (LACDPW) on behalf of the Los Angeles County Flood Control District which is the lead agency for the Sun Valley Watershed Management Plan (Approved Project).

The following sections of the Addendum assess the potential environmental effects associated with the proposed changes to the previously approved Sun Valley Watershed Management Plan. No other changes are being proposed as compared to the approved project.

1.2 PURPOSE OF THIS ADDENDUM

The purpose of this Addendum to the 2004 Sun Valley Watershed Management Plan Final Environmental Impact Report (2004 FEIR) is to evaluate the environmental effects associated with the proposed Sun Valley Watershed Upper Storm Drain System Project (Proposed Project).

The 2004 Final Sun Valley Watershed Management Plan (WMP) was adopted in May 2004 by the County of Los Angeles Board of Supervisors, acting as the governing body of the Los Angeles County Flood Control District (District), to solve the chronic local flooding problem in the Sun Valley Watershed of the San Fernando Valley, acknowledging that rainfall is a significant component of the water supply in the semi-arid region. The Sun Valley Watershed Stakeholders Group (Stakeholders) met starting from late 1998 to address the flooding problem in Sun Valley under the leadership of the Watershed Management Division, County of Los Angeles Department of Public Works (LACDPW). The Sun Valley Watershed boundaries are depicted in **Figure 2, Sun Valley Watershed Boundaries.**

The main WMP objectives are listed below:

- Reduce Local Flooding
- Increase Water Conservation
- Increase Recreational Opportunities

- Increase Wildlife Habitat
- Improve Water Quality
- Provide Additional Environmental Benefits (e.g. energy conservation, air quality improvement, and solid waste management)
- Increase Multiple Agency Participation

The Watershed Management Plan consists of multiple components separated into eight subareas, each designed to manage stormwater runoff and achieve the primary objective to reduce local flooding while also achieving applicable secondary objectives from the list above. The majority of the components involve construction and operation of stormwater storage and/or infiltration facilities. Some of these components include lateral storm drains, trunk storm drains, onsite BMPs, water quality BMPs, powerline easements, and parking lot infiltrations, all designed specifically to help the Stakeholders reach the WMP objectives.

The District approved the Sun Valley Watershed Management Plan Project (Approved Project) in 2004. As specifics about implementation of the Approved Project's components become clear, it may be necessary to include further environmental documentation. For example, in 2013 an Addendum was prepared as part of the Rory M. Shaw Wetlands Park Project (Strathern Wetlands Park Project), which is one of the components of the Sun Valley Watershed Management Plan.

The proposed Sun Valley Watershed Upper Storm Drain System Project (Proposed Project) is located in the Sun Valley Community within the City of Los Angeles, approximately 14 miles northwest of downtown Los Angeles in the northeastern portion of San Fernando Valley (See **Figure 1, Regional Location,** and **Figure 2, Sun Valley Watershed Boundaries**). The Proposed Project is comprised of four "phases" collectively known as the Sun Valley Watershed Upper Storm Drain System (See **Figure 3, Sun Valley Watershed Upper Storm Drain System**). Phase 1 includes the construction of reinforced concrete pipes, catch basins, connector pipes, and other drainage structures. Construction would primarily take place along Tujunga Avenue, Penrose Street, and Gross Street. Phase 2 would construct reinforced concrete pipes, catch basins, connector pipes, and other drainage structures primarily along San Fernando Road, Tuxford Street, Glenoaks Boulevard, and Sheldon Street. Phase 3 would include construction of reinforced concrete pipes, catch basins, connector pipes, and other drainage structures primarily along San Fernando Road and Sheldon Street. Phase 4 would construct a 66-inch reinforced concrete pipe and 2.5-ft x 10.5-ft reinforced concrete box that directs overflow from the detention basin within the Rory M. Shaw Wetlands Park to outlet onto Project 39. Construction would primarily take place on Vineland Avenue, Tujunga Avenue and Saticoy Street. Section 2.0 of this Addendum describes the Proposed Project.

1.3 CEQA REQUIREMENTS

An Addendum to an EIR is the appropriate tool to evaluate the environmental effects associated with *minor modifications* to previously approved projects. It is appropriate when modifications would not result in new or increased significant adverse impacts.

According to Section 15164(a) of the CEQA Guidelines, "the lead agency or a responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred." An addendum may be prepared if only minor technical changes or additions are necessary. A brief explanation of the decision not to prepare a subsequent EIR must also be provided in the addendum, findings or the public record.

Section 15162 of the Guidelines lists the conditions that would require the preparation of a subsequent EIR or negative declaration rather than an addendum. These include the following:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

   a. The project will have one or more significant effects not discussed in the previous EIR.

   b. Significant effects previously examined will be substantially more severe than shown in the previous EIR.

   c. Mitigation measures or alternatives previously found not to be feasible would, in fact, be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative.

d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

Unlike a subsequent EIR, per Section 15162, a supplement to an EIR may be prepared per Section 15163 under the following conditions.

a. The Lead or Responsible Agency may choose to prepare a supplement to an EIR rather than a subsequent EIR if:

1) Any of the conditions described in Section 15162 would require the preparation of a subsequent EIR, and

2) Only minor additions or changes would be necessary to make the previous EIR adequately apply to the project in the changed situation.

A supplement to an EIR may be distinguished from a subsequent EIR by the following: a supplement augments a previously certified EIR to the extent necessary to address the conditions described in section 15162 and to examine mitigation and project alternatives accordingly. It is intended to revise the previous EIR through supplementation. A subsequent EIR, in contrast, is a complete EIR, which focuses on the conditions described in section 15162.

The Proposed Project is described in Section 2.0 of this Addendum and would be within the parameters analyzed in the 2004 FEIR. The Proposed Project has been reviewed by the District in light of Sections 15162 and 15163 of the CEQA Guidelines. As the CEQA Lead Agency, the District has determined, based on the analysis presented herein, that none of the conditions apply which would require preparation of a subsequent or supplemental EIR and that an Addendum to the certified Sun Valley Watershed Management Plan FEIR is the appropriate environmental documentation under CEQA for the Proposed Project.

Section 3.0 analyzes, impact by impact, how the environmental impacts for the Proposed Project compare to impacts of the Approved Project previously identified in the 2004 FEIR. The Mitigation Monitoring and Reporting Program (MMRP) adopted with the 2004 FEIR would continue to apply to the Proposed Project to ensure all significant impacts remain less than significant.

1.4 SUMMARY COMPARISON OF SIGNIFICANT IMPACTS IN 2004 FEIR COMPARED TO IMPACTS OF THE PROPOSED UPPER STORM DRAIN PROJECT

Unavoidable significant adverse environmental impacts identified for the 2004 FEIR as compared to impacts of the Upper Storm Drain Project are summarized in **Table 1-1** below.

Table 1-1
Comparison of Significant and Unavoidable Impacts
2004 FEIR Compared to Impacts of Proposed Upper Storm Drain Project

Issue Area	2004 FEIR	Proposed Project
Air Quality	Construction NOx emissions for Cal Mat Pit, Parking Lot on Sherman, Power Line Easement, Sheldon Pit, Storm Drains, Strathern Pit, Street Storage, and Vulcan Gravel Processing Plant. **Mitigation Measures A-11** through **A-14** will be implemented to reduce tailpipe emissions, including NOx. For Cal Mat Pit, Parking Lot on Sherman, Power Line Easement, Sheldon Pit, Storm Drains, Strathern Pit, Street Storage, and Vulcan Gravel Processing Plant components of the WMP, NOx emissions are considered significant and unavoidable.	As shown in **Table 3-1, Estimated Unmitigated Construction Emissions** project construction NOx emissions would be less than significant. **Mitigation Measures A-11** through **A-14** of the 2004 EIR would further reduce fugitive dust and construction equipment tailpipe emissions through implementation of SCAQMD Rule 403 and requiring cleaner burning engines in construction equipment. In addition to this, because of current regulations on engine standards, newer construction equipment that would be used for the Proposed Project would generate tailpipe emissions at a lesser rate than the engines analyzed in the 2004 EIR. [1] Unmitigated construction emissions do not exceed SCAQMD thresholds. As a result, construction criteria pollutant emissions would be less than significant without mitigation applied. No new or significant impacts would occur, and no new mitigation measures are required.
Biological Resources	Construction impacts on the existing coastal sage scrub vegetation at New Park on Wentworth. Construction impacts on sensitive habitat types whose presence is not known but could not be excluded from Cal Mat Pit, Sheldon Pit, Strathern Pit, and Vulcan Gravel Processing Plant.	As discussed in the 2004 FEIR, impacts to Storm Drains would be less than significant. The surrounding areas are completely urbanized and/or have been developed for decades. Existing habitats have been modified such that quality habitat does not exist. The Proposed Project would occur within the existing roadway right of way and would not have the potential to affect any existing habitat. As such, no new or substantially greater impacts would occur, and no new mitigation measures would be required.
	Construction impacts to nesting birds protected by the Migratory Bird Treaty Act potentially present at the Vulcan Gravel Processing Plant, Sheldon Pit, Cal Mat Pit, Strathern Pit, and New Park on Wentworth.	Street trees may provide nesting habitat for birds. **Mitigation measure B-5** is included in the Approved Project and would be applicable to the Proposed Project. **Mitigation Measure B-5** requires when project activities with the potential to disturb native and non-native vegetation and man-made nesting structure shall take place outside of the breeding season (which generally runs from March 1 to August 31 and as early as February 1 for some raptors) for birds protected by the Migratory Bird Treaty Act. If project activities must occur during the breeding season of birds covered by the MBTA, then beginning 30 days prior to construction, weekly bird surveys shall be arranged. The surveys shall continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of clearance/construction work at the site. If a

1 As demonstrated in the Default Data Tables for CalEEMod, provided by California Air Pollution Control Officers Association (CAPCOA) as Appendix D to the online CalEEMod User's Guide on the SCAQMD's website: http://www.aqmd.gov/caleemod/user's-guide, accessed June 6, 2019

Issue Area	2004 FEIR	Proposed Project
		bird covered by the MBTA is detected on the site, then the nesting activity will be monitored to ensure that construction activities do not occur within 300 feet of the nest (500 feet for raptors) until the juvenile birds have fledged and no further nesting attempts are initiated. With **Mitigation Measure B-5**, impacts associated with the Proposed Project would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

Other impacts analyzed in the 2004 FEIR (aesthetics; geology and soils; hazards and hazardous materials; hydrology and water quality; population and housing; public services; recreation; traffic and transportation; and utilities and service systems) were determined to be less than significant.

1.5 INCORPORATION BY REFERENCE

The following documents were used in the preparation of this Addendum, and are incorporated herein by reference, consistent with Section 15150 of the *Guidelines*: 2004 Final Program Environmental Impact Report Sun Valley Watershed Management Plan and the 2004 Final Sun Valley Watershed Management Plan by the County of Los Angeles Department of Public Works.

These documents are available for review at the LA County Department of Public Works On-Site Office at Los Angeles County Department of Public Works Stormwater Planning Division, 900 S Fremont Avenue Alhambra, CA 91802-1460.

1.6 SUMMARY OF IMPACTS

Section 3.0 of this Addendum includes a detailed evaluation of the potential change in environmental impacts associated with the Proposed Project for each CEQA issue area from the analysis in the certified EIR. As summarized above, impacts would either be comparable or reduced as compared to those identified in the 2004 FEIR. This Addendum addresses the Proposed Project's effects related to the environmental topics and mitigation measures addressed in the 2004 FEIR, which is used as the baseline for review. The criteria for determining significance of environmental impacts in this Addendum are the same as those contained in the 2004 FEIR. Since the Proposed Project would not trigger any of the conditions that require the preparation of a Subsequent or Supplemental EIR in Sections 15162 and 15163 of the CEQA Guidelines, an Addendum to the 2004 FEIR is the appropriate document to address the Proposed Project.

2.0 PROJECT DESCRIPTION

2.1 SUMMARY

The Approved Project consists of multiple components in the 4.4-square-mile watershed, each designed to manage stormwater runoff and reduce flooding while also achieving other project objectives previously listed. The majority of the components involve construction and operation of stormwater storage and/or infiltration facilities (e.g., sedimentation and infiltration basins, underground storage tanks, and dry wells). The collected stormwater would be treated prior to groundwater recharge or reuse (irrigation or gravel wash water). Where appropriate, stormwater storage facilities would be designed to provide recreational facilities and/or wildlife habitat areas. In addition, catch basins and storm drains are proposed to collect and convey runoff and reduce flows carried on street surfaces.

The Proposed Project consists of four "phases" collectively known as the Sun Valley Watershed Upper Storm Drain System. The Proposed Project is part of the Storm Drains component of the Approved Project.

2.2 BACKGROUND

The project area is the Sun Valley Watershed, which is within the City of Los Angeles, Los Angeles County (**Figure 1**). The watershed is divided into eight subareas. Subareas 1 through 4 are known as the upper watershed. Subareas 5 through 8 are known as the lower watershed (**Figure 2**). It is located approximately 14 miles northwest of downtown Los Angeles in the northeastern portion of San Fernando Valley, near the intersection of Interstate 5 (Golden State Freeway) and State Highway 170 (Hollywood Freeway). The watershed is approximately bordered by the Tujunga Wash and Hansen Spreading Grounds on the west, Burbank-Glendale-Pasadena Airport on the east, Hansen Dam on the north, and Burbank Boulevard on the south. The watershed is approximately 2,800 acres (4.4 square miles) in size and is approximately 6 miles in length from north to south.

The Sun Valley Watershed is a highly urbanized watershed that drains into the Los Angeles River, which is located approximately 2 miles from the southern end of the watershed. Other surface water features in the vicinity include the Tujunga Wash and the Hansen Dam/Lake. The watershed is located within the eastern portion of the San Fernando Valley Groundwater Basin. Topographic features surrounding the project area include the Verdugo Mountains to the east, the San Gabriel Mountains to the north, and the Santa Monica Mountains to the south.

The project area is highly urbanized and includes industrial, commercial, and residential land uses. A small portion in the northeastern end of the watershed is occupied by low-density residential uses. The remaining

area in the northern watershed (north of Tuxford-San Fernando intersection) is dominated by industrial uses, including exhausted gravel pits (Cal Mat Pit and Sheldon Pit), a municipal landfill (Bradley Landfill), a power generating facility (Valley Steam Plant), Vulcan Gravel Processing Plant, and numerous auto dismantling operations. The southern portion of the watershed is primarily developed with low to medium density residential uses. Some industrial uses, including an inert landfill (Strathern Pit), are located north of Strathern Street as well as near Burbank-Glendale-Pasadena Airport.

Project History

By combining different subsets of plan components, the District developed four sample alternatives of the Watershed Management Plan; Maximize Infiltration, Maximize Water Conservation, Maximize Reuse, and an Urban Storm Protection alternative. The District adopted all project components which were analyzed in the 2004 FEIR. **Table 2-1, Summary Description of Approved Project Components and Objectives,** shows the plan components included in each alternative as well as which of the Watershed Management Plan objectives they fulfill. Since the Watershed Management Plan will be implemented over 10 years, a definitive listing of project components to be contained in the final Plan is not possible. The Program EIR considered the environmental impacts of each of the project components individually as well as the impacts of the four sample alternatives. The District adopted all components of the Watershed Management Plan.

Table 2-1
Summary Description of Approved Project Components and Objectives

Project Component	Existing Use of the Site	Brief Description of Proposed Facilities or Programs	Project Objectives						
			Reduce Flooding	Water Conservation	Increase Recreation	Wildlife Habitat	Water Quality	Air Quality, Energy Conservation, and Solid Waste Management	Interagency Coordination
Cal Mat Pit	Exhausted Gravel Pit, currently unused	Convert an exhausted gravel pit into stormwater retention basins (Phase 1), operate the basins as an inert landfill for several years (Interim Phase), then ultimately convert the area into a park with a lake with stormwater storage and infiltration capabilities below the lake bottom (Phase 2).	X	X	X	X	X	X	X
New Park on Wentworth	Vacant	Convert existing vacant lot into a neighborhood park with a shallow depressed area for stormwater collection and infiltration	X	X	X	X	X	X	X

Project Component	Existing Use of the Site	Brief Description of Proposed Facilities or Programs	Project Objectives						
			Reduce Flooding	Water Conservation	Increase Recreation	Wildlife Habitat	Water Quality	Conservation, and Solid Waste Management	Air Quality, Energy Conservation	Interagency Coordination
Onsite BMPs	Residences Businesses	A voluntary program in which participating residents or businesses would install stormwater BMP devices (e.g., cisterns, drywells, or infiltration devices) on their properties.	X	X			X			X
Parking Lot on Sherman	Parking lot within a commercial compound	Install underground stormwater infiltration devices below parking areas within a commercial compound	X	X			X			X
Power line easement	LADWP Power Line Easement	Construct sedimentation and infiltration basins in the open areas between existing power line towers to collect and infiltrate stormwater	X	X	X	X	X	X		X
Roscoe Elementary School	LAUSD School	Install underground stormwater infiltration devices below the school's playground and other open areas.	X	X			X	X		x
Sheldon Pit and Tujunga Wash Diversion	Exhausted Gravel Pit, currently used as a source and disposal location for gravel wash water	Convert an exhausted gravel pit into series of stormwater storage and infiltration basins, including a wetland for stormwater treatment. The facility would be designed to serve as a public park when not in use for stormwater retention. A portion of the Tujunga Wash channel would be modified to transfer some of the flood water from Tujunga Wash into Sheldon Pit for infiltration.	X	X	X	X	X	X		X
Stonehurst Elementary School	LAUSD School	Install underground stormwater infiltration devices below the school's playground and other open areas.	X	X			X	X		X
Stonehurst Park	City of Los Angeles Park	Excavate a portion of the park's grass area and create a shallow depression for stormwater collection and infiltration	X	X			X			X
Storm Drains	Roadways	Install approximately 13 miles of concrete pipes beneath roadways to convey runoff into proposed stormwater retention facilities (all four alternatives) or to existing collector storm drains (Alternatives 2 and 4).	X							X
Strathern Pit	Exhausted Gravel Pit, currently used	Convert an exhausted gravel pit into a stormwater detention area with terraced side-slopes and wetland areas at the	X	X	X	X	X	X		X

Project Component	Existing Use of the Site	Brief Description of Proposed Facilities or Programs	Project Objectives						
			Reduce Flooding	Water Conservation	Increase Recreation	Wildlife Habitat	Water Quality	Conservation, and Solid Waste Management	Air Quality, Energy	Interagency Coordination
	as an inert landfill	bottom for stormwater treatment. The facility would be designed to serve as a public park when not in use for stormwater retention. The collected stormwater would be either reused for gravel processing (Alternative 3) or transferred to the Tujunga Spreading Grounds for infiltration (Alternatives 1, 2, and 4).								
Street Storage	Roadways	Install underground storage tanks and infiltration galleries beneath roadways to store and infiltrate runoff.	X	X			X			x
Sun Valley Middle School	LAUSD School	Modify the school's sports field and install underground storage tanks and an infiltration system to collect and infiltrate stormwater. Modify the staff parking lot and Quad and install dry wells for stormwater infiltration.	X	X	X	X	X	X		X
Tree Planting and Mulching	Various	A voluntary program in which participating residents or businesses would plant trees on their properties and/or take part in a green waste recycling program.	X	X		X	X	X		X
Tuxford Green	Vacant	Install underground storage tanks for temporary storage of stormwater. The site would be landscaped and designed to provide aesthetic amenities as well as information about the project.	X	X			X	X		X
Valley Steam Plant	LADWP Power Plant	Construct retention basins for stormwater collection and infiltration on a portion of the plant's open areas. Areas around the basins would be landscaped to provide recreation and aesthetic amenities for plant employees. Former oil tanks located onsite would be used for temporary storage of stormwater during very large storms.	X	X	X	X	X	X		X

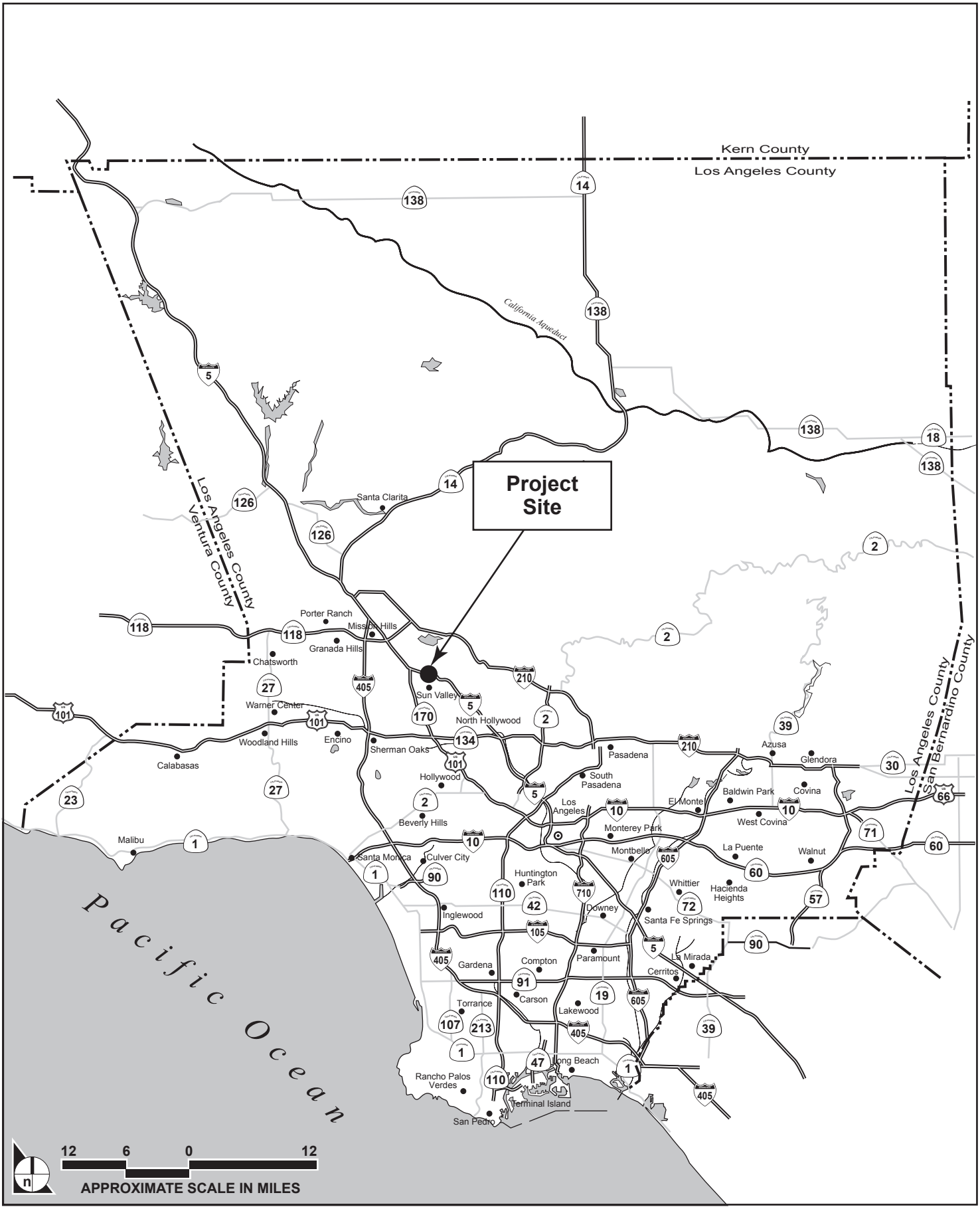
Project Component	Existing Use of the Site	Brief Description of Proposed Facilities or Programs	Project Objectives							
			Reduce Flooding	Water Conservation	Increase Recreation	Wildlife Habitat	Water Quality	Waste Management	Conservation, and Solid Energy	Air Quality, Interagency Coordination
Vulcan Gravel Processing Plant	Gravel Processing Plant	Construct retention basins for stormwater storage. Install a pump and a pipeline to transfer the collected water to an existing water storage tank for later reuse onsite.	X	X			X			X

Table 2-2, Plan Components in Each Alternative, provides a summary description of all plan components considered for inclusion in at least one of the final four alternatives. All project components were adopted once the project was approved in 2004.

Table 2-2
Plan Components in Each Alternative

Plan Components	Alternatives			
	Maximize Infiltration	Maximize Water Conservation	Maximize Reuse	Urban Storm Protection
Cal Mat Pit			X	X
New Park on Went Worth	X			
Onsite BMP (% Participation)	40%	20%	40%	20%
Parking Lot on Sherman Way	X	X		X
Power Line Easement (Length)	1.1 miles	0.5 miles	0.9 miles	0.8 miles
Roscoe Elementary School	X			
Sheldon Pit and Tujunga Wash Transfer		X		
Stonehurst Elementary School	X			
Stonehurst Park	X			
Storm Drains	X	X	X	X
Strathern Pit	Infiltration	Infiltration	Reuse	Infiltration
Street Storage (length of streets)	1.5 miles	0.6 miles	5.1 miles	0.4 miles
Sun Valley Middle School	X	X	X	X

Plan Components	Alternatives			
	Maximize Infiltration	**Maximize Water Conservation**	**Maximize Reuse**	**Urban Storm Protection**
Sun Valley Park	X	X	X	X
Tree Planting and Mulching (% participation)	40%	20%	40%	20%
Tuxford Green	X	X	X	X
Valley Steam Plant	X	X	X	X
Vulcan Gravel Processing Plant	X	X	X	X



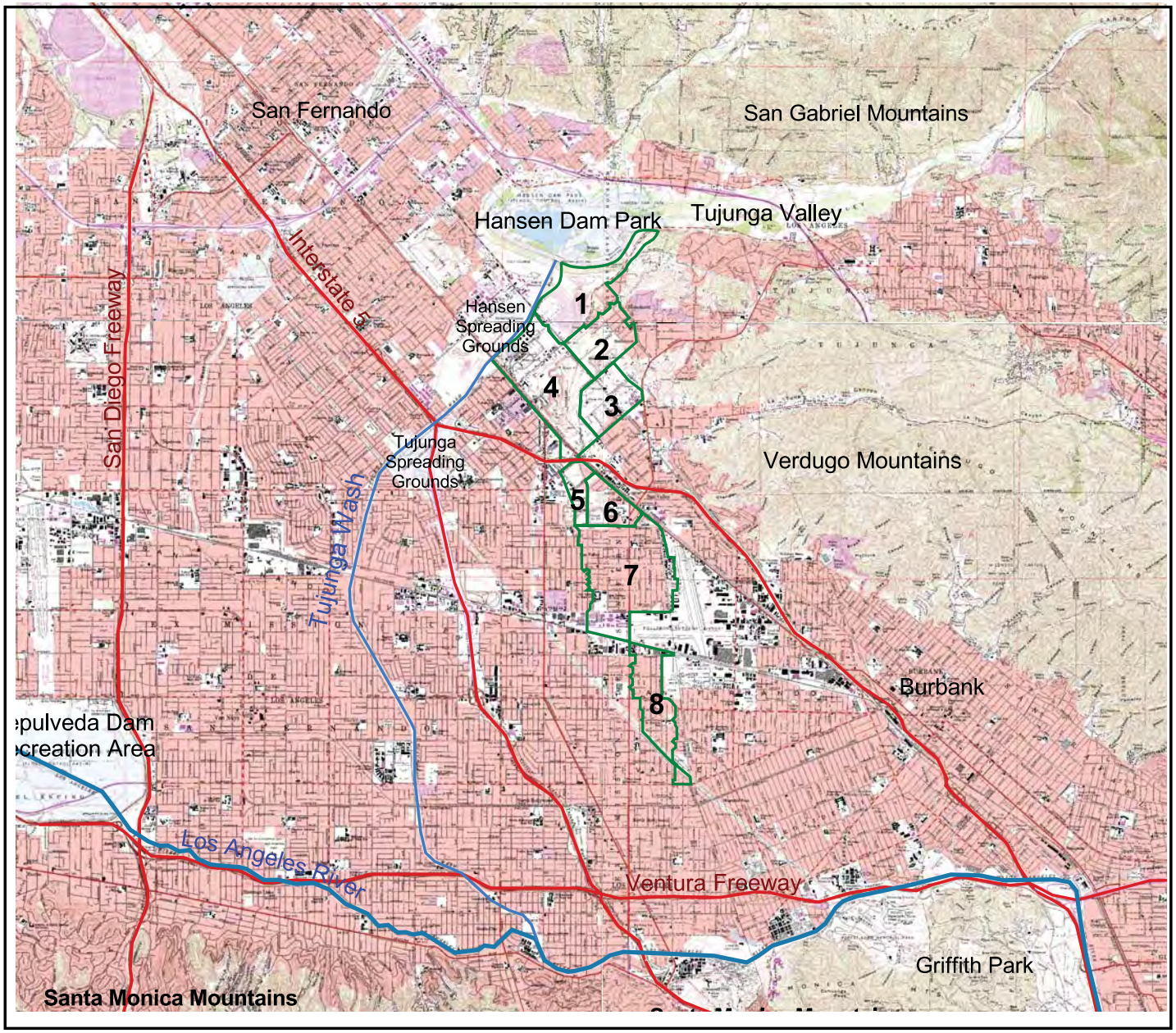
SOURCE: Impact Sciences, 2017

FIGURE **1**

IMPACT SCIENCES

Regional Location

1250.002•10/17



SOURCE: MWH, 2017

FIGURE **2**

IMPACT SCIENCES

Sun Valley Watershed Boundaries

1250.002•10/17

2.3 PREVIOUSLY APPROVED PROJECT

As discussed above, the Approved Project consists of a series of modifications and improvements to the 4.4-square-mile Sun Valley Watershed. The watershed is divided into eight subareas. Subareas 1 through 4 are known as the upper watershed. Subareas 5 through 8 are known as the lower watershed. The Approved Project, Sun Valley Watershed Management Plan, is a long-range plan which provides a blueprint for a multi-purpose flood control program in the project area. The plan consists of multiple components, each designed to manage stormwater runoff and reduce flooding while achieving other project objectives such as increase water conservation, increase recreational opportunities, increase wildlife habitat, provide additional environmental benefits (e.g., energy conservation, air quality improvement, and solid waste management), and increase multiple agency participation.

The adopted plan components included in the Sun Valley Watershed Management Plan are listed below:

- Cal Mat Pit
- New Park on Wentworth
- Onsite Best Management Practices (BMPs)
- Parking Lot on Sherman Way
- Power Line Easement
- Roscoe Elementary School
- Sheldon Pit and Tujunga Wash Diversion
- Stonehurst Elementary School
- Stonehurst Park
- Storm Drains
- Strathern Pit
- Street Storage
- Sun Valley Middle School
- Sun Valley Park
- Tree Planting and Mulching
- Tuxford Green
- Valley Steam Plant
- Vulcan Gravel Processing Plant

The majority of the components involve construction and operation of stormwater storage facilities, such as surface basins and underground tanks to hold stormwater collected within the watershed. The collected stormwater would undergo various processes of pollutant removal and treatment before being used to recharge groundwater, reused for non-potable purposes such as irrigation, or both. Where appropriate, stormwater storage facilities have been designed to provide recreational facilities and/or wildlife habitat areas. In addition, catch basins and storm drains are proposed to collect and convey runoff and reduce flows carried on street surfaces.

The 2004 FEIR requires that the mitigation measures shown in **Table 2-3** be applied to all project components.

Table 2-3
Sun Valley Watershed Management Plan FEIR Mitigation Measures

Air Quality	
A-1	Clean dirt from construction vehicle tires and undercarriages when leaving the construction site and before entering local roadways.
A-2	During earth-moving activities, water the construction area as necessary, but at least twice per day.
A-3	Water temporary open storage piles once per hour or install temporary covers.
A-4	Water unpaved roadways three times per day or apply non-toxic soil stabilizers.
A-5	Limit construction vehicle speed on the project site to 15 miles per hour (mph) or less.
A-6	Cover dirt in trucks during on-road hauling.
A-7	Cease earth-moving activities on days when wind gusts exceed 25 mph or apply water to soil not more than 15 minutes prior to moving such soil.
A-8	Sweep streets near the construction area at the end of the day if visible soil material is present.
A-9	For applicable construction areas, establish a vegetative groundcover as soon as feasible after active operations have ceased. Groundcover will be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting.
A-10	Per SCAQMD Rule 403(f), large construction operations (greater than 100 acres of disturbed area or daily earth-moving or throughput volume of 10,000 cubic yards three times during the most recent 365-day period) will either 1) implement fugitive dust suppression measures as specified in Tables 1 and 2 of Rule 403, or 2) prepare a fugitive dust emissions control plan and obtain approval from SCAQMD.
A-11	Prohibit all vehicles from idling in excess of 10 minutes, both on and off-site.
A-12	Maintain construction equipment in proper tune.
A-13	Encourage contractors to establish trip reduction plans. The goal of these plans will be to achieve a 1.5 average vehicle ridership (AVR) for construction employees.
A-14	Select construction equipment with low pollutant emissions and high energy efficiency. Factors to consider include model year and alternative fuels (e.g., compressed natural gas, biodiesel, emulsified diesel, methanol, propane, butane, and low sulfur diesel).
Biological Resources	
B-1	The existing coastal sage scrub vegetation at New Park on Wentworth will be incorporated into the park design, or the proposed facilities will be sited to avoid or minimize disturbance and loss of the vegetation during construction. However, if avoidance is not feasible, the following will be implemented: If the existing coastal sage scrub vegetation will be unavoidably impacted by project construction, the vegetation and associated topsoil will be removed, salvaged or mulched, and stockpiled separately. Following the completion of project construction, the stockpiled topsoil will be replaced, and stockpiled vegetation will be replanted (or replaced if mulched) on the site of origin or on another adjacent location as appropriate, under the direction of a qualified biologist. Retention and reapplication of stockpiled topsoil and vegetation will be supplemented with onsite restoration and/or rehabilitation of the same vegetation type at a ratio of 1:1, at minimum, as appropriate and biologically feasible; or If post-construction restoration and/or rehabilitation locations cannot be identified on-site, then appropriate and biologically feasible locations identified within other component sites shall be expanded to accommodate additional restoration to meet the 1:1 ratio, at minimum; or If appropriate and biologically feasible restoration and/or rehabilitation for the impacted coastal sage scrub cannot cumulatively be identified within the project component sites, and conditions on the site(s) are appropriate and biologically feasible for a different high-value vegetation type may be substituted at a ratio of 1:1, at minimum.
B-2	Prior to construction of Vulcan Gravel Processing Plant, Sheldon Pit, Cal Mat Pit, and Strathern Pit, the sites will be surveyed in accordance with agency protocols at the appropriate time of the year for the presence or absence of high-value native vegetation and habitats, including special status vegetation/habitat types are identified, the proposed facilities will be designed and/or sited to avoid or minimize disturbance and loss of the vegetation and habitats during construction. However, depending on the location of sensitive resources at the sites, if any, projects redesign that avoids the biological resources while still meeting the flood control objective of the project component may be infeasible. For example, the large size of the stormwater retention/infiltration basins proposed for the gravel

	pit sites might preclude complete avoidance of sensitive biological resources. Therefore, if avoidance is not feasible, the following will be implemented: If a high value vegetation type will be unavoidably impacted by project construction, the vegetation and associated topsoil will be removed, salvaged or mulched, and stockpiled separately. Following the completion of project construction, the stockpiled topsoil will be replaced, and stockpiled vegetation will be replanted (or replaced if mulched) on site of the origin or on another adjacent location as appropriate, under the direction of a qualified biologist. Retention and reapplication of stockpiled topsoil and vegetation will be supplemented with onsite restoration and/or rehabilitation of the same vegetation type at a ratio of 1:1, at minimum, as appropriate and biologically feasible; or If post-construction restoration and/or rehabilitation locations cannot be identified on-site, then appropriate and biologically feasible locations identified within other component sites shall be expanded to accommodate additional restoration to meet the 1:1 ratio; at minimum; or If appropriate and biologically feasible restoration and/or rehabilitation for the impacted high value vegetation type cannot cumulatively be identified within the project component sites, and conditions on the site(s) are appropriate and biologically feasible for a different high-value vegetation type on the site, restoration and/or rehabilitation of this vegetation type may be substituted at a ratio of 1:1, at minimum. Each acre of created wetlands that requires maintenance (e.g., sediment removal), and will be used to mitigate impacts to existing wetlands in (a) through (c) above, will be used for mitigation at a ratio of 2:1. The post-construction native vegetation restoration will be conducted under the direction of a qualified biologist. Where possible, restoration and/or rehabilitation will be consistent with, or a supplement to, any approved Reclamation Plan approved for any of these component sites. If wetland or riparian vegetation within the waters of the United States will be unavoidably impacted by project construction, USACE will be consulted regarding permits required under Clean Water Act Section 404. All necessary federal and state approvals (including coordination with CDFG and additional CEQA review) will be obtained prior to the implementation of construction activities.
B-3	A qualified biologist will conduct surveys at New Park on Wentworth for the following special status plant and wildlife species at the appropriate time of the year in accordance with appropriate survey protocols: Plants. southern tarplant, San Fernando Valley spineflower, slender-horned spineflower, Nevin's barberry, Plummer's mariposa lily, mesa horkelia, and Davidson's bush mallow. Wildlife. silvery legless lizard, orange-throated whiptail, San Diego horned lizard, coastal California gnatcatcher, and San Diego black-tailed jackrabbit. If any special status species are identified, the proposed facilities will be designed and/or sited to avoid or minimize disturbance and loss of the species during construction. However, depending on the location of sensitive resources at the sites, if any, project redesign that avoids the biological resources while still meeting the flood control objective of the project component may be infeasible. Therefore, if avoidance is not feasible, restoration and/or rehabilitation as described in **Mitigation Measure B-1** will be implemented. Additionally, if impacts on a federal or state-listed threatened or endangered species cannot be avoided, USFWS and/or CDFG will be consulted regarding permits required under FESA and/or CESA. All necessary federal and state approval will be obtained prior to the implementation of construction activities that would impact a federal or state-listed threatened or endangered species and the project will be constructed, operated, and maintained in conformance with the terms and conditions of these approvals.
B-4	Prior to construction of Vulcan Gravel Processing Plant, Sheldon Pit, Cal Mat Pit, and Strathern Pit components, onsite field surveys will be conducted at the appropriate time of the year (approximately mid-April to mid-June) to confirm the potential for special status plant and wildlife species to occur on these sites: Plants. southern tarplant, San Fernando Valley spineflower, slender-horned spineflower, Los Angeles sunflower, Nevin's barberry, Plummer's mariposa lily, mesa horkelia, and Davidson's bush mallow. Wildlife. silvery legless lizard and southwestern pond turtle, orange-throated whiptail, San Diego horned lizard, least Bell's vireo, coastal California gnatcatcher, and San Diego black-tailed jackrabbit. If the potential is confirmed for one or more special status species to occur, a qualified biologist will conduct focused surveys for those species in accordance with appropriate survey protocols at the appropriate time of the year. If any special status species are identified during the focused surveys, the proposed facilities will be designed and/or sited to avoid or minimize disturbance and loss of the species during construction. However, depending on the location of sensitive resources at the sites, if any, project redesign that avoids the biological resources while still meeting the flood control objective of the proposed project component may be infeasible. Therefore, if avoidance is not feasible, restoration and/or rehabilitation as described in **Mitigation Measure B-2** will be implemented. Additionally, if impacts on a federal or state-listed threatened or endangered species cannot be avoided, USFWS and/or CDFG will be consulted regarding permits required under FESA and/or CESA. All necessary federal and state approvals shall be obtained prior to the implementation of construction activities that would impact a federal or state-listed threatened or endangered species.

B-5	If feasible, project activities with the potential to disturb native and non-native vegetation and man-made nesting structure shall take place outside of the breeding season (which generally runs from March 1 to August 31 and as early as February 1 for some raptors) for birds protected by the Migratory Bird Treaty Act. If project activities must occur during the breeding season of birds covered by the MBTA, then beginning 30 days prior to construction, weekly bird surveys shall be arranged. The surveys shall continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of clearance/construction work at the site. If a bird covered by the MBTA is detected on the site, then the nesting activity will be monitored to ensure that construction activities do not occur within 300 feet of the nest (500 feet for raptors) until the juvenile birds have fledged and no further nesting attempts are initiated.
Cultural Resources	
C-1	A professional monitor qualified in historical archaeology shall be present for subsurface work between the surface and 5 feet in depth at the following project component sites: Stonehurst Park, Valley Steam Plant, and Roscoe Elementary School. If potentially important cultural deposits are encountered in the course of construction, work should be temporarily diverted from the vicinity of the discovery until the monitoring archaeologist can identify and evaluate the importance of the find and conduct any appropriate assessment and activities, as necessary.
C-2	On the first day of subsurface work, if any, at Strathern Pit, Cal Mat Pit, and Sheldon Pit, a professional monitor qualified in historical archaeology shall be present to assess whether further monitoring might be warranted.
C-3	If previously unknown cultural resources are discovered in the course of excavation for project construction at any project site, the construction inspector shall have the authority and responsibility to halt construction until a qualified archaeologist can evaluate the significance and disturbance of the materials, and identify future activities needed. If the cultural material discovered is determined to be potential archaeological significance, the investigation and future activities shall be conducted in consultation with culturally affiliated Native American or other parties, as necessary.
C-4	If human remains are discovered in the course of excavation for project construction, the County Coroner shall be contacted, and provisions of the *State CEQA Guidelines* Section 15064.5 would be followed.
C-5	During the design phase of Strathern Pit, Cal Mat Pit, and Sheldon Pit, LACDPW will conduct on-site surveys to determine presence of original machinery, refused and/or structures that date from the period of concern. If any are found, LACDPW will evaluate whether they are a historical resource using the criteria described in Section 15064.5(a) of the *State CEQA Guidelines*. If any requirement and/or structures at Strathern Pit, Sheldon Pit, or Cal Mat Pit are determined to be a historical resource, LACDPW will: • Incorporate the artifact into design of the project component, or • Remove and relocate the artifact to an appropriate location (i.e., museum, public, library, or school), or • Document with photographs and engineering drawings
Geology, Seismicity, and Soils	
G-1	During detailed design of Cal Mat Pit, Sheldon Pit, and Strathern Pit components, LACDPW will incorporate the recommendations of the geotechnical analysis, which will include optimum slope design for stability and safety, soil compaction or recompaction requirements, surface cover, and potentially other slope stabilizing measures.
G-2	To ensure that stormwater infiltration at Sheldon Pit, Cal Mat Pit, and the Power Line Easement does not result in an increased liquefaction risk, monitoring wells proposed for the Phase 1 projects (Cal Mat Pit, Sun Valley Middle School, and Valley Steam Plant) of the Watershed Management Plan as well as existing wells in the project area will be used to detect any substantial increase in groundwater levels. If monitoring indicates a substantial rise in groundwater levels (i.e., within 30 feet of the surface) at or near Sheldon Pit, Cal Mat Pit, or the Power Line Easement, stormwater would not be infiltrated and would be diverted into storm drains or onto street surfaces.
Hazards and Hazardous Conditions	
H-1	During the detailed design phase of each project component (except Onsite BMPs, Tree Planting & Mulching, and Storm Drains), a Phase I Environmental Site Assessment (ESA) will be conducted to determine the site-specific potential for soil contamination. The Phase I ESA will be conducted in accordance with the latest version of the American Society of Testing and Materials (ASTM) 1527 "Standard Practice for Environmental Site Assessments: Phase I Environmental Assessment Process." This document outlines the customary practice for performing ESA's in the United States. Phase I ESA will consist of a review of site-specific documents and historical maps to determine past uses of the site, a site visit to visually inspect the property for signs of potential environmental contamination, and investigation of state and federal environmental regulatory databases (including those maintained by Regional Water Quality Control Board and Department of Toxic Substances Control) to identify recognized hazardous materials usage or spills. For project sites with infiltration, the boundary of the Phase I ESA will include parcels located within 500 feet of the project site boundary to identify active or abandoned landfills or other land uses with the potential for contaminated soils which would be incompatible with infiltration (to be cross-referenced with **Mitigation Measure W-4**; see Section 4.7.7 of 2004 FEIR). If the Phase I ESA concludes that there is no substantial potential for soil contamination, no further action would be required. If the Phase I ESA indicates that there is potential for soil to be contaminated, additional investigation (including soil sampling and analysis)

	will be conducted to determine the presence and extent of the contamination. If the proposed project would involve disturbance of soil in the contaminated area, soil would be removed and disposed of in compliance with applicable regulations at approved disposal sites.
H-2	During the detailed design phase of Sheldon Pit, Cal Mat Pit, and Strathern Pit, FAA Western Pacific Regional Office, Burbank Airport, and Whiteman Airport will be notified of the proposed land use change.
H-3	LACDPW, or subsequent operator of the project component (if different), will consult and coordinate with the Greater Los Angeles Vector Control District (GLAVCD) during the detailed design, implementation, and operation phases of the following project components: Sheldon Pit, Strathern Pit, Cal Mat Pit, Power Line Easement, Valley Steam Plant, and Vulcan Gravel Processing Plant. Consultation and coordination with GLAVCD shall include the following actions: Consult with GLAVCD during the detailed design phase to incorporate design elements intended to minimize the mosquito production potential of the project component(s). Regularly consult with GLAVCD to identify mosquito management problems, mosquito monitoring and abatement procedures, and opportunities to adjust water and vegetation management practices to reduce mosquito production. Mosquito control measures to be used by GLAVCD could include mosquito fish stocking, and application of Bti, Methoprene, and/or Agnique MMF, as appropriate.
Hydrology and Water Quality	
W-1	The construction contractor will develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for all project components (except Onsite BMPs and Tree Planting and Mulching) that involve constructing, clearing, grading or excavation on areas over 1 acre in size. The following are possible measures to be incorporated into site-specific SWPPPs. Additional sample measures and guidelines for developing SWPPPs are available in California Stormwater Quality Association's Stormwater Best Management Practice Handbook – Construction (CASQA, 2003). Measures to reduce fugitive dust generated during construction (see Section 4.1.4 – Air Quality of 2004 FEIR) will also minimize the potential for soil erosion. Install perimeter silt fences or hay bales. Stabilize soils through hydroseeding and use of soil stabilizers. Install temporary sedimentation basins. Conduct earth moving activities during the dry season (April through October), as feasible. Designate storage areas for construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) to keep these materials out of the rain and minimize contact with stormwater. Conduct regular inspections to ensure compliance with the SWPPP.
W-2	LACDPW will prepare an annual vadose zone, surface water, and groundwater quality monitoring report to present the results of the Phase 1 projects to the Stakeholders. LACDPW will work with the Stakeholders to evaluate the effectiveness of the stormwater treatment devices and determine the necessity of additional stormwater treatment prior to subsequent infiltration or for use in wetlands designed to provide wildlife habitat. Where indicated based on water quality concerns, additional stormwater treatment will be installed, or infiltration will be discontinued at the relevant site. For sites with constructed wetlands that support wildlife habitat, modifications necessary based on water quality concerns will be designed to retain wetland vegetation or manage the wetlands in accordance with wildlife agency agreements or consultations.
W-3	Prior to starting operation of Sheldon Pit, LACDPW will coordinate with Waste Management Inc., the Regional Board, and ULARA Watermaster to develop a contingency plan that will be implemented in the event the groundwater levels at existing monitoring wells around Bradley Landfill reach the "alert level" of 745 feet msl. The contingency plan will outline actions to be taken if the "alert level" is reached (e.g., reduce or stop stormwater infiltration for a period of time until groundwater levels begin to fall).
W-4	If the site-specific Phase I ESA (see **Mitigation Measure H-1**) indicates that an active or closed landfill (either municipal solid waste or inert construction waste) is located within 500 feet from the project site boundary, a site-specific geotechnical study will be conducted to: 1) characterize the extent and composition of landfill materials; 2) determine whether the landfill materials are releasing methane; 3) and estimate the potential mounding effect from the proposed stormwater infiltration. The results of the geotechnical study will be incorporated into the project design to minimize the potential for project infiltration to result in interaction between infiltrated stormwater and landfill materials or to impact landfill gas releases, if any. Potential design modifications include siting the infiltration facilities away from the landfill and/or partially lining the facilities to direct infiltration away from the landfill. For sites with stormwater infiltration within 500 feet of an active or closed landfill, a groundwater monitoring program will then be developed and implemented to ensure that infiltration does not result in interaction between infiltrated stormwater and landfill materials or impact landfill gas releases. Infiltration would cease at any site where groundwater levels rose to within 10 feet of landfill materials.
W-5	As part of detailed design of the Strathern Pit component (Alternatives 1, 2, and 4), LACDPW will coordinate with Los Angeles Bureau of Sanitation, LADWP, and ULARA Watermaster's office to evaluate the feasibility of using the

	Tujunga Spreading Grounds for stormwater infiltration. The evaluation will determine the amount of stormwater that can be infiltrated by the proposed project without adverse effects on landfill methane migration.
Noise	
N-1	Construction activities will be limited to the hours allowed by the City of Los Angeles Noise Ordinance (i.e., between 7 a.m. and 9 p.m. on weekdays and between 8 a.m. and 6 p.m. on Saturdays and national holidays) unless written permission has been obtained from the City of Los Angeles Board of Police Commissioners per Section 41.40 of the Los Angeles Municipal Code.
N-2	All mobile construction equipment will be equipped with properly operating mufflers or other noise reduction devices.
N-3	For discrete project component sites, businesses and residences immediately adjacent to the construction site will be notified prior to the start of construction, e.g., via flyers. A telephone number for noise complaints will be included in this notification.
N-4	Prior to the start of construction of the project components, the construction contractor will develop a site-specific noise mitigation plan based on an updated estimate of construction equipment and schedule for each project component. The objective of the mitigation plans will be to reduce noise levels to 75 dBA at the nearest residence and 67dBA at school sites during project construction. The mitigation plans will identify potential mitigation measures, including installation of sound walls, sound curtains, and other temporary sound barriers; selection of quieter construction procedures and/or equipment; and noise monitoring to verify adherence to the identified mitigation measures. Additional mitigation measures for construction at school sites (i.e., Roscoe Elementary School, Stonehurst Elementary School, and Sun Valley Middle School) will include the following: scheduling the noisier phases of construction on Saturdays, school vacation periods, and/or after regular class hours but before 9 p.m., as feasible; and maintaining ongoing communications with the schools' administrators to address any construction noise-related issues. Coordination with St. Patrick's School will also be conducted prior to the installation of storm drains near this location.
Public Services – Police, Fire, Schools, and Other Facilities	
P-1	Prior to the start of construction, the fire stations serving the project area will be consulted to review phasing, road/lane closure, and detour plans and to determine fire and emergency medical response requirements.
P-2	The project will comply with all state and local codes and ordinances, and the guidelines found in the Fire Protection and Fire Prevention Plan, and Safety Plan located in the City of Los Angeles General Plan (C.P.C. 19708)
P-3	Prior to the start of construction, the North Hollywood Community Police Station and/or Foothill Community Police Station will be informed, as appropriate, of project-related lane and/or road closures and detour plans.
P-4	Investigate and implement traffic control measures capable of reducing the temporary adverse effects to police and emergency vehicle responses during project construction. Such measures may include the use of flagmen and posting "No Parking" signs along the affected area.
P-5	Ensure that school buses have access to Sun Valley Middle School, Stonehurst Elementary School, Roscoe Elementary School, and St. Patrick's School during construction.
P-6	Ensure that safe and convenient pedestrian routes to Stonehurst, Roscoe, Sun Valley, and St. Patrick's Schools are maintained.
P-7	Maintain ongoing communication with the administrators of the schools and provide sufficient notice to forewarn children and parents when existing pedestrian and vehicular routes to school will be affected.
P-8	Install appropriate traffic controls (e.g., signs and signals) as needed to ensure pedestrian and vehicular safety.
P-9	As feasible, haul routes will not be routed past the schools except when school is not in session.
P-10	Construction or worker vehicles will not be parked or staged on streets adjacent to the schools.
P-11	All construction areas on or adjacent to schools, including trench areas, operating equipment areas and equipment staging and stockpile areas, will be secured through fencing or other barriers to prevent trespassing and reduce hazards to children and other pedestrians.
P-12	The Project Manager or designee will notify the LAUSD Transportation Branch and the St. Patrick's School of the excepted start and ending dates for various portions of the project that may affect traffic through the areas and any potential impact on existing school bus routes.
Transportation/Traffic	
T-1	A construction traffic management plan shall be developed for each project site that will include but not be limited to such measures as designated haul routes for construction-related traffic (e.g., construction equipment, pickup and dump trucks, and other material delivery trucks), travel time restrictions for construction-related traffic to avoid weekday peak periods on selected roadways, designated site access locations, driveway turning restrictions, temporary traffic controls and/or flaggers, and designated parking/staging locations for workers and equipment.

T-2	A construction area traffic control plan and/or detour plan shall be prepared for each location where construction activities would encroach into the right-of-way of a public roadway. The plan would include, but not be limited to such features as warning signs, lights, barricades, cones, lane closures, and restricted hours during which lane closures would not be allowed; e.g., 6:00 to 9:00 a.m. and 3:00 to 6:00 p.m., or as directed by the affected public agency (City of Los Angeles Department of Transportation for most locations).
T-3	Provide advance notification to affected property owners, businesses, residents, etc. of possible driveway blockages or other access obstructions and implement alternate access and parking provisions where necessary.
T-4	Provide alternative pedestrian and bicycle access/circulation routes where existing facilities such as sidewalks, crosswalks, and bike lanes would be obstructed.
T-5	Coordinate with emergency service providers (police, fire, and ambulance/paramedic agencies) prior to construction to provide information regarding lane closures, construction schedules, driveway blockages, etc. and to develop a plan to maintain or accommodate essential emergency access routes; e.g., plating over excavations, use of detours, etc.
T-6	Coordinate with public transit agencies (e.g., MTA) to provide information regarding lane closures, bus stop disruptions, etc. and to designate alternate pick-up/drop-off locations if appropriate.
T-7	As necessary, obtain a transportation permit from Caltrans for transportation of heavy construction equipment and/or materials which requires the use of oversized-transport vehicles on State highways.
Utilities and Service Systems	
U-1	During the preliminary design phase of each project component, the utility service providers will be consulted to identify existing and proposed buried facilities in affected roadways and to determine which utilities require relocation and which can be avoided. If relocation is required, the appropriate utility service provider will be consulted to sequence construction activities to avoid or minimize interruptions in service.
U-2	If utility service disruption is necessary, residents and businesses in the project area will be notified a minimum of two to four days prior to service disruption through local newspapers, direct mailings to affected parties, or public posting of notices.
U-3	The contractor will be required to excavate around utilities, including hand excavation as necessary, to avoid damage and to minimize interference with safe operation and use. Hand tools must be used to expose the exact location of buried gas or electric utilities.
U-4	The plans and specifications for the proposed project will state that the construction contractor is required to identify and implement programs for minimizing solid waste generated during construction. These programs will include, at a minimum, recycling of asphalt and concrete paving materials, and balance of graded soil on site to the maximum extent feasible.
U-5	Prior to construction, the City of Los Angeles Bureau of Sanitation will be notified of the construction schedule and planned lane or road closures so that solid waste collection routes and access in the area may be modified accordingly.
U-6	During preliminary design of Valley Steam Plant and Power Line Easement, a geotechnical investigation will be conducted to assess the characteristics and stability of the soil around the power line towers. If results of the investigation indicate that stormwater infiltration may saturate the soil and affect the stability of the towers, the following changes would be incorporated into the site design: For the Valley Steam Plant component, the proposed retention basins would be sited to avoid the towers, if possible, or a series of drywells would be constructed so that water would be infiltrated deeper into the ground to avoid saturation of surface soils. For the Power Line Easement component, a series of drywells would be constructed so that water would be infiltrated deeper into the ground to avoid saturation of surface soils. Alternatively, for either the Power Line Easement or Valley Steam Plant components, a liner may be installed along the side slope of the basin closest to the power line towers to prevent infiltration. (The liner would cover only a small portion of the infiltration basin.)

2.4 PROPOSED SUN VALLEY WATERSHED UPPER STORM DRAIN SYSTEM PROJECT

The Proposed Project details a portion of the Storm Drain component of the Watershed Management Plan described in the 2004 FEIR. The Proposed Project is comprised of four "phases" collectively known as the

Sun Valley Watershed Upper Storm Drain System and are described further below. The exact location of the four phases can be found in **Figure 3, Sun Valley Watershed Upper Storm Drain System.**

Phase 1

Phase 1 of the Sun Valley Watershed Upper Storm Drain System is located within the Sun Valley Community of the City of Los Angeles. The proposed work includes the construction of reinforced concrete pipes, catch basins, connector pipes, and other drainage structures. The storm drain system will ultimately drain into the site of the Strathern Pit, which will be renamed in the future as the Rory M. Shaw Wetland Park.[2] Phase 1 construction would primarily take place on Tujunga Avenue, Penrose Street, and Gross Street. The approximate length of the work of Phase 1 is 3,600 feet.

Phase 2

Phase 2 of the Sun Valley Watershed Upper Storm Drain System is located within the Sun Valley Community of the City of Los Angeles. The proposed work includes the construction of reinforced concrete pipes, catch basins, connector pipes, and other drainage structures. The storm drain will extend into the existing Tuxford Drain. Phase 2 construction would primarily take place on San Fernando Road, Tuxford Street, Glenoaks Boulevard, and Sheldon Street. The approximate length of the work of Phase 2 is 12,600 feet (main line) and 3,200 feet of laterals.

Phase 3

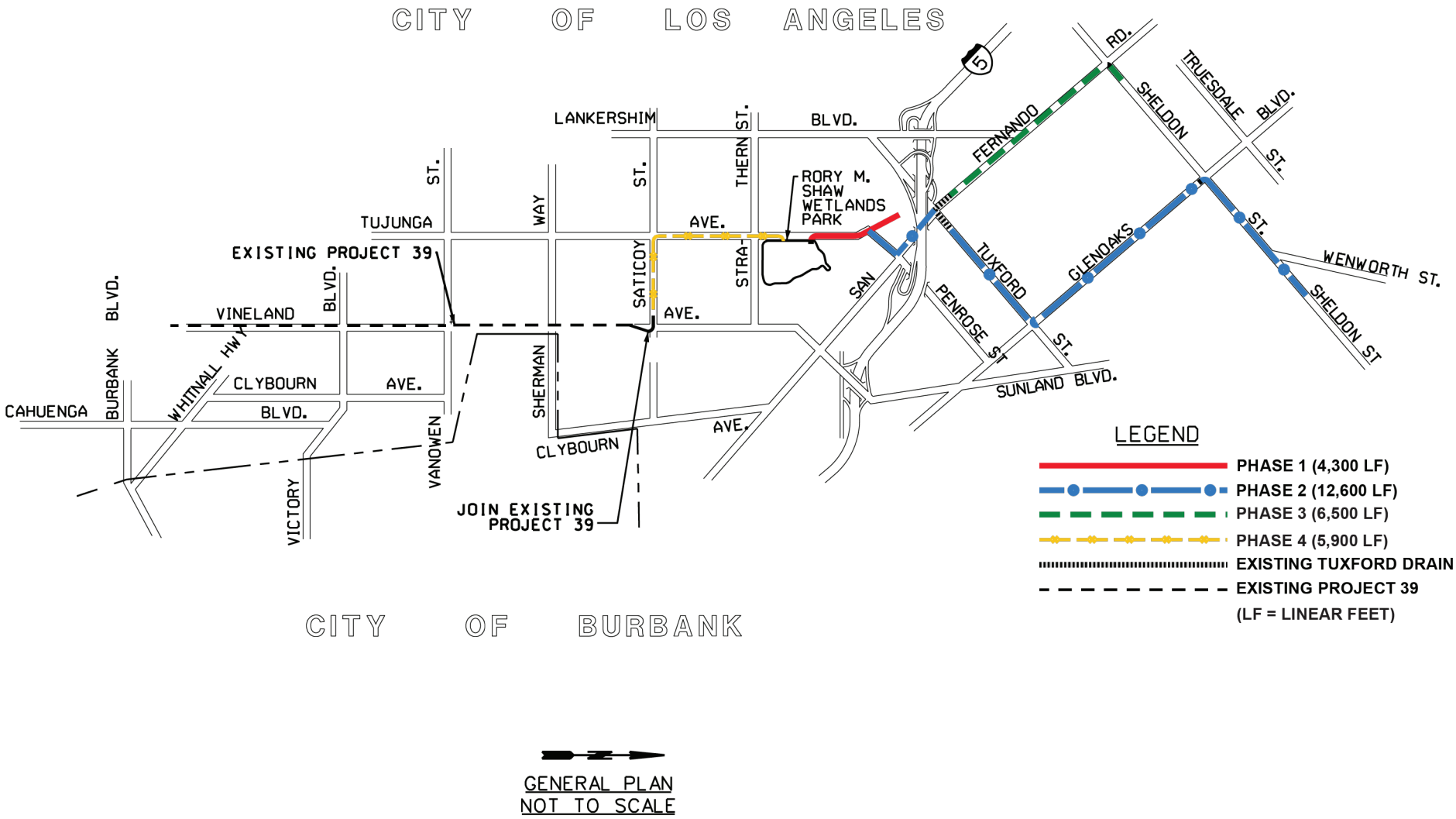
Phase 3 of the Sun Valley Watershed Upper Storm Drain System is located within the Sun Valley Community of the City of Los Angeles. The proposed work includes the construction of reinforced concrete pipes, catch basins, connector pipes, and other drainage structures. The storm drain will extend into the existing Tuxford Drain. Phase 3 construction would primarily take place on San Fernando Road and Sheldon Street. The approximate length of the work of Phase 3 is 6,500 feet (main line) and 600 feet of laterals. The project consists of tunneling approximately 112 linear feet of 48-inch RCP in the vicinity of existing Metro railroad tracks.

Phase 4

Phase 4 of the Sun Valley Watershed Upper Storm Drain System is located within the Sun Valley Community of the City of Los Angeles. The proposed work includes the construction of a 66-inch

[2] Note: The conversion of the Strathern Pit to the Rory M. Shaw Wetland Park will take place under a separate project and is not part of any phase of the Sun Valley Upper Storm Drain System project; the connection of the Phase 1 storm drains to the park will only take place once both projects are completed.

reinforced concrete pipe and 2.5-ft x 10.5-ft reinforced concrete box that directs the overflow from the detention basin within the Rory M. Shaw Wetlands Park to outlet onto Project 39. Phase 4 construction would primarily take place on Vineland Avenue, Tujunga Avenue and Saticoy Street. The approximate length of the work of Phase 4 is 5,900 feet.



SOURCE: City of Los Angeles, Department of Public Works, 2017

FIGURE **3**

IMPACT SCIENCES

Sun Valley Watershed Upper Storm Drain System

1250.002•01/2020

3.0 IMPACT ANALYSIS

3.1 ENVIRONMENTAL SETTING AND IMPACT ANALYSIS

The Final Program EIR analyzed environmental impacts of the Sun Valley Watershed Management Plan. The FEIR was prepared by the District, the CEQA Lead Agency, and certified on June 29, 2004 by the Los Angeles County Board of Supervisors, acting as the governing board of the District. The Watershed Management Plan is a multi-purpose flood control program to solve the local flooding problem in the Sun Valley Watershed area while increasing water conservation, recreational opportunities and wildlife habitat, and reducing stormwater facilities within the watershed, both small and large-scale, including those for retention and/or infiltration, conveyance, and distribution for reuse.

The Approved Project's objectives are as follows: reduce local flooding in the project area; increase water conservation, increase recreational opportunities, increase wildlife habitat, improve water quality, provide additional environmental benefits, and increase multiple agency participation.

As required by CEQA, the 2004 FEIR included project alternatives and associated impact analysis. Alternatives evaluated included the No Project Alternative, the Project 9250 alternative, and the Boulevard Pit alternative. Analyses of the four District-defined Watershed Management Plan sample alternatives and the theoretical worst-case alternative were discussed as well. Since the project would be implemented over 10 years, a definitive listing of project components to be contained in the final Plan is not possible. The Program EIR considered the environmental impacts of each of the project components individually as well as the impacts of the four sample alternatives. The District adopted all components of the Watershed Management Plan.

The 2004 FEIR determined that the approved project would result in significant unavoidable impacts in the following issue areas:

3.2 SIGNIFICANT UNAVOIDABLE IMPACTS IDENTIFIED IN THE 2004 FEIR

Air Quality

As documented in the 2004 FEIR, impacts to air quality from construction are significant and would likely still exceed significance thresholds established by SCAQMD even with implementation of feasible mitigation measures. Construction impacts are dependent on the contractor and equipment choices, as well as project phasing.

Biological Resources

As discussed in the 2004 FEIR, potential significant adverse impacts on biological resources may be present on the gravel pits which could not be surveyed. Subsequent analyses will be evaluated if disturbance to species from project construction were deemed significant. If sensitive resources are found, project re-design to avoid and protect the sensitive species will be the first consideration. However, depending on the location of sensitive resources at the sites, if any, project redesign that avoids the biological resources while still meeting the flood control objective of the project component may be infeasible.

The remaining impacts were found to be less than significant with mitigation incorporated, less than significant or no impact.

As documented in the analyses below, assuming the same mitigation measures adopted as part of the 2004 FEIR, impacts previously identified as significant would not be worsened, and no new significant or potentially significant impacts to the physical environment would occur as a result of the implementation of the Proposed Project. Accordingly, the following discussion supports the District's conclusion, pursuant to *State CEQA Guidelines* Section 15164, that an Addendum is appropriate, and supports a determination by the District that no subsequent EIR is required.

3.3 AESTHETICS

The potential for the Sun Valley Watershed Upper Storm Drain System project (Proposed Project) to result in new or substantially more adverse significant impacts to aesthetics was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR. The 2004 FEIR[3] determined the Approved Project would have no impact on scenic vistas and a less than significant impact related to damage to scenic resources, visual character, and light and glare.

(a) Does the Proposed Project require Subsequent or Supplemental CEQA Documentation with respect to a substantial adverse effect on scenic vistas?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The project sites evaluated in the 2004 FEIR are located in urbanized areas and the Approved Project would not involve any structures that would obstruct scenic vistas. No significant visual resources exist which would be negatively impacted by implementation of the Approved Project nor does the Approved Project involve any structures of significant size which would have the potential to obstruct scenic vistas. No impacts would occur.

The Proposed Project sites are currently developed and in use as roadways as analyzed for the Storm Drains component of the Approved Project in the 2004 FEIR. Based on review of the plans for the Proposed Project, the four phases, which lie within the project area analyzed in the 2004 FEIR, are not located within the viewshed of a scenic vista. The Proposed Project would be consistent with the 2004 FEIR and would not result in new or substantially increased impacts to scenic vistas beyond those discussed in the 2004 FEIR. Therefore, the Proposed Project would have no impact related to scenic vistas and no new mitigation is required. There would be no new or greater impact than those identified in the 2004 FEIR.

3 Aesthetic analysis is provided in the Initial Study prepared for the 2004 FEIR

(b) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

There are no state scenic highways in the vicinity of the project sites. The 2004 FEIR identified less than significant impacts on trees, rock outcroppings, historic buildings, or other scenic resources within the viewshed of a state or local scenic highway.

Similar to the 2004 FEIR, the Proposed Project does not involve any structures of significant size that have the potential to obstruct views from Stonehurst Avenue, La Tuna Canyon Road, Wentworth Street, and the Foothill Freeway (Interstate 210) as Scenic Highways in the Sun Valley-La Tuna Community Plan. As the project does not involve structures of significant size, there would be a less than significant impact on trees, rock outcroppings, or historic buildings within the viewshed of a scenic highway. Thus, similar to the conclusion of the 2004 FEIR, the Proposed Project's impact related to scenic resources would be less than significant. No new mitigation is required.

(c) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to degradation of existing visual character or quality of the site and its surroundings?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The 2004 FEIR identified temporary short-term construction impacts due to grading and other construction activity. Once construction is complete, landscaping, parks and open spaces would generally improve the visual quality of the area through the addition of landscaped areas, parks, and other open spaces. Because the negative impacts associated with construction would be temporary and localized, impacts on visual character and quality are less than significant.

Implementation of the Proposed Project would occur in areas that are urbanized and include industrial, commercial and residential uses. As part of the Storm Drains component of the Approved Project, grading and other construction activities may temporarily degrade the visual character and quality of the project sites. However, as described in the 2004 FEIR, construction related impacts would be short-term and localized. Once the construction is completed, areas would be paved. The Proposed Project does not involve large aboveground buildings or other large structures that could have a negative impact on the area's visual character or quality. Therefore, similar to the conclusion of the 2004 FEIR, the Proposed Project's impact on the visual character would remain less than significant. No new mitigation is required.

(d) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to a new source of light or glare which would adversely affect day or nighttime views in the area?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The 2004 FEIR also determined the approved project would not result in any significant impacts due to new lighting. Any lighting in residential areas would be designed and shielded to minimize impacts on nearby residences.

The Proposed Project does not involve any new structures that would require nighttime lighting. No other lighting is proposed, and no impact would occur. Therefore, the project would not result in new or substantially increased impacts with regard to light and glare beyond those discussed in 2004 FEIR. Impacts would be less than significant, and no new mitigation is required.

3.4 AGRICULTURAL RESOURCES

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts to agricultural resources was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

(a) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

As documented in the 2004 FEIR, the Approved Project's sites are located in an urbanized area. The project sites are not occupied by existing Farmland as defined by the California Resources Agency.[4] Therefore, none of the project components would result in conversion of Farmland to non-agricultural use. No impacts would occur.

The Proposed Project would not convert Prime Farmland, as defined by the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use. The Proposed Project's phases include construction of underground pipes for drainage as part of the Sun Valley Upper Storm Drain System. Construction of the drainage improvements under the Proposed Project would all take place within the right-of-way of existing roadways, including Tujunga Avenue, Penrose Street, San Fernando Road, Tuxford Street, Glenoaks Boulevard, Sheldon Street, and Saticoy Street. The Proposed Project sites are zoned with manufacturing land uses and some low residential. None of the proposed sites are zoned for agricultural use. Therefore, no new or substantially greater impact would occur regarding conversion of important farmland pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency. No new mitigation is required.

4 Los Angeles County Department of Public Works, 2004 FEIR Sun Valley Watershed Management Plan, May 2004

(b) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to a conflict with existing zoning for agricultural use, or a Williamson Act contract?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Boulevard Pit, Cal Mat Pit, and Sheldon Pit have a zoning designation of Agricultural (A-1) within the City of Los Angeles[5]. However, the majority of these sites are in use as gravel pits. Under existing conditions, the project sites do not have the capacity to support agricultural operations. Therefore, the 2004 FEIR determined the sites would not conflict with the existing zoning for agricultural use. In addition, no Williamson Act contracts are associated with these sites.

In accordance with the 2004 FEIR analysis, some existing areas adjacent to the project sites are zoned for agricultural; however, as described above, the sites are not in use as agricultural lands. Further, none of the Proposed Project sites are zoned for agricultural use; therefore, there would be no conversion of agriculturally zoned sites as part of the project. Furthermore, the Proposed Project would not conflict with the 2004 FEIR analysis regarding zoning and a Williamson Act contract and any impact to agricultural zoning would be less than significant. No new or substantially greater impacts would occur. No new mitigation is required.

(c) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

5 City of Los Angeles Department of City Planning, Zoning Information and Map Access System (ZIMAS), http://zimas.lacity.org/

The project sites are not located in the vicinity of existing agricultural operations. The project sites under the Approved Project are not occupied by existing Farmland as defined by the California Resources Agency. Therefore, no impacts related to farmlands were identified or anticipated to occur.

As discussed above, the Proposed Project would not convert existing agricultural uses to a non-agricultural use. Implementation of the Proposed Project would not conflict with the findings of the 2004 FEIR analysis. No new or substantially greater impacts would occur. No new mitigation is required.

3.5 AIR QUALITY

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts to air quality was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

(a) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to conflicting with or obstructing implementation of the applicable air quality plan?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

In accordance with the South Coast Air Basin (SCAB) and the South Coast Air Quality Management District (SCAQMD), the applicable air quality plan for the Approved Project area is the Air Quality Management Plan (AQMP) developed by SCAQMD. The Approved Project did not include development of housing or employment centers and would not induce population or employment growth. Therefore, the Approved Project was found to not conflict with or obstruct the implementation of the AQMP.

The Proposed Project's phases include construction of underground pipes for drainage as part of the Sun Valley Upper Storm Drain System. Similar to the 2004 FEIR conclusion, the Proposed Project would not include development of housing or employment centers and would not induce population or employment growth.

(b) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to violate any air quality standard or contribute substantially to an existing or projected air quality violation?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Construction Impacts

The FEIR concluded that development of specific components of the Approved Project were found to result in air pollutant emissions from construction equipment, earth moving activities, construction workers' commutes and materials deliveries. Air pollutant emissions from construction activities have been estimated for each of the Approved Project's components. At the time of the EIR analysis, the Approved Project's EIR did not have detailed construction plans developed for most of the project's components. Therefore, estimates were made assuming a "worst case" scenario in terms of air emissions determined by the CEQA Handbook[6].

Construction of the following individual project components were found to result in exceedance of SCAQMD thresholds for NO_x: Cal Mat Pit, Parking Lot on Sherman, Power Line Easement, Sheldon Pit, Storm Drains, Strathern Pit, Street Storage, and Vulcan Gravel Processing Plant. The Approved Project's construction impacts on air quality, while temporary, were found to be significant for these project components on a component-by-component basis. Mitigation measures were created to be implemented during construction (See **Table 2-2, Sun Valley Watershed Management Plan FEIR Mitigation Measures**). **Mitigation Measure A-1** through **A-10** of the 2004 FEIR (**Table 2-2**) addresses suppression of fugitive dust in order to reduce PM10 emissions associated with earth moving activities. **Mitigation Measures A-11, A-12,** and **A-13** of the 2004 FEIR were created to be implemented during construction of all project components in order to reduce tailpipe emissions from worker commutes, use of delivery and work trucks, and use of construction equipment. However, **Mitigation Measures A-11, A-12,** and **A-13** are limited in their effectiveness to reduce tailpipe emissions. **Mitigation Measure A-14** of the 2004 FEIR promoted the selection of construction equipment with low pollutant emissions and high energy efficiency.

For Cal Mat Pit, Parking Lot on Sherman, Power Line Easement, Sheldon Pit, Storm Drains, Strathern Pit, Street Storage, and Vulcan Gravel Processing Plant, NO_x emissions during construction were considered significant and unmitigable impacts since the implementation of **Mitigation Measure A-11, A-12, and A-13** were found to have the potential to not sufficiently reduce emissions, and implementation of **Mitigation Measure A-14** was found to have the potential to be infeasible.

The Approved Project consisted of multiple components, each designed to manage stormwater runoff and reduce flooding while also aiming to reduce flooding, increase water conservation, increase recreational opportunities, increase wildlife habitat, increase water quality, and provide environment benefits. The majority of the project components involved construction and operation of stormwater storage and/or infiltration facilities (e.g., sedimentation and infiltration basins, underground storage tanks, and dry wells).

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6 South Coast Air Quality Management District (SCAQMD), CEQA Air Quality Handbook, April 1993

The collected stormwater would be treated prior to groundwater recharge or reuse (irrigation or gravel wash water). Where appropriate, stormwater storage facilities were planned to provide recreational facilities and/or wildlife habitat areas. In addition, catch basins and storm drains were proposed to collect and convey runoff and reduce flows carried on street surfaces.

The Proposed Project would construct a portion of the Approved Project analyzed in the 2004 FEIR. Specifically, the Proposed Project would construct a series of storm drains from Sheldon Street to a detention pond. Construction of the Proposed Project will occur over four phases to install a new storm drain system. Each phase of construction would have the potential to generate emissions from construction equipment exhaust and earth moving activity. Like the Approved Project detailed in the 2004 FEIR, the Proposed Project would have the potential to significantly increase emissions of NO_x during construction. Because the scale of the projects in the 2004 FEIR were much larger than the Proposed Project, emissions of CO, ROG, NO_x, SO_x, and PM10 are not anticipated to exceed the emissions calculated in the 2004 FEIR.

The Proposed Project includes the installation of approximately 28,600 feet of storm drains. The construction process is anticipated to be divided into four phases. Phase 1 of construction runs along Tujunga Avenue, between Strathern Street and Interstate 5, and is approximately 3,600 feet long. Phase 2 runs from Tujunga Avenue, east to San Fernando Road; north along San Fernando Road to Tuxford Street; east along Tuxford Street to Glenoaks Boulevard; north along Glenoaks Boulevard to Sheldon Street; east along Sheldon Street and terminating between Wentworth Street and Dronfield Avenue. Phase 2 is approximately 12,600 feet long. Phase 3 of construction runs along San Fernando Road between Sheldon Street and Tuxford Street, and is approximately 6,500 feet long. Phase 4 of construction is approximately 5,900 feet and runs from Vineland Avenue, west along Saticoy Street to Tujunga Avenue; north along Tujunga Avenue to approximately 400 feet north of Strathern Street.

Each phase of construction is anticipated to begin in the spring of their respective year, with Phase 1 construction starting in 2020, Phase 2 in 2021, Phase 3 in 2021, and Phase 4 in 2022. Phase 1 construction is expected to last 180 days; Phase 2 construction 280 days; Phase 3 construction 160 days; and Phase 4 construction is expected to last approximately 155 days. If construction were to be delayed, construction emissions are not anticipated to increase, but rather decrease due to the use of newer, more efficient construction equipment. **Table 3-1**, below, shows predicted emissions associated with construction activities associated with the Proposed Project.

Table 3-1
Estimated Unmitigated Construction Emissions

	Maximum Emissions in Pounds per Day					
Construction Year	**VOC**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Maximum Daily Phase 1 Emissions	3	27	23	<1	4	1
Maximum Daily Phase 2 Emissions	2	31	23	<1	11	2
Maximum Daily Phase 3 Emissions	2	23	23	<1	4	1
Maximum Daily Phase 4 Emissions	2	23	23	<1	7	2
Maximum Daily Emissions	3	31	23	<1	11	2
SCAQMD Regional Threshold	75	100	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No
Maximum Daily Localized Phase 1 Emissions	1	24	25	<1	2	1
Maximum Daily Localized Phase 2 Emissions	1	30	27	<1	5	2
Maximum Daily Localized Phase 3 Emissions	1	23	23	<1	4	1
Maximum Daily Localized Phase 4 Emissions	1	23	23	<1	7	2
Total Localized Daily Emissions	3	24	22	<1	7	2
SCAQMD Localized Threshold	N/A	172	1,434	N/A	14	8
Exceeds Threshold?	**N/A**	**No**	**No**	**N/A**	**No**	**No**

*Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix A**. Calculations were performed using CalEEMod 2016.3.2. Project is in Source Receptor Area (SRA) 7. Thresholds for 5-acre site with 25-meter receptors distance.*
Totals in table may not appear to add exactly due to rounding in the computer model calculations.

Review of the 2004 FEIR demonstrates that the construction of storm drains for the Approved Project was estimated to result in significantly higher maximum daily VOC, NO_x, CO, SO_x, and PM10 emissions than the Proposed Project.[7,8] Specifically, the storm drain component in the 2004 FEIR was anticipated to release a maximum of 220 pounds per day (lbs/day) of CO, 51 lbs/day of VOC, 399 lbs/day of NOx, 35 lbs/day of SOx, and 18 lbs/day of PM10. The reduction in emissions reductions can be attributed to the availability of cleaner burning off-road equipment and the increased efficiency in heavy duty trucks. According to **Table 3-1**, Proposed Project construction would be less than the SCAQMD's construction thresholds, and as a result, the construction of the storm drains would be less than significant.

Mitigation Measures A-1 through **A-14** of the 2004 FEIR would further reduce fugitive dust and construction equipment tailpipe emissions through implementation of SCAQMD Rule 403 and requiring

7 PM2.5 emissions were not evaluated in the 2004 FEIR.

8 See Table 4.1-5B in the 2004 FEIR.

cleaner burning engines in construction equipment. In addition to this, because of current regulations on engine standards, newer construction equipment that would be used for the Proposed Project would generate tailpipe emissions at a lesser rate than the engines analyzed in the 2004 FEIR.[9] Unmitigated construction emissions do not exceed SCAQMD thresholds. As a result, construction criteria pollutant emissions would be less than significant without mitigation applied. No new or significant impacts would occur, and no new mitigation measures are required.

Operational Impacts

Operation and maintenance of specific facilities included as part of the Watershed Management Plan were expected to have a less than significant impact on air quality.

Analysis on the operation of recreational facilities, such as parks, found that air emissions would be a result of vehicle trips generated by visitors of Cal Mat Pit, New Park on Wentworth, Power Line Easement, Sheldon Pit, Strathern Pit, and Tuxford Green. The results of the calculations from the Approved Project found the vehicle trips generated by visitors would result in less-than-significant air emissions, both on a site-by-site basis and cumulatively for all project component sites with new parks.

Unlike portions of the projects detailed in the 2004 FEIR, the Proposed Project would not have recreational facilities or visitors related to project operations. Project operations would consist of periodic maintenance, as needed, and would not result in daily emissions of air pollutants. As a result, the Proposed Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. As a result, these operational impacts are considered less than significant. No new or significant impacts would occur, and no new mitigation measures are required.

(c) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under applicable federal or state ambient air quality standard (including releasing emission which exceed quantitative thresholds for ozone precursors)?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

9 As demonstrated in the Default Data Tables for CalEEMod, provided by California Air Pollution Control Officers Association (CAPCOA) as Appendix D to the online CalEEMod User's Guide on the SCAQMD's website: http://www.aqmd.gov/caleemod/user's-guide, accessed June 6, 2019

Construction Impacts

As discussed above, construction of the following Approved Project's components were found to result in exceedance of SCAQMD thresholds for NO_x: Cal Mat Pit, Parking Lot on Sherman, Power Line Easement, Sheldon Pit, Storm Drains, Strathern Pit, Street Storage, and Vulcan Gravel Processing Plant.

For Cal Mat Pit, Parking Lot on Sherman, Power Line Easement, Sheldon Pit, Storm Drains, Strathern Pit, Street Storage, and Vulcan Gravel Processing Plant, NO_x emissions during construction were considered significant and unmitigable impacts since the implementation of **Mitigation Measure A-11, A-12,** and **A-13** were found to have the potential to not sufficiently reduce emissions, and implementation of **Mitigation Measure A-14** was found to have the potential to be infeasible.

The Approved Project was estimated to result in significantly higher maximum daily VOC, NO_x, CO, SO_x, and PM10 emissions than the Proposed Project.[10,11] Specifically, the storm drain component in the 2004 FEIR was anticipated to release a maximum of 220 pounds per day (lbs/day) of CO, 51 lbs/day of VOC, 399 lbs/day of NOx, 35 lbs/day of SOx, and 18 lbs/day of PM10. The reduction in emissions reductions can be attributed to the availability of cleaner burning off-road equipment and the increased efficiency in heavy duty trucks. According to **Table 3-1**, Proposed Project construction would be less than the SCAQMD's construction thresholds, and as a result, the construction of the storm drains would be less than significant.

Mitigation Measures A-1 through **A-14** of the 2004 FEIR would further reduce fugitive dust and construction equipment tailpipe emissions through implementation of SCAQMD Rule 403 and requiring cleaner burning engines in construction equipment. In addition to this, because of current regulations on engine standards, newer construction equipment that would be used for the Proposed Project would generate tailpipe emissions at a lesser rate than the engines analyzed in the 2004 FEIR.[12] Unmitigated construction emissions do not exceed SCAQMD thresholds. As a result, construction criteria pollutant emissions would be less than significant without mitigation applied and would not result in a cumulatively considerable net increase of a criteria pollutant. No new or significant impacts would occur, and no new mitigation measures are required.

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10 PM2.5 emissions were not evaluated in the 2004 FEIR.

11 See Table 4.1-5B in the 2004 FEIR.

12 As demonstrated in the Default Data Tables for CalEEMod, provided by California Air Pollution Control Officers Association (CAPCOA) as Appendix D to the online CalEEMod User's Guide on the SCAQMD's website: http://www.aqmd.gov/caleemod/user's-guide, accessed June 6, 2019

Operational Impacts

Operation and maintenance of specific facilities included as part of the Watershed Management Plan were expected to have a less than significant impact on air quality.

Analysis on the operation of recreational facilities, such as parks, found that air emissions would be a result of vehicle trips generated by visitors of Cal Mat Pit, New Park on Wentworth, Power Line Easement, Sheldon Pit, Strathern Pit, and Tuxford Green. The results of the calculations from the Approved Project found the vehicle trips generated by visitors would result in less-than-significant air emissions, both on a site-by-site basis and cumulatively for all project component sites with new parks.

The Proposed Project would not have recreational facilities or visitors related to project operations. Project operations would consist of periodic maintenance, as needed, and would not result in daily emissions of air pollutants. As a result, the Proposed Project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation. The Proposed Project would also therefore not result in a cumulatively considerable net increase in any criteria pollutant. As a result, these operational impacts are considered less than significant. No new or significant impacts would occur, and no new mitigation measures are required

(d) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to expose sensitive receptors to substantial pollutant concentrations?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

As analyzed in the 2004 FEIR, schools such as Sun Valley Middle School, Roscoe Elementary School, and Stonehurst Elementary School are considered sensitive receptors to air pollution. Construction emissions from the Approved Project would result in temporary degradation of ambient air quality at the schools. Even though the construction emissions were found to be temporary and less than significant according to the SCAQMD thresholds, **Mitigations Measures A-1** through **A-14** were considered to further reduce this impact on sensitive receptors.

The Proposed Project does not involve the use of heavy equipment or chemicals that could have the potential to release toxic air contaminants or expose sensitive receptors to substantial pollutant

concentrations. As a result, this impact is considered less than significant. No new or significant impacts would occur, and no new mitigation measures are required.

(e) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to create objectionable odors affecting a substantial number of people?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The Approved Project's operational impacts related to odor were also found to be less than significant. Surface retention basins and other facilities that have standing water for a period of time may create odors if improperly operated and maintained. However, the Approved Project identified the City of Los Angeles Department of Parks and Recreation as responsible for maintaining lakes and other water features at proposed parks, including odor/algae control.

The Proposed Project's operational impacts related to odor are also found to be less than significant. Significant odors are typically not associated with standard storm drain uses. In addition to this, water would primarily be transported in enclosed pipelines underground. Because the Proposed Project would not create any objectionable odors, this impact is considered less than significant. No new or significant impacts would occur, and no new mitigation measures are required.

3.6 BIOLOGICAL RESOURCES

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts to biological resources was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

(a) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to a substantial adverse effect, either directly or through habitat modification, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The 2004 FEIR mentions that the biological resources evaluation included review of available literature and records, as well as field surveys that were conducted. The technical report can be found in Appendix D of the 2004 FEIR. In general, the project area has been almost completely urbanized for decades. Virtually all of the native vegetation types that historically occurred throughout the area have been converted to other uses by development. While residential and commercial/retail land uses have eliminated the potential for native vegetation types to be reestablished in these developed areas, existing land uses such as commercial/recreational (e.g., golf courses and parks) and industrial (e.g., gravel pits) may support relict stands of native habitat.

Low-value and/or disturbed habitats were determined to be affected by construction impacts, with the exception of New Park on Wentworth, Cal Mat Pit, Vulcan Gravel Processing Plant, Sheldon Pit, and Strathern Pit. As discussed in the 2004 FEIR, the removal or alteration of these low-value habitats during the project construction may result in loss of small mammals, reptiles, and other wildlife species of slow mobility, none of which are endangered, threatened, or covered by the Migratory Bird regulations. **Mitigation Measures B-1** and **B-2** were adopted and incorporated into the project to reduce construction impacts to less than significant for New Park on Wentworth; and Cal Mat Pit, Vulcan Gravel Processing Plant, Sheldon Pit, and Strathern Pit, respectively.

Construction impacts were found to be less than significant for the following Approved Project components: Parking Lot on Sherman, Power Line Easement, Roscoe Elementary School, Stonehurst Elementary School, Stonehurst Park, Storm Drains, Sun Valley Middle School, Street Storage, Onsite BMPs,

Tree Planting and Mulching, Tuxford Green, and Valley Steam Plant. The 2004 FEIR indicated that the storm drains and the street storage facilities under the Approved project would be constructed underground within existing paved roadways, and therefore are not expected to impact biological resources.

Except at New Park on Wentworth, Cal Mat Pit, Vulcan Gravel Processing Plant, Sheldon Pit, and Strathern Pit, special status plant and wildlife species were not observed in the 2004 FEIR, and were not expected to occur because historical habitat modification and development have eliminated habitat or substrate with the potential to support these species. **Mitigation Measure B-3** was created to reduce potential impacts on sensitive plant and wildlife species at New Park on Wentworth. In addition, subsequent CEQA documentation may be prepared to address impacts on biological resources at New Park on Wentworth. **Mitigation Measure B-4** was created to reduce potential impacts on special status plant and wildlife species identified at Cal Mat Pit, Vulcan Gravel Processing Plant, Sheldon Pit, and Strathern Pit. After completion of additional surveys, subsequent CEQA documentation may be prepared to address impacts on biological resources at Cal Mat Pit, Vulcan Gravel Processing Plant, Sheldon Pit, and Strathern Pit. Therefore, no adverse impacts would occur for the following Approved Project components: Parking Lot on Sherman, Power Line Easement, Roscoe Elementary School, Stonehurst Elementary School, Stonehurst Park, Storm Drains, Sun Valley Middle School, Street Storage, Onsite BMPs, Tree Planting and Mulching, Tuxford Green, and Valley Steam Plant.

As discussed in the 2004 FEIR, impacts relating to storm drains would continue to be less than significant. The surrounding areas are completely urbanized and/or have been developed for decades. Existing habitats have been modified such that quality habitat does not exist. The Proposed Project would occur within the existing roadway right of way and would not have the potential to affect any existing habitat. As such, no new or substantially greater impacts would occur, and no new mitigation measures would be required.

(b) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

As discussed in the 2004 FEIR, once construction is complete, the Approved Project is anticipated to have beneficial impacts on biological resources by providing additional or enhanced vegetation and habitat in the project area. Improvements through restoration of the gravel pits is one example where there is potential for creation of wildlife habitats at the project components.

The Proposed Project consists of replacement of existing storm drains in the existing right of way. Further, as required by the 2004 FEIR, onsite biological surveys must be conducted to determine the potential for high value special status species for any disturbance to Vulcan Gravel Processing Plant, Sheldon Pit, Cal Mat Pit, and Strathern Pit. As the Proposed Project is located adjacent to the sites, but within the existing right of way, no new or substantially greater impacts would occur. No new mitigation is required.

(c) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruptions, or other means?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The Approved Project is anticipated to have beneficial impacts on biological resources by providing additional or enhanced vegetation and habitat in the project area. Improvements through restoration of the gravel pits is one example where there is potential for creation of wildlife habitats at the project components.

The Proposed Project would not adversely affect wetlands such as the Rory M. Shaw Wetlands Park and others used for stormwater treatment. Any secondary effects that may occur would result in a beneficial impact to the environment by improving the capacity and ability of the wetlands to address stormwater runoff. All of the wetlands are expected to attract wildlife during the operation of the Approved Project. Given that the new phases to the project facilitate further watershed management, the wetlands proposed will continue to add to a long-term beneficial impact within the urbanized area of the project site. Wetlands will not displace existing nor replace them with lower quality water. Therefore, the Proposed Project will result in no significant impact. No new mitigation measures are required.

(d) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impede the use of wildlife nursery sites?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

No viable fish and wildlife movement corridors exist within the project site. The 2004 FEIR discussed the surrounding land uses as residential, commercial, and industrial. The Approved Project's implementation provides opportunities for restoration, enhancement, or creation of movement corridors within the project area. These project-related impacts on wildlife corridors were found to be less than significant.

Street trees may provide nesting habitat for birds. **Mitigation Measure B-5** is included in the Approved Project and would be applicable to the Proposed Project. Mitigation Measure B-5 requires when project activities with the potential to disturb native and non-native vegetation and man-made nesting structure shall take place outside of the breeding season (which generally runs from March 1 to August 31 and as early as February 1 for some raptors) for birds protected by the Migratory Bird Treaty Act. If project activities must occur during the breeding season of birds covered by the MBTA, then beginning 30 days prior to construction, weekly bird surveys shall be arranged. The surveys shall continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of clearance/construction work at the site. If a bird covered by the MBTA is detected on the site, then the nesting activity will be monitored to ensure that construction activities do not occur within 300 feet of the nest (500 feet for raptors) until the juvenile birds have fledged and no further nesting attempts are initiated. With **Mitigation Measure B-5,** impacts associated with the Proposed Project would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

(e) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The 2004 FEIR did not identify species or habitats covered by any applicable local, regional, or state habitat conservation plan within the Approved Project site. Any potential impacts during the implementation and operation of the Watershed Management Plan would be consistent with the terms and conditions of local, regional, or state regulations or policies. Project-related impacts on adopted habitat plans were found to be less than significant.

Section 46.00 of Los Angeles Municipal Code provides for protection of oak trees. The Proposed Project would be implemented in compliance with the City's oak tree regulations. The 2004 FEIR mentions that the biological resources evaluation included review of available literature and records, as well as field surveys that were conducted. The technical report can be found in Appendix D of the 2004 FEIR. Since appropriate survey and review by a qualified biologist has been conducted, the Proposed Project would not conflict with policies and programs for protection of endangered species and habitats outlined in the Conservation Element of the City of Los Angeles General Plan. No new impact would occur, and no new mitigation measures are required.

(f) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

As noted above, the Approved Project and its components are not within any applicable local, regional, or state habitat conservation plan. Any potential impacts during the implementation and operation of the Watershed Management Plan would be consistent with the terms and conditions of local, regional, or state regulations or policies. Impacts would be less than significant.

Similar to the findings in the 2004 FEIR, the Proposed Project sites are not located within an area designated for any Habitat Conservation Plans, Natural Community Conservation Plans, Significant Ecological Areas, or other approved conservation plans. Therefore, the project would not conflict with any approved conservation plans. No new impacts would occur, and no new mitigation measures are required.

(g) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to the ambient noise levels for adjoining areas that interfere with breeding behavior of listed species?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The 2004 FEIR concluded that habitat at Cal Mat Pit, Vulcan Gravel Processing Plant, Sheldon Pit, and Strathern Pit, has the potential to support special status wildlife species. Onsite surveys for those project components would be conducted during their respective design phase to determine the presence or absence of sensitive wildlife species. If the surveys concluded that one or more of these sensitive species is present at the site, and if project construction resulted in a substantial adverse effect (including disturbance of breeding behavior by generation of construction noise), this could be considered a significant impact. However, the 2004 FEIR concluded that there would be no adverse impact on special status wildlife for the Storm Drains component of the approved project.

As discussed in the 2004 FEIR, the Proposed Project would not have any adverse impact on special status wildlife, which would include the disturbance of breeding behavior by generation of construction noise. Special status wildlife species were not observed and are not expected to occur because historical habitat modification and development has eliminated habitat with the potential to support these species. Impacts would be less than significant.

3.7 CULTURAL RESOURCES

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts to cultural resources was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

(a) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to a substantial adverse change in the significance of a historical resource as defined in §15064.5?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Evaluation of the cultural resources, including historical resources, was conducted for the 2004 FEIR and included a review of available literature and records as well as a pedestrian survey of the project component sites. The cultural resources technical report can be found in Appendix E of the 2004 FEIR. During the field survey, no prehistoric or historical artifacts or features were observed on the visible surfaces at any of the surveyed sites. Due to the level of previous development and disturbance that has occurred at the project sites and the geology of the area (i.e., Tujunga Wash floodplain), the potential for encountering prehistoric resources was found to be low for all project components surveyed.

Based on the age and historical usage of the sites, the following seven project components were deemed to have some potential for buried archaeological materials and/or to contain potentially significant historical resources: Cal Mat Pit, Sheldon Pit, and Strathern Pit, Power Line Easement, Roscoe Elementary, Stonehurst Park, Valley Stream Plant.

Due to the level of previous development and disturbance that has occurred at the project sites and the geology of the area, the potential for encountering prehistoric resources during project construction was determined to be low. Therefore, the Approved Project identified impacts to prehistoric resources as having a less than significant impact.

The Approved Project would convert Strathern Pit, Cal Mat Pit, and Sheldon Pit into stormwater retention facilities. Project construction includes grading and other earth moving activities throughout the pits. The open spaces around the gravel pits were identified to be landscaped and used as public parks and wildlife habitat areas. By providing materials for the construction of the Los Angeles harbor breakwater, these gravel pits may have contributed to the development of the Los Angeles region. However, the integrity of

the pits and their settings have been substantially altered from the continued gravel extraction (all three sites) and landfill operation (Strathern Pit) over the years, and therefore, the gravel pits are not anticipated to be eligible for the California Register of Historical Resources. **Mitigation Measure C-5** was required to further study the Approved Project during the design phase and would reduce impacts to a less than significant level.

Due to the level of previous development and disturbance that has occurred at the project sites and the geology of the area, the potential for encountering prehistoric resources during the Proposed Project construction is considered to be low. As described in the Project Summary, project construction includes earth moving activities throughout various streets and drainage structures, at depths below five feet in some areas. The areas proposed for development are generally disturbed and therefore unlikely to yield accidental discovery of historic or prehistoric materials. **Mitigation Measures C-3** and **C-4** outline procedures to be followed in the event of accidental discovery. Compliance with **Mitigation Measures C-3** and **C-4** would ensure impacts would be less than significant and no new mitigation would be necessary.

(b) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to a substantial adverse change in the significance of an archaeological resource as defined in §15064.5?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Based on the age and historical usage of the sites, the following six project components were deemed in the 2004 FEIR to have some potential for buried archaeological materials: Cal Mat Pit, Strathern Pit, Sheldon Pit, Stonehurst Park, Valley Steam Plant, and Roscoe Elementary School. Construction at all of these project sites involves excavation, grading, and/or other earth moving activities. Therefore, there is some potential for encountering buried archaeological resources during project construction at these sites. This is a potentially significant impact. However, implementation of **Mitigation Measures C-1, C-3**, and **C-4** (for Stonehurst Park, Valley Steam Plant, and Roscoe Elementary School) and **C-2, C-3**, and **C-4** (for Strathern Pit, Cal Mat Pit, and Sheldon Pit) would reduce potential impacts on buried archaeological resources to a less than significant level.

Due to the level of previous development and disturbance that has occurred at the project sites and the geology of the area, the potential for encountering archaeological resources during Proposed Project construction is considered to be low. As described in the Project Summary, project construction includes

earth moving activities throughout various streets and drainage structures. The areas proposed for development are generally disturbed and therefore unlikely to yield accidental discovery of archaeological resources. **Mitigation Measures C-3** and **C-4** outline procedures to be followed in the event of accidental discovery. Compliance with **Mitigation Measures C-3** and **C-4** would ensure impacts would be less than significant and no new mitigation would be necessary.

(c) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to directly or indirectly destroying a unique paleontological resource or site or unique geologic feature?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The 2004 FEIR concluded that due to the level of previous development and disturbance that has occurred at the project sites and the geology of the area, the potential for encountering paleontological resources during project construction is considered to be low. Impacts were considered less than significant.

The Proposed Project would include construction activities in development of the storm drains component of the Approved Project. Due to the level of previous development and disturbance that has occurred at the project sites and the geology of the area, impacts to paleontological resources would be less than significant and no new mitigation would be necessary.

3.8 GEOLOGY, SEISMICITY, AND SOILS

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts to geology and soils was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

(a) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
ii. Strong seismic ground shaking?
iii. Seismic-related ground failure, including liquefaction?
iv. Landslides?

	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The Approved Project is located within the seismically active Verdugo Fault area, but outside of an area identified as the Alquist-Priolo Earthquake Fault Zone. The Approved Project did not involve construction of habitable structures. Although project components are likely to be subject to ground shaking during a seismic event, the implementation of the Approved Project would not result in any change in seismic risk at these sites. In addition, in the event of an earthquake, the approved facilities of the project could be damaged. However, analysis found that the repercussions would not create dangerous conditions to nearby residences. Given that some of the facilities are below grade, flooding would not occur as a result of seismic activity. Overall, conformance with the latest versions of the City of Los Angeles Building Code and other applicable building codes would make impacts less than significant.

In order to bring landslide impacts to a less than significant level, the Approved Project includes modification of the gravel pits by ensuring evaluation of slope stability is conducted through project design and geotechnical analysis.

Portion of the project area are located in areas considered by the California Geological Survey to be susceptible to liquefaction based on historical occurrence of liquefaction or local geological and groundwater conditions. Such project components include the Power Line Easement, New Park on Wentworth, Stonehurst Elementary School, and portions of Cal Mat Pit, Sheldon Pit, and Stonehurst Park.

Sheldon Pit, Power Line Easement, and Cal Mat Pit have the greatest potential to cause a substantial mounding effect, if any. Any potential increase in on-site liquefaction risk at Sheldon Pit and Cal Mat Pit is considered to be less than significant since the project components do not involve habitable structures. However, increased liquefaction risk at the Power Line Easement would be a potentially significant impact on the existing power line towers. In addition, if infiltration resulted in substantially increased liquefaction risk for adjacent properties, the impact is potentially significant. Monitoring has been proposed in the Approved Project to indicate a substantial rise in risks. In addition, the incorporation of **Mitigation Measure G-2** would reduce the risks of liquefaction to a less than significant level.

Based on the review of the plans for the Proposed Project, the four phases are located in a seismically active area and would be subject to ground shaking during a seismic event. The Proposed Project sites are located outside of areas identified as Alquist-Priolo Earthquake Fault Zones. However, there are many active faults in the area with the closest being the Verdugo Fault. The Proposed Project does not involve the construction of habitable structures, and as such impacts would be less than significant. No new or substantially greater impacts would occur as a result of the proposed project.

The Proposed Project would require substantial earth moving activities. However, the Proposed Project is consistent with the 2004 FEIR analysis and incorporates the recommendations of the geotechnical study for optimum slope design with stability and safety, soil compaction or re-compaction requirements, surface cover, and potentially other slope stabilizing measures. With the incorporation of these recommendations, the site-specific risks would be minimized and would be less than significant. Therefore, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2004 FEIR.

The Proposed Project involves the installation of a storm drain system and does not involve infiltration of stormwater at any of the project sites and thus would not result in an increased risk of liquefaction. Therefore, impacts would be less than significant. No additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2004 FEIR.

(b) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to substantial soil erosion or the loss of topsoil?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The Approved Project will increase the potential for wind and water erosion in the immediate vicinity of the facilities during construction. As part of **Mitigation Measure W-1,** the project identified the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) during construction of various project components. The incorporation of the SWPPP would include best management practices to reduce the potential for soil erosion during construction. The specific erosion control measures are listed in Section 4.7 of the 2004 FEIR. After construction is complete, the project expects a restored and improved surface which would yield to a beneficial impact of the Approved Project.

Soil disturbance associated with the Approved Project developed and implemented a SWPPP during construction. The SWPPP is required by the National Pollution Discharge Elimination System (NDPES) Permit and includes the incorporation of best management practices. Therefore, the implementation for the SWPPP would include the Proposed Project's phases' construction impacts and would reduce the potential impact to a less than significant level. Therefore, impacts would be less than significant. No additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2004 FEIR.

(c) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to being located on a geologic unit or soil that is unstable, or that would be unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The Approved Project would involve minor groundwater withdrawal for groundwater quality monitoring. The amount withdrawn would overall result in a beneficial impact with respect to subsidence and therefore no adverse impacts would occur.

The Proposed Project includes improvements to the storm drains and would not involve any groundwater extraction that could result in subsidence. No impact would occur. As such, no additional mitigation would be required and there would be no new or greater impacts than those identified in the certified 2004 FEIR.

(d) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to being located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994) creating substantial risks to life or property?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Soils in the project area are alluvial deposits and are not susceptible to expansion from changes in moisture content. Therefore, the Approved Project is anticipated to have no impact related to expansive soils.

Similar to the analysis in the 2004 FEIR, the Proposed Project would involve infiltration of stormwater at various locations throughout the watershed. Infiltration would likely alter the moisture content of the soils in the vicinity of the project area. However, the soils in the project area are identified as alluvial deposits and are not susceptible to expansion from changes in moisture content. Therefore, consistent with the 2004 FEIR, the Proposed Project is anticipated to have no impacts related to expansive soils. No new or greater impacts than those identified in the certified 2004 FEIR are anticipated.

(e) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to soils incapable of adequately supporting the use of septic tanks or alternative wastewater systems, where sewers are not available for the disposal of wastewater?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

As analyzed in the 2004 FEIR, the project sites are served by a public sewer system. No septic tanks or alternative wastewater disposal systems would be required for the Approved Project as well as the Proposed Project. No impacts would occur.

3.9 GREENHOUSE GAS EMISSIONS

At the time the Final EIR was certified by the District, analysis of greenhouse gas (GHG) emissions and associated global climate change impacts was not recommended in EIRs. In addition, GHGs were not identified as air pollutants under the federal Clean Air Act and the California Clean Air Act.

Pollutants and Effects

Greenhouse gas (GHG) emissions refer to a group of emissions that are believed to affect global climate conditions. These gases trap heat in the atmosphere and the major concern is that increases in GHG emissions are causing global climate change. Global climate change is a change in the average weather on earth that can be measured by wind patterns, storms, precipitation and temperature. Both natural processes and human activities emit GHGs. The accumulation of greenhouse gases in the atmosphere regulates the earth's temperature. This accumulation of GHGs has contributed to an increase in the temperature of the earth's atmosphere and contributed to global climate change.

GHGs that contribute to the greenhouse effect include:

- Carbon Dioxide (CO_2) is released to the atmosphere when solid waste, fossil fuels (oil, natural gas, and coal), and wood and wood products are burned. CO_2 emissions from motor vehicles occur during operation of vehicles and operation of air conditioning systems. CO_2 comprises over 80 percent of GHG emissions in California.[13]

- Methane (CH_4) is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from the decomposition of organic waste in solid waste landfills, raising livestock, natural gas and petroleum systems, stationary and mobile combustion, and wastewater treatment. Methane makes up 8.3 percent of all GHGs, and mobile sources and general fuel combustion represent 0.69 percent of overall methane emissions.[14]

- Nitrous Oxide (N_2O) is emitted during agricultural and industrial activities, as well as during combustion of solid waste and fossil fuels. Mobile sources represent about 12 percent of N_2O emissions.[15] N_2O emissions from motor vehicles generally occur directly from operation of vehicles.

- Hydrofluorocarbons (HFCs) are one of several high global warning potential (GWP) gases that are not naturally occurring and are generated from industrial processes. HFC (refrigerant) emissions from

13 California Environmental Protection Agency, First Update to the Climate Change Scoping Plan, May 2014.

14 United States Energy Information Administration, Emissions of Greenhouse Gases in the U.S., March 2011.

15 United States Energy Information Administration, Emissions of Greenhouse Gases in the U.S., March 2011.

vehicle air conditioning systems occur due to leakage, losses during recharging, or release from scrapping vehicles at end of their useful life.

- Perfluorocarbons (PFCs) are another high GWP gas that are not naturally occurring and are generated in a variety of industrial processes. Emissions of PFCs are generally negligible from motor vehicles.

- Sulfur Hexafluoride (SF_6) is another high GWP gas that is not naturally occurring and is generated in a variety of industrial processes. Emissions of SF_6 are generally negligible from motor vehicles.

As illustrated in **Table 3-2**, **Global Warming Potential for Greenhouse Gases,** the other GHGs are less abundant but have higher GWP than CO_2. To account for this higher potential, emissions of other GHGs are frequently expressed in the equivalent mass of CO_2, denoted as CO_2e. Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. High GWP gases such as HFCs, PFCs, and SF_6 are the most heat-absorbent.

Table 3-2
Global Warming Potential for Greenhouse Gases

Greenhouse Gas	Global Warming Potential Factor (100-Year)
Carbon Dioxide (CO_2)	1
Methane (CH_4)	25
Nitrous Oxide (N_2O)	298
Perfluorocarbons (PFCs)	7,390-12,200
Hydrofluorocarbons (HFCs)	124-14,800
Sulfur Hexafluoride (SF_6)	22,800

Source: Southern California Association of Governments, Draft Program EIR for 2016 RTP/SCS. November 24, 2015.
Note: Global warming potential measures how much heat a GHG traps in the atmosphere, in this case, over a 100-year period.

Regulatory Setting

Assembly Bill 1493

California has adopted a series of laws and programs to reduce emissions of GHGs into the atmosphere. Assembly Bill (AB) 1493 was enacted in September 2003 and requires regulations to achieve "the maximum feasible reduction of greenhouse gases" emitted by vehicles used for personal transportation.

Executive Order S-3-05

On June 1, 2005, Governor Schwarzenegger issued Executive Order S-3-05, which set the following GHG emission reduction targets: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and by 2050, reduce GHG emissions to 80 percent below 1990 levels. The California Environmental Protection Agency (Cal EPA) formed a Climate Action Team ("CAT") that recommended strategies that can be implemented by state agencies to meet GHG emissions targets. The Team reported several recommendations and strategies for reducing GHG emissions and reaching the targets established in the Executive Order.[16] Furthermore, the report provided to Governor Schwarzenegger in 2006, referenced above, indicated that smart land use and increased transit availability should be a priority in the State of California.[17] According to the California Climate Action Team, smart land use is an umbrella term for strategies that integrate transportation and land-use decisions. Such strategies generally encourage jobs/housing proximity, promote transit-oriented development (TOD), and encourage high-density residential/commercial development along transit corridors. These strategies develop more efficient land-use patterns within each jurisdiction or region to match population increases, workforce, and socioeconomic needs for the full spectrum of the population.

Executive Order B-30-15

On April 29, 2015, Governor Brown issued an executive order setting a Statewide GHG reduction target of 40 percent below 1990 levels by 2030. This action aligns the State's GHG targets with those set in October 2014 by the European Union and is intended to help the State meet its target of reducing GHG emissions 80 percent below 1990 levels by 2050. The measure calls on State agencies to implement measures accordingly and directs CARB to update the Climate Change Scoping Plan.

A recent study shows that the State's existing and proposed regulatory framework will allow the State to reduce its GHG emissions level to 40 percent below 1990 levels by 2030 (consistent with Executive Order B-30-15), and to 60 percent below 1990 levels by 2050. Even though this study did not provide an exact regulatory and technological roadmap to achieve the 2030 and 2050 goals, it demonstrated that various combinations of policies could allow the statewide emissions level to remain very low through 2050, suggesting that the combination of new technologies and other regulations not analyzed in the study could allow the State to meet the 2030 and 2050 targets.[18]

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16 California Climate Action Team, Climate Action Team Report to Governor Schwarzenegger and the Legislature, March 2006.

17 California Climate Action Team, Climate Action Team Report to Governor Schwarzenegger and the Legislature, March 2006, p. 57.

18 Greenblatt, Jeffrey, Energy Policy, "*Modeling California Impacts on Greenhouse Gas Emissions*" (Vol. 78, pp. 158-172).

Assembly Bill 32

In September 2006, AB 32 was signed into law by Governor Arnold Schwarzenegger, focusing on achieving GHG emissions equivalent to statewide levels in 1990 by 2020. It mandates that CARB establish a quantified emissions cap, institute a schedule to meet the cap, implement regulations to reduce statewide GHG emissions from stationary sources, and develop tracking, reporting, and enforcement mechanisms to ensure that reductions are achieved.

AB 32 charges CARB with the responsibility to monitor and regulate sources of GHG emissions. On June 1, 2007, CARB adopted three early action measures: setting a low carbon fuel standard, reducing refrigerant loss from motor vehicle air conditioning maintenance, and increasing methane capture from landfills.[19] On October 25, 2007, CARB approved measures improving truck efficiency (i.e., reducing aerodynamic drag), electrifying port equipment, reducing PFCs from the semiconductor industry, reducing propellants in consumer products, promoting proper tire inflation in vehicles, and reducing sulfur hexafluoride emissions from the non-electricity sector. CARB also developed a mandatory reporting program on January 1, 2008 for large stationary combustion sources that emit more than 25,000 metric tons of CO_2 per year and make up 94 percent of the point source CO_2 emissions in California.

CARB developed an AB 32 Scoping Plan that contains strategies to achieve the 2020 emissions cap. This Scoping Plan, which was developed by CARB in coordination with the CAT, was first published in October 2008 (the "2008 Scoping Plan"). The 2008 Scoping Plan proposed a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce the state's dependence on oil, diversify the state's energy sources, save energy, create new jobs, and enhance public health. It accommodated the State's projected population growth. Moreover, it expressly encouraged called for coordinated planning of growth, including the location of dense residential projects near transportation infrastructure, including public transit.

An important component of the plan is a cap-and-trade program covering 85 percent of the state's emissions. Additional key recommendations of the 2008 Scoping Plan include strategies to enhance and expand proven cost-saving energy efficiency programs; implementation of California's clean cars standards and increasing the amount of clean and renewable energy used to power the state. Furthermore, the 2008 Scoping Plan proposes full deployment of the California Solar Initiative, high-speed rail, water-related energy efficiency measures, and a range of regulations to reduce emissions from trucks and from

19 California Air Resources Board, Proposed Early Action Measures to Mitigate Climate Change in California, April 20, 2007.

ships docked in California ports. As required by AB 32, CARB must update its Scoping Plan every five years to ensure that California remains on the path toward a low carbon future.

In order to assess the scope of reductions needed to return to 1990 emissions levels, CARB first estimated the 2020 "business-as-usual" (BAU) GHG emissions in the 2008 Scoping Plan. These are the GHG emissions that would be expected to result if there were no GHG emissions reduction measures, and as if the state were to proceed on its pre-AB 32 GHG emissions track. After estimating that statewide 2020 BAU GHG emissions would be 596 metric tons, the 2008 Scoping Plan then identified recommended GHG emissions reduction measures that would reduce BAU GHG emissions by approximately 174 metric tons (an approximately 28.4 percent reduction) by 2020.

On August 19, 2011, following legal action in opposition to the Scoping Plan, CARB updated the Scoping Plan through a Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (FED or 2011 Scoping Plan).[20] CARB updated their 2020 BAU emissions estimate to account for the effect of the 2007–2009 economic recession, new estimates for future fuel and energy demand, and the reductions achieved through implementation of regulations recently adopted for motor vehicles, building energy efficiency standards, and renewable energy.[21] Under that scenario, the State would have had to reduce its BAU GHG emissions by approximately 21.7 percent by 2020 (down from 28.4 percent).

On May 22, 2014, CARB approved its first update to the AB 32 Scoping Plan, recalculating 1990 GHG emissions using IPCC Fourth Assessment Report (AR4) released in 2007. It states that based on the AR4 global warming potentials, the 427 million metric tons of CO_2e ($MMTCO_2e$) 1990 emissions level and 2020 GHG emissions limit would be slightly higher than identified in the Scoping Plan, at 431 $MMTCO_2e$. Based on the revised estimates of expected 2020 emissions identified in the 2011 supplement to the FED and updated 1990 emissions levels identified in the draft first update to the Scoping Plan, achieving the 1990 emission level would require a reduction of 76 $MMTCO_2e$ (down from 507 $MMTCO_2e$) or a reduction by approximately 15.3 percent (down from 28.4 percent) to achieve in 2020 emissions levels in the BAU condition. CARB's First Update "lays the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050," and many of the

20 California Air Resources Board, Final Supplement to the AB 32 Scoping Plan Functional Equivalent Document (FED), Attachment D, August 19, 2011.

21 California Air Resources Board, *Greenhouse Gas Inventory – 2020 Emissions Forecast, http://www.arb.ca.gov/cc/inventory/data/forecast.htm.* Accessed August 1, 2016.

emission reduction strategies recommended by CARB would serve to reduce the Project's post-2020 emissions level to the extent applicable by law by focusing on reductions from several sectors.[22,23]

Nearly all reductions are to come from sources that are controlled at the statewide level by State agencies, including the Air Resources Board, Public Utilities Commission, High Speed Rail Authority, and California Energy Commission. The few actions that are directly or indirectly associated with local government control are in the Transportation sector, which is charged with reducing 4.5% of baseline 2020 emissions. Of these actions, only one (GHG reductions through coordinated planning) specifically identifies local governments as the responsible agency.

Cap and Trade

CARB adopted a California Cap-and-Trade Program pursuant to its authority under AB 32. The Cap-and-Trade Program is designed to reduce GHG emissions from major sources (deemed "covered entities") by setting a firm cap on statewide GHG emissions and employing market mechanisms to achieve AB 32's emission-reduction mandate of returning to 1990 levels of emissions by 2020. The statewide cap for GHG emissions from the capped sectors (e.g., electricity generation, petroleum refining, and cement production) commenced in 2013 and will decline over time, achieving GHG emission reductions throughout the program's duration.

Under the Cap-and-Trade Program, covered entities that emit more than 25,000 metric tons CO_2e per year must comply with the Cap-and-Trade Program. Triggering of the 25,000 metric tons CO_2e per year "inclusion threshold" is measured against a subset of emissions reported and verified under the California Regulation for the Mandatory Reporting of Greenhouse Gas Emissions. CARB issues allowances equal to the total amount of allowable emissions over a given compliance period and distributes these to regulated entities. Covered entities are allocated free allowances in whole or part (if eligible), and may buy allowances at auction, purchase allowances from others, or purchase offset credits.

The Cap-and-Trade Program works with other direct regulatory measures and provides an economic incentive to reduce emissions. If California's direct regulatory measures reduce GHG emissions more than expected, then the Cap-and-Trade Program will be responsible for relatively fewer emissions reductions. If California's direct regulatory measures reduce GHG emissions less than expected, then the Cap-and-

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22 CARB, First Update, p. 4, May 2014. See also *id.* at pp. 32–33 [recent studies show that achieving the 2050 goal will require that the "electricity sector will have to be essentially zero carbon; and that electricity or hydrogen will have to power much of the transportation sector, including almost all passenger vehicles."]

23 CARB, First Update, Table 6: Summary of Recommended Actions by Sector, pp. 94-99, May 2014.

Trade Program will be responsible for relatively more emissions reductions. Thus, the Cap-and-Trade Program assures that California will meet its 2020 GHG emissions reduction mandate.

In sum, the Cap-and-Trade Program will achieve aggregate, rather than site-specific or project-level, GHG emissions reductions. Also, due to the regulatory framework adopted by CARB in AB 32, the reductions attributed to the Cap-and-Trade Program can change over time depending on the State's emissions forecasts and the effectiveness of direct regulatory measures.

As of January 1, 2015, the Cap-and-Trade Program covered approximately 85 percent of California's GHG emissions. The Cap-and-Trade Program covers the GHG emissions associated with electricity consumed in California, whether generated in-state or imported. Accordingly, GHG emissions associated with CEQA projects' electricity usage are covered by the Cap-and-Trade Program.

While the 2020 cap would remain in effect post-2020,[24] the Cap-and-Trade Program is not currently scheduled to extend beyond 2020 in terms of additional GHG emissions reductions.[25] However, CARB has expressed its intention to extend the Cap-and-Trade Program beyond 2020 in conjunction with setting a mid-term target. The "recommended action" in the First Update for the Cap-and-Trade Program is: "Develop a plan for a post-2020 Cap-and-Trade Program, including cost containment, to provide market certainty and address a mid-term emissions target."[26] The "expected completion date" for this recommended action is 2017.[27] It is therefore reasonable to assume that the Cap-and-Trade Program will extend beyond 2020.

Senate Bill 1368

SB 1368 requires the California Public Utilities Commission and the California Energy Commission to establish GHG emissions performance standards for the generation of electricity. These standards will also apply to power that is generated outside of California and imported into the state.

Senate Bill 97 & CEQA Guidelines

In August 2007, the California State Legislature adopted SB 97, requiring the Governor's Office of Planning and Research (OPR) to prepare and transmit new CEQA guidelines for the mitigation of GHG emissions

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24 California Health & Safety Code § 38551(a) ("The statewide greenhouse gas emissions limit shall remain in effect unless otherwise amended or repealed.")

25 See AB 1288 (Atkins, introduced 2015) that would eliminate the December 31, 2020, limit on the Cap-and-Trade Program.

26 CARB, First Update to the Climate Change Scoping Plan: Building on the Framework, at 98 (May 2014).

27 CARB, First Update to the Climate Change Scoping Plan: Building on the Framework, at 98 (May 2014).

or the effects of GHG emissions to the Resources Agency by July 1, 2009. In response to SB 97, the OPR adopted CEQA guidelines that became effective on March 18, 2010. The amendments provide guidance to public agencies on analysis and mitigation of the effects of GHG emissions in CEQA documents, including the following:

- Lead agencies should quantify all relevant GHG emissions and consider the full range of project features that may increase or decrease GHG emissions as compared to the existing setting;
- Consistency with the CARB Scoping Plan is not a sufficient basis to determine that a project's GHG emissions would not be cumulatively considerable;
- A lead agency may appropriately look to thresholds developed by other public agencies, including the CARB's recommended CEQA thresholds;
- To qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project. General compliance with a plan, by itself, is not mitigation;
- The effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis; and
- Given that impacts resulting from GHG emissions are cumulative, significant advantages may result from analyzing such impacts on a programmatic level. If analyzed properly, later projects may tier, incorporate by reference, or otherwise rely on the programmatic analysis.

Senate Bill 375

On September 30, 2008, SB 375 was instituted to help achieve AB 32 goals through regulation of cars and light trucks. SB 375 aligns three policy areas of importance to local government: (1) regional long-range transportation plans and investments; (2) regional allocation of the obligation for cities and counties to zone for housing; and (3) a process to achieve GHG emissions reductions targets for the transportation sector. It establishes a process for CARB to develop GHG emissions reductions targets for each region (as opposed to individual local governments or households). SB 375 also requires Metropolitan Planning Organizations to prepare a Sustainable Communities Strategy (SCS) within the Regional Transportation Plan (RTP) that guides growth while taking into account the transportation, housing, environmental, and economic needs of the region. SB 375 uses CEQA streamlining as an incentive to encourage residential projects, which help

achieve AB 32 goals to reduce GHG emissions. While SB 375 does not prevent CARB from adopting additional regulations, such actions are not anticipated in the foreseeable future.[28]

On October 24, 2008, CARB published draft guidance for setting interim GHG emissions significance thresholds. This was the first step toward developing the recommended statewide interim thresholds of significance for GHG emissions that may be adopted by local agencies for their own use. The guidance does not attempt to address every type of project that may be subject to CEQA, but instead focuses on common project types that are responsible for substantial GHG emissions (i.e., industrial, residential, and commercial projects). CARB's preliminary proposal consisted of a quantitative threshold of 7,000 metric tons (MT) of CO_2e per year for operational emissions (excluding transportation), and performance standards for construction and transportation emissions. Further, CARB's proposal sets forth draft thresholds for industrial projects that have high operational stationary GHG emissions, such as manufacturing plants, or uses that utilize combustion engines.[29] There is currently no timetable for finalized thresholds.

On September 23, 2010, CARB adopted regional targets for the reduction of GHG emissions applying to the years 2020 and 2035.[30] For the area under the SCAG's jurisdiction—including the Project area—CARB adopted Regional Targets for reduction of GHG emissions by 8 percent for 2020 and by 13 percent for 2035. On February 15, 2011, the CARB's Executive Officer approved the final targets.[31]

Senate Bill 32

In August 2016, Governor Brown signaled his intent to sign into law a measure that extends AB 32 another ten years to 2030 and increases the State's objectives. SB 32 calls on Statewide reductions in GHG 40 percent below 1990 levels by 2030. Further regulatory actions by the State are forthcoming that will further challenge communities to reduce GHG emissions in the future.

Title 24 Energy Efficiency Standards

California's Energy Efficiency Standards for Residential and Nonresidential Buildings, located at Title 24, Part 6 of the California Code of Regulations and commonly referred to as "Title 24," were established in

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28 American Planning Association, California Chapter, *Analysis of SB 375*, http://www.calapa.org/-en/cms/?2841, accessed March 30, 2009.

29 California Air Resources Board. http://www.arb.ca.gov/cc/localgov/ceqa/meetings/102708/prelimdraftproposal102408.pdf

30 California Air Resources Board. Notice of Decision: Regional Greenhouse Gas Emissions Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375.

31 California Air Resources Board. 2011. Executive Order No. G-11-024: Relating to Adoption of Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375.

1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods.

California Green Building Standards

The California Green Building Standards Code, which is Part 11 of the California Code of Regulations (the "CCR"), is commonly referred to as the CALGreen Code. CALGreen was added to Title 24 to represent base standards for reducing water use, recycling construction waste, and reducing polluting materials in new buildings. In contrast, Title 24 focuses on promoting more energy-efficient buildings and considers the building envelope, heating and cooling, water heating, and lighting restrictions. The first edition of the CALGreen Code in 2008 contained only voluntary standards. The 2010 edition included mandatory requirements for state-regulated buildings and structures throughout California, including requirements for construction site selection, storm water control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation and more. The CALGreen Code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The CALGreen Code also requires building commissioning which is a process for the verification that all building systems, like heating and cooling equipment and lighting systems are functioning at their maximum efficiency. The current 2016 CALGreen Code became effective January 1, 2017 and includes new requirements for additions to existing residential and non-residential development. The upcoming 2019 CALGreen Code standard will become effective January 1, 2020.

South Coast Air Quality Management District (SCAQMD)

The SCAQMD convened a GHG CEQA Significance Threshold Working Group to provide guidance to local lead agencies on determining significance for GHG emissions in their CEQA documents. Members included government agencies implementing CEQA and representatives from stakeholder groups that provides input on developing GHG CEQA significance thresholds. On December 5, 2008, the SCAQMD Governing Board adopted interim GHG significance threshold for projects where the SCAQMD is lead agency. This threshold uses a tiered approach to determine a project's significance, with 10,000 metric tons of CO_2 equivalent ($MTCO_2e$) as a screening numerical threshold for stationary sources.

The SCAQMD has not adopted guidance for CEQA projects under other lead agencies. In September 2010, the Working Group released additional revisions that recommended a screening threshold of 3,500 $MTCO_2e$ for residential projects, 1,400 $MTCO_2e$ for commercial projects, and 3,000 $MTCO_2e$ for mixed use projects. Additionally, the Working Group identified project-level efficiency target of 4.8 $MTCO_2e$ per

service population as a 2020 target and 3.0 $MTCO_2e$ per service population as a 2035 target. The recommended area wide or plan-level target for 2020 was 6.6 $MTCO_2e$ and the plan-level target for 2035 was 4.1 $MTCO_2e$. The SCAQMD has not established a timeline for formal consideration of these thresholds.[32] In the meantime, the project level thresholds can be used as a non-binding guide.

The SCAQMD has also adopted Rules 2700, 2701, and 2702 that address GHG emissions reductions. However, these rules address boilers and process heaters, forestry, and manure management projects, none of which are proposed or required by the project.

Southern California Association of Governments (SCAG)

On April 6, 2016, SCAG adopted its 2016-2040 RTP/SCS update, calling for a continuation of integrated planning for land use and transportation that will help achieve the State's goal of reducing per capita GHG emissions by eight percent by 2020 compared to 2005 levels, by 18 percent by 2035, and 21 percent by 2040. The Plan calls for public transportation improvements that will reduce GHG emissions per household by up to 30 percent, one percent reduction in GHG from having zero emission vehicles, neighborhood vehicles, and carsharing/ridesourcing make up two percent of the vehicle fleet by 2040.

The 2016 RTP/SCS Draft PEIR includes a list of project-level mitigation measures that could reduce impacts from planning, development and transportation.[33] It notes that project level mitigation measures can and should be implemented by Lead Agencies for transportation and development projects, as applicable and feasible. Example GHG emissions reduction measures include the following:

- **GHG-3(b)**: Measures that consider incorporation of Best Available Control Technologies (BACT) during design, construction and operation of projects to minimize GHG emissions, including but not limited to:
  - Use energy and fuel-efficient vehicles and equipment;
  - Deployment of zero- and/or near zero emission technology;
  - Use lighting systems that are efficient, such as LED technology;
  - Use the minimum amount of GHG-emitting construction materials that is feasible;
  - Use cement blended with the maximum feasible amount of flash or other materials that reduce GHG emissions from cement production;

32 SCAG, *2016 RTP/SCS Draft Program Environmental Impact Report.* December 2015.

33 SCAG, *2016 RTP/SCS Draft Program Environmental Impact Report.* December 2015.

- Incorporate design measures to reduce GHG emissions from solid waste management through encouraging solid waste recycling and reuse;
- Incorporate design measures to reduce energy consumption and increase use of renewable energy;
- Incorporate design measures to reduce water consumption;
- Use lighter-colored pavement where feasible;
- Recycle construction debris to maximum extent feasible; and
- Plant shade trees in or near construction projects where feasible.

Significance Criteria

At the time the Final EIR was certified by the District, analysis of greenhouse gas (GHG) emissions and associated global climate change impacts was not recommended in EIRs. In addition, GHGs were not identified as air pollutants under the federal Clean Air Act and the California Clean Air Act. In 2009, Appendix G of the *State CEQA Guidelines* was updated to include GHG emissions in the Environmental Checklist in order to consider whether a project will generate GHG emissions and whether it will conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. In 2018, California adopted amendments to the *State CEQA Guidelines* which clarified the appropriate methodology for measuring and assessing GHG emissions consistent with recent case law. Specifically, mandatory language was added to require that lead agencies issue a final significance determination for emissions and that GHG impacts should focus on the project's total contribution to climate change rather than how the emissions compare to statewide goals. Additionally, the lead agency has the discretion to select a model or methodology for estimating GHG emissions but must be supported by substantial evidence.

The impacts related to GHG emissions from implementation of the proposed project would be considered significant if they would exceed the following significance criteria, in accordance with Appendix G of the *State CEQA Guidelines*:

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

Generate Significant Greenhouse Gas Emissions

Although GHG emissions can be quantified, CARB, SCAQMD, the County of Los Angeles and the District have yet to adopt project-level numerical significance thresholds for GHG emissions that would be applicable to the project. Assessing the significance of a project's contribution to cumulative global climate change involves: (1) developing pertinent inventories of GHG emissions, and (2) considering project consistency with applicable emission reduction strategies and goals.

Consistency with Applicable Greenhouse Gas Reduction Strategies

The District has not adopted a greenhouse gas reduction strategy, however, as part of AB 32, the State has recommended general policies and measures to minimize and reduce GHG emissions from land use development projects. Thus, if the project is designed in accordance and not in conflict with these policies and measures, it would result in a less than significant impact since it would be consistent with state actions on reducing GHG emissions. As stated above, a significant impact would occur if the project would:

- **Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.**

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project will comply with an approved plan or mitigation program that provides specific requirements that will avoid or substantially lessen the cumulative problem within the geographic area of the project.[34]

Executive Orders S-3-05 and B-30-15, AB 32 Scoping Plan, and SCAG's Sustainable Communities Strategy all apply to the project and area all intended to reduce GHG emissions to meet the statewide targets set in AB 32.

Thus, the project would not have a significant effect on the environment if it is found to be consistent with the applicable regulatory plans and policies to reduce GHG emissions:

- Executive Orders S-3-05 and B-30-15;
- AB 32 Scoping Plan; and
- SCAG's Sustainable Communities Strategy.

34 14 CCR § 15064(h)(3).

Methodology

The methodology utilized for this analysis is based on a Technical Advisory released by the Governor's Office of Planning and Research (OPR) on June 19, 2008 titled CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review. Both one-time emissions and indirect emissions are expected to occur each year after build-out of the Project. Consistent with SCAQMD recommendations, one-time emissions from construction and vegetation removal were amortized over a 30-year period because no significance threshold has been adopted for construction emissions. The SCAQMD recommends that the amortized emissions be added to the project's operational emissions.[35] The Project emission reductions are results of Project's commitments and regulatory changes, which include the implementation of the Renewables Portfolio Standard (RPS) of 33 percent, the Pavley regulation and Advanced Clean Cars program mandating higher fuel efficiency standards for light-duty vehicles, and the Low Carbon Fuel Standard (LCFS).

As noted above, the SCAQMD has not adopted any GHG thresholds. However, the SCAQMD is considering a tiered approach to determine the significance of residential and commercial projects. The most recent version of the draft approach that was published in September 28, 2010 is as follows:[36]

- **Tier 1:** Is the project exempt from further analysis under existing statutory or categorical exemptions? If yes, there is a presumption of less than significant impacts with respect to climate change.

- **Tier 2:** Is the project's GHG emissions consistent with an approved GHG reduction plan? (The plan must be consistent with *State CEQA Guidelines* Sections 15064(h)(3), 15125(d), or 15152(s).) If yes, there is a presumption of less than significant impacts with respect to climate change.

- **Tier 3:** Is the project's incremental increase in GHG emissions below or mitigated to less than the significance screening values? If yes, there is a presumption of less than significant impacts with respect to climate change. (The SCAQMD advised the lead agency to use one of the following options consistently.)

  – 3,500 $MTCO_2e$ per year for residential projects or 1,400 $MTCO_2e$ per year for commercial projects; or

35 South Coast Air Quality Management District. *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans.* December 2008, http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2, accessed December 2019.

36 South Coast Air Quality Management District, "Greenhouse Gases (GHG) CEQA Significance Thresholds Working Group Meeting #15," http://www.aqmd.gov/ceqa/handbook/GHG/2010/sept28mtg/sept29.html. 2011.

- 3,000 $MTCO_2e$ for mixed-use or all land use projects.

- **Tier 4:** Does the project meet one of the following performance standards? If yes, there is a presumption of less than significant impacts with respect to climate change.
  - Option 1: Percent Emission Reduction Target (e.g., San Joaquin Valley Air Pollution Control District recommends a 29 percent reduction from a base-case scenario);
  - Option 2: Early Implementation of applicable AB 32 Scoping Plan Measures.
  - Option 3: Achieve the SCAQMD efficiency target:
    - 2020 Targets: 4.8 $MTCO_2e$ per year per service population (project-level analysis) or 6.6 $MTCO_2e$ per year per service population (program-level analysis);
    - 2035 Targets: 3.0 $MTCO_2e$ per year per service population (project-level analysis) or 4.1 $MTCO_2e$ per year per service population (program-level analysis);

- **Tier 5:** Does the project obtain offsets alone or in combination with the above to achieve the target significance screening level (offsets provided for 30-year project life, unless project life limited by permit, lease, or other legally binding conditions)? If yes, there is a presumption of less than significant impacts with respect to climate change. Otherwise, the project is significant.

The SCAQMD has not announced when staff is expecting to present a finalized version of these thresholds to the Governing Board for approval and adoption. The SCAQMD has adopted Rules 2700, 2701, and 2702 that establishes a voluntary GHG reduction program for boilers and process heaters, forestry, and manure management projects.[37] However, these rules do not directly relate to the Proposed Project.

The California Climate Action Registry (Climate Registry) General Reporting Protocol provides basic procedures and guidelines for calculating and reporting GHG emissions from a number of general and industry-specific activities.[38] The General Reporting Protocol is based on the "Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard" developed by the World Business Council for Sustainable Development and the World Resources Institute through "a multi-stakeholder effort to develop a standardized approach to the voluntary reporting of GHG emissions."[39] Although no numerical

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37 SCAQMD. *Regulation XXVII – Climate Change*. Available online at: http://www.aqmd.gov/home/rules-compliance/rules/scaqmd-rule-book/regulation-xxvii, accessed November 20, 2019.

38 California Climate Action Registry, General Reporting Protocol Version 3.1, January 2009, www.sfenvironment.org/sites/default/files/fliers/files/ccar_grp_3-1_january2009_sfe-web.pdf, accessed July 2016.

39 Ibid.

thresholds of significance have been developed, and no specific protocols are available for land use projects, the General Reporting Protocol provides a basic framework for calculating and reporting GHG emissions from the project. The information provided in this analysis is consistent with the General Reporting Protocol's reporting requirements.

The General Reporting Protocol recommends the separation of GHG emissions into three categories that reflect different aspects of ownership or control over emissions. They include the following:

Scope 1: Direct, on-site combustion of fossil fuels (e.g., natural gas, propane, gasoline, and diesel).

Scope 2: Indirect, off-site emissions associated with purchased electricity or purchased steam.

Scope 3: Indirect emissions associated with other emissions sources, such as third-party vehicles and embodied energy (e.g., energy used to convey, treat, and distribute water and wastewater).[40]

The General Reporting Protocol provides a range of basic calculations methods. However, the General Reporting Protocol calculations are typically designed for existing buildings or facilities. These retrospective calculation methods are not directly applicable to planning and development situations where buildings do not yet exist.

ARB recommends consideration of indirect emissions to provide a more complete picture of the GHG footprint of a facility. Annually reported indirect energy usage aids the conservation awareness of a facility and provides information to CARB to be considered for future strategies.[41] For example, CARB has proposed requiring the calculation of direct and indirect GHG emissions as part of the AB 32 reporting requirements. Additionally, the Office of Planning and Research has noted that lead agencies "should make a good-faith effort, based on available information, to calculate, model, or estimate… GHG emissions from a project, including the emissions associated with vehicular traffic, energy consumption, water usage and construction activities."[42] Therefore, direct and indirect emissions have been calculated for the project.

GHG emissions were quantified from construction of the project using the SCAQMD approved California Emissions Estimator Model (CalEEMod). CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental

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40 Embodied energy is a scientific term that refers to the quantity of energy required to manufacture and supply to the point of use a product, material, or service.

41 California Air Resources Board, Initial Statement of Reasons for Rulemaking, Proposed Regulation for Mandatory Reporting of Greenhouse Gas Emissions Pursuant to the California Global Warming Solutions Act of 2006 (AB 32), Planning and Technical Support Division Emission Inventory Branch, October 19, 2007, www.arb.ca.gov/regact/2007/ghg2007/isor.pdf, accessed July 2016.

42 OPR Technical Advisory, p. 5.

professionals to quantify potential criteria pollutant and GHG emissions associated with both construction and operations from a variety of land use projects. The model is considered by the SCAQMD to be an accurate and comprehensive tool for quantifying air quality and GHG impacts from land use projects throughout California.[43]

Impact Analysis

(a) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The Approved Project consisted of multiple components, each designed to manage stormwater runoff and reduce flooding while also aiming to reduce flooding, increase water conservation, increase recreational opportunities, increase wildlife habitat, increase water quality, and provide environment benefits. The majority of the project components involved construction and operation of stormwater storage and/or infiltration facilities (e.g., sedimentation and infiltration basins, underground storage tanks, and dry wells). The collected stormwater would be treated prior to groundwater recharge or reuse (irrigation or gravel wash water). Where appropriate, stormwater storage facilities were planned to provide recreational facilities and/or wildlife habitat areas. In addition, catch basins and storm drains were proposed to collect and convey runoff and reduce flows carried on street surfaces.

The Proposed Project would construct a portion of the project approved in the 2004 FEIR. The Proposed Project includes the installation of approximately 28,000 feet of storm drains. The construction process is anticipated to be divided into four phases. Phase 1 of construction runs along Tujunga Avenue, between Strathern Street and Interstate 5, and is approximately 3,500 feet long. Phase 2 runs from Tujunga Avenue, east to San Fernando Road; north along San Fernando Road to Tuxford Street; east along Tuxford Street to Glenoaks Boulevard; north along Glenoaks Boulevard to Sheldon Street; east along Sheldon Street and terminating between Wentworth Street and Dronfield Avenue. Phase 2 is approximately 12,600 feet long. Phase 3 of construction runs along San Fernando Road between Sheldon Street and Tuxford Street, and is

43 See www.caleemod.com.

approximately 6,500 feet long. Phase 4 of construction runs from Vineland Avenue, west along Saticoy Street to Tujunga Avenue; north along Tujunga Avenue to approximately 400 feet north of Strathern Street.

Construction of the storm drains would have the potential to release GHG emissions on a temporary basis. Phase 1 of construction would emit approximately 246 tons per year of CO_2e; Phase 2 would emit approximately 479 tons per year of CO_2e; Phase 3 would emit approximately 221 tons per year of CO_2e; and Phase 4 would emit approximately 241 tons per year of CO_2e. This would result in total GHG emissions of approximately 1,187 tons of CO_2e. Each phase of construction is anticipated to begin in the spring of their respective year, with Phase 1 construction starting in 2020, Phase 2 in 2021, Phase 3 in 2021, and Phase 4 in 2022. Amortized over the lifetime of the project, anticipated to be 30 years, the annual construction GHG emissions are approximately 39.57 tons of CO_2e per year.

Unlike some of the projects detailed in the 2004 FEIR, the Proposed Project would not have recreational facilities or visitors related to project operations. Project operations would consist of periodic maintenance, as needed, and would not result in daily emissions of greenhouse gases. Therefore, the Proposed Project's amortized construction emissions of 39.57 tons of CO_2e per year would be significantly less than the SCAQMD's recommended threshold of 3,000 MT CO_2e per year for all land use projects.

It is important to note that no individual project is large enough to single-handedly result in increased concentrations of GHG globally. GHGs are not necessarily confined in a specific air basin and are usually dispersed into the atmosphere. As such, it is important to analyze impacts cumulatively and not by a project-by-project basis. As previously discussed, the Proposed Project would not increase enrollment due to the lack of future on-site operations and would not contribute cumulatively to emissions of GHGs.

Due to the lack of long-term on-site project operations, the Proposed Project would not generate significant emissions of GHGs and would not contribute cumulatively to emissions of GHGs. Therefore, the generation of GHG emissions from the Proposed Project would not conflict with any applicable plans and would therefore be less than significant. No new mitigation is required.

(b) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Consistency with AB 32

The AB 32 Scoping Plan provides the basis for policies that will reduce cumulative GHG emissions within California to 1990 levels by 2020. **Table 3-3, Project Consistency with AB 32 Scoping Plan Greenhouse Gas Emission Reduction Strategies** evaluates the Proposed Project's consistency with the AB 32 Scoping Plan to determine whether it will result in adverse cumulative impacts to global climate change. The Proposed Project is consistent with the AB 32 Scoping Plan's focus on emission reductions from several key sectors:

Energy Sector: Continued improvements in California's appliance and building energy efficiency programs and initiatives, such as the State's zero net energy building goals, would serve to reduce the Proposed Project's emissions level.[44] Additionally, further additions to California's renewable resource portfolio would favorably influence the emissions level.[45]

Transportation Sector: Anticipated deployment of improved vehicle efficiency, zero emission technologies, lower carbon fuels, and improvement of existing transportation systems all will serve to reduce the Proposed Project's emissions level.[46]

Water Sector: The Proposed Project's emissions level will be reduced as a result of further desired enhancements to water conservation technologies.[47]

Waste Management Sector: Plans to further improve recycling, reuse and reduction of solid waste will beneficially reduce the Proposed Project's emissions level.[48]

It should be noted that the key sectors for emission reductions relate primarily to project operation. Because the Proposed Project does not feature a significant operational component, the Proposed Project would not generate significant GHG emissions, and would be consistent with the AB 32 Scoping Plan. This impact is considered less than significant.

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44 CARB, First Update, pp. 37-39, 85, May 2014.

45 CARB, First Update, pp. 40-41, May 2014.

46 CARB, First Update, pp. 55-56, May 2014.

47 CARB, First Update, p. 65, May 2014.

48 CARB, First Update, p. 69, May 2014.

Table 3-3
Project Consistency with AB 32 Scoping Plan
Greenhouse Gas Emission Reduction Strategies

Strategy	Project Consistency
California Cap-and-Trade Program. Implement a broad-based California cap-and-trade program to provide a firm limit on emissions.	**Not Applicable.** The statewide program is not relevant to the Proposed Project.
California Light-Duty Vehicle Greenhouse Gas Standards. Implement adopted Pavley standards and planned second phase of the system. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.	**Not Applicable.** The development of standards is not relevant to the Proposed Project.
Energy Efficiency. Maximize energy efficiency building and appliance standards and pursue additional efficiency efforts including new technologies, and new policy and mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.	**Not Applicable.** The Proposed Project involves installing storm drain infrastructure. There is no building construction associated with the Proposed Project.
Renewables Portfolio Standard. Achieve 33 percent renewable energy mix statewide.	**Not Applicable.** The Proposed Project involves installing storm drain infrastructure. There is no significant operational component to the Proposed Project.
Low-Carbon Fuel Standard. Develop and adopt the Low Carbon Fuel Standard.	**Not Applicable.** The statewide program is not relevant to the Proposed Project.
Regional Transportation-Related Greenhouse Gases. Develop regional greenhouse gas emissions reduction targets for passenger vehicles.	**Not Applicable.** The development of regional planning goals is not relevant to the Proposed Project. The project's infill location near several bus routes operated by the Los Angeles County Metropolitan Transportation Authority.
Vehicle Efficiency Measures. Implement light-duty vehicle efficiency measures.	**Not Applicable.** State agencies are responsible for implementing efficiency measures.
Goods Movement. Implement adopted regulations for the use of shore power for ships at berth. Improve efficiency in goods movement activities.	**Not Applicable.** State agencies are responsible for implementing regulations and promoting efficiency in goods movement.
Million Solar Roofs Program. Install 3,000 MW of solar-electric capacity under California's existing solar programs.	**Not Applicable.** The Proposed Project involves installing storm drain infrastructure. There is no significant operational component to the Proposed Project.
Medium/Heavy-Duty Vehicles. Adopt medium and heavy-duty vehicle efficiency measures.	**Not Applicable.** State agencies are responsible for implementing efficiency measures.
Industrial Emissions. Require assessment of large industrial sources to determine whether individual sources within a facility can cost-effectively reduce greenhouse gas emissions. Reduce greenhouse gas emissions from fugitive emissions from oil and gas extraction and gas transmission.	**Not Applicable.** The Proposed Project involves installing storm drain infrastructure. There is no significant operational component to the Proposed Project.
High Speed Rail. Support implementation of a high-speed rail system.	**Not Applicable.** This calls for the California High Speed Rail Authority and stakeholders to develop a statewide rail transportation system.
Green Building Strategy. Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	**Not Applicable.** The Proposed Project involves installing storm drain infrastructure. There is no building construction associated with the Proposed Project.
High Global Warming Potential Gases. Adopt measures to reduce high global warming potential gases.	**Not Applicable.** State agencies are responsible for implementing these measures.
Recycling and Waste. Reduce methane emissions at landfills. Increase waste diversion, composting and other beneficial uses of organic materials and mandate commercial recycling. Move toward zero waste.	**Consistent.** The Proposed Project is expected to have minimal impact on solid waste facilities.

Strategy	Project Consistency
Sustainable Forests. Preserve forest sequestration and encourage the use of forest biomass for sustainable energy generation.	**Not Applicable.** Resource Agency departments are responsible for implementing this measure.
Water. Continue efficiency programs and use cleaner energy sources to move and treat water.	**Consistent.** The Proposed Project will deliver water to wetlands at the Rory M Shaw Wetlands park for natural purification water quality enhancement.
Agriculture. In the near-term, encourage investment in manure digester and at the five-year Scoping Plan update determine if the program should be made mandatory by 2020.	**Not Applicable.** The Proposed Project does not include agricultural facilities.

Source: Impact Sciences, 2018.

Based on this evaluation, this analysis finds the Proposed Project would be consistent with all feasible and applicable strategies recommended in the AB 32 Scoping Plan.

Consistency with EO S-3-05 and B-30-15

The Proposed Project is consistent with the State's Executive Orders S-3-05 and B-30-15, which are orders from the State's Executive Branch that set forth goals for the state to achieve further GHG emission reductions by 2030 and 2050. These strategies call for developing more efficient land-use patterns to match population increases, workforce, and socioeconomic needs for the full spectrum of the population.

Although the project's emissions level in 2050 cannot be reliably quantified, statewide efforts are underway to facilitate the State's achievement of that goal and it is reasonable to expect the project's emissions profile to decline as the regulatory initiatives identified by CARB in the First Update are implemented, and other technological innovations occur. Stated differently, the Proposed Project's emissions total at build-out presented in this analysis represents the maximum emissions inventory for the project as California's emissions sources are being regulated (and foreseeably expected to continue to be regulated in the future) in furtherance of the State's environmental policy objectives. As such, given the absence in project emissions once fully constructed and operational, the project is consistent with the Executive Order's horizon-year goal.

Many of the emission reduction strategies recommended by CARB would serve to reduce the Proposed Project's post-2020 emissions level to the extent applicable by law and help lay the foundation "…for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050," as called for in CARB's First Update to the AB 32 Scoping Plan.[49,50] These

49 CARB, First Update, p. 4, May 2014. See also id. at pp. 32–33 [recent studies show that achieving the 2050 goal will require that the "electricity sector will have to be essentially zero carbon; and that electricity or hydrogen will have to power much of the transportation sector, including almost all passenger vehicles."]

50 CARB, First Update, Table 6: Summary of Recommended Actions by Sector, pp. 94-99, May 2014.

GHG emission reduction goals are also consistent with the SB 32 goal of reducing GHGs 40 percent by 2030.

As such, the Proposed Project's post-2020 emissions trajectory is expected to follow a declining trend, consistent with the 2030 and 2050 targets and Executive Order S-3-05 and B-30-15.

As the Proposed Project is consistent with applicable policies and plans aimed at reducing GHG emissions, the project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The impact would be less than significant.

Consistency with SCAG's 2016-2040 RTP/SCS

At the regional level, the 2016-2040 RTP and Sustainable Communities Strategy represent the region's Climate Action Plan that defines strategies for reducing GHGs. In order to assess the Proposed Project's potential to conflict with the RTP/SCS, this section analyzes the project's land use profile for consistency with those in the Sustainable Communities Strategy. Generally, projects are considered consistent with the provisions and general policies of applicable City and regional land use plans and regulations, such as SCAG's Sustainable Communities Strategy, if they are compatible with the general intent of the plans and would not preclude the attainment of their primary goals.

Table 3-4, **Project Consistency with SCAG 2016-2040 RTP/SCS,** demonstrates the Proposed Project's consistency with the Actions and Strategies set forth in the 2016-2040 RTP/SCS. The project would also be consistent with the applicable goals and principles set forth in the 2016-2040 RTP/SCS and the Compass Growth Vision Report. Therefore, the project would be consistent with the GHG reduction related actions and strategies contained in the 2016-2040 RTP/SCS.

Table 3-4
Project Consistency with SCAG 2016-2040 RTP/SCS

Actions and Strategies	Responsible Party(ies)	Consistency Analysis [a]
Land Use Strategies		
Reflect the changing population and demands, including combatting gentrification and displacement, by increasing housing supply at a variety of affordability levels.	Local jurisdictions	**Not Applicable.** The Proposed Project would not include residences that would add to the supply of housing in metropolitan Los Angeles County. However, the Proposed Project would not hinder the region's pursuit of this policy.
Focus new growth around transit.	Local Jurisdictions	**Not Applicable.** The Proposed Project would not include a residential component and does not induce growth in the region. However, the Proposed Project would not hinder the region's pursuit of this policy.
Plan for growth around livable corridors, including growth on the Livable Corridors network.	SCAG Local Jurisdictions	**Not Applicable.** The Proposed Project would not include a residential component and does not induce growth in the region. However, the Proposed Project would not hinder the region's pursuit of this policy.
Support local sustainability planning, including developing sustainable planning and design policies, sustainable zoning codes, and Climate Action Plans.	Local Jurisdictions	**Not Applicable.** While this strategy calls on local governments to adopt General Plan updates, zoning codes, and Climate Action Plans to further sustainable communities, the Proposed Project would not interfere with such policymaking and would be consistent with those policy objectives.
Protect natural and farm lands, including developing conservation strategies.	SCAG Local Jurisdictions	**Consistent.** The Proposed Project is in an already urbanized area and would not negatively affect demand for growth in areas that threaten greenfields and open spaces.
Transportation Strategies		
Preserve our existing transportation system.	SCAG County Transportation Commissions Local Jurisdictions	**Consistent.** While this strategy calls on investing in the maintenance of our existing transportation system, the Proposed Project would not interfere with such policymaking. Additionally, the Proposed Project would help reduce the erosion of local roadways and their surrounding environment by providing a modern storm drain system.
Manage congestion through programs like the Congestion Management Program, Transportation Demand Management, and Transportation Systems Management strategies.	County Transportation Commissions Local Jurisdictions	**Not Applicable.** The Proposed Project would not include an operational component and does not induce growth in the region. However, the Proposed Project would not hinder the region's pursuit of this policy.
Promote safety and security in the transportation system.	SCAG County Transportation Commissions Local Jurisdictions	**Not Applicable.** While this strategy aims to improve the safety of the transportation system and protect users from security threats, the Proposed Project would not interfere with such policymaking.
Complete our transit, passenger rail, active transportation, highways and arterials, regional express lanes, goods movement, and airport ground transportation systems.	SCAG County Transportation Commissions Local Jurisdictions	**Not Applicable.** This strategy calls for transportation planning partners to implement major capital and operational projects that are designed to address regional growth. The Proposed Project would not interfere with this larger goal of investing in the transportation system.
Technological Innovation and 21st Century Transportation		
Promote zero-emissions vehicles.	SCAG Local Jurisdictions	**Not Applicable.** The Proposed Project would not include an operational component. However, the Proposed Project would not hinder the region's pursuit of this policy.

Actions and Strategies	Responsible Party(ies)	Consistency Analysis [a]
Promote neighborhood electric vehicles.	SCAG Local Jurisdictions	**Not Applicable.** The Proposed Project would not include an operational component. However, the Proposed Project would not hinder the region's pursuit of this policy.
Implement shared mobility programs.	SCAG Local Jurisdictions	**Not Applicable.** The Proposed Project would not include an operational component. However, the Proposed Project would not hinder the region's pursuit of this policy.

Source: Southern California Association of Governments; 2016–2040 RTP/SCS, Chapter 5: The Road to Greater Mobility and Sustainable Growth; April 2016 and Impact Sciences, 2018.

Consistency with the County of Los Angeles Sustainability Plan

Construction of the Proposed Project would generally be consistent with County of Los Angeles Sustainability Plan. The County of Los Angeles Sustainability Plan includes twelve overarching goals in order to increase sustainability across the County. The Proposed Project would meet many of these goals. Specifically, construction of the Proposed Project is consistent with Goal 2 (Building and infrastructure that support human health and resilience). The Proposed Project will construct storm drains from Sheldon Street to a detention pond. Therefore, the Proposed Project will increase conservation, and maximize the capture and reuse of storm water.

Additionally, construction of the Proposed Project is consistent with Goal 9 (Sustainable production and consumption of resources). The Proposed Project would comply with waste reduction measures mandated by CALGreen, as well as solid waste diversion policies administered by CalRecycle that in turn reduce GHG emissions.

In addition, construction of the Proposed Project would not interfere with any of the Plan's other goals. As a result, the Proposed Project would be consistent with the County of Los Angeles Sustainability Plan.

Consistency with the County of Los Angeles General Plan

Construction of the Proposed Project would be consistent with the County's General Plan. Specifically, the Proposed Project would be compliant with Policy AQ 3.3: Reduce water consumption in County operations. The Proposed Project would construct 28,000 linear feet of storm drains in order to channel water to a detention pond. As a result, the Proposed Project would reduce water consumption by maximizing the capture and reuse of stormwater. Due to the nature of the Proposed Project and limited operational activity, many of the policies identified in the General Plan are not applicable. However, the Proposed Project would not interfere with any of the General Plan policies.

3.10 HAZARDS AND HAZARDOUS CONDITIONS

The potential for the Sun Valley Watershed project to result in new or substantially more adverse significant impacts related to hazards and hazardous materials was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

(a) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Sun Valley Middle School and the Parking Lot on Sherman are located on sites that might contain contaminated soils due to past leaking underground storage tanks. Sun Valley Middle School's campus may also contain contaminated soils due to the presence of a former landfill below the bus garage. In addition, the surround industrial land uses in the project area poses a potential for contaminated soils to be present at other project component sites. The incorporation of **Mitigation Measure H-1** was required to ensure disposal of hazardous materials in compliance with applicable regulations. With mitigation, the impact would be less than significant.

The Valley Steam Plant component involves construction of retention basins within the plant property. A set of railroad tracks is located on the site. The railroad ties are likely treated with creosote, a probable carcinogen and if removed, then they would be disposed as hazardous waste. Therefore, this impact is less than significant.

Depending on landscaping plans and goals, herbicide use may be necessary for operation and maintenance of approved landscaped areas. Chemical use will be limited to currently approved herbicides. Therefore, this impact was found to be less than significant.

The Approved Project involves construction of uncovered stormwater retention facilities that pose a potential for creating mosquito-breeding conditions. Catch basins will be constructed in streets surrounding the project components and during the storm season is when they may temporarily contain stagnant water. Shallow depressions for infiltrating stormwater are located at New Park on Wentworth, Roscoe Elementary School, Stonehurst Elementary School, Stonehurst Park, and Sun Valley Middle School.

However, large typically winter storms would add to the potential for mosquito breeding conditions, but winter conditions have limited potential for activity. Retention basins have a similar potential for breeding conditions as shallow depressions. Finally, stormwater wetlands and permanent lakes have some potential to create these conditions. With potential public health impacts such as West Nile Virus, LACDPW will coordinate with the Greater Los Angeles Vector Control District (GLAVCD) to determine appropriate measures. **Mitigation Measure H-3** was required to reduce potential impacts to less than significant.

The Approved Project involves periodic removal of sediments from stormwater retention basins, catch basins, and other stormwater management facilities. Sediments removed from project facilities will be disposed of properly in accordance with applicable regulations at approved disposal sites. Transport or disposal of stormwater sediments would not create a significant hazard to the public or the environment. This impact was identified as less than significant.

The surrounding industrial land uses, the soil of former landfills and potentially hazardous waste from nearby facilities poses a potential impact to the Proposed Project. The incorporation of **Mitigation Measure H-1** and **W-4** from the 2004 FEIR would ensure that if contaminated soil areas are found in areas that would be disturbed by project construction, they would be disposed of in compliance with applicable regulations at approved disposal sites. Therefore, impacts would be less than significant. No new or greater impacts would occur, and no new mitigation would be required.

(b) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

While as part of the Approved Project, stormwater collected by the proposed facilities in the various project components would be disinfected to meet Title 22 standards for bacteria before being reused for irrigation or other uses with the potential for public contact. The Proposed Project includes the construction of storm drains only which would not require the use or handling of any hazardous materials. Therefore, impacts associated with handling and use of hazardous materials such as sodium hypochlorite are less than significant.

For the Proposed Project, the installation of concrete pipes would potentially create a significant hazard to the public or the environment through the release of hazardous materials at the site. However, any hazards generated by construction would be consistent with general construction of any project and would comply with federal, state, and local laws and regulations, and impacts would be less than significant.

(c) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to emitting hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile or an existing or proposed school?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The 2004 FEIR concluded that Sun Valley Middle School and the Parking Lot on Sherman are located on sites that might contain contaminated soils due to past leaking underground storage tanks. Sun Valley Middle School's campus may also contain contaminated soils due to the presence of a former landfill below the bus garage. In addition, the surround industrial land uses in the project area poses a potential for contaminated soils to be present at other project component sites. The incorporation of **Mitigation Measure H-1** was required to ensure disposal of hazardous materials in compliance with applicable regulations. With mitigation, the impact would be less than significant.

Installation of the new storm drains would occur near Sun Valley Middle School under the Proposed Project. As such, there is potential for adverse impacts with regards to emissions in the vicinity of the school. However, development of the Proposed Project would adhere to all applicable rules and regulations regarding hazardous materials. As dealings with hazardous materials relating to the Proposed Project would be monitored at a State and local level to ensure all regulations and guidelines are followed, the risk associated with the use and handling of hazardous materials would be less than significant.

(d) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The 2004 FEIR concluded that Sun Valley Middle School and the Parking Lot on Sherman are located on sites that might contain contaminated soils due to past leaking underground storage tanks. Sun Valley Middle School's campus may also contain contaminated soils due to the presence of a former landfill below the bus garage. In addition, the surround industrial land uses in the project area poses a potential for contaminated soils to be present at other project component sites. The incorporation of **Mitigation Measure H-1** was required to ensure disposal of hazardous materials in compliance with applicable regulations. With mitigation, the impact would be less than significant.

There are no sites identified under the California Department of Toxic Substances Control (DTSC)'s Hazardous Waste and Substances Site (Cortese) List[51] that are located along or adjacent to the Proposed Project alignment. Therefore, the Proposed Project would not create a significant hazard to the public or the environment.

(e) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport or private airstrip, would the project result in a safety hazard for people residing or working in the project area?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The 2004 FEIR notes that surface water features have the potential to attract wildlife, particularly waterfowl, which would substantially increase the potential for collisions between wildlife aircraft. However, due to

51 California Department of Toxic Substances and Control, Hazardous Waste and Substances Site List - Site Cleanup (Cortese List), http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm

the highly urbanized nature of the project area and influence of human activity, a substantial increase in waterfowl population is not anticipated. Therefore, the Approved Project would not result in a substantial increase in the potential for a wildlife aircraft strike hazard and impacts to airport safety would be less than significant.

There is one public airport and one private airstrip near the Proposed Project site. Bob Hope Airport is located approximately two miles south of the Proposed Project and Whiteman Airpark is located approximately 2 miles northwest of the Proposed Project. However, due to the type of project and the distance from any public or private airport or airstrip, the creation of safety hazards is not expected to occur. Consistent with the 2004 FEIR analysis and conclusions, the Proposed Project would not be expected to result in significant impacts from hazards and hazardous materials in relation to proximity to an airport or private airstrip and the creation of safety hazards for people residing or working in the Proposed Project area. Therefore, there would be no new or greater impacts than those identified in the certified 2004 FEIR.

(f) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to implementation of or physically interfere with adopted emergency response plan or emergency evacuation plan?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

As documented in the 2004 FEIR, during construction activity of the Approved Project, lane or road closures may be necessary for installation of project facilities. Restricted access to the vicinity of project sites would be addressed by advanced notification of local emergency service providers. The Approved Project does not involve long-term or substantial changes in access to any property. The Approved Project would not contribute to a significant increase in the potential for hazards within the area. Therefore, the project-related impacts on emergency response plans or emergency evacuation plans are anticipated to be less than significant.

Like the Approved Project, the Proposed Project does not involve long-term or substantial changes in access to any property. The Proposed Project would not contribute to a significant increase in the potential for hazards within the area. Therefore, the project-related impacts on emergency response plans or emergency evacuation plans are anticipated to be less than significant. There would be no new or greater impacts than those identified in the certified 2004 FEIR.

(g) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect exposing people or structures to the risks of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The 2004 FEIR concluded that since all project sites are located within an urban area, and no wildlands are located onsite or in the vicinity, no impacts would occur.

The Proposed Project site is also located within an urban area and no wildlands are located onsite or in the vicinity. No impacts would occur. Therefore, there would be no new or greater impacts than those identified in the certified 2004 FEIR.

3.11 HYDROLOGY AND WATER QUALITY

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts to hydrology and water quality was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

(a) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to water quality standards or waste discharge requirements?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

During construction, potential soil disturbance would temporarily increase the potential for soil erosion. In addition, the construction materials may come in contact with runoff. These potential impacts on surface water quality, though temporary, may be significant. As required by federal regulation, a SWPPP would be implemented during construction. Specific control measures to be considered for inclusion in site-specific SWPPPs are provided in **Mitigation Measure W-1** and incorporated into the Approved Project with the incorporation of these measures, construction impacts were determined to be less than significant.

The 2004 FEIR found that all project alternatives would result in nearly all of the runoff generated from the watershed in a year of average rainfall would be retained and prevented from entering the Los Angeles River. Therefore, the Approved Project would have a beneficial impact on the water quality of the Los Angeles River through reduction of stormwater pollution. In addition, operation of the project would result in reduced potential for soil erosion at some of the project component sties (i.e., New Park on Wentworth, Sheldon Pit, Cal Mat Pit, Strathern Pit, Tuxford Green, and Power Line Easement). Therefore, the implementation of the Approved Project has a beneficial impact with respect to soil erosion once construction has been completed.

The Approved Project's operational impacts on groundwater quality could create the potential of certain pollutants to reach groundwater due to stormwater infiltration practices. Whether or not stormwater infiltration can have an adverse effect on groundwater quality depends on the pollutants of concern and site-specific factors including: drainage area land use and associated stormwater quality, distance to groundwater from the point of infiltration, soil characteristics, and level of treatment that occurs prior to infiltration. With the approved treatment prior to infiltration, use of stormwater for groundwater recharge

under the project is not expected to result in groundwater contamination. Project impacts on groundwater quality from pollutants in stormwater are anticipated to be less than significant. **Mitigation Measure W-2** is incorporated into the project and requires coordination with the stakeholders on the review of monitoring results and determination of the necessity of additional stormwater treatment.

The approved treatment for stormwater collected at Vulcan Gravel Processing Plant includes separation whereas treatment is taken at Strathern Pit. Finally, the design of Sheldon Pit will be filled with 90 feet of soil. Furthermore, the combination of proposed stormwater treatment processes and mixing with existing sources of wash water is expected to substantially reduce the concentrations of pollutants contained in untreated stormwater. Therefore, the proposed stormwater reuse at Vulcan Gravel Processing Plant is not expected to result in significant impacts on groundwater quality. Additionally, implementation of **Mitigation Measure W-2** will ensure that implementation of this project component does not result in contamination of groundwater.

The Proposed Project involves the collection and conveyance of stormwater through the construction of new storm drains. The Proposed Project would result in a reduction of polluted stormwater runoff entering the Los Angeles River, and therefore similarly to the 2004 FEIR, the project is expected to have a beneficial impact on surface water quality. The Proposed Project is located in an urban area with commercial, industrial, and residential uses. As such, the stormwater run-off may contain pollutants that must be filtered out before the water can be reused or fed back into the watershed. The 2004 FEIR included measures such as development and implementation of **Mitigation Measure W-1** an SWPPP, the installation of silt fences or hay bales, and regular inspections, especially during construction, to ensure development is in compliance with the Los Angeles Regional Water Quality Control Board. As the Proposed Project will follow the measures laid forth in the 2004 FEIR, water quality in the groundwater basin will continue to meet water quality standards under the proposed storm drain system development. Impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

(b) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to depleting groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The 2004 FEIR concluded that under the Approved Project, infiltration of stormwater would result in beneficial impacts on groundwater elevations of the San Fernando Basin (SFB) by providing additional recharge. However, the infiltration could result in adverse consequences with respect to groundwater hydrology. First, the approved infiltration may raise the groundwater level underneath Bradley Landfill and inundate some of the landfill materials. Second, the approved infiltration may affect the flow directions of the groundwater within SFB and consequently change the shape and configuration of the existing TCE and PCE contamination plumes.

The Proposed Project involves the installation of a storm drain system and does not involve infiltration of stormwater, or extraction of groundwater at any of the project sites and thus would not affect groundwater supplies. Therefore, the Proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge. Consistent with the 2004 FEIR, the Proposed Project would add a beneficial impact with respect to groundwater supply. No adverse impacts on aquifer volume or the local groundwater table level would occur. Impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

(c) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Flood control was the primary objective of the Approved Project. The flood control benefits of the Approved Project are described in terms of runoff retention capacity and reduction in peak flow rates. Construction of the approved retention facilities are designed to substantially reduce the amount of runoff that flows into the streets and contributes to flooding.

Under existing conditions, the peak flow rate at the outlet point of the watershed during a Capital Storm is 2,096 cubic feet per second (cfs).[52] The 2004 FEIR cites that this represents the current contribution of Sun Valley Watershed to flooding in downtown areas of the Los Angeles River Watershed. All project

52 Los Angeles County Department of Public Works, 2004 FEIR Sun Valley Watershed Management Plan, May 2004.

alternatives were identified to having a result in a reduction of peak flow rates entering the Los Angeles River, and therefore have a beneficial impact on downstream flooding.

The Proposed Project consists of four phases which include the construction of reinforced pipes, catch basins, and other drainage structures to the Sun Valley Watershed Management Plan. Consistent with the 2004 FEIR, the implementation of the Proposed Project would decrease the rate and amount of surface runoff and the potential for erosion for the surrounding sites. **Mitigation Measure W-1** (preparation of a SWPPP) from the 2004 FEIR would apply to minimize the potential for soil erosion. With the incorporation of the control measures, listed in **Mitigation Measure W-1** as a part of the SWPPP, construction impacts on surface water quality are expected to be less than significant. Impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

(d) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Flood control was the primary objective of the Approved Project. The flood control benefits of the Approved Project are described in terms of runoff retention capacity and reduction in peak flow rates. Construction of the approved retention facilities are designed to substantially reduce the amount of runoff that flows into the streets and contributes to flooding.

Similar to the 2004 FEIR, the Proposed Project will add to the objectives of the Sun Valley Watershed Management Plan to alleviate flooding problems within the project area. The Sun Valley Watershed Upper Storm Drain System would have a beneficial impact on stormwater drainage systems. No adverse impacts would occur related to polluted runoff. Impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to the following: (e) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? (f) Place within a 100-year flood hazard area structures which would impede or redirect flood flows? (g) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? (h) Inundation by seiche, tsunami, or mudflow?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Portions of the Approved Project are located within the 100-year floodplain. However, the Approved Project does not construct any housing. No impact would occur.

The Approved Project does include portions of the project area that are located within the 100-year floodplain. The Approved Project involves the construction of new structures and modifications to existing facilities for the purpose of reducing runoff water and flooding within the Sun Valley Watershed. Therefore, the Approved Project is expected to have a beneficial impact with respect to flooding. Impacts would be less than significant.

The Proposed Project area is located approximately 15 miles inland from the Pacific Ocean, and therefore there is no risk of tsunami in the area. No mudflow hazards have been identified for the project area. Hansen Dam and Lake are located immediately north of the Proposed Project area. The Proposed Project area would be subject to inundation in case of failure of Hansen Dam or a seiche at Hansen Lake. However, the Approved Project does not involve construction of housing or employment centers and therefore would not result in exposure of people or structures to a significant risk from Hansen Dam/Lake. Impacts would be less than significant.

Even though portions of the Proposed Project are located within the 100-year floodplain, the Proposed Project does not involve the construction of housing. Therefore, no impacts would occur. The drainage structures that are within the Proposed Project phases are expected to have a beneficial impact with respect to flooding. Therefore, the risk of structures from a 100-year flood would be less than significant and thus consistent with the 2004 FEIR. Impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

Similar to the 2004 FEIR, the Proposed Project area is located approximately 15 miles inland from the Pacific Ocean, and therefore there is no risk of tsunami in the area. No mudflow hazards have been identified for the project area. Hansen Dam and Lake are located immediately north of the Proposed Project area. The Proposed Project area would be subject to inundation in case of failure of Hansen Dam or a seiche at Hansen Lake. However, the Proposed Project does not involve construction of housing or employment centers and therefore would not result in exposure of people or structures to a significant risk from Hansen Dam/Lake. Therefore, no impacts would occur with the Proposed Project. Impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

3.12 LAND USE AND PLANNING

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts to land use and planning was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

(a) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to physically dividing an established community?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

As analyzed in the 2004 FEIR, the Approved Project does not involve construction of roads, large structures, or new easements which could disrupt the physical arrangement of an established community or isolate an existing land use. No impact would occur.

Consistent with the 2004 FEIR, the Proposed Project does not involve construction of roads, large structures, or new easements which could disrupt the physical arrangement of an established community or isolate an existing land use. No impacts would occur. No new or greater impacts would occur, and no new mitigation is required.

(b) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The Approved Project does not conflict with any applicable land use plan, policy, or regulation, including the General Plan and the Planning and Zoning Code of the City of Los Angeles. The Approved Project is consistent with the local Community Plan policy to provide for the reclamation and reuse of exhausted gravel pits. No adverse impacts would occur.

The Proposed Project would not conflict with any applicable land use plan, policy, or regulation, including the General Plan and the Planning and Zoning Code of the City of Los Angeles. The Proposed Project would be consistent with the local Community Plan. Therefore, consistent with the 2004 FIER, no impacts would occur. Impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

(c) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to any applicable habitat conservation plan or natural community conservation plan?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The project sites are located in an urban area and are currently developed with commercial, industrial, and residential uses. No habitat conservation plans or natural community conservation plans have been implemented or are planned for the project area. No impacts would occur.

Consistent with the 2004 FEIR, the Proposed Project sites are located in an urban area and are currently developed with commercial, industrial, and residential uses. No habitat conservation plans or natural community conservation plans have been implemented or are planned for the Proposed Project area. No impacts would occur. No new or greater impacts would occur, and no new mitigation is required.

3.13 MINERAL RESOURCES

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts to mineral resources was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to the following: a) Result in the loss of availability of a known mineral resource that be value to the region and the residents of the state? b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The Approved Project involves reuse of gravel pits for stormwater retention and infiltration and for recreation purposes as part of a multi-objective solution to the flooding problems in the Sun Valley Watershed. Among the four gravel pits proposed for use by the Approved Project, Cal Mat Pit, Sheldon Pit, and Strathern Pit are exhausted gravel pits where gravel extraction operations have ceased. These exhausted gravel pits that would be affected by the Approved Project are currently used as disposal sites for inert wastes (Cal Mat and Strathern Pits) and gravel wash water (Sheldon Pit) generated by local gravel processing operations. The use of these exhausted gravel pits by the Approved Project would not result in the loss of available gravel resources. The Approved Project would be consistent with the local Community Plan policy to provide for the reclamation and reuse of exhausted gravel pits.

According to the Sun Valley Community Plan,[53] the Sun Valley-La Tuna Canyon Community area incorporates the highest concentration of mineral processing facilities in Los Angeles, with rock and gravel mining operations as well as cement and concrete processing. Portions of the Sun Valley Community are located within Mineral Resource Zone 2 (MRZ-2) as designated by the California Division of Mines and Geology (now California Geological Survey). The MRZ-2 zone designation indicates an area where adequate information indicates that significant mineral deposits are present, or where it is determined that a high likelihood of their presence exists. The Sun Valley Community Plan delineates active and historical gravel mining areas as "Existing Rock and Gravel Districts - 1977." No active mining areas would be

53 City of Los Angeles Department of City Planning, Sun Valley – La Tuna Canyon Community Plan, August 1999

affected by the Proposed Project and the construction of the storm drain system would not utilize a substantial amount of aggregate resources. The new storm drains under the Proposed Project would ultimately direct water into the Rory M. Shaw Wetlands Park, formerly Strathern Pit,[54] as well as the Tuxford Drain. Gravel extraction operations at Strathern Pit have ceased and its conversion to wetlands was approved under the 2004 FEIR. As no active mining areas or areas containing significant mineral resources would be affected by the Proposed Project, there would be a less than significant effect, on mineral resources. No new or greater impacts would occur, and no new mitigation is required.

[54] Note: The conversion of the Strathern Pit to the Rory M. Shaw Wetland Park will take place under a separate project and is not part of any phase of the Sun Valley Upper Storm Drain System project; the connection of the Phase 1 storm drains to the park will only take place once both projects are completed.

3.14 NOISE

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts related to noise was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to the following: (a) Exposure of persons to or generation of noise levels in excess of standards established in the City of Los Angeles Noise Ordinance during project construction? (b) Exceed LAUSD's standard for exterior noise levels (67 dBA) during project construction at school sites? (c) Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Construction Noise and Vibration

Development of specific components of the Approved project were found to result in ambient noise level increases from construction equipment, earth moving activities, construction workers' commutes and materials deliveries. Noise from construction activities have been estimated for each of the Approved Project's components. At the time of the 2004 FEIR analysis, the Approved Project's EIR did not have detailed construction plans developed for most of the project's components. Therefore, noise estimates were made based on the two noisiest pieces of equipment that would be operating concurrently.

Construction of the following individual project components were found to result in exceedance of City thresholds: Cal Mat Pit, New Park on Wentworth, Parking Lot on Sherman, Power Line Easement, Roscoe Elementary School, Sheldon Pit, Stonehurst Elementary School, Stonehurst Park, Storm Drains, Strathern Pit, Street Storage, and Sun Valley Middle School, as shown in Table 4.8-6 of the 2004 FEIR. The Approved Project's construction impacts on noise, while temporary, were found to be significant for these project components on a component-by-component basis.

Mitigation Measures N-1 and **N-2** are proposed to reduce construction noise generated by all project components except Tree Planting & Mulching. **Mitigation Measures N-3** and **N-4** are proposed to reduce

construction noise generated by all project components except Onsite BMPs, Tree Planting & Mulching, and Storm Drains. After mitigation, construction noise impacts are anticipated to be less than significant.

For the Proposed Project, it is assumed that although each phase will occur concurrently, it is highly unlikely that nearby sensitive receptors would be affected by construction equipment from more than one phase during the same instant. Equipment lists for each construction period, as well as the associated modeling outputs, are detailed in **Appendix B**.

Table 3-5
Estimated Construction Noise Level

Sensitive Receptor	Maximum Combined Construction Noise Level (dBA L_{eq}, at 50 feet)
Demolition	85.6
Trenching	86.6
Pipeline Install (Construction)	86.8
Paving	84.6

*Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix B**. Calculations were performed using Roadway Construction Noise Model (RCNM).*

As shown in **Table 3-5** above, the highest noise level from construction equipment would occur during the pipeline installation period of construction. During each period of construction, receptors would be exposed to construction levels which could cause increases in ambient noise levels at nearby receptors. However, **Mitigation Measure N-4** of the 2004 FEIR requires that the construction contractor for each project will be required to develop a site-specific noise mitigation plan which would reduce noise levels to 75 dBA at the nearest residences, and 67 dBA at any nearby school sites during project construction. **Mitigation Measure N-1** would ensure that construction activities are in compliance with the City of Los Angeles Noise Ordinance. The implementation of **Mitigation Measures N-1,** which limits the hours of construction activities to those allow by the Los Angeles Noise Ordinance, **N-2,** which maintains that mobile construction equipment shall be equipped with noise reduction devices**, N-3,** which requires notifying neighboring businesses and residences of construction, and **N-4,** which mandates the development of a site-specific noise mitigation plan, would reduce temporary noise increases due to construction of the Proposed Project to a less than significant level. No new or greater impacts would occur, and no new mitigation is required.

Construction of the Proposed Project has the potential to create vibration at nearby structures. The nearest sensitive structures would be older residences located off of Sheldon Street during construction of Phase 2. These structures are located approximately 50 feet from potential construction activities.

To counter the effects of ground-borne vibration, the California Department of Transportation (Caltrans) has published guidance relating to structural vibration impacts, as well as human annoyance impacts. According to Caltrans, modern industrial/commercial buildings and new residential structures can be exposed to continuous ground-borne vibration levels of 0.5 inches per second without experiencing structural damage, and older residences can be exposed to continuous ground-borne vibration levels of 0.3 inches per second.[55] A vibratory roller would be the most significant piece of construction equipment to be used on-site during backfill and paving activities. Vibratory rollers have the potential to create a ground-borne vibration level of approximately 0.210 PPV (inches/second) at a reference distance of 25 feet.[56] The nearest sensitive receptor would experience a vibration level of approximately 0.074 PPV (inches/second). This is below the Caltrans guidance threshold. As a result, construction vibration impacts will be less than significant. No new or greater impacts would occur, and no new mitigation is required.

Operational Noise and Vibration

Operation and maintenance of specific facilities included as part of the Watershed Management Plan were expected to have a minimal adverse impact on noise. Valley Steam Plant and Vulcan Gravel Processing Plant are not located near sensitive receptors and therefore noise generated by the operation of proposed pumps would be less than significant. The proposed pumps at Strathern Pit and Sheldon Pit would be located within the parks at the respective project component sites. These pumps would be enclosed within a pump building, which would shield noise generated by the pumps from sensitive receptors and therefore would have a less than significant noise impact. The pumps at Sun Valley Middle School, Tuxford Green, Roscoe Elementary School, and Stonehurst Elementary School would be small in capacity, and are therefore anticipated to have a less than significant noise impact.

During project operation, noise would be generated by worker vehicles traveling to various project components for maintenance and inspection, which is expected to be several times a year for each project component. Operation of the Approved Project's parks would result in visitor traffic as well. Noise impacts related to the increase in traffic associated with operation are considered less than significant.

Analysis on the operation of recreational facilities found that siting new park facilities in an area with noise levels exceeding 65 dBA would be considered significant. The park facilities at Cal Mat Pit, New Park on Wentworth, and Sheldon Pit would be sited in quiet residential areas. The surrounding environment at Strathern Pit includes industrial uses to the north, and therefore likely has a higher ambient noise level under existing conditions. However, Strathern Pit is located adjacent to the existing Sun Valley Park.

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55 California Department of Transportation. *Transportation and Construction Vibration Guidance Manual*, September 2013.

56 Federal Transit Administration, *Transit Noise and Vibration Impact Assessment*, May 2006.

Therefore, all the parks proposed under the Approved Project would be compatible with the surrounding land uses and the associated noise environment.

Unlike some components of the Approved Project analyzed in the 2004 FEIR, the Proposed Project would not have recreational facilities or visitors related to project operations. Project operations would consist of periodic maintenance, as needed, and would not result in an ambient increase in ambient noise or vibration levels. As a result, the Proposed Project would not permanently increase ambient noise or vibration levels. In addition to this, the lack of project operational noise would also not cause an exceedance of any existing noise standards. The Proposed Project will have a less than significant impact on operational noise and vibration. Impacts would be less than significant. No new or greater impacts would occur and no new mitigation is required.

3.15 POPULATION AND HOUSING

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts to population and housing was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to the following:

(a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

(b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

(c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The Approved Project does not involve construction of new homes or businesses and does not include construction of new, potentially growth-inducing, infrastructure such as roads or potable water or wastewater systems. Therefore, the Approved Project would not, either directly or indirectly, induce substantial population growth in the area. No impacts would occur. In addition, with no new housing, no individuals would be displaced by the project.

Similar to the 2004 FEIR, the Proposed Project would not involve construction of new homes or businesses and does not include construction of new, potentially growth-inducing, infrastructure. Therefore, the Proposed Project would not induce substantial population growth. In addition, no individuals would be displaced by the Proposed Project. The Proposed Project would have no impact relating to population and housing. No new or greater impacts would occur, and no new mitigation is required.

3.16 PUBLIC SERVICES - POLICE, FIRE, SCHOOLS, AND OTHER FACILITIES

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts to public services was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services listed below.		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Fire Protection

During construction, temporary road or lane closures may be required. Therefore, fire emergency vehicles may need to use less direct routes in responding to emergency calls in the project area, resulting in increased response times. In addition, project construction may temporarily affect fire vehicle access to streets, fire hydrants or structures adjacent to the affected roadways. However, implementation of **Mitigation Measures T-5, P-1**, and **P-2** would reduce potential impacts to a less than significant level by consulting and coordinating with local emergency service providers prior to the start of construction and ensuring that all state and local codes and ordinances are adhered to.

The Approved Project does not involve construction of housing or other structures that would result in a substantial increase in the demand for fire protection or emergency medical services. The project would not substantially increase fire hazards in the area. Therefore, the Approved Project is expected to be adequately served by existing resources of LAFD and no impacts would occur.

The Proposed Project area is served by three nearby Los Angeles Fire Department stations: LAFD Fire Station (FS) 66 (5320 Tujunga Avenue, North Hollywood), FS 77 (8943 Glenoaks Boulevard, Sun Valley) and FS 89 (7063 Laurel Canyon Boulevard, North Hollywood). FS 77 is the closest to the Proposed Project sites. The Proposed Project, similar to the 2004 FEIR, does not involve the construction of housing or other structures that would result in a substantial increase in the demand for fire protection or emergency medical services. The Proposed Project would not substantially increase fire hazards in the area. Therefore,

the Proposed Project is expected to be adequately served by existing resources. **Mitigation Measures T-5, P-1,** and **P-2** of the 2004 FEIR would reduce any potential impacts by communicating and coordinating with local agencies and adhering to all applicable codes, ordinances, and guidelines. Impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

Police Protection

During construction, temporary road or lane closures may be required. Therefore, police emergency vehicles may need to use less direct routes in responding to emergency calls in the project area, resulting in increased response times. Similar to potential impacts on fire protection, impacts on police protection would be reduced by the implementation of **Mitigation Measure T-5**, which would provide information to police regarding emergency route interference related to the Approved Project and allow for the preparation of a plan to maintain essential emergency access. Additionally, **Mitigation Measures P-3** and **P-4** would necessitate communication and coordination with local police to minimize impacts regarding project-related lane and/or road closures, and detours by implementing traffic control measures such as "No Parking" signs as needed. Implementation of such mitigation would render impacts relating to police protection during construction less than significant.

The Approved Project would not result in an increase in residences or businesses and would not otherwise result in a substantial increase in the demand for security or calls for police services. Therefore, the project is expected to be adequately served by the existing resources of LAPD and no impacts would occur.

The Proposed Project area is provided by the Los Angeles Police Department (LAPD) Foothill Community Police Station (12760 Osborne Street, Pacoima) and North Hollywood Community Police Station (11640 Burbank Blvd., North Hollywood). The Proposed Project would not result in an increase in residential, commercial, or industrial uses nor demands for security or calls. The Proposed Project area is adequately served by existing resources and no alteration to facilities is required. **Mitigation Measures T-5, P-3,** and **P-4** of the 2004 FEIR would reduce any potential impacts by communicating and coordinating with local agencies and implementing local traffic control measures as necessary. Therefore, impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

Schools

Implementation of the Watershed Management Plan may involve construction of stormwater management facilities at Sun Valley Middle School, Stonehurst Elementary School, and Roscoe Elementary School. Construction would take place on open areas and no new buildings or modifications to existing buildings would occur. The construction activities may have temporary impacts on access and student safety. **Mitigation Measures P-5** through **P-12** have been incorporated to minimize potential impacts to a less than

significant level. These mitigation measures cover a wide variety of safety and traffic related impacts during construction. **Mitigation Measure P-5** ensures bus access; **P-6** ensures safe and convenient pedestrian routes; **P-9** addresses haul routes during school session; **P-10** addresses construction worker vehicle parking; and **P-12** addresses communication specifically for St. Patrick's School on existing school bus routes.

The majority of the project components involve construction of storm drains, catch basins, and other structures within roadways. During construction, temporary road or lane closures may be required, which may cause students to take less direct routes when commuting to school. **Mitigation Measures P-7, P-8,** and **P-11** have been incorporated to minimize potential impacts to a less than significant level. In brief, **Mitigation Measure P-7** maintains communication with school administrators for notice relating to pedestrian and vehicular traffic; **P-8** installs traffic controls for safety; **P-11** secures fencing and other barriers to reduce hazards around construction areas.

The Approved Project does not involve construction of housing or other structures that would result in an increase in population. Furthermore, the approved modifications to the school facilities would not have any permanent impact on the existing use or capacity of those facilities. Therefore, no impact would occur regarding school population.

Stonehurst Elementary School and Roscoe Elementary School are in the vicinity of the Proposed Project. Construction of the Proposed Project's drainage structures may have temporary impacts on access and student safety. During construction, temporary road or lane closures may be required, which may cause students to take less direct routes when commuting to school. Consistent with the 2004 FEIR, mitigation measures have been incorporated to minimize potential impacts to a less than significant level. With incorporation of **Mitigation Measures P-5** through **P11**, impacts to schools such as Stonehurst Elementary and Roscoe Elementary would be less than significant. No new or greater impacts would occur, and no new mitigation is required. In brief, **Mitigation Measure P-5** ensures bus access; **P-6** ensures safe and convenient pedestrian routes**; P-7** maintains communication with school administrators for notice relating to pedestrian and vehicular traffic; **P-8** installs traffic controls for safety; **P-9** addresses haul routes during school session; **P-10** addresses construction worker vehicle parking; and **P-11** secures fencing and other barriers to reduce hazards around construction areas.

3.17 RECREATION

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts to recreation was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

(a) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

As analyzed in the 2004 FEIR, construction on Stonehurst Park, Roscoe Elementary School, Stonehurst Elementary School, and Sun Valley Middle School would have temporary effects on the availability of existing onsite recreational facilities. However, any increase in usage at other nearby recreational facilities would be short term and minimal and is not expected to cause or accelerate a substantial physical deterioration of those facilities. Construction-related impacts on recreation would be less than significant.

The Approved Project includes various project components that will provide new recreational facilities and open space accessible to the residents in the project area. Therefore, the long-term impact of the project on recreational resources is beneficial.

The Proposed Project does not involve the construction of new recreational facilities nor modifications to existing ones. The Proposed Project involves the construction of new drainage system components. Therefore, there is no impact to existing recreational facilities. No new or greater impacts would occur, and no new mitigation is required.

3.18 TRANSPORTATION / TRAFFIC

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts to transportation and traffic was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

At the time of EIR analysis, each site was evaluated by estimating the levels of traffic generated by construction activities. The target years of construction for the various project components were not yet determined with the approved plan to be completed within a 10-year time frame.

Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to the following: (a) Reducing the number of travel lanes during the peak traffic periods, thereby resulting in a temporary disruption of traffic flow and increased traffic congestion? (b) Closure of a major roadway to through traffic as a result of construction activities? (c) Restrict access to or from adjacent land uses with no suitable alternative access? (d) Restrict movements of emergency vehicles and there would be no reasonable alternative access routes available? (e) Disrupt bus service and there would be no suitable alternative routes or bus stops? (f) Impede pedestrian movements and there would be no suitable alternative pedestrian access routes? (g) Result in safety problems for vehicular traffic, pedestrians, or transit operations?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The construction activities for the Storm Drains component of the Approved Project would include the construction of storm drains/pipelines on numerous streets within the Sun Valley Watershed Management Plan area. The 2004 FEIR addressed the physical impacts of storm drain/pipeline construction that would occur as a result of traffic disruptions and lane blockages on the affected public streets.

The construction of storm drains/pipelines would typically require a construction zone that ranges from 20 to 50 feet in width and from 200 to 500 feet in length to accommodate the activities of digging a trench, installing the pipe, back-filling, compacting the fill material, and reconstructing/paving the surface area. It is anticipated that the construction zone would advance linearly along the route at an average rate of 200 to 500 feet per day. Any particular location would be directly impacted by the construction activities for a duration of one to five days under typical conditions.

The 2004 FEIR concluded that since the precise locations of the pipelines and the exact width of the construction zones had not yet been established, the specific impacts could not be identified for each affected roadway. The following discussion from the 2004 FEIR, therefore, outlines the impacts that would typically occur during construction of a pipeline/storm drain.:

- Lane blockages and increased traffic congestion in the vicinity of the construction activities.
- Roadway closures at locations where sufficient right-of-way is not available to maintain travel lanes through the work zone.
- Temporary elimination of on-street parking.
- Blocked access to adjacent land uses, including commercial, residential, industrial, and recreational properties.
- Blockages and disruption to pedestrian and bicycle circulation (sidewalks, crosswalks, bike lanes, etc.).
- Increased safety risks for vehicles, bicycles, and pedestrians
- Increased response time for emergency vehicles (police, fire, and ambulance/paramedic units).
- Disruption to public transit service, including schedule delays, blocked bus stops, and blocked routes if a street is completely closed.

The 2004 FEIR included **Mitigation Measures T-2** through **T-7** which require: a construction traffic control plan and/or detour plan, advance notification to affected property owners, alternative pedestrian and bicycle access/circulation routes, coordination with emergency service providers, coordination with public transit agencies, and as necessary a transportation permit from Caltrans for transportation of heavy construction equipment. The 2004 FEIR determined, with implementation of **Mitigation Measures T-2** through **T-7** impacts would be less than significant.

As described above, during construction of the Proposed Project improvements, there would likely be periodic lane closures, detours and similar traffic disruptions. The 2004 FEIR included **Mitigation Measures T-2** through **T-7** which require: a construction traffic control plan and/or detour plan, advance notification to affected property owners, alternative pedestrian and bicycle access/circulation routes, coordination with emergency service providers, coordination with public transit agencies, and as necessary a transportation permit from Caltrans for transportation of heavy construction equipment. Similar to the findings in the 2004 FEIR, with implementation of **Mitigation Measures T-2** through **T-7** impacts of the Proposed Project would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

3.19 UTILITIES AND SERVICE SYSTEMS

The potential for the Sun Valley Watershed Upper Storm Drain System project to result in new or substantially more adverse significant impacts to utilities and service systems was evaluated in relation to the 2004 FEIR analysis and required mitigation measures contained in the 2004 FEIR.

Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to the following: (a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? (b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Utilities that may be affected by construction of Approved Project components (i.e., Storm Drains, Street Storage, and Strathern Pit) include water, sewer, electricity, gas, oil, telephone, cable, and railroad signal cables or conduits within Southern California Regional Rail Authority (SCRRA) rail rights-of-way. Coordination and notification with utility service providers, as outlined in **Mitigation Measure U-1, U-2, and U-3**, would minimize interference with existing lines and interruption of service. With these measures, impacts would be less than significant. In brief, **Mitigation Measure U-1** coordinates the identification of existing and proposed buried facilities for relocation or avoidance; **U-2** outlines the process of notifying residents and businesses of service disruptions; and **U-3** requires hand excavation to avoid damage and interference with utilities.

Similar to the 2004 FEIR, the Proposed Project would construct reinforced pipes, catch basins, and other drainage structures to collect and transfer stormwater runoff to minimize flooding and other issues related to stormwater run-off. Although the Proposed Project will require connections to the existing water supply system, the project is in and of itself an upgrade to the existing water supply infrastructure. No new or expanded entitlements are necessary as part of the Proposed Project, as it would not require the use of water, but rather would improve the overall storm drain system in the Sun Valley Watershed, the environmental effects of which are evaluated throughout this addendum. As such, impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

(c) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to requiring or resulting in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The Valley Steam Plant and Power Line Easement components of the Approved Project involve construction of stormwater infiltration facilities near power line towers. If stormwater infiltration saturates the soil surrounding the towers and affects the stability of the power line towers, it could result in a significant impact on the electricity infrastructure. **Mitigation Measure U-6** would reduce this impact to a less than significant level by conducting a geotechnical investigation to assess the characteristics of the soil around the power line towers.

Consistent with the 2004 FEIR, the Proposed Project would incorporate **Mitigation Measures U-1, U-2, and U-3** to coordinate and notify utility service providers and minimize interference with existing lines and interruption of service. As such, impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

(d) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The Approved Project would not require new or expanded water supply sources or entitlements. Water conservation is one of the objectives of the approved project. Implementation of any of the four alternatives would result in substantial water conservation for the City of Los Angeles. Therefore, operation of the project would have a beneficial impact on existing water supply.

Similar to the 2004 FEIR, the Proposed Project would not require any connection to the existing potable water system. Therefore, no new or expanded water supply sources or entitlements would be required. No impacts would occur to the existing water supply of the project vicinity. No new or greater impacts would occur, and no new mitigation is required.

(e) Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

As analyzed in the 2004 FEIR, the Approved Project would only require minimal, if any, connection to the sewer system at park buildings, if any are constructed as part of the project components such as Sheldon Pit, Strathern Pit, or Cal Mat Pit. Therefore, operation of the project would have no impact on existing sewer or wastewater treatment systems.

The Proposed Project would construct reinforced pipes, catch basins, and other drainage structures to collect and transfer stormwater runoff to minimize flooding and other issues related to stormwater run-off. No new or expanded entitlements are necessary as part of the Proposed Project, as it would not require the use of water, but rather would improve the overall storm drain system in the Sun Valley Watershed. As such, impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to the following: (f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? (g) Comply with federal, state, and local statues and regulations related to solid waste?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

Construction waste generated as a result of implementation of project components would primarily include soil, asphalt, concrete, and rock. Since implementation of various Approved Project's components and associated construction waste generation would be phased over approximately ten years and since onsite reuse/redistribution of soil would reduce the net amount of construction waste, the Approved Project would result in a less than significant impact on landfill capacity. **Mitigation Measure U-4** will be implemented to further reduce impacts on solid waste by requiring contractors to identify and implement programs during construction.

Project components (i.e., Storm Drains, Street Storage, and Strathern Pit) within roadways may require lane closures. Temporary modifications to the existing solid waste collection routes may be required. These changes being temporary would be a less-than-significant impact. **Mitigation Measure U-5** would require the notification of the City of Los Angeles Bureau of Sanitation of construction schedule to further reduce project-related impacts on solid waste collection.

Solid waste generated during operation of the Approved Project would be limited to sediments removed periodically from the stormwater collection facilities during maintenance. In addition, solid waste generation from parks would result in minor increases in demand and would not exceed the existing capacity of area landfills. A mulching program would reduce the amount of solid waste stream going to landfills. The overall impact of project operation on the city's solid waste collection and disposal system would range from beneficial to less than significant.

Excavation, demolition, and other construction activities related to the Proposed Project would generate solid waste such as excavated soil, concrete, and asphalt. The nearest active landfill to the project area is the Bradley Landfill and Recycling Center. The long-term phasing of the 2004 FEIR found the Sun Valley Watershed Management Plan to have a less than significant impact on the local active landfill. For the Proposed Project, consistent with the 2004 FEIR, **Mitigation Measure U-4** would be incorporated bring any potential impacts to a less than significant level. As such, impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

Consistent with the 2004 FEIR, the Proposed Project would comply with all federal, state, and local statutes and regulations related to solid waste, including requirements for integrated waste management (e.g. recycling). As such, impacts would be less than significant. No new or greater impacts would occur, and no new mitigation is required.

3.20 MANDATORY FINDINGS OF SIGNIFICANCE

Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to the following: (a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☒	☒

The approved project sites are located in an urbanized area. The project is not expected to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, or threaten to eliminate a plant or animal community. Further analysis is located in the discussion on Biological Resources.

Air Quality

As discussed in the FEIR, impacts to air quality from construction are significant and would likely still exceed significance thresholds established by SCAQMD even with implementation of feasible mitigation measures. Construction impacts are dependent on the contractor and equipment choices, as well as project phasing.

Operation of the Proposed Project would result in minor, less than significant impacts on air quality and in beneficial impacts related to tree planting and mulching.

Biological Resources

As discussed in the FEIR, potential significant adverse impacts on biological resources may be present on the gravel pits which could not be surveyed. Subsequent analyses will be evaluated if disturbance to species from project construction were deemed significant. If sensitive resources are found, project re-design to avoid and protect the sensitive species will be the first consideration. However, depending on the location of sensitive resources at the sites, if any, project redesign that avoids the biological resources while still meeting the flood control objective of the project component may be infeasible.

Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to the following: (b) Does the project have impacts that are individually limited, but cumulatively considerable ("cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of the past projects, effects of other current projects, and the effects of probable future projects.)?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The 2004 FEIR identified that the Approved Project may create temporary cumulatively considerable air quality, noise, and traffic impacts related to construction activities when considered with other planned development. The project may also have a cumulatively considerable impact on groundwater quality in association with the existing Superfund sites in the San Fernando Valley groundwater basin. However, each related project listed in the 2004 FEIR (Sun Valley Park Multiuse Pilot Demonstration Project, Valley Steam Plant Combined-Cycle Generating Facility Installation, San Fernando Valley Superfund Site Remediation and Monitoring, Tujunga Spreading Grounds Methane Gas Migration Pilot Study, Bradley Landfill and Recycling Center Transition Master Plan) was found to be less than significant or limited in scope to the relevance of the approved project.

Potential cumulative effects on geology and soils were not considered to be significant. Cumulative impacts on groundwater quality could potentially occur from recharging stormwater into a groundwater basin with an ongoing VOC remediation. The importance of the approved project's potential cumulative impacts with the Superfund cleanup efforts was recognized early in the project analysis and was evaluated based on a groundwater modeling conducted by LADWP. The model predicted that no significant effects would occur on the existing VOC plume. Cumulative impacts, in regard to construction noise, were found to be potentially significant if concurrent with the operation of Bradley Landfill. Cumulative noise impacts of operation of the approved project with operation of the related projects are considered to be less than significant. The cumulative effect to recreation was found to be less than significant. The cumulative impact on traffic and transportation was anticipated to be less than significant.

Other than the significant impacts identified above, the 2004 FEIR did not identify any other impacts that would be individually limited, but cumulatively considerable. All impacts associated with the Proposed Project would not exceed those analyzed in the 2004 FEIR and therefore would not result in individually limited impacts that could be cumulatively considerable.

Does the proposed project require Subsequent or Supplemental CEQA Documentation with respect to the following: (c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		
	Yes	No
New Significant Environmental Effect Caused by a Change in the Project or Circumstances	☐	☒
Substantial Increase in the Severity of a Previously Identified Significant Effect Caused by a Change in the Project or Circumstances	☐	☒
New or Substantially More Severe Significant Impacts Shown by New Information	☐	☒
Ability to Substantially Reduce a Significant Effect Shown by New Information but Declined by Proponent	☐	☒

The Approved Project identified that there may be direct or indirect adverse impacts on humans. The 2004 FEIR found that the potential temporary impacts on humans resulting from the Approved Project are related to the following environmental issue areas: air quality, noise, and transportation and traffic. Other potential impact areas include geology and soils, hazards and hazardous materials, hydrology and water quality. Each topic area with potential impacts was further discussed in the specific sections. Potential impacts to air quality were found to exceed significance threshold areas, but mitigation has been identified.

These significant impacts have the potential to degrade the quality of the environment. No additional mitigation has been identified and there would be no new or greater impacts than those identified in the certified 2004 FEIR with respect to these issue areas. The Proposed Project would not increase impacts compared to those disclosed in the 2004 FEIR and therefore similarly would not substantially impact these issues.

3.21 CONCLUSION

The Proposed Project as described in Section 2 of this Addendum, would be within the assumptions analyzed in the 2004 FEIR. The Proposed Project has been reviewed by the District in light of Sections 15162, and 15163 and 15164 of the Guidelines. As the CEQA Lead Agency, the District has determined, based on the analysis presented herein, that none of the conditions (identified in Section 1) apply which would require preparation of a subsequent or supplemental EIR and that an Addendum to the certified Sun Valley Watershed FEIR is the appropriate environmental documentation under CEQA for the Proposed Project.

Section 3 discusses issue-by-issue how the impacts anticipated for the Proposed Project would be within those previously identified in the 2004 FEIR. The Mitigation Monitoring and Reporting Program (MMRP) adopted with the 2004 FEIR would continue to apply to the Proposed Project to ensure that all impacts are reduced as necessary and feasible.

As discussed throughout this Addendum, the Proposed Project would result in environmental impacts within those analyzed in the 2004 FEIR for every issue with implementation of applicable mitigation measures as included in the adopted MMRP for the Sun Valley Watershed project and described below in **Table 3-6, Applicable 2004 FEIR Mitigation Measures for the Proposed Project.**

Table 3-6
Applicable Adopted 2004 FEIR Mitigation Measures to the Proposed Project

Air Quality	
A-1	Clean dirt from construction vehicle tires and undercarriages when leaving the construction site and before entering local roadways.
A-2	During earth-moving activities, water the construction area as necessary, but at least twice per day.
A-3	Water temporary open storage piles once per hour or install temporary covers.
A-4	Water unpaved roadways three times per day or apply non-toxic soil stabilizers.
A-5	Limit construction vehicle speed on the project site to 15 miles per hour (mph) or less.
A-6	Cover dirt in trucks during on-road hauling.
A-7	Cease earth-moving activities on days when wind gusts exceed 25 mph or apply water to soil not more than 15 minutes prior to moving such soil.
A-8	Sweep streets near the construction area at the end of the day if visible soil material is present.
A-9	For applicable construction areas, establish a vegetative groundcover as soon as feasible after active operations have ceased. Groundcover will be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting.
A-10	Per SCAQMD Rule 403(f), large construction operations (greater than 100 acres of disturbed area or daily earth-moving or throughput volume of 10,000 cubic yards three times during the most recent 365-day period) will either 1) implement fugitive dust suppression measures as specified in Tables 1 and 2 of Rule 403, or 2) prepare a fugitive dust emissions control plan and obtain approval from SCAQMD.
A-11	Prohibit all vehicles from idling in excess of 10 minutes, both on and off-site.
A-12	Maintain construction equipment in proper tune.

A-13	Encourage contractors to establish trip reduction plans. The goal of these plans will be to achieve a 1.5 average vehicle ridership (AVR) for construction employees.
A-14	Select construction equipment with low pollutant emissions and high energy efficiency. Factors to consider include model year and alternative fuels (e.g., compressed natural gas, biodiesel, emulsified diesel, methanol, propane, butane, and low sulfur diesel).
Biological Resources	
B-5	If feasible, project activities with the potential to disturb native and non-native vegetation and man-made nesting structure shall take place outside of the breeding season (which generally runs from March 1 to August 31 and as early as February 1 for some raptors) for birds protected by the Migratory Bird Treaty Act. If project activities must occur during the breeding season of birds covered by the MBTA, then beginning 30 days prior to construction, weekly bird surveys shall be arranged. The surveys shall continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of clearance/construction work at the site. If a bird covered by the MBTA is detected on the site, then the nesting activity will be monitored to ensure that construction activities do not occur within 300 feet of the nest (500 feet for raptors) until the juvenile birds have fledged and no further nesting attempts are initiated.
Cultural Resources	
C-3	If previously unknown cultural resources are discovered in the course of excavation for project construction at any project site, the construction inspector shall have the authority and responsibility to halt construction until a qualified archaeologist can evaluate the significance and disturbance of the materials, and identify future activities needed. If the cultural material discovered is determined to be potential archaeological significance, the investigation and future activities shall be conducted in consultation with culturally affiliated Native American or other parties, as necessary.
C-4	If human remains are discovered in the course of excavation for project construction, the County Coroner shall be contacted and provisions of the *State CEQA Guidelines* Section 15064.5 would be followed.
Hazards and Hazardous Conditions	
H-1	During the detailed design phase of each project component (except Onsite BMPs, Tree Planting & Mulching, and Storm Drains), a Phase I Environmental Site Assessment (ESA) will be conducted to determine the site-specific potential for soil contamination. The Phase I ESA will be conducted in accordance with the latest version of the American Society of Testing and Materials (ASTM) 1527 "Standard Practice for Environmental Site Assessments: Phase I Environmental Assessment Process." This document outlines the customary practice for performing ESA's in the United States. Phase I ESA will consist of a review of site-specific documents and historical maps to determine past uses of the site, a site visit to visually inspect the property for signs of potential environmental contamination, and investigation of state and federal environmental regulatory databases (including those maintained by Regional Water Quality Control Board and Department of Toxic Substances Control) to identify recognized hazardous materials usage or spills. For project sites with infiltration, the boundary of the Phase I ESA will include parcels located within 500 feet of the project site boundary to identify active or abandoned landfills or other land uses with the potential for contaminated soils which would be incompatible with infiltration (to be cross-referenced with Mitigation Measure W-4; see Section 4.7.7). If the Phase I ESA concludes that there is no substantial potential for soil contamination, no further action would be required. If the Phase I ESA indicates that there is potential for soil to be contaminated, additional investigation (including soil sampling and analysis) will be conducted to determine the presence and extent of the contamination. If the proposed project would involve disturbance of soil in the contaminated area, soil would be removed and disposed of in compliance with applicable regulations at approved disposal sites.
Hydrology and Water Quality	
W-1	The construction contractor will develop and implement a Storm Water Pollution Prevention Plan (SWPPP) for all project components (except Onsite BMPs and Tree Planting and Mulching) that involve constructing, clearing, grading or excavation on areas over 1 acre in size. The following are possible measures to be incorporated into site-specific SWPPPs. Additional sample measures and guidelines for developing SWPPPs are available in California Stormwater Quality Association's Stormwater Best Management Practice Handbook – Construction (CASQA, 2003). Measures to reduce fugitive dust generated during construction (see Section 4.1.4 – Air Quality) will also minimize the potential for soil erosion. Install perimeter silt fences or hay bales. Stabilize soils through hydroseeding and use of soil stabilizers. Install temporary sedimentation basins. Conduct earth moving activities during the dry season (April through October), as feasible. Designate storage areas for construction materials, equipment, and maintenance supplies (e.g., fuels, lubricants, paints, solvents, adhesives) to keep these materials out of the rain and minimize contact with stormwater. Conduct regular inspections to ensure compliance with the SWPPP.

W-4	If the site-specific Phase I ESA (see **Mitigation Measure H-1**) indicates that an active or closed landfill (either municipal solid waste or inert construction waste) is located within 500 feet from the project site boundary, a site-specific geotechnical study will be conducted to: 1) characterize the extent and composition of landfill materials; 2) determine whether the landfill materials are releasing methane; 3) and estimate the potential mounding effect from the proposed stormwater infiltration. The results of the geotechnical study will be incorporated into the project design to minimize the potential for project infiltration to result in interaction between infiltrated stormwater and landfill materials or to impact landfill gas releases, if any. Potential design modifications include siting the infiltration facilities away from the landfill and/or partially lining the facilities to direct infiltration away from the landfill. For sites with stormwater infiltration within 500 feet of an active or closed landfill, a groundwater monitoring program will then be developed and implemented to ensure that infiltration does not result in interaction between infiltrated stormwater and landfill materials or impact landfill gas releases. Infiltration would cease at any site where groundwater levels rose to within 10 feet of landfill materials.
Noise	
N-1	Construction activities will be limited to the hours allowed by the City of Los Angeles Noise Ordinance (i.e., between 7 a.m. and 9 p.m. on weekdays and between 8 a.m. and 6 p.m. on Saturdays and national holidays) unless written permission has been obtained from the City of Los Angeles Board of Police Commissioners per Section 41.40 of the Los Angeles Municipal Code.
N-2	All mobile construction equipment will be equipped with properly operating mufflers or other noise reduction devices.
N-3	For discrete project component sites, businesses and residences immediately adjacent to the construction site will be notified prior to the start of construction, e.g., via flyers. A telephone number for noise complaints will be included in this notification.
N-4	Prior to the start of construction of the project components, the construction contractor will develop a site-specific noise mitigation plan based on an updated estimate of construction equipment and schedule for each project component. The objective of the mitigation plans will be to reduce noise levels to 75 dBA at the nearest residence and 67dBA at school sites during project construction. The mitigation plans will identify potential mitigation measures, including installation of sound walls, sound curtains, and other temporary sound barriers; selection of quieter construction procedures and/or equipment; and noise monitoring to verify adherence to the identified mitigation measures. Additional mitigation measures for construction at school sites (i.e., Roscoe Elementary School, Stonehurst Elementary School, and Sun Valley Middle School) will include the following: scheduling the noisier phases of construction on Saturdays, school vacation periods, and/or after regular class hours but before 9 p.m., as feasible; and maintaining ongoing communications with the schools' administrators to address any construction noise-related issues. Coordination with St. Patrick's School will also be conducted prior to the installation of storm drains near this location.
Public Services – Police, Fire, Schools, and Other Facilities	
P-1	Prior to the start of construction, the fire stations serving the project area will be consulted to review phasing, road/lane closure, and detour plans and to determine fire and emergency medical response requirements.
P-2	The project will comply with all state and local codes and ordinances, and the guidelines found in the Fire Protection and Fire Prevention Plan, and Safety Plan located in the City of Los Angeles General Plan (C.P.C. 19708)
P-3	Prior to the start of construction, the North Hollywood Community Police Station and/or Foothill Community Police Station will be informed, as appropriate, of project-related lane and/or road closures and detour plans.
P-4	Investigate and implement traffic control measures capable of reducing the temporary adverse effects to police and emergency vehicle responses during project construction. Such measures may include the use of flagmen and posting "No Parking" signs along the affected area.
P-5	Ensure that school buses have access to Sun Valley Middle School, Stonehurst Elementary School, Roscoe Elementary School, and St. Patrick's School during construction.
P-6	Ensure that safe and convenient pedestrian routes to Stonehurst, Roscoe, Sun Valley, and St. Patrick's Schools are maintained.
P-7	Maintain ongoing communication with the administrators of the schools and provide sufficient notice to forewarn children and parents when existing pedestrian and vehicular routes to school will be affected.
P-8	Install appropriate traffic controls (e.g., signs and signals) as needed to ensure pedestrian and vehicular safety.
P-9	As feasible, haul routes will not be routed past the schools except when school is not in session.
P-10	Construction or worker vehicles will not be parked or staged on streets adjacent to the schools.
P-11	All construction areas on or adjacent to schools, including trench areas, operating equipment areas and equipment staging and stockpile areas, will be secured through fencing or other barriers to prevent trespassing and reduce hazards to children and other pedestrians.

P-12	The Project Manager or designee will notify the LAUSD Transportation Branch and the St. Patrick's School of the excepted start and ending dates for various portions of the project that may affect traffic through the areas and any potential impact on existing school bus routes.
Transportation/Traffic	
T-1	A construction traffic management plan shall be developed for each project site that will include but not be limited to such measures as designated haul routes for construction-related traffic (e.g., construction equipment, pickup and dump trucks, and other material delivery trucks), travel time restrictions for construction-related traffic to avoid weekday peak periods on selected roadways, designated site access locations, driveway turning restrictions, temporary traffic controls and/or flaggers, and designated parking/staging locations for workers and equipment.
T-2	A construction area traffic control plan and/or detour plan shall be prepared for each location where construction activities would encroach into the right-of-way of a public roadway. The plan would include, but not be limited to such features as warning signs, lights, barricades, cones, lane closures, and restricted hours during which lane closures would not be allowed; e.g., 6:00 to 9:00 a.m. and 3:00 to 6:00 p.m., or as directed by the affected public agency (City of Los Angeles Department of Transportation for most locations).
T-3	Provide advance notification to affected property owners, businesses, residents, etc. of possible driveway blockages or other access obstructions and implement alternate access and parking provisions where necessary.
T-4	Provide alternative pedestrian and bicycle access/circulation routes where existing facilities such as sidewalks, crosswalks, and bike lanes would be obstructed.
T-5	Coordinate with emergency service providers (police, fire, and ambulance/paramedic agencies) prior to construction to provide information regarding lane closures, construction schedules, driveway blockages, etc. and to develop a plan to maintain or accommodate essential emergency access routes; e.g., plating over excavations, use of detours, etc.
T-6	Coordinate with public transit agencies (e.g., MTA) to provide information regarding lane closures, bus stop disruptions, etc. and to designate alternate pick-up/drop-off locations if appropriate.
T-7	As necessary, obtain a transportation permit from Caltrans for transportation of heavy construction equipment and/or materials which requires the use of oversized-transport vehicles on State highways.
Utilities and Service Systems	
U-1	During the preliminary design phase of each project component, the utility service providers will be consulted to identify existing and proposed buried facilities in affected roadways and to determine which utilities require relocation and which can be avoided. If relocation is required, the appropriate utility service provider will be consulted to sequence construction activities to avoid or minimize interruptions in service.
U-2	If utility service disruption is necessary, residents and businesses in the project area will be notified a minimum of two to four days prior to service disruption through local newspapers, direct mailings to affected parties, or public posting of notices.
U-3	The contractor will be required to excavate around utilities, including hand excavation as necessary, to avoid damage and to minimize interference with safe operation and use. Hand tools must be used to expose the exact location of buried gas or electric utilities.
U-4	The plans and specifications for the proposed project will state that the construction contractor is required to identify and implement programs for minimizing solid waste generated during construction. These programs will include, at a minimum, recycling of asphalt and concrete paving materials, and balance of graded soil on site to the maximum extent feasible.
U-5	Prior to construction, the City of Los Angeles Bureau of Sanitation will be notified of the construction schedule and planned lane or road closures so that solid waste collection routes and access in the area may be modified accordingly.

Source: Los Angeles County Department of Public Works, 2004 FEIR Sun Valley Watershed Management Plan

APPENDIX A

Construction Emissions Calculations

Sun Valley PW Storm Drain Phase 1

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.00	Acre	2.00	87,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 1 - Los Angeles-South Coast County, Annual

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Applicant's anticipated construction duration of 180 days for Phase 1.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstructionPhase	NumDays	20.00	18.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	2.00	35.00
tblConstructionPhase	PhaseEndDate	1/5/2021	8/7/2020
tblConstructionPhase	PhaseEndDate	3/27/2020	3/25/2020
tblConstructionPhase	PhaseEndDate	1/19/2021	8/28/2020
tblConstructionPhase	PhaseEndDate	3/31/2020	5/13/2020

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tblConstructionPhase	PhaseEndDate	3/31/2020	5/13/2020
tblConstructionPhase	PhaseStartDate	4/1/2020	5/14/2020
tblConstructionPhase	PhaseStartDate	1/6/2021	8/8/2020
tblConstructionPhase	PhaseStartDate	3/28/2020	3/26/2020
tblConstructionPhase	PhaseStartDate	4/1/2020	3/26/2020
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	MaterialExported	0.00	6,600.00
tblGrading	MaterialSiltContent	6.90	4.30
tblGrading	MeanVehicleSpeed	7.10	40.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
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tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	14.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.1467	1.4795	1.2668	2.7500e-003	0.0850	0.0676	0.1526	0.0199	0.0644	0.0842	0.0000	245.1899	245.1899	0.0444	0.0000	246.3003
Maximum	**0.1467**	**1.4795**	**1.2668**	**2.7500e-003**	**0.0850**	**0.0676**	**0.1526**	**0.0199**	**0.0644**	**0.0842**	**0.0000**	**245.1899**	**245.1899**	**0.0444**	**0.0000**	**246.3003**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0611	1.2064	1.4652	2.7500e-003	0.0507	0.0619	0.1126	0.0125	0.0619	0.0744	0.0000	245.1897	245.1897	0.0444	0.0000	246.3001
Maximum	**0.0611**	**1.2064**	**1.4652**	**2.7500e-003**	**0.0507**	**0.0619**	**0.1126**	**0.0125**	**0.0619**	**0.0744**	**0.0000**	**245.1897**	**245.1897**	**0.0444**	**0.0000**	**246.3001**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**58.37**	**18.46**	**-15.66**	**0.00**	**40.29**	**8.44**	**26.18**	**37.02**	**3.85**	**11.68**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-1-2020	5-31-2020	0.8402	0.6829
2	6-1-2020	8-31-2020	0.7722	0.5729
		Highest	0.8402	0.6829

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.8500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8500e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.8500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8500e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

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

3.0 Construction Detail

Construction Phase

Sun Valley PW Storm Drain Phase 1 - Los Angeles-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2020	3/25/2020	5	18	
2	Site Preparation	Site Preparation	3/26/2020	5/13/2020	5	35	
3	Trenching	Trenching	3/26/2020	5/13/2020	5	35	
4	Building Construction	Building Construction	5/14/2020	8/7/2020	5	62	
5	Paving	Paving	8/8/2020	8/28/2020	5	15	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 0

Acres of Paving: 2

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37

Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	5	13.00	0.00	198.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	825.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0214	0.0000	0.0214	3.2400e-003	0.0000	3.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0112	0.1268	0.0830	1.9000e-004		5.4400e-003	5.4400e-003		5.0100e-003	5.0100e-003	0.0000	16.4275	16.4275	5.3100e-003	0.0000	16.5603
Total	**0.0112**	**0.1268**	**0.0830**	**1.9000e-004**	**0.0214**	**5.4400e-003**	**0.0268**	**3.2400e-003**	**5.0100e-003**	**8.2500e-003**	**0.0000**	**16.4275**	**16.4275**	**5.3100e-003**	**0.0000**	**16.5603**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.7000e-004	0.0294	6.4800e-003	8.0000e-005	1.7000e-003	9.0000e-005	1.7900e-003	4.7000e-004	9.0000e-005	5.5000e-004	0.0000	7.6307	7.6307	5.3000e-004	0.0000	7.6440
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	5.4000e-004	4.4000e-004	4.8200e-003	1.0000e-005	1.2800e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.1950	1.1950	4.0000e-005	0.0000	1.1959
Total	**1.4100e-003**	**0.0298**	**0.0113**	**9.0000e-005**	**2.9800e-003**	**1.0000e-004**	**3.0800e-003**	**8.1000e-004**	**1.0000e-004**	**9.0000e-004**	**0.0000**	**8.8257**	**8.8257**	**5.7000e-004**	**0.0000**	**8.8400**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					8.1900e-003	0.0000	8.1900e-003	1.2400e-003	0.0000	1.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.6100e-003	0.0955	0.1166	1.9000e-004		4.9600e-003	4.9600e-003		4.9600e-003	4.9600e-003	0.0000	16.4275	16.4275	5.3100e-003	0.0000	16.5603
Total	**4.6100e-003**	**0.0955**	**0.1166**	**1.9000e-004**	**8.1900e-003**	**4.9600e-003**	**0.0132**	**1.2400e-003**	**4.9600e-003**	**6.2000e-003**	**0.0000**	**16.4275**	**16.4275**	**5.3100e-003**	**0.0000**	**16.5603**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.7000e-004	0.0294	6.4800e-003	8.0000e-005	1.7000e-003	9.0000e-005	1.7900e-003	4.7000e-004	9.0000e-005	5.5000e-004	0.0000	7.6307	7.6307	5.3000e-004	0.0000	7.6440
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	5.4000e-004	4.4000e-004	4.8200e-003	1.0000e-005	1.2800e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.1950	1.1950	4.0000e-005	0.0000	1.1959
Total	**1.4100e-003**	**0.0298**	**0.0113**	**9.0000e-005**	**2.9800e-003**	**1.0000e-004**	**3.0800e-003**	**8.1000e-004**	**1.0000e-004**	**9.0000e-004**	**0.0000**	**8.8257**	**8.8257**	**5.7000e-004**	**0.0000**	**8.8400**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0340	0.0000	0.0340	8.6800e-003	0.0000	8.6800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0340**	**0.0000**	**0.0340**	**8.6800e-003**	**0.0000**	**8.6800e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.6400e-003	0.1225	0.0270	3.2000e-004	7.0900e-003	3.8000e-004	7.4700e-003	1.9500e-003	3.6000e-004	2.3100e-003	0.0000	31.7948	31.7948	2.2100e-003	0.0000	31.8501
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.6400e-003**	**0.1225**	**0.0270**	**3.2000e-004**	**7.0900e-003**	**3.8000e-004**	**7.4700e-003**	**1.9500e-003**	**3.6000e-004**	**2.3100e-003**	**0.0000**	**31.7948**	**31.7948**	**2.2100e-003**	**0.0000**	**31.8501**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					0.0130	0.0000	0.0130	3.3200e-003	0.0000	3.3200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0130**	**0.0000**	**0.0130**	**3.3200e-003**	**0.0000**	**3.3200e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.6400e-003	0.1225	0.0270	3.2000e-004	7.0900e-003	3.8000e-004	7.4700e-003	1.9500e-003	3.6000e-004	2.3100e-003	0.0000	31.7948	31.7948	2.2100e-003	0.0000	31.8501
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.6400e-003**	**0.1225**	**0.0270**	**3.2000e-004**	**7.0900e-003**	**3.8000e-004**	**7.4700e-003**	**1.9500e-003**	**3.6000e-004**	**2.3100e-003**	**0.0000**	**31.7948**	**31.7948**	**2.2100e-003**	**0.0000**	**31.8501**

3.4 Trenching - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0304	0.3311	0.2757	5.4000e-004		0.0147	0.0147		0.0135	0.0135	0.0000	47.8219	47.8219	0.0155	0.0000	48.2085
Total	**0.0304**	**0.3311**	**0.2757**	**5.4000e-004**		**0.0147**	**0.0147**		**0.0135**	**0.0135**	**0.0000**	**47.8219**	**47.8219**	**0.0155**	**0.0000**	**48.2085**

3.4 Trenching - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9000e-004	0.0266	7.1900e-003	6.0000e-005	1.5400e-003	1.2000e-004	1.6700e-003	4.5000e-004	1.2000e-004	5.6000e-004	0.0000	6.0864	6.0864	3.9000e-004	0.0000	6.0961
Worker	1.4500e-003	1.1700e-003	0.0130	4.0000e-005	3.4500e-003	3.0000e-005	3.4800e-003	9.2000e-004	3.0000e-005	9.4000e-004	0.0000	3.2173	3.2173	1.0000e-004	0.0000	3.2198
Total	**2.3400e-003**	**0.0277**	**0.0202**	**1.0000e-004**	**4.9900e-003**	**1.5000e-004**	**5.1500e-003**	**1.3700e-003**	**1.5000e-004**	**1.5000e-003**	**0.0000**	**9.3037**	**9.3037**	**4.9000e-004**	**0.0000**	**9.3159**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0134	0.2717	0.3639	5.4000e-004		0.0138	0.0138		0.0138	0.0138	0.0000	47.8218	47.8218	0.0155	0.0000	48.2085
Total	**0.0134**	**0.2717**	**0.3639**	**5.4000e-004**		**0.0138**	**0.0138**		**0.0138**	**0.0138**	**0.0000**	**47.8218**	**47.8218**	**0.0155**	**0.0000**	**48.2085**

3.4 Trenching - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.9000e-004	0.0266	7.1900e-003	6.0000e-005	1.5400e-003	1.2000e-004	1.6700e-003	4.5000e-004	1.2000e-004	5.6000e-004	0.0000	6.0864	6.0864	3.9000e-004	0.0000	6.0961
Worker	1.4500e-003	1.1700e-003	0.0130	4.0000e-005	3.4500e-003	3.0000e-005	3.4800e-003	9.2000e-004	3.0000e-005	9.4000e-004	0.0000	3.2173	3.2173	1.0000e-004	0.0000	3.2198
Total	**2.3400e-003**	**0.0277**	**0.0202**	**1.0000e-004**	**4.9900e-003**	**1.5000e-004**	**5.1500e-003**	**1.3700e-003**	**1.5000e-004**	**1.5000e-003**	**0.0000**	**9.3037**	**9.3037**	**4.9000e-004**	**0.0000**	**9.3159**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0743	0.6855	0.6312	1.0900e-003		0.0379	0.0379		0.0366	0.0366	0.0000	94.4106	94.4106	0.0160	0.0000	94.8101
Total	**0.0743**	**0.6855**	**0.6312**	**1.0900e-003**		**0.0379**	**0.0379**		**0.0366**	**0.0366**	**0.0000**	**94.4106**	**94.4106**	**0.0160**	**0.0000**	**94.8101**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	5.2900e-003	4.2700e-003	0.0472	1.3000e-004	0.0126	1.1000e-004	0.0127	3.3400e-003	1.0000e-004	3.4400e-003	0.0000	11.7149	11.7149	3.7000e-004	0.0000	11.7241
Total	**5.2900e-003**	**4.2700e-003**	**0.0472**	**1.3000e-004**	**0.0126**	**1.1000e-004**	**0.0127**	**3.3400e-003**	**1.0000e-004**	**3.4400e-003**	**0.0000**	**11.7149**	**11.7149**	**3.7000e-004**	**0.0000**	**11.7241**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0238	0.5270	0.6921	1.0900e-003		0.0342	0.0342		0.0342	0.0342	0.0000	94.4105	94.4105	0.0160	0.0000	94.8100
Total	**0.0238**	**0.5270**	**0.6921**	**1.0900e-003**		**0.0342**	**0.0342**		**0.0342**	**0.0342**	**0.0000**	**94.4105**	**94.4105**	**0.0160**	**0.0000**	**94.8100**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	5.2900e-003	4.2700e-003	0.0472	1.3000e-004	0.0126	1.1000e-004	0.0127	3.3400e-003	1.0000e-004	3.4400e-003	0.0000	11.7149	11.7149	3.7000e-004	0.0000	11.7241
Total	**5.2900e-003**	**4.2700e-003**	**0.0472**	**1.3000e-004**	**0.0126**	**1.1000e-004**	**0.0127**	**3.3400e-003**	**1.0000e-004**	**3.4400e-003**	**0.0000**	**11.7149**	**11.7149**	**3.7000e-004**	**0.0000**	**11.7241**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0173	0.1512	0.1641	2.7000e-004		8.8300e-003	8.8300e-003		8.5400e-003	8.5400e-003	0.0000	23.1290	23.1290	3.9600e-003	0.0000	23.2280
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0173**	**0.1512**	**0.1641**	**2.7000e-004**		**8.8300e-003**	**8.8300e-003**		**8.5400e-003**	**8.5400e-003**	**0.0000**	**23.1290**	**23.1290**	**3.9600e-003**	**0.0000**	**23.2280**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	8.0000e-004	6.4000e-004	7.1000e-003	2.0000e-005	1.8900e-003	2.0000e-005	1.9100e-003	5.0000e-004	1.0000e-005	5.2000e-004	0.0000	1.7618	1.7618	6.0000e-005	0.0000	1.7632
Total	**8.0000e-004**	**6.4000e-004**	**7.1000e-003**	**2.0000e-005**	**1.8900e-003**	**2.0000e-005**	**1.9100e-003**	**5.0000e-004**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**1.7618**	**1.7618**	**6.0000e-005**	**0.0000**	**1.7632**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	5.8300e-003	0.1272	0.1799	2.7000e-004		8.2000e-003	8.2000e-003		8.2000e-003	8.2000e-003	0.0000	23.1289	23.1289	3.9600e-003	0.0000	23.2279
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.8300e-003**	**0.1272**	**0.1799**	**2.7000e-004**		**8.2000e-003**	**8.2000e-003**		**8.2000e-003**	**8.2000e-003**	**0.0000**	**23.1289**	**23.1289**	**3.9600e-003**	**0.0000**	**23.2279**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	8.0000e-004	6.4000e-004	7.1000e-003	2.0000e-005	1.8900e-003	2.0000e-005	1.9100e-003	5.0000e-004	1.0000e-005	5.2000e-004	0.0000	1.7618	1.7618	6.0000e-005	0.0000	1.7632
Total	**8.0000e-004**	**6.4000e-004**	**7.1000e-003**	**2.0000e-005**	**1.8900e-003**	**2.0000e-005**	**1.9100e-003**	**5.0000e-004**	**1.0000e-005**	**5.2000e-004**	**0.0000**	**1.7618**	**1.7618**	**6.0000e-005**	**0.0000**	**1.7632**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

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

5.3 Energy by Land Use - Electricity

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.8500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Unmitigated	6.8500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.6300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Total	**6.8400e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.6300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Total	**6.8400e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

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

7.2 Water by Land Use

Mitigated

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 1

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.00	Acre	2.00	87,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 1 - Los Angeles-South Coast County, Summer

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Applicant's anticipated construction duration of 180 days for Phase 1.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	200.00	62.00
tblConstructionPhase	NumDays	20.00	18.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	2.00	35.00
tblConstructionPhase	PhaseEndDate	1/5/2021	8/7/2020
tblConstructionPhase	PhaseEndDate	3/27/2020	3/25/2020
tblConstructionPhase	PhaseEndDate	1/19/2021	8/28/2020
tblConstructionPhase	PhaseEndDate	3/31/2020	5/13/2020

tblConstructionPhase	PhaseEndDate	3/31/2020	5/13/2020
tblConstructionPhase	PhaseStartDate	4/1/2020	5/14/2020
tblConstructionPhase	PhaseStartDate	1/6/2021	8/8/2020
tblConstructionPhase	PhaseStartDate	3/28/2020	3/26/2020
tblConstructionPhase	PhaseStartDate	4/1/2020	3/26/2020
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	MaterialExported	0.00	6,600.00
tblGrading	MaterialSiltContent	6.90	4.30
tblGrading	MeanVehicleSpeed	7.10	40.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	14.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	2.5665	27.2430	22.8909	0.0555	2.7153	1.2263	3.5168	0.6883	1.1832	1.4889	0.0000	5,629.1152	5,629.1152	1.1419	0.0000	5,657.6622
Maximum	**2.5665**	**27.2430**	**22.8909**	**0.0555**	**2.7153**	**1.2263**	**3.5168**	**0.6883**	**1.1832**	**1.4889**	**0.0000**	**5,629.1152**	**5,629.1152**	**1.1419**	**0.0000**	**5,657.6622**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	1.1048	23.8509	24.9928	0.0555	1.4468	1.1065	2.2657	0.3819	1.1062	1.2159	0.0000	5,629.1152	5,629.1152	1.1419	0.0000	5,657.6622
Maximum	**1.1048**	**23.8509**	**24.9928**	**0.0555**	**1.4468**	**1.1065**	**2.2657**	**0.3819**	**1.1062**	**1.2159**	**0.0000**	**5,629.1152**	**5,629.1152**	**1.1419**	**0.0000**	**5,657.6622**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**56.95**	**12.45**	**-9.18**	**0.00**	**46.72**	**9.77**	**35.57**	**44.51**	**6.51**	**18.34**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0375	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0375**	**0.0000**	**2.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.7000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0375	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0375**	**0.0000**	**2.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.7000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2020	3/25/2020	5	18	
2	Site Preparation	Site Preparation	3/26/2020	5/13/2020	5	35	
3	Trenching	Trenching	3/26/2020	5/13/2020	5	35	
4	Building Construction	Building Construction	5/14/2020	8/7/2020	5	62	
5	Paving	Paving	8/8/2020	8/28/2020	5	15	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 0

Acres of Paving: 2

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	5	13.00	0.00	198.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	825.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3777	0.0000	2.3777	0.3600	0.0000	0.3600			0.0000			0.0000
Off-Road	1.2471	14.0918	9.2203	0.0208		0.6050	0.6050		0.5566	0.5566		2,012.0256	2,012.0256	0.6507		2,028.2938
Total	**1.2471**	**14.0918**	**9.2203**	**0.0208**	**2.3777**	**0.6050**	**2.9827**	**0.3600**	**0.5566**	**0.9166**		**2,012.0256**	**2,012.0256**	**0.6507**		**2,028.2938**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0961	3.1630	0.7009	8.6900e-003	0.1923	0.0101	0.2024	0.0527	9.6600e-003	0.0624		941.4150	941.4150	0.0641		943.0170
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	0.0598	0.0426	0.5692	1.5400e-003	0.1453	1.2100e-003	0.1465	0.0385	1.1200e-003	0.0397		152.8947	152.8947	4.8200e-003		153.0152
Total	**0.1559**	**3.2055**	**1.2701**	**0.0102**	**0.3376**	**0.0113**	**0.3489**	**0.0913**	**0.0108**	**0.1020**		**1,094.3097**	**1,094.3097**	**0.0689**		**1,096.0322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.9095	0.0000	0.9095	0.1377	0.0000	0.1377			0.0000			0.0000
Off-Road	0.5122	10.6116	12.9559	0.0208		0.5514	0.5514		0.5514	0.5514	0.0000	2,012.0256	2,012.0256	0.6507		2,028.2938
Total	**0.5122**	**10.6116**	**12.9559**	**0.0208**	**0.9095**	**0.5514**	**1.4608**	**0.1377**	**0.5514**	**0.6891**	**0.0000**	**2,012.0256**	**2,012.0256**	**0.6507**		**2,028.2938**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0961	3.1630	0.7009	8.6900e-003	0.1923	0.0101	0.2024	0.0527	9.6600e-003	0.0624		941.4150	941.4150	0.0641		943.0170
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	0.0598	0.0426	0.5692	1.5400e-003	0.1453	1.2100e-003	0.1465	0.0385	1.1200e-003	0.0397		152.8947	152.8947	4.8200e-003		153.0152
Total	**0.1559**	**3.2055**	**1.2701**	**0.0102**	**0.3376**	**0.0113**	**0.3489**	**0.0913**	**0.0108**	**0.1020**		**1,094.3097**	**1,094.3097**	**0.0689**		**1,096.0322**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9448	0.0000	1.9448	0.4962	0.0000	0.4962			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.9448**	**0.0000**	**1.9448**	**0.4962**	**0.0000**	**0.4962**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2059	6.7778	1.5019	0.0186	0.4121	0.0216	0.4338	0.1130	0.0207	0.1337		2,017.3179	2,017.3179	0.1373		2,020.7506
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2059**	**6.7778**	**1.5019**	**0.0186**	**0.4121**	**0.0216**	**0.4338**	**0.1130**	**0.0207**	**0.1337**		**2,017.3179**	**2,017.3179**	**0.1373**		**2,020.7506**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.7439	0.0000	0.7439	0.1898	0.0000	0.1898			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.7439**	**0.0000**	**0.7439**	**0.1898**	**0.0000**	**0.1898**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2059	6.7778	1.5019	0.0186	0.4121	0.0216	0.4338	0.1130	0.0207	0.1337		2,017.3179	2,017.3179	0.1373		2,020.7506
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2059**	**6.7778**	**1.5019**	**0.0186**	**0.4121**	**0.0216**	**0.4338**	**0.1130**	**0.0207**	**0.1337**		**2,017.3179**	**2,017.3179**	**0.1373**		**2,020.7506**

3.4 Trenching - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7370	18.9171	15.7559	0.0311		0.8387	0.8387		0.7716	0.7716		3,012.2624	3,012.2624	0.9742		3,036.6181
Total	**1.7370**	**18.9171**	**15.7559**	**0.0311**		**0.8387**	**0.8387**		**0.7716**	**0.7716**		**3,012.2624**	**3,012.2624**	**0.9742**		**3,036.6181**

3.4 Trenching - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0498	1.4892	0.3902	3.6300e-003	0.0896	7.0100e-003	0.0966	0.0258	6.7000e-003	0.0325		387.8346	387.8346	0.0237		388.4263
Worker	0.0828	0.0589	0.7881	2.1300e-003	0.2012	1.6800e-003	0.2029	0.0534	1.5500e-003	0.0549		211.7003	211.7003	6.6700e-003		211.8672
Total	**0.1326**	**1.5481**	**1.1783**	**5.7600e-003**	**0.2908**	**8.6900e-003**	**0.2995**	**0.0792**	**8.2500e-003**	**0.0874**		**599.5349**	**599.5349**	**0.0303**		**600.2934**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7663	15.5250	20.7919	0.0311		0.7886	0.7886		0.7886	0.7886	0.0000	3,012.2624	3,012.2624	0.9742		3,036.6181
Total	**0.7663**	**15.5250**	**20.7919**	**0.0311**		**0.7886**	**0.7886**		**0.7886**	**0.7886**	**0.0000**	**3,012.2624**	**3,012.2624**	**0.9742**		**3,036.6181**

3.4 Trenching - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0498	1.4892	0.3902	3.6300e-003	0.0896	7.0100e-003	0.0966	0.0258	6.7000e-003	0.0325		387.8346	387.8346	0.0237		388.4263
Worker	0.0828	0.0589	0.7881	2.1300e-003	0.2012	1.6800e-003	0.2029	0.0534	1.5500e-003	0.0549		211.7003	211.7003	6.6700e-003		211.8672
Total	**0.1326**	**1.5481**	**1.1783**	**5.7600e-003**	**0.2908**	**8.6900e-003**	**0.2995**	**0.0792**	**8.2500e-003**	**0.0874**		**599.5349**	**599.5349**	**0.0303**		**600.2934**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3962	22.1116	20.3597	0.0351		1.2228	1.2228		1.1801	1.1801		3,357.0926	3,357.0926	0.5683		3,371.2998
Total	**2.3962**	**22.1116**	**20.3597**	**0.0351**		**1.2228**	**1.2228**		**1.1801**	**1.1801**		**3,357.0926**	**3,357.0926**	**0.5683**		**3,371.2998**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1703	0.1211	1.6200	4.3700e-003	0.4136	3.4600e-003	0.4170	0.1097	3.1900e-003	0.1129		435.1618	435.1618	0.0137		435.5048
Total	**0.1703**	**0.1211**	**1.6200**	**4.3700e-003**	**0.4136**	**3.4600e-003**	**0.4170**	**0.1097**	**3.1900e-003**	**0.1129**		**435.1618**	**435.1618**	**0.0137**		**435.5048**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7662	16.9985	22.3246	0.0351		1.1030	1.1030		1.1030	1.1030	0.0000	3,357.0926	3,357.0926	0.5683		3,371.2998
Total	**0.7662**	**16.9985**	**22.3246**	**0.0351**		**1.1030**	**1.1030**		**1.1030**	**1.1030**	**0.0000**	**3,357.0926**	**3,357.0926**	**0.5683**		**3,371.2998**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1703	0.1211	1.6200	4.3700e-003	0.4136	3.4600e-003	0.4170	0.1097	3.1900e-003	0.1129		435.1618	435.1618	0.0137		435.5048
Total	**0.1703**	**0.1211**	**1.6200**	**4.3700e-003**	**0.4136**	**3.4600e-003**	**0.4170**	**0.1097**	**3.1900e-003**	**0.1129**		**435.1618**	**435.1618**	**0.0137**		**435.5048**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3127	20.1637	21.8838	0.0356		1.1776	1.1776		1.1385	1.1385		3,399.3768	3,399.3768	0.5820		3,413.9258
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3127**	**20.1637**	**21.8838**	**0.0356**		**1.1776**	**1.1776**		**1.1385**	**1.1385**		**3,399.3768**	**3,399.3768**	**0.5820**		**3,413.9258**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1059	0.0753	1.0070	2.7200e-003	0.2571	2.1500e-003	0.2592	0.0682	1.9800e-003	0.0702		270.5060	270.5060	8.5300e-003		270.7192
Total	**0.1059**	**0.0753**	**1.0070**	**2.7200e-003**	**0.2571**	**2.1500e-003**	**0.2592**	**0.0682**	**1.9800e-003**	**0.0702**		**270.5060**	**270.5060**	**8.5300e-003**		**270.7192**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7779	16.9657	23.9858	0.0356		1.0929	1.0929		1.0929	1.0929	0.0000	3,399.3767	3,399.3767	0.5820		3,413.9258
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7779**	**16.9657**	**23.9858**	**0.0356**		**1.0929**	**1.0929**		**1.0929**	**1.0929**	**0.0000**	**3,399.3767**	**3,399.3767**	**0.5820**		**3,413.9258**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1059	0.0753	1.0070	2.7200e-003	0.2571	2.1500e-003	0.2592	0.0682	1.9800e-003	0.0702		270.5060	270.5060	8.5300e-003		270.7192
Total	**0.1059**	**0.0753**	**1.0070**	**2.7200e-003**	**0.2571**	**2.1500e-003**	**0.2592**	**0.0682**	**1.9800e-003**	**0.0702**		**270.5060**	**270.5060**	**8.5300e-003**		**270.7192**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0375	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Unmitigated	0.0375	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0309					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Total	**0.0375**	**0.0000**	**2.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**		**4.7000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0309					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Total	**0.0375**	**0.0000**	**2.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**		**4.7000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 1

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.00	Acre	2.00	87,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 1 - Los Angeles-South Coast County, Winter

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Applicant's anticipated construction duration of 180 days for Phase 1.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00

Sun Valley PW Storm Drain Phase 1 - Los Angeles-South Coast County, Winter

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	200.00	62.00
tblConstructionPhase	NumDays	20.00	18.00
tblConstructionPhase	NumDays	10.00	15.00
tblConstructionPhase	NumDays	2.00	35.00
tblConstructionPhase	PhaseEndDate	1/5/2021	8/7/2020
tblConstructionPhase	PhaseEndDate	3/27/2020	3/25/2020
tblConstructionPhase	PhaseEndDate	1/19/2021	8/28/2020
tblConstructionPhase	PhaseEndDate	3/31/2020	5/13/2020

Sun Valley PW Storm Drain Phase 1 - Los Angeles-South Coast County, Winter

tblConstructionPhase	PhaseEndDate	3/31/2020	5/13/2020
tblConstructionPhase	PhaseStartDate	4/1/2020	5/14/2020
tblConstructionPhase	PhaseStartDate	1/6/2021	8/8/2020
tblConstructionPhase	PhaseStartDate	3/28/2020	3/26/2020
tblConstructionPhase	PhaseStartDate	4/1/2020	3/26/2020
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	MaterialExported	0.00	6,600.00
tblGrading	MaterialSiltContent	6.90	4.30
tblGrading	MeanVehicleSpeed	7.10	40.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	14.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	2.5853	27.3367	22.8062	0.0549	2.7153	1.2263	3.5172	0.6883	1.1832	1.4893	0.0000	5,571.4057	5,571.4057	1.1480	0.0000	5,600.1066
Maximum	**2.5853**	**27.3367**	**22.8062**	**0.0549**	**2.7153**	**1.2263**	**3.5172**	**0.6883**	**1.1832**	**1.4893**	**0.0000**	**5,571.4057**	**5,571.4057**	**1.1480**	**0.0000**	**5,600.1066**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	1.1212	23.9446	24.9081	0.0549	1.4468	1.1065	2.2662	0.3819	1.1062	1.2159	0.0000	5,571.4057	5,571.4057	1.1480	0.0000	5,600.1066
Maximum	**1.1212**	**23.9446**	**24.9081**	**0.0549**	**1.4468**	**1.1065**	**2.2662**	**0.3819**	**1.1062**	**1.2159**	**0.0000**	**5,571.4057**	**5,571.4057**	**1.1480**	**0.0000**	**5,600.1066**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**56.63**	**12.41**	**-9.22**	**0.00**	**46.72**	**9.77**	**35.57**	**44.51**	**6.51**	**18.36**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0375	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0375**	**0.0000**	**2.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.7000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0375	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0375**	**0.0000**	**2.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.7000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2020	3/25/2020	5	18	
2	Site Preparation	Site Preparation	3/26/2020	5/13/2020	5	35	
3	Trenching	Trenching	3/26/2020	5/13/2020	5	35	
4	Building Construction	Building Construction	5/14/2020	8/7/2020	5	62	
5	Paving	Paving	8/8/2020	8/28/2020	5	15	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 0

Acres of Paving: 2

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	5	13.00	0.00	198.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	825.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3777	0.0000	2.3777	0.3600	0.0000	0.3600			0.0000			0.0000
Off-Road	1.2471	14.0918	9.2203	0.0208		0.6050	0.6050		0.5566	0.5566		2,012.0256	2,012.0256	0.6507		2,028.2938
Total	**1.2471**	**14.0918**	**9.2203**	**0.0208**	**2.3777**	**0.6050**	**2.9827**	**0.3600**	**0.5566**	**0.9166**		**2,012.0256**	**2,012.0256**	**0.6507**		**2,028.2938**

3.2 Demolition - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0984	3.2039	0.7449	8.5400e-003	0.1923	0.0103	0.2026	0.0527	9.8100e-003	0.0625		925.2035	925.2035	0.0664		926.8637
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	0.0664	0.0471	0.5213	1.4500e-003	0.1453	1.2100e-003	0.1465	0.0385	1.1200e-003	0.0397		143.9647	143.9647	4.5400e-003		144.0781
Total	**0.1649**	**3.2510**	**1.2662**	**9.9900e-003**	**0.3376**	**0.0115**	**0.3491**	**0.0913**	**0.0109**	**0.1022**		**1,069.1681**	**1,069.1681**	**0.0710**		**1,070.9418**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.9095	0.0000	0.9095	0.1377	0.0000	0.1377			0.0000			0.0000
Off-Road	0.5122	10.6116	12.9559	0.0208		0.5514	0.5514		0.5514	0.5514	0.0000	2,012.0256	2,012.0256	0.6507		2,028.2938
Total	**0.5122**	**10.6116**	**12.9559**	**0.0208**	**0.9095**	**0.5514**	**1.4608**	**0.1377**	**0.5514**	**0.6891**	**0.0000**	**2,012.0256**	**2,012.0256**	**0.6507**		**2,028.2938**

3.2 Demolition - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0984	3.2039	0.7449	8.5400e-003	0.1923	0.0103	0.2026	0.0527	9.8100e-003	0.0625		925.2035	925.2035	0.0664		926.8637
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	0.0664	0.0471	0.5213	1.4500e-003	0.1453	1.2100e-003	0.1465	0.0385	1.1200e-003	0.0397		143.9647	143.9647	4.5400e-003		144.0781
Total	**0.1649**	**3.2510**	**1.2662**	**9.9900e-003**	**0.3376**	**0.0115**	**0.3491**	**0.0913**	**0.0109**	**0.1022**		**1,069.1681**	**1,069.1681**	**0.0710**		**1,070.9418**

3.3 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9448	0.0000	1.9448	0.4962	0.0000	0.4962			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.9448**	**0.0000**	**1.9448**	**0.4962**	**0.0000**	**0.4962**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2109	6.8655	1.5962	0.0183	0.4121	0.0220	0.4341	0.1130	0.0210	0.1340		1,982.5789	1,982.5789	0.1423		1,986.1365
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2109**	**6.8655**	**1.5962**	**0.0183**	**0.4121**	**0.0220**	**0.4341**	**0.1130**	**0.0210**	**0.1340**		**1,982.5789**	**1,982.5789**	**0.1423**		**1,986.1365**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.7439	0.0000	0.7439	0.1898	0.0000	0.1898			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.7439**	**0.0000**	**0.7439**	**0.1898**	**0.0000**	**0.1898**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2109	6.8655	1.5962	0.0183	0.4121	0.0220	0.4341	0.1130	0.0210	0.1340		1,982.5789	1,982.5789	0.1423		1,986.1365
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2109**	**6.8655**	**1.5962**	**0.0183**	**0.4121**	**0.0220**	**0.4341**	**0.1130**	**0.0210**	**0.1340**		**1,982.5789**	**1,982.5789**	**0.1423**		**1,986.1365**

3.4 Trenching - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7370	18.9171	15.7559	0.0311		0.8387	0.8387		0.7716	0.7716		3,012.2624	3,012.2624	0.9742		3,036.6181
Total	**1.7370**	**18.9171**	**15.7559**	**0.0311**		**0.8387**	**0.8387**		**0.7716**	**0.7716**		**3,012.2624**	**3,012.2624**	**0.9742**		**3,036.6181**

3.4 Trenching - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0521	1.4889	0.4303	3.5300e-003	0.0896	7.1200e-003	0.0968	0.0258	6.8100e-003	0.0326		377.2287	377.2287	0.0252		377.8593
Worker	0.0920	0.0652	0.7218	2.0000e-003	0.2012	1.6800e-003	0.2029	0.0534	1.5500e-003	0.0549		199.3357	199.3357	6.2800e-003		199.4927
Total	**0.1440**	**1.5542**	**1.1522**	**5.5300e-003**	**0.2908**	**8.8000e-003**	**0.2996**	**0.0792**	**8.3600e-003**	**0.0875**		**576.5644**	**576.5644**	**0.0315**		**577.3521**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7663	15.5250	20.7919	0.0311		0.7886	0.7886		0.7886	0.7886	0.0000	3,012.2624	3,012.2624	0.9742		3,036.6181
Total	**0.7663**	**15.5250**	**20.7919**	**0.0311**		**0.7886**	**0.7886**		**0.7886**	**0.7886**	**0.0000**	**3,012.2624**	**3,012.2624**	**0.9742**		**3,036.6181**

3.4 Trenching - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0521	1.4889	0.4303	3.5300e-003	0.0896	7.1200e-003	0.0968	0.0258	6.8100e-003	0.0326		377.2287	377.2287	0.0252		377.8593
Worker	0.0920	0.0652	0.7218	2.0000e-003	0.2012	1.6800e-003	0.2029	0.0534	1.5500e-003	0.0549		199.3357	199.3357	6.2800e-003		199.4927
Total	**0.1440**	**1.5542**	**1.1522**	**5.5300e-003**	**0.2908**	**8.8000e-003**	**0.2996**	**0.0792**	**8.3600e-003**	**0.0875**		**576.5644**	**576.5644**	**0.0315**		**577.3521**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3962	22.1116	20.3597	0.0351		1.2228	1.2228		1.1801	1.1801		3,357.0926	3,357.0926	0.5683		3,371.2998
Total	**2.3962**	**22.1116**	**20.3597**	**0.0351**		**1.2228**	**1.2228**		**1.1801**	**1.1801**		**3,357.0926**	**3,357.0926**	**0.5683**		**3,371.2998**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1891	0.1341	1.4837	4.1100e-003	0.4136	3.4600e-003	0.4170	0.1097	3.1900e-003	0.1129		409.7455	409.7455	0.0129		410.0684
Total	**0.1891**	**0.1341**	**1.4837**	**4.1100e-003**	**0.4136**	**3.4600e-003**	**0.4170**	**0.1097**	**3.1900e-003**	**0.1129**		**409.7455**	**409.7455**	**0.0129**		**410.0684**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7662	16.9985	22.3246	0.0351		1.1030	1.1030		1.1030	1.1030	0.0000	3,357.0926	3,357.0926	0.5683		3,371.2998
Total	**0.7662**	**16.9985**	**22.3246**	**0.0351**		**1.1030**	**1.1030**		**1.1030**	**1.1030**	**0.0000**	**3,357.0926**	**3,357.0926**	**0.5683**		**3,371.2998**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1891	0.1341	1.4837	4.1100e-003	0.4136	3.4600e-003	0.4170	0.1097	3.1900e-003	0.1129		409.7455	409.7455	0.0129		410.0684
Total	**0.1891**	**0.1341**	**1.4837**	**4.1100e-003**	**0.4136**	**3.4600e-003**	**0.4170**	**0.1097**	**3.1900e-003**	**0.1129**		**409.7455**	**409.7455**	**0.0129**		**410.0684**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3127	20.1637	21.8838	0.0356		1.1776	1.1776		1.1385	1.1385		3,399.3768	3,399.3768	0.5820		3,413.9258
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3127**	**20.1637**	**21.8838**	**0.0356**		**1.1776**	**1.1776**		**1.1385**	**1.1385**		**3,399.3768**	**3,399.3768**	**0.5820**		**3,413.9258**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1175	0.0834	0.9223	2.5600e-003	0.2571	2.1500e-003	0.2592	0.0682	1.9800e-003	0.0702		254.7067	254.7067	8.0300e-003		254.9074
Total	**0.1175**	**0.0834**	**0.9223**	**2.5600e-003**	**0.2571**	**2.1500e-003**	**0.2592**	**0.0682**	**1.9800e-003**	**0.0702**		**254.7067**	**254.7067**	**8.0300e-003**		**254.9074**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7779	16.9657	23.9858	0.0356		1.0929	1.0929		1.0929	1.0929	0.0000	3,399.3767	3,399.3767	0.5820		3,413.9258
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7779**	**16.9657**	**23.9858**	**0.0356**		**1.0929**	**1.0929**		**1.0929**	**1.0929**	**0.0000**	**3,399.3767**	**3,399.3767**	**0.5820**		**3,413.9258**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1175	0.0834	0.9223	2.5600e-003	0.2571	2.1500e-003	0.2592	0.0682	1.9800e-003	0.0702		254.7067	254.7067	8.0300e-003		254.9074
Total	**0.1175**	**0.0834**	**0.9223**	**2.5600e-003**	**0.2571**	**2.1500e-003**	**0.2592**	**0.0682**	**1.9800e-003**	**0.0702**		**254.7067**	**254.7067**	**8.0300e-003**		**254.9074**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0375	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Unmitigated	0.0375	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0309					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Total	**0.0375**	**0.0000**	**2.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**		**4.7000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0309					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Total	**0.0375**	**0.0000**	**2.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**		**4.7000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 2

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	6.00	Acre	6.00	261,360.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2021
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 2 - Los Angeles-South Coast County, Annual

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 3,500 linear feet, Phase 2 is 12,600 linear feet, Phase 3 is 6,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Applicant's anticipated construction duration of 280 days for Phase 2.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	15682	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	28.00
tblConstructionPhase	NumDays	10.00	53.00
tblConstructionPhase	NumDays	230.00	94.00
tblConstructionPhase	NumDays	20.00	26.00
tblConstructionPhase	PhaseEndDate	3/26/2021	4/7/2021

tblConstructionPhase	PhaseEndDate	4/9/2021	6/21/2021
tblConstructionPhase	PhaseEndDate	4/9/2021	6/21/2021
tblConstructionPhase	PhaseEndDate	2/25/2022	10/29/2021
tblConstructionPhase	PhaseEndDate	3/25/2022	12/6/2021
tblConstructionPhase	PhaseStartDate	3/27/2021	4/8/2021
tblConstructionPhase	PhaseStartDate	4/10/2021	4/8/2021
tblConstructionPhase	PhaseStartDate	4/10/2021	6/22/2021
tblConstructionPhase	PhaseStartDate	2/26/2022	10/30/2021
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	20,500.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Demolition

tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	HaulingTripNumber	2,563.00	2,562.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	43.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	110.00	37.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.2250	2.4515	2.1397	5.2700e-003	0.1922	0.0955	0.2877	0.0366	0.0907	0.1273	0.0000	477.4709	477.4709	0.0794	0.0000	479.4557
Maximum	**0.2250**	**2.4515**	**2.1397**	**5.2700e-003**	**0.1922**	**0.0955**	**0.2877**	**0.0366**	**0.0907**	**0.1273**	**0.0000**	**477.4709**	**477.4709**	**0.0794**	**0.0000**	**479.4557**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1128	2.2253	2.4547	5.2700e-003	0.1129	0.1007	0.2136	0.0247	0.1002	0.1249	0.0000	477.4706	477.4706	0.0794	0.0000	479.4554
Maximum	**0.1128**	**2.2253**	**2.4547**	**5.2700e-003**	**0.1129**	**0.1007**	**0.2136**	**0.0247**	**0.1002**	**0.1249**	**0.0000**	**477.4706**	**477.4706**	**0.0794**	**0.0000**	**479.4554**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**49.86**	**9.23**	**-14.72**	**0.00**	**41.27**	**-5.54**	**25.74**	**32.60**	**-10.50**	**1.89**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-1-2021	5-31-2021	1.0818	1.0065
2	6-1-2021	8-31-2021	0.8199	0.6897
3	9-1-2021	9-30-2021	0.2408	0.1932
		Highest	1.0818	1.0065

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0181	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0181**	**0.0000**	**8.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0181	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0181**	**0.0000**	**8.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

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

3.0 Construction Detail

Construction Phase

Sun Valley PW Storm Drain Phase 2 - Los Angeles-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2021	4/7/2021	5	28	
2	Site Preparation	Site Preparation	4/8/2021	6/21/2021	5	53	
3	Trenching	Trenching	4/8/2021	6/21/2021	5	53	
4	Building Construction	Building Construction	6/22/2021	10/29/2021	5	94	
5	Paving	Paving	10/30/2021	12/6/2021	5	26	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 0

Acres of Paving: 6

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38

Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	8	13.00	0.00	1,147.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	2,562.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1241	0.0000	0.1241	0.0188	0.0000	0.0188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0255	0.2658	0.2649	5.1000e-004		0.0117	0.0117		0.0108	0.0108	0.0000	44.6175	44.6175	0.0144	0.0000	44.9783
Total	**0.0255**	**0.2658**	**0.2649**	**5.1000e-004**	**0.1241**	**0.0117**	**0.1358**	**0.0188**	**0.0108**	**0.0296**	**0.0000**	**44.6175**	**44.6175**	**0.0144**	**0.0000**	**44.9783**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.8300e-003	0.1588	0.0370	4.4000e-004	9.8600e-003	4.8000e-004	0.0103	2.7100e-003	4.5000e-004	3.1600e-003	0.0000	43.7177	43.7177	3.0300e-003	0.0000	43.7936
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	7.8000e-004	6.1000e-004	6.8800e-003	2.0000e-005	1.9900e-003	2.0000e-005	2.0100e-003	5.3000e-004	2.0000e-005	5.4000e-004	0.0000	1.7998	1.7998	5.0000e-005	0.0000	1.8012
Total	**5.6100e-003**	**0.1594**	**0.0439**	**4.6000e-004**	**0.0119**	**5.0000e-004**	**0.0123**	**3.2400e-003**	**4.7000e-004**	**3.7000e-003**	**0.0000**	**45.5175**	**45.5175**	**3.0800e-003**	**0.0000**	**45.5947**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					0.0475	0.0000	0.0475	7.1900e-003	0.0000	7.1900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0147	0.2454	0.3324	5.1000e-004		0.0124	0.0124		0.0122	0.0122	0.0000	44.6175	44.6175	0.0144	0.0000	44.9782
Total	**0.0147**	**0.2454**	**0.3324**	**5.1000e-004**	**0.0475**	**0.0124**	**0.0599**	**7.1900e-003**	**0.0122**	**0.0194**	**0.0000**	**44.6175**	**44.6175**	**0.0144**	**0.0000**	**44.9782**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.8300e-003	0.1588	0.0370	4.4000e-004	9.8600e-003	4.8000e-004	0.0103	2.7100e-003	4.5000e-004	3.1600e-003	0.0000	43.7177	43.7177	3.0300e-003	0.0000	43.7936
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	7.8000e-004	6.1000e-004	6.8800e-003	2.0000e-005	1.9900e-003	2.0000e-005	2.0100e-003	5.3000e-004	2.0000e-005	5.4000e-004	0.0000	1.7998	1.7998	5.0000e-005	0.0000	1.8012
Total	**5.6100e-003**	**0.1594**	**0.0439**	**4.6000e-004**	**0.0119**	**5.0000e-004**	**0.0123**	**3.2400e-003**	**4.7000e-004**	**3.7000e-003**	**0.0000**	**45.5175**	**45.5175**	**3.0800e-003**	**0.0000**	**45.5947**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.3400e-003	0.0000	4.3400e-003	5.2000e-004	0.0000	5.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.3400e-003**	**0.0000**	**4.3400e-003**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0108	0.3546	0.0827	9.9000e-004	0.0220	1.0600e-003	0.0231	6.0500e-003	1.0200e-003	7.0600e-003	0.0000	97.6501	97.6501	6.7800e-003	0.0000	97.8196
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0108**	**0.3546**	**0.0827**	**9.9000e-004**	**0.0220**	**1.0600e-003**	**0.0231**	**6.0500e-003**	**1.0200e-003**	**7.0600e-003**	**0.0000**	**97.6501**	**97.6501**	**6.7800e-003**	**0.0000**	**97.8196**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					1.6600e-003	0.0000	1.6600e-003	2.0000e-004	0.0000	2.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.6600e-003**	**0.0000**	**1.6600e-003**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0108	0.3546	0.0827	9.9000e-004	0.0220	1.0600e-003	0.0231	6.0500e-003	1.0200e-003	7.0600e-003	0.0000	97.6501	97.6501	6.7800e-003	0.0000	97.8196
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0108**	**0.3546**	**0.0827**	**9.9000e-004**	**0.0220**	**1.0600e-003**	**0.0231**	**6.0500e-003**	**1.0200e-003**	**7.0600e-003**	**0.0000**	**97.6501**	**97.6501**	**6.7800e-003**	**0.0000**	**97.8196**

3.4 Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0423	0.4460	0.4148	8.2000e-004		0.0194	0.0194		0.0178	0.0178	0.0000	72.4297	72.4297	0.0234	0.0000	73.0154
Total	**0.0423**	**0.4460**	**0.4148**	**8.2000e-004**		**0.0194**	**0.0194**		**0.0178**	**0.0178**	**0.0000**	**72.4297**	**72.4297**	**0.0234**	**0.0000**	**73.0154**

3.4 Trenching - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1500e-003	0.0366	9.9300e-003	9.0000e-005	2.3400e-003	7.0000e-005	2.4100e-003	6.7000e-004	7.0000e-005	7.5000e-004	0.0000	9.1450	9.1450	5.6000e-004	0.0000	9.1591
Worker	2.0500e-003	1.6000e-003	0.0180	5.0000e-005	5.2300e-003	4.0000e-005	5.2700e-003	1.3900e-003	4.0000e-005	1.4300e-003	0.0000	4.7171	4.7171	1.4000e-004	0.0000	4.7206
Total	**3.2000e-003**	**0.0382**	**0.0280**	**1.4000e-004**	**7.5700e-003**	**1.1000e-004**	**7.6800e-003**	**2.0600e-003**	**1.1000e-004**	**2.1800e-003**	**0.0000**	**13.8622**	**13.8622**	**7.0000e-004**	**0.0000**	**13.8797**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0230	0.4034	0.5339	8.2000e-004		0.0205	0.0205		0.0203	0.0203	0.0000	72.4297	72.4297	0.0234	0.0000	73.0153
Total	**0.0230**	**0.4034**	**0.5339**	**8.2000e-004**		**0.0205**	**0.0205**		**0.0203**	**0.0203**	**0.0000**	**72.4297**	**72.4297**	**0.0234**	**0.0000**	**73.0153**

3.4 Trenching - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.1500e-003	0.0366	9.9300e-003	9.0000e-005	2.3400e-003	7.0000e-005	2.4100e-003	6.7000e-004	7.0000e-005	7.5000e-004	0.0000	9.1450	9.1450	5.6000e-004	0.0000	9.1591
Worker	2.0500e-003	1.6000e-003	0.0180	5.0000e-005	5.2300e-003	4.0000e-005	5.2700e-003	1.3900e-003	4.0000e-005	1.4300e-003	0.0000	4.7171	4.7171	1.4000e-004	0.0000	4.7206
Total	**3.2000e-003**	**0.0382**	**0.0280**	**1.4000e-004**	**7.5700e-003**	**1.1000e-004**	**7.6800e-003**	**2.0600e-003**	**1.1000e-004**	**2.1800e-003**	**0.0000**	**13.8622**	**13.8622**	**7.0000e-004**	**0.0000**	**13.8797**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1016	0.9423	0.9452	1.6500e-003		0.0492	0.0492		0.0475	0.0475	0.0000	143.1490	143.1490	0.0237	0.0000	143.7408
Total	**0.1016**	**0.9423**	**0.9452**	**1.6500e-003**		**0.0492**	**0.0492**		**0.0475**	**0.0475**	**0.0000**	**143.1490**	**143.1490**	**0.0237**	**0.0000**	**143.7408**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	7.4800e-003	5.8300e-003	0.0658	1.9000e-004	0.0191	1.6000e-004	0.0192	5.0600e-003	1.4000e-004	5.2100e-003	0.0000	17.1973	17.1973	5.1000e-004	0.0000	17.2099
Total	**7.4800e-003**	**5.8300e-003**	**0.0658**	**1.9000e-004**	**0.0191**	**1.6000e-004**	**0.0192**	**5.0600e-003**	**1.4000e-004**	**5.2100e-003**	**0.0000**	**17.1973**	**17.1973**	**5.1000e-004**	**0.0000**	**17.2099**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0360	0.7989	1.0493	1.6500e-003		0.0518	0.0518		0.0518	0.0518	0.0000	143.1488	143.1488	0.0237	0.0000	143.7406
Total	**0.0360**	**0.7989**	**1.0493**	**1.6500e-003**		**0.0518**	**0.0518**		**0.0518**	**0.0518**	**0.0000**	**143.1488**	**143.1488**	**0.0237**	**0.0000**	**143.7406**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	7.4800e-003	5.8300e-003	0.0658	1.9000e-004	0.0191	1.6000e-004	0.0192	5.0600e-003	1.4000e-004	5.2100e-003	0.0000	17.1973	17.1973	5.1000e-004	0.0000	17.2099
Total	**7.4800e-003**	**5.8300e-003**	**0.0658**	**1.9000e-004**	**0.0191**	**1.6000e-004**	**0.0192**	**5.0600e-003**	**1.4000e-004**	**5.2100e-003**	**0.0000**	**17.1973**	**17.1973**	**5.1000e-004**	**0.0000**	**17.2099**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0273	0.2385	0.2833	4.6000e-004		0.0133	0.0133		0.0128	0.0128	0.0000	40.0908	40.0908	6.7100e-003	0.0000	40.2585
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0273**	**0.2385**	**0.2833**	**4.6000e-004**		**0.0133**	**0.0133**		**0.0128**	**0.0128**	**0.0000**	**40.0908**	**40.0908**	**6.7100e-003**	**0.0000**	**40.2585**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2900e-003	1.0000e-003	0.0113	3.0000e-005	3.2800e-003	3.0000e-005	3.3000e-003	8.7000e-004	2.0000e-005	9.0000e-004	0.0000	2.9569	2.9569	9.0000e-005	0.0000	2.9590
Total	**1.2900e-003**	**1.0000e-003**	**0.0113**	**3.0000e-005**	**3.2800e-003**	**3.0000e-005**	**3.3000e-003**	**8.7000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**2.9569**	**2.9569**	**9.0000e-005**	**0.0000**	**2.9590**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0108	0.2186	0.3076	4.6000e-004		0.0141	0.0141		0.0141	0.0141	0.0000	40.0907	40.0907	6.7100e-003	0.0000	40.2584
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0108**	**0.2186**	**0.3076**	**4.6000e-004**		**0.0141**	**0.0141**		**0.0141**	**0.0141**	**0.0000**	**40.0907**	**40.0907**	**6.7100e-003**	**0.0000**	**40.2584**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2900e-003	1.0000e-003	0.0113	3.0000e-005	3.2800e-003	3.0000e-005	3.3000e-003	8.7000e-004	2.0000e-005	9.0000e-004	0.0000	2.9569	2.9569	9.0000e-005	0.0000	2.9590
Total	**1.2900e-003**	**1.0000e-003**	**0.0113**	**3.0000e-005**	**3.2800e-003**	**3.0000e-005**	**3.3000e-003**	**8.7000e-004**	**2.0000e-005**	**9.0000e-004**	**0.0000**	**2.9569**	**2.9569**	**9.0000e-005**	**0.0000**	**2.9590**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

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

5.3 Energy by Land Use - Electricity

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0181	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Unmitigated	0.0181	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0169					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Total	**0.0181**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0169					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Total	**0.0181**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

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

7.2 Water by Land Use

Mitigated

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 2

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	6.00	Acre	6.00	261,360.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2021
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 2 - Los Angeles-South Coast County, Summer

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 3,500 linear feet, Phase 2 is 12,600 linear feet, Phase 3 is 6,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Applicant's anticipated construction duration of 280 days for Phase 2.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	15682	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	28.00
tblConstructionPhase	NumDays	10.00	53.00
tblConstructionPhase	NumDays	230.00	94.00
tblConstructionPhase	NumDays	20.00	26.00
tblConstructionPhase	PhaseEndDate	3/26/2021	4/7/2021

tblConstructionPhase	PhaseEndDate	4/9/2021	6/21/2021
tblConstructionPhase	PhaseEndDate	4/9/2021	6/21/2021
tblConstructionPhase	PhaseEndDate	2/25/2022	10/29/2021
tblConstructionPhase	PhaseEndDate	3/25/2022	12/6/2021
tblConstructionPhase	PhaseStartDate	3/27/2021	4/8/2021
tblConstructionPhase	PhaseStartDate	4/10/2021	4/8/2021
tblConstructionPhase	PhaseStartDate	4/10/2021	6/22/2021
tblConstructionPhase	PhaseStartDate	2/26/2022	10/30/2021
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	20,500.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Demolition

tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	HaulingTripNumber	2,563.00	2,562.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	43.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	110.00	37.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.3201	31.2085	22.7167	0.0745	9.7269	1.0510	10.5972	1.5772	1.0138	2.3791	0.0000	7,694.3357	7,694.3357	1.3759	0.0000	7,726.3557
Maximum	**2.3201**	**31.2085**	**22.7167**	**0.0745**	**9.7269**	**1.0510**	**10.5972**	**1.5772**	**1.0138**	**2.3791**	**0.0000**	**7,694.3357**	**7,694.3357**	**1.3759**	**0.0000**	**7,726.3557**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.4438	29.6007	26.8407	0.0745	4.2526	1.1064	5.1734	0.7483	1.1061	1.6550	0.0000	7,694.3357	7,694.3357	1.3759	0.0000	7,726.3557
Maximum	**1.4438**	**29.6007**	**26.8407**	**0.0745**	**4.2526**	**1.1064**	**5.1734**	**0.7483**	**1.1061**	**1.6550**	**0.0000**	**7,694.3357**	**7,694.3357**	**1.3759**	**0.0000**	**7,726.3557**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**37.77**	**5.15**	**-18.15**	**0.00**	**56.28**	**-5.27**	**51.18**	**52.55**	**-9.10**	**30.43**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0993	1.0000e-005	6.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0993**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**	**0.0000**	**1.4000e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0993	1.0000e-005	6.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0993**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**	**0.0000**	**1.4000e-003**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2021	4/7/2021	5	28	
2	Site Preparation	Site Preparation	4/8/2021	6/21/2021	5	53	
3	Trenching	Trenching	4/8/2021	6/21/2021	5	53	
4	Building Construction	Building Construction	6/22/2021	10/29/2021	5	94	
5	Paving	Paving	10/30/2021	12/6/2021	5	26	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 0

Acres of Paving: 6

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37

Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	8	13.00	0.00	1,147.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	2,562.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.8653	0.0000	8.8653	1.3423	0.0000	1.3423			0.0000			0.0000
Off-Road	1.8236	18.9829	18.9232	0.0363		0.8354	0.8354		0.7686	0.7686		3,513.0269	3,513.0269	1.1362		3,541.4315
Total	**1.8236**	**18.9829**	**18.9232**	**0.0363**	**8.8653**	**0.8354**	**9.7007**	**1.3423**	**0.7686**	**2.1109**		**3,513.0269**	**3,513.0269**	**1.1362**		**3,541.4315**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3416	10.9884	2.5765	0.0320	0.7163	0.0337	0.7500	0.1963	0.0323	0.2286		3,467.4067	3,467.4067	0.2353		3,473.2895
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	0.0557	0.0383	0.5236	1.4900e-003	0.1453	1.1700e-003	0.1465	0.0385	1.0800e-003	0.0396		148.0401	148.0401	4.3600e-003		148.1491
Total	**0.3973**	**11.0267**	**3.1001**	**0.0335**	**0.8616**	**0.0349**	**0.8965**	**0.2349**	**0.0334**	**0.2682**		**3,615.4468**	**3,615.4468**	**0.2397**		**3,621.4386**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					3.3910	0.0000	3.3910	0.5134	0.0000	0.5134			0.0000			0.0000
Off-Road	1.0465	17.5267	23.7406	0.0363		0.8859	0.8859		0.8734	0.8734	0.0000	3,513.0269	3,513.0269	1.1362		3,541.4315
Total	**1.0465**	**17.5267**	**23.7406**	**0.0363**	**3.3910**	**0.8859**	**4.2769**	**0.5134**	**0.8734**	**1.3868**	**0.0000**	**3,513.0269**	**3,513.0269**	**1.1362**		**3,541.4315**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3416	10.9884	2.5765	0.0320	0.7163	0.0337	0.7500	0.1963	0.0323	0.2286		3,467.4067	3,467.4067	0.2353		3,473.2895
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	0.0557	0.0383	0.5236	1.4900e-003	0.1453	1.1700e-003	0.1465	0.0385	1.0800e-003	0.0396		148.0401	148.0401	4.3600e-003		148.1491
Total	**0.3973**	**11.0267**	**3.1001**	**0.0335**	**0.8616**	**0.0349**	**0.8965**	**0.2349**	**0.0334**	**0.2682**		**3,615.4468**	**3,615.4468**	**0.2397**		**3,621.4386**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1638	0.0000	0.1638	0.0196	0.0000	0.0196			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1638**	**0.0000**	**0.1638**	**0.0196**	**0.0000**	**0.0196**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4031	12.9668	3.0403	0.0377	0.8452	0.0398	0.8850	0.2317	0.0381	0.2698		4,091.6893	4,091.6893	0.2777		4,098.6312
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4031**	**12.9668**	**3.0403**	**0.0377**	**0.8452**	**0.0398**	**0.8850**	**0.2317**	**0.0381**	**0.2698**		**4,091.6893**	**4,091.6893**	**0.2777**		**4,098.6312**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.0627	0.0000	0.0627	7.4900e-003	0.0000	7.4900e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0627**	**0.0000**	**0.0627**	**7.4900e-003**	**0.0000**	**7.4900e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4031	12.9668	3.0403	0.0377	0.8452	0.0398	0.8850	0.2317	0.0381	0.2698		4,091.6893	4,091.6893	0.2777		4,098.6312
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4031**	**12.9668**	**3.0403**	**0.0377**	**0.8452**	**0.0398**	**0.8850**	**0.2317**	**0.0381**	**0.2698**		**4,091.6893**	**4,091.6893**	**0.2777**		**4,098.6312**

3.4 Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5944	16.8295	15.6514	0.0311		0.7310	0.7310		0.6725	0.6725		3,012.8349	3,012.8349	0.9744		3,037.1952
Total	**1.5944**	**16.8295**	**15.6514**	**0.0311**		**0.7310**	**0.7310**		**0.6725**	**0.6725**		**3,012.8349**	**3,012.8349**	**0.9744**		**3,037.1952**

3.4 Trenching - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0426	1.3593	0.3553	3.6000e-003	0.0896	2.7800e-003	0.0924	0.0258	2.6600e-003	0.0285		384.8329	384.8329	0.0227		385.3997
Worker	0.0772	0.0530	0.7250	2.0600e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		204.9786	204.9786	6.0400e-003		205.1296
Total	**0.1197**	**1.4123**	**1.0803**	**5.6600e-003**	**0.2908**	**4.4100e-003**	**0.2952**	**0.0792**	**4.1600e-003**	**0.0833**		**589.8115**	**589.8115**	**0.0287**		**590.5292**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8684	15.2217	20.1457	0.0311		0.7744	0.7744		0.7660	0.7660	0.0000	3,012.8349	3,012.8349	0.9744		3,037.1952
Total	**0.8684**	**15.2217**	**20.1457**	**0.0311**		**0.7744**	**0.7744**		**0.7660**	**0.7660**	**0.0000**	**3,012.8349**	**3,012.8349**	**0.9744**		**3,037.1952**

3.4 Trenching - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0426	1.3593	0.3553	3.6000e-003	0.0896	2.7800e-003	0.0924	0.0258	2.6600e-003	0.0285		384.8329	384.8329	0.0227		385.3997
Worker	0.0772	0.0530	0.7250	2.0600e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		204.9786	204.9786	6.0400e-003		205.1296
Total	**0.1197**	**1.4123**	**1.0803**	**5.6600e-003**	**0.2908**	**4.4100e-003**	**0.2952**	**0.0792**	**4.1600e-003**	**0.0833**		**589.8115**	**589.8115**	**0.0287**		**590.5292**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1615	20.0484	20.1095	0.0351		1.0477	1.0477		1.0108	1.0108		3,357.3346	3,357.3346	0.5552		3,371.2141
Total	**2.1615**	**20.0484**	**20.1095**	**0.0351**		**1.0477**	**1.0477**		**1.0108**	**1.0108**		**3,357.3346**	**3,357.3346**	**0.5552**		**3,371.2141**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1586	0.1090	1.4903	4.2300e-003	0.4136	3.3400e-003	0.4169	0.1097	3.0800e-003	0.1128		421.3449	421.3449	0.0124		421.6552
Total	**0.1586**	**0.1090**	**1.4903**	**4.2300e-003**	**0.4136**	**3.3400e-003**	**0.4169**	**0.1097**	**3.0800e-003**	**0.1128**		**421.3449**	**421.3449**	**0.0124**		**421.6552**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7662	16.9985	22.3246	0.0351		1.1030	1.1030		1.1030	1.1030	0.0000	3,357.3346	3,357.3346	0.5552		3,371.2141
Total	**0.7662**	**16.9985**	**22.3246**	**0.0351**		**1.1030**	**1.1030**		**1.1030**	**1.1030**	**0.0000**	**3,357.3346**	**3,357.3346**	**0.5552**		**3,371.2141**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1586	0.1090	1.4903	4.2300e-003	0.4136	3.3400e-003	0.4169	0.1097	3.0800e-003	0.1128		421.3449	421.3449	0.0124		421.6552
Total	**0.1586**	**0.1090**	**1.4903**	**4.2300e-003**	**0.4136**	**3.3400e-003**	**0.4169**	**0.1097**	**3.0800e-003**	**0.1128**		**421.3449**	**421.3449**	**0.0124**		**421.6552**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0988	18.3461	21.7903	0.0356		1.0219	1.0219		0.9871	0.9871		3,399.4227	3,399.4227	0.5688		3,413.6426
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0988**	**18.3461**	**21.7903**	**0.0356**		**1.0219**	**1.0219**		**0.9871**	**0.9871**		**3,399.4227**	**3,399.4227**	**0.5688**		**3,413.6426**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0986	0.0678	0.9264	2.6300e-003	0.2571	2.0800e-003	0.2592	0.0682	1.9100e-003	0.0701		261.9171	261.9171	7.7200e-003		262.1100
Total	**0.0986**	**0.0678**	**0.9264**	**2.6300e-003**	**0.2571**	**2.0800e-003**	**0.2592**	**0.0682**	**1.9100e-003**	**0.0701**		**261.9171**	**261.9171**	**7.7200e-003**		**262.1100**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8290	16.8141	23.6627	0.0356		1.0858	1.0858		1.0817	1.0817	0.0000	3,399.4227	3,399.4227	0.5688		3,413.6426
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8290**	**16.8141**	**23.6627**	**0.0356**		**1.0858**	**1.0858**		**1.0817**	**1.0817**	**0.0000**	**3,399.4227**	**3,399.4227**	**0.5688**		**3,413.6426**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0986	0.0678	0.9264	2.6300e-003	0.2571	2.0800e-003	0.2592	0.0682	1.9100e-003	0.0701		261.9171	261.9171	7.7200e-003		262.1100
Total	**0.0986**	**0.0678**	**0.9264**	**2.6300e-003**	**0.2571**	**2.0800e-003**	**0.2592**	**0.0682**	**1.9100e-003**	**0.0701**		**261.9171**	**261.9171**	**7.7200e-003**		**262.1100**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0993	1.0000e-005	6.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Unmitigated	0.0993	1.0000e-005	6.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.0000e-005	1.0000e-005	6.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Total	**0.0993**	**1.0000e-005**	**6.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**		**1.4000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.0000e-005	1.0000e-005	6.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Total	**0.0993**	**1.0000e-005**	**6.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**		**1.4000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 2

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	6.00	Acre	6.00	261,360.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2021
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 2 - Los Angeles-South Coast County, Winter

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 3,500 linear feet, Phase 2 is 12,600 linear feet, Phase 3 is 6,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Applicant's anticipated construction duration of 280 days for Phase 2.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	15682	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	28.00
tblConstructionPhase	NumDays	10.00	53.00
tblConstructionPhase	NumDays	230.00	94.00
tblConstructionPhase	NumDays	20.00	26.00
tblConstructionPhase	PhaseEndDate	3/26/2021	4/7/2021

tblConstructionPhase	PhaseEndDate	4/9/2021	6/21/2021
tblConstructionPhase	PhaseEndDate	4/9/2021	6/21/2021
tblConstructionPhase	PhaseEndDate	2/25/2022	10/29/2021
tblConstructionPhase	PhaseEndDate	3/25/2022	12/6/2021
tblConstructionPhase	PhaseStartDate	3/27/2021	4/8/2021
tblConstructionPhase	PhaseStartDate	4/10/2021	4/8/2021
tblConstructionPhase	PhaseStartDate	4/10/2021	6/22/2021
tblConstructionPhase	PhaseStartDate	2/26/2022	10/30/2021
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	20,500.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Demolition

tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	HaulingTripNumber	2,563.00	2,562.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	43.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	110.00	37.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.3379	31.3703	22.6373	0.0736	9.7269	1.0510	10.5977	1.5772	1.0138	2.3796	0.0000	7,600.9320	7,600.9320	1.3839	0.0000	7,633.2250
Maximum	**2.3379**	**31.3703**	**22.6373**	**0.0736**	**9.7269**	**1.0510**	**10.5977**	**1.5772**	**1.0138**	**2.3796**	**0.0000**	**7,600.9320**	**7,600.9320**	**1.3839**	**0.0000**	**7,633.2250**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.4583	29.7625	26.9514	0.0736	4.2526	1.1064	5.1739	0.7483	1.1061	1.6555	0.0000	7,600.9320	7,600.9320	1.3839	0.0000	7,633.2250
Maximum	**1.4583**	**29.7625**	**26.9514**	**0.0736**	**4.2526**	**1.1064**	**5.1739**	**0.7483**	**1.1061**	**1.6555**	**0.0000**	**7,600.9320**	**7,600.9320**	**1.3839**	**0.0000**	**7,633.2250**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**37.62**	**5.13**	**-19.06**	**0.00**	**56.28**	**-5.27**	**51.18**	**52.55**	**-9.10**	**30.43**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0993	1.0000e-005	6.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0993**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**	**0.0000**	**1.4000e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0993	1.0000e-005	6.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0993**	**1.0000e-005**	**6.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**	**0.0000**	**1.4000e-003**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2021	4/7/2021	5	28	
2	Site Preparation	Site Preparation	4/8/2021	6/21/2021	5	53	
3	Trenching	Trenching	4/8/2021	6/21/2021	5	53	
4	Building Construction	Building Construction	6/22/2021	10/29/2021	5	94	
5	Paving	Paving	10/30/2021	12/6/2021	5	26	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 0

Acres of Paving: 6

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37

Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	8	13.00	0.00	1,147.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	2,562.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.8653	0.0000	8.8653	1.3423	0.0000	1.3423			0.0000			0.0000
Off-Road	1.8236	18.9829	18.9232	0.0363		0.8354	0.8354		0.7686	0.7686		3,513.0269	3,513.0269	1.1362		3,541.4315
Total	**1.8236**	**18.9829**	**18.9232**	**0.0363**	**8.8653**	**0.8354**	**9.7007**	**1.3423**	**0.7686**	**2.1109**		**3,513.0269**	**3,513.0269**	**1.1362**		**3,541.4315**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3498	11.1230	2.7320	0.0314	0.7163	0.0342	0.7505	0.1963	0.0328	0.2291		3,407.3401	3,407.3401	0.2436		3,413.4302
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	0.0620	0.0424	0.4787	1.4000e-003	0.1453	1.1700e-003	0.1465	0.0385	1.0800e-003	0.0396		139.3926	139.3926	4.1000e-003		139.4952
Total	**0.4118**	**11.1654**	**3.2108**	**0.0328**	**0.8616**	**0.0354**	**0.8970**	**0.2349**	**0.0338**	**0.2687**		**3,546.7327**	**3,546.7327**	**0.2477**		**3,552.9254**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					3.3910	0.0000	3.3910	0.5134	0.0000	0.5134			0.0000			0.0000
Off-Road	1.0465	17.5267	23.7406	0.0363		0.8859	0.8859		0.8734	0.8734	0.0000	3,513.0269	3,513.0269	1.1362		3,541.4315
Total	**1.0465**	**17.5267**	**23.7406**	**0.0363**	**3.3910**	**0.8859**	**4.2769**	**0.5134**	**0.8734**	**1.3868**	**0.0000**	**3,513.0269**	**3,513.0269**	**1.1362**		**3,541.4315**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3498	11.1230	2.7320	0.0314	0.7163	0.0342	0.7505	0.1963	0.0328	0.2291		3,407.3401	3,407.3401	0.2436		3,413.4302
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	0.0620	0.0424	0.4787	1.4000e-003	0.1453	1.1700e-003	0.1465	0.0385	1.0800e-003	0.0396		139.3926	139.3926	4.1000e-003		139.4952
Total	**0.4118**	**11.1654**	**3.2108**	**0.0328**	**0.8616**	**0.0354**	**0.8970**	**0.2349**	**0.0338**	**0.2687**		**3,546.7327**	**3,546.7327**	**0.2477**		**3,552.9254**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1638	0.0000	0.1638	0.0196	0.0000	0.0196			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1638**	**0.0000**	**0.1638**	**0.0196**	**0.0000**	**0.0196**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4128	13.1256	3.2239	0.0371	0.8452	0.0404	0.8856	0.2317	0.0387	0.2704		4,020.8081	4,020.8081	0.2875		4,027.9948
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4128**	**13.1256**	**3.2239**	**0.0371**	**0.8452**	**0.0404**	**0.8856**	**0.2317**	**0.0387**	**0.2704**		**4,020.8081**	**4,020.8081**	**0.2875**		**4,027.9948**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.0627	0.0000	0.0627	7.4900e-003	0.0000	7.4900e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0627**	**0.0000**	**0.0627**	**7.4900e-003**	**0.0000**	**7.4900e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.4128	13.1256	3.2239	0.0371	0.8452	0.0404	0.8856	0.2317	0.0387	0.2704		4,020.8081	4,020.8081	0.2875		4,027.9948
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.4128**	**13.1256**	**3.2239**	**0.0371**	**0.8452**	**0.0404**	**0.8856**	**0.2317**	**0.0387**	**0.2704**		**4,020.8081**	**4,020.8081**	**0.2875**		**4,027.9948**

3.4 Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5944	16.8295	15.6514	0.0311		0.7310	0.7310		0.6725	0.6725		3,012.8349	3,012.8349	0.9744		3,037.1952
Total	**1.5944**	**16.8295**	**15.6514**	**0.0311**		**0.7310**	**0.7310**		**0.6725**	**0.6725**		**3,012.8349**	**3,012.8349**	**0.9744**		**3,037.1952**

3.4 Trenching - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0447	1.3564	0.3931	3.5000e-003	0.0896	2.8700e-003	0.0925	0.0258	2.7400e-003	0.0286		374.2837	374.2837	0.0242		374.8878
Worker	0.0858	0.0587	0.6629	1.9400e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		193.0052	193.0052	5.6800e-003		193.1472
Total	**0.1305**	**1.4152**	**1.0559**	**5.4400e-003**	**0.2908**	**4.5000e-003**	**0.2953**	**0.0792**	**4.2400e-003**	**0.0834**		**567.2889**	**567.2889**	**0.0298**		**568.0350**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8684	15.2217	20.1457	0.0311		0.7744	0.7744		0.7660	0.7660	0.0000	3,012.8349	3,012.8349	0.9744		3,037.1952
Total	**0.8684**	**15.2217**	**20.1457**	**0.0311**		**0.7744**	**0.7744**		**0.7660**	**0.7660**	**0.0000**	**3,012.8349**	**3,012.8349**	**0.9744**		**3,037.1952**

3.4 Trenching - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0447	1.3564	0.3931	3.5000e-003	0.0896	2.8700e-003	0.0925	0.0258	2.7400e-003	0.0286		374.2837	374.2837	0.0242		374.8878
Worker	0.0858	0.0587	0.6629	1.9400e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		193.0052	193.0052	5.6800e-003		193.1472
Total	**0.1305**	**1.4152**	**1.0559**	**5.4400e-003**	**0.2908**	**4.5000e-003**	**0.2953**	**0.0792**	**4.2400e-003**	**0.0834**		**567.2889**	**567.2889**	**0.0298**		**568.0350**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1615	20.0484	20.1095	0.0351		1.0477	1.0477		1.0108	1.0108		3,357.3346	3,357.3346	0.5552		3,371.2141
Total	**2.1615**	**20.0484**	**20.1095**	**0.0351**		**1.0477**	**1.0477**		**1.0108**	**1.0108**		**3,357.3346**	**3,357.3346**	**0.5552**		**3,371.2141**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1764	0.1207	1.3626	3.9800e-003	0.4136	3.3400e-003	0.4169	0.1097	3.0800e-003	0.1128		396.7329	396.7329	0.0117		397.0248
Total	**0.1764**	**0.1207**	**1.3626**	**3.9800e-003**	**0.4136**	**3.3400e-003**	**0.4169**	**0.1097**	**3.0800e-003**	**0.1128**		**396.7329**	**396.7329**	**0.0117**		**397.0248**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7662	16.9985	22.3246	0.0351		1.1030	1.1030		1.1030	1.1030	0.0000	3,357.3346	3,357.3346	0.5552		3,371.2141
Total	**0.7662**	**16.9985**	**22.3246**	**0.0351**		**1.1030**	**1.1030**		**1.1030**	**1.1030**	**0.0000**	**3,357.3346**	**3,357.3346**	**0.5552**		**3,371.2141**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1764	0.1207	1.3626	3.9800e-003	0.4136	3.3400e-003	0.4169	0.1097	3.0800e-003	0.1128		396.7329	396.7329	0.0117		397.0248
Total	**0.1764**	**0.1207**	**1.3626**	**3.9800e-003**	**0.4136**	**3.3400e-003**	**0.4169**	**0.1097**	**3.0800e-003**	**0.1128**		**396.7329**	**396.7329**	**0.0117**		**397.0248**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0988	18.3461	21.7903	0.0356		1.0219	1.0219		0.9871	0.9871		3,399.4227	3,399.4227	0.5688		3,413.6426
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0988**	**18.3461**	**21.7903**	**0.0356**		**1.0219**	**1.0219**		**0.9871**	**0.9871**		**3,399.4227**	**3,399.4227**	**0.5688**		**3,413.6426**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1097	0.0750	0.8470	2.4800e-003	0.2571	2.0800e-003	0.2592	0.0682	1.9100e-003	0.0701		246.6178	246.6178	7.2600e-003		246.7992
Total	**0.1097**	**0.0750**	**0.8470**	**2.4800e-003**	**0.2571**	**2.0800e-003**	**0.2592**	**0.0682**	**1.9100e-003**	**0.0701**		**246.6178**	**246.6178**	**7.2600e-003**		**246.7992**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8290	16.8141	23.6627	0.0356		1.0858	1.0858		1.0817	1.0817	0.0000	3,399.4227	3,399.4227	0.5688		3,413.6426
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8290**	**16.8141**	**23.6627**	**0.0356**		**1.0858**	**1.0858**		**1.0817**	**1.0817**	**0.0000**	**3,399.4227**	**3,399.4227**	**0.5688**		**3,413.6426**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1097	0.0750	0.8470	2.4800e-003	0.2571	2.0800e-003	0.2592	0.0682	1.9100e-003	0.0701		246.6178	246.6178	7.2600e-003		246.7992
Total	**0.1097**	**0.0750**	**0.8470**	**2.4800e-003**	**0.2571**	**2.0800e-003**	**0.2592**	**0.0682**	**1.9100e-003**	**0.0701**		**246.6178**	**246.6178**	**7.2600e-003**		**246.7992**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0993	1.0000e-005	6.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Unmitigated	0.0993	1.0000e-005	6.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.0000e-005	1.0000e-005	6.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Total	**0.0993**	**1.0000e-005**	**6.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**		**1.4000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.0000e-005	1.0000e-005	6.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Total	**0.0993**	**1.0000e-005**	**6.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**		**1.4000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 3

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	3.50	Acre	3.50	152,460.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2021
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 3 - Los Angeles-South Coast County, Annual

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan, Phase 1 is 3,500 linear feet, Phase 2 is 12,600 linear feet, Phase 3 is 6,500 linear feet, and Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Applicant's anticipated construction duration of 160 days for Phase 3.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	9148	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	5.00	31.00
tblConstructionPhase	NumDays	230.00	54.00
tblConstructionPhase	NumDays	18.00	15.00
tblConstructionPhase	PhaseEndDate	3/26/2021	3/21/2021

tblConstructionPhase	PhaseEndDate	4/2/2021	5/3/2021
tblConstructionPhase	PhaseEndDate	4/2/2021	5/3/2021
tblConstructionPhase	PhaseEndDate	2/18/2022	7/18/2021
tblConstructionPhase	PhaseEndDate	3/16/2022	8/9/2021
tblConstructionPhase	PhaseStartDate	3/27/2021	3/22/2021
tblConstructionPhase	PhaseStartDate	4/3/2021	3/22/2021
tblConstructionPhase	PhaseStartDate	4/3/2021	5/4/2021
tblConstructionPhase	PhaseStartDate	2/19/2022	7/19/2021
tblGrading	AcresOfGrading	0.00	3.50
tblGrading	MaterialExported	0.00	3,800.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	25.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	64.00	37.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.1238	1.2111	1.1883	2.4700e-003	0.0477	0.0545	0.1022	9.9900e-003	0.0518	0.0618	0.0000	219.5950	219.5950	0.0417	0.0000	220.6380
Maximum	**0.1238**	**1.2111**	**1.1883**	**2.4700e-003**	**0.0477**	**0.0545**	**0.1022**	**9.9900e-003**	**0.0518**	**0.0618**	**0.0000**	**219.5950**	**219.5950**	**0.0417**	**0.0000**	**220.6380**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0589	1.0807	1.3689	2.4700e-003	0.0332	0.0576	0.0908	7.8500e-003	0.0573	0.0652	0.0000	219.5948	219.5948	0.0417	0.0000	220.6378
Maximum	**0.0589**	**1.0807**	**1.3689**	**2.4700e-003**	**0.0332**	**0.0576**	**0.0908**	**7.8500e-003**	**0.0573**	**0.0652**	**0.0000**	**219.5948**	**219.5948**	**0.0417**	**0.0000**	**220.6378**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**52.45**	**10.77**	**-15.20**	**0.00**	**30.37**	**-5.61**	**11.18**	**21.42**	**-10.60**	**-5.40**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-1-2021	5-31-2021	0.7811	0.6841
2	6-1-2021	8-31-2021	0.5473	0.4491
		Highest	0.7811	0.6841

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0111	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	9.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0111**	**0.0000**	**4.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0000**	**9.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0111	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	9.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0111**	**0.0000**	**4.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0000**	**9.0000e-005**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2021	3/21/2021	5	15	
2	Site Preparation	Site Preparation	3/22/2021	5/3/2021	5	31	
3	Trenching	Trenching	3/22/2021	5/3/2021	5	31	
4	Building Construction	Building Construction	5/4/2021	7/18/2021	5	54	
5	Paving	Paving	7/19/2021	8/9/2021	5	15	

Acres of Grading (Site Preparation Phase): 3.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 3.5

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38

Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	8	13.00	0.00	198.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	475.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0214	0.0000	0.0214	3.2400e-003	0.0000	3.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0137	0.1424	0.1419	2.7000e-004		6.2700e-003	6.2700e-003		5.7600e-003	5.7600e-003	0.0000	23.9022	23.9022	7.7300e-003	0.0000	24.0955
Total	**0.0137**	**0.1424**	**0.1419**	**2.7000e-004**	**0.0214**	**6.2700e-003**	**0.0277**	**3.2400e-003**	**5.7600e-003**	**9.0000e-003**	**0.0000**	**23.9022**	**23.9022**	**7.7300e-003**	**0.0000**	**24.0955**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.3000e-004	0.0274	6.3900e-003	8.0000e-005	1.7000e-003	8.0000e-005	1.7800e-003	4.7000e-004	8.0000e-005	5.5000e-004	0.0000	7.5467	7.5467	5.2000e-004	0.0000	7.5598
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	4.2000e-004	3.3000e-004	3.6900e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.9642	0.9642	3.0000e-005	0.0000	0.9649
Total	**1.2500e-003**	**0.0277**	**0.0101**	**9.0000e-005**	**2.7700e-003**	**9.0000e-005**	**2.8600e-003**	**7.5000e-004**	**9.0000e-005**	**8.4000e-004**	**0.0000**	**8.5109**	**8.5109**	**5.5000e-004**	**0.0000**	**8.5247**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					8.1900e-003	0.0000	8.1900e-003	1.2400e-003	0.0000	1.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.8500e-003	0.1315	0.1781	2.7000e-004		6.6400e-003	6.6400e-003		6.5500e-003	6.5500e-003	0.0000	23.9022	23.9022	7.7300e-003	0.0000	24.0955
Total	**7.8500e-003**	**0.1315**	**0.1781**	**2.7000e-004**	**8.1900e-003**	**6.6400e-003**	**0.0148**	**1.2400e-003**	**6.5500e-003**	**7.7900e-003**	**0.0000**	**23.9022**	**23.9022**	**7.7300e-003**	**0.0000**	**24.0955**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	8.3000e-004	0.0274	6.3900e-003	8.0000e-005	1.7000e-003	8.0000e-005	1.7800e-003	4.7000e-004	8.0000e-005	5.5000e-004	0.0000	7.5467	7.5467	5.2000e-004	0.0000	7.5598
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	4.2000e-004	3.3000e-004	3.6900e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.9642	0.9642	3.0000e-005	0.0000	0.9649
Total	**1.2500e-003**	**0.0277**	**0.0101**	**9.0000e-005**	**2.7700e-003**	**9.0000e-005**	**2.8600e-003**	**7.5000e-004**	**9.0000e-005**	**8.4000e-004**	**0.0000**	**8.5109**	**8.5109**	**5.5000e-004**	**0.0000**	**8.5247**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0700e-003	0.0000	2.0700e-003	2.3000e-004	0.0000	2.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0700e-003**	**0.0000**	**2.0700e-003**	**2.3000e-004**	**0.0000**	**2.3000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-003	0.0658	0.0153	1.8000e-004	4.0800e-003	2.0000e-004	4.2800e-003	1.1200e-003	1.9000e-004	1.3100e-003	0.0000	18.1045	18.1045	1.2600e-003	0.0000	18.1360
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0000e-003**	**0.0658**	**0.0153**	**1.8000e-004**	**4.0800e-003**	**2.0000e-004**	**4.2800e-003**	**1.1200e-003**	**1.9000e-004**	**1.3100e-003**	**0.0000**	**18.1045**	**18.1045**	**1.2600e-003**	**0.0000**	**18.1360**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					7.9000e-004	0.0000	7.9000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**7.9000e-004**	**0.0000**	**7.9000e-004**	**9.0000e-005**	**0.0000**	**9.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0000e-003	0.0658	0.0153	1.8000e-004	4.0800e-003	2.0000e-004	4.2800e-003	1.1200e-003	1.9000e-004	1.3100e-003	0.0000	18.1045	18.1045	1.2600e-003	0.0000	18.1360
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.0000e-003**	**0.0658**	**0.0153**	**1.8000e-004**	**4.0800e-003**	**2.0000e-004**	**4.2800e-003**	**1.1200e-003**	**1.9000e-004**	**1.3100e-003**	**0.0000**	**18.1045**	**18.1045**	**1.2600e-003**	**0.0000**	**18.1360**

3.4 Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0247	0.2609	0.2426	4.8000e-004		0.0113	0.0113		0.0104	0.0104	0.0000	42.3646	42.3646	0.0137	0.0000	42.7071
Total	**0.0247**	**0.2609**	**0.2426**	**4.8000e-004**		**0.0113**	**0.0113**		**0.0104**	**0.0104**	**0.0000**	**42.3646**	**42.3646**	**0.0137**	**0.0000**	**42.7071**

3.4 Trenching - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7000e-004	0.0214	5.8100e-003	6.0000e-005	1.3700e-003	4.0000e-005	1.4100e-003	3.9000e-004	4.0000e-005	4.4000e-004	0.0000	5.3490	5.3490	3.3000e-004	0.0000	5.3572
Worker	1.2000e-003	9.3000e-004	0.0106	3.0000e-005	3.0600e-003	3.0000e-005	3.0800e-003	8.1000e-004	2.0000e-005	8.4000e-004	0.0000	2.7591	2.7591	8.0000e-005	0.0000	2.7611
Total	**1.8700e-003**	**0.0224**	**0.0164**	**9.0000e-005**	**4.4300e-003**	**7.0000e-005**	**4.4900e-003**	**1.2000e-003**	**6.0000e-005**	**1.2800e-003**	**0.0000**	**8.1081**	**8.1081**	**4.1000e-004**	**0.0000**	**8.1183**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0135	0.2359	0.3123	4.8000e-004		0.0120	0.0120		0.0119	0.0119	0.0000	42.3645	42.3645	0.0137	0.0000	42.7071
Total	**0.0135**	**0.2359**	**0.3123**	**4.8000e-004**		**0.0120**	**0.0120**		**0.0119**	**0.0119**	**0.0000**	**42.3645**	**42.3645**	**0.0137**	**0.0000**	**42.7071**

3.4 Trenching - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7000e-004	0.0214	5.8100e-003	6.0000e-005	1.3700e-003	4.0000e-005	1.4100e-003	3.9000e-004	4.0000e-005	4.4000e-004	0.0000	5.3490	5.3490	3.3000e-004	0.0000	5.3572
Worker	1.2000e-003	9.3000e-004	0.0106	3.0000e-005	3.0600e-003	3.0000e-005	3.0800e-003	8.1000e-004	2.0000e-005	8.4000e-004	0.0000	2.7591	2.7591	8.0000e-005	0.0000	2.7611
Total	**1.8700e-003**	**0.0224**	**0.0164**	**9.0000e-005**	**4.4300e-003**	**7.0000e-005**	**4.4900e-003**	**1.2000e-003**	**6.0000e-005**	**1.2800e-003**	**0.0000**	**8.1081**	**8.1081**	**4.1000e-004**	**0.0000**	**8.1183**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0584	0.5413	0.5430	9.5000e-004		0.0283	0.0283		0.0273	0.0273	0.0000	82.2345	82.2345	0.0136	0.0000	82.5745
Total	**0.0584**	**0.5413**	**0.5430**	**9.5000e-004**		**0.0283**	**0.0283**		**0.0273**	**0.0273**	**0.0000**	**82.2345**	**82.2345**	**0.0136**	**0.0000**	**82.5745**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	4.3000e-003	3.3500e-003	0.0378	1.1000e-004	0.0110	9.0000e-005	0.0110	2.9100e-003	8.0000e-005	2.9900e-003	0.0000	9.8793	9.8793	2.9000e-004	0.0000	9.8866
Total	**4.3000e-003**	**3.3500e-003**	**0.0378**	**1.1000e-004**	**0.0110**	**9.0000e-005**	**0.0110**	**2.9100e-003**	**8.0000e-005**	**2.9900e-003**	**0.0000**	**9.8793**	**9.8793**	**2.9000e-004**	**0.0000**	**9.8866**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0207	0.4590	0.6028	9.5000e-004		0.0298	0.0298		0.0298	0.0298	0.0000	82.2344	82.2344	0.0136	0.0000	82.5744
Total	**0.0207**	**0.4590**	**0.6028**	**9.5000e-004**		**0.0298**	**0.0298**		**0.0298**	**0.0298**	**0.0000**	**82.2344**	**82.2344**	**0.0136**	**0.0000**	**82.5744**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	4.3000e-003	3.3500e-003	0.0378	1.1000e-004	0.0110	9.0000e-005	0.0110	2.9100e-003	8.0000e-005	2.9900e-003	0.0000	9.8793	9.8793	2.9000e-004	0.0000	9.8866
Total	**4.3000e-003**	**3.3500e-003**	**0.0378**	**1.1000e-004**	**0.0110**	**9.0000e-005**	**0.0110**	**2.9100e-003**	**8.0000e-005**	**2.9900e-003**	**0.0000**	**9.8793**	**9.8793**	**2.9000e-004**	**0.0000**	**9.8866**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0168	0.1468	0.1743	2.8000e-004		8.1800e-003	8.1800e-003		7.9000e-003	7.9000e-003	0.0000	24.6712	24.6712	4.1300e-003	0.0000	24.7744
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0168**	**0.1468**	**0.1743**	**2.8000e-004**		**8.1800e-003**	**8.1800e-003**		**7.9000e-003**	**7.9000e-003**	**0.0000**	**24.6712**	**24.6712**	**4.1300e-003**	**0.0000**	**24.7744**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	7.9000e-004	6.2000e-004	6.9600e-003	2.0000e-005	2.0200e-003	2.0000e-005	2.0300e-003	5.4000e-004	2.0000e-005	5.5000e-004	0.0000	1.8196	1.8196	5.0000e-005	0.0000	1.8210
Total	**7.9000e-004**	**6.2000e-004**	**6.9600e-003**	**2.0000e-005**	**2.0200e-003**	**2.0000e-005**	**2.0300e-003**	**5.4000e-004**	**2.0000e-005**	**5.5000e-004**	**0.0000**	**1.8196**	**1.8196**	**5.0000e-005**	**0.0000**	**1.8210**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	6.6300e-003	0.1345	0.1893	2.8000e-004		8.6900e-003	8.6900e-003		8.6500e-003	8.6500e-003	0.0000	24.6712	24.6712	4.1300e-003	0.0000	24.7744
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.6300e-003**	**0.1345**	**0.1893**	**2.8000e-004**		**8.6900e-003**	**8.6900e-003**		**8.6500e-003**	**8.6500e-003**	**0.0000**	**24.6712**	**24.6712**	**4.1300e-003**	**0.0000**	**24.7744**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	7.9000e-004	6.2000e-004	6.9600e-003	2.0000e-005	2.0200e-003	2.0000e-005	2.0300e-003	5.4000e-004	2.0000e-005	5.5000e-004	0.0000	1.8196	1.8196	5.0000e-005	0.0000	1.8210
Total	**7.9000e-004**	**6.2000e-004**	**6.9600e-003**	**2.0000e-005**	**2.0200e-003**	**2.0000e-005**	**2.0300e-003**	**5.4000e-004**	**2.0000e-005**	**5.5000e-004**	**0.0000**	**1.8196**	**1.8196**	**5.0000e-005**	**0.0000**	**1.8210**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

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

5.3 Energy by Land Use - Electricity

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0111	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	9.0000e-005
Unmitigated	0.0111	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	9.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	9.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	9.0000e-005
Total	**0.0111**	**0.0000**	**4.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0000**	**9.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	9.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	9.0000e-005
Total	**0.0111**	**0.0000**	**4.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0000**	**9.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

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

7.2 Water by Land Use

Mitigated

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 3

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	3.50	Acre	3.50	152,460.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2021
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 3 - Los Angeles-South Coast County, Summer

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan, Phase 1 is 3,500 linear feet, Phase 2 is 12,600 linear feet, Phase 3 is 6,500 linear feet, and Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Applicant's anticipated construction duration of 160 days for Phase 3.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	9148	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	5.00	31.00
tblConstructionPhase	NumDays	230.00	54.00
tblConstructionPhase	NumDays	18.00	15.00
tblConstructionPhase	PhaseEndDate	3/26/2021	3/21/2021

tblConstructionPhase	PhaseEndDate	4/2/2021	5/3/2021
tblConstructionPhase	PhaseEndDate	4/2/2021	5/3/2021
tblConstructionPhase	PhaseEndDate	2/18/2022	7/18/2021
tblConstructionPhase	PhaseEndDate	3/16/2022	8/9/2021
tblConstructionPhase	PhaseStartDate	3/27/2021	3/22/2021
tblConstructionPhase	PhaseStartDate	4/3/2021	3/22/2021
tblConstructionPhase	PhaseStartDate	4/3/2021	5/4/2021
tblConstructionPhase	PhaseStartDate	2/19/2022	7/19/2021
tblGrading	AcresOfGrading	0.00	3.50
tblGrading	MaterialExported	0.00	3,800.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	25.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	64.00	37.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.3201	22.5620	22.7167	0.0487	3.2293	1.0510	4.0768	0.5338	1.0138	1.3139	0.0000	4,899.6205	4,899.6205	1.2164	0.0000	4,926.8990
Maximum	**2.3201**	**22.5620**	**22.7167**	**0.0487**	**3.2293**	**1.0510**	**4.0768**	**0.5338**	**1.0138**	**1.3139**	**0.0000**	**4,899.6205**	**4,899.6205**	**1.2164**	**0.0000**	**4,926.8990**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.2123	21.1058	25.0945	0.0487	1.4675	1.1064	2.3654	0.2671	1.1061	1.2158	0.0000	4,899.6205	4,899.6205	1.2164	0.0000	4,926.8990
Maximum	**1.2123**	**21.1058**	**25.0945**	**0.0487**	**1.4675**	**1.1064**	**2.3654**	**0.2671**	**1.1061**	**1.2158**	**0.0000**	**4,899.6205**	**4,899.6205**	**1.2164**	**0.0000**	**4,926.8990**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**47.75**	**6.45**	**-10.47**	**0.00**	**54.56**	**-5.27**	**41.98**	**49.97**	**-9.10**	**7.46**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0607	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0607**	**0.0000**	**3.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**7.7000e-004**	**7.7000e-004**	**0.0000**	**0.0000**	**8.2000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0607	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0607**	**0.0000**	**3.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**7.7000e-004**	**7.7000e-004**	**0.0000**	**0.0000**	**8.2000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2021	3/21/2021	5	15	
2	Site Preparation	Site Preparation	3/22/2021	5/3/2021	5	31	
3	Trenching	Trenching	3/22/2021	5/3/2021	5	31	
4	Building Construction	Building Construction	5/4/2021	7/18/2021	5	54	
5	Paving	Paving	7/19/2021	8/9/2021	5	15	

Acres of Grading (Site Preparation Phase): 3.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 3.5

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37

Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	8	13.00	0.00	198.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	475.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.8532	0.0000	2.8532	0.4320	0.0000	0.4320			0.0000			0.0000
Off-Road	1.8236	18.9829	18.9232	0.0363		0.8354	0.8354		0.7686	0.7686		3,513.0269	3,513.0269	1.1362		3,541.4315
Total	**1.8236**	**18.9829**	**18.9232**	**0.0363**	**2.8532**	**0.8354**	**3.6886**	**0.4320**	**0.7686**	**1.2006**		**3,513.0269**	**3,513.0269**	**1.1362**		**3,541.4315**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1101	3.5408	0.8302	0.0103	0.2308	0.0109	0.2417	0.0633	0.0104	0.0737		1,117.3091	1,117.3091	0.0758		1,119.2047
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	0.0557	0.0383	0.5236	1.4900e-003	0.1453	1.1700e-003	0.1465	0.0385	1.0800e-003	0.0396		148.0401	148.0401	4.3600e-003		148.1491
Total	**0.1658**	**3.5791**	**1.3538**	**0.0118**	**0.3761**	**0.0120**	**0.3882**	**0.1018**	**0.0115**	**0.1133**		**1,265.3492**	**1,265.3492**	**0.0802**		**1,267.3538**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					1.0914	0.0000	1.0914	0.1652	0.0000	0.1652			0.0000			0.0000
Off-Road	1.0465	17.5267	23.7406	0.0363		0.8859	0.8859		0.8734	0.8734	0.0000	3,513.0269	3,513.0269	1.1362		3,541.4315
Total	**1.0465**	**17.5267**	**23.7406**	**0.0363**	**1.0914**	**0.8859**	**1.9773**	**0.1652**	**0.8734**	**1.0386**	**0.0000**	**3,513.0269**	**3,513.0269**	**1.1362**		**3,541.4315**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1101	3.5408	0.8302	0.0103	0.2308	0.0109	0.2417	0.0633	0.0104	0.0737		1,117.3091	1,117.3091	0.0758		1,119.2047
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	0.0557	0.0383	0.5236	1.4900e-003	0.1453	1.1700e-003	0.1465	0.0385	1.0800e-003	0.0396		148.0401	148.0401	4.3600e-003		148.1491
Total	**0.1658**	**3.5791**	**1.3538**	**0.0118**	**0.3761**	**0.0120**	**0.3882**	**0.1018**	**0.0115**	**0.1133**		**1,265.3492**	**1,265.3492**	**0.0802**		**1,267.3538**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1336	0.0000	0.1336	0.0150	0.0000	0.0150			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1336**	**0.0000**	**0.1336**	**0.0150**	**0.0000**	**0.0150**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1278	4.1102	0.9637	0.0120	0.2679	0.0126	0.2805	0.0734	0.0121	0.0855		1,296.9741	1,296.9741	0.0880		1,299.1746
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1278**	**4.1102**	**0.9637**	**0.0120**	**0.2679**	**0.0126**	**0.2805**	**0.0734**	**0.0121**	**0.0855**		**1,296.9741**	**1,296.9741**	**0.0880**		**1,299.1746**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.0511	0.0000	0.0511	5.7500e-003	0.0000	5.7500e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0511**	**0.0000**	**0.0511**	**5.7500e-003**	**0.0000**	**5.7500e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1278	4.1102	0.9637	0.0120	0.2679	0.0126	0.2805	0.0734	0.0121	0.0855		1,296.9741	1,296.9741	0.0880		1,299.1746
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1278**	**4.1102**	**0.9637**	**0.0120**	**0.2679**	**0.0126**	**0.2805**	**0.0734**	**0.0121**	**0.0855**		**1,296.9741**	**1,296.9741**	**0.0880**		**1,299.1746**

3.4 Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5944	16.8295	15.6514	0.0311		0.7310	0.7310		0.6725	0.6725		3,012.8349	3,012.8349	0.9744		3,037.1952
Total	**1.5944**	**16.8295**	**15.6514**	**0.0311**		**0.7310**	**0.7310**		**0.6725**	**0.6725**		**3,012.8349**	**3,012.8349**	**0.9744**		**3,037.1952**

3.4 Trenching - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0426	1.3593	0.3553	3.6000e-003	0.0896	2.7800e-003	0.0924	0.0258	2.6600e-003	0.0285		384.8329	384.8329	0.0227		385.3997
Worker	0.0772	0.0530	0.7250	2.0600e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		204.9786	204.9786	6.0400e-003		205.1296
Total	**0.1197**	**1.4123**	**1.0803**	**5.6600e-003**	**0.2908**	**4.4100e-003**	**0.2952**	**0.0792**	**4.1600e-003**	**0.0833**		**589.8115**	**589.8115**	**0.0287**		**590.5292**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8684	15.2217	20.1457	0.0311		0.7744	0.7744		0.7660	0.7660	0.0000	3,012.8349	3,012.8349	0.9744		3,037.1952
Total	**0.8684**	**15.2217**	**20.1457**	**0.0311**		**0.7744**	**0.7744**		**0.7660**	**0.7660**	**0.0000**	**3,012.8349**	**3,012.8349**	**0.9744**		**3,037.1952**

3.4 Trenching - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0426	1.3593	0.3553	3.6000e-003	0.0896	2.7800e-003	0.0924	0.0258	2.6600e-003	0.0285		384.8329	384.8329	0.0227		385.3997
Worker	0.0772	0.0530	0.7250	2.0600e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		204.9786	204.9786	6.0400e-003		205.1296
Total	**0.1197**	**1.4123**	**1.0803**	**5.6600e-003**	**0.2908**	**4.4100e-003**	**0.2952**	**0.0792**	**4.1600e-003**	**0.0833**		**589.8115**	**589.8115**	**0.0287**		**590.5292**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1615	20.0484	20.1095	0.0351		1.0477	1.0477		1.0108	1.0108		3,357.3346	3,357.3346	0.5552		3,371.2141
Total	**2.1615**	**20.0484**	**20.1095**	**0.0351**		**1.0477**	**1.0477**		**1.0108**	**1.0108**		**3,357.3346**	**3,357.3346**	**0.5552**		**3,371.2141**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1586	0.1090	1.4903	4.2300e-003	0.4136	3.3400e-003	0.4169	0.1097	3.0800e-003	0.1128		421.3449	421.3449	0.0124		421.6552
Total	**0.1586**	**0.1090**	**1.4903**	**4.2300e-003**	**0.4136**	**3.3400e-003**	**0.4169**	**0.1097**	**3.0800e-003**	**0.1128**		**421.3449**	**421.3449**	**0.0124**		**421.6552**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7662	16.9985	22.3246	0.0351		1.1030	1.1030		1.1030	1.1030	0.0000	3,357.3346	3,357.3346	0.5552		3,371.2141
Total	**0.7662**	**16.9985**	**22.3246**	**0.0351**		**1.1030**	**1.1030**		**1.1030**	**1.1030**	**0.0000**	**3,357.3346**	**3,357.3346**	**0.5552**		**3,371.2141**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1586	0.1090	1.4903	4.2300e-003	0.4136	3.3400e-003	0.4169	0.1097	3.0800e-003	0.1128		421.3449	421.3449	0.0124		421.6552
Total	**0.1586**	**0.1090**	**1.4903**	**4.2300e-003**	**0.4136**	**3.3400e-003**	**0.4169**	**0.1097**	**3.0800e-003**	**0.1128**		**421.3449**	**421.3449**	**0.0124**		**421.6552**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0988	18.3461	21.7903	0.0356		1.0219	1.0219		0.9871	0.9871		3,399.4227	3,399.4227	0.5688		3,413.6426
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0988**	**18.3461**	**21.7903**	**0.0356**		**1.0219**	**1.0219**		**0.9871**	**0.9871**		**3,399.4227**	**3,399.4227**	**0.5688**		**3,413.6426**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0986	0.0678	0.9264	2.6300e-003	0.2571	2.0800e-003	0.2592	0.0682	1.9100e-003	0.0701		261.9171	261.9171	7.7200e-003		262.1100
Total	**0.0986**	**0.0678**	**0.9264**	**2.6300e-003**	**0.2571**	**2.0800e-003**	**0.2592**	**0.0682**	**1.9100e-003**	**0.0701**		**261.9171**	**261.9171**	**7.7200e-003**		**262.1100**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8290	16.8141	23.6627	0.0356		1.0858	1.0858		1.0817	1.0817	0.0000	3,399.4227	3,399.4227	0.5688		3,413.6426
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8290**	**16.8141**	**23.6627**	**0.0356**		**1.0858**	**1.0858**		**1.0817**	**1.0817**	**0.0000**	**3,399.4227**	**3,399.4227**	**0.5688**		**3,413.6426**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0986	0.0678	0.9264	2.6300e-003	0.2571	2.0800e-003	0.2592	0.0682	1.9100e-003	0.0701		261.9171	261.9171	7.7200e-003		262.1100
Total	**0.0986**	**0.0678**	**0.9264**	**2.6300e-003**	**0.2571**	**2.0800e-003**	**0.2592**	**0.0682**	**1.9100e-003**	**0.0701**		**261.9171**	**261.9171**	**7.7200e-003**		**262.1100**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0607	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Unmitigated	0.0607	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Total	**0.0607**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**7.7000e-004**	**7.7000e-004**	**0.0000**		**8.2000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Total	**0.0607**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**7.7000e-004**	**7.7000e-004**	**0.0000**		**8.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 3

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	3.50	Acre	3.50	152,460.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2021
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 3 - Los Angeles-South Coast County, Winter

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan, Phase 1 is 3,500 linear feet, Phase 2 is 12,600 linear feet, Phase 3 is 6,500 linear feet, and Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Applicant's anticipated construction duration of 160 days for Phase 3.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	9148	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	5.00	31.00
tblConstructionPhase	NumDays	230.00	54.00
tblConstructionPhase	NumDays	18.00	15.00
tblConstructionPhase	PhaseEndDate	3/26/2021	3/21/2021

tblConstructionPhase	PhaseEndDate	4/2/2021	5/3/2021
tblConstructionPhase	PhaseEndDate	4/2/2021	5/3/2021
tblConstructionPhase	PhaseEndDate	2/18/2022	7/18/2021
tblConstructionPhase	PhaseEndDate	3/16/2022	8/9/2021
tblConstructionPhase	PhaseStartDate	3/27/2021	3/22/2021
tblConstructionPhase	PhaseStartDate	4/3/2021	3/22/2021
tblConstructionPhase	PhaseStartDate	4/3/2021	5/4/2021
tblConstructionPhase	PhaseStartDate	2/19/2022	7/19/2021
tblGrading	AcresOfGrading	0.00	3.50
tblGrading	MaterialExported	0.00	3,800.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	25.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	64.00	37.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	2.3379	22.6095	22.6373	0.0483	3.2293	1.0510	4.0769	0.5338	1.0138	1.3140	0.0000	4,854.6302	4,854.6302	1.2188	0.0000	4,882.0146
Maximum	**2.3379**	**22.6095**	**22.6373**	**0.0483**	**3.2293**	**1.0510**	**4.0769**	**0.5338**	**1.0138**	**1.3140**	**0.0000**	**4,854.6302**	**4,854.6302**	**1.2188**	**0.0000**	**4,882.0146**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.2212	21.1533	25.0997	0.0483	1.4675	1.1064	2.3656	0.2671	1.1061	1.2158	0.0000	4,854.6302	4,854.6302	1.2188	0.0000	4,882.0146
Maximum	**1.2212**	**21.1533**	**25.0997**	**0.0483**	**1.4675**	**1.1064**	**2.3656**	**0.2671**	**1.1061**	**1.2158**	**0.0000**	**4,854.6302**	**4,854.6302**	**1.2188**	**0.0000**	**4,882.0146**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**47.76**	**6.44**	**-10.88**	**0.00**	**54.56**	**-5.27**	**41.98**	**49.97**	**-9.10**	**7.47**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0607	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0607**	**0.0000**	**3.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**7.7000e-004**	**7.7000e-004**	**0.0000**	**0.0000**	**8.2000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0607	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0607**	**0.0000**	**3.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**7.7000e-004**	**7.7000e-004**	**0.0000**	**0.0000**	**8.2000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2021	3/21/2021	5	15	
2	Site Preparation	Site Preparation	3/22/2021	5/3/2021	5	31	
3	Trenching	Trenching	3/22/2021	5/3/2021	5	31	
4	Building Construction	Building Construction	5/4/2021	7/18/2021	5	54	
5	Paving	Paving	7/19/2021	8/9/2021	5	15	

Acres of Grading (Site Preparation Phase): 3.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 3.5

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37

Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	8	13.00	0.00	198.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	475.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.8532	0.0000	2.8532	0.4320	0.0000	0.4320			0.0000			0.0000
Off-Road	1.8236	18.9829	18.9232	0.0363		0.8354	0.8354		0.7686	0.7686		3,513.0269	3,513.0269	1.1362		3,541.4315
Total	**1.8236**	**18.9829**	**18.9232**	**0.0363**	**2.8532**	**0.8354**	**3.6886**	**0.4320**	**0.7686**	**1.2006**		**3,513.0269**	**3,513.0269**	**1.1362**		**3,541.4315**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1127	3.5842	0.8804	0.0101	0.2308	0.0110	0.2418	0.0633	0.0106	0.0738		1,097.9537	1,097.9537	0.0785		1,099.9161
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	0.0620	0.0424	0.4787	1.4000e-003	0.1453	1.1700e-003	0.1465	0.0385	1.0800e-003	0.0396		139.3926	139.3926	4.1000e-003		139.4952
Total	**0.1747**	**3.6266**	**1.3591**	**0.0115**	**0.3761**	**0.0122**	**0.3883**	**0.1018**	**0.0116**	**0.1134**		**1,237.3463**	**1,237.3463**	**0.0826**		**1,239.4113**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					1.0914	0.0000	1.0914	0.1652	0.0000	0.1652			0.0000			0.0000
Off-Road	1.0465	17.5267	23.7406	0.0363		0.8859	0.8859		0.8734	0.8734	0.0000	3,513.0269	3,513.0269	1.1362		3,541.4315
Total	**1.0465**	**17.5267**	**23.7406**	**0.0363**	**1.0914**	**0.8859**	**1.9773**	**0.1652**	**0.8734**	**1.0386**	**0.0000**	**3,513.0269**	**3,513.0269**	**1.1362**		**3,541.4315**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1127	3.5842	0.8804	0.0101	0.2308	0.0110	0.2418	0.0633	0.0106	0.0738		1,097.9537	1,097.9537	0.0785		1,099.9161
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	0.0620	0.0424	0.4787	1.4000e-003	0.1453	1.1700e-003	0.1465	0.0385	1.0800e-003	0.0396		139.3926	139.3926	4.1000e-003		139.4952
Total	**0.1747**	**3.6266**	**1.3591**	**0.0115**	**0.3761**	**0.0122**	**0.3883**	**0.1018**	**0.0116**	**0.1134**		**1,237.3463**	**1,237.3463**	**0.0826**		**1,239.4113**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1336	0.0000	0.1336	0.0150	0.0000	0.0150			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1336**	**0.0000**	**0.1336**	**0.0150**	**0.0000**	**0.0150**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1308	4.1605	1.0219	0.0118	0.2679	0.0128	0.2807	0.0734	0.0123	0.0857		1,274.5064	1,274.5064	0.0911		1,276.7844
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1308**	**4.1605**	**1.0219**	**0.0118**	**0.2679**	**0.0128**	**0.2807**	**0.0734**	**0.0123**	**0.0857**		**1,274.5064**	**1,274.5064**	**0.0911**		**1,276.7844**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.0511	0.0000	0.0511	5.7500e-003	0.0000	5.7500e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0511**	**0.0000**	**0.0511**	**5.7500e-003**	**0.0000**	**5.7500e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1308	4.1605	1.0219	0.0118	0.2679	0.0128	0.2807	0.0734	0.0123	0.0857		1,274.5064	1,274.5064	0.0911		1,276.7844
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1308**	**4.1605**	**1.0219**	**0.0118**	**0.2679**	**0.0128**	**0.2807**	**0.0734**	**0.0123**	**0.0857**		**1,274.5064**	**1,274.5064**	**0.0911**		**1,276.7844**

3.4 Trenching - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5944	16.8295	15.6514	0.0311		0.7310	0.7310		0.6725	0.6725		3,012.8349	3,012.8349	0.9744		3,037.1952
Total	**1.5944**	**16.8295**	**15.6514**	**0.0311**		**0.7310**	**0.7310**		**0.6725**	**0.6725**		**3,012.8349**	**3,012.8349**	**0.9744**		**3,037.1952**

3.4 Trenching - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0447	1.3564	0.3931	3.5000e-003	0.0896	2.8700e-003	0.0925	0.0258	2.7400e-003	0.0286		374.2837	374.2837	0.0242		374.8878
Worker	0.0858	0.0587	0.6629	1.9400e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		193.0052	193.0052	5.6800e-003		193.1472
Total	**0.1305**	**1.4152**	**1.0559**	**5.4400e-003**	**0.2908**	**4.5000e-003**	**0.2953**	**0.0792**	**4.2400e-003**	**0.0834**		**567.2889**	**567.2889**	**0.0298**		**568.0350**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8684	15.2217	20.1457	0.0311		0.7744	0.7744		0.7660	0.7660	0.0000	3,012.8349	3,012.8349	0.9744		3,037.1952
Total	**0.8684**	**15.2217**	**20.1457**	**0.0311**		**0.7744**	**0.7744**		**0.7660**	**0.7660**	**0.0000**	**3,012.8349**	**3,012.8349**	**0.9744**		**3,037.1952**

3.4 Trenching - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0447	1.3564	0.3931	3.5000e-003	0.0896	2.8700e-003	0.0925	0.0258	2.7400e-003	0.0286		374.2837	374.2837	0.0242		374.8878
Worker	0.0858	0.0587	0.6629	1.9400e-003	0.2012	1.6300e-003	0.2028	0.0534	1.5000e-003	0.0549		193.0052	193.0052	5.6800e-003		193.1472
Total	**0.1305**	**1.4152**	**1.0559**	**5.4400e-003**	**0.2908**	**4.5000e-003**	**0.2953**	**0.0792**	**4.2400e-003**	**0.0834**		**567.2889**	**567.2889**	**0.0298**		**568.0350**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.1615	20.0484	20.1095	0.0351		1.0477	1.0477		1.0108	1.0108		3,357.3346	3,357.3346	0.5552		3,371.2141
Total	**2.1615**	**20.0484**	**20.1095**	**0.0351**		**1.0477**	**1.0477**		**1.0108**	**1.0108**		**3,357.3346**	**3,357.3346**	**0.5552**		**3,371.2141**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1764	0.1207	1.3626	3.9800e-003	0.4136	3.3400e-003	0.4169	0.1097	3.0800e-003	0.1128		396.7329	396.7329	0.0117		397.0248
Total	**0.1764**	**0.1207**	**1.3626**	**3.9800e-003**	**0.4136**	**3.3400e-003**	**0.4169**	**0.1097**	**3.0800e-003**	**0.1128**		**396.7329**	**396.7329**	**0.0117**		**397.0248**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7662	16.9985	22.3246	0.0351		1.1030	1.1030		1.1030	1.1030	0.0000	3,357.3346	3,357.3346	0.5552		3,371.2141
Total	**0.7662**	**16.9985**	**22.3246**	**0.0351**		**1.1030**	**1.1030**		**1.1030**	**1.1030**	**0.0000**	**3,357.3346**	**3,357.3346**	**0.5552**		**3,371.2141**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1764	0.1207	1.3626	3.9800e-003	0.4136	3.3400e-003	0.4169	0.1097	3.0800e-003	0.1128		396.7329	396.7329	0.0117		397.0248
Total	**0.1764**	**0.1207**	**1.3626**	**3.9800e-003**	**0.4136**	**3.3400e-003**	**0.4169**	**0.1097**	**3.0800e-003**	**0.1128**		**396.7329**	**396.7329**	**0.0117**		**397.0248**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0988	18.3461	21.7903	0.0356		1.0219	1.0219		0.9871	0.9871		3,399.4227	3,399.4227	0.5688		3,413.6426
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.0988**	**18.3461**	**21.7903**	**0.0356**		**1.0219**	**1.0219**		**0.9871**	**0.9871**		**3,399.4227**	**3,399.4227**	**0.5688**		**3,413.6426**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1097	0.0750	0.8470	2.4800e-003	0.2571	2.0800e-003	0.2592	0.0682	1.9100e-003	0.0701		246.6178	246.6178	7.2600e-003		246.7992
Total	**0.1097**	**0.0750**	**0.8470**	**2.4800e-003**	**0.2571**	**2.0800e-003**	**0.2592**	**0.0682**	**1.9100e-003**	**0.0701**		**246.6178**	**246.6178**	**7.2600e-003**		**246.7992**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8290	16.8141	23.6627	0.0356		1.0858	1.0858		1.0817	1.0817	0.0000	3,399.4227	3,399.4227	0.5688		3,413.6426
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8290**	**16.8141**	**23.6627**	**0.0356**		**1.0858**	**1.0858**		**1.0817**	**1.0817**	**0.0000**	**3,399.4227**	**3,399.4227**	**0.5688**		**3,413.6426**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1097	0.0750	0.8470	2.4800e-003	0.2571	2.0800e-003	0.2592	0.0682	1.9100e-003	0.0701		246.6178	246.6178	7.2600e-003		246.7992
Total	**0.1097**	**0.0750**	**0.8470**	**2.4800e-003**	**0.2571**	**2.0800e-003**	**0.2592**	**0.0682**	**1.9100e-003**	**0.0701**		**246.6178**	**246.6178**	**7.2600e-003**		**246.7992**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0607	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Unmitigated	0.0607	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Total	**0.0607**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**7.7000e-004**	**7.7000e-004**	**0.0000**		**8.2000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Total	**0.0607**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**7.7000e-004**	**7.7000e-004**	**0.0000**		**8.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 4

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2022
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 4 - Los Angeles-South Coast County, Annual

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Applicant's anticipated construction duration of 155 days for Phase 4.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	6534	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	220.00	53.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	10.00	16.00
tblConstructionPhase	NumDays	3.00	29.00
tblConstructionPhase	PhaseEndDate	2/2/2023	7/13/2022

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tblConstructionPhase	PhaseEndDate	3/28/2022	3/21/2022
tblConstructionPhase	PhaseEndDate	2/16/2023	8/4/2022
tblConstructionPhase	PhaseEndDate	3/31/2022	5/1/2022
tblConstructionPhase	PhaseEndDate	3/31/2022	5/1/2022
tblConstructionPhase	PhaseStartDate	4/1/2022	5/2/2022
tblConstructionPhase	PhaseStartDate	2/3/2023	7/14/2022
tblConstructionPhase	PhaseStartDate	3/29/2022	3/22/2022
tblConstructionPhase	PhaseStartDate	4/1/2022	3/22/2022
tblGrading	AcresOfGrading	0.00	2.50
tblGrading	MaterialExported	0.00	7,600.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00

tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	46.00	37.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.1120	1.1307	1.1683	2.6800e-003	0.0776	0.0452	0.1227	0.0152	0.0430	0.0582	0.0000	240.2416	240.2416	0.0421	0.0000	241.2940
Maximum	**0.1120**	**1.1307**	**1.1683**	**2.6800e-003**	**0.0776**	**0.0452**	**0.1227**	**0.0152**	**0.0430**	**0.0582**	**0.0000**	**240.2416**	**240.2416**	**0.0421**	**0.0000**	**241.2940**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0588	1.1262	1.3527	2.6800e-003	0.0481	0.0559	0.1040	0.0108	0.0557	0.0665	0.0000	240.2414	240.2414	0.0421	0.0000	241.2938
Maximum	**0.0588**	**1.1262**	**1.3527**	**2.6800e-003**	**0.0481**	**0.0559**	**0.1040**	**0.0108**	**0.0557**	**0.0665**	**0.0000**	**240.2414**	**240.2414**	**0.0421**	**0.0000**	**241.2938**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**47.48**	**0.40**	**-15.78**	**0.00**	**38.04**	**-23.73**	**15.29**	**29.11**	**-29.44**	**-14.15**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-1-2022	5-31-2022	0.7715	0.7585
2	6-1-2022	8-31-2022	0.4583	0.4149
		Highest	0.7715	0.7585

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.2500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.2500e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**7.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.2500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.2500e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**7.0000e-005**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2022	3/21/2022	5	15	
2	Site Preparation	Site Preparation	3/22/2022	5/1/2022	5	29	
3	Trenching	Trenching	3/22/2022	5/1/2022	5	29	
4	Building Construction	Building Construction	5/2/2022	7/13/2022	5	53	
5	Paving	Paving	7/14/2022	8/4/2022	5	16	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.5

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38

Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	8	13.00	0.00	425.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	950.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0460	0.0000	0.0460	6.9700e-003	0.0000	6.9700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0119	0.1175	0.1402	2.7000e-004		5.0700e-003	5.0700e-003		4.6600e-003	4.6600e-003	0.0000	23.9105	23.9105	7.7300e-003	0.0000	24.1038
Total	**0.0119**	**0.1175**	**0.1402**	**2.7000e-004**	**0.0460**	**5.0700e-003**	**0.0511**	**6.9700e-003**	**4.6600e-003**	**0.0116**	**0.0000**	**23.9105**	**23.9105**	**7.7300e-003**	**0.0000**	**24.1038**

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.7000e-003	0.0546	0.0136	1.6000e-004	3.6500e-003	1.5000e-004	3.8100e-003	1.0000e-003	1.5000e-004	1.1500e-003	0.0000	16.0062	16.0062	1.1100e-003	0.0000	16.0338
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	2.9000e-004	3.4000e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.9303	0.9303	3.0000e-005	0.0000	0.9309
Total	**2.0900e-003**	**0.0549**	**0.0170**	**1.7000e-004**	**4.7200e-003**	**1.6000e-004**	**4.8900e-003**	**1.2800e-003**	**1.6000e-004**	**1.4400e-003**	**0.0000**	**16.9365**	**16.9365**	**1.1400e-003**	**0.0000**	**16.9648**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					0.0176	0.0000	0.0176	2.6600e-003	0.0000	2.6600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.5500e-003	0.1272	0.1779	2.7000e-004		6.4400e-003	6.4400e-003		6.3600e-003	6.3600e-003	0.0000	23.9105	23.9105	7.7300e-003	0.0000	24.1038
Total	**7.5500e-003**	**0.1272**	**0.1779**	**2.7000e-004**	**0.0176**	**6.4400e-003**	**0.0240**	**2.6600e-003**	**6.3600e-003**	**9.0200e-003**	**0.0000**	**23.9105**	**23.9105**	**7.7300e-003**	**0.0000**	**24.1038**

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.7000e-003	0.0546	0.0136	1.6000e-004	3.6500e-003	1.5000e-004	3.8100e-003	1.0000e-003	1.5000e-004	1.1500e-003	0.0000	16.0062	16.0062	1.1100e-003	0.0000	16.0338
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	2.9000e-004	3.4000e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.9303	0.9303	3.0000e-005	0.0000	0.9309
Total	**2.0900e-003**	**0.0549**	**0.0170**	**1.7000e-004**	**4.7200e-003**	**1.6000e-004**	**4.8900e-003**	**1.2800e-003**	**1.6000e-004**	**1.4400e-003**	**0.0000**	**16.9365**	**16.9365**	**1.1400e-003**	**0.0000**	**16.9648**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.7600e-003	0.0000	1.7600e-003	2.1000e-004	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.7600e-003**	**0.0000**	**1.7600e-003**	**2.1000e-004**	**0.0000**	**2.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.8100e-003	0.1220	0.0303	3.6000e-004	8.1600e-003	3.4000e-004	8.5100e-003	2.2400e-003	3.3000e-004	2.5700e-003	0.0000	35.7785	35.7785	2.4700e-003	0.0000	35.8403
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.8100e-003**	**0.1220**	**0.0303**	**3.6000e-004**	**8.1600e-003**	**3.4000e-004**	**8.5100e-003**	**2.2400e-003**	**3.3000e-004**	**2.5700e-003**	**0.0000**	**35.7785**	**35.7785**	**2.4700e-003**	**0.0000**	**35.8403**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					6.7000e-004	0.0000	6.7000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.7000e-004**	**0.0000**	**6.7000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.8100e-003	0.1220	0.0303	3.6000e-004	8.1600e-003	3.4000e-004	8.5100e-003	2.2400e-003	3.3000e-004	2.5700e-003	0.0000	35.7785	35.7785	2.4700e-003	0.0000	35.8403
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.8100e-003**	**0.1220**	**0.0303**	**3.6000e-004**	**8.1600e-003**	**3.4000e-004**	**8.5100e-003**	**2.2400e-003**	**3.3000e-004**	**2.5700e-003**	**0.0000**	**35.7785**	**35.7785**	**2.4700e-003**	**0.0000**	**35.8403**

3.4 Trenching - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0201	0.2013	0.2238	4.5000e-004		8.5500e-003	8.5500e-003		7.8600e-003	7.8600e-003	0.0000	39.6497	39.6497	0.0128	0.0000	39.9703
Total	**0.0201**	**0.2013**	**0.2238**	**4.5000e-004**		**8.5500e-003**	**8.5500e-003**		**7.8600e-003**	**7.8600e-003**	**0.0000**	**39.6497**	**39.6497**	**0.0128**	**0.0000**	**39.9703**

3.4 Trenching - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0190	5.1400e-003	5.0000e-005	1.2800e-003	4.0000e-005	1.3100e-003	3.7000e-004	3.0000e-005	4.0000e-004	0.0000	4.9599	4.9599	3.0000e-004	0.0000	4.9673
Worker	1.0500e-003	7.9000e-004	9.0900e-003	3.0000e-005	2.8600e-003	2.0000e-005	2.8800e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.4903	2.4903	7.0000e-005	0.0000	2.4921
Total	**1.6400e-003**	**0.0198**	**0.0142**	**8.0000e-005**	**4.1400e-003**	**6.0000e-005**	**4.1900e-003**	**1.1300e-003**	**5.0000e-005**	**1.1800e-003**	**0.0000**	**7.4503**	**7.4503**	**3.7000e-004**	**0.0000**	**7.4594**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0122	0.2153	0.2919	4.5000e-004		0.0110	0.0110		0.0109	0.0109	0.0000	39.6497	39.6497	0.0128	0.0000	39.9702
Total	**0.0122**	**0.2153**	**0.2919**	**4.5000e-004**		**0.0110**	**0.0110**		**0.0109**	**0.0109**	**0.0000**	**39.6497**	**39.6497**	**0.0128**	**0.0000**	**39.9702**

3.4 Trenching - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.9000e-004	0.0190	5.1400e-003	5.0000e-005	1.2800e-003	4.0000e-005	1.3100e-003	3.7000e-004	3.0000e-005	4.0000e-004	0.0000	4.9599	4.9599	3.0000e-004	0.0000	4.9673
Worker	1.0500e-003	7.9000e-004	9.0900e-003	3.0000e-005	2.8600e-003	2.0000e-005	2.8800e-003	7.6000e-004	2.0000e-005	7.8000e-004	0.0000	2.4903	2.4903	7.0000e-005	0.0000	2.4921
Total	**1.6400e-003**	**0.0198**	**0.0142**	**8.0000e-005**	**4.1400e-003**	**6.0000e-005**	**4.1900e-003**	**1.1300e-003**	**5.0000e-005**	**1.1800e-003**	**0.0000**	**7.4503**	**7.4503**	**3.7000e-004**	**0.0000**	**7.4594**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0524	0.4790	0.5285	9.3000e-004		0.0239	0.0239		0.0230	0.0230	0.0000	80.7348	80.7348	0.0132	0.0000	81.0644
Total	**0.0524**	**0.4790**	**0.5285**	**9.3000e-004**		**0.0239**	**0.0239**		**0.0230**	**0.0230**	**0.0000**	**80.7348**	**80.7348**	**0.0132**	**0.0000**	**81.0644**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9600e-003	2.9700e-003	0.0342	1.0000e-004	0.0107	9.0000e-005	0.0108	2.8500e-003	8.0000e-005	2.9300e-003	0.0000	9.3555	9.3555	2.6000e-004	0.0000	9.3619
Total	**3.9600e-003**	**2.9700e-003**	**0.0342**	**1.0000e-004**	**0.0107**	**9.0000e-005**	**0.0108**	**2.8500e-003**	**8.0000e-005**	**2.9300e-003**	**0.0000**	**9.3555**	**9.3555**	**2.6000e-004**	**0.0000**	**9.3619**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0203	0.4505	0.5916	9.3000e-004		0.0292	0.0292		0.0292	0.0292	0.0000	80.7347	80.7347	0.0132	0.0000	81.0643
Total	**0.0203**	**0.4505**	**0.5916**	**9.3000e-004**		**0.0292**	**0.0292**		**0.0292**	**0.0292**	**0.0000**	**80.7347**	**80.7347**	**0.0132**	**0.0000**	**81.0643**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9600e-003	2.9700e-003	0.0342	1.0000e-004	0.0107	9.0000e-005	0.0108	2.8500e-003	8.0000e-005	2.9300e-003	0.0000	9.3555	9.3555	2.6000e-004	0.0000	9.3619
Total	**3.9600e-003**	**2.9700e-003**	**0.0342**	**1.0000e-004**	**0.0107**	**9.0000e-005**	**0.0108**	**2.8500e-003**	**8.0000e-005**	**2.9300e-003**	**0.0000**	**9.3555**	**9.3555**	**2.6000e-004**	**0.0000**	**9.3619**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0154	0.1326	0.1737	2.8000e-004		7.0500e-003	7.0500e-003		6.8100e-003	6.8100e-003	0.0000	24.6703	24.6703	4.0800e-003	0.0000	24.7722
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0154**	**0.1326**	**0.1737**	**2.8000e-004**		**7.0500e-003**	**7.0500e-003**		**6.8100e-003**	**6.8100e-003**	**0.0000**	**24.6703**	**24.6703**	**4.0800e-003**	**0.0000**	**24.7722**

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	7.4000e-004	5.6000e-004	6.4100e-003	2.0000e-005	2.0200e-003	2.0000e-005	2.0300e-003	5.4000e-004	1.0000e-005	5.5000e-004	0.0000	1.7556	1.7556	5.0000e-005	0.0000	1.7569
Total	**7.4000e-004**	**5.6000e-004**	**6.4100e-003**	**2.0000e-005**	**2.0200e-003**	**2.0000e-005**	**2.0300e-003**	**5.4000e-004**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**1.7556**	**1.7556**	**5.0000e-005**	**0.0000**	**1.7569**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	6.5200e-003	0.1330	0.1892	2.8000e-004		8.6100e-003	8.6100e-003		8.5900e-003	8.5900e-003	0.0000	24.6702	24.6702	4.0800e-003	0.0000	24.7722
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.5200e-003**	**0.1330**	**0.1892**	**2.8000e-004**		**8.6100e-003**	**8.6100e-003**		**8.5900e-003**	**8.5900e-003**	**0.0000**	**24.6702**	**24.6702**	**4.0800e-003**	**0.0000**	**24.7722**

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	7.4000e-004	5.6000e-004	6.4100e-003	2.0000e-005	2.0200e-003	2.0000e-005	2.0300e-003	5.4000e-004	1.0000e-005	5.5000e-004	0.0000	1.7556	1.7556	5.0000e-005	0.0000	1.7569
Total	**7.4000e-004**	**5.6000e-004**	**6.4100e-003**	**2.0000e-005**	**2.0200e-003**	**2.0000e-005**	**2.0300e-003**	**5.4000e-004**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**1.7556**	**1.7556**	**5.0000e-005**	**0.0000**	**1.7569**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

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

5.3 Energy by Land Use - Electricity

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.2500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Unmitigated	8.2500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.0400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Total	**8.2500e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**7.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.0400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Total	**8.2500e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**7.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

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

7.2 Water by Land Use

Mitigated

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 4

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2022
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 4 - Los Angeles-South Coast County, Summer

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Applicant's anticipated construction duration of 155 days for Phase 4.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	6534	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	220.00	53.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	10.00	16.00
tblConstructionPhase	NumDays	3.00	29.00
tblConstructionPhase	PhaseEndDate	2/2/2023	7/13/2022

tblConstructionPhase	PhaseEndDate	3/28/2022	3/21/2022
tblConstructionPhase	PhaseEndDate	2/16/2023	8/4/2022
tblConstructionPhase	PhaseEndDate	3/31/2022	5/1/2022
tblConstructionPhase	PhaseEndDate	3/31/2022	5/1/2022
tblConstructionPhase	PhaseStartDate	4/1/2022	5/2/2022
tblConstructionPhase	PhaseStartDate	2/3/2023	7/14/2022
tblConstructionPhase	PhaseStartDate	3/29/2022	3/22/2022
tblConstructionPhase	PhaseStartDate	4/1/2022	3/22/2022
tblGrading	AcresOfGrading	0.00	2.50
tblGrading	MaterialExported	0.00	7,600.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00

tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	46.00	37.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	2.1260	23.3873	22.5646	0.0619	6.7751	0.9034	7.4720	1.1032	0.8721	1.7450	0.0000	6,333.5223	6,333.5223	1.3008	0.0000	6,363.2115
Maximum	**2.1260**	**23.3873**	**22.5646**	**0.0619**	**6.7751**	**0.9034**	**7.4720**	**1.1032**	**0.8721**	**1.7450**	**0.0000**	**6,333.5223**	**6,333.5223**	**1.3008**	**0.0000**	**6,363.2115**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.2834	24.3488	25.9626	0.0619	2.9872	1.1063	3.8667	0.5296	1.1060	1.3979	0.0000	6,333.5223	6,333.5223	1.3008	0.0000	6,363.2115
Maximum	**1.2834**	**24.3488**	**25.9626**	**0.0619**	**2.9872**	**1.1063**	**3.8667**	**0.5296**	**1.1060**	**1.3979**	**0.0000**	**6,333.5223**	**6,333.5223**	**1.3008**	**0.0000**	**6,363.2115**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**39.63**	**-4.11**	**-15.06**	**0.00**	**55.91**	**-22.45**	**48.25**	**51.99**	**-26.82**	**19.89**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0452	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0452**	**0.0000**	**2.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**0.0000**	**5.8000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0452	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0452**	**0.0000**	**2.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**0.0000**	**5.8000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2022	3/21/2022	5	15	
2	Site Preparation	Site Preparation	3/22/2022	5/1/2022	5	29	
3	Trenching	Trenching	3/22/2022	5/1/2022	5	29	
4	Building Construction	Building Construction	5/2/2022	7/13/2022	5	53	
5	Paving	Paving	7/14/2022	8/4/2022	5	16	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.5

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37

Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	8	13.00	0.00	425.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	950.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1344	0.0000	6.1344	0.9288	0.0000	0.9288			0.0000			0.0000
Off-Road	1.5890	15.6608	18.6909	0.0363		0.6754	0.6754		0.6214	0.6214		3,514.2436	3,514.2436	1.1366		3,542.6580
Total	**1.5890**	**15.6608**	**18.6909**	**0.0363**	**6.1344**	**0.6754**	**6.8098**	**0.9288**	**0.6214**	**1.5502**		**3,514.2436**	**3,514.2436**	**1.1366**		**3,542.6580**

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2248	7.0603	1.7639	0.0218	0.4954	0.0203	0.5157	0.1358	0.0194	0.1552		2,369.8991	2,369.8991	0.1603		2,373.9069
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	0.0522	0.0346	0.4831	1.4300e-003	0.1453	1.1400e-003	0.1465	0.0385	1.0500e-003	0.0396		142.8326	142.8326	3.9400e-003		142.9312
Total	**0.2770**	**7.0949**	**2.2470**	**0.0233**	**0.6408**	**0.0214**	**0.6622**	**0.1744**	**0.0204**	**0.1948**		**2,512.7317**	**2,512.7317**	**0.1643**		**2,516.8381**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3464	0.0000	2.3464	0.3553	0.0000	0.3553			0.0000			0.0000
Off-Road	1.0064	16.9621	23.7156	0.0363		0.8581	0.8581		0.8478	0.8478	0.0000	3,514.2436	3,514.2436	1.1366		3,542.6580
Total	**1.0064**	**16.9621**	**23.7156**	**0.0363**	**2.3464**	**0.8581**	**3.2045**	**0.3553**	**0.8478**	**1.2031**	**0.0000**	**3,514.2436**	**3,514.2436**	**1.1366**		**3,542.6580**

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2248	7.0603	1.7639	0.0218	0.4954	0.0203	0.5157	0.1358	0.0194	0.1552		2,369.8991	2,369.8991	0.1603		2,373.9069
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	0.0522	0.0346	0.4831	1.4300e-003	0.1453	1.1400e-003	0.1465	0.0385	1.0500e-003	0.0396		142.8326	142.8326	3.9400e-003		142.9312
Total	**0.2770**	**7.0949**	**2.2470**	**0.0233**	**0.6408**	**0.0214**	**0.6622**	**0.1744**	**0.0204**	**0.1948**		**2,512.7317**	**2,512.7317**	**0.1643**		**2,516.8381**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1211	0.0000	0.1211	0.0144	0.0000	0.0144			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1211**	**0.0000**	**0.1211**	**0.0144**	**0.0000**	**0.0144**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2599	8.1630	2.0394	0.0252	0.5728	0.0234	0.5963	0.1570	0.0224	0.1794		2,740.0456	2,740.0456	0.1854		2,744.6794
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2599**	**8.1630**	**2.0394**	**0.0252**	**0.5728**	**0.0234**	**0.5963**	**0.1570**	**0.0224**	**0.1794**		**2,740.0456**	**2,740.0456**	**0.1854**		**2,744.6794**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.0463	0.0000	0.0463	5.4900e-003	0.0000	5.4900e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0463**	**0.0000**	**0.0463**	**5.4900e-003**	**0.0000**	**5.4900e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2599	8.1630	2.0394	0.0252	0.5728	0.0234	0.5963	0.1570	0.0224	0.1794		2,740.0456	2,740.0456	0.1854		2,744.6794
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2599**	**8.1630**	**2.0394**	**0.0252**	**0.5728**	**0.0234**	**0.5963**	**0.1570**	**0.0224**	**0.1794**		**2,740.0456**	**2,740.0456**	**0.1854**		**2,744.6794**

3.4 Trenching - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3866	13.8838	15.4358	0.0311		0.5895	0.5895		0.5424	0.5424		3,014.2283	3,014.2283	0.9749		3,038.5999
Total	**1.3866**	**13.8838**	**15.4358**	**0.0311**		**0.5895**	**0.5895**		**0.5424**	**0.5424**		**3,014.2283**	**3,014.2283**	**0.9749**		**3,038.5999**

3.4 Trenching - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0399	1.2926	0.3362	3.5700e-003	0.0896	2.4300e-003	0.0921	0.0258	2.3200e-003	0.0281		381.4802	381.4802	0.0219		382.0275
Worker	0.0723	0.0479	0.6689	1.9800e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		197.7682	197.7682	5.4600e-003		197.9047
Total	**0.1122**	**1.3405**	**1.0051**	**5.5500e-003**	**0.2908**	**4.0000e-003**	**0.2948**	**0.0792**	**3.7700e-003**	**0.0829**		**579.2485**	**579.2485**	**0.0274**		**579.9322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8417	14.8452	20.1291	0.0311		0.7559	0.7559		0.7490	0.7490	0.0000	3,014.2283	3,014.2283	0.9749		3,038.5999
Total	**0.8417**	**14.8452**	**20.1291**	**0.0311**		**0.7559**	**0.7559**		**0.7490**	**0.7490**	**0.0000**	**3,014.2283**	**3,014.2283**	**0.9749**		**3,038.5999**

3.4 Trenching - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0399	1.2926	0.3362	3.5700e-003	0.0896	2.4300e-003	0.0921	0.0258	2.3200e-003	0.0281		381.4802	381.4802	0.0219		382.0275
Worker	0.0723	0.0479	0.6689	1.9800e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		197.7682	197.7682	5.4600e-003		197.9047
Total	**0.1122**	**1.3405**	**1.0051**	**5.5500e-003**	**0.2908**	**4.0000e-003**	**0.2948**	**0.0792**	**3.7700e-003**	**0.0829**		**579.2485**	**579.2485**	**0.0274**		**579.9322**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9774	18.0766	19.9436	0.0351		0.9002	0.9002		0.8691	0.8691		3,358.2968	3,358.2968	0.5485		3,372.0084
Total	**1.9774**	**18.0766**	**19.9436**	**0.0351**		**0.9002**	**0.9002**		**0.8691**	**0.8691**		**3,358.2968**	**3,358.2968**	**0.5485**		**3,372.0084**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1486	0.0985	1.3749	4.0800e-003	0.4136	3.2400e-003	0.4168	0.1097	2.9800e-003	0.1127		406.5236	406.5236	0.0112		406.8041
Total	**0.1486**	**0.0985**	**1.3749**	**4.0800e-003**	**0.4136**	**3.2400e-003**	**0.4168**	**0.1097**	**2.9800e-003**	**0.1127**		**406.5236**	**406.5236**	**0.0112**		**406.8041**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7662	16.9985	22.3246	0.0351		1.1030	1.1030		1.1030	1.1030	0.0000	3,358.2968	3,358.2968	0.5485		3,372.0084
Total	**0.7662**	**16.9985**	**22.3246**	**0.0351**		**1.1030**	**1.1030**		**1.1030**	**1.1030**	**0.0000**	**3,358.2968**	**3,358.2968**	**0.5485**		**3,372.0084**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1486	0.0985	1.3749	4.0800e-003	0.4136	3.2400e-003	0.4168	0.1097	2.9800e-003	0.1127		406.5236	406.5236	0.0112		406.8041
Total	**0.1486**	**0.0985**	**1.3749**	**4.0800e-003**	**0.4136**	**3.2400e-003**	**0.4168**	**0.1097**	**2.9800e-003**	**0.1127**		**406.5236**	**406.5236**	**0.0112**		**406.8041**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9186	16.5789	21.7100	0.0356		0.8813	0.8813		0.8518	0.8518		3,399.2886	3,399.2886	0.5617		3,413.3317
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9186**	**16.5789**	**21.7100**	**0.0356**		**0.8813**	**0.8813**		**0.8518**	**0.8518**		**3,399.2886**	**3,399.2886**	**0.5617**		**3,413.3317**

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0924	0.0612	0.8547	2.5400e-003	0.2571	2.0100e-003	0.2591	0.0682	1.8500e-003	0.0700		252.7038	252.7038	6.9700e-003		252.8782
Total	**0.0924**	**0.0612**	**0.8547**	**2.5400e-003**	**0.2571**	**2.0100e-003**	**0.2591**	**0.0682**	**1.8500e-003**	**0.0700**		**252.7038**	**252.7038**	**6.9700e-003**		**252.8782**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8156	16.6258	23.6544	0.0356		1.0766	1.0766		1.0731	1.0731	0.0000	3,399.2886	3,399.2886	0.5617		3,413.3317
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8156**	**16.6258**	**23.6544**	**0.0356**		**1.0766**	**1.0766**		**1.0731**	**1.0731**	**0.0000**	**3,399.2886**	**3,399.2886**	**0.5617**		**3,413.3317**

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0924	0.0612	0.8547	2.5400e-003	0.2571	2.0100e-003	0.2591	0.0682	1.8500e-003	0.0700		252.7038	252.7038	6.9700e-003		252.8782
Total	**0.0924**	**0.0612**	**0.8547**	**2.5400e-003**	**0.2571**	**2.0100e-003**	**0.2591**	**0.0682**	**1.8500e-003**	**0.0700**		**252.7038**	**252.7038**	**6.9700e-003**		**252.8782**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0452	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Unmitigated	0.0452	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0386					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Total	**0.0452**	**0.0000**	**2.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**5.5000e-004**	**5.5000e-004**	**0.0000**		**5.8000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0386					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Total	**0.0452**	**0.0000**	**2.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**5.5000e-004**	**5.5000e-004**	**0.0000**		**5.8000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 4

Los Angeles-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2022
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 4 - Los Angeles-South Coast County, Winter

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Applicant's anticipated construction duration of 155 days for Phase 4.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	6534	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	220.00	53.00
tblConstructionPhase	NumDays	20.00	15.00
tblConstructionPhase	NumDays	10.00	16.00
tblConstructionPhase	NumDays	3.00	29.00
tblConstructionPhase	PhaseEndDate	2/2/2023	7/13/2022

Sun Valley PW Storm Drain Phase 4 - Los Angeles-South Coast County, Winter

tblConstructionPhase	PhaseEndDate	3/28/2022	3/21/2022
tblConstructionPhase	PhaseEndDate	2/16/2023	8/4/2022
tblConstructionPhase	PhaseEndDate	3/31/2022	5/1/2022
tblConstructionPhase	PhaseEndDate	3/31/2022	5/1/2022
tblConstructionPhase	PhaseStartDate	4/1/2022	5/2/2022
tblConstructionPhase	PhaseStartDate	2/3/2023	7/14/2022
tblConstructionPhase	PhaseStartDate	3/29/2022	3/22/2022
tblConstructionPhase	PhaseStartDate	4/1/2022	3/22/2022
tblGrading	AcresOfGrading	0.00	2.50
tblGrading	MaterialExported	0.00	7,600.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00

tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	46.00	37.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	2.1431	23.4822	22.4901	0.0613	6.7751	0.9034	7.4723	1.1032	0.8721	1.7453	0.0000	6,263.5675	6,263.5675	1.3061	0.0000	6,293.4420
Maximum	**2.1431**	**23.4822**	**22.4901**	**0.0613**	**6.7751**	**0.9034**	**7.4723**	**1.1032**	**0.8721**	**1.7453**	**0.0000**	**6,263.5675**	**6,263.5675**	**1.3061**	**0.0000**	**6,293.4420**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	1.2949	24.4436	26.0231	0.0613	2.9872	1.1063	3.8670	0.5296	1.1060	1.3982	0.0000	6,263.5675	6,263.5675	1.3061	0.0000	6,293.4420
Maximum	**1.2949**	**24.4436**	**26.0231**	**0.0613**	**2.9872**	**1.1063**	**3.8670**	**0.5296**	**1.1060**	**1.3982**	**0.0000**	**6,263.5675**	**6,263.5675**	**1.3061**	**0.0000**	**6,293.4420**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**39.58**	**-4.09**	**-15.71**	**0.00**	**55.91**	**-22.45**	**48.25**	**51.99**	**-26.82**	**19.89**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0452	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0452**	**0.0000**	**2.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**0.0000**	**5.8000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0452	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0452**	**0.0000**	**2.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**0.0000**	**5.8000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2022	3/21/2022	5	15	
2	Site Preparation	Site Preparation	3/22/2022	5/1/2022	5	29	
3	Trenching	Trenching	3/22/2022	5/1/2022	5	29	
4	Building Construction	Building Construction	5/2/2022	7/13/2022	5	53	
5	Paving	Paving	7/14/2022	8/4/2022	5	16	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.5

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37

Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	8	13.00	0.00	425.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	950.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.1344	0.0000	6.1344	0.9288	0.0000	0.9288			0.0000			0.0000
Off-Road	1.5890	15.6608	18.6909	0.0363		0.6754	0.6754		0.6214	0.6214		3,514.2436	3,514.2436	1.1366		3,542.6580
Total	**1.5890**	**15.6608**	**18.6909**	**0.0363**	**6.1344**	**0.6754**	**6.8098**	**0.9288**	**0.6214**	**1.5502**		**3,514.2436**	**3,514.2436**	**1.1366**		**3,542.6580**

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2303	7.1409	1.8665	0.0214	0.4954	0.0206	0.5160	0.1358	0.0197	0.1555		2,328.4808	2,328.4808	0.1658		2,332.6253
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	0.0582	0.0383	0.4409	1.3500e-003	0.1453	1.1400e-003	0.1465	0.0385	1.0500e-003	0.0396		134.4940	134.4940	3.7000e-003		134.5866
Total	**0.2885**	**7.1792**	**2.3075**	**0.0228**	**0.6408**	**0.0217**	**0.6625**	**0.1744**	**0.0207**	**0.1951**		**2,462.9748**	**2,462.9748**	**0.1695**		**2,467.2119**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.3464	0.0000	2.3464	0.3553	0.0000	0.3553			0.0000			0.0000
Off-Road	1.0064	16.9621	23.7156	0.0363		0.8581	0.8581		0.8478	0.8478	0.0000	3,514.2436	3,514.2436	1.1366		3,542.6580
Total	**1.0064**	**16.9621**	**23.7156**	**0.0363**	**2.3464**	**0.8581**	**3.2045**	**0.3553**	**0.8478**	**1.2031**	**0.0000**	**3,514.2436**	**3,514.2436**	**1.1366**		**3,542.6580**

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2303	7.1409	1.8665	0.0214	0.4954	0.0206	0.5160	0.1358	0.0197	0.1555		2,328.4808	2,328.4808	0.1658		2,332.6253
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	0.0582	0.0383	0.4409	1.3500e-003	0.1453	1.1400e-003	0.1465	0.0385	1.0500e-003	0.0396		134.4940	134.4940	3.7000e-003		134.5866
Total	**0.2885**	**7.1792**	**2.3075**	**0.0228**	**0.6408**	**0.0217**	**0.6625**	**0.1744**	**0.0207**	**0.1951**		**2,462.9748**	**2,462.9748**	**0.1695**		**2,467.2119**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1211	0.0000	0.1211	0.0144	0.0000	0.0144			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1211**	**0.0000**	**0.1211**	**0.0144**	**0.0000**	**0.0144**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2662	8.2562	2.1581	0.0248	0.5728	0.0238	0.5966	0.1570	0.0228	0.1798		2,692.1583	2,692.1583	0.1917		2,696.9502
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2662**	**8.2562**	**2.1581**	**0.0248**	**0.5728**	**0.0238**	**0.5966**	**0.1570**	**0.0228**	**0.1798**		**2,692.1583**	**2,692.1583**	**0.1917**		**2,696.9502**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.0463	0.0000	0.0463	5.4900e-003	0.0000	5.4900e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0463**	**0.0000**	**0.0463**	**5.4900e-003**	**0.0000**	**5.4900e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2662	8.2562	2.1581	0.0248	0.5728	0.0238	0.5966	0.1570	0.0228	0.1798		2,692.1583	2,692.1583	0.1917		2,696.9502
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2662**	**8.2562**	**2.1581**	**0.0248**	**0.5728**	**0.0238**	**0.5966**	**0.1570**	**0.0228**	**0.1798**		**2,692.1583**	**2,692.1583**	**0.1917**		**2,696.9502**

3.4 Trenching - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3866	13.8838	15.4358	0.0311		0.5895	0.5895		0.5424	0.5424		3,014.2283	3,014.2283	0.9749		3,038.5999
Total	**1.3866**	**13.8838**	**15.4358**	**0.0311**		**0.5895**	**0.5895**		**0.5424**	**0.5424**		**3,014.2283**	**3,014.2283**	**0.9749**		**3,038.5999**

3.4 Trenching - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0419	1.2891	0.3721	3.4700e-003	0.0896	2.5100e-003	0.0921	0.0258	2.4000e-003	0.0282		370.9584	370.9584	0.0233		371.5412
Worker	0.0806	0.0530	0.6105	1.8700e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		186.2225	186.2225	5.1300e-003		186.3507
Total	**0.1226**	**1.3421**	**0.9826**	**5.3400e-003**	**0.2908**	**4.0800e-003**	**0.2949**	**0.0792**	**3.8500e-003**	**0.0830**		**557.1809**	**557.1809**	**0.0284**		**557.8919**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8417	14.8452	20.1291	0.0311		0.7559	0.7559		0.7490	0.7490	0.0000	3,014.2283	3,014.2283	0.9749		3,038.5999
Total	**0.8417**	**14.8452**	**20.1291**	**0.0311**		**0.7559**	**0.7559**		**0.7490**	**0.7490**	**0.0000**	**3,014.2283**	**3,014.2283**	**0.9749**		**3,038.5999**

3.4 Trenching - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0419	1.2891	0.3721	3.4700e-003	0.0896	2.5100e-003	0.0921	0.0258	2.4000e-003	0.0282		370.9584	370.9584	0.0233		371.5412
Worker	0.0806	0.0530	0.6105	1.8700e-003	0.2012	1.5700e-003	0.2028	0.0534	1.4500e-003	0.0548		186.2225	186.2225	5.1300e-003		186.3507
Total	**0.1226**	**1.3421**	**0.9826**	**5.3400e-003**	**0.2908**	**4.0800e-003**	**0.2949**	**0.0792**	**3.8500e-003**	**0.0830**		**557.1809**	**557.1809**	**0.0284**		**557.8919**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9774	18.0766	19.9436	0.0351		0.9002	0.9002		0.8691	0.8691		3,358.2968	3,358.2968	0.5485		3,372.0084
Total	**1.9774**	**18.0766**	**19.9436**	**0.0351**		**0.9002**	**0.9002**		**0.8691**	**0.8691**		**3,358.2968**	**3,358.2968**	**0.5485**		**3,372.0084**

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1657	0.1090	1.2550	3.8400e-003	0.4136	3.2400e-003	0.4168	0.1097	2.9800e-003	0.1127		382.7907	382.7907	0.0105		383.0542
Total	**0.1657**	**0.1090**	**1.2550**	**3.8400e-003**	**0.4136**	**3.2400e-003**	**0.4168**	**0.1097**	**2.9800e-003**	**0.1127**		**382.7907**	**382.7907**	**0.0105**		**383.0542**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7662	16.9985	22.3246	0.0351		1.1030	1.1030		1.1030	1.1030	0.0000	3,358.2968	3,358.2968	0.5485		3,372.0084
Total	**0.7662**	**16.9985**	**22.3246**	**0.0351**		**1.1030**	**1.1030**		**1.1030**	**1.1030**	**0.0000**	**3,358.2968**	**3,358.2968**	**0.5485**		**3,372.0084**

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1657	0.1090	1.2550	3.8400e-003	0.4136	3.2400e-003	0.4168	0.1097	2.9800e-003	0.1127		382.7907	382.7907	0.0105		383.0542
Total	**0.1657**	**0.1090**	**1.2550**	**3.8400e-003**	**0.4136**	**3.2400e-003**	**0.4168**	**0.1097**	**2.9800e-003**	**0.1127**		**382.7907**	**382.7907**	**0.0105**		**383.0542**

3.6 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9186	16.5789	21.7100	0.0356		0.8813	0.8813		0.8518	0.8518		3,399.2886	3,399.2886	0.5617		3,413.3317
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9186**	**16.5789**	**21.7100**	**0.0356**		**0.8813**	**0.8813**		**0.8518**	**0.8518**		**3,399.2886**	**3,399.2886**	**0.5617**		**3,413.3317**

3.6 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1030	0.0677	0.7801	2.3900e-003	0.2571	2.0100e-003	0.2591	0.0682	1.8500e-003	0.0700		237.9510	237.9510	6.5500e-003		238.1148
Total	**0.1030**	**0.0677**	**0.7801**	**2.3900e-003**	**0.2571**	**2.0100e-003**	**0.2591**	**0.0682**	**1.8500e-003**	**0.0700**		**237.9510**	**237.9510**	**6.5500e-003**		**238.1148**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8156	16.6258	23.6544	0.0356		1.0766	1.0766		1.0731	1.0731	0.0000	3,399.2886	3,399.2886	0.5617		3,413.3317
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8156**	**16.6258**	**23.6544**	**0.0356**		**1.0766**	**1.0766**		**1.0731**	**1.0731**	**0.0000**	**3,399.2886**	**3,399.2886**	**0.5617**		**3,413.3317**

3.6 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1030	0.0677	0.7801	2.3900e-003	0.2571	2.0100e-003	0.2591	0.0682	1.8500e-003	0.0700		237.9510	237.9510	6.5500e-003		238.1148
Total	**0.1030**	**0.0677**	**0.7801**	**2.3900e-003**	**0.2571**	**2.0100e-003**	**0.2591**	**0.0682**	**1.8500e-003**	**0.0700**		**237.9510**	**237.9510**	**6.5500e-003**		**238.1148**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.546501	0.044961	0.204016	0.120355	0.015740	0.006196	0.020131	0.030678	0.002515	0.002201	0.005142	0.000687	0.000876

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0452	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Unmitigated	0.0452	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0386					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Total	**0.0452**	**0.0000**	**2.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**5.5000e-004**	**5.5000e-004**	**0.0000**		**5.8000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0386					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Total	**0.0452**	**0.0000**	**2.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**5.5000e-004**	**5.5000e-004**	**0.0000**		**5.8000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

Construction Noise Calculations

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/30/2017
Case Description: Demolition

		---- Receptor #1 ----		
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence	Residential	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Front End Loader	No	40		79.1	50	0
Front End Loader	No	40		79.1	50	0
Tractor	No	40	84		50	0
Tractor	No	40	84		50	0
Tractor	No	40	84		50	0

		Results													
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Front End Loader		79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader		79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		84	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		84	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		84	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	84	85.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/30/2017
Case Description: Trenching

				---- Receptor #1 ----
		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Residence	Residential	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	50	0
Excavator	No	40		80.7	50	0
Front End Loader	No	40		79.1	50	0
Front End Loader	No	40		79.1	50	0
Tractor	No	40	84		50	0
Tractor	No	40	84		50	0
Tractor	No	40	84		50	0

				Results											
		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Excavator		80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader		79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader		79.1	75.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		84	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		84	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		84	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	84	86.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/30/2017
Case Description: Pipeline Install (Construction)

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence	Residential	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	50	0
Tractor	No	40	84		50	0
Tractor	No	40	84		50	0
Tractor	No	40	84		50	0
Compressor (air)	No	40		77.7	50	0
Compressor (air)	No	40		77.7	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0

Equipment	Results Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq	Noise Limit Exceedance (dBA) Day Lmax	Leq	Evening Lmax	Leq	Night Lmax	Leq
Crane	80.6	72.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	84	80	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)	77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator	80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	84	86.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/30/2017
Case Description: Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence	Residential	65	65	65

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Roller	No	20		80	50	0
Roller	No	20		80	50	0
Excavator	No	40		80.7	50	0
Compactor (ground)	No	20		83.2	50	0
Compressor (air)	No	40		77.7	50	0
Compressor (air)	No	40		77.7	50	0
Generator	No	50		80.6	50	0
Generator	No	50		80.6	50	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Roller		80	73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Roller		80	73	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator		80.7	76.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compactor (ground)		83.2	76.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)		77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Compressor (air)		77.7	73.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator		80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Generator		80.6	77.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	83.2	84.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

APPENDIX C

Air Quality Calculations

Sun Valley PW Storm Drain Phase 1

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.00	Acre	2.00	87,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 1 - Los Angeles-South Coast County, Annual

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Sun Valley Construction Questionnaire (see Appendix) and Table C-17 from Appendix C of the 2004 EIR.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00

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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	2.00	40.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	200.00	70.00
tblConstructionPhase	PhaseEndDate	1/30/2019	3/25/2019
tblConstructionPhase	PhaseEndDate	1/30/2019	3/25/2019
tblConstructionPhase	PhaseEndDate	11/20/2019	7/29/2019
tblConstructionPhase	PhaseEndDate	11/6/2019	7/1/2019
tblConstructionPhase	PhaseStartDate	1/31/2019	1/29/2019

Sun Valley PW Storm Drain Phase 1 - Los Angeles-South Coast County, Annual

tblConstructionPhase	PhaseStartDate	11/7/2019	7/2/2019
tblConstructionPhase	PhaseStartDate	1/31/2019	3/26/2019
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	MaterialExported	0.00	6,600.00
tblGrading	MaterialSiltContent	6.90	4.30
tblGrading	MeanVehicleSpeed	7.10	40.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00

tblTripsAndVMT	VendorTripNumber	14.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1851	1.8420	1.4882	3.1300e-003	0.0881	0.0896	0.1776	0.0207	0.0853	0.1060	0.0000	281.2732	281.2732	0.0515	0.0000	282.5604
Maximum	**0.1851**	**1.8420**	**1.4882**	**3.1300e-003**	**0.0881**	**0.0896**	**0.1776**	**0.0207**	**0.0853**	**0.1060**	**0.0000**	**281.2732**	**281.2732**	**0.0515**	**0.0000**	**282.5604**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0712	1.3846	1.7015	3.1300e-003	0.0538	0.0718	0.1256	0.0134	0.0718	0.0851	0.0000	281.2730	281.2730	0.0515	0.0000	282.5602
Maximum	**0.0712**	**1.3846**	**1.7015**	**3.1300e-003**	**0.0538**	**0.0718**	**0.1256**	**0.0134**	**0.0718**	**0.0851**	**0.0000**	**281.2730**	**281.2730**	**0.0515**	**0.0000**	**282.5602**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**61.55**	**24.83**	**-14.34**	**0.00**	**38.87**	**19.82**	**29.26**	**35.54**	**15.87**	**19.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	0.8822	0.6779
2	4-1-2019	6-30-2019	0.8850	0.5878
3	7-1-2019	9-30-2019	0.2557	0.1859
		Highest	0.8850	0.6779

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.8500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8500e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	6.8500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.8500e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

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

3.0 Construction Detail

Construction Phase

Sun Valley PW Storm Drain Phase 1 - Los Angeles-South Coast County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/29/2019	3/25/2019	5	40	
3	Trenching	Trenching	1/29/2019	3/25/2019	5	40	
4	Building Construction	Building Construction	3/26/2019	7/1/2019	5	70	
5	Paving	Paving	7/2/2019	7/29/2019	5	20	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 0

Acres of Paving: 2

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Trenching	Excavators	2	8.00	158	0.38
Paving	Excavators	1	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Air Compressors	2	8.00	78	0.48
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Paving	Generator Sets	2	8.00	84	0.74

Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Generator Sets	2	8.00	84	0.74
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Building Construction	Forklifts	0	0.00	89	0.20
Site Preparation	Graders	0	0.00	187	0.41
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Paving	Rollers	2	8.00	80	0.38
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Welders	0	0.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	198.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	825.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0214	0.0000	0.0214	3.2400e-003	0.0000	3.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0135	0.1545	0.0935	2.1000e-004		6.8700e-003	6.8700e-003		6.3200e-003	6.3200e-003	0.0000	18.6636	18.6636	5.9000e-003	0.0000	18.8112
Total	**0.0135**	**0.1545**	**0.0935**	**2.1000e-004**	**0.0214**	**6.8700e-003**	**0.0283**	**3.2400e-003**	**6.3200e-003**	**9.5600e-003**	**0.0000**	**18.6636**	**18.6636**	**5.9000e-003**	**0.0000**	**18.8112**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.4000e-004	0.0313	6.6600e-003	8.0000e-005	1.7000e-003	1.1000e-004	1.8100e-003	4.7000e-004	1.1000e-004	5.7000e-004	0.0000	7.7090	7.7090	5.4000e-004	0.0000	7.7226
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	5.4000e-004	5.9000e-003	2.0000e-005	1.4200e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3694	1.3694	5.0000e-005	0.0000	1.3705
Total	**1.5900e-003**	**0.0319**	**0.0126**	**1.0000e-004**	**3.1200e-003**	**1.2000e-004**	**3.2500e-003**	**8.5000e-004**	**1.2000e-004**	**9.6000e-004**	**0.0000**	**9.0784**	**9.0784**	**5.9000e-004**	**0.0000**	**9.0931**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					8.1900e-003	0.0000	8.1900e-003	1.2400e-003	0.0000	1.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.1200e-003	0.1061	0.1296	2.1000e-004		5.5100e-003	5.5100e-003		5.5100e-003	5.5100e-003	0.0000	18.6636	18.6636	5.9000e-003	0.0000	18.8112
Total	**5.1200e-003**	**0.1061**	**0.1296**	**2.1000e-004**	**8.1900e-003**	**5.5100e-003**	**0.0137**	**1.2400e-003**	**5.5100e-003**	**6.7500e-003**	**0.0000**	**18.6636**	**18.6636**	**5.9000e-003**	**0.0000**	**18.8112**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.4000e-004	0.0313	6.6600e-003	8.0000e-005	1.7000e-003	1.1000e-004	1.8100e-003	4.7000e-004	1.1000e-004	5.7000e-004	0.0000	7.7090	7.7090	5.4000e-004	0.0000	7.7226
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.5000e-004	5.4000e-004	5.9000e-003	2.0000e-005	1.4200e-003	1.0000e-005	1.4400e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.3694	1.3694	5.0000e-005	0.0000	1.3705
Total	**1.5900e-003**	**0.0319**	**0.0126**	**1.0000e-004**	**3.1200e-003**	**1.2000e-004**	**3.2500e-003**	**8.5000e-004**	**1.2000e-004**	**9.6000e-004**	**0.0000**	**9.0784**	**9.0784**	**5.9000e-004**	**0.0000**	**9.0931**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0340	0.0000	0.0340	8.6800e-003	0.0000	8.6800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0340**	**0.0000**	**0.0340**	**8.6800e-003**	**0.0000**	**8.6800e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.9200e-003	0.1306	0.0277	3.3000e-004	7.0900e-003	4.7000e-004	7.5600e-003	1.9500e-003	4.5000e-004	2.3900e-003	0.0000	32.1208	32.1208	2.2700e-003	0.0000	32.1774
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.9200e-003**	**0.1306**	**0.0277**	**3.3000e-004**	**7.0900e-003**	**4.7000e-004**	**7.5600e-003**	**1.9500e-003**	**4.5000e-004**	**2.3900e-003**	**0.0000**	**32.1208**	**32.1208**	**2.2700e-003**	**0.0000**	**32.1774**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					0.0130	0.0000	0.0130	3.3200e-003	0.0000	3.3200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0130**	**0.0000**	**0.0130**	**3.3200e-003**	**0.0000**	**3.3200e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.9200e-003	0.1306	0.0277	3.3000e-004	7.0900e-003	4.7000e-004	7.5600e-003	1.9500e-003	4.5000e-004	2.3900e-003	0.0000	32.1208	32.1208	2.2700e-003	0.0000	32.1774
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**3.9200e-003**	**0.1306**	**0.0277**	**3.3000e-004**	**7.0900e-003**	**4.7000e-004**	**7.5600e-003**	**1.9500e-003**	**4.5000e-004**	**2.3900e-003**	**0.0000**	**32.1208**	**32.1208**	**2.2700e-003**	**0.0000**	**32.1774**

3.4 Trenching - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0374	0.4164	0.3176	6.2000e-004		0.0189	0.0189		0.0174	0.0174	0.0000	55.8746	55.8746	0.0177	0.0000	56.3165
Total	**0.0374**	**0.4164**	**0.3176**	**6.2000e-004**		**0.0189**	**0.0189**		**0.0174**	**0.0174**	**0.0000**	**55.8746**	**55.8746**	**0.0177**	**0.0000**	**56.3165**

3.4 Trenching - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	1.1900e-003	0.0331	9.0500e-003	7.0000e-005	1.7600e-003	2.1000e-004	1.9700e-003	5.1000e-004	2.0000e-004	7.1000e-004	0.0000	7.0018	7.0018	4.7000e-004	0.0000	7.0135
Worker	1.8000e-003	1.5000e-003	0.0163	4.0000e-005	3.9400e-003	3.0000e-005	3.9800e-003	1.0500e-003	3.0000e-005	1.0800e-003	0.0000	3.7921	3.7921	1.3000e-004	0.0000	3.7954
Total	**2.9900e-003**	**0.0346**	**0.0254**	**1.1000e-004**	**5.7000e-003**	**2.4000e-004**	**5.9500e-003**	**1.5600e-003**	**2.3000e-004**	**1.7900e-003**	**0.0000**	**10.7939**	**10.7939**	**6.0000e-004**	**0.0000**	**10.8088**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0153	0.3105	0.4158	6.2000e-004		0.0158	0.0158		0.0158	0.0158	0.0000	55.8745	55.8745	0.0177	0.0000	56.3165
Total	**0.0153**	**0.3105**	**0.4158**	**6.2000e-004**		**0.0158**	**0.0158**		**0.0158**	**0.0158**	**0.0000**	**55.8745**	**55.8745**	**0.0177**	**0.0000**	**56.3165**

3.4 Trenching - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	1.1900e-003	0.0331	9.0500e-003	7.0000e-005	1.7600e-003	2.1000e-004	1.9700e-003	5.1000e-004	2.0000e-004	7.1000e-004	0.0000	7.0018	7.0018	4.7000e-004	0.0000	7.0135
Worker	1.8000e-003	1.5000e-003	0.0163	4.0000e-005	3.9400e-003	3.0000e-005	3.9800e-003	1.0500e-003	3.0000e-005	1.0800e-003	0.0000	3.7921	3.7921	1.3000e-004	0.0000	3.7954
Total	**2.9900e-003**	**0.0346**	**0.0254**	**1.1000e-004**	**5.7000e-003**	**2.4000e-004**	**5.9500e-003**	**1.5600e-003**	**2.3000e-004**	**1.7900e-003**	**0.0000**	**10.7939**	**10.7939**	**6.0000e-004**	**0.0000**	**10.8088**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0929	0.8490	0.7226	1.2300e-003		0.0495	0.0495		0.0477	0.0477	0.0000	107.5582	107.5582	0.0185	0.0000	108.0205
Total	**0.0929**	**0.8490**	**0.7226**	**1.2300e-003**		**0.0495**	**0.0495**		**0.0477**	**0.0477**	**0.0000**	**107.5582**	**107.5582**	**0.0185**	**0.0000**	**108.0205**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	6.4900e-003	5.4100e-003	0.0588	1.5000e-004	0.0142	1.2000e-004	0.0143	3.7700e-003	1.2000e-004	3.8800e-003	0.0000	13.6410	13.6410	4.7000e-004	0.0000	13.6527
Total	**6.4900e-003**	**5.4100e-003**	**0.0588**	**1.5000e-004**	**0.0142**	**1.2000e-004**	**0.0143**	**3.7700e-003**	**1.2000e-004**	**3.8800e-003**	**0.0000**	**13.6410**	**13.6410**	**4.7000e-004**	**0.0000**	**13.6527**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0268	0.5950	0.7814	1.2300e-003		0.0386	0.0386		0.0386	0.0386	0.0000	107.5581	107.5581	0.0185	0.0000	108.0204
Total	**0.0268**	**0.5950**	**0.7814**	**1.2300e-003**		**0.0386**	**0.0386**		**0.0386**	**0.0386**	**0.0000**	**107.5581**	**107.5581**	**0.0185**	**0.0000**	**108.0204**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	6.4900e-003	5.4100e-003	0.0588	1.5000e-004	0.0142	1.2000e-004	0.0143	3.7700e-003	1.2000e-004	3.8800e-003	0.0000	13.6410	13.6410	4.7000e-004	0.0000	13.6527
Total	**6.4900e-003**	**5.4100e-003**	**0.0588**	**1.5000e-004**	**0.0142**	**1.2000e-004**	**0.0143**	**3.7700e-003**	**1.2000e-004**	**3.8800e-003**	**0.0000**	**13.6410**	**13.6410**	**4.7000e-004**	**0.0000**	**13.6527**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0253	0.2187	0.2196	3.6000e-004		0.0133	0.0133		0.0129	0.0129	0.0000	31.1202	31.1202	5.4100e-003	0.0000	31.2553
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0253**	**0.2187**	**0.2196**	**3.6000e-004**		**0.0133**	**0.0133**		**0.0129**	**0.0129**	**0.0000**	**31.1202**	**31.1202**	**5.4100e-003**	**0.0000**	**31.2553**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1500e-003	9.6000e-004	0.0104	3.0000e-005	2.5200e-003	2.0000e-005	2.5400e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.4227	2.4227	8.0000e-005	0.0000	2.4248
Total	**1.1500e-003**	**9.6000e-004**	**0.0104**	**3.0000e-005**	**2.5200e-003**	**2.0000e-005**	**2.5400e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**2.4227**	**2.4227**	**8.0000e-005**	**0.0000**	**2.4248**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	7.7800e-003	0.1697	0.2399	3.6000e-004		0.0109	0.0109		0.0109	0.0109	0.0000	31.1201	31.1201	5.4100e-003	0.0000	31.2553
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**7.7800e-003**	**0.1697**	**0.2399**	**3.6000e-004**		**0.0109**	**0.0109**		**0.0109**	**0.0109**	**0.0000**	**31.1201**	**31.1201**	**5.4100e-003**	**0.0000**	**31.2553**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1500e-003	9.6000e-004	0.0104	3.0000e-005	2.5200e-003	2.0000e-005	2.5400e-003	6.7000e-004	2.0000e-005	6.9000e-004	0.0000	2.4227	2.4227	8.0000e-005	0.0000	2.4248
Total	**1.1500e-003**	**9.6000e-004**	**0.0104**	**3.0000e-005**	**2.5200e-003**	**2.0000e-005**	**2.5400e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**2.4227**	**2.4227**	**8.0000e-005**	**0.0000**	**2.4248**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

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

5.3 Energy by Land Use - Electricity

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	6.8500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Unmitigated	6.8500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.6300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Total	**6.8400e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	5.6300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	5.0000e-005	5.0000e-005	0.0000	0.0000	5.0000e-005
Total	**6.8400e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**5.0000e-005**	**5.0000e-005**	**0.0000**	**0.0000**	**5.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

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

7.2 Water by Land Use

Mitigated

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 1

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.00	Acre	2.00	87,120.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 1 - Los Angeles-South Coast County, Summer

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Sun Valley Construction Questionnaire (see Appendix) and Table C-17 from Appendix C of the 2004 EIR.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	2.00	40.00
tblConstructionPhase	NumDays	10.00	20.00
tblConstructionPhase	NumDays	200.00	70.00
tblConstructionPhase	PhaseEndDate	1/30/2019	3/25/2019
tblConstructionPhase	PhaseEndDate	1/30/2019	3/25/2019
tblConstructionPhase	PhaseEndDate	11/20/2019	7/29/2019
tblConstructionPhase	PhaseEndDate	11/6/2019	7/1/2019
tblConstructionPhase	PhaseStartDate	1/31/2019	1/29/2019

Sun Valley PW Storm Drain Phase 1 - Los Angeles-South Coast County, Summer

tblConstructionPhase	PhaseStartDate	11/7/2019	7/2/2019
tblConstructionPhase	PhaseStartDate	1/31/2019	3/26/2019
tblGrading	AcresOfGrading	0.00	2.00
tblGrading	MaterialExported	0.00	6,600.00
tblGrading	MaterialSiltContent	6.90	4.30
tblGrading	MeanVehicleSpeed	7.10	40.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	PhaseName		Paving
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00

tblTripsAndVMT	VendorTripNumber	14.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.8376	28.8211	23.0666	0.0534	2.4583	1.4170	3.3343	0.6122	1.3672	1.5162	0.0000	5,471.2862	5,471.2862	1.1297	0.0000	5,499.5274
Maximum	**2.8376**	**28.8211**	**23.0666**	**0.0534**	**2.4583**	**1.4170**	**3.3343**	**0.6122**	**1.3672**	**1.5162**	**0.0000**	**5,471.2862**	**5,471.2862**	**1.1297**	**0.0000**	**5,499.5274**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.1082	23.5284	25.0948	0.0534	1.3023	1.1066	2.1261	0.3441	1.1063	1.2160	0.0000	5,471.2862	5,471.2862	1.1297	0.0000	5,499.5274
Maximum	**1.1082**	**23.5284**	**25.0948**	**0.0534**	**1.3023**	**1.1066**	**2.1261**	**0.3441**	**1.1063**	**1.2160**	**0.0000**	**5,471.2862**	**5,471.2862**	**1.1297**	**0.0000**	**5,499.5274**

Sun Valley PW Storm Drain Phase 1 - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**60.95**	**18.36**	**-8.79**	**0.00**	**47.02**	**21.90**	**36.24**	**43.79**	**19.08**	**19.80**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0375	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0375**	**0.0000**	**2.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.7000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0375	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0375**	**0.0000**	**2.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**	**0.0000**	**4.7000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/28/2019	5	20	
2	Site Preparation	Site Preparation	1/29/2019	3/25/2019	5	40	
3	Trenching	Trenching	1/29/2019	3/25/2019	5	40	
4	Building Construction	Building Construction	3/26/2019	7/1/2019	5	70	
5	Paving	Paving	7/2/2019	7/29/2019	5	20	

Acres of Grading (Site Preparation Phase): 2

Acres of Grading (Grading Phase): 0

Acres of Paving: 2

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Trenching	Excavators	2	8.00	158	0.38
Paving	Excavators	1	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Air Compressors	2	8.00	78	0.48
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Paving	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Generator Sets	2	8.00	84	0.74
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Building Construction	Forklifts	0	0.00	89	0.20
Site Preparation	Graders	0	0.00	187	0.41
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Paving	Rollers	2	8.00	80	0.38
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Welders	0	0.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	198.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	825.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.1399	0.0000	2.1399	0.3240	0.0000	0.3240			0.0000			0.0000
Off-Road	1.3477	15.4540	9.3531	0.0208		0.6873	0.6873		0.6324	0.6324		2,057.3075	2,057.3075	0.6509		2,073.5803
Total	**1.3477**	**15.4540**	**9.3531**	**0.0208**	**2.1399**	**0.6873**	**2.8272**	**0.3240**	**0.6324**	**0.9564**		**2,057.3075**	**2,057.3075**	**0.6509**		**2,073.5803**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0930	3.0322	0.6465	7.9100e-003	0.1731	0.0111	0.1842	0.0475	0.0107	0.0581		855.8666	855.8666	0.0589		857.3402
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	0.0649	0.0477	0.6268	1.5800e-003	0.1453	1.2500e-003	0.1466	0.0385	1.1500e-003	0.0397		157.6839	157.6839	5.4200e-003		157.8193
Total	**0.1580**	**3.0799**	**1.2733**	**9.4900e-003**	**0.3184**	**0.0124**	**0.3308**	**0.0860**	**0.0118**	**0.0978**		**1,013.5505**	**1,013.5505**	**0.0644**		**1,015.1595**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.8185	0.0000	0.8185	0.1239	0.0000	0.1239			0.0000			0.0000
Off-Road	0.5122	10.6116	12.9559	0.0208		0.5514	0.5514		0.5514	0.5514	0.0000	2,057.3075	2,057.3075	0.6509		2,073.5803
Total	**0.5122**	**10.6116**	**12.9559**	**0.0208**	**0.8185**	**0.5514**	**1.3699**	**0.1239**	**0.5514**	**0.6753**	**0.0000**	**2,057.3075**	**2,057.3075**	**0.6509**		**2,073.5803**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0930	3.0322	0.6465	7.9100e-003	0.1731	0.0111	0.1842	0.0475	0.0107	0.0581		855.8666	855.8666	0.0589		857.3402
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	0.0649	0.0477	0.6268	1.5800e-003	0.1453	1.2500e-003	0.1466	0.0385	1.1500e-003	0.0397		157.6839	157.6839	5.4200e-003		157.8193
Total	**0.1580**	**3.0799**	**1.2733**	**9.4900e-003**	**0.3184**	**0.0124**	**0.3308**	**0.0860**	**0.0118**	**0.0978**		**1,013.5505**	**1,013.5505**	**0.0644**		**1,015.1595**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.7017	0.0000	1.7017	0.4342	0.0000	0.4342			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.7017**	**0.0000**	**1.7017**	**0.4342**	**0.0000**	**0.4342**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1938	6.3171	1.3469	0.0165	0.3606	0.0232	0.3838	0.0989	0.0222	0.1210		1,783.0555	1,783.0555	0.1228		1,786.1254
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1938**	**6.3171**	**1.3469**	**0.0165**	**0.3606**	**0.0232**	**0.3838**	**0.0989**	**0.0222**	**0.1210**		**1,783.0555**	**1,783.0555**	**0.1228**		**1,786.1254**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.6509	0.0000	0.6509	0.1661	0.0000	0.1661			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.6509**	**0.0000**	**0.6509**	**0.1661**	**0.0000**	**0.1661**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1938	6.3171	1.3469	0.0165	0.3606	0.0232	0.3838	0.0989	0.0222	0.1210		1,783.0555	1,783.0555	0.1228		1,786.1254
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1938**	**6.3171**	**1.3469**	**0.0165**	**0.3606**	**0.0232**	**0.3838**	**0.0989**	**0.0222**	**0.1210**		**1,783.0555**	**1,783.0555**	**0.1228**		**1,786.1254**

3.4 Trenching - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8692	20.8177	15.8795	0.0311		0.9460	0.9460		0.8703	0.8703		3,079.5587	3,079.5587	0.9743		3,103.9172
Total	**1.8692**	**20.8177**	**15.8795**	**0.0311**		**0.9460**	**0.9460**		**0.8703**	**0.8703**		**3,079.5587**	**3,079.5587**	**0.9743**		**3,103.9172**

3.4 Trenching - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0582	1.6202	0.4299	3.6600e-003	0.0896	0.0103	0.1000	0.0258	9.8800e-003	0.0357		390.3405	390.3405	0.0250		390.9658
Worker	0.0899	0.0661	0.8679	2.1900e-003	0.2012	1.7300e-003	0.2029	0.0534	1.6000e-003	0.0550		218.3315	218.3315	7.5000e-003		218.5190
Total	**0.1481**	**1.6863**	**1.2978**	**5.8500e-003**	**0.2908**	**0.0121**	**0.3029**	**0.0792**	**0.0115**	**0.0907**		**608.6720**	**608.6720**	**0.0325**		**609.4848**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7663	15.5250	20.7919	0.0311		0.7886	0.7886		0.7886	0.7886	0.0000	3,079.5587	3,079.5587	0.9743		3,103.9172
Total	**0.7663**	**15.5250**	**20.7919**	**0.0311**		**0.7886**	**0.7886**		**0.7886**	**0.7886**	**0.0000**	**3,079.5587**	**3,079.5587**	**0.9743**		**3,103.9172**

3.4 Trenching - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0582	1.6202	0.4299	3.6600e-003	0.0896	0.0103	0.1000	0.0258	9.8800e-003	0.0357		390.3405	390.3405	0.0250		390.9658
Worker	0.0899	0.0661	0.8679	2.1900e-003	0.2012	1.7300e-003	0.2029	0.0534	1.6000e-003	0.0550		218.3315	218.3315	7.5000e-003		218.5190
Total	**0.1481**	**1.6863**	**1.2978**	**5.8500e-003**	**0.2908**	**0.0121**	**0.3029**	**0.0792**	**0.0115**	**0.0907**		**608.6720**	**608.6720**	**0.0325**		**609.4848**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6528	24.2584	20.6449	0.0351		1.4134	1.4134		1.3639	1.3639		3,387.5043	3,387.5043	0.5824		3,402.0641
Total	**2.6528**	**24.2584**	**20.6449**	**0.0351**		**1.4134**	**1.4134**		**1.3639**	**1.3639**		**3,387.5043**	**3,387.5043**	**0.5824**		**3,402.0641**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1848	0.1359	1.7840	4.5100e-003	0.4136	3.5700e-003	0.4171	0.1097	3.2900e-003	0.1130		448.7926	448.7926	0.0154		449.1780
Total	**0.1848**	**0.1359**	**1.7840**	**4.5100e-003**	**0.4136**	**3.5700e-003**	**0.4171**	**0.1097**	**3.2900e-003**	**0.1130**		**448.7926**	**448.7926**	**0.0154**		**449.1780**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7662	16.9985	22.3246	0.0351		1.1030	1.1030		1.1030	1.1030	0.0000	3,387.5042	3,387.5042	0.5824		3,402.0641
Total	**0.7662**	**16.9985**	**22.3246**	**0.0351**		**1.1030**	**1.1030**		**1.1030**	**1.1030**	**0.0000**	**3,387.5042**	**3,387.5042**	**0.5824**		**3,402.0641**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1848	0.1359	1.7840	4.5100e-003	0.4136	3.5700e-003	0.4171	0.1097	3.2900e-003	0.1130		448.7926	448.7926	0.0154		449.1780
Total	**0.1848**	**0.1359**	**1.7840**	**4.5100e-003**	**0.4136**	**3.5700e-003**	**0.4171**	**0.1097**	**3.2900e-003**	**0.1130**		**448.7926**	**448.7926**	**0.0154**		**449.1780**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5253	21.8703	21.9576	0.0356		1.3310	1.3310		1.2881	1.2881		3,430.4097	3,430.4097	0.5960		3,445.3089
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.5253**	**21.8703**	**21.9576**	**0.0356**		**1.3310**	**1.3310**		**1.2881**	**1.2881**		**3,430.4097**	**3,430.4097**	**0.5960**		**3,445.3089**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1149	0.0845	1.1090	2.8000e-003	0.2571	2.2200e-003	0.2593	0.0682	2.0400e-003	0.0702		278.9792	278.9792	9.5800e-003		279.2187
Total	**0.1149**	**0.0845**	**1.1090**	**2.8000e-003**	**0.2571**	**2.2200e-003**	**0.2593**	**0.0682**	**2.0400e-003**	**0.0702**		**278.9792**	**278.9792**	**9.5800e-003**		**279.2187**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7779	16.9657	23.9858	0.0356		1.0929	1.0929		1.0929	1.0929	0.0000	3,430.4097	3,430.4097	0.5960		3,445.3089
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.7779**	**16.9657**	**23.9858**	**0.0356**		**1.0929**	**1.0929**		**1.0929**	**1.0929**	**0.0000**	**3,430.4097**	**3,430.4097**	**0.5960**		**3,445.3089**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1149	0.0845	1.1090	2.8000e-003	0.2571	2.2200e-003	0.2593	0.0682	2.0400e-003	0.0702		278.9792	278.9792	9.5800e-003		279.2187
Total	**0.1149**	**0.0845**	**1.1090**	**2.8000e-003**	**0.2571**	**2.2200e-003**	**0.2593**	**0.0682**	**2.0400e-003**	**0.0702**		**278.9792**	**278.9792**	**9.5800e-003**		**279.2187**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0375	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Unmitigated	0.0375	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0309					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Total	**0.0375**	**0.0000**	**2.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**		**4.7000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0309					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.1000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		4.4000e-004	4.4000e-004	0.0000		4.7000e-004
Total	**0.0375**	**0.0000**	**2.1000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**4.4000e-004**	**4.4000e-004**	**0.0000**		**4.7000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 2

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	6.00	Acre	6.00	261,360.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 2 - Los Angeles-South Coast County, Annual

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Sun Valley Construction Questionnaire (see Appendix) and Table C-17 from Appendix C of the 2004 EIR.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	15682	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	43.00
tblConstructionPhase	NumDays	10.00	85.00
tblConstructionPhase	NumDays	230.00	149.00
tblConstructionPhase	NumDays	20.00	43.00

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tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	20,500.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	HaulingTripNumber	2,563.00	2,562.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	43.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00

tblTripsAndVMT	WorkerTripNumber	110.00	37.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.3393	3.6750	2.7624	6.4700e-003	0.2025	0.1602	0.3627	0.0394	0.1517	0.1911	0.0000	589.3347	589.3347	0.1073	0.0000	592.0173
2020	0.0725	0.6134	0.6659	1.1400e-003	8.6600e-003	0.0352	0.0438	2.3000e-003	0.0340	0.0363	0.0000	98.7409	98.7409	0.0157	0.0000	99.1341
Maximum	**0.3393**	**3.6750**	**2.7624**	**6.4700e-003**	**0.2025**	**0.1602**	**0.3627**	**0.0394**	**0.1517**	**0.1911**	**0.0000**	**589.3347**	**589.3347**	**0.1073**	**0.0000**	**592.0173**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.1504	2.8655	3.1536	6.4700e-003	0.1232	0.1301	0.2532	0.0274	0.1291	0.1566	0.0000	589.3342	589.3342	0.1073	0.0000	592.0169
2020	0.0278	0.5032	0.7198	1.1400e-003	8.6600e-003	0.0324	0.0410	2.3000e-003	0.0323	0.0346	0.0000	98.7407	98.7407	0.0157	0.0000	99.1340
Maximum	**0.1504**	**2.8655**	**3.1536**	**6.4700e-003**	**0.1232**	**0.1301**	**0.2532**	**0.0274**	**0.1291**	**0.1566**	**0.0000**	**589.3342**	**589.3342**	**0.1073**	**0.0000**	**592.0169**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**56.74**	**21.45**	**-12.98**	**0.00**	**37.57**	**16.86**	**27.62**	**28.64**	**13.08**	**15.93**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	1.1011	0.9032
2	4-1-2019	6-30-2019	1.0989	0.8994
3	7-1-2019	9-30-2019	0.8948	0.5942
4	10-1-2019	12-31-2019	0.8959	0.5954
5	1-1-2020	3-31-2020	0.6891	0.5339
		Highest	1.1011	0.9032

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0181	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0181**	**0.0000**	**8.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0181	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0181**	**0.0000**	**8.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

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

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	2/28/2019	5	43	
2	Site Preparation	Site Preparation	3/1/2019	6/27/2019	5	85	
3	Trenching	Trenching	3/1/2019	6/27/2019	5	85	
4	Building Construction	Building Construction	6/28/2019	1/22/2020	5	149	
5	Paving	Paving	1/23/2020	3/23/2020	5	43	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 0

Acres of Paving: 6

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38

Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	8	13.00	0.00	1,147.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	2,562.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1241	0.0000	0.1241	0.0188	0.0000	0.0188	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0458	0.5052	0.4116	7.8000e-004		0.0231	0.0231		0.0213	0.0213	0.0000	70.0344	70.0344	0.0222	0.0000	70.5884
Total	**0.0458**	**0.5052**	**0.4116**	**7.8000e-004**	**0.1241**	**0.0231**	**0.1472**	**0.0188**	**0.0213**	**0.0401**	**0.0000**	**70.0344**	**70.0344**	**0.0222**	**0.0000**	**70.5884**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.4500e-003	0.1815	0.0386	4.5000e-004	9.8600e-003	6.5000e-004	0.0105	2.7100e-003	6.2000e-004	3.3300e-003	0.0000	44.6576	44.6576	3.1500e-003	0.0000	44.7363
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	1.4000e-003	1.1700e-003	0.0127	3.0000e-005	3.0600e-003	3.0000e-005	3.0900e-003	8.1000e-004	2.0000e-005	8.4000e-004	0.0000	2.9441	2.9441	1.0000e-004	0.0000	2.9467
Total	**6.8500e-003**	**0.1827**	**0.0512**	**4.8000e-004**	**0.0129**	**6.8000e-004**	**0.0136**	**3.5200e-003**	**6.4000e-004**	**4.1700e-003**	**0.0000**	**47.6017**	**47.6017**	**3.2500e-003**	**0.0000**	**47.6830**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					0.0475	0.0000	0.0475	7.1900e-003	0.0000	7.1900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0235	0.3939	0.5102	7.8000e-004		0.0199	0.0199		0.0195	0.0195	0.0000	70.0343	70.0343	0.0222	0.0000	70.5883
Total	**0.0235**	**0.3939**	**0.5102**	**7.8000e-004**	**0.0475**	**0.0199**	**0.0673**	**7.1900e-003**	**0.0195**	**0.0267**	**0.0000**	**70.0343**	**70.0343**	**0.0222**	**0.0000**	**70.5883**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.4500e-003	0.1815	0.0386	4.5000e-004	9.8600e-003	6.5000e-004	0.0105	2.7100e-003	6.2000e-004	3.3300e-003	0.0000	44.6576	44.6576	3.1500e-003	0.0000	44.7363
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	1.4000e-003	1.1700e-003	0.0127	3.0000e-005	3.0600e-003	3.0000e-005	3.0900e-003	8.1000e-004	2.0000e-005	8.4000e-004	0.0000	2.9441	2.9441	1.0000e-004	0.0000	2.9467
Total	**6.8500e-003**	**0.1827**	**0.0512**	**4.8000e-004**	**0.0129**	**6.8000e-004**	**0.0136**	**3.5200e-003**	**6.4000e-004**	**4.1700e-003**	**0.0000**	**47.6017**	**47.6017**	**3.2500e-003**	**0.0000**	**47.6830**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.3400e-003	0.0000	4.3400e-003	5.2000e-004	0.0000	5.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**4.3400e-003**	**0.0000**	**4.3400e-003**	**5.2000e-004**	**0.0000**	**5.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0122	0.4054	0.0861	1.0200e-003	0.0220	1.4500e-003	0.0235	6.0500e-003	1.3900e-003	7.4300e-003	0.0000	99.7496	99.7496	7.0300e-003	0.0000	99.9255
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0122**	**0.4054**	**0.0861**	**1.0200e-003**	**0.0220**	**1.4500e-003**	**0.0235**	**6.0500e-003**	**1.3900e-003**	**7.4300e-003**	**0.0000**	**99.7496**	**99.7496**	**7.0300e-003**	**0.0000**	**99.9255**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					1.6600e-003	0.0000	1.6600e-003	2.0000e-004	0.0000	2.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.6600e-003**	**0.0000**	**1.6600e-003**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0122	0.4054	0.0861	1.0200e-003	0.0220	1.4500e-003	0.0235	6.0500e-003	1.3900e-003	7.4300e-003	0.0000	99.7496	99.7496	7.0300e-003	0.0000	99.9255
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0122**	**0.4054**	**0.0861**	**1.0200e-003**	**0.0220**	**1.4500e-003**	**0.0235**	**6.0500e-003**	**1.3900e-003**	**7.4300e-003**	**0.0000**	**99.7496**	**99.7496**	**7.0300e-003**	**0.0000**	**99.9255**

3.4 Trenching - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0794	0.8848	0.6749	1.3200e-003		0.0402	0.0402		0.0370	0.0370	0.0000	118.7335	118.7335	0.0376	0.0000	119.6726
Total	**0.0794**	**0.8848**	**0.6749**	**1.3200e-003**		**0.0402**	**0.0402**		**0.0370**	**0.0370**	**0.0000**	**118.7335**	**118.7335**	**0.0376**	**0.0000**	**119.6726**

3.4 Trenching - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	2.5200e-003	0.0703	0.0192	1.5000e-004	3.7500e-003	4.4000e-004	4.1900e-003	1.0800e-003	4.2000e-004	1.5000e-003	0.0000	14.8788	14.8788	9.9000e-004	0.0000	14.9037
Worker	3.8300e-003	3.1900e-003	0.0347	9.0000e-005	8.3800e-003	7.0000e-005	8.4600e-003	2.2300e-003	7.0000e-005	2.2900e-003	0.0000	8.0582	8.0582	2.8000e-004	0.0000	8.0651
Total	**6.3500e-003**	**0.0735**	**0.0540**	**2.4000e-004**	**0.0121**	**5.1000e-004**	**0.0127**	**3.3100e-003**	**4.9000e-004**	**3.7900e-003**	**0.0000**	**22.9370**	**22.9370**	**1.2700e-003**	**0.0000**	**22.9688**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0383	0.6694	0.8558	1.3200e-003		0.0340	0.0340		0.0335	0.0335	0.0000	118.7333	118.7333	0.0376	0.0000	119.6725
Total	**0.0383**	**0.6694**	**0.8558**	**1.3200e-003**		**0.0340**	**0.0340**		**0.0335**	**0.0335**	**0.0000**	**118.7333**	**118.7333**	**0.0376**	**0.0000**	**119.6725**

3.4 Trenching - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	2.5200e-003	0.0703	0.0192	1.5000e-004	3.7500e-003	4.4000e-004	4.1900e-003	1.0800e-003	4.2000e-004	1.5000e-003	0.0000	14.8788	14.8788	9.9000e-004	0.0000	14.9037
Worker	3.8300e-003	3.1900e-003	0.0347	9.0000e-005	8.3800e-003	7.0000e-005	8.4600e-003	2.2300e-003	7.0000e-005	2.2900e-003	0.0000	8.0582	8.0582	2.8000e-004	0.0000	8.0651
Total	**6.3500e-003**	**0.0735**	**0.0540**	**2.4000e-004**	**0.0121**	**5.1000e-004**	**0.0127**	**3.3100e-003**	**4.9000e-004**	**3.7900e-003**	**0.0000**	**22.9370**	**22.9370**	**1.2700e-003**	**0.0000**	**22.9688**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1764	1.6132	1.3729	2.3400e-003		0.0940	0.0940		0.0907	0.0907	0.0000	204.3606	204.3606	0.0351	0.0000	205.2390
Total	**0.1764**	**1.6132**	**1.3729**	**2.3400e-003**		**0.0940**	**0.0940**		**0.0907**	**0.0907**	**0.0000**	**204.3606**	**204.3606**	**0.0351**	**0.0000**	**205.2390**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	0.0123	0.0103	0.1117	2.9000e-004	0.0270	2.4000e-004	0.0272	7.1600e-003	2.2000e-004	7.3800e-003	0.0000	25.9179	25.9179	8.9000e-004	0.0000	25.9401
Total	**0.0123**	**0.0103**	**0.1117**	**2.9000e-004**	**0.0270**	**2.4000e-004**	**0.0272**	**7.1600e-003**	**2.2000e-004**	**7.3800e-003**	**0.0000**	**25.9179**	**25.9179**	**8.9000e-004**	**0.0000**	**25.9401**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0510	1.1304	1.4846	2.3400e-003		0.0734	0.0734		0.0734	0.0734	0.0000	204.3604	204.3604	0.0351	0.0000	205.2388
Total	**0.0510**	**1.1304**	**1.4846**	**2.3400e-003**		**0.0734**	**0.0734**		**0.0734**	**0.0734**	**0.0000**	**204.3604**	**204.3604**	**0.0351**	**0.0000**	**205.2388**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	0.0123	0.0103	0.1117	2.9000e-004	0.0270	2.4000e-004	0.0272	7.1600e-003	2.2000e-004	7.3800e-003	0.0000	25.9179	25.9179	8.9000e-004	0.0000	25.9401
Total	**0.0123**	**0.0103**	**0.1117**	**2.9000e-004**	**0.0270**	**2.4000e-004**	**0.0272**	**7.1600e-003**	**2.2000e-004**	**7.3800e-003**	**0.0000**	**25.9179**	**25.9179**	**8.9000e-004**	**0.0000**	**25.9401**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0192	0.1769	0.1629	2.8000e-004		9.7800e-003	9.7800e-003		9.4400e-003	9.4400e-003	0.0000	24.3640	24.3640	4.1200e-003	0.0000	24.4671
Total	**0.0192**	**0.1769**	**0.1629**	**2.8000e-004**		**9.7800e-003**	**9.7800e-003**		**9.4400e-003**	**9.4400e-003**	**0.0000**	**24.3640**	**24.3640**	**4.1200e-003**	**0.0000**	**24.4671**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3700e-003	1.1000e-003	0.0122	3.0000e-005	3.2400e-003	3.0000e-005	3.2700e-003	8.6000e-004	3.0000e-005	8.9000e-004	0.0000	3.0232	3.0232	1.0000e-004	0.0000	3.0256
Total	**1.3700e-003**	**1.1000e-003**	**0.0122**	**3.0000e-005**	**3.2400e-003**	**3.0000e-005**	**3.2700e-003**	**8.6000e-004**	**3.0000e-005**	**8.9000e-004**	**0.0000**	**3.0232**	**3.0232**	**1.0000e-004**	**0.0000**	**3.0256**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	6.1300e-003	0.1360	0.1786	2.8000e-004		8.8200e-003	8.8200e-003		8.8200e-003	8.8200e-003	0.0000	24.3640	24.3640	4.1200e-003	0.0000	24.4671
Total	**6.1300e-003**	**0.1360**	**0.1786**	**2.8000e-004**		**8.8200e-003**	**8.8200e-003**		**8.8200e-003**	**8.8200e-003**	**0.0000**	**24.3640**	**24.3640**	**4.1200e-003**	**0.0000**	**24.4671**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3700e-003	1.1000e-003	0.0122	3.0000e-005	3.2400e-003	3.0000e-005	3.2700e-003	8.6000e-004	3.0000e-005	8.9000e-004	0.0000	3.0232	3.0232	1.0000e-004	0.0000	3.0256
Total	**1.3700e-003**	**1.1000e-003**	**0.0122**	**3.0000e-005**	**3.2400e-003**	**3.0000e-005**	**3.2700e-003**	**8.6000e-004**	**3.0000e-005**	**8.9000e-004**	**0.0000**	**3.0232**	**3.0232**	**1.0000e-004**	**0.0000**	**3.0256**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0497	0.4335	0.4705	7.6000e-004		0.0253	0.0253		0.0245	0.0245	0.0000	66.3031	66.3031	0.0114	0.0000	66.5868
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0497**	**0.4335**	**0.4705**	**7.6000e-004**		**0.0253**	**0.0253**		**0.0245**	**0.0245**	**0.0000**	**66.3031**	**66.3031**	**0.0114**	**0.0000**	**66.5868**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	2.2800e-003	1.8400e-003	0.0204	6.0000e-005	5.4200e-003	5.0000e-005	5.4600e-003	1.4400e-003	4.0000e-005	1.4800e-003	0.0000	5.0506	5.0506	1.6000e-004	0.0000	5.0546
Total	**2.2800e-003**	**1.8400e-003**	**0.0204**	**6.0000e-005**	**5.4200e-003**	**5.0000e-005**	**5.4600e-003**	**1.4400e-003**	**4.0000e-005**	**1.4800e-003**	**0.0000**	**5.0506**	**5.0506**	**1.6000e-004**	**0.0000**	**5.0546**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0180	0.3643	0.5087	7.6000e-004		0.0235	0.0235		0.0234	0.0234	0.0000	66.3030	66.3030	0.0114	0.0000	66.5867
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0180**	**0.3643**	**0.5087**	**7.6000e-004**		**0.0235**	**0.0235**		**0.0234**	**0.0234**	**0.0000**	**66.3030**	**66.3030**	**0.0114**	**0.0000**	**66.5867**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	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	2.2800e-003	1.8400e-003	0.0204	6.0000e-005	5.4200e-003	5.0000e-005	5.4600e-003	1.4400e-003	4.0000e-005	1.4800e-003	0.0000	5.0506	5.0506	1.6000e-004	0.0000	5.0546
Total	**2.2800e-003**	**1.8400e-003**	**0.0204**	**6.0000e-005**	**5.4200e-003**	**5.0000e-005**	**5.4600e-003**	**1.4400e-003**	**4.0000e-005**	**1.4800e-003**	**0.0000**	**5.0506**	**5.0506**	**1.6000e-004**	**0.0000**	**5.0546**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

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

5.3 Energy by Land Use - Electricity

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0181	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Unmitigated	0.0181	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0169					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Total	**0.0181**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0169					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	8.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	1.5000e-004	1.5000e-004	0.0000	0.0000	1.6000e-004
Total	**0.0181**	**0.0000**	**8.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.5000e-004**	**1.5000e-004**	**0.0000**	**0.0000**	**1.6000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

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

7.2 Water by Land Use

Mitigated

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 2

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	6.00	Acre	6.00	261,360.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 2 - Los Angeles-South Coast County, Summer

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Sun Valley Construction Questionnaire (see Appendix) and Table C-17 from Appendix C of the 2004 EIR.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	15682	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	43.00
tblConstructionPhase	NumDays	10.00	85.00
tblConstructionPhase	NumDays	230.00	149.00
tblConstructionPhase	NumDays	20.00	43.00

tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	20,500.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	HaulingTripNumber	2,563.00	2,562.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	43.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00

tblTripsAndVMT	WorkerTripNumber	110.00	37.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.8376	31.7358	22.4289	0.0610	6.3844	1.4170	7.4910	1.0404	1.3672	2.0596	0.0000	6,293.9708	6,293.9708	1.3003	0.0000	6,323.6285
2020	2.5665	22.2328	22.8909	0.0395	0.4136	1.2263	1.6398	0.1097	1.1832	1.2929	0.0000	3,792.2544	3,792.2544	0.5905	0.0000	3,806.8045
Maximum	**2.8376**	**31.7358**	**22.8909**	**0.0610**	**6.3844**	**1.4170**	**7.4910**	**1.0404**	**1.3672**	**2.0596**	**0.0000**	**6,293.9708**	**6,293.9708**	**1.3003**	**0.0000**	**6,323.6285**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.4095	26.6682	26.0965	0.0610	2.8198	1.1066	3.7743	0.5007	1.1063	1.4383	0.0000	6,293.9708	6,293.9708	1.3003	0.0000	6,323.6285
2020	0.9427	17.1196	24.6677	0.0395	0.4136	1.1065	1.5201	0.1097	1.1062	1.2159	0.0000	3,792.2544	3,792.2544	0.5905	0.0000	3,806.8045
Maximum	**1.4095**	**26.6682**	**26.0965**	**0.0610**	**2.8198**	**1.1066**	**3.7743**	**0.5007**	**1.1063**	**1.4383**	**0.0000**	**6,293.9708**	**6,293.9708**	**1.3003**	**0.0000**	**6,323.6285**

Sun Valley PW Storm Drain Phase 2 - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**56.47**	**18.86**	**-12.01**	**0.00**	**52.44**	**16.27**	**42.02**	**46.93**	**13.25**	**20.83**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0993	1.0000e-005	6.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0993**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**	**0.0000**	**1.4000e-003**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0993	1.0000e-005	6.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0993**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**	**0.0000**	**1.4000e-003**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	2/28/2019	5	43	
2	Site Preparation	Site Preparation	3/1/2019	6/27/2019	5	85	
3	Trenching	Trenching	3/1/2019	6/27/2019	5	85	
4	Building Construction	Building Construction	6/28/2019	1/22/2020	5	149	
5	Paving	Paving	1/23/2020	3/23/2020	5	43	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 0

Acres of Paving: 6

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37

Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	8	13.00	0.00	1,147.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	2,562.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.7728	0.0000	5.7728	0.8741	0.0000	0.8741			0.0000			0.0000
Off-Road	2.1299	23.4996	19.1427	0.0363		1.0753	1.0753		0.9893	0.9893		3,590.6842	3,590.6842	1.1361		3,619.0856
Total	**2.1299**	**23.4996**	**19.1427**	**0.0363**	**5.7728**	**1.0753**	**6.8481**	**0.8741**	**0.9893**	**1.8634**		**3,590.6842**	**3,590.6842**	**1.1361**		**3,619.0856**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2507	8.1699	1.7419	0.0213	0.4664	0.0300	0.4964	0.1278	0.0287	0.1565		2,306.0348	2,306.0348	0.1588		2,310.0052
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	0.0649	0.0477	0.6268	1.5800e-003	0.1453	1.2500e-003	0.1466	0.0385	1.1500e-003	0.0397		157.6839	157.6839	5.4200e-003		157.8193
Total	**0.3156**	**8.2177**	**2.3687**	**0.0229**	**0.6117**	**0.0312**	**0.6429**	**0.1664**	**0.0298**	**0.1962**		**2,463.7187**	**2,463.7187**	**0.1642**		**2,467.8245**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2081	0.0000	2.2081	0.3343	0.0000	0.3343			0.0000			0.0000
Off-Road	1.0939	18.3194	23.7277	0.0363		0.9233	0.9233		0.9077	0.9077	0.0000	3,590.6842	3,590.6842	1.1361		3,619.0856
Total	**1.0939**	**18.3194**	**23.7277**	**0.0363**	**2.2081**	**0.9233**	**3.1313**	**0.3343**	**0.9077**	**1.2421**	**0.0000**	**3,590.6842**	**3,590.6842**	**1.1361**		**3,619.0856**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2507	8.1699	1.7419	0.0213	0.4664	0.0300	0.4964	0.1278	0.0287	0.1565		2,306.0348	2,306.0348	0.1588		2,310.0052
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	0.0649	0.0477	0.6268	1.5800e-003	0.1453	1.2500e-003	0.1466	0.0385	1.1500e-003	0.0397		157.6839	157.6839	5.4200e-003		157.8193
Total	**0.3156**	**8.2177**	**2.3687**	**0.0229**	**0.6117**	**0.0312**	**0.6429**	**0.1664**	**0.0298**	**0.1962**		**2,463.7187**	**2,463.7187**	**0.1642**		**2,467.8245**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1021	0.0000	0.1021	0.0122	0.0000	0.0122			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1021**	**0.0000**	**0.1021**	**0.0122**	**0.0000**	**0.0122**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2832	9.2317	1.9683	0.0241	0.5270	0.0339	0.5609	0.1445	0.0324	0.1769		2,605.7401	2,605.7401	0.1795		2,610.2265
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2832**	**9.2317**	**1.9683**	**0.0241**	**0.5270**	**0.0339**	**0.5609**	**0.1445**	**0.0324**	**0.1769**		**2,605.7401**	**2,605.7401**	**0.1795**		**2,610.2265**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.0391	0.0000	0.0391	4.6700e-003	0.0000	4.6700e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0391**	**0.0000**	**0.0391**	**4.6700e-003**	**0.0000**	**4.6700e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2832	9.2317	1.9683	0.0241	0.5270	0.0339	0.5609	0.1445	0.0324	0.1769		2,605.7401	2,605.7401	0.1795		2,610.2265
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2832**	**9.2317**	**1.9683**	**0.0241**	**0.5270**	**0.0339**	**0.5609**	**0.1445**	**0.0324**	**0.1769**		**2,605.7401**	**2,605.7401**	**0.1795**		**2,610.2265**

3.4 Trenching - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8692	20.8177	15.8795	0.0311		0.9460	0.9460		0.8703	0.8703		3,079.5587	3,079.5587	0.9743		3,103.9172
Total	**1.8692**	**20.8177**	**15.8795**	**0.0311**		**0.9460**	**0.9460**		**0.8703**	**0.8703**		**3,079.5587**	**3,079.5587**	**0.9743**		**3,103.9172**

3.4 Trenching - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0582	1.6202	0.4299	3.6600e-003	0.0896	0.0103	0.1000	0.0258	9.8800e-003	0.0357		390.3405	390.3405	0.0250		390.9658
Worker	0.0899	0.0661	0.8679	2.1900e-003	0.2012	1.7300e-003	0.2029	0.0534	1.6000e-003	0.0550		218.3315	218.3315	7.5000e-003		218.5190
Total	**0.1481**	**1.6863**	**1.2978**	**5.8500e-003**	**0.2908**	**0.0121**	**0.3029**	**0.0792**	**0.0115**	**0.0907**		**608.6720**	**608.6720**	**0.0325**		**609.4848**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.9000	15.7501	20.1371	0.0311		0.7993	0.7993		0.7890	0.7890	0.0000	3,079.5587	3,079.5587	0.9743		3,103.9172
Total	**0.9000**	**15.7501**	**20.1371**	**0.0311**		**0.7993**	**0.7993**		**0.7890**	**0.7890**	**0.0000**	**3,079.5587**	**3,079.5587**	**0.9743**		**3,103.9172**

3.4 Trenching - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0582	1.6202	0.4299	3.6600e-003	0.0896	0.0103	0.1000	0.0258	9.8800e-003	0.0357		390.3405	390.3405	0.0250		390.9658
Worker	0.0899	0.0661	0.8679	2.1900e-003	0.2012	1.7300e-003	0.2029	0.0534	1.6000e-003	0.0550		218.3315	218.3315	7.5000e-003		218.5190
Total	**0.1481**	**1.6863**	**1.2978**	**5.8500e-003**	**0.2908**	**0.0121**	**0.3029**	**0.0792**	**0.0115**	**0.0907**		**608.6720**	**608.6720**	**0.0325**		**609.4848**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6528	24.2584	20.6449	0.0351		1.4134	1.4134		1.3639	1.3639		3,387.5043	3,387.5043	0.5824		3,402.0641
Total	**2.6528**	**24.2584**	**20.6449**	**0.0351**		**1.4134**	**1.4134**		**1.3639**	**1.3639**		**3,387.5043**	**3,387.5043**	**0.5824**		**3,402.0641**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1848	0.1359	1.7840	4.5100e-003	0.4136	3.5700e-003	0.4171	0.1097	3.2900e-003	0.1130		448.7926	448.7926	0.0154		449.1780
Total	**0.1848**	**0.1359**	**1.7840**	**4.5100e-003**	**0.4136**	**3.5700e-003**	**0.4171**	**0.1097**	**3.2900e-003**	**0.1130**		**448.7926**	**448.7926**	**0.0154**		**449.1780**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7662	16.9985	22.3246	0.0351		1.1030	1.1030		1.1030	1.1030	0.0000	3,387.5042	3,387.5042	0.5824		3,402.0641
Total	**0.7662**	**16.9985**	**22.3246**	**0.0351**		**1.1030**	**1.1030**		**1.1030**	**1.1030**	**0.0000**	**3,387.5042**	**3,387.5042**	**0.5824**		**3,402.0641**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1848	0.1359	1.7840	4.5100e-003	0.4136	3.5700e-003	0.4171	0.1097	3.2900e-003	0.1130		448.7926	448.7926	0.0154		449.1780
Total	**0.1848**	**0.1359**	**1.7840**	**4.5100e-003**	**0.4136**	**3.5700e-003**	**0.4171**	**0.1097**	**3.2900e-003**	**0.1130**		**448.7926**	**448.7926**	**0.0154**		**449.1780**

3.5 Building Construction - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3962	22.1116	20.3597	0.0351		1.2228	1.2228		1.1801	1.1801		3,357.0926	3,357.0926	0.5683		3,371.2998
Total	**2.3962**	**22.1116**	**20.3597**	**0.0351**		**1.2228**	**1.2228**		**1.1801**	**1.1801**		**3,357.0926**	**3,357.0926**	**0.5683**		**3,371.2998**

3.5 Building Construction - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1703	0.1211	1.6200	4.3700e-003	0.4136	3.4600e-003	0.4170	0.1097	3.1900e-003	0.1129		435.1618	435.1618	0.0137		435.5048
Total	**0.1703**	**0.1211**	**1.6200**	**4.3700e-003**	**0.4136**	**3.4600e-003**	**0.4170**	**0.1097**	**3.1900e-003**	**0.1129**		**435.1618**	**435.1618**	**0.0137**		**435.5048**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7662	16.9985	22.3246	0.0351		1.1030	1.1030		1.1030	1.1030	0.0000	3,357.0926	3,357.0926	0.5683		3,371.2998
Total	**0.7662**	**16.9985**	**22.3246**	**0.0351**		**1.1030**	**1.1030**		**1.1030**	**1.1030**	**0.0000**	**3,357.0926**	**3,357.0926**	**0.5683**		**3,371.2998**

3.5 Building Construction - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1703	0.1211	1.6200	4.3700e-003	0.4136	3.4600e-003	0.4170	0.1097	3.1900e-003	0.1129		435.1618	435.1618	0.0137		435.5048
Total	**0.1703**	**0.1211**	**1.6200**	**4.3700e-003**	**0.4136**	**3.4600e-003**	**0.4170**	**0.1097**	**3.1900e-003**	**0.1129**		**435.1618**	**435.1618**	**0.0137**		**435.5048**

3.6 Paving - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3127	20.1637	21.8838	0.0356		1.1776	1.1776		1.1385	1.1385		3,399.3768	3,399.3768	0.5820		3,413.9258
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.3127**	**20.1637**	**21.8838**	**0.0356**		**1.1776**	**1.1776**		**1.1385**	**1.1385**		**3,399.3768**	**3,399.3768**	**0.5820**		**3,413.9258**

3.6 Paving - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1059	0.0753	1.0070	2.7200e-003	0.2571	2.1500e-003	0.2592	0.0682	1.9800e-003	0.0702		270.5060	270.5060	8.5300e-003		270.7192
Total	**0.1059**	**0.0753**	**1.0070**	**2.7200e-003**	**0.2571**	**2.1500e-003**	**0.2592**	**0.0682**	**1.9800e-003**	**0.0702**		**270.5060**	**270.5060**	**8.5300e-003**		**270.7192**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8369	16.9437	23.6607	0.0356		1.0920	1.0920		1.0874	1.0874	0.0000	3,399.3767	3,399.3767	0.5820		3,413.9258
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8369**	**16.9437**	**23.6607**	**0.0356**		**1.0920**	**1.0920**		**1.0874**	**1.0874**	**0.0000**	**3,399.3767**	**3,399.3767**	**0.5820**		**3,413.9258**

3.6 Paving - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1059	0.0753	1.0070	2.7200e-003	0.2571	2.1500e-003	0.2592	0.0682	1.9800e-003	0.0702		270.5060	270.5060	8.5300e-003		270.7192
Total	**0.1059**	**0.0753**	**1.0070**	**2.7200e-003**	**0.2571**	**2.1500e-003**	**0.2592**	**0.0682**	**1.9800e-003**	**0.0702**		**270.5060**	**270.5060**	**8.5300e-003**		**270.7192**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0993	1.0000e-005	6.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Unmitigated	0.0993	1.0000e-005	6.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.0000e-005	1.0000e-005	6.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Total	**0.0993**	**1.0000e-005**	**6.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**		**1.4000e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0926					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	6.0000e-005	1.0000e-005	6.2000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		1.3100e-003	1.3100e-003	0.0000		1.4000e-003
Total	**0.0993**	**1.0000e-005**	**6.2000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**1.3100e-003**	**1.3100e-003**	**0.0000**		**1.4000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 3

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	3.50	Acre	3.50	152,460.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 3 - Los Angeles-South Coast County, Annual

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Sun Valley Construction Questionnaire (see Appendix) and Table C-17 from Appendix C of the 2004 EIR.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	9148	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	5.00	43.00
tblConstructionPhase	NumDays	230.00	75.00
tblConstructionPhase	NumDays	18.00	21.00

tblGrading	AcresOfGrading	0.00	3.50
tblGrading	MaterialExported	0.00	3,800.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	PhaseName		Demolition
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	25.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	8.00	0.00
tblTripsAndVMT	WorkerTripNumber	64.00	37.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2038	1.9847	1.6772	3.3400e-003	0.4432	0.0994	0.5426	0.2254	0.0945	0.3199	0.0000	298.5884	298.5884	0.0584	0.0000	300.0495
Maximum	**0.2038**	**1.9847**	**1.6772**	**3.3400e-003**	**0.4432**	**0.0994**	**0.5426**	**0.2254**	**0.0945**	**0.3199**	**0.0000**	**298.5884**	**298.5884**	**0.0584**	**0.0000**	**300.0495**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0837	1.4988	1.8977	3.3400e-003	0.1888	0.0806	0.2694	0.0914	0.0801	0.1715	0.0000	298.5881	298.5881	0.0584	0.0000	300.0492
Maximum	**0.0837**	**1.4988**	**1.8977**	**3.3400e-003**	**0.1888**	**0.0806**	**0.2694**	**0.0914**	**0.0801**	**0.1715**	**0.0000**	**298.5881**	**298.5881**	**0.0584**	**0.0000**	**300.0492**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**58.94**	**24.48**	**-13.15**	**0.00**	**57.39**	**18.94**	**50.35**	**59.45**	**15.27**	**46.39**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2019	3-31-2019	0.9091	0.7110
2	4-1-2019	6-30-2019	0.8850	0.5878
3	7-1-2019	9-30-2019	0.3890	0.2781
		Highest	0.9091	0.7110

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0111	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	9.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0111**	**0.0000**	**4.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0000**	**9.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0111	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	9.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0111**	**0.0000**	**4.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0000**	**9.0000e-005**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/29/2019	5	21	
2	Site Preparation	Site Preparation	1/30/2019	3/29/2019	5	43	
3	Trenching	Trenching	1/30/2019	3/29/2019	5	43	
4	Building Construction	Building Construction	3/30/2019	7/12/2019	5	75	
5	Paving	Paving	7/13/2019	8/12/2019	5	21	

Acres of Grading (Site Preparation Phase): 3.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 3.5

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38

Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	8	13.00	0.00	198.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	3	0.00	0.00	475.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0214	0.0000	0.0214	3.2400e-003	0.0000	3.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0224	0.2468	0.2010	3.8000e-004		0.0113	0.0113		0.0104	0.0104	0.0000	34.2029	34.2029	0.0108	0.0000	34.4734
Total	**0.0224**	**0.2468**	**0.2010**	**3.8000e-004**	**0.0214**	**0.0113**	**0.0327**	**3.2400e-003**	**0.0104**	**0.0136**	**0.0000**	**34.2029**	**34.2029**	**0.0108**	**0.0000**	**34.4734**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.4000e-004	0.0313	6.6600e-003	8.0000e-005	1.7000e-003	1.1000e-004	1.8100e-003	4.7000e-004	1.1000e-004	5.7000e-004	0.0000	7.7090	7.7090	5.4000e-004	0.0000	7.7226
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	5.7000e-004	6.2000e-003	2.0000e-005	1.5000e-003	1.0000e-005	1.5100e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.4378	1.4378	5.0000e-005	0.0000	1.4391
Total	**1.6200e-003**	**0.0319**	**0.0129**	**1.0000e-004**	**3.2000e-003**	**1.2000e-004**	**3.3200e-003**	**8.7000e-004**	**1.2000e-004**	**9.8000e-004**	**0.0000**	**9.1468**	**9.1468**	**5.9000e-004**	**0.0000**	**9.1617**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					8.1900e-003	0.0000	8.1900e-003	1.2400e-003	0.0000	1.2400e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0115	0.1924	0.2491	3.8000e-004		9.6900e-003	9.6900e-003		9.5300e-003	9.5300e-003	0.0000	34.2028	34.2028	0.0108	0.0000	34.4733
Total	**0.0115**	**0.1924**	**0.2491**	**3.8000e-004**	**8.1900e-003**	**9.6900e-003**	**0.0179**	**1.2400e-003**	**9.5300e-003**	**0.0108**	**0.0000**	**34.2028**	**34.2028**	**0.0108**	**0.0000**	**34.4733**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	9.4000e-004	0.0313	6.6600e-003	8.0000e-005	1.7000e-003	1.1000e-004	1.8100e-003	4.7000e-004	1.1000e-004	5.7000e-004	0.0000	7.7090	7.7090	5.4000e-004	0.0000	7.7226
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	5.7000e-004	6.2000e-003	2.0000e-005	1.5000e-003	1.0000e-005	1.5100e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.4378	1.4378	5.0000e-005	0.0000	1.4391
Total	**1.6200e-003**	**0.0319**	**0.0129**	**1.0000e-004**	**3.2000e-003**	**1.2000e-004**	**3.3200e-003**	**8.7000e-004**	**1.2000e-004**	**9.8000e-004**	**0.0000**	**9.1468**	**9.1468**	**5.9000e-004**	**0.0000**	**9.1617**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3905	0.0000	0.3905	0.2137	0.0000	0.2137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.3905**	**0.0000**	**0.3905**	**0.2137**	**0.0000**	**0.2137**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2600e-003	0.0752	0.0160	1.9000e-004	4.0800e-003	2.7000e-004	4.3500e-003	1.1200e-003	2.6000e-004	1.3800e-003	0.0000	18.4938	18.4938	1.3000e-003	0.0000	18.5264
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2600e-003**	**0.0752**	**0.0160**	**1.9000e-004**	**4.0800e-003**	**2.7000e-004**	**4.3500e-003**	**1.1200e-003**	**2.6000e-004**	**1.3800e-003**	**0.0000**	**18.4938**	**18.4938**	**1.3000e-003**	**0.0000**	**18.5264**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					0.1494	0.0000	0.1494	0.0818	0.0000	0.0818	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.1494**	**0.0000**	**0.1494**	**0.0818**	**0.0000**	**0.0818**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.2600e-003	0.0752	0.0160	1.9000e-004	4.0800e-003	2.7000e-004	4.3500e-003	1.1200e-003	2.6000e-004	1.3800e-003	0.0000	18.4938	18.4938	1.3000e-003	0.0000	18.5264
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**2.2600e-003**	**0.0752**	**0.0160**	**1.9000e-004**	**4.0800e-003**	**2.7000e-004**	**4.3500e-003**	**1.1200e-003**	**2.6000e-004**	**1.3800e-003**	**0.0000**	**18.4938**	**18.4938**	**1.3000e-003**	**0.0000**	**18.5264**

3.4 Trenching - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0402	0.4476	0.3414	6.7000e-004		0.0203	0.0203		0.0187	0.0187	0.0000	60.0652	60.0652	0.0190	0.0000	60.5403
Total	**0.0402**	**0.4476**	**0.3414**	**6.7000e-004**		**0.0203**	**0.0203**		**0.0187**	**0.0187**	**0.0000**	**60.0652**	**60.0652**	**0.0190**	**0.0000**	**60.5403**

3.4 Trenching - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	1.2700e-003	0.0356	9.7200e-003	8.0000e-005	1.9000e-003	2.2000e-004	2.1200e-003	5.5000e-004	2.1000e-004	7.6000e-004	0.0000	7.5269	7.5269	5.0000e-004	0.0000	7.5395
Worker	1.9400e-003	1.6200e-003	0.0176	5.0000e-005	4.2400e-003	4.0000e-005	4.2800e-003	1.1300e-003	3.0000e-005	1.1600e-003	0.0000	4.0765	4.0765	1.4000e-004	0.0000	4.0800
Total	**3.2100e-003**	**0.0372**	**0.0273**	**1.3000e-004**	**6.1400e-003**	**2.6000e-004**	**6.4000e-003**	**1.6800e-003**	**2.4000e-004**	**1.9200e-003**	**0.0000**	**11.6034**	**11.6034**	**6.4000e-004**	**0.0000**	**11.6195**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0194	0.3386	0.4330	6.7000e-004		0.0172	0.0172		0.0170	0.0170	0.0000	60.0651	60.0651	0.0190	0.0000	60.5402
Total	**0.0194**	**0.3386**	**0.4330**	**6.7000e-004**		**0.0172**	**0.0172**		**0.0170**	**0.0170**	**0.0000**	**60.0651**	**60.0651**	**0.0190**	**0.0000**	**60.5402**

3.4 Trenching - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	1.2700e-003	0.0356	9.7200e-003	8.0000e-005	1.9000e-003	2.2000e-004	2.1200e-003	5.5000e-004	2.1000e-004	7.6000e-004	0.0000	7.5269	7.5269	5.0000e-004	0.0000	7.5395
Worker	1.9400e-003	1.6200e-003	0.0176	5.0000e-005	4.2400e-003	4.0000e-005	4.2800e-003	1.1300e-003	3.0000e-005	1.1600e-003	0.0000	4.0765	4.0765	1.4000e-004	0.0000	4.0800
Total	**3.2100e-003**	**0.0372**	**0.0273**	**1.3000e-004**	**6.1400e-003**	**2.6000e-004**	**6.4000e-003**	**1.6800e-003**	**2.4000e-004**	**1.9200e-003**	**0.0000**	**11.6034**	**11.6034**	**6.4000e-004**	**0.0000**	**11.6195**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0995	0.9097	0.7742	1.3200e-003		0.0530	0.0530		0.0512	0.0512	0.0000	115.2410	115.2410	0.0198	0.0000	115.7363
Total	**0.0995**	**0.9097**	**0.7742**	**1.3200e-003**		**0.0530**	**0.0530**		**0.0512**	**0.0512**	**0.0000**	**115.2410**	**115.2410**	**0.0198**	**0.0000**	**115.7363**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	6.9500e-003	5.7900e-003	0.0630	1.6000e-004	0.0152	1.3000e-004	0.0153	4.0400e-003	1.2000e-004	4.1600e-003	0.0000	14.6153	14.6153	5.0000e-004	0.0000	14.6279
Total	**6.9500e-003**	**5.7900e-003**	**0.0630**	**1.6000e-004**	**0.0152**	**1.3000e-004**	**0.0153**	**4.0400e-003**	**1.2000e-004**	**4.1600e-003**	**0.0000**	**14.6153**	**14.6153**	**5.0000e-004**	**0.0000**	**14.6279**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0287	0.6374	0.8372	1.3200e-003		0.0414	0.0414		0.0414	0.0414	0.0000	115.2408	115.2408	0.0198	0.0000	115.7361
Total	**0.0287**	**0.6374**	**0.8372**	**1.3200e-003**		**0.0414**	**0.0414**		**0.0414**	**0.0414**	**0.0000**	**115.2408**	**115.2408**	**0.0198**	**0.0000**	**115.7361**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	6.9500e-003	5.7900e-003	0.0630	1.6000e-004	0.0152	1.3000e-004	0.0153	4.0400e-003	1.2000e-004	4.1600e-003	0.0000	14.6153	14.6153	5.0000e-004	0.0000	14.6279
Total	**6.9500e-003**	**5.7900e-003**	**0.0630**	**1.6000e-004**	**0.0152**	**1.3000e-004**	**0.0153**	**4.0400e-003**	**1.2000e-004**	**4.1600e-003**	**0.0000**	**14.6153**	**14.6153**	**5.0000e-004**	**0.0000**	**14.6279**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0265	0.2296	0.2306	3.7000e-004		0.0140	0.0140		0.0135	0.0135	0.0000	32.6762	32.6762	5.6800e-003	0.0000	32.8181
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0265**	**0.2296**	**0.2306**	**3.7000e-004**		**0.0140**	**0.0140**		**0.0135**	**0.0135**	**0.0000**	**32.6762**	**32.6762**	**5.6800e-003**	**0.0000**	**32.8181**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	1.0100e-003	0.0110	3.0000e-005	2.6500e-003	2.0000e-005	2.6700e-003	7.0000e-004	2.0000e-005	7.2000e-004	0.0000	2.5439	2.5439	9.0000e-005	0.0000	2.5460
Total	**1.2100e-003**	**1.0100e-003**	**0.0110**	**3.0000e-005**	**2.6500e-003**	**2.0000e-005**	**2.6700e-003**	**7.0000e-004**	**2.0000e-005**	**7.2000e-004**	**0.0000**	**2.5439**	**2.5439**	**9.0000e-005**	**0.0000**	**2.5460**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	8.8700e-003	0.1793	0.2484	3.7000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	32.6761	32.6761	5.6800e-003	0.0000	32.8180
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.8700e-003**	**0.1793**	**0.2484**	**3.7000e-004**		**0.0115**	**0.0115**		**0.0115**	**0.0115**	**0.0000**	**32.6761**	**32.6761**	**5.6800e-003**	**0.0000**	**32.8180**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	1.0100e-003	0.0110	3.0000e-005	2.6500e-003	2.0000e-005	2.6700e-003	7.0000e-004	2.0000e-005	7.2000e-004	0.0000	2.5439	2.5439	9.0000e-005	0.0000	2.5460
Total	**1.2100e-003**	**1.0100e-003**	**0.0110**	**3.0000e-005**	**2.6500e-003**	**2.0000e-005**	**2.6700e-003**	**7.0000e-004**	**2.0000e-005**	**7.2000e-004**	**0.0000**	**2.5439**	**2.5439**	**9.0000e-005**	**0.0000**	**2.5460**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

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

5.3 Energy by Land Use - Electricity

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0111	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	9.0000e-005
Unmitigated	0.0111	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	9.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	9.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	9.0000e-005
Total	**0.0111**	**0.0000**	**4.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0000**	**9.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	9.8600e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	4.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	9.0000e-005	9.0000e-005	0.0000	0.0000	9.0000e-005
Total	**0.0111**	**0.0000**	**4.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**9.0000e-005**	**9.0000e-005**	**0.0000**	**0.0000**	**9.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

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

7.2 Water by Land Use

Mitigated

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 3

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	3.50	Acre	3.50	152,460.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 3 - Los Angeles-South Coast County, Summer

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Sun Valley Construction Questionnaire (see Appendix) and Table C-17 from Appendix C of the 2004 EIR.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	9148	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	5.00	43.00
tblConstructionPhase	NumDays	230.00	75.00
tblConstructionPhase	NumDays	18.00	21.00

tblGrading	AcresOfGrading	0.00	3.50
tblGrading	MaterialExported	0.00	3,800.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	6.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	25.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	64.00	37.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.8376	26.4351	23.0666	0.0458	2.3482	1.4170	3.4353	0.3923	1.3672	1.4769	0.0000	4,643.2146	4,643.2146	1.1976	0.0000	4,670.0301
Maximum	**2.8376**	**26.4351**	**23.0666**	**0.0458**	**2.3482**	**1.4170**	**3.4353**	**0.3923**	**1.3672**	**1.4769**	**0.0000**	**4,643.2146**	**4,643.2146**	**1.1976**	**0.0000**	**4,670.0301**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.2474	21.2550	24.9703	0.0458	1.0897	1.1066	2.0248	0.2018	1.1063	1.2160	0.0000	4,643.2146	4,643.2146	1.1976	0.0000	4,670.0301
Maximum	**1.2474**	**21.2550**	**24.9703**	**0.0458**	**1.0897**	**1.1066**	**2.0248**	**0.2018**	**1.1063**	**1.2160**	**0.0000**	**4,643.2146**	**4,643.2146**	**1.1976**	**0.0000**	**4,670.0301**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**56.04**	**19.60**	**-8.25**	**0.00**	**53.59**	**21.90**	**41.06**	**48.57**	**19.08**	**17.66**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0607	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0607**	**0.0000**	**3.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**7.7000e-004**	**7.7000e-004**	**0.0000**	**0.0000**	**8.2000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0607	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0607**	**0.0000**	**3.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**7.7000e-004**	**7.7000e-004**	**0.0000**	**0.0000**	**8.2000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/29/2019	5	21	
2	Site Preparation	Site Preparation	1/30/2019	3/29/2019	5	43	
3	Trenching	Trenching	1/30/2019	3/29/2019	5	43	
4	Building Construction	Building Construction	3/30/2019	7/12/2019	5	75	
5	Paving	Paving	7/13/2019	8/12/2019	5	21	

Acres of Grading (Site Preparation Phase): 3.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 3.5

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37

Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Site Preparation	Graders	0	0.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Trenching	Excavators	2	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	0	0.00	89	0.20
Building Construction	Generator Sets	2	8.00	84	0.74
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Welders	0	0.00	46	0.45
Paving	Air Compressors	2	8.00	78	0.48
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Paving	Excavators	1	8.00	158	0.38
Paving	Generator Sets	2	8.00	84	0.74
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	0	0.00	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
Demolition	8	13.00	0.00	198.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	475.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.0380	0.0000	2.0380	0.3086	0.0000	0.3086			0.0000			0.0000
Off-Road	2.1299	23.4996	19.1427	0.0363		1.0753	1.0753		0.9893	0.9893		3,590.6842	3,590.6842	1.1361		3,619.0856
Total	**2.1299**	**23.4996**	**19.1427**	**0.0363**	**2.0380**	**1.0753**	**3.1133**	**0.3086**	**0.9893**	**1.2979**		**3,590.6842**	**3,590.6842**	**1.1361**		**3,619.0856**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0886	2.8878	0.6157	7.5300e-003	0.1649	0.0106	0.1754	0.0452	0.0101	0.0553		815.1111	815.1111	0.0561		816.5145
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	0.0649	0.0477	0.6268	1.5800e-003	0.1453	1.2500e-003	0.1466	0.0385	1.1500e-003	0.0397		157.6839	157.6839	5.4200e-003		157.8193
Total	**0.1535**	**2.9355**	**1.2425**	**9.1100e-003**	**0.3102**	**0.0119**	**0.3220**	**0.0837**	**0.0113**	**0.0950**		**972.7950**	**972.7950**	**0.0616**		**974.3338**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.7795	0.0000	0.7795	0.1180	0.0000	0.1180			0.0000			0.0000
Off-Road	1.0939	18.3194	23.7277	0.0363		0.9233	0.9233		0.9077	0.9077	0.0000	3,590.6842	3,590.6842	1.1361		3,619.0856
Total	**1.0939**	**18.3194**	**23.7277**	**0.0363**	**0.7795**	**0.9233**	**1.7028**	**0.1180**	**0.9077**	**1.0258**	**0.0000**	**3,590.6842**	**3,590.6842**	**1.1361**		**3,619.0856**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0886	2.8878	0.6157	7.5300e-003	0.1649	0.0106	0.1754	0.0452	0.0101	0.0553		815.1111	815.1111	0.0561		816.5145
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	0.0649	0.0477	0.6268	1.5800e-003	0.1453	1.2500e-003	0.1466	0.0385	1.1500e-003	0.0397		157.6839	157.6839	5.4200e-003		157.8193
Total	**0.1535**	**2.9355**	**1.2425**	**9.1100e-003**	**0.3102**	**0.0119**	**0.3220**	**0.0837**	**0.0113**	**0.0950**		**972.7950**	**972.7950**	**0.0616**		**974.3338**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0963	0.0000	0.0963	0.0108	0.0000	0.0108			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0963**	**0.0000**	**0.0963**	**0.0108**	**0.0000**	**0.0108**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1038	3.3834	0.7214	8.8300e-003	0.1931	0.0124	0.2056	0.0529	0.0119	0.0648		954.9839	954.9839	0.0658		956.6281
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1038**	**3.3834**	**0.7214**	**8.8300e-003**	**0.1931**	**0.0124**	**0.2056**	**0.0529**	**0.0119**	**0.0648**		**954.9839**	**954.9839**	**0.0658**		**956.6281**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.0368	0.0000	0.0368	4.1400e-003	0.0000	4.1400e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0368**	**0.0000**	**0.0368**	**4.1400e-003**	**0.0000**	**4.1400e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1038	3.3834	0.7214	8.8300e-003	0.1931	0.0124	0.2056	0.0529	0.0119	0.0648		954.9839	954.9839	0.0658		956.6281
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.1038**	**3.3834**	**0.7214**	**8.8300e-003**	**0.1931**	**0.0124**	**0.2056**	**0.0529**	**0.0119**	**0.0648**		**954.9839**	**954.9839**	**0.0658**		**956.6281**

3.4 Trenching - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8692	20.8177	15.8795	0.0311		0.9460	0.9460		0.8703	0.8703		3,079.5587	3,079.5587	0.9743		3,103.9172
Total	**1.8692**	**20.8177**	**15.8795**	**0.0311**		**0.9460**	**0.9460**		**0.8703**	**0.8703**		**3,079.5587**	**3,079.5587**	**0.9743**		**3,103.9172**

3.4 Trenching - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0582	1.6202	0.4299	3.6600e-003	0.0896	0.0103	0.1000	0.0258	9.8800e-003	0.0357		390.3405	390.3405	0.0250		390.9658
Worker	0.0899	0.0661	0.8679	2.1900e-003	0.2012	1.7300e-003	0.2029	0.0534	1.6000e-003	0.0550		218.3315	218.3315	7.5000e-003		218.5190
Total	**0.1481**	**1.6863**	**1.2978**	**5.8500e-003**	**0.2908**	**0.0121**	**0.3029**	**0.0792**	**0.0115**	**0.0907**		**608.6720**	**608.6720**	**0.0325**		**609.4848**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.9000	15.7501	20.1371	0.0311		0.7993	0.7993		0.7890	0.7890	0.0000	3,079.5587	3,079.5587	0.9743		3,103.9172
Total	**0.9000**	**15.7501**	**20.1371**	**0.0311**		**0.7993**	**0.7993**		**0.7890**	**0.7890**	**0.0000**	**3,079.5587**	**3,079.5587**	**0.9743**		**3,103.9172**

3.4 Trenching - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0582	1.6202	0.4299	3.6600e-003	0.0896	0.0103	0.1000	0.0258	9.8800e-003	0.0357		390.3405	390.3405	0.0250		390.9658
Worker	0.0899	0.0661	0.8679	2.1900e-003	0.2012	1.7300e-003	0.2029	0.0534	1.6000e-003	0.0550		218.3315	218.3315	7.5000e-003		218.5190
Total	**0.1481**	**1.6863**	**1.2978**	**5.8500e-003**	**0.2908**	**0.0121**	**0.3029**	**0.0792**	**0.0115**	**0.0907**		**608.6720**	**608.6720**	**0.0325**		**609.4848**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6528	24.2584	20.6449	0.0351		1.4134	1.4134		1.3639	1.3639		3,387.5043	3,387.5043	0.5824		3,402.0641
Total	**2.6528**	**24.2584**	**20.6449**	**0.0351**		**1.4134**	**1.4134**		**1.3639**	**1.3639**		**3,387.5043**	**3,387.5043**	**0.5824**		**3,402.0641**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1848	0.1359	1.7840	4.5100e-003	0.4136	3.5700e-003	0.4171	0.1097	3.2900e-003	0.1130		448.7926	448.7926	0.0154		449.1780
Total	**0.1848**	**0.1359**	**1.7840**	**4.5100e-003**	**0.4136**	**3.5700e-003**	**0.4171**	**0.1097**	**3.2900e-003**	**0.1130**		**448.7926**	**448.7926**	**0.0154**		**449.1780**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7662	16.9985	22.3246	0.0351		1.1030	1.1030		1.1030	1.1030	0.0000	3,387.5042	3,387.5042	0.5824		3,402.0641
Total	**0.7662**	**16.9985**	**22.3246**	**0.0351**		**1.1030**	**1.1030**		**1.1030**	**1.1030**	**0.0000**	**3,387.5042**	**3,387.5042**	**0.5824**		**3,402.0641**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1848	0.1359	1.7840	4.5100e-003	0.4136	3.5700e-003	0.4171	0.1097	3.2900e-003	0.1130		448.7926	448.7926	0.0154		449.1780
Total	**0.1848**	**0.1359**	**1.7840**	**4.5100e-003**	**0.4136**	**3.5700e-003**	**0.4171**	**0.1097**	**3.2900e-003**	**0.1130**		**448.7926**	**448.7926**	**0.0154**		**449.1780**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5253	21.8703	21.9576	0.0356		1.3310	1.3310		1.2881	1.2881		3,430.4097	3,430.4097	0.5960		3,445.3089
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.5253**	**21.8703**	**21.9576**	**0.0356**		**1.3310**	**1.3310**		**1.2881**	**1.2881**		**3,430.4097**	**3,430.4097**	**0.5960**		**3,445.3089**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1149	0.0845	1.1090	2.8000e-003	0.2571	2.2200e-003	0.2593	0.0682	2.0400e-003	0.0702		278.9792	278.9792	9.5800e-003		279.2187
Total	**0.1149**	**0.0845**	**1.1090**	**2.8000e-003**	**0.2571**	**2.2200e-003**	**0.2593**	**0.0682**	**2.0400e-003**	**0.0702**		**278.9792**	**278.9792**	**9.5800e-003**		**279.2187**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8448	17.0783	23.6584	0.0356		1.0983	1.0983		1.0931	1.0931	0.0000	3,430.4097	3,430.4097	0.5960		3,445.3089
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8448**	**17.0783**	**23.6584**	**0.0356**		**1.0983**	**1.0983**		**1.0931**	**1.0931**	**0.0000**	**3,430.4097**	**3,430.4097**	**0.5960**		**3,445.3089**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1149	0.0845	1.1090	2.8000e-003	0.2571	2.2200e-003	0.2593	0.0682	2.0400e-003	0.0702		278.9792	278.9792	9.5800e-003		279.2187
Total	**0.1149**	**0.0845**	**1.1090**	**2.8000e-003**	**0.2571**	**2.2200e-003**	**0.2593**	**0.0682**	**2.0400e-003**	**0.0702**		**278.9792**	**278.9792**	**9.5800e-003**		**279.2187**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0607	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Unmitigated	0.0607	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Total	**0.0607**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**7.7000e-004**	**7.7000e-004**	**0.0000**		**8.2000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0540					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.0000e-005	0.0000	3.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		7.7000e-004	7.7000e-004	0.0000		8.2000e-004
Total	**0.0607**	**0.0000**	**3.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**7.7000e-004**	**7.7000e-004**	**0.0000**		**8.2000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 4

Los Angeles-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

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Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Sun Valley Construction Questionnaire (see Appendix) and Table C-17 from Appendix C of the 2004 EIR.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	6534	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstructionPhase	NumDays	3.00	41.00
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	10.00	21.00
tblConstructionPhase	NumDays	220.00	72.00

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tblConstructionPhase	PhaseEndDate	2/11/2019	3/27/2019
tblConstructionPhase	PhaseEndDate	2/11/2019	3/27/2019
tblConstructionPhase	PhaseEndDate	1/28/2019	1/29/2019
tblConstructionPhase	PhaseEndDate	1/27/2020	8/5/2019
tblConstructionPhase	PhaseEndDate	12/30/2019	7/5/2019
tblConstructionPhase	PhaseStartDate	1/29/2019	1/30/2019
tblConstructionPhase	PhaseStartDate	2/12/2019	1/30/2019
tblConstructionPhase	PhaseStartDate	12/31/2019	7/6/2019
tblConstructionPhase	PhaseStartDate	2/12/2019	3/28/2019
tblGrading	AcresOfGrading	0.00	2.50
tblGrading	MaterialExported	0.00	7,600.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	46.00	37.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.2009	2.0366	1.6502	3.5200e-003	0.0842	0.0967	0.1809	0.0170	0.0920	0.1090	0.0000	317.3925	317.3925	0.0587	0.0000	318.8587
Maximum	**0.2009**	**2.0366**	**1.6502**	**3.5200e-003**	**0.0842**	**0.0967**	**0.1809**	**0.0170**	**0.0920**	**0.1090**	**0.0000**	**317.3925**	**317.3925**	**0.0587**	**0.0000**	**318.8587**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0845	1.5667	1.8639	3.5200e-003	0.0547	0.0785	0.1332	0.0126	0.0780	0.0906	0.0000	317.3923	317.3923	0.0587	0.0000	318.8584
Maximum	**0.0845**	**1.5667**	**1.8639**	**3.5200e-003**	**0.0547**	**0.0785**	**0.1332**	**0.0126**	**0.0780**	**0.0906**	**0.0000**	**317.3923**	**317.3923**	**0.0587**	**0.0000**	**318.8584**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**57.91**	**23.08**	**-12.95**	**0.00**	**35.05**	**18.84**	**26.37**	**26.07**	**15.19**	**16.87**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**1-1-2019**	**3-31-2019**	1.0233	0.8230
2	**4-1-2019**	**6-30-2019**	0.8850	0.5878
3	**7-1-2019**	**9-30-2019**	0.3209	0.2329
		Highest	1.0233	0.8230

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.2500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.2500e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**7.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	8.2500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.2500e-003**	**0.0000**	**3.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**7.0000e-005**

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

3.0 Construction Detail

Construction Phase

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Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/29/2019	5	21	
2	Site Preparation	Site Preparation	1/30/2019	3/27/2019	5	41	
3	Trenching	Trenching	1/30/2019	3/27/2019	5	41	
4	Building Construction	Building Construction	3/28/2019	7/5/2019	5	72	
5	Paving	Paving	7/6/2019	8/5/2019	5	21	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.5

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Trenching	Excavators	2	8.00	158	0.38
Paving	Excavators	1	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Air Compressors	2	8.00	78	0.48
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Paving	Generator Sets	2	8.00	84	0.74

Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Generator Sets	2	8.00	84	0.74
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Building Construction	Forklifts	0	0.00	89	0.20
Site Preparation	Graders	0	0.00	187	0.41
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Paving	Rollers	2	8.00	80	0.38
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Welders	0	0.00	46	0.45
Demolition	Excavators	3	8.00	158	0.38
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	8	13.00	0.00	425.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	950.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0460	0.0000	0.0460	6.9700e-003	0.0000	6.9700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0224	0.2468	0.2010	3.8000e-004		0.0113	0.0113		0.0104	0.0104	0.0000	34.2029	34.2029	0.0108	0.0000	34.4734
Total	**0.0224**	**0.2468**	**0.2010**	**3.8000e-004**	**0.0460**	**0.0113**	**0.0573**	**6.9700e-003**	**0.0104**	**0.0174**	**0.0000**	**34.2029**	**34.2029**	**0.0108**	**0.0000**	**34.4734**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0200e-003	0.0673	0.0143	1.7000e-004	3.6500e-003	2.4000e-004	3.8900e-003	1.0000e-003	2.3000e-004	1.2300e-003	0.0000	16.5471	16.5471	1.1700e-003	0.0000	16.5762
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	5.7000e-004	6.2000e-003	2.0000e-005	1.5000e-003	1.0000e-005	1.5100e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.4378	1.4378	5.0000e-005	0.0000	1.4391
Total	**2.7000e-003**	**0.0678**	**0.0205**	**1.9000e-004**	**5.1500e-003**	**2.5000e-004**	**5.4000e-003**	**1.4000e-003**	**2.4000e-004**	**1.6400e-003**	**0.0000**	**17.9849**	**17.9849**	**1.2200e-003**	**0.0000**	**18.0153**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					0.0176	0.0000	0.0176	2.6600e-003	0.0000	2.6600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0115	0.1924	0.2491	3.8000e-004		9.6900e-003	9.6900e-003		9.5300e-003	9.5300e-003	0.0000	34.2028	34.2028	0.0108	0.0000	34.4733
Total	**0.0115**	**0.1924**	**0.2491**	**3.8000e-004**	**0.0176**	**9.6900e-003**	**0.0273**	**2.6600e-003**	**9.5300e-003**	**0.0122**	**0.0000**	**34.2028**	**34.2028**	**0.0108**	**0.0000**	**34.4733**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.0200e-003	0.0673	0.0143	1.7000e-004	3.6500e-003	2.4000e-004	3.8900e-003	1.0000e-003	2.3000e-004	1.2300e-003	0.0000	16.5471	16.5471	1.1700e-003	0.0000	16.5762
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8000e-004	5.7000e-004	6.2000e-003	2.0000e-005	1.5000e-003	1.0000e-005	1.5100e-003	4.0000e-004	1.0000e-005	4.1000e-004	0.0000	1.4378	1.4378	5.0000e-005	0.0000	1.4391
Total	**2.7000e-003**	**0.0678**	**0.0205**	**1.9000e-004**	**5.1500e-003**	**2.5000e-004**	**5.4000e-003**	**1.4000e-003**	**2.4000e-004**	**1.6400e-003**	**0.0000**	**17.9849**	**17.9849**	**1.2200e-003**	**0.0000**	**18.0153**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.7600e-003	0.0000	1.7600e-003	2.1000e-004	0.0000	2.1000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**1.7600e-003**	**0.0000**	**1.7600e-003**	**2.1000e-004**	**0.0000**	**2.1000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5100e-003	0.1503	0.0319	3.8000e-004	8.1600e-003	5.4000e-004	8.7000e-003	2.2400e-003	5.1000e-004	2.7600e-003	0.0000	36.9876	36.9876	2.6100e-003	0.0000	37.0528
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.5100e-003**	**0.1503**	**0.0319**	**3.8000e-004**	**8.1600e-003**	**5.4000e-004**	**8.7000e-003**	**2.2400e-003**	**5.1000e-004**	**2.7600e-003**	**0.0000**	**36.9876**	**36.9876**	**2.6100e-003**	**0.0000**	**37.0528**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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					6.7000e-004	0.0000	6.7000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**6.7000e-004**	**0.0000**	**6.7000e-004**	**8.0000e-005**	**0.0000**	**8.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.5100e-003	0.1503	0.0319	3.8000e-004	8.1600e-003	5.4000e-004	8.7000e-003	2.2400e-003	5.1000e-004	2.7600e-003	0.0000	36.9876	36.9876	2.6100e-003	0.0000	37.0528
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**4.5100e-003**	**0.1503**	**0.0319**	**3.8000e-004**	**8.1600e-003**	**5.4000e-004**	**8.7000e-003**	**2.2400e-003**	**5.1000e-004**	**2.7600e-003**	**0.0000**	**36.9876**	**36.9876**	**2.6100e-003**	**0.0000**	**37.0528**

3.4 Trenching - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0383	0.4268	0.3255	6.4000e-004		0.0194	0.0194		0.0178	0.0178	0.0000	57.2714	57.2714	0.0181	0.0000	57.7244
Total	**0.0383**	**0.4268**	**0.3255**	**6.4000e-004**		**0.0194**	**0.0194**		**0.0178**	**0.0178**	**0.0000**	**57.2714**	**57.2714**	**0.0181**	**0.0000**	**57.7244**

3.4 Trenching - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	1.2100e-003	0.0339	9.2700e-003	7.0000e-005	1.8100e-003	2.1000e-004	2.0200e-003	5.2000e-004	2.0000e-004	7.3000e-004	0.0000	7.1769	7.1769	4.8000e-004	0.0000	7.1888
Worker	1.8500e-003	1.5400e-003	0.0168	4.0000e-005	4.0400e-003	4.0000e-005	4.0800e-003	1.0700e-003	3.0000e-005	1.1100e-003	0.0000	3.8869	3.8869	1.3000e-004	0.0000	3.8902
Total	**3.0600e-003**	**0.0354**	**0.0260**	**1.1000e-004**	**5.8500e-003**	**2.5000e-004**	**6.1000e-003**	**1.5900e-003**	**2.3000e-004**	**1.8400e-003**	**0.0000**	**11.0637**	**11.0637**	**6.1000e-004**	**0.0000**	**11.0791**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0185	0.3229	0.4128	6.4000e-004		0.0164	0.0164		0.0162	0.0162	0.0000	57.2714	57.2714	0.0181	0.0000	57.7244
Total	**0.0185**	**0.3229**	**0.4128**	**6.4000e-004**		**0.0164**	**0.0164**		**0.0162**	**0.0162**	**0.0000**	**57.2714**	**57.2714**	**0.0181**	**0.0000**	**57.7244**

3.4 Trenching - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	1.2100e-003	0.0339	9.2700e-003	7.0000e-005	1.8100e-003	2.1000e-004	2.0200e-003	5.2000e-004	2.0000e-004	7.3000e-004	0.0000	7.1769	7.1769	4.8000e-004	0.0000	7.1888
Worker	1.8500e-003	1.5400e-003	0.0168	4.0000e-005	4.0400e-003	4.0000e-005	4.0800e-003	1.0700e-003	3.0000e-005	1.1100e-003	0.0000	3.8869	3.8869	1.3000e-004	0.0000	3.8902
Total	**3.0600e-003**	**0.0354**	**0.0260**	**1.1000e-004**	**5.8500e-003**	**2.5000e-004**	**6.1000e-003**	**1.5900e-003**	**2.3000e-004**	**1.8400e-003**	**0.0000**	**11.0637**	**11.0637**	**6.1000e-004**	**0.0000**	**11.0791**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0955	0.8733	0.7432	1.2600e-003		0.0509	0.0509		0.0491	0.0491	0.0000	110.6313	110.6313	0.0190	0.0000	111.1068
Total	**0.0955**	**0.8733**	**0.7432**	**1.2600e-003**		**0.0509**	**0.0509**		**0.0491**	**0.0491**	**0.0000**	**110.6313**	**110.6313**	**0.0190**	**0.0000**	**111.1068**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	6.6700e-003	5.5600e-003	0.0605	1.6000e-004	0.0146	1.3000e-004	0.0147	3.8800e-003	1.2000e-004	4.0000e-003	0.0000	14.0307	14.0307	4.8000e-004	0.0000	14.0428
Total	**6.6700e-003**	**5.5600e-003**	**0.0605**	**1.6000e-004**	**0.0146**	**1.3000e-004**	**0.0147**	**3.8800e-003**	**1.2000e-004**	**4.0000e-003**	**0.0000**	**14.0307**	**14.0307**	**4.8000e-004**	**0.0000**	**14.0428**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	0.0276	0.6120	0.8037	1.2600e-003		0.0397	0.0397		0.0397	0.0397	0.0000	110.6312	110.6312	0.0190	0.0000	111.1067
Total	**0.0276**	**0.6120**	**0.8037**	**1.2600e-003**		**0.0397**	**0.0397**		**0.0397**	**0.0397**	**0.0000**	**110.6312**	**110.6312**	**0.0190**	**0.0000**	**111.1067**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	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	6.6700e-003	5.5600e-003	0.0605	1.6000e-004	0.0146	1.3000e-004	0.0147	3.8800e-003	1.2000e-004	4.0000e-003	0.0000	14.0307	14.0307	4.8000e-004	0.0000	14.0428
Total	**6.6700e-003**	**5.5600e-003**	**0.0605**	**1.6000e-004**	**0.0146**	**1.3000e-004**	**0.0147**	**3.8800e-003**	**1.2000e-004**	**4.0000e-003**	**0.0000**	**14.0307**	**14.0307**	**4.8000e-004**	**0.0000**	**14.0428**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0265	0.2296	0.2306	3.7000e-004		0.0140	0.0140		0.0135	0.0135	0.0000	32.6762	32.6762	5.6800e-003	0.0000	32.8181
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0265**	**0.2296**	**0.2306**	**3.7000e-004**		**0.0140**	**0.0140**		**0.0135**	**0.0135**	**0.0000**	**32.6762**	**32.6762**	**5.6800e-003**	**0.0000**	**32.8181**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	1.0100e-003	0.0110	3.0000e-005	2.6500e-003	2.0000e-005	2.6700e-003	7.0000e-004	2.0000e-005	7.2000e-004	0.0000	2.5439	2.5439	9.0000e-005	0.0000	2.5460
Total	**1.2100e-003**	**1.0100e-003**	**0.0110**	**3.0000e-005**	**2.6500e-003**	**2.0000e-005**	**2.6700e-003**	**7.0000e-004**	**2.0000e-005**	**7.2000e-004**	**0.0000**	**2.5439**	**2.5439**	**9.0000e-005**	**0.0000**	**2.5460**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 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	8.8700e-003	0.1793	0.2484	3.7000e-004		0.0115	0.0115		0.0115	0.0115	0.0000	32.6761	32.6761	5.6800e-003	0.0000	32.8180
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**8.8700e-003**	**0.1793**	**0.2484**	**3.7000e-004**		**0.0115**	**0.0115**		**0.0115**	**0.0115**	**0.0000**	**32.6761**	**32.6761**	**5.6800e-003**	**0.0000**	**32.8180**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2100e-003	1.0100e-003	0.0110	3.0000e-005	2.6500e-003	2.0000e-005	2.6700e-003	7.0000e-004	2.0000e-005	7.2000e-004	0.0000	2.5439	2.5439	9.0000e-005	0.0000	2.5460
Total	**1.2100e-003**	**1.0100e-003**	**0.0110**	**3.0000e-005**	**2.6500e-003**	**2.0000e-005**	**2.6700e-003**	**7.0000e-004**	**2.0000e-005**	**7.2000e-004**	**0.0000**	**2.5439**	**2.5439**	**9.0000e-005**	**0.0000**	**2.5460**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

5.3 Energy by Land Use - Electricity

Unmitigated

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

5.3 Energy by Land Use - Electricity

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	8.2500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Unmitigated	8.2500e-003	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.0400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Total	**8.2500e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**7.0000e-005**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	1.2100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	7.0400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	3.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	6.0000e-005	6.0000e-005	0.0000	0.0000	7.0000e-005
Total	**8.2500e-003**	**0.0000**	**3.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**6.0000e-005**	**6.0000e-005**	**0.0000**	**0.0000**	**7.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

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

7.2 Water by Land Use

Mitigated

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Sun Valley PW Storm Drain Phase 4

Los Angeles-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	2.50	Acre	2.50	108,900.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	33
Climate Zone	12			**Operational Year**	2020
Utility Company	Los Angeles Department of Water & Power				
CO2 Intensity (lb/MWhr)	1227.89	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Sun Valley PW Storm Drain Phase 4 - Los Angeles-South Coast County, Summer

Project Characteristics -

Land Use - Sun Valley Watershed Management Plan Components Figure 3, Phase 1 is 4,300 linear feet, Phase 2 is 13,200 linear feet, Phase 3 is 7,500 linear feet Phase 4 is 5,400 linear feet.

Construction Phase - Construction schedule estimated based on Sun Valley Construction Questionnaire (see Appendix) and Table C-17 from Appendix C of the 2004 EIR.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Site prep phase added to account for soil export. This export would occur during the trenching phase. No separate equipment from trenching.

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment - .Based on Sun Valley Construction Questionnaire (see Appendix).

Off-road Equipment -

Demolition -

Grading - Based on Sun Valley Construction Questionnaire (see Appendix).

Construction Off-road Equipment Mitigation - Reflects compliance with Rule 403, and mitigation measures A1 through A14.

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_Parking	6534	5227
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	3.00	41.00
tblConstructionPhase	NumDays	20.00	21.00
tblConstructionPhase	NumDays	10.00	21.00
tblConstructionPhase	NumDays	220.00	72.00

tblConstructionPhase	PhaseEndDate	2/11/2019	3/27/2019
tblConstructionPhase	PhaseEndDate	2/11/2019	3/27/2019
tblConstructionPhase	PhaseEndDate	1/28/2019	1/29/2019
tblConstructionPhase	PhaseEndDate	1/27/2020	8/5/2019
tblConstructionPhase	PhaseEndDate	12/30/2019	7/5/2019
tblConstructionPhase	PhaseStartDate	1/29/2019	1/30/2019
tblConstructionPhase	PhaseStartDate	2/12/2019	1/30/2019
tblConstructionPhase	PhaseStartDate	12/31/2019	7/6/2019
tblConstructionPhase	PhaseStartDate	2/12/2019	3/28/2019
tblGrading	AcresOfGrading	0.00	2.50
tblGrading	MaterialExported	0.00	7,600.00
tblOffRoadEquipment	HorsePower	8.00	78.00
tblOffRoadEquipment	LoadFactor	0.43	0.48
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Air Compressors
tblOffRoadEquipment	OffRoadEquipmentType		Generator Sets
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Loaders
tblOffRoadEquipment	OffRoadEquipmentType		Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
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tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblTripsAndVMT	VendorTripNumber	0.00	14.00
tblTripsAndVMT	VendorTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	13.00
tblTripsAndVMT	WorkerTripNumber	46.00	37.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	2.8376	29.7459	23.0666	0.0555	4.8809	1.4170	5.9802	0.7990	1.3672	1.8112	0.0000	5,691.3677	5,691.3677	1.2620	0.0000	5,719.9878
Maximum	**2.8376**	**29.7459**	**23.0666**	**0.0555**	**4.8809**	**1.4170**	**5.9802**	**0.7990**	**1.3672**	**1.8112**	**0.0000**	**5,691.3677**	**5,691.3677**	**1.2620**	**0.0000**	**5,719.9878**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	1.3490	24.5658	25.6762	0.0555	2.1752	1.1066	3.1224	0.3893	1.1063	1.3199	0.0000	5,691.3677	5,691.3677	1.2620	0.0000	5,719.9878
Maximum	**1.3490**	**24.5658**	**25.6762**	**0.0555**	**2.1752**	**1.1066**	**3.1224**	**0.3893**	**1.1063**	**1.3199**	**0.0000**	**5,691.3677**	**5,691.3677**	**1.2620**	**0.0000**	**5,719.9878**

Sun Valley PW Storm Drain Phase 4 - Los Angeles-South Coast County, Summer

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	52.46	17.41	-11.31	0.00	55.44	21.90	47.79	51.28	19.08	27.12	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0452	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0452**	**0.0000**	**2.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**0.0000**	**5.8000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0452	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0452**	**0.0000**	**2.6000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**5.5000e-004**	**5.5000e-004**	**0.0000**	**0.0000**	**5.8000e-004**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2019	1/29/2019	5	21	
2	Site Preparation	Site Preparation	1/30/2019	3/27/2019	5	41	
3	Trenching	Trenching	1/30/2019	3/27/2019	5	41	
4	Building Construction	Building Construction	3/28/2019	7/5/2019	5	72	
5	Paving	Paving	7/6/2019	8/5/2019	5	21	

Acres of Grading (Site Preparation Phase): 2.5

Acres of Grading (Grading Phase): 0

Acres of Paving: 2.5

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Trenching	Excavators	2	8.00	158	0.38
Paving	Excavators	1	8.00	158	0.38
Trenching	Rubber Tired Loaders	2	8.00	203	0.36
Trenching	Skid Steer Loaders	1	8.00	65	0.37
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Trenching	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Paving	Plate Compactors	1	8.00	78	0.48
Paving	Air Compressors	2	8.00	78	0.48
Building Construction	Skid Steer Loaders	1	8.00	65	0.37
Paving	Generator Sets	2	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Air Compressors	2	8.00	78	0.48
Building Construction	Generator Sets	2	8.00	84	0.74
Paving	Cement and Mortar Mixers	0	0.00	9	0.56
Demolition	Concrete/Industrial Saws	0	0.00	81	0.73
Building Construction	Forklifts	0	0.00	89	0.20
Site Preparation	Graders	0	0.00	187	0.41
Paving	Pavers	0	0.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Demolition	Rubber Tired Dozers	0	0.00	247	0.40
Site Preparation	Scrapers	0	0.00	367	0.48
Paving	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Paving	Rollers	2	8.00	80	0.38
Site Preparation	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Demolition	Rubber Tired Loaders	2	8.00	203	0.36
Demolition	Skid Steer Loaders	1	8.00	65	0.37
Building Construction	Welders	0	0.00	46	0.45
Demolition	Excavators	3	8.00	158	0.38
Site Preparation	Rubber Tired Dozers	0	0.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	8	13.00	0.00	425.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	0	0.00	0.00	950.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Trenching	7	18.00	14.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	37.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Replace Ground Cover

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.3817	0.0000	4.3817	0.6634	0.0000	0.6634			0.0000			0.0000
Off-Road	2.1299	23.4996	19.1427	0.0363		1.0753	1.0753		0.9893	0.9893		3,590.6842	3,590.6842	1.1361		3,619.0856
Total	**2.1299**	**23.4996**	**19.1427**	**0.0363**	**4.3817**	**1.0753**	**5.4570**	**0.6634**	**0.9893**	**1.6527**		**3,590.6842**	**3,590.6842**	**1.1361**		**3,619.0856**

3.2 Demolition - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1902	6.1986	1.3216	0.0162	0.3538	0.0228	0.3766	0.0970	0.0218	0.1188		1,749.6071	1,749.6071	0.1205		1,752.6195
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	0.0649	0.0477	0.6268	1.5800e-003	0.1453	1.2500e-003	0.1466	0.0385	1.1500e-003	0.0397		157.6839	157.6839	5.4200e-003		157.8193
Total	**0.2551**	**6.2463**	**1.9484**	**0.0178**	**0.4992**	**0.0240**	**0.5231**	**0.1355**	**0.0229**	**0.1584**		**1,907.2910**	**1,907.2910**	**0.1259**		**1,910.4387**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					1.6760	0.0000	1.6760	0.2538	0.0000	0.2538			0.0000			0.0000
Off-Road	1.0939	18.3194	23.7277	0.0363		0.9233	0.9233		0.9077	0.9077	0.0000	3,590.6842	3,590.6842	1.1361		3,619.0856
Total	**1.0939**	**18.3194**	**23.7277**	**0.0363**	**1.6760**	**0.9233**	**2.5993**	**0.2538**	**0.9077**	**1.1615**	**0.0000**	**3,590.6842**	**3,590.6842**	**1.1361**		**3,619.0856**

3.2 Demolition - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1902	6.1986	1.3216	0.0162	0.3538	0.0228	0.3766	0.0970	0.0218	0.1188		1,749.6071	1,749.6071	0.1205		1,752.6195
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	0.0649	0.0477	0.6268	1.5800e-003	0.1453	1.2500e-003	0.1466	0.0385	1.1500e-003	0.0397		157.6839	157.6839	5.4200e-003		157.8193
Total	**0.2551**	**6.2463**	**1.9484**	**0.0178**	**0.4992**	**0.0240**	**0.5231**	**0.1355**	**0.0229**	**0.1584**		**1,907.2910**	**1,907.2910**	**0.1259**		**1,910.4387**

3.3 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0856	0.0000	0.0856	0.0102	0.0000	0.0102			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0856**	**0.0000**	**0.0856**	**0.0102**	**0.0000**	**0.0102**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2177	7.0968	1.5131	0.0185	0.4051	0.0260	0.4312	0.1111	0.0249	0.1360		2,003.1370	2,003.1370	0.1380		2,006.5858
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2177**	**7.0968**	**1.5131**	**0.0185**	**0.4051**	**0.0260**	**0.4312**	**0.1111**	**0.0249**	**0.1360**		**2,003.1370**	**2,003.1370**	**0.1380**		**2,006.5858**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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					0.0328	0.0000	0.0328	3.8800e-003	0.0000	3.8800e-003			0.0000			0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0328**	**0.0000**	**0.0328**	**3.8800e-003**	**0.0000**	**3.8800e-003**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.3 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2177	7.0968	1.5131	0.0185	0.4051	0.0260	0.4312	0.1111	0.0249	0.1360		2,003.1370	2,003.1370	0.1380		2,006.5858
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	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.2177**	**7.0968**	**1.5131**	**0.0185**	**0.4051**	**0.0260**	**0.4312**	**0.1111**	**0.0249**	**0.1360**		**2,003.1370**	**2,003.1370**	**0.1380**		**2,006.5858**

3.4 Trenching - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8692	20.8177	15.8795	0.0311		0.9460	0.9460		0.8703	0.8703		3,079.5587	3,079.5587	0.9743		3,103.9172
Total	**1.8692**	**20.8177**	**15.8795**	**0.0311**		**0.9460**	**0.9460**		**0.8703**	**0.8703**		**3,079.5587**	**3,079.5587**	**0.9743**		**3,103.9172**

3.4 Trenching - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0582	1.6202	0.4299	3.6600e-003	0.0896	0.0103	0.1000	0.0258	9.8800e-003	0.0357		390.3405	390.3405	0.0250		390.9658
Worker	0.0899	0.0661	0.8679	2.1900e-003	0.2012	1.7300e-003	0.2029	0.0534	1.6000e-003	0.0550		218.3315	218.3315	7.5000e-003		218.5190
Total	**0.1481**	**1.6863**	**1.2978**	**5.8500e-003**	**0.2908**	**0.0121**	**0.3029**	**0.0792**	**0.0115**	**0.0907**		**608.6720**	**608.6720**	**0.0325**		**609.4848**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.9000	15.7501	20.1371	0.0311		0.7993	0.7993		0.7890	0.7890	0.0000	3,079.5587	3,079.5587	0.9743		3,103.9172
Total	**0.9000**	**15.7501**	**20.1371**	**0.0311**		**0.7993**	**0.7993**		**0.7890**	**0.7890**	**0.0000**	**3,079.5587**	**3,079.5587**	**0.9743**		**3,103.9172**

3.4 Trenching - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0582	1.6202	0.4299	3.6600e-003	0.0896	0.0103	0.1000	0.0258	9.8800e-003	0.0357		390.3405	390.3405	0.0250		390.9658
Worker	0.0899	0.0661	0.8679	2.1900e-003	0.2012	1.7300e-003	0.2029	0.0534	1.6000e-003	0.0550		218.3315	218.3315	7.5000e-003		218.5190
Total	**0.1481**	**1.6863**	**1.2978**	**5.8500e-003**	**0.2908**	**0.0121**	**0.3029**	**0.0792**	**0.0115**	**0.0907**		**608.6720**	**608.6720**	**0.0325**		**609.4848**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.6528	24.2584	20.6449	0.0351		1.4134	1.4134		1.3639	1.3639		3,387.5043	3,387.5043	0.5824		3,402.0641
Total	**2.6528**	**24.2584**	**20.6449**	**0.0351**		**1.4134**	**1.4134**		**1.3639**	**1.3639**		**3,387.5043**	**3,387.5043**	**0.5824**		**3,402.0641**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1848	0.1359	1.7840	4.5100e-003	0.4136	3.5700e-003	0.4171	0.1097	3.2900e-003	0.1130		448.7926	448.7926	0.0154		449.1780
Total	**0.1848**	**0.1359**	**1.7840**	**4.5100e-003**	**0.4136**	**3.5700e-003**	**0.4171**	**0.1097**	**3.2900e-003**	**0.1130**		**448.7926**	**448.7926**	**0.0154**		**449.1780**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.7662	16.9985	22.3246	0.0351		1.1030	1.1030		1.1030	1.1030	0.0000	3,387.5042	3,387.5042	0.5824		3,402.0641
Total	**0.7662**	**16.9985**	**22.3246**	**0.0351**		**1.1030**	**1.1030**		**1.1030**	**1.1030**	**0.0000**	**3,387.5042**	**3,387.5042**	**0.5824**		**3,402.0641**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1848	0.1359	1.7840	4.5100e-003	0.4136	3.5700e-003	0.4171	0.1097	3.2900e-003	0.1130		448.7926	448.7926	0.0154		449.1780
Total	**0.1848**	**0.1359**	**1.7840**	**4.5100e-003**	**0.4136**	**3.5700e-003**	**0.4171**	**0.1097**	**3.2900e-003**	**0.1130**		**448.7926**	**448.7926**	**0.0154**		**449.1780**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5253	21.8703	21.9576	0.0356		1.3310	1.3310		1.2881	1.2881		3,430.4097	3,430.4097	0.5960		3,445.3089
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**2.5253**	**21.8703**	**21.9576**	**0.0356**		**1.3310**	**1.3310**		**1.2881**	**1.2881**		**3,430.4097**	**3,430.4097**	**0.5960**		**3,445.3089**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1149	0.0845	1.1090	2.8000e-003	0.2571	2.2200e-003	0.2593	0.0682	2.0400e-003	0.0702		278.9792	278.9792	9.5800e-003		279.2187
Total	**0.1149**	**0.0845**	**1.1090**	**2.8000e-003**	**0.2571**	**2.2200e-003**	**0.2593**	**0.0682**	**2.0400e-003**	**0.0702**		**278.9792**	**278.9792**	**9.5800e-003**		**279.2187**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive 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	0.8448	17.0783	23.6584	0.0356		1.0983	1.0983		1.0931	1.0931	0.0000	3,430.4097	3,430.4097	0.5960		3,445.3089
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8448**	**17.0783**	**23.6584**	**0.0356**		**1.0983**	**1.0983**		**1.0931**	**1.0931**	**0.0000**	**3,430.4097**	**3,430.4097**	**0.5960**		**3,445.3089**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1149	0.0845	1.1090	2.8000e-003	0.2571	2.2200e-003	0.2593	0.0682	2.0400e-003	0.0702		278.9792	278.9792	9.5800e-003		279.2187
Total	**0.1149**	**0.0845**	**1.1090**	**2.8000e-003**	**0.2571**	**2.2200e-003**	**0.2593**	**0.0682**	**2.0400e-003**	**0.0702**		**278.9792**	**278.9792**	**9.5800e-003**		**279.2187**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

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

4.2 Trip Summary Information

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

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Non-Asphalt Surfaces	0.547726	0.045437	0.201480	0.122768	0.016614	0.006090	0.019326	0.029174	0.002438	0.002359	0.005005	0.000677	0.000907

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

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

5.2 Energy by Land Use - NaturalGas

Mitigated

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

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0452	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Unmitigated	0.0452	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0386					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Total	**0.0452**	**0.0000**	**2.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**5.5000e-004**	**5.5000e-004**	**0.0000**		**5.8000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	6.6400e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0386					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.0000e-005	0.0000	2.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		5.5000e-004	5.5000e-004	0.0000		5.8000e-004
Total	**0.0452**	**0.0000**	**2.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**5.5000e-004**	**5.5000e-004**	**0.0000**		**5.8000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

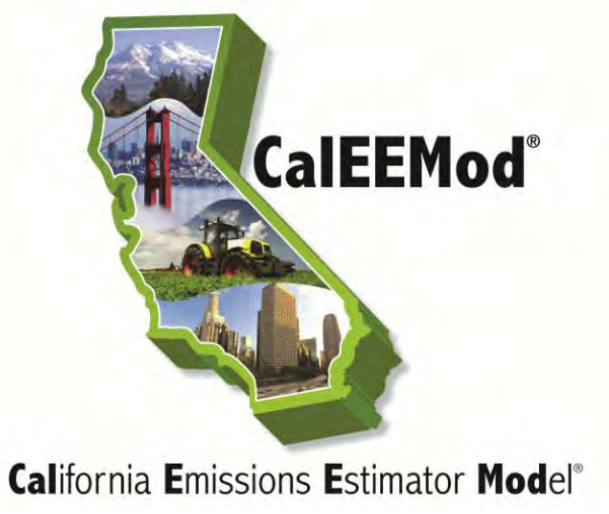
User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX D

CalEEMod User's Guide



Appendix D
Default Data Tables

Prepared for:
California Air Pollution Control Officers Association (CAPCOA)

Prepared by:
BREEZE Software, A Division of Trinity Consultants
Dallas, Texas
in collaboration with
South Coast Air Quality Management District and the California Air Districts

Date:
October 2017

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Aerial Lifts	1990	6	15	5.436	1.804	4.999	9.999	0.833	0.968	0.968	568.299	0.162
Aerial Lifts	1990	16	25	8.446	2.213	5	6.92	0.679	0.735	0.735	568.299	0.199
Aerial Lifts	1990	26	50	22.237	3.256	6.91	7.372	0.692	0.948	0.948	568.299	0.293
Aerial Lifts	1990	51	120	25.547	1.927	5.026	13.323	0.628	1.005	1.005	568.299	0.173
Aerial Lifts	1990	251	500	90.051	1.214	6.888	11.7	0.525	0.605	0.605	568.299	0.109
Aerial Lifts	1990	501	750	162.768	1.214	6.887	11.7	0.538	0.605	0.605	568.299	0.109
Aerial Lifts	2000	6	15	4.911	1.629	4.729	8.804	0.079	0.737	0.737	568.299	0.147
Aerial Lifts	2000	16	25	7.927	2.077	4.749	6.401	0.064	0.569	0.569	568.299	0.187
Aerial Lifts	2000	26	50	21.066	3.084	6.643	6.596	0.065	0.711	0.711	568.3	0.278
Aerial Lifts	2000	51	120	20.809	1.569	4.216	9.602	0.059	0.705	0.705	568.299	0.141
Aerial Lifts	2000	251	500	60.706	0.819	3.931	8.191	0.049	0.31	0.31	568.3	0.073
Aerial Lifts	2000	501	750	109.732	0.819	3.931	8.191	0.051	0.31	0.31	568.299	0.073
Aerial Lifts	2005	6	15	2.733	0.907	3.649	5.927	0.079	0.424	0.424	568.3	0.081
Aerial Lifts	2005	16	25	5.948	1.558	3.804	5.978	0.064	0.474	0.474	568.299	0.14
Aerial Lifts	2005	26	50	18.56	2.717	6.122	6.139	0.065	0.657	0.657	568.299	0.245
Aerial Lifts	2005	51	120	17.765	1.34	3.898	8.079	0.059	0.651	0.651	568.299	0.12
Aerial Lifts	2005	251	500	41.275	0.556	2.307	6.521	0.049	0.217	0.217	568.299	0.05
Aerial Lifts	2005	501	750	76.693	0.572	2.307	6.666	0.051	0.219	0.219	568.299	0.051
Aerial Lifts	2010	6	15	0.646663	0.543	3.62771	4.927	0.005	0.322	0.296	583.4159	0.17
Aerial Lifts	2010	16	25	0.646663	0.543	3.62771	4.927	0.005	0.322	0.296	583.4159	0.17
Aerial Lifts	2010	26	50	0.646663	0.543	3.62771	4.927	0.005	0.322	0.296	583.4159	0.17
Aerial Lifts	2010	51	120	0.478206	0.402	3.35167	5.13121	0.005	0.329	0.303	524.5713	0.153
Aerial Lifts	2010	251	500	0.542967	0.456	1.70527	7.02372	0.005	0.22	0.202	524.505	0.153
Aerial Lifts	2010	501	750	54.853	0.409	1.535	5.216	0.005	0.16	0.16	568.299	0.036
Aerial Lifts	2011	6	15	0.492997	0.414	3.43961	4.84101	0.005	0.274	0.253	581.9574	0.17
Aerial Lifts	2011	16	25	0.492997	0.414	3.43961	4.84101	0.005	0.274	0.253	581.9574	0.17
Aerial Lifts	2011	26	50	0.492997	0.414	3.43961	4.84101	0.005	0.274	0.253	581.9574	0.17
Aerial Lifts	2011	51	120	0.406188	0.341	3.31532	4.72007	0.005	0.287	0.264	523.2599	0.153
Aerial Lifts	2011	251	500	0.547278	0.46	1.71344	7.05257	0.005	0.222	0.204	523.1938	0.153
Aerial Lifts	2011	501	750	50.06	0.373	1.402	4.839	0.005	0.144	0.144	568.299	0.033
Aerial Lifts	2012	6	15	0.448839	0.377	3.41137	4.66755	0.005	0.247	0.227	580.4989	0.17
Aerial Lifts	2012	16	25	0.448839	0.377	3.41137	4.66755	0.005	0.247	0.227	580.4989	0.17
Aerial Lifts	2012	26	50	0.448839	0.377	3.41137	4.66755	0.005	0.247	0.227	580.4989	0.17
Aerial Lifts	2012	51	120	0.348327	0.293	3.28979	4.38748	0.005	0.251	0.231	521.9485	0.153
Aerial Lifts	2012	251	500	0.551589	0.463	1.72161	7.08141	0.005	0.225	0.207	521.8825	0.153
Aerial Lifts	2012	501	750	46.364	0.346	1.307	4.488	0.005	0.131	0.131	568.299	0.031
Aerial Lifts	2013	6	15	0.365114	0.307	3.29997	4.33199	0.005	0.196	0.18	577.5818	0.17
Aerial Lifts	2013	16	25	0.365114	0.307	3.29997	4.33199	0.005	0.196	0.18	577.5818	0.17
Aerial Lifts	2013	26	50	0.365114	0.307	3.29997	4.33199	0.005	0.196	0.18	577.5818	0.17
Aerial Lifts	2013	51	120	0.288639	0.243	3.25075	3.92887	0.005	0.202	0.186	519.3256	0.153
Aerial Lifts	2013	251	500	0.277309	0.233	0.97787	4.58384	0.005	0.1	0.092	519.26	0.153
Aerial Lifts	2013	501	750	43.268	0.322	1.237	4.155	0.005	0.119	0.119	568.299	0.029
Aerial Lifts	2014	6	15	0.309966	0.26	3.23337	4.09559	0.005	0.158	0.145	574.6647	0.17
Aerial Lifts	2014	16	25	0.309966	0.26	3.23337	4.09559	0.005	0.158	0.145	574.6647	0.17
Aerial Lifts	2014	26	50	0.309966	0.26	3.23337	4.09559	0.005	0.158	0.145	574.6647	0.17
Aerial Lifts	2014	51	120	0.240786	0.202	3.2195	3.37278	0.005	0.161	0.148	516.7028	0.153
Aerial Lifts	2014	251	500	0.281092	0.236	0.98271	4.60231	0.005	0.101	0.093	516.6375	0.153
Aerial Lifts	2014	501	750	40.165	0.299	1.178	3.761	0.005	0.109	0.109	568.299	0.027
Aerial Lifts	2015	6	15	0.295589	0.248	3.23342	3.93284	0.005	0.136	0.125	568.8305	0.17
Aerial Lifts	2015	16	25	0.295589	0.248	3.23342	3.93284	0.005	0.136	0.125	568.8305	0.17
Aerial Lifts	2015	26	50	0.295589	0.248	3.23342	3.93284	0.005	0.136	0.125	568.8305	0.17
Aerial Lifts	2015	51	120	0.226785	0.191	3.21782	3.1134	0.005	0.143	0.132	511.457	0.153
Aerial Lifts	2015	251	500	0.284874	0.239	0.98755	4.62077	0.005	0.102	0.094	511.3924	0.153
Aerial Lifts	2015	501	750	37.246	0.278	1.13	3.38	0.005	0.098	0.098	568.299	0.025
Aerial Lifts	2016	6	15	0.271111	0.228	3.19737	3.67571	0.005	0.105	0.096	562.9964	0.17
Aerial Lifts	2016	16	25	0.271111	0.228	3.19737	3.67571	0.005	0.105	0.096	562.9964	0.17
Aerial Lifts	2016	26	50	0.271111	0.228	3.19737	3.67571	0.005	0.105	0.096	562.9964	0.17
Aerial Lifts	2016	51	120	0.196986	0.166	3.20103	2.72218	0.005	0.112	0.103	506.2113	0.153
Aerial Lifts	2016	251	500	0.288656	0.243	0.99238	4.63924	0.005	0.103	0.095	506.1474	0.153
Aerial Lifts	2016	501	750	34.529	0.257	1.089	3.015	0.005	0.088	0.088	568.299	0.023
Aerial Lifts	2017	6	15	0.248829	0.209	3.16913	3.46956	0.005	0.079	0.073	554.2451	0.17
Aerial Lifts	2017	16	25	0.248829	0.209	3.16913	3.46956	0.005	0.079	0.073	554.2451	0.17
Aerial Lifts	2017	26	50	0.248829	0.209	3.16913	3.46956	0.005	0.079	0.073	554.2451	0.17
Aerial Lifts	2017	51	120	0.169799	0.143	3.18429	2.36368	0.005	0.083	0.077	498.3428	0.153
Aerial Lifts	2017	251	500	0.292438	0.246	0.99722	4.6577	0.005	0.105	0.096	498.2798	0.153
Aerial Lifts	2017	501	750	32.148	0.239	1.059	2.68	0.005	0.079	0.079	568.299	0.021
Aerial Lifts	2018	6	15	0.216292	0.182	3.11639	3.2101	0.005	0.054	0.05	545.4939	0.17
Aerial Lifts	2018	16	25	0.216292	0.182	3.11639	3.2101	0.005	0.054	0.05	545.4939	0.17
Aerial Lifts	2018	26	50	0.216292	0.182	3.11639	3.2101	0.005	0.054	0.05	545.4939	0.17
Aerial Lifts	2018	51	120	0.145088	0.122	3.16685	2.0636	0.005	0.057	0.052	490.4742	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Aerial Lifts	2018	251	500	0.074117	0.062	0.93655	0.63368	0.005	0.009	0.008	490.4122	0.153
Aerial Lifts	2018	501	750	30.169	0.225	1.037	2.385	0.005	0.071	0.071	568.299	0.02
Aerial Lifts	2019	6	15	0.204518	0.172	3.11451	3.07945	0.005	0.042	0.038	536.7427	0.17
Aerial Lifts	2019	16	25	0.204518	0.172	3.11451	3.07945	0.005	0.042	0.038	536.7427	0.17
Aerial Lifts	2019	26	50	0.204518	0.172	3.11451	3.07945	0.005	0.042	0.038	536.7427	0.17
Aerial Lifts	2019	51	120	0.14071	0.118	3.17254	1.97658	0.005	0.049	0.045	482.6056	0.153
Aerial Lifts	2019	251	500	0.077988	0.066	0.94139	0.63586	0.005	0.009	0.008	482.5446	0.153
Aerial Lifts	2019	501	750	28.429	0.212	1.023	2.117	0.005	0.064	0.064	568.299	0.019
Aerial Lifts	2020	6	15	0.199447	0.168	3.09942	2.95486	0.005	0.031	0.028	525.0743	0.17
Aerial Lifts	2020	16	25	0.199447	0.168	3.09942	2.95486	0.005	0.031	0.028	525.0743	0.17
Aerial Lifts	2020	26	50	0.199447	0.168	3.09942	2.95486	0.005	0.031	0.028	525.0743	0.17
Aerial Lifts	2020	51	120	0.136778	0.115	3.1768	1.86859	0.005	0.042	0.038	472.1142	0.153
Aerial Lifts	2020	251	500	0.081859	0.069	0.94623	0.63803	0.005	0.009	0.008	472.0545	0.153
Aerial Lifts	2020	501	750	26.846	0.2	1.013	1.868	0.005	0.057	0.057	568.299	0.018
Aerial Lifts	2021	6	15	0.196174	0.165	3.11369	2.92238	0.005	0.027	0.024	525.0743	0.17
Aerial Lifts	2021	16	25	0.196174	0.165	3.11369	2.92238	0.005	0.027	0.024	525.0743	0.17
Aerial Lifts	2021	26	50	0.196174	0.165	3.11369	2.92238	0.005	0.027	0.024	525.0743	0.17
Aerial Lifts	2021	51	120	0.129509	0.109	3.17624	1.74368	0.005	0.033	0.031	472.1142	0.153
Aerial Lifts	2021	251	500	0.08573	0.072	0.95107	0.64021	0.005	0.009	0.008	472.0545	0.153
Aerial Lifts	2021	501	750	25.065	0.187	1.004	1.61	0.005	0.05	0.05	568.299	0.016
Aerial Lifts	2022	6	15	0.192664	0.162	3.11231	2.90676	0.005	0.024	0.022	525.0743	0.17
Aerial Lifts	2022	16	25	0.192664	0.162	3.11231	2.90676	0.005	0.024	0.022	525.0743	0.17
Aerial Lifts	2022	26	50	0.192664	0.162	3.11231	2.90676	0.005	0.024	0.022	525.0743	0.17
Aerial Lifts	2022	51	120	0.124613	0.105	3.17602	1.62659	0.005	0.03	0.028	472.1142	0.153
Aerial Lifts	2022	251	500	0.089601	0.075	0.95591	0.64238	0.005	0.009	0.008	472.0545	0.153
Aerial Lifts	2022	501	750	23.788	0.177	0.998	1.424	0.005	0.044	0.044	568.299	0.016
Aerial Lifts	2023	6	15	0.19346	0.163	3.12196	2.89722	0.005	0.023	0.021	525.0743	0.17
Aerial Lifts	2023	16	25	0.19346	0.163	3.12196	2.89722	0.005	0.023	0.021	525.0743	0.17
Aerial Lifts	2023	26	50	0.19346	0.163	3.12196	2.89722	0.005	0.023	0.021	525.0743	0.17
Aerial Lifts	2023	51	120	0.119594	0.1	3.17029	1.5481	0.005	0.027	0.025	472.1142	0.153
Aerial Lifts	2023	251	500	0.093472	0.079	0.96074	0.64456	0.005	0.009	0.008	472.0545	0.153
Aerial Lifts	2023	501	750	22.675	0.169	0.995	1.265	0.005	0.038	0.038	568.299	0.015
Aerial Lifts	2024	6	15	0.188737	0.159	3.11285	2.88821	0.005	0.022	0.02	525.0743	0.17
Aerial Lifts	2024	16	25	0.188737	0.159	3.11285	2.88821	0.005	0.022	0.02	525.0743	0.17
Aerial Lifts	2024	26	50	0.188737	0.159	3.11285	2.88821	0.005	0.022	0.02	525.0743	0.17
Aerial Lifts	2024	51	120	0.119572	0.1	3.17255	1.52789	0.005	0.026	0.024	472.1142	0.153
Aerial Lifts	2024	251	500	0.097343	0.082	0.96558	0.64674	0.005	0.009	0.009	472.0545	0.153
Aerial Lifts	2024	501	750	21.618	0.161	0.991	1.115	0.005	0.033	0.033	568.299	0.014
Aerial Lifts	2025	6	15	0.182854	0.154	3.08837	2.87882	0.005	0.021	0.019	525.0743	0.17
Aerial Lifts	2025	16	25	0.182854	0.154	3.08837	2.87882	0.005	0.021	0.019	525.0743	0.17
Aerial Lifts	2025	26	50	0.182854	0.154	3.08837	2.87882	0.005	0.021	0.019	525.0743	0.17
Aerial Lifts	2025	51	120	0.117586	0.099	3.16742	1.51077	0.005	0.026	0.024	472.1142	0.153
Aerial Lifts	2025	251	500	0.101214	0.085	0.97042	0.64891	0.005	0.009	0.009	472.0545	0.153
Aerial Lifts	2025	501	750	20.597	0.153	0.989	0.974	0.005	0.028	0.028	568.299	0.013
Aerial Lifts	2030	6	15	1.993	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Aerial Lifts	2030	16	25	2.616	0.685	2.339	4.332	0.007	0.162	0.162	568.299	0.061
Aerial Lifts	2030	26	50	2.317	0.339	3.764	3.135	0.007	0.04	0.04	568.3	0.03
Aerial Lifts	2030	51	120	2.504	0.188	3.352	1.657	0.006	0.036	0.036	568.299	0.017
Aerial Lifts	2030	251	500	9.37	0.126	0.986	0.479	0.005	0.016	0.016	568.299	0.011
Aerial Lifts	2030	501	750	16.962	0.126	0.986	0.485	0.005	0.016	0.016	568.299	0.011
Aerial Lifts	2035	6	15	1.993	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Aerial Lifts	2035	16	25	2.616	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Aerial Lifts	2035	26	50	2.033	0.297	3.726	3.017	0.007	0.019	0.019	568.299	0.026
Aerial Lifts	2035	51	120	2.202	0.166	3.345	1.466	0.006	0.017	0.017	568.299	0.014
Aerial Lifts	2035	251	500	8.659	0.116	0.986	0.33	0.005	0.011	0.011	568.299	0.01
Aerial Lifts	2035	501	750	15.653	0.116	0.986	0.33	0.005	0.011	0.011	568.299	0.01
Aerial Lifts	2040	6	15	1.993	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Aerial Lifts	2040	16	25	2.616	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Aerial Lifts	2040	26	50	2.015	0.295	3.723	2.966	0.007	0.013	0.013	568.299	0.026
Aerial Lifts	2040	51	120	2.141	0.161	3.344	1.407	0.006	0.012	0.012	568.299	0.014
Aerial Lifts	2040	251	500	8.324	0.112	0.986	0.279	0.005	0.009	0.009	568.299	0.01
Aerial Lifts	2040	501	750	15.046	0.112	0.986	0.279	0.005	0.009	0.009	568.299	0.01
Air Compressors	1990	6	15	4.702	1.804	4.999	9.999	1.018	0.974	0.974	568.299	0.162
Air Compressors	1990	16	25	11.537	2.213	4.999	6.919	0.83	0.74	0.74	568.299	0.199
Air Compressors	1990	26	50	34.016	4.232	8.684	7.735	0.846	1.152	1.152	568.3	0.381
Air Compressors	1990	51	120	37.275	2.2	5.46	14.348	0.768	1.216	1.216	568.299	0.198
Air Compressors	1990	121	175	48.032	1.504	4.835	12.906	0.736	0.806	0.806	568.299	0.135
Air Compressors	1990	176	250	71.231	1.504	4.835	12.906	0.736	0.806	0.806	568.299	0.135
Air Compressors	1990	251	500	112.803	1.348	9.633	12.363	0.642	0.704	0.704	568.299	0.121
Air Compressors	1990	501	750	174.334	1.348	9.633	12.363	0.658	0.704	0.704	568.299	0.121

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Air Compressors	1990	751	1000	235.953	1.344	9.633	12.363	0.658	0.699	0.699	568.3	0.121
Air Compressors	2000	6	15	4.493	1.723	4.875	9.08	0.079	0.747	0.747	568.299	0.155
Air Compressors	2000	16	25	10.924	2.095	4.783	6.405	0.065	0.569	0.569	568.299	0.189
Air Compressors	2000	26	50	31.858	3.963	8.261	6.902	0.066	0.851	0.851	568.299	0.357
Air Compressors	2000	51	120	30.02	1.771	4.544	10.276	0.06	0.835	0.835	568.3	0.159
Air Compressors	2000	121	175	37.86	1.185	3.7	9.332	0.057	0.494	0.494	568.299	0.106
Air Compressors	2000	176	250	47.101	0.994	2.949	8.985	0.057	0.406	0.406	568.299	0.089
Air Compressors	2000	251	500	76.009	0.908	5.008	8.611	0.05	0.36	0.36	568.299	0.082
Air Compressors	2000	501	750	117.469	0.908	5.008	8.611	0.051	0.36	0.36	568.299	0.082
Air Compressors	2000	751	1000	176.359	1.004	5.6	9.212	0.051	0.379	0.379	568.299	0.09
Air Compressors	2005	6	15	3.634	1.394	4.38	7.817	0.079	0.621	0.621	568.299	0.125
Air Compressors	2005	16	25	8.461	1.622	3.922	6.014	0.065	0.483	0.483	568.299	0.146
Air Compressors	2005	26	50	28.493	3.545	7.671	6.447	0.066	0.792	0.792	568.299	0.319
Air Compressors	2005	51	120	25.731	1.518	4.196	8.646	0.06	0.775	0.775	568.299	0.137
Air Compressors	2005	121	175	31.762	0.994	3.339	7.911	0.057	0.428	0.428	568.299	0.089
Air Compressors	2005	176	250	33.701	0.711	1.989	7.465	0.057	0.281	0.281	568.299	0.064
Air Compressors	2005	251	500	52.734	0.63	2.602	6.868	0.05	0.252	0.252	568.299	0.056
Air Compressors	2005	501	750	83.252	0.644	2.602	7.019	0.051	0.255	0.255	568.299	0.058
Air Compressors	2005	751	1000	135.834	0.773	3.154	8.036	0.051	0.271	0.271	568.299	0.069
Air Compressors	2010	6	15	2.931	1.124	4.027	6.554	0.008	0.473	0.473	568.299	0.101
Air Compressors	2010	16	25	6.607	1.267	3.309	5.477	0.007	0.384	0.384	568.299	0.114
Air Compressors	2010	26	50	23.546	2.929	7.121	6.067	0.007	0.669	0.669	568.299	0.264
Air Compressors	2010	51	120	20.566	1.213	4.044	7.183	0.006	0.653	0.653	568.299	0.109
Air Compressors	2010	121	175	25.827	0.808	3.277	6.422	0.006	0.361	0.361	568.299	0.072
Air Compressors	2010	176	250	24.871	0.525	1.468	6.008	0.006	0.198	0.198	568.299	0.047
Air Compressors	2010	251	500	39.447	0.471	1.648	5.363	0.005	0.182	0.182	568.299	0.042
Air Compressors	2010	501	750	62.011	0.479	1.648	5.507	0.005	0.185	0.185	568.299	0.043
Air Compressors	2010	751	1000	105.623	0.601	2.147	6.994	0.005	0.209	0.209	568.299	0.054
Air Compressors	2011	6	15	2.782	1.067	3.952	6.283	0.008	0.441	0.441	568.299	0.096
Air Compressors	2011	16	25	6.215	1.192	3.179	5.36	0.007	0.361	0.361	568.299	0.107
Air Compressors	2011	26	50	22.03	2.741	6.919	5.972	0.007	0.636	0.636	568.299	0.247
Air Compressors	2011	51	120	19.321	1.14	4.005	6.805	0.006	0.626	0.626	568.299	0.102
Air Compressors	2011	121	175	24.432	0.765	3.264	6.065	0.006	0.347	0.347	568.299	0.069
Air Compressors	2011	176	250	22.999	0.485	1.372	5.603	0.006	0.177	0.177	568.299	0.043
Air Compressors	2011	251	500	36.661	0.438	1.497	4.981	0.005	0.165	0.165	568.299	0.039
Air Compressors	2011	501	750	57.58	0.445	1.497	5.123	0.005	0.167	0.167	568.299	0.04
Air Compressors	2011	751	1000	98.738	0.562	1.971	6.637	0.005	0.196	0.196	568.299	0.05
Air Compressors	2012	6	15	2.626	1.007	3.874	5.999	0.008	0.407	0.407	568.299	0.09
Air Compressors	2012	16	25	5.803	1.113	3.043	5.239	0.007	0.337	0.337	568.299	0.1
Air Compressors	2012	26	50	20.318	2.527	6.682	5.869	0.007	0.6	0.6	568.299	0.228
Air Compressors	2012	51	120	17.991	1.061	3.964	6.39	0.006	0.587	0.587	568.299	0.095
Air Compressors	2012	121	175	22.92	0.717	3.251	5.684	0.006	0.324	0.324	568.299	0.064
Air Compressors	2012	176	250	21.576	0.455	1.312	5.216	0.006	0.161	0.161	568.299	0.041
Air Compressors	2012	251	500	34.608	0.413	1.392	4.618	0.005	0.15	0.15	568.299	0.037
Air Compressors	2012	501	750	54.283	0.419	1.392	4.758	0.005	0.153	0.153	568.299	0.037
Air Compressors	2012	751	1000	91.671	0.522	1.8	6.263	0.005	0.183	0.183	568.299	0.047
Air Compressors	2013	6	15	2.471	0.948	3.796	5.716	0.008	0.373	0.373	568.299	0.085
Air Compressors	2013	16	25	5.393	1.034	2.907	5.117	0.007	0.314	0.314	568.299	0.093
Air Compressors	2013	26	50	18.508	2.302	6.43	5.643	0.007	0.553	0.553	568.299	0.207
Air Compressors	2013	51	120	16.632	0.981	3.921	5.978	0.006	0.543	0.543	568.299	0.088
Air Compressors	2013	121	175	21.377	0.669	3.238	5.321	0.006	0.298	0.298	568.299	0.06
Air Compressors	2013	176	250	20.386	0.43	1.271	4.839	0.006	0.147	0.147	568.299	0.038
Air Compressors	2013	251	500	32.936	0.393	1.313	4.268	0.005	0.137	0.137	568.3	0.035
Air Compressors	2013	501	750	51.584	0.399	1.313	4.406	0.005	0.14	0.14	568.299	0.036
Air Compressors	2013	751	1000	84.725	0.482	1.639	5.883	0.005	0.17	0.17	568.299	0.043
Air Compressors	2014	6	15	2.324	0.891	3.723	5.445	0.008	0.341	0.341	568.3	0.08
Air Compressors	2014	16	25	5.008	0.96	2.78	5	0.007	0.291	0.291	568.299	0.086
Air Compressors	2014	26	50	16.691	2.076	6.181	5.421	0.007	0.505	0.505	568.299	0.187
Air Compressors	2014	51	120	15.28	0.901	3.88	5.608	0.006	0.495	0.495	568.299	0.081
Air Compressors	2014	121	175	19.856	0.621	3.227	4.973	0.006	0.272	0.272	568.299	0.056
Air Compressors	2014	176	250	19.194	0.405	1.237	4.399	0.006	0.134	0.134	568.299	0.036
Air Compressors	2014	251	500	31.25	0.373	1.249	3.855	0.005	0.125	0.125	568.299	0.033
Air Compressors	2014	501	750	48.868	0.378	1.249	3.991	0.005	0.128	0.128	568.299	0.034
Air Compressors	2014	751	1000	78.19	0.445	1.493	5.512	0.005	0.157	0.157	568.3	0.04
Air Compressors	2015	6	15	2.191	0.84	3.658	5.196	0.008	0.311	0.311	568.299	0.075
Air Compressors	2015	16	25	4.662	0.894	2.666	4.89	0.007	0.27	0.27	568.299	0.08
Air Compressors	2015	26	50	15.015	1.868	5.968	5.223	0.007	0.459	0.459	568.299	0.168
Air Compressors	2015	51	120	13.925	0.821	3.84	5.19	0.006	0.446	0.446	568.299	0.074
Air Compressors	2015	121	175	18.243	0.571	3.218	4.504	0.006	0.245	0.245	568.299	0.051
Air Compressors	2015	176	250	18.067	0.381	1.207	3.967	0.006	0.121	0.121	568.299	0.034

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Air Compressors	2015	251	500	29.662	0.354	1.198	3.455	0.005	0.113	0.113	568.3	0.032
Air Compressors	2015	501	750	46.316	0.358	1.198	3.586	0.005	0.116	0.116	568.299	0.032
Air Compressors	2015	751	1000	71.885	0.409	1.37	5.157	0.005	0.142	0.142	568.299	0.036
Air Compressors	2016	6	15	2.109	0.809	3.622	5.023	0.008	0.289	0.289	568.299	0.073
Air Compressors	2016	16	25	4.462	0.855	2.604	4.803	0.007	0.255	0.255	568.299	0.077
Air Compressors	2016	26	50	13.429	1.67	5.779	5.042	0.007	0.415	0.415	568.299	0.15
Air Compressors	2016	51	120	12.618	0.744	3.804	4.79	0.006	0.397	0.397	568.299	0.067
Air Compressors	2016	121	175	16.69	0.522	3.211	4.052	0.006	0.219	0.219	568.299	0.047
Air Compressors	2016	176	250	17.023	0.359	1.182	3.553	0.006	0.109	0.109	568.299	0.032
Air Compressors	2016	251	500	28.188	0.337	1.155	3.08	0.005	0.102	0.102	568.299	0.03
Air Compressors	2016	501	750	43.972	0.34	1.155	3.201	0.005	0.104	0.104	568.299	0.03
Air Compressors	2016	751	1000	67.278	0.383	1.295	4.854	0.005	0.131	0.131	568.299	0.034
Air Compressors	2017	6	15	2.05	0.786	3.599	4.887	0.008	0.272	0.272	568.299	0.07
Air Compressors	2017	16	25	4.327	0.83	2.564	4.729	0.007	0.243	0.243	568.299	0.074
Air Compressors	2017	26	50	11.908	1.481	5.604	4.871	0.007	0.371	0.371	568.299	0.133
Air Compressors	2017	51	120	11.385	0.671	3.772	4.412	0.006	0.35	0.35	568.299	0.06
Air Compressors	2017	121	175	15.244	0.477	3.207	3.627	0.006	0.194	0.194	568.299	0.043
Air Compressors	2017	176	250	16.09	0.339	1.162	3.163	0.006	0.098	0.098	568.299	0.03
Air Compressors	2017	251	500	26.901	0.321	1.123	2.755	0.005	0.092	0.092	568.299	0.029
Air Compressors	2017	501	750	41.87	0.323	1.123	2.845	0.005	0.094	0.094	568.299	0.029
Air Compressors	2017	751	1000	63.572	0.362	1.246	4.583	0.005	0.121	0.121	568.299	0.032
Air Compressors	2018	6	15	1.998	0.766	3.58	4.762	0.008	0.256	0.256	568.299	0.069
Air Compressors	2018	16	25	4.211	0.807	2.531	4.661	0.007	0.232	0.232	568.3	0.072
Air Compressors	2018	26	50	10.449	1.3	5.439	4.707	0.007	0.329	0.329	568.299	0.117
Air Compressors	2018	51	120	10.218	0.603	3.744	4.05	0.006	0.304	0.304	568.3	0.054
Air Compressors	2018	121	175	13.906	0.435	3.205	3.228	0.006	0.17	0.17	568.299	0.039
Air Compressors	2018	176	250	15.223	0.321	1.146	2.797	0.006	0.087	0.087	568.3	0.029
Air Compressors	2018	251	500	25.723	0.307	1.101	2.465	0.005	0.083	0.083	568.299	0.027
Air Compressors	2018	501	750	39.953	0.309	1.101	2.533	0.005	0.084	0.084	568.299	0.027
Air Compressors	2018	751	1000	60.205	0.343	1.21	4.325	0.005	0.111	0.111	568.299	0.03
Air Compressors	2019	6	15	1.951	0.748	3.562	4.647	0.008	0.241	0.241	568.299	0.067
Air Compressors	2019	16	25	4.106	0.787	2.501	4.596	0.007	0.222	0.222	568.299	0.071
Air Compressors	2019	26	50	9.076	1.129	5.283	4.546	0.007	0.287	0.287	568.299	0.101
Air Compressors	2019	51	120	9.123	0.538	3.718	3.706	0.006	0.26	0.26	568.299	0.048
Air Compressors	2019	121	175	12.833	0.401	3.204	2.874	0.006	0.15	0.15	568.299	0.036
Air Compressors	2019	176	250	14.416	0.304	1.132	2.469	0.006	0.078	0.078	568.299	0.027
Air Compressors	2019	251	500	24.559	0.293	1.086	2.193	0.005	0.075	0.075	568.299	0.026
Air Compressors	2019	501	750	38.104	0.294	1.086	2.247	0.005	0.076	0.076	568.299	0.026
Air Compressors	2019	751	1000	56.984	0.324	1.182	4.073	0.005	0.102	0.102	568.299	0.029
Air Compressors	2020	6	15	1.907	0.731	3.546	4.542	0.008	0.227	0.227	568.299	0.066
Air Compressors	2020	16	25	4.009	0.769	2.473	4.538	0.007	0.212	0.212	568.3	0.069
Air Compressors	2020	26	50	8.048	1.001	5.164	4.397	0.007	0.25	0.25	568.299	0.09
Air Compressors	2020	51	120	8.287	0.489	3.698	3.4	0.006	0.224	0.224	568.299	0.044
Air Compressors	2020	121	175	11.957	0.374	3.203	2.558	0.006	0.133	0.133	568.299	0.033
Air Compressors	2020	176	250	13.668	0.288	1.121	2.172	0.006	0.069	0.069	568.299	0.026
Air Compressors	2020	251	500	23.406	0.279	1.076	1.935	0.005	0.067	0.067	568.299	0.025
Air Compressors	2020	501	750	36.303	0.28	1.076	1.982	0.005	0.067	0.067	568.299	0.025
Air Compressors	2020	751	1000	53.87	0.306	1.158	3.828	0.005	0.093	0.093	568.3	0.027
Air Compressors	2021	6	15	1.87	0.717	3.531	4.462	0.008	0.214	0.214	568.299	0.064
Air Compressors	2021	16	25	3.923	0.752	2.446	4.497	0.007	0.201	0.201	568.299	0.067
Air Compressors	2021	26	50	7.136	0.887	5.021	4.221	0.007	0.212	0.212	568.299	0.08
Air Compressors	2021	51	120	7.502	0.442	3.67	3.083	0.006	0.19	0.19	568.299	0.039
Air Compressors	2021	121	175	10.967	0.343	3.192	2.218	0.006	0.115	0.115	568.299	0.03
Air Compressors	2021	176	250	12.728	0.268	1.108	1.859	0.006	0.06	0.06	568.299	0.024
Air Compressors	2021	251	500	21.887	0.261	1.064	1.663	0.005	0.058	0.058	568.299	0.023
Air Compressors	2021	501	750	33.933	0.262	1.064	1.699	0.005	0.058	0.058	568.299	0.023
Air Compressors	2021	751	1000	49.951	0.284	1.134	3.565	0.005	0.082	0.082	568.3	0.025
Air Compressors	2022	6	15	1.844	0.707	3.519	4.408	0.008	0.203	0.203	568.299	0.063
Air Compressors	2022	16	25	3.857	0.739	2.426	4.47	0.007	0.193	0.193	568.299	0.066
Air Compressors	2022	26	50	6.549	0.814	4.959	4.093	0.007	0.183	0.183	568.299	0.073
Air Compressors	2022	51	120	7.001	0.413	3.662	2.844	0.006	0.165	0.165	568.299	0.037
Air Compressors	2022	121	175	10.29	0.322	3.194	1.959	0.006	0.101	0.101	568.299	0.029
Air Compressors	2022	176	250	12.099	0.255	1.102	1.617	0.006	0.052	0.052	568.3	0.023
Air Compressors	2022	251	500	20.881	0.249	1.059	1.472	0.005	0.051	0.051	568.299	0.022
Air Compressors	2022	501	750	32.363	0.25	1.059	1.502	0.005	0.051	0.051	568.299	0.022
Air Compressors	2022	751	1000	47.338	0.269	1.117	3.378	0.005	0.075	0.075	568.3	0.024
Air Compressors	2023	6	15	1.82	0.698	3.508	4.359	0.008	0.194	0.194	568.299	0.063
Air Compressors	2023	16	25	3.798	0.728	2.407	4.447	0.007	0.186	0.186	568.299	0.065
Air Compressors	2023	26	50	6.056	0.753	4.913	3.975	0.007	0.156	0.156	568.299	0.067
Air Compressors	2023	51	120	6.568	0.387	3.657	2.631	0.006	0.143	0.143	568.299	0.034

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Air Compressors	2023	121	175	9.693	0.303	3.197	1.748	0.006	0.089	0.089	568.299	0.027
Air Compressors	2023	176	250	11.532	0.243	1.099	1.42	0.006	0.045	0.045	568.299	0.021
Air Compressors	2023	251	500	19.964	0.238	1.055	1.305	0.005	0.044	0.044	568.299	0.021
Air Compressors	2023	501	750	30.933	0.239	1.055	1.331	0.005	0.044	0.044	568.299	0.021
Air Compressors	2023	751	1000	44.985	0.256	1.102	3.221	0.005	0.068	0.068	568.299	0.023
Air Compressors	2024	6	15	1.799	0.69	3.499	4.316	0.008	0.188	0.188	568.3	0.062
Air Compressors	2024	16	25	3.746	0.718	2.39	4.426	0.007	0.181	0.181	568.3	0.064
Air Compressors	2024	26	50	5.647	0.702	4.88	3.864	0.007	0.135	0.135	568.299	0.063
Air Compressors	2024	51	120	6.194	0.365	3.655	2.461	0.006	0.123	0.123	568.299	0.032
Air Compressors	2024	121	175	9.143	0.286	3.202	1.561	0.006	0.077	0.077	568.299	0.025
Air Compressors	2024	176	250	10.986	0.232	1.096	1.247	0.006	0.039	0.039	568.299	0.02
Air Compressors	2024	251	500	19.07	0.228	1.053	1.148	0.005	0.038	0.038	568.299	0.02
Air Compressors	2024	501	750	29.542	0.228	1.053	1.171	0.005	0.038	0.038	568.299	0.02
Air Compressors	2024	751	1000	42.762	0.243	1.09	3.082	0.005	0.061	0.061	568.299	0.021
Air Compressors	2025	6	15	1.781	0.683	3.491	4.278	0.008	0.183	0.183	568.3	0.061
Air Compressors	2025	16	25	3.701	0.709	2.376	4.407	0.007	0.177	0.177	568.299	0.064
Air Compressors	2025	26	50	5.297	0.659	4.851	3.755	0.007	0.116	0.116	568.299	0.059
Air Compressors	2025	51	120	5.855	0.345	3.653	2.313	0.006	0.104	0.104	568.299	0.031
Air Compressors	2025	121	175	8.602	0.269	3.205	1.383	0.006	0.065	0.065	568.299	0.024
Air Compressors	2025	176	250	10.451	0.22	1.094	1.086	0.006	0.033	0.033	568.299	0.019
Air Compressors	2025	251	500	18.188	0.217	1.051	1.001	0.005	0.032	0.032	568.299	0.019
Air Compressors	2025	501	750	28.169	0.217	1.051	1.021	0.005	0.032	0.032	568.299	0.019
Air Compressors	2025	751	1000	40.592	0.231	1.079	2.954	0.005	0.055	0.055	568.299	0.02
Air Compressors	2030	6	15	1.73	0.663	3.47	4.164	0.008	0.166	0.166	568.299	0.059
Air Compressors	2030	16	25	3.582	0.687	2.34	4.347	0.007	0.165	0.165	568.299	0.061
Air Compressors	2030	26	50	4.073	0.506	4.712	3.34	0.007	0.046	0.046	568.299	0.045
Air Compressors	2030	51	120	4.485	0.264	3.63	1.729	0.006	0.041	0.041	568.299	0.023
Air Compressors	2030	121	175	6.186	0.193	3.205	0.633	0.006	0.027	0.027	568.299	0.017
Air Compressors	2030	176	250	8.495	0.179	1.092	0.529	0.006	0.018	0.018	568.299	0.016
Air Compressors	2030	251	500	14.937	0.178	1.048	0.499	0.005	0.017	0.017	568.299	0.016
Air Compressors	2030	501	750	23.104	0.178	1.048	0.505	0.005	0.017	0.017	568.3	0.016
Air Compressors	2030	751	1000	32.103	0.182	1.049	2.6	0.005	0.033	0.033	568.299	0.016
Air Compressors	2035	6	15	1.724	0.661	3.469	4.143	0.008	0.162	0.162	568.3	0.059
Air Compressors	2035	16	25	3.574	0.685	2.339	4.332	0.007	0.162	0.162	568.299	0.061
Air Compressors	2035	26	50	3.722	0.463	4.674	3.215	0.007	0.023	0.023	568.299	0.041
Air Compressors	2035	51	120	4.047	0.238	3.623	1.53	0.006	0.02	0.02	568.299	0.021
Air Compressors	2035	121	175	5.429	0.17	3.205	0.391	0.006	0.015	0.015	568.3	0.015
Air Compressors	2035	176	250	7.862	0.166	1.091	0.347	0.006	0.012	0.012	568.299	0.014
Air Compressors	2035	251	500	13.882	0.166	1.048	0.343	0.005	0.012	0.012	568.299	0.014
Air Compressors	2035	501	750	21.455	0.166	1.048	0.344	0.005	0.012	0.012	568.299	0.014
Air Compressors	2035	751	1000	29.363	0.167	1.048	2.473	0.005	0.026	0.026	568.299	0.015
Air Compressors	2040	6	15	1.724	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Air Compressors	2040	16	25	3.574	0.685	2.339	4.332	0.007	0.161	0.161	568.3	0.061
Air Compressors	2040	26	50	3.683	0.458	4.659	3.159	0.007	0.016	0.016	568.3	0.041
Air Compressors	2040	51	120	3.94	0.232	3.619	1.468	0.006	0.015	0.015	568.299	0.02
Air Compressors	2040	121	175	5.155	0.161	3.201	0.307	0.006	0.012	0.012	568.299	0.014
Air Compressors	2040	176	250	7.58	0.16	1.09	0.291	0.006	0.01	0.01	568.299	0.014
Air Compressors	2040	251	500	13.386	0.16	1.047	0.291	0.005	0.01	0.01	568.3	0.014
Air Compressors	2040	501	750	20.688	0.16	1.047	0.291	0.005	0.01	0.01	568.299	0.014
Air Compressors	2040	751	1000	28.179	0.16	1.047	2.439	0.005	0.023	0.023	568.299	0.014
Bore/Drill Rigs	1990	6	15	4.968	1.804	4.999	9.999	1.049	0.975	0.975	568.299	0.162
Bore/Drill Rigs	1990	16	25	9.418	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Bore/Drill Rigs	1990	26	50	34.076	4.124	8.505	7.685	0.871	1.134	1.134	568.299	0.372
Bore/Drill Rigs	1990	51	120	42.911	2.09	5.23	13.647	0.791	1.172	1.172	568.299	0.188
Bore/Drill Rigs	1990	121	175	53.24	1.417	4.578	12.365	0.758	0.749	0.749	568.299	0.127
Bore/Drill Rigs	1990	176	250	70.987	1.417	4.578	12.365	0.758	0.749	0.749	568.299	0.127
Bore/Drill Rigs	1990	251	500	105.966	1.278	8.788	11.861	0.662	0.658	0.658	568.299	0.115
Bore/Drill Rigs	1990	501	750	209.372	1.278	8.788	11.861	1.018	0.67	0.67	568.3	0.115
Bore/Drill Rigs	1990	751	1000	313.129	1.267	8.788	11.861	1.018	0.656	0.656	568.3	0.114
Bore/Drill Rigs	2000	6	15	4.063	1.475	4.49	8.242	0.079	0.676	0.676	568.299	0.133
Bore/Drill Rigs	2000	16	25	8.334	1.958	4.53	6.358	0.065	0.563	0.563	568.299	0.176
Bore/Drill Rigs	2000	26	50	27.226	3.295	7.058	6.48	0.066	0.748	0.748	568.299	0.297
Bore/Drill Rigs	2000	51	120	30.002	1.461	3.947	8.27	0.06	0.726	0.726	568.299	0.131
Bore/Drill Rigs	2000	121	175	37.634	1.002	3.062	7.789	0.057	0.405	0.405	568.3	0.09
Bore/Drill Rigs	2000	176	250	32.523	0.649	1.698	7.203	0.057	0.238	0.238	568.3	0.058
Bore/Drill Rigs	2000	251	500	51.06	0.616	1.728	6.993	0.05	0.224	0.224	568.299	0.055
Bore/Drill Rigs	2000	501	750	100.887	0.616	1.728	6.993	0.052	0.224	0.224	568.299	0.055
Bore/Drill Rigs	2000	751	1000	199.748	0.808	2.73	8.005	0.052	0.282	0.282	568.299	0.072
Bore/Drill Rigs	2005	6	15	2.109	0.766	3.469	5.228	0.079	0.361	0.361	568.299	0.069
Bore/Drill Rigs	2005	16	25	3.913	0.919	2.642	5.412	0.065	0.347	0.347	568.299	0.082

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Bore/Drill Rigs	2005	26	50	20.086	2.431	5.897	5.697	0.066	0.625	0.625	568.299	0.219
Bore/Drill Rigs	2005	51	120	24.211	1.179	3.812	6.895	0.06	0.64	0.64	568.3	0.106
Bore/Drill Rigs	2005	121	175	27.251	0.725	3.035	6.246	0.057	0.328	0.328	568.299	0.065
Bore/Drill Rigs	2005	176	250	19.806	0.395	1.094	5.8	0.057	0.145	0.145	568.299	0.035
Bore/Drill Rigs	2005	251	500	27.527	0.332	1.068	5.051	0.05	0.133	0.133	568.299	0.029
Bore/Drill Rigs	2005	501	750	58.103	0.354	1.068	5.347	0.052	0.138	0.138	568.299	0.032
Bore/Drill Rigs	2005	751	1000	132.307	0.535	1.427	6.8	0.052	0.183	0.183	568.299	0.048
Bore/Drill Rigs	2010	6	15	1.052412	0.884	4.58435	5.42137	0.006	0.406	0.374	604.3903	0.176
Bore/Drill Rigs	2010	16	25	1.052412	0.884	4.58435	5.42137	0.006	0.406	0.374	604.3903	0.176
Bore/Drill Rigs	2010	26	50	1.052412	0.884	4.58435	5.42137	0.006	0.406	0.374	604.3903	0.176
Bore/Drill Rigs	2010	51	120	0.45108	0.379	3.31487	4.84273	0.005	0.313	0.288	505.1218	0.147
Bore/Drill Rigs	2010	121	175	0.420915	0.354	3.03422	4.77962	0.005	0.231	0.213	533.3654	0.155
Bore/Drill Rigs	2010	176	250	0.301395	0.253	1.2308	4.60173	0.005	0.139	0.128	525.165	0.153
Bore/Drill Rigs	2010	251	500	0.270831	0.228	1.39755	3.90774	0.005	0.131	0.12	517.3193	0.151
Bore/Drill Rigs	2010	501	750	0.19905	0.167	1.08296	3.03556	0.005	0.108	0.099	533.5969	0.155
Bore/Drill Rigs	2010	751	1000	0.189693	0.159	0.96001	4.32965	0.005	0.099	0.091	524.3394	0.153
Bore/Drill Rigs	2011	6	15	1.019273	0.856	4.60411	5.41672	0.006	0.4	0.368	602.9382	0.176
Bore/Drill Rigs	2011	16	25	1.019273	0.856	4.60411	5.41672	0.006	0.4	0.368	602.9382	0.176
Bore/Drill Rigs	2011	26	50	1.019273	0.856	4.60411	5.41672	0.006	0.4	0.368	602.9382	0.176
Bore/Drill Rigs	2011	51	120	0.435142	0.366	3.32121	4.72727	0.005	0.303	0.279	504.2171	0.147
Bore/Drill Rigs	2011	121	175	0.404145	0.34	3.03462	4.59259	0.005	0.219	0.202	531.8097	0.155
Bore/Drill Rigs	2011	176	250	0.289986	0.244	1.21102	4.34748	0.005	0.132	0.122	522.3643	0.152
Bore/Drill Rigs	2011	251	500	0.264468	0.222	1.36917	3.72448	0.005	0.125	0.115	512.0559	0.149
Bore/Drill Rigs	2011	501	750	0.195451	0.164	1.06361	2.89424	0.005	0.098	0.09	532.4717	0.155
Bore/Drill Rigs	2011	751	1000	0.200744	0.169	0.96855	4.35634	0.005	0.101	0.093	523.0129	0.153
Bore/Drill Rigs	2012	6	15	1.043679	0.877	4.70758	5.45218	0.006	0.406	0.374	601.7336	0.176
Bore/Drill Rigs	2012	16	25	1.043679	0.877	4.70758	5.45218	0.006	0.406	0.374	601.7336	0.176
Bore/Drill Rigs	2012	26	50	1.043679	0.877	4.70758	5.45218	0.006	0.406	0.374	601.7336	0.176
Bore/Drill Rigs	2012	51	120	0.439737	0.37	3.34211	4.70854	0.005	0.302	0.278	503.4212	0.147
Bore/Drill Rigs	2012	121	175	0.401496	0.337	3.05178	4.52801	0.005	0.215	0.198	531.6414	0.156
Bore/Drill Rigs	2012	176	250	0.299105	0.251	1.23628	4.31574	0.005	0.134	0.123	520.9621	0.152
Bore/Drill Rigs	2012	251	500	0.271498	0.228	1.3973	3.71268	0.005	0.124	0.115	511.0099	0.149
Bore/Drill Rigs	2012	501	750	0.195855	0.165	1.06675	2.78397	0.005	0.094	0.086	530.0759	0.155
Bore/Drill Rigs	2012	751	1000	0.210392	0.177	0.976	4.3794	0.005	0.103	0.094	521.6821	0.153
Bore/Drill Rigs	2013	6	15	1.019153	0.856	4.71588	5.44353	0.006	0.398	0.366	598.6307	0.176
Bore/Drill Rigs	2013	16	25	1.019153	0.856	4.71588	5.44353	0.006	0.398	0.366	598.6307	0.176
Bore/Drill Rigs	2013	26	50	1.019153	0.856	4.71588	5.44353	0.006	0.398	0.366	598.6307	0.176
Bore/Drill Rigs	2013	51	120	0.417421	0.351	3.33685	4.52552	0.005	0.279	0.257	501.3795	0.147
Bore/Drill Rigs	2013	121	175	0.380511	0.32	3.04123	4.3027	0.005	0.199	0.183	527.5089	0.155
Bore/Drill Rigs	2013	176	250	0.286183	0.24	1.21872	4.0183	0.005	0.124	0.114	517.8225	0.152
Bore/Drill Rigs	2013	251	500	0.260559	0.219	1.35236	3.49492	0.005	0.115	0.106	507.7707	0.149
Bore/Drill Rigs	2013	501	750	0.192576	0.162	1.07935	2.57636	0.005	0.088	0.081	527.7286	0.155
Bore/Drill Rigs	2013	751	1000	0.160352	0.135	0.96188	3.46658	0.005	0.082	0.075	519.8525	0.153
Bore/Drill Rigs	2014	6	15	0.992547	0.834	4.69064	5.33236	0.006	0.382	0.351	591.4418	0.175
Bore/Drill Rigs	2014	16	25	0.992547	0.834	4.69064	5.33236	0.006	0.382	0.351	591.4418	0.175
Bore/Drill Rigs	2014	26	50	0.992547	0.834	4.69064	5.33236	0.006	0.382	0.351	591.4418	0.175
Bore/Drill Rigs	2014	51	120	0.379477	0.319	3.32686	4.19515	0.005	0.249	0.229	501.365	0.148
Bore/Drill Rigs	2014	121	175	0.366384	0.308	3.04026	4.06571	0.005	0.186	0.171	524.0522	0.155
Bore/Drill Rigs	2014	176	250	0.258607	0.217	1.17442	3.52453	0.005	0.105	0.097	512.3362	0.151
Bore/Drill Rigs	2014	251	500	0.240166	0.202	1.239	3.18617	0.005	0.101	0.093	506.1536	0.15
Bore/Drill Rigs	2014	501	750	0.186731	0.157	1.08678	2.37324	0.005	0.08	0.074	525.2397	0.155
Bore/Drill Rigs	2014	751	1000	0.12496	0.105	0.95104	2.98435	0.005	0.058	0.054	516.5998	0.153
Bore/Drill Rigs	2015	6	15	1.007942	0.847	4.73461	5.30345	0.006	0.379	0.349	585.1707	0.175
Bore/Drill Rigs	2015	16	25	1.007942	0.847	4.73461	5.30345	0.006	0.379	0.349	585.1707	0.175
Bore/Drill Rigs	2015	26	50	1.007942	0.847	4.73461	5.30345	0.006	0.379	0.349	585.1707	0.175
Bore/Drill Rigs	2015	51	120	0.378573	0.318	3.3349	4.02775	0.005	0.239	0.22	496.9494	0.148
Bore/Drill Rigs	2015	121	175	0.359562	0.302	3.03526	3.90422	0.005	0.176	0.162	517.2068	0.154
Bore/Drill Rigs	2015	176	250	0.253803	0.213	1.17834	3.3245	0.005	0.1	0.092	506.5047	0.151
Bore/Drill Rigs	2015	251	500	0.237097	0.199	1.25564	3.00307	0.005	0.096	0.088	499.9023	0.149
Bore/Drill Rigs	2015	501	750	0.19253	0.162	1.10541	2.37558	0.005	0.081	0.074	520.4733	0.155
Bore/Drill Rigs	2015	751	1000	0.130029	0.109	0.95583	2.99386	0.005	0.059	0.054	511.2533	0.153
Bore/Drill Rigs	2016	6	15	1.034535	0.869	4.79659	5.29821	0.006	0.383	0.352	579.3262	0.175
Bore/Drill Rigs	2016	16	25	1.034535	0.869	4.79659	5.29821	0.006	0.383	0.352	579.3262	0.175
Bore/Drill Rigs	2016	26	50	1.034535	0.869	4.79659	5.29821	0.006	0.383	0.352	579.3262	0.175
Bore/Drill Rigs	2016	51	120	0.365397	0.307	3.32648	3.82088	0.005	0.221	0.204	491.6548	0.148
Bore/Drill Rigs	2016	121	175	0.33987	0.286	3.02337	3.61582	0.005	0.162	0.149	511.4327	0.154
Bore/Drill Rigs	2016	176	250	0.229144	0.193	1.13299	2.9021	0.005	0.085	0.078	502.128	0.151
Bore/Drill Rigs	2016	251	500	0.203588	0.171	1.13338	2.50955	0.005	0.077	0.071	494.7606	0.149
Bore/Drill Rigs	2016	501	750	0.182018	0.153	1.11952	2.16636	0.005	0.072	0.066	514.8829	0.155
Bore/Drill Rigs	2016	751	1000	0.137307	0.115	0.96409	3.00833	0.005	0.059	0.055	505.9997	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Bore/Drill Rigs	2017	6	15	0.957137	0.804	4.65158	5.06335	0.006	0.351	0.323	563.9173	0.173
Bore/Drill Rigs	2017	16	25	0.957137	0.804	4.65158	5.06335	0.006	0.351	0.323	563.9173	0.173
Bore/Drill Rigs	2017	26	50	0.957137	0.804	4.65158	5.06335	0.006	0.351	0.323	563.9173	0.173
Bore/Drill Rigs	2017	51	120	0.354597	0.298	3.33142	3.68536	0.005	0.211	0.194	485.322	0.149
Bore/Drill Rigs	2017	121	175	0.290928	0.244	3.0013	2.98245	0.005	0.131	0.121	503.7704	0.154
Bore/Drill Rigs	2017	176	250	0.20647	0.173	1.1021	2.5215	0.005	0.072	0.067	494.1381	0.151
Bore/Drill Rigs	2017	251	500	0.197407	0.166	1.11891	2.36747	0.005	0.072	0.067	489.4612	0.15
Bore/Drill Rigs	2017	501	750	0.184153	0.155	1.13653	2.15656	0.005	0.071	0.066	505.1248	0.155
Bore/Drill Rigs	2017	751	1000	0.143503	0.121	0.97127	3.02051	0.005	0.06	0.055	498.1225	0.153
Bore/Drill Rigs	2018	6	15	0.9127	0.767	4.56857	4.86917	0.005	0.329	0.303	554.2038	0.173
Bore/Drill Rigs	2018	16	25	0.9127	0.767	4.56857	4.86917	0.005	0.329	0.303	554.2038	0.173
Bore/Drill Rigs	2018	26	50	0.9127	0.767	4.56857	4.86917	0.005	0.329	0.303	554.2038	0.173
Bore/Drill Rigs	2018	51	120	0.320098	0.269	3.32325	3.39962	0.005	0.184	0.17	479.6719	0.149
Bore/Drill Rigs	2018	121	175	0.241793	0.203	2.96107	2.35662	0.005	0.103	0.095	495.0734	0.154
Bore/Drill Rigs	2018	176	250	0.183927	0.155	1.07328	2.15308	0.005	0.061	0.056	484.5605	0.151
Bore/Drill Rigs	2018	251	500	0.160513	0.135	1.03203	1.74562	0.005	0.052	0.048	485.6893	0.151
Bore/Drill Rigs	2018	501	750	0.14994	0.126	1.00559	1.67873	0.005	0.054	0.05	489.7301	0.152
Bore/Drill Rigs	2018	751	1000	0.149052	0.125	0.97772	3.03153	0.005	0.06	0.056	490.2427	0.153
Bore/Drill Rigs	2019	6	15	0.858717	0.722	4.49723	4.71795	0.005	0.303	0.278	545.293	0.173
Bore/Drill Rigs	2019	16	25	0.858717	0.722	4.49723	4.71795	0.005	0.303	0.278	545.293	0.173
Bore/Drill Rigs	2019	26	50	0.858717	0.722	4.49723	4.71795	0.005	0.303	0.278	545.293	0.173
Bore/Drill Rigs	2019	51	120	0.317934	0.267	3.33202	3.32102	0.005	0.18	0.166	472.4527	0.149
Bore/Drill Rigs	2019	121	175	0.215784	0.181	2.95563	2.01775	0.005	0.088	0.081	487.3552	0.154
Bore/Drill Rigs	2019	176	250	0.170614	0.143	1.06058	1.8943	0.005	0.054	0.049	475.7896	0.151
Bore/Drill Rigs	2019	251	500	0.153732	0.129	1.03449	1.55098	0.005	0.048	0.044	477.0462	0.151
Bore/Drill Rigs	2019	501	750	0.138617	0.116	0.97074	1.44865	0.005	0.048	0.044	481.8363	0.152
Bore/Drill Rigs	2019	751	1000	0.153944	0.129	0.98342	3.04139	0.005	0.061	0.056	482.3593	0.153
Bore/Drill Rigs	2020	6	15	0.851825	0.716	4.51013	4.6451	0.006	0.294	0.271	535.2948	0.173
Bore/Drill Rigs	2020	16	25	0.851825	0.716	4.51013	4.6451	0.006	0.294	0.271	535.2948	0.173
Bore/Drill Rigs	2020	26	50	0.851825	0.716	4.51013	4.6451	0.006	0.294	0.271	535.2948	0.173
Bore/Drill Rigs	2020	51	120	0.292949	0.246	3.32347	3.06601	0.005	0.159	0.146	463.5827	0.15
Bore/Drill Rigs	2020	121	175	0.207426	0.174	2.96948	1.87149	0.005	0.082	0.076	477.722	0.155
Bore/Drill Rigs	2020	176	250	0.169462	0.142	1.06766	1.80732	0.005	0.052	0.048	466.8342	0.151
Bore/Drill Rigs	2020	251	500	0.148188	0.125	1.01263	1.40938	0.005	0.045	0.041	466.8219	0.151
Bore/Drill Rigs	2020	501	750	0.129293	0.109	0.97413	1.23085	0.005	0.041	0.038	473.6679	0.153
Bore/Drill Rigs	2020	751	1000	0.158163	0.133	0.98839	3.05008	0.005	0.061	0.056	471.8492	0.153
Bore/Drill Rigs	2021	6	15	0.845639	0.711	4.54836	4.63432	0.006	0.291	0.268	535.3782	0.173
Bore/Drill Rigs	2021	16	25	0.845639	0.711	4.54836	4.63432	0.006	0.291	0.268	535.3782	0.173
Bore/Drill Rigs	2021	26	50	0.845639	0.711	4.54836	4.63432	0.006	0.291	0.268	535.3782	0.173
Bore/Drill Rigs	2021	51	120	0.258162	0.217	3.30573	2.73675	0.005	0.131	0.12	464.9725	0.15
Bore/Drill Rigs	2021	121	175	0.183454	0.154	2.9614	1.5983	0.005	0.07	0.064	477.0482	0.154
Bore/Drill Rigs	2021	176	250	0.157647	0.132	1.06418	1.55102	0.005	0.047	0.043	467.9916	0.151
Bore/Drill Rigs	2021	251	500	0.139268	0.117	1.01479	1.22069	0.005	0.041	0.038	469.8158	0.152
Bore/Drill Rigs	2021	501	750	0.116134	0.098	0.97176	0.95517	0.005	0.033	0.031	474.079	0.153
Bore/Drill Rigs	2021	751	1000	0.161679	0.136	0.99261	3.05759	0.005	0.061	0.057	471.8158	0.153
Bore/Drill Rigs	2022	6	15	0.751445	0.631	4.33356	4.28474	0.005	0.241	0.221	529.8703	0.171
Bore/Drill Rigs	2022	16	25	0.751445	0.631	4.33356	4.28474	0.005	0.241	0.221	529.8703	0.171
Bore/Drill Rigs	2022	26	50	0.751445	0.631	4.33356	4.28474	0.005	0.241	0.221	529.8703	0.171
Bore/Drill Rigs	2022	51	120	0.227425	0.191	3.25974	2.42459	0.005	0.107	0.099	462.2674	0.15
Bore/Drill Rigs	2022	121	175	0.162807	0.137	2.95431	1.28831	0.005	0.057	0.052	477.3719	0.154
Bore/Drill Rigs	2022	176	250	0.136848	0.115	1.04734	1.16293	0.005	0.037	0.034	468.7604	0.152
Bore/Drill Rigs	2022	251	500	0.12801	0.108	1.00212	1.03525	0.005	0.035	0.032	467.1923	0.151
Bore/Drill Rigs	2022	501	750	0.10809	0.091	0.97519	0.77309	0.005	0.028	0.026	477.141	0.154
Bore/Drill Rigs	2022	751	1000	0.067607	0.057	0.9452	2.27813	0.005	0.018	0.017	472.9214	0.153
Bore/Drill Rigs	2023	6	15	0.721105	0.606	4.31077	4.20831	0.005	0.226	0.208	531.9856	0.172
Bore/Drill Rigs	2023	16	25	0.721105	0.606	4.31077	4.20831	0.005	0.226	0.208	531.9856	0.172
Bore/Drill Rigs	2023	26	50	0.721105	0.606	4.31077	4.20831	0.005	0.226	0.208	531.9856	0.172
Bore/Drill Rigs	2023	51	120	0.222828	0.187	3.25754	2.35656	0.005	0.102	0.093	461.214	0.149
Bore/Drill Rigs	2023	121	175	0.149078	0.125	2.9693	1.07773	0.005	0.048	0.044	479.6465	0.155
Bore/Drill Rigs	2023	176	250	0.131367	0.11	1.04309	1.04653	0.005	0.034	0.031	469.7058	0.152
Bore/Drill Rigs	2023	251	500	0.120261	0.101	0.98883	0.89764	0.005	0.03	0.028	464.0407	0.15
Bore/Drill Rigs	2023	501	750	0.108039	0.091	0.98235	0.71664	0.005	0.026	0.024	479.2199	0.155
Bore/Drill Rigs	2023	751	1000	0.062646	0.053	0.93615	2.26246	0.005	0.018	0.016	472.0201	0.153
Bore/Drill Rigs	2024	6	15	0.724524	0.609	4.33098	4.15902	0.005	0.219	0.202	529.8661	0.171
Bore/Drill Rigs	2024	16	25	0.724524	0.609	4.33098	4.15902	0.005	0.219	0.202	529.8661	0.171
Bore/Drill Rigs	2024	26	50	0.724524	0.609	4.33098	4.15902	0.005	0.219	0.202	529.8661	0.171
Bore/Drill Rigs	2024	51	120	0.211018	0.177	3.25123	2.21634	0.005	0.09	0.083	461.2076	0.149
Bore/Drill Rigs	2024	121	175	0.148172	0.125	2.97803	1.02855	0.005	0.046	0.043	478.9441	0.155
Bore/Drill Rigs	2024	176	250	0.128551	0.108	1.04591	0.97542	0.005	0.032	0.03	470.7115	0.152
Bore/Drill Rigs	2024	251	500	0.122153	0.103	0.99426	0.86053	0.005	0.029	0.027	464.4796	0.15

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Bore/Drill Rigs	2024	501	750	0.10623	0.089	0.98491	0.67139	0.005	0.026	0.024	480.2246	0.155
Bore/Drill Rigs	2024	751	1000	0.067347	0.057	0.94304	2.27306	0.005	0.018	0.017	471.9261	0.153
Bore/Drill Rigs	2025	6	15	0.703036	0.591	4.2728	3.97786	0.005	0.193	0.178	532.8212	0.172
Bore/Drill Rigs	2025	16	25	0.703036	0.591	4.2728	3.97786	0.005	0.193	0.178	532.8212	0.172
Bore/Drill Rigs	2025	26	50	0.703036	0.591	4.2728	3.97786	0.005	0.193	0.178	532.8212	0.172
Bore/Drill Rigs	2025	51	120	0.183914	0.155	3.21758	1.96363	0.005	0.067	0.062	459.8291	0.149
Bore/Drill Rigs	2025	121	175	0.135422	0.114	2.9736	0.88787	0.005	0.039	0.036	478.2657	0.155
Bore/Drill Rigs	2025	176	250	0.127813	0.107	1.04484	0.95717	0.005	0.031	0.029	470.6535	0.152
Bore/Drill Rigs	2025	251	500	0.120956	0.102	0.99738	0.82299	0.005	0.028	0.026	467.2892	0.151
Bore/Drill Rigs	2025	501	750	0.100521	0.084	0.98349	0.59628	0.005	0.023	0.021	481.2495	0.156
Bore/Drill Rigs	2025	751	1000	0.07426	0.062	0.95339	2.28923	0.005	0.019	0.017	471.9168	0.153
Bore/Drill Rigs	2030	6	15	1.821	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Bore/Drill Rigs	2030	16	25	2.917	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Bore/Drill Rigs	2030	26	50	2.88	0.348	4.029	3.02	0.007	0.013	0.013	568.299	0.031
Bore/Drill Rigs	2030	51	120	3.773	0.183	3.434	1.415	0.006	0.012	0.012	568.299	0.016
Bore/Drill Rigs	2030	121	175	4.786	0.127	3.038	0.279	0.006	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2030	176	250	6.363	0.127	1.035	0.274	0.006	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2030	251	500	10.531	0.127	1.006	0.274	0.005	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2030	501	750	20.808	0.127	1.006	0.274	0.005	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2030	751	1000	31.441	0.127	1.006	2.372	0.005	0.021	0.021	568.299	0.011
Bore/Drill Rigs	2035	6	15	1.821	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Bore/Drill Rigs	2035	16	25	2.917	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Bore/Drill Rigs	2035	26	50	2.881	0.348	4.03	3.019	0.007	0.013	0.013	568.299	0.031
Bore/Drill Rigs	2035	51	120	3.768	0.183	3.434	1.411	0.006	0.012	0.012	568.3	0.016
Bore/Drill Rigs	2035	121	175	4.767	0.126	3.039	0.272	0.006	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2035	176	250	6.357	0.126	1.035	0.272	0.006	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2035	251	500	10.52	0.126	1.006	0.272	0.005	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2035	501	750	20.787	0.126	1.006	0.272	0.005	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2035	751	1000	31.372	0.126	1.006	2.372	0.005	0.021	0.021	568.299	0.011
Bore/Drill Rigs	2040	6	15	1.821	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Bore/Drill Rigs	2040	16	25	2.917	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Bore/Drill Rigs	2040	26	50	2.883	0.348	4.032	3.019	0.007	0.013	0.013	568.3	0.031
Bore/Drill Rigs	2040	51	120	3.77	0.183	3.435	1.411	0.006	0.012	0.012	568.299	0.016
Bore/Drill Rigs	2040	121	175	4.77	0.127	3.039	0.272	0.006	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2040	176	250	6.36	0.127	1.035	0.272	0.006	0.01	0.01	568.3	0.011
Bore/Drill Rigs	2040	251	500	10.526	0.127	1.006	0.272	0.005	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2040	501	750	20.799	0.127	1.006	0.272	0.005	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2040	751	1000	31.389	0.127	1.006	2.372	0.005	0.021	0.021	568.299	0.011
Cement and Mortar Mixers	1990	6	15	2.932	1.804	4.999	9.999	1.049	0.975	0.975	568.299	0.162
Cement and Mortar Mixers	1990	16	25	9.992	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Cement and Mortar Mixers	2000	6	15	2.702	1.662	4.78	8.911	0.079	0.745	0.745	568.299	0.15
Cement and Mortar Mixers	2000	16	25	9.397	2.081	4.757	6.401	0.065	0.569	0.569	568.299	0.187
Cement and Mortar Mixers	2005	6	15	1.628	1.001	3.791	6.3	0.079	0.465	0.465	568.299	0.09
Cement and Mortar Mixers	2005	16	25	6.992	1.548	3.786	5.963	0.065	0.471	0.471	568.299	0.139
Cement and Mortar Mixers	2010	6	15	1.153	0.709	3.492	4.545	0.008	0.26	0.26	568.299	0.064
Cement and Mortar Mixers	2010	16	25	5.056	1.119	3.049	5.286	0.007	0.346	0.346	568.299	0.101
Cement and Mortar Mixers	2011	6	15	1.114	0.685	3.479	4.351	0.008	0.231	0.231	568.299	0.061
Cement and Mortar Mixers	2011	16	25	4.656	1.031	2.897	5.144	0.007	0.319	0.319	568.299	0.093
Cement and Mortar Mixers	2012	6	15	1.096	0.674	3.472	4.272	0.008	0.209	0.209	568.299	0.06
Cement and Mortar Mixers	2012	16	25	4.288	0.949	2.757	5.012	0.007	0.293	0.293	568.299	0.085
Cement and Mortar Mixers	2013	6	15	1.087	0.669	3.469	4.223	0.008	0.191	0.191	568.299	0.06
Cement and Mortar Mixers	2013	16	25	3.952	0.875	2.63	4.887	0.007	0.269	0.269	568.299	0.078
Cement and Mortar Mixers	2014	6	15	1.082	0.666	3.469	4.191	0.008	0.177	0.177	568.299	0.06
Cement and Mortar Mixers	2014	16	25	3.783	0.837	2.57	4.793	0.007	0.253	0.253	568.299	0.075
Cement and Mortar Mixers	2015	6	15	1.079	0.663	3.469	4.168	0.008	0.171	0.171	568.3	0.059
Cement and Mortar Mixers	2015	16	25	3.664	0.811	2.531	4.712	0.007	0.24	0.24	568.299	0.073
Cement and Mortar Mixers	2016	6	15	1.076	0.662	3.469	4.153	0.008	0.167	0.167	568.3	0.059
Cement and Mortar Mixers	2016	16	25	3.558	0.788	2.496	4.636	0.007	0.227	0.227	568.299	0.071
Cement and Mortar Mixers	2017	6	15	1.075	0.661	3.469	4.145	0.008	0.165	0.165	568.299	0.059
Cement and Mortar Mixers	2017	16	25	3.466	0.767	2.466	4.567	0.007	0.216	0.216	568.299	0.069
Cement and Mortar Mixers	2018	6	15	1.075	0.661	3.469	4.142	0.008	0.163	0.163	568.299	0.059
Cement and Mortar Mixers	2018	16	25	3.384	0.749	2.44	4.504	0.007	0.205	0.205	568.299	0.067
Cement and Mortar Mixers	2019	6	15	1.075	0.661	3.469	4.142	0.008	0.162	0.162	568.299	0.059
Cement and Mortar Mixers	2019	16	25	3.321	0.735	2.417	4.469	0.007	0.196	0.196	568.299	0.066
Cement and Mortar Mixers	2020	6	15	1.075	0.661	3.47	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2020	16	25	3.265	0.723	2.397	4.442	0.007	0.187	0.187	568.299	0.065
Cement and Mortar Mixers	2021	6	15	1.075	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2021	16	25	3.219	0.712	2.381	4.419	0.007	0.18	0.18	568.299	0.064
Cement and Mortar Mixers	2022	6	15	1.075	0.661	3.47	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2022	16	25	3.182	0.704	2.367	4.399	0.007	0.175	0.175	568.299	0.063

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Cement and Mortar Mixers	2023	6	15	1.075	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2023	16	25	3.151	0.697	2.356	4.382	0.007	0.172	0.172	568.299	0.062
Cement and Mortar Mixers	2024	6	15	1.075	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2024	16	25	3.129	0.693	2.349	4.369	0.007	0.17	0.17	568.299	0.062
Cement and Mortar Mixers	2025	6	15	1.075	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2025	16	25	3.113	0.689	2.344	4.357	0.007	0.168	0.168	568.299	0.062
Cement and Mortar Mixers	2030	6	15	1.075	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2030	16	25	3.095	0.685	2.339	4.333	0.007	0.162	0.162	568.299	0.061
Cement and Mortar Mixers	2035	6	15	1.075	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2035	16	25	3.095	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Cement and Mortar Mixers	2040	6	15	1.075	0.661	3.47	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2040	16	25	3.095	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	1990	16	25	4.947	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Concrete/Industrial Saws	1990	26	50	20.26	4.943	9.962	8.008	0.871	1.297	1.297	568.299	0.446
Concrete/Industrial Saws	1990	51	120	24.821	2.467	5.934	15.608	0.791	1.385	1.385	568.299	0.222
Concrete/Industrial Saws	1990	121	175	45.581	2.097	5.376	15.952	0.758	1.172	1.172	568.3	0.189
Concrete/Industrial Saws	2000	16	25	4.266	1.908	4.438	6.326	0.065	0.555	0.555	568.299	0.172
Concrete/Industrial Saws	2000	26	50	14.64	3.572	7.547	6.784	0.066	0.789	0.789	568.299	0.322
Concrete/Industrial Saws	2000	51	120	16.713	1.661	4.354	9.903	0.06	0.77	0.77	568.299	0.149
Concrete/Industrial Saws	2000	121	175	24.252	1.115	3.531	9.017	0.057	0.452	0.452	568.3	0.1
Concrete/Industrial Saws	2005	16	25	1.899	0.849	2.519	5.321	0.065	0.333	0.333	568.299	0.076
Concrete/Industrial Saws	2005	26	50	13.023	3.177	6.994	6.32	0.066	0.732	0.732	568.299	0.286
Concrete/Industrial Saws	2005	51	120	14.366	1.428	4.05	8.401	0.06	0.714	0.714	568.299	0.128
Concrete/Industrial Saws	2005	121	175	20.277	0.932	3.223	7.685	0.057	0.393	0.393	568.299	0.084
Concrete/Industrial Saws	2010	16	25	1.545	0.691	2.339	4.411	0.007	0.216	0.216	568.299	0.062
Concrete/Industrial Saws	2010	26	50	9.492	2.316	6.039	5.774	0.007	0.565	0.565	568.299	0.208
Concrete/Industrial Saws	2010	51	120	10.348	1.028	3.813	6.592	0.006	0.551	0.551	568.299	0.092
Concrete/Industrial Saws	2010	121	175	14.859	0.683	3.116	5.838	0.006	0.306	0.306	568.299	0.061
Concrete/Industrial Saws	2011	16	25	1.539	0.688	2.339	4.372	0.007	0.193	0.193	568.299	0.062
Concrete/Industrial Saws	2011	26	50	8.781	2.142	5.854	5.68	0.007	0.534	0.534	568.299	0.193
Concrete/Industrial Saws	2011	51	120	9.617	0.955	3.775	6.222	0.006	0.524	0.524	568.299	0.086
Concrete/Industrial Saws	2011	121	175	13.917	0.64	3.104	5.491	0.006	0.293	0.293	568.299	0.057
Concrete/Industrial Saws	2012	16	25	1.535	0.686	2.339	4.348	0.007	0.173	0.173	568.299	0.061
Concrete/Industrial Saws	2012	26	50	8.071	1.969	5.671	5.59	0.007	0.503	0.503	568.299	0.177
Concrete/Industrial Saws	2012	51	120	8.902	0.884	3.74	5.844	0.006	0.489	0.489	568.299	0.079
Concrete/Industrial Saws	2012	121	175	12.992	0.597	3.094	5.146	0.006	0.272	0.272	568.299	0.053
Concrete/Industrial Saws	2013	16	25	1.533	0.685	2.339	4.335	0.007	0.168	0.168	568.299	0.061
Concrete/Industrial Saws	2013	26	50	7.362	1.796	5.489	5.377	0.007	0.463	0.463	568.299	0.162
Concrete/Industrial Saws	2013	51	120	8.209	0.816	3.706	5.483	0.006	0.451	0.451	568.299	0.073
Concrete/Industrial Saws	2013	121	175	12.096	0.556	3.086	4.829	0.006	0.25	0.25	568.299	0.05
Concrete/Industrial Saws	2014	16	25	1.532	0.685	2.339	4.332	0.007	0.164	0.164	568.299	0.061
Concrete/Industrial Saws	2014	26	50	6.665	1.626	5.313	5.172	0.007	0.424	0.424	568.299	0.146
Concrete/Industrial Saws	2014	51	120	7.539	0.749	3.675	5.16	0.006	0.412	0.412	568.299	0.067
Concrete/Industrial Saws	2014	121	175	11.238	0.517	3.08	4.531	0.006	0.228	0.228	568.299	0.046
Concrete/Industrial Saws	2015	16	25	1.532	0.685	2.339	4.332	0.007	0.162	0.162	568.299	0.061
Concrete/Industrial Saws	2015	26	50	6.027	1.47	5.165	4.989	0.007	0.386	0.386	568.299	0.132
Concrete/Industrial Saws	2015	51	120	6.878	0.683	3.647	4.789	0.006	0.372	0.372	568.3	0.061
Concrete/Industrial Saws	2015	121	175	10.333	0.475	3.077	4.112	0.006	0.207	0.207	568.299	0.042
Concrete/Industrial Saws	2016	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2016	26	50	5.419	1.322	5.029	4.818	0.007	0.35	0.35	568.3	0.119
Concrete/Industrial Saws	2016	51	120	6.237	0.62	3.62	4.432	0.006	0.333	0.333	568.3	0.055
Concrete/Industrial Saws	2016	121	175	9.455	0.435	3.074	3.708	0.006	0.186	0.186	568.299	0.039
Concrete/Industrial Saws	2017	16	25	1.532	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2017	26	50	4.816	1.175	4.894	4.652	0.007	0.313	0.313	568.299	0.106
Concrete/Industrial Saws	2017	51	120	5.61	0.557	3.595	4.086	0.006	0.294	0.294	568.299	0.05
Concrete/Industrial Saws	2017	121	175	8.602	0.395	3.073	3.316	0.006	0.165	0.165	568.299	0.035
Concrete/Industrial Saws	2018	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2018	26	50	4.233	1.032	4.766	4.492	0.007	0.277	0.277	568.299	0.093
Concrete/Industrial Saws	2018	51	120	5.014	0.498	3.571	3.754	0.006	0.256	0.256	568.299	0.044
Concrete/Industrial Saws	2018	121	175	7.805	0.359	3.072	2.945	0.006	0.145	0.145	568.299	0.032
Concrete/Industrial Saws	2019	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2019	26	50	3.686	0.899	4.645	4.338	0.007	0.242	0.242	568.299	0.081
Concrete/Industrial Saws	2019	51	120	4.463	0.443	3.55	3.441	0.006	0.22	0.22	568.3	0.04
Concrete/Industrial Saws	2019	121	175	7.177	0.33	3.072	2.618	0.006	0.128	0.128	568.299	0.029
Concrete/Industrial Saws	2020	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2020	26	50	3.271	0.798	4.552	4.196	0.007	0.212	0.212	568.299	0.072
Concrete/Industrial Saws	2020	51	120	4.042	0.401	3.535	3.163	0.006	0.19	0.19	568.299	0.036
Concrete/Industrial Saws	2020	121	175	6.669	0.306	3.072	2.324	0.006	0.114	0.114	568.299	0.027
Concrete/Industrial Saws	2021	16	25	1.532	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2021	26	50	2.959	0.722	4.481	4.063	0.007	0.184	0.184	568.3	0.065

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Concrete/Industrial Saws	2021	51	120	3.721	0.369	3.523	2.913	0.006	0.166	0.166	568.299	0.033
Concrete/Industrial Saws	2021	121	175	6.227	0.286	3.072	2.055	0.006	0.101	0.101	568.299	0.025
Concrete/Industrial Saws	2022	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2022	26	50	2.705	0.66	4.422	3.936	0.007	0.158	0.158	568.3	0.059
Concrete/Industrial Saws	2022	51	120	3.457	0.343	3.514	2.686	0.006	0.144	0.144	568.299	0.031
Concrete/Industrial Saws	2022	121	175	5.819	0.267	3.072	1.806	0.006	0.089	0.089	568.3	0.024
Concrete/Industrial Saws	2023	16	25	1.532	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2023	26	50	2.484	0.606	4.372	3.815	0.007	0.134	0.134	568.299	0.054
Concrete/Industrial Saws	2023	51	120	3.223	0.32	3.507	2.478	0.006	0.123	0.123	568.3	0.028
Concrete/Industrial Saws	2023	121	175	5.453	0.25	3.072	1.599	0.006	0.077	0.077	568.299	0.022
Concrete/Industrial Saws	2024	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2024	26	50	2.303	0.561	4.33	3.701	0.007	0.115	0.115	568.3	0.05
Concrete/Industrial Saws	2024	51	120	3.023	0.3	3.5	2.315	0.006	0.106	0.106	568.299	0.027
Concrete/Industrial Saws	2024	121	175	5.117	0.235	3.072	1.418	0.006	0.067	0.067	568.299	0.021
Concrete/Industrial Saws	2025	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2025	26	50	2.153	0.525	4.297	3.592	0.007	0.099	0.099	568.299	0.047
Concrete/Industrial Saws	2025	51	120	2.849	0.283	3.495	2.176	0.006	0.089	0.089	568.3	0.025
Concrete/Industrial Saws	2025	121	175	4.8	0.22	3.073	1.249	0.006	0.056	0.056	568.3	0.019
Concrete/Industrial Saws	2030	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2030	26	50	1.679	0.409	4.199	3.222	0.007	0.041	0.041	568.299	0.036
Concrete/Industrial Saws	2030	51	120	2.226	0.221	3.48	1.667	0.006	0.036	0.036	568.299	0.019
Concrete/Industrial Saws	2030	121	175	3.551	0.163	3.074	0.59	0.006	0.025	0.025	568.299	0.014
Concrete/Industrial Saws	2035	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2035	26	50	1.54	0.375	4.174	3.107	0.007	0.021	0.021	568.3	0.033
Concrete/Industrial Saws	2035	51	120	2.015	0.2	3.476	1.491	0.006	0.018	0.018	568.299	0.018
Concrete/Industrial Saws	2035	121	175	3.121	0.143	3.075	0.374	0.006	0.014	0.014	568.299	0.012
Concrete/Industrial Saws	2040	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2040	26	50	1.532	0.373	4.175	3.058	0.007	0.014	0.014	568.299	0.033
Concrete/Industrial Saws	2040	51	120	1.968	0.195	3.477	1.434	0.006	0.013	0.013	568.299	0.017
Concrete/Industrial Saws	2040	121	175	2.965	0.136	3.076	0.297	0.006	0.011	0.011	568.3	0.012
Cranes	1990	26	50	13.537	5.179	10.396	8.093	0.871	1.345	1.345	568.299	0.467
Cranes	1990	51	120	14.178	2.508	5.983	15.674	0.791	1.427	1.427	568.299	0.226
Cranes	1990	121	175	18.412	2.033	5.387	15.601	0.758	1.142	1.142	568.299	0.183
Cranes	1990	176	250	25.703	2.033	5.387	15.601	0.758	1.142	1.142	568.299	0.183
Cranes	1990	251	500	36.191	1.782	12.529	14.718	0.662	0.968	0.968	568.299	0.16
Cranes	1990	501	750	60.897	1.782	12.529	14.718	1.018	0.986	0.986	568.299	0.16
Cranes	1990	1001	9999	194.538	1.778	12.529	14.718	1.018	0.98	0.98	568.299	0.16
Cranes	2000	26	50	12.119	4.636	9.507	7.163	0.066	0.958	0.958	568.3	0.418
Cranes	2000	51	120	10.887	1.926	4.81	10.905	0.06	0.93	0.93	568.299	0.173
Cranes	2000	121	175	11.77	1.299	3.932	9.929	0.057	0.552	0.552	568.299	0.117
Cranes	2000	176	250	14.291	1.13	3.285	9.635	0.057	0.47	0.47	568.299	0.101
Cranes	2000	251	500	20.704	1.019	5.545	9.139	0.05	0.411	0.411	568.299	0.092
Cranes	2000	501	750	34.838	1.019	5.545	9.139	0.052	0.411	0.411	568.299	0.092
Cranes	2000	1001	9999	116.509	1.064	6.045	9.643	0.052	0.394	0.394	568.299	0.096
Cranes	2005	26	50	10.96	4.193	8.893	6.736	0.066	0.898	0.898	568.3	0.378
Cranes	2005	51	120	9.53	1.686	4.493	9.357	0.06	0.875	0.875	568.299	0.152
Cranes	2005	121	175	10.036	1.108	3.6	8.542	0.057	0.487	0.487	568.299	0.099
Cranes	2005	176	250	10.718	0.847	2.367	8.163	0.057	0.343	0.343	568.299	0.076
Cranes	2005	251	500	15.234	0.75	3.287	7.448	0.05	0.303	0.303	568.299	0.067
Cranes	2005	501	750	25.971	0.76	3.283	7.598	0.052	0.305	0.305	568.299	0.068
Cranes	2005	1001	9999	91.74	0.838	3.718	8.503	0.052	0.293	0.293	568.299	0.075
Cranes	2010	26	50	2.786882	2.342	7.37084	6.30432	0.005	0.665	0.612	575.653	0.168
Cranes	2010	51	120	1.626435	1.367	5.06328	11.2099	0.005	0.834	0.767	522.2692	0.152
Cranes	2010	121	175	0.999512	0.84	3.96843	9.06236	0.005	0.483	0.445	527.7153	0.154
Cranes	2010	176	250	0.826087	0.694	2.85637	8.39974	0.005	0.383	0.353	525.6477	0.153
Cranes	2010	251	500	0.629842	0.529	4.77692	7.05496	0.005	0.292	0.268	524.2494	0.153
Cranes	2010	501	750	0.3105	0.261	1.59747	4.49648	0.005	0.149	0.137	523.8164	0.152
Cranes	2010	1001	9999	0.387608	0.326	1.00751	6.39903	0.005	0.151	0.139	524.505	0.153
Cranes	2011	26	50	2.66715	2.241	7.21121	6.2271	0.005	0.641	0.59	574.2181	0.168
Cranes	2011	51	120	1.579127	1.327	5.02442	10.9169	0.005	0.81	0.745	521.0055	0.152
Cranes	2011	121	175	0.990868	0.833	3.9727	8.96629	0.005	0.48	0.441	526.3466	0.154
Cranes	2011	176	250	0.818849	0.688	2.82731	8.29972	0.005	0.379	0.349	524.3412	0.153
Cranes	2011	251	500	0.613791	0.516	4.61471	6.85019	0.005	0.283	0.26	523.002	0.153
Cranes	2011	501	750	0.317708	0.267	1.60931	4.47987	0.005	0.151	0.139	522.4977	0.152
Cranes	2011	1001	9999	0.392668	0.33	1.01544	6.442	0.005	0.153	0.141	523.1938	0.153
Cranes	2012	26	50	2.575229	2.164	7.10245	6.16881	0.005	0.622	0.573	572.7834	0.168
Cranes	2012	51	120	1.549708	1.302	4.99918	10.7338	0.005	0.795	0.732	519.357	0.152
Cranes	2012	121	175	0.992021	0.834	3.98552	8.9416	0.005	0.481	0.442	525.0081	0.154
Cranes	2012	176	250	0.82388	0.692	2.83394	8.30152	0.005	0.381	0.35	522.9802	0.153
Cranes	2012	251	500	0.612564	0.515	4.5553	6.7893	0.005	0.281	0.259	521.6408	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Cranes	2012	501	750	0.324471	0.273	1.62066	4.45619	0.005	0.152	0.14	521.1061	0.152
Cranes	2012	1001	9999	0.397633	0.334	1.02322	6.48415	0.005	0.156	0.144	521.8825	0.153
Cranes	2013	26	50	2.54578	2.139	7.11869	6.10837	0.005	0.61	0.561	569.9097	0.168
Cranes	2013	51	120	1.506211	1.266	4.95084	10.4655	0.005	0.775	0.713	516.6909	0.152
Cranes	2013	121	175	0.982629	0.826	3.98019	8.83222	0.005	0.476	0.438	522.3332	0.154
Cranes	2013	176	250	0.813083	0.683	2.80099	8.15558	0.005	0.375	0.345	520.3446	0.153
Cranes	2013	251	500	0.59291	0.498	4.36265	6.51563	0.005	0.27	0.248	519.0961	0.153
Cranes	2013	501	750	0.327629	0.275	1.62896	4.36739	0.005	0.15	0.138	518.355	0.152
Cranes	2013	1001	9999	0.402502	0.338	1.03085	6.5255	0.005	0.159	0.146	519.26	0.153
Cranes	2014	26	50	2.516704	2.115	7.12566	6.09324	0.005	0.607	0.559	567.0058	0.168
Cranes	2014	51	120	1.481452	1.245	4.92305	10.3017	0.005	0.765	0.704	514.0286	0.152
Cranes	2014	121	175	0.944168	0.793	3.93186	8.47052	0.005	0.457	0.42	519.5114	0.154
Cranes	2014	176	250	0.786323	0.661	2.72625	7.86026	0.005	0.36	0.331	517.6833	0.153
Cranes	2014	251	500	0.574656	0.483	4.17708	6.26415	0.005	0.26	0.239	516.5784	0.153
Cranes	2014	501	750	0.333096	0.28	1.63547	4.32737	0.005	0.151	0.139	515.6071	0.152
Cranes	2014	1001	9999	0.143297	0.12	0.94782	2.28075	0.005	0.054	0.05	516.6375	0.153
Cranes	2015	26	50	2.483294	2.087	7.12517	6.07491	0.005	0.601	0.552	561.2236	0.168
Cranes	2015	51	120	1.444394	1.214	4.88366	10.0604	0.005	0.747	0.687	508.8366	0.152
Cranes	2015	121	175	0.930749	0.782	3.91821	8.3254	0.005	0.45	0.414	514.2598	0.154
Cranes	2015	176	250	0.764242	0.642	2.65334	7.62156	0.005	0.348	0.32	512.4484	0.153
Cranes	2015	251	500	0.565318	0.475	4.10962	6.12404	0.005	0.253	0.233	511.1972	0.153
Cranes	2015	501	750	0.340293	0.286	1.64279	4.31183	0.005	0.152	0.14	510.3342	0.152
Cranes	2015	1001	9999	0.156078	0.131	0.95679	2.29477	0.005	0.055	0.051	511.3924	0.153
Cranes	2016	26	50	2.535089	2.13	7.2684	6.11027	0.005	0.61	0.561	555.4414	0.168
Cranes	2016	51	120	1.373103	1.154	4.79702	9.60772	0.005	0.709	0.653	503.5992	0.152
Cranes	2016	121	175	0.884915	0.744	3.86156	7.88718	0.005	0.427	0.393	508.9515	0.154
Cranes	2016	176	250	0.741297	0.623	2.5822	7.38068	0.005	0.335	0.308	507.1552	0.153
Cranes	2016	251	500	0.527153	0.443	3.83445	5.64865	0.005	0.233	0.215	506.0882	0.153
Cranes	2016	501	750	0.347738	0.292	1.65024	4.31387	0.005	0.153	0.141	505.0695	0.152
Cranes	2016	1001	9999	0.168646	0.142	0.96562	2.30856	0.005	0.056	0.052	506.1474	0.153
Cranes	2017	26	50	2.585562	2.173	7.40804	6.14479	0.005	0.62	0.57	546.7815	0.168
Cranes	2017	51	120	1.304913	1.096	4.71022	9.15389	0.005	0.678	0.624	495.7534	0.152
Cranes	2017	121	175	0.828528	0.696	3.78744	7.36009	0.005	0.397	0.366	501.093	0.154
Cranes	2017	176	250	0.667136	0.561	2.38452	6.65526	0.005	0.297	0.273	499.3721	0.153
Cranes	2017	251	500	0.488095	0.41	3.54746	5.23184	0.005	0.212	0.195	498.439	0.153
Cranes	2017	501	750	0.34114	0.287	1.63305	4.1579	0.005	0.147	0.135	497.1865	0.152
Cranes	2017	1001	9999	0.181003	0.152	0.97429	2.32212	0.005	0.057	0.053	498.2798	0.153
Cranes	2018	26	50	2.466121	2.072	7.24744	6.00385	0.005	0.624	0.574	538.1219	0.168
Cranes	2018	51	120	1.108698	0.932	4.45237	7.93075	0.005	0.583	0.536	488.1172	0.152
Cranes	2018	121	175	0.739223	0.621	3.66571	6.5572	0.005	0.351	0.323	493.0451	0.153
Cranes	2018	176	250	0.574877	0.483	2.13445	5.77298	0.005	0.25	0.23	491.4069	0.153
Cranes	2018	251	500	0.440014	0.37	3.1871	4.63433	0.005	0.187	0.172	490.8912	0.153
Cranes	2018	501	750	0.322048	0.271	1.61304	3.7688	0.005	0.137	0.126	489.0536	0.152
Cranes	2018	1001	9999	0.193147	0.162	0.98282	2.33544	0.005	0.058	0.054	490.4122	0.153
Cranes	2019	26	50	2.434147	2.045	7.24465	5.95197	0.005	0.615	0.566	529.4626	0.168
Cranes	2019	51	120	0.955908	0.803	4.26491	6.95786	0.005	0.5	0.46	480.3251	0.152
Cranes	2019	121	175	0.675554	0.568	3.5982	5.94857	0.005	0.318	0.292	485.1817	0.154
Cranes	2019	176	250	0.50769	0.427	1.94079	5.0842	0.005	0.216	0.198	483.4616	0.153
Cranes	2019	251	500	0.415431	0.349	2.96893	4.29654	0.005	0.173	0.159	483.1422	0.153
Cranes	2019	501	750	0.299943	0.252	1.44568	3.42803	0.005	0.124	0.114	481.1192	0.152
Cranes	2019	1001	9999	0.205078	0.172	0.9912	2.34854	0.005	0.059	0.055	482.5446	0.153
Cranes	2020	26	50	2.47956	2.084	7.37625	5.98471	0.005	0.624	0.574	517.9263	0.168
Cranes	2020	51	120	0.871016	0.732	4.17141	6.38117	0.005	0.453	0.417	469.8821	0.152
Cranes	2020	121	175	0.638941	0.537	3.56232	5.5697	0.005	0.298	0.274	474.5939	0.153
Cranes	2020	176	250	0.45669	0.384	1.7904	4.56329	0.005	0.188	0.173	472.9488	0.153
Cranes	2020	251	500	0.381547	0.321	2.66037	3.86243	0.005	0.155	0.142	472.5579	0.153
Cranes	2020	501	750	0.287724	0.242	1.44353	3.10471	0.005	0.116	0.107	470.4254	0.152
Cranes	2020	1001	9999	0.216797	0.182	0.99943	2.3614	0.005	0.06	0.056	472.0545	0.153
Cranes	2021	26	50	2.516467	2.115	7.48883	6.01375	0.005	0.631	0.581	517.8995	0.167
Cranes	2021	51	120	0.77522	0.651	4.06507	5.73085	0.005	0.398	0.366	469.8867	0.152
Cranes	2021	121	175	0.593174	0.498	3.51648	5.1125	0.005	0.273	0.251	474.5458	0.153
Cranes	2021	176	250	0.415905	0.349	1.67824	4.10439	0.005	0.167	0.153	472.9057	0.153
Cranes	2021	251	500	0.351498	0.295	2.44833	3.44253	0.005	0.139	0.127	472.4553	0.153
Cranes	2021	501	750	0.271141	0.228	1.43956	2.72739	0.005	0.107	0.098	470.5495	0.152
Cranes	2021	1001	9999	0.228304	0.192	1.00751	2.37402	0.005	0.061	0.056	472.0545	0.153
Cranes	2022	26	50	2.41359	2.028	7.36828	5.8991	0.005	0.603	0.555	517.8722	0.167
Cranes	2022	51	120	0.687651	0.578	3.97198	5.14893	0.005	0.346	0.318	469.9929	0.152
Cranes	2022	121	175	0.543527	0.457	3.4753	4.6169	0.005	0.246	0.227	474.5887	0.153
Cranes	2022	176	250	0.375691	0.316	1.60164	3.54149	0.005	0.147	0.135	472.9832	0.153
Cranes	2022	251	500	0.31051	0.261	2.21201	2.89369	0.005	0.117	0.108	472.1806	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Cranes	2022	501	750	0.238348	0.2	1.28309	2.25087	0.005	0.089	0.082	470.4755	0.152
Cranes	2022	1001	9999	0.239599	0.201	1.01544	2.38641	0.005	0.062	0.057	472.0545	0.153
Cranes	2023	26	50	2.435567	2.047	7.45254	5.9225	0.005	0.608	0.559	517.8722	0.167
Cranes	2023	51	120	0.656595	0.552	3.9444	4.87461	0.005	0.323	0.297	469.8891	0.152
Cranes	2023	121	175	0.503663	0.423	3.44284	4.22184	0.005	0.224	0.206	474.595	0.153
Cranes	2023	176	250	0.353966	0.297	1.55262	3.22938	0.005	0.135	0.124	472.9738	0.153
Cranes	2023	251	500	0.281202	0.236	2.01	2.5105	0.005	0.102	0.093	472.294	0.153
Cranes	2023	501	750	0.23207	0.195	1.28213	2.07257	0.005	0.084	0.077	470.2508	0.152
Cranes	2023	1001	9999	0.250681	0.211	1.02322	2.39857	0.005	0.063	0.058	472.0545	0.153
Cranes	2024	26	50	2.304795	1.937	7.26852	5.78796	0.005	0.577	0.531	517.8722	0.167
Cranes	2024	51	120	0.623876	0.524	3.90649	4.61888	0.005	0.301	0.277	469.9032	0.152
Cranes	2024	121	175	0.453764	0.381	3.3893	3.7029	0.005	0.196	0.18	474.6358	0.154
Cranes	2024	176	250	0.334159	0.281	1.50208	2.96596	0.005	0.123	0.114	472.9638	0.153
Cranes	2024	251	500	0.274315	0.231	1.93263	2.38291	0.005	0.096	0.089	472.0664	0.153
Cranes	2024	501	750	0.227031	0.191	1.28334	1.89979	0.005	0.08	0.073	470.3306	0.152
Cranes	2024	1001	9999	0.261551	0.22	1.03085	2.4105	0.005	0.064	0.059	472.0545	0.153
Cranes	2025	26	50	2.155227	1.811	7.07168	5.63562	0.005	0.543	0.499	517.8722	0.167
Cranes	2025	51	120	0.551396	0.463	3.83081	4.13532	0.005	0.26	0.24	469.5332	0.152
Cranes	2025	121	175	0.397698	0.334	3.33544	3.16038	0.005	0.166	0.153	474.7477	0.154
Cranes	2025	176	250	0.31508	0.265	1.4697	2.68128	0.005	0.114	0.105	472.9798	0.153
Cranes	2025	251	500	0.259914	0.218	1.83363	2.15424	0.005	0.088	0.081	471.9671	0.153
Cranes	2025	501	750	0.204336	0.172	1.27366	1.63763	0.005	0.068	0.062	470.2756	0.152
Cranes	2025	1001	9999	0.272209	0.229	1.03833	2.42219	0.005	0.065	0.06	472.0545	0.153
Cranes	2030	26	50	1.788	0.684	5.366	3.598	0.007	0.075	0.075	568.299	0.061
Cranes	2030	51	120	1.941	0.343	3.812	1.987	0.006	0.067	0.067	568.299	0.03
Cranes	2030	121	175	2.293	0.253	3.356	0.916	0.006	0.042	0.042	568.299	0.022
Cranes	2030	176	250	2.835	0.224	1.147	0.748	0.006	0.024	0.024	568.299	0.02
Cranes	2030	251	500	4.512	0.222	1.09	0.697	0.005	0.023	0.023	568.299	0.02
Cranes	2030	501	750	7.602	0.222	1.09	0.709	0.005	0.024	0.024	568.3	0.02
Cranes	2030	1001	9999	26.83	0.245	1.108	2.8	0.005	0.043	0.043	568.299	0.022
Cranes	2035	26	50	1.568	0.6	5.292	3.401	0.007	0.039	0.039	568.299	0.054
Cranes	2035	51	120	1.696	0.3	3.801	1.676	0.006	0.036	0.036	568.3	0.027
Cranes	2035	121	175	1.923	0.212	3.357	0.519	0.006	0.024	0.024	568.299	0.019
Cranes	2035	176	250	2.568	0.203	1.143	0.463	0.006	0.016	0.016	568.299	0.018
Cranes	2035	251	500	4.111	0.202	1.087	0.441	0.005	0.016	0.016	568.299	0.018
Cranes	2035	501	750	6.923	0.202	1.087	0.446	0.005	0.016	0.016	568.299	0.018
Cranes	2035	1001	9999	22.949	0.209	1.089	2.618	0.005	0.031	0.031	568.299	0.018
Cranes	2040	26	50	1.483	0.567	5.268	3.324	0.007	0.024	0.024	568.299	0.051
Cranes	2040	51	120	1.598	0.282	3.797	1.552	0.006	0.021	0.021	568.299	0.025
Cranes	2040	121	175	1.79	0.197	3.358	0.371	0.006	0.016	0.016	568.299	0.017
Cranes	2040	176	250	2.465	0.195	1.144	0.344	0.006	0.013	0.013	568.299	0.017
Cranes	2040	251	500	3.958	0.195	1.087	0.34	0.005	0.013	0.013	568.299	0.017
Cranes	2040	501	750	6.661	0.195	1.087	0.341	0.005	0.013	0.013	568.299	0.017
Cranes	2040	1001	9999	21.703	0.198	1.087	2.534	0.005	0.027	0.027	568.299	0.017
Crawler Tractors	1990	26	50	11.254	4.903	9.907	7.983	0.871	1.291	1.291	568.299	0.442
Crawler Tractors	1990	51	120	14.413	2.374	5.73	14.967	0.791	1.353	1.353	568.299	0.214
Crawler Tractors	1990	121	175	19.335	1.729	5.079	13.979	0.758	0.962	0.962	568.299	0.156
Crawler Tractors	1990	176	250	26.505	1.729	5.079	13.979	0.758	0.962	0.962	568.299	0.156
Crawler Tractors	1990	251	500	36.545	1.528	11.319	13.238	0.662	0.822	0.822	568.3	0.137
Crawler Tractors	1990	501	750	65.509	1.528	11.319	13.238	1.018	0.837	0.837	568.299	0.137
Crawler Tractors	1990	751	1000	92.189	1.518	11.319	13.238	1.018	0.826	0.826	568.299	0.137
Crawler Tractors	2000	26	50	10.858	4.73	9.675	7.197	0.066	0.973	0.973	568.299	0.426
Crawler Tractors	2000	51	120	11.94	1.966	4.886	11.097	0.06	0.949	0.949	568.299	0.177
Crawler Tractors	2000	121	175	14.976	1.339	4.018	10.157	0.057	0.57	0.57	568.3	0.12
Crawler Tractors	2000	176	250	17.901	1.168	3.367	9.863	0.057	0.486	0.486	568.299	0.105
Crawler Tractors	2000	251	500	25.11	1.049	5.849	9.341	0.05	0.424	0.424	568.299	0.094
Crawler Tractors	2000	501	750	45.011	1.049	5.849	9.341	0.052	0.424	0.424	568.299	0.094
Crawler Tractors	2000	751	1000	66.528	1.095	6.349	9.844	0.052	0.407	0.407	568.299	0.098
Crawler Tractors	2005	26	50	9.923	4.323	9.124	6.809	0.066	0.919	0.919	568.299	0.39
Crawler Tractors	2005	51	120	10.68	1.759	4.63	9.75	0.06	0.903	0.903	568.299	0.158
Crawler Tractors	2005	121	175	13.006	1.163	3.749	8.886	0.057	0.513	0.513	568.299	0.104
Crawler Tractors	2005	176	250	13.95	0.91	2.557	8.523	0.057	0.371	0.371	568.299	0.082
Crawler Tractors	2005	251	500	19.249	0.804	3.945	7.791	0.05	0.326	0.326	568.299	0.072
Crawler Tractors	2005	501	750	34.852	0.813	3.938	7.93	0.052	0.328	0.328	568.299	0.073
Crawler Tractors	2005	751	1000	54.011	0.889	4.359	8.804	0.052	0.319	0.319	568.3	0.08
Crawler Tractors	2010	26	50	3.193884	2.684	8.18872	6.54779	0.005	0.785	0.722	572.972	0.167
Crawler Tractors	2010	51	120	1.069208	0.898	4.10668	7.76656	0.005	0.628	0.578	530.0152	0.154
Crawler Tractors	2010	121	175	0.755513	0.635	3.40812	7.15822	0.005	0.378	0.348	524.4997	0.153
Crawler Tractors	2010	176	250	0.540569	0.454	1.89919	6.46768	0.005	0.249	0.229	526.1431	0.153
Crawler Tractors	2010	251	500	0.491926	0.413	3.0665	5.96739	0.005	0.227	0.209	528.681	0.154

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Crawler Tractors	2010	501	750	0.418044	0.351	1.75694	5.31967	0.005	0.189	0.174	525.9395	0.153
Crawler Tractors	2010	751	1000	0.545095	0.458	2.04187	7.25547	0.005	0.21	0.193	527.6019	0.154
Crawler Tractors	2011	26	50	3.090465	2.597	8.06059	6.48764	0.005	0.762	0.701	571.2544	0.167
Crawler Tractors	2011	51	120	1.055307	0.887	4.11149	7.65924	0.005	0.624	0.574	528.5468	0.154
Crawler Tractors	2011	121	175	0.753531	0.633	3.422	7.0937	0.005	0.378	0.347	523.1105	0.153
Crawler Tractors	2011	176	250	0.541549	0.455	1.8844	6.42306	0.005	0.248	0.228	524.8932	0.153
Crawler Tractors	2011	251	500	0.494702	0.416	3.04503	5.91443	0.005	0.226	0.208	527.4003	0.154
Crawler Tractors	2011	501	750	0.416615	0.35	1.70832	5.23606	0.005	0.186	0.171	524.9577	0.153
Crawler Tractors	2011	751	1000	0.550612	0.463	2.05264	7.30105	0.005	0.212	0.195	526.3508	0.154
Crawler Tractors	2012	26	50	3.127964	2.628	8.16399	6.51312	0.005	0.77	0.708	569.8895	0.167
Crawler Tractors	2012	51	120	1.066067	0.896	4.14375	7.67928	0.005	0.633	0.582	527.2248	0.154
Crawler Tractors	2012	121	175	0.762695	0.641	3.4484	7.11308	0.005	0.382	0.351	521.7707	0.153
Crawler Tractors	2012	176	250	0.549863	0.462	1.8924	6.43904	0.005	0.25	0.23	523.5287	0.153
Crawler Tractors	2012	251	500	0.502104	0.422	3.05662	5.9107	0.005	0.227	0.209	526.0223	0.154
Crawler Tractors	2012	501	750	0.425611	0.358	1.71661	5.25574	0.005	0.189	0.173	523.7088	0.153
Crawler Tractors	2012	751	1000	0.555874	0.467	2.06265	7.34463	0.005	0.214	0.197	525.1067	0.154
Crawler Tractors	2013	26	50	3.060938	2.572	8.10275	6.42928	0.005	0.753	0.692	567.3537	0.167
Crawler Tractors	2013	51	120	1.067402	0.897	4.16448	7.64718	0.005	0.636	0.585	524.5941	0.154
Crawler Tractors	2013	121	175	0.758762	0.638	3.4566	7.02367	0.005	0.38	0.349	519.0712	0.153
Crawler Tractors	2013	176	250	0.548046	0.461	1.8715	6.36771	0.005	0.247	0.227	520.7236	0.153
Crawler Tractors	2013	251	500	0.501212	0.421	2.99715	5.82738	0.005	0.225	0.207	523.5592	0.154
Crawler Tractors	2013	501	750	0.418079	0.351	1.67885	5.09878	0.005	0.183	0.168	520.5693	0.153
Crawler Tractors	2013	751	1000	0.560878	0.471	2.07187	7.3862	0.005	0.216	0.199	522.5513	0.154
Crawler Tractors	2014	26	50	3.000333	2.521	8.04733	6.39578	0.005	0.743	0.684	564.5641	0.167
Crawler Tractors	2014	51	120	1.051605	0.884	4.16815	7.52434	0.005	0.628	0.578	522.1187	0.154
Crawler Tractors	2014	121	175	0.748303	0.629	3.45911	6.87548	0.005	0.374	0.344	516.4039	0.153
Crawler Tractors	2014	176	250	0.54035	0.454	1.83765	6.23751	0.005	0.241	0.222	518.0363	0.153
Crawler Tractors	2014	251	500	0.490461	0.412	2.91108	5.61601	0.005	0.217	0.2	520.5153	0.154
Crawler Tractors	2014	501	750	0.412689	0.347	1.67523	4.89468	0.005	0.179	0.164	517.8612	0.153
Crawler Tractors	2014	751	1000	0.565619	0.475	2.08028	7.42576	0.005	0.218	0.201	520.0052	0.154
Crawler Tractors	2015	26	50	2.990271	2.513	8.07628	6.37736	0.005	0.741	0.682	558.8878	0.167
Crawler Tractors	2015	51	120	1.05262	0.884	4.18907	7.4938	0.005	0.63	0.58	516.8433	0.154
Crawler Tractors	2015	121	175	0.751623	0.632	3.47922	6.84937	0.005	0.376	0.346	511.3059	0.153
Crawler Tractors	2015	176	250	0.536796	0.451	1.81586	6.14312	0.005	0.237	0.218	512.8973	0.153
Crawler Tractors	2015	251	500	0.485596	0.408	2.84505	5.48324	0.005	0.212	0.195	515.3725	0.154
Crawler Tractors	2015	501	750	0.41802	0.351	1.66415	4.88301	0.005	0.179	0.165	512.5402	0.153
Crawler Tractors	2015	751	1000	0.570092	0.479	2.08783	7.46329	0.005	0.22	0.202	514.83	0.154
Crawler Tractors	2016	26	50	2.99791	2.519	8.10441	6.31718	0.005	0.733	0.674	553.214	0.167
Crawler Tractors	2016	51	120	1.034441	0.869	4.18548	7.34589	0.005	0.619	0.57	511.268	0.154
Crawler Tractors	2016	121	175	0.743125	0.624	3.48211	6.7205	0.005	0.371	0.341	506.0335	0.153
Crawler Tractors	2016	176	250	0.534039	0.449	1.80295	6.04745	0.005	0.233	0.215	507.355	0.153
Crawler Tractors	2016	251	500	0.473782	0.398	2.74397	5.27907	0.005	0.205	0.188	510.3385	0.154
Crawler Tractors	2016	501	750	0.41158	0.346	1.6206	4.7238	0.005	0.174	0.16	507.2527	0.153
Crawler Tractors	2016	751	1000	0.57429	0.483	2.09448	7.4988	0.005	0.222	0.204	509.6671	0.154
Crawler Tractors	2017	26	50	2.926516	2.459	8.00596	6.20834	0.005	0.712	0.655	544.6762	0.167
Crawler Tractors	2017	51	120	1.010844	0.849	4.17611	7.141	0.005	0.604	0.555	503.2791	0.154
Crawler Tractors	2017	121	175	0.731209	0.614	3.48322	6.55188	0.005	0.364	0.335	498.1245	0.153
Crawler Tractors	2017	176	250	0.511144	0.43	1.7418	5.75969	0.005	0.22	0.202	499.832	0.153
Crawler Tractors	2017	251	500	0.458057	0.385	2.6349	5.02932	0.005	0.195	0.179	502.422	0.154
Crawler Tractors	2017	501	750	0.386074	0.324	1.5221	4.36108	0.005	0.16	0.147	499.1046	0.153
Crawler Tractors	2017	751	1000	0.578206	0.486	2.10018	7.53226	0.005	0.223	0.205	501.8777	0.154
Crawler Tractors	2018	26	50	2.910335	2.445	8.0094	6.16323	0.005	0.704	0.647	536.1409	0.167
Crawler Tractors	2018	51	120	0.949614	0.798	4.1231	6.72257	0.005	0.566	0.52	494.9217	0.154
Crawler Tractors	2018	121	175	0.660412	0.555	3.42131	5.8588	0.005	0.325	0.299	490.0002	0.153
Crawler Tractors	2018	176	250	0.473989	0.398	1.65354	5.28959	0.005	0.2	0.184	491.606	0.153
Crawler Tractors	2018	251	500	0.409351	0.344	2.38218	4.37324	0.005	0.169	0.156	493.5104	0.154
Crawler Tractors	2018	501	750	0.351876	0.296	1.4447	3.8336	0.005	0.141	0.13	491.2659	0.153
Crawler Tractors	2018	751	1000	0.581827	0.489	2.10483	7.56366	0.005	0.225	0.207	494.1052	0.154
Crawler Tractors	2019	26	50	2.648469	2.225	7.58896	5.85476	0.005	0.64	0.589	525.9767	0.166
Crawler Tractors	2019	51	120	0.901167	0.757	4.08842	6.39347	0.005	0.535	0.492	486.9909	0.154
Crawler Tractors	2019	121	175	0.615173	0.517	3.37886	5.38191	0.005	0.3	0.276	481.6222	0.152
Crawler Tractors	2019	176	250	0.45175	0.38	1.60445	4.9721	0.005	0.187	0.172	483.4489	0.153
Crawler Tractors	2019	251	500	0.37933	0.319	2.21938	3.93412	0.005	0.153	0.141	485.8645	0.154
Crawler Tractors	2019	501	750	0.316919	0.266	1.35585	3.34253	0.005	0.123	0.113	483.3879	0.153
Crawler Tractors	2019	751	1000	0.547243	0.46	2.02037	7.21215	0.005	0.211	0.194	486.2545	0.154
Crawler Tractors	2020	26	50	2.443056	2.053	7.3	5.64276	0.005	0.591	0.544	515.679	0.167
Crawler Tractors	2020	51	120	0.850709	0.715	4.04412	6.00933	0.005	0.5	0.46	476.3284	0.154
Crawler Tractors	2020	121	175	0.566576	0.476	3.33989	4.87226	0.005	0.272	0.25	471.015	0.152
Crawler Tractors	2020	176	250	0.428471	0.36	1.55491	4.63225	0.005	0.175	0.161	472.941	0.153
Crawler Tractors	2020	251	500	0.358593	0.301	2.0875	3.62175	0.005	0.141	0.13	475.2338	0.154

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Crawler Tractors	2020	501	750	0.304872	0.256	1.31018	3.13716	0.005	0.115	0.106	473.3119	0.153
Crawler Tractors	2020	751	1000	0.551035	0.463	2.02764	7.23682	0.005	0.212	0.195	475.6525	0.154
Crawler Tractors	2021	26	50	2.456387	2.064	7.34869	5.61511	0.005	0.591	0.543	516.1077	0.167
Crawler Tractors	2021	51	120	0.800723	0.673	4.00549	5.65746	0.005	0.466	0.428	476.437	0.154
Crawler Tractors	2021	121	175	0.518367	0.436	3.30982	4.3947	0.005	0.245	0.225	471.421	0.152
Crawler Tractors	2021	176	250	0.407794	0.343	1.51456	4.33394	0.005	0.163	0.15	472.9246	0.153
Crawler Tractors	2021	251	500	0.337066	0.283	2.02434	3.27633	0.005	0.129	0.119	474.4843	0.153
Crawler Tractors	2021	501	750	0.284829	0.239	1.26985	2.82478	0.005	0.104	0.095	473.0941	0.153
Crawler Tractors	2021	751	1000	0.475256	0.399	1.89563	6.3992	0.005	0.182	0.167	471.8224	0.153
Crawler Tractors	2022	26	50	2.25944	1.899	7.04118	5.37962	0.005	0.539	0.496	516.1476	0.167
Crawler Tractors	2022	51	120	0.714244	0.6	3.92498	5.10103	0.005	0.408	0.375	476.0219	0.154
Crawler Tractors	2022	121	175	0.463094	0.389	3.26382	3.82659	0.005	0.214	0.197	471.5674	0.153
Crawler Tractors	2022	176	250	0.364117	0.306	1.43975	3.73672	0.005	0.141	0.13	472.0975	0.153
Crawler Tractors	2022	251	500	0.30258	0.254	1.91628	2.74435	0.005	0.111	0.102	474.4115	0.153
Crawler Tractors	2022	501	750	0.235465	0.198	1.18638	2.12552	0.005	0.079	0.073	472.876	0.153
Crawler Tractors	2022	751	1000	0.424397	0.357	1.73227	5.92299	0.005	0.162	0.149	470.7007	0.152
Crawler Tractors	2023	26	50	2.228685	1.873	7.02687	5.32514	0.005	0.526	0.484	516.1587	0.167
Crawler Tractors	2023	51	120	0.663952	0.558	3.88936	4.76208	0.005	0.373	0.343	476.1575	0.154
Crawler Tractors	2023	121	175	0.41309	0.347	3.23526	3.33004	0.005	0.185	0.17	471.7805	0.153
Crawler Tractors	2023	176	250	0.328767	0.276	1.39549	3.18735	0.005	0.124	0.114	471.6244	0.153
Crawler Tractors	2023	251	500	0.286276	0.241	1.85216	2.47635	0.005	0.102	0.094	474.6128	0.153
Crawler Tractors	2023	501	750	0.218505	0.184	1.15892	1.86667	0.005	0.069	0.064	472.5297	0.153
Crawler Tractors	2023	751	1000	0.319268	0.268	1.6104	4.76968	0.005	0.118	0.109	473.6655	0.153
Crawler Tractors	2024	26	50	2.089827	1.756	6.68497	4.97522	0.005	0.466	0.429	515.4658	0.167
Crawler Tractors	2024	51	120	0.610839	0.513	3.85173	4.40892	0.005	0.335	0.309	476.2342	0.154
Crawler Tractors	2024	121	175	0.387606	0.326	3.22706	3.04107	0.005	0.17	0.157	471.8291	0.153
Crawler Tractors	2024	176	250	0.313897	0.264	1.36992	2.95319	0.005	0.115	0.105	471.8603	0.153
Crawler Tractors	2024	251	500	0.271114	0.228	1.77984	2.2441	0.005	0.093	0.085	474.025	0.153
Crawler Tractors	2024	501	750	0.215283	0.181	1.15921	1.76658	0.005	0.066	0.061	472.2827	0.153
Crawler Tractors	2024	751	1000	0.313081	0.263	1.58774	4.68945	0.005	0.115	0.106	474.6448	0.154
Crawler Tractors	2025	26	50	2.075042	1.744	6.68642	4.93567	0.005	0.456	0.42	516.1279	0.167
Crawler Tractors	2025	51	120	0.540303	0.454	3.78839	3.96126	0.005	0.285	0.262	476.1336	0.154
Crawler Tractors	2025	121	175	0.354345	0.298	3.20909	2.68768	0.005	0.15	0.138	471.5923	0.153
Crawler Tractors	2025	176	250	0.276616	0.232	1.30849	2.46158	0.005	0.096	0.088	471.6224	0.153
Crawler Tractors	2025	251	500	0.247477	0.208	1.71697	1.92007	0.005	0.081	0.074	474.0072	0.153
Crawler Tractors	2025	501	750	0.198724	0.167	1.12199	1.54452	0.005	0.057	0.052	472.4081	0.153
Crawler Tractors	2025	751	1000	0.308836	0.26	1.59298	4.59799	0.005	0.111	0.103	475.4901	0.154
Crawler Tractors	2030	26	50	1.912	0.833	5.605	3.808	0.007	0.116	0.116	568.299	0.075
Crawler Tractors	2030	51	120	2.461	0.405	3.871	2.341	0.006	0.105	0.105	568.299	0.036
Crawler Tractors	2030	121	175	3.315	0.296	3.397	1.266	0.006	0.065	0.065	568.299	0.026
Crawler Tractors	2030	176	250	4.019	0.262	1.207	1.104	0.006	0.04	0.04	568.299	0.023
Crawler Tractors	2030	251	500	6.146	0.257	1.2	1.016	0.005	0.038	0.038	568.299	0.023
Crawler Tractors	2030	501	750	11.033	0.257	1.2	1.033	0.005	0.038	0.038	568.299	0.023
Crawler Tractors	2030	751	1000	16.147	0.265	1.225	3.094	0.005	0.056	0.056	568.3	0.023
Crawler Tractors	2035	26	50	1.626	0.708	5.493	3.558	0.007	0.066	0.066	568.299	0.063
Crawler Tractors	2035	51	120	2.099	0.345	3.85	1.922	0.006	0.06	0.06	568.299	0.031
Crawler Tractors	2035	121	175	2.772	0.247	3.391	0.794	0.006	0.038	0.038	568.299	0.022
Crawler Tractors	2035	176	250	3.521	0.229	1.182	0.695	0.006	0.026	0.026	568.299	0.02
Crawler Tractors	2035	251	500	5.432	0.227	1.145	0.657	0.005	0.025	0.025	568.299	0.02
Crawler Tractors	2035	501	750	9.744	0.227	1.145	0.664	0.005	0.025	0.025	568.299	0.02
Crawler Tractors	2035	751	1000	14.073	0.231	1.159	2.792	0.005	0.041	0.041	568.299	0.02
Crawler Tractors	2040	26	50	1.499	0.653	5.443	3.42	0.007	0.042	0.042	568.299	0.058
Crawler Tractors	2040	51	120	1.924	0.316	3.839	1.709	0.006	0.039	0.039	568.299	0.028
Crawler Tractors	2040	121	175	2.48	0.221	3.388	0.539	0.006	0.025	0.025	568.299	0.02
Crawler Tractors	2040	176	250	3.247	0.211	1.167	0.491	0.006	0.018	0.018	568.299	0.019
Crawler Tractors	2040	251	500	5.035	0.21	1.113	0.47	0.005	0.018	0.018	568.299	0.018
Crawler Tractors	2040	501	750	9.03	0.21	1.113	0.475	0.005	0.018	0.018	568.299	0.019
Crawler Tractors	2040	751	1000	12.945	0.213	1.122	2.652	0.005	0.032	0.032	568.299	0.019
Crushing/Proc. Equipment	1990	26	50	11.643	4.43	9.044	7.809	0.871	1.194	1.194	568.299	0.399
Crushing/Proc. Equipment	1990	51	120	11.193	2.255	5.547	14.555	0.791	1.258	1.258	568.299	0.203
Crushing/Proc. Equipment	1990	121	175	15.383	1.54	4.913	13.086	0.758	0.834	0.834	568.299	0.138
Crushing/Proc. Equipment	1990	176	250	22.49	1.54	4.913	13.086	0.758	0.834	0.834	568.299	0.138
Crushing/Proc. Equipment	1990	251	500	30.672	1.374	10.176	12.492	0.662	0.724	0.724	568.299	0.124
Crushing/Proc. Equipment	1990	501	750	48.337	1.374	10.175	12.492	1.018	0.737	0.737	568.299	0.124
Crushing/Proc. Equipment	1990	1001	9999	106.942	1.369	10.175	12.492	1.018	0.731	0.731	568.299	0.123
Crushing/Proc. Equipment	2000	26	50	10.827	4.12	8.551	6.954	0.066	0.876	0.876	568.299	0.371
Crushing/Proc. Equipment	2000	51	120	8.945	1.802	4.594	10.363	0.06	0.857	0.857	568.299	0.162
Crushing/Proc. Equipment	2000	121	175	12.05	1.206	3.737	9.416	0.057	0.506	0.506	568.299	0.108
Crushing/Proc. Equipment	2000	176	250	14.723	1.008	2.963	9.058	0.057	0.414	0.414	568.299	0.09
Crushing/Proc. Equipment	2000	251	500	20.487	0.918	5.011	8.658	0.05	0.366	0.366	568.299	0.082

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Crushing/Proc. Equipment	2000	501	750	30.946	0.88	4.658	8.459	0.052	0.348	0.348	568.299	0.079
Crushing/Proc. Equipment	2000	1001	9999	77.281	0.989	5.329	9.138	0.052	0.37	0.37	568.299	0.089
Crushing/Proc. Equipment	2005	26	50	9.624	3.662	7.904	6.477	0.066	0.812	0.812	568.3	0.33
Crushing/Proc. Equipment	2005	51	120	7.644	1.54	4.24	8.68	0.06	0.794	0.794	568.299	0.138
Crushing/Proc. Equipment	2005	121	175	10.064	1.007	3.372	7.941	0.057	0.438	0.438	568.299	0.09
Crushing/Proc. Equipment	2005	176	250	10.399	0.712	1.97	7.484	0.057	0.282	0.282	568.299	0.064
Crushing/Proc. Equipment	2005	251	500	14.029	0.628	2.549	6.846	0.05	0.252	0.252	568.299	0.056
Crushing/Proc. Equipment	2005	501	750	22.225	0.632	2.431	6.974	0.052	0.249	0.249	568.299	0.057
Crushing/Proc. Equipment	2005	1001	9999	60.257	0.771	3.042	8.054	0.052	0.268	0.268	568.299	0.069
Crushing/Proc. Equipment	2010	26	50	7.704	2.931	7.22	6.068	0.007	0.671	0.671	568.299	0.264
Crushing/Proc. Equipment	2010	51	120	5.971	1.203	4.071	7.096	0.006	0.656	0.656	568.299	0.108
Crushing/Proc. Equipment	2010	121	175	8.033	0.804	3.307	6.322	0.006	0.362	0.362	568.299	0.072
Crushing/Proc. Equipment	2010	176	250	7.61	0.521	1.446	5.918	0.006	0.195	0.195	568.299	0.047
Crushing/Proc. Equipment	2010	251	500	10.487	0.47	1.603	5.248	0.005	0.18	0.18	568.299	0.042
Crushing/Proc. Equipment	2010	501	750	16.814	0.478	1.568	5.449	0.005	0.183	0.183	568.299	0.043
Crushing/Proc. Equipment	2010	1001	9999	46.933	0.601	2.091	6.987	0.005	0.209	0.209	568.299	0.054
Crushing/Proc. Equipment	2011	26	50	7.155	2.722	6.995	5.972	0.007	0.636	0.636	568.299	0.245
Crushing/Proc. Equipment	2011	51	120	5.588	1.125	4.03	6.704	0.006	0.625	0.625	568.3	0.101
Crushing/Proc. Equipment	2011	121	175	7.581	0.759	3.294	5.953	0.006	0.347	0.347	568.299	0.068
Crushing/Proc. Equipment	2011	176	250	7.059	0.483	1.356	5.498	0.006	0.175	0.175	568.299	0.043
Crushing/Proc. Equipment	2011	251	500	9.796	0.439	1.462	4.858	0.005	0.162	0.162	568.299	0.039
Crushing/Proc. Equipment	2011	501	750	15.681	0.446	1.435	5.054	0.005	0.165	0.165	568.299	0.04
Crushing/Proc. Equipment	2011	1001	9999	44.108	0.564	1.923	6.609	0.005	0.196	0.196	568.299	0.05
Crushing/Proc. Equipment	2012	26	50	6.538	2.488	6.733	5.867	0.007	0.596	0.596	568.299	0.224
Crushing/Proc. Equipment	2012	51	120	5.173	1.042	3.984	6.269	0.006	0.582	0.582	568.299	0.094
Crushing/Proc. Equipment	2012	121	175	7.084	0.709	3.28	5.553	0.006	0.321	0.321	568.299	0.064
Crushing/Proc. Equipment	2012	176	250	6.627	0.453	1.299	5.088	0.006	0.158	0.158	568.299	0.04
Crushing/Proc. Equipment	2012	251	500	9.273	0.415	1.362	4.48	0.005	0.147	0.147	568.3	0.037
Crushing/Proc. Equipment	2012	501	750	14.786	0.42	1.341	4.662	0.005	0.15	0.15	568.299	0.037
Crushing/Proc. Equipment	2012	1001	9999	41.105	0.526	1.755	6.197	0.005	0.182	0.182	568.299	0.047
Crushing/Proc. Equipment	2013	26	50	5.908	2.248	6.467	5.628	0.007	0.545	0.545	568.299	0.202
Crushing/Proc. Equipment	2013	51	120	4.758	0.958	3.94	5.845	0.006	0.532	0.532	568.299	0.086
Crushing/Proc. Equipment	2013	121	175	6.588	0.659	3.267	5.177	0.006	0.293	0.293	568.299	0.059
Crushing/Proc. Equipment	2013	176	250	6.27	0.429	1.26	4.695	0.006	0.144	0.144	568.299	0.038
Crushing/Proc. Equipment	2013	251	500	8.85	0.396	1.289	4.121	0.005	0.134	0.134	568.299	0.035
Crushing/Proc. Equipment	2013	501	750	14.055	0.399	1.273	4.285	0.005	0.136	0.136	568.299	0.036
Crushing/Proc. Equipment	2013	1001	9999	38.235	0.489	1.599	5.785	0.005	0.168	0.168	568.299	0.044
Crushing/Proc. Equipment	2014	26	50	5.288	2.012	6.212	5.399	0.007	0.494	0.494	568.299	0.181
Crushing/Proc. Equipment	2014	51	120	4.356	0.877	3.898	5.468	0.006	0.481	0.481	568.299	0.079
Crushing/Proc. Equipment	2014	121	175	6.112	0.612	3.256	4.823	0.006	0.265	0.265	568.299	0.055
Crushing/Proc. Equipment	2014	176	250	5.916	0.405	1.228	4.239	0.006	0.13	0.13	568.299	0.036
Crushing/Proc. Equipment	2014	251	500	8.415	0.377	1.23	3.702	0.005	0.121	0.121	568.299	0.034
Crushing/Proc. Equipment	2014	501	750	13.314	0.378	1.218	3.844	0.005	0.123	0.123	568.299	0.034
Crushing/Proc. Equipment	2014	1001	9999	35.652	0.456	1.46	5.391	0.005	0.155	0.155	568.299	0.041
Crushing/Proc. Equipment	2015	26	50	4.722	1.796	5.996	5.195	0.007	0.446	0.446	568.299	0.162
Crushing/Proc. Equipment	2015	51	120	3.959	0.797	3.859	5.04	0.006	0.43	0.43	568.299	0.071
Crushing/Proc. Equipment	2015	121	175	5.614	0.562	3.247	4.343	0.006	0.237	0.237	568.299	0.05
Crushing/Proc. Equipment	2015	176	250	5.585	0.382	1.201	3.801	0.006	0.117	0.117	568.299	0.034
Crushing/Proc. Equipment	2015	251	500	8	0.358	1.184	3.304	0.005	0.109	0.109	568.299	0.032
Crushing/Proc. Equipment	2015	501	750	12.614	0.358	1.176	3.422	0.005	0.111	0.111	568.299	0.032
Crushing/Proc. Equipment	2015	1001	9999	32.981	0.422	1.343	5.019	0.005	0.14	0.14	568.299	0.038
Crushing/Proc. Equipment	2016	26	50	4.186	1.593	5.801	5.006	0.007	0.399	0.399	568.299	0.143
Crushing/Proc. Equipment	2016	51	120	3.576	0.72	3.823	4.631	0.006	0.379	0.379	568.299	0.065
Crushing/Proc. Equipment	2016	121	175	5.132	0.513	3.241	3.883	0.006	0.21	0.21	568.299	0.046
Crushing/Proc. Equipment	2016	176	250	5.267	0.36	1.178	3.381	0.006	0.105	0.105	568.299	0.032
Crushing/Proc. Equipment	2016	251	500	7.601	0.34	1.146	2.928	0.005	0.098	0.098	568.299	0.03
Crushing/Proc. Equipment	2016	501	750	11.944	0.339	1.14	3.021	0.005	0.099	0.099	568.299	0.03
Crushing/Proc. Equipment	2016	1001	9999	31.036	0.397	1.274	4.7	0.005	0.127	0.127	568.299	0.035
Crushing/Proc. Equipment	2017	26	50	3.684	1.402	5.623	4.827	0.007	0.354	0.354	568.299	0.126
Crushing/Proc. Equipment	2017	51	120	3.216	0.647	3.791	4.244	0.006	0.33	0.33	568.299	0.058
Crushing/Proc. Equipment	2017	121	175	4.681	0.468	3.236	3.45	0.006	0.185	0.185	568.299	0.042
Crushing/Proc. Equipment	2017	176	250	4.974	0.34	1.16	2.987	0.006	0.094	0.094	568.299	0.03
Crushing/Proc. Equipment	2017	251	500	7.242	0.324	1.118	2.602	0.005	0.088	0.088	568.299	0.029
Crushing/Proc. Equipment	2017	501	750	11.359	0.323	1.114	2.664	0.005	0.088	0.088	568.299	0.029
Crushing/Proc. Equipment	2017	1001	9999	29.544	0.378	1.231	4.423	0.005	0.117	0.117	568.299	0.034
Crushing/Proc. Equipment	2018	26	50	3.219	1.225	5.461	4.657	0.007	0.31	0.31	568.299	0.11
Crushing/Proc. Equipment	2018	51	120	2.881	0.58	3.763	3.881	0.006	0.284	0.284	568.299	0.052
Crushing/Proc. Equipment	2018	121	175	4.267	0.427	3.234	3.049	0.006	0.161	0.161	568.299	0.038
Crushing/Proc. Equipment	2018	176	250	4.701	0.322	1.146	2.622	0.006	0.083	0.083	568.299	0.029
Crushing/Proc. Equipment	2018	251	500	6.912	0.309	1.099	2.312	0.005	0.079	0.079	568.299	0.027

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Crushing/Proc. Equipment	2018	501	750	10.84	0.308	1.097	2.358	0.005	0.079	0.079	568.299	0.027
Crushing/Proc. Equipment	2018	1001	9999	28.23	0.361	1.198	4.168	0.005	0.107	0.107	568.299	0.032
Crushing/Proc. Equipment	2019	26	50	2.798	1.064	5.316	4.495	0.007	0.269	0.269	568.299	0.096
Crushing/Proc. Equipment	2019	51	120	2.577	0.519	3.739	3.544	0.006	0.241	0.241	568.299	0.046
Crushing/Proc. Equipment	2019	121	175	3.938	0.394	3.233	2.7	0.006	0.141	0.141	568.299	0.035
Crushing/Proc. Equipment	2019	176	250	4.451	0.304	1.134	2.3	0.006	0.074	0.074	568.299	0.027
Crushing/Proc. Equipment	2019	251	500	6.592	0.295	1.087	2.046	0.005	0.071	0.071	568.299	0.026
Crushing/Proc. Equipment	2019	501	750	10.352	0.294	1.085	2.085	0.005	0.071	0.071	568.299	0.026
Crushing/Proc. Equipment	2019	1001	9999	26.978	0.345	1.173	3.927	0.005	0.098	0.098	568.299	0.031
Crushing/Proc. Equipment	2020	26	50	2.489	0.947	5.211	4.347	0.007	0.233	0.233	568.299	0.085
Crushing/Proc. Equipment	2020	51	120	2.348	0.473	3.722	3.249	0.006	0.206	0.206	568.299	0.042
Crushing/Proc. Equipment	2020	121	175	3.673	0.367	3.234	2.392	0.006	0.124	0.124	568.299	0.033
Crushing/Proc. Equipment	2020	176	250	4.222	0.289	1.125	2.014	0.006	0.065	0.065	568.299	0.026
Crushing/Proc. Equipment	2020	251	500	6.283	0.281	1.078	1.799	0.005	0.063	0.063	568.299	0.025
Crushing/Proc. Equipment	2020	501	750	9.884	0.281	1.077	1.835	0.005	0.063	0.063	568.299	0.025
Crushing/Proc. Equipment	2020	1001	9999	25.755	0.329	1.153	3.699	0.005	0.089	0.089	568.299	0.029
Crushing/Proc. Equipment	2021	26	50	2.265	0.862	5.136	4.211	0.007	0.201	0.201	568.299	0.077
Crushing/Proc. Equipment	2021	51	120	2.176	0.438	3.711	2.989	0.006	0.178	0.178	568.299	0.039
Crushing/Proc. Equipment	2021	121	175	3.442	0.344	3.235	2.114	0.006	0.109	0.109	568.299	0.031
Crushing/Proc. Equipment	2021	176	250	4.009	0.274	1.119	1.756	0.006	0.057	0.057	568.299	0.024
Crushing/Proc. Equipment	2021	251	500	5.988	0.268	1.072	1.574	0.005	0.055	0.055	568.3	0.024
Crushing/Proc. Equipment	2021	501	750	9.434	0.268	1.072	1.606	0.005	0.055	0.055	568.299	0.024
Crushing/Proc. Equipment	2021	1001	9999	24.586	0.314	1.136	3.487	0.005	0.08	0.08	568.299	0.028
Crushing/Proc. Equipment	2022	26	50	2.09	0.795	5.081	4.083	0.007	0.172	0.172	568.299	0.071
Crushing/Proc. Equipment	2022	51	120	2.036	0.41	3.704	2.758	0.006	0.154	0.154	568.299	0.037
Crushing/Proc. Equipment	2022	121	175	3.231	0.323	3.237	1.861	0.006	0.095	0.095	568.299	0.029
Crushing/Proc. Equipment	2022	176	250	3.808	0.26	1.114	1.521	0.006	0.05	0.05	568.299	0.023
Crushing/Proc. Equipment	2022	251	500	5.706	0.255	1.067	1.389	0.005	0.048	0.048	568.299	0.023
Crushing/Proc. Equipment	2022	501	750	9.002	0.256	1.067	1.416	0.005	0.048	0.048	568.299	0.023
Crushing/Proc. Equipment	2022	1001	9999	23.492	0.3	1.121	3.31	0.005	0.073	0.073	568.299	0.027
Crushing/Proc. Equipment	2023	26	50	1.944	0.739	5.039	3.962	0.007	0.146	0.146	568.299	0.066
Crushing/Proc. Equipment	2023	51	120	1.914	0.385	3.7	2.552	0.006	0.132	0.132	568.299	0.034
Crushing/Proc. Equipment	2023	121	175	3.042	0.304	3.24	1.654	0.006	0.083	0.083	568.299	0.027
Crushing/Proc. Equipment	2023	176	250	3.623	0.248	1.111	1.33	0.006	0.043	0.043	568.299	0.022
Crushing/Proc. Equipment	2023	251	500	5.444	0.244	1.064	1.227	0.005	0.042	0.042	568.299	0.022
Crushing/Proc. Equipment	2023	501	750	8.598	0.244	1.065	1.251	0.005	0.042	0.042	568.3	0.022
Crushing/Proc. Equipment	2023	1001	9999	22.463	0.287	1.107	3.16	0.005	0.066	0.066	568.299	0.025
Crushing/Proc. Equipment	2024	26	50	1.825	0.694	5.008	3.85	0.007	0.125	0.125	568.299	0.062
Crushing/Proc. Equipment	2024	51	120	1.81	0.364	3.697	2.389	0.006	0.112	0.112	568.299	0.032
Crushing/Proc. Equipment	2024	121	175	2.866	0.287	3.243	1.472	0.006	0.071	0.071	568.299	0.025
Crushing/Proc. Equipment	2024	176	250	3.448	0.236	1.109	1.165	0.006	0.036	0.036	568.299	0.021
Crushing/Proc. Equipment	2024	251	500	5.193	0.232	1.062	1.077	0.005	0.035	0.035	568.299	0.021
Crushing/Proc. Equipment	2024	501	750	8.207	0.233	1.063	1.098	0.005	0.036	0.036	568.299	0.021
Crushing/Proc. Equipment	2024	1001	9999	21.454	0.274	1.096	3.029	0.005	0.059	0.059	568.299	0.024
Crushing/Proc. Equipment	2025	26	50	1.724	0.656	4.982	3.742	0.007	0.107	0.107	568.299	0.059
Crushing/Proc. Equipment	2025	51	120	1.716	0.345	3.694	2.248	0.006	0.095	0.095	568.299	0.031
Crushing/Proc. Equipment	2025	121	175	2.696	0.27	3.246	1.301	0.006	0.06	0.06	568.299	0.024
Crushing/Proc. Equipment	2025	176	250	3.279	0.224	1.108	1.012	0.006	0.031	0.031	568.299	0.02
Crushing/Proc. Equipment	2025	251	500	4.95	0.221	1.061	0.937	0.005	0.03	0.03	568.299	0.02
Crushing/Proc. Equipment	2025	501	750	7.826	0.222	1.061	0.955	0.005	0.03	0.03	568.299	0.02
Crushing/Proc. Equipment	2025	1001	9999	20.429	0.261	1.087	2.91	0.005	0.053	0.053	568.299	0.023
Crushing/Proc. Equipment	2030	26	50	1.381	0.525	4.857	3.351	0.007	0.043	0.043	568.299	0.047
Crushing/Proc. Equipment	2030	51	120	1.35	0.272	3.673	1.708	0.006	0.038	0.038	568.299	0.024
Crushing/Proc. Equipment	2030	121	175	1.976	0.197	3.244	0.6	0.006	0.025	0.025	568.299	0.017
Crushing/Proc. Equipment	2030	176	250	2.701	0.185	1.105	0.502	0.006	0.017	0.017	568.299	0.016
Crushing/Proc. Equipment	2030	251	500	4.113	0.184	1.058	0.476	0.005	0.017	0.017	568.299	0.016
Crushing/Proc. Equipment	2030	501	750	6.473	0.184	1.058	0.478	0.005	0.017	0.017	568.299	0.016
Crushing/Proc. Equipment	2030	1001	9999	15.345	0.196	1.059	2.59	0.005	0.032	0.032	568.299	0.017
Crushing/Proc. Equipment	2035	26	50	1.282	0.487	4.819	3.237	0.007	0.023	0.023	568.299	0.044
Crushing/Proc. Equipment	2035	51	120	1.236	0.249	3.665	1.531	0.006	0.02	0.02	568.299	0.022
Crushing/Proc. Equipment	2035	121	175	1.76	0.176	3.242	0.382	0.006	0.015	0.015	568.299	0.015
Crushing/Proc. Equipment	2035	176	250	2.521	0.172	1.104	0.342	0.006	0.012	0.012	568.3	0.015
Crushing/Proc. Equipment	2035	251	500	3.852	0.172	1.058	0.338	0.005	0.012	0.012	568.299	0.015
Crushing/Proc. Equipment	2035	501	750	6.064	0.172	1.058	0.338	0.005	0.012	0.012	568.299	0.015
Crushing/Proc. Equipment	2035	1001	9999	13.865	0.177	1.058	2.482	0.005	0.026	0.026	568.299	0.016
Crushing/Proc. Equipment	2040	26	50	1.284	0.488	4.833	3.194	0.007	0.017	0.017	568.299	0.044
Crushing/Proc. Equipment	2040	51	120	1.219	0.245	3.67	1.477	0.006	0.015	0.015	568.299	0.022
Crushing/Proc. Equipment	2040	121	175	1.698	0.17	3.246	0.306	0.006	0.012	0.012	568.299	0.015
Crushing/Proc. Equipment	2040	176	250	2.464	0.168	1.106	0.292	0.006	0.011	0.011	568.299	0.015
Crushing/Proc. Equipment	2040	251	500	3.766	0.168	1.059	0.292	0.005	0.011	0.011	568.299	0.015

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Crushing/Proc. Equipment	2040	501	750	5.941	0.169	1.059	0.292	0.005	0.011	0.011	568.299	0.015
Crushing/Proc. Equipment	2040	1001	9999	13.333	0.17	1.059	2.457	0.005	0.024	0.024	568.299	0.015
Dumpers/Tenders	1990	16	25	2.645	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Dumpers/Tenders	2000	16	25	2.444	2.045	4.69	6.397	0.065	0.571	0.571	568.299	0.184
Dumpers/Tenders	2005	16	25	1.554	1.3	3.337	5.74	0.065	0.426	0.426	568.299	0.117
Dumpers/Tenders	2010	16	25	0.963	0.806	2.507	4.804	0.007	0.271	0.271	568.299	0.072
Dumpers/Tenders	2011	16	25	0.921	0.771	2.456	4.686	0.007	0.251	0.251	568.299	0.069
Dumpers/Tenders	2012	16	25	0.887	0.742	2.416	4.576	0.007	0.232	0.232	568.299	0.066
Dumpers/Tenders	2013	16	25	0.86	0.719	2.385	4.477	0.007	0.216	0.216	568.3	0.064
Dumpers/Tenders	2014	16	25	0.842	0.705	2.364	4.433	0.007	0.2	0.2	568.3	0.063
Dumpers/Tenders	2015	16	25	0.831	0.696	2.35	4.402	0.007	0.187	0.187	568.299	0.062
Dumpers/Tenders	2016	16	25	0.825	0.69	2.342	4.378	0.007	0.175	0.175	568.299	0.062
Dumpers/Tenders	2017	16	25	0.821	0.687	2.34	4.362	0.007	0.171	0.171	568.299	0.062
Dumpers/Tenders	2018	16	25	0.82	0.686	2.339	4.35	0.007	0.169	0.169	568.299	0.061
Dumpers/Tenders	2019	16	25	0.82	0.686	2.339	4.341	0.007	0.167	0.167	568.299	0.061
Dumpers/Tenders	2020	16	25	0.819	0.685	2.339	4.336	0.007	0.165	0.165	568.299	0.061
Dumpers/Tenders	2021	16	25	0.819	0.685	2.339	4.333	0.007	0.163	0.163	568.299	0.061
Dumpers/Tenders	2022	16	25	0.819	0.685	2.339	4.332	0.007	0.162	0.162	568.299	0.061
Dumpers/Tenders	2023	16	25	0.819	0.685	2.339	4.332	0.007	0.162	0.162	568.299	0.061
Dumpers/Tenders	2024	16	25	0.819	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Dumpers/Tenders	2025	16	25	0.819	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Dumpers/Tenders	2030	16	25	0.819	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Dumpers/Tenders	2035	16	25	0.819	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Dumpers/Tenders	2040	16	25	0.819	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Excavators	1990	16	25	5.933	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Excavators	1990	26	50	21.032	5.155	10.359	8.08	0.871	1.341	1.341	568.299	0.465
Excavators	1990	51	120	29.647	2.469	5.901	15.421	0.791	1.413	1.413	568.299	0.222
Excavators	1990	121	175	35.634	1.947	5.271	15.075	0.758	1.096	1.096	568.299	0.175
Excavators	1990	176	250	50.388	1.947	5.271	15.075	0.758	1.096	1.096	568.299	0.175
Excavators	1990	251	500	65.206	1.71	12.155	14.225	0.662	0.93	0.93	568.3	0.154
Excavators	1990	501	750	108.079	1.71	12.155	14.225	1.018	0.947	0.947	568.299	0.154
Excavators	2000	16	25	4.937	1.841	4.315	6.281	0.065	0.543	0.543	568.299	0.166
Excavators	2000	26	50	18.836	4.616	9.494	7.102	0.066	0.958	0.958	568.299	0.416
Excavators	2000	51	120	21.925	1.826	4.602	10.156	0.06	0.913	0.913	568.299	0.164
Excavators	2000	121	175	22.624	1.236	3.672	9.345	0.057	0.525	0.525	568.299	0.111
Excavators	2000	176	250	25.927	1.001	2.794	8.952	0.057	0.409	0.409	568.299	0.09
Excavators	2000	251	500	34.719	0.91	3.974	8.491	0.05	0.362	0.362	568.299	0.082
Excavators	2000	501	750	57.546	0.91	3.974	8.491	0.052	0.362	0.362	568.299	0.082
Excavators	2005	16	25	2.091	0.779	2.397	5.219	0.065	0.319	0.319	568.299	0.07
Excavators	2005	26	50	16.217	3.974	8.597	6.562	0.066	0.871	0.871	568.299	0.358
Excavators	2005	51	120	19.001	1.582	4.354	8.632	0.06	0.853	0.853	568.299	0.142
Excavators	2005	121	175	18.9	1.032	3.452	7.905	0.057	0.461	0.461	568.299	0.093
Excavators	2005	176	250	18.379	0.71	1.892	7.456	0.057	0.276	0.276	568.299	0.064
Excavators	2005	251	500	24.005	0.629	2.194	6.685	0.05	0.248	0.248	568.299	0.056
Excavators	2005	501	750	40.443	0.64	2.192	6.888	0.052	0.251	0.251	568.299	0.057
Excavators	2010	16	25	0.993664	0.835	4.56926	5.19123	0.005	0.413	0.38	584.0737	0.17
Excavators	2010	26	50	0.993664	0.835	4.56926	5.19123	0.005	0.413	0.38	584.0737	0.17
Excavators	2010	51	120	0.73275	0.616	3.69337	6.10169	0.005	0.469	0.432	518.9941	0.151
Excavators	2010	121	175	0.572846	0.481	3.1674	5.82964	0.005	0.299	0.275	525.0484	0.153
Excavators	2010	176	250	0.422004	0.355	1.45526	5.78636	0.005	0.182	0.167	525.2427	0.153
Excavators	2010	251	500	0.315965	0.265	1.44794	4.38582	0.005	0.143	0.132	522.2909	0.152
Excavators	2010	501	750	0.327987	0.276	1.53784	4.52996	0.005	0.149	0.137	520.4269	0.151
Excavators	2011	16	25	0.999474	0.84	4.67202	5.21824	0.005	0.413	0.38	582.8586	0.17
Excavators	2011	26	50	0.999474	0.84	4.67202	5.21824	0.005	0.413	0.38	582.8586	0.17
Excavators	2011	51	120	0.675188	0.567	3.65807	5.70006	0.005	0.436	0.401	517.4139	0.151
Excavators	2011	121	175	0.533269	0.448	3.15702	5.44943	0.005	0.278	0.255	523.5178	0.153
Excavators	2011	176	250	0.400356	0.336	1.41809	5.41822	0.005	0.171	0.157	523.6886	0.153
Excavators	2011	251	500	0.303301	0.255	1.41288	4.1131	0.005	0.133	0.123	521.2972	0.152
Excavators	2011	501	750	0.326107	0.274	1.47034	4.42127	0.005	0.146	0.134	519.1221	0.151
Excavators	2012	16	25	1.018057	0.855	4.79179	5.19511	0.005	0.412	0.379	581.4648	0.17
Excavators	2012	26	50	1.018057	0.855	4.79179	5.19511	0.005	0.412	0.379	581.4648	0.17
Excavators	2012	51	120	0.67458	0.567	3.68099	5.63138	0.005	0.434	0.399	516.083	0.151
Excavators	2012	121	175	0.534632	0.449	3.17839	5.38897	0.005	0.275	0.253	522.0959	0.153
Excavators	2012	176	250	0.402641	0.338	1.42562	5.32577	0.005	0.169	0.155	522.4958	0.153
Excavators	2012	251	500	0.308496	0.259	1.4255	4.05714	0.005	0.131	0.121	520.034	0.152
Excavators	2012	501	750	0.334165	0.281	1.47962	4.3898	0.005	0.145	0.134	517.8167	0.151
Excavators	2013	16	25	0.995402	0.836	4.80774	5.0526	0.005	0.393	0.362	578.236	0.17
Excavators	2013	26	50	0.995402	0.836	4.80774	5.0526	0.005	0.393	0.362	578.236	0.17
Excavators	2013	51	120	0.639011	0.537	3.66866	5.3703	0.005	0.404	0.372	513.7321	0.151
Excavators	2013	121	175	0.503929	0.423	3.16966	5.08991	0.005	0.253	0.233	519.496	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Excavators	2013	176	250	0.383779	0.322	1.40068	4.93756	0.005	0.157	0.145	519.8753	0.153
Excavators	2013	251	500	0.295491	0.248	1.38754	3.73509	0.005	0.121	0.111	517.7809	0.152
Excavators	2013	501	750	0.301827	0.254	1.36166	3.92892	0.005	0.126	0.116	514.1872	0.151
Excavators	2014	16	25	0.981904	0.825	4.84434	4.96504	0.005	0.38	0.35	575.2674	0.17
Excavators	2014	26	50	0.981904	0.825	4.84434	4.96504	0.005	0.38	0.35	575.2674	0.17
Excavators	2014	51	120	0.610505	0.513	3.66313	5.13137	0.005	0.382	0.352	511.3057	0.151
Excavators	2014	121	175	0.464169	0.39	3.15438	4.65701	0.005	0.229	0.211	516.9066	0.153
Excavators	2014	176	250	0.350137	0.294	1.34557	4.37384	0.005	0.139	0.128	517.3234	0.153
Excavators	2014	251	500	0.276896	0.233	1.32721	3.35284	0.005	0.108	0.099	515.2151	0.152
Excavators	2014	501	750	0.284069	0.239	1.34745	3.54089	0.005	0.114	0.105	511.9453	0.151
Excavators	2015	16	25	0.991068	0.833	4.92488	4.91817	0.005	0.375	0.345	569.5116	0.17
Excavators	2015	26	50	0.991068	0.833	4.92488	4.91817	0.005	0.375	0.345	569.5116	0.17
Excavators	2015	51	120	0.60346	0.507	3.67943	5.01907	0.005	0.373	0.344	506.1727	0.151
Excavators	2015	121	175	0.456597	0.384	3.16762	4.4807	0.005	0.221	0.203	511.6869	0.153
Excavators	2015	176	250	0.343545	0.289	1.33148	4.18222	0.005	0.133	0.122	512.0555	0.153
Excavators	2015	251	500	0.276143	0.232	1.31662	3.21395	0.005	0.104	0.096	509.8675	0.152
Excavators	2015	501	750	0.28808	0.242	1.35372	3.47287	0.005	0.113	0.104	506.6816	0.151
Excavators	2016	16	25	0.970016	0.815	4.94198	4.82432	0.005	0.359	0.33	563.8026	0.17
Excavators	2016	26	50	0.970016	0.815	4.94198	4.82432	0.005	0.359	0.33	563.8026	0.17
Excavators	2016	51	120	0.566011	0.476	3.66066	4.70806	0.005	0.344	0.317	500.9659	0.151
Excavators	2016	121	175	0.425494	0.358	3.15771	4.08095	0.005	0.201	0.185	506.495	0.153
Excavators	2016	176	250	0.312033	0.262	1.27749	3.66736	0.005	0.116	0.107	506.544	0.153
Excavators	2016	251	500	0.253752	0.213	1.23344	2.81451	0.005	0.091	0.083	504.2899	0.152
Excavators	2016	501	750	0.287698	0.242	1.34881	3.35762	0.005	0.11	0.101	501.6596	0.151
Excavators	2017	16	25	0.91741	0.771	4.88904	4.67818	0.005	0.332	0.305	554.9101	0.17
Excavators	2017	26	50	0.91741	0.771	4.88904	4.67818	0.005	0.332	0.305	554.9101	0.17
Excavators	2017	51	120	0.523542	0.44	3.63939	4.37952	0.005	0.31	0.285	493.409	0.151
Excavators	2017	121	175	0.397029	0.334	3.15091	3.69967	0.005	0.182	0.167	498.5222	0.153
Excavators	2017	176	250	0.293543	0.247	1.24911	3.31872	0.005	0.105	0.097	498.4364	0.153
Excavators	2017	251	500	0.237788	0.2	1.19852	2.50715	0.005	0.081	0.075	496.8098	0.152
Excavators	2017	501	750	0.249769	0.21	1.22803	2.71934	0.005	0.09	0.083	494.5496	0.152
Excavators	2018	16	25	0.818091	0.687	4.70022	4.39518	0.005	0.284	0.261	545.3468	0.17
Excavators	2018	26	50	0.818091	0.687	4.70022	4.39518	0.005	0.284	0.261	545.3468	0.17
Excavators	2018	51	120	0.438055	0.368	3.56214	3.76366	0.005	0.25	0.23	486.056	0.151
Excavators	2018	121	175	0.324959	0.273	3.09338	2.92361	0.005	0.142	0.13	490.6725	0.153
Excavators	2018	176	250	0.240329	0.202	1.15209	2.59377	0.005	0.079	0.073	490.2569	0.153
Excavators	2018	251	500	0.207823	0.175	1.13951	2.05045	0.005	0.066	0.061	489.1025	0.152
Excavators	2018	501	750	0.22476	0.189	1.22359	2.26567	0.005	0.076	0.07	487.6528	0.152
Excavators	2019	16	25	0.75855	0.637	4.59698	4.19867	0.005	0.25	0.23	536.9132	0.17
Excavators	2019	26	50	0.75855	0.637	4.59698	4.19867	0.005	0.25	0.23	536.9132	0.17
Excavators	2019	51	120	0.386598	0.325	3.52421	3.36874	0.005	0.211	0.194	478.2452	0.151
Excavators	2019	121	175	0.293021	0.246	3.08163	2.53264	0.005	0.122	0.112	482.6838	0.153
Excavators	2019	176	250	0.220917	0.186	1.12671	2.24187	0.005	0.068	0.063	482.2503	0.153
Excavators	2019	251	500	0.192898	0.162	1.1135	1.77986	0.005	0.058	0.053	481.2361	0.152
Excavators	2019	501	750	0.209677	0.176	1.17289	1.98661	0.005	0.067	0.062	479.2876	0.152
Excavators	2020	16	25	0.705964	0.593	4.50032	4.03131	0.005	0.222	0.204	525.3675	0.17
Excavators	2020	26	50	0.705964	0.593	4.50032	4.03131	0.005	0.222	0.204	525.3675	0.17
Excavators	2020	51	120	0.356064	0.299	3.50495	3.08964	0.005	0.185	0.17	468.0546	0.151
Excavators	2020	121	175	0.275327	0.231	3.08597	2.27838	0.005	0.11	0.102	472.2891	0.153
Excavators	2020	176	250	0.211076	0.177	1.11778	2.02738	0.005	0.061	0.056	471.8828	0.153
Excavators	2020	251	500	0.182542	0.153	1.1016	1.57199	0.005	0.052	0.048	470.2956	0.152
Excavators	2020	501	750	0.202011	0.17	1.14543	1.79718	0.005	0.061	0.056	468.8706	0.152
Excavators	2021	16	25	0.669315	0.562	4.46094	3.91866	0.005	0.202	0.186	525.3774	0.17
Excavators	2021	26	50	0.669315	0.562	4.46094	3.91866	0.005	0.202	0.186	525.3774	0.17
Excavators	2021	51	120	0.327314	0.275	3.49196	2.84891	0.005	0.161	0.148	467.7906	0.151
Excavators	2021	121	175	0.257574	0.216	3.08975	2.03357	0.005	0.099	0.091	472.3586	0.153
Excavators	2021	176	250	0.193738	0.163	1.10324	1.70572	0.005	0.052	0.048	471.7931	0.153
Excavators	2021	251	500	0.170127	0.143	1.08777	1.33174	0.005	0.045	0.041	469.6156	0.152
Excavators	2021	501	750	0.196683	0.165	1.14978	1.61856	0.005	0.056	0.052	469.547	0.152
Excavators	2022	16	25	0.568779	0.478	4.27341	3.70039	0.005	0.16	0.147	525.4468	0.17
Excavators	2022	26	50	0.568779	0.478	4.27341	3.70039	0.005	0.16	0.147	525.4468	0.17
Excavators	2022	51	120	0.299503	0.252	3.47329	2.60649	0.005	0.138	0.127	467.6256	0.151
Excavators	2022	121	175	0.22749	0.191	3.074	1.6781	0.005	0.081	0.075	472.1917	0.153
Excavators	2022	176	250	0.176606	0.148	1.09157	1.38616	0.005	0.044	0.04	472.0412	0.153
Excavators	2022	251	500	0.152263	0.128	1.06126	1.03988	0.005	0.035	0.032	469.7105	0.152
Excavators	2022	501	750	0.178436	0.15	1.144	1.2865	0.005	0.047	0.043	469.2892	0.152
Excavators	2023	16	25	0.535724	0.45	4.23393	3.59356	0.005	0.139	0.128	525.4286	0.17
Excavators	2023	26	50	0.535724	0.45	4.23393	3.59356	0.005	0.139	0.128	525.4286	0.17
Excavators	2023	51	120	0.273823	0.23	3.45367	2.38066	0.005	0.116	0.107	467.1573	0.151
Excavators	2023	121	175	0.212046	0.178	3.07648	1.46245	0.005	0.072	0.066	472.277	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Excavators	2023	176	250	0.168964	0.142	1.08965	1.20943	0.005	0.039	0.036	472.2131	0.153
Excavators	2023	251	500	0.145171	0.122	1.05093	0.89311	0.005	0.03	0.028	469.8892	0.152
Excavators	2023	501	750	0.171247	0.144	1.13199	1.15865	0.005	0.043	0.04	468.6826	0.152
Excavators	2024	16	25	0.495634	0.416	4.20529	3.50816	0.005	0.12	0.11	525.979	0.17
Excavators	2024	26	50	0.495634	0.416	4.20529	3.50816	0.005	0.12	0.11	525.979	0.17
Excavators	2024	51	120	0.258544	0.217	3.45322	2.24781	0.005	0.102	0.094	467.3843	0.151
Excavators	2024	121	175	0.202572	0.17	3.08336	1.32479	0.005	0.065	0.06	472.4279	0.153
Excavators	2024	176	250	0.165297	0.139	1.0899	1.10808	0.005	0.036	0.033	472.4415	0.153
Excavators	2024	251	500	0.144133	0.121	1.05369	0.83129	0.005	0.029	0.026	469.7108	0.152
Excavators	2024	501	750	0.169017	0.142	1.13421	1.10467	0.005	0.041	0.037	468.652	0.152
Excavators	2025	16	25	0.47994	0.403	4.21941	3.45298	0.005	0.107	0.099	525.7772	0.17
Excavators	2025	26	50	0.47994	0.403	4.21941	3.45298	0.005	0.107	0.099	525.7772	0.17
Excavators	2025	51	120	0.23878	0.201	3.43876	2.08246	0.005	0.085	0.078	466.7376	0.151
Excavators	2025	121	175	0.187811	0.158	3.078	1.15367	0.005	0.057	0.052	472.4964	0.153
Excavators	2025	176	250	0.155588	0.131	1.08136	0.96211	0.005	0.032	0.029	472.5599	0.153
Excavators	2025	251	500	0.137039	0.115	1.05072	0.72641	0.005	0.026	0.024	470.2915	0.152
Excavators	2025	501	750	0.165305	0.139	1.13484	1.02571	0.005	0.038	0.035	468.5582	0.152
Excavators	2030	16	25	1.838	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Excavators	2030	26	50	2.458	0.602	5.309	3.393	0.007	0.038	0.038	568.299	0.054
Excavators	2030	51	120	3.618	0.301	3.806	1.676	0.006	0.034	0.034	568.299	0.027
Excavators	2030	121	175	3.914	0.213	3.362	0.525	0.006	0.023	0.023	568.299	0.019
Excavators	2030	176	250	5.258	0.203	1.145	0.452	0.006	0.016	0.016	568.299	0.018
Excavators	2030	251	500	7.722	0.202	1.088	0.433	0.005	0.016	0.016	568.299	0.018
Excavators	2030	501	750	12.807	0.202	1.088	0.437	0.005	0.016	0.016	568.299	0.018
Excavators	2035	16	25	1.838	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Excavators	2035	26	50	2.333	0.572	5.287	3.323	0.007	0.024	0.024	568.299	0.051
Excavators	2035	51	120	3.411	0.284	3.802	1.551	0.006	0.021	0.021	568.299	0.025
Excavators	2035	121	175	3.622	0.197	3.363	0.365	0.006	0.015	0.015	568.299	0.017
Excavators	2035	176	250	5.059	0.195	1.145	0.342	0.006	0.013	0.013	568.3	0.017
Excavators	2035	251	500	7.45	0.195	1.089	0.337	0.005	0.013	0.013	568.299	0.017
Excavators	2035	501	750	12.348	0.195	1.088	0.338	0.005	0.013	0.013	568.299	0.017
Excavators	2040	16	25	1.838	0.685	2.339	4.332	0.007	0.161	0.161	568.3	0.061
Excavators	2040	26	50	2.314	0.567	5.283	3.29	0.007	0.019	0.019	568.299	0.051
Excavators	2040	51	120	3.36	0.279	3.802	1.507	0.006	0.017	0.017	568.299	0.025
Excavators	2040	121	175	3.532	0.193	3.363	0.311	0.006	0.013	0.013	568.299	0.017
Excavators	2040	176	250	4.971	0.192	1.145	0.3	0.006	0.011	0.011	568.299	0.017
Excavators	2040	251	500	7.322	0.192	1.089	0.3	0.005	0.011	0.011	568.299	0.017
Excavators	2040	501	750	12.137	0.192	1.089	0.3	0.005	0.011	0.011	568.299	0.017
Forklifts	1990	26	50	11.848	4.826	9.773	7.952	0.692	1.266	1.266	568.299	0.435
Forklifts	1990	51	120	12.154	2.326	5.638	14.699	0.628	1.32	1.32	568.3	0.209
Forklifts	1990	121	175	14.423	1.537	4.938	12.932	0.602	0.849	0.849	568.299	0.138
Forklifts	1990	176	250	19.845	1.537	4.938	12.932	0.602	0.849	0.849	568.299	0.138
Forklifts	1990	251	500	25.356	1.365	10.853	12.267	0.525	0.73	0.73	568.299	0.123
Forklifts	2000	26	50	10.952	4.461	9.216	7.035	0.065	0.934	0.934	568.3	0.402
Forklifts	2000	51	120	9.146	1.75	4.459	9.75	0.059	0.882	0.882	568.299	0.157
Forklifts	2000	121	175	11.149	1.188	3.519	9.001	0.057	0.502	0.502	568.299	0.107
Forklifts	2000	176	250	11.958	0.926	2.534	8.546	0.057	0.372	0.372	568.299	0.083
Forklifts	2000	251	500	15.747	0.848	3.255	8.126	0.049	0.333	0.333	568.299	0.076
Forklifts	2005	26	50	10.087	4.108	8.778	6.62	0.065	0.891	0.891	568.299	0.37
Forklifts	2005	51	120	8.425	1.612	4.35	8.602	0.059	0.876	0.876	568.299	0.145
Forklifts	2005	121	175	9.959	1.061	3.418	7.94	0.057	0.475	0.475	568.299	0.095
Forklifts	2005	176	250	8.606	0.666	1.693	7.367	0.057	0.253	0.253	568.299	0.06
Forklifts	2005	251	500	10.976	0.591	1.803	6.611	0.049	0.23	0.23	568.299	0.053
Forklifts	2010	26	50	2.846117	2.392	7.62516	6.31187	0.005	0.729	0.671	583.8704	0.17
Forklifts	2010	51	120	1.045472	0.878	4.10764	7.63494	0.005	0.625	0.575	523.9205	0.153
Forklifts	2010	121	175	0.764801	0.643	3.54812	7.24303	0.005	0.389	0.357	524.5625	0.153
Forklifts	2010	176	250	0.852639	0.716	2.88991	8.49545	0.005	0.398	0.366	525.9172	0.153
Forklifts	2010	251	500	0.814667	0.685	5.79345	8.13812	0.005	0.381	0.351	526.239	0.153
Forklifts	2011	26	50	2.771689	2.329	7.5619	6.26642	0.005	0.715	0.657	582.4107	0.17
Forklifts	2011	51	120	1.023636	0.86	4.10232	7.45983	0.005	0.617	0.568	522.6107	0.153
Forklifts	2011	121	175	0.759385	0.638	3.55732	7.14122	0.005	0.385	0.355	523.2511	0.153
Forklifts	2011	176	250	0.819463	0.689	2.77115	8.17495	0.005	0.381	0.35	524.6024	0.153
Forklifts	2011	251	500	0.787175	0.661	5.42187	7.84	0.005	0.368	0.338	524.9234	0.153
Forklifts	2012	26	50	2.800937	2.354	7.68036	6.27736	0.005	0.72	0.663	580.951	0.17
Forklifts	2012	51	120	1.026513	0.863	4.13104	7.43066	0.005	0.62	0.571	521.3009	0.153
Forklifts	2012	121	175	0.764904	0.643	3.58413	7.11981	0.005	0.387	0.356	521.9397	0.153
Forklifts	2012	176	250	0.82428	0.693	2.77846	8.14199	0.005	0.381	0.35	523.2876	0.153
Forklifts	2012	251	500	0.795085	0.668	5.42806	7.85628	0.005	0.369	0.34	523.6078	0.153
Forklifts	2013	26	50	2.655997	2.232	7.4937	6.14743	0.005	0.689	0.634	578.0317	0.17
Forklifts	2013	51	120	0.996839	0.838	4.11855	7.21545	0.005	0.603	0.555	518.6813	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Forklifts	2013	121	175	0.743778	0.625	3.57971	6.90229	0.005	0.375	0.345	519.3169	0.153
Forklifts	2013	176	250	0.786493	0.661	2.67477	7.77338	0.005	0.36	0.332	520.658	0.153
Forklifts	2013	251	500	0.686735	0.577	4.6871	6.91072	0.005	0.314	0.289	520.9766	0.153
Forklifts	2014	26	50	2.515249	2.114	7.32058	6.00609	0.005	0.656	0.604	575.1123	0.17
Forklifts	2014	51	120	0.945485	0.794	4.07936	6.84833	0.005	0.574	0.528	516.0617	0.153
Forklifts	2014	121	175	0.688099	0.578	3.52073	6.35205	0.005	0.345	0.317	516.694	0.153
Forklifts	2014	176	250	0.731475	0.615	2.50114	7.27612	0.005	0.33	0.304	518.0284	0.153
Forklifts	2014	251	500	0.644228	0.541	4.25186	6.35258	0.005	0.289	0.266	518.3454	0.153
Forklifts	2015	26	50	2.466892	2.073	7.29982	5.93143	0.005	0.643	0.591	569.2736	0.17
Forklifts	2015	51	120	0.914509	0.768	4.06346	6.60091	0.005	0.555	0.51	510.8225	0.153
Forklifts	2015	121	175	0.673169	0.566	3.51969	6.13482	0.005	0.335	0.308	511.4484	0.153
Forklifts	2015	176	250	0.672054	0.565	2.32501	6.69668	0.005	0.298	0.274	512.7693	0.153
Forklifts	2015	251	500	0.539875	0.454	3.29951	5.33227	0.005	0.237	0.218	513.083	0.153
Forklifts	2016	26	50	2.217878	1.864	6.93473	5.66211	0.005	0.583	0.537	563.4349	0.17
Forklifts	2016	51	120	0.860278	0.723	4.02311	6.22192	0.005	0.52	0.479	505.5833	0.153
Forklifts	2016	121	175	0.630613	0.53	3.47253	5.67466	0.005	0.31	0.285	506.2028	0.153
Forklifts	2016	176	250	0.641979	0.539	2.22626	6.35303	0.005	0.28	0.257	507.5101	0.153
Forklifts	2016	251	500	0.419581	0.353	2.57209	4.04212	0.005	0.174	0.16	507.8206	0.153
Forklifts	2017	26	50	2.026819	1.703	6.67251	5.45035	0.005	0.536	0.493	554.6769	0.17
Forklifts	2017	51	120	0.799635	0.672	3.97881	5.81772	0.005	0.48	0.442	497.7245	0.153
Forklifts	2017	121	175	0.604568	0.508	3.45188	5.36215	0.005	0.294	0.27	498.3344	0.153
Forklifts	2017	176	250	0.589964	0.496	2.0923	5.75116	0.005	0.252	0.232	499.6213	0.153
Forklifts	2017	251	500	0.401897	0.338	2.50803	3.7797	0.005	0.161	0.148	499.927	0.153
Forklifts	2018	26	50	1.658295	1.393	6.10276	5.05181	0.005	0.447	0.411	545.9188	0.17
Forklifts	2018	51	120	0.675301	0.567	3.85819	5.0153	0.005	0.4	0.368	489.8657	0.153
Forklifts	2018	121	175	0.508414	0.427	3.33646	4.42984	0.005	0.241	0.222	490.4659	0.153
Forklifts	2018	176	250	0.506009	0.425	1.83475	4.93757	0.005	0.207	0.191	491.7326	0.153
Forklifts	2018	251	500	0.335655	0.282	1.87814	3.01864	0.005	0.125	0.115	492.0335	0.153
Forklifts	2019	26	50	1.480074	1.244	5.88034	4.86189	0.005	0.401	0.369	537.1608	0.17
Forklifts	2019	51	120	0.606336	0.509	3.80391	4.54965	0.005	0.352	0.324	482.0069	0.153
Forklifts	2019	121	175	0.454984	0.382	3.28831	3.86458	0.005	0.21	0.193	482.5975	0.153
Forklifts	2019	176	250	0.445406	0.374	1.6773	4.2498	0.005	0.175	0.161	483.8438	0.153
Forklifts	2019	251	500	0.31829	0.267	1.814	2.75148	0.005	0.112	0.103	484.1399	0.153
Forklifts	2020	26	50	1.337399	1.124	5.70563	4.68572	0.005	0.36	0.331	525.4833	0.17
Forklifts	2020	51	120	0.545921	0.459	3.75954	4.13299	0.005	0.308	0.283	471.5285	0.153
Forklifts	2020	121	175	0.402357	0.338	3.24885	3.3196	0.005	0.18	0.165	472.1062	0.153
Forklifts	2020	176	250	0.348476	0.293	1.44178	3.24149	0.005	0.126	0.116	473.3255	0.153
Forklifts	2020	251	500	0.299035	0.251	1.47807	2.43991	0.005	0.097	0.089	473.6151	0.153
Forklifts	2021	26	50	1.192536	1.002	5.53477	4.5202	0.005	0.318	0.292	525.4833	0.17
Forklifts	2021	51	120	0.490261	0.412	3.72	3.75592	0.005	0.267	0.245	471.5285	0.153
Forklifts	2021	121	175	0.366939	0.308	3.23128	2.9207	0.005	0.158	0.145	472.1062	0.153
Forklifts	2021	176	250	0.296154	0.249	1.33672	2.58195	0.005	0.099	0.091	473.3255	0.153
Forklifts	2021	251	500	0.301833	0.254	1.48481	2.30266	0.005	0.094	0.086	473.6151	0.153
Forklifts	2022	26	50	1.02259	0.859	5.30418	4.31214	0.005	0.27	0.248	525.4833	0.17
Forklifts	2022	51	120	0.430627	0.362	3.67507	3.36021	0.005	0.223	0.205	471.5285	0.153
Forklifts	2022	121	175	0.324265	0.272	3.19749	2.47982	0.005	0.132	0.122	472.1062	0.153
Forklifts	2022	176	250	0.280841	0.236	1.3171	2.31941	0.005	0.09	0.083	473.3255	0.153
Forklifts	2022	251	500	0.275829	0.232	1.21922	1.99119	0.005	0.077	0.071	473.6151	0.153
Forklifts	2023	26	50	0.911766	0.766	5.16597	4.15219	0.005	0.232	0.213	525.4833	0.17
Forklifts	2023	51	120	0.388709	0.327	3.64655	3.0569	0.005	0.189	0.174	471.5285	0.153
Forklifts	2023	121	175	0.289923	0.244	3.1799	2.11214	0.005	0.111	0.102	472.1062	0.153
Forklifts	2023	176	250	0.242474	0.204	1.23515	1.80718	0.005	0.069	0.063	473.3255	0.153
Forklifts	2023	251	500	0.261765	0.22	1.21596	1.78772	0.005	0.069	0.063	473.6151	0.153
Forklifts	2024	26	50	0.823848	0.692	5.0885	4.03948	0.005	0.203	0.187	525.4833	0.17
Forklifts	2024	51	120	0.357083	0.3	3.62907	2.81432	0.005	0.163	0.15	471.5285	0.153
Forklifts	2024	121	175	0.266701	0.224	3.17389	1.86129	0.005	0.096	0.088	472.1062	0.153
Forklifts	2024	176	250	0.232645	0.195	1.21846	1.6253	0.005	0.061	0.056	473.3255	0.153
Forklifts	2024	251	500	0.258844	0.218	1.21901	1.72336	0.005	0.065	0.06	473.6151	0.153
Forklifts	2025	26	50	0.757155	0.636	5.02929	3.93206	0.005	0.178	0.164	525.4833	0.17
Forklifts	2025	51	120	0.329382	0.277	3.61138	2.60732	0.005	0.14	0.128	471.5285	0.153
Forklifts	2025	121	175	0.248361	0.209	3.17013	1.653	0.005	0.084	0.078	472.1062	0.153
Forklifts	2025	176	250	0.226669	0.19	1.2143	1.46623	0.005	0.056	0.052	473.3255	0.153
Forklifts	2025	251	500	0.255656	0.215	1.22207	1.65848	0.005	0.062	0.057	473.6151	0.153
Forklifts	2030	26	50	1.388	0.565	5.272	3.33	0.007	0.023	0.023	568.299	0.051
Forklifts	2030	51	120	1.48	0.283	3.799	1.555	0.006	0.021	0.021	568.299	0.025
Forklifts	2030	121	175	1.875	0.199	3.36	0.391	0.006	0.015	0.015	568.299	0.018
Forklifts	2030	176	250	2.524	0.195	1.144	0.341	0.006	0.012	0.012	568.299	0.017
Forklifts	2030	251	500	3.633	0.195	1.088	0.341	0.005	0.012	0.012	568.299	0.017
Forklifts	2035	26	50	1.371	0.558	5.234	3.268	0.007	0.017	0.017	568.299	0.05
Forklifts	2035	51	120	1.438	0.275	3.787	1.495	0.006	0.016	0.016	568.299	0.024

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Forklifts	2035	121	175	1.775	0.189	3.35	0.299	0.006	0.012	0.012	568.3	0.017
Forklifts	2035	176	250	2.433	0.188	1.141	0.29	0.006	0.011	0.011	568.3	0.017
Forklifts	2035	251	500	3.502	0.188	1.085	0.29	0.005	0.011	0.011	568.299	0.017
Forklifts	2040	26	50	1.38	0.562	5.256	3.272	0.007	0.017	0.017	568.299	0.05
Forklifts	2040	51	120	1.444	0.276	3.794	1.491	0.006	0.016	0.016	568.299	0.024
Forklifts	2040	121	175	1.777	0.189	3.356	0.288	0.006	0.012	0.012	568.299	0.017
Forklifts	2040	176	250	2.445	0.189	1.143	0.288	0.006	0.011	0.011	568.299	0.017
Forklifts	2040	251	500	3.518	0.189	1.087	0.288	0.005	0.011	0.011	568.299	0.017
Generator Sets	1990	6	15	4.791	1.804	4.999	10	1.018	0.974	0.974	568.299	0.162
Generator Sets	1990	16	25	10.151	2.213	4.999	6.919	0.83	0.74	0.74	568.299	0.199
Generator Sets	1990	26	50	24.936	3.13	6.681	7.325	0.846	0.928	0.928	568.299	0.282
Generator Sets	1990	51	120	38.362	1.891	4.97	13.19	0.768	0.985	0.985	568.299	0.17
Generator Sets	1990	121	175	47.754	1.292	4.395	11.864	0.736	0.653	0.653	568.3	0.116
Generator Sets	1990	176	250	71.475	1.292	4.395	11.864	0.736	0.653	0.653	568.299	0.116
Generator Sets	1990	251	500	104.891	1.196	6.53	11.613	0.642	0.596	0.596	568.299	0.107
Generator Sets	1990	501	750	169.323	1.196	6.53	11.612	0.658	0.596	0.596	568.299	0.107
Generator Sets	1990	1001	9999	326.002	1.195	6.53	11.612	0.658	0.594	0.594	568.299	0.107
Generator Sets	2000	6	15	4.033	1.518	4.875	8.846	0.079	0.613	0.613	568.299	0.137
Generator Sets	2000	16	25	7.648	1.667	4.783	6.405	0.065	0.51	0.51	568.299	0.15
Generator Sets	2000	26	50	23.582	2.96	6.415	6.55	0.066	0.692	0.692	568.299	0.267
Generator Sets	2000	51	120	31.137	1.535	4.158	9.468	0.06	0.686	0.686	568.299	0.138
Generator Sets	2000	121	175	38.027	1.029	3.381	8.612	0.057	0.404	0.404	568.299	0.092
Generator Sets	2000	176	250	46.981	0.849	2.656	8.277	0.057	0.325	0.325	568.299	0.076
Generator Sets	2000	251	500	70.308	0.802	3.7	8.102	0.05	0.301	0.301	568.299	0.072
Generator Sets	2000	501	750	113.5	0.802	3.7	8.102	0.051	0.301	0.301	568.3	0.072
Generator Sets	2000	1001	9999	251.503	0.921	4.274	8.686	0.051	0.344	0.344	568.299	0.083
Generator Sets	2005	6	15	3.219	1.212	4.38	7.615	0.079	0.505	0.505	568.299	0.109
Generator Sets	2005	16	25	5.748	1.253	3.922	6.014	0.065	0.432	0.432	568.299	0.113
Generator Sets	2005	26	50	20.78	2.608	5.919	6.099	0.066	0.64	0.64	568.3	0.235
Generator Sets	2005	51	120	26.634	1.313	3.853	7.987	0.06	0.634	0.634	568.299	0.118
Generator Sets	2005	121	175	31.579	0.854	3.067	7.306	0.057	0.35	0.35	568.299	0.077
Generator Sets	2005	176	250	33.443	0.604	1.801	6.892	0.057	0.229	0.229	568.299	0.054
Generator Sets	2005	251	500	47.834	0.545	2.206	6.465	0.05	0.211	0.211	568.299	0.049
Generator Sets	2005	501	750	79.444	0.561	2.206	6.609	0.051	0.214	0.214	568.3	0.05
Generator Sets	2005	1001	9999	195.712	0.717	2.719	7.582	0.051	0.255	0.255	568.299	0.064
Generator Sets	2010	6	15	2.532	0.953	4.027	6.387	0.008	0.38	0.38	568.299	0.086
Generator Sets	2010	16	25	4.408	0.961	3.309	5.477	0.007	0.342	0.342	568.299	0.086
Generator Sets	2010	26	50	16.299	2.045	5.353	5.68	0.007	0.522	0.522	568.299	0.184
Generator Sets	2010	51	120	20.399	1.005	3.677	6.573	0.006	0.516	0.516	568.299	0.09
Generator Sets	2010	121	175	24.447	0.661	2.986	5.87	0.006	0.286	0.286	568.299	0.059
Generator Sets	2010	176	250	23.668	0.428	1.333	5.501	0.006	0.163	0.163	568.299	0.038
Generator Sets	2010	251	500	33.685	0.384	1.482	5.015	0.005	0.153	0.153	568.299	0.034
Generator Sets	2010	501	750	56.116	0.396	1.482	5.147	0.005	0.155	0.155	568.299	0.035
Generator Sets	2010	1001	9999	147.466	0.54	1.93	6.544	0.005	0.193	0.193	568.299	0.048
Generator Sets	2011	6	15	2.413	0.908	3.952	6.134	0.008	0.358	0.358	568.299	0.081
Generator Sets	2011	16	25	4.22	0.92	3.179	5.36	0.007	0.325	0.325	568.299	0.083
Generator Sets	2011	26	50	15.152	1.901	5.2	5.585	0.007	0.495	0.495	568.3	0.171
Generator Sets	2011	51	120	19.003	0.937	3.64	6.226	0.006	0.493	0.493	568.299	0.084
Generator Sets	2011	121	175	22.889	0.619	2.974	5.544	0.006	0.274	0.274	568.299	0.055
Generator Sets	2011	176	250	21.62	0.391	1.249	5.125	0.006	0.147	0.147	568.299	0.035
Generator Sets	2011	251	500	30.74	0.35	1.36	4.654	0.005	0.138	0.138	568.299	0.031
Generator Sets	2011	501	750	51.271	0.362	1.36	4.784	0.005	0.14	0.14	568.299	0.032
Generator Sets	2011	1001	9999	137.042	0.502	1.784	6.202	0.005	0.18	0.18	568.299	0.045
Generator Sets	2012	6	15	2.298	0.865	3.874	5.874	0.008	0.338	0.338	568.299	0.078
Generator Sets	2012	16	25	4.059	0.884	3.043	5.239	0.007	0.307	0.307	568.299	0.079
Generator Sets	2012	26	50	13.912	1.746	5.03	5.485	0.007	0.466	0.466	568.299	0.157
Generator Sets	2012	51	120	17.544	0.865	3.603	5.848	0.006	0.46	0.46	568.299	0.078
Generator Sets	2012	121	175	21.243	0.575	2.963	5.198	0.006	0.254	0.254	568.299	0.051
Generator Sets	2012	176	250	19.998	0.361	1.196	4.77	0.006	0.133	0.133	568.3	0.032
Generator Sets	2012	251	500	28.44	0.324	1.275	4.315	0.005	0.125	0.125	568.299	0.029
Generator Sets	2012	501	750	47.464	0.335	1.275	4.441	0.005	0.127	0.127	568.299	0.03
Generator Sets	2012	1001	9999	126.39	0.463	1.639	5.849	0.005	0.166	0.166	568.3	0.041
Generator Sets	2013	6	15	2.187	0.823	3.796	5.616	0.008	0.318	0.318	568.299	0.074
Generator Sets	2013	16	25	3.907	0.851	2.907	5.117	0.007	0.289	0.289	568.299	0.076
Generator Sets	2013	26	50	12.634	1.585	4.854	5.263	0.007	0.428	0.428	568.299	0.143
Generator Sets	2013	51	120	16.078	0.792	3.567	5.478	0.006	0.424	0.424	568.299	0.071
Generator Sets	2013	121	175	19.587	0.53	2.953	4.873	0.006	0.233	0.233	568.299	0.047
Generator Sets	2013	176	250	18.602	0.336	1.16	4.428	0.006	0.122	0.122	568.299	0.03
Generator Sets	2013	251	500	26.484	0.302	1.211	3.989	0.005	0.114	0.114	568.299	0.027
Generator Sets	2013	501	750	44.22	0.312	1.211	4.113	0.005	0.116	0.116	568.299	0.028

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Generator Sets	2013	1001	9999	115.946	0.425	1.502	5.494	0.005	0.152	0.152	568.299	0.038
Generator Sets	2014	6	15	2.081	0.783	3.723	5.369	0.008	0.298	0.298	568.299	0.07
Generator Sets	2014	16	25	3.767	0.821	2.78	5	0.007	0.272	0.272	568.299	0.074
Generator Sets	2014	26	50	11.368	1.427	4.683	5.048	0.007	0.389	0.389	568.299	0.128
Generator Sets	2014	51	120	14.638	0.721	3.532	5.147	0.006	0.385	0.385	568.299	0.065
Generator Sets	2014	121	175	17.974	0.486	2.945	4.565	0.006	0.212	0.212	568.299	0.043
Generator Sets	2014	176	250	17.205	0.311	1.13	4.025	0.006	0.111	0.111	568.3	0.028
Generator Sets	2014	251	500	24.516	0.279	1.157	3.603	0.005	0.104	0.104	568.299	0.025
Generator Sets	2014	501	750	40.956	0.289	1.157	3.724	0.005	0.106	0.106	568.299	0.026
Generator Sets	2014	1001	9999	106.127	0.389	1.377	5.15	0.005	0.138	0.138	568.299	0.035
Generator Sets	2015	6	15	1.984	0.747	3.658	5.141	0.008	0.28	0.28	568.299	0.067
Generator Sets	2015	16	25	3.639	0.793	2.666	4.89	0.007	0.256	0.256	568.299	0.071
Generator Sets	2015	26	50	10.213	1.281	4.538	4.858	0.007	0.353	0.353	568.299	0.115
Generator Sets	2015	51	120	13.208	0.651	3.499	4.769	0.006	0.347	0.347	568.299	0.058
Generator Sets	2015	121	175	16.277	0.44	2.938	4.138	0.006	0.191	0.191	568.299	0.039
Generator Sets	2015	176	250	15.884	0.287	1.104	3.633	0.006	0.1	0.1	568.3	0.025
Generator Sets	2015	251	500	22.677	0.258	1.114	3.231	0.005	0.094	0.094	568.299	0.023
Generator Sets	2015	501	750	37.88	0.267	1.114	3.347	0.005	0.096	0.096	568.299	0.024
Generator Sets	2015	1001	9999	95.984	0.351	1.269	4.822	0.005	0.124	0.124	568.299	0.031
Generator Sets	2016	6	15	1.914	0.72	3.622	4.978	0.008	0.264	0.264	568.299	0.065
Generator Sets	2016	16	25	3.548	0.773	2.604	4.803	0.007	0.244	0.244	568.299	0.069
Generator Sets	2016	26	50	9.132	1.146	4.41	4.685	0.007	0.318	0.318	568.299	0.103
Generator Sets	2016	51	120	11.84	0.583	3.469	4.41	0.006	0.309	0.309	568.299	0.052
Generator Sets	2016	121	175	14.658	0.396	2.934	3.731	0.006	0.17	0.17	568.299	0.035
Generator Sets	2016	176	250	14.652	0.265	1.081	3.259	0.006	0.09	0.09	568.299	0.023
Generator Sets	2016	251	500	21.002	0.239	1.077	2.882	0.005	0.084	0.084	568.299	0.021
Generator Sets	2016	501	750	35.041	0.247	1.077	2.989	0.005	0.086	0.086	568.3	0.022
Generator Sets	2016	1001	9999	88.441	0.324	1.204	4.542	0.005	0.113	0.113	568.299	0.029
Generator Sets	2017	6	15	1.857	0.699	3.599	4.847	0.008	0.25	0.25	568.299	0.063
Generator Sets	2017	16	25	3.476	0.757	2.564	4.729	0.007	0.233	0.233	568.299	0.068
Generator Sets	2017	26	50	8.107	1.017	4.292	4.522	0.007	0.285	0.285	568.299	0.091
Generator Sets	2017	51	120	10.557	0.52	3.442	4.072	0.006	0.274	0.274	568.299	0.046
Generator Sets	2017	121	175	13.162	0.356	2.931	3.347	0.006	0.151	0.151	568.299	0.032
Generator Sets	2017	176	250	13.548	0.245	1.063	2.91	0.006	0.081	0.081	568.299	0.022
Generator Sets	2017	251	500	19.649	0.224	1.048	2.579	0.005	0.076	0.076	568.299	0.02
Generator Sets	2017	501	750	32.544	0.23	1.048	2.66	0.005	0.077	0.077	568.299	0.02
Generator Sets	2017	1001	9999	82.27	0.301	1.161	4.293	0.005	0.104	0.104	568.299	0.027
Generator Sets	2018	6	15	1.805	0.679	3.58	4.728	0.008	0.237	0.237	568.299	0.061
Generator Sets	2018	16	25	3.412	0.744	2.531	4.661	0.007	0.224	0.224	568.299	0.067
Generator Sets	2018	26	50	7.133	0.895	4.182	4.366	0.007	0.253	0.253	568.299	0.08
Generator Sets	2018	51	120	9.356	0.461	3.418	3.752	0.006	0.239	0.239	568.299	0.041
Generator Sets	2018	121	175	11.794	0.319	2.93	2.989	0.006	0.133	0.133	568.299	0.028
Generator Sets	2018	176	250	12.549	0.226	1.048	2.582	0.006	0.072	0.072	568.299	0.02
Generator Sets	2018	251	500	18.523	0.211	1.028	2.31	0.005	0.069	0.069	568.299	0.019
Generator Sets	2018	501	750	30.476	0.215	1.028	2.37	0.005	0.07	0.07	568.299	0.019
Generator Sets	2018	1001	9999	76.62	0.28	1.128	4.058	0.005	0.095	0.095	568.299	0.025
Generator Sets	2019	6	15	1.758	0.662	3.562	4.617	0.008	0.224	0.224	568.299	0.059
Generator Sets	2019	16	25	3.356	0.731	2.501	4.596	0.007	0.214	0.214	568.299	0.066
Generator Sets	2019	26	50	6.208	0.779	4.076	4.215	0.007	0.222	0.222	568.299	0.07
Generator Sets	2019	51	120	8.233	0.405	3.396	3.446	0.006	0.206	0.206	568.299	0.036
Generator Sets	2019	121	175	10.727	0.29	2.929	2.669	0.006	0.118	0.118	568.299	0.026
Generator Sets	2019	176	250	11.695	0.211	1.036	2.285	0.006	0.064	0.064	568.299	0.019
Generator Sets	2019	251	500	17.492	0.199	1.015	2.056	0.005	0.062	0.062	568.299	0.018
Generator Sets	2019	501	750	28.675	0.202	1.015	2.104	0.005	0.062	0.062	568.299	0.018
Generator Sets	2019	1001	9999	71.228	0.261	1.103	3.829	0.005	0.087	0.087	568.299	0.023
Generator Sets	2020	6	15	1.715	0.646	3.546	4.516	0.008	0.212	0.212	568.299	0.058
Generator Sets	2020	16	25	3.307	0.721	2.473	4.538	0.007	0.205	0.205	568.299	0.065
Generator Sets	2020	26	50	5.508	0.691	3.995	4.075	0.007	0.194	0.194	568.299	0.062
Generator Sets	2020	51	120	7.383	0.364	3.38	3.173	0.006	0.179	0.179	568.299	0.032
Generator Sets	2020	121	175	9.884	0.267	2.93	2.38	0.006	0.105	0.105	568.299	0.024
Generator Sets	2020	176	250	10.963	0.198	1.026	2.016	0.006	0.057	0.057	568.299	0.017
Generator Sets	2020	251	500	16.528	0.188	1.005	1.816	0.005	0.055	0.055	568.299	0.017
Generator Sets	2020	501	750	27.045	0.191	1.005	1.858	0.005	0.056	0.056	568.299	0.017
Generator Sets	2020	1001	9999	66.08	0.242	1.082	3.608	0.005	0.079	0.079	568.3	0.021
Generator Sets	2021	6	15	1.683	0.634	3.531	4.441	0.008	0.201	0.201	568.299	0.057
Generator Sets	2021	16	25	3.268	0.712	2.446	4.497	0.007	0.196	0.196	568.299	0.064
Generator Sets	2021	26	50	4.884	0.613	3.905	3.916	0.007	0.165	0.165	568.299	0.055
Generator Sets	2021	51	120	6.62	0.326	3.361	2.888	0.006	0.153	0.153	568.299	0.029
Generator Sets	2021	121	175	8.995	0.243	2.925	2.068	0.006	0.091	0.091	568.299	0.021
Generator Sets	2021	176	250	10.146	0.183	1.016	1.73	0.006	0.049	0.049	568.299	0.016

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Generator Sets	2021	251	500	15.395	0.175	0.996	1.562	0.005	0.048	0.048	568.299	0.015
Generator Sets	2021	501	750	25.135	0.177	0.996	1.596	0.005	0.048	0.048	568.299	0.016
Generator Sets	2021	1001	9999	60.247	0.22	1.06	3.372	0.005	0.07	0.07	568.3	0.019
Generator Sets	2022	6	15	1.662	0.626	3.519	4.39	0.008	0.193	0.193	568.299	0.056
Generator Sets	2022	16	25	3.242	0.706	2.426	4.47	0.007	0.188	0.188	568.299	0.063
Generator Sets	2022	26	50	4.466	0.56	3.858	3.796	0.007	0.143	0.143	568.299	0.05
Generator Sets	2022	51	120	6.113	0.301	3.353	2.671	0.006	0.134	0.134	568.299	0.027
Generator Sets	2022	121	175	8.363	0.226	2.926	1.83	0.006	0.081	0.081	568.299	0.02
Generator Sets	2022	176	250	9.575	0.173	1.01	1.508	0.006	0.043	0.043	568.299	0.015
Generator Sets	2022	251	500	14.616	0.166	0.99	1.384	0.005	0.042	0.042	568.299	0.015
Generator Sets	2022	501	750	23.822	0.168	0.99	1.412	0.005	0.043	0.043	568.299	0.015
Generator Sets	2022	1001	9999	56.346	0.206	1.045	3.202	0.005	0.063	0.063	568.299	0.018
Generator Sets	2023	6	15	1.643	0.618	3.508	4.345	0.008	0.186	0.186	568.299	0.055
Generator Sets	2023	16	25	3.219	0.701	2.407	4.447	0.007	0.182	0.182	568.299	0.063
Generator Sets	2023	26	50	4.102	0.514	3.819	3.685	0.007	0.124	0.124	568.299	0.046
Generator Sets	2023	51	120	5.671	0.279	3.347	2.477	0.006	0.117	0.117	568.299	0.025
Generator Sets	2023	121	175	7.812	0.211	2.927	1.635	0.006	0.071	0.071	568.299	0.019
Generator Sets	2023	176	250	9.077	0.164	1.006	1.328	0.006	0.038	0.038	568.299	0.014
Generator Sets	2023	251	500	13.922	0.158	0.986	1.228	0.005	0.037	0.037	568.299	0.014
Generator Sets	2023	501	750	22.664	0.16	0.986	1.253	0.005	0.037	0.037	568.299	0.014
Generator Sets	2023	1001	9999	53.06	0.194	1.031	3.058	0.005	0.058	0.058	568.299	0.017
Generator Sets	2024	6	15	1.627	0.612	3.499	4.305	0.008	0.181	0.181	568.299	0.055
Generator Sets	2024	16	25	3.2	0.697	2.39	4.426	0.007	0.178	0.178	568.299	0.062
Generator Sets	2024	26	50	3.789	0.475	3.787	3.582	0.007	0.107	0.107	568.299	0.042
Generator Sets	2024	51	120	5.287	0.26	3.342	2.321	0.006	0.101	0.101	568.299	0.023
Generator Sets	2024	121	175	7.312	0.197	2.929	1.462	0.006	0.062	0.062	568.299	0.017
Generator Sets	2024	176	250	8.611	0.155	1.003	1.169	0.006	0.033	0.033	568.299	0.014
Generator Sets	2024	251	500	13.26	0.151	0.983	1.082	0.005	0.032	0.032	568.3	0.013
Generator Sets	2024	501	750	21.567	0.152	0.983	1.104	0.005	0.032	0.032	568.299	0.013
Generator Sets	2024	1001	9999	50.108	0.183	1.018	2.929	0.005	0.052	0.052	568.3	0.016
Generator Sets	2025	6	15	1.613	0.607	3.491	4.269	0.008	0.178	0.178	568.299	0.054
Generator Sets	2025	16	25	3.185	0.694	2.376	4.407	0.007	0.175	0.175	568.299	0.062
Generator Sets	2025	26	50	3.511	0.44	3.758	3.481	0.007	0.093	0.093	568.3	0.039
Generator Sets	2025	51	120	4.942	0.243	3.338	2.185	0.006	0.087	0.087	568.299	0.021
Generator Sets	2025	121	175	6.832	0.184	2.93	1.297	0.006	0.053	0.053	568.299	0.016
Generator Sets	2025	176	250	8.168	0.147	1	1.02	0.006	0.028	0.028	568.299	0.013
Generator Sets	2025	251	500	12.627	0.144	0.981	0.945	0.005	0.027	0.027	568.3	0.013
Generator Sets	2025	501	750	20.518	0.145	0.981	0.964	0.005	0.027	0.027	568.299	0.013
Generator Sets	2025	1001	9999	47.32	0.173	1.008	2.812	0.005	0.047	0.047	568.299	0.015
Generator Sets	2030	6	15	1.573	0.592	3.47	4.164	0.008	0.166	0.166	568.299	0.053
Generator Sets	2030	16	25	3.15	0.686	2.34	4.347	0.007	0.165	0.165	568.299	0.061
Generator Sets	2030	26	50	2.512	0.315	3.64	3.107	0.007	0.038	0.038	568.299	0.028
Generator Sets	2030	51	120	3.616	0.178	3.316	1.645	0.006	0.034	0.034	568.299	0.016
Generator Sets	2030	121	175	4.837	0.13	2.929	0.601	0.006	0.023	0.023	568.299	0.011
Generator Sets	2030	176	250	6.637	0.12	0.998	0.504	0.006	0.016	0.016	568.299	0.01
Generator Sets	2030	251	500	10.441	0.119	0.978	0.476	0.005	0.015	0.015	568.299	0.01
Generator Sets	2030	501	750	16.888	0.119	0.978	0.482	0.005	0.015	0.015	568.299	0.01
Generator Sets	2030	1001	9999	35.17	0.128	0.979	2.483	0.005	0.029	0.029	568.299	0.011
Generator Sets	2035	6	15	1.565	0.589	3.47	4.143	0.008	0.162	0.162	568.299	0.053
Generator Sets	2035	16	25	3.144	0.685	2.34	4.332	0.007	0.162	0.162	568.299	0.061
Generator Sets	2035	26	50	2.206	0.276	3.607	2.991	0.007	0.018	0.018	568.299	0.024
Generator Sets	2035	51	120	3.176	0.156	3.31	1.458	0.006	0.016	0.016	568.299	0.014
Generator Sets	2035	121	175	4.187	0.113	2.929	0.373	0.006	0.013	0.013	568.299	0.01
Generator Sets	2035	176	250	6.1	0.11	0.998	0.331	0.006	0.011	0.011	568.299	0.009
Generator Sets	2035	251	500	9.666	0.11	0.978	0.328	0.005	0.011	0.011	568.299	0.009
Generator Sets	2035	501	750	15.606	0.11	0.978	0.328	0.005	0.011	0.011	568.299	0.009
Generator Sets	2035	1001	9999	31.223	0.114	0.978	2.362	0.005	0.022	0.022	568.299	0.01
Generator Sets	2040	6	15	1.565	0.589	3.469	4.142	0.008	0.161	0.161	568.299	0.053
Generator Sets	2040	16	25	3.144	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Generator Sets	2040	26	50	2.182	0.273	3.601	2.941	0.007	0.012	0.012	568.3	0.024
Generator Sets	2040	51	120	3.086	0.152	3.308	1.399	0.006	0.012	0.012	568.299	0.013
Generator Sets	2040	121	175	3.958	0.107	2.928	0.293	0.006	0.01	0.01	568.299	0.009
Generator Sets	2040	176	250	5.86	0.106	0.997	0.277	0.006	0.009	0.009	568.299	0.009
Generator Sets	2040	251	500	9.29	0.106	0.978	0.277	0.005	0.009	0.009	568.299	0.009
Generator Sets	2040	501	750	14.997	0.106	0.978	0.277	0.005	0.009	0.009	568.3	0.009
Generator Sets	2040	1001	9999	29.36	0.107	0.978	2.33	0.005	0.02	0.02	568.299	0.009
Graders	1990	26	50	10.997	4.776	9.678	7.935	0.871	1.265	1.265	568.3	0.431
Graders	1990	51	120	14.614	2.332	5.658	14.78	0.791	1.325	1.325	568.299	0.21
Graders	1990	121	175	17.684	1.707	5.007	13.838	0.758	0.946	0.946	568.299	0.154
Graders	1990	176	250	24.561	1.707	5.007	13.838	0.758	0.946	0.946	568.299	0.154

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Graders	1990	251	500	29.01	1.512	10.95	13.128	0.662	0.811	0.811	568.299	0.136
Graders	1990	501	750	61.406	1.512	10.95	13.128	1.018	0.826	0.826	568.3	0.136
Graders	2000	26	50	10.331	4.487	9.239	7.082	0.066	0.935	0.935	568.299	0.404
Graders	2000	51	120	11.628	1.855	4.675	10.486	0.06	0.904	0.904	568.3	0.167
Graders	2000	121	175	13.017	1.256	3.786	9.601	0.057	0.531	0.531	568.299	0.113
Graders	2000	176	250	15.266	1.061	3.039	9.264	0.057	0.437	0.437	568.299	0.095
Graders	2000	251	500	18.455	0.961	4.848	8.805	0.05	0.384	0.384	568.3	0.086
Graders	2000	501	750	39.064	0.961	4.848	8.805	0.052	0.384	0.384	568.299	0.086
Graders	2005	26	50	9.193	3.993	8.559	6.612	0.066	0.868	0.868	568.299	0.36
Graders	2005	51	120	10.174	1.623	4.406	9.021	0.06	0.849	0.849	568.3	0.146
Graders	2005	121	175	11.01	1.062	3.522	8.238	0.057	0.469	0.469	568.299	0.095
Graders	2005	176	250	11.283	0.784	2.17	7.837	0.057	0.314	0.314	568.299	0.07
Graders	2005	251	500	13.286	0.692	2.913	7.117	0.05	0.279	0.279	568.299	0.062
Graders	2005	501	750	28.569	0.703	2.909	7.284	0.052	0.282	0.282	568.299	0.063
Graders	2010	26	50	3.618169	3.04	8.828	6.50487	0.005	0.852	0.783	547.2284	0.159
Graders	2010	51	120	1.572744	1.322	4.95239	10.4805	0.005	0.854	0.786	523.7684	0.152
Graders	2010	121	175	1.025452	0.862	3.90428	8.98998	0.005	0.496	0.456	536.7031	0.156
Graders	2010	176	250	0.425787	0.358	1.43786	5.73143	0.005	0.182	0.167	530.3343	0.154
Graders	2010	251	500	0.323814	0.272	1.81115	3.80781	0.005	0.142	0.13	525.6597	0.153
Graders	2010	501	750	21.764	0.535	1.861	5.386	0.005	0.202	0.202	568.299	0.048
Graders	2011	26	50	3.655035	3.071	8.9223	6.52829	0.005	0.86	0.791	545.8822	0.159
Graders	2011	51	120	1.554125	1.306	4.9423	10.3495	0.005	0.847	0.78	522.5082	0.152
Graders	2011	121	175	1.019798	0.857	3.91881	8.91245	0.005	0.494	0.455	535.2864	0.156
Graders	2011	176	250	0.436805	0.367	1.44556	5.74733	0.005	0.183	0.169	529.0473	0.154
Graders	2011	251	500	0.341103	0.287	1.83104	3.81827	0.005	0.144	0.132	524.3479	0.153
Graders	2011	501	750	20.697	0.509	1.744	4.992	0.005	0.184	0.184	568.299	0.045
Graders	2012	26	50	3.689945	3.101	9.01183	6.55055	0.005	0.867	0.798	544.5383	0.159
Graders	2012	51	120	1.550155	1.303	4.94871	10.2881	0.005	0.848	0.78	521.1967	0.152
Graders	2012	121	175	1.022941	0.86	3.94251	8.89699	0.005	0.496	0.456	533.878	0.156
Graders	2012	176	250	0.449323	0.378	1.45898	5.777	0.005	0.185	0.171	527.8224	0.154
Graders	2012	251	500	0.355329	0.299	1.82432	3.8123	0.005	0.145	0.133	522.8547	0.153
Graders	2012	501	750	19.697	0.485	1.642	4.624	0.005	0.168	0.168	568.299	0.043
Graders	2013	26	50	3.722893	3.128	9.0966	6.57166	0.005	0.874	0.804	541.8285	0.159
Graders	2013	51	120	1.548648	1.301	4.95898	10.2424	0.005	0.849	0.781	518.5552	0.152
Graders	2013	121	175	1.020021	0.857	3.95423	8.8338	0.005	0.495	0.455	530.9753	0.156
Graders	2013	176	250	0.455824	0.383	1.45924	5.74577	0.005	0.185	0.17	525.0407	0.154
Graders	2013	251	500	0.359627	0.302	1.7965	3.71231	0.005	0.141	0.13	520.0526	0.153
Graders	2013	501	750	18.765	0.462	1.556	4.281	0.005	0.152	0.152	568.299	0.041
Graders	2014	26	50	3.681797	3.094	9.06534	6.54967	0.005	0.867	0.798	539.1216	0.159
Graders	2014	51	120	1.510465	1.269	4.91977	9.98567	0.005	0.832	0.765	515.3819	0.152
Graders	2014	121	175	1.007876	0.847	3.95083	8.70206	0.005	0.488	0.449	527.8337	0.156
Graders	2014	176	250	0.463867	0.39	1.46245	5.73998	0.005	0.185	0.171	522.3298	0.154
Graders	2014	251	500	0.373775	0.314	1.79096	3.71371	0.005	0.143	0.131	517.3766	0.153
Graders	2014	501	750	17.784	0.437	1.483	3.876	0.005	0.138	0.138	568.299	0.039
Graders	2015	26	50	3.711306	3.119	9.14399	6.56967	0.005	0.874	0.804	533.6812	0.159
Graders	2015	51	120	1.474627	1.239	4.88439	9.73775	0.005	0.813	0.748	509.597	0.152
Graders	2015	121	175	1.004333	0.844	3.95849	8.63742	0.005	0.486	0.447	522.2182	0.156
Graders	2015	176	250	0.471304	0.396	1.46577	5.72754	0.005	0.186	0.171	517.1275	0.154
Graders	2015	251	500	0.388063	0.326	1.79107	3.72122	0.005	0.144	0.133	512.0975	0.153
Graders	2015	501	750	16.846	0.414	1.42	3.501	0.005	0.124	0.124	568.299	0.037
Graders	2016	26	50	3.670899	3.085	9.10623	6.51973	0.005	0.864	0.795	528.2444	0.159
Graders	2016	51	120	1.419659	1.193	4.82948	9.41488	0.005	0.78	0.718	503.1614	0.152
Graders	2016	121	175	0.963567	0.81	3.91624	8.24966	0.005	0.463	0.426	516.1305	0.156
Graders	2016	176	250	0.473996	0.398	1.45911	5.6628	0.005	0.184	0.169	511.6959	0.154
Graders	2016	251	500	0.397787	0.334	1.77374	3.6858	0.005	0.144	0.132	506.5064	0.153
Graders	2016	501	750	15.959	0.393	1.367	3.154	0.005	0.112	0.112	568.299	0.035
Graders	2017	26	50	3.5783	3.007	8.97826	6.423	0.005	0.843	0.776	520.0747	0.159
Graders	2017	51	120	1.385767	1.164	4.81041	9.19125	0.005	0.759	0.698	495.9186	0.152
Graders	2017	121	175	0.901	0.757	3.84518	7.66265	0.005	0.43	0.396	506.7478	0.155
Graders	2017	176	250	0.471391	0.396	1.44905	5.52488	0.005	0.18	0.166	503.8022	0.154
Graders	2017	251	500	0.397706	0.334	1.70747	3.55709	0.005	0.139	0.128	498.5996	0.153
Graders	2017	501	750	15.127	0.372	1.323	2.835	0.005	0.1	0.1	568.299	0.033
Graders	2018	26	50	3.342571	2.809	8.62631	6.17962	0.005	0.79	0.726	511.9098	0.159
Graders	2018	51	120	1.27956	1.075	4.69711	8.51954	0.005	0.697	0.641	487.6979	0.152
Graders	2018	121	175	0.78708	0.661	3.70957	6.60465	0.005	0.371	0.342	497.3767	0.155
Graders	2018	176	250	0.457376	0.384	1.41595	5.27094	0.005	0.171	0.158	495.431	0.154
Graders	2018	251	500	0.385909	0.324	1.56446	3.34465	0.005	0.129	0.119	490.5758	0.153
Graders	2018	501	750	14.353	0.353	1.286	2.543	0.005	0.09	0.09	568.299	0.031
Graders	2019	26	50	3.11378	2.616	8.27912	5.94463	0.005	0.737	0.678	503.7509	0.159
Graders	2019	51	120	1.228249	1.032	4.6424	8.1592	0.005	0.665	0.612	479.9011	0.152

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Graders	2019	121	175	0.724541	0.609	3.65586	6.01354	0.005	0.337	0.31	489.0419	0.155
Graders	2019	176	250	0.428358	0.36	1.35927	4.86575	0.005	0.156	0.144	486.3288	0.154
Graders	2019	251	500	0.384059	0.323	1.52849	3.21794	0.005	0.124	0.114	482.5879	0.153
Graders	2019	501	750	13.635	0.335	1.255	2.276	0.005	0.08	0.08	568.299	0.03
Graders	2020	26	50	2.994737	2.516	8.13394	5.82549	0.005	0.709	0.652	492.8615	0.159
Graders	2020	51	120	1.161574	0.976	4.56142	7.72513	0.005	0.622	0.572	469.3371	0.152
Graders	2020	121	175	0.674427	0.567	3.62102	5.53045	0.005	0.309	0.284	478.0403	0.155
Graders	2020	176	250	0.41877	0.352	1.34183	4.67787	0.005	0.15	0.138	475.3037	0.154
Graders	2020	251	500	0.383198	0.322	1.5256	3.10731	0.005	0.121	0.111	471.9795	0.153
Graders	2020	501	750	12.961	0.319	1.229	2.031	0.005	0.072	0.072	568.299	0.028
Graders	2021	26	50	2.660206	2.235	7.62621	5.48468	0.005	0.631	0.581	492.9352	0.159
Graders	2021	51	120	1.072144	0.901	4.45175	7.12535	0.005	0.57	0.524	469.0701	0.152
Graders	2021	121	175	0.601372	0.505	3.55896	4.83947	0.005	0.27	0.248	478.5289	0.155
Graders	2021	176	250	0.398657	0.335	1.30687	4.38134	0.005	0.139	0.128	474.5386	0.153
Graders	2021	251	500	0.383194	0.322	1.46044	3.01257	0.005	0.117	0.108	471.8981	0.153
Graders	2021	501	750	12.333	0.303	1.207	1.808	0.005	0.064	0.064	568.299	0.027
Graders	2022	26	50	2.506375	2.106	7.42848	5.33188	0.005	0.595	0.547	493.0249	0.159
Graders	2022	51	120	0.947815	0.796	4.32966	6.36004	0.005	0.493	0.453	469.6301	0.152
Graders	2022	121	175	0.524016	0.44	3.49283	4.12488	0.005	0.229	0.211	478.5664	0.155
Graders	2022	176	250	0.365229	0.307	1.27327	3.8881	0.005	0.124	0.114	474.239	0.153
Graders	2022	251	500	0.370143	0.311	1.38967	2.80191	0.005	0.108	0.1	471.9278	0.153
Graders	2022	501	750	11.747	0.289	1.187	1.606	0.005	0.057	0.057	568.299	0.026
Graders	2023	26	50	2.316861	1.947	7.19094	5.14799	0.005	0.549	0.505	494.0202	0.16
Graders	2023	51	120	0.855685	0.719	4.22811	5.74006	0.005	0.436	0.401	469.2859	0.152
Graders	2023	121	175	0.463941	0.39	3.45006	3.54785	0.005	0.195	0.18	478.4629	0.155
Graders	2023	176	250	0.337478	0.284	1.25173	3.44101	0.005	0.111	0.103	473.9256	0.153
Graders	2023	251	500	0.367269	0.309	1.38481	2.70451	0.005	0.105	0.097	471.0306	0.152
Graders	2023	501	750	11.215	0.276	1.17	1.425	0.005	0.051	0.051	568.3	0.024
Graders	2024	26	50	2.201935	1.85	7.05059	5.0278	0.005	0.52	0.479	493.7913	0.16
Graders	2024	51	120	0.812369	0.683	4.20033	5.43389	0.005	0.408	0.375	469.8208	0.152
Graders	2024	121	175	0.433005	0.364	3.43239	3.20219	0.005	0.177	0.163	478.4966	0.155
Graders	2024	176	250	0.312074	0.262	1.22497	3.07323	0.005	0.1	0.092	473.6685	0.153
Graders	2024	251	500	0.348233	0.293	1.35613	2.43171	0.005	0.095	0.088	470.2664	0.152
Graders	2024	501	750	10.734	0.264	1.155	1.265	0.005	0.046	0.046	568.3	0.023
Graders	2025	26	50	2.21878	1.864	7.12535	5.04301	0.005	0.522	0.48	493.5322	0.16
Graders	2025	51	120	0.759044	0.638	4.14911	5.07379	0.005	0.371	0.342	468.3155	0.151
Graders	2025	121	175	0.391287	0.329	3.41759	2.77396	0.005	0.152	0.14	478.5084	0.155
Graders	2025	176	250	0.273788	0.23	1.17888	2.55629	0.005	0.082	0.076	473.4704	0.153
Graders	2025	251	500	0.332717	0.28	1.31461	2.26485	0.005	0.088	0.081	470.7533	0.152
Graders	2025	501	750	10.301	0.253	1.141	1.125	0.005	0.041	0.041	568.3	0.022
Graders	2030	26	50	1.493	0.648	5.239	3.53	0.007	0.065	0.065	568.299	0.058
Graders	2030	51	120	2.028	0.323	3.775	1.903	0.006	0.058	0.058	568.299	0.029
Graders	2030	121	175	2.458	0.237	3.326	0.815	0.006	0.038	0.038	568.3	0.021
Graders	2030	176	250	3.114	0.216	1.148	0.684	0.006	0.024	0.024	568.299	0.019
Graders	2030	251	500	4.115	0.214	1.097	0.647	0.005	0.023	0.023	568.299	0.019
Graders	2030	501	750	8.717	0.214	1.097	0.654	0.005	0.023	0.023	568.299	0.019
Graders	2035	26	50	1.367	0.593	5.189	3.356	0.007	0.037	0.037	568.299	0.053
Graders	2035	51	120	1.837	0.293	3.767	1.661	0.006	0.034	0.034	568.299	0.026
Graders	2035	121	175	2.136	0.206	3.326	0.506	0.006	0.022	0.022	568.3	0.018
Graders	2035	176	250	2.822	0.196	1.137	0.452	0.006	0.016	0.016	568.299	0.017
Graders	2035	251	500	3.746	0.195	1.083	0.434	0.005	0.016	0.016	568.299	0.017
Graders	2035	501	750	7.933	0.195	1.083	0.438	0.005	0.016	0.016	568.299	0.017
Graders	2040	26	50	1.297	0.563	5.161	3.298	0.007	0.026	0.026	568.3	0.05
Graders	2040	51	120	1.747	0.278	3.764	1.56	0.006	0.024	0.024	568.299	0.025
Graders	2040	121	175	2.002	0.193	3.326	0.38	0.006	0.017	0.017	568.299	0.017
Graders	2040	176	250	2.719	0.188	1.133	0.36	0.006	0.013	0.013	568.299	0.017
Graders	2040	251	500	3.619	0.188	1.079	0.351	0.005	0.013	0.013	568.299	0.017
Graders	2040	501	750	7.663	0.188	1.079	0.353	0.005	0.013	0.013	568.299	0.017
Off-Highway Tractors	1990	51	120	7.901	2.432	5.842	15.285	0.791	1.384	1.384	568.299	0.219
Off-Highway Tractors	1990	121	175	8.363	1.85	5.217	14.647	0.758	1.033	1.033	568.299	0.166
Off-Highway Tractors	1990	176	250	8.363	1.85	5.217	14.647	0.758	1.033	1.033	568.299	0.166
Off-Highway Tractors	1990	501	750	32.077	1.629	11.847	13.849	1.018	0.896	0.896	568.3	0.147
Off-Highway Tractors	1990	751	1000	45.779	1.622	11.847	13.849	1.018	0.888	0.888	568.3	0.146
Off-Highway Tractors	2000	51	120	6.648	2.047	5.046	11.606	0.06	0.972	0.972	568.299	0.184
Off-Highway Tractors	2000	121	175	6.386	1.413	4.213	10.675	0.057	0.602	0.602	568.299	0.127
Off-Highway Tractors	2000	176	250	5.736	1.269	3.665	10.426	0.057	0.532	0.532	568.299	0.114
Off-Highway Tractors	2000	501	750	22.339	1.134	6.836	9.864	0.052	0.461	0.461	568.299	0.102
Off-Highway Tractors	2000	751	1000	33.036	1.17	7.259	10.29	0.052	0.444	0.444	568.299	0.105
Off-Highway Tractors	2005	51	120	6.042	1.86	4.801	10.379	0.06	0.932	0.932	568.299	0.167
Off-Highway Tractors	2005	121	175	5.63	1.246	3.943	9.479	0.057	0.547	0.547	568.299	0.112

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Off-Highway Tractors	2005	176	250	4.641	1.027	2.923	9.16	0.057	0.425	0.425	568.299	0.092
Off-Highway Tractors	2005	501	750	17.978	0.913	4.992	8.543	0.052	0.372	0.372	568.299	0.082
Off-Highway Tractors	2005	751	1000	27.525	0.975	5.369	9.293	0.052	0.359	0.359	568.299	0.088
Off-Highway Tractors	2010	51	120	1.004164	0.844	4.06859	7.39576	0.005	0.61	0.561	529.8898	0.154
Off-Highway Tractors	2010	121	175	0.623556	0.524	3.25207	6.19445	0.005	0.322	0.297	526.0485	0.153
Off-Highway Tractors	2010	176	250	0.540439	0.454	1.80076	6.56823	0.005	0.241	0.222	522.8212	0.152
Off-Highway Tractors	2010	501	750	0.353776	0.297	1.65183	4.74911	0.005	0.163	0.15	526.6401	0.153
Off-Highway Tractors	2010	751	1000	1.235451	1.038	13.844	12.2723	0.005	0.624	0.574	524.505	0.153
Off-Highway Tractors	2011	51	120	0.958318	0.805	4.04749	7.12201	0.005	0.588	0.541	528.6123	0.154
Off-Highway Tractors	2011	121	175	0.588696	0.495	3.25718	5.88095	0.005	0.307	0.282	524.5528	0.153
Off-Highway Tractors	2011	176	250	0.522937	0.439	1.73271	6.3706	0.005	0.23	0.212	521.5328	0.152
Off-Highway Tractors	2011	501	750	0.366196	0.308	1.66137	4.77936	0.005	0.166	0.153	525.3172	0.153
Off-Highway Tractors	2011	751	1000	1.235451	1.038	13.844	12.2723	0.005	0.624	0.574	523.1938	0.153
Off-Highway Tractors	2012	51	120	0.956826	0.804	4.07302	7.07175	0.005	0.588	0.541	527.1281	0.154
Off-Highway Tractors	2012	121	175	0.573556	0.482	3.27598	5.70904	0.005	0.299	0.276	523.1986	0.153
Off-Highway Tractors	2012	176	250	0.51645	0.434	1.70131	6.26836	0.005	0.225	0.207	520.2636	0.152
Off-Highway Tractors	2012	501	750	0.3785	0.318	1.67078	4.80904	0.005	0.169	0.155	523.9941	0.153
Off-Highway Tractors	2012	751	1000	1.235451	1.038	13.844	12.2723	0.005	0.624	0.574	521.8825	0.153
Off-Highway Tractors	2013	51	120	0.915141	0.769	4.04714	6.79599	0.005	0.564	0.519	524.1555	0.154
Off-Highway Tractors	2013	121	175	0.54434	0.457	3.28016	5.42114	0.005	0.281	0.258	520.6151	0.153
Off-Highway Tractors	2013	176	250	0.508791	0.428	1.67153	6.11434	0.005	0.219	0.201	517.5627	0.152
Off-Highway Tractors	2013	501	750	0.342496	0.288	1.42496	4.32547	0.005	0.149	0.137	519.6246	0.153
Off-Highway Tractors	2013	751	1000	1.235451	1.038	13.844	12.2723	0.005	0.624	0.574	519.26	0.153
Off-Highway Tractors	2014	51	120	0.830806	0.698	3.97241	6.28073	0.005	0.513	0.472	520.8244	0.154
Off-Highway Tractors	2014	121	175	0.504784	0.424	3.26511	5.02525	0.005	0.258	0.237	518.1639	0.153
Off-Highway Tractors	2014	176	250	0.481559	0.405	1.62822	5.66092	0.005	0.203	0.187	514.3699	0.152
Off-Highway Tractors	2014	501	750	0.317193	0.267	1.33448	4.00651	0.005	0.133	0.122	516.904	0.153
Off-Highway Tractors	2014	751	1000	0.100665	0.085	0.94694	2.27938	0.005	0.054	0.05	516.6375	0.153
Off-Highway Tractors	2015	51	120	0.802587	0.674	3.96474	6.06726	0.005	0.494	0.455	515.3203	0.154
Off-Highway Tractors	2015	121	175	0.478075	0.402	3.26419	4.72365	0.005	0.239	0.22	512.6079	0.153
Off-Highway Tractors	2015	176	250	0.476529	0.4	1.60534	5.52773	0.005	0.199	0.183	509.1896	0.152
Off-Highway Tractors	2015	501	750	0.312134	0.262	1.17195	3.87437	0.005	0.126	0.116	511.0814	0.153
Off-Highway Tractors	2015	751	1000	0.114305	0.096	0.96003	2.29983	0.005	0.056	0.051	511.3924	0.153
Off-Highway Tractors	2016	51	120	0.743357	0.625	3.92464	5.6465	0.005	0.454	0.418	509.4472	0.154
Off-Highway Tractors	2016	121	175	0.465284	0.391	3.27806	4.51093	0.005	0.229	0.211	507.6294	0.153
Off-Highway Tractors	2016	176	250	0.426838	0.359	1.47177	4.92994	0.005	0.171	0.157	504.1229	0.152
Off-Highway Tractors	2016	501	750	0.299821	0.252	1.14348	3.57265	0.005	0.117	0.108	505.762	0.153
Off-Highway Tractors	2016	751	1000	0.127675	0.107	0.97285	2.31987	0.005	0.057	0.053	506.1474	0.153
Off-Highway Tractors	2017	51	120	0.697857	0.586	3.90108	5.31726	0.005	0.423	0.389	501.2453	0.154
Off-Highway Tractors	2017	121	175	0.423504	0.356	3.2589	4.02594	0.005	0.205	0.189	499.2446	0.153
Off-Highway Tractors	2017	176	250	0.389773	0.328	1.403	4.38216	0.005	0.151	0.139	496.4983	0.152
Off-Highway Tractors	2017	501	750	0.294592	0.248	1.14456	3.32351	0.005	0.112	0.103	497.6181	0.152
Off-Highway Tractors	2017	751	1000	0.140776	0.118	0.98542	2.33951	0.005	0.059	0.054	498.2798	0.153
Off-Highway Tractors	2018	51	120	0.621057	0.522	3.83227	4.78732	0.005	0.373	0.343	492.8709	0.153
Off-Highway Tractors	2018	121	175	0.374746	0.315	3.2191	3.49764	0.005	0.176	0.162	491.3128	0.153
Off-Highway Tractors	2018	176	250	0.323278	0.272	1.29494	3.45421	0.005	0.119	0.109	488.6765	0.152
Off-Highway Tractors	2018	501	750	0.232675	0.196	1.11871	2.1656	0.005	0.081	0.074	490.1818	0.153
Off-Highway Tractors	2018	751	1000	0.153606	0.129	0.99773	2.35874	0.005	0.06	0.055	490.4122	0.153
Off-Highway Tractors	2019	51	120	0.562974	0.473	3.79465	4.42145	0.005	0.331	0.305	484.2693	0.153
Off-Highway Tractors	2019	121	175	0.350048	0.294	3.21895	3.20755	0.005	0.159	0.146	483.4306	0.153
Off-Highway Tractors	2019	176	250	0.283777	0.238	1.21832	2.9142	0.005	0.098	0.09	481.2751	0.152
Off-Highway Tractors	2019	501	750	0.244248	0.205	1.12934	2.17682	0.005	0.082	0.075	482.3091	0.153
Off-Highway Tractors	2019	751	1000	0.166166	0.14	1.00978	2.37757	0.005	0.062	0.057	482.5446	0.153
Off-Highway Tractors	2020	51	120	0.533073	0.448	3.78798	4.18317	0.005	0.307	0.282	474.1481	0.153
Off-Highway Tractors	2020	121	175	0.322507	0.271	3.21511	2.89032	0.005	0.14	0.129	472.9169	0.153
Off-Highway Tractors	2020	176	250	0.263453	0.221	1.1813	2.57547	0.005	0.086	0.079	470.943	0.152
Off-Highway Tractors	2020	501	750	0.239679	0.201	1.13143	2.04663	0.005	0.076	0.07	471.8151	0.153
Off-Highway Tractors	2020	751	1000	0.178457	0.15	1.02156	2.39599	0.005	0.063	0.058	472.0545	0.153
Off-Highway Tractors	2021	51	120	0.469894	0.395	3.74258	3.77306	0.005	0.261	0.24	474.5155	0.153
Off-Highway Tractors	2021	121	175	0.307902	0.259	3.21953	2.65962	0.005	0.129	0.118	472.9236	0.153
Off-Highway Tractors	2021	176	250	0.237665	0.2	1.16179	2.11341	0.005	0.072	0.067	471.0028	0.152
Off-Highway Tractors	2021	501	750	0.215694	0.181	1.12237	1.71505	0.005	0.063	0.058	471.8056	0.153
Off-Highway Tractors	2021	751	1000	0.190478	0.16	1.0331	2.41401	0.005	0.064	0.059	472.0545	0.153
Off-Highway Tractors	2022	51	120	0.414344	0.348	3.70994	3.39986	0.005	0.219	0.202	475.2338	0.154
Off-Highway Tractors	2022	121	175	0.275155	0.231	3.18586	2.23877	0.005	0.107	0.099	472.8111	0.153
Off-Highway Tractors	2022	176	250	0.213642	0.18	1.14284	1.73242	0.005	0.06	0.055	471.1313	0.152
Off-Highway Tractors	2022	501	750	0.20345	0.171	1.12111	1.43309	0.005	0.055	0.05	471.939	0.153
Off-Highway Tractors	2022	751	1000	0.202228	0.17	1.04437	2.43162	0.005	0.066	0.06	472.0545	0.153
Off-Highway Tractors	2023	51	120	0.37642	0.316	3.68654	3.09527	0.005	0.187	0.172	476.0871	0.154
Off-Highway Tractors	2023	121	175	0.239199	0.201	3.14329	1.78476	0.005	0.085	0.079	472.9962	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Off-Highway Tractors	2023	176	250	0.20356	0.171	1.13796	1.49148	0.005	0.053	0.049	470.845	0.152
Off-Highway Tractors	2023	501	750	0.199838	0.168	1.12418	1.28868	0.005	0.051	0.047	471.9321	0.153
Off-Highway Tractors	2023	751	1000	0.213709	0.18	1.05538	2.44883	0.005	0.067	0.062	472.0545	0.153
Off-Highway Tractors	2024	51	120	0.359218	0.302	3.69095	2.94932	0.005	0.171	0.157	476.3711	0.154
Off-Highway Tractors	2024	121	175	0.21727	0.183	3.1328	1.49579	0.005	0.071	0.066	473.097	0.153
Off-Highway Tractors	2024	176	250	0.200963	0.169	1.13461	1.37732	0.005	0.049	0.045	470.6894	0.152
Off-Highway Tractors	2024	501	750	0.200706	0.169	1.13006	1.23477	0.005	0.048	0.044	471.9247	0.153
Off-Highway Tractors	2024	751	1000	0.22492	0.189	1.06613	2.46563	0.005	0.068	0.063	472.0545	0.153
Off-Highway Tractors	2025	51	120	0.32831	0.276	3.66914	2.70745	0.005	0.144	0.132	476.9211	0.154
Off-Highway Tractors	2025	121	175	0.208537	0.175	3.14246	1.34858	0.005	0.065	0.059	473.3021	0.153
Off-Highway Tractors	2025	176	250	0.183862	0.154	1.13017	1.11624	0.005	0.04	0.037	470.861	0.152
Off-Highway Tractors	2025	501	750	0.199094	0.167	1.13452	1.11804	0.005	0.045	0.041	471.9169	0.153
Off-Highway Tractors	2025	751	1000	0.235862	0.198	1.07663	2.48203	0.005	0.069	0.064	472.0545	0.153
Off-Highway Tractors	2030	51	120	1.683	0.518	3.944	2.959	0.006	0.175	0.175	568.299	0.046
Off-Highway Tractors	2030	121	175	1.689	0.373	3.435	1.916	0.006	0.104	0.104	568.299	0.033
Off-Highway Tractors	2030	176	250	1.423	0.315	1.286	1.715	0.006	0.064	0.064	568.299	0.028
Off-Highway Tractors	2030	501	750	5.992	0.304	1.351	1.59	0.005	0.06	0.06	568.299	0.027
Off-Highway Tractors	2030	751	1000	8.981	0.318	1.409	3.569	0.005	0.078	0.078	568.3	0.028
Off-Highway Tractors	2035	51	120	1.359	0.418	3.902	2.35	0.006	0.107	0.107	568.299	0.037
Off-Highway Tractors	2035	121	175	1.361	0.301	3.421	1.252	0.006	0.065	0.065	568.299	0.027
Off-Highway Tractors	2035	176	250	1.211	0.268	1.232	1.115	0.006	0.042	0.042	568.299	0.024
Off-Highway Tractors	2035	501	750	5.163	0.262	1.238	1.045	0.005	0.04	0.04	568.299	0.023
Off-Highway Tractors	2035	751	1000	7.617	0.269	1.268	3.116	0.005	0.056	0.056	568.299	0.024
Off-Highway Tractors	2040	51	120	1.176	0.362	3.878	1.976	0.006	0.067	0.067	568.299	0.032
Off-Highway Tractors	2040	121	175	1.162	0.257	3.412	0.836	0.006	0.041	0.041	568.299	0.023
Off-Highway Tractors	2040	176	250	1.073	0.237	1.198	0.747	0.006	0.028	0.028	568.299	0.021
Off-Highway Tractors	2040	501	750	4.612	0.234	1.164	0.71	0.005	0.027	0.027	568.299	0.021
Off-Highway Tractors	2040	751	1000	6.743	0.238	1.183	2.844	0.005	0.042	0.042	568.299	0.021
Off-Highway Trucks	1990	121	175	6.457	2.005	5.36	15.394	0.758	1.133	1.133	568.299	0.18
Off-Highway Trucks	1990	176	250	8.597	2.005	5.36	15.394	0.758	1.133	1.133	568.299	0.18
Off-Highway Trucks	1990	251	500	12.319	1.757	12.538	14.499	0.662	0.959	0.959	568.299	0.158
Off-Highway Trucks	1990	501	750	19.982	1.757	12.538	14.499	1.018	0.976	0.976	568.299	0.158
Off-Highway Trucks	1990	751	1000	28.084	1.746	12.538	14.499	1.018	0.963	0.963	568.3	0.157
Off-Highway Trucks	2000	121	175	4.115	1.278	3.772	9.57	0.057	0.548	0.548	568.299	0.115
Off-Highway Trucks	2000	176	250	4.454	1.039	2.896	9.178	0.057	0.425	0.425	568.299	0.093
Off-Highway Trucks	2000	251	500	6.594	0.94	4.214	8.675	0.05	0.376	0.376	568.299	0.084
Off-Highway Trucks	2000	501	750	10.696	0.94	4.214	8.675	0.052	0.376	0.376	568.299	0.084
Off-Highway Trucks	2000	751	1000	16.13	1.003	4.878	9.339	0.052	0.355	0.355	568.3	0.09
Off-Highway Trucks	2005	121	175	3.462	1.075	3.531	8.1	0.057	0.481	0.481	568.299	0.097
Off-Highway Trucks	2005	176	250	3.21	0.748	1.978	7.652	0.057	0.291	0.291	568.299	0.067
Off-Highway Trucks	2005	251	500	4.695	0.669	2.332	6.848	0.05	0.26	0.26	568.299	0.06
Off-Highway Trucks	2005	501	750	7.697	0.677	2.33	7.052	0.052	0.264	0.264	568.299	0.061
Off-Highway Trucks	2005	751	1000	12.436	0.773	2.812	8.177	0.052	0.266	0.266	568.299	0.069
Off-Highway Trucks	2010	121	175	0.758703	0.638	3.51002	6.59182	0.005	0.39	0.359	522.6455	0.152
Off-Highway Trucks	2010	176	250	0.657432	0.552	2.13151	6.86617	0.005	0.29	0.267	521.8781	0.152
Off-Highway Trucks	2010	251	500	0.5118	0.43	2.32222	5.52051	0.005	0.213	0.196	528.8078	0.154
Off-Highway Trucks	2010	501	750	0.633984	0.533	3.68555	6.54487	0.005	0.276	0.254	530.4366	0.154
Off-Highway Trucks	2010	751	1000	0.549873	0.462	2.05613	7.15365	0.005	0.211	0.194	526.5915	0.153
Off-Highway Trucks	2011	121	175	0.704506	0.592	3.48667	6.13879	0.005	0.357	0.328	521.3222	0.152
Off-Highway Trucks	2011	176	250	0.640546	0.538	2.08881	6.53722	0.005	0.278	0.256	520.1539	0.152
Off-Highway Trucks	2011	251	500	0.515485	0.433	2.27798	5.39802	0.005	0.21	0.193	527.2602	0.154
Off-Highway Trucks	2011	501	750	0.643792	0.541	3.68121	6.51376	0.005	0.276	0.254	529.0143	0.154
Off-Highway Trucks	2011	751	1000	0.55014	0.462	2.03783	7.09609	0.005	0.211	0.194	524.7459	0.153
Off-Highway Trucks	2012	121	175	0.704248	0.592	3.51164	6.0668	0.005	0.354	0.325	519.901	0.152
Off-Highway Trucks	2012	176	250	0.646155	0.543	2.1013	6.43814	0.005	0.277	0.255	518.7133	0.152
Off-Highway Trucks	2012	251	500	0.525914	0.442	2.29017	5.37678	0.005	0.21	0.193	525.9398	0.154
Off-Highway Trucks	2012	501	750	0.661317	0.556	3.73128	6.55684	0.005	0.28	0.258	527.6141	0.154
Off-Highway Trucks	2012	751	1000	0.55909	0.47	2.05327	7.10377	0.005	0.213	0.196	523.3305	0.153
Off-Highway Trucks	2013	121	175	0.671819	0.565	3.51059	5.78297	0.005	0.33	0.304	517.0124	0.152
Off-Highway Trucks	2013	176	250	0.623589	0.524	2.04802	6.05816	0.005	0.263	0.242	515.8273	0.152
Off-Highway Trucks	2013	251	500	0.502477	0.422	2.17762	5.06239	0.005	0.197	0.181	523.5459	0.154
Off-Highway Trucks	2013	501	750	0.645495	0.542	3.55888	6.30864	0.005	0.268	0.247	525.1075	0.154
Off-Highway Trucks	2013	751	1000	0.543085	0.456	1.9094	6.89277	0.005	0.205	0.189	520.5876	0.153
Off-Highway Trucks	2014	121	175	0.610195	0.513	3.47308	5.21922	0.005	0.292	0.269	514.0574	0.152
Off-Highway Trucks	2014	176	250	0.574728	0.483	1.93163	5.4411	0.005	0.235	0.217	512.8333	0.152
Off-Highway Trucks	2014	251	500	0.468214	0.393	2.07518	4.68575	0.005	0.18	0.165	521.0573	0.154
Off-Highway Trucks	2014	501	750	0.576983	0.485	2.95299	5.57816	0.005	0.231	0.212	521.2295	0.154
Off-Highway Trucks	2014	751	1000	0.493307	0.415	1.77934	6.36534	0.005	0.187	0.172	516.9385	0.153
Off-Highway Trucks	2015	121	175	0.604782	0.508	3.48853	5.10449	0.005	0.284	0.262	508.7011	0.152
Off-Highway Trucks	2015	176	250	0.563373	0.473	1.89994	5.24228	0.005	0.227	0.209	507.8087	0.152

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Off-Highway Trucks	2015	251	500	0.457555	0.384	2.0367	4.52794	0.005	0.173	0.159	515.8419	0.154
Off-Highway Trucks	2015	501	750	0.537539	0.452	2.61969	5.12427	0.005	0.208	0.192	514.6436	0.154
Off-Highway Trucks	2015	751	1000	0.489174	0.411	1.77206	6.28012	0.005	0.185	0.17	511.1369	0.153
Off-Highway Trucks	2016	121	175	0.562854	0.473	3.45883	4.64707	0.005	0.258	0.237	503.5515	0.152
Off-Highway Trucks	2016	176	250	0.530487	0.446	1.82377	4.82646	0.005	0.208	0.191	502.4732	0.152
Off-Highway Trucks	2016	251	500	0.418147	0.351	1.88523	4.04798	0.005	0.153	0.141	509.8604	0.154
Off-Highway Trucks	2016	501	750	0.497396	0.418	2.43646	4.64247	0.005	0.187	0.172	508.3916	0.153
Off-Highway Trucks	2016	751	1000	0.467579	0.393	1.70739	6.0352	0.005	0.175	0.161	505.7218	0.153
Off-Highway Trucks	2017	121	175	0.525186	0.441	3.43636	4.23649	0.005	0.233	0.215	495.924	0.152
Off-Highway Trucks	2017	176	250	0.496493	0.417	1.75281	4.36785	0.005	0.189	0.174	494.7935	0.152
Off-Highway Trucks	2017	251	500	0.387096	0.325	1.74773	3.66841	0.005	0.136	0.125	501.4368	0.154
Off-Highway Trucks	2017	501	750	0.468516	0.394	2.35644	4.25656	0.005	0.17	0.157	500.1987	0.153
Off-Highway Trucks	2017	751	1000	0.430867	0.362	1.54555	5.65254	0.005	0.159	0.146	497.1154	0.152
Off-Highway Trucks	2018	121	175	0.456313	0.383	3.38333	3.54273	0.005	0.192	0.177	488.0439	0.152
Off-Highway Trucks	2018	176	250	0.405448	0.341	1.54329	3.45071	0.005	0.141	0.13	487.6353	0.152
Off-Highway Trucks	2018	251	500	0.341588	0.287	1.5595	3.08995	0.005	0.113	0.104	493.5059	0.154
Off-Highway Trucks	2018	501	750	0.413946	0.348	2.17619	3.69054	0.005	0.143	0.132	492.1136	0.153
Off-Highway Trucks	2018	751	1000	0.352998	0.297	1.35734	4.85753	0.005	0.126	0.116	487.7902	0.152
Off-Highway Trucks	2019	121	175	0.38382	0.323	3.32598	2.82463	0.005	0.149	0.137	480.3623	0.152
Off-Highway Trucks	2019	176	250	0.365362	0.307	1.46079	2.98481	0.005	0.119	0.109	480.1703	0.152
Off-Highway Trucks	2019	251	500	0.313575	0.263	1.48346	2.66851	0.005	0.097	0.089	485.3832	0.154
Off-Highway Trucks	2019	501	750	0.389037	0.327	2.04129	3.32044	0.005	0.129	0.118	483.2182	0.153
Off-Highway Trucks	2019	751	1000	0.351304	0.295	1.3561	4.76495	0.005	0.124	0.114	480.3479	0.152
Off-Highway Trucks	2020	121	175	0.36879	0.31	3.3388	2.62769	0.005	0.137	0.126	470.0967	0.152
Off-Highway Trucks	2020	176	250	0.327003	0.275	1.39106	2.50726	0.005	0.098	0.09	470.1675	0.152
Off-Highway Trucks	2020	251	500	0.292906	0.246	1.41417	2.34677	0.005	0.086	0.079	474.5787	0.153
Off-Highway Trucks	2020	501	750	0.371665	0.312	2.02683	3.05816	0.005	0.12	0.11	472.7499	0.153
Off-Highway Trucks	2020	751	1000	0.360605	0.303	1.37163	4.79365	0.005	0.125	0.115	469.8892	0.152
Off-Highway Trucks	2021	121	175	0.331341	0.278	3.32405	2.24626	0.005	0.113	0.104	470.2898	0.152
Off-Highway Trucks	2021	176	250	0.29675	0.249	1.34839	2.10869	0.005	0.082	0.076	470.1932	0.152
Off-Highway Trucks	2021	251	500	0.267636	0.225	1.33781	1.95357	0.005	0.072	0.066	474.542	0.153
Off-Highway Trucks	2021	501	750	0.348975	0.293	1.93522	2.66798	0.005	0.106	0.098	472.991	0.153
Off-Highway Trucks	2021	751	1000	0.304392	0.256	1.25154	4.15817	0.005	0.099	0.091	471.0552	0.152
Off-Highway Trucks	2022	121	175	0.286556	0.241	3.28383	1.81091	0.005	0.088	0.081	470.1813	0.152
Off-Highway Trucks	2022	176	250	0.255309	0.215	1.27852	1.61794	0.005	0.064	0.059	469.6151	0.152
Off-Highway Trucks	2022	251	500	0.233409	0.196	1.24664	1.48975	0.005	0.054	0.05	474.7136	0.154
Off-Highway Trucks	2022	501	750	0.313397	0.263	1.74571	2.26799	0.005	0.088	0.081	473.9773	0.153
Off-Highway Trucks	2022	751	1000	0.27833	0.234	1.2141	3.84239	0.005	0.086	0.079	472.3437	0.153
Off-Highway Trucks	2023	121	175	0.280582	0.236	3.30432	1.68277	0.005	0.081	0.074	470.2917	0.152
Off-Highway Trucks	2023	176	250	0.24623	0.207	1.27325	1.45572	0.005	0.059	0.054	469.4464	0.152
Off-Highway Trucks	2023	251	500	0.222566	0.187	1.22057	1.32428	0.005	0.048	0.044	475.0488	0.154
Off-Highway Trucks	2023	501	750	0.312722	0.263	1.71923	2.18151	0.005	0.084	0.078	473.7666	0.153
Off-Highway Trucks	2023	751	1000	0.254284	0.214	1.19398	3.54374	0.005	0.074	0.068	472.8574	0.153
Off-Highway Trucks	2024	121	175	0.266426	0.224	3.3248	1.49436	0.005	0.07	0.064	470.2638	0.152
Off-Highway Trucks	2024	176	250	0.240426	0.202	1.25915	1.35543	0.005	0.054	0.05	469.1126	0.152
Off-Highway Trucks	2024	251	500	0.219543	0.184	1.20637	1.23518	0.005	0.044	0.041	475.2203	0.154
Off-Highway Trucks	2024	501	750	0.308071	0.259	1.64986	2.08486	0.005	0.079	0.073	473.8394	0.153
Off-Highway Trucks	2024	751	1000	0.248432	0.209	1.19994	3.43925	0.005	0.069	0.064	473.0969	0.153
Off-Highway Trucks	2025	121	175	0.254265	0.214	3.32765	1.3354	0.005	0.065	0.06	470.0035	0.152
Off-Highway Trucks	2025	176	250	0.220008	0.185	1.21268	1.12886	0.005	0.043	0.04	469.1258	0.152
Off-Highway Trucks	2025	251	500	0.210955	0.177	1.18233	1.06379	0.005	0.038	0.035	474.9697	0.154
Off-Highway Trucks	2025	501	750	0.280009	0.235	1.57807	1.75055	0.005	0.066	0.061	476.314	0.154
Off-Highway Trucks	2025	751	1000	0.222695	0.187	1.14565	3.13521	0.005	0.057	0.052	473.3693	0.153
Off-Highway Trucks	2030	121	175	0.739	0.229	3.425	0.563	0.006	0.025	0.025	568.299	0.02
Off-Highway Trucks	2030	176	250	0.932	0.217	1.166	0.481	0.006	0.017	0.017	568.3	0.019
Off-Highway Trucks	2030	251	500	1.52	0.216	1.104	0.458	0.005	0.017	0.017	568.299	0.019
Off-Highway Trucks	2030	501	750	2.467	0.217	1.104	0.463	0.005	0.017	0.017	568.299	0.019
Off-Highway Trucks	2030	751	1000	3.55	0.22	1.107	2.651	0.005	0.033	0.033	568.3	0.019
Off-Highway Trucks	2035	121	175	0.68	0.211	3.425	0.38	0.006	0.016	0.016	568.299	0.019
Off-Highway Trucks	2035	176	250	0.894	0.208	1.167	0.353	0.006	0.013	0.013	568.299	0.018
Off-Highway Trucks	2035	251	500	1.461	0.208	1.105	0.348	0.005	0.013	0.013	568.299	0.018
Off-Highway Trucks	2035	501	750	2.371	0.208	1.105	0.348	0.005	0.013	0.013	568.299	0.018
Off-Highway Trucks	2035	751	1000	3.368	0.209	1.105	2.565	0.005	0.028	0.028	568.299	0.018
Off-Highway Trucks	2040	121	175	0.662	0.205	3.426	0.318	0.006	0.013	0.013	568.299	0.018
Off-Highway Trucks	2040	176	250	0.877	0.204	1.167	0.305	0.006	0.012	0.012	568.3	0.018
Off-Highway Trucks	2040	251	500	1.434	0.204	1.105	0.305	0.005	0.012	0.012	568.299	0.018
Off-Highway Trucks	2040	501	750	2.327	0.204	1.105	0.305	0.005	0.012	0.012	568.299	0.018
Off-Highway Trucks	2040	751	1000	3.296	0.205	1.105	2.532	0.005	0.026	0.026	568.299	0.018
Other Construction Equipment	1990	6	15	5.348	1.804	4.999	9.999	1.049	0.975	0.975	568.3	0.162
Other Construction Equipment	1990	16	25	8.578	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other Construction Equipment	1990	26	50	39.33	4.791	9.693	7.947	0.871	1.267	1.267	568.299	0.432
Other Construction Equipment	1990	51	120	56.637	2.388	5.782	15.176	0.791	1.343	1.343	568.299	0.215
Other Construction Equipment	1990	121	175	60.86	1.948	5.191	15.112	0.758	1.085	1.085	568.299	0.175
Other Construction Equipment	1990	251	500	128.26	1.72	11.412	14.332	0.662	0.927	0.927	568.299	0.155
Other Construction Equipment	2000	6	15	4.374	1.475	4.49	8.242	0.079	0.676	0.676	568.299	0.133
Other Construction Equipment	2000	16	25	7.591	1.958	4.53	6.358	0.065	0.563	0.563	568.3	0.176
Other Construction Equipment	2000	26	50	30.619	3.73	7.85	6.784	0.066	0.816	0.816	568.299	0.336
Other Construction Equipment	2000	51	120	38.817	1.636	4.283	9.507	0.06	0.786	0.786	568.3	0.147
Other Construction Equipment	2000	121	175	34.573	1.106	3.417	8.749	0.057	0.453	0.453	568.299	0.099
Other Construction Equipment	2000	251	500	61.92	0.83	3.67	8.069	0.05	0.321	0.321	568.299	0.074
Other Construction Equipment	2005	6	15	2.271	0.766	3.469	5.228	0.079	0.361	0.361	568.299	0.069
Other Construction Equipment	2005	16	25	3.564	0.919	2.642	5.412	0.065	0.347	0.347	568.3	0.082
Other Construction Equipment	2005	26	50	26.204	3.192	7.102	6.226	0.066	0.739	0.739	568.299	0.288
Other Construction Equipment	2005	51	120	33.145	1.397	4.043	8.067	0.06	0.725	0.725	568.299	0.126
Other Construction Equipment	2005	121	175	28.235	0.903	3.208	7.379	0.057	0.392	0.392	568.299	0.081
Other Construction Equipment	2005	251	500	41.035	0.55	2.051	6.334	0.05	0.22	0.22	568.299	0.049
Other Construction Equipment	2010	6	15	1.52864	1.284	5.29076	5.55407	0.005	0.497	0.457	587.5495	0.171
Other Construction Equipment	2010	16	25	1.52864	1.284	5.29076	5.55407	0.005	0.497	0.457	587.5495	0.171
Other Construction Equipment	2010	26	50	1.52864	1.284	5.29076	5.55407	0.005	0.497	0.457	587.5495	0.171
Other Construction Equipment	2010	51	120	0.92739	0.779	3.89903	7.11752	0.005	0.549	0.505	523.1661	0.152
Other Construction Equipment	2010	121	175	0.769602	0.647	3.47406	7.30949	0.005	0.38	0.349	522.1244	0.152
Other Construction Equipment	2010	251	500	0.480247	0.404	3.20434	5.78616	0.005	0.219	0.201	530.8514	0.155
Other Construction Equipment	2011	6	15	1.531741	1.287	5.36962	5.5686	0.005	0.499	0.459	586.0703	0.171
Other Construction Equipment	2011	16	25	1.531741	1.287	5.36962	5.5686	0.005	0.499	0.459	586.0703	0.171
Other Construction Equipment	2011	26	50	1.531741	1.287	5.36962	5.5686	0.005	0.499	0.459	586.0703	0.171
Other Construction Equipment	2011	51	120	0.909764	0.764	3.89723	6.98332	0.005	0.542	0.498	521.5282	0.152
Other Construction Equipment	2011	121	175	0.725704	0.61	3.41832	6.92098	0.005	0.361	0.332	520.664	0.152
Other Construction Equipment	2011	251	500	0.449646	0.378	2.91483	5.42766	0.005	0.204	0.188	529.9639	0.155
Other Construction Equipment	2012	6	15	1.548775	1.301	5.47004	5.58169	0.005	0.503	0.463	584.6639	0.171
Other Construction Equipment	2012	16	25	1.548775	1.301	5.47004	5.58169	0.005	0.503	0.463	584.6639	0.171
Other Construction Equipment	2012	26	50	1.548775	1.301	5.47004	5.58169	0.005	0.503	0.463	584.6639	0.171
Other Construction Equipment	2012	51	120	0.910724	0.765	3.91674	6.95644	0.005	0.543	0.5	519.9075	0.152
Other Construction Equipment	2012	121	175	0.730754	0.614	3.4429	6.91612	0.005	0.363	0.334	519.3479	0.152
Other Construction Equipment	2012	251	500	0.458869	0.386	2.95715	5.42334	0.005	0.206	0.189	528.6246	0.155
Other Construction Equipment	2013	6	15	1.571874	1.321	5.57699	5.60361	0.005	0.509	0.468	581.8471	0.171
Other Construction Equipment	2013	16	25	1.571874	1.321	5.57699	5.60361	0.005	0.509	0.468	581.8471	0.171
Other Construction Equipment	2013	26	50	1.571874	1.321	5.57699	5.60361	0.005	0.509	0.468	581.8471	0.171
Other Construction Equipment	2013	51	120	0.892781	0.75	3.91866	6.82868	0.005	0.532	0.489	517.5939	0.152
Other Construction Equipment	2013	121	175	0.708053	0.595	3.41257	6.69102	0.005	0.351	0.323	516.9857	0.152
Other Construction Equipment	2013	251	500	0.440093	0.37	2.79519	5.14317	0.005	0.194	0.179	525.1086	0.154
Other Construction Equipment	2014	6	15	1.547867	1.301	5.60223	5.56546	0.005	0.502	0.462	578.9591	0.171
Other Construction Equipment	2014	16	25	1.547867	1.301	5.60223	5.56546	0.005	0.502	0.462	578.9591	0.171
Other Construction Equipment	2014	26	50	1.547867	1.301	5.60223	5.56546	0.005	0.502	0.462	578.9591	0.171
Other Construction Equipment	2014	51	120	0.866935	0.728	3.90558	6.63282	0.005	0.518	0.476	515.2847	0.152
Other Construction Equipment	2014	121	175	0.674237	0.567	3.38516	6.37185	0.005	0.333	0.307	514.5518	0.152
Other Construction Equipment	2014	251	500	0.392211	0.33	2.47571	4.5608	0.005	0.168	0.155	520.9444	0.154
Other Construction Equipment	2015	6	15	1.557753	1.309	5.68113	5.56397	0.005	0.503	0.463	573.0198	0.171
Other Construction Equipment	2015	16	25	1.557753	1.309	5.68113	5.56397	0.005	0.503	0.463	573.0198	0.171
Other Construction Equipment	2015	26	50	1.557753	1.309	5.68113	5.56397	0.005	0.503	0.463	573.0198	0.171
Other Construction Equipment	2015	51	120	0.860334	0.723	3.9159	6.53649	0.005	0.512	0.471	510.1706	0.152
Other Construction Equipment	2015	121	175	0.66302	0.557	3.38183	6.2305	0.005	0.326	0.3	509.3069	0.152
Other Construction Equipment	2015	251	500	0.386006	0.324	2.40724	4.41519	0.005	0.163	0.15	515.1953	0.154
Other Construction Equipment	2016	6	15	1.524032	1.281	5.67687	5.49921	0.005	0.492	0.453	566.9782	0.171
Other Construction Equipment	2016	16	25	1.524032	1.281	5.67687	5.49921	0.005	0.492	0.453	566.9782	0.171
Other Construction Equipment	2016	26	50	1.524032	1.281	5.67687	5.49921	0.005	0.492	0.453	566.9782	0.171
Other Construction Equipment	2016	51	120	0.837049	0.703	3.90894	6.32533	0.005	0.496	0.456	505.349	0.152
Other Construction Equipment	2016	121	175	0.62413	0.524	3.35672	5.81763	0.005	0.306	0.281	503.9641	0.152
Other Construction Equipment	2016	251	500	0.366005	0.308	2.28488	4.08972	0.005	0.151	0.139	509.7062	0.154
Other Construction Equipment	2017	6	15	1.480652	1.244	5.65509	5.42066	0.005	0.477	0.439	558.0007	0.171
Other Construction Equipment	2017	16	25	1.480652	1.244	5.65509	5.42066	0.005	0.477	0.439	558.0007	0.171
Other Construction Equipment	2017	26	50	1.480652	1.244	5.65509	5.42066	0.005	0.477	0.439	558.0007	0.171
Other Construction Equipment	2017	51	120	0.804436	0.676	3.88542	6.06955	0.005	0.475	0.437	497.3832	0.152
Other Construction Equipment	2017	121	175	0.595557	0.5	3.33767	5.49424	0.005	0.29	0.267	495.9311	0.152
Other Construction Equipment	2017	251	500	0.3449	0.29	2.12114	3.77706	0.005	0.138	0.127	501.1295	0.154
Other Construction Equipment	2018	6	15	1.39068	1.169	5.54108	5.27161	0.005	0.449	0.413	548.9388	0.171
Other Construction Equipment	2018	16	25	1.39068	1.169	5.54108	5.27161	0.005	0.449	0.413	548.9388	0.171
Other Construction Equipment	2018	26	50	1.39068	1.169	5.54108	5.27161	0.005	0.449	0.413	548.9388	0.171
Other Construction Equipment	2018	51	120	0.711314	0.598	3.79863	5.44123	0.005	0.417	0.383	490.018	0.153
Other Construction Equipment	2018	121	175	0.519398	0.436	3.26346	4.75499	0.005	0.25	0.23	487.9859	0.152
Other Construction Equipment	2018	251	500	0.298599	0.251	1.81261	3.16693	0.005	0.115	0.105	493.36	0.154

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other Construction Equipment	2019	6	15	1.370834	1.152	5.54123	5.20338	0.005	0.437	0.402	539.7349	0.171
Other Construction Equipment	2019	16	25	1.370834	1.152	5.54123	5.20338	0.005	0.437	0.402	539.7349	0.171
Other Construction Equipment	2019	26	50	1.370834	1.152	5.54123	5.20338	0.005	0.437	0.402	539.7349	0.171
Other Construction Equipment	2019	51	120	0.655004	0.55	3.7535	5.04831	0.005	0.379	0.349	482.2177	0.153
Other Construction Equipment	2019	121	175	0.490382	0.412	3.25619	4.4331	0.005	0.233	0.215	480.4518	0.152
Other Construction Equipment	2019	251	500	0.277883	0.233	1.66739	2.85547	0.005	0.103	0.094	485.4127	0.154
Other Construction Equipment	2020	6	15	1.276029	1.072	5.40446	5.03626	0.005	0.405	0.373	527.9656	0.171
Other Construction Equipment	2020	16	25	1.276029	1.072	5.40446	5.03626	0.005	0.405	0.373	527.9656	0.171
Other Construction Equipment	2020	26	50	1.276029	1.072	5.40446	5.03626	0.005	0.405	0.373	527.9656	0.171
Other Construction Equipment	2020	51	120	0.617777	0.519	3.73189	4.7712	0.005	0.354	0.325	472.2162	0.153
Other Construction Equipment	2020	121	175	0.461441	0.388	3.23528	4.11203	0.005	0.217	0.2	469.9837	0.152
Other Construction Equipment	2020	251	500	0.266788	0.224	1.6338	2.63672	0.005	0.096	0.088	475.2326	0.154
Other Construction Equipment	2021	6	15	1.201423	1.01	5.30749	4.90234	0.005	0.382	0.351	527.7834	0.171
Other Construction Equipment	2021	16	25	1.201423	1.01	5.30749	4.90234	0.005	0.382	0.351	527.7834	0.171
Other Construction Equipment	2021	26	50	1.201423	1.01	5.30749	4.90234	0.005	0.382	0.351	527.7834	0.171
Other Construction Equipment	2021	51	120	0.573212	0.482	3.70304	4.4558	0.005	0.323	0.298	472.275	0.153
Other Construction Equipment	2021	121	175	0.392185	0.33	3.18275	3.43847	0.005	0.18	0.165	469.7642	0.152
Other Construction Equipment	2021	251	500	0.256006	0.215	1.59874	2.42822	0.005	0.09	0.082	475.2124	0.154
Other Construction Equipment	2022	6	15	1.094466	0.92	5.16732	4.74117	0.005	0.348	0.32	529.1825	0.171
Other Construction Equipment	2022	16	25	1.094466	0.92	5.16732	4.74117	0.005	0.348	0.32	529.1825	0.171
Other Construction Equipment	2022	26	50	1.094466	0.92	5.16732	4.74117	0.005	0.348	0.32	529.1825	0.171
Other Construction Equipment	2022	51	120	0.523663	0.44	3.66623	4.09846	0.005	0.288	0.265	472.3178	0.153
Other Construction Equipment	2022	121	175	0.351187	0.295	3.15539	2.99437	0.005	0.156	0.144	469.6126	0.152
Other Construction Equipment	2022	251	500	0.223796	0.188	1.43828	1.97544	0.005	0.074	0.068	475.9983	0.154
Other Construction Equipment	2023	6	15	1.030598	0.866	5.07368	4.59446	0.005	0.322	0.296	529.3389	0.171
Other Construction Equipment	2023	16	25	1.030598	0.866	5.07368	4.59446	0.005	0.322	0.296	529.3389	0.171
Other Construction Equipment	2023	26	50	1.030598	0.866	5.07368	4.59446	0.005	0.322	0.296	529.3389	0.171
Other Construction Equipment	2023	51	120	0.482844	0.406	3.63188	3.79013	0.005	0.259	0.238	471.9899	0.153
Other Construction Equipment	2023	121	175	0.325455	0.273	3.14152	2.69821	0.005	0.14	0.129	469.5579	0.152
Other Construction Equipment	2023	251	500	0.214667	0.18	1.39596	1.81226	0.005	0.069	0.063	476.1847	0.154
Other Construction Equipment	2024	6	15	0.984979	0.828	5.03181	4.51017	0.005	0.305	0.28	529.2094	0.171
Other Construction Equipment	2024	16	25	0.984979	0.828	5.03181	4.51017	0.005	0.305	0.28	529.2094	0.171
Other Construction Equipment	2024	26	50	0.984979	0.828	5.03181	4.51017	0.005	0.305	0.28	529.2094	0.171
Other Construction Equipment	2024	51	120	0.454266	0.382	3.61958	3.58173	0.005	0.237	0.218	472.1254	0.153
Other Construction Equipment	2024	121	175	0.310043	0.261	3.14951	2.52019	0.005	0.13	0.12	469.5445	0.152
Other Construction Equipment	2024	251	500	0.208244	0.175	1.38248	1.67692	0.005	0.064	0.059	476.4838	0.154
Other Construction Equipment	2025	6	15	0.901061	0.757	4.87388	4.30575	0.005	0.268	0.246	528.9535	0.171
Other Construction Equipment	2025	16	25	0.901061	0.757	4.87388	4.30575	0.005	0.268	0.246	528.9535	0.171
Other Construction Equipment	2025	26	50	0.901061	0.757	4.87388	4.30575	0.005	0.268	0.246	528.9535	0.171
Other Construction Equipment	2025	51	120	0.40612	0.341	3.58397	3.25221	0.005	0.203	0.187	472.7482	0.153
Other Construction Equipment	2025	121	175	0.279358	0.235	3.13647	2.16742	0.005	0.112	0.103	469.843	0.152
Other Construction Equipment	2025	251	500	0.200431	0.168	1.3582	1.55241	0.005	0.059	0.055	476.2959	0.154
Other Construction Equipment	2030	6	15	1.96	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Other Construction Equipment	2030	16	25	2.657	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Other Construction Equipment	2030	26	50	3.526	0.429	4.39	3.19	0.007	0.03	0.03	568.299	0.038
Other Construction Equipment	2030	51	120	5.348	0.225	3.538	1.576	0.006	0.027	0.027	568.3	0.02
Other Construction Equipment	2030	121	175	5.057	0.161	3.127	0.459	0.006	0.019	0.019	568.299	0.014
Other Construction Equipment	2030	251	500	11.523	0.154	1.028	0.391	0.005	0.014	0.014	568.3	0.013
Other Construction Equipment	2035	6	15	1.96	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Other Construction Equipment	2035	16	25	2.657	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Other Construction Equipment	2035	26	50	3.367	0.41	4.377	3.124	0.007	0.018	0.018	568.299	0.037
Other Construction Equipment	2035	51	120	5.057	0.213	3.536	1.474	0.006	0.017	0.017	568.299	0.019
Other Construction Equipment	2035	121	175	4.686	0.15	3.128	0.334	0.006	0.013	0.013	568.299	0.013
Other Construction Equipment	2035	251	500	11.034	0.147	1.029	0.311	0.005	0.011	0.011	568.299	0.013
Other Construction Equipment	2040	6	15	1.96	0.661	3.47	4.142	0.008	0.161	0.161	568.3	0.059
Other Construction Equipment	2040	16	25	2.657	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Other Construction Equipment	2040	26	50	3.359	0.409	4.377	3.096	0.007	0.015	0.015	568.3	0.036
Other Construction Equipment	2040	51	120	4.992	0.21	3.536	1.441	0.006	0.014	0.014	568.299	0.018
Other Construction Equipment	2040	121	175	4.556	0.145	3.128	0.29	0.006	0.011	0.011	568.299	0.013
Other Construction Equipment	2040	251	500	10.825	0.145	1.029	0.282	0.005	0.01	0.01	568.299	0.013
Other General Industrial Equipment	1990	6	15	4.264	1.804	4.999	9.999	0.833	0.968	0.968	568.299	0.162
Other General Industrial Equipment	1990	16	25	12.555	2.213	4.999	6.919	0.679	0.735	0.735	568.299	0.199
Other General Industrial Equipment	1990	26	50	38.808	4.828	9.768	7.957	0.692	1.266	1.266	568.299	0.435
Other General Industrial Equipment	1990	51	120	54.2	2.363	5.72	14.962	0.628	1.331	1.331	568.299	0.213
Other General Industrial Equipment	1990	121	175	57.106	1.61	5.066	13.434	0.602	0.88	0.88	568.299	0.145
Other General Industrial Equipment	1990	176	250	80.71	1.61	5.066	13.434	0.602	0.88	0.88	568.299	0.145
Other General Industrial Equipment	1990	251	500	139.861	1.425	11.207	12.743	0.525	0.756	0.756	568.299	0.128
Other General Industrial Equipment	1990	501	750	230.516	1.425	11.207	12.743	0.538	0.756	0.756	568.299	0.128
Other General Industrial Equipment	1990	751	1000	293.256	1.417	11.207	12.743	0.538	0.746	0.746	568.299	0.127
Other General Industrial Equipment	2000	6	15	2.475	1.047	4.258	7.362	0.079	0.428	0.428	568.299	0.094

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other General Industrial Equipment	2000	16	25	5.83	1.027	4.322	6.284	0.064	0.431	0.431	568.299	0.092
Other General Industrial Equipment	2000	26	50	36.086	4.49	9.236	7.09	0.065	0.935	0.935	568.299	0.405
Other General Industrial Equipment	2000	51	120	43.196	1.883	4.733	10.664	0.059	0.91	0.91	568.299	0.169
Other General Industrial Equipment	2000	121	175	44.74	1.261	3.852	9.686	0.057	0.536	0.536	568.299	0.113
Other General Industrial Equipment	2000	176	250	53	1.057	3.072	9.325	0.057	0.438	0.438	568.299	0.095
Other General Industrial Equipment	2000	251	500	93.834	0.956	5.179	8.862	0.049	0.385	0.385	568.299	0.086
Other General Industrial Equipment	2000	501	750	154.656	0.956	5.179	8.862	0.051	0.385	0.385	568.3	0.086
Other General Industrial Equipment	2000	751	1000	214.063	1.034	5.791	9.479	0.051	0.385	0.385	568.299	0.093
Other General Industrial Equipment	2005	6	15	1.674	0.708	3.469	4.985	0.079	0.35	0.35	568.299	0.063
Other General Industrial Equipment	2005	16	25	4.288	0.755	2.4	5.226	0.064	0.315	0.315	568.299	0.068
Other General Industrial Equipment	2005	26	50	33.133	4.122	8.765	6.676	0.065	0.888	0.888	568.299	0.371
Other General Industrial Equipment	2005	51	120	37.812	1.649	4.418	9.041	0.059	0.867	0.867	568.299	0.148
Other General Industrial Equipment	2005	121	175	38.439	1.084	3.513	8.273	0.057	0.479	0.479	568.299	0.097
Other General Industrial Equipment	2005	176	250	38.228	0.762	2.065	7.795	0.057	0.301	0.301	568.299	0.068
Other General Industrial Equipment	2005	251	500	66.246	0.675	2.681	7.094	0.049	0.269	0.269	568.299	0.06
Other General Industrial Equipment	2005	501	750	110.94	0.686	2.681	7.252	0.051	0.272	0.272	568.3	0.061
Other General Industrial Equipment	2005	751	1000	166.893	0.806	3.276	8.322	0.051	0.28	0.28	568.299	0.072
Other General Industrial Equipment	2010	6	15	1.873274	1.574	6.00712	5.68505	0.005	0.563	0.518	584.6401	0.17
Other General Industrial Equipment	2010	16	25	1.873274	1.574	6.00712	5.68505	0.005	0.563	0.518	584.6401	0.17
Other General Industrial Equipment	2010	26	50	1.873274	1.574	6.00712	5.68505	0.005	0.563	0.518	584.6401	0.17
Other General Industrial Equipment	2010	51	120	1.01726	0.855	4.0773	7.36447	0.005	0.611	0.562	522.222	0.152
Other General Industrial Equipment	2010	121	175	0.746027	0.627	3.51505	7.0202	0.005	0.379	0.349	524.278	0.153
Other General Industrial Equipment	2010	176	250	0.769173	0.646	2.61803	8.04899	0.005	0.359	0.33	525.8035	0.153
Other General Industrial Equipment	2010	251	500	0.489206	0.411	2.96412	5.68219	0.005	0.219	0.202	525.4767	0.153
Other General Industrial Equipment	2010	501	750	0.368598	0.31	1.62081	4.78207	0.005	0.168	0.154	526.0709	0.153
Other General Industrial Equipment	2010	751	1000	0.368913	0.31	1.02418	6.10226	0.005	0.148	0.136	524.505	0.153
Other General Industrial Equipment	2011	6	15	1.86071	1.564	6.08575	5.69446	0.005	0.562	0.517	583.1785	0.17
Other General Industrial Equipment	2011	16	25	1.86071	1.564	6.08575	5.69446	0.005	0.562	0.517	583.1785	0.17
Other General Industrial Equipment	2011	26	50	1.86071	1.564	6.08575	5.69446	0.005	0.562	0.517	583.1785	0.17
Other General Industrial Equipment	2011	51	120	1.006419	0.846	4.08854	7.24885	0.005	0.609	0.56	520.9164	0.152
Other General Industrial Equipment	2011	121	175	0.688559	0.579	3.47165	6.5273	0.005	0.352	0.324	522.9673	0.153
Other General Industrial Equipment	2011	176	250	0.679053	0.571	2.33422	7.30022	0.005	0.313	0.288	524.489	0.153
Other General Industrial Equipment	2011	251	500	0.467324	0.393	2.74249	5.42881	0.005	0.207	0.19	524.163	0.153
Other General Industrial Equipment	2011	501	750	0.373245	0.314	1.62791	4.72869	0.005	0.163	0.15	524.7557	0.153
Other General Industrial Equipment	2011	751	1000	0.37971	0.319	1.03813	6.1714	0.005	0.153	0.141	523.1938	0.153
Other General Industrial Equipment	2012	6	15	1.895405	1.593	6.24676	5.71254	0.005	0.569	0.524	581.7169	0.17
Other General Industrial Equipment	2012	16	25	1.895405	1.593	6.24676	5.71254	0.005	0.569	0.524	581.7169	0.17
Other General Industrial Equipment	2012	26	50	1.895405	1.593	6.24676	5.71254	0.005	0.569	0.524	581.7169	0.17
Other General Industrial Equipment	2012	51	120	1.008569	0.847	4.12133	7.21493	0.005	0.612	0.563	519.6109	0.152
Other General Industrial Equipment	2012	121	175	0.685664	0.576	3.49618	6.44491	0.005	0.349	0.321	521.6566	0.153
Other General Industrial Equipment	2012	176	250	0.675065	0.567	2.33594	7.14362	0.005	0.308	0.284	523.1745	0.153
Other General Industrial Equipment	2012	251	500	0.47625	0.4	2.75094	5.39821	0.005	0.207	0.19	522.8493	0.153
Other General Industrial Equipment	2012	501	750	0.379047	0.319	1.63473	4.69855	0.005	0.161	0.148	523.4405	0.153
Other General Industrial Equipment	2012	751	1000	0.390508	0.328	1.05208	6.24054	0.005	0.158	0.145	521.8825	0.153
Other General Industrial Equipment	2013	6	15	1.848739	1.553	6.26146	5.64536	0.005	0.556	0.511	578.7937	0.17
Other General Industrial Equipment	2013	16	25	1.848739	1.553	6.26146	5.64536	0.005	0.556	0.511	578.7937	0.17
Other General Industrial Equipment	2013	26	50	1.848739	1.553	6.26146	5.64536	0.005	0.556	0.511	578.7937	0.17
Other General Industrial Equipment	2013	51	120	0.982208	0.825	4.11871	7.03299	0.005	0.597	0.549	516.9998	0.152
Other General Industrial Equipment	2013	121	175	0.6403	0.538	3.4592	6.02319	0.005	0.324	0.298	519.0352	0.153
Other General Industrial Equipment	2013	176	250	0.609561	0.512	2.15134	6.51958	0.005	0.273	0.251	520.5455	0.153
Other General Industrial Equipment	2013	251	500	0.434695	0.365	2.62159	4.82071	0.005	0.183	0.168	520.2219	0.153
Other General Industrial Equipment	2013	501	750	0.344704	0.29	1.58393	4.12057	0.005	0.139	0.128	520.8102	0.153
Other General Industrial Equipment	2013	751	1000	0.401306	0.337	1.06602	6.30968	0.005	0.162	0.149	519.26	0.153
Other General Industrial Equipment	2014	6	15	1.810128	1.521	6.28785	5.58361	0.005	0.544	0.5	575.8705	0.17
Other General Industrial Equipment	2014	16	25	1.810128	1.521	6.28785	5.58361	0.005	0.544	0.5	575.8705	0.17
Other General Industrial Equipment	2014	26	50	1.810128	1.521	6.28785	5.58361	0.005	0.544	0.5	575.8705	0.17
Other General Industrial Equipment	2014	51	120	0.938561	0.789	4.09005	6.72277	0.005	0.574	0.528	514.3886	0.152
Other General Industrial Equipment	2014	121	175	0.621882	0.523	3.46929	5.79166	0.005	0.312	0.287	516.4138	0.153
Other General Industrial Equipment	2014	176	250	0.580321	0.488	2.05376	6.15263	0.005	0.255	0.234	517.9164	0.153
Other General Industrial Equipment	2014	251	500	0.422239	0.355	2.49943	4.56494	0.005	0.172	0.159	517.5945	0.153
Other General Industrial Equipment	2014	501	750	0.304364	0.256	1.48882	3.62195	0.005	0.115	0.106	518.1798	0.153
Other General Industrial Equipment	2014	751	1000	0.412103	0.346	1.07997	6.37883	0.005	0.167	0.153	516.6375	0.153
Other General Industrial Equipment	2015	6	15	1.779268	1.495	6.32452	5.52435	0.005	0.532	0.49	570.0241	0.17
Other General Industrial Equipment	2015	16	25	1.779268	1.495	6.32452	5.52435	0.005	0.532	0.49	570.0241	0.17
Other General Industrial Equipment	2015	26	50	1.779268	1.495	6.32452	5.52435	0.005	0.532	0.49	570.0241	0.17
Other General Industrial Equipment	2015	51	120	0.905303	0.761	4.0811	6.50163	0.005	0.553	0.509	509.1664	0.152
Other General Industrial Equipment	2015	121	175	0.589015	0.495	3.45434	5.3974	0.005	0.294	0.27	511.171	0.153
Other General Industrial Equipment	2015	176	250	0.538134	0.452	1.9257	5.64293	0.005	0.23	0.211	512.6584	0.153
Other General Industrial Equipment	2015	251	500	0.420225	0.353	2.43603	4.42481	0.005	0.167	0.154	512.3397	0.153
Other General Industrial Equipment	2015	501	750	0.298831	0.251	1.49062	3.36512	0.005	0.109	0.1	512.9191	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other General Industrial Equipment	2015	751	1000	0.422901	0.355	1.09391	6.44797	0.005	0.171	0.158	511.3924	0.153
Other General Industrial Equipment	2016	6	15	1.690474	1.42	6.25866	5.40705	0.005	0.506	0.466	564.1777	0.17
Other General Industrial Equipment	2016	16	25	1.690474	1.42	6.25866	5.40705	0.005	0.506	0.466	564.1777	0.17
Other General Industrial Equipment	2016	26	50	1.690474	1.42	6.25866	5.40705	0.005	0.506	0.466	564.1777	0.17
Other General Industrial Equipment	2016	51	120	0.851445	0.715	4.04541	6.14411	0.005	0.518	0.476	503.9442	0.152
Other General Industrial Equipment	2016	121	175	0.559455	0.47	3.43665	5.05466	0.005	0.276	0.254	505.9282	0.153
Other General Industrial Equipment	2016	176	250	0.519923	0.437	1.8667	5.40733	0.005	0.217	0.2	507.4004	0.153
Other General Industrial Equipment	2016	251	500	0.407021	0.342	2.36652	4.14966	0.005	0.159	0.146	507.085	0.153
Other General Industrial Equipment	2016	501	750	0.289084	0.243	1.49061	3.10202	0.005	0.1	0.092	507.6584	0.153
Other General Industrial Equipment	2016	751	1000	0.288345	0.242	1.04483	4.7462	0.005	0.112	0.103	506.1474	0.153
Other General Industrial Equipment	2017	6	15	1.605819	1.349	6.17923	5.27694	0.005	0.479	0.441	555.4081	0.17
Other General Industrial Equipment	2017	16	25	1.605819	1.349	6.17923	5.27694	0.005	0.479	0.441	555.4081	0.17
Other General Industrial Equipment	2017	26	50	1.605819	1.349	6.17923	5.27694	0.005	0.479	0.441	555.4081	0.17
Other General Industrial Equipment	2017	51	120	0.785454	0.66	3.99811	5.72138	0.005	0.47	0.433	496.1109	0.152
Other General Industrial Equipment	2017	121	175	0.520155	0.437	3.39928	4.53359	0.005	0.25	0.23	498.0641	0.153
Other General Industrial Equipment	2017	176	250	0.489435	0.411	1.78	5.02246	0.005	0.199	0.183	499.5133	0.153
Other General Industrial Equipment	2017	251	500	0.397215	0.334	2.36453	3.9491	0.005	0.152	0.14	499.2028	0.153
Other General Industrial Equipment	2017	501	750	0.260833	0.219	1.48016	2.59187	0.005	0.086	0.079	499.7673	0.153
Other General Industrial Equipment	2017	751	1000	0.29828	0.251	1.05719	4.7865	0.005	0.114	0.105	498.2798	0.153
Other General Industrial Equipment	2018	6	15	1.373834	1.154	5.82717	4.97857	0.005	0.414	0.381	546.6385	0.17
Other General Industrial Equipment	2018	16	25	1.373834	1.154	5.82717	4.97857	0.005	0.414	0.381	546.6385	0.17
Other General Industrial Equipment	2018	26	50	1.373834	1.154	5.82717	4.97857	0.005	0.414	0.381	546.6385	0.17
Other General Industrial Equipment	2018	51	120	0.663253	0.557	3.87633	4.95455	0.005	0.392	0.36	488.2775	0.152
Other General Industrial Equipment	2018	121	175	0.377931	0.318	3.23662	3.23673	0.005	0.172	0.158	490.1999	0.153
Other General Industrial Equipment	2018	176	250	0.360768	0.303	1.45525	3.64819	0.005	0.135	0.124	491.6263	0.153
Other General Industrial Equipment	2018	251	500	0.301755	0.254	1.58301	2.90735	0.005	0.104	0.095	491.3207	0.153
Other General Industrial Equipment	2018	501	750	0.257602	0.216	1.48303	2.41933	0.005	0.083	0.076	491.8763	0.153
Other General Industrial Equipment	2018	751	1000	0.306245	0.257	1.06646	4.81007	0.005	0.116	0.107	490.4122	0.153
Other General Industrial Equipment	2019	6	15	1.240314	1.042	5.66186	4.80683	0.005	0.374	0.344	537.8689	0.17
Other General Industrial Equipment	2019	16	25	1.240314	1.042	5.66186	4.80683	0.005	0.374	0.344	537.8689	0.17
Other General Industrial Equipment	2019	26	50	1.240314	1.042	5.66186	4.80683	0.005	0.374	0.344	537.8689	0.17
Other General Industrial Equipment	2019	51	120	0.594634	0.5	3.82128	4.49674	0.005	0.343	0.315	480.4442	0.152
Other General Industrial Equipment	2019	121	175	0.359068	0.302	3.24129	2.99891	0.005	0.156	0.144	482.3357	0.153
Other General Industrial Equipment	2019	176	250	0.307665	0.259	1.29893	3.01996	0.005	0.106	0.097	483.7392	0.153
Other General Industrial Equipment	2019	251	500	0.283854	0.239	1.56115	2.57531	0.005	0.092	0.085	483.4385	0.153
Other General Industrial Equipment	2019	501	750	0.236758	0.199	1.47441	2.11518	0.005	0.076	0.07	483.9852	0.153
Other General Industrial Equipment	2019	751	1000	0.31421	0.264	1.07573	4.83364	0.005	0.117	0.108	482.5446	0.153
Other General Industrial Equipment	2020	6	15	1.125869	0.946	5.50397	4.62219	0.005	0.334	0.307	526.1761	0.17
Other General Industrial Equipment	2020	16	25	1.125869	0.946	5.50397	4.62219	0.005	0.334	0.307	526.1761	0.17
Other General Industrial Equipment	2020	26	50	1.125869	0.946	5.50397	4.62219	0.005	0.334	0.307	526.1761	0.17
Other General Industrial Equipment	2020	51	120	0.53075	0.446	3.77073	4.06079	0.005	0.296	0.272	469.9998	0.152
Other General Industrial Equipment	2020	121	175	0.319281	0.268	3.22922	2.57503	0.005	0.135	0.124	471.8502	0.153
Other General Industrial Equipment	2020	176	250	0.281815	0.237	1.23914	2.66782	0.005	0.09	0.083	473.2231	0.153
Other General Industrial Equipment	2020	251	500	0.247036	0.208	1.34424	2.06187	0.005	0.072	0.067	472.929	0.153
Other General Industrial Equipment	2020	501	750	0.207847	0.175	1.46184	1.67591	0.005	0.062	0.057	473.4638	0.153
Other General Industrial Equipment	2020	751	1000	0.322174	0.271	1.085	4.85721	0.005	0.119	0.109	472.0545	0.153
Other General Industrial Equipment	2021	6	15	0.989462	0.831	5.31354	4.42532	0.005	0.289	0.266	526.1761	0.17
Other General Industrial Equipment	2021	16	25	0.989462	0.831	5.31354	4.42532	0.005	0.289	0.266	526.1761	0.17
Other General Industrial Equipment	2021	26	50	0.989462	0.831	5.31354	4.42532	0.005	0.289	0.266	526.1761	0.17
Other General Industrial Equipment	2021	51	120	0.480398	0.404	3.74029	3.7177	0.005	0.256	0.235	469.9998	0.152
Other General Industrial Equipment	2021	121	175	0.302394	0.254	3.23421	2.34745	0.005	0.121	0.111	471.8502	0.153
Other General Industrial Equipment	2021	176	250	0.242448	0.204	1.17138	2.0939	0.005	0.07	0.064	473.2231	0.153
Other General Industrial Equipment	2021	251	500	0.232592	0.195	1.32956	1.79624	0.005	0.064	0.059	472.929	0.153
Other General Industrial Equipment	2021	501	750	0.197551	0.166	1.46305	1.38672	0.005	0.054	0.05	473.4638	0.153
Other General Industrial Equipment	2021	751	1000	0.328625	0.276	1.09291	4.87557	0.005	0.12	0.11	472.0545	0.153
Other General Industrial Equipment	2022	6	15	0.835231	0.702	5.07591	4.19687	0.005	0.238	0.219	526.1761	0.17
Other General Industrial Equipment	2022	16	25	0.835231	0.702	5.07591	4.19687	0.005	0.238	0.219	526.1761	0.17
Other General Industrial Equipment	2022	26	50	0.835231	0.702	5.07591	4.19687	0.005	0.238	0.219	526.1761	0.17
Other General Industrial Equipment	2022	51	120	0.403101	0.339	3.66821	3.19968	0.005	0.199	0.183	469.9998	0.152
Other General Industrial Equipment	2022	121	175	0.289798	0.244	3.23346	2.14959	0.005	0.111	0.102	471.8502	0.153
Other General Industrial Equipment	2022	176	250	0.222216	0.187	1.13752	1.75874	0.005	0.057	0.052	473.2231	0.153
Other General Industrial Equipment	2022	251	500	0.208015	0.175	1.17139	1.43348	0.005	0.05	0.046	472.929	0.153
Other General Industrial Equipment	2022	501	750	0.177285	0.149	1.45658	1.06247	0.005	0.046	0.042	473.4638	0.153
Other General Industrial Equipment	2022	751	1000	0.223076	0.187	1.03925	3.942	0.005	0.079	0.073	472.0545	0.153
Other General Industrial Equipment	2023	6	15	0.717857	0.603	4.88317	3.99304	0.005	0.194	0.178	526.1761	0.17
Other General Industrial Equipment	2023	16	25	0.717857	0.603	4.88317	3.99304	0.005	0.194	0.178	526.1761	0.17
Other General Industrial Equipment	2023	26	50	0.717857	0.603	4.88317	3.99304	0.005	0.194	0.178	526.1761	0.17
Other General Industrial Equipment	2023	51	120	0.366077	0.308	3.64703	2.92394	0.005	0.168	0.155	469.9998	0.152
Other General Industrial Equipment	2023	121	175	0.238568	0.2	3.17453	1.60937	0.005	0.08	0.074	471.8502	0.153
Other General Industrial Equipment	2023	176	250	0.214876	0.181	1.14024	1.53043	0.005	0.051	0.047	473.2231	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other General Industrial Equipment	2023	251	500	0.195172	0.164	1.12057	1.25618	0.005	0.043	0.04	472.929	0.153
Other General Industrial Equipment	2023	501	750	0.131565	0.111	1.10458	0.62571	0.005	0.023	0.021	473.4638	0.153
Other General Industrial Equipment	2023	751	1000	0.229255	0.193	1.04852	3.95649	0.005	0.08	0.073	472.0545	0.153
Other General Industrial Equipment	2024	6	15	0.649743	0.546	4.78022	3.85892	0.005	0.165	0.152	526.1761	0.17
Other General Industrial Equipment	2024	16	25	0.649743	0.546	4.78022	3.85892	0.005	0.165	0.152	526.1761	0.17
Other General Industrial Equipment	2024	26	50	0.649743	0.546	4.78022	3.85892	0.005	0.165	0.152	526.1761	0.17
Other General Industrial Equipment	2024	51	120	0.341745	0.287	3.63929	2.70778	0.005	0.146	0.134	469.9998	0.152
Other General Industrial Equipment	2024	121	175	0.226791	0.191	3.18534	1.44774	0.005	0.073	0.067	471.8502	0.153
Other General Industrial Equipment	2024	176	250	0.205547	0.173	1.14124	1.31888	0.005	0.046	0.042	473.2231	0.153
Other General Industrial Equipment	2024	251	500	0.187509	0.158	1.1102	1.15288	0.005	0.04	0.036	472.929	0.153
Other General Industrial Equipment	2024	501	750	0.137014	0.115	1.11228	0.62782	0.005	0.023	0.021	473.4638	0.153
Other General Industrial Equipment	2024	751	1000	0.235434	0.198	1.05779	3.97098	0.005	0.08	0.074	472.0545	0.153
Other General Industrial Equipment	2025	6	15	0.585572	0.492	4.67981	3.71721	0.005	0.136	0.125	526.1761	0.17
Other General Industrial Equipment	2025	16	25	0.585572	0.492	4.67981	3.71721	0.005	0.136	0.125	526.1761	0.17
Other General Industrial Equipment	2025	26	50	0.585572	0.492	4.67981	3.71721	0.005	0.136	0.125	526.1761	0.17
Other General Industrial Equipment	2025	51	120	0.306396	0.257	3.61204	2.43889	0.005	0.118	0.109	469.9998	0.152
Other General Industrial Equipment	2025	121	175	0.224974	0.189	3.20434	1.36379	0.005	0.07	0.065	471.8502	0.153
Other General Industrial Equipment	2025	176	250	0.184121	0.155	1.13176	1.02801	0.005	0.036	0.033	473.2231	0.153
Other General Industrial Equipment	2025	251	500	0.180295	0.151	1.10932	1.05334	0.005	0.035	0.032	472.929	0.153
Other General Industrial Equipment	2025	501	750	0.139282	0.117	1.1152	0.629	0.005	0.023	0.021	473.4638	0.153
Other General Industrial Equipment	2025	751	1000	0.241613	0.203	1.06706	3.98546	0.005	0.081	0.074	472.0545	0.153
Other General Industrial Equipment	2030	6	15	1.393	0.589	3.469	4.142	0.008	0.161	0.161	568.299	0.053
Other General Industrial Equipment	2030	16	25	3.889	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Other General Industrial Equipment	2030	26	50	4.896	0.609	5.299	3.46	0.007	0.048	0.048	568.299	0.054
Other General Industrial Equipment	2030	51	120	7.091	0.309	3.802	1.766	0.006	0.043	0.043	568.299	0.027
Other General Industrial Equipment	2030	121	175	7.93	0.223	3.357	0.641	0.006	0.028	0.028	568.299	0.02
Other General Industrial Equipment	2030	176	250	10.485	0.209	1.143	0.536	0.006	0.018	0.018	568.299	0.018
Other General Industrial Equipment	2030	251	500	20.447	0.208	1.087	0.506	0.005	0.018	0.018	568.299	0.018
Other General Industrial Equipment	2030	501	750	33.725	0.208	1.087	0.512	0.005	0.018	0.018	568.299	0.018
Other General Industrial Equipment	2030	751	1000	44.002	0.212	1.088	2.66	0.005	0.035	0.035	568.299	0.019
Other General Industrial Equipment	2035	6	15	1.393	0.589	3.469	4.142	0.008	0.161	0.161	568.299	0.053
Other General Industrial Equipment	2035	16	25	3.889	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Other General Industrial Equipment	2035	26	50	4.535	0.564	5.255	3.334	0.007	0.025	0.025	568.299	0.05
Other General Industrial Equipment	2035	51	120	6.486	0.282	3.794	1.567	0.006	0.022	0.022	568.3	0.025
Other General Industrial Equipment	2035	121	175	7.079	0.199	3.355	0.399	0.006	0.016	0.016	568.3	0.018
Other General Industrial Equipment	2035	176	250	9.803	0.195	1.143	0.355	0.006	0.013	0.013	568.299	0.017
Other General Industrial Equipment	2035	251	500	19.187	0.195	1.087	0.351	0.005	0.013	0.013	568.299	0.017
Other General Industrial Equipment	2035	501	750	31.624	0.195	1.087	0.351	0.005	0.013	0.013	568.299	0.017
Other General Industrial Equipment	2035	751	1000	40.723	0.196	1.087	2.532	0.005	0.028	0.028	568.299	0.017
Other General Industrial Equipment	2040	6	15	1.393	0.589	3.47	4.142	0.008	0.161	0.161	568.299	0.053
Other General Industrial Equipment	2040	16	25	3.889	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Other General Industrial Equipment	2040	26	50	4.521	0.562	5.257	3.283	0.007	0.019	0.019	568.299	0.05
Other General Industrial Equipment	2040	51	120	6.373	0.277	3.794	1.506	0.006	0.017	0.017	568.299	0.025
Other General Industrial Equipment	2040	121	175	6.806	0.191	3.356	0.315	0.006	0.012	0.012	568.299	0.017
Other General Industrial Equipment	2040	176	250	9.551	0.19	1.143	0.299	0.006	0.011	0.011	568.299	0.017
Other General Industrial Equipment	2040	251	500	18.696	0.19	1.087	0.299	0.005	0.011	0.011	568.299	0.017
Other General Industrial Equipment	2040	501	750	30.815	0.19	1.087	0.299	0.005	0.011	0.011	568.299	0.017
Other General Industrial Equipment	2040	751	1000	39.521	0.191	1.087	2.5	0.005	0.025	0.025	568.299	0.017
Other Material Handling Equipment	1990	26	50	12.278	4.763	9.649	7.932	0.692	1.252	1.252	568.3	0.429
Other Material Handling Equipment	1990	51	120	12.096	2.346	5.692	14.896	0.628	1.317	1.317	568.299	0.211
Other Material Handling Equipment	1990	121	175	16.59	1.599	5.041	13.377	0.602	0.872	0.872	568.299	0.144
Other Material Handling Equipment	1990	176	250	19.708	1.599	5.041	13.377	0.602	0.872	0.872	568.3	0.144
Other Material Handling Equipment	1990	251	500	23.083	1.417	11.046	12.702	0.525	0.75	0.75	568.299	0.127
Other Material Handling Equipment	1990	1001	9999	88.844	1.41	11.046	12.702	0.525	0.741	0.741	568.3	0.127
Other Material Handling Equipment	2000	26	50	11.414	4.428	9.121	7.068	0.065	0.925	0.925	568.299	0.399
Other Material Handling Equipment	2000	51	120	9.647	1.871	4.712	10.623	0.059	0.901	0.901	568.299	0.168
Other Material Handling Equipment	2000	121	175	13	1.253	3.836	9.648	0.057	0.531	0.531	568.299	0.113
Other Material Handling Equipment	2000	176	250	12.957	1.051	3.061	9.289	0.057	0.435	0.435	568.3	0.094
Other Material Handling Equipment	2000	251	500	15.5	0.951	5.171	8.836	0.049	0.383	0.383	568.299	0.085
Other Material Handling Equipment	2000	1001	9999	65.006	1.031	5.779	9.45	0.049	0.384	0.384	568.299	0.093
Other Material Handling Equipment	2005	26	50	10.467	4.06	8.646	6.65	0.065	0.878	0.878	568.299	0.366
Other Material Handling Equipment	2005	51	120	8.426	1.634	4.393	9.001	0.059	0.857	0.857	568.3	0.147
Other Material Handling Equipment	2005	121	175	11.141	1.073	3.493	8.235	0.057	0.473	0.473	568.299	0.096
Other Material Handling Equipment	2005	176	250	9.335	0.757	2.058	7.76	0.057	0.299	0.299	568.299	0.068
Other Material Handling Equipment	2005	251	500	10.914	0.67	2.676	7.071	0.049	0.268	0.268	568.299	0.06
Other Material Handling Equipment	2005	1001	9999	50.601	0.803	3.267	8.291	0.049	0.278	0.278	568.299	0.072
Other Material Handling Equipment	2010	26	50	2.513226	2.112	7.14242	6.11921	0.005	0.673	0.619	581.8987	0.169
Other Material Handling Equipment	2010	51	120	0.880333	0.74	3.91836	6.86036	0.005	0.55	0.506	526.2094	0.153
Other Material Handling Equipment	2010	121	175	0.703937	0.592	3.45939	6.62945	0.005	0.364	0.335	524.6881	0.153
Other Material Handling Equipment	2010	176	250	0.639111	0.537	2.2178	7.05748	0.005	0.292	0.269	523.8689	0.152

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other Material Handling Equipment	2010	251	500	0.474577	0.399	2.89546	5.53948	0.005	0.225	0.207	522.5525	0.152
Other Material Handling Equipment	2010	1001	9999	0.19342	0.163	0.96514	4.31467	0.005	0.1	0.092	524.505	0.153
Other Material Handling Equipment	2011	26	50	2.357707	1.981	6.95209	6.0264	0.005	0.644	0.593	580.4439	0.169
Other Material Handling Equipment	2011	51	120	0.835489	0.702	3.89742	6.54765	0.005	0.527	0.485	524.8938	0.153
Other Material Handling Equipment	2011	121	175	0.695125	0.584	3.45599	6.48588	0.005	0.36	0.331	523.3764	0.153
Other Material Handling Equipment	2011	176	250	0.63663	0.535	2.18416	6.98965	0.005	0.288	0.265	522.5592	0.152
Other Material Handling Equipment	2011	251	500	0.474482	0.399	2.78574	5.43165	0.005	0.221	0.203	521.2461	0.152
Other Material Handling Equipment	2011	1001	9999	0.210247	0.177	0.97804	4.35542	0.005	0.103	0.095	523.1938	0.153
Other Material Handling Equipment	2012	26	50	2.238738	1.881	6.81597	5.92499	0.005	0.62	0.57	578.9892	0.169
Other Material Handling Equipment	2012	51	120	0.817068	0.687	3.90414	6.36758	0.005	0.516	0.475	523.5783	0.153
Other Material Handling Equipment	2012	121	175	0.692769	0.582	3.47827	6.40913	0.005	0.357	0.328	522.0647	0.153
Other Material Handling Equipment	2012	176	250	0.646463	0.543	2.19514	7.02565	0.005	0.29	0.267	521.2496	0.152
Other Material Handling Equipment	2012	251	500	0.470349	0.395	2.61135	5.30246	0.005	0.214	0.197	519.9397	0.152
Other Material Handling Equipment	2012	1001	9999	0.227073	0.191	0.99094	4.39617	0.005	0.106	0.098	521.8825	0.153
Other Material Handling Equipment	2013	26	50	2.105942	1.77	6.66457	5.85572	0.005	0.596	0.548	576.0797	0.169
Other Material Handling Equipment	2013	51	120	0.724086	0.608	3.82317	5.76277	0.005	0.447	0.411	520.9473	0.153
Other Material Handling Equipment	2013	121	175	0.665996	0.56	3.43613	6.15356	0.005	0.333	0.306	519.4412	0.153
Other Material Handling Equipment	2013	176	250	0.634565	0.533	2.16882	6.82184	0.005	0.281	0.259	518.6302	0.152
Other Material Handling Equipment	2013	251	500	0.438071	0.368	2.33558	4.87099	0.005	0.195	0.179	517.327	0.152
Other Material Handling Equipment	2013	1001	9999	0.2439	0.205	1.00384	4.43692	0.005	0.11	0.101	519.26	0.153
Other Material Handling Equipment	2014	26	50	2.017454	1.695	6.58988	5.75119	0.005	0.575	0.529	573.1702	0.169
Other Material Handling Equipment	2014	51	120	0.66398	0.558	3.77914	5.37202	0.005	0.412	0.379	518.3162	0.153
Other Material Handling Equipment	2014	121	175	0.628738	0.528	3.43064	5.79759	0.005	0.313	0.288	516.8178	0.153
Other Material Handling Equipment	2014	176	250	0.565441	0.475	1.93605	6.17254	0.005	0.242	0.223	516.0109	0.152
Other Material Handling Equipment	2014	251	500	0.394393	0.331	1.92674	4.35658	0.005	0.169	0.155	514.7142	0.152
Other Material Handling Equipment	2014	1001	9999	0.168044	0.141	0.97804	3.4363	0.005	0.066	0.061	516.6375	0.153
Other Material Handling Equipment	2015	26	50	2.062891	1.733	6.75642	5.7994	0.005	0.586	0.539	567.3512	0.169
Other Material Handling Equipment	2015	51	120	0.628094	0.528	3.75787	4.98312	0.005	0.383	0.352	513.0541	0.153
Other Material Handling Equipment	2015	121	175	0.624881	0.525	3.43301	5.6445	0.005	0.306	0.282	511.5709	0.153
Other Material Handling Equipment	2015	176	250	0.503855	0.423	1.74236	5.5323	0.005	0.207	0.191	510.7722	0.152
Other Material Handling Equipment	2015	251	500	0.396328	0.333	1.91761	4.27243	0.005	0.166	0.152	509.4887	0.152
Other Material Handling Equipment	2015	1001	9999	0.1762	0.148	0.98449	3.45753	0.005	0.068	0.063	511.3924	0.153
Other Material Handling Equipment	2016	26	50	2.100647	1.765	6.89161	5.80157	0.005	0.593	0.546	561.5322	0.169
Other Material Handling Equipment	2016	51	120	0.611519	0.514	3.76606	4.79843	0.005	0.367	0.338	507.792	0.153
Other Material Handling Equipment	2016	121	175	0.581687	0.489	3.41823	5.21152	0.005	0.279	0.257	506.324	0.153
Other Material Handling Equipment	2016	176	250	0.474176	0.398	1.64277	5.19629	0.005	0.189	0.174	505.5335	0.152
Other Material Handling Equipment	2016	251	500	0.384009	0.323	1.87077	4.05322	0.005	0.156	0.143	504.2631	0.152
Other Material Handling Equipment	2016	1001	9999	0.188654	0.159	0.99739	3.48884	0.005	0.07	0.065	506.1474	0.153
Other Material Handling Equipment	2017	26	50	1.922269	1.615	6.63527	5.57447	0.005	0.546	0.502	552.8037	0.169
Other Material Handling Equipment	2017	51	120	0.580499	0.488	3.75788	4.56113	0.005	0.341	0.314	499.8989	0.153
Other Material Handling Equipment	2017	121	175	0.508007	0.427	3.35117	4.48809	0.005	0.238	0.219	498.4537	0.153
Other Material Handling Equipment	2017	176	250	0.42771	0.359	1.51249	4.70454	0.005	0.163	0.15	497.6755	0.152
Other Material Handling Equipment	2017	251	500	0.386945	0.325	1.86256	3.9709	0.005	0.154	0.141	496.4249	0.152
Other Material Handling Equipment	2017	1001	9999	0.201109	0.169	1.01029	3.52015	0.005	0.072	0.066	498.2798	0.153
Other Material Handling Equipment	2018	26	50	1.534491	1.289	6.06083	5.18225	0.005	0.457	0.42	544.0753	0.169
Other Material Handling Equipment	2018	51	120	0.484553	0.407	3.67482	3.9436	0.005	0.271	0.249	492.0058	0.153
Other Material Handling Equipment	2018	121	175	0.38852	0.326	3.21803	3.33231	0.005	0.173	0.159	490.5834	0.153
Other Material Handling Equipment	2018	176	250	0.376195	0.316	1.3884	4.09187	0.005	0.135	0.124	489.8174	0.152
Other Material Handling Equipment	2018	251	500	0.352182	0.296	1.63271	3.52439	0.005	0.133	0.123	488.5866	0.152
Other Material Handling Equipment	2018	1001	9999	0.213564	0.179	1.02319	3.55146	0.005	0.074	0.068	490.4122	0.153
Other Material Handling Equipment	2019	26	50	1.5177	1.275	6.13945	5.17904	0.005	0.452	0.416	535.3468	0.169
Other Material Handling Equipment	2019	51	120	0.428699	0.36	3.63634	3.56573	0.005	0.231	0.212	484.1126	0.153
Other Material Handling Equipment	2019	121	175	0.332757	0.28	3.1852	2.77369	0.005	0.139	0.128	482.7131	0.153
Other Material Handling Equipment	2019	176	250	0.357063	0.3	1.34052	3.81716	0.005	0.123	0.113	481.9594	0.152
Other Material Handling Equipment	2019	251	500	0.346245	0.291	1.61951	3.37078	0.005	0.128	0.118	480.7483	0.152
Other Material Handling Equipment	2019	1001	9999	0.226018	0.19	1.03609	3.58277	0.005	0.076	0.07	482.5446	0.153
Other Material Handling Equipment	2020	26	50	1.481858	1.245	6.1671	5.13925	0.005	0.439	0.404	523.7088	0.169
Other Material Handling Equipment	2020	51	120	0.36479	0.307	3.58938	3.10396	0.005	0.182	0.168	473.5884	0.153
Other Material Handling Equipment	2020	121	175	0.299922	0.252	3.17089	2.36653	0.005	0.118	0.109	472.2193	0.153
Other Material Handling Equipment	2020	176	250	0.346024	0.291	1.31882	3.59889	0.005	0.115	0.106	471.482	0.152
Other Material Handling Equipment	2020	251	500	0.336187	0.282	1.52346	3.20974	0.005	0.12	0.11	470.2972	0.152
Other Material Handling Equipment	2020	1001	9999	0.238473	0.2	1.04898	3.61407	0.005	0.078	0.072	472.0545	0.153
Other Material Handling Equipment	2021	26	50	1.318509	1.108	5.95956	4.96638	0.005	0.396	0.364	523.7088	0.169
Other Material Handling Equipment	2021	51	120	0.349969	0.294	3.60203	2.95622	0.005	0.166	0.152	473.5884	0.153
Other Material Handling Equipment	2021	121	175	0.296084	0.249	3.19638	2.24633	0.005	0.114	0.105	472.2193	0.153
Other Material Handling Equipment	2021	176	250	0.32063	0.269	1.30911	3.08193	0.005	0.102	0.094	471.482	0.152
Other Material Handling Equipment	2021	251	500	0.302407	0.254	1.44188	2.60166	0.005	0.101	0.093	470.2972	0.152
Other Material Handling Equipment	2021	1001	9999	0.086228	0.072	0.97159	2.3179	0.005	0.019	0.018	472.0545	0.153
Other Material Handling Equipment	2022	26	50	1.313129	1.103	5.98386	4.92048	0.005	0.385	0.354	523.7088	0.169
Other Material Handling Equipment	2022	51	120	0.294157	0.247	3.55673	2.56673	0.005	0.121	0.111	473.5884	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other Material Handling Equipment	2022	121	175	0.268495	0.226	3.17607	1.89383	0.005	0.103	0.095	472.2193	0.153
Other Material Handling Equipment	2022	176	250	0.272302	0.229	1.23917	2.42542	0.005	0.083	0.076	471.482	0.152
Other Material Handling Equipment	2022	251	500	0.269417	0.226	1.34592	2.06254	0.005	0.083	0.077	470.2972	0.152
Other Material Handling Equipment	2022	1001	9999	0.090526	0.076	0.97804	2.32798	0.005	0.02	0.018	472.0545	0.153
Other Material Handling Equipment	2023	26	50	1.203044	1.011	5.75727	4.68435	0.005	0.34	0.313	523.7088	0.169
Other Material Handling Equipment	2023	51	120	0.267491	0.225	3.51535	2.29768	0.005	0.104	0.095	473.5884	0.153
Other Material Handling Equipment	2023	121	175	0.25813	0.217	3.17066	1.76898	0.005	0.096	0.088	472.2193	0.153
Other Material Handling Equipment	2023	176	250	0.246291	0.207	1.20917	2.00366	0.005	0.069	0.064	471.482	0.152
Other Material Handling Equipment	2023	251	500	0.258837	0.217	1.34382	1.87023	0.005	0.078	0.072	470.2972	0.152
Other Material Handling Equipment	2023	1001	9999	0.064735	0.054	0.93935	2.26751	0.005	0.018	0.017	472.0545	0.153
Other Material Handling Equipment	2024	26	50	1.121754	0.943	5.6693	4.5789	0.005	0.314	0.289	523.7088	0.169
Other Material Handling Equipment	2024	51	120	0.262084	0.22	3.51036	2.22162	0.005	0.096	0.089	473.5884	0.153
Other Material Handling Equipment	2024	121	175	0.247908	0.208	3.18111	1.63864	0.005	0.088	0.081	472.2193	0.153
Other Material Handling Equipment	2024	176	250	0.250036	0.21	1.21822	1.98559	0.005	0.068	0.063	471.482	0.152
Other Material Handling Equipment	2024	251	500	0.252116	0.212	1.26223	1.75588	0.005	0.072	0.066	470.2972	0.152
Other Material Handling Equipment	2024	1001	9999	0.069034	0.058	0.9458	2.27759	0.005	0.018	0.017	472.0545	0.153
Other Material Handling Equipment	2025	26	50	0.88573	0.744	5.24797	4.23278	0.005	0.239	0.219	523.7088	0.169
Other Material Handling Equipment	2025	51	120	0.241784	0.203	3.49652	2.05524	0.005	0.081	0.074	473.5884	0.153
Other Material Handling Equipment	2025	121	175	0.225132	0.189	3.1679	1.39583	0.005	0.072	0.067	472.2193	0.153
Other Material Handling Equipment	2025	176	250	0.237677	0.2	1.19728	1.77352	0.005	0.06	0.055	471.482	0.152
Other Material Handling Equipment	2025	251	500	0.242568	0.204	1.25988	1.60116	0.005	0.067	0.061	470.2972	0.152
Other Material Handling Equipment	2025	1001	9999	0.077631	0.065	0.9587	2.29775	0.005	0.019	0.017	472.0545	0.153
Other Material Handling Equipment	2030	26	50	1.542	0.598	5.237	3.447	0.007	0.048	0.048	568.299	0.053
Other Material Handling Equipment	2030	51	120	1.57	0.304	3.784	1.762	0.006	0.043	0.043	568.299	0.027
Other Material Handling Equipment	2030	121	175	2.287	0.22	3.341	0.64	0.006	0.028	0.028	568.299	0.019
Other Material Handling Equipment	2030	176	250	2.539	0.206	1.138	0.535	0.006	0.018	0.018	568.299	0.018
Other Material Handling Equipment	2030	251	500	3.342	0.205	1.083	0.505	0.005	0.018	0.018	568.299	0.018
Other Material Handling Equipment	2030	1001	9999	13.763	0.218	1.084	2.653	0.005	0.035	0.035	568.299	0.019
Other Material Handling Equipment	2035	26	50	1.425	0.552	5.189	3.321	0.007	0.025	0.025	568.299	0.049
Other Material Handling Equipment	2035	51	120	1.432	0.277	3.774	1.563	0.006	0.022	0.022	568.299	0.025
Other Material Handling Equipment	2035	121	175	2.036	0.196	3.338	0.398	0.006	0.016	0.016	568.299	0.017
Other Material Handling Equipment	2035	176	250	2.369	0.192	1.137	0.354	0.006	0.013	0.013	568.299	0.017
Other Material Handling Equipment	2035	251	500	3.13	0.192	1.082	0.35	0.005	0.013	0.013	568.299	0.017
Other Material Handling Equipment	2035	1001	9999	12.454	0.197	1.082	2.525	0.005	0.027	0.027	568.299	0.017
Other Material Handling Equipment	2040	26	50	1.42	0.551	5.191	3.269	0.007	0.018	0.018	568.299	0.049
Other Material Handling Equipment	2040	51	120	1.407	0.272	3.775	1.502	0.006	0.017	0.017	568.3	0.024
Other Material Handling Equipment	2040	121	175	1.956	0.188	3.339	0.314	0.006	0.012	0.012	568.299	0.017
Other Material Handling Equipment	2040	176	250	2.307	0.187	1.137	0.298	0.006	0.011	0.011	568.299	0.016
Other Material Handling Equipment	2040	251	500	3.048	0.187	1.082	0.298	0.005	0.011	0.011	568.299	0.016
Other Material Handling Equipment	2040	1001	9999	11.917	0.189	1.082	2.493	0.005	0.025	0.025	568.3	0.017
Pavers	1990	16	25	5.971	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Pavers	1990	26	50	19.405	4.794	9.701	7.946	0.871	1.268	1.268	568.299	0.432
Pavers	1990	51	120	23.749	2.373	5.748	15.062	0.791	1.339	1.339	568.299	0.214
Pavers	1990	121	175	33.808	1.822	5.135	14.503	0.758	1.01	1.01	568.3	0.164
Pavers	1990	176	250	51.225	1.822	5.135	14.503	0.758	1.01	1.01	568.299	0.164
Pavers	1990	251	500	54.32	1.61	11.305	13.755	0.662	0.864	0.864	568.3	0.145
Pavers	2000	16	25	5.517	2.044	4.689	6.391	0.065	0.569	0.569	568.299	0.184
Pavers	2000	26	50	18.072	4.464	9.175	7.116	0.066	0.93	0.93	568.299	0.402
Pavers	2000	51	120	19.415	1.94	4.853	11.121	0.06	0.916	0.916	568.299	0.175
Pavers	2000	121	175	24.566	1.324	4.022	10.172	0.057	0.558	0.558	568.299	0.119
Pavers	2000	176	250	33.03	1.175	3.443	9.909	0.057	0.488	0.488	568.299	0.106
Pavers	2000	251	500	35.713	1.058	6.242	9.422	0.05	0.426	0.426	568.299	0.095
Pavers	2005	16	25	3.746	1.388	3.497	5.819	0.065	0.444	0.444	568.299	0.125
Pavers	2005	26	50	16.699	4.125	8.722	6.746	0.066	0.883	0.883	568.299	0.372
Pavers	2005	51	120	17.345	1.733	4.584	9.797	0.06	0.869	0.869	568.299	0.156
Pavers	2005	121	175	21.287	1.147	3.731	8.921	0.057	0.5	0.5	568.299	0.103
Pavers	2005	176	250	26.087	0.928	2.661	8.591	0.057	0.382	0.382	568.299	0.083
Pavers	2005	251	500	27.622	0.818	4.283	7.91	0.05	0.335	0.335	568.299	0.073
Pavers	2010	16	25	2.244446	1.886	6.22261	5.97127	0.005	0.619	0.569	585.4019	0.17
Pavers	2010	26	50	2.244446	1.886	6.22261	5.97127	0.005	0.619	0.569	585.4019	0.17
Pavers	2010	51	120	0.922393	0.775	3.82417	7.01944	0.005	0.54	0.497	521.2606	0.152
Pavers	2010	121	175	0.693583	0.583	3.10662	6.66867	0.005	0.337	0.31	525.3233	0.153
Pavers	2010	176	250	0.236627	0.199	1.01703	4.38018	0.005	0.111	0.102	526.8527	0.153
Pavers	2010	251	500	0.240458	0.202	1.1256	3.56944	0.005	0.123	0.113	517.8758	0.151
Pavers	2011	16	25	2.255759	1.895	6.28822	5.97418	0.005	0.621	0.571	583.8947	0.17
Pavers	2011	26	50	2.255759	1.895	6.28822	5.97418	0.005	0.621	0.571	583.8947	0.17
Pavers	2011	51	120	0.882284	0.741	3.7912	6.70468	0.005	0.521	0.479	519.7431	0.152
Pavers	2011	121	175	0.67473	0.567	3.11177	6.45159	0.005	0.327	0.301	524.0864	0.153
Pavers	2011	176	250	0.244703	0.206	1.02596	4.38871	0.005	0.112	0.103	525.5251	0.153
Pavers	2011	251	500	0.249329	0.21	1.13249	3.58498	0.005	0.125	0.115	516.5811	0.151

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pavers	2012	16	25	2.286702	1.921	6.36408	5.86068	0.005	0.609	0.56	582.5825	0.17
Pavers	2012	26	50	2.286702	1.921	6.36408	5.86068	0.005	0.609	0.56	582.5825	0.17
Pavers	2012	51	120	0.886577	0.745	3.81157	6.67323	0.005	0.523	0.481	518.3581	0.152
Pavers	2012	121	175	0.677654	0.569	3.13178	6.44162	0.005	0.329	0.303	522.8325	0.153
Pavers	2012	176	250	0.2532	0.213	1.035	4.41317	0.005	0.114	0.105	524.2222	0.153
Pavers	2012	251	500	0.257974	0.217	1.13914	3.59993	0.005	0.127	0.117	515.2863	0.151
Pavers	2013	16	25	2.27571	1.912	6.39148	5.84153	0.005	0.605	0.557	580.2093	0.171
Pavers	2013	26	50	2.27571	1.912	6.39148	5.84153	0.005	0.605	0.557	580.2093	0.171
Pavers	2013	51	120	0.845721	0.711	3.79289	6.43604	0.005	0.501	0.461	516.6013	0.152
Pavers	2013	121	175	0.630117	0.529	3.11657	6.05919	0.005	0.304	0.28	519.6823	0.153
Pavers	2013	176	250	0.245733	0.206	1.01743	4.23038	0.005	0.106	0.098	521.5314	0.153
Pavers	2013	251	500	0.242925	0.204	1.08604	3.39449	0.005	0.118	0.108	514.2313	0.151
Pavers	2014	16	25	2.258865	1.898	6.3806	5.71682	0.005	0.595	0.547	577.016	0.171
Pavers	2014	26	50	2.258865	1.898	6.3806	5.71682	0.005	0.595	0.547	577.016	0.171
Pavers	2014	51	120	0.81298	0.683	3.77256	6.19872	0.005	0.483	0.444	514.3769	0.152
Pavers	2014	121	175	0.597911	0.502	3.1146	5.73631	0.005	0.287	0.264	516.745	0.153
Pavers	2014	176	250	0.247393	0.208	1.02279	4.14032	0.005	0.105	0.097	518.7225	0.153
Pavers	2014	251	500	0.214341	0.18	1.00469	3.04734	0.005	0.101	0.093	512.1908	0.151
Pavers	2015	16	25	2.205076	1.853	6.34019	5.63731	0.005	0.579	0.533	571.0859	0.17
Pavers	2015	26	50	2.205076	1.853	6.34019	5.63731	0.005	0.579	0.533	571.0859	0.17
Pavers	2015	51	120	0.809163	0.68	3.78832	6.14096	0.005	0.479	0.441	509.3767	0.152
Pavers	2015	121	175	0.582419	0.489	3.11546	5.53669	0.005	0.277	0.255	511.6457	0.153
Pavers	2015	176	250	0.254974	0.214	1.03121	4.16051	0.005	0.107	0.098	513.4682	0.153
Pavers	2015	251	500	0.209561	0.176	0.97787	2.91741	0.005	0.097	0.089	506.0973	0.151
Pavers	2016	16	25	2.174792	1.827	6.33993	5.57882	0.005	0.569	0.523	565.2336	0.17
Pavers	2016	26	50	2.174792	1.827	6.33993	5.57882	0.005	0.569	0.523	565.2336	0.17
Pavers	2016	51	120	0.773362	0.65	3.76854	5.88646	0.005	0.457	0.42	503.7795	0.152
Pavers	2016	121	175	0.515586	0.433	3.08023	4.87397	0.005	0.242	0.223	506.5401	0.153
Pavers	2016	176	250	0.254126	0.214	1.03591	4.02384	0.005	0.104	0.096	508.0698	0.153
Pavers	2016	251	500	0.214564	0.18	0.9829	2.88492	0.005	0.096	0.089	500.9364	0.151
Pavers	2017	16	25	2.059621	1.731	6.19932	5.43675	0.005	0.54	0.496	556.4528	0.17
Pavers	2017	26	50	2.059621	1.731	6.19932	5.43675	0.005	0.54	0.496	556.4528	0.17
Pavers	2017	51	120	0.744072	0.625	3.75882	5.69243	0.005	0.437	0.402	495.9253	0.152
Pavers	2017	121	175	0.462819	0.389	3.06282	4.35312	0.005	0.214	0.197	498.967	0.153
Pavers	2017	176	250	0.247933	0.208	1.03652	3.80866	0.005	0.1	0.092	499.5617	0.153
Pavers	2017	251	500	0.199578	0.168	0.97942	2.48674	0.005	0.087	0.08	491.7843	0.151
Pavers	2018	16	25	1.831035	1.539	5.8493	5.12103	0.005	0.478	0.44	547.0785	0.17
Pavers	2018	26	50	1.831035	1.539	5.8493	5.12103	0.005	0.478	0.44	547.0785	0.17
Pavers	2018	51	120	0.637446	0.536	3.66032	5.01936	0.005	0.375	0.345	488.1812	0.152
Pavers	2018	121	175	0.403099	0.339	3.03913	3.7472	0.005	0.183	0.168	491.322	0.153
Pavers	2018	176	250	0.235833	0.198	1.03446	3.47438	0.005	0.092	0.085	491.543	0.153
Pavers	2018	251	500	0.195547	0.164	0.98125	2.32002	0.005	0.083	0.076	484.2774	0.151
Pavers	2019	16	25	1.687019	1.418	5.65687	4.91634	0.005	0.436	0.401	538.3246	0.17
Pavers	2019	26	50	1.687019	1.418	5.65687	4.91634	0.005	0.436	0.401	538.3246	0.17
Pavers	2019	51	120	0.589904	0.496	3.62215	4.67048	0.005	0.345	0.318	480.2509	0.152
Pavers	2019	121	175	0.355588	0.299	3.01323	3.24473	0.005	0.159	0.146	483.3938	0.153
Pavers	2019	176	250	0.222293	0.187	1.03181	3.11084	0.005	0.084	0.077	483.5743	0.153
Pavers	2019	251	500	0.198123	0.166	0.98586	2.26992	0.005	0.081	0.075	476.9707	0.151
Pavers	2020	16	25	1.568718	1.318	5.52345	4.76401	0.005	0.402	0.37	526.2098	0.17
Pavers	2020	26	50	1.568718	1.318	5.52345	4.76401	0.005	0.402	0.37	526.2098	0.17
Pavers	2020	51	120	0.558949	0.47	3.60405	4.42718	0.005	0.325	0.299	469.8815	0.152
Pavers	2020	121	175	0.324615	0.273	3.0097	2.91833	0.005	0.142	0.131	472.7746	0.153
Pavers	2020	176	250	0.209036	0.176	1.02834	2.77699	0.005	0.076	0.07	472.8337	0.153
Pavers	2020	251	500	0.195949	0.165	0.98677	2.13394	0.005	0.077	0.071	466.2059	0.151
Pavers	2021	16	25	1.43708	1.208	5.30162	4.60183	0.005	0.37	0.34	526.5153	0.17
Pavers	2021	26	50	1.43708	1.208	5.30162	4.60183	0.005	0.37	0.34	526.5153	0.17
Pavers	2021	51	120	0.499355	0.42	3.56251	4.02622	0.005	0.285	0.262	469.7736	0.152
Pavers	2021	121	175	0.304315	0.256	3.01647	2.6948	0.005	0.13	0.12	472.5552	0.153
Pavers	2021	176	250	0.196899	0.165	1.02422	2.4844	0.005	0.07	0.064	472.4765	0.153
Pavers	2021	251	500	0.195105	0.164	0.9877	2.05298	0.005	0.074	0.068	465.5908	0.151
Pavers	2022	16	25	1.299052	1.092	5.11433	4.42092	0.005	0.33	0.303	526.8963	0.17
Pavers	2022	26	50	1.299052	1.092	5.11433	4.42092	0.005	0.33	0.303	526.8963	0.17
Pavers	2022	51	120	0.443951	0.373	3.52511	3.65932	0.005	0.248	0.228	470.1854	0.152
Pavers	2022	121	175	0.255688	0.215	2.99478	2.17958	0.005	0.104	0.095	472.7599	0.153
Pavers	2022	176	250	0.167123	0.14	1.01231	1.89985	0.005	0.055	0.05	472.3718	0.153
Pavers	2022	251	500	0.178545	0.15	0.98238	1.81028	0.005	0.063	0.058	466.0042	0.151
Pavers	2023	16	25	1.198318	1.007	5.00667	4.28484	0.005	0.299	0.275	526.8595	0.17
Pavers	2023	26	50	1.198318	1.007	5.00667	4.28484	0.005	0.299	0.275	526.8595	0.17
Pavers	2023	51	120	0.415607	0.349	3.50733	3.42661	0.005	0.226	0.208	470.0839	0.152
Pavers	2023	121	175	0.237199	0.199	2.99398	1.95517	0.005	0.092	0.085	472.7178	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pavers	2023	176	250	0.154288	0.13	1.01018	1.6106	0.005	0.047	0.043	472.6051	0.153
Pavers	2023	251	500	0.18061	0.152	0.98653	1.77101	0.005	0.062	0.057	466.0038	0.151
Pavers	2024	16	25	1.130978	0.95	4.95625	4.20308	0.005	0.279	0.257	526.8565	0.17
Pavers	2024	26	50	1.130978	0.95	4.95625	4.20308	0.005	0.279	0.257	526.8565	0.17
Pavers	2024	51	120	0.40131	0.337	3.50784	3.2771	0.005	0.213	0.196	470.2262	0.152
Pavers	2024	121	175	0.226916	0.191	3.0042	1.80882	0.005	0.084	0.078	472.6605	0.153
Pavers	2024	176	250	0.141914	0.119	1.00872	1.34323	0.005	0.041	0.038	473.2362	0.153
Pavers	2024	251	500	0.169789	0.143	0.98624	1.54798	0.005	0.054	0.049	467.1711	0.151
Pavers	2025	16	25	1.092933	0.918	4.94451	4.13112	0.005	0.265	0.243	526.8533	0.17
Pavers	2025	26	50	1.092933	0.918	4.94451	4.13112	0.005	0.265	0.243	526.8533	0.17
Pavers	2025	51	120	0.373474	0.314	3.49286	3.06788	0.005	0.19	0.175	469.8988	0.152
Pavers	2025	121	175	0.214799	0.18	3.0071	1.64396	0.005	0.077	0.071	472.485	0.153
Pavers	2025	176	250	0.127304	0.107	1.00414	1.03493	0.005	0.034	0.031	473.4832	0.153
Pavers	2025	251	500	0.136633	0.115	0.96892	1.13351	0.005	0.039	0.036	465.8824	0.151
Pavers	2030	16	25	1.849	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Pavers	2030	26	50	3.42	0.845	5.396	3.841	0.007	0.134	0.134	568.299	0.076
Pavers	2030	51	120	4.084	0.408	3.8	2.468	0.006	0.121	0.121	568.3	0.036
Pavers	2030	121	175	5.577	0.3	3.326	1.425	0.006	0.074	0.074	568.299	0.027
Pavers	2030	176	250	7.306	0.259	1.192	1.246	0.006	0.045	0.045	568.299	0.023
Pavers	2030	251	500	8.558	0.253	1.181	1.141	0.005	0.043	0.043	568.299	0.022
Pavers	2035	16	25	1.849	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Pavers	2035	26	50	2.812	0.694	5.26	3.555	0.007	0.076	0.076	568.299	0.062
Pavers	2035	51	120	3.386	0.338	3.774	1.986	0.006	0.069	0.069	568.299	0.03
Pavers	2035	121	175	4.543	0.244	3.319	0.889	0.006	0.043	0.043	568.299	0.022
Pavers	2035	176	250	6.219	0.221	1.157	0.772	0.006	0.027	0.027	568.3	0.019
Pavers	2035	251	500	7.364	0.218	1.111	0.722	0.005	0.026	0.026	568.299	0.019
Pavers	2040	16	25	1.849	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Pavers	2040	26	50	2.504	0.618	5.189	3.393	0.007	0.047	0.047	568.299	0.055
Pavers	2040	51	120	3.03	0.302	3.763	1.731	0.006	0.043	0.043	568.299	0.027
Pavers	2040	121	175	3.958	0.213	3.319	0.583	0.006	0.027	0.027	568.299	0.019
Pavers	2040	176	250	5.625	0.2	1.138	0.525	0.006	0.018	0.018	568.299	0.018
Pavers	2040	251	500	6.703	0.198	1.085	0.498	0.005	0.018	0.018	568.299	0.017
Paving Equipment	1990	16	25	5.257	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Paving Equipment	1990	26	50	21.788	4.84	9.783	7.965	0.871	1.277	1.277	568.299	0.436
Paving Equipment	1990	51	120	24.593	2.398	5.796	15.202	0.791	1.352	1.352	568.299	0.216
Paving Equipment	1990	121	175	35.738	1.88	5.196	14.821	0.758	1.044	1.044	568.3	0.169
Paving Equipment	1990	176	250	43.262	1.88	5.196	14.821	0.758	1.044	1.044	568.299	0.169
Paving Equipment	2000	16	25	4.652	1.958	4.53	6.358	0.065	0.563	0.563	568.299	0.176
Paving Equipment	2000	26	50	19.86	4.412	9.076	7.101	0.066	0.921	0.921	568.299	0.398
Paving Equipment	2000	51	120	19.826	1.933	4.844	11.122	0.06	0.909	0.909	568.299	0.174
Paving Equipment	2000	121	175	25.015	1.316	4.018	10.15	0.057	0.553	0.553	568.299	0.118
Paving Equipment	2000	176	250	26.974	1.172	3.458	9.895	0.057	0.486	0.486	568.299	0.105
Paving Equipment	2005	16	25	2.184	0.919	2.642	5.412	0.065	0.347	0.347	568.299	0.082
Paving Equipment	2005	26	50	18.352	4.077	8.626	6.73	0.066	0.875	0.875	568.299	0.367
Paving Equipment	2005	51	120	17.633	1.719	4.557	9.754	0.06	0.86	0.86	568.299	0.155
Paving Equipment	2005	121	175	21.589	1.135	3.705	8.873	0.057	0.494	0.494	568.299	0.102
Paving Equipment	2005	176	250	21.201	0.921	2.655	8.548	0.057	0.38	0.38	568.299	0.083
Paving Equipment	2010	16	25	1.378997	1.159	4.92203	5.35696	0.005	0.47	0.433	578.6236	0.168
Paving Equipment	2010	26	50	1.378997	1.159	4.92203	5.35696	0.005	0.47	0.433	578.6236	0.168
Paving Equipment	2010	51	120	0.934999	0.786	3.90118	7.23593	0.005	0.553	0.508	526.5834	0.153
Paving Equipment	2010	121	175	0.573407	0.482	3.13688	6.09511	0.005	0.295	0.271	523.4127	0.152
Paving Equipment	2010	176	250	0.486641	0.409	1.69744	6.03614	0.005	0.224	0.206	524.3728	0.153
Paving Equipment	2011	16	25	1.380687	1.16	4.99687	5.36974	0.005	0.472	0.434	577.1303	0.168
Paving Equipment	2011	26	50	1.380687	1.16	4.99687	5.36974	0.005	0.472	0.434	577.1303	0.168
Paving Equipment	2011	51	120	0.895349	0.752	3.87125	6.99544	0.005	0.536	0.493	524.9269	0.153
Paving Equipment	2011	121	175	0.56507	0.475	3.14337	5.97526	0.005	0.29	0.267	522.1549	0.152
Paving Equipment	2011	176	250	0.466258	0.392	1.64572	5.77978	0.005	0.213	0.196	523.0323	0.153
Paving Equipment	2012	16	25	1.384947	1.164	5.06516	5.34363	0.005	0.47	0.432	575.687	0.168
Paving Equipment	2012	26	50	1.384947	1.164	5.06516	5.34363	0.005	0.47	0.432	575.687	0.168
Paving Equipment	2012	51	120	0.910401	0.765	3.90635	7.04165	0.005	0.546	0.503	523.5886	0.153
Paving Equipment	2012	121	175	0.56544	0.475	3.15801	5.9326	0.005	0.29	0.267	520.7286	0.152
Paving Equipment	2012	176	250	0.474854	0.399	1.657	5.81292	0.005	0.215	0.198	521.7154	0.153
Paving Equipment	2013	16	25	1.327494	1.115	5.02677	5.2986	0.005	0.459	0.422	572.4644	0.168
Paving Equipment	2013	26	50	1.327494	1.115	5.02677	5.2986	0.005	0.459	0.422	572.4644	0.168
Paving Equipment	2013	51	120	0.845445	0.71	3.86369	6.6576	0.005	0.507	0.467	520.6724	0.153
Paving Equipment	2013	121	175	0.532035	0.447	3.1205	5.60344	0.005	0.271	0.249	517.6606	0.152
Paving Equipment	2013	176	250	0.40741	0.342	1.48037	5.25206	0.005	0.18	0.166	519.5215	0.153
Paving Equipment	2014	16	25	1.253528	1.053	4.95215	5.18385	0.005	0.437	0.402	569.4822	0.168
Paving Equipment	2014	26	50	1.253528	1.053	4.95215	5.18385	0.005	0.437	0.402	569.4822	0.168
Paving Equipment	2014	51	120	0.805438	0.677	3.83664	6.36952	0.005	0.486	0.447	518.0756	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Paving Equipment	2014	121	175	0.494038	0.415	3.09686	5.21567	0.005	0.249	0.229	515.0343	0.152
Paving Equipment	2014	176	250	0.369032	0.31	1.37011	4.78232	0.005	0.158	0.146	516.8998	0.153
Paving Equipment	2015	16	25	1.166929	0.981	4.86895	5.02757	0.005	0.407	0.374	563.5534	0.168
Paving Equipment	2015	26	50	1.166929	0.981	4.86895	5.02757	0.005	0.407	0.374	563.5534	0.168
Paving Equipment	2015	51	120	0.786628	0.661	3.83329	6.14454	0.005	0.471	0.433	513.1672	0.153
Paving Equipment	2015	121	175	0.48887	0.411	3.10403	4.96561	0.005	0.242	0.223	509.8942	0.152
Paving Equipment	2015	176	250	0.374849	0.315	1.37947	4.77176	0.005	0.159	0.146	511.6544	0.153
Paving Equipment	2016	16	25	1.178909	0.991	4.93662	4.98487	0.005	0.403	0.371	557.7058	0.168
Paving Equipment	2016	26	50	1.178909	0.991	4.93662	4.98487	0.005	0.403	0.371	557.7058	0.168
Paving Equipment	2016	51	120	0.741701	0.623	3.79639	5.7333	0.005	0.438	0.403	507.9102	0.153
Paving Equipment	2016	121	175	0.442497	0.372	3.08114	4.3217	0.005	0.214	0.197	504.8201	0.152
Paving Equipment	2016	176	250	0.353542	0.297	1.33145	4.42821	0.005	0.148	0.136	506.1965	0.153
Paving Equipment	2017	16	25	1.102141	0.926	4.80403	4.72756	0.005	0.359	0.33	548.6481	0.168
Paving Equipment	2017	26	50	1.102141	0.926	4.80403	4.72756	0.005	0.359	0.33	548.6481	0.168
Paving Equipment	2017	51	120	0.670017	0.563	3.74146	5.20745	0.005	0.391	0.359	500.1649	0.153
Paving Equipment	2017	121	175	0.407568	0.342	3.07321	3.89633	0.005	0.195	0.179	497.148	0.152
Paving Equipment	2017	176	250	0.342633	0.288	1.333	4.12109	0.005	0.141	0.13	498.7323	0.153
Paving Equipment	2018	16	25	0.877571	0.737	4.41578	4.31244	0.005	0.286	0.263	540.6115	0.168
Paving Equipment	2018	26	50	0.877571	0.737	4.41578	4.31244	0.005	0.286	0.263	540.6115	0.168
Paving Equipment	2018	51	120	0.534861	0.449	3.60743	4.27034	0.005	0.302	0.278	492.1184	0.153
Paving Equipment	2018	121	175	0.337615	0.284	3.02602	3.17208	0.005	0.155	0.143	489.2024	0.152
Paving Equipment	2018	176	250	0.307374	0.258	1.28117	3.58656	0.005	0.123	0.113	490.6833	0.153
Paving Equipment	2019	16	25	0.838543	0.705	4.40798	4.23779	0.005	0.27	0.248	531.8612	0.168
Paving Equipment	2019	26	50	0.838543	0.705	4.40798	4.23779	0.005	0.27	0.248	531.8612	0.168
Paving Equipment	2019	51	120	0.50594	0.425	3.59849	4.04152	0.005	0.281	0.258	484.387	0.153
Paving Equipment	2019	121	175	0.302373	0.254	3.0109	2.6924	0.005	0.134	0.123	481.2251	0.152
Paving Equipment	2019	176	250	0.286526	0.241	1.24449	3.25106	0.005	0.112	0.103	482.6441	0.153
Paving Equipment	2020	16	25	0.73951	0.621	4.22322	3.9519	0.005	0.217	0.2	520.1235	0.168
Paving Equipment	2020	26	50	0.73951	0.621	4.22322	3.9519	0.005	0.217	0.2	520.1235	0.168
Paving Equipment	2020	51	120	0.472907	0.397	3.58172	3.78064	0.005	0.256	0.235	473.3249	0.153
Paving Equipment	2020	121	175	0.294586	0.248	3.02393	2.55498	0.005	0.128	0.118	470.7359	0.152
Paving Equipment	2020	176	250	0.289784	0.243	1.25215	3.2202	0.005	0.111	0.102	472.1514	0.153
Paving Equipment	2021	16	25	0.698022	0.587	4.21072	3.88226	0.005	0.2	0.184	520.3965	0.168
Paving Equipment	2021	26	50	0.698022	0.587	4.21072	3.88226	0.005	0.2	0.184	520.3965	0.168
Paving Equipment	2021	51	120	0.422572	0.355	3.5537	3.45065	0.005	0.219	0.201	473.2205	0.153
Paving Equipment	2021	121	175	0.272687	0.229	3.03229	2.31505	0.005	0.114	0.105	470.6495	0.152
Paving Equipment	2021	176	250	0.250607	0.211	1.20904	2.58202	0.005	0.092	0.085	472.151	0.153
Paving Equipment	2022	16	25	0.68013	0.571	4.24448	3.83611	0.005	0.188	0.173	520.6594	0.168
Paving Equipment	2022	26	50	0.68013	0.571	4.24448	3.83611	0.005	0.188	0.173	520.6594	0.168
Paving Equipment	2022	51	120	0.351718	0.296	3.50075	2.99968	0.005	0.171	0.157	473.4475	0.153
Paving Equipment	2022	121	175	0.253077	0.213	3.03777	2.07331	0.005	0.101	0.093	470.6646	0.152
Paving Equipment	2022	176	250	0.232653	0.195	1.20363	2.22813	0.005	0.083	0.076	472.169	0.153
Paving Equipment	2023	16	25	0.644074	0.541	4.24108	3.77446	0.005	0.173	0.159	521.1138	0.169
Paving Equipment	2023	26	50	0.644074	0.541	4.24108	3.77446	0.005	0.173	0.159	521.1138	0.169
Paving Equipment	2023	51	120	0.331302	0.278	3.50331	2.83717	0.005	0.152	0.14	473.427	0.153
Paving Equipment	2023	121	175	0.242414	0.204	3.05059	1.91255	0.005	0.093	0.086	470.663	0.152
Paving Equipment	2023	176	250	0.208228	0.175	1.16523	1.88495	0.005	0.07	0.065	472.169	0.153
Paving Equipment	2024	16	25	0.622364	0.523	4.27468	3.74329	0.005	0.164	0.151	521.0575	0.169
Paving Equipment	2024	26	50	0.622364	0.523	4.27468	3.74329	0.005	0.164	0.151	521.0575	0.169
Paving Equipment	2024	51	120	0.311995	0.262	3.50288	2.67309	0.005	0.135	0.125	473.1748	0.153
Paving Equipment	2024	121	175	0.233948	0.197	3.06623	1.78512	0.005	0.086	0.079	470.6614	0.152
Paving Equipment	2024	176	250	0.164733	0.138	1.11417	1.29567	0.005	0.048	0.044	472.2124	0.153
Paving Equipment	2025	16	25	0.566694	0.476	4.20347	3.62672	0.005	0.141	0.13	520.9975	0.169
Paving Equipment	2025	26	50	0.566694	0.476	4.20347	3.62672	0.005	0.141	0.13	520.9975	0.169
Paving Equipment	2025	51	120	0.287394	0.241	3.48256	2.49628	0.005	0.118	0.108	473.4239	0.153
Paving Equipment	2025	121	175	0.208465	0.175	3.03837	1.509	0.005	0.075	0.069	470.4844	0.152
Paving Equipment	2025	176	250	0.158556	0.133	1.11653	1.10952	0.005	0.043	0.04	472.2341	0.153
Paving Equipment	2030	16	25	1.628	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Paving Equipment	2030	26	50	3.613	0.802	5.309	3.809	0.007	0.126	0.126	568.299	0.072
Paving Equipment	2030	51	120	4.007	0.39	3.774	2.393	0.006	0.114	0.114	568.3	0.035
Paving Equipment	2030	121	175	5.525	0.29	3.306	1.363	0.006	0.07	0.07	568.299	0.026
Paving Equipment	2030	176	250	5.771	0.25	1.171	1.176	0.006	0.042	0.042	568.299	0.022
Paving Equipment	2035	16	25	1.628	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Paving Equipment	2035	26	50	2.991	0.664	5.181	3.511	0.007	0.07	0.07	568.3	0.059
Paving Equipment	2035	51	120	3.343	0.326	3.753	1.928	0.006	0.064	0.064	568.299	0.029
Paving Equipment	2035	121	175	4.485	0.235	3.303	0.832	0.006	0.04	0.04	568.299	0.021
Paving Equipment	2035	176	250	4.886	0.212	1.14	0.714	0.006	0.024	0.024	568.299	0.019
Paving Equipment	2040	16	25	1.628	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Paving Equipment	2040	26	50	2.651	0.589	5.111	3.361	0.007	0.042	0.042	568.3	0.053
Paving Equipment	2040	51	120	2.989	0.291	3.744	1.687	0.006	0.039	0.039	568.299	0.026

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Paving Equipment	2040	121	175	3.901	0.205	3.304	0.536	0.006	0.025	0.025	568.299	0.018
Paving Equipment	2040	176	250	4.452	0.193	1.127	0.485	0.006	0.017	0.017	568.299	0.017
Plate Compactors	1990	6	15	2.156	1.804	4.999	9.999	1.049	0.975	0.975	568.299	0.162
Plate Compactors	2000	6	15	1.852	1.55	4.606	8.519	0.079	0.708	0.708	568.299	0.139
Plate Compactors	2005	6	15	0.955	0.799	3.503	5.435	0.079	0.377	0.377	568.299	0.072
Plate Compactors	2010	6	15	0.794	0.664	3.469	4.178	0.008	0.198	0.198	568.299	0.059
Plate Compactors	2011	6	15	0.791	0.662	3.469	4.15	0.008	0.172	0.172	568.299	0.059
Plate Compactors	2012	6	15	0.79	0.661	3.469	4.142	0.008	0.165	0.165	568.3	0.059
Plate Compactors	2013	6	15	0.79	0.661	3.469	4.142	0.008	0.162	0.162	568.3	0.059
Plate Compactors	2014	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2015	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2016	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2017	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2018	6	15	0.79	0.661	3.47	4.142	0.008	0.161	0.161	568.3	0.059
Plate Compactors	2019	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2020	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2021	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2022	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2023	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2024	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2025	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2030	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2035	6	15	0.79	0.661	3.47	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2040	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Pressure Washers	1990	6	15	4.972	1.804	4.999	9.999	1.018	0.974	0.974	568.299	0.162
Pressure Washers	1990	16	25	8.915	2.213	5	6.92	0.83	0.74	0.74	568.3	0.199
Pressure Washers	1990	26	50	20.959	2.601	5.721	7.129	0.846	0.821	0.821	568.299	0.234
Pressure Washers	1990	51	120	23.659	1.743	4.735	12.634	0.768	0.874	0.874	568.299	0.157
Pressure Washers	1990	121	175	82.001	1.272	4.353	11.763	1.123	0.649	0.649	568.299	0.114
Pressure Washers	1990	176	250	77.237	0.953	3.084	9.035	1.077	0.476	0.476	568.299	0.086
Pressure Washers	2000	6	15	4.186	1.518	4.875	8.846	0.079	0.613	0.613	568.299	0.137
Pressure Washers	2000	16	25	6.717	1.667	4.783	6.405	0.065	0.51	0.51	568.299	0.15
Pressure Washers	2000	26	50	19.934	2.474	5.524	6.381	0.066	0.615	0.615	568.3	0.223
Pressure Washers	2000	51	120	19.23	1.417	3.967	9.062	0.06	0.613	0.613	568.3	0.127
Pressure Washers	2000	121	175	66.055	1.024	3.38	8.685	0.059	0.399	0.399	568.299	0.092
Pressure Washers	2000	176	250	35.508	0.438	1.005	6.315	0.058	0.143	0.143	568.299	0.039
Pressure Washers	2005	6	15	3.341	1.212	4.38	7.615	0.079	0.505	0.505	568.3	0.109
Pressure Washers	2005	16	25	5.048	1.253	3.922	6.014	0.065	0.432	0.432	568.299	0.113
Pressure Washers	2005	26	50	17.362	2.154	5.075	5.932	0.066	0.566	0.566	568.299	0.194
Pressure Washers	2005	51	120	16.424	1.21	3.682	7.651	0.06	0.566	0.566	568.299	0.109
Pressure Washers	2005	121	175	55.65	0.863	3.072	7.441	0.059	0.349	0.349	568.299	0.077
Pressure Washers	2005	176	250	21.871	0.27	0.986	4.822	0.058	0.111	0.111	568.299	0.024
Pressure Washers	2010	6	15	2.628	0.953	4.027	6.387	0.008	0.38	0.38	568.299	0.086
Pressure Washers	2010	16	25	3.872	0.961	3.309	5.477	0.007	0.342	0.342	568.299	0.086
Pressure Washers	2010	26	50	13.073	1.622	4.517	5.501	0.007	0.453	0.453	568.299	0.146
Pressure Washers	2010	51	120	12.296	0.906	3.503	6.273	0.006	0.451	0.451	568.299	0.081
Pressure Washers	2010	121	175	41.062	0.637	2.967	5.773	0.006	0.275	0.275	568.299	0.057
Pressure Washers	2010	176	250	16.502	0.203	0.986	2.5	0.006	0.1	0.1	568.299	0.018
Pressure Washers	2011	6	15	2.504	0.908	3.952	6.134	0.008	0.358	0.358	568.299	0.081
Pressure Washers	2011	16	25	3.706	0.92	3.179	5.36	0.007	0.325	0.325	568.299	0.083
Pressure Washers	2011	26	50	12.056	1.496	4.382	5.405	0.007	0.428	0.428	568.299	0.135
Pressure Washers	2011	51	120	11.392	0.839	3.468	5.939	0.006	0.43	0.43	568.299	0.075
Pressure Washers	2011	121	175	38.303	0.594	2.953	5.441	0.006	0.263	0.263	568.299	0.053
Pressure Washers	2011	176	250	15.247	0.188	0.986	2.086	0.006	0.072	0.072	568.299	0.016
Pressure Washers	2012	6	15	2.385	0.865	3.874	5.874	0.008	0.338	0.338	568.299	0.078
Pressure Washers	2012	16	25	3.564	0.884	3.043	5.239	0.007	0.307	0.307	568.299	0.079
Pressure Washers	2012	26	50	10.983	1.363	4.238	5.306	0.007	0.402	0.402	568.299	0.123
Pressure Washers	2012	51	120	10.457	0.77	3.433	5.578	0.006	0.4	0.4	568.299	0.069
Pressure Washers	2012	121	175	35.56	0.551	2.941	5.109	0.006	0.244	0.244	568.299	0.049
Pressure Washers	2012	176	250	13.887	0.171	0.986	1.749	0.006	0.046	0.046	568.299	0.015
Pressure Washers	2013	6	15	2.27	0.823	3.796	5.616	0.008	0.318	0.318	568.299	0.074
Pressure Washers	2013	16	25	3.431	0.851	2.907	5.117	0.007	0.289	0.289	568.299	0.076
Pressure Washers	2013	26	50	9.897	1.228	4.092	5.086	0.007	0.367	0.367	568.299	0.11
Pressure Washers	2013	51	120	9.523	0.701	3.399	5.226	0.006	0.366	0.366	568.299	0.063
Pressure Washers	2013	121	175	32.885	0.51	2.931	4.803	0.006	0.225	0.225	568.299	0.046
Pressure Washers	2013	176	250	12.508	0.154	0.986	1.468	0.006	0.021	0.021	568.299	0.013
Pressure Washers	2014	6	15	2.16	0.783	3.723	5.369	0.008	0.298	0.298	568.299	0.07
Pressure Washers	2014	16	25	3.308	0.821	2.78	5	0.007	0.272	0.272	568.299	0.074
Pressure Washers	2014	26	50	8.833	1.096	3.951	4.873	0.007	0.332	0.332	568.299	0.098
Pressure Washers	2014	51	120	8.608	0.634	3.367	4.912	0.006	0.332	0.332	568.299	0.057

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pressure Washers	2014	121	175	30.292	0.469	2.923	4.513	0.006	0.206	0.206	568.299	0.042
Pressure Washers	2014	176	250	11.167	0.137	0.986	1.047	0.006	0.014	0.014	568.299	0.012
Pressure Washers	2015	6	15	2.059	0.747	3.657	5.141	0.008	0.28	0.28	568.299	0.067
Pressure Washers	2015	16	25	3.196	0.793	2.666	4.89	0.007	0.256	0.256	568.299	0.071
Pressure Washers	2015	26	50	7.868	0.976	3.833	4.685	0.007	0.3	0.3	568.299	0.088
Pressure Washers	2015	51	120	7.703	0.567	3.336	4.551	0.006	0.297	0.297	568.299	0.051
Pressure Washers	2015	121	175	27.567	0.427	2.917	4.115	0.006	0.187	0.187	568.299	0.038
Pressure Washers	2015	176	250	9.864	0.121	0.986	0.69	0.006	0.01	0.01	568.299	0.01
Pressure Washers	2016	6	15	1.986	0.72	3.622	4.978	0.008	0.264	0.264	568.299	0.065
Pressure Washers	2016	16	25	3.116	0.773	2.604	4.803	0.007	0.244	0.244	568.299	0.069
Pressure Washers	2016	26	50	6.97	0.865	3.729	4.515	0.007	0.269	0.269	568.299	0.078
Pressure Washers	2016	51	120	6.839	0.504	3.308	4.209	0.006	0.264	0.264	568.299	0.045
Pressure Washers	2016	121	175	24.906	0.386	2.913	3.726	0.006	0.168	0.168	568.299	0.034
Pressure Washers	2016	176	250	8.667	0.107	0.986	0.399	0.006	0.009	0.009	568.299	0.009
Pressure Washers	2017	6	15	1.927	0.699	3.599	4.847	0.008	0.25	0.25	568.299	0.063
Pressure Washers	2017	16	25	3.053	0.757	2.564	4.729	0.007	0.233	0.233	568.299	0.068
Pressure Washers	2017	26	50	6.126	0.76	3.632	4.355	0.007	0.24	0.24	568.299	0.068
Pressure Washers	2017	51	120	6.031	0.444	3.283	3.888	0.006	0.233	0.233	568.3	0.04
Pressure Washers	2017	121	175	22.349	0.346	2.91	3.349	0.006	0.149	0.149	568.299	0.031
Pressure Washers	2017	176	250	8.288	0.102	0.986	0.317	0.006	0.009	0.009	568.299	0.009
Pressure Washers	2018	6	15	1.874	0.679	3.58	4.728	0.008	0.237	0.237	568.299	0.061
Pressure Washers	2018	16	25	2.997	0.744	2.531	4.661	0.007	0.224	0.224	568.299	0.067
Pressure Washers	2018	26	50	5.332	0.661	3.542	4.202	0.007	0.212	0.212	568.299	0.059
Pressure Washers	2018	51	120	5.276	0.388	3.26	3.584	0.006	0.203	0.203	568.299	0.035
Pressure Washers	2018	121	175	19.96	0.309	2.908	2.989	0.006	0.132	0.132	568.299	0.027
Pressure Washers	2018	176	250	8.072	0.099	0.986	0.277	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2019	6	15	1.824	0.662	3.562	4.617	0.008	0.224	0.224	568.299	0.059
Pressure Washers	2019	16	25	2.947	0.731	2.501	4.596	0.007	0.214	0.214	568.299	0.066
Pressure Washers	2019	26	50	4.585	0.569	3.457	4.053	0.007	0.184	0.184	568.299	0.051
Pressure Washers	2019	51	120	4.575	0.337	3.24	3.295	0.006	0.174	0.174	568.299	0.03
Pressure Washers	2019	121	175	18.102	0.28	2.907	2.67	0.006	0.117	0.117	568.299	0.025
Pressure Washers	2019	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2020	6	15	1.78	0.646	3.546	4.516	0.008	0.212	0.212	568.299	0.058
Pressure Washers	2020	16	25	2.904	0.721	2.473	4.538	0.007	0.205	0.205	568.299	0.065
Pressure Washers	2020	26	50	4.025	0.499	3.393	3.917	0.007	0.161	0.161	568.299	0.045
Pressure Washers	2020	51	120	4.048	0.298	3.225	3.036	0.006	0.151	0.151	568.299	0.026
Pressure Washers	2020	121	175	16.638	0.258	2.907	2.383	0.006	0.104	0.104	568.299	0.023
Pressure Washers	2020	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2021	6	15	1.747	0.634	3.531	4.441	0.008	0.201	0.201	568.299	0.057
Pressure Washers	2021	16	25	2.87	0.712	2.446	4.497	0.007	0.196	0.196	568.299	0.064
Pressure Washers	2021	26	50	3.542	0.439	3.329	3.765	0.007	0.136	0.136	568.299	0.039
Pressure Washers	2021	51	120	3.592	0.264	3.21	2.766	0.006	0.129	0.129	568.299	0.023
Pressure Washers	2021	121	175	15.389	0.238	2.907	2.118	0.006	0.093	0.093	568.299	0.021
Pressure Washers	2021	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2022	6	15	1.725	0.626	3.519	4.39	0.008	0.193	0.193	568.299	0.056
Pressure Washers	2022	16	25	2.847	0.706	2.426	4.47	0.007	0.188	0.188	568.299	0.063
Pressure Washers	2022	26	50	3.213	0.398	3.291	3.649	0.007	0.117	0.117	568.3	0.035
Pressure Washers	2022	51	120	3.281	0.241	3.202	2.56	0.006	0.112	0.112	568.299	0.021
Pressure Washers	2022	121	175	14.252	0.221	2.907	1.871	0.006	0.082	0.082	568.299	0.019
Pressure Washers	2022	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2023	6	15	1.706	0.618	3.508	4.345	0.008	0.186	0.186	568.299	0.055
Pressure Washers	2023	16	25	2.827	0.701	2.407	4.447	0.007	0.182	0.182	568.299	0.063
Pressure Washers	2023	26	50	2.928	0.363	3.26	3.541	0.007	0.101	0.101	568.299	0.032
Pressure Washers	2023	51	120	3.012	0.222	3.196	2.377	0.006	0.097	0.097	568.299	0.02
Pressure Washers	2023	121	175	13.244	0.205	2.907	1.665	0.006	0.072	0.072	568.299	0.018
Pressure Washers	2023	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2024	6	15	1.689	0.612	3.499	4.305	0.008	0.181	0.181	568.299	0.055
Pressure Washers	2024	16	25	2.811	0.697	2.39	4.426	0.007	0.178	0.178	568.299	0.062
Pressure Washers	2024	26	50	2.685	0.333	3.233	3.441	0.007	0.087	0.087	568.299	0.03
Pressure Washers	2024	51	120	2.78	0.204	3.191	2.229	0.006	0.084	0.084	568.299	0.018
Pressure Washers	2024	121	175	12.332	0.191	2.907	1.482	0.006	0.062	0.062	568.299	0.017
Pressure Washers	2024	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2025	6	15	1.674	0.607	3.491	4.269	0.008	0.178	0.178	568.299	0.054
Pressure Washers	2025	16	25	2.797	0.694	2.376	4.407	0.007	0.175	0.175	568.299	0.062
Pressure Washers	2025	26	50	2.472	0.306	3.21	3.344	0.007	0.075	0.075	568.299	0.027
Pressure Washers	2025	51	120	2.575	0.189	3.186	2.1	0.006	0.072	0.072	568.299	0.017
Pressure Washers	2025	121	175	11.476	0.178	2.907	1.31	0.006	0.053	0.053	568.299	0.016
Pressure Washers	2025	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2030	6	15	1.632	0.592	3.47	4.164	0.008	0.166	0.166	568.3	0.053
Pressure Washers	2030	16	25	2.766	0.686	2.34	4.347	0.007	0.165	0.165	568.299	0.061

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pressure Washers	2030	26	50	1.735	0.215	3.124	2.989	0.007	0.03	0.03	568.299	0.019
Pressure Washers	2030	51	120	1.821	0.134	3.167	1.594	0.006	0.028	0.028	568.3	0.012
Pressure Washers	2030	121	175	8.178	0.126	2.907	0.619	0.006	0.024	0.024	568.299	0.011
Pressure Washers	2030	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2035	6	15	1.624	0.589	3.47	4.143	0.008	0.162	0.162	568.3	0.053
Pressure Washers	2035	16	25	2.761	0.685	2.34	4.332	0.007	0.162	0.162	568.299	0.061
Pressure Washers	2035	26	50	1.515	0.188	3.101	2.882	0.007	0.015	0.015	568.299	0.016
Pressure Washers	2035	51	120	1.58	0.116	3.161	1.421	0.006	0.014	0.014	568.299	0.01
Pressure Washers	2035	121	175	7.052	0.109	2.907	0.382	0.006	0.013	0.013	568.299	0.009
Pressure Washers	2035	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2040	6	15	1.624	0.589	3.469	4.142	0.008	0.161	0.161	568.299	0.053
Pressure Washers	2040	16	25	2.761	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Pressure Washers	2040	26	50	1.5	0.186	3.098	2.836	0.007	0.01	0.01	568.299	0.016
Pressure Washers	2040	51	120	1.54	0.113	3.16	1.365	0.006	0.01	0.01	568.299	0.01
Pressure Washers	2040	121	175	6.649	0.103	2.907	0.293	0.006	0.01	0.01	568.299	0.009
Pressure Washers	2040	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pumps	1990	6	15	3.929	1.804	4.999	10	1.018	0.974	0.974	568.299	0.162
Pumps	1990	16	25	12.652	2.213	4.999	6.92	0.83	0.74	0.74	568.299	0.199
Pumps	1990	26	50	33.318	3.307	7.004	7.391	0.846	0.964	0.964	568.299	0.298
Pumps	1990	51	120	44.398	1.941	5.049	13.378	0.768	1.022	1.022	568.299	0.175
Pumps	1990	121	175	54.599	1.328	4.466	12.036	0.736	0.678	0.678	568.299	0.119
Pumps	1990	176	250	78.462	1.328	4.466	12.036	0.736	0.678	0.678	568.299	0.119
Pumps	1990	251	500	123.784	1.222	7.034	11.736	0.642	0.614	0.614	568.3	0.11
Pumps	1990	501	750	204.643	1.222	7.034	11.736	0.658	0.614	0.614	568.299	0.11
Pumps	1990	1001	9999	484.933	1.22	7.034	11.736	0.658	0.612	0.612	568.299	0.11
Pumps	2000	6	15	3.754	1.723	4.875	9.08	0.079	0.747	0.747	568.299	0.155
Pumps	2000	16	25	11.979	2.095	4.783	6.405	0.065	0.569	0.569	568.299	0.189
Pumps	2000	26	50	31.461	3.123	6.715	6.608	0.066	0.718	0.718	568.299	0.281
Pumps	2000	51	120	36.02	1.575	4.223	9.604	0.06	0.711	0.711	568.3	0.142
Pumps	2000	121	175	43.406	1.055	3.435	8.734	0.057	0.419	0.419	568.299	0.095
Pumps	2000	176	250	51.67	0.874	2.707	8.397	0.057	0.339	0.339	568.299	0.078
Pumps	2000	251	500	83.09	0.82	3.956	8.188	0.05	0.311	0.311	568.299	0.074
Pumps	2000	501	750	137.368	0.82	3.956	8.188	0.051	0.311	0.311	568.299	0.074
Pumps	2000	1001	9999	372.377	0.936	4.533	8.775	0.051	0.351	0.351	568.299	0.084
Pumps	2005	6	15	3.036	1.394	4.38	7.817	0.079	0.621	0.621	568.299	0.125
Pumps	2005	16	25	9.278	1.622	3.922	6.014	0.065	0.483	0.483	568.299	0.146
Pumps	2005	26	50	27.809	2.76	6.203	6.155	0.066	0.664	0.664	568.299	0.249
Pumps	2005	51	120	30.825	1.348	3.91	8.1	0.06	0.657	0.657	568.3	0.121
Pumps	2005	121	175	36.106	0.878	3.114	7.408	0.057	0.363	0.363	568.299	0.079
Pumps	2005	176	250	36.853	0.623	1.836	6.99	0.057	0.239	0.239	568.299	0.056
Pumps	2005	251	500	56.766	0.56	2.32	6.535	0.05	0.219	0.219	568.299	0.05
Pumps	2005	501	750	96.43	0.575	2.32	6.679	0.051	0.221	0.221	568.299	0.051
Pumps	2005	1001	9999	289.357	0.728	2.838	7.658	0.051	0.258	0.258	568.299	0.065
Pumps	2010	6	15	2.449	1.124	4.027	6.554	0.008	0.473	0.473	568.299	0.101
Pumps	2010	16	25	7.245	1.267	3.309	5.477	0.007	0.384	0.384	568.299	0.114
Pumps	2010	26	50	22.041	2.188	5.634	5.74	0.007	0.545	0.545	568.3	0.197
Pumps	2010	51	120	23.77	1.039	3.735	6.675	0.006	0.538	0.538	568.299	0.093
Pumps	2010	121	175	28.171	0.685	3.033	5.961	0.006	0.298	0.298	568.299	0.061
Pumps	2010	176	250	26.273	0.444	1.359	5.586	0.006	0.17	0.17	568.299	0.04
Pumps	2010	251	500	40.384	0.398	1.536	5.074	0.005	0.158	0.158	568.299	0.035
Pumps	2010	501	750	68.724	0.41	1.536	5.207	0.005	0.161	0.161	568.299	0.037
Pumps	2010	1001	9999	218.911	0.55	1.991	6.617	0.005	0.196	0.196	568.299	0.049
Pumps	2011	6	15	2.324	1.067	3.952	6.283	0.008	0.441	0.441	568.299	0.096
Pumps	2011	16	25	6.815	1.192	3.179	5.36	0.007	0.361	0.361	568.299	0.107
Pumps	2011	26	50	20.53	2.038	5.474	5.645	0.007	0.518	0.518	568.299	0.183
Pumps	2011	51	120	22.177	0.969	3.698	6.322	0.006	0.514	0.514	568.299	0.087
Pumps	2011	121	175	26.426	0.642	3.02	5.63	0.006	0.286	0.286	568.299	0.058
Pumps	2011	176	250	24.051	0.407	1.272	5.206	0.006	0.153	0.153	568.299	0.036
Pumps	2011	251	500	36.969	0.365	1.405	4.71	0.005	0.143	0.143	568.299	0.032
Pumps	2011	501	750	62.964	0.376	1.405	4.841	0.005	0.145	0.145	568.299	0.033
Pumps	2011	1001	9999	203.755	0.512	1.835	6.273	0.005	0.183	0.183	568.299	0.046
Pumps	2012	6	15	2.194	1.007	3.874	5.999	0.008	0.407	0.407	568.299	0.09
Pumps	2012	16	25	6.363	1.113	3.043	5.239	0.007	0.337	0.337	568.299	0.1
Pumps	2012	26	50	18.887	1.875	5.296	5.545	0.007	0.488	0.488	568.299	0.169
Pumps	2012	51	120	20.51	0.896	3.66	5.939	0.006	0.481	0.481	568.299	0.08
Pumps	2012	121	175	24.576	0.597	3.009	5.28	0.006	0.265	0.265	568.299	0.053
Pumps	2012	176	250	22.301	0.377	1.218	4.846	0.006	0.139	0.139	568.299	0.034
Pumps	2012	251	500	34.322	0.338	1.311	4.367	0.005	0.13	0.13	568.299	0.03
Pumps	2012	501	750	58.469	0.349	1.311	4.495	0.005	0.132	0.132	568.299	0.031
Pumps	2012	1001	9999	188.287	0.473	1.682	5.916	0.005	0.168	0.168	568.299	0.042

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pumps	2013	6	15	2.065	0.948	3.796	5.716	0.008	0.373	0.373	568.299	0.085
Pumps	2013	16	25	5.914	1.034	2.907	5.117	0.007	0.314	0.314	568.3	0.093
Pumps	2013	26	50	17.185	1.706	5.11	5.323	0.007	0.448	0.448	568.299	0.153
Pumps	2013	51	120	18.831	0.823	3.623	5.563	0.006	0.443	0.443	568.299	0.074
Pumps	2013	121	175	22.712	0.552	2.998	4.949	0.006	0.244	0.244	568.299	0.049
Pumps	2013	176	250	20.801	0.352	1.181	4.498	0.006	0.127	0.127	568.3	0.031
Pumps	2013	251	500	32.081	0.316	1.241	4.037	0.005	0.119	0.119	568.299	0.028
Pumps	2013	501	750	54.658	0.326	1.241	4.163	0.005	0.121	0.121	568.299	0.029
Pumps	2013	1001	9999	173.151	0.435	1.538	5.558	0.005	0.154	0.154	568.299	0.039
Pumps	2014	6	15	1.942	0.891	3.723	5.445	0.008	0.341	0.341	568.299	0.08
Pumps	2014	16	25	5.492	0.96	2.78	5	0.007	0.291	0.291	568.299	0.086
Pumps	2014	26	50	15.493	1.538	4.929	5.107	0.007	0.409	0.409	568.299	0.138
Pumps	2014	51	120	17.179	0.751	3.587	5.226	0.006	0.403	0.403	568.299	0.067
Pumps	2014	121	175	20.895	0.508	2.989	4.635	0.006	0.222	0.222	568.299	0.045
Pumps	2014	176	250	19.3	0.326	1.149	4.09	0.006	0.115	0.115	568.299	0.029
Pumps	2014	251	500	29.829	0.294	1.181	3.648	0.005	0.108	0.108	568.299	0.026
Pumps	2014	501	750	50.824	0.303	1.181	3.77	0.005	0.11	0.11	568.299	0.027
Pumps	2014	1001	9999	158.959	0.399	1.406	5.21	0.005	0.141	0.141	568.299	0.036
Pumps	2015	6	15	1.831	0.84	3.658	5.196	0.008	0.311	0.311	568.299	0.075
Pumps	2015	16	25	5.112	0.894	2.666	4.89	0.007	0.27	0.27	568.299	0.08
Pumps	2015	26	50	13.946	1.384	4.775	4.916	0.007	0.371	0.371	568.3	0.124
Pumps	2015	51	120	15.537	0.679	3.554	4.842	0.006	0.364	0.364	568.3	0.061
Pumps	2015	121	175	18.983	0.461	2.983	4.202	0.006	0.2	0.2	568.299	0.041
Pumps	2015	176	250	17.881	0.302	1.122	3.693	0.006	0.104	0.104	568.299	0.027
Pumps	2015	251	500	27.722	0.273	1.134	3.272	0.005	0.097	0.097	568.299	0.024
Pumps	2015	501	750	47.213	0.281	1.134	3.389	0.005	0.099	0.099	568.299	0.025
Pumps	2015	1001	9999	144.304	0.363	1.293	4.878	0.005	0.127	0.127	568.299	0.032
Pumps	2016	6	15	1.762	0.809	3.622	5.023	0.008	0.289	0.289	568.299	0.073
Pumps	2016	16	25	4.893	0.855	2.604	4.803	0.007	0.255	0.255	568.299	0.077
Pumps	2016	26	50	12.497	1.24	4.64	4.742	0.007	0.335	0.335	568.299	0.111
Pumps	2016	51	120	13.964	0.61	3.523	4.478	0.006	0.325	0.325	568.299	0.055
Pumps	2016	121	175	17.155	0.417	2.978	3.789	0.006	0.179	0.179	568.299	0.037
Pumps	2016	176	250	16.558	0.28	1.099	3.313	0.006	0.094	0.094	568.299	0.025
Pumps	2016	251	500	25.804	0.254	1.093	2.919	0.005	0.088	0.088	568.299	0.022
Pumps	2016	501	750	43.884	0.262	1.093	3.028	0.005	0.089	0.089	568.299	0.023
Pumps	2016	1001	9999	133.448	0.335	1.223	4.596	0.005	0.116	0.116	568.3	0.03
Pumps	2017	6	15	1.713	0.786	3.599	4.887	0.008	0.272	0.272	568.299	0.07
Pumps	2017	16	25	4.745	0.83	2.564	4.729	0.007	0.243	0.243	568.299	0.074
Pumps	2017	26	50	11.12	1.104	4.514	4.578	0.007	0.301	0.301	568.299	0.099
Pumps	2017	51	120	12.49	0.546	3.495	4.134	0.006	0.287	0.287	568.299	0.049
Pumps	2017	121	175	15.466	0.376	2.975	3.4	0.006	0.159	0.159	568.299	0.033
Pumps	2017	176	250	15.375	0.26	1.08	2.958	0.006	0.084	0.084	568.299	0.023
Pumps	2017	251	500	24.243	0.239	1.062	2.613	0.005	0.079	0.079	568.299	0.021
Pumps	2017	501	750	40.958	0.244	1.062	2.695	0.005	0.08	0.08	568.299	0.022
Pumps	2017	1001	9999	124.604	0.313	1.177	4.343	0.005	0.106	0.106	568.299	0.028
Pumps	2018	6	15	1.669	0.766	3.58	4.762	0.008	0.256	0.256	568.299	0.069
Pumps	2018	16	25	4.618	0.807	2.531	4.661	0.007	0.232	0.232	568.299	0.072
Pumps	2018	26	50	9.809	0.973	4.397	4.422	0.007	0.267	0.267	568.299	0.087
Pumps	2018	51	120	11.107	0.485	3.471	3.808	0.006	0.252	0.252	568.299	0.043
Pumps	2018	121	175	13.918	0.338	2.974	3.035	0.006	0.14	0.14	568.299	0.03
Pumps	2018	176	250	14.304	0.242	1.065	2.624	0.006	0.075	0.075	568.299	0.021
Pumps	2018	251	500	22.927	0.226	1.041	2.34	0.005	0.071	0.071	568.299	0.02
Pumps	2018	501	750	38.511	0.23	1.041	2.401	0.005	0.072	0.072	568.299	0.02
Pumps	2018	1001	9999	116.529	0.293	1.144	4.105	0.005	0.098	0.098	568.299	0.026
Pumps	2019	6	15	1.63	0.748	3.562	4.647	0.008	0.241	0.241	568.3	0.067
Pumps	2019	16	25	4.503	0.787	2.501	4.596	0.007	0.222	0.222	568.3	0.071
Pumps	2019	26	50	8.56	0.849	4.284	4.269	0.007	0.235	0.235	568.299	0.076
Pumps	2019	51	120	9.812	0.429	3.449	3.497	0.006	0.217	0.217	568.299	0.038
Pumps	2019	121	175	12.706	0.309	2.974	2.711	0.006	0.124	0.124	568.299	0.027
Pumps	2019	176	250	13.378	0.226	1.052	2.323	0.006	0.067	0.067	568.299	0.02
Pumps	2019	251	500	21.711	0.214	1.027	2.084	0.005	0.064	0.064	568.3	0.019
Pumps	2019	501	750	36.35	0.217	1.027	2.133	0.005	0.065	0.065	568.299	0.019
Pumps	2019	1001	9999	108.825	0.273	1.118	3.873	0.005	0.089	0.089	568.299	0.024
Pumps	2020	6	15	1.593	0.731	3.546	4.542	0.008	0.227	0.227	568.299	0.066
Pumps	2020	16	25	4.396	0.769	2.473	4.538	0.007	0.212	0.212	568.299	0.069
Pumps	2020	26	50	7.613	0.755	4.197	4.128	0.007	0.206	0.206	568.299	0.068
Pumps	2020	51	120	8.832	0.386	3.432	3.219	0.006	0.189	0.189	568.299	0.034
Pumps	2020	121	175	11.744	0.285	2.974	2.418	0.006	0.111	0.111	568.299	0.025
Pumps	2020	176	250	12.575	0.212	1.042	2.05	0.006	0.06	0.06	568.299	0.019
Pumps	2020	251	500	20.565	0.203	1.017	1.841	0.005	0.057	0.057	568.3	0.018

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pumps	2020	501	750	34.373	0.205	1.017	1.884	0.005	0.058	0.058	568.299	0.018
Pumps	2020	1001	9999	101.462	0.255	1.096	3.649	0.005	0.081	0.081	568.3	0.023
Pumps	2021	6	15	1.563	0.717	3.531	4.462	0.008	0.214	0.214	568.299	0.064
Pumps	2021	16	25	4.302	0.752	2.446	4.497	0.007	0.201	0.201	568.299	0.067
Pumps	2021	26	50	6.761	0.671	4.099	3.966	0.007	0.175	0.175	568.299	0.06
Pumps	2021	51	120	7.94	0.347	3.412	2.928	0.006	0.162	0.162	568.3	0.031
Pumps	2021	121	175	10.713	0.26	2.968	2.101	0.006	0.096	0.096	568.299	0.023
Pumps	2021	176	250	11.658	0.197	1.031	1.759	0.006	0.052	0.052	568.299	0.017
Pumps	2021	251	500	19.186	0.189	1.007	1.584	0.005	0.05	0.05	568.299	0.017
Pumps	2021	501	750	32.005	0.191	1.007	1.618	0.005	0.05	0.05	568.299	0.017
Pumps	2021	1001	9999	92.954	0.233	1.074	3.409	0.005	0.072	0.072	568.3	0.021
Pumps	2022	6	15	1.54	0.707	3.519	4.408	0.008	0.203	0.203	568.299	0.063
Pumps	2022	16	25	4.229	0.739	2.426	4.47	0.007	0.193	0.193	568.299	0.066
Pumps	2022	26	50	6.194	0.614	4.048	3.846	0.007	0.152	0.152	568.299	0.055
Pumps	2022	51	120	7.351	0.321	3.404	2.708	0.006	0.142	0.142	568.299	0.029
Pumps	2022	121	175	9.985	0.242	2.969	1.86	0.006	0.085	0.085	568.299	0.021
Pumps	2022	176	250	11.025	0.186	1.025	1.534	0.006	0.045	0.045	568.299	0.016
Pumps	2022	251	500	18.249	0.18	1.001	1.404	0.005	0.044	0.044	568.3	0.016
Pumps	2022	501	750	30.396	0.181	1.001	1.432	0.005	0.044	0.044	568.3	0.016
Pumps	2022	1001	9999	87.313	0.219	1.058	3.236	0.005	0.065	0.065	568.299	0.019
Pumps	2023	6	15	1.521	0.698	3.508	4.359	0.008	0.194	0.194	568.299	0.063
Pumps	2023	16	25	4.165	0.728	2.407	4.447	0.007	0.186	0.186	568.299	0.065
Pumps	2023	26	50	5.699	0.565	4.007	3.734	0.007	0.131	0.131	568.299	0.051
Pumps	2023	51	120	6.838	0.299	3.398	2.511	0.006	0.123	0.123	568.299	0.026
Pumps	2023	121	175	9.349	0.227	2.971	1.662	0.006	0.075	0.075	568.299	0.02
Pumps	2023	176	250	10.47	0.177	1.021	1.351	0.006	0.04	0.04	568.299	0.015
Pumps	2023	251	500	17.411	0.171	0.998	1.246	0.005	0.038	0.038	568.3	0.015
Pumps	2023	501	750	28.971	0.173	0.998	1.271	0.005	0.039	0.039	568.299	0.015
Pumps	2023	1001	9999	82.523	0.207	1.043	3.09	0.005	0.059	0.059	568.299	0.018
Pumps	2024	6	15	1.503	0.69	3.499	4.316	0.008	0.188	0.188	568.299	0.062
Pumps	2024	16	25	4.107	0.718	2.39	4.426	0.007	0.181	0.181	568.299	0.064
Pumps	2024	26	50	5.272	0.523	3.974	3.63	0.007	0.114	0.114	568.299	0.047
Pumps	2024	51	120	6.391	0.279	3.393	2.352	0.006	0.107	0.107	568.299	0.025
Pumps	2024	121	175	8.769	0.213	2.973	1.486	0.006	0.065	0.065	568.299	0.019
Pumps	2024	176	250	9.948	0.168	1.018	1.189	0.006	0.034	0.034	568.3	0.015
Pumps	2024	251	500	16.61	0.164	0.994	1.098	0.005	0.033	0.033	568.299	0.014
Pumps	2024	501	750	27.614	0.164	0.994	1.12	0.005	0.034	0.034	568.299	0.014
Pumps	2024	1001	9999	78.184	0.196	1.031	2.96	0.005	0.054	0.054	568.299	0.017
Pumps	2025	6	15	1.488	0.683	3.491	4.278	0.008	0.183	0.183	568.299	0.061
Pumps	2025	16	25	4.058	0.709	2.376	4.407	0.007	0.177	0.177	568.299	0.064
Pumps	2025	26	50	4.891	0.485	3.943	3.528	0.007	0.099	0.099	568.299	0.043
Pumps	2025	51	120	5.988	0.261	3.389	2.213	0.006	0.092	0.092	568.299	0.023
Pumps	2025	121	175	8.209	0.199	2.974	1.318	0.006	0.056	0.056	568.3	0.018
Pumps	2025	176	250	9.449	0.159	1.016	1.038	0.006	0.029	0.029	568.299	0.014
Pumps	2025	251	500	15.837	0.156	0.992	0.958	0.005	0.028	0.028	568.3	0.014
Pumps	2025	501	750	26.308	0.157	0.992	0.977	0.005	0.029	0.029	568.3	0.014
Pumps	2025	1001	9999	74.054	0.186	1.02	2.84	0.005	0.049	0.049	568.299	0.016
Pumps	2030	6	15	1.445	0.663	3.47	4.164	0.008	0.166	0.166	568.299	0.059
Pumps	2030	16	25	3.928	0.687	2.34	4.347	0.007	0.165	0.165	568.3	0.061
Pumps	2030	26	50	3.513	0.348	3.814	3.146	0.007	0.04	0.04	568.299	0.031
Pumps	2030	51	120	4.416	0.193	3.367	1.662	0.006	0.036	0.036	568.299	0.017
Pumps	2030	121	175	5.842	0.142	2.973	0.61	0.006	0.024	0.024	568.299	0.012
Pumps	2030	176	250	7.699	0.13	1.013	0.511	0.006	0.016	0.016	568.299	0.011
Pumps	2030	251	500	13.115	0.129	0.989	0.482	0.005	0.016	0.016	568.299	0.011
Pumps	2030	501	750	21.709	0.129	0.989	0.488	0.005	0.016	0.016	568.299	0.011
Pumps	2030	1001	9999	55.475	0.139	0.99	2.504	0.005	0.03	0.03	568.299	0.012
Pumps	2035	6	15	1.44	0.661	3.469	4.143	0.008	0.162	0.162	568.299	0.059
Pumps	2035	16	25	3.919	0.685	2.34	4.332	0.007	0.162	0.162	568.299	0.061
Pumps	2035	26	50	3.089	0.306	3.778	3.028	0.007	0.019	0.019	568.299	0.027
Pumps	2035	51	120	3.891	0.17	3.36	1.47	0.006	0.017	0.017	568.299	0.015
Pumps	2035	121	175	5.059	0.123	2.973	0.377	0.006	0.014	0.014	568.299	0.011
Pumps	2035	176	250	7.07	0.119	1.012	0.335	0.006	0.011	0.011	568.299	0.01
Pumps	2035	251	500	12.118	0.119	0.989	0.331	0.005	0.011	0.011	568.299	0.01
Pumps	2035	501	750	20.034	0.119	0.989	0.331	0.005	0.011	0.011	568.299	0.01
Pumps	2035	1001	9999	49.373	0.124	0.989	2.38	0.005	0.023	0.023	568.299	0.011
Pumps	2040	6	15	1.44	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Pumps	2040	16	25	3.919	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Pumps	2040	26	50	3.056	0.303	3.77	2.976	0.007	0.013	0.013	568.299	0.027
Pumps	2040	51	120	3.777	0.165	3.358	1.41	0.006	0.012	0.012	568.299	0.014
Pumps	2040	121	175	4.771	0.116	2.971	0.295	0.006	0.01	0.01	568.299	0.01

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pumps	2040	176	250	6.779	0.114	1.012	0.279	0.006	0.009	0.009	568.299	0.01
Pumps	2040	251	500	11.622	0.114	0.989	0.279	0.005	0.009	0.009	568.299	0.01
Pumps	2040	501	750	19.214	0.114	0.989	0.279	0.005	0.009	0.009	568.299	0.01
Pumps	2040	1001	9999	46.343	0.116	0.989	2.347	0.005	0.02	0.02	568.299	0.01
Rollers	1990	6	15	4.21	1.804	4.999	9.999	1.049	0.975	0.975	568.299	0.162
Rollers	1990	16	25	10.903	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Rollers	1990	26	50	45.466	4.738	9.598	7.927	0.871	1.256	1.256	568.299	0.427
Rollers	1990	51	120	51.677	2.372	5.756	15.111	0.791	1.332	1.332	568.3	0.214
Rollers	1990	121	175	75.451	1.889	5.165	14.858	0.758	1.046	1.046	568.299	0.17
Rollers	1990	176	250	106.808	1.889	5.165	14.858	0.758	1.046	1.046	568.299	0.17
Rollers	1990	251	500	135.093	1.669	11.266	14.103	0.662	0.896	0.896	568.299	0.15
Rollers	2000	6	15	3.444	1.475	4.49	8.242	0.079	0.676	0.676	568.3	0.133
Rollers	2000	16	25	9.648	1.958	4.53	6.358	0.065	0.563	0.563	568.299	0.176
Rollers	2000	26	50	38.643	4.027	8.379	6.941	0.066	0.861	0.861	568.299	0.363
Rollers	2000	51	120	39.062	1.793	4.585	10.425	0.06	0.844	0.844	568.299	0.161
Rollers	2000	121	175	48.357	1.21	3.749	9.501	0.057	0.503	0.503	568.299	0.109
Rollers	2000	176	250	59.24	1.047	3.108	9.211	0.057	0.427	0.427	568.299	0.094
Rollers	2000	251	500	77.413	0.956	5.254	8.821	0.05	0.379	0.379	568.299	0.086
Rollers	2005	6	15	1.788	0.766	3.469	5.228	0.079	0.361	0.361	568.299	0.069
Rollers	2005	16	25	4.53	0.919	2.642	5.412	0.065	0.347	0.347	568.299	0.082
Rollers	2005	26	50	34.997	3.647	7.864	6.51	0.066	0.808	0.808	568.299	0.329
Rollers	2005	51	120	34.046	1.563	4.289	8.963	0.06	0.79	0.79	568.299	0.141
Rollers	2005	121	175	40.854	1.023	3.44	8.18	0.057	0.441	0.441	568.299	0.092
Rollers	2005	176	250	44.594	0.788	2.262	7.822	0.057	0.319	0.319	568.299	0.071
Rollers	2005	251	500	56.466	0.697	3.183	7.196	0.05	0.282	0.282	568.299	0.062
Rollers	2010	6	15	1.637529	1.376	5.19619	5.58863	0.005	0.516	0.475	584.6125	0.17
Rollers	2010	16	25	1.637529	1.376	5.19619	5.58863	0.005	0.516	0.475	584.6125	0.17
Rollers	2010	26	50	1.637529	1.376	5.19619	5.58863	0.005	0.516	0.475	584.6125	0.17
Rollers	2010	51	120	0.983879	0.827	3.91429	7.50147	0.005	0.56	0.516	527.6279	0.154
Rollers	2010	121	175	0.511697	0.43	3.00505	5.60543	0.005	0.264	0.243	524.1952	0.153
Rollers	2010	176	250	0.616159	0.518	2.19572	7.34127	0.005	0.268	0.247	526.2539	0.153
Rollers	2010	251	500	0.682816	0.574	4.92169	7.52047	0.005	0.313	0.288	533.878	0.155
Rollers	2011	6	15	1.599963	1.344	5.18315	5.5647	0.005	0.508	0.467	583.1085	0.17
Rollers	2011	16	25	1.599963	1.344	5.18315	5.5647	0.005	0.508	0.467	583.1085	0.17
Rollers	2011	26	50	1.599963	1.344	5.18315	5.5647	0.005	0.508	0.467	583.1085	0.17
Rollers	2011	51	120	0.924436	0.777	3.86451	7.13388	0.005	0.533	0.491	525.9391	0.153
Rollers	2011	121	175	0.498798	0.419	3.00845	5.44712	0.005	0.257	0.237	522.9396	0.153
Rollers	2011	176	250	0.556319	0.467	2.03431	6.69107	0.005	0.242	0.222	524.8924	0.153
Rollers	2011	251	500	0.597293	0.502	4.46947	6.64358	0.005	0.275	0.253	529.5965	0.155
Rollers	2012	6	15	1.624226	1.365	5.26844	5.568	0.005	0.511	0.471	581.6678	0.17
Rollers	2012	16	25	1.624226	1.365	5.26844	5.568	0.005	0.511	0.471	581.6678	0.17
Rollers	2012	26	50	1.624226	1.365	5.26844	5.568	0.005	0.511	0.471	581.6678	0.17
Rollers	2012	51	120	0.924087	0.776	3.87893	7.08604	0.005	0.534	0.491	524.5269	0.153
Rollers	2012	121	175	0.497788	0.418	3.02294	5.38313	0.005	0.255	0.235	521.5511	0.153
Rollers	2012	176	250	0.555818	0.467	2.02691	6.64215	0.005	0.241	0.222	523.5608	0.153
Rollers	2012	251	500	0.604557	0.508	4.53336	6.66671	0.005	0.278	0.256	528.1357	0.155
Rollers	2013	6	15	1.5981	1.343	5.27142	5.50162	0.005	0.5	0.46	578.8662	0.17
Rollers	2013	16	25	1.5981	1.343	5.27142	5.50162	0.005	0.5	0.46	578.8662	0.17
Rollers	2013	26	50	1.5981	1.343	5.27142	5.50162	0.005	0.5	0.46	578.8662	0.17
Rollers	2013	51	120	0.873627	0.734	3.84356	6.74964	0.005	0.504	0.464	521.8163	0.153
Rollers	2013	121	175	0.468308	0.394	3.00794	5.11335	0.005	0.238	0.219	519.0689	0.153
Rollers	2013	176	250	0.495332	0.416	1.86858	5.94235	0.005	0.213	0.196	520.4083	0.153
Rollers	2013	251	500	0.470274	0.395	3.53436	5.43748	0.005	0.213	0.196	524.7654	0.154
Rollers	2014	6	15	1.556684	1.308	5.24275	5.39309	0.005	0.484	0.445	575.7953	0.17
Rollers	2014	16	25	1.556684	1.308	5.24275	5.39309	0.005	0.484	0.445	575.7953	0.17
Rollers	2014	26	50	1.556684	1.308	5.24275	5.39309	0.005	0.484	0.445	575.7953	0.17
Rollers	2014	51	120	0.827072	0.695	3.80915	6.39036	0.005	0.476	0.438	518.7866	0.153
Rollers	2014	121	175	0.43778	0.368	2.99804	4.72375	0.005	0.219	0.202	516.591	0.153
Rollers	2014	176	250	0.453642	0.381	1.75988	5.40344	0.005	0.191	0.176	517.8111	0.153
Rollers	2014	251	500	0.449616	0.378	3.3182	5.18322	0.005	0.202	0.185	522.0518	0.154
Rollers	2015	6	15	1.559602	1.31	5.29043	5.36547	0.005	0.481	0.443	569.9207	0.17
Rollers	2015	16	25	1.559602	1.31	5.29043	5.36547	0.005	0.481	0.443	569.9207	0.17
Rollers	2015	26	50	1.559602	1.31	5.29043	5.36547	0.005	0.481	0.443	569.9207	0.17
Rollers	2015	51	120	0.813228	0.683	3.80891	6.27158	0.005	0.467	0.43	513.5052	0.153
Rollers	2015	121	175	0.433087	0.364	3.00605	4.63035	0.005	0.215	0.198	511.3935	0.153
Rollers	2015	176	250	0.41293	0.347	1.65049	4.93191	0.005	0.171	0.157	512.8234	0.153
Rollers	2015	251	500	0.441373	0.371	3.24549	5.03147	0.005	0.195	0.179	517.2848	0.154
Rollers	2016	6	15	1.498736	1.259	5.23066	5.2356	0.005	0.459	0.423	563.9722	0.17
Rollers	2016	16	25	1.498736	1.259	5.23066	5.2356	0.005	0.459	0.423	563.9722	0.17
Rollers	2016	26	50	1.498736	1.259	5.23066	5.2356	0.005	0.459	0.423	563.9722	0.17

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rollers	2016	51	120	0.747631	0.628	3.75537	5.80563	0.005	0.428	0.393	508.1987	0.153
Rollers	2016	121	175	0.402004	0.338	2.99334	4.23872	0.005	0.197	0.181	505.9041	0.153
Rollers	2016	176	250	0.366563	0.308	1.50673	4.39492	0.005	0.15	0.138	507.6939	0.153
Rollers	2016	251	500	0.397483	0.334	2.95647	4.45617	0.005	0.173	0.159	513.4154	0.155
Rollers	2017	6	15	1.425352	1.198	5.14727	5.09771	0.005	0.436	0.401	555.0199	0.17
Rollers	2017	16	25	1.425352	1.198	5.14727	5.09771	0.005	0.436	0.401	555.0199	0.17
Rollers	2017	26	50	1.425352	1.198	5.14727	5.09771	0.005	0.436	0.401	555.0199	0.17
Rollers	2017	51	120	0.690109	0.58	3.71315	5.4114	0.005	0.392	0.361	500.1525	0.153
Rollers	2017	121	175	0.373471	0.314	2.98069	3.87384	0.005	0.18	0.166	497.9088	0.153
Rollers	2017	176	250	0.326364	0.274	1.40849	3.92097	0.005	0.129	0.119	499.7021	0.153
Rollers	2017	251	500	0.353236	0.297	2.68487	3.84047	0.005	0.15	0.138	505.8318	0.155
Rollers	2018	6	15	1.26668	1.064	4.92335	4.8416	0.005	0.387	0.356	546.2905	0.17
Rollers	2018	16	25	1.26668	1.064	4.92335	4.8416	0.005	0.387	0.356	546.2905	0.17
Rollers	2018	26	50	1.26668	1.064	4.92335	4.8416	0.005	0.387	0.356	546.2905	0.17
Rollers	2018	51	120	0.572467	0.481	3.60981	4.65049	0.005	0.32	0.294	492.2118	0.153
Rollers	2018	121	175	0.315632	0.265	2.94895	3.18126	0.005	0.147	0.135	490.1805	0.153
Rollers	2018	176	250	0.251419	0.211	1.24341	2.99492	0.005	0.094	0.086	491.6643	0.153
Rollers	2018	251	500	0.291314	0.245	2.23145	3.09814	0.005	0.119	0.11	497.9962	0.155
Rollers	2019	6	15	1.156606	0.972	4.77841	4.64491	0.005	0.349	0.321	537.546	0.17
Rollers	2019	16	25	1.156606	0.972	4.77841	4.64491	0.005	0.349	0.321	537.546	0.17
Rollers	2019	26	50	1.156606	0.972	4.77841	4.64491	0.005	0.349	0.321	537.546	0.17
Rollers	2019	51	120	0.502836	0.423	3.55726	4.17949	0.005	0.275	0.253	484.3362	0.153
Rollers	2019	121	175	0.27475	0.231	2.93251	2.69941	0.005	0.124	0.114	482.4531	0.153
Rollers	2019	176	250	0.250477	0.21	1.24854	2.88327	0.005	0.092	0.084	483.7769	0.153
Rollers	2019	251	500	0.278634	0.234	2.10142	2.90839	0.005	0.111	0.102	489.9774	0.155
Rollers	2020	6	15	1.102095	0.926	4.72504	4.53426	0.005	0.329	0.303	525.8798	0.17
Rollers	2020	16	25	1.102095	0.926	4.72504	4.53426	0.005	0.329	0.303	525.8798	0.17
Rollers	2020	26	50	1.102095	0.926	4.72504	4.53426	0.005	0.329	0.303	525.8798	0.17
Rollers	2020	51	120	0.462004	0.388	3.53135	3.88153	0.005	0.247	0.228	473.8594	0.153
Rollers	2020	121	175	0.256128	0.215	2.93333	2.45176	0.005	0.113	0.104	471.9177	0.153
Rollers	2020	176	250	0.248138	0.209	1.25343	2.75095	0.005	0.089	0.082	473.3669	0.153
Rollers	2020	251	500	0.279691	0.235	2.11346	2.82823	0.005	0.109	0.101	479.3254	0.155
Rollers	2021	6	15	1.008559	0.847	4.59681	4.35097	0.005	0.294	0.27	525.7908	0.17
Rollers	2021	16	25	1.008559	0.847	4.59681	4.35097	0.005	0.294	0.27	525.7908	0.17
Rollers	2021	26	50	1.008559	0.847	4.59681	4.35097	0.005	0.294	0.27	525.7908	0.17
Rollers	2021	51	120	0.42061	0.353	3.50719	3.5889	0.005	0.219	0.202	473.9012	0.153
Rollers	2021	121	175	0.229571	0.193	2.9256	2.11691	0.005	0.097	0.09	471.9799	0.153
Rollers	2021	176	250	0.23384	0.196	1.22849	2.49332	0.005	0.081	0.075	473.4704	0.153
Rollers	2021	251	500	0.26246	0.221	1.94995	2.58936	0.005	0.1	0.092	479.3294	0.155
Rollers	2022	6	15	0.878567	0.738	4.40241	4.12773	0.005	0.25	0.23	525.691	0.17
Rollers	2022	16	25	0.878567	0.738	4.40241	4.12773	0.005	0.25	0.23	525.691	0.17
Rollers	2022	26	50	0.878567	0.738	4.40241	4.12773	0.005	0.25	0.23	525.691	0.17
Rollers	2022	51	120	0.369089	0.31	3.46973	3.21896	0.005	0.186	0.171	473.9291	0.153
Rollers	2022	121	175	0.195547	0.164	2.91331	1.71408	0.005	0.079	0.072	471.9475	0.153
Rollers	2022	176	250	0.221959	0.187	1.22821	2.2116	0.005	0.077	0.071	473.5135	0.153
Rollers	2022	251	500	0.259221	0.218	1.95495	2.46341	0.005	0.097	0.089	478.9817	0.155
Rollers	2023	6	15	0.786211	0.661	4.25236	3.9211	0.005	0.212	0.195	525.8616	0.17
Rollers	2023	16	25	0.786211	0.661	4.25236	3.9211	0.005	0.212	0.195	525.8616	0.17
Rollers	2023	26	50	0.786211	0.661	4.25236	3.9211	0.005	0.212	0.195	525.8616	0.17
Rollers	2023	51	120	0.341189	0.287	3.45461	3.00302	0.005	0.165	0.152	473.9363	0.153
Rollers	2023	121	175	0.1784	0.15	2.90949	1.4833	0.005	0.068	0.062	471.9351	0.153
Rollers	2023	176	250	0.223864	0.188	1.23448	2.17272	0.005	0.076	0.07	473.5164	0.153
Rollers	2023	251	500	0.25159	0.211	1.95626	2.29003	0.005	0.093	0.085	478.3028	0.155
Rollers	2024	6	15	0.738433	0.62	4.20667	3.82449	0.005	0.192	0.177	525.9565	0.17
Rollers	2024	16	25	0.738433	0.62	4.20667	3.82449	0.005	0.192	0.177	525.9565	0.17
Rollers	2024	26	50	0.738433	0.62	4.20667	3.82449	0.005	0.192	0.177	525.9565	0.17
Rollers	2024	51	120	0.323417	0.272	3.45055	2.843	0.005	0.15	0.138	474.0072	0.153
Rollers	2024	121	175	0.168235	0.141	2.91426	1.32428	0.005	0.061	0.056	472.012	0.153
Rollers	2024	176	250	0.213553	0.179	1.21417	1.97675	0.005	0.07	0.064	473.512	0.153
Rollers	2024	251	500	0.24978	0.21	1.96121	2.21612	0.005	0.09	0.083	477.9001	0.155
Rollers	2025	6	15	0.677074	0.569	4.12543	3.68893	0.005	0.167	0.154	526.1406	0.17
Rollers	2025	16	25	0.677074	0.569	4.12543	3.68893	0.005	0.167	0.154	526.1406	0.17
Rollers	2025	26	50	0.677074	0.569	4.12543	3.68893	0.005	0.167	0.154	526.1406	0.17
Rollers	2025	51	120	0.303987	0.255	3.44432	2.69137	0.005	0.135	0.125	473.851	0.153
Rollers	2025	121	175	0.150791	0.127	2.90859	1.10088	0.005	0.049	0.045	471.9696	0.153
Rollers	2025	176	250	0.205768	0.173	1.21477	1.78252	0.005	0.066	0.06	473.6813	0.153
Rollers	2025	251	500	0.251787	0.212	1.96754	2.19998	0.005	0.09	0.083	477.5732	0.154
Rollers	2030	6	15	1.543	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Rollers	2030	16	25	3.377	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Rollers	2030	26	50	5.638	0.587	4.784	3.48	0.007	0.073	0.073	568.299	0.053

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rollers	2030	51	120	6.528	0.299	3.639	1.95	0.006	0.066	0.066	568.299	0.027
Rollers	2030	121	175	8.923	0.223	3.203	0.907	0.006	0.042	0.042	568.299	0.02
Rollers	2030	176	250	11.047	0.195	1.099	0.745	0.006	0.024	0.024	568.299	0.017
Rollers	2030	251	500	15.637	0.193	1.056	0.697	0.005	0.023	0.023	568.299	0.017
Rollers	2035	6	15	1.543	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Rollers	2035	16	25	3.377	0.685	2.34	4.332	0.007	0.161	0.161	568.3	0.061
Rollers	2035	26	50	4.867	0.507	4.711	3.28	0.007	0.038	0.038	568.299	0.045
Rollers	2035	51	120	5.632	0.258	3.629	1.65	0.006	0.035	0.035	568.299	0.023
Rollers	2035	121	175	7.351	0.184	3.204	0.523	0.006	0.023	0.023	568.299	0.016
Rollers	2035	176	250	9.79	0.173	1.091	0.465	0.006	0.016	0.016	568.299	0.015
Rollers	2035	251	500	13.949	0.172	1.048	0.442	0.005	0.016	0.016	568.3	0.015
Rollers	2040	6	15	1.543	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Rollers	2040	16	25	3.377	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Rollers	2040	26	50	4.508	0.469	4.682	3.207	0.007	0.024	0.024	568.299	0.042
Rollers	2040	51	120	5.228	0.24	3.625	1.525	0.006	0.021	0.021	568.299	0.021
Rollers	2040	121	175	6.731	0.168	3.205	0.373	0.006	0.015	0.015	568.299	0.015
Rollers	2040	176	250	9.355	0.165	1.092	0.348	0.006	0.012	0.012	568.299	0.014
Rollers	2040	251	500	13.378	0.165	1.048	0.341	0.005	0.012	0.012	568.299	0.014
Rough Terrain Forklifts	1990	26	50	13.299	5.191	10.416	8.098	0.871	1.348	1.348	568.299	0.468
Rough Terrain Forklifts	1990	51	120	11.91	2.52	6.008	15.753	0.791	1.432	1.432	568.299	0.227
Rough Terrain Forklifts	1990	121	175	19.775	2.092	5.422	15.888	0.758	1.178	1.178	568.299	0.188
Rough Terrain Forklifts	1990	176	250	27.042	2.092	5.422	15.888	0.758	1.178	1.178	568.299	0.188
Rough Terrain Forklifts	1990	251	500	35.607	1.834	12.637	14.986	0.662	0.998	0.998	568.299	0.165
Rough Terrain Forklifts	2000	26	50	11.216	4.378	9.045	7.041	0.066	0.919	0.919	568.3	0.395
Rough Terrain Forklifts	2000	51	120	8.517	1.802	4.574	10.225	0.06	0.881	0.881	568.299	0.162
Rough Terrain Forklifts	2000	121	175	11.484	1.215	3.676	9.36	0.057	0.511	0.511	568.3	0.109
Rough Terrain Forklifts	2000	176	250	13.186	1.02	2.927	9.021	0.057	0.418	0.418	568.299	0.092
Rough Terrain Forklifts	2000	251	500	18.049	0.929	4.415	8.59	0.05	0.37	0.37	568.299	0.083
Rough Terrain Forklifts	2005	26	50	9.835	3.839	8.285	6.528	0.066	0.844	0.844	568.299	0.346
Rough Terrain Forklifts	2005	51	120	7.351	1.555	4.289	8.677	0.06	0.82	0.82	568.299	0.14
Rough Terrain Forklifts	2005	121	175	9.61	1.016	3.403	7.941	0.057	0.447	0.447	568.3	0.091
Rough Terrain Forklifts	2005	176	250	9.418	0.728	1.995	7.52	0.057	0.289	0.289	568.299	0.065
Rough Terrain Forklifts	2005	251	500	12.496	0.643	2.406	6.82	0.05	0.258	0.258	568.299	0.058
Rough Terrain Forklifts	2010	26	50	1.514602	1.273	4.9076	5.57504	0.005	0.495	0.455	583.8316	0.17
Rough Terrain Forklifts	2010	51	120	0.607871	0.511	3.47103	5.81073	0.005	0.386	0.355	525.5318	0.153
Rough Terrain Forklifts	2010	121	175	0.37661	0.316	2.9137	4.78775	0.005	0.212	0.195	524.1127	0.153
Rough Terrain Forklifts	2010	176	250	0.759196	0.638	2.86785	7.87723	0.005	0.351	0.323	527.6921	0.154
Rough Terrain Forklifts	2010	251	500	0.386691	0.325	1.82955	5.79984	0.005	0.168	0.155	518.8116	0.151
Rough Terrain Forklifts	2011	26	50	1.444446	1.214	4.83823	5.52279	0.005	0.48	0.442	582.3751	0.17
Rough Terrain Forklifts	2011	51	120	0.549079	0.461	3.4365	5.4371	0.005	0.352	0.324	524.0504	0.153
Rough Terrain Forklifts	2011	121	175	0.339518	0.285	2.87624	4.45534	0.005	0.193	0.177	522.735	0.153
Rough Terrain Forklifts	2011	176	250	0.686556	0.577	2.63351	7.1588	0.005	0.317	0.292	525.8441	0.153
Rough Terrain Forklifts	2011	251	500	0.390538	0.328	1.84589	5.81691	0.005	0.17	0.156	517.5182	0.151
Rough Terrain Forklifts	2012	26	50	1.441034	1.211	4.88018	5.49331	0.005	0.476	0.438	580.9231	0.17
Rough Terrain Forklifts	2012	51	120	0.530399	0.446	3.43501	5.29115	0.005	0.34	0.312	522.6299	0.153
Rough Terrain Forklifts	2012	121	175	0.336361	0.283	2.88643	4.38447	0.005	0.189	0.174	521.4414	0.153
Rough Terrain Forklifts	2012	176	250	0.693119	0.582	2.65596	7.11155	0.005	0.319	0.293	524.4406	0.153
Rough Terrain Forklifts	2012	251	500	0.394706	0.332	1.86253	5.83389	0.005	0.171	0.157	516.2249	0.151
Rough Terrain Forklifts	2013	26	50	1.427232	1.199	4.88715	5.34043	0.005	0.454	0.417	578.2559	0.17
Rough Terrain Forklifts	2013	51	120	0.469882	0.395	3.39906	4.92337	0.005	0.299	0.275	519.906	0.153
Rough Terrain Forklifts	2013	121	175	0.283862	0.239	2.86094	3.90677	0.005	0.153	0.141	518.7027	0.153
Rough Terrain Forklifts	2013	176	250	0.418518	0.352	1.88921	4.79966	0.005	0.184	0.169	521.6392	0.153
Rough Terrain Forklifts	2013	251	500	0.334838	0.281	1.86541	4.62017	0.005	0.141	0.129	514.2815	0.151
Rough Terrain Forklifts	2014	26	50	1.40671	1.182	4.88713	5.22634	0.005	0.436	0.401	575.3526	0.17
Rough Terrain Forklifts	2014	51	120	0.417386	0.351	3.36705	4.46728	0.005	0.261	0.24	517.2602	0.153
Rough Terrain Forklifts	2014	121	175	0.263476	0.221	2.85182	3.59442	0.005	0.139	0.128	516.0907	0.153
Rough Terrain Forklifts	2014	176	250	0.221616	0.186	1.21218	2.98369	0.005	0.087	0.08	517.7663	0.153
Rough Terrain Forklifts	2014	251	500	0.202465	0.17	0.95399	3.49973	0.005	0.076	0.07	511.6567	0.151
Rough Terrain Forklifts	2015	26	50	1.414803	1.189	4.93325	5.18984	0.005	0.431	0.397	569.4875	0.17
Rough Terrain Forklifts	2015	51	120	0.401892	0.338	3.36619	4.28003	0.005	0.247	0.228	512.0859	0.153
Rough Terrain Forklifts	2015	121	175	0.25808	0.217	2.85917	3.42042	0.005	0.133	0.122	510.8541	0.153
Rough Terrain Forklifts	2015	176	250	0.166466	0.14	1.01164	2.4626	0.005	0.058	0.054	512.1638	0.153
Rough Terrain Forklifts	2015	251	500	0.207111	0.174	0.95822	3.52067	0.005	0.077	0.071	506.4349	0.151
Rough Terrain Forklifts	2016	26	50	1.378654	1.158	4.91773	5.09924	0.005	0.415	0.382	563.3598	0.17
Rough Terrain Forklifts	2016	51	120	0.358928	0.302	3.34169	3.84005	0.005	0.213	0.196	507.0659	0.153
Rough Terrain Forklifts	2016	121	175	0.248476	0.209	2.865	3.2087	0.005	0.124	0.114	505.596	0.153
Rough Terrain Forklifts	2016	176	250	0.171278	0.144	1.0177	2.46843	0.005	0.059	0.054	506.8956	0.153
Rough Terrain Forklifts	2016	251	500	0.211667	0.178	0.96236	3.54169	0.005	0.078	0.072	501.2134	0.151
Rough Terrain Forklifts	2017	26	50	1.318488	1.108	4.83344	4.90253	0.005	0.382	0.352	554.6234	0.17
Rough Terrain Forklifts	2017	51	120	0.322506	0.271	3.31778	3.41759	0.005	0.182	0.167	499.1682	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rough Terrain Forklifts	2017	121	175	0.231401	0.194	2.86636	2.90167	0.005	0.112	0.103	497.7766	0.153
Rough Terrain Forklifts	2017	176	250	0.175965	0.148	1.02362	2.47389	0.005	0.059	0.054	499.0007	0.153
Rough Terrain Forklifts	2017	251	500	0.216551	0.182	0.96636	3.56771	0.005	0.079	0.073	493.3362	0.151
Rough Terrain Forklifts	2018	26	50	1.273116	1.07	4.76839	4.73469	0.005	0.359	0.33	545.8693	0.17
Rough Terrain Forklifts	2018	51	120	0.264415	0.222	3.26976	2.84496	0.005	0.136	0.125	491.2107	0.153
Rough Terrain Forklifts	2018	121	175	0.194786	0.164	2.84245	2.34168	0.005	0.088	0.081	489.9869	0.153
Rough Terrain Forklifts	2018	176	250	0.181003	0.152	1.02948	2.48748	0.005	0.06	0.055	491.0997	0.153
Rough Terrain Forklifts	2018	251	500	0.172771	0.145	0.95802	2.70063	0.005	0.06	0.055	485.9543	0.151
Rough Terrain Forklifts	2019	26	50	1.200779	1.009	4.67405	4.55745	0.005	0.328	0.301	537.3287	0.17
Rough Terrain Forklifts	2019	51	120	0.240277	0.202	3.25848	2.6222	0.005	0.117	0.107	483.3105	0.153
Rough Terrain Forklifts	2019	121	175	0.177689	0.149	2.84092	2.05752	0.005	0.075	0.069	482.1188	0.153
Rough Terrain Forklifts	2019	176	250	0.130153	0.109	0.97423	1.63905	0.005	0.036	0.033	483.0882	0.153
Rough Terrain Forklifts	2019	251	500	0.138302	0.116	0.95034	1.96109	0.005	0.043	0.039	477.2539	0.151
Rough Terrain Forklifts	2020	26	50	1.188595	0.999	4.68594	4.4946	0.005	0.316	0.291	525.6222	0.17
Rough Terrain Forklifts	2020	51	120	0.225188	0.189	3.25575	2.45218	0.005	0.103	0.094	472.9842	0.153
Rough Terrain Forklifts	2020	121	175	0.170092	0.143	2.84466	1.86888	0.005	0.068	0.063	471.7152	0.153
Rough Terrain Forklifts	2020	176	250	0.132727	0.112	0.97848	1.60906	0.005	0.037	0.034	472.5671	0.153
Rough Terrain Forklifts	2020	251	500	0.105484	0.089	0.94184	1.30199	0.005	0.028	0.026	465.7709	0.151
Rough Terrain Forklifts	2021	26	50	1.152538	0.968	4.65658	4.41145	0.005	0.304	0.279	525.3844	0.17
Rough Terrain Forklifts	2021	51	120	0.207836	0.175	3.25191	2.28534	0.005	0.089	0.081	473.11	0.153
Rough Terrain Forklifts	2021	121	175	0.154972	0.13	2.8447	1.61661	0.005	0.06	0.055	471.7575	0.153
Rough Terrain Forklifts	2021	176	250	0.136824	0.115	0.98379	1.61186	0.005	0.037	0.034	472.5469	0.153
Rough Terrain Forklifts	2021	251	500	0.109168	0.092	0.94604	1.30199	0.005	0.028	0.026	465.7442	0.151
Rough Terrain Forklifts	2022	26	50	0.93878	0.789	4.3038	4.04131	0.005	0.238	0.219	525.0151	0.17
Rough Terrain Forklifts	2022	51	120	0.18871	0.159	3.24374	2.0983	0.005	0.073	0.067	473.089	0.153
Rough Terrain Forklifts	2022	121	175	0.142314	0.12	2.84439	1.40475	0.005	0.051	0.047	471.6773	0.153
Rough Terrain Forklifts	2022	176	250	0.140994	0.118	0.98924	1.61688	0.005	0.037	0.034	472.5408	0.153
Rough Terrain Forklifts	2022	251	500	0.081218	0.068	0.93709	0.55798	0.005	0.009	0.008	466.5598	0.151
Rough Terrain Forklifts	2023	26	50	0.82158	0.69	4.12519	3.85338	0.005	0.204	0.187	524.8024	0.17
Rough Terrain Forklifts	2023	51	120	0.178416	0.15	3.24217	1.9836	0.005	0.064	0.059	473.1584	0.153
Rough Terrain Forklifts	2023	121	175	0.132417	0.111	2.84289	1.21796	0.005	0.043	0.04	471.6217	0.153
Rough Terrain Forklifts	2023	176	250	0.137509	0.116	0.98987	1.47399	0.005	0.034	0.032	472.7784	0.153
Rough Terrain Forklifts	2023	251	500	0.082146	0.069	0.93788	0.55845	0.005	0.009	0.008	466.554	0.151
Rough Terrain Forklifts	2024	26	50	0.678189	0.57	3.91822	3.65343	0.005	0.166	0.152	524.9235	0.17
Rough Terrain Forklifts	2024	51	120	0.172725	0.145	3.24468	1.91392	0.005	0.058	0.054	473.0631	0.153
Rough Terrain Forklifts	2024	121	175	0.122467	0.103	2.83416	1.04413	0.005	0.039	0.035	471.5346	0.153
Rough Terrain Forklifts	2024	176	250	0.141528	0.119	0.99524	1.48012	0.005	0.035	0.032	472.8527	0.153
Rough Terrain Forklifts	2024	251	500	0.078846	0.066	0.93746	0.47582	0.005	0.009	0.008	466.5479	0.151
Rough Terrain Forklifts	2025	26	50	0.542352	0.456	3.74002	3.47668	0.005	0.128	0.118	525.027	0.17
Rough Terrain Forklifts	2025	51	120	0.16354	0.137	3.23971	1.82053	0.005	0.051	0.047	473.0366	0.153
Rough Terrain Forklifts	2025	121	175	0.103861	0.087	2.82091	0.78628	0.005	0.03	0.028	471.4745	0.152
Rough Terrain Forklifts	2025	176	250	0.145736	0.122	1.00073	1.48888	0.005	0.035	0.033	472.9267	0.153
Rough Terrain Forklifts	2025	251	500	0.081817	0.069	0.94151	0.47663	0.005	0.009	0.008	466.5414	0.151
Rough Terrain Forklifts	2030	26	50	1.404	0.548	5.031	3.359	0.007	0.039	0.039	568.299	0.049
Rough Terrain Forklifts	2030	51	120	1.321	0.279	3.725	1.671	0.006	0.034	0.034	568.299	0.025
Rough Terrain Forklifts	2030	121	175	1.898	0.2	3.291	0.537	0.006	0.023	0.023	568.299	0.018
Rough Terrain Forklifts	2030	176	250	2.47	0.191	1.121	0.463	0.006	0.016	0.016	568.299	0.017
Rough Terrain Forklifts	2030	251	500	3.702	0.19	1.07	0.443	0.005	0.016	0.016	568.3	0.017
Rough Terrain Forklifts	2035	26	50	1.335	0.521	5.011	3.267	0.007	0.022	0.022	568.299	0.047
Rough Terrain Forklifts	2035	51	120	1.24	0.262	3.722	1.53	0.006	0.02	0.02	568.299	0.023
Rough Terrain Forklifts	2035	121	175	1.742	0.184	3.292	0.364	0.006	0.015	0.015	568.299	0.016
Rough Terrain Forklifts	2035	176	250	2.346	0.181	1.121	0.334	0.006	0.012	0.012	568.299	0.016
Rough Terrain Forklifts	2035	251	500	3.524	0.181	1.071	0.331	0.005	0.012	0.012	568.3	0.016
Rough Terrain Forklifts	2040	26	50	1.331	0.519	5.01	3.228	0.007	0.017	0.017	568.3	0.046
Rough Terrain Forklifts	2040	51	120	1.222	0.258	3.722	1.485	0.006	0.016	0.016	568.299	0.023
Rough Terrain Forklifts	2040	121	175	1.687	0.178	3.292	0.303	0.006	0.012	0.012	568.3	0.016
Rough Terrain Forklifts	2040	176	250	2.296	0.177	1.121	0.292	0.006	0.011	0.011	568.299	0.016
Rough Terrain Forklifts	2040	251	500	3.449	0.177	1.071	0.292	0.005	0.011	0.011	568.299	0.016
Rubber Tired Dozers	1990	121	175	6.172	1.886	5.29	14.831	0.758	1.059	1.059	568.299	0.17
Rubber Tired Dozers	1990	176	250	8.746	1.886	5.29	14.831	0.758	1.059	1.059	568.299	0.17
Rubber Tired Dozers	1990	251	500	11.084	1.655	12.26	13.986	0.662	0.899	0.899	568.299	0.149
Rubber Tired Dozers	1990	501	750	16.688	1.655	12.26	13.986	1.018	0.915	0.915	568.3	0.149
Rubber Tired Dozers	1990	751	1000	24.619	1.645	12.26	13.986	1.018	0.903	0.903	568.299	0.148
Rubber Tired Dozers	2000	121	175	4.761	1.454	4.295	10.881	0.057	0.624	0.624	568.299	0.131
Rubber Tired Dozers	2000	176	250	6.043	1.303	3.733	10.625	0.057	0.548	0.548	568.299	0.117
Rubber Tired Dozers	2000	251	500	7.775	1.161	6.982	10.023	0.05	0.474	0.474	568.299	0.104
Rubber Tired Dozers	2000	501	750	11.706	1.161	6.982	10.023	0.052	0.474	0.474	568.3	0.104
Rubber Tired Dozers	2000	751	1000	17.842	1.192	7.415	10.456	0.052	0.451	0.451	568.3	0.107
Rubber Tired Dozers	2005	121	175	4.21	1.286	4.026	9.666	0.057	0.567	0.567	568.299	0.116
Rubber Tired Dozers	2005	176	250	4.912	1.059	2.99	9.344	0.057	0.437	0.437	568.299	0.095

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rubber Tired Dozers	2005	251	500	6.277	0.937	5.159	8.574	0.05	0.38	0.38	568.299	0.084
Rubber Tired Dozers	2005	501	750	9.496	0.942	5.15	8.694	0.052	0.382	0.382	568.299	0.085
Rubber Tired Dozers	2005	751	1000	14.937	0.998	5.524	9.444	0.052	0.369	0.369	568.299	0.09
Rubber Tired Dozers	2010	121	175	1.12265	0.943	4.17063	9.78349	0.005	0.555	0.511	526.3128	0.153
Rubber Tired Dozers	2010	176	250	0.840919	0.707	2.68761	8.22344	0.005	0.394	0.362	527.9126	0.154
Rubber Tired Dozers	2010	251	500	0.88356	0.742	6.7191	8.70703	0.005	0.406	0.374	533.1476	0.155
Rubber Tired Dozers	2010	501	750	0.619996	0.521	3.1214	7.42352	0.005	0.269	0.248	525.7054	0.153
Rubber Tired Dozers	2010	751	1000	12.178	0.814	4.027	8.149	0.005	0.29	0.29	568.299	0.073
Rubber Tired Dozers	2011	121	175	1.128595	0.948	4.18594	9.7992	0.005	0.557	0.513	524.9639	0.153
Rubber Tired Dozers	2011	176	250	0.852039	0.716	2.69892	8.24976	0.005	0.396	0.364	526.5967	0.154
Rubber Tired Dozers	2011	251	500	0.878525	0.738	6.65601	8.60406	0.005	0.402	0.37	532.0871	0.155
Rubber Tired Dozers	2011	501	750	0.62921	0.529	3.13084	7.4622	0.005	0.272	0.25	524.3841	0.153
Rubber Tired Dozers	2011	751	1000	11.693	0.781	3.772	7.805	0.005	0.276	0.276	568.299	0.07
Rubber Tired Dozers	2012	121	175	1.133798	0.953	4.1998	9.81194	0.005	0.559	0.515	523.6318	0.153
Rubber Tired Dozers	2012	176	250	0.862577	0.725	2.70943	8.27234	0.005	0.398	0.366	525.281	0.154
Rubber Tired Dozers	2012	251	500	0.883165	0.742	6.62489	8.58436	0.005	0.401	0.369	530.6589	0.155
Rubber Tired Dozers	2012	501	750	0.635938	0.534	3.13648	7.48052	0.005	0.274	0.252	523.0626	0.153
Rubber Tired Dozers	2012	751	1000	11.228	0.75	3.531	7.474	0.005	0.262	0.262	568.299	0.067
Rubber Tired Dozers	2013	121	175	1.138698	0.957	4.21297	9.82334	0.005	0.561	0.516	520.9836	0.153
Rubber Tired Dozers	2013	176	250	0.859983	0.723	2.71092	8.10695	0.005	0.395	0.363	522.6456	0.154
Rubber Tired Dozers	2013	251	500	0.864011	0.726	6.42295	8.33658	0.005	0.39	0.359	527.9093	0.155
Rubber Tired Dozers	2013	501	750	0.641687	0.539	3.14069	7.49129	0.005	0.275	0.253	520.4266	0.153
Rubber Tired Dozers	2013	751	1000	10.78	0.72	3.306	7.155	0.005	0.249	0.249	568.299	0.065
Rubber Tired Dozers	2014	121	175	1.143391	0.961	4.22564	9.83401	0.005	0.563	0.518	518.335	0.153
Rubber Tired Dozers	2014	176	250	0.858402	0.721	2.71199	7.97218	0.005	0.392	0.361	520.0105	0.154
Rubber Tired Dozers	2014	251	500	0.841688	0.707	6.16471	8.05819	0.005	0.376	0.346	524.6758	0.155
Rubber Tired Dozers	2014	501	750	0.610646	0.513	2.75605	7.14705	0.005	0.258	0.237	517.7903	0.153
Rubber Tired Dozers	2014	751	1000	10.347	0.691	3.096	6.849	0.005	0.236	0.236	568.3	0.062
Rubber Tired Dozers	2015	121	175	1.147937	0.965	4.23794	9.84425	0.005	0.564	0.519	513.0549	0.153
Rubber Tired Dozers	2015	176	250	0.866859	0.728	2.7204	7.9837	0.005	0.394	0.362	514.7359	0.154
Rubber Tired Dozers	2015	251	500	0.842228	0.708	6.10151	7.99736	0.005	0.373	0.343	519.1472	0.155
Rubber Tired Dozers	2015	501	750	0.616719	0.518	2.76062	7.15777	0.005	0.259	0.238	512.5253	0.153
Rubber Tired Dozers	2015	751	1000	9.895	0.661	2.901	6.556	0.005	0.222	0.222	568.299	0.059
Rubber Tired Dozers	2016	121	175	1.152013	0.968	4.24901	9.85328	0.005	0.566	0.52	507.7744	0.153
Rubber Tired Dozers	2016	176	250	0.875531	0.736	2.72943	7.99508	0.005	0.395	0.364	509.4615	0.154
Rubber Tired Dozers	2016	251	500	0.819146	0.688	5.82829	7.71034	0.005	0.359	0.33	513.3109	0.155
Rubber Tired Dozers	2016	501	750	0.622662	0.523	2.7651	7.16821	0.005	0.26	0.239	507.2601	0.153
Rubber Tired Dozers	2016	751	1000	9.45	0.631	2.723	6.277	0.005	0.208	0.208	568.3	0.057
Rubber Tired Dozers	2017	121	175	1.074198	0.903	4.14895	9.12915	0.005	0.525	0.483	499.4096	0.153
Rubber Tired Dozers	2017	176	250	0.840865	0.707	2.65514	7.67081	0.005	0.375	0.345	501.5475	0.154
Rubber Tired Dozers	2017	251	500	0.787455	0.662	5.52569	7.33345	0.005	0.341	0.313	505.8493	0.155
Rubber Tired Dozers	2017	501	750	0.625767	0.526	2.76746	7.17226	0.005	0.26	0.239	499.3665	0.153
Rubber Tired Dozers	2017	751	1000	9.018	0.602	2.56	6.013	0.005	0.195	0.195	568.299	0.054
Rubber Tired Dozers	2018	121	175	0.954751	0.802	3.98965	8.02079	0.005	0.46	0.424	491.4921	0.153
Rubber Tired Dozers	2018	176	250	0.796398	0.669	2.51156	7.20787	0.005	0.35	0.322	493.6337	0.154
Rubber Tired Dozers	2018	251	500	0.71175	0.598	4.98205	6.50184	0.005	0.3	0.276	498.1862	0.155
Rubber Tired Dozers	2018	501	750	0.602699	0.506	2.75902	6.72652	0.005	0.248	0.228	491.4726	0.153
Rubber Tired Dozers	2018	751	1000	8.6	0.574	2.413	5.764	0.005	0.183	0.183	568.299	0.051
Rubber Tired Dozers	2019	121	175	0.90312	0.759	3.94854	7.52037	0.005	0.433	0.398	483.5585	0.153
Rubber Tired Dozers	2019	176	250	0.774882	0.651	2.45855	6.92923	0.005	0.338	0.311	485.172	0.154
Rubber Tired Dozers	2019	251	500	0.680848	0.572	4.74309	6.14335	0.005	0.283	0.26	490.383	0.155
Rubber Tired Dozers	2019	501	750	0.541107	0.455	2.59814	6.12249	0.005	0.218	0.201	483.5786	0.153
Rubber Tired Dozers	2019	751	1000	8.196	0.547	2.281	5.528	0.005	0.171	0.171	568.299	0.049
Rubber Tired Dozers	2020	121	175	0.864425	0.726	3.89288	7.18525	0.005	0.411	0.378	473.0116	0.153
Rubber Tired Dozers	2020	176	250	0.737248	0.619	2.37104	6.50332	0.005	0.318	0.293	474.7928	0.154
Rubber Tired Dozers	2020	251	500	0.636621	0.535	4.41134	5.64089	0.005	0.259	0.238	479.7569	0.155
Rubber Tired Dozers	2020	501	750	0.543245	0.456	2.60108	6.12255	0.005	0.218	0.201	473.0562	0.153
Rubber Tired Dozers	2020	751	1000	7.811	0.522	2.164	5.306	0.005	0.16	0.16	568.299	0.047
Rubber Tired Dozers	2021	121	175	0.822557	0.691	3.84814	6.79037	0.005	0.386	0.355	472.9751	0.153
Rubber Tired Dozers	2021	176	250	0.714624	0.6	2.31719	6.29617	0.005	0.306	0.281	474.7984	0.154
Rubber Tired Dozers	2021	251	500	0.585817	0.492	4.04107	5.081	0.005	0.232	0.214	478.9868	0.155
Rubber Tired Dozers	2021	501	750	0.545338	0.458	2.60396	6.12254	0.005	0.218	0.201	473.0459	0.153
Rubber Tired Dozers	2021	751	1000	7.448	0.497	2.057	5.095	0.005	0.15	0.15	568.299	0.044
Rubber Tired Dozers	2022	121	175	0.714312	0.6	3.75194	5.80781	0.005	0.326	0.3	473.9122	0.153
Rubber Tired Dozers	2022	176	250	0.571708	0.48	2.05563	5.04648	0.005	0.24	0.22	474.6166	0.154
Rubber Tired Dozers	2022	251	500	0.565033	0.475	3.89489	4.80775	0.005	0.22	0.202	479.3107	0.155
Rubber Tired Dozers	2022	501	750	0.547387	0.46	2.60677	6.12245	0.005	0.218	0.201	473.035	0.153
Rubber Tired Dozers	2022	751	1000	7.106	0.475	1.961	4.896	0.005	0.14	0.14	568.299	0.042
Rubber Tired Dozers	2023	121	175	0.700073	0.588	3.7664	5.65638	0.005	0.316	0.291	473.9009	0.153
Rubber Tired Dozers	2023	176	250	0.467601	0.393	1.78266	4.09011	0.005	0.184	0.169	474.5967	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rubber Tired Dozers	2023	251	500	0.531484	0.447	3.68617	4.40835	0.005	0.202	0.185	479.4678	0.155
Rubber Tired Dozers	2023	501	750	0.502999	0.423	2.59131	5.33389	0.005	0.196	0.18	473.0234	0.153
Rubber Tired Dozers	2023	751	1000	6.786	0.453	1.874	4.709	0.005	0.131	0.131	568.299	0.04
Rubber Tired Dozers	2024	121	175	0.633623	0.532	3.69636	5.0144	0.005	0.279	0.257	473.5147	0.153
Rubber Tired Dozers	2024	176	250	0.474702	0.399	1.79685	4.0904	0.005	0.184	0.17	474.5854	0.153
Rubber Tired Dozers	2024	251	500	0.495724	0.417	3.45746	4.03046	0.005	0.182	0.168	479.3938	0.155
Rubber Tired Dozers	2024	501	750	0.506146	0.425	2.59604	5.33372	0.005	0.196	0.18	473.0111	0.153
Rubber Tired Dozers	2024	751	1000	6.485	0.433	1.796	4.532	0.005	0.123	0.123	568.299	0.039
Rubber Tired Dozers	2025	121	175	0.548636	0.461	3.61238	4.22886	0.005	0.23	0.212	474.1029	0.153
Rubber Tired Dozers	2025	176	250	0.442605	0.372	1.72032	3.80547	0.005	0.167	0.153	474.5734	0.153
Rubber Tired Dozers	2025	251	500	0.436562	0.367	2.95895	3.36957	0.005	0.151	0.139	479.0915	0.155
Rubber Tired Dozers	2025	501	750	0.509225	0.428	2.60066	5.33346	0.005	0.196	0.18	472.9981	0.153
Rubber Tired Dozers	2025	751	1000	6.203	0.414	1.725	4.365	0.005	0.115	0.115	568.299	0.037
Rubber Tired Dozers	2030	121	175	1.303	0.398	3.496	2.034	0.006	0.111	0.111	568.299	0.035
Rubber Tired Dozers	2030	176	250	1.556	0.335	1.322	1.828	0.006	0.069	0.069	568.299	0.03
Rubber Tired Dozers	2030	251	500	2.16	0.322	1.401	1.658	0.005	0.064	0.064	568.299	0.029
Rubber Tired Dozers	2030	501	750	3.261	0.323	1.401	1.694	0.005	0.064	0.064	568.299	0.029
Rubber Tired Dozers	2030	751	1000	5.063	0.338	1.465	3.676	0.005	0.082	0.082	568.299	0.03
Rubber Tired Dozers	2035	121	175	1.054	0.322	3.481	1.345	0.006	0.071	0.071	568.299	0.029
Rubber Tired Dozers	2035	176	250	1.326	0.286	1.262	1.203	0.006	0.046	0.046	568.299	0.025
Rubber Tired Dozers	2035	251	500	1.868	0.279	1.279	1.107	0.005	0.043	0.043	568.3	0.025
Rubber Tired Dozers	2035	501	750	2.816	0.279	1.279	1.126	0.005	0.043	0.043	568.299	0.025
Rubber Tired Dozers	2035	751	1000	4.306	0.287	1.312	3.204	0.005	0.06	0.06	568.299	0.025
Rubber Tired Dozers	2040	121	175	0.9	0.275	3.47	0.903	0.006	0.045	0.045	568.299	0.024
Rubber Tired Dozers	2040	176	250	1.176	0.253	1.225	0.81	0.006	0.031	0.031	568.299	0.022
Rubber Tired Dozers	2040	251	500	1.672	0.249	1.198	0.758	0.005	0.029	0.029	568.299	0.022
Rubber Tired Dozers	2040	501	750	2.519	0.25	1.198	0.767	0.005	0.029	0.029	568.3	0.022
Rubber Tired Dozers	2040	751	1000	3.814	0.254	1.218	2.91	0.005	0.045	0.045	568.3	0.023
Rubber Tired Loaders	1990	16	25	5.92	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Rubber Tired Loaders	1990	26	50	23.869	4.848	9.805	7.964	0.871	1.279	1.279	568.299	0.437
Rubber Tired Loaders	1990	51	120	22.055	2.368	5.728	14.978	0.791	1.345	1.345	568.299	0.213
Rubber Tired Loaders	1990	121	175	30.1	1.791	5.094	14.294	0.758	0.995	0.995	568.299	0.161
Rubber Tired Loaders	1990	176	250	42.179	1.791	5.094	14.294	0.758	0.995	0.995	568.3	0.161
Rubber Tired Loaders	1990	251	500	59.295	1.583	11.282	13.545	0.662	0.851	0.851	568.3	0.142
Rubber Tired Loaders	1990	501	750	121.471	1.583	11.282	13.545	1.018	0.867	0.867	568.299	0.142
Rubber Tired Loaders	1990	751	1000	147.851	1.575	11.282	13.545	1.018	0.858	0.858	568.299	0.142
Rubber Tired Loaders	2000	16	25	5.105	1.908	4.438	6.326	0.065	0.555	0.555	568.299	0.172
Rubber Tired Loaders	2000	26	50	21.853	4.439	9.15	7.065	0.066	0.928	0.928	568.299	0.4
Rubber Tired Loaders	2000	51	120	17.155	1.842	4.652	10.433	0.06	0.896	0.896	568.299	0.166
Rubber Tired Loaders	2000	121	175	20.951	1.246	3.765	9.552	0.057	0.526	0.526	568.299	0.112
Rubber Tired Loaders	2000	176	250	24.776	1.052	3.019	9.216	0.057	0.433	0.433	568.299	0.094
Rubber Tired Loaders	2000	251	500	35.779	0.955	4.797	8.766	0.05	0.381	0.381	568.299	0.086
Rubber Tired Loaders	2000	501	750	73.296	0.955	4.797	8.766	0.052	0.381	0.381	568.299	0.086
Rubber Tired Loaders	2000	751	1000	95.549	1.018	5.369	9.342	0.052	0.372	0.372	568.299	0.091
Rubber Tired Loaders	2005	16	25	2.273	0.849	2.519	5.321	0.065	0.333	0.333	568.299	0.076
Rubber Tired Loaders	2005	26	50	19.43	3.947	8.471	6.59	0.066	0.86	0.86	568.299	0.356
Rubber Tired Loaders	2005	51	120	14.973	1.608	4.379	8.954	0.06	0.841	0.841	568.3	0.145
Rubber Tired Loaders	2005	121	175	17.677	1.052	3.496	8.183	0.057	0.464	0.464	568.299	0.094
Rubber Tired Loaders	2005	176	250	18.23	0.774	2.143	7.781	0.057	0.31	0.31	568.3	0.069
Rubber Tired Loaders	2005	251	500	25.602	0.683	2.836	7.066	0.05	0.275	0.275	568.3	0.061
Rubber Tired Loaders	2005	501	750	53.332	0.695	2.831	7.236	0.052	0.278	0.278	568.299	0.062
Rubber Tired Loaders	2005	751	1000	74.257	0.791	3.279	8.232	0.052	0.275	0.275	568.299	0.071
Rubber Tired Loaders	2010	16	25	2.807425	2.359	7.88269	6.29919	0.005	0.734	0.675	581.9969	0.169
Rubber Tired Loaders	2010	26	50	2.807425	2.359	7.88269	6.29919	0.005	0.734	0.675	581.9969	0.169
Rubber Tired Loaders	2010	51	120	1.132276	0.951	4.28386	7.85298	0.005	0.68	0.626	519.5038	0.151
Rubber Tired Loaders	2010	121	175	0.772004	0.649	3.56499	7.01127	0.005	0.387	0.356	523.9006	0.152
Rubber Tired Loaders	2010	176	250	0.475737	0.4	1.50852	5.94632	0.005	0.199	0.183	522.3501	0.152
Rubber Tired Loaders	2010	251	500	0.495122	0.416	2.61599	5.66307	0.005	0.211	0.194	521.885	0.152
Rubber Tired Loaders	2010	501	750	0.454547	0.382	2.10254	5.06362	0.005	0.197	0.181	507.2864	0.148
Rubber Tired Loaders	2010	751	1000	0.464861	0.391	1.45926	6.63966	0.005	0.187	0.172	523.2526	0.152
Rubber Tired Loaders	2011	16	25	2.679774	2.252	7.77095	6.24779	0.005	0.711	0.654	581.4262	0.17
Rubber Tired Loaders	2011	26	50	2.679774	2.252	7.77095	6.24779	0.005	0.711	0.654	581.4262	0.17
Rubber Tired Loaders	2011	51	120	1.113092	0.935	4.28739	7.68957	0.005	0.671	0.618	517.9363	0.151
Rubber Tired Loaders	2011	121	175	0.757164	0.636	3.57219	6.81375	0.005	0.378	0.348	522.5315	0.152
Rubber Tired Loaders	2011	176	250	0.481296	0.404	1.50155	5.87694	0.005	0.197	0.181	520.9732	0.152
Rubber Tired Loaders	2011	251	500	0.501144	0.421	2.56846	5.5868	0.005	0.209	0.192	520.154	0.152
Rubber Tired Loaders	2011	501	750	0.472712	0.397	2.12943	5.09397	0.005	0.2	0.184	505.881	0.148
Rubber Tired Loaders	2011	751	1000	0.476526	0.4	1.47057	6.69396	0.005	0.191	0.176	521.9232	0.152
Rubber Tired Loaders	2012	16	25	2.730745	2.295	7.96233	6.30427	0.005	0.724	0.666	579.9785	0.17
Rubber Tired Loaders	2012	26	50	2.730745	2.295	7.96233	6.30427	0.005	0.724	0.666	579.9785	0.17

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rubber Tired Loaders	2012	51	120	1.113822	0.936	4.31845	7.65616	0.005	0.671	0.617	516.6239	0.151
Rubber Tired Loaders	2012	121	175	0.765409	0.643	3.60616	6.79567	0.005	0.38	0.349	521.0995	0.152
Rubber Tired Loaders	2012	176	250	0.492248	0.414	1.51119	5.85805	0.005	0.198	0.182	519.646	0.152
Rubber Tired Loaders	2012	251	500	0.515336	0.433	2.59983	5.58714	0.005	0.211	0.194	518.7236	0.152
Rubber Tired Loaders	2012	501	750	0.485752	0.408	2.14848	5.07921	0.005	0.201	0.185	504.6824	0.148
Rubber Tired Loaders	2012	751	1000	0.48616	0.409	1.47877	6.73245	0.005	0.194	0.178	520.592	0.152
Rubber Tired Loaders	2013	16	25	2.60616	2.19	7.83573	6.18494	0.005	0.695	0.64	577.0156	0.17
Rubber Tired Loaders	2013	26	50	2.60616	2.19	7.83573	6.18494	0.005	0.695	0.64	577.0156	0.17
Rubber Tired Loaders	2013	51	120	1.087575	0.914	4.31523	7.47698	0.005	0.654	0.602	513.9368	0.151
Rubber Tired Loaders	2013	121	175	0.750707	0.631	3.60722	6.6063	0.005	0.369	0.339	518.3787	0.152
Rubber Tired Loaders	2013	176	250	0.496511	0.417	1.5142	5.75293	0.005	0.196	0.181	516.9736	0.152
Rubber Tired Loaders	2013	251	500	0.517428	0.435	2.55447	5.4738	0.005	0.208	0.191	515.9429	0.152
Rubber Tired Loaders	2013	501	750	0.49047	0.412	2.0823	4.99146	0.005	0.199	0.183	502.8589	0.148
Rubber Tired Loaders	2013	751	1000	0.484243	0.407	1.45163	6.66719	0.005	0.193	0.178	517.9506	0.152
Rubber Tired Loaders	2014	16	25	2.51646	2.115	7.7699	6.10324	0.005	0.676	0.622	573.5218	0.169
Rubber Tired Loaders	2014	26	50	2.51646	2.115	7.7699	6.10324	0.005	0.676	0.622	573.5218	0.169
Rubber Tired Loaders	2014	51	120	1.032758	0.868	4.26762	7.12932	0.005	0.619	0.569	510.0099	0.151
Rubber Tired Loaders	2014	121	175	0.720145	0.605	3.58536	6.27196	0.005	0.35	0.322	515.7685	0.152
Rubber Tired Loaders	2014	176	250	0.483874	0.407	1.48551	5.49539	0.005	0.187	0.172	514.2167	0.152
Rubber Tired Loaders	2014	251	500	0.501158	0.421	2.40656	5.19438	0.005	0.196	0.18	512.5095	0.151
Rubber Tired Loaders	2014	501	750	0.483251	0.406	1.94616	4.81047	0.005	0.19	0.175	499.6952	0.148
Rubber Tired Loaders	2014	751	1000	0.492279	0.414	1.45724	6.69249	0.005	0.195	0.179	515.307	0.152
Rubber Tired Loaders	2015	16	25	2.508512	2.108	7.83443	6.11232	0.005	0.675	0.621	567.672	0.169
Rubber Tired Loaders	2015	26	50	2.508512	2.108	7.83443	6.11232	0.005	0.675	0.621	567.672	0.169
Rubber Tired Loaders	2015	51	120	1.018295	0.856	4.27362	7.01153	0.005	0.606	0.558	505.0231	0.151
Rubber Tired Loaders	2015	121	175	0.708161	0.595	3.58815	6.09735	0.005	0.341	0.313	510.4677	0.152
Rubber Tired Loaders	2015	176	250	0.482642	0.406	1.47986	5.36927	0.005	0.183	0.169	508.9127	0.152
Rubber Tired Loaders	2015	251	500	0.494223	0.415	2.33208	5.0195	0.005	0.19	0.174	506.3723	0.151
Rubber Tired Loaders	2015	501	750	0.469822	0.395	1.78908	4.55578	0.005	0.179	0.165	495.31	0.148
Rubber Tired Loaders	2015	751	1000	0.499538	0.42	1.46167	6.71262	0.005	0.197	0.181	510.0449	0.152
Rubber Tired Loaders	2016	16	25	2.445921	2.055	7.79111	6.05258	0.005	0.66	0.607	561.9032	0.169
Rubber Tired Loaders	2016	26	50	2.445921	2.055	7.79111	6.05258	0.005	0.66	0.607	561.9032	0.169
Rubber Tired Loaders	2016	51	120	0.955142	0.803	4.21236	6.58334	0.005	0.565	0.52	499.5935	0.151
Rubber Tired Loaders	2016	121	175	0.67267	0.565	3.56236	5.72558	0.005	0.319	0.294	505.1308	0.152
Rubber Tired Loaders	2016	176	250	0.468005	0.393	1.45212	5.1151	0.005	0.174	0.16	503.6542	0.152
Rubber Tired Loaders	2016	251	500	0.465473	0.391	2.15506	4.62743	0.005	0.174	0.16	500.4314	0.151
Rubber Tired Loaders	2016	501	750	0.443728	0.373	1.70263	4.17165	0.005	0.164	0.151	491.9183	0.148
Rubber Tired Loaders	2016	751	1000	0.505153	0.424	1.46404	6.72411	0.005	0.198	0.182	504.7801	0.152
Rubber Tired Loaders	2017	16	25	2.32856	1.957	7.65953	5.95377	0.005	0.633	0.582	553.5831	0.17
Rubber Tired Loaders	2017	26	50	2.32856	1.957	7.65953	5.95377	0.005	0.633	0.582	553.5831	0.17
Rubber Tired Loaders	2017	51	120	0.900842	0.757	4.17083	6.23569	0.005	0.53	0.487	491.8531	0.151
Rubber Tired Loaders	2017	121	175	0.620654	0.522	3.5175	5.19525	0.005	0.289	0.266	497.3533	0.152
Rubber Tired Loaders	2017	176	250	0.443532	0.373	1.4172	4.75473	0.005	0.162	0.149	495.9499	0.152
Rubber Tired Loaders	2017	251	500	0.439436	0.369	2.06046	4.25314	0.005	0.16	0.147	492.2764	0.151
Rubber Tired Loaders	2017	501	750	0.436922	0.367	1.70044	4.05049	0.005	0.16	0.147	484.3661	0.148
Rubber Tired Loaders	2017	751	1000	0.493245	0.414	1.45641	6.55319	0.005	0.192	0.176	496.8966	0.152
Rubber Tired Loaders	2018	16	25	2.100538	1.765	7.29915	5.67925	0.005	0.576	0.53	545.0529	0.17
Rubber Tired Loaders	2018	26	50	2.100538	1.765	7.29915	5.67925	0.005	0.576	0.53	545.0529	0.17
Rubber Tired Loaders	2018	51	120	0.779856	0.655	4.04742	5.47032	0.005	0.452	0.416	484.0931	0.151
Rubber Tired Loaders	2018	121	175	0.533198	0.448	3.42332	4.36814	0.005	0.242	0.223	489.5114	0.152
Rubber Tired Loaders	2018	176	250	0.396861	0.333	1.34644	4.13133	0.005	0.14	0.129	487.9023	0.152
Rubber Tired Loaders	2018	251	500	0.397312	0.334	1.86807	3.72607	0.005	0.14	0.128	484.5709	0.151
Rubber Tired Loaders	2018	501	750	0.393495	0.331	1.55549	3.5437	0.005	0.14	0.129	476.5663	0.148
Rubber Tired Loaders	2018	751	1000	0.399711	0.336	1.21289	5.67315	0.005	0.154	0.142	488.4037	0.152
Rubber Tired Loaders	2019	16	25	1.906195	1.602	6.97769	5.43193	0.005	0.518	0.476	536.2254	0.17
Rubber Tired Loaders	2019	26	50	1.906195	1.602	6.97769	5.43193	0.005	0.518	0.476	536.2254	0.17
Rubber Tired Loaders	2019	51	120	0.707701	0.595	3.97887	5.00611	0.005	0.402	0.37	475.8636	0.151
Rubber Tired Loaders	2019	121	175	0.482139	0.405	3.38084	3.85918	0.005	0.213	0.196	481.7364	0.152
Rubber Tired Loaders	2019	176	250	0.368194	0.309	1.30248	3.74452	0.005	0.126	0.116	480.0997	0.152
Rubber Tired Loaders	2019	251	500	0.363843	0.306	1.7248	3.28755	0.005	0.123	0.113	477.0415	0.151
Rubber Tired Loaders	2019	501	750	0.348958	0.293	1.45157	3.01875	0.005	0.118	0.109	471.1874	0.149
Rubber Tired Loaders	2019	751	1000	0.384887	0.323	1.20834	5.45926	0.005	0.146	0.134	480.523	0.152
Rubber Tired Loaders	2020	16	25	1.761913	1.48	6.76793	5.25369	0.005	0.474	0.436	524.6967	0.17
Rubber Tired Loaders	2020	26	50	1.761913	1.48	6.76793	5.25369	0.005	0.474	0.436	524.6967	0.17
Rubber Tired Loaders	2020	51	120	0.661113	0.556	3.94839	4.68644	0.005	0.367	0.338	465.6735	0.151
Rubber Tired Loaders	2020	121	175	0.450696	0.379	3.36809	3.51735	0.005	0.194	0.178	471.2135	0.152
Rubber Tired Loaders	2020	176	250	0.345399	0.29	1.26885	3.42116	0.005	0.114	0.104	469.5127	0.152
Rubber Tired Loaders	2020	251	500	0.343959	0.289	1.6304	3.01666	0.005	0.112	0.103	466.7831	0.151
Rubber Tired Loaders	2020	501	750	0.329462	0.277	1.39991	2.76722	0.005	0.107	0.099	462.193	0.149
Rubber Tired Loaders	2020	751	1000	0.370676	0.311	1.20366	5.25309	0.005	0.139	0.127	469.9352	0.152

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rubber Tired Loaders	2021	16	25	1.577419	1.325	6.44855	4.97419	0.005	0.409	0.376	524.5505	0.17
Rubber Tired Loaders	2021	26	50	1.577419	1.325	6.44855	4.97419	0.005	0.409	0.376	524.5505	0.17
Rubber Tired Loaders	2021	51	120	0.592559	0.498	3.8917	4.21491	0.005	0.316	0.291	466.4213	0.151
Rubber Tired Loaders	2021	121	175	0.411896	0.346	3.35381	3.11886	0.005	0.171	0.157	471.0804	0.152
Rubber Tired Loaders	2021	176	250	0.316703	0.266	1.24034	2.9977	0.005	0.1	0.092	469.5642	0.152
Rubber Tired Loaders	2021	251	500	0.314488	0.264	1.52922	2.61037	0.005	0.097	0.09	467.9277	0.151
Rubber Tired Loaders	2021	501	750	0.322962	0.271	1.39703	2.64092	0.005	0.102	0.094	462.0548	0.149
Rubber Tired Loaders	2021	751	1000	0.350105	0.294	1.2055	4.97489	0.005	0.128	0.118	471.2577	0.152
Rubber Tired Loaders	2022	16	25	1.402643	1.179	6.20445	4.74817	0.005	0.354	0.326	524.7914	0.17
Rubber Tired Loaders	2022	26	50	1.402643	1.179	6.20445	4.74817	0.005	0.354	0.326	524.7914	0.17
Rubber Tired Loaders	2022	51	120	0.523774	0.44	3.83931	3.7684	0.005	0.267	0.245	466.4936	0.151
Rubber Tired Loaders	2022	121	175	0.350975	0.295	3.30208	2.5181	0.005	0.136	0.125	470.9274	0.152
Rubber Tired Loaders	2022	176	250	0.269035	0.226	1.188	2.34693	0.005	0.079	0.072	469.9041	0.152
Rubber Tired Loaders	2022	251	500	0.281674	0.237	1.441	2.17525	0.005	0.081	0.075	468.1288	0.151
Rubber Tired Loaders	2022	501	750	0.27713	0.233	1.31524	2.0971	0.005	0.08	0.074	463.8194	0.15
Rubber Tired Loaders	2022	751	1000	0.229104	0.193	1.16216	3.61655	0.005	0.074	0.069	472.8577	0.153
Rubber Tired Loaders	2023	16	25	1.248748	1.049	5.97233	4.52113	0.005	0.304	0.279	524.304	0.17
Rubber Tired Loaders	2023	26	50	1.248748	1.049	5.97233	4.52113	0.005	0.304	0.279	524.304	0.17
Rubber Tired Loaders	2023	51	120	0.490267	0.412	3.82678	3.51183	0.005	0.238	0.219	466.5584	0.151
Rubber Tired Loaders	2023	121	175	0.320411	0.269	3.29198	2.19586	0.005	0.118	0.108	470.6601	0.152
Rubber Tired Loaders	2023	176	250	0.249759	0.21	1.17136	2.05963	0.005	0.069	0.063	469.824	0.152
Rubber Tired Loaders	2023	251	500	0.258421	0.217	1.38396	1.86629	0.005	0.069	0.064	468.466	0.152
Rubber Tired Loaders	2023	501	750	0.269537	0.226	1.32307	1.92719	0.005	0.074	0.069	464.5553	0.15
Rubber Tired Loaders	2023	751	1000	0.229405	0.193	1.17379	3.52792	0.005	0.071	0.065	472.3032	0.153
Rubber Tired Loaders	2024	16	25	1.200513	1.009	5.98698	4.46751	0.005	0.286	0.263	524.2299	0.17
Rubber Tired Loaders	2024	26	50	1.200513	1.009	5.98698	4.46751	0.005	0.286	0.263	524.2299	0.17
Rubber Tired Loaders	2024	51	120	0.472864	0.397	3.83209	3.33895	0.005	0.22	0.203	466.8084	0.151
Rubber Tired Loaders	2024	121	175	0.292737	0.246	3.28823	1.88365	0.005	0.1	0.092	470.3567	0.152
Rubber Tired Loaders	2024	176	250	0.234511	0.197	1.1607	1.80598	0.005	0.06	0.056	469.7875	0.152
Rubber Tired Loaders	2024	251	500	0.249195	0.209	1.3518	1.70166	0.005	0.063	0.058	468.5133	0.152
Rubber Tired Loaders	2024	501	750	0.268468	0.226	1.33327	1.88137	0.005	0.072	0.066	464.8656	0.15
Rubber Tired Loaders	2024	751	1000	0.238754	0.201	1.19144	3.54358	0.005	0.071	0.066	472.3454	0.153
Rubber Tired Loaders	2025	16	25	1.142731	0.96	5.9413	4.34846	0.005	0.259	0.238	523.9076	0.169
Rubber Tired Loaders	2025	26	50	1.142731	0.96	5.9413	4.34846	0.005	0.259	0.238	523.9076	0.169
Rubber Tired Loaders	2025	51	120	0.418779	0.352	3.79086	2.97026	0.005	0.179	0.165	466.8982	0.151
Rubber Tired Loaders	2025	121	175	0.266202	0.224	3.28059	1.59023	0.005	0.084	0.077	470.4594	0.152
Rubber Tired Loaders	2025	176	250	0.211073	0.177	1.1417	1.44207	0.005	0.048	0.045	469.8711	0.152
Rubber Tired Loaders	2025	251	500	0.22979	0.193	1.2763	1.43264	0.005	0.053	0.048	469.1434	0.152
Rubber Tired Loaders	2025	501	750	0.252566	0.212	1.33262	1.65408	0.005	0.064	0.059	465.0523	0.15
Rubber Tired Loaders	2025	751	1000	0.196905	0.165	1.12172	3.08852	0.005	0.052	0.048	472.4559	0.153
Rubber Tired Loaders	2030	16	25	1.834	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Rubber Tired Loaders	2030	26	50	3.121	0.634	5.181	3.5	0.007	0.062	0.062	568.3	0.057
Rubber Tired Loaders	2030	51	120	2.953	0.317	3.759	1.875	0.006	0.056	0.056	568.299	0.028
Rubber Tired Loaders	2030	121	175	3.898	0.232	3.312	0.787	0.006	0.036	0.036	568.299	0.02
Rubber Tired Loaders	2030	176	250	4.951	0.21	1.138	0.655	0.006	0.022	0.022	568.299	0.018
Rubber Tired Loaders	2030	251	500	7.812	0.208	1.085	0.619	0.005	0.021	0.021	568.299	0.018
Rubber Tired Loaders	2030	501	750	16.018	0.208	1.085	0.627	0.005	0.022	0.022	568.299	0.018
Rubber Tired Loaders	2030	751	1000	20.168	0.214	1.099	2.722	0.005	0.039	0.039	568.299	0.019
Rubber Tired Loaders	2035	16	25	1.834	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Rubber Tired Loaders	2035	26	50	2.833	0.575	5.126	3.337	0.007	0.035	0.035	568.299	0.051
Rubber Tired Loaders	2035	51	120	2.663	0.286	3.751	1.639	0.006	0.033	0.033	568.299	0.025
Rubber Tired Loaders	2035	121	175	3.376	0.2	3.312	0.481	0.006	0.022	0.022	568.299	0.018
Rubber Tired Loaders	2035	176	250	4.514	0.191	1.129	0.434	0.006	0.015	0.015	568.299	0.017
Rubber Tired Loaders	2035	251	500	7.156	0.191	1.076	0.416	0.005	0.015	0.015	568.299	0.017
Rubber Tired Loaders	2035	501	750	14.669	0.191	1.076	0.421	0.005	0.015	0.015	568.299	0.017
Rubber Tired Loaders	2035	751	1000	18.204	0.193	1.082	2.584	0.005	0.03	0.03	568.299	0.017
Rubber Tired Loaders	2040	16	25	1.834	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Rubber Tired Loaders	2040	26	50	2.684	0.545	5.102	3.283	0.007	0.024	0.024	568.3	0.049
Rubber Tired Loaders	2040	51	120	2.53	0.271	3.748	1.543	0.006	0.022	0.022	568.3	0.024
Rubber Tired Loaders	2040	121	175	3.172	0.188	3.314	0.365	0.006	0.016	0.016	568.299	0.017
Rubber Tired Loaders	2040	176	250	4.375	0.185	1.128	0.346	0.006	0.013	0.013	568.299	0.016
Rubber Tired Loaders	2040	251	500	6.953	0.185	1.076	0.338	0.005	0.013	0.013	568.3	0.016
Rubber Tired Loaders	2040	501	750	14.247	0.185	1.076	0.34	0.005	0.013	0.013	568.299	0.016
Rubber Tired Loaders	2040	751	1000	17.496	0.186	1.076	2.522	0.005	0.026	0.026	568.299	0.016
Scrapers	1990	51	120	7.335	2.413	5.806	15.182	0.791	1.373	1.373	568.299	0.217
Scrapers	1990	121	175	8.743	1.823	5.174	14.491	0.758	1.017	1.017	568.299	0.164
Scrapers	1990	176	250	12.369	1.823	5.174	14.491	0.758	1.017	1.017	568.299	0.164
Scrapers	1990	251	500	16.73	1.607	11.673	13.709	0.662	0.867	0.867	568.299	0.145
Scrapers	1990	501	750	28.902	1.607	11.673	13.709	1.018	0.883	0.883	568.299	0.145
Scrapers	2000	51	120	6.006	1.975	4.906	11.177	0.06	0.949	0.949	568.299	0.178

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Scrapers	2000	121	175	6.456	1.346	4.046	10.226	0.057	0.572	0.572	568.299	0.121
Scrapers	2000	176	250	8.023	1.183	3.423	9.944	0.057	0.493	0.493	568.299	0.106
Scrapers	2000	251	500	11.061	1.062	6.04	9.42	0.05	0.43	0.43	568.299	0.095
Scrapers	2000	501	750	19.108	1.062	6.04	9.42	0.052	0.43	0.43	568.299	0.095
Scrapers	2005	51	120	5.36	1.763	4.636	9.807	0.06	0.901	0.901	568.299	0.159
Scrapers	2005	121	175	5.592	1.166	3.76	8.934	0.057	0.514	0.514	568.299	0.105
Scrapers	2005	176	250	6.251	0.921	2.602	8.58	0.057	0.377	0.377	568.299	0.083
Scrapers	2005	251	500	8.477	0.814	4.07	7.854	0.05	0.331	0.331	568.3	0.073
Scrapers	2005	501	750	14.794	0.822	4.063	7.99	0.052	0.333	0.333	568.299	0.074
Scrapers	2010	51	120	0.828186	0.696	3.97834	7.09453	0.005	0.507	0.466	537.9051	0.157
Scrapers	2010	121	175	0.907518	0.763	3.83189	8.55764	0.005	0.444	0.408	532.551	0.155
Scrapers	2010	176	250	0.939807	0.79	3.25278	9.42837	0.005	0.434	0.399	520.9381	0.152
Scrapers	2010	251	500	0.595043	0.5	4.1939	6.75544	0.005	0.272	0.25	525.1553	0.153
Scrapers	2010	501	750	0.454495	0.382	3.13671	5.53444	0.005	0.209	0.192	525.522	0.153
Scrapers	2011	51	120	0.831534	0.699	4.00655	7.06921	0.005	0.509	0.469	536.4691	0.157
Scrapers	2011	121	175	0.907072	0.762	3.84357	8.51777	0.005	0.444	0.409	531.1835	0.155
Scrapers	2011	176	250	0.933155	0.784	3.22574	9.34756	0.005	0.43	0.396	519.6705	0.152
Scrapers	2011	251	500	0.590447	0.496	4.14563	6.64672	0.005	0.268	0.246	523.9083	0.153
Scrapers	2011	501	750	0.45862	0.385	3.14165	5.48614	0.005	0.208	0.191	524.1241	0.153
Scrapers	2012	51	120	0.847004	0.712	4.04661	7.11199	0.005	0.519	0.477	535.1238	0.157
Scrapers	2012	121	175	0.915185	0.769	3.8659	8.53485	0.005	0.448	0.412	529.8158	0.155
Scrapers	2012	176	250	0.935111	0.786	3.22909	9.33173	0.005	0.43	0.396	518.3695	0.152
Scrapers	2012	251	500	0.596548	0.501	4.16192	6.64299	0.005	0.269	0.247	522.6784	0.153
Scrapers	2012	501	750	0.468161	0.393	3.16628	5.49999	0.005	0.209	0.193	522.7621	0.153
Scrapers	2013	51	120	0.850862	0.715	4.06971	7.08801	0.005	0.523	0.482	532.4144	0.157
Scrapers	2013	121	175	0.895558	0.753	3.85136	8.33026	0.005	0.438	0.403	527.0754	0.155
Scrapers	2013	176	250	0.923168	0.776	3.18463	9.20338	0.005	0.423	0.389	515.7585	0.152
Scrapers	2013	251	500	0.590637	0.496	4.08663	6.51716	0.005	0.264	0.242	520.0884	0.153
Scrapers	2013	501	750	0.462466	0.389	3.09865	5.3398	0.005	0.204	0.187	520.1031	0.153
Scrapers	2014	51	120	0.855598	0.719	4.09983	7.0654	0.005	0.526	0.484	529.9445	0.157
Scrapers	2014	121	175	0.85473	0.718	3.80661	7.90715	0.005	0.419	0.385	524.1709	0.155
Scrapers	2014	176	250	0.882887	0.742	3.06131	8.81494	0.005	0.403	0.371	512.8529	0.152
Scrapers	2014	251	500	0.569739	0.479	3.89824	6.23299	0.005	0.251	0.231	517.3608	0.153
Scrapers	2014	501	750	0.438954	0.369	2.84564	5.01248	0.005	0.19	0.174	517.3937	0.153
Scrapers	2015	51	120	0.869823	0.731	4.13678	7.10509	0.005	0.535	0.492	524.5601	0.157
Scrapers	2015	121	175	0.849601	0.714	3.80865	7.76471	0.005	0.415	0.382	518.8294	0.155
Scrapers	2015	176	250	0.868271	0.73	3.00753	8.66317	0.005	0.395	0.364	507.5699	0.152
Scrapers	2015	251	500	0.561967	0.472	3.788	6.08577	0.005	0.246	0.226	511.9471	0.153
Scrapers	2015	501	750	0.427981	0.36	2.68469	4.83862	0.005	0.182	0.167	512.0837	0.153
Scrapers	2016	51	120	0.883537	0.742	4.17273	7.14312	0.005	0.543	0.5	519.1668	0.157
Scrapers	2016	121	175	0.818244	0.688	3.78062	7.3844	0.005	0.397	0.365	513.4363	0.155
Scrapers	2016	176	250	0.814194	0.684	2.8398	8.10864	0.005	0.367	0.338	502.255	0.151
Scrapers	2016	251	500	0.538344	0.452	3.60633	5.75749	0.005	0.232	0.213	506.3503	0.153
Scrapers	2016	501	750	0.404454	0.34	2.48181	4.48425	0.005	0.167	0.154	506.6381	0.153
Scrapers	2017	51	120	0.896722	0.753	4.20744	7.17946	0.005	0.551	0.507	511.1123	0.157
Scrapers	2017	121	175	0.748819	0.629	3.70478	6.67066	0.005	0.359	0.331	505.3309	0.155
Scrapers	2017	176	250	0.74607	0.627	2.64676	7.39867	0.005	0.333	0.306	494.5231	0.152
Scrapers	2017	251	500	0.505877	0.425	3.33699	5.33951	0.005	0.214	0.197	498.4571	0.153
Scrapers	2017	501	750	0.386598	0.325	2.29479	4.21648	0.005	0.156	0.143	498.6929	0.153
Scrapers	2018	51	120	0.881019	0.74	4.20429	7.03577	0.005	0.543	0.499	502.8288	0.157
Scrapers	2018	121	175	0.640866	0.539	3.56847	5.64105	0.005	0.303	0.279	497.3396	0.155
Scrapers	2018	176	250	0.662403	0.557	2.40704	6.56304	0.005	0.29	0.267	486.9908	0.152
Scrapers	2018	251	500	0.439318	0.369	2.82811	4.56771	0.005	0.18	0.166	490.7734	0.153
Scrapers	2018	501	750	0.349618	0.294	1.96493	3.74582	0.005	0.135	0.124	490.5775	0.153
Scrapers	2019	51	120	0.854498	0.718	4.19661	6.84136	0.005	0.525	0.483	494.1	0.156
Scrapers	2019	121	175	0.606989	0.51	3.53297	5.26356	0.005	0.283	0.261	489.2546	0.155
Scrapers	2019	176	250	0.596624	0.501	2.23321	5.83102	0.005	0.257	0.236	479.0317	0.152
Scrapers	2019	251	500	0.40804	0.343	2.59466	4.15646	0.005	0.163	0.15	482.7319	0.153
Scrapers	2019	501	750	0.329384	0.277	1.82903	3.43103	0.005	0.123	0.113	482.5963	0.153
Scrapers	2020	51	120	0.834143	0.701	4.19756	6.6767	0.005	0.51	0.469	483.745	0.156
Scrapers	2020	121	175	0.568453	0.478	3.50114	4.86851	0.005	0.262	0.241	478.6077	0.155
Scrapers	2020	176	250	0.531032	0.446	2.06469	5.089	0.005	0.223	0.205	468.9883	0.152
Scrapers	2020	251	500	0.380326	0.32	2.40063	3.78254	0.005	0.148	0.136	472.1751	0.153
Scrapers	2020	501	750	0.311991	0.262	1.72502	3.12592	0.005	0.113	0.104	471.7776	0.153
Scrapers	2021	51	120	0.837922	0.704	4.21819	6.65882	0.005	0.512	0.471	483.7128	0.156
Scrapers	2021	121	175	0.514014	0.432	3.45599	4.34133	0.005	0.232	0.213	478.654	0.155
Scrapers	2021	176	250	0.464853	0.391	1.88374	4.36706	0.005	0.189	0.174	469.1258	0.152
Scrapers	2021	251	500	0.356021	0.299	2.25454	3.44481	0.005	0.134	0.123	472.4636	0.153
Scrapers	2021	501	750	0.298025	0.25	1.65772	2.88702	0.005	0.105	0.097	471.7859	0.153
Scrapers	2022	51	120	0.809995	0.681	4.20484	6.45548	0.005	0.494	0.454	483.4481	0.156

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Scrapers	2022	121	175	0.463814	0.39	3.41662	3.83296	0.005	0.204	0.187	478.7411	0.155
Scrapers	2022	176	250	0.406319	0.341	1.74265	3.66905	0.005	0.16	0.147	469.2686	0.152
Scrapers	2022	251	500	0.313802	0.264	2.05212	2.87856	0.005	0.112	0.103	473.2304	0.153
Scrapers	2022	501	750	0.266627	0.224	1.50816	2.47537	0.005	0.09	0.083	471.2788	0.152
Scrapers	2023	51	120	0.7496	0.63	4.14443	6.02603	0.005	0.458	0.421	483.0296	0.156
Scrapers	2023	121	175	0.430003	0.361	3.39533	3.47913	0.005	0.184	0.169	478.6814	0.155
Scrapers	2023	176	250	0.37772	0.317	1.67839	3.2838	0.005	0.144	0.133	469.5597	0.152
Scrapers	2023	251	500	0.301363	0.253	1.97527	2.66611	0.005	0.105	0.096	473.1772	0.153
Scrapers	2023	501	750	0.26361	0.222	1.51295	2.38587	0.005	0.087	0.08	471.2953	0.152
Scrapers	2024	51	120	0.683919	0.575	4.09486	5.63222	0.005	0.414	0.381	482.7009	0.156
Scrapers	2024	121	175	0.399992	0.336	3.37249	3.15631	0.005	0.166	0.153	478.8089	0.155
Scrapers	2024	176	250	0.358714	0.301	1.62739	3.01379	0.005	0.133	0.122	469.3521	0.152
Scrapers	2024	251	500	0.291137	0.245	1.92055	2.47694	0.005	0.098	0.09	472.8455	0.153
Scrapers	2024	501	750	0.253257	0.213	1.46065	2.18653	0.005	0.081	0.074	471.4291	0.152
Scrapers	2025	51	120	0.673967	0.566	4.09423	5.50259	0.005	0.405	0.372	482.3629	0.156
Scrapers	2025	121	175	0.34526	0.29	3.3209	2.63098	0.005	0.137	0.126	478.9476	0.155
Scrapers	2025	176	250	0.346529	0.291	1.60249	2.80326	0.005	0.125	0.115	469.4459	0.152
Scrapers	2025	251	500	0.257328	0.216	1.7318	2.05051	0.005	0.081	0.074	472.5394	0.153
Scrapers	2025	501	750	0.218534	0.184	1.33825	1.71287	0.005	0.064	0.059	472.115	0.153
Scrapers	2030	51	120	1.248	0.41	3.866	2.384	0.006	0.111	0.111	568.299	0.037
Scrapers	2030	121	175	1.445	0.301	3.389	1.32	0.006	0.068	0.068	568.299	0.027
Scrapers	2030	176	250	1.794	0.264	1.206	1.149	0.006	0.042	0.042	568.299	0.023
Scrapers	2030	251	500	2.697	0.259	1.184	1.057	0.005	0.04	0.04	568.299	0.023
Scrapers	2030	501	750	4.666	0.259	1.184	1.075	0.005	0.04	0.04	568.299	0.023
Scrapers	2035	51	120	1.058	0.348	3.842	1.943	0.006	0.064	0.064	568.299	0.031
Scrapers	2035	121	175	1.199	0.25	3.382	0.824	0.006	0.04	0.04	568.299	0.022
Scrapers	2035	176	250	1.553	0.229	1.175	0.717	0.006	0.026	0.026	568.299	0.02
Scrapers	2035	251	500	2.356	0.226	1.123	0.674	0.005	0.025	0.025	568.3	0.02
Scrapers	2035	501	750	4.075	0.226	1.123	0.682	0.005	0.025	0.025	568.299	0.02
Scrapers	2040	51	120	0.962	0.316	3.833	1.715	0.006	0.04	0.04	568.299	0.028
Scrapers	2040	121	175	1.063	0.221	3.381	0.549	0.006	0.026	0.026	568.299	0.02
Scrapers	2040	176	250	1.425	0.21	1.159	0.498	0.006	0.018	0.018	568.3	0.018
Scrapers	2040	251	500	2.175	0.209	1.1	0.475	0.005	0.017	0.017	568.299	0.018
Scrapers	2040	501	750	3.76	0.209	1.1	0.48	0.005	0.017	0.017	568.299	0.018
Signal Boards	1990	6	15	2.838	1.804	4.999	9.999	1.049	0.975	0.975	568.299	0.162
Signal Boards	1990	26	50	33.688	3.65	7.626	7.518	0.871	1.035	1.035	568.299	0.329
Signal Boards	1990	51	120	41.675	2.037	5.201	13.738	0.791	1.095	1.095	568.3	0.183
Signal Boards	1990	121	175	54.982	1.395	4.603	12.364	0.758	0.728	0.728	568.3	0.125
Signal Boards	1990	176	250	90.827	1.685	5.563	14.94	0.917	0.88	0.88	686.695	0.152
Signal Boards	2000	6	15	2.085	1.325	4.257	7.675	0.079	0.61	0.61	568.299	0.119
Signal Boards	2000	26	50	31.608	3.424	7.268	6.709	0.066	0.765	0.765	568.299	0.309
Signal Boards	2000	51	120	33.68	1.646	4.338	9.835	0.06	0.756	0.756	568.299	0.148
Signal Boards	2000	121	175	43.484	1.103	3.53	8.941	0.057	0.447	0.447	568.299	0.099
Signal Boards	2000	176	250	59.587	1.105	3.359	10.385	0.069	0.438	0.438	686.695	0.099
Signal Boards	2005	6	15	1.168	0.742	3.469	4.981	0.079	0.35	0.35	568.299	0.066
Signal Boards	2005	26	50	27.711	3.002	6.663	6.227	0.066	0.704	0.704	568.299	0.27
Signal Boards	2005	51	120	28.596	1.398	4	8.234	0.06	0.695	0.695	568.299	0.126
Signal Boards	2005	121	175	35.881	0.91	3.185	7.528	0.057	0.383	0.383	568.3	0.082
Signal Boards	2005	176	250	41.93	0.778	2.245	8.577	0.069	0.303	0.303	686.695	0.07
Signal Boards	2010	6	15	1.04	0.661	3.469	4.142	0.008	0.155	0.155	568.299	0.059
Signal Boards	2010	26	50	21.63	2.343	6.009	5.792	0.007	0.571	0.571	568.299	0.211
Signal Boards	2010	51	120	21.667	1.059	3.811	6.693	0.006	0.56	0.56	568.299	0.095
Signal Boards	2010	121	175	27.641	0.701	3.102	5.958	0.006	0.311	0.311	568.299	0.063
Signal Boards	2010	176	250	29.698	0.551	1.651	6.749	0.007	0.212	0.212	686.695	0.049
Signal Boards	2011	6	15	1.04	0.661	3.469	4.142	0.008	0.156	0.156	568.299	0.059
Signal Boards	2011	26	50	20.109	2.178	5.834	5.698	0.007	0.541	0.541	568.299	0.196
Signal Boards	2011	51	120	20.187	0.986	3.774	6.327	0.006	0.535	0.535	568.299	0.089
Signal Boards	2011	121	175	25.933	0.658	3.09	5.615	0.006	0.298	0.298	568.299	0.059
Signal Boards	2011	176	250	27.264	0.506	1.548	6.272	0.007	0.19	0.19	686.695	0.045
Signal Boards	2012	6	15	1.04	0.661	3.469	4.142	0.008	0.16	0.16	568.299	0.059
Signal Boards	2012	26	50	18.413	1.995	5.632	5.596	0.007	0.508	0.508	568.299	0.18
Signal Boards	2012	51	120	18.605	0.909	3.733	5.923	0.006	0.498	0.498	568.299	0.082
Signal Boards	2012	121	175	24.082	0.611	3.077	5.246	0.006	0.275	0.275	568.3	0.055
Signal Boards	2012	176	250	25.308	0.469	1.483	5.81	0.007	0.171	0.171	686.695	0.042
Signal Boards	2013	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2013	26	50	16.687	1.808	5.427	5.362	0.007	0.465	0.465	568.299	0.163
Signal Boards	2013	51	120	17.043	0.833	3.694	5.532	0.006	0.456	0.456	568.299	0.075
Signal Boards	2013	121	175	22.253	0.564	3.067	4.903	0.006	0.252	0.252	568.3	0.05
Signal Boards	2013	176	250	23.66	0.439	1.439	5.369	0.007	0.156	0.156	686.695	0.039
Signal Boards	2014	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Signal Boards	2014	26	50	15.005	1.625	5.231	5.139	0.007	0.422	0.422	568.299	0.146
Signal Boards	2014	51	120	15.539	0.759	3.658	5.186	0.006	0.414	0.414	568.299	0.068
Signal Boards	2014	121	175	20.512	0.52	3.058	4.582	0.006	0.228	0.228	568.299	0.046
Signal Boards	2014	176	250	22.034	0.408	1.402	4.857	0.007	0.141	0.141	686.695	0.036
Signal Boards	2015	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2015	26	50	13.489	1.461	5.068	4.943	0.007	0.382	0.382	568.299	0.131
Signal Boards	2015	51	120	14.067	0.687	3.624	4.791	0.006	0.371	0.371	568.299	0.062
Signal Boards	2015	121	175	18.694	0.474	3.052	4.136	0.006	0.205	0.205	568.299	0.042
Signal Boards	2015	176	250	20.523	0.38	1.371	4.365	0.007	0.127	0.127	686.695	0.034
Signal Boards	2016	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2016	26	50	12.061	1.306	4.921	4.761	0.007	0.343	0.343	568.299	0.117
Signal Boards	2016	51	120	12.653	0.618	3.594	4.414	0.006	0.33	0.33	568.299	0.055
Signal Boards	2016	121	175	16.949	0.43	3.047	3.708	0.006	0.183	0.183	568.299	0.038
Signal Boards	2016	176	250	19.106	0.354	1.344	3.894	0.007	0.114	0.114	686.695	0.031
Signal Boards	2017	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2017	26	50	10.695	1.158	4.785	4.59	0.007	0.306	0.306	568.299	0.104
Signal Boards	2017	51	120	11.32	0.553	3.566	4.059	0.006	0.29	0.29	568.299	0.049
Signal Boards	2017	121	175	15.322	0.388	3.044	3.305	0.006	0.161	0.161	568.299	0.035
Signal Boards	2017	176	250	17.83	0.33	1.323	3.452	0.007	0.101	0.101	686.695	0.029
Signal Boards	2018	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2018	26	50	9.4	1.018	4.657	4.427	0.007	0.27	0.27	568.299	0.091
Signal Boards	2018	51	120	10.078	0.492	3.541	3.723	0.006	0.252	0.252	568.299	0.044
Signal Boards	2018	121	175	13.836	0.351	3.043	2.93	0.006	0.141	0.141	568.299	0.031
Signal Boards	2018	176	250	16.678	0.309	1.306	3.04	0.007	0.09	0.09	686.695	0.027
Signal Boards	2019	6	15	1.04	0.661	3.47	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2019	26	50	8.189	0.887	4.538	4.272	0.007	0.236	0.236	568.3	0.08
Signal Boards	2019	51	120	8.938	0.437	3.519	3.41	0.006	0.216	0.216	568.299	0.039
Signal Boards	2019	121	175	12.677	0.321	3.043	2.601	0.006	0.125	0.125	568.299	0.029
Signal Boards	2019	176	250	15.682	0.291	1.292	2.676	0.007	0.08	0.08	686.695	0.026
Signal Boards	2020	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2020	26	50	7.28	0.788	4.448	4.132	0.007	0.206	0.206	568.299	0.071
Signal Boards	2020	51	120	8.081	0.395	3.504	3.134	0.006	0.187	0.187	568.299	0.035
Signal Boards	2020	121	175	11.756	0.298	3.043	2.309	0.006	0.11	0.11	568.299	0.026
Signal Boards	2020	176	250	14.813	0.274	1.281	2.35	0.007	0.071	0.071	686.695	0.024
Signal Boards	2021	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2021	26	50	6.598	0.714	4.38	4.002	0.007	0.179	0.179	568.299	0.064
Signal Boards	2021	51	120	7.434	0.363	3.493	2.889	0.006	0.162	0.162	568.299	0.032
Signal Boards	2021	121	175	10.965	0.278	3.043	2.043	0.006	0.098	0.098	568.299	0.025
Signal Boards	2021	176	250	14.033	0.26	1.273	2.053	0.007	0.063	0.063	686.695	0.023
Signal Boards	2022	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.3	0.059
Signal Boards	2022	26	50	6.047	0.655	4.325	3.88	0.007	0.154	0.154	568.299	0.059
Signal Boards	2022	51	120	6.908	0.337	3.484	2.668	0.006	0.141	0.141	568.299	0.03
Signal Boards	2022	121	175	10.249	0.26	3.044	1.801	0.006	0.086	0.086	568.299	0.023
Signal Boards	2022	176	250	13.317	0.247	1.266	1.782	0.007	0.055	0.055	686.695	0.022
Signal Boards	2023	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2023	26	50	5.57	0.603	4.282	3.767	0.007	0.132	0.132	568.299	0.054
Signal Boards	2023	51	120	6.449	0.315	3.478	2.472	0.006	0.122	0.122	568.299	0.028
Signal Boards	2023	121	175	9.619	0.244	3.045	1.602	0.006	0.075	0.075	568.299	0.022
Signal Boards	2023	176	250	12.678	0.235	1.263	1.562	0.007	0.048	0.048	686.695	0.021
Signal Boards	2024	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2024	26	50	5.168	0.559	4.247	3.662	0.007	0.114	0.114	568.299	0.05
Signal Boards	2024	51	120	6.055	0.296	3.474	2.315	0.006	0.105	0.105	568.299	0.026
Signal Boards	2024	121	175	9.047	0.229	3.047	1.427	0.006	0.065	0.065	568.299	0.02
Signal Boards	2024	176	250	12.079	0.224	1.259	1.37	0.007	0.041	0.041	686.695	0.02
Signal Boards	2025	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2025	26	50	4.819	0.522	4.217	3.561	0.007	0.098	0.098	568.299	0.047
Signal Boards	2025	51	120	5.705	0.278	3.47	2.179	0.006	0.089	0.089	568.299	0.025
Signal Boards	2025	121	175	8.5	0.215	3.049	1.262	0.006	0.055	0.055	568.299	0.019
Signal Boards	2025	176	250	11.509	0.213	1.257	1.192	0.007	0.035	0.035	686.695	0.019
Signal Boards	2030	6	15	1.04	0.661	3.47	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2030	26	50	3.631	0.393	4.099	3.193	0.007	0.04	0.04	568.299	0.035
Signal Boards	2030	51	120	4.366	0.213	3.451	1.657	0.006	0.035	0.035	568.3	0.019
Signal Boards	2030	121	175	6.201	0.157	3.048	0.586	0.006	0.024	0.024	568.299	0.014
Signal Boards	2030	176	250	9.484	0.176	1.255	0.594	0.007	0.019	0.019	686.695	0.015
Signal Boards	2035	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2035	26	50	3.294	0.356	4.067	3.082	0.007	0.02	0.02	568.299	0.032
Signal Boards	2035	51	120	3.929	0.192	3.445	1.482	0.006	0.018	0.018	568.299	0.017
Signal Boards	2035	121	175	5.439	0.138	3.048	0.372	0.006	0.014	0.014	568.299	0.012
Signal Boards	2035	176	250	8.75	0.162	1.254	0.401	0.007	0.014	0.014	686.695	0.014
Signal Boards	2040	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Signal Boards	2040	26	50	3.289	0.356	4.074	3.037	0.007	0.014	0.014	568.299	0.032
Signal Boards	2040	51	120	3.848	0.188	3.447	1.428	0.006	0.013	0.013	568.299	0.016
Signal Boards	2040	121	175	5.177	0.131	3.05	0.296	0.006	0.011	0.011	568.299	0.011
Signal Boards	2040	176	250	8.473	0.157	1.255	0.341	0.007	0.012	0.012	686.695	0.014
Skid Steer Loaders	1990	16	25	4.928	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Skid Steer Loaders	1990	26	50	18.4	4.466	9.113	7.821	0.871	1.202	1.202	568.299	0.403
Skid Steer Loaders	1990	51	120	15.551	2.252	5.536	14.506	0.791	1.262	1.262	568.299	0.203
Skid Steer Loaders	2000	16	25	4.659	2.092	4.777	6.403	0.065	0.568	0.568	568.299	0.188
Skid Steer Loaders	2000	26	50	15.338	3.723	7.849	6.733	0.066	0.816	0.816	568.299	0.335
Skid Steer Loaders	2000	51	120	10.902	1.579	4.162	9.028	0.06	0.779	0.779	568.299	0.142
Skid Steer Loaders	2005	16	25	3.352	1.505	3.709	5.913	0.065	0.461	0.461	568.299	0.135
Skid Steer Loaders	2005	26	50	12.458	3.024	6.864	6.068	0.066	0.716	0.716	568.3	0.272
Skid Steer Loaders	2005	51	120	9.248	1.339	3.988	7.653	0.06	0.712	0.712	568.299	0.12
Skid Steer Loaders	2010	16	25	1.189544	1	4.48486	5.29745	0.005	0.435	0.401	586.3356	0.171
Skid Steer Loaders	2010	26	50	1.189544	1	4.48486	5.29745	0.005	0.435	0.401	586.3356	0.171
Skid Steer Loaders	2010	51	120	0.504832	0.424	3.40768	5.19396	0.005	0.344	0.317	525.6915	0.153
Skid Steer Loaders	2011	16	25	1.055747	0.887	4.32754	5.2163	0.005	0.402	0.37	584.7285	0.171
Skid Steer Loaders	2011	26	50	1.055747	0.887	4.32754	5.2163	0.005	0.402	0.37	584.7285	0.171
Skid Steer Loaders	2011	51	120	0.460213	0.387	3.38539	4.88341	0.005	0.316	0.291	524.0915	0.153
Skid Steer Loaders	2012	16	25	1.031332	0.867	4.33156	5.12974	0.005	0.388	0.357	583.1258	0.171
Skid Steer Loaders	2012	26	50	1.031332	0.867	4.33156	5.12974	0.005	0.388	0.357	583.1258	0.171
Skid Steer Loaders	2012	51	120	0.443294	0.372	3.38462	4.73478	0.005	0.303	0.279	522.5357	0.153
Skid Steer Loaders	2013	16	25	0.908612	0.763	4.17576	4.84472	0.005	0.337	0.31	580.0144	0.171
Skid Steer Loaders	2013	26	50	0.908612	0.763	4.17576	4.84472	0.005	0.337	0.31	580.0144	0.171
Skid Steer Loaders	2013	51	120	0.404938	0.34	3.36337	4.44237	0.005	0.271	0.249	519.6388	0.153
Skid Steer Loaders	2014	16	25	0.790746	0.664	4.01585	4.54075	0.005	0.286	0.263	577.0757	0.171
Skid Steer Loaders	2014	26	50	0.790746	0.664	4.01585	4.54075	0.005	0.286	0.263	577.0757	0.171
Skid Steer Loaders	2014	51	120	0.361873	0.304	3.33829	4.0133	0.005	0.235	0.216	517.0621	0.153
Skid Steer Loaders	2015	16	25	0.760751	0.639	4.00436	4.43612	0.005	0.267	0.246	571.4195	0.171
Skid Steer Loaders	2015	26	50	0.760751	0.639	4.00436	4.43612	0.005	0.267	0.246	571.4195	0.171
Skid Steer Loaders	2015	51	120	0.349713	0.294	3.33751	3.8106	0.005	0.22	0.203	511.595	0.153
Skid Steer Loaders	2016	16	25	0.713135	0.599	3.95661	4.26784	0.005	0.241	0.221	565.2281	0.17
Skid Steer Loaders	2016	26	50	0.713135	0.599	3.95661	4.26784	0.005	0.241	0.221	565.2281	0.17
Skid Steer Loaders	2016	51	120	0.325064	0.273	3.32767	3.53439	0.005	0.197	0.182	506.2971	0.153
Skid Steer Loaders	2017	16	25	0.676461	0.568	3.91907	4.11272	0.005	0.217	0.2	556.7144	0.171
Skid Steer Loaders	2017	26	50	0.676461	0.568	3.91907	4.11272	0.005	0.217	0.2	556.7144	0.171
Skid Steer Loaders	2017	51	120	0.303772	0.255	3.31863	3.28618	0.005	0.177	0.162	498.3256	0.153
Skid Steer Loaders	2018	16	25	0.579635	0.487	3.78725	3.88962	0.005	0.178	0.164	547.5575	0.17
Skid Steer Loaders	2018	26	50	0.579635	0.487	3.78725	3.88962	0.005	0.178	0.164	547.5575	0.17
Skid Steer Loaders	2018	51	120	0.256853	0.216	3.28204	2.86	0.005	0.14	0.129	490.0935	0.153
Skid Steer Loaders	2019	16	25	0.531282	0.446	3.73957	3.75009	0.005	0.154	0.141	539.2667	0.171
Skid Steer Loaders	2019	26	50	0.531282	0.446	3.73957	3.75009	0.005	0.154	0.141	539.2667	0.171
Skid Steer Loaders	2019	51	120	0.2373	0.199	3.27736	2.65586	0.005	0.122	0.112	482.3844	0.153
Skid Steer Loaders	2020	16	25	0.522771	0.439	3.76397	3.69113	0.005	0.145	0.133	527.7577	0.171
Skid Steer Loaders	2020	26	50	0.522771	0.439	3.76397	3.69113	0.005	0.145	0.133	527.7577	0.171
Skid Steer Loaders	2020	51	120	0.224183	0.188	3.2771	2.5046	0.005	0.108	0.1	471.9075	0.153
Skid Steer Loaders	2021	16	25	0.486515	0.409	3.73158	3.57304	0.005	0.126	0.116	527.4501	0.171
Skid Steer Loaders	2021	26	50	0.486515	0.409	3.73158	3.57304	0.005	0.126	0.116	527.4501	0.171
Skid Steer Loaders	2021	51	120	0.211817	0.178	3.27687	2.36588	0.005	0.096	0.089	471.9774	0.153
Skid Steer Loaders	2022	16	25	0.434318	0.365	3.65597	3.43256	0.005	0.103	0.095	527.2726	0.171
Skid Steer Loaders	2022	26	50	0.434318	0.365	3.65597	3.43256	0.005	0.103	0.095	527.2726	0.171
Skid Steer Loaders	2022	51	120	0.195311	0.164	3.27037	2.18922	0.005	0.081	0.075	472.4321	0.153
Skid Steer Loaders	2023	16	25	0.420524	0.353	3.65358	3.37057	0.005	0.093	0.086	527.4231	0.171
Skid Steer Loaders	2023	26	50	0.420524	0.353	3.65358	3.37057	0.005	0.093	0.086	527.4231	0.171
Skid Steer Loaders	2023	51	120	0.182613	0.153	3.26613	2.03854	0.005	0.069	0.063	472.656	0.153
Skid Steer Loaders	2024	16	25	0.415881	0.349	3.67076	3.34552	0.005	0.089	0.082	527.8005	0.171
Skid Steer Loaders	2024	26	50	0.415881	0.349	3.67076	3.34552	0.005	0.089	0.082	527.8005	0.171
Skid Steer Loaders	2024	51	120	0.174841	0.147	3.26403	1.94841	0.005	0.063	0.058	472.847	0.153
Skid Steer Loaders	2025	16	25	0.406183	0.341	3.6601	3.30934	0.005	0.084	0.077	527.8608	0.171
Skid Steer Loaders	2025	26	50	0.406183	0.341	3.6601	3.30934	0.005	0.084	0.077	527.8608	0.171
Skid Steer Loaders	2025	51	120	0.166357	0.14	3.25156	1.86736	0.005	0.057	0.052	472.6295	0.153
Skid Steer Loaders	2030	16	25	1.526	0.685	2.34	4.332	0.007	0.162	0.162	568.299	0.061
Skid Steer Loaders	2030	26	50	1.694	0.411	4.386	3.128	0.007	0.018	0.018	568.299	0.037
Skid Steer Loaders	2030	51	120	1.478	0.214	3.538	1.477	0.006	0.017	0.017	568.299	0.019
Skid Steer Loaders	2035	16	25	1.526	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Skid Steer Loaders	2035	26	50	1.694	0.411	4.39	3.097	0.007	0.015	0.015	568.299	0.037
Skid Steer Loaders	2035	51	120	1.459	0.211	3.54	1.442	0.006	0.014	0.014	568.299	0.019
Skid Steer Loaders	2040	16	25	1.526	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Skid Steer Loaders	2040	26	50	1.696	0.411	4.392	3.093	0.007	0.014	0.014	568.299	0.037
Skid Steer Loaders	2040	51	120	1.456	0.211	3.54	1.435	0.006	0.013	0.013	568.3	0.019

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Surfacing Equipment	1990	26	50	8.011	4.203	8.629	7.726	0.871	1.147	1.147	568.299	0.379
Surfacing Equipment	1990	51	120	18.985	2.203	5.473	14.403	0.791	1.214	1.214	568.299	0.198
Surfacing Equipment	1990	121	175	19.781	1.707	4.883	13.91	0.758	0.927	0.927	568.3	0.154
Surfacing Equipment	1990	176	250	31.103	1.707	4.883	13.91	0.758	0.927	0.927	568.299	0.154
Surfacing Equipment	1990	251	500	45.625	1.526	9.66	13.316	0.662	0.805	0.805	568.299	0.137
Surfacing Equipment	1990	501	750	71.58	1.526	9.66	13.316	1.018	0.82	0.82	568.299	0.137
Surfacing Equipment	2000	26	50	6.689	3.509	7.426	6.755	0.066	0.779	0.779	568.299	0.316
Surfacing Equipment	2000	51	120	14.399	1.671	4.385	9.991	0.06	0.768	0.768	568.299	0.15
Surfacing Equipment	2000	121	175	13.132	1.133	3.583	9.132	0.057	0.458	0.458	568.299	0.102
Surfacing Equipment	2000	176	250	17.689	0.97	2.937	8.84	0.057	0.385	0.385	568.299	0.087
Surfacing Equipment	2000	251	500	26.875	0.899	4.584	8.551	0.05	0.347	0.347	568.299	0.081
Surfacing Equipment	2000	501	750	42.164	0.899	4.584	8.551	0.052	0.347	0.347	568.299	0.081
Surfacing Equipment	2005	26	50	6.001	3.148	6.936	6.318	0.066	0.727	0.727	568.3	0.284
Surfacing Equipment	2005	51	120	12.568	1.458	4.122	8.636	0.06	0.718	0.718	568.299	0.131
Surfacing Equipment	2005	121	175	11.032	0.952	3.316	7.874	0.057	0.402	0.402	568.3	0.085
Surfacing Equipment	2005	176	250	13.31	0.73	2.16	7.529	0.057	0.29	0.29	568.299	0.065
Surfacing Equipment	2005	251	500	19.448	0.65	3.023	6.988	0.05	0.26	0.26	568.299	0.058
Surfacing Equipment	2005	501	750	31.164	0.664	3.019	7.132	0.052	0.262	0.262	568.299	0.059
Surfacing Equipment	2010	26	50	1.528976	1.285	4.99949	5.66618	0.005	0.479	0.44	593.0498	0.173
Surfacing Equipment	2010	51	120	0.730908	0.614	3.59404	6.16537	0.005	0.437	0.402	524.0289	0.153
Surfacing Equipment	2010	121	175	0.662829	0.557	3.09066	6.60554	0.005	0.318	0.292	522.4909	0.152
Surfacing Equipment	2010	176	250	0.488779	0.411	1.7501	6.37687	0.005	0.212	0.195	530.3611	0.154
Surfacing Equipment	2010	251	500	0.29849	0.251	1.5491	4.43284	0.005	0.144	0.133	522.9659	0.152
Surfacing Equipment	2010	501	750	0.208991	0.176	1.09654	3.5514	0.005	0.112	0.103	524.8847	0.153
Surfacing Equipment	2011	26	50	1.476255	1.24	4.95391	5.62022	0.005	0.467	0.43	590.2612	0.172
Surfacing Equipment	2011	51	120	0.710662	0.597	3.58797	5.98734	0.005	0.427	0.393	522.8446	0.153
Surfacing Equipment	2011	121	175	0.6472	0.544	3.07389	6.46356	0.005	0.312	0.287	521.1883	0.152
Surfacing Equipment	2011	176	250	0.481299	0.404	1.72048	6.2863	0.005	0.207	0.191	529.0217	0.154
Surfacing Equipment	2011	251	500	0.289572	0.243	1.48634	4.26701	0.005	0.136	0.125	520.4212	0.152
Surfacing Equipment	2011	501	750	0.214952	0.181	1.10325	3.56055	0.005	0.113	0.104	523.5482	0.153
Surfacing Equipment	2012	26	50	1.500607	1.261	5.03037	5.63914	0.005	0.473	0.435	588.7118	0.172
Surfacing Equipment	2012	51	120	0.709653	0.596	3.59999	5.94999	0.005	0.426	0.392	521.4233	0.153
Surfacing Equipment	2012	121	175	0.653605	0.549	3.0893	6.48747	0.005	0.315	0.29	519.886	0.152
Surfacing Equipment	2012	176	250	0.481696	0.405	1.72816	6.22653	0.005	0.207	0.191	527.6815	0.154
Surfacing Equipment	2012	251	500	0.290035	0.244	1.49574	4.20283	0.005	0.134	0.124	519.0487	0.152
Surfacing Equipment	2012	501	750	0.210249	0.177	1.04051	3.45723	0.005	0.109	0.1	521.0672	0.152
Surfacing Equipment	2013	26	50	1.455428	1.223	4.99596	5.53803	0.005	0.457	0.421	585.7193	0.172
Surfacing Equipment	2013	51	120	0.69949	0.588	3.60266	5.8163	0.005	0.415	0.382	518.7481	0.153
Surfacing Equipment	2013	121	175	0.588968	0.495	3.00889	5.94134	0.005	0.286	0.263	518.4738	0.152
Surfacing Equipment	2013	176	250	0.441295	0.371	1.62196	5.8812	0.005	0.187	0.172	524.5301	0.154
Surfacing Equipment	2013	251	500	0.288988	0.243	1.50462	4.09243	0.005	0.131	0.121	516.1488	0.152
Surfacing Equipment	2013	501	750	0.215353	0.181	1.04387	3.46124	0.005	0.11	0.101	518.3853	0.152
Surfacing Equipment	2014	26	50	1.358041	1.141	4.87668	5.42525	0.005	0.434	0.399	582.7249	0.172
Surfacing Equipment	2014	51	120	0.665267	0.559	3.58043	5.52029	0.005	0.391	0.36	516.3377	0.153
Surfacing Equipment	2014	121	175	0.561853	0.472	3.01212	5.71146	0.005	0.273	0.251	515.8203	0.152
Surfacing Equipment	2014	176	250	0.364211	0.306	1.43363	5.10182	0.005	0.149	0.137	521.4518	0.154
Surfacing Equipment	2014	251	500	0.2821	0.237	1.50147	3.8952	0.005	0.125	0.115	513.6157	0.152
Surfacing Equipment	2014	501	750	0.206755	0.174	1.02007	3.28435	0.005	0.103	0.095	516.3212	0.153
Surfacing Equipment	2015	26	50	1.223408	1.028	4.69178	5.25471	0.005	0.402	0.37	576.7706	0.172
Surfacing Equipment	2015	51	120	0.651534	0.547	3.57496	5.37414	0.005	0.378	0.348	510.1417	0.152
Surfacing Equipment	2015	121	175	0.568	0.477	3.02727	5.73307	0.005	0.276	0.254	510.5481	0.152
Surfacing Equipment	2015	176	250	0.36864	0.31	1.44156	5.11205	0.005	0.151	0.139	516.058	0.154
Surfacing Equipment	2015	251	500	0.286581	0.241	1.51303	3.90037	0.005	0.126	0.116	508.3985	0.152
Surfacing Equipment	2015	501	750	0.211433	0.178	1.02353	3.28678	0.005	0.104	0.096	511.1157	0.153
Surfacing Equipment	2016	26	50	1.243319	1.045	4.7626	5.27275	0.005	0.406	0.374	570.8145	0.172
Surfacing Equipment	2016	51	120	0.621267	0.522	3.54977	5.05142	0.005	0.349	0.321	505.0873	0.152
Surfacing Equipment	2016	121	175	0.544572	0.458	3.00649	5.45794	0.005	0.265	0.244	504.5576	0.152
Surfacing Equipment	2016	176	250	0.365495	0.307	1.42946	5.04791	0.005	0.148	0.136	510.7058	0.154
Surfacing Equipment	2016	251	500	0.258417	0.217	1.42484	3.46816	0.005	0.111	0.102	502.4709	0.152
Surfacing Equipment	2016	501	750	0.192579	0.162	0.99966	2.87955	0.005	0.093	0.085	506.967	0.153
Surfacing Equipment	2017	26	50	1.10469	0.928	4.60324	5.0643	0.006	0.365	0.336	564.4772	0.173
Surfacing Equipment	2017	51	120	0.604716	0.508	3.55587	4.94212	0.005	0.337	0.31	498.36	0.153
Surfacing Equipment	2017	121	175	0.541755	0.455	3.00273	5.39296	0.005	0.264	0.243	496.2741	0.152
Surfacing Equipment	2017	176	250	0.325463	0.273	1.3431	4.46793	0.005	0.129	0.119	501.8465	0.154
Surfacing Equipment	2017	251	500	0.242435	0.204	1.3962	3.10636	0.005	0.103	0.094	496.885	0.152
Surfacing Equipment	2017	501	750	0.190932	0.16	1.00272	2.76955	0.005	0.09	0.083	499.7117	0.153
Surfacing Equipment	2018	26	50	0.927049	0.779	4.35302	4.81982	0.006	0.32	0.294	555.7363	0.173
Surfacing Equipment	2018	51	120	0.49279	0.414	3.48871	4.28388	0.005	0.268	0.247	491.3172	0.153
Surfacing Equipment	2018	121	175	0.44632	0.375	2.97609	4.47527	0.005	0.215	0.198	488.4406	0.152
Surfacing Equipment	2018	176	250	0.286758	0.241	1.234	3.98866	0.005	0.113	0.104	494.1388	0.154

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Surfacing Equipment	2018	251	500	0.187325	0.157	1.22557	2.20389	0.005	0.076	0.07	487.8722	0.152
Surfacing Equipment	2018	501	750	0.169556	0.142	0.99347	2.26863	0.005	0.078	0.072	488.86	0.152
Surfacing Equipment	2019	26	50	0.765383	0.643	4.0998	4.41999	0.006	0.25	0.23	547.0462	0.173
Surfacing Equipment	2019	51	120	0.42278	0.355	3.44856	3.82306	0.005	0.226	0.208	484.0757	0.153
Surfacing Equipment	2019	121	175	0.425034	0.357	2.97177	4.23866	0.005	0.204	0.187	479.6717	0.152
Surfacing Equipment	2019	176	250	0.257694	0.217	1.21576	3.39993	0.005	0.101	0.093	486.8417	0.154
Surfacing Equipment	2019	251	500	0.173135	0.145	1.2143	1.89944	0.005	0.068	0.063	481.8965	0.152
Surfacing Equipment	2019	501	750	0.168821	0.142	0.99372	2.17879	0.005	0.076	0.07	480.166	0.152
Surfacing Equipment	2020	26	50	0.637406	0.536	3.93357	4.23906	0.006	0.216	0.199	535.5275	0.173
Surfacing Equipment	2020	51	120	0.392345	0.33	3.43932	3.61216	0.005	0.206	0.19	473.8188	0.153
Surfacing Equipment	2020	121	175	0.365927	0.307	2.93068	3.67232	0.005	0.175	0.161	469.2079	0.152
Surfacing Equipment	2020	176	250	0.252128	0.212	1.21774	3.22243	0.005	0.097	0.089	476.4261	0.154
Surfacing Equipment	2020	251	500	0.173203	0.146	1.21902	1.83755	0.005	0.067	0.062	471.6331	0.153
Surfacing Equipment	2020	501	750	0.168871	0.142	0.99569	2.09374	0.005	0.074	0.068	469.6252	0.152
Surfacing Equipment	2021	26	50	0.60314	0.507	3.93231	4.18875	0.006	0.204	0.188	535.784	0.173
Surfacing Equipment	2021	51	120	0.370907	0.312	3.43619	3.46112	0.005	0.191	0.175	474.0906	0.153
Surfacing Equipment	2021	121	175	0.307112	0.258	2.91895	3.09858	0.005	0.145	0.134	469.1687	0.152
Surfacing Equipment	2021	176	250	0.245986	0.207	1.21854	2.99364	0.005	0.092	0.085	476.8023	0.154
Surfacing Equipment	2021	251	500	0.167588	0.141	1.20226	1.75282	0.005	0.064	0.058	471.7484	0.153
Surfacing Equipment	2021	501	750	0.148862	0.125	0.99181	1.59712	0.005	0.062	0.057	470.4087	0.152
Surfacing Equipment	2022	26	50	0.509163	0.428	3.77243	3.9114	0.006	0.154	0.142	535.8364	0.173
Surfacing Equipment	2022	51	120	0.34882	0.293	3.40936	3.24974	0.005	0.175	0.161	473.6362	0.153
Surfacing Equipment	2022	121	175	0.283918	0.239	2.90957	2.70137	0.005	0.13	0.12	469.1259	0.152
Surfacing Equipment	2022	176	250	0.233135	0.196	1.21737	2.66709	0.005	0.085	0.078	476.9511	0.154
Surfacing Equipment	2022	251	500	0.157417	0.132	1.16047	1.5573	0.005	0.057	0.053	470.5248	0.152
Surfacing Equipment	2022	501	750	0.136805	0.115	0.98819	1.35503	0.005	0.052	0.048	470.4004	0.152
Surfacing Equipment	2023	26	50	0.51987	0.437	3.83184	3.92432	0.006	0.155	0.143	535.9295	0.173
Surfacing Equipment	2023	51	120	0.321277	0.27	3.39556	3.05811	0.005	0.157	0.144	474.4698	0.153
Surfacing Equipment	2023	121	175	0.267066	0.224	2.91383	2.45516	0.005	0.119	0.11	470.0141	0.152
Surfacing Equipment	2023	176	250	0.22795	0.192	1.21946	2.50162	0.005	0.082	0.075	476.9606	0.154
Surfacing Equipment	2023	251	500	0.156473	0.131	1.16329	1.47556	0.005	0.056	0.051	470.3746	0.152
Surfacing Equipment	2023	501	750	0.119512	0.1	0.98543	1.08063	0.005	0.04	0.037	472.4466	0.153
Surfacing Equipment	2024	26	50	0.396453	0.333	3.66193	3.72069	0.006	0.116	0.107	536.0304	0.173
Surfacing Equipment	2024	51	120	0.29879	0.251	3.3893	2.8828	0.005	0.142	0.131	475.3806	0.154
Surfacing Equipment	2024	121	175	0.271298	0.228	2.92962	2.46372	0.005	0.12	0.111	470.0767	0.152
Surfacing Equipment	2024	176	250	0.209166	0.176	1.18272	2.23638	0.005	0.071	0.065	477.096	0.154
Surfacing Equipment	2024	251	500	0.159183	0.134	1.16767	1.47769	0.005	0.056	0.051	470.2521	0.152
Surfacing Equipment	2024	501	750	0.112194	0.094	0.98493	0.94669	0.005	0.034	0.032	472.9833	0.153
Surfacing Equipment	2025	26	50	0.279239	0.235	3.53733	3.57642	0.006	0.082	0.075	536.14	0.173
Surfacing Equipment	2025	51	120	0.276433	0.232	3.38535	2.6591	0.005	0.124	0.114	476.7656	0.154
Surfacing Equipment	2025	121	175	0.222452	0.187	2.92602	1.9987	0.005	0.094	0.087	471.0403	0.152
Surfacing Equipment	2025	176	250	0.176026	0.148	1.14337	1.74736	0.005	0.055	0.051	477.11	0.154
Surfacing Equipment	2025	251	500	0.152175	0.128	1.16861	1.3268	0.005	0.051	0.047	470.2827	0.152
Surfacing Equipment	2025	501	750	0.101486	0.085	0.9776	0.76806	0.005	0.027	0.025	470.5508	0.152
Surfacing Equipment	2030	26	50	0.988	0.518	4.295	3.4	0.007	0.075	0.075	568.299	0.046
Surfacing Equipment	2030	51	120	2.281	0.264	3.492	1.959	0.006	0.068	0.068	568.299	0.023
Surfacing Equipment	2030	121	175	2.286	0.197	3.071	0.939	0.006	0.043	0.043	568.299	0.017
Surfacing Equipment	2030	176	250	3.134	0.172	1.064	0.789	0.006	0.026	0.026	568.299	0.015
Surfacing Equipment	2030	251	500	5.062	0.169	1.032	0.738	0.005	0.025	0.025	568.299	0.015
Surfacing Equipment	2030	501	750	7.953	0.169	1.032	0.749	0.005	0.025	0.025	568.299	0.015
Surfacing Equipment	2035	26	50	0.836	0.439	4.221	3.193	0.007	0.041	0.041	568.299	0.039
Surfacing Equipment	2035	51	120	1.954	0.226	3.482	1.659	0.006	0.038	0.038	568.299	0.02
Surfacing Equipment	2035	121	175	1.887	0.162	3.072	0.567	0.006	0.025	0.025	568.299	0.014
Surfacing Equipment	2035	176	250	2.725	0.149	1.05	0.497	0.006	0.016	0.016	568.299	0.013
Surfacing Equipment	2035	251	500	4.436	0.148	1.018	0.471	0.005	0.016	0.016	568.299	0.013
Surfacing Equipment	2035	501	750	6.967	0.148	1.018	0.477	0.005	0.016	0.016	568.3	0.013
Surfacing Equipment	2040	26	50	0.753	0.395	4.183	3.114	0.007	0.025	0.025	568.299	0.035
Surfacing Equipment	2040	51	120	1.782	0.206	3.477	1.521	0.006	0.024	0.024	568.299	0.018
Surfacing Equipment	2040	121	175	1.691	0.146	3.073	0.397	0.006	0.017	0.017	568.299	0.013
Surfacing Equipment	2040	176	250	2.566	0.14	1.047	0.37	0.006	0.013	0.013	568.299	0.012
Surfacing Equipment	2040	251	500	4.197	0.14	1.015	0.358	0.005	0.012	0.012	568.299	0.012
Surfacing Equipment	2040	501	750	6.59	0.14	1.015	0.361	0.005	0.013	0.013	568.299	0.012
Sweepers/Scrubbers	1990	6	15	4.971	1.804	5	9.999	0.833	0.968	0.968	568.299	0.162
Sweepers/Scrubbers	1990	16	25	10.019	2.213	5	6.92	0.679	0.735	0.735	568.299	0.199
Sweepers/Scrubbers	1990	26	50	32.867	4.512	9.199	7.836	0.692	1.202	1.202	568.299	0.407
Sweepers/Scrubbers	1990	51	120	39.044	2.254	5.53	14.467	0.628	1.259	1.259	568.299	0.203
Sweepers/Scrubbers	1990	121	175	48.318	1.505	4.861	12.813	0.602	0.818	0.818	568.299	0.135
Sweepers/Scrubbers	1990	176	250	56.322	1.505	4.861	12.813	0.602	0.818	0.818	568.299	0.135
Sweepers/Scrubbers	2000	6	15	2.886	1.047	4.258	7.362	0.079	0.428	0.428	568.299	0.094
Sweepers/Scrubbers	2000	16	25	4.933	1.089	4.438	6.325	0.064	0.442	0.442	568.299	0.098

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Sweepers/Scrubbers	2000	26	50	30.182	4.144	8.622	6.934	0.065	0.882	0.882	568.299	0.373
Sweepers/Scrubbers	2000	51	120	29.565	1.706	4.394	9.702	0.059	0.84	0.84	568.299	0.154
Sweepers/Scrubbers	2000	121	175	37.084	1.155	3.49	8.929	0.057	0.481	0.481	568.299	0.104
Sweepers/Scrubbers	2000	176	250	34.578	0.924	2.598	8.516	0.057	0.371	0.371	568.3	0.083
Sweepers/Scrubbers	2005	6	15	1.951	0.708	3.469	4.985	0.079	0.35	0.35	568.299	0.063
Sweepers/Scrubbers	2005	16	25	3.505	0.774	2.526	5.326	0.064	0.323	0.323	568.299	0.069
Sweepers/Scrubbers	2005	26	50	28.008	3.845	8.25	6.52	0.065	0.844	0.844	568.299	0.346
Sweepers/Scrubbers	2005	51	120	27.009	1.559	4.253	8.538	0.059	0.826	0.826	568.299	0.14
Sweepers/Scrubbers	2005	121	175	32.779	1.021	3.349	7.851	0.057	0.45	0.45	568.3	0.092
Sweepers/Scrubbers	2005	176	250	25.002	0.668	1.76	7.318	0.057	0.258	0.258	568.299	0.06
Sweepers/Scrubbers	2010	6	15	2.154395	1.81	6.34286	5.8263	0.005	0.615	0.566	583.6982	0.17
Sweepers/Scrubbers	2010	16	25	2.154395	1.81	6.34286	5.8263	0.005	0.615	0.566	583.6982	0.17
Sweepers/Scrubbers	2010	26	50	2.154395	1.81	6.34286	5.8263	0.005	0.615	0.566	583.6982	0.17
Sweepers/Scrubbers	2010	51	120	1.093749	0.919	4.10149	7.68967	0.005	0.657	0.604	526.7953	0.153
Sweepers/Scrubbers	2010	121	175	1.189152	0.999	4.21032	10.3895	0.005	0.578	0.532	525.6912	0.153
Sweepers/Scrubbers	2010	176	250	0.69332	0.583	2.35018	7.47446	0.005	0.319	0.294	522.3625	0.152
Sweepers/Scrubbers	2011	6	15	2.104606	1.768	6.34227	5.80317	0.005	0.606	0.557	582.239	0.17
Sweepers/Scrubbers	2011	16	25	2.104606	1.768	6.34227	5.80317	0.005	0.606	0.557	582.239	0.17
Sweepers/Scrubbers	2011	26	50	2.104606	1.768	6.34227	5.80317	0.005	0.606	0.557	582.239	0.17
Sweepers/Scrubbers	2011	51	120	1.070043	0.899	4.08877	7.49949	0.005	0.651	0.599	525.4783	0.153
Sweepers/Scrubbers	2011	121	175	1.134336	0.953	4.14616	9.92737	0.005	0.554	0.509	524.377	0.153
Sweepers/Scrubbers	2011	176	250	0.623199	0.524	2.16425	7.01091	0.005	0.284	0.261	521.0566	0.152
Sweepers/Scrubbers	2012	6	15	2.177617	1.83	6.54958	5.85015	0.005	0.621	0.571	580.7797	0.17
Sweepers/Scrubbers	2012	16	25	2.177617	1.83	6.54958	5.85015	0.005	0.621	0.571	580.7797	0.17
Sweepers/Scrubbers	2012	26	50	2.177617	1.83	6.54958	5.85015	0.005	0.621	0.571	580.7797	0.17
Sweepers/Scrubbers	2012	51	120	1.078889	0.907	4.12474	7.50259	0.005	0.659	0.606	524.1613	0.153
Sweepers/Scrubbers	2012	121	175	1.141423	0.959	4.16243	9.95689	0.005	0.558	0.513	523.0627	0.153
Sweepers/Scrubbers	2012	176	250	0.63315	0.532	2.17716	7.05573	0.005	0.286	0.264	519.7507	0.152
Sweepers/Scrubbers	2013	6	15	2.124198	1.785	6.54294	5.78778	0.005	0.608	0.559	577.8612	0.17
Sweepers/Scrubbers	2013	16	25	2.124198	1.785	6.54294	5.78778	0.005	0.608	0.559	577.8612	0.17
Sweepers/Scrubbers	2013	26	50	2.124198	1.785	6.54294	5.78778	0.005	0.608	0.559	577.8612	0.17
Sweepers/Scrubbers	2013	51	120	1.019559	0.857	4.07918	7.14773	0.005	0.626	0.576	521.5273	0.153
Sweepers/Scrubbers	2013	121	175	1.122038	0.943	4.12302	9.76352	0.005	0.547	0.503	520.4343	0.153
Sweepers/Scrubbers	2013	176	250	0.590836	0.496	2.05413	6.66337	0.005	0.263	0.242	517.1389	0.152
Sweepers/Scrubbers	2014	6	15	2.103399	1.767	6.59249	5.75157	0.005	0.603	0.555	574.9427	0.17
Sweepers/Scrubbers	2014	16	25	2.103399	1.767	6.59249	5.75157	0.005	0.603	0.555	574.9427	0.17
Sweepers/Scrubbers	2014	26	50	2.103399	1.767	6.59249	5.75157	0.005	0.603	0.555	574.9427	0.17
Sweepers/Scrubbers	2014	51	120	0.990916	0.833	4.07085	6.93387	0.005	0.61	0.562	518.8933	0.153
Sweepers/Scrubbers	2014	121	175	1.041854	0.875	4.04161	9.10792	0.005	0.503	0.463	517.8058	0.153
Sweepers/Scrubbers	2014	176	250	0.600544	0.505	2.06593	6.70399	0.005	0.265	0.244	514.5271	0.152
Sweepers/Scrubbers	2015	6	15	2.151059	1.807	6.75408	5.77191	0.005	0.611	0.562	569.1058	0.17
Sweepers/Scrubbers	2015	16	25	2.151059	1.807	6.75408	5.77191	0.005	0.611	0.562	569.1058	0.17
Sweepers/Scrubbers	2015	26	50	2.151059	1.807	6.75408	5.77191	0.005	0.611	0.562	569.1058	0.17
Sweepers/Scrubbers	2015	51	120	0.991855	0.833	4.09682	6.8863	0.005	0.61	0.561	513.6254	0.153
Sweepers/Scrubbers	2015	121	175	0.998266	0.839	3.98239	8.69682	0.005	0.479	0.441	512.5489	0.153
Sweepers/Scrubbers	2015	176	250	0.610252	0.513	2.07774	6.7446	0.005	0.268	0.246	509.3035	0.152
Sweepers/Scrubbers	2016	6	15	2.119969	1.781	6.78514	5.72609	0.005	0.603	0.555	563.2688	0.17
Sweepers/Scrubbers	2016	16	25	2.119969	1.781	6.78514	5.72609	0.005	0.603	0.555	563.2688	0.17
Sweepers/Scrubbers	2016	26	50	2.119969	1.781	6.78514	5.72609	0.005	0.603	0.555	563.2688	0.17
Sweepers/Scrubbers	2016	51	120	0.931404	0.783	4.05916	6.45405	0.005	0.571	0.525	508.3574	0.153
Sweepers/Scrubbers	2016	121	175	0.887319	0.746	3.83865	7.78746	0.005	0.419	0.385	507.292	0.153
Sweepers/Scrubbers	2016	176	250	0.61965	0.521	2.08905	6.78244	0.005	0.27	0.248	504.0799	0.152
Sweepers/Scrubbers	2017	6	15	2.037349	1.712	6.7185	5.62558	0.005	0.582	0.535	554.5133	0.17
Sweepers/Scrubbers	2017	16	25	2.037349	1.712	6.7185	5.62558	0.005	0.582	0.535	554.5133	0.17
Sweepers/Scrubbers	2017	26	50	2.037349	1.712	6.7185	5.62558	0.005	0.582	0.535	554.5133	0.17
Sweepers/Scrubbers	2017	51	120	0.857444	0.72	4.01005	6.0202	0.005	0.52	0.479	500.4555	0.153
Sweepers/Scrubbers	2017	121	175	0.845582	0.711	3.78429	7.42433	0.005	0.395	0.363	499.4066	0.153
Sweepers/Scrubbers	2017	176	250	0.610026	0.513	2.08973	6.50894	0.005	0.264	0.243	496.2444	0.152
Sweepers/Scrubbers	2018	6	15	1.838607	1.545	6.4442	5.39866	0.005	0.531	0.488	545.7578	0.17
Sweepers/Scrubbers	2018	16	25	1.838607	1.545	6.4442	5.39866	0.005	0.531	0.488	545.7578	0.17
Sweepers/Scrubbers	2018	26	50	1.838607	1.545	6.4442	5.39866	0.005	0.531	0.488	545.7578	0.17
Sweepers/Scrubbers	2018	51	120	0.713411	0.599	3.88173	5.13595	0.005	0.428	0.394	492.5536	0.153
Sweepers/Scrubbers	2018	121	175	0.700892	0.589	3.58832	6.07101	0.005	0.32	0.294	491.5213	0.153
Sweepers/Scrubbers	2018	176	250	0.415916	0.349	1.60478	4.30158	0.005	0.169	0.156	488.409	0.152
Sweepers/Scrubbers	2019	6	15	1.703052	1.431	6.26782	5.22487	0.005	0.491	0.452	537.0023	0.17
Sweepers/Scrubbers	2019	16	25	1.703052	1.431	6.26782	5.22487	0.005	0.491	0.452	537.0023	0.17
Sweepers/Scrubbers	2019	26	50	1.703052	1.431	6.26782	5.22487	0.005	0.491	0.452	537.0023	0.17
Sweepers/Scrubbers	2019	51	120	0.654062	0.55	3.84602	4.77259	0.005	0.387	0.356	484.6516	0.153
Sweepers/Scrubbers	2019	121	175	0.62277	0.523	3.4491	5.30082	0.005	0.277	0.255	483.6359	0.153
Sweepers/Scrubbers	2019	176	250	0.279258	0.235	1.23013	2.86598	0.005	0.099	0.091	480.5735	0.152

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Sweepers/Scrubbers	2020	6	15	1.599203	1.344	6.1554	5.09515	0.005	0.463	0.426	525.3284	0.17
Sweepers/Scrubbers	2020	16	25	1.599203	1.344	6.1554	5.09515	0.005	0.463	0.426	525.3284	0.17
Sweepers/Scrubbers	2020	26	50	1.599203	1.344	6.1554	5.09515	0.005	0.463	0.426	525.3284	0.17
Sweepers/Scrubbers	2020	51	120	0.618762	0.52	3.82752	4.4821	0.005	0.36	0.331	474.1157	0.153
Sweepers/Scrubbers	2020	121	175	0.549287	0.462	3.35909	4.60809	0.005	0.237	0.218	473.1221	0.153
Sweepers/Scrubbers	2020	176	250	0.246498	0.207	1.13655	2.4856	0.005	0.079	0.073	470.1263	0.152
Sweepers/Scrubbers	2021	6	15	1.450842	1.219	5.89996	4.84946	0.005	0.412	0.379	525.3284	0.17
Sweepers/Scrubbers	2021	16	25	1.450842	1.219	5.89996	4.84946	0.005	0.412	0.379	525.3284	0.17
Sweepers/Scrubbers	2021	26	50	1.450842	1.219	5.89996	4.84946	0.005	0.412	0.379	525.3284	0.17
Sweepers/Scrubbers	2021	51	120	0.523878	0.44	3.75746	3.96194	0.005	0.291	0.268	474.1157	0.153
Sweepers/Scrubbers	2021	121	175	0.457963	0.385	3.24726	3.70723	0.005	0.187	0.172	473.1221	0.153
Sweepers/Scrubbers	2021	176	250	0.195441	0.164	1.1084	1.75821	0.005	0.055	0.051	470.1263	0.152
Sweepers/Scrubbers	2022	6	15	1.199805	1.008	5.45118	4.49049	0.005	0.335	0.308	525.3284	0.17
Sweepers/Scrubbers	2022	16	25	1.199805	1.008	5.45118	4.49049	0.005	0.335	0.308	525.3284	0.17
Sweepers/Scrubbers	2022	26	50	1.199805	1.008	5.45118	4.49049	0.005	0.335	0.308	525.3284	0.17
Sweepers/Scrubbers	2022	51	120	0.443216	0.372	3.69196	3.47218	0.005	0.232	0.214	474.1157	0.153
Sweepers/Scrubbers	2022	121	175	0.382446	0.321	3.22176	3.00243	0.005	0.145	0.133	473.1221	0.153
Sweepers/Scrubbers	2022	176	250	0.181362	0.152	1.10147	1.60484	0.005	0.05	0.046	470.1263	0.152
Sweepers/Scrubbers	2023	6	15	0.903476	0.759	4.97095	4.12735	0.005	0.248	0.229	525.3284	0.17
Sweepers/Scrubbers	2023	16	25	0.903476	0.759	4.97095	4.12735	0.005	0.248	0.229	525.3284	0.17
Sweepers/Scrubbers	2023	26	50	0.903476	0.759	4.97095	4.12735	0.005	0.248	0.229	525.3284	0.17
Sweepers/Scrubbers	2023	51	120	0.417244	0.351	3.69499	3.28536	0.005	0.21	0.193	474.1157	0.153
Sweepers/Scrubbers	2023	121	175	0.347747	0.292	3.22298	2.60853	0.005	0.126	0.116	473.1221	0.153
Sweepers/Scrubbers	2023	176	250	0.188622	0.158	1.11413	1.61028	0.005	0.05	0.046	470.1263	0.152
Sweepers/Scrubbers	2024	6	15	0.887865	0.746	5.00321	4.0788	0.005	0.239	0.219	525.3284	0.17
Sweepers/Scrubbers	2024	16	25	0.887865	0.746	5.00321	4.0788	0.005	0.239	0.219	525.3284	0.17
Sweepers/Scrubbers	2024	26	50	0.887865	0.746	5.00321	4.0788	0.005	0.239	0.219	525.3284	0.17
Sweepers/Scrubbers	2024	51	120	0.395131	0.332	3.69288	3.09846	0.005	0.188	0.173	474.1157	0.153
Sweepers/Scrubbers	2024	121	175	0.316819	0.266	3.23374	2.2533	0.005	0.107	0.099	473.1221	0.153
Sweepers/Scrubbers	2024	176	250	0.195631	0.164	1.12729	1.61357	0.005	0.051	0.046	470.1263	0.152
Sweepers/Scrubbers	2025	6	15	0.740656	0.622	4.76791	3.85568	0.005	0.191	0.176	525.3284	0.17
Sweepers/Scrubbers	2025	16	25	0.740656	0.622	4.76791	3.85568	0.005	0.191	0.176	525.3284	0.17
Sweepers/Scrubbers	2025	26	50	0.740656	0.622	4.76791	3.85568	0.005	0.191	0.176	525.3284	0.17
Sweepers/Scrubbers	2025	51	120	0.360743	0.303	3.66402	2.81733	0.005	0.16	0.147	474.1157	0.153
Sweepers/Scrubbers	2025	121	175	0.25385	0.213	3.201	1.63811	0.005	0.072	0.066	473.1221	0.153
Sweepers/Scrubbers	2025	176	250	0.202235	0.17	1.14005	1.61588	0.005	0.051	0.047	470.1263	0.152
Sweepers/Scrubbers	2030	6	15	1.624	0.589	3.47	4.142	0.008	0.161	0.161	568.299	0.053
Sweepers/Scrubbers	2030	16	25	3.103	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Sweepers/Scrubbers	2030	26	50	3.714	0.509	4.947	3.294	0.007	0.026	0.026	568.299	0.046
Sweepers/Scrubbers	2030	51	120	4.528	0.261	3.703	1.569	0.006	0.023	0.023	568.299	0.023
Sweepers/Scrubbers	2030	121	175	6.02	0.187	3.275	0.431	0.006	0.017	0.017	568.299	0.016
Sweepers/Scrubbers	2030	176	250	6.813	0.182	1.116	0.37	0.006	0.013	0.013	568.299	0.016
Sweepers/Scrubbers	2035	6	15	1.624	0.589	3.47	4.142	0.008	0.161	0.161	568.299	0.053
Sweepers/Scrubbers	2035	16	25	3.103	0.685	2.34	4.332	0.007	0.161	0.161	568.3	0.061
Sweepers/Scrubbers	2035	26	50	3.681	0.505	4.929	3.214	0.007	0.017	0.017	568.299	0.045
Sweepers/Scrubbers	2035	51	120	4.386	0.253	3.698	1.486	0.006	0.016	0.016	568.299	0.022
Sweepers/Scrubbers	2035	121	175	5.628	0.175	3.271	0.313	0.006	0.012	0.012	568.299	0.015
Sweepers/Scrubbers	2035	176	250	6.501	0.173	1.114	0.294	0.006	0.011	0.011	568.299	0.015
Sweepers/Scrubbers	2040	6	15	1.624	0.589	3.47	4.142	0.008	0.161	0.161	568.3	0.053
Sweepers/Scrubbers	2040	16	25	3.103	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Sweepers/Scrubbers	2040	26	50	3.675	0.504	4.925	3.203	0.007	0.016	0.016	568.3	0.045
Sweepers/Scrubbers	2040	51	120	4.354	0.251	3.697	1.469	0.006	0.015	0.015	568.299	0.022
Sweepers/Scrubbers	2040	121	175	5.537	0.172	3.27	0.284	0.006	0.011	0.011	568.299	0.015
Sweepers/Scrubbers	2040	176	250	6.454	0.172	1.114	0.284	0.006	0.011	0.011	568.299	0.015
Tractors/Loaders/Backhoes	1990	16	25	5.699	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Tractors/Loaders/Backhoes	1990	26	50	23.587	4.787	9.698	7.939	0.871	1.267	1.267	568.299	0.431
Tractors/Loaders/Backhoes	1990	51	120	19.595	2.333	5.659	14.779	0.791	1.327	1.327	568.299	0.21
Tractors/Loaders/Backhoes	1990	121	175	28.833	1.751	5.008	14.021	0.758	0.974	0.974	568.299	0.158
Tractors/Loaders/Backhoes	1990	176	250	48.841	1.751	5.008	14.021	0.758	0.974	0.974	568.299	0.158
Tractors/Loaders/Backhoes	1990	251	500	86.854	1.551	10.967	13.298	0.758	0.834	0.834	568.3	0.139
Tractors/Loaders/Backhoes	1990	501	750	130.281	1.551	10.967	13.298	1.139	0.85	0.85	568.299	0.139
Tractors/Loaders/Backhoes	2000	16	25	5.225	2.029	4.66	6.391	0.065	0.57	0.57	568.299	0.183
Tractors/Loaders/Backhoes	2000	26	50	21.043	4.271	8.855	6.964	0.066	0.903	0.903	568.299	0.385
Tractors/Loaders/Backhoes	2000	51	120	14.597	1.738	4.448	9.784	0.06	0.862	0.862	568.299	0.156
Tractors/Loaders/Backhoes	2000	121	175	19.393	1.178	3.534	9.027	0.057	0.494	0.494	568.299	0.106
Tractors/Loaders/Backhoes	2000	176	250	26.283	0.942	2.634	8.625	0.057	0.38	0.38	568.299	0.085
Tractors/Loaders/Backhoes	2000	251	500	48.341	0.863	3.629	8.225	0.057	0.339	0.339	568.299	0.077
Tractors/Loaders/Backhoes	2000	501	750	72.512	0.863	3.629	8.225	0.059	0.339	0.339	568.299	0.077
Tractors/Loaders/Backhoes	2005	16	25	3.067	1.191	3.137	5.648	0.065	0.404	0.404	568.299	0.107
Tractors/Loaders/Backhoes	2005	26	50	18.069	3.667	8.018	6.405	0.066	0.819	0.819	568.299	0.33

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Tractors/Loaders/Backhoes	2005	51	120	12.595	1.499	4.22	8.325	0.06	0.802	0.802	568.299	0.135
Tractors/Loaders/Backhoes	2005	121	175	16.035	0.974	3.341	7.629	0.057	0.432	0.432	568.3	0.087
Tractors/Loaders/Backhoes	2005	176	250	18.392	0.659	1.774	7.181	0.057	0.256	0.256	568.3	0.059
Tractors/Loaders/Backhoes	2005	251	500	32.511	0.58	1.993	6.451	0.057	0.23	0.23	568.299	0.052
Tractors/Loaders/Backhoes	2005	501	750	49.91	0.594	1.99	6.656	0.059	0.234	0.234	568.299	0.053
Tractors/Loaders/Backhoes	2010	16	25	1.894649	1.592	5.95576	5.63221	0.005	0.561	0.516	569.9866	0.166
Tractors/Loaders/Backhoes	2010	26	50	1.894649	1.592	5.95576	5.63221	0.005	0.561	0.516	569.9866	0.166
Tractors/Loaders/Backhoes	2010	51	120	0.792369	0.666	3.83197	6.31224	0.005	0.504	0.464	533.5879	0.155
Tractors/Loaders/Backhoes	2010	121	175	0.559066	0.47	3.20391	5.68573	0.005	0.285	0.263	521.9624	0.152
Tractors/Loaders/Backhoes	2010	176	250	0.408454	0.343	1.44044	5.58586	0.005	0.178	0.163	522.8516	0.152
Tractors/Loaders/Backhoes	2010	251	500	0.391383	0.329	2.07689	5.18517	0.005	0.172	0.158	526.5923	0.153
Tractors/Loaders/Backhoes	2010	501	750	0.330642	0.278	1.80487	4.39795	0.005	0.153	0.141	517.4169	0.151
Tractors/Loaders/Backhoes	2011	16	25	1.788969	1.503	5.86306	5.58613	0.005	0.54	0.497	569.4176	0.166
Tractors/Loaders/Backhoes	2011	26	50	1.788969	1.503	5.86306	5.58613	0.005	0.54	0.497	569.4176	0.166
Tractors/Loaders/Backhoes	2011	51	120	0.766159	0.644	3.83083	6.12981	0.005	0.491	0.451	531.2907	0.155
Tractors/Loaders/Backhoes	2011	121	175	0.544391	0.457	3.21464	5.49667	0.005	0.277	0.255	520.8772	0.152
Tractors/Loaders/Backhoes	2011	176	250	0.400263	0.336	1.41416	5.38873	0.005	0.172	0.158	521.7143	0.152
Tractors/Loaders/Backhoes	2011	251	500	0.383321	0.322	2.01155	4.98779	0.005	0.167	0.154	525.0356	0.153
Tractors/Loaders/Backhoes	2011	501	750	0.337174	0.283	1.80098	4.35896	0.005	0.153	0.14	516.0241	0.151
Tractors/Loaders/Backhoes	2012	16	25	1.778006	1.494	5.92961	5.57167	0.005	0.537	0.494	568.1171	0.166
Tractors/Loaders/Backhoes	2012	26	50	1.778006	1.494	5.92961	5.57167	0.005	0.537	0.494	568.1171	0.166
Tractors/Loaders/Backhoes	2012	51	120	0.765477	0.643	3.85825	6.07938	0.005	0.49	0.45	529.8013	0.155
Tractors/Loaders/Backhoes	2012	121	175	0.55208	0.464	3.24733	5.48812	0.005	0.279	0.257	519.5807	0.152
Tractors/Loaders/Backhoes	2012	176	250	0.408595	0.343	1.42415	5.3794	0.005	0.173	0.159	520.5233	0.152
Tractors/Loaders/Backhoes	2012	251	500	0.391545	0.329	2.03631	4.9585	0.005	0.168	0.154	523.6066	0.153
Tractors/Loaders/Backhoes	2012	501	750	0.34578	0.291	1.81138	4.30593	0.005	0.153	0.141	514.6158	0.151
Tractors/Loaders/Backhoes	2013	16	25	1.710175	1.437	5.8983	5.50692	0.005	0.52	0.478	566.4101	0.167
Tractors/Loaders/Backhoes	2013	26	50	1.710175	1.437	5.8983	5.50692	0.005	0.52	0.478	566.4101	0.167
Tractors/Loaders/Backhoes	2013	51	120	0.736849	0.619	3.85259	5.88177	0.005	0.468	0.431	526.7149	0.155
Tractors/Loaders/Backhoes	2013	121	175	0.53894	0.453	3.25593	5.32658	0.005	0.269	0.248	516.748	0.152
Tractors/Loaders/Backhoes	2013	176	250	0.404183	0.34	1.40715	5.22143	0.005	0.168	0.155	517.9916	0.152
Tractors/Loaders/Backhoes	2013	251	500	0.386263	0.325	1.98237	4.77348	0.005	0.162	0.149	520.6472	0.153
Tractors/Loaders/Backhoes	2013	501	750	0.357231	0.3	1.8218	4.31599	0.005	0.155	0.143	511.8955	0.151
Tractors/Loaders/Backhoes	2014	16	25	1.58953	1.336	5.77182	5.36869	0.005	0.488	0.449	564.0421	0.167
Tractors/Loaders/Backhoes	2014	26	50	1.58953	1.336	5.77182	5.36869	0.005	0.488	0.449	564.0421	0.167
Tractors/Loaders/Backhoes	2014	51	120	0.692813	0.582	3.82724	5.58081	0.005	0.438	0.403	523.0168	0.155
Tractors/Loaders/Backhoes	2014	121	175	0.503298	0.423	3.23863	4.93788	0.005	0.248	0.228	513.8903	0.152
Tractors/Loaders/Backhoes	2014	176	250	0.389056	0.327	1.37555	4.92175	0.005	0.159	0.146	515.1747	0.152
Tractors/Loaders/Backhoes	2014	251	500	0.371559	0.312	1.87787	4.48819	0.005	0.152	0.14	517.1237	0.153
Tractors/Loaders/Backhoes	2014	501	750	0.362599	0.305	1.8331	4.24344	0.005	0.154	0.141	511.3367	0.151
Tractors/Loaders/Backhoes	2015	16	25	1.555682	1.307	5.79091	5.32019	0.005	0.477	0.439	558.7085	0.167
Tractors/Loaders/Backhoes	2015	26	50	1.555682	1.307	5.79091	5.32019	0.005	0.477	0.439	558.7085	0.167
Tractors/Loaders/Backhoes	2015	51	120	0.677539	0.569	3.83198	5.4221	0.005	0.424	0.39	517.3652	0.154
Tractors/Loaders/Backhoes	2015	121	175	0.501434	0.421	3.2559	4.83599	0.005	0.244	0.225	508.6819	0.152
Tractors/Loaders/Backhoes	2015	176	250	0.387795	0.326	1.37366	4.7831	0.005	0.155	0.143	509.6269	0.152
Tractors/Loaders/Backhoes	2015	251	500	0.371246	0.312	1.88403	4.34833	0.005	0.149	0.137	511.8685	0.153
Tractors/Loaders/Backhoes	2015	501	750	0.36596	0.308	1.823	4.1848	0.005	0.152	0.14	506.1469	0.151
Tractors/Loaders/Backhoes	2016	16	25	1.488115	1.25	5.74113	5.21373	0.005	0.455	0.418	553.3996	0.167
Tractors/Loaders/Backhoes	2016	26	50	1.488115	1.25	5.74113	5.21373	0.005	0.455	0.418	553.3996	0.167
Tractors/Loaders/Backhoes	2016	51	120	0.640315	0.538	3.81146	5.14235	0.005	0.396	0.364	511.3456	0.154
Tractors/Loaders/Backhoes	2016	121	175	0.46319	0.389	3.23229	4.37945	0.005	0.222	0.204	502.6294	0.152
Tractors/Loaders/Backhoes	2016	176	250	0.369743	0.311	1.34719	4.42611	0.005	0.145	0.133	504.4014	0.152
Tractors/Loaders/Backhoes	2016	251	500	0.337794	0.284	1.78642	3.7866	0.005	0.131	0.121	505.2698	0.152
Tractors/Loaders/Backhoes	2016	501	750	0.357237	0.3	1.67424	4.0216	0.005	0.144	0.133	500.955	0.151
Tractors/Loaders/Backhoes	2017	16	25	1.421071	1.194	5.68921	5.10958	0.005	0.433	0.398	544.9286	0.167
Tractors/Loaders/Backhoes	2017	26	50	1.421071	1.194	5.68921	5.10958	0.005	0.433	0.398	544.9286	0.167
Tractors/Loaders/Backhoes	2017	51	120	0.595595	0.5	3.7818	4.8087	0.005	0.362	0.333	502.7952	0.154
Tractors/Loaders/Backhoes	2017	121	175	0.420865	0.354	3.19961	3.87876	0.005	0.197	0.181	493.912	0.151
Tractors/Loaders/Backhoes	2017	176	250	0.346619	0.291	1.30369	4.04062	0.005	0.132	0.121	496.8449	0.152
Tractors/Loaders/Backhoes	2017	251	500	0.323689	0.272	1.73851	3.48988	0.005	0.122	0.112	497.1129	0.152
Tractors/Loaders/Backhoes	2017	501	750	0.35268	0.296	1.64567	3.86196	0.005	0.139	0.128	492.9529	0.151
Tractors/Loaders/Backhoes	2018	16	25	1.180685	0.992	5.31043	4.76441	0.005	0.363	0.334	536.1115	0.167
Tractors/Loaders/Backhoes	2018	26	50	1.180685	0.992	5.31043	4.76441	0.005	0.363	0.334	536.1115	0.167
Tractors/Loaders/Backhoes	2018	51	120	0.5003	0.42	3.69155	4.15444	0.005	0.294	0.271	494.1237	0.154
Tractors/Loaders/Backhoes	2018	121	175	0.353485	0.297	3.13727	3.16806	0.005	0.16	0.147	485.7754	0.151
Tractors/Loaders/Backhoes	2018	176	250	0.308076	0.259	1.24197	3.45965	0.005	0.112	0.103	489.4562	0.152
Tractors/Loaders/Backhoes	2018	251	500	0.264454	0.222	1.44545	2.66877	0.005	0.092	0.085	486.2939	0.151
Tractors/Loaders/Backhoes	2018	501	750	0.322751	0.271	1.60068	3.40235	0.005	0.124	0.114	485.0099	0.151
Tractors/Loaders/Backhoes	2019	16	25	1.095082	0.92	5.20327	4.60928	0.005	0.33	0.304	527.6843	0.167
Tractors/Loaders/Backhoes	2019	26	50	1.095082	0.92	5.20327	4.60928	0.005	0.33	0.304	527.6843	0.167

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Tractors/Loaders/Backhoes	2019	51	120	0.437701	0.368	3.63777	3.69257	0.005	0.247	0.227	485.8548	0.154
Tractors/Loaders/Backhoes	2019	121	175	0.321856	0.27	3.12158	2.78412	0.005	0.14	0.129	477.9151	0.151
Tractors/Loaders/Backhoes	2019	176	250	0.291458	0.245	1.22027	3.14683	0.005	0.102	0.094	481.4206	0.152
Tractors/Loaders/Backhoes	2019	251	500	0.245176	0.206	1.38918	2.34458	0.005	0.082	0.075	479.0826	0.152
Tractors/Loaders/Backhoes	2019	501	750	0.311873	0.262	1.6025	3.12046	0.005	0.117	0.107	478.9216	0.152
Tractors/Loaders/Backhoes	2020	16	25	0.987255	0.83	5.03491	4.39784	0.005	0.288	0.265	515.874	0.167
Tractors/Loaders/Backhoes	2020	26	50	0.987255	0.83	5.03491	4.39784	0.005	0.288	0.265	515.874	0.167
Tractors/Loaders/Backhoes	2020	51	120	0.393883	0.331	3.60147	3.32571	0.005	0.21	0.193	475.1543	0.154
Tractors/Loaders/Backhoes	2020	121	175	0.29217	0.246	3.10518	2.41467	0.005	0.122	0.112	467.5132	0.151
Tractors/Loaders/Backhoes	2020	176	250	0.268036	0.225	1.19592	2.73794	0.005	0.09	0.083	470.4998	0.152
Tractors/Loaders/Backhoes	2020	251	500	0.230511	0.194	1.35815	2.07976	0.005	0.073	0.067	468.2447	0.151
Tractors/Loaders/Backhoes	2020	501	750	0.318709	0.268	1.60984	3.11926	0.005	0.117	0.108	468.6602	0.152
Tractors/Loaders/Backhoes	2021	16	25	0.899672	0.756	4.90172	4.22643	0.005	0.254	0.234	515.1213	0.167
Tractors/Loaders/Backhoes	2021	26	50	0.899672	0.756	4.90172	4.22643	0.005	0.254	0.234	515.1213	0.167
Tractors/Loaders/Backhoes	2021	51	120	0.35209	0.296	3.57072	2.995	0.005	0.177	0.162	475.3621	0.154
Tractors/Loaders/Backhoes	2021	121	175	0.263016	0.221	3.0907	2.06221	0.005	0.104	0.096	467.5285	0.151
Tractors/Loaders/Backhoes	2021	176	250	0.249239	0.209	1.18606	2.36922	0.005	0.08	0.074	470.5716	0.152
Tractors/Loaders/Backhoes	2021	251	500	0.213479	0.179	1.34147	1.776	0.005	0.064	0.059	469.3025	0.152
Tractors/Loaders/Backhoes	2021	501	750	0.294477	0.247	1.43254	2.75417	0.005	0.104	0.096	466.4564	0.151
Tractors/Loaders/Backhoes	2022	16	25	0.818675	0.688	4.75954	4.03024	0.005	0.218	0.2	514.4613	0.166
Tractors/Loaders/Backhoes	2022	26	50	0.818675	0.688	4.75954	4.03024	0.005	0.218	0.2	514.4613	0.166
Tractors/Loaders/Backhoes	2022	51	120	0.309669	0.26	3.53551	2.64718	0.005	0.142	0.131	475.8975	0.154
Tractors/Loaders/Backhoes	2022	121	175	0.237945	0.2	3.07944	1.75274	0.005	0.089	0.082	467.8004	0.151
Tractors/Loaders/Backhoes	2022	176	250	0.222521	0.187	1.16248	1.94251	0.005	0.067	0.062	470.1236	0.152
Tractors/Loaders/Backhoes	2022	251	500	0.190771	0.16	1.28026	1.43694	0.005	0.053	0.049	469.2562	0.152
Tractors/Loaders/Backhoes	2022	501	750	0.276438	0.232	1.35272	2.4532	0.005	0.094	0.087	466.6327	0.151
Tractors/Loaders/Backhoes	2023	16	25	0.738634	0.621	4.62935	3.85698	0.005	0.185	0.17	513.7962	0.166
Tractors/Loaders/Backhoes	2023	26	50	0.738634	0.621	4.62935	3.85698	0.005	0.185	0.17	513.7962	0.166
Tractors/Loaders/Backhoes	2023	51	120	0.284572	0.239	3.52504	2.42607	0.005	0.12	0.11	476.4307	0.154
Tractors/Loaders/Backhoes	2023	121	175	0.219196	0.184	3.0777	1.52095	0.005	0.077	0.07	468.821	0.152
Tractors/Loaders/Backhoes	2023	176	250	0.201205	0.169	1.14809	1.58768	0.005	0.058	0.053	469.7518	0.152
Tractors/Loaders/Backhoes	2023	251	500	0.180818	0.152	1.27923	1.24708	0.005	0.047	0.043	469.4652	0.152
Tractors/Loaders/Backhoes	2023	501	750	0.278685	0.234	1.36081	2.41861	0.005	0.095	0.087	466.6756	0.151
Tractors/Loaders/Backhoes	2024	16	25	0.701609	0.59	4.60899	3.76811	0.005	0.166	0.153	513.8517	0.166
Tractors/Loaders/Backhoes	2024	26	50	0.701609	0.59	4.60899	3.76811	0.005	0.166	0.153	513.8517	0.166
Tractors/Loaders/Backhoes	2024	51	120	0.270597	0.227	3.5318	2.28795	0.005	0.105	0.097	476.7313	0.154
Tractors/Loaders/Backhoes	2024	121	175	0.209421	0.176	3.08913	1.37643	0.005	0.068	0.063	469.4029	0.152
Tractors/Loaders/Backhoes	2024	176	250	0.199431	0.168	1.15125	1.49113	0.005	0.054	0.05	469.9143	0.152
Tractors/Loaders/Backhoes	2024	251	500	0.178929	0.15	1.277	1.16321	0.005	0.044	0.041	470.0841	0.152
Tractors/Loaders/Backhoes	2024	501	750	0.262816	0.221	1.31051	2.21548	0.005	0.085	0.079	466.6381	0.151
Tractors/Loaders/Backhoes	2025	16	25	0.654585	0.55	4.55974	3.66186	0.005	0.145	0.133	513.8025	0.166
Tractors/Loaders/Backhoes	2025	26	50	0.654585	0.55	4.55974	3.66186	0.005	0.145	0.133	513.8025	0.166
Tractors/Loaders/Backhoes	2025	51	120	0.248412	0.209	3.52242	2.10918	0.005	0.085	0.079	477.188	0.154
Tractors/Loaders/Backhoes	2025	121	175	0.192617	0.162	3.08323	1.18039	0.005	0.058	0.054	469.3289	0.152
Tractors/Loaders/Backhoes	2025	176	250	0.183368	0.154	1.14554	1.23458	0.005	0.047	0.044	470.5976	0.152
Tractors/Loaders/Backhoes	2025	251	500	0.171862	0.144	1.23405	1.04575	0.005	0.039	0.036	470.9102	0.152
Tractors/Loaders/Backhoes	2025	501	750	0.222943	0.187	1.26139	1.64868	0.005	0.067	0.062	466.4517	0.151
Tractors/Loaders/Backhoes	2030	16	25	1.765	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Tractors/Loaders/Backhoes	2030	26	50	2.657	0.539	4.966	3.299	0.007	0.033	0.033	568.299	0.048
Tractors/Loaders/Backhoes	2030	51	120	2.285	0.272	3.705	1.624	0.006	0.03	0.03	568.299	0.024
Tractors/Loaders/Backhoes	2030	121	175	3.178	0.193	3.273	0.485	0.006	0.02	0.02	568.299	0.017
Tractors/Loaders/Backhoes	2030	176	250	5.112	0.183	1.115	0.418	0.006	0.014	0.014	568.299	0.016
Tractors/Loaders/Backhoes	2030	251	500	10.236	0.182	1.066	0.403	0.006	0.014	0.014	568.299	0.016
Tractors/Loaders/Backhoes	2030	501	750	15.363	0.182	1.066	0.407	0.006	0.014	0.014	568.299	0.016
Tractors/Loaders/Backhoes	2035	16	25	1.765	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Tractors/Loaders/Backhoes	2035	26	50	2.538	0.515	4.949	3.244	0.007	0.022	0.022	568.299	0.046
Tractors/Loaders/Backhoes	2035	51	120	2.17	0.258	3.703	1.521	0.006	0.02	0.02	568.299	0.023
Tractors/Loaders/Backhoes	2035	121	175	2.956	0.179	3.275	0.348	0.006	0.015	0.015	568.299	0.016
Tractors/Loaders/Backhoes	2035	176	250	4.945	0.177	1.115	0.331	0.006	0.012	0.012	568.299	0.016
Tractors/Loaders/Backhoes	2035	251	500	9.922	0.177	1.066	0.326	0.006	0.012	0.012	568.299	0.015
Tractors/Loaders/Backhoes	2035	501	750	14.886	0.177	1.066	0.327	0.006	0.012	0.012	568.299	0.015
Tractors/Loaders/Backhoes	2040	16	25	1.765	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Tractors/Loaders/Backhoes	2040	26	50	2.506	0.508	4.946	3.22	0.007	0.018	0.018	568.299	0.045
Tractors/Loaders/Backhoes	2040	51	120	2.135	0.254	3.703	1.485	0.006	0.016	0.016	568.299	0.022
Tractors/Loaders/Backhoes	2040	121	175	2.891	0.175	3.276	0.305	0.006	0.012	0.012	568.299	0.015
Tractors/Loaders/Backhoes	2040	176	250	4.877	0.174	1.116	0.297	0.006	0.011	0.011	568.3	0.015
Tractors/Loaders/Backhoes	2040	251	500	9.794	0.174	1.066	0.297	0.006	0.011	0.011	568.299	0.015
Tractors/Loaders/Backhoes	2040	501	750	14.69	0.174	1.066	0.297	0.006	0.011	0.011	568.299	0.015
Trenchers	1990	6	15	3.844	1.804	4.999	9.999	1.049	0.975	0.975	568.299	0.162
Trenchers	1990	16	25	18.341	2.213	4.999	6.919	0.855	0.741	0.741	568.3	0.199

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Trenchers	1990	26	50	37.589	4.535	9.232	7.849	0.871	1.215	1.215	568.3	0.409
Trenchers	1990	51	120	37.519	2.296	5.621	14.752	0.791	1.284	1.284	568.299	0.207
Trenchers	1990	121	175	63.364	1.748	5.014	14.125	0.758	0.96	0.96	568.299	0.157
Trenchers	1990	176	250	98.152	1.748	5.014	14.125	0.758	0.96	0.96	568.299	0.157
Trenchers	1990	251	500	121.775	1.553	10.572	13.45	0.662	0.827	0.827	568.299	0.14
Trenchers	1990	501	750	229.57	1.553	10.572	13.45	1.018	0.843	0.843	568.299	0.14
Trenchers	2000	6	15	2.824	1.325	4.257	7.675	0.079	0.61	0.61	568.299	0.119
Trenchers	2000	16	25	15.815	1.908	4.438	6.326	0.065	0.555	0.555	568.299	0.172
Trenchers	2000	26	50	34.945	4.216	8.713	7.029	0.066	0.89	0.89	568.299	0.38
Trenchers	2000	51	120	30.939	1.893	4.777	10.98	0.06	0.882	0.882	568.299	0.17
Trenchers	2000	121	175	46.959	1.296	3.969	10.057	0.057	0.541	0.541	568.299	0.116
Trenchers	2000	176	250	64.645	1.151	3.402	9.8	0.057	0.474	0.474	568.299	0.103
Trenchers	2000	251	500	81.678	1.042	6.221	9.354	0.05	0.416	0.416	568.299	0.094
Trenchers	2000	501	750	153.98	1.042	6.221	9.354	0.052	0.416	0.416	568.299	0.094
Trenchers	2005	6	15	1.582	0.742	3.469	4.981	0.079	0.35	0.35	568.299	0.066
Trenchers	2005	16	25	7.043	0.849	2.519	5.321	0.065	0.333	0.333	568.3	0.076
Trenchers	2005	26	50	32.497	3.921	8.33	6.674	0.066	0.849	0.849	568.299	0.353
Trenchers	2005	51	120	27.751	1.698	4.526	9.727	0.06	0.839	0.839	568.299	0.153
Trenchers	2005	121	175	40.799	1.126	3.695	8.861	0.057	0.487	0.487	568.299	0.101
Trenchers	2005	176	250	51.63	0.92	2.668	8.545	0.057	0.379	0.379	568.299	0.083
Trenchers	2005	251	500	63.694	0.812	4.395	7.903	0.05	0.332	0.332	568.299	0.073
Trenchers	2005	501	750	121.568	0.822	4.387	8.023	0.052	0.333	0.333	568.299	0.074
Trenchers	2010	6	15	1.531711	1.287	5.11336	5.52761	0.005	0.509	0.468	586.297	0.171
Trenchers	2010	16	25	1.531711	1.287	5.11336	5.52761	0.005	0.509	0.468	586.297	0.171
Trenchers	2010	26	50	1.531711	1.287	5.11336	5.52761	0.005	0.509	0.468	586.297	0.171
Trenchers	2010	51	120	1.099287	0.924	4.07421	7.99924	0.005	0.62	0.571	529.306	0.154
Trenchers	2010	121	175	0.922781	0.775	3.7406	8.65095	0.005	0.441	0.406	519.6876	0.151
Trenchers	2010	176	250	0.705197	0.593	2.36576	7.86432	0.005	0.314	0.288	527.3537	0.154
Trenchers	2010	251	500	0.380701	0.32	2.10547	4.85363	0.005	0.176	0.162	523.7828	0.152
Trenchers	2010	501	750	0.194919	0.164	1.33412	3.20501	0.005	0.113	0.104	525.788	0.153
Trenchers	2011	6	15	1.520162	1.277	5.14932	5.52336	0.005	0.507	0.467	585.033	0.171
Trenchers	2011	16	25	1.520162	1.277	5.14932	5.52336	0.005	0.507	0.467	585.033	0.171
Trenchers	2011	26	50	1.520162	1.277	5.14932	5.52336	0.005	0.507	0.467	585.033	0.171
Trenchers	2011	51	120	1.045215	0.878	4.02646	7.67483	0.005	0.598	0.55	527.7187	0.154
Trenchers	2011	121	175	0.916044	0.77	3.73004	8.56359	0.005	0.438	0.403	518.4008	0.151
Trenchers	2011	176	250	0.655301	0.551	2.19702	7.41222	0.005	0.29	0.267	525.9543	0.153
Trenchers	2011	251	500	0.372561	0.313	2.04569	4.66474	0.005	0.171	0.158	522.8418	0.153
Trenchers	2011	501	750	0.180473	0.152	1.33856	2.67369	0.005	0.097	0.089	525.691	0.153
Trenchers	2012	6	15	1.545009	1.298	5.24421	5.53504	0.005	0.512	0.471	583.5639	0.171
Trenchers	2012	16	25	1.545009	1.298	5.24421	5.53504	0.005	0.512	0.471	583.5639	0.171
Trenchers	2012	26	50	1.545009	1.298	5.24421	5.53504	0.005	0.512	0.471	583.5639	0.171
Trenchers	2012	51	120	1.052636	0.885	4.05076	7.69459	0.005	0.604	0.556	526.3562	0.154
Trenchers	2012	121	175	0.907539	0.763	3.7162	8.45762	0.005	0.436	0.401	517.1147	0.151
Trenchers	2012	176	250	0.662356	0.557	2.20863	7.44867	0.005	0.293	0.27	524.572	0.153
Trenchers	2012	251	500	0.369046	0.31	2.03349	4.58546	0.005	0.168	0.155	521.6264	0.153
Trenchers	2012	501	750	0.135931	0.114	0.95532	2.04792	0.005	0.069	0.064	524.8533	0.154
Trenchers	2013	6	15	1.53809	1.292	5.2883	5.51013	0.005	0.509	0.469	580.7693	0.171
Trenchers	2013	16	25	1.53809	1.292	5.2883	5.51013	0.005	0.509	0.469	580.7693	0.171
Trenchers	2013	26	50	1.53809	1.292	5.2883	5.51013	0.005	0.509	0.469	580.7693	0.171
Trenchers	2013	51	120	1.010936	0.849	4.02389	7.45031	0.005	0.582	0.536	523.4236	0.154
Trenchers	2013	121	175	0.916392	0.77	3.73732	8.49431	0.005	0.441	0.406	514.53	0.151
Trenchers	2013	176	250	0.626949	0.527	2.13383	7.03951	0.005	0.276	0.254	520.4335	0.153
Trenchers	2013	251	500	0.376293	0.316	2.04997	4.60225	0.005	0.17	0.156	519.043	0.153
Trenchers	2013	501	750	0.144323	0.121	0.96183	2.05561	0.005	0.07	0.065	522.2778	0.154
Trenchers	2014	6	15	1.508934	1.268	5.29329	5.45539	0.005	0.501	0.46	577.7275	0.171
Trenchers	2014	16	25	1.508934	1.268	5.29329	5.45539	0.005	0.501	0.46	577.7275	0.171
Trenchers	2014	26	50	1.508934	1.268	5.29329	5.45539	0.005	0.501	0.46	577.7275	0.171
Trenchers	2014	51	120	0.973633	0.818	3.99876	7.2172	0.005	0.563	0.518	520.7658	0.154
Trenchers	2014	121	175	0.824366	0.693	3.66799	7.69921	0.005	0.395	0.364	512.1475	0.151
Trenchers	2014	176	250	0.591196	0.497	2.07009	6.48427	0.005	0.258	0.237	517.7188	0.153
Trenchers	2014	251	500	0.364023	0.306	2.03515	4.37019	0.005	0.161	0.148	513.7439	0.152
Trenchers	2014	501	750	0.140019	0.118	0.96403	1.825	0.005	0.061	0.056	519.6576	0.154
Trenchers	2015	6	15	1.498018	1.259	5.32346	5.40567	0.005	0.493	0.454	571.6674	0.171
Trenchers	2015	16	25	1.498018	1.259	5.32346	5.40567	0.005	0.493	0.454	571.6674	0.171
Trenchers	2015	26	50	1.498018	1.259	5.32346	5.40567	0.005	0.493	0.454	571.6674	0.171
Trenchers	2015	51	120	0.972367	0.817	4.01434	7.17857	0.005	0.562	0.517	515.3955	0.154
Trenchers	2015	121	175	0.829448	0.697	3.68389	7.67382	0.005	0.396	0.364	506.9434	0.151
Trenchers	2015	176	250	0.597101	0.502	2.0797	6.50988	0.005	0.26	0.239	512.4325	0.153
Trenchers	2015	251	500	0.370644	0.311	2.05093	4.38344	0.005	0.163	0.15	508.3296	0.152
Trenchers	2015	501	750	0.135272	0.114	0.96532	1.62336	0.005	0.053	0.049	514.4002	0.154

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Trenchers	2016	6	15	1.450442	1.219	5.28497	5.29818	0.005	0.475	0.437	565.9942	0.171
Trenchers	2016	16	25	1.450442	1.219	5.28497	5.29818	0.005	0.475	0.437	565.9942	0.171
Trenchers	2016	26	50	1.450442	1.219	5.28497	5.29818	0.005	0.475	0.437	565.9942	0.171
Trenchers	2016	51	120	0.937737	0.788	3.98822	6.90219	0.005	0.541	0.498	509.9027	0.154
Trenchers	2016	121	175	0.693219	0.582	3.50717	6.50303	0.005	0.328	0.302	501.7809	0.151
Trenchers	2016	176	250	0.58008	0.487	2.03007	6.31168	0.005	0.251	0.231	507.1448	0.153
Trenchers	2016	251	500	0.351818	0.296	1.96649	4.09912	0.005	0.15	0.138	504.4103	0.152
Trenchers	2016	501	750	0.142468	0.12	0.97148	1.63008	0.005	0.054	0.05	509.1433	0.154
Trenchers	2017	6	15	1.367315	1.149	5.19682	5.16614	0.005	0.449	0.413	557.4601	0.171
Trenchers	2017	16	25	1.367315	1.149	5.19682	5.16614	0.005	0.449	0.413	557.4601	0.171
Trenchers	2017	26	50	1.367315	1.149	5.19682	5.16614	0.005	0.449	0.413	557.4601	0.171
Trenchers	2017	51	120	0.906302	0.762	3.96827	6.67876	0.005	0.523	0.481	501.9916	0.154
Trenchers	2017	121	175	0.638299	0.536	3.43391	5.92725	0.005	0.3	0.276	493.7642	0.151
Trenchers	2017	176	250	0.577948	0.486	2.03655	6.19428	0.005	0.25	0.23	499.2281	0.153
Trenchers	2017	251	500	0.315778	0.265	1.96603	3.44157	0.005	0.129	0.119	497.0197	0.152
Trenchers	2017	501	750	0.135465	0.114	0.97168	1.42958	0.005	0.046	0.042	501.1831	0.154
Trenchers	2018	6	15	1.236195	1.039	5.01831	4.95997	0.005	0.409	0.377	548.3607	0.171
Trenchers	2018	16	25	1.236195	1.039	5.01831	4.95997	0.005	0.409	0.377	548.3607	0.171
Trenchers	2018	26	50	1.236195	1.039	5.01831	4.95997	0.005	0.409	0.377	548.3607	0.171
Trenchers	2018	51	120	0.78315	0.658	3.85487	5.91527	0.005	0.45	0.414	493.715	0.154
Trenchers	2018	121	175	0.559787	0.47	3.33134	5.12742	0.005	0.261	0.24	485.9254	0.151
Trenchers	2018	176	250	0.498602	0.419	1.84856	5.29554	0.005	0.212	0.195	491.5649	0.153
Trenchers	2018	251	500	0.30464	0.256	1.97444	3.21114	0.005	0.121	0.112	489.6281	0.152
Trenchers	2018	501	750	0.111849	0.094	0.96632	1.02523	0.005	0.029	0.026	494.6426	0.154
Trenchers	2019	6	15	1.136688	0.955	4.89183	4.78464	0.005	0.377	0.347	539.1037	0.171
Trenchers	2019	16	25	1.136688	0.955	4.89183	4.78464	0.005	0.377	0.347	539.1037	0.171
Trenchers	2019	26	50	1.136688	0.955	4.89183	4.78464	0.005	0.377	0.347	539.1037	0.171
Trenchers	2019	51	120	0.751452	0.631	3.83677	5.69508	0.005	0.431	0.396	485.3635	0.154
Trenchers	2019	121	175	0.547248	0.46	3.34151	4.95976	0.005	0.255	0.234	478.1294	0.151
Trenchers	2019	176	250	0.481784	0.405	1.81019	5.04653	0.005	0.203	0.187	484.1167	0.153
Trenchers	2019	251	500	0.302803	0.254	1.98689	3.12824	0.005	0.118	0.109	482.1648	0.153
Trenchers	2019	501	750	0.09296	0.078	0.95644	0.70662	0.005	0.015	0.014	484.5422	0.153
Trenchers	2020	6	15	1.076913	0.905	4.8331	4.67651	0.005	0.356	0.328	527.0962	0.17
Trenchers	2020	16	25	1.076913	0.905	4.8331	4.67651	0.005	0.356	0.328	527.0962	0.17
Trenchers	2020	26	50	1.076913	0.905	4.8331	4.67651	0.005	0.356	0.328	527.0962	0.17
Trenchers	2020	51	120	0.726229	0.61	3.83272	5.51952	0.005	0.413	0.38	475.1265	0.154
Trenchers	2020	121	175	0.500709	0.421	3.32968	4.46042	0.005	0.228	0.21	467.7348	0.151
Trenchers	2020	176	250	0.466499	0.392	1.77405	4.8091	0.005	0.195	0.179	473.5951	0.153
Trenchers	2020	251	500	0.276702	0.233	1.85932	2.775	0.005	0.105	0.097	470.6367	0.152
Trenchers	2020	501	750	0.083454	0.07	0.95004	0.56006	0.005	0.009	0.008	472.6556	0.153
Trenchers	2021	6	15	0.962829	0.809	4.66576	4.45891	0.005	0.313	0.288	527.0165	0.17
Trenchers	2021	16	25	0.962829	0.809	4.66576	4.45891	0.005	0.313	0.288	527.0165	0.17
Trenchers	2021	26	50	0.962829	0.809	4.66576	4.45891	0.005	0.313	0.288	527.0165	0.17
Trenchers	2021	51	120	0.661739	0.556	3.78912	5.10594	0.005	0.371	0.341	475.287	0.154
Trenchers	2021	121	175	0.483838	0.407	3.30363	4.27237	0.005	0.219	0.201	467.7343	0.151
Trenchers	2021	176	250	0.42408	0.356	1.66826	4.36036	0.005	0.172	0.158	473.8538	0.153
Trenchers	2021	251	500	0.263326	0.221	1.86493	2.49105	0.005	0.1	0.092	470.701	0.152
Trenchers	2021	501	750	0.078358	0.066	0.94677	0.47513	0.005	0.009	0.008	472.5289	0.153
Trenchers	2022	6	15	0.859634	0.722	4.51833	4.26873	0.005	0.275	0.253	527.0258	0.17
Trenchers	2022	16	25	0.859634	0.722	4.51833	4.26873	0.005	0.275	0.253	527.0258	0.17
Trenchers	2022	26	50	0.859634	0.722	4.51833	4.26873	0.005	0.275	0.253	527.0258	0.17
Trenchers	2022	51	120	0.629528	0.529	3.77843	4.91345	0.005	0.348	0.32	475.3262	0.154
Trenchers	2022	121	175	0.470645	0.395	3.31289	4.10333	0.005	0.211	0.195	467.7337	0.151
Trenchers	2022	176	250	0.398562	0.335	1.66329	3.85292	0.005	0.16	0.148	473.8512	0.153
Trenchers	2022	251	500	0.252168	0.212	1.87233	2.21226	0.005	0.094	0.086	470.5845	0.152
Trenchers	2022	501	750	0.067683	0.057	0.94489	0.30138	0.005	0.009	0.008	474.2887	0.153
Trenchers	2023	6	15	0.763609	0.642	4.30164	3.95873	0.005	0.22	0.202	527.0954	0.17
Trenchers	2023	16	25	0.763609	0.642	4.30164	3.95873	0.005	0.22	0.202	527.0954	0.17
Trenchers	2023	26	50	0.763609	0.642	4.30164	3.95873	0.005	0.22	0.202	527.0954	0.17
Trenchers	2023	51	120	0.599816	0.504	3.76842	4.70045	0.005	0.326	0.3	475.6903	0.154
Trenchers	2023	121	175	0.427489	0.359	3.29061	3.65725	0.005	0.185	0.171	467.7332	0.151
Trenchers	2023	176	250	0.390278	0.328	1.6386	3.7365	0.005	0.155	0.143	473.8485	0.153
Trenchers	2023	251	500	0.236268	0.199	1.72273	2.00504	0.005	0.085	0.078	471.6125	0.153
Trenchers	2023	501	750	0.071688	0.06	0.95111	0.30278	0.005	0.009	0.008	474.4705	0.153
Trenchers	2024	6	15	0.714783	0.601	4.23326	3.83415	0.005	0.197	0.181	527.0216	0.17
Trenchers	2024	16	25	0.714783	0.601	4.23326	3.83415	0.005	0.197	0.181	527.0216	0.17
Trenchers	2024	26	50	0.714783	0.601	4.23326	3.83415	0.005	0.197	0.181	527.0216	0.17
Trenchers	2024	51	120	0.588274	0.494	3.76854	4.59319	0.005	0.318	0.292	475.6324	0.154
Trenchers	2024	121	175	0.432612	0.364	3.31073	3.66715	0.005	0.187	0.172	467.7326	0.151
Trenchers	2024	176	250	0.370794	0.312	1.59847	3.48285	0.005	0.145	0.134	473.8455	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Trenchers	2024	251	500	0.228039	0.192	1.66789	1.85871	0.005	0.08	0.074	469.9942	0.152
Trenchers	2024	501	750	0.076605	0.064	0.95838	0.30435	0.005	0.009	0.008	474.4782	0.153
Trenchers	2025	6	15	0.645012	0.542	4.11956	3.65681	0.005	0.163	0.15	527.1603	0.17
Trenchers	2025	16	25	0.645012	0.542	4.11956	3.65681	0.005	0.163	0.15	527.1603	0.17
Trenchers	2025	26	50	0.645012	0.542	4.11956	3.65681	0.005	0.163	0.15	527.1603	0.17
Trenchers	2025	51	120	0.5433	0.457	3.73437	4.279	0.005	0.285	0.262	475.9014	0.154
Trenchers	2025	121	175	0.426125	0.358	3.30907	3.54907	0.005	0.179	0.165	467.732	0.151
Trenchers	2025	176	250	0.365033	0.307	1.60076	3.31521	0.005	0.144	0.132	473.9168	0.153
Trenchers	2025	251	500	0.227307	0.191	1.67595	1.82613	0.005	0.079	0.072	470.4394	0.152
Trenchers	2025	501	750	0.079299	0.067	0.96233	0.30526	0.005	0.009	0.008	474.4863	0.153
Trenchers	2030	6	15	1.409	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Trenchers	2030	16	25	5.681	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Trenchers	2030	26	50	7.055	0.851	5.208	3.835	0.007	0.144	0.144	568.299	0.076
Trenchers	2030	51	120	6.697	0.409	3.743	2.559	0.006	0.132	0.132	568.299	0.036
Trenchers	2030	121	175	10.904	0.3	3.273	1.529	0.006	0.08	0.08	568.3	0.027
Trenchers	2030	176	250	14.406	0.256	1.188	1.348	0.006	0.049	0.049	568.3	0.023
Trenchers	2030	251	500	19.534	0.249	1.209	1.231	0.005	0.046	0.046	568.299	0.022
Trenchers	2030	501	750	36.902	0.249	1.209	1.254	0.005	0.047	0.047	568.299	0.022
Trenchers	2035	6	15	1.409	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Trenchers	2035	16	25	5.681	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Trenchers	2035	26	50	5.645	0.681	5.055	3.548	0.007	0.084	0.084	568.299	0.061
Trenchers	2035	51	120	5.437	0.332	3.713	2.049	0.006	0.076	0.076	568.3	0.03
Trenchers	2035	121	175	8.756	0.241	3.264	0.966	0.006	0.048	0.048	568.299	0.021
Trenchers	2035	176	250	12.171	0.216	1.149	0.847	0.006	0.031	0.031	568.299	0.019
Trenchers	2035	251	500	16.707	0.213	1.126	0.79	0.005	0.029	0.029	568.299	0.019
Trenchers	2035	501	750	31.529	0.213	1.126	0.801	0.005	0.029	0.029	568.3	0.019
Trenchers	2040	6	15	1.409	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Trenchers	2040	16	25	5.681	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Trenchers	2040	26	50	4.961	0.598	4.98	3.374	0.007	0.052	0.052	568.299	0.054
Trenchers	2040	51	120	4.791	0.293	3.699	1.767	0.006	0.047	0.047	568.299	0.026
Trenchers	2040	121	175	7.533	0.207	3.26	0.639	0.006	0.03	0.03	568.3	0.018
Trenchers	2040	176	250	10.853	0.193	1.126	0.573	0.006	0.02	0.02	568.3	0.017
Trenchers	2040	251	500	15.011	0.191	1.081	0.542	0.005	0.02	0.02	568.3	0.017
Trenchers	2040	501	750	28.323	0.191	1.081	0.549	0.005	0.02	0.02	568.299	0.017
Welders	1990	6	15	4.525	1.804	4.999	9.999	1.018	0.974	0.974	568.299	0.162
Welders	1990	16	25	10.092	2.213	4.999	6.919	0.83	0.74	0.74	568.299	0.199
Welders	1990	26	50	40.899	3.899	8.078	7.611	0.846	1.085	1.085	568.3	0.351
Welders	1990	51	120	33.632	2.107	5.312	13.999	0.768	1.146	1.146	568.3	0.19
Welders	1990	121	175	57.219	1.442	4.703	12.598	0.736	0.761	0.761	568.299	0.13
Welders	1990	176	250	69.387	1.442	4.703	12.598	0.736	0.761	0.761	568.299	0.13
Welders	1990	251	500	88.323	1.304	8.704	12.141	0.642	0.672	0.672	568.3	0.117
Welders	2000	6	15	4.323	1.723	4.875	9.08	0.079	0.747	0.747	568.299	0.155
Welders	2000	16	25	9.556	2.095	4.783	6.405	0.065	0.569	0.569	568.299	0.189
Welders	2000	26	50	38.432	3.664	7.708	6.797	0.066	0.803	0.803	568.299	0.33
Welders	2000	51	120	27.201	1.704	4.433	10.046	0.06	0.791	0.791	568.3	0.153
Welders	2000	121	175	45.269	1.14	3.61	9.126	0.057	0.468	0.468	568.299	0.102
Welders	2000	176	250	45.901	0.954	2.869	8.783	0.057	0.384	0.384	568.299	0.086
Welders	2000	251	500	59.514	0.878	4.719	8.466	0.05	0.344	0.344	568.299	0.079
Welders	2005	6	15	3.497	1.394	4.38	7.817	0.079	0.621	0.621	568.299	0.125
Welders	2005	16	25	7.401	1.622	3.922	6.014	0.065	0.483	0.483	568.299	0.146
Welders	2005	26	50	34.243	3.264	7.144	6.342	0.066	0.746	0.746	568.299	0.294
Welders	2005	51	120	23.288	1.459	4.096	8.459	0.06	0.733	0.733	568.299	0.131
Welders	2005	121	175	37.837	0.953	3.26	7.736	0.057	0.405	0.405	568.299	0.086
Welders	2005	176	250	32.839	0.682	1.941	7.302	0.057	0.268	0.268	568.299	0.061
Welders	2005	251	500	41.097	0.606	2.566	6.755	0.05	0.241	0.241	568.299	0.054
Welders	2010	6	15	2.82	1.124	4.027	6.554	0.008	0.473	0.473	568.3	0.101
Welders	2010	16	25	5.78	1.267	3.309	5.477	0.007	0.384	0.384	568.299	0.114
Welders	2010	26	50	27.885	2.658	6.571	5.944	0.007	0.623	0.623	568.299	0.239
Welders	2010	51	120	18.341	1.149	3.928	6.999	0.006	0.61	0.61	568.299	0.103
Welders	2010	121	175	30.26	0.762	3.185	6.255	0.006	0.338	0.338	568.299	0.068
Welders	2010	176	250	23.908	0.496	1.433	5.857	0.006	0.189	0.189	568.299	0.044
Welders	2010	251	500	30.15	0.445	1.621	5.26	0.005	0.174	0.174	568.299	0.04
Welders	2011	6	15	2.677	1.067	3.952	6.283	0.008	0.441	0.441	568.299	0.096
Welders	2011	16	25	5.436	1.192	3.179	5.36	0.007	0.361	0.361	568.3	0.107
Welders	2011	26	50	26.104	2.488	6.392	5.85	0.007	0.593	0.593	568.299	0.224
Welders	2011	51	120	17.199	1.077	3.891	6.632	0.006	0.584	0.584	568.3	0.097
Welders	2011	121	175	28.559	0.719	3.173	5.91	0.006	0.325	0.325	568.299	0.064
Welders	2011	176	250	22.03	0.457	1.34	5.462	0.006	0.17	0.17	568.299	0.041
Welders	2011	251	500	27.869	0.411	1.473	4.886	0.005	0.157	0.157	568.299	0.037
Welders	2012	6	15	2.527	1.007	3.874	5.999	0.008	0.407	0.407	568.299	0.09

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Welders	2012	16	25	5.076	1.113	3.043	5.239	0.007	0.337	0.337	568.299	0.1
Welders	2012	26	50	24.122	2.299	6.185	5.749	0.007	0.56	0.56	568.299	0.207
Welders	2012	51	120	15.992	1.001	3.852	6.232	0.006	0.549	0.549	568.299	0.09
Welders	2012	121	175	26.736	0.673	3.161	5.543	0.006	0.303	0.303	568.299	0.06
Welders	2012	176	250	20.583	0.427	1.281	5.087	0.006	0.154	0.154	568.299	0.038
Welders	2012	251	500	26.151	0.386	1.369	4.532	0.005	0.144	0.144	568.299	0.034
Welders	2013	6	15	2.378	0.948	3.796	5.716	0.008	0.373	0.373	568.299	0.085
Welders	2013	16	25	4.718	1.034	2.907	5.117	0.007	0.314	0.314	568.299	0.093
Welders	2013	26	50	22.037	2.101	5.967	5.526	0.007	0.517	0.517	568.299	0.189
Welders	2013	51	120	14.766	0.925	3.813	5.836	0.006	0.507	0.507	568.3	0.083
Welders	2013	121	175	24.884	0.627	3.151	5.195	0.006	0.279	0.279	568.299	0.056
Welders	2013	176	250	19.36	0.402	1.241	4.723	0.006	0.141	0.141	568.299	0.036
Welders	2013	251	500	24.728	0.365	1.291	4.191	0.005	0.131	0.131	568.299	0.032
Welders	2014	6	15	2.237	0.891	3.723	5.445	0.008	0.341	0.341	568.3	0.08
Welders	2014	16	25	4.381	0.96	2.78	5	0.007	0.291	0.291	568.299	0.086
Welders	2014	26	50	19.935	1.9	5.749	5.308	0.007	0.473	0.473	568.3	0.171
Welders	2014	51	120	13.552	0.849	3.774	5.481	0.006	0.464	0.464	568.299	0.076
Welders	2014	121	175	23.067	0.581	3.141	4.862	0.006	0.255	0.255	568.299	0.052
Welders	2014	176	250	18.135	0.376	1.207	4.297	0.006	0.128	0.128	568.299	0.034
Welders	2014	251	500	23.294	0.343	1.227	3.788	0.005	0.119	0.119	568.299	0.031
Welders	2015	6	15	2.109	0.84	3.658	5.196	0.008	0.311	0.311	568.299	0.075
Welders	2015	16	25	4.078	0.894	2.666	4.89	0.007	0.27	0.27	568.299	0.08
Welders	2015	26	50	17.994	1.715	5.562	5.113	0.007	0.43	0.43	568.3	0.154
Welders	2015	51	120	12.337	0.772	3.738	5.077	0.006	0.419	0.419	568.299	0.069
Welders	2015	121	175	21.139	0.532	3.133	4.408	0.006	0.23	0.23	568.299	0.048
Welders	2015	176	250	16.976	0.352	1.178	3.88	0.006	0.116	0.116	568.299	0.031
Welders	2015	251	500	21.953	0.324	1.176	3.398	0.005	0.108	0.108	568.299	0.029
Welders	2016	6	15	2.03	0.809	3.622	5.023	0.008	0.289	0.289	568.299	0.073
Welders	2016	16	25	3.903	0.855	2.604	4.803	0.007	0.255	0.255	568.299	0.077
Welders	2016	26	50	16.155	1.54	5.395	4.936	0.007	0.389	0.389	568.299	0.138
Welders	2016	51	120	11.165	0.699	3.705	4.692	0.006	0.375	0.375	568.3	0.063
Welders	2016	121	175	19.285	0.486	3.128	3.973	0.006	0.206	0.206	568.299	0.043
Welders	2016	176	250	15.901	0.33	1.153	3.481	0.006	0.104	0.104	568.299	0.029
Welders	2016	251	500	20.731	0.306	1.134	3.032	0.005	0.097	0.097	568.299	0.027
Welders	2017	6	15	1.973	0.786	3.599	4.887	0.008	0.272	0.272	568.299	0.07
Welders	2017	16	25	3.785	0.83	2.564	4.729	0.007	0.243	0.243	568.299	0.074
Welders	2017	26	50	14.392	1.372	5.239	4.768	0.007	0.35	0.35	568.299	0.123
Welders	2017	51	120	10.06	0.63	3.675	4.328	0.006	0.332	0.332	568.299	0.056
Welders	2017	121	175	17.561	0.442	3.124	3.562	0.006	0.183	0.183	568.299	0.039
Welders	2017	176	250	14.942	0.31	1.133	3.105	0.006	0.094	0.094	568.299	0.028
Welders	2017	251	500	19.705	0.29	1.102	2.713	0.005	0.088	0.088	568.299	0.026
Welders	2018	6	15	1.923	0.766	3.58	4.762	0.008	0.256	0.256	568.3	0.069
Welders	2018	16	25	3.684	0.807	2.531	4.661	0.007	0.232	0.232	568.299	0.072
Welders	2018	26	50	12.698	1.21	5.092	4.607	0.007	0.311	0.311	568.299	0.109
Welders	2018	51	120	9.016	0.564	3.648	3.98	0.006	0.29	0.29	568.299	0.05
Welders	2018	121	175	15.966	0.402	3.123	3.176	0.006	0.162	0.162	568.299	0.036
Welders	2018	176	250	14.068	0.292	1.118	2.751	0.006	0.084	0.084	568.299	0.026
Welders	2018	251	500	18.804	0.277	1.08	2.43	0.005	0.08	0.08	568.299	0.025
Welders	2019	6	15	1.877	0.748	3.562	4.647	0.008	0.241	0.241	568.299	0.067
Welders	2019	16	25	3.592	0.787	2.501	4.596	0.007	0.222	0.222	568.299	0.071
Welders	2019	26	50	11.071	1.055	4.95	4.449	0.007	0.273	0.273	568.299	0.095
Welders	2019	51	120	8.032	0.503	3.623	3.648	0.006	0.25	0.25	568.299	0.045
Welders	2019	121	175	14.693	0.37	3.122	2.832	0.006	0.143	0.143	568.3	0.033
Welders	2019	176	250	13.284	0.276	1.104	2.432	0.006	0.075	0.075	568.299	0.024
Welders	2019	251	500	17.937	0.264	1.065	2.163	0.005	0.072	0.072	568.3	0.023
Welders	2020	6	15	1.835	0.731	3.546	4.542	0.008	0.227	0.227	568.299	0.066
Welders	2020	16	25	3.507	0.769	2.473	4.538	0.007	0.212	0.212	568.299	0.069
Welders	2020	26	50	9.83	0.937	4.84	4.304	0.007	0.238	0.238	568.299	0.084
Welders	2020	51	120	7.278	0.455	3.605	3.351	0.006	0.216	0.216	568.299	0.041
Welders	2020	121	175	13.663	0.344	3.122	2.523	0.006	0.127	0.127	568.299	0.031
Welders	2020	176	250	12.577	0.261	1.093	2.143	0.006	0.066	0.066	568.299	0.023
Welders	2020	251	500	17.094	0.252	1.055	1.91	0.005	0.064	0.064	568.299	0.022
Welders	2021	6	15	1.8	0.717	3.531	4.462	0.008	0.214	0.214	568.299	0.064
Welders	2021	16	25	3.431	0.752	2.446	4.497	0.007	0.201	0.201	568.299	0.067
Welders	2021	26	50	8.704	0.829	4.708	4.133	0.007	0.203	0.203	568.299	0.074
Welders	2021	51	120	6.572	0.411	3.579	3.042	0.006	0.184	0.184	568.299	0.037
Welders	2021	121	175	12.512	0.315	3.112	2.189	0.006	0.11	0.11	568.299	0.028
Welders	2021	176	250	11.711	0.243	1.081	1.836	0.006	0.057	0.057	568.299	0.021
Welders	2021	251	500	15.998	0.236	1.044	1.642	0.005	0.055	0.055	568.299	0.021
Welders	2022	6	15	1.774	0.707	3.519	4.408	0.008	0.203	0.203	568.3	0.063

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Welders	2022	16	25	3.374	0.739	2.426	4.47	0.007	0.193	0.193	568.299	0.066
Welders	2022	26	50	7.959	0.758	4.645	4.007	0.007	0.175	0.175	568.299	0.068
Welders	2022	51	120	6.112	0.382	3.57	2.808	0.006	0.16	0.16	568.299	0.034
Welders	2022	121	175	11.714	0.295	3.113	1.935	0.006	0.097	0.097	568.3	0.026
Welders	2022	176	250	11.128	0.231	1.074	1.598	0.006	0.05	0.05	568.299	0.02
Welders	2022	251	500	15.267	0.225	1.038	1.454	0.005	0.049	0.049	568.3	0.02
Welders	2023	6	15	1.751	0.698	3.508	4.359	0.008	0.194	0.194	568.3	0.063
Welders	2023	16	25	3.322	0.728	2.407	4.447	0.007	0.186	0.186	568.299	0.065
Welders	2023	26	50	7.318	0.697	4.596	3.891	0.007	0.151	0.151	568.299	0.062
Welders	2023	51	120	5.713	0.357	3.564	2.599	0.006	0.139	0.139	568.299	0.032
Welders	2023	121	175	11.013	0.277	3.115	1.726	0.006	0.085	0.085	568.299	0.025
Welders	2023	176	250	10.606	0.22	1.071	1.404	0.006	0.044	0.044	568.299	0.019
Welders	2023	251	500	14.602	0.215	1.034	1.289	0.005	0.042	0.042	568.299	0.019
Welders	2024	6	15	1.731	0.69	3.499	4.316	0.008	0.188	0.188	568.299	0.062
Welders	2024	16	25	3.276	0.718	2.39	4.426	0.007	0.181	0.181	568.299	0.064
Welders	2024	26	50	6.78	0.646	4.557	3.782	0.007	0.13	0.13	568.299	0.058
Welders	2024	51	120	5.366	0.336	3.56	2.43	0.006	0.12	0.12	568.299	0.03
Welders	2024	121	175	10.369	0.261	3.118	1.541	0.006	0.074	0.074	568.299	0.023
Welders	2024	176	250	10.107	0.21	1.068	1.234	0.006	0.038	0.038	568.299	0.018
Welders	2024	251	500	13.957	0.206	1.032	1.135	0.005	0.037	0.037	568.299	0.018
Welders	2025	6	15	1.713	0.683	3.491	4.278	0.008	0.183	0.183	568.3	0.061
Welders	2025	16	25	3.237	0.709	2.376	4.407	0.007	0.177	0.177	568.299	0.064
Welders	2025	26	50	6.315	0.602	4.524	3.676	0.007	0.112	0.112	568.299	0.054
Welders	2025	51	120	5.055	0.316	3.557	2.283	0.006	0.102	0.102	568.299	0.028
Welders	2025	121	175	9.743	0.245	3.121	1.365	0.006	0.063	0.063	568.299	0.022
Welders	2025	176	250	9.621	0.199	1.065	1.075	0.006	0.032	0.032	568.299	0.018
Welders	2025	251	500	13.325	0.196	1.029	0.99	0.005	0.031	0.031	568.299	0.017
Welders	2030	6	15	1.665	0.663	3.47	4.164	0.008	0.166	0.166	568.299	0.059
Welders	2030	16	25	3.133	0.687	2.34	4.347	0.007	0.165	0.165	568.299	0.061
Welders	2030	26	50	4.719	0.449	4.387	3.273	0.007	0.045	0.045	568.299	0.04
Welders	2030	51	120	3.827	0.239	3.535	1.707	0.006	0.04	0.04	568.299	0.021
Welders	2030	121	175	7.011	0.176	3.121	0.628	0.006	0.027	0.027	568.299	0.015
Welders	2030	176	250	7.829	0.162	1.063	0.525	0.006	0.017	0.017	568.299	0.014
Welders	2030	251	500	10.967	0.161	1.027	0.495	0.005	0.017	0.017	568.299	0.014
Welders	2035	6	15	1.659	0.661	3.469	4.143	0.008	0.162	0.162	568.299	0.059
Welders	2035	16	25	3.126	0.685	2.339	4.332	0.007	0.162	0.162	568.299	0.061
Welders	2035	26	50	4.262	0.406	4.349	3.147	0.007	0.022	0.022	568.299	0.036
Welders	2035	51	120	3.418	0.214	3.528	1.509	0.006	0.019	0.019	568.299	0.019
Welders	2035	121	175	6.087	0.153	3.121	0.387	0.006	0.015	0.015	568.299	0.013
Welders	2035	176	250	7.189	0.149	1.063	0.343	0.006	0.012	0.012	568.299	0.013
Welders	2035	251	500	10.118	0.149	1.027	0.339	0.005	0.012	0.012	568.299	0.013
Welders	2040	6	15	1.659	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Welders	2040	16	25	3.126	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Welders	2040	26	50	4.218	0.402	4.336	3.093	0.007	0.015	0.015	568.3	0.036
Welders	2040	51	120	3.322	0.208	3.524	1.447	0.006	0.014	0.014	568.299	0.018
Welders	2040	121	175	5.753	0.145	3.118	0.303	0.006	0.011	0.011	568.299	0.013
Welders	2040	176	250	6.911	0.143	1.062	0.287	0.006	0.01	0.01	568.3	0.012
Welders	2040	251	500	9.728	0.143	1.026	0.287	0.005	0.01	0.01	568.299	0.012

Table 3.5 OFFROAD Emission Factor Based on Engine Tier

Tier	Low HP	High HP	CO, g/bhp-hr	NOx, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	ROG, g/bhp-hr
Tier 1	25	49	4.1	5.26	0.48	0.48	1.74
	50	74	6.9	6.54	0.552	0.552	1.19
	75	119	6.9	6.54	0.552	0.552	1.19
	120	174	6.9	6.54	0.274	0.274	0.82
	175	299	6.9	5.93	0.108	0.108	0.38
	300	599	6.9	5.93	0.108	0.108	0.38
	600	750	6.9	5.93	0.108	0.108	0.38
	751	2000	6.9	5.93	0.108	0.108	0.38
Tier 2	25	49	4.1	4.63	0.28	0.28	0.29
	50	74	3.7	4.75	0.192	0.192	0.23
	75	119	3.7	4.75	0.192	0.192	0.23
	120	174	3.7	4.17	0.128	0.128	0.19
	175	299	2.6	4.15	0.088	0.088	0.12
	300	599	2.6	3.79	0.088	0.088	0.12
	600	750	2.6	3.79	0.088	0.088	0.12
	751	2000	2.6	3.79	0.088	0.088	0.12
Tier 3	25	49	4.1	4.63	0.28	0.28	0.29
	50	74	3.7	2.74	0.192	0.192	0.12
	75	119	3.7	2.74	0.192	0.192	0.12
	120	174	3.7	2.32	0.112	0.112	0.12
	175	299	2.6	2.32	0.088	0.088	0.12
	300	599	2.6	2.32	0.088	0.088	0.12
	600	750	2.6	2.32	0.088	0.088	0.12
	751	2000	2.6	2.32	0.088	0.088	0.12
Tier 4 Interim	25	49	4.1	4.55	0.128	0.128	0.12
	50	74	3.7	2.74	0.112	0.112	0.12
	75	119	3.7	2.14	0.008	0.008	0.11
	120	174	3.7	2.15	0.008	0.008	0.06
	175	299	2.6	1.29	0.008	0.008	0.08
	300	599	2.6	1.29	0.008	0.008	0.08
	600	750	2.6	1.29	0.008	0.008	0.08
	751	2000	2.6	2.24	0.048	0.048	0.12
Tier 4 Final	25	49	4.1	2.75	0.008	0.008	0.12
	50	74	3.7	2.74	0.008	0.008	0.12
	75	119	3.7	0.26	0.008	0.008	0.06
	120	174	3.7	0.26	0.008	0.008	0.06
	175	299	2.2	0.26	0.008	0.008	0.06
	300	599	2.2	0.26	0.008	0.008	0.06
	600	750	2.2	0.26	0.008	0.008	0.06
	751	2000	2.6	2.24	0.016	0.016	0.06

Source:

ARB. 2011. The Carl Moyer Program Guidelines. Available at: http://www.arb.ca.gov/msprog/moyer/guidelines/2011gl/2011cmpgl_3_27_13.pdf

Table 3.6 Percent Reduction in Diesel Emission Factors For Compressed Natural Gas Equipment
Based on Data Available in OFFROAD2011

Equipment Type	MinYear	MaxYear	Low HP	High HP	CO	CO2E	NOX	PM10	PM2.5	ROG	SO2	TOG
Aerial Lifts	1990	2009	0	15	-27.49	-0.27	0.55	0.36	0.36	0.73	1	0.73
Aerial Lifts	1990	2009	16	25	-29.12	-0.31	0.46	0.26	0.26	0.74	1	0.74
Air Conditioner	1990	2009	0	175	-4.51	-0.21	-0.3	0.84	0.84	0.87	1	0.87
Baggage Tug	1990	2009	0	120	-5.07	-0.24	0.1	0.94	0.94	0.88	1	0.88
Belt Loader	1990	2009	0	120	-4.69	-0.23	0.06	0.93	0.93	0.89	1	0.89
Bobtail	1990	2009	0	120	-4.41	-0.22	0.23	0.93	0.93	0.91	1	0.91
Cargo Loader	1990	2009	0	120	-6.25	-0.25	-0.04	0.93	0.93	0.84	1	0.84
Catering Truck	1990	2009	0	250	-11.52	-0.22	-0.44	0.7	0.7	0.78	1	0.78
Forklifts	1990	2009	0	50	-0.21	-0.23	-0.51	0.93	0.93	0.95	1	0.95
Forklifts	1990	2009	51	120	-5.94	-0.25	0.05	0.93	0.93	0.87	1	0.87
Forklifts	1990	2009	121	175	-5.81	-0.22	-0.02	0.88	0.88	0.89	1	0.89
Generator Sets	1990	2009	0	120	-3.97	-0.12	-0.02	0.92	0.92	0.91	1	0.91
Generator Sets	1990	2009	121	175	-4.15	-0.12	-0.11	0.85	0.85	0.89	1	0.89
Lav Truck	1990	2009	0	175	-4.57	-0.22	-0.11	0.88	0.88	0.89	1	0.89
Lift	1990	2009	0	120	-4.65	-0.23	-0.05	0.92	0.92	0.89	1	0.89
Aerial Lifts	2010	2014	0	15	-30.37	-0.27	0.31	-0.29	-0.29	0.59	1	0.59
Aerial Lifts	2010	2014	16	25	-37.55	-0.32	0.4	-0.03	-0.03	0.6	1	0.6
Air Conditioner	2010	2014	0	175	-4.5	-0.2	-0.36	0.73	0.73	0.85	1	0.85
Baggage Tug	2010	2014	0	120	-5.56	-0.22	0.22	0.92	0.92	0.88	1	0.88
Belt Loader	2010	2014	0	120	-5.13	-0.22	0.21	0.92	0.92	0.9	1	0.9
Bobtail	2010	2014	0	120	-4.8	-0.19	0.64	0.91	0.91	0.96	1	0.96
Cargo Loader	2010	2014	0	120	-6.78	-0.24	0.06	0.91	0.91	0.84	1	0.84
Catering Truck	2010	2014	0	250	-17.32	-0.21	-0.38	0.53	0.53	0.73	1	0.73
Forklifts	2010	2014	0	50	-0.421	-0.18053	0.3063	0.91412	0.9066507	0.9572	1	0.9118
Forklifts	2010	2014	51	120	-6.412	-0.32006	0.4354	0.90105	0.8924417	0.8764	1	0.4569
Forklifts	2010	2014	121	175	-5.588	-0.30615	0.5219	0.84295	0.8292897	0.8844	1	0.0884
Generator Sets	2010	2014	0	120	-4.3	-0.11	0.11	0.89	0.89	0.91	1	0.91
Generator Sets	2010	2014	121	175	-4.36	-0.11	0	0.81	0.81	0.89	1	0.89
Lav Truck	2010	2014	0	175	-4.77	-0.21	0.01	0.84	0.84	0.9	1	0.9
Lift	2010	2014	0	120	-5.03	-0.22	0.09	0.9	0.9	0.89	1	0.89
Aerial Lifts	2015	2019	0	15	-30.4	-0.27	0.28	-0.86	-0.86	0.57	1	0.57
Aerial Lifts	2015	2019	16	25	-44.65	-0.32	0.32	-0.48	-0.48	0.46	1	0.46
Air Conditioner	2015	2019	0	175	-4.5	-0.19	-0.41	0.47	0.47	0.85	1	0.85
Baggage Tug	2015	2019	0	120	-5.9	-0.21	0.3	0.91	0.91	0.89	1	0.89
Belt Loader	2015	2019	0	120	-5.41	-0.21	0.31	0.9	0.9	0.91	1	0.91
Bobtail	2015	2019	0	120	-5.05	-0.19	0.65	0.89	0.89	0.96	1	0.96
Cargo Loader	2015	2019	0	120	-7.2	-0.22	0.04	0.88	0.88	0.83	1	0.83
Catering Truck	2015	2019	0	250	-18.99	-0.2	-0.54	0.16	0.16	0.72	1	0.72

Table 3.6 Percent Reduction in Diesel Emission Factors For Compressed Natural Gas Equipment
Based on Data Available in OFFROAD2011

Equipment Type	MinYear	MaxYear	Low HP	High HP	CO	CO2E	NOX	PM10	PM2.5	ROG	SO2	TOG
Forklifts	2015	2019	0	50	-0.486	-0.16566	0.4918	0.90744	0.899394	0.9643	1	0.9263
Forklifts	2015	2019	51	120	-6.492	-0.30722	0.5103	0.89309	0.8837969	0.9112	1	0.6099
Forklifts	2015	2019	121	175	-5.638	-0.29426	0.6395	0.82031	0.8046898	0.9225	1	0.3883
Generator Sets	2015	2019	0	120	-4.56	-0.11	0.22	0.84	0.84	0.91	1	0.91
Generator Sets	2015	2019	121	175	-4.44	-0.1	0.12	0.71	0.71	0.9	1	0.9
Lav Truck	2015	2019	0	175	-4.83	-0.2	0.1	0.76	0.76	0.91	1	0.91
Lift	2015	2019	0	120	-5.31	-0.21	0.17	0.85	0.85	0.89	1	0.89
Aerial Lifts	2020	2024	0	15	-30.4	-0.27	0.28	-0.91	-0.91	0.57	1	0.57
Aerial Lifts	2020	2024	16	25	-47.22	-0.32	0.29	-0.91	-0.91	0.39	1	0.39
Air Conditioner	2020	2024	0	175	-4.49	-0.19	-1.04	-0.81	-0.81	0.88	1	0.88
Baggage Tug	2020	2024	0	120	-6.21	-0.2	0.31	0.87	0.87	0.9	1	0.9
Belt Loader	2020	2024	0	120	-5.69	-0.2	0.31	0.85	0.85	0.91	1	0.91
Bobtail	2020	2024	0	120	-5.26	-0.19	0.53	0.84	0.84	0.95	1	0.95
Cargo Loader	2020	2024	0	120	-7.57	-0.21	-0.09	0.78	0.78	0.81	1	0.81
Catering Truck	2020	2024	0	250	-19.46	-0.2	-1.2	-0.75	-0.75	0.73	1	0.73
Forklifts	2020	2024	0	50	-0.898	-0.16373	0.3924	0.83451	0.8201159	0.9414	1	0.8791
Forklifts	2020	2024	51	120	-7.096	-0.30625	0.2609	0.80708	0.7903095	0.858	1	0.3757
Forklifts	2020	2024	121	175	-6.198	-0.29359	0.3988	0.66593	0.63688	0.89	1	0.1317
Generator Sets	2020	2024	0	120	-4.76	-0.1	0.25	0.69	0.69	0.91	1	0.91
Generator Sets	2020	2024	121	175	-4.46	-0.1	0.05	0.48	0.48	0.9	1	0.9
Lav Truck	2020	2024	0	175	-4.85	-0.19	-0.03	0.56	0.56	0.91	1	0.91
Lift	2020	2024	0	120	-5.53	-0.2	0.13	0.72	0.72	0.89	1	0.89
Aerial Lifts	2025	2040	0	15	-30.4	-0.27	0.28	-0.91	-0.91	0.57	1	0.57
Aerial Lifts	2025	2040	16	25	-48.03	-0.32	0.27	-1.09	-1.09	0.37	1	0.37
Air Conditioner	2025	2040	0	175	-4.5	-0.19	-3.46	-3.31	-3.31	0.88	1	0.88
Baggage Tug	2025	2040	0	120	-6.4	-0.19	0.17	0.79	0.79	0.89	1	0.89
Belt Loader	2025	2040	0	120	-5.87	-0.2	0.16	0.72	0.72	0.9	1	0.9
Bobtail	2025	2040	0	120	-5.48	-0.19	0.32	0.72	0.72	0.93	1	0.93
Cargo Loader	2025	2040	0	120	-7.63	-0.2	-0.4	0.56	0.56	0.78	1	0.78
Catering Truck	2025	2040	0	250	-19.36	-0.2	-3.3	-2.94	-2.94	0.72	1	0.72
Forklifts	2025	2040	0	50	-1.152	-0.16313	0.2811	0.6679	0.6390223	0.9001	1	0.7938
Forklifts	2025	2040	51	120	-7.432	-0.30582	-0.17	0.57587	0.5389851	0.7693	1	-0.014
Forklifts	2025	2040	121	175	-6.368	-0.29311	-0.205	0.30273	0.2420976	0.8135	1	-0.476
Generator Sets	2025	2040	0	120	-4.83	-0.1	0.13	0.37	0.37	0.9	1	0.9
Generator Sets	2025	2040	121	175	-4.46	-0.1	-0.37	-0.03	-0.03	0.9	1	0.9
Lav Truck	2025	2040	0	175	-4.86	-0.19	-0.57	0.05	0.05	0.9	1	0.9
Lift	2025	2040	0	120	-5.6	-0.2	-0.08	0.37	0.37	0.87	1	0.87