# APPENDIX C

## Air Quality & Climate

Air Quality & Climate Technical Report

References

# APPENDIX C

## Air Quality & Climate

### Air Quality & Climate Technical Report Attachments

Attachment 1: Aircraft
Attachment 2: Auxiliary Power Usage
Attachment 3: Ground Support Equipment
Attachment 4: Stationary Sources
Attachment 5: Mobile Sources
Attachment 6: Construction
Attachment 7: NEPA Air Quality Protocol and NEPA Climate Protocol

# Sustainable Airport Master Plan – Near-Term Projects

## Air Quality and Climate Technical Report

**March 2024**

PREPARED FOR

PORT OF SEATTLE

PREPARED BY
Landrum & Brown, Incorporated

## Contents

**Attachments**

## List of Tables

Page

## List of Exhibits

Page

# 1. Introduction

Landrum & Brown completed an air quality and climate assessment to determine the potential construction and operational impacts to air quality and climate resulting from the Sustainable Airport Master Plan (SAMP) – Near-Term Projects (NTPs) at the Seattle-Tacoma International Airport (SEA or Airport). This technical report documents the overall approach, methods, and results of the air quality and climate assessment to demonstrate compliance with the National Environmental Policy Act (NEPA).

This air quality and climate technical report is organized in the following manner:

- **Air quality** is provided in Sections 2 through 15 which includes the regulatory setting, methodology, emissions inventories, and summary of impacts for criteria pollutants.
- **Climate** is provided in Section 16 through 22 which includes the regulatory setting, methodology, emissions inventories, and summary of impacts for greenhouse gases. Climate change is also discussed.
- Due to the size of the tables and exhibits that substantiate the analysis, they are provided at the end of this technical report as **Attachments,** which are organized in the following order.
  - Attachment 1, Aircraft
  - Attachment 2, Auxiliary Power Unit Usage
  - Attachment 3, Ground Support Equipment
  - Attachment 4, Stationary Sources
  - Attachment 5, Mobile Sources
  - Attachment 6, Construction
  - Attachment 7, NEPA Air Quality Protocol and NEPA Climate Protocol

The approach, methods, and models used in the technical report are consistent with the NEPA Air Quality Protocol and NEPA Climate Protocol (Attachment 7 of this Air Quality and Climate Technical Report) approved by the Federal Aviation Administration (FAA) and the Puget Sound Clean Air Agency (PSCAA).[1,2]

## 1.1 Description of the Proposed Action

The Port identified a set of NTPs to address the near-term activity levels projected to occur at the Airport. The NTPs include more than 30 projects that would improve efficiency, safety of the Airport, access to the Airport, and support facilities for airlines and the Airport. The NTPs (as a whole) are referred to as the Proposed Action. The elements of the Proposed Action are shown on **Exhibit 1, *Proposed Action*.** The Proposed Action is anticipated to cause emissions from construction and operational activities which necessitates the need for this analysis. Construction refers to the process of building or putting in place the proposed improvements. Operational emissions refer to the emissions emitted once the proposed improvements are operational.

[1] Erik Saganić, PSCAA, Email to Kandice Krull, FAA, RE: SEA SAMP NTP EA NEPA AQ Protocol, July 26, 2023.
[2] Erik Saganić, PSCAA, Email to Kandice Krull, FAA, RE: Sea-Tac Int'l Airport: Sustainable Airport Master Plan Near-Term Projects Environmental Review - Climate Assessment Protocol - PLEASE REVIEW, November 21, 2023.

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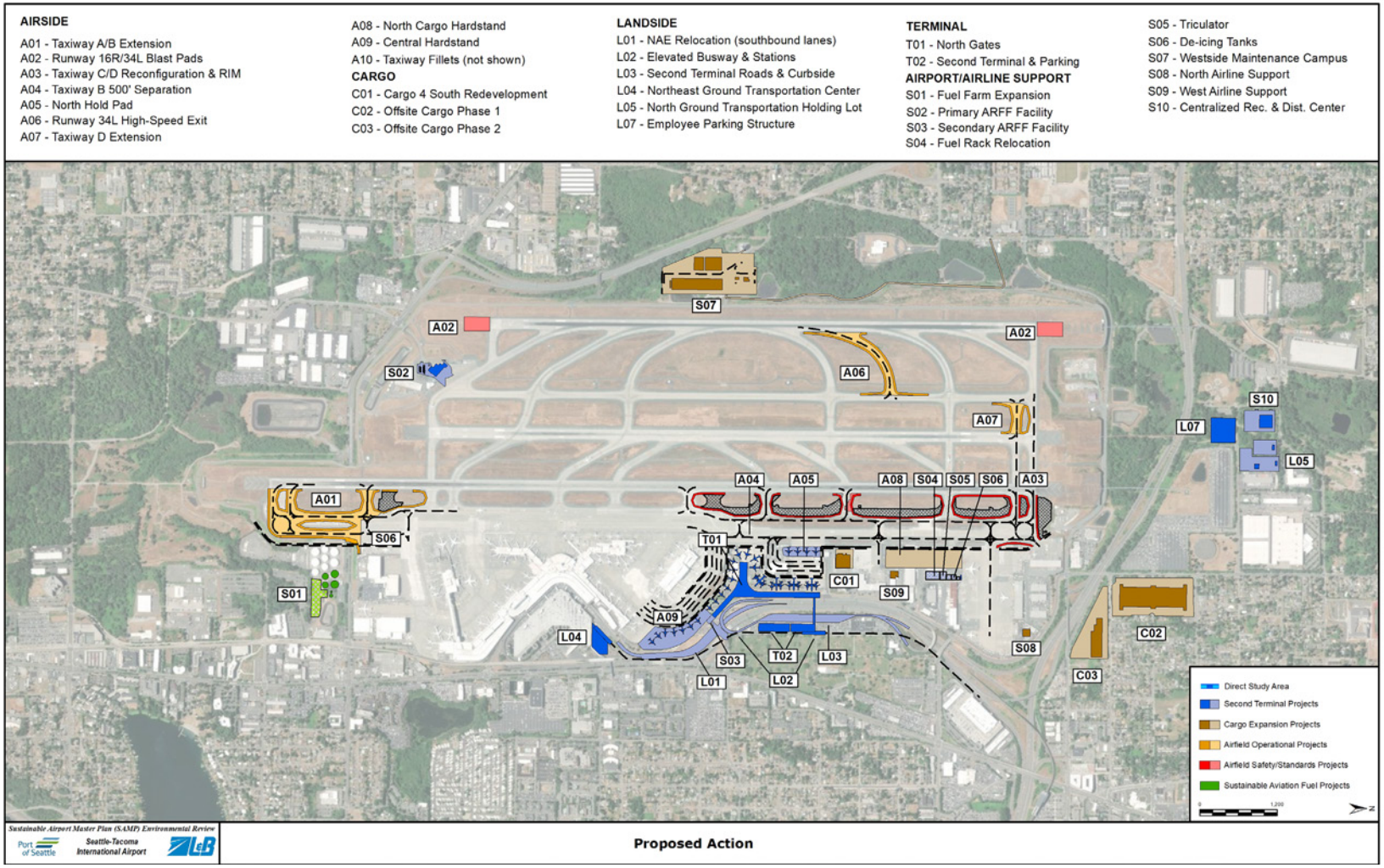
## EXHIBIT 1, PROPOSED ACTION




Note: NAE = North Airport Expressway; GT = ground transportation; ARFF = aircraft rescue and firefighting

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## 1.2 Alternatives to the Proposed Action

In addition to the Proposed Action, a No Action Alternative was also considered as required under NEPA. The No Action Alternative would include no physical improvements to the Airport, but includes projects that have recently been constructed, or will be constructed by 2037.

The passenger and aircraft operations from the Constrained Operating Growth Scenarios were used for this analysis. The Constrained Operating Growth Scenario is provided in Appendix A, Forecast and Operational Assumptions, of the Environmental Assessment for the SAMP NTPs. Overall, there are more aircraft operations forecast with the Proposed Action as compared to the No Action Alternative. Implementation of the Proposed Action would increase the Airport's ability to accommodate increased aircraft operations and passenger activity by adding aircraft gates and passenger processing facilities.

The analysis also includes an assessment of a Hybrid Terminal Option. This alternative includes the same elements as the Proposed Action but connects the new concourse to the existing Concourse D.

# 2. Regulatory Setting for Air Quality

## 2.1 Federal Regulatory Setting

The Clean Air Act (CAA) established the standards and programs used to evaluate, achieve, and maintain acceptable air quality in the United States. Under the CAA, the U.S. Environmental Protection Agency (USEPA) established a set of standards, the National Ambient Air Quality Standards (NAAQS), for six pollutants determined to be potentially harmful to human health and welfare.[3]

- Carbon monoxide (CO);
- Ozone ($O_3$);
- Nitrogen dioxide ($NO_2$);
- Sulfur dioxide ($SO_2$);
- Particulate matter ($PM_{10}$ and $PM_{2.5}$); and
- Lead (Pb).

For each of the criteria pollutants, the USEPA established primary standards intended to protect public health, and secondary standards for the protection of public welfare, which captures factors such as preventing materials damage, preventing crop and vegetation damage, and assuring good visibility. The NAAQS are summarized in **Table 1**.

[3] USEPA, Code of Federal Regulations, Title 40, Part 50 (40 C.F.R. Part 50) National Primary and Secondary Ambient Air Quality Standards (NAAQS), July 2011.

## TABLE 1: NATIONAL AMBIENT AIR QUALITY STANDARDS

| Pollutant | Primary/ Secondary | Averaging Time | Level | Form Of Measurement |
|---|---|---|---|---|
| Carbon Monoxide | Primary | 8 hour | 9 ppm | Not to be exceeded more than once per year |
| Carbon Monoxide | Primary | 1 hour | 35 ppm | Not to be exceeded more than once per year |
| Lead | Primary and Secondary | Rolling 3-month average | 0.15 µg/$m^3$ (1) | Not to be exceeded |
| Nitrogen Dioxide | Primary | 1 hour | 100 ppb | 98$^{th}$ percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| Nitrogen Dioxide | Primary and Secondary | 1 year | 53 ppb (2) | Annual Mean |
| Ozone | Primary and Secondary | 8 hours | 0.070 ppm (3) | Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years |
| Particulate Matter ($PM_{2.5}$) | Primary | 1 year | 9.0 µg/$m^3$ | Particulate Matter |
| Particulate Matter ($PM_{2.5}$) | Secondary | 1 year | 15.0 µg/$m^3$ | Annual mean, averaged over 3 years |
| Particulate Matter ($PM_{10}$) | Primary and Secondary | 24 hours | 35 µg/$m^3$ | 98$^{th}$ percentile, averaged over 3 years |
| Particulate Matter ($PM_{10}$) | Primary and Secondary | 24 hours | 150 µg/$m^3$ | Not to be exceeded more than once per year on average over 3 years |
| Sulfur Dioxide | Primary | 1 hour | 75 ppb (4) | 99$^{th}$ percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| Sulfur Dioxide | Secondary | 3 hours | 0.5 ppm | Not to be exceeded more than once per year |

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/$m^3$ as a calendar quarter average) also remain in effect.
(2) The level of the annual $NO_2$ standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.
(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) $O_3$ standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) $O_3$ standards.
(4) The previous $SO_2$ standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous $SO_2$ standards or is not meeting the requirements of a SIP call under the previous $SO_2$ standards (40 C.F.R. 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.
Notes: ppm is parts per million; ppb is parts per billion, and µg/$m^3$ is micrograms per cubic meter.
Source: EPA, https://www.epa.gov/criteria-air-pollutants/naaqs-table, Accessed March 2024.

After EPA sets a new NAAQS or revises an existing standard for a criteria air pollutant, the CAA requires EPA to determine if areas of the country meet the new standards. If the air quality in a geographic area meets or is cleaner than the national standard, it is called an attainment area (designated “attainment/unclassifiable”); areas that don't meet the national standard are called nonattainment areas. In some cases, EPA is not able to determine an area's status after evaluating the available information and those areas are designated "unclassifiable." A maintenance area is an area previously designated nonattainment that subsequently meets the requirements in the CAA Section 107(d)(3). Such an area remains designated as maintenance for a period of up to 20 years provided that the NAAQS were sufficiently maintained throughout the maintenance period. Once designations take effect, state and local governments with nonattainment areas must develop State Implementation Plans (SIPs) outlining how areas will attain and maintain the standards by reducing air pollutant emissions.

Section 176(c) of the CAA requires federal actions to conform to the appropriate SIPs in order to attain the CAA’s air quality goals. To address this, EPA promulgated a Transportation Conformity Rule (40 Code of Federal Regulations [C.F.R.] Part 93, subpart A) and a General Conformity Rule (40 C.F.R. Part 93, subpart B). The Transportation Conformity Rule does not apply for this analysis because the Proposed Action will not be funded through U.S.C. Title 23 or the Federal Transit Act.

Most actions by the FAA fall under the General Conformity provisions of the CAA.[4] The General Conformity Rule under the CAA is conducted in three phases, depending on the extent of the proposed federal action: (1) applicability, (2) evaluation, and (3) determination. The applicability phase has two parts. The first part is to determine if the Proposed Action is located in a USEPA-designated nonattainment or maintenance area for one or more of the regulated criteria pollutants. If it is not, then the General Conformity Rule does not apply. Since the Proposed Action is not located in a USEPA-designated nonattainment or maintenance area for one or more of the regulated criteria pollutants, the General Conformity Rule does not apply.

## 2.2 State Regulations

In addition to federal requirements, the Airport is subject to state and local air quality regulations that the Washington State Department of Ecology and PSCAA enforce, respectively. Based on the Air Quality Data Summary for 2022 prepared by the PSCAA, the State of Washington and the Puget Sound region have adopted the EPA’s NAAQS.[5,6]

## 2.3 King County Air Quality Status

The Airport is located within King County, Washington, which is included in the Puget Sound Intrastate Air Quality Control Region. As previously stated, the Proposed Action would occur in areas that are currently in attainment for all criteria pollutants.

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4 General Conformity ensures that the actions taken by federal agencies, such as airport construction, do not interfere with a state’s plans to attain and maintain national standards for air quality. Additional information for General Conformity can be found on-line: https://www.epa.gov/general-conformity

5 Puget Sound Clean Air Agency. 2022 Air Quality Data Summary, December 2023. Available on-line: https://pscleanair.gov/DocumentCenter/View/5360/Air-Quality-Data-Summary-2022-PDF?bidId=

6 The Puget Sound Clean Air Agency has developed an air quality health goal for daily $PM_{2.5}$ concentrations. The health goal of 25 µg/$m^3$ for a daily average is more protective than the current federal standard of 35 µg/$m^3$. However, the State of Washington has not approved this health goal as an ambient air quality standard. The goal is not enforced by regulation but a standard the state is voluntarily trying to achieve beyond the federal standard.

For background information, the area was previously designated maintenance for ozone under the 1-hour 1979 ozone standard; however, the 1-hour standard was revoked by the EPA effective June 15, 2005. The maintenance period for ozone ended on October 25, 2016.[7] The region is currently designated as in attainment for both the 2015 and 2008 8-hour ozone standard. The region is not subject to a maintenance plan for ozone, although ozone has been considered an important pollutant tracked by the state and local agencies.

In the past, King County was also designated as nonattainment for carbon monoxide (CO); however, on October 11, 1996, the EPA determined the area had attained the standard and the region was re-designated to attainment. The maintenance period for CO ended on October 11, 2016.[8] Several areas within King County are classified as maintenance for the $PM_{10}$ (coarse particles) standard, including Kent, Duwamish and Tacoma. Neither the Proposed Action nor any part of the Airport is within any of these areas. Therefore, the Proposed Action would occur in an area considered in attainment for all criteria pollutants.

# 3. Overall Approach for Air Quality Assessment

The overall approach to conducting this air quality analysis follows FAA guidelines for preparing NEPA documents, which includes FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures (including the Desk Reference);* FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*; and FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1.* In accordance with these orders, the overall approach and goal of the air quality impact analysis is to meet the requirements of NEPA and the CAA.

- NEPA: Compliance with NEPA is accomplished by disclosing the potential emissions associated with the Proposed Action. This includes preparation of emission inventories of both construction activities and operational conditions for the Proposed Action, any development alternatives, and the No Action Alternative. NEPA also requires that the project is shown qualitatively or quantitatively as to not cause, or contribute to, violations of the NAAQS.
- CAA: The CAA requires that project emissions do not cause or contribute to violations of the NAAQS. In nonattainment and maintenance areas, a project's compliance with this requirement can be demonstrated by showing that the project emissions are *de minimis* or that they conform to the SIP for achieving and maintaining the NAAQS.

As previously discussed, the Proposed Action would occur in areas that are currently in attainment for all criteria pollutants; therefore, conformity does not apply. Per the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1,* when an action is not located in an EPA-designated nonattainment or maintenance area, the comparison of the emission inventories is used for disclosure purposes. Comments received during scoping were taken into consideration by the FAA in the development of the methodology and protocol document for this air quality and climate analysis.

7 Washington State Department of Ecology. Plans for Maintaining Air Quality. Website accessed December 2023 at https://ecology.wa.gov/Regulations-Permits/Plans-policies/State-implementation-plans/Maintenance-SIPs

8 Ibid.

# 4. Air Quality Methodology

The air quality assessment included an evaluation of operational activities for the Existing (2022) Condition; and the Proposed Action, No Action Alternative, and the Hybrid Terminal Option for the projected future conditions in 2032 and 2037. The year 2032 will be used as a basis for analysis because 2032 is the projected opening year of the Proposed Action. In addition, 2037 will be used as a basis for analysis, because it represents a condition five years beyond the opening year.[9] The air quality analysis will also disclose the potential air quality impacts due to construction activities during the years 2025 to 2032. Because the area of the Proposed Action is in attainment and conformity does not apply, no potential SIP milestone years will be analyzed.

## 4.1 Models Used in the Emissions Analysis

Operational emissions were evaluated using the FAA's Aviation Environmental Design Tool (AEDT) Version 3f.[10] AEDT models aircraft performance in space and time to estimate fuel consumption, air quality emissions, and noise consequences at airports. The EPA's Motor Vehicle Emissions Simulator version 4 (MOVES4) was used to develop the emissions inventory for motor vehicles on roadways that may be affected by the Proposed Action.[11] MOVES is an emission modeling system that estimates emissions for mobile sources at the national, county, and project level for criteria air pollutants, greenhouse gases, and air toxics.

Construction emissions were evaluated using the Airport Construction Emissions Inventory Tool (ACEIT) to estimate the type of construction equipment, horsepower, load factor, and operating hours for each project element and phase. The EPA's MOVES4 was used to identify the emission factor of each criteria and greenhouse gas pollutant for each construction equipment type.

## 4.2 Criteria Pollutants

The analysis included the following EPA criteria air pollutants: carbon monoxide (CO), nitrogen dioxide ($NO_2$), coarse particulate matter ($PM_{10}$), fine particulate matter ($PM_{2.5}$), and sulfur dioxide ($SO_2$). Ozone is not directly emitted from a source. Rather, ozone is formed through photochemical reactions involving emissions of the precursor pollutants nitrogen oxides ($NO_x$) and volatile organic compounds (VOCs) in the presence of abundant sunlight, and heat. Therefore, emissions of ozone are not directly provided; however, emissions are disclosed for the ozone precursor pollutants, $NO_x$ and VOCs.

While some active general aviation airports prepare lead emissions inventories due to use of leaded Avgas, this is not warranted for SEA because: 1) the area is in attainment for lead, 2) Avgas (the only aviation fuel containing lead) fueling ceased at SEA in 2018, and 3) the Proposed Action does not involve any potentially significant source of lead emissions.

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9 The FAA's Desk Reference Section 11.3 states "The environmental consequences section of the NEPA document will include the analysis of the potential noise impacts of the proposed action and alternative(s) for each timeframe evaluated… Timeframes usually selected are the year of anticipated project implementation and 5 to 10 years after implementation." The FAA's Desk Reference Section 1.3.2 for air quality states, "the emissions inventory usually is calculated for the year(s) of project implementation, the planning horizon year(s) in the EA or EIS, and sometimes for intermediate years, if appropriate due to project phasing or if requested by a reviewing agency." The air quality analysis would be conducted consistent with the noise analysis and therefore include an assessment of the implementation year and of the project five years after implementation.

10 The latest version of the FAA's AEDT is version 3f, which was released on December 15, 2023.

11 The EPA released MOVES4 in August 2023. (FR Vol. 88, No. 175 September 12, 2023).

### 4.2.1 Pollutants Not Included

#### *4.2.1.1 Hazardous Air Pollutants*

Hazardous air pollutants (HAPs) are pollutants for which there are no NAAQS but are still regulated under the federal CAA because of their potentially adverse effects on human health and the environment. Per FAA guidance provided in the *Aviation Emissions and Air Quality Handbook Version 3 Update 1*, a HAPs emissions inventory should be considered if the Proposed Action is considered "major" (e.g., new airport, new runway, major runway extension, etc.); if the Proposed Action is located in a nonattainment or maintenance area; and/or if a criteria air pollutant emissions inventory is also prepared. A HAPs inventory analysis will not be conducted as part of the NEPA assessment because the Proposed Action is not considered a "major" action (e.g., new airport, new runway, major runway extension, etc.) and is not located in a nonattainment or maintenance area.

#### *4.2.1.2 Ultrafine Particles*

Ultrafine particles (UFPs) are defined as particles with a diameter less than 0.1 micrometers ($PM_{0.1}$). The existing science is not fully mature, and the measurement and understanding of UFPs and their related health risks has not been clearly defined. Currently UFPs are not regulated by the EPA or the state either through rate of emissions or concentrations (other than being a subset component of $PM_{2.5}$) and are therefore not typically considered in formal reviews. Furthermore, since UFPs are not specifically listed as a criteria pollutant, air toxic, or HAP, an analysis of UFPs is not a requirement of NEPA or the CAA. Therefore, no analysis or discussion of UFPs was included in the NEPA evaluation.

## 4.3 Sources of Emissions

The following sources of emissions are included in this analysis.

- Aircraft
  - Landing and Take-off Cycles (Engine Start-Up, Approach, Climb, and Taxi)
  - Auxiliary Power Units (APUs)
  - Aircraft Run-Ups
- Ground Support Equipment (GSE)
  - Airline/Tenant-owned GSE
  - Port-owned airfield vehicles and equipment
- Stationary Sources
  - Natural Gas Boilers and Heaters
  - Diesel Generators
  - Fuel Farm Tanks
- Motor Vehicles
  - On and Off-Airport roadways and Parking Lots (including Port-owned roadway vehicles)
  - Airside Contractor and Delivery Vehicles
- Construction Activity
  - On-road activity including construction employee vehicle trips and material delivery/hauling trips
  - Off-road activity including use of construction equipment such as excavators, graders, and pavers

## 4.4 Data Used in the Analysis

A wide range of data is needed for input into the models previously identified. Sources of information on operation of the Airport and the Proposed Action are:

- FAA's Air Traffic Activity System (ATADS) was used to identify the total aircraft operations by FAA categories of activity in 2022. The ATADS data are available to the public on FAA's website.[12]
- The Port's Constrained Operating Growth Scenarios represents the best projection of how aviation activity growth will occur over time with and without the NTPs.[13] This was used to identify the total number of operations for the No Action and Proposed Action in 2032 and 2037.
- The Port's EnvironmentalVue Flight Track Monitoring System[14] data for the period January 2022 through December 2022 was used to identify information about each flight, time of day, airline, and aircraft type. Data from the EnvironmentalVue Flight Track Monitoring System is available to the public by specific request to the Port.
- Diio Mi[15] was used to identify the engine type for the various airline/operator for the specific aircraft type. The Diio Mi database is available by paid subscription only.
- The tenant-owned GSE was determined by conducting a GSE survey (i.e., field verification and Port of Seattle data) to identify equipment types and usage for passenger and cargo aircraft. The AEDT model's default GSE were used to assign GSE defaults for general aviation aircraft operations. Usage for the future conditions was based on the increases in aircraft levels.
- Port-owned airfield vehicles and equipment usage was obtained from the Port. Usage for future conditions was adjusted based on the increases in aircraft levels.
- The AEDT database was used to assign the APU equipment type for each aircraft type. The APU usage for Existing (2022) Condition and for future conditions was based on the Port of Seattle's Rules and Regulations.
- For off-Airport roadways, existing and future conditions information from the surface transportation study developed for the NEPA Environmental Assessment (EA) was used. Where data was not collected for roadway segments within the study area, Washington Department of Transportation (WSDOT) data was utilized. For on-Airport roadways in the Existing (2022) Condition, Port information on the number and types of airside delivery vehicles accessing the airfield through security gates was used. For future conditions, the vehicles were increases based on the increase in passenger levels.
- Emissions factors from AEDT and MOtor Vehicle Emission Simulator (MOVES) were used for the respective time periods (2022, 2032, and 2037).
- Construction information including the phasing schedule was provided by the Port and is included in Attachment 6.

12 FAA's website https://aspm.faa.gov/opsnet/sys/Main.asp. Accessed July 2023.
13 Constrained Operating Growth Scenario, prepared by Port of Seattle/Landrum & Brown, 2023.
14 EnvironmentalVue is a secure, web-based application that provides flight track information to the Port of Seattle.
15 Diio Mi is a comprehensive web-based collection of critical data sources designed for aviation professionals used to analyze the airline market. This tool available by paid subscription only includes worldwide schedule data, both historical and future; U.S. Departments of Transportation traffic, fare, load factor, financial, and on-time performance data; and industry fleet information.

# 5. Existing (2022) Condition

The Existing (2022) Condition is provided for background and context only.

## 5.1 Aircraft

### 5.1.1 Aircraft Fleet Mix and Activity Level

The number and type of aircraft operations directly affect emissions. Aircraft emissions depend partly on the physical characteristics and performance parameters of each aircraft. This includes the airframe type and the type and number of engines. In order to calculate emissions from aircraft, information concerning aircraft operations was collected from FAA's ATADS. According to FAA data, there were 401,351 total annual operations at the Airport during 2022.

ATADS data only provides annual operations by FAA general category (air carrier, air taxi,[16] general aviation, and military). The Port's EnvironmentalVue Flight Track Monitoring System was used to identify the specific aircraft types, operation type, and the aircraft operators. From this information, the types of operations and a specific aircraft code were determined. Specific airframe and engine combinations were developed from the Diio Mi database. Annual operational totals derived from EnvironmentalVue for each airframe engine combination were scaled to match the ATADS annual operational total of 401,351. The scaling was based on each airframe engine combination's percentage of total operations reported in EnvironmentalVue. This scaling results in fractional annual operational totals for each of the airframe engine combinations. Table 1-1 in Attachment 1 presents the annual operations with the AEDT airframe and engine code modeled for the Existing (2022) Condition.

### 5.1.2 Aircraft Approach and Climb

In addition to the physical characteristics of the aircraft operating at the Airport, emissions further depend on the time that each aircraft type operates in the various modes that define a landing and take-off cycle (LTO). According to the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*, an LTO generally consists of the approach, landing, taxi into the gate/terminal/or parking area, start-up, taxi out, take-off, and climb. **Exhibit 2, *Landing and Take-Off Cycle*** provides an illustration of the LTO. The approach and climb portions of the LTO only go from or to the mixing height, or 3,084 feet AFE.[17] Emissions that occur within the LTO are quantified by adding the AEDT Climb Below Mixing Height and Descend Below Mixing Height values.[18]

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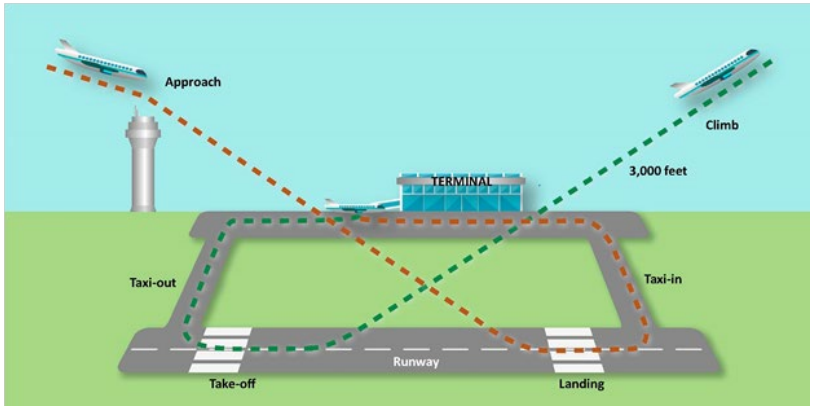
16 FAA defines air taxi as an aircraft designed to have a maximum seating capacity of 60 seats or less or a maximum payload capacity of 18,000 pounds or less carrying passengers or cargo for hire or compensation. Definition available at: https://aspm.faa.gov/aspmhelp/index/Glossary.html

17 The mixing height used in this assessment is defined as 3,084 feet in altitude above field elevation, which is the recommendation by the FAA based on the USPEA's *Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution Throughout the Contiguous United States*. Available on-line: https://nepis.epa.gov/Exe/ZyNET.exe/20013CDS.TXT?ZyActionD=ZyDocument&Client=EPA&Index=Prior+to+1976&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C70thru75%5CTxt%5C00000005%5C20013CDS.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

18 For more detailed information and definition of AEDT terms, the AEDT user's guide may be accessed at https://aedt.faa.gov/

**EXHIBIT 2, LANDING AND TAKE-OFF CYCLE**




Source: Landrum & Brown, 2023.

### 5.1.3 Aircraft Taxi Time

The amount of time an aircraft spends taxiing affects emissions. The taxi in and taxi out time is dependent on the airfield configuration, annual operating levels, and available facilities. The average taxi in and taxi out time for the existing conditions was based on the FAA's operations and performance data for SEA including Aviation System Performance Metrics (ASPM) in 2022. The average taxi in time was ten minutes and 16 seconds and the average taxi out time was 18 minutes and 53 seconds for the Existing (2022) condition, for a total of 29 minutes and ten seconds.

### 5.1.4 APUs

Most of the larger jet aircraft use APUs (turbine engines in the tails of aircraft that burn jet fuel) to operate the heating, air conditioning, and electric systems when the main aircraft engines are not running. The APU is also used to 'start-up' or restart the aircraft engines before departing from the gate or cargo area.

APUs typically remain in use while the aircraft is parked and serviced, unless an alternative source of electricity and pre-conditioned air (PC Air) is made available. The Port has installed PC Air and a fixed power supply at most of the passenger terminal gates. These features allow pilots to avoid using the APU while the aircraft are parked at the gate. However, APU usage is within the control of the pilot; therefore, APU use and emissions can vary greatly from one airline/operator to another and even one aircraft to another.

Furthermore, the use of hardstand and cargo operations (when aircraft are not using gates and jet bridges) impacts the usage of APUs. In addition to PC Air and a fixed power supply being installed at the terminal gates, there are portable ground power units (GPUs) that are used for cargo and hardstand operations. Emissions from portable GPUs are disclosed in the GSE section.

For the existing conditions analysis, the AEDT database was used to assign the specific types of APU used for each aircraft type and the Port of Seattle's Rules and Regulations will be used to assign APU usage for passenger and cargo operations. In June 2020, the Port updated their rules and regulations for airfield operations.[19] Effective January 1, 2021, aircraft operators are required to use 400Hz ground power and PC Air sources where available and practicable. Operators are required to connect to those

[19] The Port of Seattle has the ability to enforce the rules and regulations on tenants through lease agreements.

sources and discontinue APUs promptly (within seven minutes) after chocking the aircraft wheels upon parking. In addition, the Port requires aircraft operators to limit APU use to 15 minutes for International Civil Aviation Organization (ICAO) type Code C[20] aircraft; or to 25 minutes for ICAO type Code D[21] or above aircraft prior to departure.[22]

General aviation operations were assigned the AEDT default APU equipment and usage as there is no single operator for these operations and the Port of Seattle's Rules and Regulations do not have any requirements for general aviation aircraft. In addition, some of the smaller aircraft in the general aviation operation category do not have or use APUs. See Table 2-1 in Attachment 2 for the estimated annual APU usage for the Existing (2022) Condition.

### 5.1.5 Aircraft Run-Ups

Emissions from aircraft run-up operations were included for the Existing (2022) Condition. Aircraft engine ground run-ups are routine aircraft engine maintenance tests performed to test engines and diagnose engine issues. Aircraft run-up activity logs were provided by the Port to determine the amount of run-up operations, the location of the run-up, average duration, and the associated airframe and engine. A total of 477 run-up operations were reported in the run-up activity logs for the Airport in 2022.

## 5.2 Ground Support Equipment (GSE)

### 5.2.1 Tenant-Owned GSE

Most of the GSE at the Airport is owned and operated by the individual airlines and service providers contracted by the airlines, not the Port. Typical tenant-owned GSE includes baggage tractors, belt loaders, and catering vehicles that support aircraft operations.

The Port has installed over 400 charging points/stations for electric ground support equipment (eGSE) throughout the Airport across all terminals. As such, a GSE survey was conducted to inform the modeling of tenant-owned GSE to account for the use of eGSE. The survey included the field verification and review of Port data to identify the most commonly used GSE types and duration of usage for a select group of representative aircraft by airline operating at the Airport. The results of the survey were used to develop the AEDT inputs for GSE by aircraft operation. Operational emissions from vehicles such as catering trucks that operate on airport roadways beyond the immediate vicinity of the aircraft were quantified in the motor vehicle emissions inventory.

Table 3-1 in Attachment 3 provides the tenant-owned GSE modeled for the Existing (2022) Condition.

### 5.2.2 Port-Owned Airfield Vehicles and Equipment

The Port owns and operates various vehicles and equipment for airfield maintenance purposes and to support hardstand operations at the Airport. These vehicles include pickup trucks, snowplows, belt loaders, forklifts, shuttle buses, trimmers, and pressure washers. Data was obtained from the Port on the use of Port-owned airfield vehicles and equipment to develop the emissions inventory for the Existing (2022) Condition. Only the vehicles used primarily on the airfield were included in this portion

[20] ICAO Annex 14, Seventh Edition – July 2016 define Code C aircraft as having a wingspan of 24 meters up to but not including 36 meters. The outer main gear wheel span is 6 meters up to but not including 9 meters.
[21] ICAO Annex 14, Seventh Edition – July 2016 define Code D aircraft as having a wingspan of 36 meters up to but not including 52 meters. The outer main gear wheel span is 9 meters up to but not including 14 meters.
[22] Port of Seattle, Schedule of Rules and Regulations No. 5, Effective February 12, 2015. Updated June 9, 2020. https://www.airportprojects.net/sampenvironmentalreview/rules-and-regs-9-1-23/.

of the inventory, while the Port-owned airfield vehicles that primarily operate on roadways were included in the motor vehicle emissions inventory later in this report. In order to determine emissions, all of the various types of Port-owned airfield vehicles and equipment were grouped to representative AEDT equipment types to be modeled. For example, all of the gasoline Ford F150 pickup trucks were included in the gasoline F250/F350 Service Trucks AEDT equipment category. Table 3-2 in Attachment 3 provides the estimated fuel consumption for the Port-owned airfield vehicles and equipment for the Existing (2022) Condition.

## 5.3 Stationary Sources

Stationary sources of emissions include generators, boilers and heaters, and fuel tanks located on airport property which may be affected by the Proposed Action. Emissions from purchased electricity generated off-site are not included in the criteria pollutant emissions inventory per the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*. Data was obtained from the Port on the existing use of stationary sources to develop an inventory of boilers and heaters, generators, and fuel tanks for the Existing (2022) Condition.

### 5.3.1 Natural Gas Boilers and Heaters

Table 4-1 in Attachment 4 provides the location, equipment type, and usage of the natural gas boilers and heaters modeled for the Existing (2022) Condition. The Port collects the data in therms, which were converted to 1000s of meters cubed for input into the AEDT model.

### 5.3.2 Diesel Generators

The Airport operated 31 diesel generators in 2022 to supply standby and emergency power. Emissions from the use of the generators were based on how many hours a year each generator was operated. The annual hours of operation for each diesel generator were provided by the Port. Table 4-2 in Attachment 4 provides the location, description, horsepower, and annual usage (hours) of diesel-powered generators for the Existing (2022) Condition.

### 5.3.3 Fuel Farm Tanks

According to data from the Port, the total volume of aviation fuel (Jet A) that was supplied to aircraft at the Airport in 2022 was 595,696,138 gallons, which was stored among eight fuel tanks located at the Airport's fuel farm. Fuel storage in the fuel tanks was modeled in AEDT as a stationary source and therefore was a source of evaporative emissions resulting in VOC emissions.

## 5.4 Motor Vehicles

Motor vehicles include airport passenger vehicles; vehicles transporting airport and tenant employees; and vehicles transporting cargo to and from the Airport. The consideration of motor vehicle emissions typically focuses on identifying where and how a Proposed Action and its alternatives may affect surface travel (including the number and types of vehicles). For this analysis, the study area is the same as the surface transportation study developed for this EA. The study area boundary is shown in Exhibits 5-1 through 5-11 in Attachment 5. The following section describes the data used to estimate the number and types of vehicles occurring in the study area.

### 5.4.1 Motor Vehicles (On- and Off-Airport Roadways)

Emissions from motor vehicles traveling on and off-airport roadways are a function of the vehicle-miles-traveled (VMT) within a specific roadway segment by a specific type of vehicle and the emission factor. Vehicle types such as passenger cars and long-haul trucks, have different emission factors. In addition, vehicles traveling at different rates of speed have different emission factors. The following provides a summary of the approach taken to document emissions from motor vehicles on roadways. The approach taken for vehicles in parking facilities is discussed separately.

1. Roadway segments were defined for both on- and off-airport roadways. These included roadway segments where it is reasonable to anticipate changes in vehicle traffic from the Proposed Action. Distances for each roadway segment were calculated. The speeds in miles per hour (mph) on these roadway segments were based on the surface transportation study where data was available and, where data was not available, posted speed limits were used.
2. Average annual daily traffic data on the roadway segments was collected from the surface transportation study, the Port, and the Washington State Department of Transportation.[23] The data obtained was utilized to estimate VMTs. The distance of the roadway segment was multiplied by the traffic volume to determine the daily VMT for each segment, which was then converted to annual VMT by multiplying the daily VMT by 365. See Attachment 5 for the VMTs on each roadway segment.
3. Emission factors were determined for various speeds for different vehicle groups using EPA MOVES4.
4. All vehicle types were grouped into four main categories based on similar engine and operating characteristics in order to assign an emission factor. The vehicle distribution (vehicle mix) on each roadway segment was developed based on King County data contained in MOVES4.
5. Emissions were calculated by multiplying the annual VMT of each roadway segment by the emission factor using the specific vehicle distribution.

#### *5.4.1.1 Roadway Segments*

For the Existing (2022) Condition, the roadway segments were grouped together into ten areas where it is reasonable to anticipate changes in vehicle traffic due to the Proposed Action. The roadway segments are shown in Exhibits 5-1 through 5-11 in Attachment 5. The following provides a general description of each area.

- **Area 1** is located north and northwest of the Airport. This area contains State Route 518, Des Moines Memorial Drive S, and 24th Avenue S., and was included to capture traffic accessing the Airport from the north.
- **Area 2** is located north and east of the Airport. This area contains Air Cargo Road, Airport Expressway, State Route 99, Southcenter Boulevard, and Military Road S. These roads were selected to capture traffic accessing the Airport from the north and the east.
- **Area 3** is located east of the Airport, including the main terminal and parking facilities. This area contains the curb front roads used to access the Airport from the north, including Airport Expressway, Arrivals Dr, Departures Dr, Air Cargo Road, S. 170th Street, and State Route

[23] Peak hour average day data provided specifically from the Port were converted to average annual daily traffic volumes (AADT). Based on 2022 vehicle traffic data and the conversion of peak hour average day to average annual day provided by the Port of Seattle, peak hour was multiplied by 316.5 instead of 365 to get an average annual day.

99/Tukwila International Boulevard. These roads were selected to capture traffic accessing the Airport from the north and south.

- **Area 4** is located south of the Airport. This area contains South 188th Street, 28th Avenue, South 192nd Street, and State Route 99. These roads were selected to capture traffic accessing the Airport from the east and south.
- **Area 5** is located west of the Airport, including State Route 509/Des Moines Memorial Drive S, S Normandy Rd, and South 186th Street. These roads were selected to capture traffic accessing the Airport from the west.
- **Area 6** is located west of the Airport, including State Route 509/Des Moines Memorial Dr S, S Normandy Rd, and S 156th Street, and S 156th Way/154th Street. These roads were selected to capture traffic accessing the Airport from State Route 509.
- **Area 7** is located east of the Airport, including S 189th St, Military Rd S, and S 176th St. This also includes a segment of Interstate 5 south of SR 518These roads were selected to capture traffic accessing the Airport from Interstate 5.
- **Area 8** is located southeast of the Airport, including State Route 99, S 200th St, and 28th Ave S. These roads were selected to capture traffic accessing the Airport from the south and from Interstate 5.
- **Area 9** is located south of the Airport, including S 200th St, S 216th St, and Des Moines Memorial Drive S. These roads were selected to capture traffic accessing the Airport from Des Moines Memorial Drive S.
- **Area 10** is located east of the Airport, including Interstate 405, State Route 518, and Southcenter Blvd. These roads were selected to capture traffic accessing the Airport from Interstate 405 and Southcenter Blvd.

#### *5.4.1.2 Vehicle Classification*

In order to determine emissions, all of the various types of vehicles operating on and off-airport roadways were grouped into four main vehicle classifications according to MOVES in order to assign an appropriate emission factor. **Table 2** provides the vehicle classifications used in the Existing (2022) Condition.

**TABLE 2: VEHICLE CLASSIFICATIONS**

| MOVES Database Classification | General Vehicle Description |
|---|---|
| Passenger Car (PC) | Includes passenger cars, rental cars, employee cars, taxis, motorcycles |
| Passenger Truck (PT) | Includes light duty pickup trucks, vans |
| Short-Haul Truck (SHT) | Includes buses, shuttle buses, hotel shuttle buses, box trucks, refuse trucks, single unit trucks, medium duty trucks |
| Long-Haul Truck (LHT) | Includes heavy duty trucks, fueling trucks, tractor trailers |

Source: L&B 2023 and MOVES4 database classifications.

#### *5.4.1.3 Vehicle Distribution*

The EPA's MOVES model was used to estimate vehicle distribution of the different vehicle classifications on roadways specific to King County.[24] **Table 3** provides the vehicle distribution that was used for the Existing (2022) Condition.

**TABLE 3: VEHICLE DISTRIBUTION ON KING COUNTY ROADWAYS**

| County | Passenger Car (%) | Passenger Truck (%) | Single Unit Short-Haul Truck (%) | Long-Haul Truck (%) |
|---|---|---|---|---|
| King County | 44.6 | 44.6 | 5.4 | 5.4 |

Note: See Table 2 for description of vehicle classifications.
Source: MOVES4, 2024.

There are several roadways that are known by the Port to have a different vehicle distribution than the King County average because of passenger and cargo operations supporting aircraft activity. The Port collects specific data concerning vehicles on these roadways. The Port collected data on the types of and number of vehicles operating on Airport Drives, S. 170th Street, and Air Cargo Road. **Table 4** provides the vehicle distribution as a percentage, used for these specific roadway segments.

**TABLE 4: VEHICLE DISTRIBUTION ON AIRPORT-SPECIFIC ROADWAYS**

| Roadway Description | Passenger Car (%) | Passenger Truck (%) | Single Unit Short-Haul Truck (%) | Long-Haul Truck (%) |
|---|---|---|---|---|
| Airport Drives (South of 170th) | 46.0 | 46.0 | 6.9 | 1.1 |
| S. 170th St. (Between Air Cargo Road and the Expressway) | 39.0 | 39.0 | 21.0 | 1.0 |
| Air Cargo Road (Between S 170th St and the Expressway) | 38.5 | 38.5 | 22.0 | 1.0 |
| Air Cargo Road (Between the Expressway and S. 166th St.) | 41.0 | 41.0 | 17.0 | 1.0 |
| Airside Deliveries | 0.0 | 63.1 | 36.0 | 0.9 |

Note: See Table 2 for description of vehicle classifications.
Source: Port of Seattle, 2023.

#### *5.4.1.4 Traffic Volumes*

Data was collected on the traffic volumes for the roadway segments in the Existing (2022) Condition from the Port and the Washington State Department of Transportation. The distance of the roadway segment, as measured using a geographic information system (GIS) mapping tool, was multiplied by the traffic volume to determine the daily VMT, which was converted to annual VMT by multiplying by 365 for each segment. The traffic volumes for each roadway segment are provided in Table 5-1 in Attachment 5. Approximately 1,004,717,456 annual VMTs were estimated for the Existing (2022) Condition.

#### *5.4.1.5 Airside Delivery Vehicles*

Information on the number and types of airside delivery vehicles accessing the airfield through security gates was obtained from the Port. There were three main access points for deliveries, with negligible

[24] The vehicle distribution for air quality utilized specific Port data and King County averages from MOVES4. The surface transportation analysis also presented in this EA utilized peak hour values for the Synchro analysis, which was based on the 2022 intersection counts and was not applicable for this purpose.

travel differences between them. A distance of two miles, as measured with GIS, was applied to all the airside delivery vehicles. An average speed of 15 mph was assumed for vehicles making airside deliveries.

#### *5.4.1.6 Emission Factors*

The EPA's MOVES4 was used to compute motor vehicle emissions rates in grams of pollutant per vehicle mile traveled (g/VMT). The emission factors are unique to King County and are different for each criteria pollutant, speed, and vehicle type. The emission factors for each pollutant by speed and vehicle type are provided Table 5-2 in Attachment 5.

### 5.4.2 Motor Vehicles (Parking Facilities)

Emissions from parking facilities where it is reasonable to anticipate changes in vehicle traffic due to the Proposed Action are included in the Existing (2022) Condition emissions inventory. Emissions are based on volumes of vehicles in the parking facilities, distance traveled within the parking facility, and speed of vehicles. Volumes for the Doug Fox Lot were estimated assuming the lot operated at full capacity meaning there are vehicles in all of the stalls.[25] For the main parking garage and the North Employee Parking Lot, parking lot transaction data was obtained from the Port. The volume data for the main parking garage contained information on employee traffic (identified as Corporate) and passenger vehicles (identified as Terminal and Direct). Distance for a vehicle to travel was mapped using GIS on the length from the first parking stall from the entrance to the last stall using every aisle and floor if applicable. The main parking garage is eight stories, with employee parking on floors one (ground level) and two and passenger parking on floors one through eight. The average calculated distance traveled for vehicles in the main parking garage was 0.96 miles, the average distance traveled by vehicles in the Doug Fox Lot was 0.80 miles, and the average distance traveled by vehicles in the North Employee Parking Lot was 4.24 miles. In order to determine emissions, an average speed of 5 mph was assumed for vehicles in the main parking garage, the Doug Fox Lot, and the North Employee Parking Lot.

## 5.5 Existing (2022) Condition Criteria Pollutant Emissions Inventory

The emissions inventory for the Existing (2022) Condition is shown in **Table 5** and provides the total annual pollutant emissions as short tons per year.[26] The Existing (2022) Condition emissions inventory shows the pollutants with the greatest emissions are CO and $NO_x$. There were approximately 5,178 tons of CO and 2,537 tons of $NO_x$ emitted in 2022. These pollutants are produced from the incomplete combustion of aircraft and motor vehicle engines. Motor vehicles produce the greatest contribution to CO emissions (61.2 percent) while aircraft produce the greatest contribution to $NO_x$ emissions (82.0 percent).

[25] A daily turnover rate of 1.0 means a car is there all day long. A daily turnover rate of 4.0 is used for quick turn-overs experienced at grocery stores and banks. No specific turnover rate was available, therefore for this analysis, a daily turnover rate of 2.5 was applied based on professional judgment.

[26] A short ton in the United States is commonly just called a ton. One short ton equals 2,000 pounds.

## TABLE 5: ANNUAL OPERATIONAL EMISSIONS INVENTORY - EXISTING (2022) CONDITION

| Emission Source | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) |
|---|---|---|---|---|---|---|
| **Aircraft** | **1,798** | **255** | **2,081** | **186** | **21** | **21** |
| LTO (includes Start-Up, Approach, Climb, and Taxiing) | 1,681 | 244 | 1,977 | 175 | 12 | 12 |
| Aircraft Run-Ups | 1 | 0 | 44 | 2 | 0 | 0 |
| APUs | 116 | 10 | 60 | 9 | 9 | 9 |
| **GSE** | **196** | **6** | **17** | **0** | **1** | **1** |
| Tenant-Owned GSE | 193 | 6 | 13 | 0 | 1 | 1 |
| Port-Owned Airfield Vehicles and Equipment | 3 | 0 | 4 | 0 | 0 | 0 |
| **Stationary Sources** | **15** | **10** | **25** | **33** | **1** | **1** |
| Natural Gas Boilers and Heaters | 13 | 1 | 16 | 0 | 0 | 0 |
| Diesel Generators | 2 | 0 | 10 | 33 | 0 | 0 |
| Fuel Farm Tanks | 0 | 9 | 0 | 0 | 0 | 0 |
| **Motor Vehicles** | **3,169** | **60** | **413** | **2** | **8** | **8** |
| Parking Facilities | 52 | 2 | 6 | 0 | 0 | 0 |
| On and Off-Airport Roadways (includes Airside Deliveries) | 3,117 | 58 | 408 | 2 | 8 | 8 |
| **Total** | **5,178** | **332** | **2,537** | **221** | **31** | **31** |

Note: Totals may not sum due to rounding. CO = carbon monoxide, VOC = Volatile Organic Compounds, $NO_x$ = nitrogen oxides, $SO_x$ = sulfur oxides, $PM_{10}$ = coarse particulate matter, $PM_{2.5}$ = fine particulate matter, ST = short tons.
Source: Port of Seattle and L&B, 2024.

# 6. Construction Emissions Inventories

Temporary air quality impacts would result from construction activities associated with the Proposed Action and the Hybrid Terminal Option. Air pollutants would be emitted by construction equipment and fugitive dust generated during demolition and construction of the proposed development. There would be no construction related emissions resulting from the No Action Alternative.

## 6.1 Construction Schedule

Subject to FAA and Port Commission approval, construction would start in 2025 and would continue through 2032 for the Proposed Action and the Hybrid Terminal Option. The detailed construction phasing schedule for the Proposed Action and the Hybrid Terminal Option are provided in Attachment 6.

## 6.2 On-Road Construction Vehicles

Potential sources of construction emissions include construction vehicles and equipment. Potential on-road construction emissions were estimated using the following formula as provided in the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*.

- *Emission Rate (tons/year) for on-road vehicles = Emission Factor (grams/mile) x miles per day x # of days/year x (1 pound/453.59 grams) x (1 ton/2,000 pounds)*

Emission factors for on-road construction vehicles were developed using the MOVES4 model. For employee vehicle trips related to construction activities, the model was run using gasoline passenger vehicles including cars and light duty pickup trucks. For material delivery and off-site haul vehicle trips, diesel combination short-haul trucks were assumed as they are the most common type of vehicle for this service.

Total VMT for vehicles operating during each Proposed Action element and for each type of on-road construction activity during each construction year was estimated. This includes construction employee vehicle trips to and from the job site. The analysis also included material delivery trips and off-site hauling trips using heavy duty trucks. Potential on-road construction emissions were estimated by multiplying the VMT data by the appropriate emission factors and the necessary conversion factors to present the criteria air pollutant emissions in tons. The detailed assumptions for on-road construction vehicles and the emission factors for the Proposed Action and Hybrid Terminal Option are provided in Attachment 6 of this technical report.

## 6.3 Non-Road Construction Equipment

Potential non-road construction emissions were estimated using the following formula as provided in the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*.

- *Equipment Emission Rate (tons/year) = Full Throttle Emission Factor (grams/hp-hour) x size (hp) x hours per year x Load Factor x usage Factor x (1 pound/453.59 grams) x (1 ton/2,000 pounds)*

The construction phasing schedule and the dimensions of the Proposed Action elements including building dimension in square feet were obtained from the Port. Each proposed element was input into the ACEIT to estimate the type of construction equipment, horsepower, load factor, and operating hours

for each project element and phase. The ACEIT was developed by the Airport Cooperative Research Program (ACRP) and the equipment and assumptions used in the program are drawn from ACRP Report 102, Guidance for Estimating Airport Construction Emissions. The EPA's MOVES model was used to identify the emission factor of each criteria air pollutant for each equipment type. Non-road construction equipment emissions were calculated based on the number of operating hours of equipment use and the emission factors. The detailed assumptions of non-road construction equipment and the emission factors for the Proposed Action and Hybrid Terminal Option are provided in Attachment 6 of this technical report.

## 6.4 Proposed Action - Criteria Pollutant Construction Emissions Inventory

A summary of the construction emissions inventory with both on-road and non-road construction equipment for each year of construction of the Proposed Action is shown in **Table 6**. Peak construction emissions are expected to occur in 2028 for $NO_x$ (40 tons) and 2029 for CO (239 tons). Fugitive dust from grading, moving soil, and digging, loading/unloading of trucks, movement of trucks on unpaved surfaces, and wind erosion of stockpiles is included in $PM_{10}$ and $PM_{2.5}$ totals.

**TABLE 6: ANNUAL CONSTRUCTION EMISSIONS INVENTORY - PROPOSED ACTION**

| Year | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) |
|---|---|---|---|---|---|---|
| 2025 | 17 | 1 | 8 | 0 | 8 | 1 |
| 2026 | 124 | 3 | 24 | 0 | 8 | 2 |
| 2027 | 204 | 4 | 36 | 0 | 9 | 2 |
| 2028 | 214 | 5 | 40 | 0 | 9 | 2 |
| 2029 | 239 | 5 | 36 | 0 | 9 | 2 |
| 2030 | 181 | 3 | 24 | 0 | 8 | 2 |
| 2031 | 143 | 2 | 18 | 0 | 8 | 1 |
| 2032 | 40 | 1 | 9 | 0 | 8 | 1 |

Note: CO = carbon monoxide, VOC = Volatile Organic Compounds, $NO_x$ = nitrogen oxides, $SO_x$ = sulfur oxides, $PM_{10}$ = coarse particulate matter, $PM_{2.5}$ = fine particulate matter, ST = short tons.
Source: Port of Seattle and L&B, 2024.

## 6.5 Hybrid Option - Criteria Pollutant Construction Emissions Inventory

A summary of the construction emissions inventory for the Hybrid Terminal Option is shown in **Table 7**. Like the Proposed Action, peak construction emissions are expected to occur in 2028 for $NO_x$ (47 tons) and 2029 for CO (242 tons), and would be equal to or slightly greater than the Proposed Action due to changes to the phasing schedule and the additional elements that must be constructed such as the proposed connection to Concourse D.

**TABLE 7: ANNUAL CONSTRUCTION EMISSIONS INVENTORY - HYBRID TERMINAL OPTION**

| Year | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) |
|---|---|---|---|---|---|---|
| 2025 | 17 | 1 | 8 | 0 | 8 | 1 |
| 2026 | 124 | 3 | 24 | 0 | 8 | 2 |
| 2027 | 201 | 5 | 39 | 0 | 9 | 2 |
| 2028 | 211 | 5 | 47 | 0 | 10 | 3 |
| 2029 | 242 | 5 | 44 | 0 | 9 | 3 |
| 2030 | 188 | 4 | 37 | 0 | 9 | 2 |
| 2031 | 149 | 3 | 31 | 0 | 9 | 2 |
| 2032 | 42 | 1 | 15 | 0 | 8 | 1 |

Note: Minor differences from the Proposed Action may not be evident due to rounding and the number of significant digits displayed. CO = carbon monoxide, VOC = Volatile Organic Compounds, $NO_x$ = nitrogen oxides, $SO_x$ = sulfur oxides, $PM_{10}$ = coarse particulate matter, $PM_{2.5}$ = fine particulate matter, ST = short tons.
Source: Port of Seattle and L&B, 2024.

# 7. Future (2032) No Action Alternative

## 7.1 Aircraft

### 7.1.1 Aircraft Fleet Mix and Activity Levels

Based on the aircraft activity forecast, there would be an increase in operations from the Existing (2022) Condition to the Future (2032) No Action Alternative. The No Action Alternative would include none of the federal actions and no additional physical improvements to the Airport that are included in the Proposed Action, but includes projects that have recently been constructed, or will be constructed by 2032.[27] Even with no facility improvements there would be a total of 466,900 aircraft operations forecast for the Future (2032) No Action Alternative. This would be 65,549 annual operations more than the Existing (2022) Condition. Table 1-2 in Attachment 1 presents the average annual operations for specific aircraft types with the AEDT engine code modeled in AEDT for the Future (2032) No Action Alternative.

### 7.1.2 Aircraft Taxi Time

The airfield configuration (the layout of the runways and taxiways) identified for the Existing (2022) Condition would remain the same for the Future (2032) No Action Alternative. The average taxi in and taxi out time for the Future (2032) No Action Alternative was determined by using the delay analysis developed with the Total Airspace and Airport Modeler (TAAM) tool normalized to the ASPM data.[28,29] The average taxi in time was nine minutes and 26 seconds and the average taxi out time was 21 minutes and 28 seconds for the Future (2032) No Action Alternative, for a total of 30 minutes and 54 seconds. These taxi in and taxi out times were applied to each operation in AEDT to develop the emissions inventory. The overall average taxi time increased one minute and 44 seconds for the Future

[27] These future actions were established in August 2023 and include the North Satellite Redevelopment program, International Arrivals Facility, Terminal Renovations, C Concourse Expansion, A Concourse Building Expansion, Widen Arrivals Drive project, and Runway Renumbering. These projects are independent from the Proposed Action in this EA and have received or will receive separate environmental review and approval. These future actions are included in both, the future No Action and Proposed Action scenarios.
[28] Leigh Fisher. Environmental Review Airside Modeling, June 2020.
[29] Kandice Krull, FAA, Email to Sarah Potter, L&B, RE: SAMP NTP Env Review Normalized Taxi Times, July 10, 2023.

(2032) No Action Alternative as compared to the Existing (2022) Condition. A summary of the taxi times for each scenario is provided in Table 1-6 in Attachment 1.

### 7.1.3 APUs

The APU durations per aircraft type identified for the Existing (2022) Condition would remain the same for the Future (2032) No Action Alternative. As previously discussed, regional and narrow body aircraft were considered Code C aircraft and assigned a total APU duration of 22 minutes per operation and wide body aircraft were considered Code D or above and assigned a total APU duration of 32 minutes per operation. The AEDT database was used to assign the specific types of APU equipment used for each aircraft type. General Aviation operations were assigned the AEDT default APU equipment and usage per operation because data on specific general aviation equipment and usage were not available. The Future (2032) No Action Alternative would have greater APU usage as compared to the Existing (2022) Condition because of the increase in overall aircraft operations. See Table 2-2 in Attachment 2 for the estimated annual APU usage for the Future (2032) No Action Alternative.

### 7.1.4 Aircraft Run-Ups

The increase in overall aircraft operations in the Future (2032) No Action Alternative from the Existing (2022) Condition is anticipated to result in an increase the number of run-ups. Therefore, the number of aircraft run-ups was increased proportional to the forecast increase in aircraft operations. This resulted in a total of 555 run-up operations estimated for the Future (2032) No Action Alternative. This is an increase of 78 additional aircraft engine run-up operations over the Existing (2022) Condition.

## 7.2 Ground Support Equipment

### 7.2.1 Tenant-Owned GSE

The analysis assumed that tenant-owned GSE usage would increase commensurate with the forecast in aircraft activity and that the same types of vehicles would be used.[30] Therefore, the type of tenant-owned GSE identified for the Existing (2022) Condition would remain the same for the Future (2032) No Action Alternative. As such, no new pieces of equipment were added for the analysis; it was estimated that there would only be an increase in usage in those same pieces of equipment. Table 3-3 in Attachment 3 provides the tenant-owned GSE and estimated hours of annual usage for the Future (2032) No Action Alternative.

### 7.2.2 Port-Owned Airfield Vehicles and Equipment

The analysis assumed that Port-owned airfield vehicles and equipment usage would increase commensurate with the forecast in aircraft activity and that the same types of vehicles would be used.[31] Therefore, the type of Port-owned airfield vehicles and equipment identified for the Existing (2022) Condition would remain the same for the Future (2032) No Action Alternative. This means no new pieces of Port-owned airfield vehicles and equipment were added for the analysis; it was estimated that there would only be an increase in usage in those same pieces of equipment. This includes Port vehicles and equipment used for airfield maintenance purposes and to support hardstand operations at

[30] No future assumptions could be made on potential new equipment purchased by tenants operating at the Airport. While these tenants would need to buy new equipment as older equipment reaches its end-of-life cycle, there are no known existing agreements or contracts for the purchase of any future equipment.

[31] No future assumptions could be made on potential new equipment purchased by the Port. While the Port would need to buy new equipment as older equipment reaches its end-of-life cycle, there are no existing agreements or contracts for the purchase of any future Port equipment.

the Airport. Table 3-4 in Attachment 3 provides the Port-owned airfield vehicles and equipment and estimated annual usage for the Future (2032) No Action Alternative.

## 7.3 Stationary Sources

### 7.3.1 Natural Gas Boilers and Heaters

The Future (2032) No Action Alternative would have additional natural gas boiler and heater usage for the Terminal Renovation, A Concourse Building Expansion, and C Concourse Expansion. Table 4-3 in Attachment 4 provides the location, equipment type, and usage of the natural gas boilers and heaters used for the Future (2032) No Action Alternative. It is assumed that there would be no other changes to the existing facilities or natural gas usage with the Future (2032) No Action Alternative. While there would be more passengers in the terminal facilities as compared to the Existing (2022) Condition, it was assumed there would be no change to the natural gas usage because natural gas usage is based on the area of the facility, not the number of passengers.

### 7.3.2 Diesel Generators

The Port would continue to conduct routine testing to make sure the generators are performing as they should and would be available if needed. The Future (2032) No Action Alternative would have additional diesel generators for the Terminal Renovation, A Concourse Building Expansion, and C Concourse Expansion that were not included in the Existing (2022) Condition. The location, name, horsepower, and annual usage of diesel-powered generators identified for the Future (2032) No Action Alternative are provided in Table 4-4 in Attachment 4. Table 4-7 in Attachment 4 provides a summary comparison of the diesel generator usage under the various alternatives.

### 7.3.3 Fuel Farm Tanks

There would be no change to the number or type of fuel tanks in the fuel farm with the Future (2032) No Action Alternative relative to the Existing (2022) Condition. The total volume of aviation fuel (Jet A) would be stored among eight existing fuel tanks located at the Airport's fuel farm. Therefore, the only change from the baseline conditions would be the potential increase in Jet A fuel use throughput based on the forecast increase in aircraft operations. It is estimated that the total volume of aviation fuel (Jet A) that would be supplied to aircraft would be 692,985,758 gallons for the Future (2032) No Action Alternative.

## 7.4 Motor Vehicles

### 7.4.1 Motor Vehicles (On- and Off-Airport Roadways)

The roadway segment identifier, segment length, vehicle classification, vehicle distribution, and speed for each roadway segment identified for the Existing (2022) Condition would remain the same for the Future (2032) No Action Alternative. Traffic volumes would be anticipated to change as would the emission factors, as described in the following sections.

#### *7.4.1.1 Traffic Volumes*

Surface traffic levels would be expected to increase in the future with the Future (2032) No Action Alternative as compared to the Existing (2022) Condition. Traffic volumes were provided by the Port for this scenario to account for employee and cargo growth. Roadways for which only WSDOT data was available, traffic volumes were increased proportional to the forecast increase in passengers. The traffic volume on each roadway segment and the annual VMT per roadway segment are provided in Table 5-3

in Attachment 5. For the Future (2032) No Action Alternative there are anticipated to be 1,218,311,481 annual VMTs, an increase of 213,594,025 as compared to the Existing (2022) Condition.

#### *7.4.1.2 Emissions Factors*

The EPA's MOVES4 was used to generate emissions rates in grams of pollutant per vehicle mile traveled (g/VMT). The emission factors are unique to the year 2032 and King County and are different for each criteria pollutant, speed, and vehicle type. The emission factors for each pollutant by speed and vehicle type for the Future (2032) No Action Alternative are provided in Table 5-4 in Attachment 5. Emission factors for the Future (2032) No Action Alternative are lower as compared to the Existing (2022) Condition emissions factors. This is because EPA assumes in MOVES that older vehicles are gradually replaced by newer vehicles.[32] Newer vehicles would have lower emission rates according to newer emission standards as compared to older vehicles. Therefore, while there are more vehicles on- and off-roadways traveling more miles in the future, because the emission factors are lower, total emissions for motor vehicles would be less as compared to the Existing (2022) Condition.

### 7.4.2 Motor Vehicles (Parking Facilities)

The parking lots identified for the Existing (2022) Condition would remain the same for the Future (2032) No Action Alternative meaning there would be no new lots, change in vehicle speed or distance, or any increase in the number of parking stalls in the lots. The potential volume increase in motor vehicles using the Doug Fox Lot and the Terminal Parking Lot for the Future (2032) No Action Alternative was based on the forecast increase in passengers. The number of motor vehicles in those parking lots would increase commensurate with the increase in passengers. The potential volume increase in motor vehicles using the North Employee Parking Lot for the Future (2032) No Action Alternative was based on the forecast increase in aircraft operations. It was assumed that as aircraft operations increase so would the number of employees. Therefore, the number of motor vehicles estimated for the Future (2032) No Action Alternative in the North Employee Parking Lot was increased proportional to the forecast increase in aircraft operations.

## 7.5 Future (2032) No Action Alternative Criteria Pollutant Emissions Inventory

The criteria pollutant emissions inventory provides the total annual pollutant emissions as short tons per year. The emissions inventory for the Future (2032) No Action Alternative is shown in **Table 8**. The Future (2032) No Action Alternative emissions inventory shows the pollutants with the greatest emissions are CO and NOx. There were approximately 4,447 tons of CO and 2,923 tons of $NO_x$ potentially emitted for the Future (2032) No Action Alternative. Aircraft produce the greatest contribution to CO emissions (48.4 percent) and $NO_x$ emissions (94.4 percent).

[32] For EPA's guidance on emission factors see the following technical reports, Exhaust Emission Rates for Heavy-Duty Onroad Vehicles in MOVES4 (EPA-420-R-23-027 dated August 2023 and Exhaust Emission Rates for Light-Duty Onroad Vehicles in MOVES4 (EPA-420-R-23-028 dated August 2023) available online at https://www.epa.gov/moves/moves-onroad-technical-reports.

## TABLE 8: ANNUAL OPERATIONAL EMISSIONS INVENTORY - FUTURE (2032) NO ACTION ALTERNATIVE

| Emission Source | CO (ST) | VOC (ST) | NOx (ST) | SOx (ST) | PM10 (ST) | PM2.5 (ST) |
|---|---|---|---|---|---|---|
| **Aircraft** | **2,152** | **249** | **2,761** | **236** | **27** | **27** |
| LTO (includes Start-Up, Approach, Climb, and Taxiing) | 2,042 | 233 | 2,631 | 222 | 14 | 14 |
| APUs | 109 | 16 | 73 | 11 | 13 | 13 |
| Aircraft Run-Ups | 1 | 0 | 57 | 2 | 0 | 0 |
| **GSE** | **190** | **6** | **14** | **0** | **1** | **1** |
| Tenant-Owned GSE | 187 | 6 | 9 | 0 | 1 | 0 |
| Port-Owned Airfield Vehicles and Equipment | 3 | 0 | 4 | 0 | 0 | 0 |
| **Stationary Sources** | **16** | **11** | **27** | **37** | **1** | **1** |
| Natural Gas Boilers and Heaters | 13 | 1 | 16 | 0 | 0 | 0 |
| Diesel Generators | 2 | 0 | 11 | 37 | 0 | 0 |
| Fuel Farm Tanks | 0 | 10 | 0 | 0 | 0 | 0 |
| **Motor Vehicles** | **2,089** | **18** | **122** | **2** | **4** | **3** |
| Parking Facilities | 35 | 1 | 3 | 0 | 0 | 0 |
| On and Off-Airport Roadways (includes Airside Deliveries) | 2,054 | 17 | 119 | 2 | 4 | 3 |
| **Total** | **4,447** | **283** | **2,923** | **275** | **32** | **32** |

Note: Totals may not sum due to rounding. CO = carbon monoxide, VOC = Volatile Organic Compounds, $NO_x$ = nitrogen oxides, $SO_x$ = sulfur oxides, $PM_{10}$ = coarse particulate matter, $PM_{2.5}$ = fine particulate matter, ST = short tons.
Source: Port of Seattle and L&B, 2024.

# 8. Future (2032) Proposed Action

## 8.1 Aircraft

### 8.1.1 Aircraft Fleet Mix and Activity Levels

A total of 475,655 aircraft operations were forecast for the Future (2032) Proposed Action. This would be 8,755 annual operations more than the Future (2032) No Action Alternative. Table 1-3 in Attachment 1 presents the average annual operations with the specific airframe and AEDT engine code used for emissions modeling in AEDT for the Future (2032) Proposed Action.

### 8.1.2 Aircraft Taxi Time

The Proposed Action includes improvements to the existing airfield, which would potentially change the aircraft taxi time. The average taxi in and taxi out time for the Future (2032) Proposed Action was determined by using the delay analysis developed with the TAAM tool normalized to the ASPM data.[33,34] The average taxi in time was nine minutes and 12 seconds and the average taxi out time was 21 minutes and 18 seconds for the Future (2032) Proposed Action, for a total of 30 minutes and 30 seconds. These taxi in and taxi out times were applied to each operation in AEDT to develop the emissions inventory. The overall average taxi time decreased 24 seconds for the Future (2032) Proposed Action as compared to the Future (2032) No Action Alternative. While the Proposed Action has more aircraft operations than the No Action Alternative, the proposed improvements would increase the Airport's ability to accommodate increased aircraft operations and passenger activity by enhancing the efficiency of the overall taxiway layout and adding aircraft gates and passenger processing facilities, reducing congestion in the terminal area. These improvements would reduce congestion on the taxiways and at the terminal. A summary of the taxi times for each scenario is provided in Table 1-6 in Attachment 1.

### 8.1.3 APUs

The APU durations per aircraft type identified for the Existing (2022) Condition would remain the same for the Future (2032) Proposed Action. As previously discussed, regional and narrow body aircraft were considered Code C aircraft and assigned a total APU duration of 22 minutes per operation and wide body aircraft were considered Code D or above and assigned a total APU duration of 32 minutes per operation. The AEDT database was used to assign the specific types of APU equipment used for each aircraft type. General Aviation operations were assigned the AEDT default APU equipment and usage per operation because data on specific general aviation equipment and usage were not available. The Future (2032) Proposed Action would have greater APU usage as compared to the Future (2032) No Action Alternative because of the increase in overall aircraft operations. See Table 2-3 in Attachment 2 for the estimated annual APU usage for the Future (2032) Proposed Action.

### 8.1.4 Aircraft Run-Ups

The increase in overall aircraft operations in the Future (2032) Proposed Action from the Existing (2022) Condition is anticipated to result in an increase the number of run-ups. Therefore, the number of aircraft run-ups was increased proportional to the forecast increase in aircraft operations. Therefore, a

[33] Leigh Fisher. Environmental Review Airside Modeling, June 2020.
[34] Kandice Krull, FAA, Email to Sarah Potter, L&B, RE: SAMP NTP Env Review Normalized Taxi Times, July 10, 2023.

total of 565 run-up operations are estimated for the Future (2032) Proposed Action. This is an increase of ten additional run-up operations over the Future (2032) No Action Alternative.

## 8.2 Ground Support Equipment

### 8.2.1 Tenant-Owned GSE

The analysis assumed that tenant-owned GSE usage would increase commensurate with the forecast in aircraft activity and that the same types of vehicles would be used.[35] Therefore, the type of tenant-owned GSE identified for the Existing (2022) Condition would remain the same for the Future (2032) Proposed Action. As such, no new pieces of equipment were added for the analysis; it was estimated that there would only be an increase in usage in those same pieces of equipment. Table 3-5 in Attachment 3 provides the tenant-owned GSE and estimated hours of annual usage for the Future (2032) Proposed Action.

### 8.2.2 Port-Owned Airfield Vehicles and Equipment

The analysis assumed that Port-owned airfield vehicles and equipment usage would increase commensurate with the forecast in aircraft activity and that the same types of vehicles would be used. [36] The annual usage was increased proportional to the forecasted increase in aircraft operations. This includes Port vehicles and equipment used for airfield maintenance purposes and to support hardstand operations at the Airport. Table 3-6 in Attachment 3 provides the Port-owned airfield vehicles and equipment and estimated annual usage for the Future (2032) Proposed Action.

## 8.3 Stationary Sources

### 8.3.1 Natural Gas Boilers and Heaters

In addition to the Future (2032) No Action Alternative natural gas boilers and heaters, the Future (2032) Proposed Action includes new facilities that would use potentially new natural gas boilers. Table 4-5 in Attachment 4 provides the location, equipment type, and estimated usage of only the potential new natural gas boilers and heaters used for the Future (2032) Proposed Action. The number of potential new natural gas boilers and heaters were based on the proposed new facilities and the usage was based on how the Port uses the current natural gas boilers and heaters. All proposed new facilities were assumed to require natural gas usage to provide heat. While the Port would attempt to purchase more energy-efficient equipment, there are no existing agreements, contracts, or new energy code legislation that would require the Port to purchase higher efficiency boilers in the future. Therefore, the existing type of boilers were assumed to operate in the proposed new facilities.

### 8.3.2 Diesel Generators

In addition to the location, description, horsepower, and estimated annual usage of diesel-powered generators identified for the Future (2032) No Action Alternative, the Future (2032) Proposed Action includes potential new facilities that would require the use of new diesel-powered generators for standby and emergency power. The number of potential new generators was based on the proposed

[35] No future assumptions could be made on potential new equipment purchased by the tenants operating at the Airport. While these tenants would need to buy new equipment as older equipment reaches its end-of-life cycle, there are no known existing agreements or contracts for the purchase of any future equipment.

[36] No future assumptions could be made on potential new equipment purchased by the Port. While the Port would need to buy new equipment as older equipment reaches its end-of-life cycle, there are no existing agreements or contracts for the purchase of any future Port equipment.

new facilities and the usage was based on how the Port uses and tests the current generators. Table 4-6 in Attachment 4 provides the location, description, horsepower, and estimated annual usage of the new diesel-powered generators for the Future (2032) Proposed Action. Table 4-7 in Attachment 4 provides a summary comparison of diesel generator usage under the various alternatives.

### 8.3.3 Fuel Farm Tanks

The Future (2032) Proposed Action includes four new fuel farm tanks to be able to meet future fuel demands. The potential increase in Jet A fuel throughput for the Future (2032) Proposed Action was based on the forecast increase in aircraft operations and the additional tanks. It is estimated that the total volume of aviation fuel (Jet A) that would be supplied to aircraft would be 705,980,168 gallons for the Future (2032) Proposed Action. This is 12,994,411 gallons of Jet A fuel throughput more than the Future (2032) No Action Alternative. The total volume of aviation fuel (Jet A) would be stored among 12 total fuel tanks, including eight existing fuel tanks and four new fuel tanks to be located at the Airport's fuel farm as part of the Proposed Action.

## 8.4 Motor Vehicles

### 8.4.1 Motor Vehicles (On- and Off-Airport Roadways)

The vehicle classifications and vehicle distribution identified for the Future (2032) No Action Alternative would remain the same for the Future (2032) Proposed Action. The emission factors identified for the Future (2032) No Action Alternative would also remain the same for the Future (2032) Proposed Action as emission factors are a function of year/age of the vehicle and vehicle classification. Roadway segments and traffic volumes would be anticipated to change due to the Proposed Action, as described in the following sections.

#### *8.4.1.1 Roadway Segments*

The Proposed Action would result in elimination of several existing roadway segments and construction and operation of several new roadways to accommodate the new proposed facilities. The roadway segments that were eliminated and constructed are identified in Table 5-5 in Attachment 5. The roadway segments identified for the Proposed Action are provided in Exhibits 5-12 through 5-22 in Attachment 5.

#### *8.4.1.2 Traffic Volumes*

Traffic volumes were provided by the Port for this scenario to account for employee and cargo growth. Roadways for which only WSDOT data was available, traffic volumes were increased proportionally to the forecast increase in passengers. The traffic volume on each roadway segment and the annual VMT per roadway segment are provided in Table 5-5 in Attachment 5. For the Future (2032) Proposed Action there are anticipated to be 1,247,969,250 annual VMTs, an increase of 29,657,769 annual VMTs as compared to the Future (2032) No Action Alternative.

### 8.4.2 Motor Vehicles (Parking Facilities)

Emissions are based on volumes of vehicles in the parking facilities, distance traveled within the parking facility, and speed of vehicles. The potential volume increase in passenger traffic in the terminal parking lot for the Future (2032) Proposed Action was based on the forecasted increase in passengers. The total forecast of passengers was used to represent the potential increase in traffic volumes. The potential volume increase in motor vehicles using the North Employee Parking Lot for the Future (2032)

Proposed Action was based on the forecast increase in aircraft operations. It was assumed that as aircraft operations increase, and new facilities are constructed, the number of employees would also grow. Therefore, the number of motor vehicles estimated for the Future (2032) Proposed Action in the North Employee Parking Lot was increased proportional to the forecast increase in aircraft operations. There would be no change in vehicle speed or distance in these parking lots from the Future (2032) No Action Alternative.

The Proposed Action includes the removal of the Doug Fox Lot and the addition of new parking lots. For the new employee parking structure (L07), new north holding lot (L05), and the new terminal parking structure (T02), volumes were estimated by assuming the lots would operate at full capacity, meaning it was estimated there would be vehicles in all of the stalls.[37] Distance for a vehicle to travel was based on the length from the first parking stall from the entrance to the last stall using every aisle and floor if applicable. It was calculated that the average distance traveled for vehicles in the new employee parking structure (L07) was 0.38 miles, the average distance traveled by vehicles in the new north holding lot (L05) was 0.42 miles, and the average distance traveled by vehicles in the new terminal parking structure (T02) was 0.48 miles. In order to determine emissions, an average speed of five (5) mph was assumed for vehicles in these new parking lots.

## 8.5 Future (2032) Proposed Action Criteria Pollutant Emissions Inventory

The criteria pollutant emissions inventory provides the total annual pollutant emissions as short tons per year. The emissions inventory for the Future (2032) Proposed Action is shown in **Table 9**. The Future (2032) Proposed Action emissions inventory shows the pollutants with the greatest emissions are CO and NOx. There were approximately 4,517 tons of CO and 2,984 tons of $NO_x$ potentially emitted for the Future (2032) Proposed Action. Aircraft produce the greatest contribution to CO emissions (48.7 percent) and $NO_x$ emissions (96 percent). A summary comparison of the Future (2032) No Action Alternative and the Future (2032) Proposed Action is provided in Section 10.1 of this technical report.

[37] A daily turnover rate of 2.5 was applied on the terminal parking and daily turnover rate of 3 was applied to the employee parking based on professional judgment.

**TABLE 9: ANNUAL OPERATIONAL EMISSIONS INVENTORY - FUTURE (2032) PROPOSED ACTION**

| Emission Source | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) |
|---|---|---|---|---|---|---|
| **Aircraft** | **2,166** | **251** | **2,807** | **239** | **28** | **28** |
| LTO (includes Start-Up, Approach, Climb, and Taxiing) | 2,054 | 235 | 2,675 | 225 | 14 | 14 |
| APUs | 111 | 16 | 74 | 11 | 13 | 13 |
| Aircraft Run-Ups | 1 | 0 | 58 | 2 | 0 | 0 |
| **GSE** | **194** | **6** | **14** | **0** | **1** | **1** |
| Tenant-Owned GSE | 191 | 6 | 9 | 0 | 1 | 0 |
| Port-Owned Airfield Vehicles and Equipment | 3 | 0 | 4 | 0 | 0 | 0 |
| **Stationary Sources** | **23** | **15** | **39** | **54** | **1** | **1** |
| Natural Gas Boilers and Heaters | 19 | 1 | 23 | 0 | 0 | 0 |
| Diesel Generators | 4 | 0 | 16 | 54 | 0 | 0 |
| Fuel Farm Tanks | 0 | 13 | 0 | 0 | 0 | 0 |
| **Motor Vehicles** | **2,135** | **18** | **124** | **2** | **4** | **3** |
| Parking Facilities | 39 | 1 | 3 | 0 | 0 | 0 |
| On and Off-Airport Roadways (includes Airside Deliveries) | 2,096 | 17 | 121 | 2 | 4 | 3 |
| **Total** | **4,517** | **290** | **2,984** | **295** | **33** | **33** |

Note: Totals may not sum due to rounding. CO = carbon monoxide, VOC = Volatile Organic Compounds, $NO_x$ = nitrogen oxides, $SO_x$ = sulfur oxides, $PM_{10}$ = coarse particulate matter, $PM_{2.5}$ = fine particulate matter, ST = short tons.
Source: Port of Seattle and L&B, 2024.

# 9. Future (2032) Hybrid Option

The Future (2032) Hybrid Terminal Option would have the same operational impacts as the Future (2032) Proposed Action because the only differences in the two alternatives would be related to the location of passenger loading bridges and aircraft hardstands. The number of future aircraft operations would be the same. Therefore, the criteria pollutant emissions inventory for the Future (2032) Hybrid Terminal Option would be the same as the Future (2032) Proposed Action.

# 10. Comparison of 2032 Alternatives

The results of the emission inventories prepared for the Future (2032) Proposed Action and the Future (2032) Hybrid Terminal Option were compared to the results of the emission inventories prepared for the Future (2032) No Action Alternative to disclose the potential increase in emissions.

## 10.1 Future (2032) Proposed Action

The results of the comparison between the Future (2032) Proposed Action and the Future (2032) No Action Alternative are shown in **Table 10**.

**TABLE 10: SUMMARY OF ANNUAL CRITERIA POLLUTANT EMISSIONS, PROPOSED ACTION COMPARED TO THE NO ACTION ALTERNATIVE IN 2032**

| Emission Source | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) |
|---|---|---|---|---|---|---|
| 2032 No Action Alternative | 4,447 | 283 | 2,923 | 275 | 32 | 32 |
| 2032 Proposed Action | 4,557 | 291 | 2,993 | 295 | 41 | 34 |
| *Construction* | *40* | *1* | *9* | *0* | *8* | *1* |
| *Operational* | *4,517* | *290* | *2,984* | *295* | *33* | *33* |
| **2032 Increase in Emissions** | **110** | **8** | **70** | **20** | **9** | **2** |

Note: Totals may not sum due to rounding. CO = carbon monoxide, VOC = Volatile Organic Compounds, $NO_x$ = nitrogen oxides, $SO_x$ = sulfur oxides, $PM_{10}$ = coarse particulate matter, $PM_{2.5}$ = fine particulate matter.
Source: Port of Seattle and L&B, 2024.

Emissions of all pollutants are expected to be greater with the Future (2032) Proposed Action than the Future (2032) No Action Alternative, mainly due to the higher level of airport activity that the Future (2032) Proposed Action would serve. Overall, there are more aircraft operations forecast with the Proposed Action as compared to the No Action Alternative in future years. Implementation of the NTPs would increase the Airport's ability to accommodate increased aircraft operations and passenger activity by adding aircraft gates and passenger processing facilities. Annual aircraft operations for the Future (2032) Proposed Action are forecast to increase to 475,655 aircraft operations. The Future (2032) Proposed Action would serve 8,755 more operations (1.9 percent) than the Future (2032) No Action Alternative, which would result in a potential increase in emissions. While operational efficiencies would be achieved with the Proposed Action, emissions would be greater due to the higher level of operations.

## 10.2 Future (2032) Hybrid Option

The results of the comparison between the Future (2032) Hybrid Terminal Option and the Future (2032) No Action Alternative are shown in **Table 11**.

**TABLE 11: SUMMARY OF ANNUAL CRITERIA POLLUTANT EMISSIONS, HYBRID TERMINAL OPTION COMPARED TO THE NO ACTION ALTERNATIVE IN 2032**

| Emission Source | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) |
|---|---|---|---|---|---|---|
| 2032 No Action Alternative | 4,447 | 283 | 2,923 | 275 | 32 | 32 |
| 2032 Hybrid Terminal Option | 4,559 | 291 | 2,999 | 295 | 41 | 34 |
| Construction | 42 | 1 | 15 | 0 | 8 | 1 |
| Operational | 4,517 | 290 | 2,984 | 295 | 33 | 33 |
| **2032 Increase in Emissions** | **112** | **8** | **76** | **20** | **9** | **2** |

Note: Totals may not sum due to rounding. CO = carbon monoxide, VOC = Volatile Organic Compounds, $NO_x$ = nitrogen oxides, $SO_x$ = sulfur oxides, $PM_{10}$ = coarse particulate matter, $PM_{2.5}$ = fine particulate matter, ST = short tons.
Source: Port of Seattle and L&B, 2024.

The Future (2032) Hybrid Terminal Option would have the same operational impacts as the Future (2032) Proposed Action because the only differences in the two alternatives would be related to the location of passenger loading bridges and aircraft hardstands. The number of future aircraft operations would be the same. Minor differences in construction activities for Future (2032) Hybrid Terminal Option would result in the Future (2032) Hybrid Terminal Option having slightly greater overall emissions as compared to those for the Future (2032) Proposed Action.

# 11. Future (2037) No Action Alternative

## 11.1 Aircraft

### 11.1.1 Aircraft Fleet Mix and Activity Levels

Based on the aircraft activity forecast, there would be an increase in operations from the Future (2032) No Action Alternative to the Future (2037) No Action Alternative. There would be a total of 474,874 aircraft operations forecast for the Future (2037) No Action Alternative. Table 1-4 in Attachment 1 presents the average annual operations with the specific airframe type and AEDT engine code used for AEDT modeling for the Future (2037) No Action Alternative.

### 11.1.2 Aircraft Taxi Time

The airfield configuration (runway layout and taxiways) identified for the Future (2032) Condition would remain the same for the Future (2037) No Action Alternative. The average taxi in and taxi out time for the Future (2037) No Action Alternative was determined by using the delay analysis developed with the TAAM tool normalized to the ASPM data.[38,39] The average taxi in time was nine minutes and 41 seconds and the average taxi out time was 21 minutes and 42 seconds for the Future (2037) No Action Alternative for a total of 31 minutes and 23 seconds. These taxi in and taxi out times were applied to each operation in AEDT to develop the emissions inventory. The additional aircraft created additional

[38] Leigh Fisher. Environmental Review Airside Modeling, June 2020.
[39] Kandice Krull, FAA, Email to Sarah Potter, L&B, RE: SAMP NTP Env Review Normalized Taxi Times, July 10, 2023.

taxi time on the taxiways. A summary of the taxi times for each scenario is provided in Table 1-6 in Attachment 1.

### 11.1.3 APUs

The APU durations per aircraft type identified for the Future (2032) No Action Alternative would remain the same for the Future (2037) No Action Alternative. As previously discussed, regional and narrow body aircraft were considered Code C aircraft and assigned a total APU duration of 22 minutes per operation and wide body aircraft were considered Code D or above and assigned a total APU duration of 32 minutes per operation. The AEDT database was used to assign the specific types of APU equipment used for each aircraft type. General Aviation operations were assigned the AEDT default APU equipment and usage per operation because data on specific general aviation equipment and usage were not available. The Future (2037) No Action Alternative would have greater APU usage as compared to the Future (2032) No Action Alternative because of the increase in overall aircraft operations. See Table 2-4 in Attachment 2 for the estimated annual APU usage for the Future (2037) No Action Alternative.

### 11.1.4 Aircraft Run-Ups

The number of aircraft run-ups was increased proportional to the forecast increase in aircraft operations. Therefore, a total of 564 run-up operations are estimated for the Future (2037) No Action Alternative.

## 11.2 Ground Support Equipment

### 11.2.1 Tenant-Owned GSE

The analysis assumed that tenant-owned GSE usage would increase commensurate with the forecast in aircraft activity and that the same types of vehicles would be used.[40] Therefore, the type of tenant-owned GSE identified for the Existing (2022) Condition would remain the same for the Future (2037) No Action Alternative. As such, no new pieces of equipment were added for the analysis; it was estimated that there would only be an increase in usage in those same pieces of equipment. Table 3-7 in Attachment 3 provides the tenant-owned GSE and estimated hours of annual usage modeled for the Future (2037) No Action Alternative.

### 11.2.2 Port-Owned Airfield Vehicles and Equipment

The type of Port-owned airfield vehicles and equipment identified for the Future (2037) No Action Alternative would remain the same as for the Future (2032) No Action Alternative. As with the Future (2032) No Action Alternative, the analysis assumed that Port-owned airfield vehicles and equipment usage would increase commensurate with the forecast in aircraft activity and that the same types of vehicles would be used. [41] The annual usage was increased proportional to the forecast increase in aircraft operations. This includes Port vehicles and equipment used for airfield maintenance purposes and to support hardstand operations at the Airport. Table 3-8 in Attachment 3 provides the Port-owned

[40] No future assumptions could be made on potential new equipment purchased by the tenants operating at the Airport. While these tenants would need to buy new equipment as older equipment reaches its end-of-life cycle, there are no known existing agreements or contracts for the purchase of any future equipment.

[41] No future assumptions could be made on potential new equipment purchased by the Port. While the Port would need to buy new equipment as older equipment reaches its end-of-life cycle, there are no existing agreements or contracts for the purchase of any future Port equipment.

airfield vehicles and equipment and estimated annual usage for the Future (2037) No Action Alternative.

## 11.3 Stationary Sources

### 11.3.1 Natural Gas Boilers and Heaters

The location, equipment type, and usage of natural gas boilers and heaters identified for the Future (2032) No Action Alternative would remain the same for the Future (2037) No Action Alternative.

### 11.3.2 Diesel Generators

The location, name, horsepower, and annual usage of diesel-powered generators identified for the Future (2032) No Action Alternative would remain the same for the Future (2037) No Action Alternative.

### 11.3.3 Fuel Farm Tanks

The potential increase in Jet A fuel throughput for the Future (2037) No Action Alternative was based on the forecast increase in aircraft operations. It is estimated that the total volume of aviation fuel (Jet A) that would be supplied to aircraft would be 704,820,987 gallons for the Future (2037) No Action Alternative. The total volume of aviation fuel (Jet A) would be stored among eight existing fuel tanks located at the Airport's fuel farm.

## 11.4 Motor Vehicles

### 11.4.1 Motor Vehicles (On- and Off-Airport Roadways)

The roadway segment identifier, segment length, vehicle classification, vehicle distribution, and speed for each roadway segment identified for the Future (2032) No Action Alternative would remain the same for the Future (2037) No Action Alternative. Traffic volumes would be anticipated to change as would the emission factors, as described in the following sections.

#### *11.4.1.1 Traffic Volumes*

The forecasted traffic volume on each roadway segment and the annual VMT per roadway segment are provided in Table 5-6 in Attachment 5. The table notes the length of the segment and the average daily traffic, which is then multiplied by 365 to provide an annual total. Traffic volumes were provided by the Port for this scenario to account for employee and cargo growth. Roadways for which only WSDOT data was available, traffic volumes were increased proportional to the forecast increase in passengers. For the Future (2037) No Action Alternative there are anticipated to be 1,295,066,721 annual VMTs.

#### *11.4.1.2 Emissions Factors*

The EPA's MOVES4 was used to generate emissions rates in grams of pollutant per vehicle mile traveled (g/VMT). The emission factors are unique to the year 2037 and King County and are different for each criteria pollutant, speed, and vehicle type. The emission factors for each pollutant by speed and vehicle type for the Future (2037) No Action Alternative are provided in Table 5-7 in Attachment 5. Emission factors for the Future (2037) No Action Alternative are lower as compared to the Existing (2022) Condition and the Future (2032) No Action Alternative emissions factors. As previously stated,

EPA assumes in MOVES that older vehicles are gradually replaced by newer vehicles.[42] Therefore, while there are more vehicles on- and off-roadways traveling more miles in the future, because the emission factors are lower, total emissions for motor vehicles for the Future (2037) No Action Alternative would be less as compared to the Future (2032) No Action Alternative.

### 11.4.2 Motor Vehicles (Parking Facilities)

The parking lots identified for the Future (2032) No Action Alternative would remain the same for the Future (2037) No Action Alternative meaning there would be no new lots, change in vehicle speed or distance within the lots, or any increase in the number of parking stalls in the lots. The potential volume increase in motor vehicles using the Doug Fox Lot and the Terminal Parking Lot for the Future (2037) No Action Alternative was based on the forecast increase in total passengers. The number of motor vehicles in those parking lots would increase commensurate with the increase in total passengers. The potential volume increase in motor vehicles using the North Employee Parking Lot for the Future (2037) No Action Alternative was based on the forecast increase in aircraft operations. It was assumed that as aircraft operations increase so would the number of employees. Therefore, the number of motor vehicles estimated for the Future (2037) No Action Alternative in the North Employee Parking Lot was increased proportional to the forecast increase in aircraft operations.

## 11.5 Future (2037) No Action Alternative Criteria Pollutant Emissions Inventory

The criteria pollutant emissions inventory provides the total annual pollutant emissions as short tons per year. The emissions inventory for the Future (2037) No Action Alternative is shown in **Table 12**. The Future (2037) No Action Alternative emissions inventory shows the pollutants with the greatest emissions are CO and NOx. There were approximately 3,982 tons of CO and 3,088 tons of $NO_x$ potentially emitted for the Future (2037) No Action Alternative. Aircraft produce the greatest contribution to CO emissions (52.5 percent) and $NO_x$ emissions (96.3 percent).

[42] For EPA's guidance on emission factors see the following technical reports, Exhaust Emission Rates for Heavy-Duty Onroad Vehicles in MOVES4 (EPA-420-R-23-027 dated August 2023 and Exhaust Emission Rates for Light-Duty Onroad Vehicles in MOVES4 (EPA-420-R-23-028 dated August 2023) available online at https://www.epa.gov/moves/moves-onroad-technical-reports.

## TABLE 12: ANNUAL OPERATIONAL EMISSIONS INVENTORY - FUTURE (2037) NO ACTION ALTERNATIVE

| Emission Source | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) |
|---|---|---|---|---|---|---|
| **Aircraft** | **2,089** | **238** | **2,975** | **242** | **29** | **29** |
| LTO (includes Start-Up, Approach, Climb, and Taxiing) | 1,972 | 222 | 2,842 | 227 | 13 | 13 |
| APUs | 117 | 16 | 77 | 12 | 15 | 15 |
| Aircraft Run-Ups | 1 | 0 | 56 | 2 | 0 | 0 |
| **GSE** | **194** | **6** | **13** | **0** | **1** | **1** |
| Tenant-Owned GSE | 191 | 6 | 9 | 0 | 0 | 0 |
| Port-Owned Airfield Vehicles and Equipment | 3 | 0 | 4 | 0 | 0 | 0 |
| **Stationary Sources** | **16** | **11** | **27** | **37** | **1** | **1** |
| Natural Gas Boilers and Heaters | 13 | 1 | 16 | 0 | 0 | 0 |
| Diesel Generators | 2 | 0 | 11 | 37 | 0 | 0 |
| Fuel Farm Tanks | 0 | 10 | 0 | 0 | 0 | 0 |
| **Motor Vehicles** | **1,682** | **14** | **72** | **2** | **2** | **2** |
| Parking Facilities | 27 | 1 | 2 | 0 | 0 | 0 |
| On and Off-Airport Roadways (includes Airside Deliveries) | 1,655 | 13 | 71 | 2 | 2 | 2 |
| **Total** | **3,982** | **268** | **3,088** | **281** | **32** | **32** |

Note: Totals may not sum due to rounding. CO = carbon monoxide, VOC = Volatile Organic Compounds, $NO_x$ = nitrogen oxides, $SO_x$ = sulfur oxides, $PM_{10}$ = coarse particulate matter, $PM_{2.5}$ = fine particulate matter, ST = short tons.
Source: Port of Seattle and L&B, 2024.

# 12. Future (2037) Proposed Action

## 12.1 Aircraft

### 12.1.1 Aircraft Fleet Mix and Activity Levels

There would be a total of 509,892 aircraft operations forecast for the Future (2037) Proposed Action. This would be an increase of 35,018 annual operations more than the Future (2037) No Action Alternative. Table 1-5 in Attachment 1 presents the average annual operations for the specific airframe type with the AEDT engine code modeled in AEDT for the Future (2037) Proposed Action.

### 12.1.2 Aircraft Taxi Time

The same airfield configuration used for the Future (2032) Proposed Action was used for the Future (2037) Proposed Action. The average taxi in and taxi out time for the Future (2037) Proposed Action was determined by using the delay analysis developed with the TAAM tool normalized to the ASPM data.[43,44] The average taxi in time was nine minutes and 45 seconds and the average taxi out time was 23 minutes and 32 seconds for the Future (2037) Proposed Action, for a total of 33 minutes and 17 seconds. These taxi in and taxi out times were applied to each operation in AEDT to develop the emissions inventory. The overall average taxi time increased one minute and 54 seconds for the Future (2037) Proposed Action as compared to the Future (2037) No Action Alternative. While the Proposed Action includes proposed facility improvements which would increase the Airport's ability to accommodate an increase in operations in 2037, airfield constraints would result in the Airport still experiencing increases in taxi times due to the higher number of total aircraft operating on the runways and taxiways, as well as the location of the proposed gates in relationship to the end of the runways. A summary of the taxi times for each scenario is provided in Table 1-6 in Attachment 1.

### 12.1.3 APUs

The APU durations per aircraft type identified for the Future (2037) No Action Alternative would remain the same for the Future (2037) Proposed Action. As previously discussed, regional and narrow body aircraft were considered Code C aircraft and assigned a total APU duration of 22 minutes per operation and wide body aircraft were considered Code D or above and assigned a total APU duration of 32 minutes per operation. The AEDT database was used to assign the specific types of APU equipment used for each aircraft type. General Aviation operations were assigned the AEDT default APU equipment and usage per operation because data on specific general aviation equipment and usage were not available. The Future (2037) Proposed Action would have greater APU usage as compared to the Future (2037) No Action Alternative because of the increase in overall aircraft operations. See Table 2-5 in Attachment 2 for the estimated annual APU usage for the Future (2037) Proposed Action.

### 12.1.4 Aircraft Run-Ups

The increase in overall aircraft operations in the Future (2037) Proposed Action from the Future (2037) No Action Alternative is anticipated to result in an increase in the number of run-ups. The number of aircraft run-ups was increased proportional to the forecast increase in aircraft operations. Therefore, a total of 606 aircraft run-up operations are estimated for the Future (2037) Proposed Action. This is an increase of 42 additional run-up operations over the Future (2037) No Action Alternative.

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43 Leigh Fisher. Environmental Review Airside Modeling, June 2020.
44 Kandice Krull, FAA, Email to Sarah Potter, L&B, RE: SAMP NTP Env Review Normalized Taxi Times, July 10, 2023.

## 12.2 Ground Support Equipment

### 12.2.1 Tenant-Owned GSE

The analysis assumed that tenant-owned GSE usage would increase commensurate with the forecast in aircraft activity and that the same types of vehicles would be used.[45] Therefore, the type of tenant-owned GSE identified for the Existing (2022) Condition would remain the same for the Future (2037) Proposed Action Alternative. As such, no new pieces of equipment were added for the analysis; it was estimated that there would only be an increase in usage in those same pieces of equipment. Table 3-9 in Attachment 3 provides the tenant-owned GSE and estimated hours of annual usage modeled for the Future (2037) Proposed Action.

### 12.2.2 Port-Owned Airfield Vehicles and Equipment

The analysis assumed that Port-owned airfield vehicles and equipment usage would increase commensurate with the forecast in aircraft activity and that the same types of vehicles would be used. [46] The annual usage was increased proportional to the forecasted increase in aircraft operations. This includes Port vehicles and equipment used for airfield maintenance purposes and to support hardstand operations at the Airport. Table 3-10 in Attachment 3 provides the Port-owned airfield vehicles and equipment and estimated annual usage for the Future (2037) Proposed Action.

## 12.3 Stationary Sources

### 12.3.1 Natural Gas Boilers and Heaters

The location, equipment type, and usage of natural gas boilers and heaters identified for the Future (2032) Proposed Action would remain the same for the Future (2037) Proposed Action. There would be no change in square footage of new facilities from 2032 to 2037 with the Proposed Action. While the total number of passengers would increase, natural gas usage is based on the area of the facility not the number of passengers.

### 12.3.2 Diesel Generators

The location, description, horsepower, and estimated annual usage of diesel-powered generators identified for the Future (2032) Proposed Action would remain the same for the Future (2037) Proposed Action.

### 12.3.3 Fuel Farm Tanks

The potential increase in Jet A fuel throughput for the Future (2037) Proposed Action was based on the forecast increase in aircraft operations. It is estimated that the total volume of aviation fuel (Jet A) that would be supplied to aircraft would be 756,795,661 gallons for the Future (2037) Proposed Action. This is an increase of 51,974,674 gallons of fuel throughput compared to the Future (2037) No Action Alternative. The total volume of aviation fuel (Jet A) would be stored among 12 fuel tanks, including

[45] No future assumptions could be made on potential new equipment purchased by the tenants operating at the Airport. While these tenants would need to buy new equipment as older equipment reaches its end-of-life cycle, there are no known existing agreements or contracts for the purchase of any future equipment.

[46] No future assumptions could be made on potential new equipment purchased by the Port. While the Port would need to buy new equipment as older equipment reaches its end-of-life cycle, there are no existing agreements or contracts for the purchase of any future Port equipment.

eight existing fuel tanks and four new fuel tanks to be located at the Airport's fuel farm as part of the Proposed Action.

## 12.4 Motor Vehicles

### 12.4.1 Motor Vehicles (On- and Off-Airport Roadways)

The roadway segment identifier, segment length, vehicle classification, vehicle distribution, and speed for each roadway segment identified for the Future (2032) Proposed Action would remain the same for the Future (2037) Proposed Action. The emission factors identified for the Future (2037) No Action Alternative would remain the same for the Future (2037) Proposed Action as emission factors are based upon the year/vehicle age and vehicle classification and would not be changed by the Proposed Action. Traffic volumes would be anticipated to change as described in the following section.

#### *12.4.1.1 Traffic Volumes*

The forecasted traffic volume on each roadway segment and the annual VMT per roadway segment are provided in Table 5-8 in Attachment 5. Traffic volumes were provided by the Port for this scenario to account for employee and cargo growth. Roadways for which only WSDOT data was available, traffic volumes were increased proportional to the forecast increase in passengers. For the Future (2037) Proposed Action there are anticipated to be 1,377,374,995 annual VMTs, an increase of 82,308,275 annual VMTs as compared to the Future (2037) No Action Alternative.

### 12.4.2 Motor Vehicles (Parking Facilities)

The parking lots identified for the Future (2032) Proposed Action would remain the same for the Future (2037) Proposed Action. The potential increase in passenger traffic in the parking lots for the Future (2037) Proposed Action was based on the forecast increase in passengers as parking lot use was increased in proportion to the change in passengers. The total forecast passengers were used to represent the potential increase in traffic volumes.

## 12.5 Future (2037) Proposed Action Criteria Pollutant Emissions Inventory

The criteria pollutant emissions inventory provides the total annual pollutant emissions as short tons per year. The emissions inventory for the Future (2037) Proposed Action is shown in **Table 13**. The Future (2037) Proposed Action emissions inventory shows the pollutants with the greatest emissions are CO and NOx. There were approximately 4,245 tons of CO and 3,314 tons of $NO_x$ potentially emitted for the Future (2037) Proposed Action. Aircraft produce the greatest contribution to CO emissions (52.6 percent) and $NO_x$ emissions (96.1 percent). A summary comparison of the Future (2037) No Action Alternative and the Future (2037) Proposed Action is provided in Section 14.1 of this technical report.

**TABLE 13: ANNUAL OPERATIONAL EMISSIONS INVENTORY - FUTURE (2037) PROPOSED ACTION**

| Emission Source | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) |
|---|---|---|---|---|---|---|
| **Aircraft** | **2,231** | **252** | **3,184** | **259** | **31** | **31** |
| LTO (includes Start-Up, Approach, Climb, and Taxiing) | 2,104 | 235 | 3,041 | 243 | 14 | 14 |
| APUs | 126 | 17 | 82 | 13 | 16 | 16 |
| Aircraft Run-Ups | 1 | 0 | 60 | 2 | 0 | 0 |
| **GSE** | **208** | **6** | **14** | **0** | **1** | **1** |
| Tenant-Owned GSE | 204 | 6 | 10 | 0 | 1 | 0 |
| Port-Owned Airfield Vehicles and Equipment | 3 | 0 | 5 | 0 | 0 | 0 |
| **Stationary Sources** | **23** | **15** | **39** | **54** | **1** | **1** |
| Natural Gas Boilers and Heaters | 19 | 1 | 23 | 0 | 0 | 0 |
| Diesel Generators | 4 | 0 | 16 | 54 | 0 | 0 |
| Fuel Farm Tanks | 0 | 13 | 0 | 0 | 0 | 0 |
| **Motor Vehicles** | **1,784** | **14** | **76** | **2** | **2** | **2** |
| Parking Facilities | 32 | 1 | 2 | 0 | 0 | 0 |
| On and Off-Airport Roadways (includes Airside Deliveries) | 1,752 | 14 | 74 | 2 | 2 | 2 |
| **Total** | **4,245** | **288** | **3,314** | **315** | **35** | **34** |

Note: Totals may not sum due to rounding. CO =carbon monoxide, VOC=Volatile Organic Compounds, $NO_x$ = nitrogen oxides, $SO_x$= sulfur oxides, $PM_{10}$ = coarse particulate matter, $PM_{2.5}$ = fine particulate matter, ST = short tons.
Source: Port of Seattle and L&B, 2024.

# 13. Future (2037) Hybrid Option

The Future (2037) Hybrid Terminal Option would have the same operational impacts as Future (2037) Proposed Action because the only differences in the two alternatives would be related to the location of passenger loading bridges and aircraft hardstands. The number of future aircraft operations would be the same. Therefore, the criteria pollutant emissions inventory for the Future (2037) Hybrid Terminal Option would be the same as the Future (2037) Proposed Action.

# 14. Comparison of 2037 Alternatives

The results of the emission inventories prepared for the Future (2037) Proposed Action and the Future (2037) Hybrid Terminal Option were compared to the results of the emission inventories prepared for the Future (2037) No Action Alternative to disclose the potential increase in emissions.

## 14.1 Future (2037) Proposed Action

The results of the comparison between the Future (2037) Proposed Action and the Future (2037) No Action Alternative are shown in **Table 14**.

**TABLE 14: SUMMARY OF ANNUAL CRITERIA POLLUTANT EMISSIONS, PROPOSED ACTION COMPARED TO THE NO ACTION ALTERNATIVE IN 2037**

| Emission Source | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) |
|---|---|---|---|---|---|---|
| 2037 No Action Alternative | 3,982 | 268 | 3,088 | 281 | 32 | 32 |
| 2037 Proposed Action (Operational Only) | 4,245 | 288 | 3,314 | 315 | 35 | 34 |
| ***2037 Increase in Emissions*** | ***263*** | ***20*** | ***225*** | ***34*** | ***3*** | ***2*** |

Note: Totals may not sum due to rounding. CO =carbon monoxide, VOC=Volatile Organic Compounds, $NO_x$ = nitrogen oxides, $SO_x$= sulfur oxides, $PM_{10}$=coarse particulate matter, $PM_{2.5}$= fine particulate matter, ST = short tons.
Source: Port of Seattle and L&B, 2024.

Emissions of all pollutants are expected to be greater with the Proposed Action than the No Action Alternative, mainly due to the higher level of airport activity that the Proposed Action would serve. Implementation of the NTPs would increase the Airport's ability to accommodate increased aircraft operations and passenger activity by adding aircraft gates and passenger processing facilities. Annual aircraft operations for the Future Proposed Action are forecast to increase to 509,892 in 2037. The Proposed Action would serve 35,018 more operations in 2037 (7.4 percent) than the No Action Alternative, which would result in a potential increase in emissions. While operational efficiencies would be achieved with the Proposed Action, emissions would be greater due to the higher level of operations.

The largest change to emissions with the Proposed Action would occur in 2037 when the activity difference is the greatest relative to the No Action. CO emissions would increase from 3,982 tons (No Action) to 4,245 tons (Proposed Action) or 263 tons (a 6.6 percent change). VOC emissions in 2037 would be 7.3 percent higher with the Proposed Action, $NO_x$ emissions would be 7.3 percent higher, $SO_x$ emissions would be 12.3 percent higher, and $PM_{10}$ and $PM_{2.5}$ emissions would be 7.8 percent higher due to the Proposed Action.[47]

## 14.2 Future (2037) Hybrid Option

The results of the comparison between the Hybrid Terminal Option and the No Action Alternative are shown in **Table 15**.

**TABLE 15: SUMMARY OF ANNUAL CRITERIA POLLUTANT EMISSIONS, HYBRID TERMINAL OPTION COMPARED TO THE NO ACTION ALTERNATIVE IN 2037**

| Emission Source | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) |
|---|---|---|---|---|---|---|
| 2037 No Action Alternative | 3,982 | 268 | 3,088 | 281 | 32 | 32 |
| 2037 Hybrid Terminal Option (Operational Only) | 4,245 | 288 | 3,314 | 315 | 35 | 34 |
| **2037 Increase in Emissions** | **263** | **20** | **225** | **34** | **3** | **2** |

Note: Totals may not sum due to rounding. CO =carbon monoxide, VOC=Volatile Organic Compounds, $NO_x$ = nitrogen oxides, $SO_x$= sulfur oxides, $PM_{10}$=coarse particulate matter, $PM_{2.5}$= fine particulate matter, ST = short tons.
Source: Port of Seattle and L&B, 2024.

The Hybrid Terminal Option would have the same operational impacts as the Proposed Action because the only differences in the two alternatives would be related to the location of passenger loading bridges and aircraft hardstands.

[47] The reported percent increases were estimated using derived results prior to rounding.

# 15. Air Quality Significance Determination

An emissions inventory is a summary in tons per year of the total pollutants generated by an alternative. Pollutant concentrations in the NAAQS are measured in micrograms per cubic meter or parts per million/billion and describe concentrations of the pollutants in the air. An emissions inventory is not directly comparable to the NAAQS.

Of the projected pollutant increases, the largest increase would be to CO and NOx. The Port worked with PSCAA in developing the region's most recent air quality plan and prior SIPs and has kept the region abreast of activity levels at the Airport as the region came into attainment. The Washington State Department of Ecology has established an air monitoring network around the state that measures air pollution. The air quality monitoring stations in King County are maintained by the PSCAA. The air quality monitoring stations closest to the Airport are Seattle South Park, Kent, Allentown, and Beacon Hill. CO levels have decreased significantly in the Puget Sound region primarily due to emissions controls on car engines. The most recent publicly available data on CO and $NO_x$ from the air quality monitors indicate that not only the air quality complies with the NAAQS but concentrations are below the NAAQS for CO and NOx.[48] Therefore, the potential increase in criteria pollutant emissions, as shown in the emissions inventory for the Proposed Action or the Hybrid Terminal Option as compared to the No Action Alternative, would not be expected to create any new violation of the NAAQS.[49]

# 16. Federal Regulatory Setting for Climate

On January 9, 2023, Council on Environmental Quality (CEQ) issued the *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change*, which is interim guidance to assist agencies in analyzing greenhouse gas and climate change effects of their proposed actions under NEPA. Per FAA Order 1050.1F Desk Reference, there are no federal significance thresholds for greenhouse gas (GHG) emissions, nor has the FAA identified specific factors to consider in making a significance determination for GHG emissions.

# 17. Overall Approach to Climate Assessment

Per FAA Order 1050.1F, the discussion of potential climate impacts should be documented in a separate section of the NEPA document, distinct from air quality.[50] FAA guidance notes that if a project might increase criteria pollutants and/or fuel use, it could increase GHG emissions, warranting an emissions inventory.

GHG emissions inventories were conducted to provide the estimate of the annual rate (metric tons per year) of GHG emissions attributable to airport sources for the No Action Alternative and the Proposed Action. The GHG emissions inventories were conducted in accordance with the guidelines provided in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures (including the Desk Reference);* FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*; FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1;* and the CEQ's *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and*

48 Puget Sound Clean Air Agency. 2022 Air Quality Data Summary, December 2023.
49 Erik Saganić, PSCAA, Email to Kandice Krull, FAA, RE: Sea-Tac International Airport Preliminary Air Results, December 14, 2023.
50 FAA, April 2015, Order 1050.1F Paragraph 4-1. Climate is considered a separate section from Air Quality.

*Climate Change.* Per these guidelines, the climate assessment was developed to include a NEPA GHG emissions inventory, disclosure of estimated GHG emissions, and a qualitative climate evaluation for the existing conditions, proposed action, no action alternative, and any reasonable alternatives as detailed below.

# 18. Climate Methodology

## 18.1 Pollutants

GHGs are gases that trap heat in the earth's atmosphere. GHGs include carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), sulfur hexafluoride ($SF_6$), hydrofluorocarbons (HFC), and perfluorocarbons (PFCs). Of these GHGs, only $CO_2$, $CH_4$ and $N_2O$ are potentially emitted directly or indirectly as a consequence of the Proposed Action and are included in this analysis.[51]

## 18.2 Global Warming Potential

GHGs differ from each other in their ability to absorb energy and how long they stay in the atmosphere. The Global Warming Potential (GWP) was developed to allow comparisons of global warming impacts of different gases by converting each gas amount to a carbon dioxide equivalent ($CO_2e$).[52] GWPs provide a common unit of measure, which allows for one emission estimate of these different gases.

For this analysis, GWPs were based on a 100-year period (GWP 100) provided in the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1* and based on the Intergovernmental Panel on Climate Change (IPCC), Fifth Assessment Report (AR5).[53] $CO_2$ has a GWP of one (1) because it is the gas used as the reference point. Methane does not last as long in the atmosphere as $CO_2$ however it absorbs much more energy. Therefore, one ton of methane has 34 times more heat capturing potential than one ton of carbon dioxide. The amount of methane emissions would be multiplied by 34 to determine its $CO_2e$ value. Nitrous oxides last in the atmosphere far longer than $CO_2$. The amount of nitrous oxides emissions would be multiplied by 298 to determine its $CO_2e$ value.

## 18.3 Scope/Categories of Emissions

GHG emissions inventories are presented in a different manner than air quality criteria pollutant emissions inventories. GHG emissions inventories are categorized into three groups, Scope 1, 2, and 3 emissions, as described below.

- Scope 1 – GHG emissions from sources owned or controlled by the Port at the Airport, including Port-owned vehicles, equipment, and stationary sources such as natural gas boilers and diesel generators. These GHGs are primarily limited to the project site.

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51 Per EPA, fluorinated gases are generally emitted as refrigerants and through industrial processes such as aluminum and semiconductor manufacturing. Additional information from the EPA on fluorinated gases can be found at https://www.epa.gov/ghgemissions/overview-greenhouse-gases

52 EPA, 2017, Understanding Global Warming Potentials. https://www.epa.gov/ghgemissions/understanding-global-warming-potentials, Accessed August 2017.

53 There are also 20-year GWP values which prioritizes gases with shorter lifetimes. For example, the GWP 20 value for methane is 86, according to IPCC AR5, as compared to the GWP 100 value of 34. There is no difference between GWP 100 and GWP 20 for $CO_2$ and only a minor difference for nitrous oxides (GWP 100 is 298 and GWP 20 is 268). It is acknowledged that GHG emissions, especially for methane, would be higher using the GWP 20 instead of the GWP 100. However, methane emissions represent a small fraction of the total GHG emissions at SEA. This analysis used FAA guidance specifically provided in the FAA's Aviation Emissions and Air Quality Handbook to determine potential GHG emissions.

- Scope 2 – GHG emissions from off-Airport generation of electricity purchased by the Port and consumed at the Airport. It is recognized that the estimation of GHG emissions from electricity generation is a widely accepted methodology according to international and FAA guidelines on preparing GHG emissions inventories.
- Scope 3 –GHG emissions caused by airport operations that are not under the direct control of the Port, including sources like aircraft and passenger-related motor vehicle emissions.

Furthermore, GHG emissions are categorized by the degrees of control that an airport operator may have over them. These categories are defined as follows:

- Category 1 – GHG emissions from sources that are controlled by the reporting entity, such as Port-owned GSE or vehicles and electrical consumption by the Port. In the case of an airport operator these include Scope 1 emissions but can also include some Scope 2 and Scope 3 sources over which the entity can exert some control. Examples of the latter can include personal vehicle use for business purposes that is reimbursed by the airport operator.
- Category 2 – This category comprises Scope 3 emissions associated with sources owned and controlled by airlines and airport tenants. Examples include aircraft, APUs, tenant-owned GSE, electrical consumption, and other stationary sources controlled by tenants.
- Category 3 – This category generally comprises Scope 3 emissions associated with public sources associated with the airport. Examples include private automobiles, taxis used for drop-off, limousines, buses, and shuttle vans traveling to and from the airport.

## 18.4 Scope 1

Port-owned vehicles used primarily on the airfield, including GSE, are considered Scope 1, Category 1.[54,55] Stationary sources used by the Port are located on Airport property and are also included in Scope 1, Category 1.

### 18.4.1 Port-Owned Airfield Vehicles and Equipment

The same Port-owned airfield vehicles and equipment data and assumptions developed for the air quality criteria pollutant emissions inventory was used to prepare the GHG emissions inventory. The annual GHG emissions were estimated using the following formula from the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*.

- *Equipment Emission Rate (tons/year) = Full Throttle Emission Factor (grams/hp-hour) x size (hp) x hours per year x Load Factor x Usage Factor x (1 pound/453.59 grams) x (1 ton/2,000 pounds)*

The full throttle emission factors for diesel, gasoline, and propane equipment used to estimate GHG emissions from Port-owned airfield vehicles and equipment were developed from MOVES4 and are provided in Table 3-11 in Attachment 3.[56]

The Port-owned airfield vehicles and equipment for the Existing (2022) Condition and each of the alternatives are provided in **Table 16.** Attachment 3 provides the annual usage in hours by each Port-

[54] The use of Port-owned vehicles that primarily operate on roadways, such as cars and trucks, are considered Scope 3

[55] It is acknowledged that this results in fewer Scope 1 emissions and more Scope 3 emissions; however, all of the potential Port-owned vehicle GHG emissions are included in the analysis. GHG emissions from motor vehicles operating on roadways were based on vehicle miles traveled. For reference, the Port's 2022 GHG emissions inventory for mobile sources, which is based on specific gasoline or diesel usage, accounted for approximately 1,300 tons of $CO_2$.

[56] The Airport Support Equipment available in MOVES4 was be used for Ground Support Equipment

owned GSE for the Existing (2022) Condition and each of the alternatives. As stated in Section 12.2, the annual usage was increased proportional to the forecasted increase in aircraft operations. Energy usage from Port-owned electric vehicles are discussed in Section 18.5.1.

**TABLE 16: PORT-OWNED GSE – SUMMARY COMPARISON OF ANNUAL USAGE**

| Scenario | Fuel Type | Annual Usage (gallons) |
|---|---|---|
| Existing Condition | Diesel | 29,608 |
| Existing Condition | Gasoline | 57,224 |
| Existing Condition | Propane | 24 |
| Future (2032) No Action | Diesel | 34,443 |
| Future (2032) No Action | Gasoline | 66,570 |
| Future (2032) No Action | Propane | 27 |
| Future (2032) Proposed Action | Diesel | 35,089 |
| Future (2032) Proposed Action | Gasoline | 67,818 |
| Future (2032) Proposed Action | Propane | 28 |
| Future (2037) No Action | Diesel | 35,031 |
| Future (2037) No Action | Gasoline | 67,707 |
| Future (2037) No Action | Propane | 28 |
| Future (2037) Proposed Action | Diesel | 37,615 |
| Future (2037) Proposed Action | Gasoline | 72,700 |
| Future (2037) Proposed Action | Propane | 30 |

Source: Port of Seattle and L&B, 2023.

### 18.4.2 Stationary Sources

GHGs for stationary sources are determined by multiplying the emission factor by the annual usage. In order to determine GHG emissions, the emission factors shown in **Table 17** were used.

**TABLE 17: GHG EMISSION FACTORS FOR STATIONARY SOURCES**

| Fuel | $CO_2$ | $N_2O$ | $CH_4$ |
|---|---|---|---|
| Natural Gas | 0.05444 kg/ standard cubic foot (scf) | 0.00010 g/scf | 0.00103 g/scf |
| Diesel | 10.21 kg/gallon | 0.08 g/gallon | 0.41 g/gallon |

Note: tonnes denotes metric tons, kg denotes kilogram, g denotes gram, mmBtu denotes million British thermal units; GHG emission factors presented in the table were converted to tonnes/therm: 0.005306 tonnes $CO_2$/therm, 0.0000001 tonnes $CH_4$ /therm, and 0.00000001 tonnes $N_2O$/therm
Source: US EPA, Emission Factors for Greenhouse Gas Inventories, Center for Corporate Climate Leadership, April 2022, https://www.epa.gov/system/files/documents/2022-04/ghg_emission_factors_hub.pdf

#### Natural Gas Boilers

**Table 18** provides the total natural gas usage by scenario for the boilers and heaters. Specific boilers and heaters with their annual consumption are provided in Attachment 4.

**TABLE 18: NATURAL GAS BOILERS AND HEATERS – SUMMARY COMPARISON OF ANNUAL USAGE**

| Scenario | Annual Consumption (Therms) |
|---|---|
| Existing (2022) Condition | 3,170,725 |
| 2032 & 2037 No Action Alternative | 3,322,066 |
| 2032 & 2037 Proposed Action | 4,686,321 |

Source: Port of Seattle and L&B, 2024.

The No Action Alternative is anticipated to consume more natural gas than the Existing (2022) Condition because the No Action Alternative includes projects that have recently been constructed or will be constructed by 2032, including: Terminal Renovation, A Concourse Building Expansion, and C Concourse Expansion that were not included in the Existing (2022) Condition. These facilities are also included in the Proposed Action. The Proposed Action is anticipated to consume more natural gas than the No Action Alternative because the Proposed Action includes potential new facilities that would use new natural gas boilers and heaters.

### Diesel Generators

In order to determine GHG emissions from generators, hours of use were converted to an annual amount of consumption in gallons. The fuel rate in gallons per hour was provided by the Port for each of the generators depending on the horsepower and the type of generator. The fuel rate was used to develop the total annual amount of diesel fuel consumed. **Table 19** provides the total diesel generators usage by scenario. Table 4-8 in Attachment 4 provides the fuel rate per generator.

The No Action Alternative is anticipated to consume more gallons of diesel than the Existing (2022) Condition because the No Action includes projects that have recently been constructed or will be constructed by 2032 that will include new diesel-powered backup generators. The Proposed Action is anticipated to consume more diesel from generators than the No Action Alternative because the Proposed Action includes potential new facilities that would require additional generators.

**TABLE 19: DIESEL GENERATORS – SUMMARY COMPARISON OF ANNUAL USAGE**

| Scenario | Annual Usage (Hours) |
|---|---|
| Existing (2022) Condition | 509.2 |
| 2032 & 2037 No Action Alternative | 554.2 |
| 2032 & 2037 Proposed Action | 772.4 |

Source: Port of Seattle and L&B, 2024.

### Fuel Tanks

No GHG emissions were estimated for Jet A fuel throughput due to storage in the fuel tanks. While the storage of fuel is a potential source of evaporative hydrocarbon emissions, it does not produce the type of hydrocarbon emissions from the combustion of fuel that contribute directly to global climate change.

## 18.5 Scope 2

Scope 2 includes GHG emissions associated with the off-Airport generation of electricity purchased and consumed at the Airport by the Port.

### 18.5.1 Port of Seattle Electricity Consumption

Scope 2 GHG emissions are created as a result of electricity use in Airport buildings (e.g., Airport terminals, distribution center, bus maintenance facility, and other miscellaneous sources) and the airfield lighting which are generated from off-site power plant locations. Port electricity consumption is considered Category 2. This does not include GHG emissions associated with the generation of electricity that was provided by the Port directly to tenants. GHG emissions associated with tenant electricity consumption are considered Scope 3 and are disclosed in Section 18.6.5. GHG emissions are calculated by multiplying the emission factors and the total electrical consumption on an annual basis.

Electricity is provided to the Port by Bonneville Power Administration (BPA), Puget Sound Energy (PSE), and Seattle City Light (SCL). Emission factors per kilowatt-hour of electricity consumption are provided in **Table 20**.

**TABLE 20: GHG EMISSION FACTORS FOR OFF-SITE (PURCHASED) ELECTRICITY GENERATION**

| Fuel | $CO_2$ (tonnes/kWh) |
|---|---|
| BPA Electricity Purchased | 0.00001250 |
| PSE Electricity Purchased | 0.00041594 |
| SCL Electricity Purchased | 0.00000891 |

Note: Tonnes refers to metric tons. KWh denotes kilowatt-hour.
Source: Port of Seattle, 2023.

**Table 21** provides the total electricity usage by the Port for the Existing (2022) Condition and each future scenario. The No Action Alternative includes projects that have recently been constructed or will be constructed by 2032. It is assumed that there would be no other projects that would change electricity usage between the Future (2032) No Action Alternative and the Future (2037) No Action Alternative; therefore, those projections are the same. The Future (2032) Proposed Action and the Future (2037) Proposed Action GHG emissions inventory for Port electricity consumption was based on anticipated energy use per square foot. Average electricity use per square foot for baseline conditions by each provider were used to determine the potential increase in electricity consumption that would correlate with the potential increase in square footage with the proposed new facilities. It is assumed for purposes of modeling GHG emissions that all elements of the Proposed Action would be completed by 2032.[57] There would be no known additional square footage that would change electricity usage between the Future (2032) Proposed Action and the Future (2037) Proposed Action, therefore those projections are the same.

[57] The Proposed Action could begin construction as soon as 2025 and if started then, be complete by 2032.

**TABLE 21: PORT OF SEATTLE ELECTRICITY CONSUMPTION – SUMMARY COMPARISON OF ANNUAL CONSUMPTION**

| Scenario | Total BPA Electricity Consumption (MWH): | Total SCL Electricity Consumption (MWH): | Total PSE Electricity Consumption (MWH): | Total Electricity Consumption (MWH): |
|---|---|---|---|---|
| Existing (2022) Condition | 117,000 | 2,100 | 2,207 | 121,307 |
| 2032 & 2037 No Action Alternative | 122,121 | 2,100 | 2,207 | 126,428 |
| 2032 & 2037 Proposed Action | 166,273 | 2,900 | 3,083 | 172,256 |

Note: MWh denotes megawatt-hour
Source: Port of Seattle, 2024.

## 18.6 Scope 3

Scope 3 includes indirect GHG emissions caused by airport operations that are not under the direct control of the Port, including sources like aircraft and motor vehicle emissions.

### 18.6.1 Aircraft Landing and Take-off (Includes Start-Up, Approach, Climb, and Taxiing), APUs, and Aircraft Run-Up Activity

Aircraft landing and take-off, including start-up, approach, climb, and taxiing, APUs, and aircraft run-up activity are considered Scope 3, Category 2. For all scenarios, the GHG emissions inventory was prepared by estimating the emission related to the consumption of the total fuel that was dispensed, or supplied, to aircraft at the Airport. The emission factors for Jet A LTO shown in **Table 22** will be used to determine GHG emissions from the fuel dispensed at the Airport.

**TABLE 22: GHG EMISSION FACTORS FOR AIRCRAFT ENGINE FUEL**

| Fuel | $CO_2$ | $N_2O$ | $CH_4$ |
|---|---|---|---|
| Jet A | 9.75 kg/gallon | 0.30 g/gallon | 0.0 g/gallon |

Note: $CO_2$ = carbon dioxide, $N_2O$ = nitrous oxides, $CH_4$ = methane, kg = kilogram, g = gram.
Source: US EPA, Emission Factors for Greenhouse Gas Inventories, Center for Corporate Climate Leadership, April 2022, https://www.epa.gov/system/files/documents/2022-04/ghg_emission_factors_hub.pdf

Because aircraft operations, the use of APUs, and aircraft run-ups are expected to increase each year, the amount of fuel dispensed for the Future (2032) No Action and the Future (2037) No Action, and the Future (2032) Proposed Action and the Future (2037) Proposed Action, will be higher as compared to the Existing (2022) Condition.

### 18.6.2 Tenant-Owned GSE

Tenant-owned GSE are considered Scope 3, Category 2. For tenant-owned GSEs, the same data and assumptions for GSE equipment, number of operations, and operating time as developed for the criteria emissions inventory were used. Horsepower, operating time per unit and number of operations, and load factor were obtained from AEDT.

Emission factors developed in MOVES4 by fuel type and horsepower group are provided in Table 3-11 in Attachment 3. Emissions for GSEs assigned to aircraft operations were determined using the following formula.

- *Equipment Emission Rate (tons/year) = Size (hp) x Load Factor x Hours per Year x Emission Factor (g/hp-hr) x (1 pound/453.59 grams) x (1 ton/2,000 pounds)*

The tenant-owned airfield vehicles and equipment for the Existing (2022) Condition and each of the alternatives are provided in **Table 23.** Attachment 3 provides the annual usage in hours by each tenant-owned GSE for the Existing (2022) Condition and each of the alternatives.

**TABLE 23: TENANT-OWNED GSE – SUMMARY COMPARISON OF ANNUAL USAGE**

| Scenario | Annual Usage (hours) |
|---|---|
| Existing Condition | 755,174 |
| Future (2032) No Action | 893,153 |
| Future (2032) Proposed Action | 909,451 |
| Future (2037) No Action | 910,188 |
| Future (2037) Proposed Action | 975,374 |

Source: Port of Seattle and L&B, 2024.

### 18.6.3 Tenant Electricity Consumption

Tenant electricity consumption is considered Scope 3, Category 2. The GHG emissions inventory includes emissions associated with the generation of electricity provided by the Port directly to tenants, which are considered Scope 3. Electricity is used by tenant facilities including electricity for charging electrified GSE. Electricity provided by the Port and consumed by tenants is only provided by BPA. **Table 24** provides the tenant electricity usage for the Existing (2022) Condition and the future conditions.

**TABLE 24: TENANT ELECTRICITY CONSUMPTION–SUMMARY COMPARISON OF ANNUAL USAGE**

| Scenario | Tenant BPA Electricity Consumption (MWH): |
|---|---|
| Existing (2022) Condition | 26,637 |
| No Action Alternative (2032 and 2037) | 26,637 |
| Proposed Action (2032 and 2037) | 36,967 |

Note: MWh denotes megawatt-hour
Source: Port of Seattle, 2023.

The Proposed Action tenant electricity consumption was based on anticipated energy use per square foot. Average electricity use for baseline conditions was used to determine the potential increase in electricity consumption with the potential increase in square footage with the proposed new facilities. The Future (2032) Proposed Action and the Future (2037) Proposed Action are estimated to consume higher electricity due to the increased electricity usage to support the additional square footage in the Proposed Action scenarios.

Emission factors per kilowatt-hour of electricity were previously provided in Table 22. Emissions are calculated by multiplying the emission factors by the total annual electrical consumption by tenants and then converted using the GWP 100 values.

### 18.6.4 Motor Vehicles on- and off-Airport Roadways and Parking Lots (Including Airside Deliveries)

GHG emissions from motor vehicles operating on- and off-airport roadways and within select parking lots are considered Scope 3, Category 3. The GHG emissions inventory was prepared based on the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*. The GHG emissions inventory for motor vehicles was prepared using the same data and assumptions including number and type of

vehicles by roadway segment, VMTs by vehicle type, and average speed as developed for the criteria emissions inventory. The EPA's MOVES4 was used to develop emission factors for use with the VMTs to determine the GHG emissions inventory provided in Attachment 5.

# 19. GHG Construction Emissions Inventories

The GHG construction emissions inventories were prepared using the same data and assumptions as developed for the criteria pollutant construction emissions inventories. The detailed construction phasing schedule, the assumptions of on-road and non-road construction vehicles, and the emission factors for the Proposed Action and the Hybrid Terminal Option are provided in Attachment 6.

## 19.1 Proposed Action - GHG Construction Emissions Inventory

The construction emissions inventory for the Proposed Action is shown in **Table 25**. As the table shows, peak construction GHG emissions are expected to occur in 2028 and produce 44,111 metric tons of $CO_2e$.

**TABLE 25: CONSTRUCTION GHG EMISSIONS INVENTORY - PROPOSED ACTION**

| Year | $CO_2$ ($CO_2e$ MT) | $CH_4$ ($CO_2e$ MT) | $N_2O$ ($CO_2e$ MT) | Total $CO_2e$ (MT) |
|---|---|---|---|---|
| 2025 | 6,055 | 2 | 16 | 6,073 |
| 2026 | 25,761 | 14 | 79 | 25,854 |
| 2027 | 40,154 | 22 | 114 | 40,290 |
| 2028 | 43,967 | 23 | 121 | 44,111 |
| 2029 | 41,593 | 25 | 105 | 41,722 |
| 2030 | 29,633 | 19 | 73 | 29,725 |
| 2031 | 22,899 | 15 | 58 | 22,972 |
| 2032 | 8,458 | 5 | 20 | 8,482 |

Note: Totals may not sum due to rounding. $CO_2$ = carbon dioxide, $CH_4$ = methane, $N_2O$ = nitrous oxide, $CO_2e$ = carbon dioxide equivalent, MT = metric tons.
Source: Port of Seattle and L&B, 2024.

## 19.2 Hybrid Terminal Option - GHG Construction Emissions Inventory

The construction emissions inventory for the Hybrid Terminal Option is shown in **Table 26**. Peak construction GHG emissions are expected to occur in 2029 and produce 48,347 metric tons of $CO_2e$. In 2025 and 2026, there is no difference in GHG construction emissions between the Hybrid Terminal Option and the Proposed Action. From 2027 through 2032, the Hybrid Terminal Option results in greater GHG emissions than the Proposed Action due to the change in construction phasing and the additional elements that must be constructed such as the connection to Concourse D.

**TABLE 26: CONSTRUCTION GHG EMISSIONS INVENTORY - HYBRID TERMINAL OPTION**

| Year | $CO_2$ ($CO_2e$ MT) | $CH_4$ ($CO_2e$ MT) | $N_2O$ ($CO_2e$ MT) | Total $CO_2e$ (MT) |
|---|---|---|---|---|
| 2025 | 6,055 | 2 | 16 | 6,073 |
| 2026 | 25,761 | 14 | 79 | 25,854 |
| 2027 | 41,730 | 22 | 111 | 41,862 |
| 2028 | 48,048 | 24 | 118 | 48,191 |
| 2029 | 48,211 | 26 | 109 | 48,347 |
| 2030 | 39,235 | 21 | 81 | 39,337 |
| 2031 | 32,633 | 17 | 65 | 32,715 |
| 2032 | 12,362 | 5 | 22 | 12,390 |

Note: Totals may not sum due to rounding. $CO_2$ = carbon dioxide, $CH_4$ = methane, $N_2O$ = nitrous oxide, $CO_2e$ = carbon dioxide equivalent, MT = metric tons.
Source: Port of Seattle and L&B, 2024.

# 20. GHG Operational Emissions Inventories

## 20.1 Existing (2022) Condition

The estimated annual rate (metric tons per year) of GHG emissions is provided in **Table 27**.

**TABLE 27: ANNUAL OPERATIONAL GHG EMISSIONS INVENTORY – EXISTING (2022) CONDITION**

| Emissions Source | $CO_2$ ($CO_2e$ MT) | $CH_4$ ($CO_2e$ MT) | $N_2O$ ($CO_2e$ MT) | Total $CO_2e$ (MT) |
|---|---|---|---|---|
| **Scope 1** | | | | |
| Port-Owned Airfield Vehicles/Equipment | 3,717 | 5 | 0 | 3,722 |
| Natural Gas Boilers and Heaters | 16,824 | 11 | 9 | 16,844 |
| Diesel Generators | 279 | 0 | 1 | 281 |
| Fuel Farm Tanks[1] | 0 | 0 | 0 | 0 |
| Total - Scope 1 | 20,820 | 16 | 10 | 20,846 |
| **Scope 2** | | | | |
| Port of Seattle Electricity Consumption | 2,399 | 0 | 0 | 2,399 |
| Total – Scope 2 | 2,399 | 0 | 0 | 2,399 |
| **Scope 3** | | | | |
| Aircraft LTOs (includes Start-Up, Approach, Climb, and Taxiing), APUs, and Aircraft Run-Ups[2] | 5,700,743 | 6,275 | 0 | 5,707,018 |
| Tenant-Owned GSE | 27,891 | 4 | 0 | 27,895 |
| Tenant Electricity Consumption | 330 | 0 | 0 | 330 |
| Airside Deliveries | 512 | 1 | 10 | 523 |
| Roadways | 391,333 | 406 | 3,668 | 395,406 |
| Parking Facilities | 6,547 | 10 | 66 | 6,623 |
| Total - Scope 3 | 6,127,355 | 6,695 | 3,744 | 6,137,795 |
| **Total** | **6,150,575** | **6,712** | **3,754** | **6,161,040** |
| | | | **$CO_2e$ Total** | **6,161,040** |

1 $CO_2$, $CH_4$, and $N_2O$, are by-products of fuel combustion. Per the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*, the storage of fuel is a potential source of evaporative hydrocarbons but does not produce the type of hydrocarbons that contribute directly to global climate change.

2 Based on FAA guidance, the estimated GHG emissions for aircraft operations, APUs, and aircraft engine ground run-ups were developed using the approximate fuel dispensed at the Airport to calculate emissions for the full flight.

Note: Totals may not sum due to rounding. Zeros may not indicate an absolute zero value. Totals may not sum due to rounding. $CO_2$ = carbon dioxide, $CH_4$ = methane, $N_2O$ = nitrous oxide, $CO_2e$ = carbon dioxide equivalent, MT = metric tons.
Source: Port of Seattle, L&B, 2024. GWP from EPA, Emission Factors for Greenhouse Gas Inventories, Center for Corporate Climate Leadership, March 2018, https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf

## 20.2 Future (2032) No Action Alternative

The estimated annual rate (metric tons per year) of operational GHG emissions for the Future (2032) No Action Alternative is provided in **Table 28**.

**TABLE 28: ANNUAL OPERATIONAL GHG EMISSIONS INVENTORY – FUTURE (2032) NO ACTION ALTERNATIVE**

| Emissions Source | $CO_2$ ($CO_2e$ MT) | $CH_4$ ($CO_2e$ MT) | $N_2O$ ($CO_2e$ MT) | Total $CO_2e$ (MT) |
|---|---|---|---|---|
| **Scope 1** | | | | |
| Port-Owned Airfield Vehicles/Equipment | 4,324 | 5 | 0 | 4,330 |
| Natural Gas Boilers and Heaters | 17,627 | 11 | 10 | 17,648 |
| Diesel Generators | 327 | 0 | 1 | 328 |
| Fuel Farm Tanks[1] | 0 | 0 | 0 | 0 |
| *Total - Scope 1* | *22,278* | *17* | *11* | *22,306* |
| **Scope 2** | | | | |
| Port of Seattle Electricity Consumption | 2,463 | 0 | 0 | 2,463 |
| *Total – Scope 2* | *2,463* | *0* | *0* | *2,463* |
| **Scope 3** | | | | |
| Aircraft LTOs (includes Start-Up, Approach, Climb, and Taxiing), APUs, and Aircraft Run-Ups[2] | 6,631,793 | 0 | 63,977 | 6,695,771 |
| Tenant-Owned GSE | 32,691 | 47 | 0 | 32,737 |
| Tenant Electricity Consumption | 330 | 0 | 0 | 330 |
| Airside Deliveries | 496 | 0 | 12 | 509 |
| Roadways | 408,362 | 222 | 4,339 | 412,923 |
| Parking Facilities | 6,786 | 6 | 66 | 6,858 |
| *Total - Scope 3* | *7,080,457* | *276* | *68,394* | *7,149,127* |
| ***Total*** | ***7,105,199*** | ***293*** | ***68,405*** | ***7,173,897*** |
| | | | **$CO_2e$ Total** | **7,173,897** |

[1] $CO_2$, $CH_4$, and $N_2O$, are by-products of fuel combustion. Per the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*, the storage of fuel is a potential source of evaporative hydrocarbons but does not produce the type of hydrocarbons that contribute directly to global climate change.

[2] Based on FAA guidance, the estimated GHG emissions for aircraft operations, APUs, and aircraft engine ground run-ups were developed using the approximate fuel dispensed at the Airport to calculate emissions for the full flight.

Note: Totals may not sum due to rounding. Zeros may not indicate an absolute zero value. Totals may not sum due to rounding. $CO_2$ = carbon dioxide, $CH_4$ = methane, $N_2O$ = nitrous oxide, $CO_2e$ = carbon dioxide equivalent, MT = metric tons.
Source: Port of Seattle, L&B, 2024. GWP from EPA, Emission Factors for Greenhouse Gas Inventories, Center for Corporate Climate Leadership, March 2018, https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf

## 20.3 Future (2032) Proposed Action

The estimated annual rate (metric tons per year) of GHG emissions for the Future (2032) Proposed Action is provided in **Table 29**. A summary comparison of the Future (2032) No Action Alternative and the Future (2032) Proposed Action GHG emissions is provided in Section 20.5.1 of this technical report.

**TABLE 29: ANNUAL OPERATIONAL GHG EMISSIONS INVENTORY – FUTURE (2032) PROPOSED ACTION**

| Emissions Source | $CO_2$ ($CO_2e$ MT) | $CH_4$ ($CO_2e$ MT) | $N_2O$ ($CO_2e$ MT) | Total $CO_2e$ (MT) |
|---|---|---|---|---|
| **Scope 1** | | | | |
| Port-Owned Airfield Vehicles/Equipment | 4,405 | 6 | 0 | 4,411 |
| Natural Gas Boilers and Heaters | 24,866 | 16 | 14 | 24,896 |
| Diesel Generators | 550 | 1 | 1 | 552 |
| Fuel Farm Tanks[1] | 0 | 0 | 0 | 0 |
| *Total - Scope 1* | 29,821 | 22 | *15* | *29,859* |
| **Scope 2** | | | | |
| Port of Seattle Electricity Consumption | 3,386 | 48 | 0 | 3,434 |
| *Total – Scope 2* | *3,386* | *48* | *0* | *3,434* |
| **Scope 3** | | | | |
| Aircraft LTOs (includes Start-Up, Approach, Climb, and Taxiing), APUs, and Aircraft Run-Ups[2] | 6,756,148 | 0 | 65,177 | 6,821,325 |
| Tenant-Owned GSE | 33,291 | 48 | 0 | 33,338 |
| Tenant Electricity Consumption | 462 | 6 | | 468 |
| Airside Deliveries | 505 | 0 | 12 | 518 |
| Roadways | 416,812 | 227 | 4,422 | 421,461 |
| Parking Facilities | 7,634 | 7 | 74 | 7,714 |
| *Total - Scope 3* | *7,214,852* | *287* | *69,685* | *7,284,825* |
| *Total* | ***7,248,060*** | ***357*** | ***69,700*** | ***7,318,118*** |
| | | | **$CO_2e$Total** | **7,318,118** |

[1] $CO_2$, $CH_4$, and $N_2O$, are by-products of fuel combustion. Per the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*, the storage of fuel is a potential source of evaporative hydrocarbons but does not produce the type of hydrocarbons that contribute directly to global climate change.

[2] Based on FAA guidance, the estimated GHG emissions for aircraft operations, APUs, and aircraft engine ground run-ups were developed using the approximate fuel dispensed at the Airport to calculate emissions for the full flight.

Note: Totals may not sum due to rounding. Zeros may not indicate an absolute zero value. Totals may not sum due to rounding. $CO_2$ = carbon dioxide, $CH_4$ = methane, $N_2O$ = nitrous oxide, $CO_2e$ = carbon dioxide equivalent, MT = metric tons.
Source: Port of Seattle, L&B, 2024. GWP from EPA, Emission Factors for Greenhouse Gas Inventories, Center for Corporate Climate Leadership, March 2018, https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf

## 20.4 Future (2032) Hybrid Terminal Option

The Future (2032) Hybrid Terminal Option would have the same operational GHG emissions as the Future (2032) Proposed Action because the only differences in the two alternatives would be related to the location of passenger loading bridges and aircraft hardstands. The number of future aircraft operations would be the same.

## 20.5 Comparison of 2032 Alternatives

The results of the GHG emission inventories prepared for the Future (2032) Proposed Action and the Future (2032) Hybrid Terminal Option were compared to the results of the emission inventories prepared for the Future (2032) No Action Alternative to disclose the potential increase in GHG emissions.

### 20.5.1 Future (2032) Proposed Action

The results of the comparison between the Future (2032) Proposed Action and the Future (2032) No Action Alternative are shown in **Table 30**. Relative to the No Action, the Proposed Action would increase operational GHG emissions by 2.1 percent in 2032. As noted earlier in this technical report, the Future (2032) Proposed Action is expected to serve more aircraft operations relative to the Future (2032) No Action. The Future (2032) Proposed Action would serve 8,755 more operations (1.9 percent) than the Future (2032) No Action Alternative. Thus, the increase in GHG emissions with the Future (2032) Proposed Action relative to the Future (2032) No Action is largely due to the higher level of airport activity that the Future (2032) Proposed Action would serve.

**TABLE 30: SUMMARY OF GHG EMISSIONS, PROPOSED ACTION COMPARED TO THE NO ACTION ALTERNATIVE IN 2032**

| Emissions Source | $CO_2$ ($CO_2e$ MT) | $CH_4$ ($CO_2e$ MT) | $N_2O$ ($CO_2e$ MT) | Total $CO_2e$ (MT) |
|---|---|---|---|---|
| 2032 No Action Alternative | 7,105,199 | 293 | 68,405 | 7,173,897 |
| 2032 Proposed Action | 7,256,518 | 362 | 69,720 | 7,326,600 |
| *Construction* | *8,458* | *5* | *20* | *8,482* |
| *Operational* | *7,248,060* | *357* | *69,700* | *7,318,118* |
| *2032 Increase in Emissions* | *151,319* | *69* | *1,316* | *152,703* |

Note: Totals may not sum due to rounding. $CO_2$ = carbon dioxide, $CH_4$ = methane, $N_2O$ = nitrous oxide, $CO_2e$ = carbon dioxide equivalent, MT = metric tons.
Source: Port of Seattle and L&B, 2024.

### 20.5.2 Future (2032) Hybrid Terminal Option

The results of the comparison between the Future (2032) Hybrid Terminal Option and the Future (2032) No Action Alternative are shown in **Table 31**. The Future (2032) Hybrid Terminal Option would have the same operational GHG emissions as the Future (2032) Proposed Action in the same years because the only differences in the two alternatives would be related to the location of passenger loading bridges and aircraft hardstands. The number of future aircraft operations would be the same. Minor differences in construction activities for Future (2032) Hybrid Terminal Option would result in the Future (2032) Hybrid Terminal Option having slightly greater overall GHG emissions as compared to those for the Future (2032) Proposed Action.

**TABLE 31: SUMMARY OF GHG EMISSIONS, HYBRID TERMINAL OPTION COMPARED TO THE NO ACTION ALTERNATIVE IN 2032**

| Emissions Source | $CO_2$ ($CO_2e$ MT) | $CH_4$ ($CO_2e$ MT) | $N_2O$ ($CO_2e$ MT) | Total $CO_2e$ (MT) |
|---|---|---|---|---|
| 2032 No Action Alternative | 7,105,199 | 293 | 68,405 | 7,173,897 |
| 2032 Hybrid Terminal Option | 7,260,422 | 363 | 69,723 | 7,330,507 |
| *Construction* | *12,362* | *5* | *22* | *12,390* |
| *Operational* | *7,248,060* | *357* | *69,700* | *7,318,118* |
| *2032 Increase in Emissions* | *155,223* | *70* | *1,318* | *156,611* |

Note: Totals may not sum due to rounding. $CO_2$ = carbon dioxide, $CH_4$ = methane, $N_2O$ = nitrous oxide, $CO_2e$ = carbon dioxide equivalent, MT = metric tons.
Source: Port of Seattle and L&B, 2024.

## 20.6 Future (2037) No Action Alternative

The estimated annual rate (metric tons per year) of GHG emissions for the Future (2037) No Action Alternative is provided in **Table 32**.

**TABLE 32: ANNUAL OPERATIONAL GHG EMISSIONS INVENTORY – FUTURE (2037) NO ACTION ALTERNATIVE**

| Emissions Source | $CO_2$ ($CO_2e$ MT) | $CH_4$ ($CO_2e$ MT) | $N_2O$ ($CO_2e$ MT) | Total $CO_2e$ (MT) |
|---|---|---|---|---|
| Scope 1 | | | | |
| Port-Owned Airfield Vehicles/Equipment | 4,398 | 6 | 0 | 4,404 |
| Natural Gas Boilers and Heaters | 17,627 | 11 | 10 | 17,648 |
| Diesel Generators | 327 | 0 | 1 | 328 |
| Fuel Farm Tanks[1] | 0 | 0 | 0 | 0 |
| *Total - Scope 1* | *22,352* | *17* | *11* | *22,380* |
| Scope 2 | | | | |
| Port of Seattle Electricity Consumption | 2,463 | 0 | 0 | 2,463 |
| *Total – Scope 2* | *2,463* | *0* | *0* | *2,463* |
| Scope 3 | | | | |
| Aircraft LTOs (includes Start-Up, Approach, Climb, and Taxiing), APUs, and Aircraft Run-Ups[2] | 6,745,055 | 0 | 65,070 | 6,810,125 |
| Tenant-Owned GSE | 33,300 | 48 | 0 | 33,347 |
| Tenant Electricity Consumption | 330 | 0 | 0 | 330 |
| Airside Deliveries | 480 | 0 | 12 | 492 |
| Roadways | 412,215 | 211 | 4,394 | 416,820 |
| Parking Facilities | 6,669 | 6 | 67 | 6,742 |
| *Total - Scope 3* | *7,198,049* | *265* | *69,543* | *7,267,857* |
| ***Total*** | ***7,222,864*** | ***283*** | ***69,554*** | ***7,292,700*** |
| | | | **$CO_2e$Total** | **7,292,700** |

[1] $CO_2$, $CH_4$, and $N_2O$, are by-products of fuel combustion. Per the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*, the storage of fuel is a potential source of evaporative hydrocarbons but does not produce the type of hydrocarbons that contribute directly to global climate change.

[2] Based on FAA guidance, the estimated GHG emissions for aircraft operations, APUs, and aircraft engine ground run-ups were developed using the approximate fuel dispensed at the Airport to calculate emissions for the full flight.

Note: Totals may not sum due to rounding. Zeros may not indicate an absolute zero value. Totals may not sum due to rounding. $CO_2$ = carbon dioxide, $CH_4$ = methane, $N_2O$ = nitrous oxide, $CO_2e$ = carbon dioxide equivalent, MT = metric tons.
Source: Port of Seattle, L&B, 2024. GWP from EPA, Emission Factors for Greenhouse Gas Inventories, Center for Corporate Climate Leadership, March 2018, https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf

## 20.7 Future (2037) Proposed Action Alternative

The estimated annual rate (metric tons per year) of GHG emissions for the Future (2037) Proposed Action is provided in **Table 33**. A summary comparison of the Future (2037) No Action Alternative and the Future (2037) Proposed Action GHG emissions is provided in Section 20.9.1 of this technical report.

**TABLE 33: ANNUAL OPERATIONAL GHG EMISSIONS INVENTORY – FUTURE (2037) PROPOSED ACTION**

| Emissions Source | $CO_2$ ($CO_2e$ MT) | $CH_4$ ($CO_2e$ MT) | $N_2O$ ($CO_2e$ MT) | Total $CO_2e$ (MT) |
|---|---|---|---|---|
| **Scope 1** | | | | |
| Port-Owned Airfield Vehicles/Equipment | 4,722 | 6 | 0 | 4,728 |
| Natural Gas Boilers and Heaters | 24,866 | 16 | 14 | 24,896 |
| Diesel Generators | 550 | 1 | 1 | 552 |
| Fuel Farm Tanks[1] | 0 | 0 | 0 | 0 |
| *Total - Scope 1* | *30,138* | *23* | *15* | *30,176* |
| **Scope 2** | | | | |
| Port of Seattle Electricity Consumption | 3,386 | 48 | 0 | 3,434 |
| *Total – Scope 2* | *3,386* | *48* | *0* | *3,434* |
| **Scope 3** | | | | |
| Aircraft LTOs (includes Start-Up, Approach, Climb, and Taxiing), APUs, and Aircraft Run-Ups[2] | 7,242,447 | 0 | 69,868 | 7,312,315 |
| Tenant-Owned GSE | 35,700 | 51 | 0 | 35,751 |
| Tenant Electricity Consumption | 462 | 6 | 0 | 468 |
| Airside Deliveries | 515 | 0 | 13 | 529 |
| Roadways | 436,738 | 223 | 4,644 | 441,606 |
| Parking Facilities | 7,904 | 7 | 79 | 7,990 |
| *Total - Scope 3* | *7,723,767* | *287* | *74,605* | *7,798,659* |
| **Total** | ***7,757,291*** | ***358*** | ***74,620*** | ***7,832,269*** |
| | | | **$CO_2e$Total** | **7,832,269** |

[1] $CO_2$, $CH_4$, and $N_2O$, are by-products of fuel combustion. Per the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*, the storage of fuel is a potential source of evaporative hydrocarbons but does not produce the type of hydrocarbons that contribute directly to global climate change.

[2] Based on FAA guidance, the estimated GHG emissions for aircraft operations, APUs, and aircraft engine ground run-ups were developed using the approximate fuel dispensed at the Airport to calculate emissions for the full flight.

Note: Totals may not sum due to rounding. Zeros may not indicate an absolute zero value. Totals may not sum due to rounding. $CO_2$ = carbon dioxide, $CH_4$ = methane, $N_2O$ = nitrous oxide, $CO_2e$ = carbon dioxide equivalent, MT = metric tons.
Source: Port of Seattle, L&B, 2024. GWP from EPA, Emission Factors for Greenhouse Gas Inventories, Center for Corporate Climate Leadership, March 2018, https://www.epa.gov/sites/production/files/2018-03/documents/emission-factors_mar_2018_0.pdf

## 20.8 Future (2037) Hybrid Terminal Option

As previously discussed, the Future (2037) Hybrid Terminal Option would have the same operational GHG emissions as the Future (2037) Proposed Action because the only differences in the two alternatives would be related to the location of passenger loading bridges and aircraft hardstands. The number of future aircraft operations would be the same.

## 20.9 Comparison of 2037 Alternatives

The results of the GHG emission inventories prepared for the Future (2037) Proposed Action and the Future (2037) Hybrid Terminal Option were compared to the results of the emission inventories prepared for the Future (2037) No Action Alternative to disclose the potential increase in GHG emissions.

### 20.9.1 Future (2037) Proposed Action

The results of the comparison between the Future (2037) Proposed Action and the Future (2037) No Action Alternative are shown in **Table 34**. Relative to the Future (2037) No Action, the Future (2037) Proposed Action would increase operational GHG emissions by 7.4 percent. As noted earlier in this technical report, the Proposed Action is expected to serve more aircraft operations relative to the No Action. The Future (2037) Proposed Action would serve 35,018 more operations (7.4 percent) than the Future (2037) No Action Alternative. Thus, the increase in GHG emissions with the Future (2037) Proposed Action relative to the Future (2037) No Action Alternative is largely due to the higher level of airport activity that the Proposed Action would serve.

**TABLE 34: SUMMARY OF GHG EMISSIONS, PROPOSED ACTION COMPARED TO THE NO ACTION ALTERNATIVE IN 2037**

| Emissions Source | $CO_2$ ($CO_2e$ MT) | $CH_4$ ($CO_2e$ MT) | $N_2O$ ($CO_2e$ MT) | Total $CO_2e$ (MT) |
|---|---|---|---|---|
| 2037 No Action Alternative | 7,222,864 | 283 | 69,554 | 7,292,700 |
| 2037 Proposed Action | 7,757,291 | 358 | 74,620 | 7,832,269 |
| *2037 Increase in Emissions* | *534,427* | *75* | *5,066* | *539,569* |

Note: Totals may not sum due to rounding. $CO_2$ = carbon dioxide, $CH_4$ = methane, $N_2O$ = nitrous oxide, $CO_2e$ = carbon dioxide equivalent, MT = metric tons.
Source: Port of Seattle and L&B, 2024.

### 20.9.2 Future (2037) Hybrid Terminal Option

The results of the comparison between the Future (2037) Hybrid Terminal Option and the Future (2037) No Action Alternative are shown in **Table 35**. The Future (2037) Hybrid Terminal Option would have the same operational GHG emissions as the Future (2037) Proposed Action because the only differences in the two alternatives would be related to the location of passenger loading bridges and aircraft hardstands. The number of future aircraft operations would be the same.

**TABLE 35:SUMMARY OF GHG EMISSIONS, HYBRID TERMINAL OPTION COMPARED TO THE NO ACTION ALTERNATIVE IN 2037**

| Emissions Source | $CO_2$ ($CO_2e$ MT) | $CH_4$ ($CO_2e$ MT) | $N_2O$ ($CO_2e$ MT) | Total $CO_2e$ (MT) |
|---|---|---|---|---|
| 2037 No Action Alternative | 7,222,864 | 283 | 69,554 | 7,292,700 |
| 2037 Hybrid Terminal Option | 7,757,291 | 358 | 74,620 | 7,832,269 |
| *2037 Increase in Emissions* | *534,427* | *75* | *5,066* | *539,569* |

Note: Totals may not sum due to rounding. $CO_2$ = carbon dioxide, $CH_4$ = methane, $N_2O$ = nitrous oxide, $CO_2e$ = carbon dioxide equivalent, MT = metric tons.
Source: Port of Seattle and L&B, 2024.

# 21. Level of Preparedness and Climate Adaptation

FAA 1050.1F Desk Reference states that the affected environment should discuss the current level of preparedness in the study area with respect to the impacts of climate change. This involves describing current measures in place within the study area to adapt to the impacts of climate change.[58] Furthermore, the CEQ issued the *Interim Guidance on Consideration of Greenhouse Gas Emissions and Climate Change* in January 2023 which stated the effects of climate change on a proposed action and its environmental impacts should be considered.

## 21.1 Level of Preparedness

The Port identified sustainability initiatives, opportunities, and actions to aid with achieving climate adaptation in its SAMP Planning Technical Memorandum No. 9.[59] As part of this effort, the Port conducted a vulnerability assessment to determine potential operational or infrastructure impacts to the Airport due to climate change in 2018. The potential impacts of climate change to the Airport and the study area were identified as increased rainfall intensity in winter, higher summer temperatures, decreased summer precipitation, and increased storms with high winds and rain. The results of the assessment stated that most of the Airport's climate change-related vulnerabilities can be addressed by the existing operation and asset management plans. The only system that was deemed 'moderately' vulnerable was the stormwater and industrial wastewater system infrastructure. The Airport, through the Utility Master Plan, will address this vulnerability thorough examination of the Airport's Design Criteria, that includes conveyance modeling, particularly as it relates to stormwater conveyance systems, to ensure that as assets are replaced, they can accommodate increased rainfall intensity and higher summer temperature events.

Furthermore, the Port has undertaken a wide range of activities designed to reduce GHG emissions and prepare for the effects of climate change, independent of the Proposed Action. The Port's Century Agenda goal is to reduce Scope 1 and 2 GHG emissions to net zero by 2040 and Scope 3 GHG emissions to carbon-neutral by 2050. The Port has already met its 2030 goal of reducing Scope 1 and 2 GHG emissions by 50 percent from 2006 levels. Voluntary actions to reduce GHG as part of this achievement include: retrofitting older lighting systems with energy-efficient LED lighting; upgrading the airport heating, ventilation, and air conditioning (HVAC) system to improve energy efficiency; using renewable natural gas and renewable diesel in Port facilities and vehicles; purchase of GreenDirect electricity; and developing a plan to retire older vehicles and purchase cleaner fuel vehicles (sustainable fleet plan). In 2020, the Port executed a contract to purchase renewable natural gas (RNG) for use in boilers at the Airport. For Scope 3 measures, the Port is also implementing programs such as the expansion of the electric charging station network for GSE, implementation of pre-heated and cooled air service for parked aircraft, investment of off-aircraft recycling, requiring app-based rideshare companies to meet an environmental performance standard, and the implementation of electric vehicle charging in the Airport garage. Furthermore, the Port is playing a key role in efforts to facilitate the adoption and local production of sustainable aviation fuel (SAF) with airline partners. The Port has set the goal to power every flight fueled at SEA with at least ten percent blend of SAF by 2028.

[58] FAA, 1050.1F Desk Reference, Section 3.2, July 2015.
[59] Port of Seattle, Sustainability Planning and Management Strategy, Technical Memorandum No. 9 Final, May 2018.

## 21.2 Climate Adaptation

This section provides a discussion of the potential long-term effects of climate on the Airport's infrastructure; climate change impacts anticipated to the local area and the region; and local, regional, and nation-wide climate action plans and goals. This discussion also reviews how the Proposed Action, and alternatives, would meet or retract from achieving these goals and the extent to which the Proposed Action and alternatives could be affected by future climate conditions.

### 21.2.1 Long-Term Effects of Climate on the Airport Infrastructure

The climate vectors deemed most impactful to the Airport's infrastructure in the future, as reported in the SAMP Planning Technical Memorandum No. 9, were identified as increased temperatures, increased winter precipitation, decreased summer precipitation, and increased heavy rainfall events. The potential impact of flooding and pooling on the runways and in baggage wells were identified as needing to be addressed in the medium term. The results of the assessment stated that most of the Airport's climate change-related vulnerabilities can be addressed by the existing operation and asset management plans and would not be impacted by the Proposed Action or alternatives.

### 21.2.2 Climate Change Impacts to the Local Area and Region

The Northwest region of the United States is anticipated to experience climate change impacts in six keyways: the overburdening of frontline communities; transition of ecosystems in response to extreme events and human activity; impacts to regional economies and cascading effects on livelihoods and well-being; stresses on infrastructure systems; amplification of health inequities; effects on heritage and sense of place.

Climate impacts that are anticipated for the Puget Sound region include: increased temperatures, declining snowpack; changes in streamflow (larger and more frequent floods in the winter, lower flows and more prolonged low flows in the summer); increase in the frequency of landslides, the rate of erosion, and sediment transport in winter and spring; increase in river and stream temperatures; sea level rise; ocean warming and ocean acidification.[60] As a result, increased risks to the community are anticipated for people with asthma and heart illness due to more summer air pollution. Communities may also experience changes in illnesses carried by ticks and mosquitos, and health impacts from increased heat exposure.[61] Larger and more frequent flooding would lead to increased flooding of communities and infrastructure (such as homes, businesses, health services, transportation infrastructure, and electricity transmission and distribution equipment) and agricultural lands, further impacting flower and vegetable crops as well as livestock facilities.[62] Increased flooding during the winter may result in increased illnesses and hospitalizations from increased mold growth and the conveyance of biological and chemical agents by floodwaters to drinking, storm, and recreational waters, while lower summer flows may concentrate contaminants in both surface and well waters,

[60] UW Climate Impacts Group, University of Washington Earthlab, *Puget Sound Partnership Climate Literature Review: A tailored review of climate change science to inform recovery*, June 2020.

[61] Climate Change Impacts in King County, available online: https://kingcounty.gov/en/legacy/services/environment/climate/our-changing-climate/impacts#:~:text=Heavy%20rain%20events%20are%20getting,are%20harmful%20to%20marine%20species accessed March 2024.

[62] Climate Impacts Group, Climate Change Impacts on Puget Sound Floodplains, February 2016.

which would increase the risk for bacterial and chemical exposure with untreated waters.[63,64] Ecological impacts from increased flooding includes higher salmon egg and fry mortality while anticipated summer declines in rainfall would lead to the disconnection of floodplains from rivers, preventing salmon migration. Furthermore, increasing stream temperatures would further stress adult salmon, increasing the risk of disease transmission and impeding salmon migration.

### 21.2.3 Climate Action Plans and Goals

#### *21.2.3.1 Port of Seattle*

As previously stated, the Port's Century Agenda goal is to reduce Scope 1 and 2 GHG emissions to net zero by 2040 and Scope 3 GHG emissions to carbon-neutral by 2050. The Port has already met its 2030 goal of reducing Scope 1 and 2 GHG emissions by 50 percent from 2006 levels. The Century Agenda identified a wide range of activities designed to reduce GHG emissions and prepare for the effects of climate change that are currently being implemented independent of the Proposed Action. These activities include investment in thermal RNG, eGSE, greener transportation options (such as high mile-per-gallon taxies and rideshare options, and alternative fuel shuttles and door-to-door vans), and the use of PC Air and ground power for aircraft.[65]

#### 21.2.3.2 *King County*

The King County 2020 Strategic Climate Action Plan (SCAP) outlines the County's priorities and commitments for climate action.[66] The SCAP identifies key methods to reduce GHG emissions, develop sustainable and resilient frontline communities, and increase climate resilience to prepare King County government and communities for the impacts of climate change. King County aims to reduce GHG emissions countywide by 50 percent by 2030 and by 80 percent by 2050. Several key strategies to reach this goal include reducing car trips by sustaining and increasing the use of transit, focusing almost all new development in urban areas, and developing vehicle usage pricing strategies that are equitable. King County further aims to reduce countywide energy use by 25 percent and fossil fuel by 20 percent by 2030 through efficiency programs, renewable energy, and resiliency upgrades. King County is further advancing countywide green building codes and a more sustainable commercial energy code toward net zero GHG in new buildings.

#### *21.2.3.3 Washington State*

Washington State has committed to reducing GHG emissions by 95 percent by 2050.[67] In this effort, the Climate Commitment Act (CCA) was established, which caps and reduces GHG emissions from Washington's largest emitting sources and industries. The program works alongside other critical climate policies to help Washington achieve its commitment to reducing GHG emissions. In response to Washington's commitments, the PSCAA targets the region's GHG emissions to be 50 percent below 1990 emissions levels.[68] PSCAA partners with other local agencies to focus efforts on reducing GHG

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63 Climate Change Impacts in King County, available online: https://kingcounty.gov/en/legacy/services/environment/climate/our-changing-climate/impacts#:~:text=Heavy%20rain%20events%20are%20getting,are%20harmful%20to%20marine%20species accessed March 2024.

64 Climate Impacts Group, Climate Change Impacts on Puget Sound Floodplains, February 2016.

65 Port of Seattle, Climate and Air Quality, available online: https://www.airportprojects.net/sampenvironmentalreview/climate-and-air-quality/.

66 King County 2020 Strategic Climate Action Plan, May 2021.

67 Climate Commitment Act, Washington State Department of Ecology, available online: https://ecology.wa.gov/Air-Climate/Climate-Commitment-Act accessed March 1, 2024.

68 Climate Change, Puget Sound Clean Air Agency, available online: https://pscleanair.gov/164/Climate-Change, accessed February 28, 2024.

emissions from the transportation sector, which also provide air quality benefits by reducing harmful pollutants. Recent efforts include the Regional Electric Vehicle Collaborative as well as leading the USEPA's Climate Pollution Reduction Grant program for the region.

#### *21.2.3.4 Federal Aviation Administration*

As stated in the FAA's 2021 Climate Action Report, the FAA is pursuing a comprehensive approach to put the sector on a path toward achieving net zero emissions by 2050 from the U.S. aviation sector through aircraft and engine technology development; aircraft operation improvements through the National Airspace System; production and use of sustainable alternative jet fuels; development of electric and potentially hydrogen solutions for short-haul aviation; airport operations advancements across the U.S.; implementation of international initiatives, such as the airplane $CO_2$ standard and the Carbon Offsetting and Reduction Scheme for International Aviation; and additional support for research into climate science.[69] The FAA funds diverse programs to improve aviation energy and emissions performance, and coordinates with other agencies as appropriate, including the National Aeronautics and Space Administration.

#### *21.2.3.5 Airline Operators*

Airline operators at SEA have additionally identified climate goals to reduce GHG emissions and increase SAF consumption, including American Airlines, United Airlines, and Alaskan Airlines. American Airlines aim to reduce GHG emissions from jet fuel production and consumption by 45 percent by 2035 and achieve net zero GHG emissions by 2050.[70] To do so, American Airlines aims to pursue fleet renewal, flight operation efficiency, and airspace modernization; invest in SAF and low- and no-carbon aircraft advancements; and commit to purchasing SAF. Similarly, United Airlines aims to become 100 percent green by reducing GHG emissions by 2050 without relying on traditional offsets.[71] This includes investing in SAF, carbon capture and sequestration technology, and aircraft modernization and operational efficiency. Additionally, Alaska Air Group aims to achieve net zero GHG emissions by 2040 by: improving operational efficiency; implementing fleet renewal; increasing SAF consumption; enabling new technologies including zero emissions aircraft; and utilizing credible carbon offsetting and removals technologies.[72]

#### *21.2.3.6 Proposed Action Climate Risks and Adaptation*

The Airport Climate Risk Operational Screening (ACROS) tool was used to identify high climate change risks at the Airport due to future conditions. The ACROS tool uses regional weather forecasts and a formula to compute an estimated level of risk for assets and operations at the Airport. These risks are then ranked from high to low to provide an estimate of the relative risk posed for each asset and operation. The ACROS tool only identified the following as high risk at the Airport due to future climate conditions:

- Failure of building envelope (roofing materials, external seals, and or mold vulnerability);
- Potential for reduced throughput capacity for aircraft operations out of the Airport.

69 United States, 2021 Aviation Climate Action Plan
70 American Airlines, 2022 Sustainability Report
71 United Airlines, Our Environmental Commitment
72 Alaska Airlines, 2022 Care Report

The results of the assessment indicated that neither the Proposed Action nor the Hybrid Terminal Option would be affected differently than the No Action Alternative by future climate conditions in the timeframe analyzed.[73]

Furthermore, it is anticipated that neither the Proposed Action nor the Hybrid Terminal Option would prevent local stakeholders from achieving such goals. The purpose and need for the Proposed Action is to provide facilities and gates to accommodate projected passenger demand at an optimal level of service, provide additional cargo facilities to accommodate projected cargo demand; provide airfield infrastructure to meet current FAA airport design standards; provide improvements to enhance the efficiency of the overall taxiway layout; and provide fuel storage facilities to meet projected fuel storage demand including SAF initiatives. The addition of fuel storage for SAF would support airline operators to not only invest in but utilize SAF and meet their goals to reduce GHG emissions, as well as those of the FAA and local agencies.

# 22. Significance Determination

Per FAA Order 1050.1F Desk Reference and CEQ guidance, there are no federal significance thresholds for GHG emissions. There is a considerable amount of ongoing scientific research to improve understanding of global climate change and FAA guidance will evolve as the science matures or if new federal requirements are established.

As disclosed, both the Proposed Action and the Hybrid Terminal Option would increase GHG emissions as compared to the No Action Alternative. The Proposed Action would increase Scope 1, 2 and 3 GHG emissions by 152,626 (2.1 percent) $CO_2e$ metric tons over the No Action Alternative in 2032 and by 539,275 (7.4 percent) $CO_2e$ metric tons over the No Action Alternative in 2037. While the Hybrid Terminal Option would have the same operational GHG emissions as the Proposed Action, it would have greater construction GHG emissions. The Hybrid Terminal Option would increase Scope 1, 2 and 3 GHG emissions by 156,533 (2.2 percent) metric tons over the No Action Alternative in 2032 and by 539,275 metric tons (7.4 percent) over the No Action Alternative in 2037.

For context and intensity, Washington's GHG emissions are estimated at 102.1 million metric tons[74] and U.S. based GHG emissions are estimated at 6,341.2 million metric tons $CO_2e$ in 2022.[75] The majority of the GHG emissions increase, associated with the Proposed Action, comes from Scope 3 which includes indirect GHG emissions caused by airport operations that are not under the direct control of the Port, including sources like aircraft-related emissions. The implementation of GHG-reduction efforts, independent of the Proposed Action, by the Port of Seattle, local and state agencies, and local stakeholders (including airline operators) will help reduce GHG emissions from aircraft sources and aid the Airport and the region to prepare and adapt to climate change risks and impacts. However, these risks would be present regardless of the implementation of the Proposed Action and the Hybrid Terminal Option and would not be exacerbated. Therefore, the anticipated increase in GHG emissions due to the Proposed Action in the context of the Airport's sustainability efforts and climate goals is not anticipated to result in an adverse impact on climate.

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73 The ACROS tool provides a relative risk estimate for airport assets and operations for the years 2030 and 2060.
74 Department of Ecology State of Washington, Washington State Greenhouse Gas Emissions Inventory: 1990-2019. December 2022, Publication 22-02-054.
75 USEPA, Draft Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2022, 2024. Available online: https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks accessed, March 1, 2024.

# Air Quality and Climate Technical Report Attachment 1 Aircraft

This attachment contains the following tables:

**Existing (2022) Condition**

- Table 1-1 Annual Operations – Existing (2022) Condition

**Future (2032) No Action Alternative**

- Table 1-2 Annual Operations – Future (2032) No Action Alternative

**Future (2032) Proposed Action**

- Table 1-3 Annual Operations – Future (2032) Proposed Action

**Future (2037) No Action Alternative**

- Table 1-4 Annual Operations – Future (2037) No Action Alternative

**Future (2037) Proposed Action**

- Table 1-5 Annual Operations – Future (2037) Proposed Action

**Comparison of Taxi Times (Minutes Seconds)**

- Table 1-6 Comparison of Taxi Times (Minutes Seconds)

## TABLE 1-1: ANNUAL OPERATIONS – EXISTING (2022) CONDITION

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| **Commercial Jets** | | |
| Airbus A319-100 Series | 01P10IA020 | 10 |
| Airbus A319-100 Series | 3CM028 | 88 |
| Airbus A319-100 Series | 3IA006 | 1,977 |
| Airbus A319-100 Series | 3IA007 | 1,059 |
| Airbus A319-100 Series | 4CM035 | 79 |
| Airbus A319-100 Series | 8IA09 | 36 |
| Airbus A320-200 Series | 01P08CM105 | 13,637 |
| Airbus A320-200 Series | 01P10IA021 | 1,224 |
| Airbus A320-200 Series | 01P10IA022 | 264 |
| Airbus A320-200 Series | 1CM008 | 333 |
| Airbus A320-200 Series | 1CM009 | 1,351 |
| Airbus A320-200 Series | 1IA003 | 2,576 |
| Airbus A320-200 Series | 3CM026 | 1,466 |
| Airbus A320-200 Series | 8IA010 | 2 |
| Airbus A320-NEO | 01P20CM128 | 679 |
| Airbus A320-NEO | 01P22PW163 | 1,078 |
| Airbus A321-200 Series | 01P08CM104 | 994 |
| Airbus A321-200 Series | 01P10IA025 | 6,031 |
| Airbus A321-200 Series | 3CM025 | 1,026 |
| Airbus A321-NEO | 01P18PW157 | 1,613 |
| Airbus A321-NEO | 01P20CM132 | 4,784 |
| Airbus A330-200 Series | 2RR023 | 1,835 |
| Airbus A330-200 Series | 9PW094 | 26 |
| Airbus A330-300 Series | 2RR023 | 486 |
| Airbus A330-300 Series | 4GE080 | 494 |
| Airbus A330-300 Series | 7PW082 | 67 |
| Airbus A330-300 Series | 9PW094 | 1,394 |
| Airbus A330-300 Series | 9PW095 | 327 |
| Airbus A330-900N Series (Neo) | 02P23RR141 | 2,659 |
| Airbus A340-300 Series | 2CM015 | 53 |
| Airbus A350-1000 Series | 18RR080 | 4 |
| Airbus A350-900 series | 01P18RR124 | 764 |
| Boeing 717-200 Series | 4BR002 | 1 |
| Boeing 737-300 Series | 1CM004 | 6 |
| Boeing 737-300 Series | 1CM005 | 8 |
| Boeing 737-700 Series | 3CM030 | 425 |
| Boeing 737-700 Series | 3CM031 | 14,351 |
| Boeing 737-700 Series | 3CM032 | 2,612 |
| Boeing 737-700 Series | 8CM051 | 10 |
| Boeing 737-700 Series | 8CM062 | 104 |
| Boeing 737-700 Series | 8CM063 | 2,434 |
| Boeing 737-8 | 01P20CM135 | 41 |
| Boeing 737-8 | 01P20CM136 | 1,340 |
| Boeing 737-8 | 01P20CM140 | 1,236 |
| Boeing 737-800 Series | 01P11CM114 | 400 |
| Boeing 737-800 Series | 01P11CM116 | 5,440 |
| Boeing 737-800 Series | 01P11CM122 | 2,968 |
| Boeing 737-800 Series | 01P11CM125 | 660 |
| Boeing 737-800 Series | 01P11CM126 | 63 |

**TABLE 1-1: ANNUAL OPERATIONS– EXISTING (2022) CONDITION *(CONTINUED)***

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| Boeing 737-800 Series | 3CM032 | 16,653 |
| Boeing 737-800 Series | 3CM034 | 1,608 |
| Boeing 737-800 Series | 8CM051 | 22,796 |
| Boeing 737-800 Series | 8CM064 | 166 |
| Boeing 737-800 Series | 8CM065 | 2,129 |
| Boeing 737-800 Series | 8CM066 | 9,997 |
| Boeing 737-800BCF | 3CM034 | 137 |
| Boeing 737-9 | 01P20CM136 | 518 |
| Boeing 737-9 | 01P20CM140 | 20,410 |
| Boeing 737-900 Series | 01P11CM114 | 806 |
| Boeing 737-900 Series | 8CM051 | 9,115 |
| Boeing 737-900-ER | 01P11CM116 | 19,205 |
| Boeing 737-900-ER | 01P11CM121 | 54,527 |
| Boeing 737-900-ER | 01P11CM125 | 168 |
| Boeing 737-900-ER | 3CM034 | 773 |
| Boeing 737-900-ER | 8CM065 | 862 |
| Boeing 737-900-ER_MA | 01P11CM121_MA | 1,555 |
| Boeing 757-200 Series | 4PW072 | 5,722 |
| Boeing 757-200 Series | 4PW073 | 198 |
| Boeing 757-200 Series | 5RR038 | 567 |
| Boeing 757-200 Series | 5RR039 | 37 |
| Boeing 757-300 Series | 3RR028 | 2 |
| Boeing 757-300 Series | 5RR039 | 10 |
| Boeing 757-300 Series | XPW204 | 1,741 |
| Boeing 767-300 ER | 12PW102 | 12 |
| Boeing 767-300 ER | 1GE029 | 76 |
| Boeing 767-300 ER | 1GE030 | 753 |
| Boeing 767-300 ER | 1PW043 | 543 |
| Boeing 767-300 ER | 1RR011 | 1 |
| Boeing 767-300 ER | 2GE055 | 304 |
| Boeing 767-400 ER | 8GE101 | 263 |
| Boeing 777-200-ER | 10PW099 | 82 |
| Boeing 777-200-ER | 2RR027 | 288 |
| Boeing 777-200-ER | 3GE060 | 127 |
| Boeing 777-200-ER | 3GE064 | 2 |
| Boeing 777-200-ER | 8GE100 | 132 |
| Boeing 777-200-LR | 01P21GE216 | 50 |
| Boeing 777-200-LR | 01P21GE217 | 189 |
| Boeing 777-300 ER | 01P21GE217 | 1,390 |
| Boeing 787-10 Dreamliner | 01P17GE211 | 132 |
| Boeing 787-10 Dreamliner | 01P17GE213 | 286 |
| Boeing 787-10 Dreamliner | 02P23RR134 | 144 |
| Boeing 787-8 Dreamliner | 01P17GE206 | 120 |
| Boeing 787-8 Dreamliner | 01P17GE210 | 4 |
| Boeing 787-8 Dreamliner | 11GE137 | 190 |
| Boeing 787-8 Dreamliner | 11GE138 | 466 |
| Boeing 787-9 Dreamliner | 01P17GE211 | 890 |
| Boeing 787-9 Dreamliner | 01P17GE214 | 6 |
| Boeing 787-9 Dreamliner | 02P23RR131 | 201 |
| Boeing 787-9 Dreamliner | 12RR067 | 919 |
| Boeing 787-9 Dreamliner | 12RR068 | 388 |

**TABLE 1-1: ANNUAL OPERATIONS– EXISTING (2022) CONDITION *(CONTINUED)***

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| Bombardier CRJ-900-ER | 01P08GE190 | 22 |
| Bombardier CS100 | 04P20PW196 | 9,771 |
| Bombardier CS300 | 04P20PW196 | 98 |
| Bombardier CS300 | 04P20PW197 | 2,180 |
| Bombardier Global Express | 01P04BR013 | 4 |
| Embraer ERJ175-LR | 01P08GE197 | 67,694 |
| Embraer ERJ175-LR_MA | 01P08GE197_MA | 839 |
| | ***Sub-Total*** | ***338,783*** |
| **Cargo Jets** | | |
| Airbus A300F4-600 Series | 1GE020 | 3 |
| Airbus A300F4-600 Series | 1PW048 | 86 |
| Airbus A300F4-600 Series | 3GE056 | 155 |
| Boeing 747-400 ERF | 12PW102 | 89 |
| Boeing 747-400 Series | 1GE024 | 790 |
| Boeing 747-400 Series Freighter | 01P03GE187 | 77 |
| Boeing 747-400 Series Freighter | 1GE024 | 6 |
| Boeing 747-400 Series Freighter | 1PW041 | 7 |
| Boeing 747-400 Series Freighter | 4RR037 | 75 |
| Boeing 747-400BCF | 1GE024 | 249 |
| Boeing 747-400BCF | 1PW041 | 10 |
| Boeing 747-8F | 01P17GE215 | 281 |
| Boeing 747-8F | 13GE156 | 75 |
| Boeing 747-8F | 8GENX1 | 242 |
| Boeing 757-200 Series Freighter | 3RR028 | 102 |
| Boeing 757-200 Series Freighter | 4PW072 | 48 |
| Boeing 757-200 Series Freighter | 4PW073 | 49 |
| Boeing 757-200 Series Freighter | 5RR039 | 2 |
| Boeing 767-200 Series Freighter | 1GE010 | 259 |
| Boeing 767-200 Series Freighter | 1GE012 | 129 |
| Boeing 767-200 Series Freighter | 1PW026 | 23 |
| Boeing 767-300 ER Freighter | 1GE030 | 5,679 |
| Boeing 767-300 ER Freighter | 2GE055 | 559 |
| Boeing 767-300BCF | 2GE055 | 58 |
| Boeing 777 Freighter | 01P21GE216 | 1,016 |
| Boeing 777 Freighter | 01P21GE217 | 24 |
| Boeing 777-200-LR_C | 01P21GE216_C | 40 |
| Boeing MD-10-30 | 3GE074 | 65 |
| Boeing MD-11 Freighter | 12PW102 | 297 |
| Boeing MD-11 Freighter | 1GE031 | 1,490 |
| Boeing MD-11 Freighter | 1PW052 | 484 |
| | ***Sub-Total*** | ***12,470*** |
| **Regional Jets** | | |
| Bombardier CRJ-200-LR | 01P05GE189 | 6 |
| Bombardier CRJ-700 | 01P08GE192 | 6 |
| Bombardier CRJ-700-ER | 01P08GE190 | 12 |
| Bombardier CRJ-700-ER | 01P08GE192 | 95 |
| Bombardier CRJ-700-ER | 5GE083 | 47 |
| | ***Sub-Total*** | ***167*** |
| **Turboprops** | | |
| Bombardier de Havilland Dash 8 Q400 | PW150A | 44,588 |
| Raytheon Beech 99 | PT6A27 | 11 |

## TABLE 1-1: ANNUAL OPERATIONS – EXISTING (2022) CONDITION *(CONTINUED)*

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| Raytheon Beech 99 | PT6A36 | 596 |
| Raytheon C-12 Huron | PT660A | 18 |
| Raytheon Super King Air 200 | PT6A42 | 2 |
| | ***Sub-Total*** | ***45,215*** |
| **Cargo Props** | | |
| Cessna 208 Caravan | P6114A | 1,162 |
| Cessna 208 Caravan | PT6A14 | 1,146 |
| Raytheon Super King Air 300 | PT660A | 72 |
| | ***Sub-Total*** | ***2,381*** |
| **General Aviation Jets** | | |
| Bombardier Challenger 300 | 01P14HN011 | 37 |
| Bombardier Challenger 300 | 11HN003 | 38 |
| Bombardier Challenger 350 | 01P14HN011 | 142 |
| Bombardier Challenger 600 | 01P05GE189 | 38 |
| Bombardier Challenger 600 | 1GE034 | 26 |
| Bombardier Global 5000 | 01P04BR013 | 28 |
| Bombardier Global 5500 | 01P20BR015 | 2 |
| Bombardier Learjet 35A/36A (C-21A) | 1AS001 | 3 |
| Bombardier Learjet 40 | TFE731 | 5 |
| Bombardier Learjet 45 | 1AS001 | 14 |
| Bombardier Learjet 45 | TFE731 | 37 |
| Bombardier Learjet 60 | 7PW077 | 23 |
| Bombardier Learjet 70 | 1AS002 | 2 |
| Cessna 560 Citation Encore | PW530 | 11 |
| Cessna 560 Citation Excel | PW530 | 37 |
| Cessna 560 Citation Ultra | 1PW038 | 9 |
| Cessna 560 Citation XLS | PW530 | 60 |
| Cessna 680 Citation Sovereign | 03P14PW194 | 16 |
| Cessna 680 Citation Sovereign | 7PW078 | 32 |
| Cessna 680-A Citation Latitude | 7PW078 | 84 |
| Cessna 700 Citation Longitude | 01P18HN013 | 15 |
| Cessna 750 Citation X | 6AL024 | 83 |
| Cessna CitationJet CJ2 (Cessna 525A) | 1PW036 | 31 |
| Cessna CitationJet CJ3 (Cessna 525B) | 1PW038 | 67 |
| Dassault Falcon 2000 | CF700D | 58 |
| Dassault Falcon 50 | 1AS002 | 196 |
| Embraer Legacy 450 (EMB-545) | 01P14HN014 | 50 |
| Embraer Phenom 300 (EMB-505) | PW530 | 82 |
| Gulfstream G200 | 7PW077 | 25 |
| Gulfstream G450 | 11RR048 | 29 |
| Gulfstream G650 | 01P11BR016 | 24 |
| Gulfstream G650ER | 01P11BR016 | 15 |
| Gulfstream IV-SP | 11RR048 | 8 |
| Gulfstream V-SP | 01P06BR014 | 29 |
| Honda HA-420 Hondajet | PW610F | 19 |
| Raytheon Beechjet 400 | 1PW037 | 24 |
| Raytheon Hawker 800 | 1AS002 | 36 |
| | ***Sub-Total*** | ***1,431*** |
| **General Aviation Props** | | |
| Beechcraft Bonanza 35 (FAS) | TIO540 | 22 |
| Cessna 150 Series | O200 | 18 |

## TABLE 1-1: ANNUAL OPERATIONS – EXISTING (2022) CONDITION *(CONTINUED)*

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| Cessna 152 (FAS) | O200 | 71 |
| Cessna 172 Skyhawk | IO320 | 463 |
| Cessna 182 | IO360 | 97 |
| Cessna 206 | TIO540 | 15 |
| Cirrus SR22 Turbo (FAS) | TIO540 | 69 |
| Mooney M20-K | TSIO36 | 17 |
| Pilatus PC-12 | PT6A67 | 55 |
| Piper PA-28 Cherokee Series | IO320 | 60 |
| Raytheon Beech Bonanza 36 | TIO540 | 19 |
| | ***Sub-Total*** | ***905*** |
| | **Grand Total:** | **401,351** |

*Missed approach operational totals are included in this table only.
Source: SEA EnvironmentalVue Monitoring System data, January 2022-December 2022; Landrum & Brown, 2024

## TABLE 1-2: ANNUAL OPERATIONS – FUTURE (2032) NO ACTION ALTERNATIVE

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| **Commercial Jets** | | |
| Airbus A220-100 | 16PW111 | 19,114 |
| Airbus A220-300 | 16PW111 | 5,508 |
| Airbus A220-300 | 16PW112 | 2,713 |
| Airbus A319-100 Series | 01P10IA020 | 4 |
| Airbus A319-100 Series | 3CM028 | 34 |
| Airbus A319-100 Series | 3IA006 | 760 |
| Airbus A319-100 Series | 3IA007 | 407 |
| Airbus A319-100 Series | 4CM035 | 30 |
| Airbus A319-100 Series | 8IA09 | 14 |
| Airbus A320-200 Series | 01P08CM105 | 5,826 |
| Airbus A320-200 Series | 01P10IA021 | 523 |
| Airbus A320-200 Series | 01P10IA022 | 113 |
| Airbus A320-200 Series | 1CM008 | 142 |
| Airbus A320-200 Series | 1CM009 | 577 |
| Airbus A320-200 Series | 1IA003 | 1,100 |
| Airbus A320-200 Series | 3CM026 | 627 |
| Airbus A320-200 Series | 8IA010 | 1 |
| Airbus A320-NEO | 01P20CM128 | 3,390 |
| Airbus A320-NEO | 01P22PW163 | 5,379 |
| Airbus A321-200 Series | 01P08CM104 | 1,035 |
| Airbus A321-200 Series | 01P10IA025 | 6,279 |
| Airbus A321-200 Series | 3CM025 | 1,069 |
| Airbus A321-NEO | 01P18PW157 | 5,185 |
| Airbus A321-NEO | 01P20CM132 | 15,380 |
| Airbus A330-200 Series | 2RR023 | 2,478 |
| Airbus A330-200 Series | 9PW094 | 35 |
| Airbus A330-300 Series | 2RR023 | 537 |
| Airbus A330-300 Series | 4GE080 | 545 |
| Airbus A330-300 Series | 7PW082 | 74 |
| Airbus A330-300 Series | 9PW094 | 1,538 |
| Airbus A330-300 Series | 9PW095 | 361 |
| Airbus A330-900N Series (Neo) | 02P23RR141 | 5,007 |
| Airbus A350-900 series | 01P18RR124 | 1,874 |
| Boeing 737-7 | 01P20CM136 | 1,090 |

## TABLE 1-2: ANNUAL OPERATIONS – FUTURE (2032) NO ACTION ALTERNATIVE

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| Boeing 737-700 Series | 3CM030 | 95 |
| Boeing 737-700 Series | 3CM031 | 3,195 |
| Boeing 737-700 Series | 3CM032 | 582 |
| Boeing 737-700 Series | 8CM051 | 2 |
| Boeing 737-700 Series | 8CM062 | 23 |
| Boeing 737-700 Series | 8CM063 | 542 |
| Boeing 737-8 | 01P20CM135 | 282 |
| Boeing 737-8 | 01P20CM136 | 9,144 |
| Boeing 737-8 | 01P20CM140 | 8,435 |
| Boeing 737-800 Series | 01P11CM114 | 425 |
| Boeing 737-800 Series | 01P11CM116 | 5,786 |
| Boeing 737-800 Series | 01P11CM122 | 3,157 |
| Boeing 737-800 Series | 01P11CM125 | 702 |
| Boeing 737-800 Series | 01P11CM126 | 67 |
| Boeing 737-800 Series | 3CM032 | 17,712 |
| Boeing 737-800 Series | 3CM034 | 1,710 |
| Boeing 737-800 Series | 8CM051 | 24,246 |
| Boeing 737-800 Series | 8CM064 | 176 |
| Boeing 737-800 Series | 8CM065 | 2,264 |
| Boeing 737-800 Series | 8CM066 | 10,633 |
| Boeing 737-9 | 01P20CM136 | 441 |
| Boeing 737-9 | 01P20CM140 | 17,383 |
| Boeing 737-900-ER | 01P11CM116 | 29,580 |
| Boeing 737-900-ER | 01P11CM121 | 84,572 |
| Boeing 737-900-ER | 01P11CM125 | 258 |
| Boeing 737-900-ER | 3CM034 | 1,191 |
| Boeing 737-900-ER | 8CM065 | 1,328 |
| Boeing 737-900-ER_MA | 01P11CM121_MA | 1,808 |
| Boeing 767-400ER | 8GE101 | 358 |
| Boeing 777-200-ER | 10PW099 | 120 |
| Boeing 777-200-ER | 2RR027 | 423 |
| Boeing 777-200-ER | 3GE060 | 187 |
| Boeing 777-200-ER | 3GE064 | 3 |
| Boeing 777-200-ER | 8GE100 | 195 |
| Boeing 777-300ER | 01P21GE217 | 1,259 |
| Boeing 787-10 Dreamliner | 01P17GE211 | 334 |
| Boeing 787-10 Dreamliner | 01P17GE213 | 722 |
| Boeing 787-10 Dreamliner | 02P23RR134 | 365 |
| Boeing 787-8 Dreamliner | 01P17GE206 | 1,055 |
| Boeing 787-8 Dreamliner | 01P17GE210 | 35 |
| Boeing 787-8 Dreamliner | 11GE137 | 1,667 |
| Boeing 787-8 Dreamliner | 11GE138 | 4,096 |
| Boeing 787-9 Dreamliner | 01P17GE211 | 2,081 |
| Boeing 787-9 Dreamliner | 01P17GE214 | 14 |
| Boeing 787-9 Dreamliner | 02P23RR131 | 470 |
| Boeing 787-9 Dreamliner | 12RR067 | 2,150 |
| Boeing 787-9 Dreamliner | 12RR068 | 906 |
| | ***Sub-Total*** | ***330,927*** |
| **Cargo Jets** | | |
| Airbus A300F4-600 Series | 1GE020 | 5 |
| Airbus A300F4-600 Series | 1PW048 | 133 |

**TABLE 1-2: ANNUAL OPERATIONS – FUTURE (2032) NO ACTION ALTERNATIVE *(CONTINUED)***

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| Airbus A300F4-600 Series | 3GE056 | 241 |
| Boeing 747-400 ERF | 12PW102 | 590 |
| Boeing 747-400 BCF | 01P03GE187 | 590 |
| Boeing 747-8F | 01P17GE215 | 289 |
| Boeing 747-8F | 13GE156 | 77 |
| Boeing 747-8F | 8GENX1 | 249 |
| Boeing 767-200 Series Freighter | 1GE010 | 2,866 |
| Boeing 767-200 Series Freighter | 1GE012 | 1,427 |
| Boeing 767-200 Series Freighter | 1PW026 | 256 |
| Boeing 767-300 ER Freighter | 1GE030 | 4,142 |
| Boeing 767-300 ER Freighter | 2GE055 | 408 |
| Boeing 777 Freighter | 01P21GE216 | 2,415 |
| Boeing 777 Freighter | 01P21GE217 | 58 |
| Boeing MD-11 Freighter | 12PW102 | 249 |
| Boeing MD-11 Freighter | 1GE031 | 1,252 |
| Boeing MD-11 Freighter | 1PW052 | 407 |
| | ***Sub-Total*** | ***15,655*** |
| **Regional Jets** | | |
| Embraer ERJ175-LR | 01P08GE197 | 113,895 |
| Embraer ERJ175-LR_MA | 01P08GE197_MA | 977 |
| | ***Sub-Total*** | ***114,871*** |
| **Cargo Props** | | |
| ATR 72-600 Freighter | PW127F | 204 |
| Cessna 208 Caravan | P6114A | 1,163 |
| Cessna 208 Caravan | PT6A14 | 1,146 |
| Cessna 408 SkyCourier | PT6A6B | 204 |
| Raytheon Beech 99 | PT6A27 | 3 |
| Raytheon Beech 99 | PT6A36 | 182 |
| | ***Sub-Total*** | ***2,902*** |
| **General Aviation** | | |
| Bombardier Challenger 350 | 01P14HN011 | 554 |
| Cessna 172 Skyhawk | IO320 | 132 |
| Dassault Falcon 50 | 1AS002 | 554 |
| Embraer Phenom 300 (EMB-505) | PW530 | 126 |
| Piper PA-31 Navajo | TIO540 | 17 |
| Raytheon C-12 Huron | PT660A | 61 |
| | ***Sub-Total*** | ***1,445*** |
| **Other** | | |
| Boeing 737-900-ER_O1 | 01P11CM121_O1 | 436 |
| Boeing 737-900-ER_O2 | 01P11CM125_O2 | 1 |
| Boeing 737-900-ER_O3 | 3CM034_O3 | 6 |
| Boeing 737-900-ER_O4 | 8CM065_O4 | 7 |
| Boeing 737-900-ER_O7 | 01P11CM116_O7 | 149 |
| Cessna 208 Caravan_O5 | P6114A_O5 | 201 |
| Cessna 208 Caravan_O6 | PT6A14_O6 | 199 |
| | ***Sub-Total*** | ***1,000*** |

## TABLE 1-2: ANNUAL OPERATIONS – FUTURE (2032) NO ACTION ALTERNATIVE *(CONTINUED)*

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| **Military** | | |
| Cessna 172 Skyhawk_M2 | IO320_M2 | 2 |
| Embraer Phenom 300 (EMB-505)_M1 | PW530_M1 | 72 |
| Raytheon C-12 Huron_M | PT660A_M | 26 |
| | ***Sub-Total*** | ***100*** |
| | **Grand Total** | **466,900** |

Note: Day = 7:00 a.m. to 9:59 p.m., Night = 10:00 p.m. to 6:59 a.m.
Source: Aviation Forecast Update, prepared by Port of Seattle/LeighFisher, 2023;
Constrained Operating Growth Scenario, prepared by Port of Seattle/Landrum & Brown, 2023;
Environmental Review Airside Modeling Analysis, prepared by the Port of Seattle/LeighFisher, 2020.

## TABLE 1-3: ANNUAL OPERATIONS – FUTURE (2032) PROPOSED ACTION

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| **Commercial Jets** | | |
| Airbus A220-100 | 16PW111 | 19,489 |
| Airbus A220-300 | 16PW111 | 5,616 |
| Airbus A220-300 | 16PW112 | 2,766 |
| Airbus A319-100 Series | 01P10IA020 | 4 |
| Airbus A319-100 Series | 3CM028 | 34 |
| Airbus A319-100 Series | 3IA006 | 775 |
| Airbus A319-100 Series | 3IA007 | 415 |
| Airbus A319-100 Series | 4CM035 | 31 |
| Airbus A319-100 Series | 8IA09 | 14 |
| Airbus A320-200 Series | 01P08CM105 | 5,941 |
| Airbus A320-200 Series | 01P10IA021 | 533 |
| Airbus A320-200 Series | 01P10IA022 | 115 |
| Airbus A320-200 Series | 1CM008 | 145 |
| Airbus A320-200 Series | 1CM009 | 589 |
| Airbus A320-200 Series | 1IA003 | 1,122 |
| Airbus A320-200 Series | 3CM026 | 639 |
| Airbus A320-200 Series | 8IA010 | 1 |
| Airbus A320-NEO | 01P20CM128 | 3,456 |
| Airbus A320-NEO | 01P22PW163 | 5,485 |
| Airbus A321-200 Series | 01P08CM104 | 1,055 |
| Airbus A321-200 Series | 01P10IA025 | 6,402 |
| Airbus A321-200 Series | 3CM025 | 1,090 |
| Airbus A321-NEO | 01P18PW157 | 5,287 |
| Airbus A321-NEO | 01P20CM132 | 15,682 |
| Airbus A330-200 Series | 2RR023 | 2,527 |
| Airbus A330-200 Series | 9PW094 | 36 |
| Airbus A330-300 Series | 2RR023 | 547 |
| Airbus A330-300 Series | 4GE080 | 555 |
| Airbus A330-300 Series | 7PW082 | 75 |
| Airbus A330-300 Series | 9PW094 | 1,568 |
| Airbus A330-300 Series | 9PW095 | 368 |
| Airbus A330-900N Series (Neo) | 02P23RR141 | 5,106 |
| Airbus A350-900 series | 01P18RR124 | 1,911 |
| Boeing 737-7 | 01P20CM136 | 1,111 |
| Boeing 737-700 Series | 3CM030 | 96 |
| Boeing 737-700 Series | 3CM031 | 3,258 |

**TABLE 1-3: ANNUAL OPERATIONS – FUTURE (2032) PROPOSED ACTION *(CONTINUED)***

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| Boeing 737-700 Series | 3CM032 | 593 |
| Boeing 737-700 Series | 8CM051 | 2 |
| Boeing 737-700 Series | 8CM062 | 24 |
| Boeing 737-700 Series | 8CM063 | 553 |
| Boeing 737-8 | 01P20CM135 | 288 |
| Boeing 737-8 | 01P20CM136 | 9,323 |
| Boeing 737-8 | 01P20CM140 | 8,600 |
| Boeing 737-800 Series | 01P11CM114 | 433 |
| Boeing 737-800 Series | 01P11CM116 | 5,900 |
| Boeing 737-800 Series | 01P11CM122 | 3,219 |
| Boeing 737-800 Series | 01P11CM125 | 716 |
| Boeing 737-800 Series | 01P11CM126 | 68 |
| Boeing 737-800 Series | 3CM032 | 18,060 |
| Boeing 737-800 Series | 3CM034 | 1,744 |
| Boeing 737-800 Series | 8CM051 | 24,723 |
| Boeing 737-800 Series | 8CM064 | 180 |
| Boeing 737-800 Series | 8CM065 | 2,308 |
| Boeing 737-800 Series | 8CM066 | 10,841 |
| Boeing 737-9 | 01P20CM136 | 450 |
| Boeing 737-9 | 01P20CM140 | 17,724 |
| Boeing 737-900-ER | 01P11CM116 | 30,161 |
| Boeing 737-900-ER | 01P11CM121 | 86,234 |
| Boeing 737-900-ER | 01P11CM125 | 263 |
| Boeing 737-900-ER | 3CM034 | 1,214 |
| Boeing 737-900-ER | 8CM065 | 1,354 |
| Boeing 737-900-ER_MA | 01P11CM121_MA | 1,842 |
| Boeing 767-400 ER | 8GE101 | 365 |
| Boeing 777-200-ER | 10PW099 | 123 |
| Boeing 777-200-ER | 2RR027 | 431 |
| Boeing 777-200-ER | 3GE060 | 191 |
| Boeing 777-200-ER | 3GE064 | 3 |
| Boeing 777-200-ER | 8GE100 | 198 |
| Boeing 777-300 ER | 01P21GE217 | 1,284 |
| Boeing 787-10 Dreamliner | 01P17GE211 | 341 |
| Boeing 787-10 Dreamliner | 01P17GE213 | 736 |
| Boeing 787-10 Dreamliner | 02P23RR134 | 372 |
| Boeing 787-8 Dreamliner | 01P17GE206 | 1,076 |
| Boeing 787-8 Dreamliner | 01P17GE210 | 36 |
| Boeing 787-8 Dreamliner | 11GE137 | 1,700 |
| Boeing 787-8 Dreamliner | 11GE138 | 4,177 |
| Boeing 787-9 Dreamliner | 01P17GE211 | 2,122 |
| Boeing 787-9 Dreamliner | 01P17GE214 | 14 |
| Boeing 787-9 Dreamliner | 02P23RR131 | 479 |
| Boeing 787-9 Dreamliner | 12RR067 | 2,192 |
| Boeing 787-9 Dreamliner | 12RR068 | 924 |
| | ***Sub-Total*** | ***337,426*** |
| **Cargo Jets** | | |
| Airbus A300F4-600 Series | 1GE020 | 5 |
| Airbus A300F4-600 Series | 1PW048 | 133 |
| Airbus A300F4-600 Series | 3GE056 | 241 |
| Boeing 747-400 ERF | 12PW102 | 590 |

**TABLE 1-3: ANNUAL OPERATIONS – FUTURE (2032) PROPOSED ACTION *(CONTINUED)***

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| Boeing 747-400BCF | 01P03GE187 | 590 |
| Boeing 747-8F | 01P17GE215 | 289 |
| Boeing 747-8F | 13GE156 | 77 |
| Boeing 747-8F | 8GENX1 | 249 |
| Boeing 767-200 Series Freighter | 1GE010 | 2,866 |
| Boeing 767-200 Series Freighter | 1GE012 | 1,427 |
| Boeing 767-200 Series Freighter | 1PW026 | 256 |
| Boeing 767-300 ER Freighter | 1GE030 | 4,142 |
| Boeing 767-300 ER Freighter | 2GE055 | 408 |
| Boeing 777 Freighter | 01P21GE216 | 2,415 |
| Boeing 777 Freighter | 01P21GE217 | 58 |
| Boeing MD-11 Freighter | 12PW102 | 249 |
| Boeing MD-11 Freighter | 1GE031 | 1,252 |
| Boeing MD-11 Freighter | 1PW052 | 407 |
| | ***Sub-Total*** | ***15,655*** |
| **Regional Jets** | | |
| Embraer ERJ175-LR | 01P08GE197 | 116,132 |
| Embraer ERJ175-LR_MA | 01P08GE197_MA | 995 |
| | ***Sub-Total*** | ***117,127*** |
| **Cargo Props** | | |
| ATR 72-600 Freighter | PW127F | 204 |
| Cessna 208 Caravan | P6114A | 1,163 |
| Cessna 208 Caravan | PT6A14 | 1,146 |
| Cessna 408 SkyCourier | PT6A6B | 204 |
| Raytheon Beech 99 | PT6A27 | 3 |
| Raytheon Beech 99 | PT6A36 | 182 |
| | ***Sub-Total*** | ***2,902*** |
| **General Aviation** | | |
| Bombardier Challenger 350 | 01P14HN011 | 554 |
| Cessna 172 Skyhawk | IO320 | 132 |
| Dassault Falcon 50 | 1AS002 | 554 |
| Embraer Phenom 300 (EMB-505) | PW530 | 126 |
| Piper PA-31 Navajo | TIO540 | 17 |
| Raytheon C-12 Huron | PT660A | 61 |
| | ***Sub-Total*** | ***1,445*** |
| **Other** | | |
| Boeing 737-900-ER_O1 | 01P11CM121_O1 | 436 |
| Boeing 737-900-ER_O2 | 01P11CM125_O2 | 1 |
| Boeing 737-900-ER_O3 | 3CM034_O3 | 6 |
| Boeing 737-900-ER_O4 | 8CM065_O4 | 7 |
| Boeing 737-900-ER_O7 | 01P11CM116_O7 | 149 |
| Cessna 208 Caravan_O5 | P6114A_O5 | 201 |
| Cessna 208 Caravan_O6 | PT6A14_O6 | 199 |
| | ***Sub-Total*** | ***1,000*** |

## TABLE 1-3: ANNUAL OPERATIONS – FUTURE (2032) PROPOSED ACTION *(CONTINUED)*

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| **Military** | | |
| Cessna 172 Skyhawk_M2 | IO320_M2 | 2 |
| Embraer Phenom 300 (EMB-505)_M1 | PW530_M1 | 72 |
| Raytheon C-12 Huron_M | PT660A_M | 26 |
| | ***Sub-Total*** | ***100*** |
| | **Grand Total** | **475,655** |

Note: Day = 7:00 a.m. to 9:59 p.m., Night = 10:00 p.m. to 6:59 a.m.
Source: Aviation Forecast Update, prepared by Port of Seattle/LeighFisher, 2023;
Constrained Operating Growth Scenario, prepared by Port of Seattle/Landrum & Brown, 2023;
Environmental Review Airside Modeling Analysis, prepared by the Port of Seattle/LeighFisher, 2020.

## TABLE 1-4: ANNUAL OPERATIONS – FUTURE (2037) NO ACTION ALTERNATIVE

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| **Commercial Jets** | | |
| Airbus A220-100 | 16PW111 | 25,279 |
| Airbus A220-300 | 16PW111 | 8,743 |
| Airbus A220-300 | 16PW112 | 4,306 |
| Airbus A320-200 Series | 01P08CM105 | 2,009 |
| Airbus A320-200 Series | 01P10IA021 | 180 |
| Airbus A320-200 Series | 01P10IA022 | 39 |
| Airbus A320-200 Series | 1CM008 | 49 |
| Airbus A320-200 Series | 1CM009 | 199 |
| Airbus A320-200 Series | 1IA003 | 379 |
| Airbus A320-200 Series | 3CM026 | 216 |
| Airbus A320-200 Series | 8IA010 | 0 |
| Airbus A320-NEO | 01P20CM128 | 5,744 |
| Airbus A320-NEO | 01P22PW163 | 9,116 |
| Airbus A321-200 Series | 01P08CM104 | 324 |
| Airbus A321-200 Series | 01P10IA025 | 1,968 |
| Airbus A321-200 Series | 3CM025 | 335 |
| Airbus A321-NEO | 01P18PW157 | 7,082 |
| Airbus A321-NEO | 01P20CM132 | 21,007 |
| Airbus A330-200 Series | 2RR023 | 2,514 |
| Airbus A330-200 Series | 9PW094 | 36 |
| Airbus A330-300 Series | 2RR023 | 545 |
| Airbus A330-300 Series | 4GE080 | 552 |
| Airbus A330-300 Series | 7PW082 | 75 |
| Airbus A330-300 Series | 9PW094 | 1,560 |
| Airbus A330-300 Series | 9PW095 | 366 |
| Airbus A330-900N Series (Neo) | 02P23RR141 | 5,503 |
| Airbus A350-900 series | 01P18RR124 | 3,247 |
| Boeing 737-7 | 01P20CM136 | 1,691 |
| Boeing 737-700 Series | 3CM030 | 19 |
| Boeing 737-700 Series | 3CM031 | 651 |
| Boeing 737-700 Series | 3CM032 | 118 |
| Boeing 737-700 Series | 8CM051 | 0 |
| Boeing 737-700 Series | 8CM062 | 5 |
| Boeing 737-700 Series | 8CM063 | 110 |
| Boeing 737-8 | 01P20CM135 | 643 |
| Boeing 737-8 | 01P20CM136 | 20,835 |

**TABLE 1-4: ANNUAL OPERATIONS – FUTURE (2037) NO ACTION ALTERNATIVE *(CONTINUED)***

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| Boeing 737-8 | 01P20CM140 | 19,219 |
| Boeing 737-800 Series | 01P11CM114 | 284 |
| Boeing 737-800 Series | 01P11CM116 | 3,861 |
| Boeing 737-800 Series | 01P11CM122 | 2,107 |
| Boeing 737-800 Series | 01P11CM125 | 468 |
| Boeing 737-800 Series | 01P11CM126 | 44 |
| Boeing 737-800 Series | 3CM032 | 11,820 |
| Boeing 737-800 Series | 3CM034 | 1,141 |
| Boeing 737-800 Series | 8CM051 | 16,180 |
| Boeing 737-800 Series | 8CM064 | 117 |
| Boeing 737-800 Series | 8CM065 | 1,511 |
| Boeing 737-800 Series | 8CM066 | 7,095 |
| Boeing 737-9 | 01P20CM136 | 959 |
| Boeing 737-9 | 01P20CM140 | 37,795 |
| Boeing 737-900-ER | 01P11CM116 | 25,142 |
| Boeing 737-900-ER | 01P11CM121 | 71,579 |
| Boeing 737-900-ER | 01P11CM125 | 219 |
| Boeing 737-900-ER | 3CM034 | 1,012 |
| Boeing 737-900-ER | 8CM065 | 1,128 |
| Boeing 737-900-ER_MA | 01P11CM121_MA | 1,839 |
| Boeing 787-10 Dreamliner | 01P17GE211 | 445 |
| Boeing 787-10 Dreamliner | 01P17GE213 | 962 |
| Boeing 787-10 Dreamliner | 02P23RR134 | 486 |
| Boeing 787-8 Dreamliner | 01P17GE206 | 1,418 |
| Boeing 787-8 Dreamliner | 01P17GE210 | 48 |
| Boeing 787-8 Dreamliner | 11GE137 | 2,240 |
| Boeing 787-8 Dreamliner | 11GE138 | 5,506 |
| Boeing 787-9 Dreamliner | 01P17GE211 | 3,449 |
| Boeing 787-9 Dreamliner | 01P17GE214 | 23 |
| Boeing 787-9 Dreamliner | 02P23RR131 | 778 |
| Boeing 787-9 Dreamliner | 12RR067 | 3,563 |
| Boeing 787-9 Dreamliner | 12RR068 | 1,502 |
| | ***Sub-Total*** | ***349,389*** |
| **Cargo Jets** | | |
| Boeing 747-400 ERF | 12PW102 | 577 |
| Boeing 747-400BCF | 01P03GE187 | 577 |
| Boeing 747-8F | 01P17GE215 | 315 |
| Boeing 747-8F | 13GE156 | 84 |
| Boeing 747-8F | 8GENX1 | 272 |
| Boeing 767-200 Series Freighter | 1GE010 | 3,719 |
| Boeing 767-200 Series Freighter | 1GE012 | 1,852 |
| Boeing 767-200 Series Freighter | 1PW026 | 333 |
| Boeing 767-300 ER Freighter | 1GE030 | 5,221 |
| Boeing 767-300 ER Freighter | 2GE055 | 514 |
| Boeing 777 Freighter | 01P21GE216 | 3,690 |
| Boeing 777 Freighter | 01P21GE217 | 88 |
| | ***Sub-Total*** | ***17,242*** |
| **Regional Jets** | | |
| Embraer ERJ175-LR | 01P08GE197 | 101,506 |
| Embraer ERJ175-LR_MA | 01P08GE197_MA | 993 |
| | ***Sub-Total*** | ***102,499*** |

## TABLE 1-4: ANNUAL OPERATIONS – FUTURE (2037) NO ACTION ALTERNATIVE *(CONTINUED)*

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| **Cargo Props** | | |
| ATR 72-600 Freighter | PW127F | 323 |
| Cessna 208 Caravan | P6114A | 1,147 |
| Cessna 208 Caravan | PT6A14 | 1,131 |
| Cessna 408 SkyCourier | PT6A6B | 323 |
| Raytheon Beech 99 | PT6A27 | 4 |
| Raytheon Beech 99 | PT6A36 | 235 |
| | ***Sub-Total*** | ***3,163*** |
| **General Aviation** | | |
| Bombardier Challenger 350 | 01P14HN011 | 572 |
| Cessna 172 Skyhawk | IO320 | 120 |
| Dassault Falcon 50 | 1AS002 | 572 |
| Embraer Phenom 300 (EMB-505) | PW530 | 136 |
| Piper PA-31 Navajo | TIO540 | 14 |
| Raytheon C-12 Huron | PT660A | 67 |
| | ***Sub-Total*** | ***1,481*** |
| **Other** | | |
| Boeing 737-900-ER_O1 | 01P11CM121_O1 | 436 |
| Boeing 737-900-ER_O2 | 01P11CM125_O2 | 1 |
| Boeing 737-900-ER_O3 | 3CM034_O3 | 6 |
| Boeing 737-900-ER_O4 | 8CM065_O4 | 7 |
| Boeing 737-900-ER_O7 | 01P11CM116_O7 | 149 |
| Cessna 208 Caravan_O5 | P6114A_O5 | 201 |
| Cessna 208 Caravan_O6 | PT6A14_O6 | 199 |
| | ***Sub-Total*** | ***1,000*** |
| **Military** | | |
| Cessna 172 Skyhawk_M2 | IO320_M2 | 2 |
| Embraer Phenom 300 (EMB-505)_M1 | PW530_M1 | 72 |
| Raytheon C-12 Huron_M | PT660A_M | 26 |
| | ***Sub-Total*** | ***100*** |
| | **Grand Total** | **474,874** |

Note: Day = 7:00 a.m. to 9:59 p.m., Night = 10:00 p.m. to 6:59 a.m.
Source: Aviation Forecast Update, prepared by Port of Seattle/LeighFisher, 2023; Constrained Operating Growth Scenario, prepared by Port of Seattle/Landrum & Brown, 2023; Environmental Review Airside Modeling Analysis, prepared by the Port of Seattle/LeighFisher, 2020.

## TABLE 1-5: ANNUAL OPERATIONS – FUTURE (2037) PROPOSED ACTION

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| **Commercial Jets** | | |
| Airbus A220-100 | 16PW111 | 27,238 |
| Airbus A220-300 | 16PW111 | 9,421 |
| Airbus A220-300 | 16PW112 | 4,640 |
| Airbus A320-200 Series | 01P08CM105 | 2,164 |
| Airbus A320-200 Series | 01P10IA021 | 194 |
| Airbus A320-200 Series | 01P10IA022 | 42 |
| Airbus A320-200 Series | 1CM008 | 53 |
| Airbus A320-200 Series | 1CM009 | 214 |
| Airbus A320-200 Series | 1IA003 | 409 |
| Airbus A320-200 Series | 3CM026 | 233 |
| Airbus A320-200 Series | 8IA010 | 0 |

**TABLE 1-5: ANNUAL OPERATIONS – FUTURE (2037) PROPOSED ACTION *(CONTINUED)***

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| Airbus A320-NEO | 01P20CM128 | 6,189 |
| Airbus A320-NEO | 01P22PW163 | 9,822 |
| Airbus A321-200 Series | 01P08CM104 | 349 |
| Airbus A321-200 Series | 01P10IA025 | 2,120 |
| Airbus A321-200 Series | 3CM025 | 361 |
| Airbus A321-NEO | 01P18PW157 | 7,631 |
| Airbus A321-NEO | 01P20CM132 | 22,635 |
| Airbus A330-200 Series | 2RR023 | 2,709 |
| Airbus A330-200 Series | 9PW094 | 39 |
| Airbus A330-300 Series | 2RR023 | 587 |
| Airbus A330-300 Series | 4GE080 | 595 |
| Airbus A330-300 Series | 7PW082 | 80 |
| Airbus A330-300 Series | 9PW094 | 1,681 |
| Airbus A330-300 Series | 9PW095 | 394 |
| Airbus A330-900N Series (Neo) | 02P23RR141 | 5,930 |
| Airbus A350-900 series | 01P18RR124 | 3,499 |
| Boeing 737-7 | 01P20CM136 | 1,822 |
| Boeing 737-700 Series | 3CM030 | 21 |
| Boeing 737-700 Series | 3CM031 | 701 |
| Boeing 737-700 Series | 3CM032 | 128 |
| Boeing 737-700 Series | 8CM051 | 0 |
| Boeing 737-700 Series | 8CM062 | 5 |
| Boeing 737-700 Series | 8CM063 | 119 |
| Boeing 737-8 | 01P20CM135 | 693 |
| Boeing 737-8 | 01P20CM136 | 22,449 |
| Boeing 737-8 | 01P20CM140 | 20,708 |
| Boeing 737-800 Series | 01P11CM114 | 306 |
| Boeing 737-800 Series | 01P11CM116 | 4,160 |
| Boeing 737-800 Series | 01P11CM122 | 2,270 |
| Boeing 737-800 Series | 01P11CM125 | 505 |
| Boeing 737-800 Series | 01P11CM126 | 48 |
| Boeing 737-800 Series | 3CM032 | 12,736 |
| Boeing 737-800 Series | 3CM034 | 1,230 |
| Boeing 737-800 Series | 8CM051 | 17,434 |
| Boeing 737-800 Series | 8CM064 | 127 |
| Boeing 737-800 Series | 8CM065 | 1,628 |
| Boeing 737-800 Series | 8CM066 | 7,645 |
| Boeing 737-9 | 01P20CM136 | 1,033 |
| Boeing 737-9 | 01P20CM140 | 40,724 |
| Boeing 737-900-ER | 01P11CM116 | 27,090 |
| Boeing 737-900-ER | 01P11CM121 | 77,133 |
| Boeing 737-900-ER | 01P11CM125 | 236 |
| Boeing 737-900-ER | 3CM034 | 1,090 |
| Boeing 737-900-ER | 8CM065 | 1,216 |
| Boeing 737-900-ER_MA | 01P11CM121_MA | 1,975 |
| Boeing 787-10 Dreamliner | 01P17GE211 | 480 |
| Boeing 787-10 Dreamliner | 01P17GE213 | 1,036 |
| Boeing 787-10 Dreamliner | 02P23RR134 | 524 |
| Boeing 787-8 Dreamliner | 01P17GE206 | 1,528 |
| Boeing 787-8 Dreamliner | 01P17GE210 | 51 |
| Boeing 787-8 Dreamliner | 11GE137 | 2,414 |

## TABLE 1-5: ANNUAL OPERATIONS – FUTURE (2037) PROPOSED ACTION *(CONTINUED)*

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| Boeing 787-8 Dreamliner | 11GE138 | 5,933 |
| Boeing 787-9 Dreamliner | 01P17GE211 | 3,717 |
| Boeing 787-9 Dreamliner | 01P17GE214 | 25 |
| Boeing 787-9 Dreamliner | 02P23RR131 | 839 |
| Boeing 787-9 Dreamliner | 12RR067 | 3,839 |
| Boeing 787-9 Dreamliner | 12RR068 | 1,618 |
| | ***Sub-Total*** | ***376,465*** |
| **Cargo Jets** | | |
| Boeing 747-400 ERF | 12PW102 | 577 |
| Boeing 747-400BCF | 01P03GE187 | 577 |
| Boeing 747-8F | 01P17GE215 | 315 |
| Boeing 747-8F | 13GE156 | 84 |
| Boeing 747-8F | 8GENX1 | 272 |
| Boeing 767-200 Series Freighter | 1GE010 | 3,719 |
| Boeing 767-200 Series Freighter | 1GE012 | 1,852 |
| Boeing 767-200 Series Freighter | 1PW026 | 333 |
| Boeing 767-300 ER Freighter | 1GE030 | 5,221 |
| Boeing 767-300 ER Freighter | 2GE055 | 514 |
| Boeing 777 Freighter | 01P21GE216 | 3,690 |
| Boeing 777 Freighter | 01P21GE217 | 88 |
| | ***Sub-Total*** | ***17,242*** |
| **Regional Jets** | | |
| Embraer ERJ175-LR | 01P08GE197 | 109,375 |
| Embraer ERJ175-LR_MA | 01P08GE197_MA | 1,066 |
| | ***Sub-Total*** | ***110,442*** |
| **Cargo Prop** | | |
| ATR 72-600 Freighter | PW127F | 323 |
| Cessna 208 Caravan | P6114A | 1,147 |
| Cessna 208 Caravan | PT6A14 | 1,131 |
| Cessna 408 SkyCourier | PT6A6B | 323 |
| Raytheon Beech 99 | PT6A27 | 4 |
| Raytheon Beech 99 | PT6A36 | 235 |
| | ***Sub-Total*** | ***3,163*** |
| **General Aviation** | | |
| Bombardier Challenger 350 | 01P14HN011 | 572 |
| Cessna 172 Skyhawk | IO320 | 120 |
| Dassault Falcon 50 | 1AS002 | 572 |
| Embraer Phenom 300 (EMB-505) | PW530 | 136 |
| Piper PA-31 Navajo | TIO540 | 14 |
| Raytheon C-12 Huron | PT660A | 67 |
| | ***Sub-Total*** | ***1,481*** |
| **Other** | | |
| Boeing 737-900-ER_O1 | 01P11CM121_O1 | 436 |
| Boeing 737-900-ER_O2 | 01P11CM125_O2 | 1 |
| Boeing 737-900-ER_O3 | 3CM034_O3 | 6 |
| Boeing 737-900-ER_O4 | 8CM065_O4 | 7 |
| Boeing 737-900-ER_O7 | 01P11CM116_O7 | 149 |
| Cessna 208 Caravan_O5 | P6114A_O5 | 201 |
| Cessna 208 Caravan_O6 | PT6A14_O6 | 199 |
| | ***Sub-Total*** | ***1,000*** |

## TABLE 1-5: ANNUAL OPERATIONS – FUTURE (2037) PROPOSED ACTION *(CONTINUED)*

| Airframe | Engine Code | Annual Operations |
|---|---|---|
| **Military** | | |
| Cessna 172 Skyhawk_M2 | IO320_M2 | 2 |
| Embraer Phenom 300 (EMB-505)_M1 | PW530_M1 | 72 |
| Raytheon C-12 Huron_M | PT660A_M | 26 |
| | ***Sub-Total*** | ***100*** |
| | **Grand Total** | **509,892** |

Note: Day = 7:00 a.m. to 9:59 p.m., Night = 10:00 p.m. to 6:59 a.m.
Source: Aviation Forecast Update, prepared by Port of Seattle/LeighFisher, 2023; Constrained Operating Growth Scenario, prepared by Port of Seattle/Landrum & Brown, 2023; Environmental Review Airside Modeling Analysis, prepared by the Port of Seattle/LeighFisher, 2020.

## TABLE 1-6: COMPARISON OF TAXI TIMES (MINUTES SECONDS)

| Year / Alternative | Taxi-in | Taxi-Out | Total |
|---|---|---|---|
| Existing (2022) | 10 min, 16 sec | 18 min, 53 sec | 29 min, 9 sec |
| 2032 No Action Alternative | 9 min, 26 sec | 21 min, 28 sec | 30 min, 54 sec |
| 2032 Proposed Action | 9 min, 12 sec | 21 min, 18 sec | 30 min, 30 sec |
| 2037 No Action Alternative | 9 min, 41 sec | 21 min, 42 sec | 31 min, 23 sec |
| 2037 Proposed Action | 9 min, 45 sec | 23 min, 32 sec | 33 min, 17 sec |

Source: FAA's Aviation System Performance Metrics (ASPM) for Existing (2022) Condition. Taxi times for the future conditions were estimated using LFA delay modeling data developed with the Total Airspace and Airport Modeler (TAAM) tool (June 2020) normalized to the ASPM data.

# Attachment 2 Auxiliary Power Unit Usage

This attachment contains the following tables:

**APU Annual Usage**

- Table 2-1 Existing (2022) Condition APU Annual Usage
- Table 2-2 Future (2032) No Action Alternative APU Annual Usage
- Table 2-3 Future (2032) Proposed Action APU Annual Usage
- Table 2-4 Future (2037) No Action Alternative APU Annual Usage
- Table 2-5 Future (2037) Proposed Action APU Annual Usage

### TABLE 2-1: EXISTING (2022) APU ANNUAL USAGE

| APU Type | Annual Usage (Hours) |
|---|---|
| APU 131-9 | 2,849,478 |
| APU GTC 85 | 3,633 |
| APU GTCP 331 (143 HP) | 50,233 |
| APU GTCP 331-350 | 35,238 |
| APU GTCP 36 (80HP) | 1,882 |
| APU GTCP 36-100 | 643 |
| APU GTCP 36-150[] | 209 |
| APU GTCP 36-300 (80HP) | 228,573 |
| APU GTCP 85 (200 HP) | 495 |
| APU GTCP100-544 (400 HP) | 956 |
| APU GTCP331-200ER (143 HP) | 82,744 |
| APU GTCP331-500 (143 HP) | 11,898 |
| APU GTCP85-129 (200 HP) | 10 |
| APU PW901A | 31,454 |
| APU T-62T-27 (100 HP) | 126,701 |
| APU T-62T-47C1 | 136,060 |
| APU TSCP700-4B (142 HP) | 30 |
| **Total** | **3,560,237** |

Source: AEDT 3f; Port of Seattle and Landrum & Brown, 2024

### TABLE 2-2: FUTURE (2032) NO ACTION ALTERNATIVE APU ANNUAL USAGE

| APU Type | Annual Usage (Hours) |
|---|---|
| APU 131-9 | 3,938,697 |
| APU GTC 85 | 461 |
| APU GTCP 331 (143 HP) | 30,210 |
| APU GTCP 331-350 | 205,351 |
| APU GTCP 36 (80HP) | 3,404 |
| APU GTCP 36-100 | 4 |
| APU GTCP 36-300 (80HP) | 611,869 |
| APU GTCP100-544 (400 HP) | 9,549 |
| APU GTCP331-200ER (143 HP) | 7,362 |
| APU GTCP331-500 (143 HP) | 12,775 |
| APU PW901A | 53,579 |
| APU T-62T-27 (100 HP) | 112 |
| APU T-62T-47C1 | 593 |
| **Total** | **4,873,967** |

Source: AEDT 3f; Port of Seattle and Landrum & Brown, 2024

### TABLE 2-3: FUTURE (2032) PROPOSED ACTION APU ANNUAL USAGE

| APU Type | Annual Usage (Hours) |
|---|---|
| APU 131-9 | 4,013,427 |
| APU GTC 85 | 465 |
| APU GTCP 331 (143 HP) | 30,589 |
| APU GTCP 331-350 | 209,389 |
| APU GTCP 36 (80HP) | 3,404 |
| APU GTCP 36-100 | 5 |
| APU GTCP 36-300 (80HP) | 623,884 |
| APU GTCP100-544 (400 HP) | 9,690 |
| APU GTCP331-200ER (143 HP) | 7,506 |
| APU GTCP331-500 (143 HP) | 13,005 |
| APU PW901A | 54,178 |
| APU T-62T-27 (100 HP) | 113 |
| APU T-62T-47C1 | 604 |
| **Total** | **4,966,256** |

Source: AEDT 3f; Port of Seattle and Landrum & Brown, 2024

### TABLE 2-4: FUTURE (2037) NO ACTION ALTERNATIVE APU ANNUAL USAGE

| APU Type | Annual Usage (Hours) |
|---|---|
| APU 131-9 | 5,322,083 |
| APU GTCP 331 (143 HP) | 28,676 |
| APU GTCP 331-350 | 71,596 |
| APU GTCP 36 (80HP) | 1,327 |
| APU GTCP 36-100 | 41 |
| APU GTCP 36-300 (80HP) | 316,483 |
| APU GTCP100-544 (400 HP) | 2,639 |
| APU GTCP331-500 (143 HP) | 584 |
| APU PW901A | 44,053 |
| APU T-62T-27 (100 HP) | 101 |
| APU T-62T-47C1 | 120 |
| **Total** | **5,787,704** |

Source: AEDT 3f; Port of Seattle and Landrum & Brown, 2024

### TABLE 2-5: FUTURE (2037) PROPOSED ACTION APU ANNUAL USAGE

| APU Type | Annual Usage (Hours) |
|---|---|
| APU 131-9 | 5,717,310 |
| APU GTCP 331 (143 HP) | 29,710 |
| APU GTCP 331-350 | 77,016 |
| APU GTCP 36 (80HP) | 1,422 |
| APU GTCP 36-100 | 44 |
| APU GTCP 36-300 (80HP) | 341,009 |
| APU GTCP100-544 (400 HP) | 2,836 |
| APU GTCP331-500 (143 HP) | 628 |
| APU PW901A | 46,612 |
| APU T-62T-27 (100 HP) | 102 |
| APU T-62T-47C1 | 125 |
| **Total** | **6,216,814** |

Source: AEDT 3f; Port of Seattle and Landrum & Brown, 2024

# Attachment 3 Ground Support Equipment

This attachment contains the following tables:

**Existing (2022) Condition**

- Table 3-1 Tenant-Owned GSE Annual Usage – Existing (2022) Condition
- Table 3-2 Port-Owned Airfield Vehicles and Equipment Fuel Consumption – Existing (2022) Condition

**Future (2032) No Action Alternative**

- Table 3-3 Tenant-Owned GSE Annual Usage – Future (2032) No Action Alternative
- Table 3-4 Port-Owned Airfield Vehicles and Equipment Fuel Consumption – Future (2032) No Action Alternative

**Future (2032) Proposed Action**

- Table 3-5 Tenant-Owned GSE Annual Usage – Future (2032) Proposed Action
- Table 3-6 Port-Owned Airfield Vehicles and Equipment Fuel Consumption – Future (2032) Proposed Action

**Future (2037) No Action Alternative**

- Table 3-7 Tenant-Owned GSE Annual Usage – Future (2037) No Action Alternative
- Table 3-8 Port-owned Airfield Vehicles and Equipment Fuel Consumption – Future (2037) No Action Alternative

**Future (2037) Proposed Action**

- Table 3-9 Tenant-Owned GSE Annual Usage – Future (2037) Proposed Action
- Table 3-10 Port-Owned Airfield Vehicles and Equipment Fuel Consumption – Future (2037) Proposed Action

**Emission Factors**

- Table 3-11 2022 Emission Factors for GSE
- Table 3-12 2032 Emission Factors for GSE
- Table 3-13 2037 Emission Factors for GSE

## TABLE 3-1: TENANT-OWNED GSE ANNUAL USAGE - EXISTING (2022) CONDITION

| General Description | AEDT Equipment Name | Annual Usage (Hours) |
|---|---|---|
| Aircraft Tractor | Diesel - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 11,018.3 |
| Aircraft Tractor | Diesel - Stewart & Stevenson TUG MC - Aircraft Tractor | 37.3 |
| Aircraft Tractor | Electric - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 8,159.6 |
| Aircraft Tractor | Gasoline - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 5,164.8 |
| Baggage Tractor | Diesel - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 36,613.0 |
| Baggage Tractor | Electric - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 111,509.5 |
| Baggage Tractor | Gasoline - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 90,863.7 |
| Belt Loader | Diesel - Stewart & Stevenson TUG 660 - Belt Loader | 2,367.0 |
| Belt Loader | Electric - Stewart & Stevenson TUG 660 - Belt Loader | 78,062.0 |
| Belt Loader | Gasoline - Stewart & Stevenson TUG 660 - Belt Loader | 45,341.9 |
| Cabin Service Truck | Diesel - Hi-Way F650 - Cabin Service Truck | 946.0 |
| Cabin Service Truck | Gasoline - Hi-Way F650 - Cabin Service Truck | 80,841.0 |
| Cargo Loader | Diesel - FMC Commander 30 - Cargo Loader | 35,879.5 |
| Catering Truck | Diesel - Hi-Way / TUG 660 chasis - Catering Truck | 18.3 |
| Catering Truck | Diesel - Hi-Way F650 - Catering Truck | 76,956.7 |
| Catering Truck | Gasoline - Hi-Way F650 - Catering Truck | 4,788.8 |
| Fuel Truck | Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck | 9,726.2 |
| Generator | Diesel - (None specified. EPA default data used.) - Generator | 18.3 |
| Ground Power Unit | Diesel - TLD, 28 VDC - Ground Power Unit | 34,139.0 |
| Ground Power Unit | Diesel - TLD, 400 Hz AC - Ground Power Unit | 57.4 |
| Ground Power Unit | Gasoline - TLD - Ground Power Unit | 141.3 |
| Hydrant Truck | Diesel - F250 / F350 - Hydrant Truck | 28,896.3 |
| Hydrant Truck | Gasoline - F250 / F350 - Hydrant Truck | 3,580.4 |
| Lavatory Truck | Diesel - TLD 1410 - Lavatory Truck | 25,448.0 |
| Lavatory Truck | Gasoline - TLD 1410 - Lavatory Truck | 20,041.4 |
| Lift | Diesel - (None specified. EPA default data used.) - Lift | 1.5 |
| Passenger Stand | Diesel - Wollard CMPS170 / CMPS228 - Passenger Stand | 931.1 |
| Service Truck | Diesel - F250 / F350 - Service Truck | 5,820.3 |
| Service Truck | Electric - F250 / F350 - Service Truck | 2,037.2 |
| Service Truck | Gasoline - F250 / F350 - Service Truck | 35,768.3 |
| | **Total** | **755,173.9** |

Source: AEDT 3f; Port of Seattle and Landrum & Brown, 2024.

## TABLE 3-2: PORT-OWNED AIRFIELD VEHICLES AND EQUIPMENT ANNUAL FUEL CONSUMPTION - EXISTING (2022) CONDITION

| Category / Description | AEDT Equipment Name | Fuel Type | Total Annual Consumption Per Category (Gallons) |
|---|---|---|---|
| **Airfield Maintenance** | | | |
| Airfield Vehicles including Ford Escapes, Chevrolet pickup trucks, Ford 150 trucks, and vans | F250 / F350 - Service Truck | Gasoline | 55,461 |
| Trimmers, pressure washers, airfield lighting | Other[1] | Gasoline | 1,684 |
| Belt Loaders | Stewart & Stevenson TUG 660 - Belt Loader | Gasoline | 44 |
| Airfield Vehicles including Ford and International trucks | F250 / F350 - Service Truck | Diesel | 19,178 |
| Snowplows including Oshkosh and International trucks | F250 / F350 - Service Truck | Diesel | 5,580 |
| Mower and snow blower equipment | Other[2] | Diesel | 990 |
| Aircraft Tractors | Douglas TBL-400 - Aircraft Tractor | Diesel | 223 |
| Forklift | Toyota 5,000 lb - Fork Lift | Propane | 24 |
| **Support Hardstand Operations** | | | |
| Air Conditioners | ACE 802 - Air Conditioner | Diesel | 834 |
| Shuttle Buses | COBUS[3] | Diesel | 1,762 |
| Belt Loaders | Stewart & Stevenson TUG 660 - Belt Loader | Diesel | 646 |
| Ground Power Units | TLD, 400 Hz AC - Ground Power Unit | Diesel | 394 |
| Ford 550 Service Truck | F250 / F350 - Service Truck | Gasoline | 35 |

1 Gasoline equipment which was not available in AEDT was grouped into AEDT's "Other" equipment type. This included trimmers, pressure washers, and airfield lighting equipment. An AEDT user specified equipment type was developed with a horsepower of 126 and load factor of 0.5.

2 Diesel equipment which was not available in AEDT was grouped into AEDT's "Other" equipment type. This included mower and snow blower equipment. An AEDT user specified equipment type was developed with a horsepower of 140 and load factor of 0.5.

3 This includes the Port of Seattle 45-foot COBUS 3000 activity. An AEDT user specified equipment type was developed with a horsepower of 300 and load factor of 0.5.

Note: Hz denotes Hertz; AC denotes Air Conditioner.

Source: Port of Seattle and Landrum & Brown, 2023.

## TABLE 3-3: TENANT-OWNED GSE ANNUAL USAGE – FUTURE (2032) NO ACTION ALTERNATIVE

| General Description | AEDT Equipment Name | Annual Usage (Hours) |
|---|---|---|
| Aircraft Tractor | Diesel - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 13,231.6 |
| Aircraft Tractor | Diesel - Stewart & Stevenson TUG MC - Aircraft Tractor | 30.8 |
| Aircraft Tractor | Electric - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 9,523.8 |
| Aircraft Tractor | Gasoline - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 6,078.6 |
| Baggage Tractor | Diesel - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 43,915.3 |
| Baggage Tractor | Electric - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 130,151.6 |
| Baggage Tractor | Gasoline - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 109,556.0 |
| Belt Loader | Diesel - Stewart & Stevenson TUG 660 - Belt Loader | 2,762.7 |
| Belt Loader | Electric - Stewart & Stevenson TUG 660 - Belt Loader | 91,112.2 |
| Belt Loader | Gasoline - Stewart & Stevenson TUG 660 - Belt Loader | 54,647.4 |
| Cabin Service Truck | Diesel - Hi-Way F650 - Cabin Service Truck | 1,176.8 |
| Cabin Service Truck | Gasoline - Hi-Way F650 - Cabin Service Truck | 94,574.0 |
| Cargo Loader | Diesel - FMC Commander 30 - Cargo Loader | 43,411.5 |
| Cart | Gasoline - Taylor Dunn - Cart | 5.1 |
| Catering Truck | Diesel - Hi-Way F650 - Catering Truck | 90,728.6 |
| Catering Truck | Gasoline - Hi-Way F650 - Catering Truck | 5,788.3 |
| Fuel Truck | Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck | 123.2 |
| Fuel Truck | Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck" | 11,427.0 |
| Generator | Diesel - (None specified. EPA default data used.) - Generator | 61.0 |
| Ground Power Unit | Diesel - TLD, 28 VDC - Ground Power Unit | 246.5 |
| Ground Power Unit | Diesel - TLD, 28 VDC - Ground Power Unit" | 39,768.8 |
| Hydrant Truck | Diesel - F250 / F350 - Hydrant Truck | 34,216.9 |
| Hydrant Truck | Gasoline - F250 / F350 - Hydrant Truck | 4,239.5 |
| Lavatory Truck | Diesel - TLD 1410 - Lavatory Truck | 30,342.9 |
| Lavatory Truck | Gasoline - TLD 1410 - Lavatory Truck | 23,391.9 |
| Lift | Diesel - (None specified. EPA default data used.) - Lift | 5.1 |
| Passenger Stand | Diesel - Wollard CMPS170 / CMPS228 - Passenger Stand | 1,086.8 |
| Service Truck | Diesel - F250 / F350 - Service Truck | 6,784.0 |
| Service Truck | Electric - F250 / F350 - Service Truck | 2,377.8 |
| Service Truck | Gasoline - F250 / F350 - Service Truck | 42,387.1 |
| | **Total** | **893,153.0** |

Source: AEDT 3f; Port of Seattle and Landrum & Brown, 2024.

## TABLE 3-4: PORT-OWNED AIRFIELD VEHICLES AND EQUIPMENT FUEL CONSUMPTION – FUTURE (2032) NO ACTION ALTERNATIVE

| Category / Description | AEDT Equipment Name | Fuel Type | Total Annual Consumption Per Category (Gallons) |
|---|---|---|---|
| **Airfield Maintenance** | | | |
| Airfield Vehicles including Ford Escapes, Chevrolet pickup trucks, Ford 150 trucks, and vans | F250 / F350 - Service Truck | Gasoline | 64,519 |
| Trimmers, pressure washers, airfield lighting | Other[1] | Gasoline | 1,959 |
| Belt Loaders | Stewart & Stevenson TUG 660 - Belt Loader | Gasoline | 51 |
| Airfield Vehicles including Ford and International trucks | F250 / F350 - Service Truck | Diesel | 22,310 |
| Snowplows including Oshkosh and International trucks | F250 / F350 - Service Truck | Diesel | 6,491 |
| Mower and snow blower equipment | Other[2] | Diesel | 1,152 |
| Aircraft Tractors | Douglas TBL-400 - Aircraft Tractor | Diesel | 260 |
| Forklift | Toyota 5,000 lb - Fork Lift | Propane | 27 |
| **Support Hardstand Operations** | | | |
| Air Conditioners | ACE 802 - Air Conditioner | Diesel | 970 |
| Shuttle Buses | COBUS[3] | Diesel | 2,050 |
| Belt Loaders | Stewart & Stevenson TUG 660 - Belt Loader | Diesel | 752 |
| Ground Power Units | TLD, 400 Hz AC - Ground Power Unit | Diesel | 458 |
| Ford 550 Service Truck | F250 / F350 - Service Truck | Gasoline | 41 |

1 Gasoline equipment which was not available in AEDT was grouped into AEDT's "Other" equipment type. This included trimmers, pressure washers, and airfield lighting equipment. An AEDT user specified equipment type was developed with a horsepower of 126 and load factor of 0.5.

2 Diesel equipment which was not available in AEDT was grouped into AEDT's "Other" equipment type. This included mower and snow blower equipment. An AEDT user specified equipment type was developed with a horsepower of 140 and load factor of 0.5.

3 This includes the Port of Seattle 45-foot COBUS 3000 activity. An AEDT user specified equipment type was developed with a horsepower of 300 and load factor of 0.5.

Note: Hz denotes Hertz; AC denotes Air Conditioner.

Source: Port of Seattle and Landrum & Brown, 2023.

## TABLE 3-5: TENANT-OWNED GSE ANNUAL USAGE – FUTURE (2032) PROPOSED ACTION

| General Description | AEDT Equipment Name | Annual Usage (Hours) |
|---|---|---|
| Aircraft Tractor | Diesel - Stewart & Stevenson TUG MC - Aircraft Tractor | 30.8 |
| Aircraft Tractor | Diesel - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 13,470.5 |
| Aircraft Tractor | Electric - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 9,710.5 |
| Aircraft Tractor | Gasoline - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 6,183.9 |
| Baggage Tractor | Diesel - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 44,450.1 |
| Baggage Tractor | Electric - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 132,703.1 |
| Baggage Tractor | Gasoline - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 111,376.8 |
| Belt Loader | Diesel - Stewart & Stevenson TUG 660 - Belt Loader | 2,816.9 |
| Belt Loader | Electric - Stewart & Stevenson TUG 660 - Belt Loader | 92,898.3 |
| Belt Loader | Gasoline - Stewart & Stevenson TUG 660 - Belt Loader | 55,617.9 |
| Cabin Service Truck | Diesel - Hi-Way F650 - Cabin Service Truck | 1,199.9 |
| Cabin Service Truck | Gasoline - Hi-Way F650 - Cabin Service Truck | 96,428.0 |
| Cargo Loader | Diesel - FMC Commander 30 - Cargo Loader | 43,955.5 |
| Cart | Gasoline - Taylor Dunn - Cart | 5.1 |
| Catering Truck | Diesel - Hi-Way F650 - Catering Truck | 92,507.3 |
| Catering Truck | Gasoline - Hi-Way F650 - Catering Truck | 5,901.8 |
| Fuel Truck | Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck | 11,705.6 |
| Generator | Diesel - (None specified. EPA default data used.) - Generator | 61.0 |
| Ground Power Unit | Diesel - TLD, 28 VDC - Ground Power Unit | 40,794.9 |
| Hydrant Truck | Diesel - F250 / F350 - Hydrant Truck | 34,887.8 |
| Hydrant Truck | Gasoline - F250 / F350 - Hydrant Truck | 4,322.6 |
| Lavatory Truck | Diesel - TLD 1410 - Lavatory Truck | 30,937.8 |
| Lavatory Truck | Gasoline - TLD 1410 - Lavatory Truck | 23,850.5 |
| Lift | Diesel - (None specified. EPA default data used.) - Lift | 5.1 |
| Passenger Stand | Diesel - Wollard CMPS170 / CMPS228 - Passenger Stand | 1,108.1 |
| Service Truck | Diesel - F250 / F350 - Service Truck | 6,916.6 |
| Service Truck | Electric - F250 / F350 - Service Truck | 2,424.4 |
| Service Truck | Gasoline - F250 / F350 - Service Truck | 43,179.7 |
| | **Total** | **909,450.5** |

Source: AEDT 3f; Port of Seattle and Landrum & Brown, 2024.

## TABLE 3-6: PORT-OWNED AIRFIELD VEHICLES AND EQUIPMENT FUEL CONSUMPTION – FUTURE (2032) PROPOSED ACTION

| Category / Description | AEDT Equipment Name | Fuel Type | Total Annual Consumption Per Category (Gallons) |
|---|---|---|---|
| **Airfield Maintenance** | | | |
| Airfield Vehicles including Ford Escapes, Chevrolet pickup trucks, Ford 150 trucks, and vans | F250 / F350 - Service Truck | Gasoline | 65,729 |
| Trimmers, pressure washers, airfield lighting | Other[1] | Gasoline | 1,996 |
| Belt Loaders | Stewart & Stevenson TUG 660 - Belt Loader | Gasoline | 52 |
| Airfield Vehicles including Ford and International trucks | F250 / F350 - Service Truck | Diesel | 22,729 |
| Snowplows including Oshkosh and International trucks | F250 / F350 - Service Truck | Diesel | 6,613 |
| Mower and snow blower equipment | Other[2] | Diesel | 1,173 |
| Aircraft Tractors | Douglas TBL-400 - Aircraft Tractor | Diesel | 265 |
| Forklift | Toyota 5,000 lb - Fork Lift | Propane | 28 |
| **Support Hardstand Operations** | | | |
| Air Conditioners | ACE 802 - Air Conditioner | Diesel | 988 |
| Shuttle Buses | COBUS[3] | Diesel | 2,088 |
| Belt Loaders | Stewart & Stevenson TUG 660 - Belt Loader | Diesel | 766 |
| Ground Power Units | TLD, 400 Hz AC - Ground Power Unit | Diesel | 467 |
| Ford 550 Service Truck | F250 / F350 - Service Truck | Gasoline | 41 |

1 Gasoline equipment which was not available in AEDT was grouped into AEDT's "Other" equipment type. This included trimmers, pressure washers, and airfield lighting equipment. An AEDT user specified equipment type was developed with a horsepower of 126 and load factor of 0.5.

2 Diesel equipment which was not available in AEDT was grouped into AEDT's "Other" equipment type. This included mower and snow blower equipment. An AEDT user specified equipment type was developed with a horsepower of 140 and load factor of 0.5.

3 This includes the Port of Seattle 45-foot COBUS 3000 activity. An AEDT user specified equipment type was developed with a horsepower of 300 and load factor of 0.5.

Note: Hz denotes Hertz; AC denotes Air Conditioner.

Source: Port of Seattle and Landrum & Brown, 2023.

## TABLE 3-7: TENANT-OWNED GSE ANNUAL USAGE – FUTURE (2037) NO ACTION ALTERNATIVE

| General Description | AEDT Equipment Name | Annual Usage (Hours) |
|---|---|---|
| Aircraft Tractor | Diesel - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 13,493.4 |
| Aircraft Tractor | Diesel - Stewart & Stevenson TUG MC - Aircraft Tractor | 33.8 |
| Aircraft Tractor | Electric - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 9,654.8 |
| Aircraft Tractor | Gasoline - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 6,216.3 |
| Baggage Tractor | Diesel - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 45,791.1 |
| Baggage Tractor | Electric - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 131,942.4 |
| Baggage Tractor | Gasoline - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 112,349.7 |
| Belt Loader | Diesel - Stewart & Stevenson TUG 660 - Belt Loader | 2,800.7 |
| Belt Loader | Electric - Stewart & Stevenson TUG 660 - Belt Loader | 92,366.0 |
| Belt Loader | Gasoline - Stewart & Stevenson TUG 660 - Belt Loader | 55,792.7 |
| Cabin Service Truck | Diesel - Hi-Way F650 - Cabin Service Truck | 1,193.0 |
| Cabin Service Truck | Gasoline - Hi-Way F650 - Cabin Service Truck | 95,875.1 |
| Cargo Loader | Diesel - FMC Commander 30 - Cargo Loader | 45,206.4 |
| Cart | Gasoline - Taylor Dunn - Cart | 5.6 |
| Catering Truck | Diesel - Hi-Way F650 - Catering Truck | 91,976.8 |
| Catering Truck | Gasoline - Hi-Way F650 - Catering Truck | 5,868.0 |
| Fuel Truck | Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck | 11,987.4 |
| Generator | Diesel - (None specified. EPA default data used.) - Generator | 67.0 |
| Ground Power Unit | Diesel - TLD, 28 VDC - Ground Power Unit | 40,586.6 |
| Hydrant Truck | Diesel - F250 / F350 - Hydrant Truck | 34,687.5 |
| Hydrant Truck | Gasoline - F250 / F350 - Hydrant Truck | 4,297.8 |
| Lavatory Truck | Diesel - TLD 1410 - Lavatory Truck | 30,760.3 |
| Lavatory Truck | Gasoline - TLD 1410 - Lavatory Truck | 23,713.8 |
| Lift | Diesel - (None specified. EPA default data used.) - Lift | 5.6 |
| Passenger Stand | Diesel - Wollard CMPS170 / CMPS228 - Passenger Stand | 1,101.7 |
| Service Truck | Diesel - F250 / F350 - Service Truck | 6,883.7 |
| Service Truck | Electric - F250 / F350 - Service Truck | 2,410.5 |
| Service Truck | Gasoline - F250 / F350 - Service Truck | 43,120.0 |
| | **Total** | **910,187.7** |

Source: AEDT 3f; Port of Seattle and Landrum & Brown, 2024.

## TABLE 3-8: PORT-OWNED AIRFIELD VEHICLES AND EQUIPMENT FUEL CONSUMPTION – FUTURE (2037) NO ACTION ALTERNATIVE

| Category / Description | AEDT Equipment Name | Fuel Type | Total Annual Consumption Per Category (Gallons) |
|---|---|---|---|
| **Airfield Maintenance** | | | |
| Airfield Vehicles including Ford Escapes, Chevrolet pickup trucks, Ford 150 trucks, and vans | F250 / F350 - Service Truck | Gasoline | 65,621 |
| Trimmers, pressure washers, airfield lighting | Other[1] | Gasoline | 1,993 |
| Belt Loaders | Stewart & Stevenson TUG 660 - Belt Loader | Gasoline | 52 |
| Airfield Vehicles including Ford and International trucks | F250 / F350 - Service Truck | Diesel | 22,691 |
| Snowplows including Oshkosh and International trucks | F250 / F350 - Service Truck | Diesel | 6,602 |
| Mower and snow blower equipment | Other[2] | Diesel | 1,171 |
| Aircraft Tractors | Douglas TBL-400 - Aircraft Tractor | Diesel | 264 |
| Forklift | Toyota 5,000 lb - Fork Lift | Propane | 28 |
| **Support Hardstand Operations** | | | |
| Air Conditioners | ACE 802 - Air Conditioner | Diesel | 987 |
| Shuttle Buses | COBUS[3] | Diesel | 2,085 |
| Belt Loaders | Stewart & Stevenson TUG 660 - Belt Loader | Diesel | 765 |
| Ground Power Units | TLD, 400 Hz AC - Ground Power Unit | Diesel | 466 |
| Ford 550 Service Truck | F250 / F350 - Service Truck | Gasoline | 41 |

1 Gasoline equipment which was not available in AEDT was grouped into AEDT's "Other" equipment type. This included trimmers, pressure washers, and airfield lighting equipment. An AEDT user specified equipment type was developed with a horsepower of 126 and load factor of 0.5.

2 Diesel equipment which was not available in AEDT was grouped into AEDT's "Other" equipment type. This included mower and snow blower equipment. An AEDT user specified equipment type was developed with a horsepower of 140 and load factor of 0.5.

3 This includes the Port of Seattle 45-foot COBUS 3000 activity. An AEDT user specified equipment type was developed with a horsepower of 300 and load factor of 0.5.

Note: Hz denotes Hertz; AC denotes Air Conditioner.

Source: Port of Seattle and Landrum & Brown, 2023.

## TABLE 3-9: TENANT-OWNED GSE ANNUAL USAGE – FUTURE (2037) PROPOSED ACTION

| General Description | AEDT Equipment Name | Annual Usage (Hours) |
|---|---|---|
| Aircraft Tractor | Diesel - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 14,449.1 |
| Aircraft Tractor | Diesel - Stewart & Stevenson TUG MC - Aircraft Tractor | 33.8 |
| Aircraft Tractor | Electric - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 10,401.6 |
| Aircraft Tractor | Gasoline - Stewart & Stevenson TUG GT-35, Douglas TBL-180 - Aircraft Tractor | 6,637.5 |
| Baggage Tractor | Diesel - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 47,930.4 |
| Baggage Tractor | Electric - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 142,147.9 |
| Baggage Tractor | Gasoline - Stewart & Stevenson TUG MA 50 - Baggage Tractor | 119,632.2 |
| Belt Loader | Diesel - Stewart & Stevenson TUG 660 - Belt Loader | 3,017.4 |
| Belt Loader | Electric - Stewart & Stevenson TUG 660 - Belt Loader | 99,510.2 |
| Belt Loader | Gasoline - Stewart & Stevenson TUG 660 - Belt Loader | 59,674.3 |
| Cabin Service Truck | Diesel - Hi-Way F650 - Cabin Service Truck | 1,285.3 |
| Cabin Service Truck | Gasoline - Hi-Way F650 - Cabin Service Truck | 103,291.0 |
| Cargo Loader | Diesel - FMC Commander 30 - Cargo Loader | 47,382.1 |
| Cart | Gasoline - Taylor Dunn - Cart | 5.6 |
| Catering Truck | Diesel - Hi-Way F650 - Catering Truck | 99,091.3 |
| Catering Truck | Gasoline - Hi-Way F650 - Catering Truck | 6,321.9 |
| Fuel Truck | Diesel - F750, Dukes Transportation Services, DART 3000 to 6000 gallon - Fuel Truck | 12,608.5 |
| Generator | Diesel - (None specified. EPA default data used.) - Generator | 67.0 |
| Ground Power Unit | Diesel - TLD, 28 VDC - Ground Power Unit | 43,704.7 |
| Hydrant Truck | Diesel - F250 / F350 - Hydrant Truck | 37,370.8 |
| Hydrant Truck | Gasoline - F250 / F350 - Hydrant Truck | 4,630.3 |
| Lavatory Truck | Diesel - TLD 1410 - Lavatory Truck | 33,139.7 |
| Lavatory Truck | Gasoline - TLD 1410 - Lavatory Truck | 25,548.0 |
| Lift | Diesel - (None specified. EPA default data used.) - Lift | 5.6 |
| Passenger Stand | Diesel - Wollard CMPS170 / CMPS228 - Passenger Stand | 1,187.0 |
| Service Truck | Diesel - F250 / F350 - Service Truck | 7,413.9 |
| Service Truck | Electric - F250 / F350 - Service Truck | 2,597.0 |
| Service Truck | Gasoline - F250 / F350 - Service Truck | 46,290.2 |
| | **Total** | **975,374.0** |

Source: AEDT 3f; Port of Seattle and Landrum & Brown, 2024.

## TABLE 3-10: PORT-OWNED AIRFIELD VEHICLES AND EQUIPMENT FUEL CONSUMPTION – FUTURE (2037) PROPOSED ACTION

| Category / Description | AEDT Equipment Name | Fuel Type | Total Annual Consumption Per Category (Gallons) |
|---|---|---|---|
| **Airfield Maintenance** | | | |
| Airfield Vehicles including Ford Escapes, Chevrolet pickup trucks, Ford 150 trucks, and vans | F250 / F350 - Service Truck | Gasoline | 70,460 |
| Trimmers, pressure washers, airfield lighting | Other[1] | Gasoline | 2,140 |
| Belt Loaders | Stewart & Stevenson TUG 660 - Belt Loader | Gasoline | 56 |
| Airfield Vehicles including Ford and International trucks | F250 / F350 - Service Truck | Diesel | 24,365 |
| Snowplows including Oshkosh and International trucks | F250 / F350 - Service Truck | Diesel | 7,089 |
| Mower and snow blower equipment | Other[2] | Diesel | 1,258 |
| Aircraft Tractors | Douglas TBL-400 - Aircraft Tractor | Diesel | 284 |
| Forklift | Toyota 5,000 lb - Fork Lift | Propane | 30 |
| **Support Hardstand Operations** | | | |
| Air Conditioners | ACE 802 - Air Conditioner | Diesel | 1,060 |
| Shuttle Buses | COBUS[3] | Diesel | 2,239 |
| Belt Loaders | Stewart & Stevenson TUG 660 - Belt Loader | Diesel | 821 |
| Ground Power Units | TLD, 400 Hz AC - Ground Power Unit | Diesel | 501 |
| Ford 550 Service Truck | F250 / F350 - Service Truck | Gasoline | 44 |

1 Gasoline equipment which was not available in AEDT was grouped into AEDT's "Other" equipment type. This included trimmers, pressure washers, and airfield lighting equipment. An AEDT user specified equipment type was developed with a horsepower of 126 and load factor of 0.5.

2 Diesel equipment which was not available in AEDT was grouped into AEDT's "Other" equipment type. This included mower and snow blower equipment. An AEDT user specified equipment type was developed with a horsepower of 140 and load factor of 0.5.

3 This includes the Port of Seattle 45-foot COBUS 3000 activity. An AEDT user specified equipment type was developed with a horsepower of 300 and load factor of 0.5.

Note: Hz denotes Hertz; AC denotes Air Conditioner.

Source: Port of Seattle and Landrum & Brown, 2023.

### TABLE 3-11: 2022 EMISSION FACTORS FOR GSE

| Fuel | Horsepower Group | $CO_2$ (g/hp-hr) | $N_2O$ (g/hp-hr) | $CH_4$ (g/hp-hr) |
|---|---|---|---|---|
| Diesel | 50 < hp <= 75 | 595.85 | 0.000 | 0.01263 |
| Diesel | 75 < hp <= 100 | 595.99 | 0.000 | 0.00508 |
| Diesel | 100 < hp <= 175 | 536.69 | 0.000 | 0.00417 |
| Diesel | 175 < hp <= 300 | 536.71 | 0.000 | 0.00353 |
| Diesel | 600 < hp <= 750 | 536.62 | 0.000 | 0.00602 |
| Gasoline | 16 < hp <= 25 | 1045.90 | 0.000 | 0.72560 |
| Gasoline | 75 < hp <= 100 | 699.14 | 0.000 | 0.04952 |
| Gasoline | 100 < hp <= 175 | 699.14 | 0.000 | 0.04952 |
| LPG | 50 < hp <= 75 | 551.27 | 0.000 | 0.02528 |

Note: hp denotes horsepower, g denotes grams, hr denotes hour, LPG denotes liquefied petroleum gas
Source: MOVES4. Landrum & Brown, 2024.

### TABLE 3-12: 2032 EMISSION FACTORS FOR GSE

| Fuel | Horsepower Group | $CO_2$ (g/hp-hr) | $N_2O$ (g/hp-hr) | $CH_4$ (g/hp-hr) |
|---|---|---|---|---|
| Diesel | 50 < hp <= 75 | 595.99 | 0.000 | 0.00904 |
| Diesel | 75 < hp <= 100 | 596.13 | 0.000 | 0.00074 |
| Diesel | 100 < hp <= 175 | 536.80 | 0.000 | 0.00074 |
| Diesel | 175 < hp <= 300 | 536.80 | 0.000 | 0.00048 |
| Diesel | 600 < hp <= 750 | 536.77 | 0.000 | 0.00132 |
| Gasoline | 16 < hp <= 25 | 1045.89 | 0.000 | 0.72595 |
| Gasoline | 75 < hp <= 100 | 699.16 | 0.000 | 0.04877 |
| Gasoline | 100 < hp <= 175 | 699.15 | 0.000 | 0.04877 |
| LPG | 50 < hp <= 75 | 551.27 | 0.000 | 0.02490 |

Note: hp denotes horsepower, g denotes grams, hr denotes hour, LPG denotes liquefied petroleum gas
Source: MOVES4. Landrum & Brown, 2024.

### TABLE 3-13: 2037 EMISSION FACTORS FOR GSE

| Fuel | Horsepower Group | $CO_2$ (g/hp-hr) | $N_2O$ (g/hp-hr) | $CH_4$ (g/hp-hr) |
|---|---|---|---|---|
| Diesel | 50 < hp <= 75 | 596.00 | 0.000 | 0.00889 |
| Diesel | 75 < hp <= 100 | 596.14 | 0.000 | 0.00054 |
| Diesel | 100 < hp <= 175 | 536.81 | 0.000 | 0.00058 |
| Diesel | 175 < hp <= 300 | 536.80 | 0.000 | 0.00037 |
| Diesel | 600 < hp <= 750 | 536.79 | 0.000 | 0.00066 |
| Gasoline | 16 < hp <= 25 | 1045.90 | 0.000 | 0.72594 |
| Gasoline | 75 < hp <= 100 | 699.15 | 0.000 | 0.04896 |
| Gasoline | 100 < hp <= 175 | 699.15 | 0.000 | 0.04896 |
| LPG | 50 < hp <= 75 | 551.27 | 0.000 | 0.02500 |

Note: hp denotes horsepower, g denotes grams, hr denotes hour, LPG denotes liquefied petroleum gas
Source: MOVES4. Landrum & Brown, 2024.

# Attachment 4 Stationary Sources

This attachment contains the following tables:

**Existing (2022) Condition**

- Table 4-1 Natural Gas Boilers and Heaters – Existing (2022) Condition
- Table 4-2 Diesel Generators – Existing (2022) Condition

**Future (2032) No Action Alternative**

- Table 4-3 Natural Gas Boilers and Heaters – Future (2032) No Action Alternative
- Table 4-4 Diesel Generators – Future (2032) No Action Alternative

**Future (2032) Proposed Action**

- Table 4-5 Natural Gas Boilers and Heaters – Future (2032) Proposed Action
- Table 4-6 Diesel Generators – Future (2032) Proposed Action

**Diesel Generators – Summary Comparison of Annual Usage (Hours)**

- Table 4-7 Diesel Generators – Summary Comparison of Annual Usage (Hours)

**Diesel Generator Fuel Rates**

- Table 4-8 Diesel Generator Fuel Rate and Consumption

## TABLE 4-1: NATURAL GAS BOILERS AND HEATERS – EXISTING (2022) CONDITION

| Location | AEDT Equipment Type | Annual Consumption (Therms) |
|---|---|---|
| Central Plant Boiler | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 2,980,291 |
| Pumphouse | Natural Gas: Residential Furnace, Uncontrolled | 6,890 |
| Fleet Maintenance (AC2 Bldg) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 15,087 |
| Fire Department | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 27,354 |
| Learning Center Building | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 6,882 |
| Bus Maintenance Facility | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 36,771 |
| Distribution Center | Natural Gas: Residential Furnace, Uncontrolled | 9,448 |
| Cargo Building 161E | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 8,981 |
| Fire Station 2021 | Natural Gas: Residential Furnace, Uncontrolled | 1,840 |
| Cargo Building 166B-2380 S 166th St | Natural Gas: Residential Furnace, Uncontrolled | 75,214 |
| Airfield Security Gate | Natural Gas: Residential Furnace, Uncontrolled | 1,967 |
| | **Total** | **3,170,725** |

Note: BTU denotes British thermal units, hr denotes hour.
Source: Port of Seattle, and Landrum & Brown, 2023.

## TABLE 4-2: DIESEL GENERATORS – EXISTING (2022) CONDITION

| Location | Name | Horsepower | Annual Usage (Hours) |
|---|---|---|---|
| Building Lights Generators | Building Lights (1 & 2): Gen 1 | 2400 | 1.4 |
| Building Lights Generators | Building Lights (1 & 2): Gen 2 | 2400 | 11.0 |
| Concourse A | Concourse "A": Fire Pump | 240 | 51.3 |
| Concourse A | Concourse "A": Gen C-4 | 1341 | 39.0 |
| Concourse A | Concourse "A": Gen Step | 2012 | 9.0 |
| South Parking Garage | Parking Garage: Gen | 235 | 14.0 |
| Toll Plaza | Toll Plaza: Gen 1 | 503 | 4.7 |
| Pumphouse | Pumphouse: New Gen | 1135 | 4.9 |
| Pumphouse | Pumphouse: Pump 1 | 412 | 0.6 |
| Pumphouse | Pumphouse: Pump 2 | 412 | 4.6 |
| Pumphouse | Pumphouse: Pump 3 | 412 | 4.0 |
| Pumphouse | Pumphouse: Pump 4 | 412 | 3.8 |
| Pumphouse | Pumphouse: Pump 5 | 380 | 13.5 |
| Pumphouse | Pumphouse: Pump 6 | 380 | 15.0 |
| Pumphouse | Pumphouse: Pump 7 | 380 | 16.6 |
| Pumphouse | Pumphouse: Pump 8 | 380 | 14.6 |
| Third Runway Generator | Third Runway: Gen 1 | 2012 | 103.1 |
| Third Runway Generator | Third Runway: Gen 2 | 2012 | 135.6 |
| Waste Treatment Plant | Wastewater Treatment Plant: Lagoon 3 Gen | 380 | 7.4 |
| AUF Generator 1 | Generator 1 | 4351 | 3.0 |
| AUF Generator 2 | Generator 2 | 4351 | 3.4 |
| AUF Generator 3 | Generator 3 | 4351 | 3.4 |
| AUF Generator 4 | Generator 4 | 4351 | 3.4 |
| AUF Generator 5 | Generator 5 | 4351 | 3.3 |
| AUF Generator 6 | Generator 6 | 4351 | 3.9 |
| AUF Generator 7 | Generator 7 | 4351 | 4.2 |
| AUF Generator 8 | Generator 8 | 4351 | 3.3 |
| AUF Generator 9 | Generator 9 | 4351 | 3.1 |
| AUF Generator 10 | Generator 10 | 4351 | 1.5 |
| Fire Station 2021 | Generator 550kW | 738 | 1.6 |
| North Satellite | NSAT Generator | 1910 | 21.0 |

Source: Port of Seattle and Landrum & Brown, 2023.

## TABLE 4-3: NATURAL GAS BOILERS AND HEATERS – FUTURE (2032) NO ACTION ALTERNATIVE

| Location | AEDT Equipment Type | Annual Consumption (Therms) |
|---|---|---|
| Central Plant Boiler | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 2,980,291 |
| Pumphouse | Natural Gas: Residential Furnace, Uncontrolled | 6,890 |
| Fleet Maintenance (AC2 Bldg) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 15,087 |
| Fire Department | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 27,354 |
| Learning Center Building | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 6,882 |
| Bus Maintenance Facility | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 36,771 |
| Distribution Center | Natural Gas: Residential Furnace, Uncontrolled | 9,448 |
| Cargo Building 161E | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 8,981 |
| Fire Station 2021 | Natural Gas: Residential Furnace, Uncontrolled | 1,840 |
| Cargo Building 166B-2380 S 166th St | Natural Gas: Residential Furnace, Uncontrolled | 75,214 |
| Airfield Security Gate | Natural Gas: Residential Furnace, Uncontrolled | 1,967 |
| Central Terminal Renovation Project | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 9,172 |
| Concourse A Expansion Project For Lounges | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 43,109 |
| C1 Building Expansion | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 99,060 |
| | **Total** | **3,322,066** |

Note: BTU denotes British thermal units, hr denotes hour.
Source: Port of Seattle, and Landrum & Brown, 2024.

## TABLE 4-4: DIESEL GENERATORS – FUTURE (2032) NO ACTION ALTERNATIVE

| Location | Name | Horsepower | Annual Usage (Hours) |
|---|---|---|---|
| Building Lights Generators | Building Lights (1 & 2): Gen 1 | 2400 | 1.4 |
| Building Lights Generators | Building Lights (1 & 2): Gen 2 | 2400 | 11.0 |
| Concourse A | Concourse "A": Fire Pump | 240 | 51.3 |
| Concourse A | Concourse "A": Gen C-4 | 1341 | 39.0 |
| Concourse A | Concourse "A": Gen Step | 2012 | 9.0 |
| South Parking Garage | Parking Garage: Gen | 235 | 14.0 |
| Toll Plaza | Toll Plaza: Gen 1 | 503 | 4.7 |
| Pumphouse | Pumphouse: New Gen | 1135 | 4.9 |
| Pumphouse | Pumphouse: Pump 1 | 412 | 0.6 |
| Pumphouse | Pumphouse: Pump 2 | 412 | 4.6 |
| Pumphouse | Pumphouse: Pump 3 | 412 | 4.0 |
| Pumphouse | Pumphouse: Pump 4 | 412 | 3.8 |
| Pumphouse | Pumphouse: Pump 5 | 380 | 13.5 |
| Pumphouse | Pumphouse: Pump 6 | 380 | 15.0 |
| Pumphouse | Pumphouse: Pump 7 | 380 | 16.6 |
| Pumphouse | Pumphouse: Pump 8 | 380 | 14.6 |
| Third Runway Generator | Third Runway: Gen 1 | 2012 | 103.1 |
| Third Runway Generator | Third Runway: Gen 2 | 2012 | 135.6 |
| Waste Treatment Plant | Wastewater Treatment Plant: Lagoon 3 Gen | 380 | 7.4 |
| AUF Generator 1 | Generator 1 | 4351 | 3.0 |
| AUF Generator 2 | Generator 2 | 4351 | 3.4 |
| AUF Generator 3 | Generator 3 | 4351 | 3.4 |
| AUF Generator 4 | Generator 4 | 4351 | 3.4 |
| AUF Generator 5 | Generator 5 | 4351 | 3.3 |
| AUF Generator 6 | Generator 6 | 4351 | 3.9 |
| AUF Generator 7 | Generator 7 | 4351 | 4.2 |
| AUF Generator 8 | Generator 8 | 4351 | 3.3 |
| AUF Generator 9 | Generator 9 | 4351 | 3.1 |
| AUF Generator 10 | Generator 10 | 4351 | 1.5 |
| Fire Station 2021 | Generator 550kW | 738 | 1.6 |
| North Satellite | NSAT Generator | 1910 | 21.0 |
| Central Terminal Renovation Project | Generator | 2012 | 15.0 |
| Concourse A Expansion Project For Lounges | Generator | 2012 | 15.0 |
| C1 Building Expansion | Generator | 2012 | 15.0 |

Source: Port of Seattle and Landrum & Brown, 2024.

## TABLE 4-5: NATURAL GAS BOILERS - FUTURE (2032) PROPOSED ACTION

| Location | AEDT Equipment Type | Annual Consumption (Therms) |
|---|---|---|
| Central Plant Boiler | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 2,980,291 |
| Pumphouse | Natural Gas: Residential Furnace, Uncontrolled | 6,890 |
| Fleet Maintenance (AC2 Bldg) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 15,087 |
| Fire Department | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 27,354 |
| Learning Center Building | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 6,882 |
| Bus Maintenance Facility | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 36,771 |
| Distribution Center | Natural Gas: Residential Furnace, Uncontrolled | 9,448 |
| Cargo Building 161E | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 8,981 |
| Fire Station 2021 | Natural Gas: Residential Furnace, Uncontrolled | 1,840 |
| Cargo Building 166B-2380 S 166th St | Natural Gas: Residential Furnace, Uncontrolled | 75,214 |
| Airfield Security Gate | Natural Gas: Residential Furnace, Uncontrolled | 1,967 |
| Central Terminal Renovation Project | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 9,172 |
| Concourse A Expansion Project For Lounges | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 43,109 |
| C1 Building Expansion | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 99,060 |
| North Gates (T1) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 558,587 |
| Second Terminal and Parking (T2) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 527,401 |
| Cargo 4 South Redevelopment (C01) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 14,644 |
| Cargo Warehousing (C02) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 60,404 |
| Cargo Warehousing (C03) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 16,474 |
| Elevated Busway and Stations (L02) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 60,537 |
| Main Terminal North GT Lot (L04) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 14,827 |
| Primary ARFF (S02) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 21,233 |
| Secondary ARFF (S03) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 1,830 |
| Westside Maintenance Campus (S07) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 73,218 |
| Airline Support North (S08) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 2,746 |
| Airline Support West (S09) | Natural Gas: Wall Fired Boiler, <100 Million BTU/hr, Uncontrolled | 2,288 |
| | **Total** | **4,686,321** |

Note: BTU denotes British thermal units, hr denotes hour.
Source: Port of Seattle and Landrum & Brown, 2024.

## TABLE 4-6: DIESEL GENERATORS - FUTURE (2032) PROPOSED ACTION

| Location | Name | Horsepower | Annual Usage (Hours) |
|---|---|---|---|
| Building Lights Generators | Building Lights (1 & 2): Gen 1 | 2400 | 1.4 |
| Building Lights Generators | Building Lights (1 & 2): Gen 2 | 2400 | 11.0 |
| Concourse A | Concourse "A": Fire Pump | 240 | 51.3 |
| Concourse A | Concourse "A": Gen C-4 | 1341 | 39.0 |
| Concourse A | Concourse "A": Gen Step | 2012 | 9.0 |
| South Parking Garage | Parking Garage: Gen | 235 | 14.0 |
| Toll Plaza | Toll Plaza: Gen 1 | 503 | 4.7 |
| Pumphouse | Pumphouse: New Gen | 1135 | 4.9 |
| Pumphouse | Pumphouse: Pump 1 | 412 | 0.6 |
| Pumphouse | Pumphouse: Pump 2 | 412 | 4.6 |
| Pumphouse | Pumphouse: Pump 3 | 412 | 4.0 |
| Pumphouse | Pumphouse: Pump 4 | 412 | 3.8 |
| Pumphouse | Pumphouse: Pump 5 | 380 | 13.5 |
| Pumphouse | Pumphouse: Pump 6 | 380 | 15.0 |
| Pumphouse | Pumphouse: Pump 7 | 380 | 16.6 |
| Pumphouse | Pumphouse: Pump 8 | 380 | 14.6 |
| Third Runway Generator | Third Runway: Gen 1 | 2012 | 103.1 |
| Third Runway Generator | Third Runway: Gen 2 | 2012 | 135.6 |
| Waste Treatment Plant | Wastewater Treatment Plant: Lagoon 3 Gen | 380 | 7.4 |
| AUF Generator 1 | Generator 1 | 4351 | 3.0 |
| AUF Generator 2 | Generator 2 | 4351 | 3.4 |
| AUF Generator 3 | Generator 3 | 4351 | 3.4 |
| AUF Generator 4 | Generator 4 | 4351 | 3.4 |
| AUF Generator 5 | Generator 5 | 4351 | 3.3 |
| AUF Generator 6 | Generator 6 | 4351 | 3.9 |
| AUF Generator 7 | Generator 7 | 4351 | 4.2 |
| AUF Generator 8 | Generator 8 | 4351 | 3.3 |
| AUF Generator 9 | Generator 9 | 4351 | 3.1 |
| AUF Generator 10 | Generator 10 | 4351 | 1.5 |
| Fire Station 2021 | Generator 550kW | 738 | 1.6 |
| North Satellite | NSAT Generator | 1910 | 21.0 |
| Central Terminal Renovation Project | Generator | 2012 | 15.0 |
| Concourse A Expansion Project For Lounges | Generator | 2012 | 15.0 |
| C1 Building Expansion | Generator | 2012 | 15.0 |
| Employee Parking Structure (L07) | Generator | 235 | 4.7 |
| Westside Maintenance Campus (S07) | Generator | 2012 | 15.0 |
| Primary ARFF (S02) | Generator | 738 | 4.5 |
| North Gates (T1) | Generator | 2012 | 74.5 |
| Second Terminal and Parking (T2) | Generator | 2012 | 74.5 |
| Centralized Receiving and Distribution Center (S10) | Generator | 2012 | 15.0 |
| Cargo Warehousing (C02) | Generator | 2012 | 15.0 |
| Cargo Warehousing (C03) | Generator | 2012 | 15.0 |

Source: Port of Seattle and Landrum & Brown, 2023.

## TABLE 4-7: DIESEL GENERATORS – SUMMARY COMPARISON OF ANNUAL USAGE (HOURS)

| Location | Name | HP | Existing (2022) Condition | 2032 & 2037 No Action | 2032 & 2037 Proposed Action |
|---|---|---|---|---|---|
| Building Lights Generators | Building Lights (1 & 2): Gen 1 | 2400 | 1.4 | 1.4 | 1.4 |
| Building Lights Generators | Building Lights (1 & 2): Gen 2 | 2400 | 11.0 | 11.0 | 11.0 |
| Concourse A | Concourse "A": Fire Pump | 240 | 51.3 | 51.3 | 51.3 |
| Concourse A | Concourse "A": Gen C-4 | 1341 | 39.0 | 39.0 | 39.0 |
| Concourse A | Concourse "A": Gen Step | 2012 | 9.0 | 9.0 | 9.0 |
| South Parking Garage | Parking Garage: Gen | 235 | 14.0 | 14.0 | 14.0 |
| Toll Plaza | Toll Plaza: Gen 1 | 503 | 4.7 | 4.7 | 4.7 |
| Pumphouse | Pumphouse: New Gen | 1135 | 4.9 | 4.9 | 4.9 |
| Pumphouse | Pumphouse: Pump 1 | 412 | 0.6 | 0.6 | 0.6 |
| Pumphouse | Pumphouse: Pump 2 | 412 | 4.6 | 4.6 | 4.6 |
| Pumphouse | Pumphouse: Pump 3 | 412 | 4.0 | 4.0 | 4.0 |
| Pumphouse | Pumphouse: Pump 4 | 412 | 3.8 | 3.8 | 3.8 |
| Pumphouse | Pumphouse: Pump 5 | 380 | 13.5 | 13.5 | 13.5 |
| Pumphouse | Pumphouse: Pump 6 | 380 | 15.0 | 15.0 | 15.0 |
| Pumphouse | Pumphouse: Pump 7 | 380 | 16.6 | 16.6 | 16.6 |
| Pumphouse | Pumphouse: Pump 8 | 380 | 14.6 | 14.6 | 14.6 |
| Third Runway Generator | Third Runway: Gen 1 | 2012 | 103.1 | 103.1 | 103.1 |
| Third Runway Generator | Third Runway: Gen 2 | 2012 | 135.6 | 135.6 | 135.6 |
| Waste Treatment Plant | Wastewater Treatment Plant: Lagoon 3 Gen | 380 | 7.4 | 7.4 | 7.4 |
| AUF Generator 1 | Generator 1 | 4351 | 3.0 | 3.0 | 3.0 |
| AUF Generator 2 | Generator 2 | 4351 | 3.4 | 3.4 | 3.4 |
| AUF Generator 3 | Generator 3 | 4351 | 3.4 | 3.4 | 3.4 |
| AUF Generator 4 | Generator 4 | 4351 | 3.4 | 3.4 | 3.4 |
| AUF Generator 5 | Generator 5 | 4351 | 3.3 | 3.3 | 3.3 |
| AUF Generator 6 | Generator 6 | 4351 | 3.9 | 3.9 | 3.9 |
| AUF Generator 7 | Generator 7 | 4351 | 4.2 | 4.2 | 4.2 |
| AUF Generator 8 | Generator 8 | 4351 | 3.3 | 3.3 | 3.3 |
| AUF Generator 9 | Generator 9 | 4351 | 3.1 | 3.1 | 3.1 |
| AUF Generator 10 | Generator 10 | 4351 | 1.5 | 1.5 | 1.5 |
| Fire Station 2021 | Generator 550kW | 738 | 1.6 | 1.6 | 1.6 |
| North Satellite | NSAT Generator | 1910 | 21.0 | 21.0 | 21.0 |
| Central Terminal Renovation | Generator | 2012 | N/A | 15.0 | 15.0 |
| Concourse A Expansion | Generator | 2012 | N/A | 15.0 | 15.0 |
| C1 Building Expansion | Generator | 2012 | N/A | 15.0 | 15.0 |

## TABLE 4-7: DIESEL GENERATORS – SUMMARY COMPARISON OF ANNUAL USAGE (HOURS) *(CONTINUED)*

| Location | Name | HP | Existing (2022) Condition | 2032 & 2037 No Action | 2032 & 2037 Proposed Action |
|---|---|---|---|---|---|
| Interim Fire Station | Generator | 2012 | N/A | 15.0 | 15.0 |
| Employee Parking Structure (L07) | Generator | 235 | N/A | N/A | 4.7 |
| Westside Maintenance Campus (S07) | Generator | 2012 | N/A | N/A | 15.0 |
| Primary ARFF (S02) | Generator | 738 | N/A | N/A | 4.5 |
| North Gates (T1) | Generator | 2012 | N/A | N/A | 74.5 |
| Second Terminal and Parking (T2) | Step Generator | 2012 | N/A | N/A | 74.5 |
| Centralized Receiving and Distribution Center (S10) | Generator | 2012 | N/A | N/A | 15.0 |
| Cargo Warehousing (C02) | Concourse A | 2012 | N/A | N/A | 15.0 |
| Cargo Warehousing (C03) | Generator | 2012 | N/A | N/A | 15.0 |
| | | **Total** | **509.2** | **554.2** | **772.4** |

Note: Totals may not sum due to rounding.
Source: Port of Seattle and Landrum & Brown, 2023.

## TABLE 4-8: DIESEL GENERATOR FUEL RATE

| Location | Name | Fuel Rate (gallons per hour) |
|---|---|---|
| Building Lights Generators | Building Lights (1 & 2): Gen 1 | 20 |
| Building Lights Generators | Building Lights (1 & 2): Gen 2 | 20 |
| Concourse A | Concourse "A": Fire Pump | 10.3 |
| Concourse A | Concourse "A": Gen C-4 | 73.1 |
| Concourse A | Concourse "A": Gen Step | 103.9 |
| South Parking Garage | Parking Garage: Gen | 13 |
| Toll Plaza | Toll Plaza: Gen 1 | 25 |
| Pumphouse | Pumphouse: New Gen | 20 |
| Pumphouse | Pumphouse: Pump 1 | 20 |
| Pumphouse | Pumphouse: Pump 2 | 20 |
| Pumphouse | Pumphouse: Pump 3 | 20 |
| Pumphouse | Pumphouse: Pump 4 | 20 |
| Pumphouse | Pumphouse: Pump 5 | 20 |
| Pumphouse | Pumphouse: Pump 6 | 20 |
| Pumphouse | Pumphouse: Pump 7 | 20 |
| Pumphouse | Pumphouse: Pump 8 | 20 |
| Third Runway Generator | Third Runway: Gen 1 | 50 |
| Third Runway Generator | Third Runway: Gen 2 | 50 |
| Waste Treatment Plant | Wastewater Treatment Plant: Lagoon 3 Gen | 20 |
| AUF Generator 1 | Generator 1 | 205 |
| AUF Generator 2 | Generator 2 | 205 |
| AUF Generator 3 | Generator 3 | 205 |
| AUF Generator 4 | Generator 4 | 205 |
| AUF Generator 5 | Generator 5 | 205 |
| AUF Generator 6 | Generator 6 | 205 |
| AUF Generator 7 | Generator 7 | 205 |
| AUF Generator 8 | Generator 8 | 205 |
| AUF Generator 9 | Generator 9 | 205 |
| AUF Generator 10 | Generator 10 | 205 |
| Fire Station 2021 | Generator 550kW | 20 |
| North Satellite Modernization Phase 2 | NSAT Generator | 103.9 |
| Central Terminal Renovation Project | Central Terminal Renovation Project | 103.9 |
| Concourse A Expansion Project for Lounges | Concourse A Expansion Project for Lounges | 103.9 |
| C1 Building Expansion | C1 Building Expansion | 103.9 |
| Employee Parking Structure (L07) | Employee Parking Structure (L07) | 13 |
| Westside Maintenance Campus (S07) | Westside Maintenance Campus (S07) | 103.9 |
| Primary ARFF (S02) | Primary ARFF (S02) | 103.9 |
| North Gates (T1) | North Gates (T1) | 103.9 |
| Second Terminal and Parking (T2) | Second Terminal and Parking (T2) | 103.9 |
| Centralized Receiving and Distribution Center (S10) | Centralized Receiving and Distribution Center (S10) | 103.9 |
| Cargo Warehousing (C02) | Cargo Warehousing (C02) | 103.9 |
| Cargo Warehousing (C03) | Cargo Warehousing (C03) | 103.9 |

Source: Port of Seattle and Landrum & Brown, 2024.

# Attachment 5 Mobile Sources

This attachment contains the following exhibits and tables:

**Existing (2022) Condition**

- Exhibit 5-1 Roadway Areas – Existing (2022) Condition
- Exhibit 5-2 Area 1 – Existing (2022) Condition
- Exhibit 5-3 Area 2 – Existing (2022) Condition
- Exhibit 5-4 Area 3 – Existing (2022) Condition
- Exhibit 5-5 Area 4 – Existing (2022) Condition
- Exhibit 5-6 Area 5 – Existing (2022) Condition
- Exhibit 5-7 Area 6 – Existing (2022) Condition
- Exhibit 5-8 Area 7 – Existing (2022) Condition
- Exhibit 5-9 Area 8 – Existing (2022) Condition
- Exhibit 5-10 Area 9 – Existing (2022) Condition
- Exhibit 5-11 Area 10 – Existing (2022) Condition
- Table 5-1 Roadway Segments – Existing (2022) Condition
- Table 5-2 2022 Emission Factors for Motor Vehicles

**Future (2032) No Action Alternative**

- Table 5-3 Roadway Segments – Future (2032) No Action Alternative
- Table 5-4 2032 Emission Factors for Motor Vehicles

**Future (2032) Proposed Action**

- Table 5-5 Roadway Segments – Future (2032) Proposed Action
- Exhibit 5-12 Roadway Areas – Proposed Action
- Exhibit 5-13 Area 1 – Proposed Action
- Exhibit 5-14 Area 2 – Proposed Action
- Exhibit 5-15 Area 3 – Proposed Action
- Exhibit 5-16 Area 4 – Proposed Action
- Exhibit 5-17 Area 5 – Proposed Action
- Exhibit 5-18 Area 6 – Proposed Action
- Exhibit 5-19 Area 7 – Proposed Action
- Exhibit 5-20 Area 8 – Proposed Action
- Exhibit 5-21 Area 9 – Proposed Action
- Exhibit 5-22 Area 10 – Proposed Action

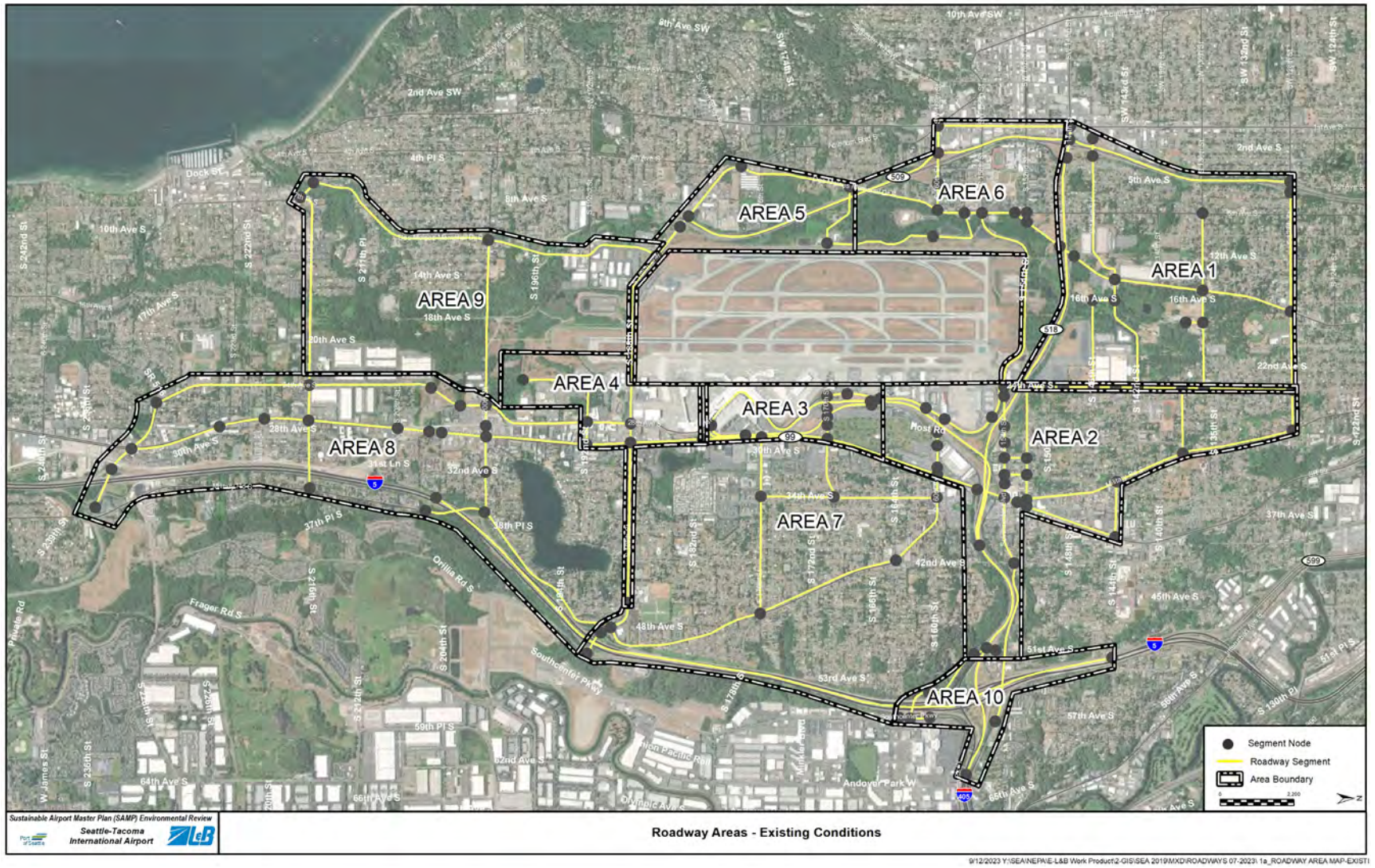
**Future (2037) No Action Alternative**

- Table 5-6 Roadway Segments – Future (2037) No Action Alternative
- Table 5-7 2037 Emission Factors for Motor Vehicles

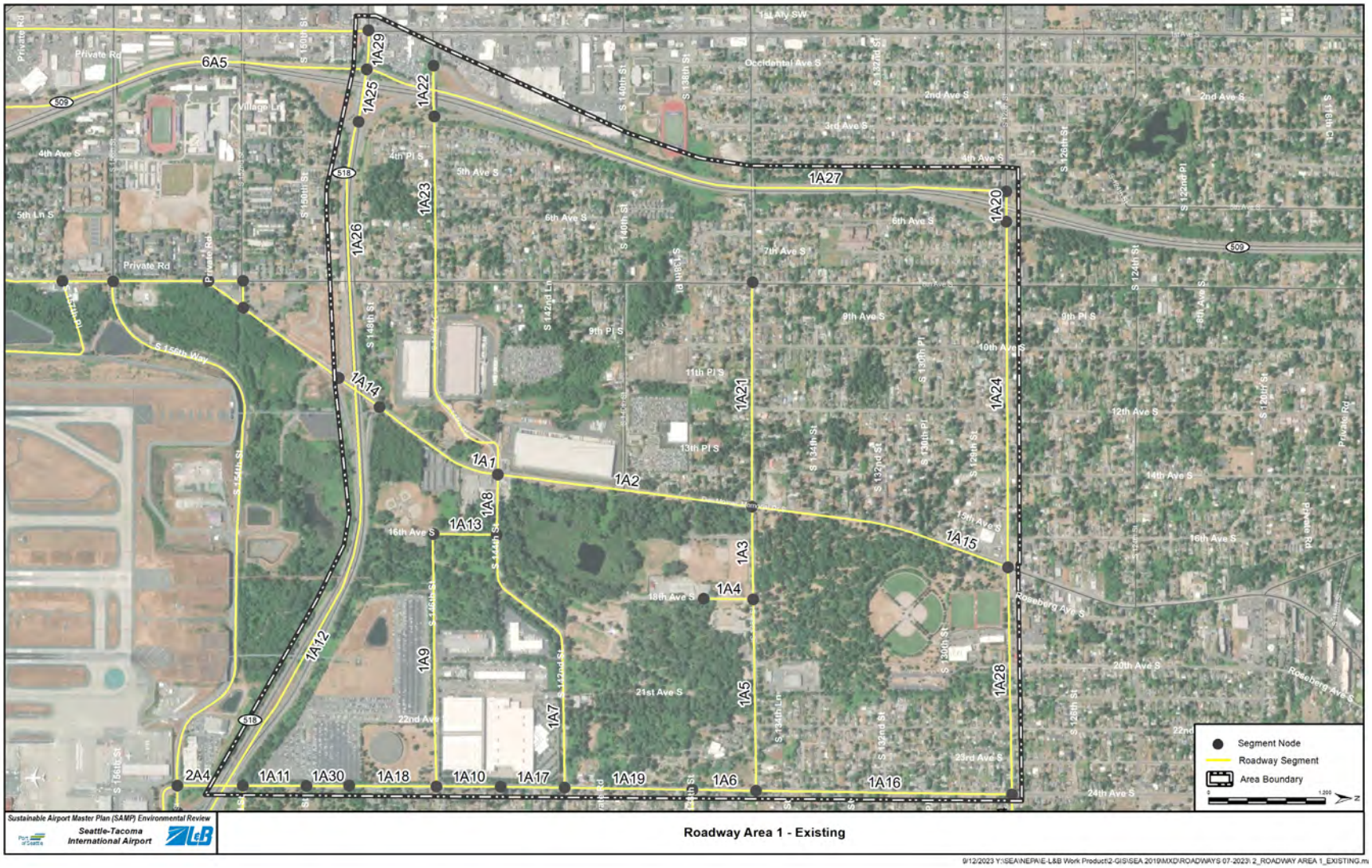
**Future (2037) Proposed Action**

- Table 5-8 Roadway Segments – Future (2037) Proposed Action

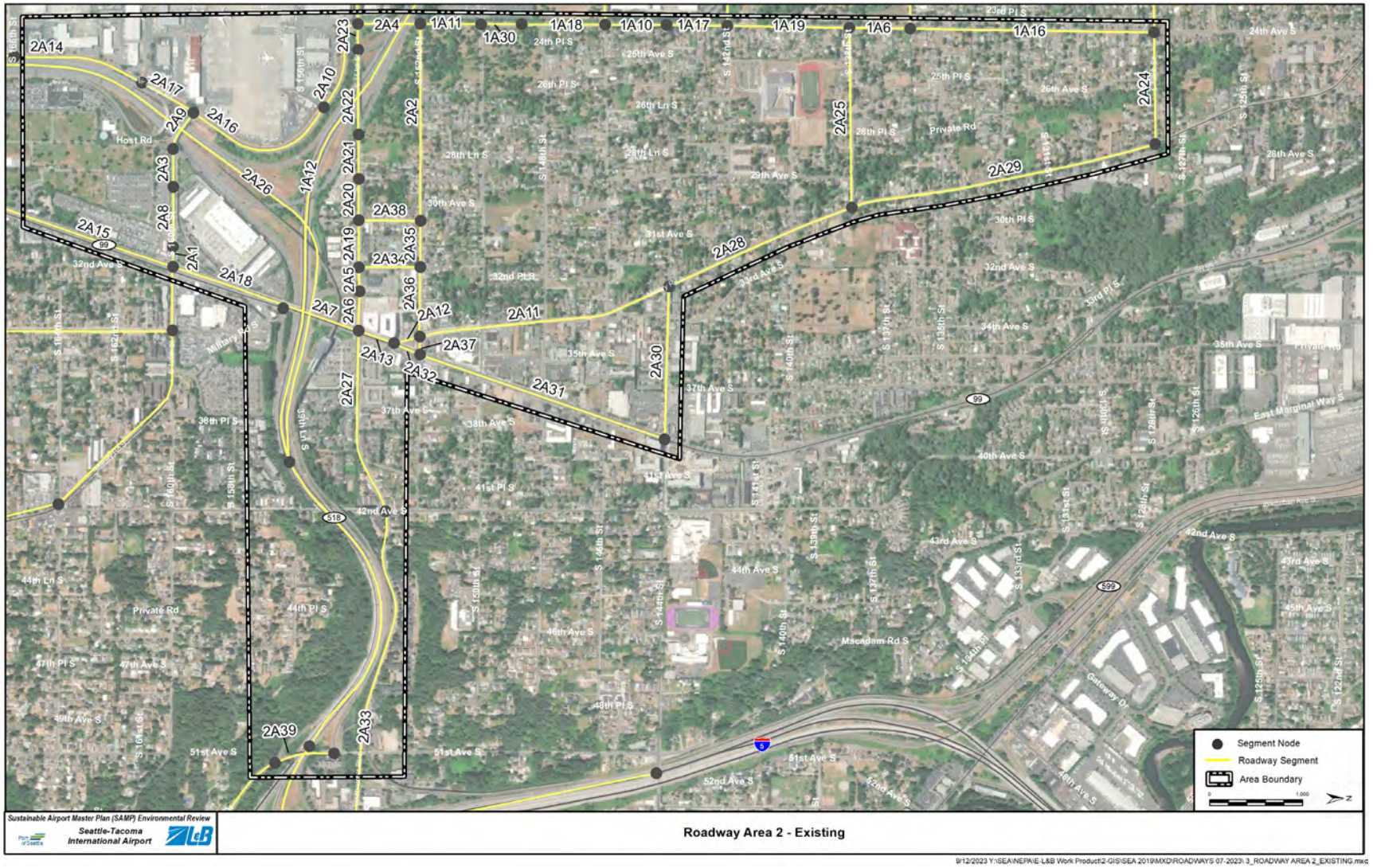
## EXHIBIT 5-1: ROADWAY AREAS – EXISTING (2022) CONDITION



## EXHIBIT 5-2: AREA 1 – EXISTING (2022) CONDITION

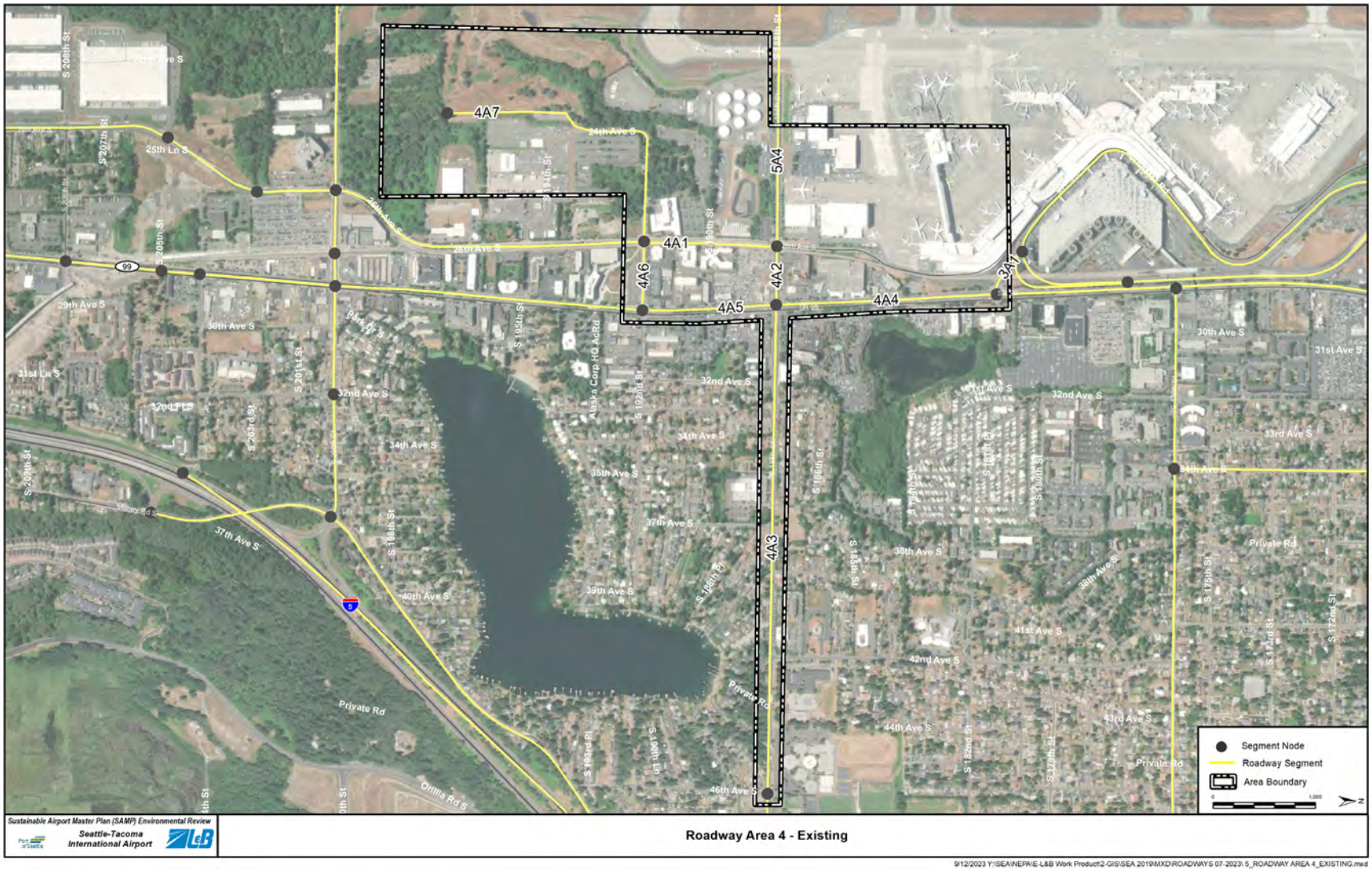


## EXHIBIT 5-3: AREA 2 – EXISTING (2022) CONDITION

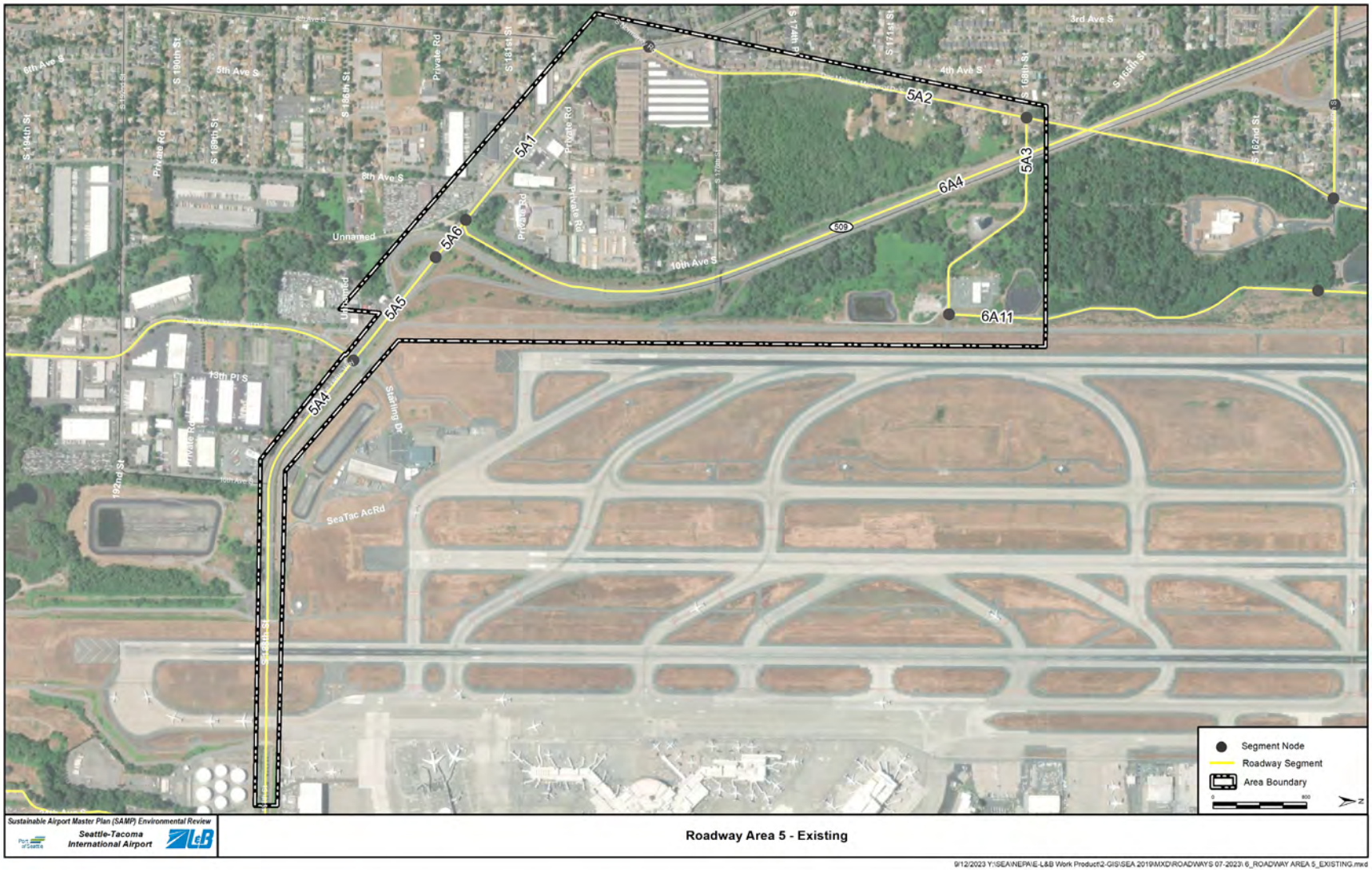


## EXHIBIT 5-4: AREA 3 – EXISTING (2022) CONDITION

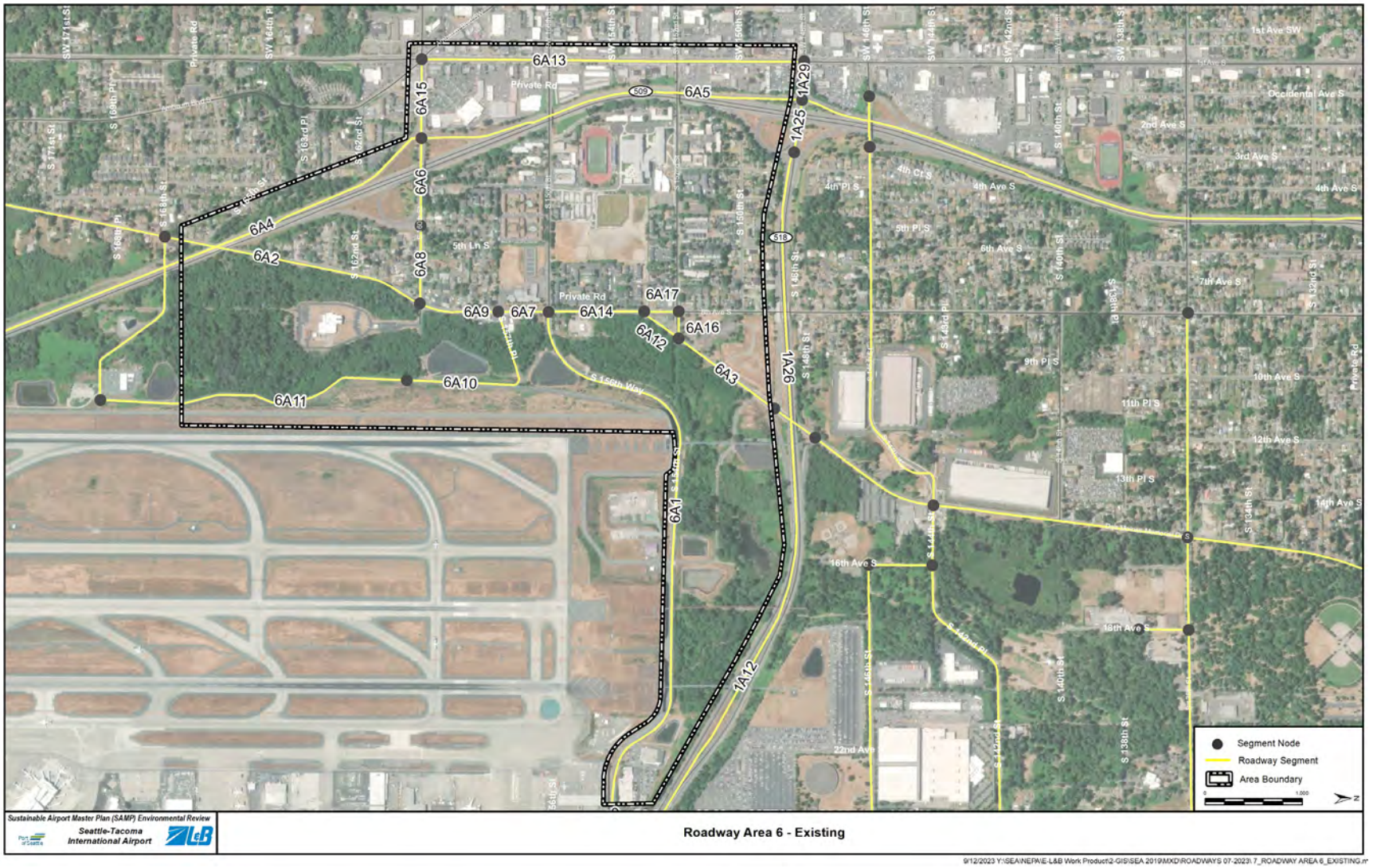
## EXHIBIT 5-5: AREA 4 – EXISTING (2022) CONDITION



## EXHIBIT 5-6: AREA 5 – EXISTING (2022) CONDITION

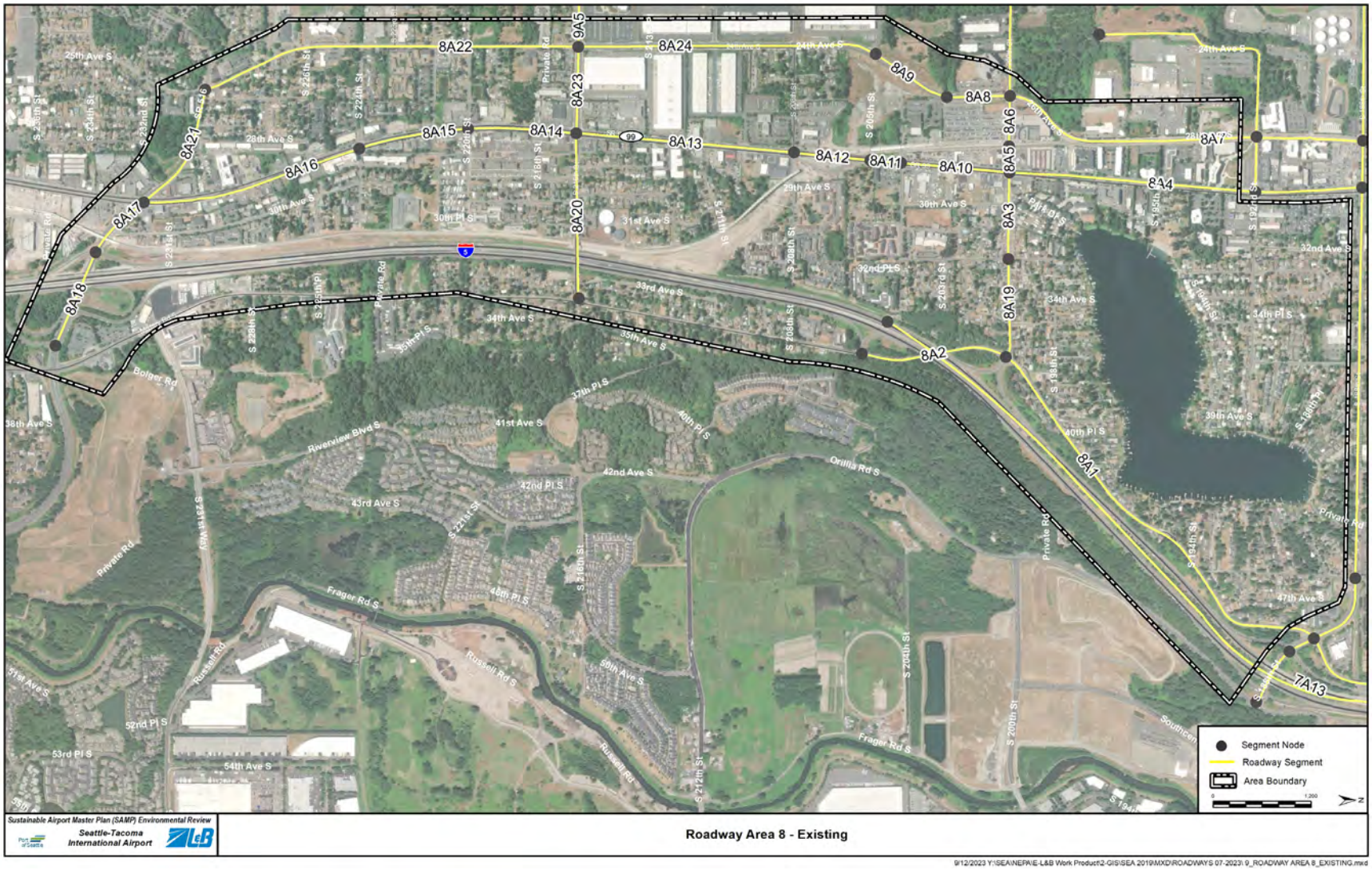


## EXHIBIT 5-7: AREA 6 – EXISTING (2022) CONDITION

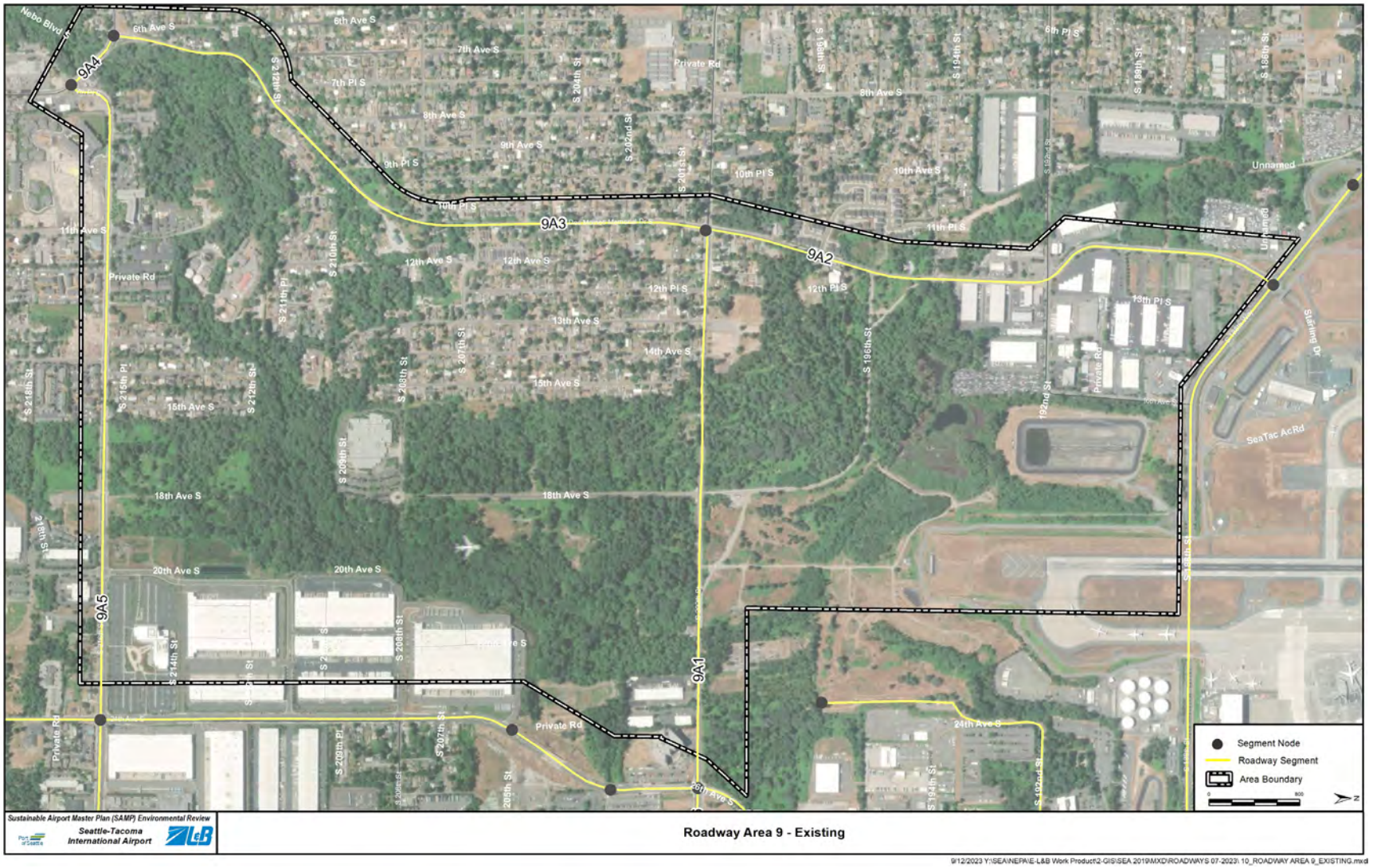


## EXHIBIT 5-8: AREA 7 – EXISTING (2022) CONDITION

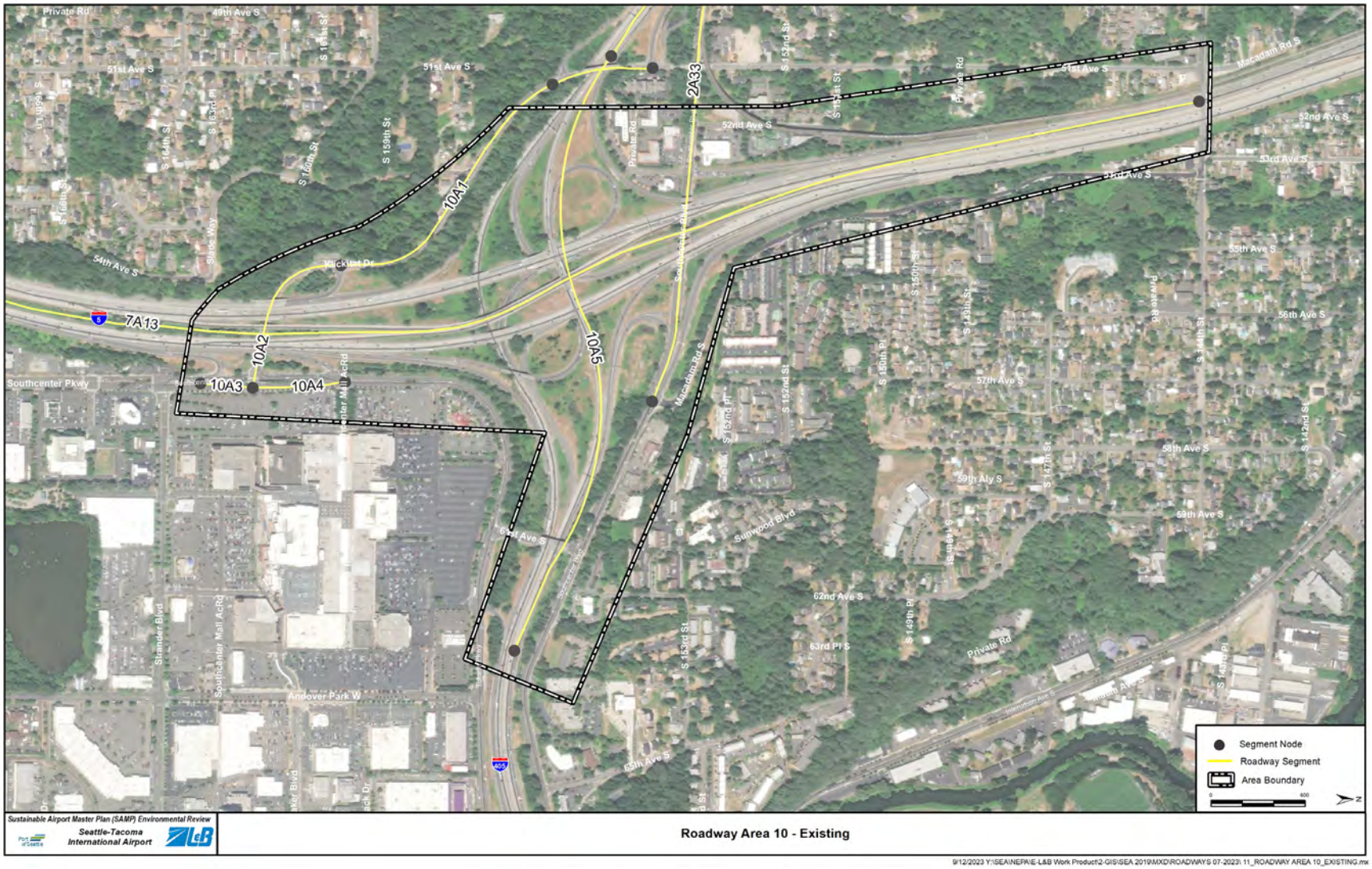
## EXHIBIT 5-9: AREA 8 – EXISTING (2022) CONDITION



## EXHIBIT 5-10: AREA 9 – EXISTING (2022) CONDITION



## EXHIBIT 5-11: AREA 10 – EXISTING (2022) CONDITION



## TABLE 5-1: ROADWAY SEGMENTS – EXISTING (2022) CONDITION

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| Airside Deliveries | 2.000 | 876.662 | 0% | 63% | 36% | 1% | 15 | 639,963 |
| 1A1 | 0.362 | 19220 | 45% | 45% | 5% | 5% | 35 | 2,540,647 |
| 1A2 | 0.500 | 17560 | 45% | 45% | 5% | 5% | 35 | 3,206,001 |
| 1A3 | 0.181 | 8700 | 45% | 45% | 5% | 5% | 35 | 573,622 |
| 1A4 | 0.097 | 380 | 45% | 45% | 5% | 5% | 25 | 13,434 |
| 1A5 | 0.370 | 7350 | 45% | 45% | 5% | 5% | 35 | 992,996 |
| 1A6 | 0.124 | 11100 | 45% | 45% | 5% | 5% | 35 | 504,177 |
| 1A7 | 0.550 | 4980 | 45% | 45% | 5% | 5% | 30 | 999,895 |
| 1A8 | 0.118 | 7460 | 45% | 45% | 5% | 5% | 30 | 319,990 |
| 1A9 | 0.492 | 3340 | 45% | 45% | 5% | 5% | 25 | 600,314 |
| 1A10 | 0.126 | 10320 | 45% | 45% | 5% | 5% | 20 | 472,993 |
| 1A11 | 0.125 | 13540 | 45% | 45% | 5% | 5% | 20 | 616,250 |
| 1A12 | 2.486 | 121644 | 45% | 45% | 5% | 5% | 60 | 110,387,474 |
| 1A13 | 0.124 | 3340 | 45% | 45% | 5% | 5% | 25 | 150,711 |
| 1A14 | 0.096 | 18440 | 45% | 45% | 5% | 5% | 30 | 645,209 |
| 1A15 | 0.505 | 16220 | 45% | 45% | 5% | 5% | 35 | 2,991,326 |
| 1A16 | 0.499 | 7310 | 45% | 45% | 5% | 5% | 35 | 1,331,546 |
| 1A17 | 0.124 | 11550 | 45% | 45% | 5% | 5% | 20 | 524,772 |
| 1A18 | 0.170 | 13600 | 45% | 45% | 5% | 5% | 20 | 846,089 |
| 1A19 | 0.249 | 11150 | 45% | 45% | 5% | 5% | 35 | 1,015,207 |
| 1A20 | 0.061 | 30920 | 45% | 45% | 5% | 5% | 35 | 684,348 |
| 1A21 | 0.437 | 12130 | 45% | 45% | 5% | 5% | 35 | 1,936,562 |
| 1A22 | 0.097 | 12640 | 45% | 45% | 5% | 5% | 25 | 449,148 |
| 1A23 | 0.766 | 8490 | 45% | 45% | 5% | 5% | 25 | 2,372,291 |
| 1A24 | 0.676 | 18850 | 45% | 45% | 5% | 5% | 35 | 4,652,686 |
| 1A25 | 0.104 | 67040 | 45% | 45% | 5% | 5% | 10 | 2,536,029 |
| 1A26 (east) | 0.522 | 60822 | 45% | 45% | 5% | 5% | 60 | 11,584,975 |
| 1A26 (west) | 0.522 | 60822 | 45% | 45% | 5% | 5% | 55 | 11,584,975 |
| 1A27 | 1.286 | 75234 | 45% | 45% | 5% | 5% | 60 | 35,308,485 |
| 1A28 | 0.441 | 11280 | 45% | 45% | 5% | 5% | 35 | 1,817,126 |
| 1A29 | 0.076 | 48180 | 45% | 45% | 5% | 5% | 10 | 1,340,980 |
| 1A30 | 0.083 | 13100 | 45% | 45% | 5% | 5% | 20 | 397,687 |
| 2A1 | 0.041 | 17380 | 45% | 45% | 5% | 5% | 35 | 262,750 |
| 2A2 | 0.402 | 2090 | 45% | 45% | 5% | 5% | 25 | 306,861 |
| 2A3 | 0.081 | 17540 | 45% | 45% | 5% | 5% | 35 | 519,217 |
| 2A4 | 0.127 | 13360 | 45% | 45% | 5% | 5% | 25 | 620,512 |
| 2A5 | 0.049 | 23820 | 45% | 45% | 5% | 5% | 35 | 427,673 |
| 2A6 | 0.081 | 24080 | 45% | 45% | 5% | 5% | 35 | 709,455 |
| 2A7 | 0.160 | 41310 | 45% | 45% | 5% | 5% | 15 | 2,417,103 |
| 2A8 | 0.118 | 17800 | 45% | 45% | 5% | 5% | 35 | 767,653 |
| 2A9 | 0.086 | 15660 | 45% | 45% | 5% | 5% | 35 | 492,573 |
| 2A10 | 0.200 | 6690 | 45% | 45% | 5% | 5% | 30 | 487,349 |
| 2A11 | 0.525 | 9300 | 45% | 45% | 5% | 5% | 35 | 1,782,099 |
| 2A12 | 0.054 | 17470 | 45% | 45% | 5% | 5% | 35 | 345,635 |
| 2A13 | 0.077 | 34210 | 45% | 45% | 5% | 5% | 15 | 958,051 |
| 2A14 | 0.272 | 12560 | 41% | 41% | 17% | 1% | 30 | 1,249,148 |
| 2A15 | 0.654 | 34980 | 45% | 45% | 5% | 5% | 40 | 8,347,956 |
| 2A16 | 0.325 | 8770 | 45% | 45% | 5% | 5% | 30 | 1,039,768 |

## TABLE 5-1: ROADWAY SEGMENTS – EXISTING (2022) CONDITION *(CONTINUED)*

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 2A17 | 0.122 | 12560 | 45% | 45% | 5% | 5% | 30 | 559,595 |
| 2A18 | 0.241 | 47050 | 45% | 45% | 5% | 5% | 40 | 4,138,204 |
| 2A19 | 0.095 | 22380 | 45% | 45% | 5% | 5% | 35 | 779,049 |
| 2A20 | 0.086 | 22120 | 45% | 45% | 5% | 5% | 35 | 692,240 |
| 2A21 | 0.090 | 22140 | 45% | 45% | 5% | 5% | 35 | 724,261 |
| 2A22 | 0.174 | 16540 | 45% | 45% | 5% | 5% | 25 | 1,049,248 |
| 2A23 | 0.053 | 15040 | 45% | 45% | 5% | 5% | 20 | 290,971 |
| 2A24 | 0.230 | 6080 | 45% | 45% | 5% | 5% | 35 | 509,821 |
| 2A25 | 0.367 | 1380 | 45% | 45% | 5% | 5% | 25 | 184,687 |
| 2A26 | 1.251 | 20213 | 46% | 46% | 7% | 1% | 60 | 9,229,758 |
| 2A27 | 0.384 | 18390 | 45% | 45% | 5% | 5% | 60 | 2,575,173 |
| 2A28 | 0.407 | 12410 | 45% | 45% | 5% | 5% | 35 | 1,844,256 |
| 2A29 | 0.635 | 11830 | 45% | 45% | 5% | 5% | 35 | 2,741,099 |
| 2A30 | 0.312 | 11700 | 45% | 45% | 5% | 5% | 35 | 1,332,622 |
| 2A31 | 0.531 | 26060 | 45% | 45% | 5% | 5% | 35 | 5,054,633 |
| 2A32 | 0.062 | 33480 | 45% | 45% | 5% | 5% | 35 | 760,096 |
| 2A33 | 0.985 | 37250 | 45% | 45% | 5% | 5% | 35 | 13,394,618 |
| 2A34 | 0.125 | 3690 | 45% | 45% | 5% | 5% | 25 | 168,861 |
| 2A35 | 0.096 | 2430 | 45% | 45% | 5% | 5% | 25 | 84,905 |
| 2A36 | 0.141 | 4320 | 45% | 45% | 5% | 5% | 25 | 221,739 |
| 2A37 | 0.037 | 9720 | 45% | 45% | 5% | 5% | 25 | 131,244 |
| 2A38 | 0.126 | 1430 | 45% | 45% | 5% | 5% | 25 | 65,882 |
| 3A1 | 0.093 | 20213 | 46% | 46% | 7% | 1% | 20 | 687,960 |
| 3A2 | 0.756 | 20213 | 46% | 46% | 7% | 1% | 40 | 5,579,346 |
| 3A3 | 1.151 | 20213 | 46% | 46% | 7% | 1% | 20 | 8,493,504 |
| 3A4 | 0.234 | 20213 | 46% | 46% | 7% | 1% | 30 | 1,727,772 |
| 3A5 | 0.263 | 20213 | 46% | 46% | 7% | 1% | 30 | 1,943,608 |
| 3A6 | 0.187 | 10740 | 41% | 41% | 17% | 1% | 30 | 732,157 |
| 3A7 | 0.115 | 17520 | 39% | 39% | 22% | 1% | 30 | 738,286 |
| 3A8 | 0.070 | 17140 | 39% | 39% | 21% | 1% | 35 | 437,508 |
| 3A9 | 0.046 | 19460 | 39% | 39% | 21% | 1% | 35 | 325,746 |
| 3A10 | 0.048 | 19260 | 39% | 39% | 21% | 1% | 35 | 335,319 |
| 3A11 | 0.079 | 21860 | 39% | 39% | 21% | 1% | 15 | 629,360 |
| 3A12 | 0.332 | 37100 | 45% | 45% | 5% | 5% | 15 | 4,495,643 |
| 3A13 | 0.377 | 38910 | 45% | 45% | 5% | 5% | 15 | 5,354,310 |
| 4A1 | 0.248 | 20740 | 45% | 45% | 5% | 5% | 35 | 1,875,008 |
| 4A2 | 0.108 | 41860 | 45% | 45% | 5% | 5% | 35 | 1,657,012 |
| 4A3 | 0.906 | 41190 | 45% | 45% | 5% | 5% | 35 | 13,625,872 |
| 4A4 | 0.409 | 43100 | 45% | 45% | 5% | 5% | 15 | 6,436,339 |
| 4A5 | 0.248 | 45750 | 45% | 45% | 5% | 5% | 40 | 4,139,386 |
| 4A6 | 0.127 | 5610 | 45% | 45% | 5% | 5% | 35 | 260,664 |
| 4A7 | 0.581 | 300 | 45% | 45% | 5% | 5% | 15 | 63,569 |
| 5A1 | 0.422 | 30340 | 45% | 45% | 5% | 5% | 40 | 4,676,393 |
| 5A2 | 0.629 | 14850 | 45% | 45% | 5% | 5% | 35 | 3,406,898 |
| 5A3 | 0.380 | 160 | 45% | 45% | 5% | 5% | 15 | 22,187 |
| 5A4 | 0.991 | 44670 | 45% | 45% | 5% | 5% | 40 | 16,154,157 |
| 5A5 | 0.216 | 41430 | 45% | 45% | 5% | 5% | 40 | 3,270,243 |
| 5A6 | 0.075 | 41430 | 45% | 45% | 5% | 5% | 40 | 1,134,192 |
| 6A1 | 1.180 | 14310 | 45% | 45% | 5% | 5% | 35 | 6,162,951 |

**TABLE 5-1: ROADWAY SEGMENTS – EXISTING (2022) CONDITION *(CONTINUED)***

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 6A2 | 0.519 | 15450 | 45% | 45% | 5% | 5% | 35 | 2,923,996 |
| 6A3 | 0.231 | 19900 | 45% | 45% | 5% | 5% | 35 | 1,677,622 |
| 6A4 | 1.560 | 35130 | 45% | 45% | 5% | 5% | 60 | 20,002,791 |
| 6A5 | 0.759 | 35130 | 45% | 45% | 5% | 5% | 60 | 9,734,753 |
| 6A6 | 0.176 | 20640 | 45% | 45% | 5% | 5% | 15 | 1,328,490 |
| 6A7 | 0.099 | 20460 | 45% | 45% | 5% | 5% | 35 | 740,263 |
| 6A8 | 0.152 | 9260 | 45% | 45% | 5% | 5% | 15 | 514,113 |
| 6A9 | 0.155 | 20460 | 45% | 45% | 5% | 5% | 35 | 1,156,442 |
| 6A10 | 0.364 | 160 | 45% | 45% | 5% | 5% | 15 | 21,243 |
| 6A11 | 0.618 | 160 | 45% | 45% | 5% | 5% | 15 | 36,069 |
| 6A12 | 0.086 | 14110 | 45% | 45% | 5% | 5% | 35 | 442,985 |
| 6A13 | 0.750 | 32710 | 45% | 45% | 5% | 5% | 35 | 8,948,488 |
| 6A15 | 0.158 | 32570 | 45% | 45% | 5% | 5% | 15 | 1,873,509 |
| 6A16 | 0.053 | 6390 | 45% | 45% | 5% | 5% | 25 | 123,038 |
| 6A17 | 0.067 | 8310 | 45% | 45% | 5% | 5% | 35 | 202,008 |
| 6A18 | 0.186 | 21510 | 45% | 45% | 5% | 5% | 35 | 1,462,316 |
| 7A1 | 0.190 | 40700 | 45% | 45% | 5% | 5% | 35 | 2,827,061 |
| 7A2 | 0.066 | 29440 | 45% | 45% | 5% | 5% | 35 | 706,620 |
| 7A3 | 0.143 | 46780 | 45% | 45% | 5% | 5% | 35 | 2,444,721 |
| 7A4 | 0.934 | 23160 | 45% | 45% | 5% | 5% | 35 | 7,894,402 |
| 7A5 | 0.331 | 13540 | 45% | 45% | 5% | 5% | 30 | 1,634,550 |
| 7A6 | 0.664 | 13540 | 45% | 45% | 5% | 5% | 30 | 3,281,465 |
| 7A7 | 0.411 | 1710 | 45% | 45% | 5% | 5% | 25 | 256,648 |
| 7A8 | 0.826 | 23110 | 45% | 45% | 5% | 5% | 35 | 6,970,673 |
| 7A9 | 0.339 | 9050 | 39% | 39% | 22% | 1% | 30 | 1,121,120 |
| 7A10 | 0.451 | 12230 | 45% | 45% | 5% | 5% | 35 | 2,014,540 |
| 7A11 | 0.129 | 16120 | 45% | 45% | 5% | 5% | 35 | 760,516 |
| 7A12 | 0.584 | 2830 | 45% | 45% | 5% | 5% | 30 | 603,001 |
| 7A13 (north) | 4.248 | 136339 | 45% | 45% | 5% | 5% | 60 | 211,375,645 |
| 7A13 (south) | 4.248 | 111634 | 45% | 45% | 5% | 5% | 30 | 173,073,799 |
| 8A1 | 1.011 | 13810 | 45% | 45% | 5% | 5% | 35 | 5,094,540 |
| 8A2 | 0.342 | 19520 | 45% | 45% | 5% | 5% | 35 | 2,435,919 |
| 8A3 | 0.201 | 27860 | 45% | 45% | 5% | 5% | 25 | 2,039,963 |
| 8A4 | 0.570 | 43560 | 45% | 45% | 5% | 5% | 40 | 9,069,892 |
| 8A5 | 0.060 | 22540 | 45% | 45% | 5% | 5% | 35 | 495,239 |
| 8A6 | 0.118 | 21590 | 45% | 45% | 5% | 5% | 35 | 931,481 |
| 8A7 | 0.606 | 19480 | 45% | 45% | 5% | 5% | 35 | 4,308,340 |
| 8A8 | 0.149 | 21090 | 45% | 45% | 5% | 5% | 35 | 1,144,563 |
| 8A9 | 0.192 | 21090 | 45% | 45% | 5% | 5% | 35 | 1,481,343 |
| 8A10 | 0.251 | 41230 | 45% | 45% | 5% | 5% | 40 | 3,772,621 |
| 8A11 | 0.071 | 41620 | 45% | 45% | 5% | 5% | 40 | 1,076,288 |
| 8A12 | 0.178 | 41620 | 45% | 45% | 5% | 5% | 40 | 2,698,415 |
| 8A13 | 0.505 | 41910 | 45% | 45% | 5% | 5% | 40 | 7,725,290 |
| 8A14 | 0.252 | 47930 | 45% | 45% | 5% | 5% | 40 | 4,415,529 |
| 8A15 | 0.257 | 50410 | 45% | 45% | 5% | 5% | 40 | 4,723,632 |
| 8A16 | 0.518 | 51280 | 45% | 45% | 5% | 5% | 40 | 9,701,031 |
| 8A17 | 0.162 | 54240 | 45% | 45% | 5% | 5% | 10 | 3,209,132 |
| 8A18 | 0.236 | 54320 | 45% | 45% | 5% | 5% | 10 | 4,670,242 |

## TABLE 5-1: ROADWAY SEGMENTS – EXISTING (2022) CONDITION *(CONTINUED)*

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 8A19 | 0.229 | 28020 | 45% | 45% | 5% | 5% | 25 | 2,342,011 |
| 8A20 | 0.383 | 22180 | 45% | 45% | 5% | 5% | 35 | 3,098,516 |
| 8A21 | 0.311 | 23450 | 45% | 45% | 5% | 5% | 35 | 2,660,335 |
| 8A22 | 0.886 | 17270 | 45% | 45% | 5% | 5% | 30 | 5,587,196 |
| 8A23 | 0.200 | 25550 | 45% | 45% | 5% | 5% | 35 | 1,861,849 |
| 8A24 | 0.689 | 21090 | 45% | 45% | 5% | 5% | 35 | 5,300,339 |
| 9A1 | 0.936 | 16790 | 45% | 45% | 5% | 5% | 35 | 5,739,077 |
| 9A2 | 0.991 | 21220 | 45% | 45% | 5% | 5% | 35 | 7,677,149 |
| 9A3 | 1.115 | 20840 | 45% | 45% | 5% | 5% | 35 | 8,481,511 |
| 9A4 | 0.109 | 32090 | 45% | 45% | 5% | 5% | 35 | 1,276,572 |
| 9A5 | 1.105 | 13770 | 45% | 45% | 5% | 5% | 35 | 5,556,288 |
| 10A1 | 0.355 | 33750 | 45% | 45% | 5% | 5% | 30 | 4,371,296 |
| 10A2 | 0.208 | 39820 | 45% | 45% | 5% | 5% | 30 | 3,024,559 |
| 10A3 | 0.063 | 21580 | 45% | 45% | 5% | 5% | 35 | 496,744 |
| 10A4 | 0.111 | 24680 | 45% | 45% | 5% | 5% | 35 | 1,001,171 |
| 10A5 (east) | 0.758 | 83203 | 45% | 45% | 5% | 5% | 35 | 23,033,197 |
| 10A5 (west) | 0.758 | 83203 | 45% | 45% | 5% | 5% | 35 | 23,033,197 |

Note: AADT: average annual daily traffic; PC: passenger car, PT passenger truck, SHT: single unit short-haul truck, LHT: single unit long-haul truck; mph denotes miles per hour; VMTs denotes vehicle-miles-traveled; the Airside Deliveries segment is not shown on the maps.

Source: Port of Seattle and WSDOT, 2023. Landrum & Brown, 2024

## TABLE 5-2: 2022 EMISSION FACTORS FOR MOTOR VEHICLES

| Vehicle Type | Speed (mph) | CO (g/VMT) | $NO_X$ (g/VMT) | $SO_X$ (g/VMT) | VOC (g/VMT) | $PM_{2.5}$ (g/VMT) | $PM_{10}$ (g/VMT) | $CO_2$ (g/VMT) | $CH_4$ (g/VMT) | $N_2O$ (g/VMT) |
|---|---|---|---|---|---|---|---|---|---|---|
| PC | 5 | 7.79 | 0.24 | 0.00 | 0.12 | 0.01 | 0.01 | 949.05 | 0.03 | 0.01 |
| PT | 5 | 7.19 | 0.35 | 0.01 | 0.15 | 0.01 | 0.01 | 1,164.79 | 0.04 | 0.02 |
| SHT | 5 | 4.60 | 7.35 | 0.01 | 0.61 | 0.17 | 0.19 | 2,143.45 | 0.08 | 0.24 |
| LHT | 5 | 4.56 | 7.36 | 0.01 | 0.59 | 0.17 | 0.18 | 2,090.10 | 0.07 | 0.25 |
| PC | 10 | 5.74 | 0.22 | 0.00 | 0.08 | 0.00 | 0.00 | 580.32 | 0.02 | 0.01 |
| PT | 10 | 5.43 | 0.31 | 0.00 | 0.11 | 0.00 | 0.01 | 719.04 | 0.03 | 0.01 |
| SHT | 10 | 2.65 | 4.41 | 0.00 | 0.33 | 0.11 | 0.12 | 1,407.72 | 0.04 | 0.16 |
| LHT | 10 | 2.64 | 4.41 | 0.00 | 0.32 | 0.10 | 0.11 | 1,369.27 | 0.04 | 0.16 |
| PC | 15 | 5.06 | 0.21 | 0.00 | 0.07 | 0.00 | 0.00 | 457.41 | 0.02 | 0.00 |
| PT | 15 | 4.84 | 0.30 | 0.00 | 0.09 | 0.00 | 0.01 | 570.45 | 0.02 | 0.01 |
| SHT | 15 | 2.01 | 3.44 | 0.00 | 0.23 | 0.08 | 0.09 | 1,194.91 | 0.03 | 0.14 |
| LHT | 15 | 1.99 | 3.43 | 0.00 | 0.23 | 0.08 | 0.09 | 1,156.49 | 0.03 | 0.14 |
| PC | 20 | 4.51 | 0.20 | 0.00 | 0.06 | 0.00 | 0.00 | 393.47 | 0.02 | 0.00 |
| PT | 20 | 4.37 | 0.29 | 0.00 | 0.09 | 0.00 | 0.00 | 493.85 | 0.02 | 0.00 |
| SHT | 20 | 1.61 | 2.82 | 0.00 | 0.18 | 0.07 | 0.07 | 1,065.09 | 0.02 | 0.12 |
| LHT | 20 | 1.60 | 2.81 | 0.00 | 0.18 | 0.07 | 0.07 | 1,030.37 | 0.02 | 0.12 |
| PC | 25 | 1.32 | 2.39 | 0.00 | 0.14 | 0.06 | 0.06 | 350.09 | 0.02 | 0.00 |
| PT | 25 | 3.76 | 0.19 | 0.00 | 0.06 | 0.00 | 0.00 | 443.25 | 0.02 | 0.00 |
| SHT | 25 | 1.33 | 2.40 | 0.00 | 0.15 | 0.06 | 0.06 | 964.94 | 0.02 | 0.11 |
| LHT | 25 | 1.32 | 2.39 | 0.00 | 0.14 | 0.06 | 0.06 | 929.81 | 0.02 | 0.11 |
| PC | 30 | 3.56 | 0.17 | 0.00 | 0.05 | 0.00 | 0.00 | 313.08 | 0.01 | 0.00 |
| PT | 30 | 3.50 | 0.25 | 0.00 | 0.07 | 0.00 | 0.00 | 395.59 | 0.02 | 0.00 |
| SHT | 30 | 1.19 | 2.18 | 0.00 | 0.13 | 0.06 | 0.06 | 948.32 | 0.02 | 0.11 |
| LHT | 30 | 1.17 | 2.15 | 0.00 | 0.13 | 0.05 | 0.06 | 910.15 | 0.02 | 0.11 |
| PC | 35 | 3.15 | 0.17 | 0.00 | 0.04 | 0.00 | 0.00 | 295.22 | 0.01 | 0.00 |
| PT | 35 | 3.17 | 0.25 | 0.00 | 0.06 | 0.00 | 0.00 | 375.91 | 0.01 | 0.00 |
| SHT | 35 | 1.04 | 1.80 | 0.00 | 0.12 | 0.05 | 0.05 | 835.07 | 0.01 | 0.10 |
| LHT | 35 | 1.02 | 1.77 | 0.00 | 0.11 | 0.04 | 0.05 | 798.09 | 0.01 | 0.09 |
| PC | 40 | 2.78 | 0.16 | 0.00 | 0.04 | 0.00 | 0.00 | 283.89 | 0.01 | 0.00 |
| PT | 40 | 2.88 | 0.24 | 0.00 | 0.05 | 0.00 | 0.00 | 364.61 | 0.01 | 0.00 |
| SHT | 40 | 0.96 | 1.60 | 0.00 | 0.10 | 0.04 | 0.05 | 817.37 | 0.01 | 0.09 |
| LHT | 40 | 0.94 | 1.56 | 0.00 | 0.10 | 0.04 | 0.04 | 777.40 | 0.01 | 0.09 |
| PC | 55 | 2.39 | 0.16 | 0.00 | 0.03 | 0.00 | 0.00 | 266.46 | 0.01 | 0.00 |
| PT | 55 | 2.58 | 0.25 | 0.00 | 0.04 | 0.00 | 0.00 | 346.97 | 0.01 | 0.00 |
| SHT | 55 | 0.80 | 1.23 | 0.00 | 0.08 | 0.03 | 0.04 | 796.82 | 0.01 | 0.09 |
| LHT | 55 | 0.78 | 1.17 | 0.00 | 0.08 | 0.03 | 0.04 | 751.69 | 0.01 | 0.09 |
| PC | 60 | 2.41 | 0.17 | 0.00 | 0.03 | 0.00 | 0.00 | 265.28 | 0.01 | 0.00 |
| PT | 60 | 2.65 | 0.26 | 0.00 | 0.04 | 0.00 | 0.00 | 348.51 | 0.01 | 0.00 |
| SHT | 60 | 0.76 | 1.13 | 0.00 | 0.08 | 0.03 | 0.04 | 774.79 | 0.01 | 0.09 |
| LHT | 60 | 0.74 | 1.06 | 0.00 | 0.08 | 0.03 | 0.03 | 729.87 | 0.01 | 0.09 |

Note: mph denotes miles per hour; g/VMT denotes grams per vehicle-miles-traveled; PC denotes passenger car; PT denotes passenger truck; SHT denotes short-haul truck; LHT denotes long-haul truck; CO denotes carbon monoxide, $NO_x$ denotes nitrogen oxides, $SO_x$ denotes sulfur oxides, VOC denotes volatile organic compounds, $PM_{2.5}$ denotes fine particulate matter, $PM_{10}$ denotes coarse particulate matter, $CO_2$ denotes carbon dioxide, $CH_4$ denotes methane, $N_2O$ denotes nitrous oxide.

Source: MOVES4; Landrum & Brown, 2024.

## TABLE 5-3: ROADWAY SEGMENTS – FUTURE (2032) NO ACTION ALTERNATIVE

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| Airside Deliveries | 2.000 | 1,020 | 0% | 63% | 36% | 1% | 15 | 744,482 |
| 1A1 | 0.362 | 22,000 | 45% | 45% | 5% | 5% | 35 | 2,908,129 |
| 1A2 | 0.500 | 22,250 | 45% | 45% | 5% | 5% | 35 | 4,062,274 |
| 1A3 | 0.181 | 11,100 | 45% | 45% | 5% | 5% | 35 | 731,863 |
| 1A4 | 0.097 | 550 | 45% | 45% | 5% | 5% | 25 | 19,443 |
| 1A5 | 0.370 | 9,500 | 45% | 45% | 5% | 5% | 35 | 1,283,464 |
| 1A6 | 0.124 | 15,000 | 45% | 45% | 5% | 5% | 35 | 681,320 |
| 1A7 | 0.550 | 6,750 | 45% | 45% | 5% | 5% | 30 | 1,355,279 |
| 1A8 | 0.118 | 10,200 | 45% | 45% | 5% | 5% | 30 | 437,520 |
| 1A9 | 0.492 | 4,150 | 45% | 45% | 5% | 5% | 25 | 745,899 |
| 1A10 | 0.126 | 14,500 | 45% | 45% | 5% | 5% | 20 | 664,574 |
| 1A11 | 0.125 | 17,400 | 45% | 45% | 5% | 5% | 20 | 791,932 |
| 1A12 | 2.486 | 151,187 | 45% | 45% | 5% | 5% | 60 | 137,196,396 |
| 1A13 | 0.124 | 4,150 | 45% | 45% | 5% | 5% | 25 | 187,261 |
| 1A14 | 0.096 | 20,700 | 45% | 45% | 5% | 5% | 30 | 724,285 |
| 1A15 | 0.505 | 20,450 | 45% | 45% | 5% | 5% | 35 | 3,771,432 |
| 1A16 | 0.499 | 10,500 | 45% | 45% | 5% | 5% | 35 | 1,912,617 |
| 1A17 | 0.124 | 15,800 | 45% | 45% | 5% | 5% | 20 | 717,870 |
| 1A18 | 0.170 | 16,750 | 45% | 45% | 5% | 5% | 20 | 1,042,058 |
| 1A19 | 0.249 | 14,800 | 45% | 45% | 5% | 5% | 35 | 1,347,540 |
| 1A20 | 0.061 | 33,500 | 45% | 45% | 5% | 5% | 35 | 741,451 |
| 1A21 | 0.437 | 12,500 | 45% | 45% | 5% | 5% | 35 | 1,995,633 |
| 1A22 | 0.097 | 14,200 | 45% | 45% | 5% | 5% | 25 | 504,581 |
| 1A23 | 0.766 | 9,800 | 45% | 45% | 5% | 5% | 25 | 2,738,333 |
| 1A24 | 0.676 | 22,250 | 45% | 45% | 5% | 5% | 35 | 5,491,898 |
| 1A25 | 0.104 | 78,600 | 45% | 45% | 5% | 5% | 10 | 2,973,328 |
| 1A26 (east) | 0.522 | 75,593 | 45% | 45% | 5% | 5% | 60 | 14,398,525 |
| 1A26 (west) | 0.522 | 75,593 | 45% | 45% | 5% | 5% | 55 | 14,398,525 |
| 1A27 | 1.286 | 93,505 | 45% | 45% | 5% | 5% | 60 | 43,883,575 |
| 1A28 | 0.441 | 14,700 | 45% | 45% | 5% | 5% | 35 | 2,368,063 |
| 1A29 | 0.076 | 58,300 | 45% | 45% | 5% | 5% | 10 | 1,622,647 |
| 1A30 | 0.083 | 16,700 | 45% | 45% | 5% | 5% | 20 | 506,975 |
| 2A1 | 0.041 | 22,400 | 45% | 45% | 5% | 5% | 35 | 338,642 |
| 2A2 | 0.402 | 3,200 | 45% | 45% | 5% | 5% | 25 | 469,835 |
| 2A3 | 0.081 | 23,400 | 45% | 45% | 5% | 5% | 35 | 692,684 |
| 2A4 | 0.127 | 17,000 | 45% | 45% | 5% | 5% | 25 | 789,574 |
| 2A5 | 0.049 | 34,200 | 45% | 45% | 5% | 5% | 35 | 614,039 |
| 2A6 | 0.081 | 34,700 | 45% | 45% | 5% | 5% | 35 | 1,022,346 |
| 2A7 | 0.160 | 61,250 | 45% | 45% | 5% | 5% | 15 | 3,583,819 |
| 2A8 | 0.118 | 22,800 | 45% | 45% | 5% | 5% | 35 | 983,286 |
| 2A9 | 0.086 | 20,300 | 45% | 45% | 5% | 5% | 35 | 638,521 |
| 2A10 | 0.200 | 7,150 | 45% | 45% | 5% | 5% | 30 | 520,859 |
| 2A11 | 0.525 | 14,800 | 45% | 45% | 5% | 5% | 35 | 2,836,028 |
| 2A12 | 0.054 | 26,450 | 45% | 45% | 5% | 5% | 35 | 523,299 |
| 2A13 | 0.077 | 51,750 | 45% | 45% | 5% | 5% | 15 | 1,449,258 |
| 2A14 | 0.272 | 16,800 | 41% | 41% | 17% | 1% | 30 | 1,670,835 |

## TABLE 5-3: ROADWAY SEGMENTS – FUTURE (2032) NO ACTION ALTERNATIVE *(CONTINUED)*

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 2A15 | 0.654 | 43,350 | 45% | 45% | 5% | 5% | 40 | 10,345,452 |
| 2A16 | 0.325 | 10,050 | 45% | 45% | 5% | 5% | 30 | 1,191,525 |
| 2A17 | 0.122 | 16,800 | 45% | 45% | 5% | 5% | 30 | 748,503 |
| 2A18 | 0.241 | 61,250 | 45% | 45% | 5% | 5% | 40 | 5,387,141 |
| 2A19 | 0.095 | 32,400 | 45% | 45% | 5% | 5% | 35 | 1,127,846 |
| 2A20 | 0.086 | 32,500 | 45% | 45% | 5% | 5% | 35 | 1,017,079 |
| 2A21 | 0.090 | 32,800 | 45% | 45% | 5% | 5% | 35 | 1,072,979 |
| 2A22 | 0.174 | 23,900 | 45% | 45% | 5% | 5% | 25 | 1,516,144 |
| 2A23 | 0.053 | 22,500 | 45% | 45% | 5% | 5% | 20 | 435,295 |
| 2A24 | 0.230 | 7,900 | 45% | 45% | 5% | 5% | 35 | 662,432 |
| 2A25 | 0.367 | 1,700 | 45% | 45% | 5% | 5% | 25 | 227,513 |
| 2A26 | 1.251 | 25,122 | 46% | 46% | 7% | 1% | 60 | 11,471,316 |
| 2A27 | 0.384 | 24,250 | 45% | 45% | 5% | 5% | 60 | 3,395,756 |
| 2A28 | 0.407 | 18,350 | 45% | 45% | 5% | 5% | 35 | 2,727,002 |
| 2A29 | 0.635 | 18,850 | 45% | 45% | 5% | 5% | 35 | 4,367,686 |
| 2A30 | 0.312 | 19,000 | 45% | 45% | 5% | 5% | 35 | 2,164,088 |
| 2A31 | 0.531 | 38,600 | 45% | 45% | 5% | 5% | 35 | 7,486,909 |
| 2A32 | 0.062 | 50,600 | 45% | 45% | 5% | 5% | 35 | 1,148,772 |
| 2A33 | 0.985 | 39,650 | 45% | 45% | 5% | 5% | 35 | 14,257,627 |
| 2A34 | 0.125 | 4,800 | 45% | 45% | 5% | 5% | 25 | 219,657 |
| 2A35 | 0.096 | 4,200 | 45% | 45% | 5% | 5% | 25 | 146,749 |
| 2A36 | 0.141 | 5,950 | 45% | 45% | 5% | 5% | 25 | 305,405 |
| 2A37 | 0.037 | 16,700 | 45% | 45% | 5% | 5% | 25 | 225,491 |
| 2A38 | 0.126 | 1,750 | 45% | 45% | 5% | 5% | 25 | 80,625 |
| 2A39 | 0.126 | 23,100 | 45% | 45% | 5% | 5% | 20 | 1,058,617 |
| 2A40 | 0.000 | - | 45% | 45% | 5% | 5% | 30 | - |
| 2A41 | 0.000 | - | 45% | 45% | 5% | 5% | 30 | - |
| 3A1 | 0.093 | 25,122 | 46% | 46% | 7% | 1% | 20 | 855,039 |
| 3A2 | 0.756 | 25,122 | 46% | 46% | 7% | 1% | 40 | 6,934,357 |
| 3A3 | 1.151 | 25,122 | 46% | 46% | 7% | 1% | 20 | 10,556,253 |
| 3A4 | 0.234 | 25,122 | 46% | 46% | 7% | 1% | 30 | 2,147,382 |
| 3A5 | 0.263 | 25,122 | 46% | 46% | 7% | 1% | 30 | 2,415,636 |
| 3A6 | 0.187 | 15,150 | 41% | 41% | 17% | 1% | 30 | 1,032,791 |
| 3A7 | 0.115 | 22,100 | 39% | 39% | 22% | 1% | 30 | 931,285 |
| 3A8 | 0.070 | 21,600 | 39% | 39% | 21% | 1% | 35 | 551,352 |
| 3A9 | 0.046 | 23,800 | 39% | 39% | 21% | 1% | 35 | 398,395 |
| 3A10 | 0.048 | 23,800 | 39% | 39% | 21% | 1% | 35 | 414,361 |
| 3A11 | 0.079 | 26,600 | 39% | 39% | 21% | 1% | 15 | 765,827 |
| 3A12 | 0.332 | 41,450 | 45% | 45% | 5% | 5% | 15 | 5,022,760 |
| 3A13 | 0.377 | 45,050 | 45% | 45% | 5% | 5% | 15 | 6,199,220 |
| 3A14 | 0.768 | - | 45% | 45% | 5% | 5% | 35 | - |
| 3A15 | 1.012 | - | 45% | 45% | 5% | 5% | 35 | - |
| 4A1 | 0.248 | 19,400 | 45% | 45% | 5% | 5% | 35 | 1,753,865 |
| 4A2 | 0.108 | 44,850 | 45% | 45% | 5% | 5% | 35 | 1,775,370 |
| 4A3 | 0.906 | 44,350 | 45% | 45% | 5% | 5% | 35 | 14,671,217 |
| 4A4 | 0.409 | 52,000 | 45% | 45% | 5% | 5% | 15 | 7,765,420 |
| 4A5 | 0.248 | 45,400 | 45% | 45% | 5% | 5% | 40 | 4,107,719 |
| 4A6 | 0.127 | 6,450 | 45% | 45% | 5% | 5% | 35 | 299,694 |
| 4A7 | 0.581 | 600 | 45% | 45% | 5% | 5% | 15 | 127,138 |

## TABLE 5-3: ROADWAY SEGMENTS – FUTURE (2032) NO ACTION ALTERNATIVE *(CONTINUED)*

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 5A1 | 0.422 | 35,300 | 45% | 45% | 5% | 5% | 40 | 5,440,892 |
| 5A2 | 0.629 | 18,450 | 45% | 45% | 5% | 5% | 35 | 4,232,813 |
| 5A3 | 0.380 | 450 | 45% | 45% | 5% | 5% | 15 | 62,401 |
| 5A4 | 0.991 | 39,750 | 45% | 45% | 5% | 5% | 40 | 14,374,921 |
| 5A5 | 0.216 | 52,700 | 45% | 45% | 5% | 5% | 40 | 4,159,831 |
| 5A6 | 0.075 | 47,400 | 45% | 45% | 5% | 5% | 40 | 1,297,627 |
| 5A7 | 0.309 | - | 45% | 45% | 5% | 5% | 15 | - |
| 5A8 | 0.142 | - | 45% | 45% | 5% | 5% | 60 | - |
| 5A9 | 0.567 | - | 45% | 45% | 5% | 5% | 60 | - |
| 5A10 | 0.268 | - | 45% | 45% | 5% | 5% | 15 | - |
| 6A1 | 1.180 | 20,850 | 45% | 45% | 5% | 5% | 35 | 8,979,562 |
| 6A2 | 0.519 | 19,300 | 45% | 45% | 5% | 5% | 35 | 3,652,630 |
| 6A3 | 0.231 | 20,900 | 45% | 45% | 5% | 5% | 35 | 1,761,924 |
| 6A4 | 1.560 | 43,662 | 45% | 45% | 5% | 5% | 60 | 24,860,709 |
| 6A5 | 0.759 | 43,662 | 45% | 45% | 5% | 5% | 60 | 12,098,954 |
| 6A6 | 0.176 | 27,400 | 45% | 45% | 5% | 5% | 15 | 1,763,596 |
| 6A7 | 0.099 | 24,500 | 45% | 45% | 5% | 5% | 35 | 886,434 |
| 6A8 | 0.152 | 12,300 | 45% | 45% | 5% | 5% | 15 | 682,893 |
| 6A9 | 0.155 | 24,500 | 45% | 45% | 5% | 5% | 35 | 1,384,791 |
| 6A10 | 0.364 | 450 | 45% | 45% | 5% | 5% | 15 | 59,747 |
| 6A11 | 0.618 | 450 | 45% | 45% | 5% | 5% | 15 | 101,444 |
| 6A12 | 0.086 | 16,300 | 45% | 45% | 5% | 5% | 35 | 511,740 |
| 6A13 | 0.750 | 40,250 | 45% | 45% | 5% | 5% | 35 | 11,011,209 |
| 6A14 | 0.186 | 27,000 | 45% | 45% | 5% | 5% | 35 | 1,835,543 |
| 6A15 | 0.158 | 38,950 | 45% | 45% | 5% | 5% | 15 | 2,240,503 |
| 6A16 | 0.053 | 6,200 | 45% | 45% | 5% | 5% | 25 | 119,380 |
| 6A17 | 0.067 | 12,600 | 45% | 45% | 5% | 5% | 35 | 306,293 |
| 6A18 | 0.160 | - | 45% | 45% | 5% | 5% | 15 | - |
| 6A19 | 0.849 | - | 45% | 45% | 5% | 5% | 60 | - |
| 7A1 | 0.190 | 41,750 | 45% | 45% | 5% | 5% | 35 | 2,899,995 |
| 7A2 | 0.066 | 28,850 | 45% | 45% | 5% | 5% | 35 | 692,459 |
| 7A3 | 0.143 | 56,200 | 45% | 45% | 5% | 5% | 35 | 2,937,010 |
| 7A4 | 0.934 | 23,900 | 45% | 45% | 5% | 5% | 35 | 8,146,641 |
| 7A5 | 0.331 | 16,300 | 45% | 45% | 5% | 5% | 30 | 1,967,738 |
| 7A6 | 0.664 | 16,300 | 45% | 45% | 5% | 5% | 30 | 3,950,361 |
| 7A7 | 0.411 | 8,500 | 45% | 45% | 5% | 5% | 25 | 1,275,736 |
| 7A8 | 0.826 | 23,550 | 45% | 45% | 5% | 5% | 35 | 7,103,390 |
| 7A9 | 0.339 | 14,050 | 39% | 39% | 22% | 1% | 30 | 1,740,523 |
| 7A10 | 0.451 | 15,800 | 45% | 45% | 5% | 5% | 35 | 2,602,595 |
| 7A11 | 0.129 | 25,150 | 45% | 45% | 5% | 5% | 35 | 1,186,538 |
| 7A12 | 0.584 | 12,400 | 45% | 45% | 5% | 5% | 30 | 2,642,125 |
| 7A13 (north) | 4.248 | 169,451 | 45% | 45% | 5% | 5% | 60 | 262,710,756 |
| 7A13 (south) | 4.248 | 138,746 | 45% | 45% | 5% | 5% | 30 | 215,106,848 |
| 8A1 | 1.011 | 14,550 | 45% | 45% | 5% | 5% | 35 | 5,367,527 |
| 8A2 | 0.342 | 23,750 | 45% | 45% | 5% | 5% | 35 | 2,963,785 |
| 8A3 | 0.201 | 29,500 | 45% | 45% | 5% | 5% | 25 | 2,160,047 |
| 8A4 | 0.570 | 43,250 | 45% | 45% | 5% | 5% | 40 | 9,005,345 |

**TABLE 5-3: ROADWAY SEGMENTS – FUTURE (2032) NO ACTION ALTERNATIVE *(CONTINUED)***

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 8A5 | 0.060 | 28,950 | 45% | 45% | 5% | 5% | 35 | 636,076 |
| 8A6 | 0.118 | 24,650 | 45% | 45% | 5% | 5% | 35 | 1,063,502 |
| 8A7 | 0.606 | 21,350 | 45% | 45% | 5% | 5% | 35 | 4,721,923 |
| 8A8 | 0.149 | 23,100 | 45% | 45% | 5% | 5% | 35 | 1,253,646 |
| 8A9 | 0.192 | 20,500 | 45% | 45% | 5% | 5% | 35 | 1,439,902 |
| 8A10 | 0.251 | 42,850 | 45% | 45% | 5% | 5% | 40 | 3,920,854 |
| 8A11 | 0.071 | 40,950 | 45% | 45% | 5% | 5% | 40 | 1,058,962 |
| 8A12 | 0.178 | 40,800 | 45% | 45% | 5% | 5% | 40 | 2,645,251 |
| 8A13 | 0.505 | 38,400 | 45% | 45% | 5% | 5% | 40 | 7,078,290 |
| 8A14 | 0.252 | 46,250 | 45% | 45% | 5% | 5% | 40 | 4,260,760 |
| 8A15 | 0.257 | 48,150 | 45% | 45% | 5% | 5% | 40 | 4,511,860 |
| 8A16 | 0.518 | 49,850 | 45% | 45% | 5% | 5% | 40 | 9,430,507 |
| 8A17 | 0.162 | 64,600 | 45% | 45% | 5% | 5% | 10 | 3,822,085 |
| 8A18 | 0.236 | 69,100 | 45% | 45% | 5% | 5% | 10 | 5,940,975 |
| 8A19 | 0.229 | 30,700 | 45% | 45% | 5% | 5% | 25 | 2,566,015 |
| 8A20 | 0.383 | 23,300 | 45% | 45% | 5% | 5% | 35 | 3,254,978 |
| 8A21 | 0.311 | 25,400 | 45% | 45% | 5% | 5% | 35 | 2,881,557 |
| 8A22 | 0.886 | 16,050 | 45% | 45% | 5% | 5% | 30 | 5,192,501 |
| 8A23 | 0.200 | 26,250 | 45% | 45% | 5% | 5% | 35 | 1,912,858 |
| 8A24 | 0.689 | 20,200 | 45% | 45% | 5% | 5% | 35 | 5,076,664 |
| 8A25 | 0.135 | 36,500 | 45% | 45% | 5% | 5% | 35 | 1,801,482 |
| 8A26 | 0.198 | 16,000 | 45% | 45% | 5% | 5% | 35 | 1,157,465 |
| 9A1 | 0.936 | 19,000 | 45% | 45% | 5% | 5% | 35 | 6,494,489 |
| 9A2 | 0.991 | 22,100 | 45% | 45% | 5% | 5% | 35 | 7,995,523 |
| 9A3 | 1.115 | 22,150 | 45% | 45% | 5% | 5% | 35 | 9,014,658 |
| 9A4 | 0.109 | 32,850 | 45% | 45% | 5% | 5% | 35 | 1,306,805 |
| 9A5 | 1.105 | 16,450 | 45% | 45% | 5% | 5% | 35 | 6,637,686 |
| 10A1 | 0.355 | 33,950 | 45% | 45% | 5% | 5% | 30 | 4,397,200 |
| 10A2 | 0.208 | 42,900 | 45% | 45% | 5% | 5% | 30 | 3,258,503 |
| 10A3 | 0.063 | 22,200 | 45% | 45% | 5% | 5% | 35 | 511,016 |
| 10A4 | 0.111 | 18,150 | 45% | 45% | 5% | 5% | 35 | 736,275 |
| 10A5 (east) | 0.758 | 103,410 | 45% | 45% | 5% | 5% | 35 | 28,627,085 |
| 10A5 (west) | 0.758 | 103,410 | 45% | 45% | 5% | 5% | 35 | 28,627,085 |

Note: AADT denotes average annual daily traffic; PC denotes passenger car; PT denotes passenger truck; SHT denotes single unit short-haul truck; LHT denotes single unit long-haul truck; mph denotes miles per hour; VMTs denotes vehicle-miles-traveled; the Airside Deliveries segment is not shown on the maps.

Source: Port of Seattle and WSDOT, 2023. Landrum & Brown, 2024

## TABLE 5-4: 2032 EMISSION FACTORS FOR MOTOR VEHICLES

| Vehicle Type | Speed (mph) | CO (g/VMT) | $NO_X$ (g/VMT) | $SO_X$ (g/VMT) | VOC (g/VMT) | $PM_{2.5}$ (g/VMT) | $PM_{10}$ (g/VMT) | $CO_2$ (g/VMT) | $CH_4$ (g/VMT) | $N_2O$ (g/VMT) |
|---|---|---|---|---|---|---|---|---|---|---|
| PC | 5 | 4.46 | 0.03 | 0.004 | 0.026 | 0.00 | 0.00 | 826.61 | 0.01 | 0.01 |
| PT | 5 | 3.68 | 0.04 | 0.005 | 0.030 | 0.00 | 0.00 | 1,010.87 | 0.01 | 0.01 |
| SHT | 5 | 3.19 | 3.26 | 0.006 | 0.149 | 0.03 | 0.03 | 1,732.23 | 0.05 | 0.26 |
| LHT | 5 | 3.44 | 3.50 | 0.006 | 0.251 | 0.05 | 0.06 | 1,721.13 | 0.05 | 0.25 |
| PC | 10 | 3.28 | 0.03 | 0.00 | 0.02 | 0.00 | 0.00 | 504.77 | 0.01 | 0.00 |
| PT | 10 | 2.73 | 0.03 | 0.00 | 0.02 | 0.00 | 0.00 | 623.05 | 0.01 | 0.00 |
| SHT | 10 | 1.87 | 1.88 | 0.00 | 0.08 | 0.02 | 0.02 | 1135.12 | 0.03 | 0.17 |
| LHT | 10 | 2.00 | 2.03 | 0.00 | 0.13 | 0.03 | 0.04 | 1124.16 | 0.03 | 0.16 |
| PC | 15 | 2.89 | 0.03 | 0.00 | 0.02 | 0.00 | 0.00 | 397.49 | 0.01 | 0.00 |
| PT | 15 | 2.41 | 0.03 | 0.00 | 0.02 | 0.00 | 0.00 | 493.78 | 0.01 | 0.00 |
| SHT | 15 | 1.42 | 1.41 | 0.00 | 0.06 | 0.01 | 0.01 | 962.49 | 0.02 | 0.14 |
| LHT | 15 | 1.51 | 1.53 | 0.00 | 0.10 | 0.03 | 0.03 | 950.17 | 0.02 | 0.14 |
| PC | 20 | 2.57 | 0.02 | 0.00 | 0.01 | 0.00 | 0.00 | 341.75 | 0.01 | 0.00 |
| PT | 20 | 2.16 | 0.03 | 0.00 | 0.02 | 0.00 | 0.00 | 427.18 | 0.01 | 0.00 |
| SHT | 20 | 1.14 | 1.12 | 0.00 | 0.04 | 0.01 | 0.01 | 861.29 | 0.02 | 0.13 |
| LHT | 20 | 1.22 | 1.23 | 0.00 | 0.07 | 0.02 | 0.02 | 849.40 | 0.02 | 0.12 |
| PC | 25 | 2.12 | 0.02 | 0.00 | 0.01 | 0.00 | 0.00 | 304.09 | 0.01 | 0.00 |
| PT | 25 | 1.82 | 0.03 | 0.00 | 0.02 | 0.00 | 0.00 | 383.29 | 0.01 | 0.00 |
| SHT | 25 | 0.94 | 0.92 | 0.00 | 0.04 | 0.01 | 0.01 | 778.26 | 0.01 | 0.12 |
| LHT | 25 | 1.01 | 1.02 | 0.00 | 0.06 | 0.02 | 0.02 | 765.81 | 0.01 | 0.11 |
| PC | 30 | 2.02 | 0.02 | 0.00 | 0.01 | 0.00 | 0.00 | 271.99 | 0.01 | 0.00 |
| PT | 30 | 1.72 | 0.03 | 0.00 | 0.01 | 0.00 | 0.00 | 342.16 | 0.01 | 0.00 |
| SHT | 30 | 0.85 | 0.81 | 0.00 | 0.03 | 0.01 | 0.01 | 769.76 | 0.01 | 0.11 |
| LHT | 30 | 0.90 | 0.90 | 0.00 | 0.05 | 0.02 | 0.02 | 752.63 | 0.01 | 0.11 |
| PC | 35 | 1.79 | 0.02 | 0.00 | 0.01 | 0.00 | 0.00 | 256.63 | 0.01 | 0.00 |
| PT | 35 | 1.56 | 0.03 | 0.00 | 0.01 | 0.00 | 0.00 | 325.41 | 0.01 | 0.00 |
| SHT | 35 | 0.74 | 0.65 | 0.00 | 0.03 | 0.01 | 0.01 | 681.43 | 0.01 | 0.10 |
| LHT | 35 | 0.79 | 0.73 | 0.00 | 0.05 | 0.01 | 0.02 | 662.08 | 0.01 | 0.10 |
| PC | 40 | 1.59 | 0.02 | 0.00 | 0.01 | 0.00 | 0.00 | 246.92 | 0.00 | 0.00 |
| PT | 40 | 1.42 | 0.03 | 0.00 | 0.01 | 0.00 | 0.00 | 315.87 | 0.00 | 0.00 |
| SHT | 40 | 0.69 | 0.55 | 0.00 | 0.02 | 0.01 | 0.01 | 672.26 | 0.01 | 0.10 |
| LHT | 40 | 0.73 | 0.63 | 0.00 | 0.04 | 0.01 | 0.01 | 648.12 | 0.01 | 0.09 |
| PC | 55 | 1.39 | 0.02 | 0.00 | 0.01 | 0.00 | 0.00 | 231.92 | 0.00 | 0.00 |
| PT | 55 | 1.28 | 0.03 | 0.00 | 0.01 | 0.00 | 0.00 | 301.04 | 0.00 | 0.00 |
| SHT | 55 | 0.60 | 0.37 | 0.00 | 0.01 | 0.01 | 0.01 | 668.01 | 0.00 | 0.10 |
| LHT | 55 | 0.62 | 0.44 | 0.00 | 0.03 | 0.01 | 0.01 | 635.37 | 0.00 | 0.09 |
| PC | 60 | 1.41 | 0.02 | 0.00 | 0.01 | 0.00 | 0.00 | 230.92 | 0.00 | 0.00 |
| PT | 60 | 1.33 | 0.03 | 0.00 | 0.01 | 0.00 | 0.00 | 302.48 | 0.00 | 0.00 |
| SHT | 60 | 0.57 | 0.32 | 0.00 | 0.01 | 0.01 | 0.01 | 652.96 | 0.00 | 0.10 |
| LHT | 60 | 0.59 | 0.40 | 0.00 | 0.03 | 0.01 | 0.01 | 619.19 | 0.00 | 0.09 |

Note: mph denotes miles per hour; g/VMT denotes grams per vehicle-miles-traveled; PC denotes passenger car; PT denotes passenger truck; SHT denotes short-haul truck; LHT denotes long-haul truck, CO denotes carbon monoxide, $NO_x$ denotes nitrogen oxides, $SO_x$ denotes sulfur oxides, VOC denotes volatile organic compounds, $PM_{2.5}$ denotes fine particulate matter, $PM_{10}$ denotes coarse particulate matter, $CO_2$ denotes carbon dioxide, $CH_4$ denotes methane, $N_2O$ denotes nitrous oxide.

Source: MOVES4; Landrum & Brown, 2024.

## TABLE 5-5: ROADWAY SEGMENTS – FUTURE (2032) PROPOSED ACTION

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| Airside Deliveries | 2.000 | 1,039 | 0% | 63% | 36% | 1% | 15 | 758,442 |
| 1A1 | 0.362 | 31,250 | 45% | 45% | 5% | 5% | 35 | 4,130,865 |
| 1A2 | 0.500 | 22,550 | 45% | 45% | 5% | 5% | 35 | 4,117,046 |
| 1A3 | 0.181 | 11,100 | 45% | 45% | 5% | 5% | 35 | 731,863 |
| 1A4 | 0.097 | 550 | 45% | 45% | 5% | 5% | 25 | 19,443 |
| 1A5 | 0.370 | 9,500 | 45% | 45% | 5% | 5% | 35 | 1,283,464 |
| 1A6 | 0.124 | 14,900 | 45% | 45% | 5% | 5% | 35 | 676,778 |
| 1A7 | 0.550 | 6,900 | 45% | 45% | 5% | 5% | 30 | 1,385,397 |
| 1A8 | 0.118 | 21,950 | 45% | 45% | 5% | 5% | 30 | 941,525 |
| 1A9 | 0.492 | 13,350 | 45% | 45% | 5% | 5% | 25 | 2,399,459 |
| 1A10 | 0.126 | 14,600 | 45% | 45% | 5% | 5% | 20 | 669,157 |
| 1A11 | 0.125 | 22,000 | 45% | 45% | 5% | 5% | 20 | 1,001,293 |
| 1A12 | 2.486 | 154,156 | 45% | 45% | 5% | 5% | 60 | 139,890,657 |
| 1A13 | 0.124 | 13,350 | 45% | 45% | 5% | 5% | 25 | 602,394 |
| 1A14 | 0.096 | 24,800 | 45% | 45% | 5% | 5% | 30 | 867,743 |
| 1A15 | 0.505 | 20,650 | 45% | 45% | 5% | 5% | 35 | 3,808,316 |
| 1A16 | 0.499 | 10,400 | 45% | 45% | 5% | 5% | 35 | 1,894,401 |
| 1A17 | 0.124 | 15,700 | 45% | 45% | 5% | 5% | 20 | 713,327 |
| 1A18 | 0.170 | 23,400 | 45% | 45% | 5% | 5% | 20 | 1,455,771 |
| 1A19 | 0.249 | 14,700 | 45% | 45% | 5% | 5% | 35 | 1,338,435 |
| 1A20 | 0.061 | 33,700 | 45% | 45% | 5% | 5% | 35 | 745,878 |
| 1A21 | 0.437 | 12,600 | 45% | 45% | 5% | 5% | 35 | 2,011,598 |
| 1A22 | 0.097 | 15,600 | 45% | 45% | 5% | 5% | 25 | 554,328 |
| 1A23 | 0.766 | 11,900 | 45% | 45% | 5% | 5% | 25 | 3,325,119 |
| 1A24 | 0.676 | 22,300 | 45% | 45% | 5% | 5% | 35 | 5,504,239 |
| 1A25 | 0.104 | 81,400 | 45% | 45% | 5% | 5% | 10 | 3,079,248 |
| 1A26 (east) | 0.522 | 77,078 | 45% | 45% | 5% | 5% | 60 | 14,681,283 |
| 1A26 (west) | 0.522 | 77,078 | 45% | 45% | 5% | 5% | 55 | 14,681,283 |
| 1A27 | 1.286 | 95,342 | 45% | 45% | 5% | 5% | 60 | 44,745,360 |
| 1A28 | 0.441 | 14,600 | 45% | 45% | 5% | 5% | 35 | 2,351,954 |
| 1A29 | 0.076 | 59,300 | 45% | 45% | 5% | 5% | 10 | 1,650,480 |
| 1A30 | 0.083 | 23,300 | 45% | 45% | 5% | 5% | 20 | 707,336 |
| 2A1 | 0.041 | 21,300 | 45% | 45% | 5% | 5% | 35 | 322,012 |
| 2A2 | 0.402 | 5,450 | 45% | 45% | 5% | 5% | 25 | 800,188 |
| 2A3 | 0.081 | 20,600 | 45% | 45% | 5% | 5% | 35 | 609,798 |
| 2A4 | 0.127 | 23,400 | 45% | 45% | 5% | 5% | 25 | 1,086,825 |
| 2A5 | 0.049 | 35,100 | 45% | 45% | 5% | 5% | 35 | 630,198 |
| 2A6 | 0.081 | 35,000 | 45% | 45% | 5% | 5% | 35 | 1,031,185 |
| 2A7 | 0.160 | 61,650 | 45% | 45% | 5% | 5% | 15 | 3,607,223 |
| 2A8 | 0.118 | 21,900 | 45% | 45% | 5% | 5% | 35 | 944,472 |
| 2A9 | 0.086 | 18,600 | 45% | 45% | 5% | 5% | 35 | 585,049 |
| 2A10 | 0.200 | 9,500 | 45% | 45% | 5% | 5% | 30 | 692,051 |
| 2A11 | 0.525 | 14,850 | 45% | 45% | 5% | 5% | 35 | 2,845,610 |
| 2A12 | 0.054 | 27,050 | 45% | 45% | 5% | 5% | 35 | 535,170 |
| 2A13 | 0.077 | 52,950 | 45% | 45% | 5% | 5% | 15 | 1,482,864 |
| 2A14 | 0.272 | - | 41% | 41% | 17% | 1% | 30 | - |
| 2A15 | 0.654 | 43,100 | 45% | 45% | 5% | 5% | 40 | 10,285,790 |
| 2A16 | 0.325 | - | 45% | 45% | 5% | 5% | 30 | - |

## TABLE 5-5: ROADWAY SEGMENTS – FUTURE (2032) PROPOSED ACTION *(CONTINUED)*

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 2A17 | 0.122 | 10,950 | 45% | 45% | 5% | 5% | 30 | 487,863 |
| 2A18 | 0.241 | 58,450 | 45% | 45% | 5% | 5% | 40 | 5,140,872 |
| 2A19 | 0.095 | 33,300 | 45% | 45% | 5% | 5% | 35 | 1,159,175 |
| 2A20 | 0.086 | 33,400 | 45% | 45% | 5% | 5% | 35 | 1,045,244 |
| 2A21 | 0.090 | 33,700 | 45% | 45% | 5% | 5% | 35 | 1,102,420 |
| 2A22 | 0.174 | 24,200 | 45% | 45% | 5% | 5% | 25 | 1,535,175 |
| 2A23 | 0.053 | 22,600 | 45% | 45% | 5% | 5% | 20 | 437,230 |
| 2A24 | 0.230 | 7,900 | 45% | 45% | 5% | 5% | 35 | 662,432 |
| 2A25 | 0.367 | 1,700 | 45% | 45% | 5% | 5% | 25 | 227,513 |
| 2A26 | 1.251 | 25,615 | 46% | 46% | 7% | 1% | 60 | 11,696,589 |
| 2A27 | 0.384 | 24,500 | 45% | 45% | 5% | 5% | 60 | 3,430,763 |
| 2A28 | 0.407 | 18,350 | 45% | 45% | 5% | 5% | 35 | 2,727,002 |
| 2A29 | 0.635 | 18,850 | 45% | 45% | 5% | 5% | 35 | 4,367,686 |
| 2A30 | 0.312 | 19,200 | 45% | 45% | 5% | 5% | 35 | 2,186,867 |
| 2A31 | 0.531 | 39,100 | 45% | 45% | 5% | 5% | 35 | 7,583,889 |
| 2A32 | 0.062 | 51,800 | 45% | 45% | 5% | 5% | 35 | 1,176,015 |
| 2A33 | 0.985 | 40,450 | 45% | 45% | 5% | 5% | 35 | 14,545,296 |
| 2A34 | 0.125 | 4,800 | 45% | 45% | 5% | 5% | 25 | 219,657 |
| 2A35 | 0.096 | 5,200 | 45% | 45% | 5% | 5% | 25 | 181,690 |
| 2A36 | 0.141 | 6,950 | 45% | 45% | 5% | 5% | 25 | 356,733 |
| 2A37 | 0.037 | 17,800 | 45% | 45% | 5% | 5% | 25 | 240,344 |
| 2A38 | 0.126 | 3,400 | 45% | 45% | 5% | 5% | 25 | 156,643 |
| 2A39 | 0.126 | 23,300 | 45% | 45% | 5% | 5% | 20 | 1,067,782 |
| 2A40 | 0.000 | 24,200 | 45% | 45% | 5% | 5% | 30 | 1,608,233 |
| 2A41 | 0.000 | 12,400 | 45% | 45% | 5% | 5% | 30 | 644,195 |
| 3A1 | 0.093 | 25,615 | 46% | 46% | 7% | 1% | 20 | 871,831 |
| 3A2 | 0.756 | 25,615 | 46% | 46% | 7% | 1% | 40 | 7,070,534 |
| 3A3 | 1.151 | - | 46% | 46% | 7% | 1% | 20 | - |
| 3A4 | 0.234 | 25,615 | 46% | 46% | 7% | 1% | 30 | 2,189,552 |
| 3A5 | 0.263 | 25,615 | 46% | 46% | 7% | 1% | 30 | 2,463,075 |
| 3A6 | 0.187 | - | 41% | 41% | 17% | 1% | 30 | - |
| 3A7 | 0.115 | - | 39% | 39% | 22% | 1% | 30 | - |
| 3A8 | 0.070 | - | 39% | 39% | 21% | 1% | 35 | - |
| 3A9 | 0.046 | - | 39% | 39% | 21% | 1% | 35 | - |
| 3A10 | 0.048 | 4,750 | 39% | 39% | 21% | 1% | 35 | 82,698 |
| 3A11 | 0.079 | 13,500 | 39% | 39% | 21% | 1% | 15 | 388,671 |
| 3A12 | 0.332 | 40,650 | 45% | 45% | 5% | 5% | 15 | 4,925,819 |
| 3A13 | 0.377 | 38,700 | 45% | 45% | 5% | 5% | 15 | 5,325,412 |
| 3A14 | 0.768 | 25,615 | 45% | 45% | 5% | 5% | 35 | 7,180,223 |
| 3A15 | 1.012 | 25,615 | 45% | 45% | 5% | 5% | 35 | 9,458,410 |
| 4A1 | 0.248 | 19,400 | 45% | 45% | 5% | 5% | 35 | 1,753,865 |
| 4A2 | 0.108 | 45,150 | 45% | 45% | 5% | 5% | 35 | 1,787,245 |
| 4A3 | 0.906 | 44,350 | 45% | 45% | 5% | 5% | 35 | 14,671,217 |
| 4A4 | 0.409 | 50,700 | 45% | 45% | 5% | 5% | 15 | 7,571,285 |
| 4A5 | 0.248 | 44,300 | 45% | 45% | 5% | 5% | 40 | 4,008,193 |
| 4A6 | 0.127 | 6,650 | 45% | 45% | 5% | 5% | 35 | 308,986 |
| 4A7 | 0.581 | 600 | 45% | 45% | 5% | 5% | 15 | 127,138 |
| 5A1 | 0.422 | 35,950 | 45% | 45% | 5% | 5% | 40 | 5,541,079 |
| 5A2 | 0.629 | 19,700 | 45% | 45% | 5% | 5% | 35 | 4,519,589 |
| 5A3 | 0.380 | 1,450 | 45% | 45% | 5% | 5% | 15 | 201,069 |

## TABLE 5-5: ROADWAY SEGMENTS – FUTURE (2032) PROPOSED ACTION *(CONTINUED)*

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 5A4 | 0.991 | 40,050 | 45% | 45% | 5% | 5% | 40 | 14,483,411 |
| 5A5 | 0.216 | 53,400 | 45% | 45% | 5% | 5% | 40 | 4,215,085 |
| 5A6 | 0.075 | 47,900 | 45% | 45% | 5% | 5% | 40 | 1,311,315 |
| 5A7 | 0.309 | 1,450 | 45% | 45% | 5% | 5% | 15 | 163,397 |
| 5A8 | 0.142 | 44,519 | 45% | 45% | 5% | 5% | 60 | 2,303,789 |
| 5A9 | 0.567 | 44,519 | 45% | 45% | 5% | 5% | 60 | 9,215,480 |
| 5A10 | 0.268 | 1,450 | 45% | 45% | 5% | 5% | 15 | 141,771 |
| 6A1 | 1.180 | 20,900 | 45% | 45% | 5% | 5% | 35 | 9,001,096 |
| 6A2 | 0.519 | 21,250 | 45% | 45% | 5% | 5% | 35 | 4,021,678 |
| 6A3 | 0.231 | 23,900 | 45% | 45% | 5% | 5% | 35 | 2,014,832 |
| 6A4 | 1.560 | - | 45% | 45% | 5% | 5% | 60 | - |
| 6A5 | 0.759 | 44,519 | 45% | 45% | 5% | 5% | 60 | 12,336,553 |
| 6A6 | 0.176 | 29,700 | 45% | 45% | 5% | 5% | 15 | 1,911,635 |
| 6A7 | 0.099 | 27,700 | 45% | 45% | 5% | 5% | 35 | 1,002,213 |
| 6A8 | 0.152 | 14,800 | 45% | 45% | 5% | 5% | 15 | 821,693 |
| 6A9 | 0.155 | 27,700 | 45% | 45% | 5% | 5% | 35 | 1,565,661 |
| 6A10 | 0.364 | - | 45% | 45% | 5% | 5% | 15 | - |
| 6A11 | 0.618 | 1,450 | 45% | 45% | 5% | 5% | 15 | 326,874 |
| 6A12 | 0.086 | 19,300 | 45% | 45% | 5% | 5% | 35 | 605,926 |
| 6A13 | 0.750 | 40,250 | 45% | 45% | 5% | 5% | 35 | 11,011,209 |
| 6A14 | 0.186 | 30,050 | 45% | 45% | 5% | 5% | 35 | 2,042,891 |
| 6A15 | 0.158 | 39,450 | 45% | 45% | 5% | 5% | 15 | 2,269,264 |
| 6A16 | 0.053 | 6,200 | 45% | 45% | 5% | 5% | 25 | 119,380 |
| 6A17 | 0.067 | 12,700 | 45% | 45% | 5% | 5% | 35 | 308,724 |
| 6A18 | 0.160 | 1,450 | 45% | 45% | 5% | 5% | 15 | 84,864 |
| 6A19 | 0.849 | 44,519 | 45% | 45% | 5% | 5% | 60 | 13,802,583 |
| 7A1 | 0.190 | 41,250 | 45% | 45% | 5% | 5% | 35 | 2,865,265 |
| 7A2 | 0.066 | 29,000 | 45% | 45% | 5% | 5% | 35 | 696,059 |
| 7A3 | 0.143 | 56,500 | 45% | 45% | 5% | 5% | 35 | 2,952,688 |
| 7A4 | 0.934 | 24,250 | 45% | 45% | 5% | 5% | 35 | 8,265,943 |
| 7A5 | 0.331 | 16,800 | 45% | 45% | 5% | 5% | 30 | 2,028,098 |
| 7A6 | 0.664 | 16,800 | 45% | 45% | 5% | 5% | 30 | 4,071,538 |
| 7A7 | 0.411 | 7,950 | 45% | 45% | 5% | 5% | 25 | 1,193,188 |
| 7A8 | 0.826 | 25,000 | 45% | 45% | 5% | 5% | 35 | 7,540,754 |
| 7A9 | 0.339 | 13,550 | 39% | 39% | 22% | 1% | 30 | 1,678,583 |
| 7A10 | 0.451 | 16,850 | 45% | 45% | 5% | 5% | 35 | 2,775,552 |
| 7A11 | 0.129 | 26,250 | 45% | 45% | 5% | 5% | 35 | 1,238,434 |
| 7A12 | 0.584 | 12,400 | 45% | 45% | 5% | 5% | 30 | 2,642,125 |
| 7A13 (north) | 4.248 | 172,778 | 45% | 45% | 5% | 5% | 60 | 267,869,866 |
| 7A13 (south) | 4.248 | 141,470 | 45% | 45% | 5% | 5% | 30 | 219,331,113 |
| 8A1 | 1.011 | 14,600 | 45% | 45% | 5% | 5% | 35 | 5,385,972 |
| 8A2 | 0.342 | 20,450 | 45% | 45% | 5% | 5% | 35 | 2,551,975 |
| 8A3 | 0.201 | 30,150 | 45% | 45% | 5% | 5% | 25 | 2,207,641 |
| 8A4 | 0.570 | 43,000 | 45% | 45% | 5% | 5% | 40 | 8,953,291 |
| 8A5 | 0.060 | 28,950 | 45% | 45% | 5% | 5% | 35 | 636,076 |
| 8A6 | 0.118 | 24,650 | 45% | 45% | 5% | 5% | 35 | 1,063,502 |
| 8A7 | 0.606 | 21,950 | 45% | 45% | 5% | 5% | 35 | 4,854,624 |
| 8A8 | 0.149 | 24,100 | 45% | 45% | 5% | 5% | 35 | 1,307,916 |

## TABLE 5-5: ROADWAY SEGMENTS – FUTURE (2032) PROPOSED ACTION *(CONTINUED)*

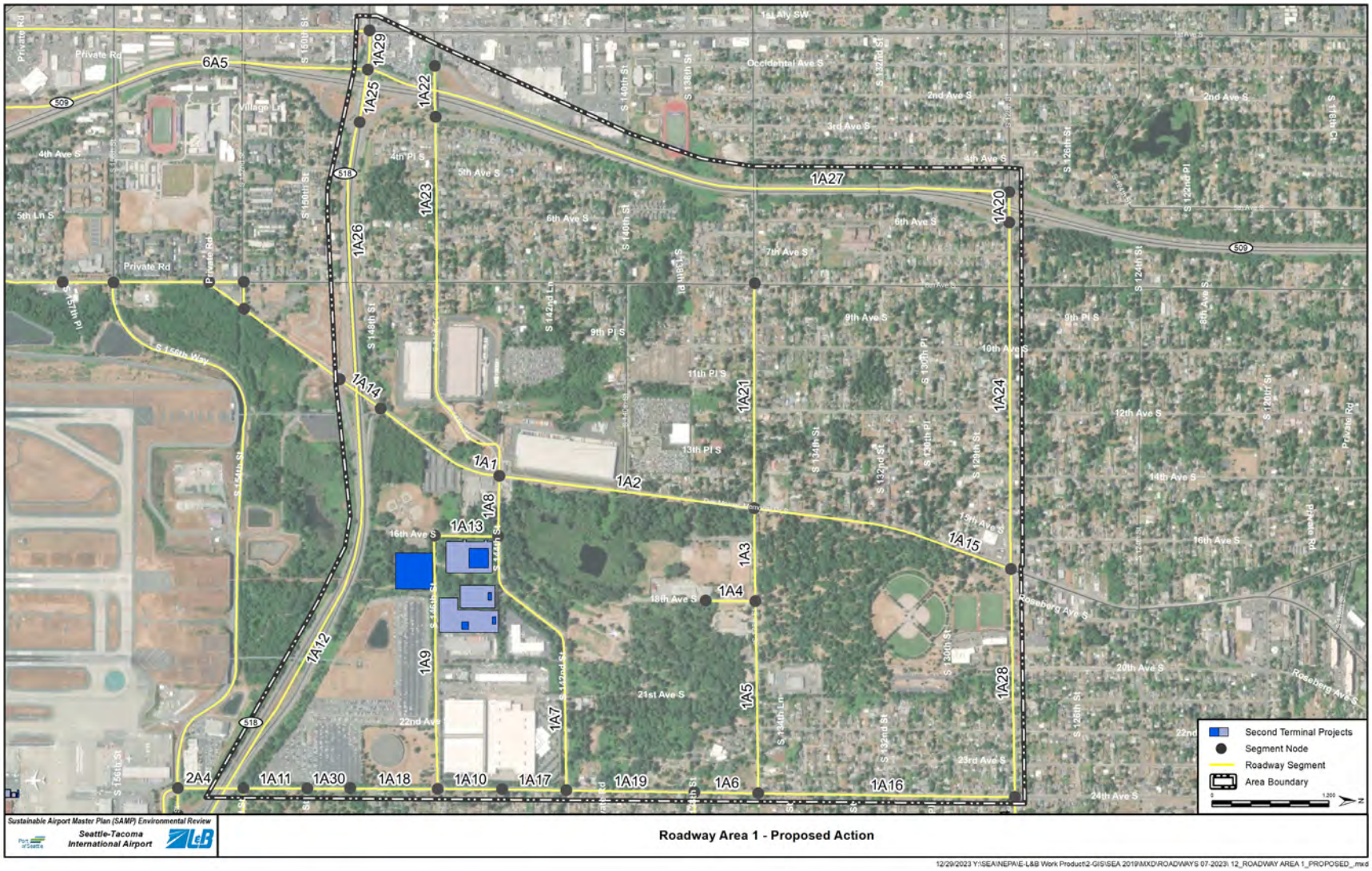
| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 8A9 | 0.192 | 21,500 | 45% | 45% | 5% | 5% | 35 | 1,510,142 |
| 8A10 | 0.251 | 42,950 | 45% | 45% | 5% | 5% | 40 | 3,930,004 |
| 8A11 | 0.071 | 41,250 | 45% | 45% | 5% | 5% | 40 | 1,066,720 |
| 8A12 | 0.178 | 41,100 | 45% | 45% | 5% | 5% | 40 | 2,664,701 |
| 8A13 | 0.505 | 39,050 | 45% | 45% | 5% | 5% | 40 | 7,198,105 |
| 8A14 | 0.252 | 46,950 | 45% | 45% | 5% | 5% | 40 | 4,325,247 |
| 8A15 | 0.257 | 49,150 | 45% | 45% | 5% | 5% | 40 | 4,605,564 |
| 8A16 | 0.518 | 51,050 | 45% | 45% | 5% | 5% | 40 | 9,657,520 |
| 8A17 | 0.162 | 66,050 | 45% | 45% | 5% | 5% | 10 | 3,907,875 |
| 8A18 | 0.236 | 71,600 | 45% | 45% | 5% | 5% | 10 | 6,155,916 |
| 8A19 | 0.229 | 31,900 | 45% | 45% | 5% | 5% | 25 | 2,666,315 |
| 8A20 | 0.383 | 23,500 | 45% | 45% | 5% | 5% | 35 | 3,282,918 |
| 8A21 | 0.311 | 25,700 | 45% | 45% | 5% | 5% | 35 | 2,915,591 |
| 8A22 | 0.886 | 16,350 | 45% | 45% | 5% | 5% | 30 | 5,289,557 |
| 8A23 | 0.200 | 26,450 | 45% | 45% | 5% | 5% | 35 | 1,927,432 |
| 8A24 | 0.689 | 20,850 | 45% | 45% | 5% | 5% | 35 | 5,240,022 |
| 8A25 | 0.135 | 39,000 | 45% | 45% | 5% | 5% | 35 | 1,924,871 |
| 8A26 | 0.198 | 17,800 | 45% | 45% | 5% | 5% | 35 | 1,287,679 |
| 9A1 | 0.936 | 19,000 | 45% | 45% | 5% | 5% | 35 | 6,494,489 |
| 9A2 | 0.991 | 22,400 | 45% | 45% | 5% | 5% | 35 | 8,104,059 |
| 9A3 | 1.115 | 22,600 | 45% | 45% | 5% | 5% | 35 | 9,197,800 |
| 9A4 | 0.109 | 32,950 | 45% | 45% | 5% | 5% | 35 | 1,310,783 |
| 9A5 | 1.105 | 16,600 | 45% | 45% | 5% | 5% | 35 | 6,698,212 |
| 10A1 | 0.355 | 35,200 | 45% | 45% | 5% | 5% | 30 | 4,559,100 |
| 10A2 | 0.208 | 44,100 | 45% | 45% | 5% | 5% | 30 | 3,349,649 |
| 10A3 | 0.063 | 22,650 | 45% | 45% | 5% | 5% | 35 | 521,374 |
| 10A4 | 0.111 | 18,500 | 45% | 45% | 5% | 5% | 35 | 750,473 |
| 10A5 (east) | 0.758 | 105,441 | 45% | 45% | 5% | 5% | 35 | 29,189,264 |
| 10A5 (west) | 0.758 | 105,441 | 45% | 45% | 5% | 5% | 35 | 29,189,264 |

Note: mph denotes miles per hour; PC denotes passenger car; PT denotes passenger truck; SHT denotes short-haul truck; LHT denotes long-haul truck; VMT denotes vehicle-miles-traveled; the Airside Deliveries segment is not shown on the maps.

Source: Port of Seattle and WSDOT, 2023. Landrum & Brown, 2024

## EXHIBIT 5-12: ROADWAY AREAS – PROPOSED ACTION

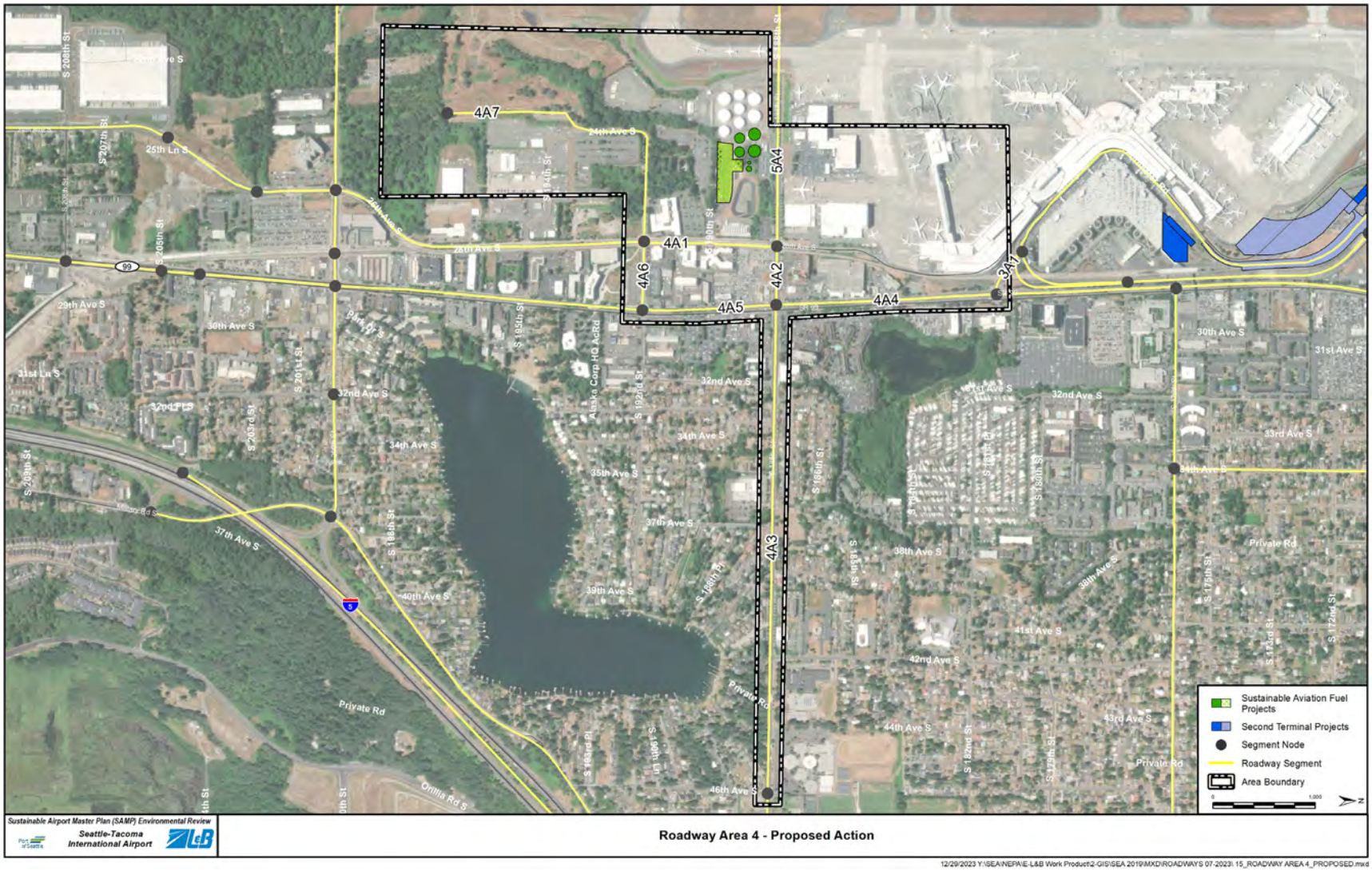
## EXHIBIT 5-13: AREA 1 – PROPOSED ACTION



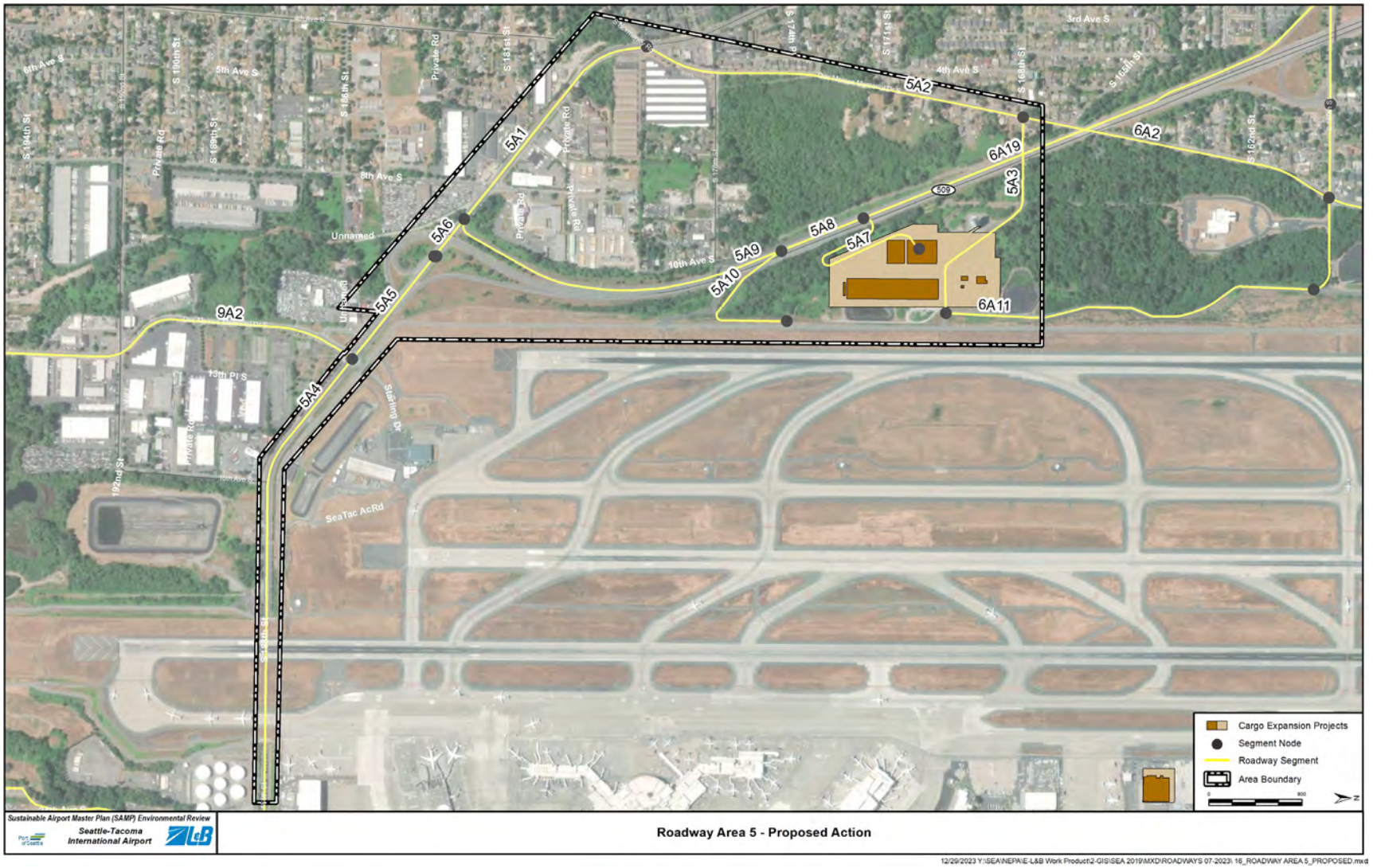
## EXHIBIT 5-14: AREA 2 – PROPOSED ACTION

## EXHIBIT 5-15: AREA 3 – PROPOSED ACTION

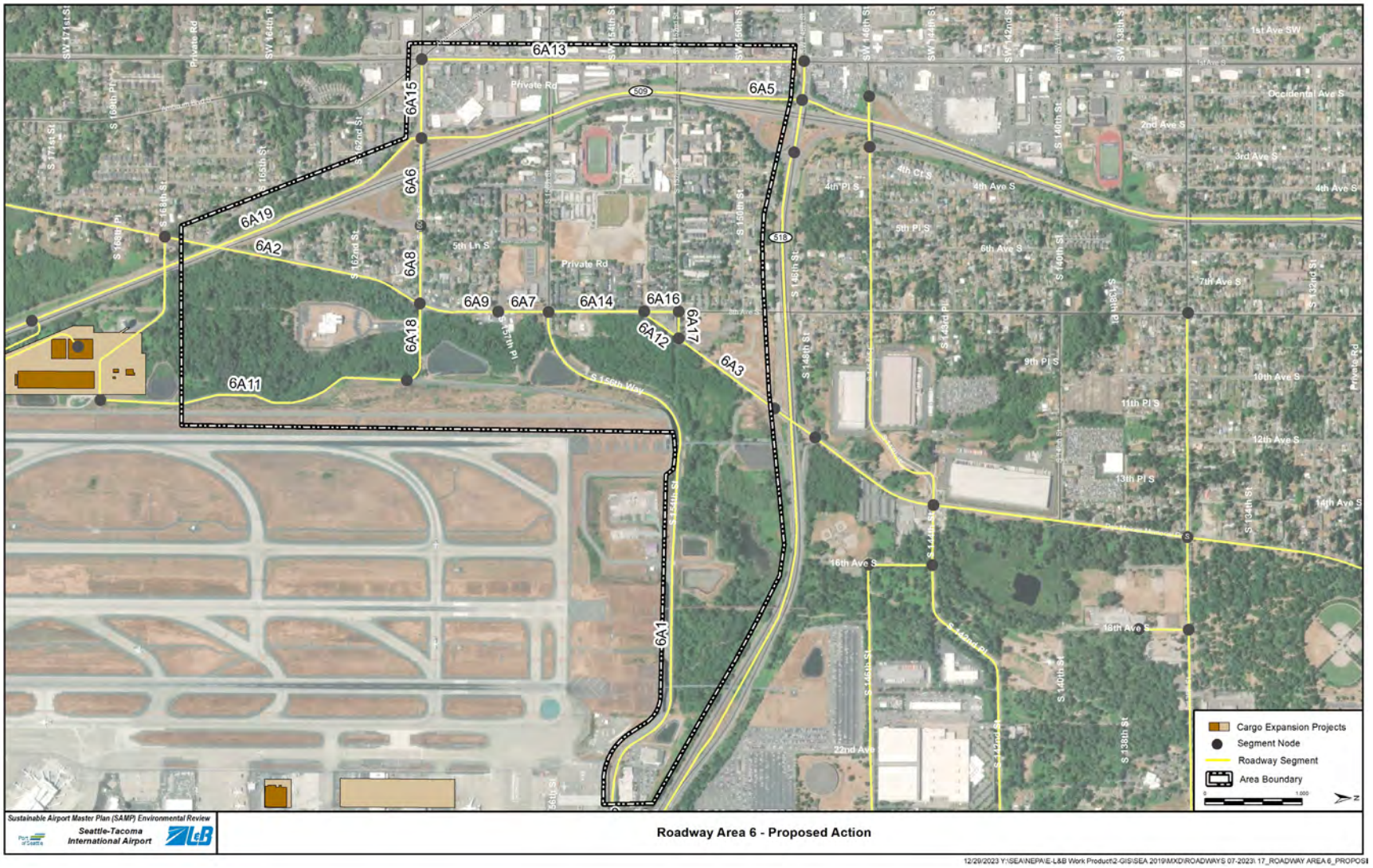
## EXHIBIT 5-16: AREA 4 – PROPOSED ACTION



## EXHIBIT 5-17: AREA 5 – PROPOSED ACTION

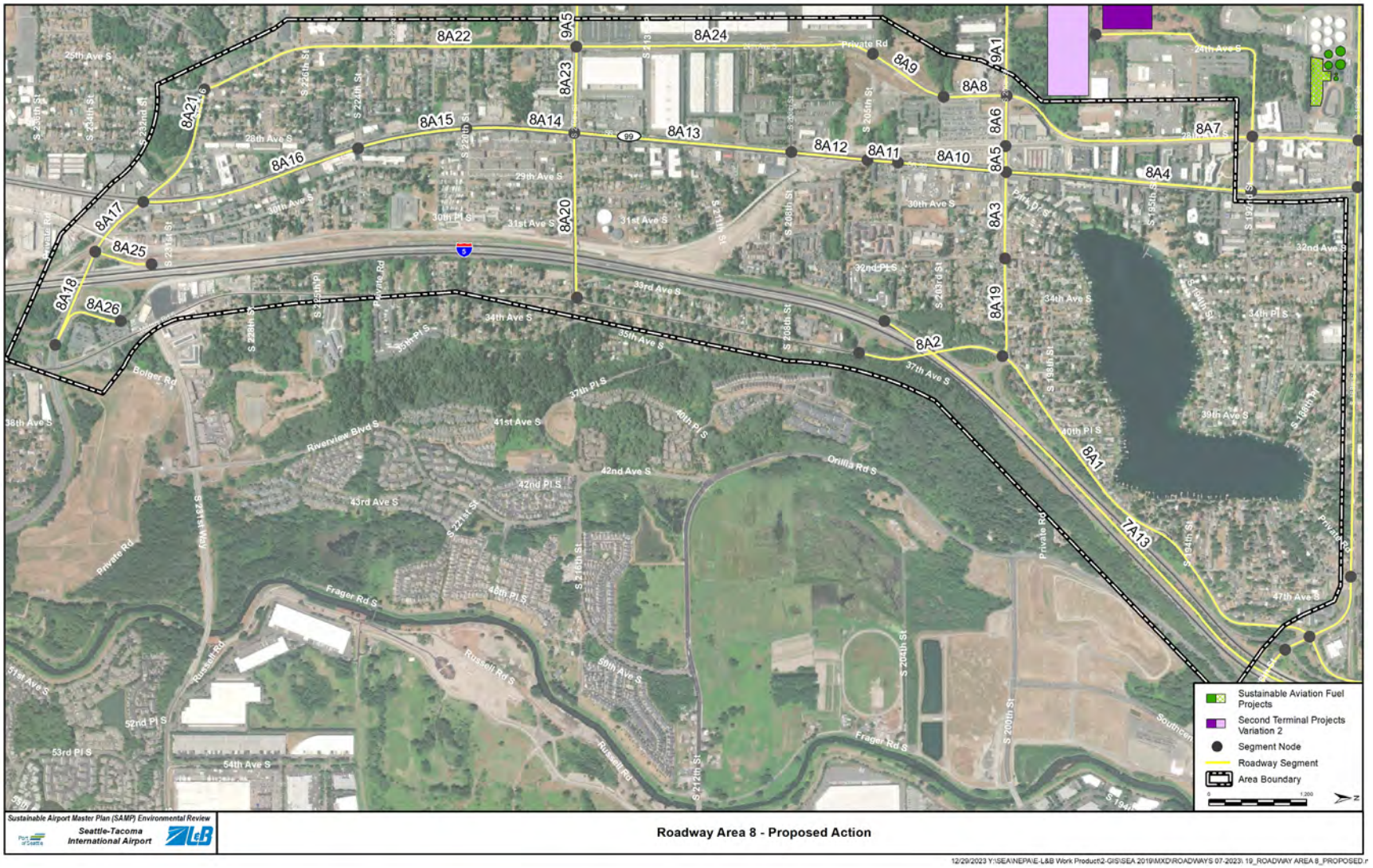


## EXHIBIT 5-18: AREA 6 – PROPOSED ACTION

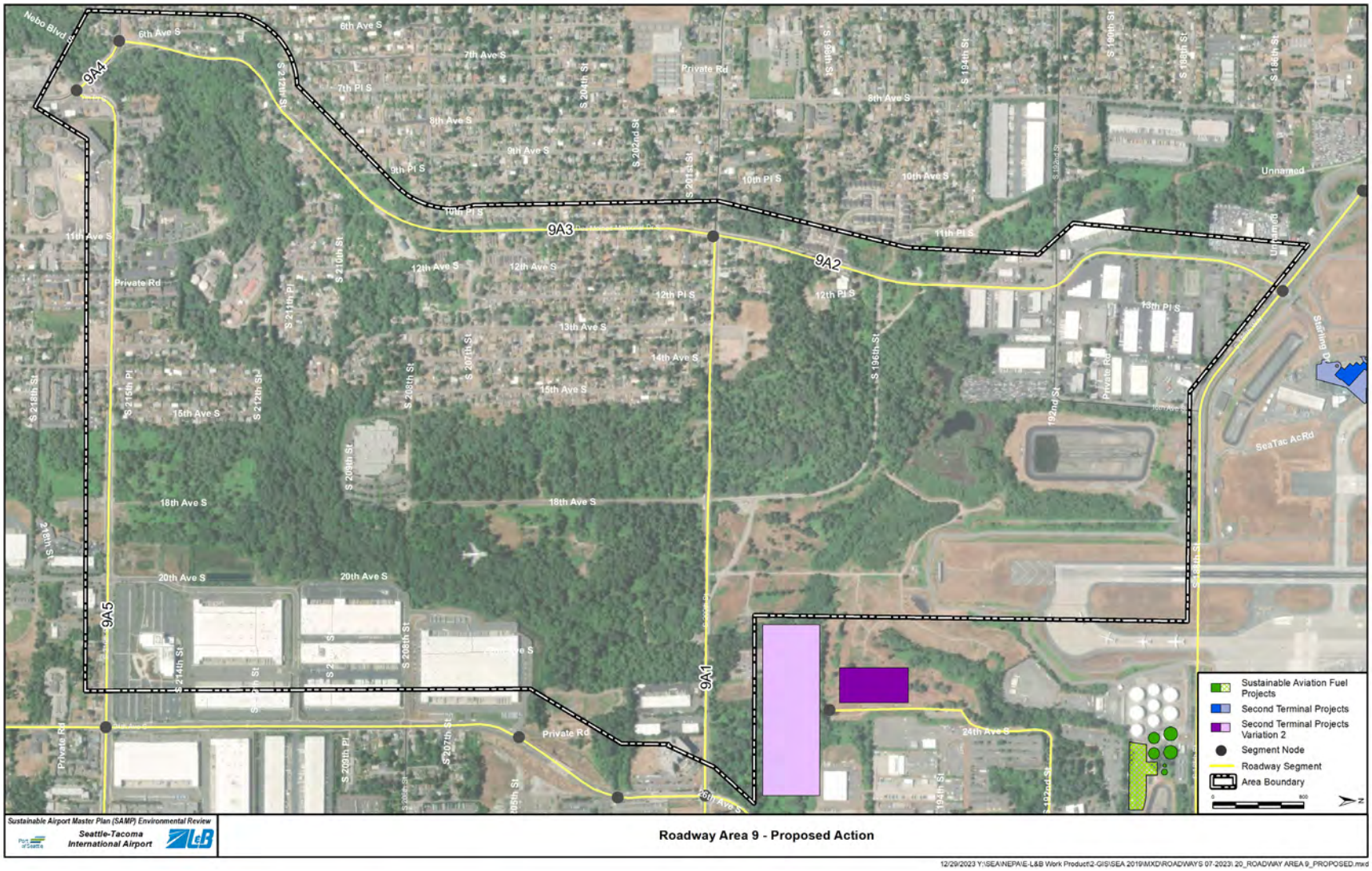


## EXHIBIT 5-19: AREA 7 – PROPOSED ACTION

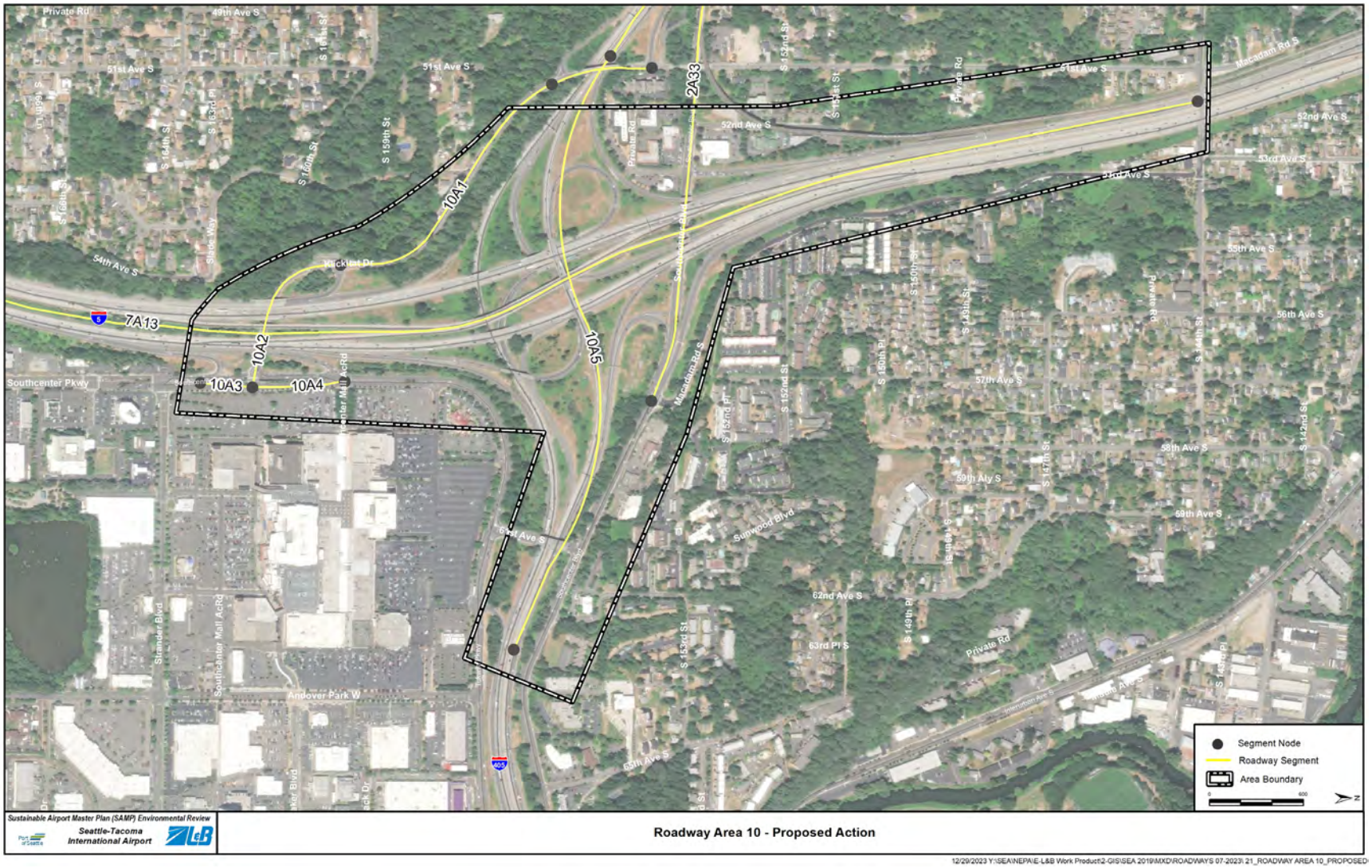
## EXHIBIT 5-20: AREA 8 – PROPOSED ACTION



## EXHIBIT 5-21: AREA 9 – PROPOSED ACTION



## EXHIBIT 5-22: AREA 10 – PROPOSED ACTION



## TABLE 5-6: ROADWAY SEGMENTS – FUTURE (2037) NO ACTION ALTERNATIVE

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| Airside Deliveries | 2.000 | 1,037 | 0% | 63% | 36% | 1% | 15 | 757,197 |
| 1A1 | 0.362 | 24,450 | 45% | 45% | 5% | 5% | 35 | 3,231,989 |
| 1A2 | 0.500 | 24,700 | 45% | 45% | 5% | 5% | 35 | 4,509,580 |
| 1A3 | 0.181 | 12,400 | 45% | 45% | 5% | 5% | 35 | 817,577 |
| 1A4 | 0.097 | 550 | 45% | 45% | 5% | 5% | 25 | 19,443 |
| 1A5 | 0.370 | 10,550 | 45% | 45% | 5% | 5% | 35 | 1,425,320 |
| 1A6 | 0.124 | 16,700 | 45% | 45% | 5% | 5% | 35 | 758,536 |
| 1A7 | 0.550 | 7,450 | 45% | 45% | 5% | 5% | 30 | 1,495,827 |
| 1A8 | 0.118 | 11,350 | 45% | 45% | 5% | 5% | 30 | 486,848 |
| 1A9 | 0.492 | 4,550 | 45% | 45% | 5% | 5% | 25 | 817,793 |
| 1A10 | 0.126 | 16,100 | 45% | 45% | 5% | 5% | 20 | 737,906 |
| 1A11 | 0.125 | 19,400 | 45% | 45% | 5% | 5% | 20 | 882,958 |
| 1A12 | 2.486 | 157,301 | 45% | 45% | 5% | 5% | 60 | 142,744,963 |
| 1A13 | 0.124 | 4,550 | 45% | 45% | 5% | 5% | 25 | 205,310 |
| 1A14 | 0.096 | 23,000 | 45% | 45% | 5% | 5% | 30 | 804,761 |
| 1A15 | 0.505 | 22,700 | 45% | 45% | 5% | 5% | 35 | 4,186,381 |
| 1A16 | 0.499 | 11,750 | 45% | 45% | 5% | 5% | 35 | 2,140,309 |
| 1A17 | 0.124 | 17,500 | 45% | 45% | 5% | 5% | 20 | 795,110 |
| 1A18 | 0.170 | 18,600 | 45% | 45% | 5% | 5% | 20 | 1,157,151 |
| 1A19 | 0.249 | 16,400 | 45% | 45% | 5% | 5% | 35 | 1,493,220 |
| 1A20 | 0.061 | 37,200 | 45% | 45% | 5% | 5% | 35 | 823,343 |
| 1A21 | 0.437 | 13,900 | 45% | 45% | 5% | 5% | 35 | 2,219,144 |
| 1A22 | 0.097 | 15,800 | 45% | 45% | 5% | 5% | 25 | 561,435 |
| 1A23 | 0.766 | 10,900 | 45% | 45% | 5% | 5% | 25 | 3,045,697 |
| 1A24 | 0.676 | 24,700 | 45% | 45% | 5% | 5% | 35 | 6,096,624 |
| 1A25 | 0.104 | 86,400 | 45% | 45% | 5% | 5% | 10 | 3,268,391 |
| 1A26 (east) | 0.522 | 78,651 | 45% | 45% | 5% | 5% | 60 | 14,980,837 |
| 1A26 (west) | 0.522 | 78,651 | 45% | 45% | 5% | 5% | 55 | 14,980,837 |
| 1A27 | 1.286 | 97,287 | 45% | 45% | 5% | 5% | 60 | 45,658,337 |
| 1A28 | 0.441 | 16,300 | 45% | 45% | 5% | 5% | 35 | 2,625,812 |
| 1A29 | 0.076 | 64,400 | 45% | 45% | 5% | 5% | 10 | 1,792,427 |
| 1A30 | 0.083 | 18,500 | 45% | 45% | 5% | 5% | 20 | 561,619 |
| 2A1 | 0.041 | 24,800 | 45% | 45% | 5% | 5% | 35 | 374,925 |
| 2A2 | 0.402 | 3,600 | 45% | 45% | 5% | 5% | 25 | 528,564 |
| 2A3 | 0.081 | 25,900 | 45% | 45% | 5% | 5% | 35 | 766,688 |
| 2A4 | 0.127 | 18,900 | 45% | 45% | 5% | 5% | 25 | 877,820 |
| 2A5 | 0.049 | 38,100 | 45% | 45% | 5% | 5% | 35 | 684,061 |
| 2A6 | 0.081 | 38,600 | 45% | 45% | 5% | 5% | 35 | 1,137,250 |
| 2A7 | 0.160 | 67,700 | 45% | 45% | 5% | 5% | 15 | 3,961,217 |
| 2A8 | 0.118 | 25,100 | 45% | 45% | 5% | 5% | 35 | 1,082,477 |
| 2A9 | 0.086 | 22,600 | 45% | 45% | 5% | 5% | 35 | 710,866 |
| 2A10 | 0.200 | 7,950 | 45% | 45% | 5% | 5% | 30 | 579,137 |
| 2A11 | 0.525 | 16,450 | 45% | 45% | 5% | 5% | 35 | 3,152,207 |
| 2A12 | 0.054 | 29,250 | 45% | 45% | 5% | 5% | 35 | 578,695 |
| 2A13 | 0.077 | 57,250 | 45% | 45% | 5% | 5% | 15 | 1,603,286 |

## TABLE 5-6: ROADWAY SEGMENTS – FUTURE (2037) NO ACTION ALTERNATIVE *(CONTINUED)*

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 2A14 | 0.272 | 18,800 | 41% | 41% | 17% | 1% | 30 | 1,869,744 |
| 2A15 | 0.654 | 47,850 | 45% | 45% | 5% | 5% | 40 | 11,419,374 |
| 2A16 | 0.325 | 11,200 | 45% | 45% | 5% | 5% | 30 | 1,327,868 |
| 2A17 | 0.122 | 18,800 | 45% | 45% | 5% | 5% | 30 | 837,610 |
| 2A18 | 0.241 | 67,800 | 45% | 45% | 5% | 5% | 40 | 5,963,235 |
| 2A19 | 0.095 | 36,000 | 45% | 45% | 5% | 5% | 35 | 1,253,162 |
| 2A20 | 0.086 | 36,100 | 45% | 45% | 5% | 5% | 35 | 1,129,740 |
| 2A21 | 0.090 | 36,400 | 45% | 45% | 5% | 5% | 35 | 1,190,744 |
| 2A22 | 0.174 | 26,500 | 45% | 45% | 5% | 5% | 25 | 1,681,081 |
| 2A23 | 0.053 | 25,000 | 45% | 45% | 5% | 5% | 20 | 483,662 |
| 2A24 | 0.230 | 8,800 | 45% | 45% | 5% | 5% | 35 | 737,899 |
| 2A25 | 0.367 | 1,900 | 45% | 45% | 5% | 5% | 25 | 254,279 |
| 2A26 | 1.251 | 26,138 | 46% | 46% | 7% | 1% | 60 | 11,935,245 |
| 2A27 | 0.384 | 26,800 | 45% | 45% | 5% | 5% | 60 | 3,752,835 |
| 2A28 | 0.407 | 20,400 | 45% | 45% | 5% | 5% | 35 | 3,031,654 |
| 2A29 | 0.635 | 20,950 | 45% | 45% | 5% | 5% | 35 | 4,854,272 |
| 2A30 | 0.312 | 21,100 | 45% | 45% | 5% | 5% | 35 | 2,403,276 |
| 2A31 | 0.531 | 42,750 | 45% | 45% | 5% | 5% | 35 | 8,291,848 |
| 2A32 | 0.062 | 56,000 | 45% | 45% | 5% | 5% | 35 | 1,271,368 |
| 2A33 | 0.985 | 43,800 | 45% | 45% | 5% | 5% | 35 | 15,749,913 |
| 2A34 | 0.125 | 5,350 | 45% | 45% | 5% | 5% | 25 | 244,826 |
| 2A35 | 0.096 | 4,650 | 45% | 45% | 5% | 5% | 25 | 162,473 |
| 2A36 | 0.141 | 6,600 | 45% | 45% | 5% | 5% | 25 | 338,768 |
| 2A37 | 0.037 | 18,600 | 45% | 45% | 5% | 5% | 25 | 251,145 |
| 2A38 | 0.126 | 1,950 | 45% | 45% | 5% | 5% | 25 | 89,839 |
| 2A39 | 0.126 | 25,600 | 45% | 45% | 5% | 5% | 20 | 1,173,186 |
| 2A40 | 0.000 | - | 45% | 45% | 5% | 5% | 30 | - |
| 2A41 | 0.000 | - | 45% | 45% | 5% | 5% | 30 | - |
| 3A1 | 0.093 | 26,138 | 46% | 46% | 7% | 1% | 20 | 889,619 |
| 3A2 | 0.756 | 26,138 | 46% | 46% | 7% | 1% | 40 | 7,214,800 |
| 3A3 | 1.151 | 26,138 | 46% | 46% | 7% | 1% | 20 | 10,983,174 |
| 3A4 | 0.234 | 26,138 | 46% | 46% | 7% | 1% | 30 | 2,234,228 |
| 3A5 | 0.263 | 26,138 | 46% | 46% | 7% | 1% | 30 | 2,513,331 |
| 3A6 | 0.187 | 17,000 | 41% | 41% | 17% | 1% | 30 | 1,158,908 |
| 3A7 | 0.115 | 24,000 | 39% | 39% | 22% | 1% | 30 | 1,011,351 |
| 3A8 | 0.070 | 23,400 | 39% | 39% | 21% | 1% | 35 | 597,298 |
| 3A9 | 0.046 | 25,900 | 39% | 39% | 21% | 1% | 35 | 433,547 |
| 3A10 | 0.048 | 25,900 | 39% | 39% | 21% | 1% | 35 | 450,922 |
| 3A11 | 0.079 | 28,900 | 39% | 39% | 21% | 1% | 15 | 832,045 |
| 3A12 | 0.332 | 45,600 | 45% | 45% | 5% | 5% | 15 | 5,525,642 |
| 3A13 | 0.377 | 49,650 | 45% | 45% | 5% | 5% | 15 | 6,832,215 |
| 3A14 | 0.768 | - | 45% | 45% | 5% | 5% | 35 | - |
| 3A15 | 1.012 | - | 45% | 45% | 5% | 5% | 35 | - |
| 4A1 | 0.248 | 21,400 | 45% | 45% | 5% | 5% | 35 | 1,934,675 |
| 4A2 | 0.108 | 49,750 | 45% | 45% | 5% | 5% | 35 | 1,969,335 |
| 4A3 | 0.906 | 49,050 | 45% | 45% | 5% | 5% | 35 | 16,226,002 |
| 4A4 | 0.409 | 56,300 | 45% | 45% | 5% | 5% | 15 | 8,407,561 |
| 4A5 | 0.248 | 49,150 | 45% | 45% | 5% | 5% | 40 | 4,447,013 |

## TABLE 5-6: ROADWAY SEGMENTS – FUTURE (2037) NO ACTION ALTERNATIVE *(CONTINUED)*

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 4A6 | 0.127 | 7,050 | 45% | 45% | 5% | 5% | 35 | 327,572 |
| 4A7 | 0.581 | 600 | 45% | 45% | 5% | 5% | 15 | 127,138 |
| 5A1 | 0.422 | 39,200 | 45% | 45% | 5% | 5% | 40 | 6,042,011 |
| 5A2 | 0.629 | 20,500 | 45% | 45% | 5% | 5% | 35 | 4,703,125 |
| 5A3 | 0.380 | 450 | 45% | 45% | 5% | 5% | 15 | 62,401 |
| 5A4 | 0.991 | 44,000 | 45% | 45% | 5% | 5% | 40 | 15,911,863 |
| 5A5 | 0.216 | 58,400 | 45% | 45% | 5% | 5% | 40 | 4,609,756 |
| 5A6 | 0.075 | 52,600 | 45% | 45% | 5% | 5% | 40 | 1,439,983 |
| 5A7 | 0.309 | - | 45% | 45% | 5% | 5% | 15 | - |
| 5A8 | 0.142 | - | 45% | 45% | 5% | 5% | 60 | - |
| 5A9 | 0.567 | - | 45% | 45% | 5% | 5% | 60 | - |
| 5A10 | 0.268 | - | 45% | 45% | 5% | 5% | 15 | - |
| 6A1 | 1.180 | 23,100 | 45% | 45% | 5% | 5% | 35 | 9,948,580 |
| 6A2 | 0.519 | 21,450 | 45% | 45% | 5% | 5% | 35 | 4,059,529 |
| 6A3 | 0.231 | 23,150 | 45% | 45% | 5% | 5% | 35 | 1,951,605 |
| 6A4 | 1.560 | 45,428 | 45% | 45% | 5% | 5% | 60 | 25,866,138 |
| 6A5 | 0.759 | 45,428 | 45% | 45% | 5% | 5% | 60 | 12,588,266 |
| 6A6 | 0.176 | 30,200 | 45% | 45% | 5% | 5% | 15 | 1,943,818 |
| 6A7 | 0.099 | 27,200 | 45% | 45% | 5% | 5% | 35 | 984,123 |
| 6A8 | 0.152 | 13,600 | 45% | 45% | 5% | 5% | 15 | 755,069 |
| 6A9 | 0.155 | 27,200 | 45% | 45% | 5% | 5% | 35 | 1,537,400 |
| 6A10 | 0.364 | 450 | 45% | 45% | 5% | 5% | 15 | 59,747 |
| 6A11 | 0.618 | 450 | 45% | 45% | 5% | 5% | 15 | 101,444 |
| 6A12 | 0.086 | 18,100 | 45% | 45% | 5% | 5% | 35 | 568,251 |
| 6A13 | 0.750 | 44,700 | 45% | 45% | 5% | 5% | 35 | 12,228,598 |
| 6A14 | 0.186 | 30,000 | 45% | 45% | 5% | 5% | 35 | 2,039,492 |
| 6A15 | 0.158 | 43,050 | 45% | 45% | 5% | 5% | 15 | 2,476,345 |
| 6A16 | 0.053 | 6,700 | 45% | 45% | 5% | 5% | 25 | 129,007 |
| 6A17 | 0.067 | 14,000 | 45% | 45% | 5% | 5% | 35 | 340,326 |
| 6A18 | 0.160 | - | 45% | 45% | 5% | 5% | 15 | - |
| 6A19 | 0.849 | - | 45% | 45% | 5% | 5% | 60 | - |
| 7A1 | 0.190 | 46,100 | 45% | 45% | 5% | 5% | 35 | 3,202,150 |
| 7A2 | 0.066 | 31,950 | 45% | 45% | 5% | 5% | 35 | 766,865 |
| 7A3 | 0.143 | 62,200 | 45% | 45% | 5% | 5% | 35 | 3,250,570 |
| 7A4 | 0.934 | 26,450 | 45% | 45% | 5% | 5% | 35 | 9,015,843 |
| 7A5 | 0.331 | 17,800 | 45% | 45% | 5% | 5% | 30 | 2,148,818 |
| 7A6 | 0.664 | 17,800 | 45% | 45% | 5% | 5% | 30 | 4,313,891 |
| 7A7 | 0.411 | 9,350 | 45% | 45% | 5% | 5% | 25 | 1,403,309 |
| 7A8 | 0.826 | 26,350 | 45% | 45% | 5% | 5% | 35 | 7,947,955 |
| 7A9 | 0.339 | 15,400 | 39% | 39% | 22% | 1% | 30 | 1,907,762 |
| 7A10 | 0.451 | 17,900 | 45% | 45% | 5% | 5% | 35 | 2,948,510 |
| 7A11 | 0.129 | 27,700 | 45% | 45% | 5% | 5% | 35 | 1,306,843 |
| 7A12 | 0.584 | 13,650 | 45% | 45% | 5% | 5% | 30 | 2,908,468 |
| 7A13 (north) | 4.248 | 176,304 | 45% | 45% | 5% | 5% | 60 | 273,335,438 |
| 7A13 (south) | 4.248 | 144,357 | 45% | 45% | 5% | 5% | 30 | 223,806,309 |
| 8A1 | 1.011 | 16,150 | 45% | 45% | 5% | 5% | 35 | 5,957,771 |
| 8A2 | 0.342 | 26,450 | 45% | 45% | 5% | 5% | 35 | 3,300,720 |
| 8A3 | 0.201 | 32,500 | 45% | 45% | 5% | 5% | 25 | 2,379,712 |

**TABLE 5-6: ROADWAY SEGMENTS – FUTURE (2037) NO ACTION ALTERNATIVE *(CONTINUED)***

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 8A4 | 0.570 | 47,100 | 45% | 45% | 5% | 5% | 40 | 9,806,977 |
| 8A5 | 0.060 | 32,000 | 45% | 45% | 5% | 5% | 35 | 703,089 |
| 8A6 | 0.118 | 27,250 | 45% | 45% | 5% | 5% | 35 | 1,175,677 |
| 8A7 | 0.606 | 23,600 | 45% | 45% | 5% | 5% | 35 | 5,219,550 |
| 8A8 | 0.149 | 25,600 | 45% | 45% | 5% | 5% | 35 | 1,389,322 |
| 8A9 | 0.192 | 22,750 | 45% | 45% | 5% | 5% | 35 | 1,597,940 |
| 8A10 | 0.251 | 46,900 | 45% | 45% | 5% | 5% | 40 | 4,291,437 |
| 8A11 | 0.071 | 44,950 | 45% | 45% | 5% | 5% | 40 | 1,162,402 |
| 8A12 | 0.178 | 44,700 | 45% | 45% | 5% | 5% | 40 | 2,898,106 |
| 8A13 | 0.505 | 42,300 | 45% | 45% | 5% | 5% | 40 | 7,797,179 |
| 8A14 | 0.252 | 50,900 | 45% | 45% | 5% | 5% | 40 | 4,689,139 |
| 8A15 | 0.257 | 53,050 | 45% | 45% | 5% | 5% | 40 | 4,971,011 |
| 8A16 | 0.518 | 54,950 | 45% | 45% | 5% | 5% | 40 | 10,395,313 |
| 8A17 | 0.162 | 71,600 | 45% | 45% | 5% | 5% | 10 | 4,236,243 |
| 8A18 | 0.236 | 76,700 | 45% | 45% | 5% | 5% | 10 | 6,594,396 |
| 8A19 | 0.229 | 33,850 | 45% | 45% | 5% | 5% | 25 | 2,829,303 |
| 8A20 | 0.383 | 25,850 | 45% | 45% | 5% | 5% | 35 | 3,611,210 |
| 8A21 | 0.311 | 28,150 | 45% | 45% | 5% | 5% | 35 | 3,193,536 |
| 8A22 | 0.886 | 17,800 | 45% | 45% | 5% | 5% | 30 | 5,758,661 |
| 8A23 | 0.200 | 29,200 | 45% | 45% | 5% | 5% | 35 | 2,127,827 |
| 8A24 | 0.689 | 22,500 | 45% | 45% | 5% | 5% | 35 | 5,654,700 |
| 8A25 | 0.135 | 40,500 | 45% | 45% | 5% | 5% | 35 | 1,998,904 |
| 8A26 | 0.198 | 17,700 | 45% | 45% | 5% | 5% | 35 | 1,280,445 |
| 9A1 | 0.936 | 21,050 | 45% | 45% | 5% | 5% | 35 | 7,195,210 |
| 9A2 | 0.991 | 24,550 | 45% | 45% | 5% | 5% | 35 | 8,881,904 |
| 9A3 | 1.115 | 24,600 | 45% | 45% | 5% | 5% | 35 | 10,011,765 |
| 9A4 | 0.109 | 36,450 | 45% | 45% | 5% | 5% | 35 | 1,450,017 |
| 9A5 | 1.105 | 18,400 | 45% | 45% | 5% | 5% | 35 | 7,424,525 |
| 10A1 | 0.355 | 36,900 | 45% | 45% | 5% | 5% | 30 | 4,779,284 |
| 10A2 | 0.208 | 46,950 | 45% | 45% | 5% | 5% | 30 | 3,566,123 |
| 10A3 | 0.063 | 24,350 | 45% | 45% | 5% | 5% | 35 | 560,506 |
| 10A4 | 0.111 | 20,200 | 45% | 45% | 5% | 5% | 35 | 819,435 |
| 10A5 (east) | 0.758 | 107,592 | 45% | 45% | 5% | 5% | 35 | 29,784,837 |
| 10A5 (west) | 0.758 | 107,592 | 45% | 45% | 5% | 5% | 35 | 29,784,837 |

Note: mph denotes miles per hour; PC denotes passenger car; PT denotes passenger truck; SHT denotes short-haul truck; LHT denotes long-haul truck; VMT denotes vehicle-miles-traveled; the Airside Deliveries segment is not shown on the maps.

Source: Port of Seattle and WSDOT, 2023. Landrum & Brown, 2024

## TABLE 5-7: 2037 EMISSION FACTORS FOR MOTOR VEHICLES

| Vehicle Type | Speed (mph) | CO (g/VMT) | $NO_X$ (g/VMT) | $SO_X$ (g/VMT) | VOC (g/VMT) | $PM_{2.5}$ (g/VMT) | $PM_{10}$ (g/VMT) | $CO_2$ (g/VMT) | $CH_4$ (g/VMT) | $N_2O$ (g/VMT) |
|---|---|---|---|---|---|---|---|---|---|---|
| PC | 5 | 3.18 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 789.66 | 0.01 | 0.01 |
| PT | 5 | 2.89 | 0.02 | 0.00 | 0.03 | 0.00 | 0.00 | 965.76 | 0.01 | 0.01 |
| SHT | 5 | 2.92 | 2.41 | 0.01 | 0.08 | 0.01 | 0.01 | 1646.15 | 0.05 | 0.26 |
| LHT | 5 | 2.87 | 2.42 | 0.01 | 0.08 | 0.01 | 0.01 | 1641.73 | 0.06 | 0.25 |
| PC | 10 | 2.34 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 482.21 | 0.01 | 0.00 |
| PT | 10 | 2.14 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 595.18 | 0.01 | 0.00 |
| SHT | 10 | 1.71 | 1.32 | 0.00 | 0.04 | 0.01 | 0.01 | 1075.67 | 0.03 | 0.17 |
| LHT | 10 | 1.68 | 1.34 | 0.00 | 0.05 | 0.01 | 0.01 | 1069.10 | 0.03 | 0.16 |
| PC | 15 | 2.06 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 379.72 | 0.01 | 0.00 |
| PT | 15 | 1.89 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 471.65 | 0.01 | 0.00 |
| SHT | 15 | 1.30 | 0.95 | 0.00 | 0.03 | 0.00 | 0.01 | 911.55 | 0.02 | 0.14 |
| LHT | 15 | 1.27 | 0.96 | 0.00 | 0.03 | 0.01 | 0.01 | 903.85 | 0.02 | 0.14 |
| PC | 20 | 1.83 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 326.47 | 0.01 | 0.00 |
| PT | 20 | 1.69 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 408.01 | 0.01 | 0.00 |
| SHT | 20 | 1.05 | 0.75 | 0.00 | 0.02 | 0.00 | 0.00 | 816.53 | 0.02 | 0.13 |
| LHT | 20 | 1.02 | 0.77 | 0.00 | 0.02 | 0.00 | 0.00 | 808.37 | 0.02 | 0.12 |
| PC | 25 | 1.51 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 290.50 | 0.01 | 0.00 |
| PT | 25 | 1.43 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 366.07 | 0.01 | 0.00 |
| SHT | 25 | 0.86 | 0.61 | 0.00 | 0.02 | 0.00 | 0.00 | 737.74 | 0.01 | 0.11 |
| LHT | 25 | 0.84 | 0.63 | 0.00 | 0.02 | 0.00 | 0.00 | 728.93 | 0.01 | 0.11 |
| PC | 30 | 1.44 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 259.83 | 0.01 | 0.00 |
| PT | 30 | 1.35 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 326.79 | 0.01 | 0.00 |
| SHT | 30 | 0.78 | 0.53 | 0.00 | 0.02 | 0.00 | 0.00 | 731.00 | 0.01 | 0.11 |
| LHT | 30 | 0.76 | 0.55 | 0.00 | 0.02 | 0.00 | 0.00 | 717.44 | 0.01 | 0.11 |
| PC | 35 | 1.28 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 245.16 | 0.00 | 0.00 |
| PT | 35 | 1.22 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 310.81 | 0.00 | 0.00 |
| SHT | 35 | 0.68 | 0.42 | 0.00 | 0.01 | 0.00 | 0.00 | 648.84 | 0.01 | 0.10 |
| LHT | 35 | 0.66 | 0.44 | 0.00 | 0.01 | 0.00 | 0.00 | 632.72 | 0.01 | 0.10 |
| PC | 40 | 1.14 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 235.88 | 0.00 | 0.00 |
| PT | 40 | 1.11 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 301.72 | 0.00 | 0.00 |
| SHT | 40 | 0.64 | 0.36 | 0.00 | 0.01 | 0.00 | 0.00 | 641.67 | 0.01 | 0.10 |
| LHT | 40 | 0.61 | 0.37 | 0.00 | 0.01 | 0.00 | 0.00 | 620.76 | 0.01 | 0.09 |
| PC | 55 | 1.00 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 221.55 | 0.00 | 0.00 |
| PT | 55 | 1.01 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 287.61 | 0.00 | 0.00 |
| SHT | 55 | 0.56 | 0.22 | 0.00 | 0.01 | 0.00 | 0.00 | 641.06 | 0.00 | 0.10 |
| LHT | 55 | 0.53 | 0.24 | 0.00 | 0.01 | 0.00 | 0.00 | 611.70 | 0.00 | 0.09 |
| PC | 60 | 1.01 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 220.60 | 0.00 | 0.00 |
| PT | 60 | 1.04 | 0.01 | 0.00 | 0.01 | 0.00 | 0.00 | 289.00 | 0.00 | 0.00 |
| SHT | 60 | 0.54 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 627.81 | 0.00 | 0.10 |
| LHT | 60 | 0.51 | 0.21 | 0.00 | 0.00 | 0.00 | 0.00 | 597.24 | 0.00 | 0.09 |

Note: mph denotes miles per hour; g/VMT denotes grams per vehicle miles traveled; PC denotes passenger car; PT denotes passenger truck; SHT denotes short-haul truck; LHT denotes long-haul truck; CO denotes carbon monoxide, $NO_x$ denotes nitrogen oxides, $SO_x$ denotes sulfur oxides, VOC denotes volatile organic compounds, $PM_{2.5}$ denotes fine particulate matter, $PM_{10}$ denotes coarse particulate matter, $CO_2$ denotes carbon dioxide, $CH_4$ denotes methane, $N_2O$ denotes nitrous oxide.

Source: MOVES4; Landrum & Brown, 2024.

## TABLE 5-8: ROADWAY SEGMENTS – FUTURE (2037) PROPOSED ACTION

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| Airside Deliveries | 2.000 | 1,114 | 0% | 63% | 36% | 1% | 15 | 813,034 |
| 1A1 | 0.362 | 35,050 | 45% | 45% | 5% | 5% | 35 | 4,633,178 |
| 1A2 | 0.500 | 25,000 | 45% | 45% | 5% | 5% | 35 | 4,564,352 |
| 1A3 | 0.181 | 12,400 | 45% | 45% | 5% | 5% | 35 | 817,577 |
| 1A4 | 0.097 | 550 | 45% | 45% | 5% | 5% | 25 | 19,443 |
| 1A5 | 0.370 | 10,550 | 45% | 45% | 5% | 5% | 35 | 1,425,320 |
| 1A6 | 0.124 | 16,700 | 45% | 45% | 5% | 5% | 35 | 758,536 |
| 1A7 | 0.550 | 7,600 | 45% | 45% | 5% | 5% | 30 | 1,525,944 |
| 1A8 | 0.118 | 24,650 | 45% | 45% | 5% | 5% | 30 | 1,057,339 |
| 1A9 | 0.492 | 14,850 | 45% | 45% | 5% | 5% | 25 | 2,669,061 |
| 1A10 | 0.126 | 16,300 | 45% | 45% | 5% | 5% | 20 | 747,073 |
| 1A11 | 0.125 | 24,800 | 45% | 45% | 5% | 5% | 20 | 1,128,730 |
| 1A12 | 2.486 | 169,491 | 45% | 45% | 5% | 5% | 60 | 153,806,735 |
| 1A13 | 0.124 | 14,850 | 45% | 45% | 5% | 5% | 25 | 670,078 |
| 1A14 | 0.096 | 28,000 | 45% | 45% | 5% | 5% | 30 | 979,710 |
| 1A15 | 0.505 | 22,900 | 45% | 45% | 5% | 5% | 35 | 4,223,266 |
| 1A16 | 0.499 | 11,750 | 45% | 45% | 5% | 5% | 35 | 2,140,309 |
| 1A17 | 0.124 | 17,500 | 45% | 45% | 5% | 5% | 20 | 795,110 |
| 1A18 | 0.170 | 25,900 | 45% | 45% | 5% | 5% | 20 | 1,611,302 |
| 1A19 | 0.249 | 16,400 | 45% | 45% | 5% | 5% | 35 | 1,493,220 |
| 1A20 | 0.061 | 37,500 | 45% | 45% | 5% | 5% | 35 | 829,983 |
| 1A21 | 0.437 | 14,000 | 45% | 45% | 5% | 5% | 35 | 2,235,109 |
| 1A22 | 0.097 | 17,400 | 45% | 45% | 5% | 5% | 25 | 618,289 |
| 1A23 | 0.766 | 13,250 | 45% | 45% | 5% | 5% | 25 | 3,702,338 |
| 1A24 | 0.676 | 24,800 | 45% | 45% | 5% | 5% | 35 | 6,121,306 |
| 1A25 | 0.104 | 90,300 | 45% | 45% | 5% | 5% | 10 | 3,415,923 |
| 1A26 (east) | 0.522 | 84,745 | 45% | 45% | 5% | 5% | 60 | 16,141,751 |
| 1A26 (west) | 0.522 | 84,745 | 45% | 45% | 5% | 5% | 55 | 16,141,751 |
| 1A27 | 1.286 | 104,826 | 45% | 45% | 5% | 5% | 60 | 49,196,550 |
| 1A28 | 0.441 | 16,250 | 45% | 45% | 5% | 5% | 35 | 2,617,757 |
| 1A29 | 0.076 | 66,000 | 45% | 45% | 5% | 5% | 10 | 1,836,959 |
| 1A30 | 0.083 | 25,900 | 45% | 45% | 5% | 5% | 20 | 786,267 |
| 2A1 | 0.041 | 24,500 | 45% | 45% | 5% | 5% | 35 | 370,389 |
| 2A2 | 0.402 | 5,800 | 45% | 45% | 5% | 5% | 25 | 851,576 |
| 2A3 | 0.081 | 23,700 | 45% | 45% | 5% | 5% | 35 | 701,564 |
| 2A4 | 0.127 | 26,000 | 45% | 45% | 5% | 5% | 25 | 1,207,584 |
| 2A5 | 0.049 | 39,100 | 45% | 45% | 5% | 5% | 35 | 702,015 |
| 2A6 | 0.081 | 39,000 | 45% | 45% | 5% | 5% | 35 | 1,149,035 |
| 2A7 | 0.160 | 68,500 | 45% | 45% | 5% | 5% | 15 | 4,008,026 |
| 2A8 | 0.118 | 25,100 | 45% | 45% | 5% | 5% | 35 | 1,082,477 |
| 2A9 | 0.086 | 21,600 | 45% | 45% | 5% | 5% | 35 | 679,412 |
| 2A10 | 0.200 | 10,700 | 45% | 45% | 5% | 5% | 30 | 779,468 |
| 2A11 | 0.525 | 16,500 | 45% | 45% | 5% | 5% | 35 | 3,161,788 |
| 2A12 | 0.054 | 30,000 | 45% | 45% | 5% | 5% | 35 | 593,534 |
| 2A13 | 0.077 | 58,750 | 45% | 45% | 5% | 5% | 15 | 1,645,293 |
| 2A14 | 0.272 | - | 41% | 41% | 17% | 1% | 30 | - |
| 2A15 | 0.654 | 47,900 | 45% | 45% | 5% | 5% | 40 | 11,431,307 |

## TABLE 5-8: ROADWAY SEGMENTS – FUTURE (2037) PROPOSED ACTION *(CONTINUED)*

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 2A16 | 0.325 | - | 45% | 45% | 5% | 5% | 30 | - |
| 2A17 | 0.122 | 13,400 | 45% | 45% | 5% | 5% | 30 | 597,020 |
| 2A18 | 0.241 | 65,500 | 45% | 45% | 5% | 5% | 40 | 5,760,942 |
| 2A19 | 0.095 | 36,900 | 45% | 45% | 5% | 5% | 35 | 1,284,491 |
| 2A20 | 0.086 | 37,100 | 45% | 45% | 5% | 5% | 35 | 1,161,035 |
| 2A21 | 0.090 | 37,400 | 45% | 45% | 5% | 5% | 35 | 1,223,457 |
| 2A22 | 0.174 | 26,800 | 45% | 45% | 5% | 5% | 25 | 1,700,112 |
| 2A23 | 0.053 | 25,000 | 45% | 45% | 5% | 5% | 20 | 483,662 |
| 2A24 | 0.230 | 8,800 | 45% | 45% | 5% | 5% | 35 | 737,899 |
| 2A25 | 0.367 | 1,850 | 45% | 45% | 5% | 5% | 25 | 247,588 |
| 2A26 | 1.251 | 28,163 | 46% | 46% | 7% | 1% | 60 | 12,860,146 |
| 2A27 | 0.384 | 27,250 | 45% | 45% | 5% | 5% | 60 | 3,815,849 |
| 2A28 | 0.407 | 20,400 | 45% | 45% | 5% | 5% | 35 | 3,031,654 |
| 2A29 | 0.635 | 20,950 | 45% | 45% | 5% | 5% | 35 | 4,854,272 |
| 2A30 | 0.312 | 21,300 | 45% | 45% | 5% | 5% | 35 | 2,426,056 |
| 2A31 | 0.531 | 43,450 | 45% | 45% | 5% | 5% | 35 | 8,427,621 |
| 2A32 | 0.062 | 57,500 | 45% | 45% | 5% | 5% | 35 | 1,305,423 |
| 2A33 | 0.985 | 44,900 | 45% | 45% | 5% | 5% | 35 | 16,145,459 |
| 2A34 | 0.125 | 5,300 | 45% | 45% | 5% | 5% | 25 | 242,538 |
| 2A35 | 0.096 | 5,650 | 45% | 45% | 5% | 5% | 25 | 197,413 |
| 2A36 | 0.141 | 7,600 | 45% | 45% | 5% | 5% | 25 | 390,097 |
| 2A37 | 0.037 | 19,700 | 45% | 45% | 5% | 5% | 25 | 265,998 |
| 2A38 | 0.126 | 3,600 | 45% | 45% | 5% | 5% | 25 | 165,857 |
| 2A39 | 0.126 | 25,800 | 45% | 45% | 5% | 5% | 20 | 1,182,351 |
| 2A40 | 0.000 | 24,200 | 45% | 45% | 5% | 5% | 30 | 1,608,233 |
| 2A41 | 0.000 | 12,400 | 45% | 45% | 5% | 5% | 30 | 644,195 |
| 3A1 | 0.093 | 28,163 | 46% | 46% | 7% | 1% | 20 | 958,559 |
| 3A2 | 0.756 | 28,163 | 46% | 46% | 7% | 1% | 40 | 7,773,898 |
| 3A3 | 1.151 | - | 46% | 46% | 7% | 1% | 20 | - |
| 3A4 | 0.234 | 28,163 | 46% | 46% | 7% | 1% | 30 | 2,407,365 |
| 3A5 | 0.263 | 28,163 | 46% | 46% | 7% | 1% | 30 | 2,708,097 |
| 3A6 | 0.187 | - | 41% | 41% | 17% | 1% | 30 | - |
| 3A7 | 0.115 | - | 39% | 39% | 22% | 1% | 30 | - |
| 3A8 | 0.070 | - | 39% | 39% | 21% | 1% | 35 | - |
| 3A9 | 0.046 | - | 39% | 39% | 21% | 1% | 35 | - |
| 3A10 | 0.048 | 5,300 | 39% | 39% | 21% | 1% | 35 | 92,274 |
| 3A11 | 0.079 | 15,200 | 39% | 39% | 21% | 1% | 15 | 437,615 |
| 3A12 | 0.332 | 45,050 | 45% | 45% | 5% | 5% | 15 | 5,458,995 |
| 3A13 | 0.377 | 43,400 | 45% | 45% | 5% | 5% | 15 | 5,972,168 |
| 3A14 | 0.768 | 28,163 | 45% | 45% | 5% | 5% | 35 | 7,894,499 |
| 3A15 | 1.012 | 28,163 | 45% | 45% | 5% | 5% | 35 | 10,399,316 |
| 4A1 | 0.248 | 21,500 | 45% | 45% | 5% | 5% | 35 | 1,943,716 |
| 4A2 | 0.108 | 50,300 | 45% | 45% | 5% | 5% | 35 | 1,991,106 |
| 4A3 | 0.906 | 49,500 | 45% | 45% | 5% | 5% | 35 | 16,374,864 |
| 4A4 | 0.409 | 56,250 | 45% | 45% | 5% | 5% | 15 | 8,400,094 |
| 4A5 | 0.248 | 49,000 | 45% | 45% | 5% | 5% | 40 | 4,433,441 |
| 4A6 | 0.127 | 7,350 | 45% | 45% | 5% | 5% | 35 | 341,511 |
| 4A7 | 0.581 | 600 | 45% | 45% | 5% | 5% | 15 | 127,138 |
| 5A1 | 0.422 | 40,050 | 45% | 45% | 5% | 5% | 40 | 6,173,024 |
| 5A2 | 0.629 | 53,300 | 45% | 45% | 5% | 5% | 40 | 1,459,146 |

## TABLE 5-8: ROADWAY SEGMENTS – FUTURE (2037) PROPOSED ACTION *(CONTINUED)*

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 5A3 | 0.380 | 22,300 | 45% | 45% | 5% | 5% | 35 | 5,116,083 |
| 5A4 | 0.991 | 1,850 | 45% | 45% | 5% | 5% | 15 | 256,537 |
| 5A5 | 0.216 | 44,800 | 45% | 45% | 5% | 5% | 40 | 16,201,169 |
| 5A6 | 0.075 | 59,500 | 45% | 45% | 5% | 5% | 40 | 4,696,583 |
| 5A7 | 0.309 | 1,850 | 45% | 45% | 5% | 5% | 15 | 208,472 |
| 5A8 | 0.142 | 48,948 | 45% | 45% | 5% | 5% | 60 | 2,532,966 |
| 5A9 | 0.567 | 48,948 | 45% | 45% | 5% | 5% | 60 | 10,132,220 |
| 5A10 | 0.268 | 1,850 | 45% | 45% | 5% | 5% | 15 | 180,881 |
| 6A1 | 1.180 | 23,300 | 45% | 45% | 5% | 5% | 35 | 10,034,715 |
| 6A2 | 0.519 | 24,000 | 45% | 45% | 5% | 5% | 35 | 4,542,130 |
| 6A3 | 0.231 | 26,850 | 45% | 45% | 5% | 5% | 35 | 2,263,525 |
| 6A4 | 1.560 | - | 45% | 45% | 5% | 5% | 60 | - |
| 6A5 | 0.759 | 48,948 | 45% | 45% | 5% | 5% | 60 | 13,563,772 |
| 6A6 | 0.176 | 33,200 | 45% | 45% | 5% | 5% | 15 | 2,136,912 |
| 6A7 | 0.099 | 31,200 | 45% | 45% | 5% | 5% | 35 | 1,128,847 |
| 6A8 | 0.152 | 16,600 | 45% | 45% | 5% | 5% | 15 | 921,628 |
| 6A9 | 0.155 | 31,200 | 45% | 45% | 5% | 5% | 35 | 1,763,489 |
| 6A10 | 0.364 | - | 45% | 45% | 5% | 5% | 15 | - |
| 6A11 | 0.618 | 1,850 | 45% | 45% | 5% | 5% | 15 | 417,046 |
| 6A12 | 0.086 | 21,800 | 45% | 45% | 5% | 5% | 35 | 684,413 |
| 6A13 | 0.750 | 44,650 | 45% | 45% | 5% | 5% | 35 | 12,214,919 |
| 6A14 | 0.186 | 44,150 | 45% | 45% | 5% | 5% | 15 | 2,539,620 |
| 6A15 | 0.158 | 6,800 | 45% | 45% | 5% | 5% | 25 | 130,933 |
| 6A16 | 0.053 | 14,100 | 45% | 45% | 5% | 5% | 35 | 342,757 |
| 6A17 | 0.067 | 33,800 | 45% | 45% | 5% | 5% | 35 | 2,297,828 |
| 6A18 | 0.160 | 1,850 | 45% | 45% | 5% | 5% | 15 | 108,275 |
| 6A19 | 0.849 | 48,948 | 45% | 45% | 5% | 5% | 60 | 15,175,640 |
| 7A1 | 0.190 | 45,900 | 45% | 45% | 5% | 5% | 35 | 3,188,258 |
| 7A2 | 0.066 | 32,250 | 45% | 45% | 5% | 5% | 35 | 774,066 |
| 7A3 | 0.143 | 62,800 | 45% | 45% | 5% | 5% | 35 | 3,281,926 |
| 7A4 | 0.934 | 26,850 | 45% | 45% | 5% | 5% | 35 | 9,152,189 |
| 7A5 | 0.331 | 18,650 | 45% | 45% | 5% | 5% | 30 | 2,251,430 |
| 7A6 | 0.664 | 18,650 | 45% | 45% | 5% | 5% | 30 | 4,519,891 |
| 7A7 | 0.411 | 8,800 | 45% | 45% | 5% | 5% | 25 | 1,320,762 |
| 7A8 | 0.826 | 27,750 | 45% | 45% | 5% | 5% | 35 | 8,370,237 |
| 7A9 | 0.339 | 14,950 | 39% | 39% | 22% | 1% | 30 | 1,852,015 |
| 7A10 | 0.451 | 19,000 | 45% | 45% | 5% | 5% | 35 | 3,129,703 |
| 7A11 | 0.129 | 28,900 | 45% | 45% | 5% | 5% | 35 | 1,363,457 |
| 7A12 | 0.584 | 13,650 | 45% | 45% | 5% | 5% | 30 | 2,908,468 |
| 7A13 (north) | 4.248 | 155,544 | 45% | 45% | 5% | 5% | 30 | 241,149,789 |
| 7A13 (south) | 4.248 | 189,966 | 45% | 45% | 5% | 5% | 60 | 294,517,093 |
| 8A1 | 1.011 | 16,300 | 45% | 45% | 5% | 5% | 35 | 6,013,106 |
| 8A2 | 0.342 | 23,200 | 45% | 45% | 5% | 5% | 35 | 2,895,150 |
| 8A3 | 0.201 | 33,400 | 45% | 45% | 5% | 5% | 25 | 2,445,612 |
| 8A4 | 0.570 | 47,700 | 45% | 45% | 5% | 5% | 40 | 9,931,907 |
| 8A5 | 0.060 | 32,100 | 45% | 45% | 5% | 5% | 35 | 705,286 |
| 8A6 | 0.118 | 27,350 | 45% | 45% | 5% | 5% | 35 | 1,179,991 |
| 8A7 | 0.606 | 24,450 | 45% | 45% | 5% | 5% | 35 | 5,407,542 |

## TABLE 5-8: ROADWAY SEGMENTS – FUTURE (2037) PROPOSED ACTION *(CONTINUED)*

| Segment ID | Length (miles) | AADT | PC (%) | PT (%) | SHT (%) | LHT (%) | Speed (mph) | Annual VMTs |
|---|---|---|---|---|---|---|---|---|
| 8A8 | 0.149 | 26,900 | 45% | 45% | 5% | 5% | 35 | 1,459,873 |
| 8A9 | 0.192 | 23,950 | 45% | 45% | 5% | 5% | 35 | 1,682,227 |
| 8A10 | 0.251 | 47,550 | 45% | 45% | 5% | 5% | 40 | 4,350,913 |
| 8A11 | 0.071 | 45,750 | 45% | 45% | 5% | 5% | 40 | 1,183,090 |
| 8A12 | 0.178 | 45,500 | 45% | 45% | 5% | 5% | 40 | 2,949,974 |
| 8A13 | 0.505 | 43,400 | 45% | 45% | 5% | 5% | 40 | 7,999,943 |
| 8A14 | 0.252 | 52,000 | 45% | 45% | 5% | 5% | 40 | 4,790,476 |
| 8A15 | 0.257 | 54,450 | 45% | 45% | 5% | 5% | 40 | 5,102,197 |
| 8A16 | 0.518 | 56,450 | 45% | 45% | 5% | 5% | 40 | 10,679,080 |
| 8A17 | 0.162 | 73,400 | 45% | 45% | 5% | 5% | 10 | 4,342,741 |
| 8A18 | 0.236 | 79,600 | 45% | 45% | 5% | 5% | 10 | 6,843,728 |
| 8A19 | 0.229 | 35,300 | 45% | 45% | 5% | 5% | 25 | 2,950,499 |
| 8A20 | 0.383 | 26,050 | 45% | 45% | 5% | 5% | 35 | 3,639,150 |
| 8A21 | 0.311 | 28,600 | 45% | 45% | 5% | 5% | 35 | 3,244,587 |
| 8A22 | 0.886 | 18,100 | 45% | 45% | 5% | 5% | 30 | 5,855,718 |
| 8A23 | 0.200 | 29,450 | 45% | 45% | 5% | 5% | 35 | 2,146,045 |
| 8A24 | 0.689 | 23,250 | 45% | 45% | 5% | 5% | 35 | 5,843,190 |
| 8A25 | 0.135 | 43,400 | 45% | 45% | 5% | 5% | 35 | 2,142,036 |
| 8A26 | 0.198 | 19,700 | 45% | 45% | 5% | 5% | 35 | 1,425,128 |
| 9A1 | 0.936 | 21,050 | 45% | 45% | 5% | 5% | 35 | 7,195,210 |
| 9A2 | 0.991 | 24,900 | 45% | 45% | 5% | 5% | 35 | 9,008,530 |
| 9A3 | 1.115 | 25,050 | 45% | 45% | 5% | 5% | 35 | 10,194,907 |
| 9A4 | 0.109 | 36,550 | 45% | 45% | 5% | 5% | 35 | 1,453,995 |
| 9A5 | 1.105 | 18,550 | 45% | 45% | 5% | 5% | 35 | 7,485,051 |
| 10A1 | 0.355 | 38,450 | 45% | 45% | 5% | 5% | 30 | 4,980,040 |
| 10A2 | 0.208 | 48,650 | 45% | 45% | 5% | 5% | 30 | 3,695,248 |
| 10A3 | 0.063 | 25,050 | 45% | 45% | 5% | 5% | 35 | 576,619 |
| 10A4 | 0.111 | 20,700 | 45% | 45% | 5% | 5% | 35 | 839,718 |
| 10A5 (east) | 0.758 | 115,930 | 45% | 45% | 5% | 5% | 35 | 32,092,961 |
| 10A5 (west) | 0.758 | 115,930 | 45% | 45% | 5% | 5% | 35 | 32,092,961 |

Note: mph denotes miles per hour; PC denotes passenger car; PT denotes passenger truck; SHT denotes short-haul truck; LHT denotes long-haul truck; VMT denotes vehicle-miles-traveled; the Airside Deliveries segment is not shown on the maps.

Source: Port of Seattle and WSDOT, 2023. Landrum & Brown, 2024

# Attachment 6 Construction

This attachment contains the following exhibits and tables:

**Proposed Action**

- Exhibit 6-1 Construction Schedule – Proposed Action
- Table 6-1 On-Road Construction Equipment Emission Factors
- Table 6-2 Non-Road Construction Equipment Emission Factors
- Table 6-3 On-Road Construction Emissions Inventory – Proposed Action
- Table 6-4 Non-Road Construction Emissions Inventory – Proposed Action

**Hybrid Terminal Option**

- Exhibit 6-2 Construction Schedule – Hybrid Terminal Option
- Table 6-5 On-Road Construction Emissions Inventory – Hybrid Terminal Option
- Table 6-6 Non-Road Construction Emissions Inventory – Hybrid Terminal Option

## EXHIBIT 6-1: CONSTRUCTION SCHEDULE - PROPOSED ACTION

| ID | DESCRIPTION | 2025 | | | | 2026 | | | | 2027 | | | | 2028 | | | | 2029 | | | | 2030 | | | | 2031 | | | | 2032 | | | | Number of Quarters |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | |
| **AIRSIDE** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A01 | Taxiway A/B Extension | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 11 |
| A02 | Runway 16R/34L Blast Pads | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| A03 | Taxiway C/D Reconfiguration & RIM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 17 |
| A04 | Taxiway B 500' Separation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 17 |
| A05 | North Hold Pad | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| A06 | Runway 34L High-Speed Exit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| A07 | Taxiway D Extension | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 |
| A08 | North Cargo Hardstand | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 |
| A09 | Central Hardstand | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 |
| A10 | Taxiway Fillets | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 11 |
| **CARGO** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C01 | Cargo 4 South Redevelopment | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| C02 | Offsite Cargo Phase 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 6 |
| CO3 | Offsite Cargo Phase 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| **LANDSIDE** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L01 | NAE Relocation (southbound lanes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 17 |
| L02 | Elevated Busway & Stations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 27 |
| L03 | Second Terminal Roads & Curbside | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 8 |
| L04 | Northeast GTC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 11 |
| L05 | North GT Holding Lot | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| L07 | Employee Parking Structure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 |
| **TERMINAL** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T01 | North Gates | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 20 |
| T02 | Second Terminal & Parking | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 18 |
| **AIRPORT/AIRLINE SUPPORT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S01 | Fuel Farm Expansion | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 13 |
| S02 | Primary ARFF Facility | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 8 |
| S03 | Secondary ARFF Facility | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 |
| S04 | Fuel Rack Relocation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 11 |
| S05 | Triculator | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 |
| S06 | De-icing Tanks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 |
| S07 | Westside Maintenance Campus | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 |
| S08 | North Airline Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| S09 | West Airline Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| S10 | Centralized Rec. & Dist. Center | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 |

## TABLE 6-1: ON-ROAD CONSTRUCTION EQUIPMENT EMISSIONS FACTORS

| Activity | CO (g/VMT) | VO (g/VMT) | $NO_x$ (g/VMT) | $SO_x$ (g/VMT) | $PM_{10}$ (g/VMT) | $PM_{2.5}$ (g/VMT) | $CO_2$ (g/VMT) | $CH_4$ (g/VMT) | $N_2O$ (g/VMT) |
|---|---|---|---|---|---|---|---|---|---|
| Employee Commute | 3.20 | 0.0309 | 0.112 | 0.00160 | 0.00241 | 0.00213 | 319 | 0.00988 | 0.00174 |
| Material Delivery | 2.00 | 0.0835 | 3.63 | 0.00548 | 0.0478 | 0.0440 | 1,636 | 0.0178 | 0.219 |

Note: Construction would start in 2025 and would continue through 2032 for the Proposed Action and the Hybrid Terminal Option. For the purpose of this analysis, emission factors for the first year of construction (2025) were used. g/VMT denotes grams per vehicle-miles-traveled; CO denotes carbon monoxide, $NO_x$ denotes nitrogen oxides, $SO_x$ denotes sulfur oxides, VOC denotes volatile organic compounds, $PM_{2.5}$ denotes fine particulate matter, $PM_{10}$ denotes coarse particulate matter, $CO_2$ denotes carbon dioxide, $CH_4$ denotes methane, $N_2O$ denotes nitrous oxide.
Source: MOVES4, Landrum & Brown 2024

## TABLE 6-2: NON-ROAD CONSTRUCTION EQUIPMENT EMISSIONS FACTORS

| Equipment Type | HP | Load Factor | CO (g/hp-hr) | VOC (g/hp-hr) | $NO_x$ (g/hp-hr) | $SO_x$ (g/hp-hr) | $PM_{10}$ (g/hp-hr) | $PM_{2.5}$ (g/hp-hr) | $CO_2$ (g/hp-hr) | $CH_4$ (g/hp-hr) |
|---|---|---|---|---|---|---|---|---|---|---|
| Aerial Lifts | 50 < hp <= 75 | 0.21 | 2.195 | 0.418 | 3.653 | 0.00212 | 0.260 | 0.253 | 694.77 | 0.0250 |
| Aerial Lifts | 75 < hp <= 100 | 0.59 | 2.500 | 0.395 | 2.714 | 0.00210 | 0.317 | 0.307 | 694.84 | 0.0203 |
| Air Compressors | 100 < hp <= 175 | 0.43 | 0.179 | 0.043 | 0.733 | 0.00147 | 0.044 | 0.043 | 530.92 | 0.0035 |
| Air Compressors | 75 < hp <= 100 | 0.43 | 0.433 | 0.053 | 1.395 | 0.00164 | 0.073 | 0.070 | 590.22 | 0.0042 |
| Bore/Drill Rigs | 100 < hp <= 175 | 0.43 | 1.146 | 0.385 | 4.491 | 0.00191 | 0.262 | 0.254 | 529.92 | 0.0225 |
| Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1.225 | 0.262 | 4.617 | 0.00194 | 0.168 | 0.163 | 530.28 | 0.0136 |
| Chain Saws > 6 HP | 6 < hp <= 11 | 0.70 | 133.015 | 30.771 | 0.764 | 0.00207 | 4.874 | 4.484 | 343.00 | 0.0000 |
| Chippers/Stump Grinders | 75 < hp <= 100 | 0.43 | 1.234 | 0.229 | 2.739 | 0.00181 | 0.217 | 0.211 | 589.70 | 0.0100 |
| Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 0.311 | 0.095 | 2.556 | 0.00158 | 0.028 | 0.027 | 595.87 | 0.0126 |
| Concrete/Industrial Saws | 6 < hp <= 11 | 0.70 | 2.467 | 0.837 | 4.183 | 0.00218 | 0.239 | 0.232 | 593.76 | 0.0738 |
| Cranes | 175 < hp <= 300 | 0.43 | 0.070 | 0.024 | 0.297 | 0.00143 | 0.016 | 0.016 | 530.97 | 0.0016 |
| Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 0.097 | 0.015 | 0.276 | 0.00143 | 0.024 | 0.023 | 536.79 | 0.0012 |
| Excavators | 100 < hp <= 175 | 0.59 | 0.078 | 0.012 | 0.259 | 0.00142 | 0.019 | 0.018 | 536.79 | 0.0010 |
| Forklifts | 75 < hp <= 100 | 0.59 | 0.052 | 0.008 | 0.857 | 0.00157 | 0.012 | 0.012 | 596.14 | 0.0005 |
| Generator Sets | 25 < hp <= 40 | 0.43 | 0.688 | 0.192 | 3.067 | 0.00173 | 0.112 | 0.109 | 589.81 | 0.0179 |
| Graders | 175 < hp <= 300 | 0.59 | 0.049 | 0.014 | 0.171 | 0.00143 | 0.012 | 0.012 | 536.79 | 0.0008 |
| Graders | 40 < hp <= 50 | 0.59 | 0.280 | 0.093 | 2.529 | 0.00157 | 0.021 | 0.020 | 595.88 | 0.0124 |
| Irrigation Sets | 300 < hp <= 600 | 0.59 | 0.745 | 0.160 | 2.663 | 0.00179 | 0.125 | 0.122 | 530.58 | 0.0114 |
| Off-highway Trucks | 175 < hp <= 300 | 0.43 | 0.021 | 0.010 | 0.115 | 0.00141 | 0.007 | 0.007 | 536.80 | 0.0004 |
| Off-highway Trucks | 300 < hp <= 600 | 0.59 | 0.042 | 0.012 | 0.160 | 0.00142 | 0.010 | 0.010 | 536.79 | 0.0007 |
| Other Construction Equipment | 100 < hp <= 175 | 0.43 | 0.231 | 0.054 | 0.656 | 0.00148 | 0.051 | 0.049 | 536.67 | 0.0040 |
| Other Construction Equipment | 300 < hp <= 600 | 0.59 | 0.997 | 0.136 | 2.292 | 0.00172 | 0.148 | 0.143 | 536.43 | 0.0083 |

## TABLE 6-2: NON-ROAD CONSTRUCTION EQUIPMENT EMISSIONS FACTORS *(CONTINUED)*

| Equipment Type | HP | LF | CO (g/hp-hr) | VOC (g/hp-hr) | $NO_x$ (g/hp-hr) | $SO_x$ (g/hp-hr) | $PM_{10}$ (g/hp-hr) | $PM_{2.5}$ (g/hp-hr) | $CO_2$ (g/hp-hr) | $CH_4$ (g/hp-hr) |
|---|---|---|---|---|---|---|---|---|---|---|
| Pavers | 100 < hp <= 175 | 0.59 | 0.128 | 0.020 | 0.300 | 0.00144 | 0.033 | 0.032 | 536.77 | 0.0016 |
| Paving Equipment | 100 < hp <= 175 | 0.59 | 0.211 | 0.049 | 0.598 | 0.00148 | 0.046 | 0.045 | 536.69 | 0.0036 |
| Plate Compactors | 3 < hp <= 6 | 0.43 | 2.612 | 0.827 | 4.238 | 0.00216 | 0.270 | 0.261 | 588.00 | 0.0712 |
| Pumps | 6 < hp <= 11 | 0.43 | 2.580 | 0.821 | 4.237 | 0.00216 | 0.265 | 0.257 | 588.01 | 0.0706 |
| Rollers | 75 < hp <= 100 | 0.59 | 0.265 | 0.025 | 1.052 | 0.00160 | 0.040 | 0.038 | 596.09 | 0.0019 |
| Rubber Tire Loaders | 75 < hp <= 100 | 0.21 | 0.266 | 0.025 | 1.053 | 0.00160 | 0.040 | 0.039 | 596.09 | 0.0019 |
| Scrapers | 300 < hp <= 600 | 0.59 | 0.208 | 0.033 | 0.565 | 0.00148 | 0.034 | 0.033 | 536.73 | 0.0024 |
| Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 7.134 | 1.332 | 6.018 | 0.00254 | 0.987 | 0.957 | 692.09 | 0.0539 |
| Surfacing Equipment | 16 < hp <= 25 | 0.59 | 1.491 | 0.352 | 3.763 | 0.00219 | 0.170 | 0.165 | 595.15 | 0.0310 |
| Surfacing Equipment | 300 < hp <= 600 | 0.59 | 1.373 | 0.187 | 3.197 | 0.00183 | 0.198 | 0.192 | 536.29 | 0.0111 |
| Surfacing Equipment | 75 < hp <= 100 | 0.43 | 0.724 | 0.092 | 1.536 | 0.00168 | 0.097 | 0.094 | 595.89 | 0.0054 |
| Tractors/Loaders/Backhoes | 100 < hp <= 175 | 0.21 | 1.642 | 0.495 | 2.878 | 0.00201 | 0.341 | 0.331 | 625.11 | 0.0308 |
| Tractors/Loaders/Backhoes | 100 < hp <= 175 | 0.59 | 1.642 | 0.495 | 2.878 | 0.00201 | 0.341 | 0.331 | 625.11 | 0.0308 |
| Tractors/Loaders/Backhoes | 50 < hp <= 75 | 0.21 | 4.009 | 0.703 | 4.358 | 0.00223 | 0.527 | 0.511 | 693.94 | 0.0380 |
| Tractors/Loaders/Backhoes | 75 < hp <= 100 | 0.21 | 3.953 | 0.684 | 3.614 | 0.00223 | 0.525 | 0.510 | 694.00 | 0.0344 |
| Trenchers | 50 < hp <= 75 | 0.59 | 0.714 | 0.112 | 2.857 | 0.00166 | 0.084 | 0.081 | 595.82 | 0.0118 |

Note: Construction would start in 2025 and would continue through 2032 for the Proposed Action and the Hybrid Terminal Option. For the purpose of this analysis, emission factors for the first year of construction (2025) were used. Note, MOVES4 does not model $N_2O$ for nonroad equipment; as such, emission factors for $N_2O$ were not included in this analysis. HP denotes horsepower; LF denotes load factor; g/hp-hr denotes grams per horsepower-hour. CO denotes carbon monoxide, $NO_x$ denotes nitrogen oxides, $SO_x$ denotes sulfur oxides, VOC denotes volatile organic compounds, $PM_{2.5}$ denotes fine particulate matter, $PM_{10}$ denotes coarse particulate matter, $CO_2$ denotes carbon dioxide, $CH_4$ denotes methane.

Source: MOVES4, Landrum & Brown 2024

## TABLE 6-3: ON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION

| Year | Task ID | Activity | Annual VMT | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (ST) | $CH_4$ (ST) | $N_2O$ (ST) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | C01 | Employee Commute | 109,825 | 0.4 | 0.00 | 0.01 | 0.0002 | 0.0003 | 0.0003 | 35.0 | 0.001 | 0.000 |
| 2025 | C01 | Material Delivery | 76,293 | 0.2 | 0.01 | 0.31 | 0.0005 | 0.0040 | 0.0037 | 124.8 | 0.001 | 0.017 |
| 2025 | L01 | Employee Commute | 250,770 | 0.9 | 0.01 | 0.03 | 0.0004 | 0.0007 | 0.0006 | 79.9 | 0.002 | 0.000 |
| 2025 | L01 | Material Delivery | 9,812 | 0.0 | 0.00 | 0.04 | 0.0001 | 0.0005 | 0.0005 | 16.0 | 0.000 | 0.002 |
| 2025 | L02 | Employee Commute | 491,394 | 1.7 | 0.02 | 0.06 | 0.0009 | 0.0013 | 0.0012 | 156.5 | 0.005 | 0.001 |
| 2025 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2025 | S07 | Employee Commute | 3,248,191 | 11.5 | 0.11 | 0.40 | 0.0057 | 0.0086 | 0.0076 | 1034.6 | 0.032 | 0.006 |
| 2025 | S07 | Material Delivery | 85,324 | 0.2 | 0.01 | 0.34 | 0.0005 | 0.0045 | 0.0041 | 139.6 | 0.002 | 0.019 |
| 2026 | A01 | Employee Commute | 1,651,716 | 5.8 | 0.06 | 0.20 | 0.0029 | 0.0044 | 0.0039 | 526.1 | 0.016 | 0.003 |
| 2026 | A01 | Material Delivery | 66,908 | 0.1 | 0.01 | 0.27 | 0.0004 | 0.0035 | 0.0032 | 109.4 | 0.001 | 0.015 |
| 2026 | A02 | Employee Commute | 1,936,176 | 6.8 | 0.07 | 0.24 | 0.0034 | 0.0051 | 0.0046 | 616.7 | 0.019 | 0.003 |
| 2026 | A02 | Material Delivery | 16,204 | 0.0 | 0.00 | 0.06 | 0.0001 | 0.0009 | 0.0008 | 26.5 | 0.000 | 0.004 |
| 2026 | A06 | Employee Commute | 1,936,176 | 6.8 | 0.07 | 0.24 | 0.0034 | 0.0051 | 0.0046 | 616.7 | 0.019 | 0.003 |
| 2026 | A06 | Material Delivery | 103,397 | 0.2 | 0.01 | 0.41 | 0.0006 | 0.0054 | 0.0050 | 169.1 | 0.002 | 0.023 |
| 2026 | A07 | Employee Commute | 163,020 | 0.6 | 0.01 | 0.02 | 0.0003 | 0.0004 | 0.0004 | 51.9 | 0.002 | 0.000 |
| 2026 | A07 | Material Delivery | 13,924 | 0.0 | 0.00 | 0.06 | 0.0001 | 0.0007 | 0.0007 | 22.8 | 0.000 | 0.003 |
| 2026 | A08 | Employee Commute | 148,590 | 0.5 | 0.01 | 0.02 | 0.0003 | 0.0004 | 0.0003 | 47.3 | 0.001 | 0.000 |
| 2026 | A08 | Material Delivery | 100,765 | 0.2 | 0.01 | 0.40 | 0.0006 | 0.0053 | 0.0049 | 164.8 | 0.002 | 0.022 |
| 2026 | A10 | Employee Commute | 936,540 | 3.3 | 0.03 | 0.12 | 0.0017 | 0.0025 | 0.0022 | 298.3 | 0.009 | 0.002 |
| 2026 | A10 | Material Delivery | 2,394 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0001 | 0.0001 | 3.9 | 0.000 | 0.001 |
| 2026 | C01 | Employee Commute | 1,736,856 | 6.1 | 0.06 | 0.21 | 0.0031 | 0.0046 | 0.0041 | 553.2 | 0.017 | 0.003 |
| 2026 | C01 | Material Delivery | 268,684 | 0.6 | 0.02 | 1.07 | 0.0016 | 0.0142 | 0.0130 | 439.5 | 0.005 | 0.059 |
| 2026 | C02 | Employee Commute | 181,253 | 0.6 | 0.01 | 0.02 | 0.0003 | 0.0005 | 0.0004 | 57.7 | 0.002 | 0.000 |
| 2026 | C02 | Material Delivery | 41,244 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0022 | 0.0020 | 67.5 | 0.001 | 0.009 |
| 2026 | L01 | Employee Commute | 3,116,124 | 11.0 | 0.11 | 0.38 | 0.0055 | 0.0083 | 0.0073 | 992.5 | 0.031 | 0.005 |
| 2026 | L01 | Material Delivery | 39,630 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0021 | 0.0019 | 64.8 | 0.001 | 0.009 |
| 2026 | L02 | Employee Commute | 1,965,578 | 6.9 | 0.07 | 0.24 | 0.0035 | 0.0052 | 0.0046 | 626.1 | 0.019 | 0.003 |
| 2026 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2026 | L04 | Employee Commute | 1,204,731 | 4.3 | 0.04 | 0.15 | 0.0021 | 0.0032 | 0.0028 | 383.7 | 0.012 | 0.002 |
| 2026 | L04 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2026 | S02 | Employee Commute | 1,273,800 | 4.5 | 0.04 | 0.16 | 0.0022 | 0.0034 | 0.0030 | 405.7 | 0.013 | 0.002 |
| 2026 | S02 | Material Delivery | 113,948 | 0.3 | 0.01 | 0.46 | 0.0007 | 0.0060 | 0.0055 | 186.4 | 0.002 | 0.025 |
| 2026 | S04 | Employee Commute | 4,282,542 | 15.1 | 0.15 | 0.53 | 0.0076 | 0.0114 | 0.0101 | 1364.0 | 0.042 | 0.007 |

## TABLE 6-3: ON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)*

| Year | Task ID | Activity | Annual VMT | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (ST) | $CH_4$ (ST) | $N_2O$ (ST) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | S04 | Material Delivery | 4,319 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0002 | 0.0002 | 7.1 | 0.000 | 0.001 |
| 2026 | S05 | Employee Commute | 3,392,297 | 12.0 | 0.12 | 0.42 | 0.0060 | 0.0090 | 0.0080 | 1080.5 | 0.034 | 0.006 |
| 2026 | S05 | Material Delivery | 3,297 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0002 | 0.0002 | 5.4 | 0.000 | 0.001 |
| 2026 | S06 | Employee Commute | 3,154,437 | 11.1 | 0.11 | 0.39 | 0.0056 | 0.0084 | 0.0074 | 1004.7 | 0.031 | 0.005 |
| 2026 | S06 | Material Delivery | 4,519 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0002 | 0.0002 | 7.4 | 0.000 | 0.001 |
| 2026 | S07 | Employee Commute | 5,789,520 | 20.4 | 0.20 | 0.71 | 0.0102 | 0.0154 | 0.0136 | 1844.0 | 0.057 | 0.010 |
| 2026 | S07 | Material Delivery | 100,695 | 0.2 | 0.01 | 0.40 | 0.0006 | 0.0053 | 0.0049 | 164.7 | 0.002 | 0.022 |
| 2027 | A01 | Employee Commute | 6,589,836 | 23.3 | 0.22 | 0.81 | 0.0116 | 0.0175 | 0.0155 | 2098.9 | 0.065 | 0.011 |
| 2027 | A01 | Material Delivery | 129,672 | 0.3 | 0.01 | 0.52 | 0.0008 | 0.0068 | 0.0063 | 212.1 | 0.002 | 0.028 |
| 2027 | A07 | Employee Commute | 1,452,132 | 5.1 | 0.05 | 0.18 | 0.0026 | 0.0039 | 0.0034 | 462.5 | 0.014 | 0.003 |
| 2027 | A07 | Material Delivery | 40,954 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0022 | 0.0020 | 67.0 | 0.001 | 0.009 |
| 2027 | A08 | Employee Commute | 1,047,222 | 3.7 | 0.04 | 0.13 | 0.0018 | 0.0028 | 0.0025 | 333.5 | 0.010 | 0.002 |
| 2027 | A08 | Material Delivery | 371,148 | 0.8 | 0.03 | 1.48 | 0.0022 | 0.0196 | 0.0180 | 607.1 | 0.007 | 0.081 |
| 2027 | A09 | Employee Commute | 1,149,390 | 4.1 | 0.04 | 0.14 | 0.0020 | 0.0031 | 0.0027 | 366.1 | 0.011 | 0.002 |
| 2027 | A09 | Material Delivery | 46,273 | 0.1 | 0.00 | 0.19 | 0.0003 | 0.0024 | 0.0022 | 75.7 | 0.001 | 0.010 |
| 2027 | A10 | Employee Commute | 936,540 | 3.3 | 0.03 | 0.12 | 0.0017 | 0.0025 | 0.0022 | 298.3 | 0.009 | 0.002 |
| 2027 | A10 | Material Delivery | 2,394 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0001 | 0.0001 | 3.9 | 0.000 | 0.001 |
| 2027 | C02 | Employee Commute | 2,894,760 | 10.2 | 0.10 | 0.36 | 0.0051 | 0.0077 | 0.0068 | 922.0 | 0.029 | 0.005 |
| 2027 | C02 | Material Delivery | 41,244 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0022 | 0.0020 | 67.5 | 0.001 | 0.009 |
| 2027 | L01 | Employee Commute | 3,116,124 | 11.0 | 0.11 | 0.38 | 0.0055 | 0.0083 | 0.0073 | 992.5 | 0.031 | 0.005 |
| 2027 | L01 | Material Delivery | 39,630 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0021 | 0.0019 | 64.8 | 0.001 | 0.009 |
| 2027 | L02 | Employee Commute | 1,965,578 | 6.9 | 0.07 | 0.24 | 0.0035 | 0.0052 | 0.0046 | 626.1 | 0.019 | 0.003 |
| 2027 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2027 | L04 | Employee Commute | 4,827,438 | 17.0 | 0.16 | 0.59 | 0.0085 | 0.0128 | 0.0114 | 1537.6 | 0.048 | 0.008 |
| 2027 | L04 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2027 | L05 | Employee Commute | 2,652,111 | 9.4 | 0.09 | 0.33 | 0.0047 | 0.0071 | 0.0062 | 844.7 | 0.026 | 0.005 |
| 2027 | L05 | Material Delivery | 1,353 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.000 | 0.000 |
| 2027 | S02 | Employee Commute | 2,281,752 | 8.1 | 0.08 | 0.28 | 0.0040 | 0.0061 | 0.0054 | 726.8 | 0.023 | 0.004 |
| 2027 | S02 | Material Delivery | 150,059 | 0.3 | 0.01 | 0.60 | 0.0009 | 0.0079 | 0.0073 | 245.4 | 0.003 | 0.033 |
| 2027 | S03 | Employee Commute | 1,019,040 | 3.6 | 0.03 | 0.13 | 0.0018 | 0.0027 | 0.0024 | 324.6 | 0.010 | 0.002 |
| 2027 | S03 | Material Delivery | 5,059 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0003 | 0.0002 | 8.3 | 0.000 | 0.001 |
| 2027 | S04 | Employee Commute | 4,282,542 | 15.1 | 0.15 | 0.53 | 0.0076 | 0.0114 | 0.0101 | 1364.0 | 0.042 | 0.007 |
| 2027 | S04 | Material Delivery | 4,319 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0002 | 0.0002 | 7.1 | 0.000 | 0.001 |

## TABLE 6-3: ON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)*

| Year | Task ID | Activity | Annual VMT | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (ST) | $CH_4$ (ST) | $N_2O$ (ST) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S05 | Employee Commute | 845,883 | 3.0 | 0.03 | 0.10 | 0.0015 | 0.0022 | 0.0020 | 269.4 | 0.008 | 0.001 |
| 2027 | S05 | Material Delivery | 2,853 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0002 | 0.0001 | 4.7 | 0.000 | 0.001 |
| 2027 | S06 | Employee Commute | 4,407,348 | 15.6 | 0.15 | 0.54 | 0.0078 | 0.0117 | 0.0104 | 1403.8 | 0.044 | 0.008 |
| 2027 | S06 | Material Delivery | 3,853 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0002 | 0.0002 | 6.3 | 0.000 | 0.001 |
| 2027 | S07 | Employee Commute | 3,248,191 | 11.5 | 0.11 | 0.40 | 0.0057 | 0.0086 | 0.0076 | 1034.6 | 0.032 | 0.006 |
| 2027 | S07 | Material Delivery | 85,324 | 0.2 | 0.01 | 0.34 | 0.0005 | 0.0045 | 0.0041 | 139.6 | 0.002 | 0.019 |
| 2027 | S08 | Employee Commute | 904,613 | 3.2 | 0.03 | 0.11 | 0.0016 | 0.0024 | 0.0021 | 288.1 | 0.009 | 0.002 |
| 2027 | S08 | Material Delivery | 40,058 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0021 | 0.0019 | 65.5 | 0.001 | 0.009 |
| 2027 | S09 | Employee Commute | 904,613 | 3.2 | 0.03 | 0.11 | 0.0016 | 0.0024 | 0.0021 | 288.1 | 0.009 | 0.002 |
| 2027 | S09 | Material Delivery | 40,058 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0021 | 0.0019 | 65.5 | 0.001 | 0.009 |
| 2027 | T01 | Employee Commute | 10,131,66 | 35.8 | 0.34 | 1.25 | 0.0179 | 0.0269 | 0.0238 | 3227.0 | 0.100 | 0.018 |
| 2027 | T01 | Material Delivery | 239,615 | 0.5 | 0.02 | 0.96 | 0.0014 | 0.0126 | 0.0116 | 391.9 | 0.004 | 0.052 |
| 2028 | A01 | Employee Commute | 6,589,836 | 23.3 | 0.22 | 0.81 | 0.0116 | 0.0175 | 0.0155 | 2098.9 | 0.065 | 0.011 |
| 2028 | A01 | Material Delivery | 129,672 | 0.3 | 0.01 | 0.52 | 0.0008 | 0.0068 | 0.0063 | 212.1 | 0.002 | 0.028 |
| 2028 | A04 | Employee Commute | 2,394,744 | 8.5 | 0.08 | 0.30 | 0.0042 | 0.0064 | 0.0056 | 762.7 | 0.024 | 0.004 |
| 2028 | A04 | Material Delivery | 100,575 | 0.2 | 0.01 | 0.40 | 0.0006 | 0.0053 | 0.0049 | 164.5 | 0.002 | 0.022 |
| 2028 | A08 | Employee Commute | 1,047,222 | 3.7 | 0.04 | 0.13 | 0.0018 | 0.0028 | 0.0025 | 333.5 | 0.010 | 0.002 |
| 2028 | A08 | Material Delivery | 403,060 | 0.9 | 0.04 | 1.61 | 0.0024 | 0.0212 | 0.0195 | 659.3 | 0.007 | 0.088 |
| 2028 | A09 | Employee Commute | 1,149,390 | 4.1 | 0.04 | 0.14 | 0.0020 | 0.0031 | 0.0027 | 366.1 | 0.011 | 0.002 |
| 2028 | A09 | Material Delivery | 46,273 | 0.1 | 0.00 | 0.19 | 0.0003 | 0.0024 | 0.0022 | 75.7 | 0.001 | 0.010 |
| 2028 | A10 | Employee Commute | 528,627 | 1.9 | 0.02 | 0.07 | 0.0009 | 0.0014 | 0.0012 | 168.4 | 0.005 | 0.001 |
| 2028 | A10 | Material Delivery | 1,862 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0001 | 0.0001 | 3.0 | 0.000 | 0.000 |
| 2028 | C02 | Employee Commute | 116,903 | 0.4 | 0.00 | 0.01 | 0.0002 | 0.0003 | 0.0003 | 37.2 | 0.001 | 0.000 |
| 2028 | C02 | Material Delivery | 41,244 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0022 | 0.0020 | 67.5 | 0.001 | 0.009 |
| 2028 | C03 | Employee Commute | 216,645 | 0.8 | 0.01 | 0.03 | 0.0004 | 0.0006 | 0.0005 | 69.0 | 0.002 | 0.000 |
| 2028 | C03 | Material Delivery | 41,244 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0022 | 0.0020 | 67.5 | 0.001 | 0.009 |
| 2028 | L01 | Employee Commute | 3,116,124 | 11.0 | 0.11 | 0.38 | 0.0055 | 0.0083 | 0.0073 | 992.5 | 0.031 | 0.005 |
| 2028 | L01 | Material Delivery | 39,630 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0021 | 0.0019 | 64.8 | 0.001 | 0.009 |
| 2028 | L02 | Employee Commute | 1,965,578 | 6.9 | 0.07 | 0.24 | 0.0035 | 0.0052 | 0.0046 | 626.1 | 0.019 | 0.003 |
| 2028 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2028 | L03 | Employee Commute | 418,275 | 1.5 | 0.01 | 0.05 | 0.0007 | 0.0011 | 0.0010 | 133.2 | 0.004 | 0.001 |
| 2028 | L03 | Material Delivery | 12,176 | 0.0 | 0.00 | 0.05 | 0.0001 | 0.0006 | 0.0006 | 19.9 | 0.000 | 0.003 |
| 2028 | L04 | Employee Commute | 4,827,438 | 17.0 | 0.16 | 0.59 | 0.0085 | 0.0128 | 0.0114 | 1537.6 | 0.048 | 0.008 |

## TABLE 6-3: ON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)*

| Year | Task ID | Activity | Annual VMT | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (ST) | $CH_4$ (ST) | $N_2O$ (ST) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | L04 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2028 | L05 | Employee Commute | 5,955,015 | 21.0 | 0.20 | 0.73 | 0.0105 | 0.0158 | 0.0140 | 1896.7 | 0.059 | 0.010 |
| 2028 | L05 | Material Delivery | 1,353 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.000 | 0.000 |
| 2028 | S01 | Employee Commute | 386,685 | 1.4 | 0.01 | 0.05 | 0.0007 | 0.0010 | 0.0009 | 123.2 | 0.004 | 0.001 |
| 2028 | S01 | Material Delivery | 13,537 | 0.0 | 0.00 | 0.05 | 0.0001 | 0.0007 | 0.0007 | 22.1 | 0.000 | 0.003 |
| 2028 | S02 | Employee Commute | 145,860 | 0.5 | 0.00 | 0.02 | 0.0003 | 0.0004 | 0.0003 | 46.5 | 0.001 | 0.000 |
| 2028 | S02 | Material Delivery | 41,309 | 0.1 | 0.00 | 0.17 | 0.0002 | 0.0022 | 0.0020 | 67.6 | 0.001 | 0.009 |
| 2028 | S03 | Employee Commute | 1,813,482 | 6.4 | 0.06 | 0.22 | 0.0032 | 0.0048 | 0.0043 | 577.6 | 0.018 | 0.003 |
| 2028 | S03 | Material Delivery | 5,059 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0003 | 0.0002 | 8.3 | 0.000 | 0.001 |
| 2028 | S04 | Employee Commute | 2,401,113 | 8.5 | 0.08 | 0.30 | 0.0042 | 0.0064 | 0.0056 | 764.8 | 0.024 | 0.004 |
| 2028 | S04 | Material Delivery | 3,608 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0002 | 0.0002 | 5.9 | 0.000 | 0.001 |
| 2028 | S08 | Employee Commute | 2,034,896 | 7.2 | 0.07 | 0.25 | 0.0036 | 0.0054 | 0.0048 | 648.1 | 0.020 | 0.004 |
| 2028 | S08 | Material Delivery | 41,525 | 0.1 | 0.00 | 0.17 | 0.0003 | 0.0022 | 0.0020 | 67.9 | 0.001 | 0.009 |
| 2028 | S09 | Employee Commute | 2,034,896 | 7.2 | 0.07 | 0.25 | 0.0036 | 0.0054 | 0.0048 | 648.1 | 0.020 | 0.004 |
| 2028 | S09 | Material Delivery | 41,525 | 0.1 | 0.00 | 0.17 | 0.0003 | 0.0022 | 0.0020 | 67.9 | 0.001 | 0.009 |
| 2028 | T01 | Employee Commute | 10,131,66 | 35.8 | 0.34 | 1.25 | 0.0179 | 0.0269 | 0.0238 | 3227.0 | 0.100 | 0.018 |
| 2028 | T01 | Material Delivery | 239,615 | 0.5 | 0.02 | 0.96 | 0.0014 | 0.0126 | 0.0116 | 391.9 | 0.004 | 0.052 |
| 2028 | T02 | Employee Commute | 9,508,917 | 33.6 | 0.32 | 1.17 | 0.0168 | 0.0253 | 0.0224 | 3028.7 | 0.094 | 0.017 |
| 2028 | T02 | Material Delivery | 117,474 | 0.3 | 0.01 | 0.47 | 0.0007 | 0.0062 | 0.0057 | 192.1 | 0.002 | 0.026 |
| 2029 | A01 | Employee Commute | 416,130 | 1.5 | 0.01 | 0.05 | 0.0007 | 0.0011 | 0.0010 | 132.5 | 0.004 | 0.001 |
| 2029 | A01 | Material Delivery | 33,493 | 0.1 | 0.00 | 0.13 | 0.0002 | 0.0018 | 0.0016 | 54.8 | 0.001 | 0.007 |
| 2029 | A04 | Employee Commute | 4,257,000 | 15.0 | 0.14 | 0.52 | 0.0075 | 0.0113 | 0.0100 | 1355.9 | 0.042 | 0.007 |
| 2029 | A04 | Material Delivery | 134,544 | 0.3 | 0.01 | 0.54 | 0.0008 | 0.0071 | 0.0065 | 220.1 | 0.002 | 0.029 |
| 2029 | A05 | Employee Commute | 130,845 | 0.5 | 0.00 | 0.02 | 0.0002 | 0.0003 | 0.0003 | 41.7 | 0.001 | 0.000 |
| 2029 | A05 | Material Delivery | 2,220 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0001 | 0.0001 | 3.6 | 0.000 | 0.000 |
| 2029 | A08 | Employee Commute | 148,590 | 0.5 | 0.01 | 0.02 | 0.0003 | 0.0004 | 0.0003 | 47.3 | 0.001 | 0.000 |
| 2029 | A08 | Material Delivery | 100,765 | 0.2 | 0.01 | 0.40 | 0.0006 | 0.0053 | 0.0049 | 164.8 | 0.002 | 0.022 |
| 2029 | A09 | Employee Commute | 122,850 | 0.4 | 0.00 | 0.02 | 0.0002 | 0.0003 | 0.0003 | 39.1 | 0.001 | 0.000 |
| 2029 | A09 | Material Delivery | 11,968 | 0.0 | 0.00 | 0.05 | 0.0001 | 0.0006 | 0.0006 | 19.6 | 0.000 | 0.003 |
| 2029 | C03 | Employee Commute | 3,473,712 | 12.3 | 0.12 | 0.43 | 0.0061 | 0.0092 | 0.0082 | 1106.4 | 0.034 | 0.006 |
| 2029 | C03 | Material Delivery | 41,244 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0022 | 0.0020 | 67.5 | 0.001 | 0.009 |
| 2029 | L01 | Employee Commute | 3,116,124 | 11.0 | 0.11 | 0.38 | 0.0055 | 0.0083 | 0.0073 | 992.5 | 0.031 | 0.005 |
| 2029 | L01 | Material Delivery | 39,630 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0021 | 0.0019 | 64.8 | 0.001 | 0.009 |

## TABLE 6-3: ON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)*

| Year | Task ID | Activity | Annual VMT | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (ST) | $CH_4$ (ST) | $N_2O$ (ST) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | L02 | Employee Commute | 1,965,578 | 6.9 | 0.07 | 0.24 | 0.0035 | 0.0052 | 0.0046 | 626.1 | 0.019 | 0.003 |
| 2029 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2029 | L03 | Employee Commute | 6,632,406 | 23.4 | 0.23 | 0.82 | 0.0117 | 0.0176 | 0.0156 | 2112.5 | 0.066 | 0.012 |
| 2029 | L03 | Material Delivery | 48,706 | 0.1 | 0.00 | 0.19 | 0.0003 | 0.0026 | 0.0024 | 79.7 | 0.001 | 0.011 |
| 2029 | L04 | Employee Commute | 304,590 | 1.1 | 0.01 | 0.04 | 0.0005 | 0.0008 | 0.0007 | 97.0 | 0.003 | 0.001 |
| 2029 | L04 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2029 | L07 | Employee Commute | 1,894,365 | 6.7 | 0.06 | 0.23 | 0.0033 | 0.0050 | 0.0045 | 603.4 | 0.019 | 0.003 |
| 2029 | L07 | Material Delivery | 87,092 | 0.2 | 0.01 | 0.35 | 0.0005 | 0.0046 | 0.0042 | 142.5 | 0.002 | 0.019 |
| 2029 | S01 | Employee Commute | 5,585,184 | 19.7 | 0.19 | 0.69 | 0.0098 | 0.0148 | 0.0131 | 1778.9 | 0.055 | 0.010 |
| 2029 | S01 | Material Delivery | 48,368 | 0.1 | 0.00 | 0.19 | 0.0003 | 0.0025 | 0.0023 | 79.1 | 0.001 | 0.011 |
| 2029 | S03 | Employee Commute | 1,019,040 | 3.6 | 0.03 | 0.13 | 0.0018 | 0.0027 | 0.0024 | 324.6 | 0.010 | 0.002 |
| 2029 | S03 | Material Delivery | 5,059 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0003 | 0.0002 | 8.3 | 0.000 | 0.001 |
| 2029 | S10 | Employee Commute | 8,275,608 | 29.2 | 0.28 | 1.02 | 0.0146 | 0.0220 | 0.0195 | 2635.8 | 0.082 | 0.014 |
| 2029 | S10 | Material Delivery | 98,224 | 0.2 | 0.01 | 0.39 | 0.0006 | 0.0052 | 0.0048 | 160.7 | 0.002 | 0.022 |
| 2029 | T01 | Employee Commute | 10,131,66 | 35.8 | 0.34 | 1.25 | 0.0179 | 0.0269 | 0.0238 | 3227.0 | 0.100 | 0.018 |
| 2029 | T01 | Material Delivery | 239,615 | 0.5 | 0.02 | 0.96 | 0.0014 | 0.0126 | 0.0116 | 391.9 | 0.004 | 0.052 |
| 2029 | T02 | Employee Commute | 17,028,00 | 60.1 | 0.58 | 2.10 | 0.0300 | 0.0453 | 0.0400 | 5423.5 | 0.168 | 0.030 |
| 2029 | T02 | Material Delivery | 124,124 | 0.3 | 0.01 | 0.50 | 0.0007 | 0.0065 | 0.0060 | 203.0 | 0.002 | 0.027 |
| 2030 | A04 | Employee Commute | 4,257,000 | 15.0 | 0.14 | 0.52 | 0.0075 | 0.0113 | 0.0100 | 1355.9 | 0.042 | 0.007 |
| 2030 | A04 | Material Delivery | 134,544 | 0.3 | 0.01 | 0.54 | 0.0008 | 0.0071 | 0.0065 | 220.1 | 0.002 | 0.029 |
| 2030 | A05 | Employee Commute | 2,068,902 | 7.3 | 0.07 | 0.25 | 0.0036 | 0.0055 | 0.0049 | 659.0 | 0.020 | 0.004 |
| 2030 | A05 | Material Delivery | 8,880 | 0.0 | 0.00 | 0.04 | 0.0001 | 0.0005 | 0.0004 | 14.5 | 0.000 | 0.002 |
| 2030 | L02 | Employee Commute | 1,965,578 | 6.9 | 0.07 | 0.24 | 0.0035 | 0.0052 | 0.0046 | 626.1 | 0.019 | 0.003 |
| 2030 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2030 | L03 | Employee Commute | 3,725,865 | 13.2 | 0.13 | 0.46 | 0.0066 | 0.0099 | 0.0088 | 1186.7 | 0.037 | 0.006 |
| 2030 | L03 | Material Delivery | 36,530 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0019 | 0.0018 | 59.8 | 0.001 | 0.008 |
| 2030 | L07 | Employee Commute | 7,577,460 | 26.8 | 0.26 | 0.93 | 0.0134 | 0.0201 | 0.0178 | 2413.5 | 0.075 | 0.013 |
| 2030 | L07 | Material Delivery | 87,092 | 0.2 | 0.01 | 0.35 | 0.0005 | 0.0046 | 0.0042 | 142.5 | 0.002 | 0.019 |
| 2030 | S01 | Employee Commute | 5,585,184 | 19.7 | 0.19 | 0.69 | 0.0098 | 0.0148 | 0.0131 | 1778.9 | 0.055 | 0.010 |
| 2030 | S01 | Material Delivery | 48,368 | 0.1 | 0.00 | 0.19 | 0.0003 | 0.0025 | 0.0023 | 79.1 | 0.001 | 0.011 |
| 2030 | S10 | Employee Commute | 4,643,001 | 16.4 | 0.16 | 0.57 | 0.0082 | 0.0123 | 0.0109 | 1478.8 | 0.046 | 0.008 |
| 2030 | S10 | Material Delivery | 98,224 | 0.2 | 0.01 | 0.39 | 0.0006 | 0.0052 | 0.0048 | 160.7 | 0.002 | 0.022 |
| 2030 | T01 | Employee Commute | 10,131,66 | 35.8 | 0.34 | 1.25 | 0.0179 | 0.0269 | 0.0238 | 3227.0 | 0.100 | 0.018 |

## TABLE 6-3: ON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)*

| Year | Task ID | Activity | Annual VMT | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (ST) | $CH_4$ (ST) | $N_2O$ (ST) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | T01 | Material Delivery | 239,615 | 0.5 | 0.02 | 0.96 | 0.0014 | 0.0126 | 0.0116 | 391.9 | 0.004 | 0.052 |
| 2030 | T02 | Employee Commute | 17,028,00 | 60.1 | 0.58 | 2.10 | 0.0300 | 0.0453 | 0.0400 | 5423.5 | 0.168 | 0.030 |
| 2030 | T02 | Material Delivery | 124,124 | 0.3 | 0.01 | 0.50 | 0.0007 | 0.0065 | 0.0060 | 203.0 | 0.002 | 0.027 |
| 2031 | A04 | Employee Commute | 4,257,000 | 15.0 | 0.14 | 0.52 | 0.0075 | 0.0113 | 0.0100 | 1355.9 | 0.042 | 0.007 |
| 2031 | A04 | Material Delivery | 134,544 | 0.3 | 0.01 | 0.54 | 0.0008 | 0.0071 | 0.0065 | 220.1 | 0.002 | 0.029 |
| 2031 | L02 | Employee Commute | 1,965,578 | 6.9 | 0.07 | 0.24 | 0.0035 | 0.0052 | 0.0046 | 626.1 | 0.019 | 0.003 |
| 2031 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2031 | L07 | Employee Commute | 478,335 | 1.7 | 0.02 | 0.06 | 0.0008 | 0.0013 | 0.0011 | 152.4 | 0.005 | 0.001 |
| 2031 | L07 | Material Delivery | 87,092 | 0.2 | 0.01 | 0.35 | 0.0005 | 0.0046 | 0.0042 | 142.5 | 0.002 | 0.019 |
| 2031 | S01 | Employee Commute | 5,585,184 | 19.7 | 0.19 | 0.69 | 0.0098 | 0.0148 | 0.0131 | 1778.9 | 0.055 | 0.010 |
| 2031 | S01 | Material Delivery | 48,368 | 0.1 | 0.00 | 0.19 | 0.0003 | 0.0025 | 0.0023 | 79.1 | 0.001 | 0.011 |
| 2031 | T01 | Employee Commute | 10,131,66 | 35.8 | 0.34 | 1.25 | 0.0179 | 0.0269 | 0.0238 | 3227.0 | 0.100 | 0.018 |
| 2031 | T01 | Material Delivery | 239,615 | 0.5 | 0.02 | 0.96 | 0.0014 | 0.0126 | 0.0116 | 391.9 | 0.004 | 0.052 |
| 2031 | T02 | Employee Commute | 17,028,00 | 60.1 | 0.58 | 2.10 | 0.0300 | 0.0453 | 0.0400 | 5423.5 | 0.168 | 0.030 |
| 2031 | T02 | Material Delivery | 124,124 | 0.3 | 0.01 | 0.50 | 0.0007 | 0.0065 | 0.0060 | 203.0 | 0.002 | 0.027 |
| 2032 | A04 | Employee Commute | 1,064,250 | 3.8 | 0.04 | 0.13 | 0.0019 | 0.0028 | 0.0025 | 339.0 | 0.011 | 0.002 |
| 2032 | A04 | Material Delivery | 67,115 | 0.1 | 0.01 | 0.27 | 0.0004 | 0.0035 | 0.0033 | 109.8 | 0.001 | 0.015 |
| 2032 | L02 | Employee Commute | 123,801 | 0.4 | 0.00 | 0.02 | 0.0002 | 0.0003 | 0.0003 | 39.4 | 0.001 | 0.000 |
| 2032 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2032 | T02 | Employee Commute | 9,470,703 | 33.4 | 0.32 | 1.17 | 0.0167 | 0.0252 | 0.0223 | 3016.5 | 0.094 | 0.016 |
| 2032 | T02 | Material Delivery | 117,474 | 0.3 | 0.01 | 0.47 | 0.0007 | 0.0062 | 0.0057 | 192.1 | 0.002 | 0.026 |

Note: VMT denotes vehicle miles traveled; ST denotes short tons; CO denotes carbon monoxide, $NO_x$ denotes nitrogen oxides, $SO_x$ denotes sulfur oxides, VOC denotes volatile organic compounds, $PM_{2.5}$ denotes fine particulate matter, $PM_{10}$ denotes coarse particulate matter, $CO_2$ denotes carbon dioxide, $CH_4$ denotes methane, $N_2O$ denotes nitrous oxide.
Source: MOVES4, Landrum & Brown 2024

## TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | C01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 3,024.0 | 0.1152 | 0.0219 | 0.1918 | 0.0001 | 0.0137 | 0.0133 | 33.1 | 0.00119 |
| 2025 | C01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 936.1 | 0.1522 | 0.0241 | 0.1652 | 0.0001 | 0.0193 | 0.0187 | 38.4 | 0.00112 |
| 2025 | C01 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2025 | C01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2025 | C01 | Chippers/Stump Grinders | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2025 | C01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2025 | C01 | Cranes | 175 < hp <= 300 | 0.43 | 336.1 | 0.0033 | 0.0012 | 0.0142 | 0.0001 | 0.0008 | 0.0007 | 23.0 | 0.00007 |
| 2025 | C01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 22.6 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 1.3 | 0.00000 |
| 2025 | C01 | Excavators | 100 < hp <= 175 | 0.59 | 119.4 | 0.0011 | 0.0002 | 0.0035 | 0.0000 | 0.0003 | 0.0002 | 6.6 | 0.00001 |
| 2025 | C01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,424.2 | 0.0115 | 0.0017 | 0.1909 | 0.0003 | 0.0027 | 0.0026 | 120.4 | 0.00011 |
| 2025 | C01 | Generator Sets | 25 < hp <= 40 | 0.43 | 412.8 | 0.0054 | 0.0015 | 0.0240 | 0.0000 | 0.0009 | 0.0009 | 4.2 | 0.00013 |
| 2025 | C01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 2,240.3 | 0.0365 | 0.0106 | 0.1396 | 0.0012 | 0.0088 | 0.0086 | 425.7 | 0.00053 |
| 2025 | C01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 12.0 | 0.0047 | 0.0006 | 0.0107 | 0.0000 | 0.0007 | 0.0007 | 2.3 | 0.00004 |
| 2025 | C01 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2025 | C01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | C01 | Pumps | 6 < hp <= 11 | 0.43 | 12.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | C01 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2025 | C01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2025 | C01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2025 | C01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 249.6 | 0.0174 | 0.0030 | 0.0189 | 0.0000 | 0.0023 | 0.0022 | 2.7 | 0.00015 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | C01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.1 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2025 | L01 | Chippers/Stump Grinders | 75 < hp <= 100 | 0.43 | 4.8 | 0.0003 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2025 | L01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 4.8 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | L01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 51.7 | 0.0006 | 0.0001 | 0.0016 | 0.0000 | 0.0001 | 0.0001 | 2.9 | 0.00001 |
| 2025 | L01 | Excavators | 100 < hp <= 175 | 0.59 | 28.3 | 0.0003 | 0.0000 | 0.0008 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00000 |
| 2025 | L01 | Graders | 175 < hp <= 300 | 0.59 | 2.0 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2025 | L01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 1.8 | 0.0005 | 0.0001 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2025 | L01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,014.0 | 0.0165 | 0.0048 | 0.0632 | 0.0006 | 0.0040 | 0.0039 | 192.7 | 0.00024 |
| 2025 | L01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 65.5 | 0.0013 | 0.0003 | 0.0036 | 0.0000 | 0.0003 | 0.0003 | 2.6 | 0.00002 |
| 2025 | L01 | Pavers | 100 < hp <= 175 | 0.59 | 8.2 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2025 | L01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 12.2 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | L01 | Pumps | 6 < hp <= 11 | 0.43 | 1.6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | L01 | Rollers | 75 < hp <= 100 | 0.59 | 22.7 | 0.0004 | 0.0000 | 0.0016 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00000 |
| 2025 | L01 | Scrapers | 300 < hp <= 600 | 0.59 | 7.0 | 0.0006 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.3 | 0.00001 |
| 2025 | L01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 12.9 | 0.0016 | 0.0003 | 0.0013 | 0.0000 | 0.0002 | 0.0002 | 0.1 | 0.00001 |
| 2025 | L01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 2.7 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | L01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 12.1 | 0.0023 | 0.0007 | 0.0040 | 0.0000 | 0.0005 | 0.0005 | 0.8 | 0.00004 |
| 2025 | L01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 27.4 | 0.0025 | 0.0004 | 0.0023 | 0.0000 | 0.0003 | 0.0003 | 0.4 | 0.00002 |
| 2025 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2025 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2025 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2025 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2025 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2025 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2025 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2025 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2025 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2025 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2025 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2025 | S07 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2025 | S07 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2025 | S07 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2025 | S07 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2025 | S07 | Chippers/Stump Grinders | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2025 | S07 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2025 | S07 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2025 | S07 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 61.5 | 0.0007 | 0.0001 | 0.0019 | 0.0000 | 0.0002 | 0.0002 | 3.4 | 0.00001 |
| 2025 | S07 | Excavators | 100 < hp <= 175 | 0.59 | 270.3 | 0.0024 | 0.0004 | 0.0080 | 0.0000 | 0.0006 | 0.0006 | 15.0 | 0.00003 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | S07 | Forklifts | 75 < hp <= 100 | 0.59 | 3,584.0 | 0.0121 | 0.0018 | 0.1998 | 0.0004 | 0.0028 | 0.0027 | 126.1 | 0.00012 |
| 2025 | S07 | Generator Sets | 25 < hp <= 40 | 0.43 | 144.8 | 0.0019 | 0.0005 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 1.5 | 0.00004 |
| 2025 | S07 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2025 | S07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,930.2 | 0.1129 | 0.0328 | 0.4318 | 0.0038 | 0.0273 | 0.0265 | 1,316.9 | 0.00164 |
| 2025 | S07 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2025 | S07 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2025 | S07 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | S07 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2025 | S07 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2025 | S07 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2025 | S07 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2025 | S07 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 153.6 | 0.0107 | 0.0019 | 0.0116 | 0.0000 | 0.0014 | 0.0014 | 1.7 | 0.00009 |
| 2025 | S07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 600.0 | 0.0549 | 0.0095 | 0.0502 | 0.0000 | 0.0073 | 0.0071 | 8.7 | 0.00043 |
| 2026 | A01 | Air Compressors | 75 < hp <= 100 | 0.43 | 58.3 | 0.0012 | 0.0001 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 1.5 | 0.00001 |
| 2026 | A01 | Chippers/Stump Grinders | 75 < hp <= 100 | 0.43 | 50.4 | 0.0029 | 0.0005 | 0.0065 | 0.0000 | 0.0005 | 0.0005 | 1.3 | 0.00002 |
| 2026 | A01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 58.3 | 0.0005 | 0.0001 | 0.0039 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00002 |
| 2026 | A01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 50.4 | 0.0011 | 0.0004 | 0.0018 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00003 |
| 2026 | A01 | Cranes | 175 < hp <= 300 | 0.43 | - | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | - | 0.00000 |
| 2026 | A01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 386.6 | 0.0043 | 0.0007 | 0.0121 | 0.0001 | 0.0011 | 0.0010 | 21.4 | 0.00005 |
| 2026 | A01 | Excavators | 100 < hp <= 175 | 0.59 | 476.0 | 0.0042 | 0.0007 | 0.0140 | 0.0001 | 0.0010 | 0.0010 | 26.4 | 0.00005 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | A01 | Graders | 175 < hp <= 300 | 0.59 | 20.1 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.9 | 0.00000 |
| 2026 | A01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 18.1 | 0.0053 | 0.0011 | 0.0188 | 0.0000 | 0.0009 | 0.0009 | 3.4 | 0.00007 |
| 2026 | A01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,176.0 | 0.0680 | 0.0198 | 0.2602 | 0.0023 | 0.0165 | 0.0160 | 793.5 | 0.00099 |
| 2026 | A01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 636.8 | 0.0122 | 0.0029 | 0.0346 | 0.0001 | 0.0027 | 0.0026 | 25.7 | 0.00019 |
| 2026 | A01 | Pavers | 100 < hp <= 175 | 0.59 | 58.3 | 0.0009 | 0.0001 | 0.0020 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2026 | A01 | Pumps | 6 < hp <= 11 | 0.43 | 16.8 | 0.0002 | 0.0001 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00001 |
| 2026 | A01 | Rollers | 75 < hp <= 100 | 0.59 | 231.4 | 0.0040 | 0.0004 | 0.0158 | 0.0000 | 0.0006 | 0.0006 | 8.1 | 0.00003 |
| 2026 | A01 | Scrapers | 300 < hp <= 600 | 0.59 | 72.8 | 0.0059 | 0.0010 | 0.0160 | 0.0000 | 0.0010 | 0.0009 | 13.8 | 0.00006 |
| 2026 | A01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 30.9 | 0.0038 | 0.0007 | 0.0032 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00003 |
| 2026 | A01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 58.3 | 0.0014 | 0.0003 | 0.0036 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00003 |
| 2026 | A01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 201.7 | 0.0377 | 0.0114 | 0.0661 | 0.0000 | 0.0078 | 0.0076 | 13.0 | 0.00064 |
| 2026 | A01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 87.9 | 0.0080 | 0.0014 | 0.0074 | 0.0000 | 0.0011 | 0.0010 | 1.3 | 0.00006 |
| 2026 | A02 | Chippers/Stump Grinders | 75 < hp <= 100 | 0.43 | 30.0 | 0.0018 | 0.0003 | 0.0039 | 0.0000 | 0.0003 | 0.0003 | 0.8 | 0.00001 |
| 2026 | A02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 30.0 | 0.0006 | 0.0002 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00002 |
| 2026 | A02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 206.4 | 0.0023 | 0.0004 | 0.0065 | 0.0000 | 0.0006 | 0.0005 | 11.4 | 0.00003 |
| 2026 | A02 | Excavators | 100 < hp <= 175 | 0.59 | 53.1 | 0.0005 | 0.0001 | 0.0016 | 0.0000 | 0.0001 | 0.0001 | 2.9 | 0.00001 |
| 2026 | A02 | Graders | 175 < hp <= 300 | 0.59 | 12.1 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 1.2 | 0.00000 |
| 2026 | A02 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 10.9 | 0.0032 | 0.0007 | 0.0114 | 0.0000 | 0.0005 | 0.0005 | 2.1 | 0.00004 |
| 2026 | A02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 3,365.7 | 0.0548 | 0.0159 | 0.2097 | 0.0019 | 0.0133 | 0.0129 | 639.6 | 0.00080 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | A02 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 305.0 | 0.0058 | 0.0014 | 0.0166 | 0.0000 | 0.0013 | 0.0012 | 12.3 | 0.00009 |
| 2026 | A02 | Pavers | 100 < hp <= 175 | 0.59 | 14.2 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00000 |
| 2026 | A02 | Pumps | 6 < hp <= 11 | 0.43 | 10.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | A02 | Rollers | 75 < hp <= 100 | 0.59 | 131.8 | 0.0023 | 0.0002 | 0.0090 | 0.0000 | 0.0003 | 0.0003 | 4.6 | 0.00002 |
| 2026 | A02 | Scrapers | 300 < hp <= 600 | 0.59 | 47.3 | 0.0038 | 0.0006 | 0.0104 | 0.0000 | 0.0006 | 0.0006 | 9.0 | 0.00004 |
| 2026 | A02 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 23.3 | 0.0029 | 0.0005 | 0.0024 | 0.0000 | 0.0004 | 0.0004 | 0.3 | 0.00002 |
| 2026 | A02 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 18.2 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0000 | 0.2 | 0.00001 |
| 2026 | A02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 32.8 | 0.0061 | 0.0018 | 0.0107 | 0.0000 | 0.0013 | 0.0012 | 2.1 | 0.00010 |
| 2026 | A02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 27.6 | 0.0025 | 0.0004 | 0.0023 | 0.0000 | 0.0003 | 0.0003 | 0.4 | 0.00002 |
| 2026 | A06 | Air Compressors | 75 < hp <= 100 | 0.43 | 107.9 | 0.0022 | 0.0003 | 0.0071 | 0.0000 | 0.0004 | 0.0004 | 2.7 | 0.00002 |
| 2026 | A06 | Chippers/Stump Grinders | 75 < hp <= 100 | 0.43 | 86.4 | 0.0051 | 0.0009 | 0.0112 | 0.0000 | 0.0009 | 0.0009 | 2.2 | 0.00004 |
| 2026 | A06 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 107.9 | 0.0009 | 0.0003 | 0.0072 | 0.0000 | 0.0001 | 0.0001 | 1.5 | 0.00003 |
| 2026 | A06 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 86.4 | 0.0018 | 0.0006 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.4 | 0.00005 |
| 2026 | A06 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 602.9 | 0.0067 | 0.0010 | 0.0189 | 0.0001 | 0.0017 | 0.0016 | 33.4 | 0.00007 |
| 2026 | A06 | Excavators | 100 < hp <= 175 | 0.59 | 165.8 | 0.0015 | 0.0002 | 0.0049 | 0.0000 | 0.0004 | 0.0003 | 9.2 | 0.00002 |
| 2026 | A06 | Graders | 175 < hp <= 300 | 0.59 | 34.6 | 0.0003 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 3.3 | 0.00000 |
| 2026 | A06 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 31.1 | 0.0091 | 0.0019 | 0.0324 | 0.0000 | 0.0015 | 0.0015 | 5.8 | 0.00013 |
| 2026 | A06 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,231.1 | 0.1015 | 0.0295 | 0.3882 | 0.0035 | 0.0246 | 0.0238 | 1,184.1 | 0.00147 |
| 2026 | A06 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,027.4 | 0.0197 | 0.0046 | 0.0559 | 0.0001 | 0.0043 | 0.0042 | 41.5 | 0.00031 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | A06 | Pavers | 100 < hp <= 175 | 0.59 | 107.9 | 0.0016 | 0.0002 | 0.0037 | 0.0000 | 0.0004 | 0.0004 | 6.0 | 0.00002 |
| 2026 | A06 | Pumps | 6 < hp <= 11 | 0.43 | 28.8 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | A06 | Rollers | 75 < hp <= 100 | 0.59 | 349.8 | 0.0060 | 0.0006 | 0.0239 | 0.0000 | 0.0009 | 0.0009 | 12.3 | 0.00004 |
| 2026 | A06 | Scrapers | 300 < hp <= 600 | 0.59 | 134.9 | 0.0110 | 0.0018 | 0.0297 | 0.0001 | 0.0018 | 0.0017 | 25.6 | 0.00011 |
| 2026 | A06 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 26.2 | 0.0032 | 0.0006 | 0.0027 | 0.0000 | 0.0004 | 0.0004 | 0.3 | 0.00002 |
| 2026 | A06 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 107.9 | 0.0026 | 0.0006 | 0.0066 | 0.0000 | 0.0003 | 0.0003 | 0.9 | 0.00005 |
| 2026 | A06 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 224.1 | 0.0419 | 0.0126 | 0.0734 | 0.0001 | 0.0087 | 0.0084 | 14.5 | 0.00071 |
| 2026 | A06 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 87.1 | 0.0080 | 0.0014 | 0.0073 | 0.0000 | 0.0011 | 0.0010 | 1.3 | 0.00006 |
| 2026 | A07 | Air Compressors | 75 < hp <= 100 | 0.43 | 14.5 | 0.0003 | 0.0000 | 0.0010 | 0.0000 | 0.0001 | 0.0000 | 0.4 | 0.00000 |
| 2026 | A07 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 12.0 | 0.0007 | 0.0001 | 0.0016 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2026 | A07 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 14.5 | 0.0001 | 0.0000 | 0.0010 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2026 | A07 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 12.0 | 0.0003 | 0.0001 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | A07 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 79.7 | 0.0009 | 0.0001 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 4.4 | 0.00001 |
| 2026 | A07 | Excavators | 100 < hp <= 175 | 0.59 | 20.3 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2026 | A07 | Graders | 175 < hp <= 300 | 0.59 | 4.8 | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2026 | A07 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.3 | 0.0013 | 0.0003 | 0.0045 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2026 | A07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,267.1 | 0.0206 | 0.0060 | 0.0790 | 0.0007 | 0.0050 | 0.0048 | 240.8 | 0.00030 |
| 2026 | A07 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 137.1 | 0.0026 | 0.0006 | 0.0075 | 0.0000 | 0.0006 | 0.0006 | 5.5 | 0.00004 |
| 2026 | A07 | Pavers | 100 < hp <= 175 | 0.59 | 14.5 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00000 |
| 2026 | A07 | Pumps | 6 < hp <= 11 | 0.43 | 4.0 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | A07 | Rollers | 75 < hp <= 100 | 0.59 | 45.2 | 0.0008 | 0.0001 | 0.0031 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00001 |
| 2026 | A07 | Scrapers | 300 < hp <= 600 | 0.59 | 18.2 | 0.0015 | 0.0002 | 0.0040 | 0.0000 | 0.0002 | 0.0002 | 3.5 | 0.00002 |
| 2026 | A07 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 5.3 | 0.0007 | 0.0001 | 0.0006 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00000 |
| 2026 | A07 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 14.5 | 0.0004 | 0.0001 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | A07 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 28.8 | 0.0054 | 0.0016 | 0.0094 | 0.0000 | 0.0011 | 0.0011 | 1.9 | 0.00009 |
| 2026 | A07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 12.5 | 0.0011 | 0.0002 | 0.0010 | 0.0000 | 0.0002 | 0.0001 | 0.2 | 0.00001 |
| 2026 | A08 | Air Compressors | 75 < hp <= 100 | 0.43 | 13.3 | 0.0003 | 0.0000 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00000 |
| 2026 | A08 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 10.8 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00000 |
| 2026 | A08 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 13.3 | 0.0001 | 0.0000 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2026 | A08 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 10.8 | 0.0002 | 0.0001 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00001 |
| 2026 | A08 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 108.1 | 0.0012 | 0.0002 | 0.0034 | 0.0000 | 0.0003 | 0.0003 | 6.0 | 0.00001 |
| 2026 | A08 | Excavators | 100 < hp <= 175 | 0.59 | 197.5 | 0.0017 | 0.0003 | 0.0058 | 0.0000 | 0.0004 | 0.0004 | 10.9 | 0.00002 |
| 2026 | A08 | Generator Sets | 25 < hp <= 40 | 0.43 | 144.0 | 0.0019 | 0.0005 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 1.5 | 0.00004 |
| 2026 | A08 | Graders | 175 < hp <= 300 | 0.59 | 4.5 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2026 | A08 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.0 | 0.0012 | 0.0003 | 0.0042 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2026 | A08 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,768.7 | 0.0288 | 0.0084 | 0.1102 | 0.0010 | 0.0070 | 0.0068 | 336.1 | 0.00042 |
| 2026 | A08 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 135.3 | 0.0026 | 0.0006 | 0.0074 | 0.0000 | 0.0006 | 0.0006 | 5.5 | 0.00004 |
| 2026 | A08 | Pavers | 100 < hp <= 175 | 0.59 | 13.3 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |
| 2026 | A08 | Pumps | 6 < hp <= 11 | 0.43 | 3.6 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | A08 | Rollers | 75 < hp <= 100 | 0.59 | 40.4 | 0.0007 | 0.0001 | 0.0028 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2026 | A08 | Scrapers | 300 < hp <= 600 | 0.59 | 16.7 | 0.0014 | 0.0002 | 0.0037 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2026 | A08 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 5.6 | 0.0007 | 0.0001 | 0.0006 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00000 |
| 2026 | A08 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 13.3 | 0.0003 | 0.0001 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | A08 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 25.4 | 0.0047 | 0.0014 | 0.0083 | 0.0000 | 0.0010 | 0.0010 | 1.6 | 0.00008 |
| 2026 | A08 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 288.0 | 0.0200 | 0.0035 | 0.0218 | 0.0000 | 0.0026 | 0.0026 | 3.1 | 0.00017 |
| 2026 | A08 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 11.5 | 0.0011 | 0.0002 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2026 | A10 | Air Compressors | 75 < hp <= 100 | 0.43 | 2.5 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2026 | A10 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 3.6 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2026 | A10 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 2.5 | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | A10 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 3.6 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | A10 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 28.9 | 0.0003 | 0.0000 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00000 |
| 2026 | A10 | Excavators | 100 < hp <= 175 | 0.59 | 17.2 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 1.0 | 0.00000 |
| 2026 | A10 | Graders | 175 < hp <= 300 | 0.59 | 1.3 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2026 | A10 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 1.2 | 0.0003 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00000 |
| 2026 | A10 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 3,032.8 | 0.0494 | 0.0143 | 0.1890 | 0.0017 | 0.0120 | 0.0116 | 576.3 | 0.00072 |
| 2026 | A10 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 50.7 | 0.0010 | 0.0002 | 0.0028 | 0.0000 | 0.0002 | 0.0002 | 2.0 | 0.00002 |
| 2026 | A10 | Pavers | 100 < hp <= 175 | 0.59 | 2.5 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2026 | A10 | Pumps | 6 < hp <= 11 | 0.43 | 1.2 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | A10 | Rollers | 75 < hp <= 100 | 0.59 | 22.0 | 0.0004 | 0.0000 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00000 |
| 2026 | A10 | Scrapers | 300 < hp <= 600 | 0.59 | 3.1 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2026 | A10 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 6.2 | 0.0008 | 0.0001 | 0.0006 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2026 | A10 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 2.5 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | A10 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 31.6 | 0.0059 | 0.0018 | 0.0104 | 0.0000 | 0.0012 | 0.0012 | 2.0 | 0.00010 |
| 2026 | A10 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 15.6 | 0.0014 | 0.0002 | 0.0013 | 0.0000 | 0.0002 | 0.0002 | 0.2 | 0.00001 |
| 2026 | C01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 3,024.0 | 0.1152 | 0.0219 | 0.1918 | 0.0001 | 0.0137 | 0.0133 | 33.1 | 0.00119 |
| 2026 | C01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 936.1 | 0.1522 | 0.0241 | 0.1652 | 0.0001 | 0.0193 | 0.0187 | 38.4 | 0.00112 |
| 2026 | C01 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2026 | C01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2026 | C01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2026 | C01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | C01 | Cranes | 175 < hp <= 300 | 0.43 | 336.1 | 0.0033 | 0.0012 | 0.0142 | 0.0001 | 0.0008 | 0.0007 | 23.0 | 0.00007 |
| 2026 | C01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 42.4 | 0.0005 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 2.3 | 0.00001 |
| 2026 | C01 | Excavators | 100 < hp <= 175 | 0.59 | 477.6 | 0.0042 | 0.0007 | 0.0141 | 0.0001 | 0.0010 | 0.0010 | 26.5 | 0.00005 |
| 2026 | C01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,424.2 | 0.0115 | 0.0017 | 0.1909 | 0.0003 | 0.0027 | 0.0026 | 120.4 | 0.00011 |
| 2026 | C01 | Generator Sets | 25 < hp <= 40 | 0.43 | 751.2 | 0.0098 | 0.0027 | 0.0437 | 0.0000 | 0.0016 | 0.0016 | 7.6 | 0.00023 |
| 2026 | C01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 3,351.4 | 0.0546 | 0.0159 | 0.2088 | 0.0019 | 0.0132 | 0.0128 | 636.9 | 0.00079 |
| 2026 | C01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 12.0 | 0.0047 | 0.0006 | 0.0107 | 0.0000 | 0.0007 | 0.0007 | 2.3 | 0.00004 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | C01 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2026 | C01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | C01 | Pumps | 6 < hp <= 11 | 0.43 | 12.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | C01 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2026 | C01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2026 | C01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2026 | C01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 926.4 | 0.0645 | 0.0113 | 0.0701 | 0.0000 | 0.0085 | 0.0082 | 10.1 | 0.00055 |
| 2026 | C01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.1 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2026 | C02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2026 | C02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2026 | C02 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2026 | C02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2026 | C02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 64.0 | 0.0037 | 0.0007 | 0.0083 | 0.0000 | 0.0007 | 0.0006 | 1.6 | 0.00003 |
| 2026 | C02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 64.0 | 0.0013 | 0.0005 | 0.0023 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00004 |
| 2026 | C02 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2026 | C02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 40.0 | 0.0004 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.00000 |
| 2026 | C02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2026 | C02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,724.0 | 0.0125 | 0.0018 | 0.2076 | 0.0004 | 0.0029 | 0.0029 | 131.0 | 0.00012 |
| 2026 | C02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2026 | C02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | C02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2026 | C02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,864.0 | 0.1118 | 0.0325 | 0.4277 | 0.0038 | 0.0271 | 0.0263 | 1,304.3 | 0.00162 |
| 2026 | C02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2026 | C02 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2026 | C02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 40.0 | 0.0003 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | C02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2026 | C02 | Rollers | 75 < hp <= 100 | 0.59 | 56.0 | 0.0010 | 0.0001 | 0.0038 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00001 |
| 2026 | C02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2026 | C02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 64.0 | 0.0022 | 0.0003 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 1.6 | 0.00001 |
| 2026 | C02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2026 | C02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2026 | C02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 840.0 | 0.0769 | 0.0133 | 0.0703 | 0.0000 | 0.0102 | 0.0099 | 12.2 | 0.00061 |
| 2026 | L01 | Air Compressors | 75 < hp <= 100 | 0.43 | 22.8 | 0.0005 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00000 |
| 2026 | L01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 19.2 | 0.0011 | 0.0002 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |
| 2026 | L01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 22.8 | 0.0002 | 0.0001 | 0.0015 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00001 |
| 2026 | L01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 19.2 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | L01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 206.5 | 0.0023 | 0.0004 | 0.0065 | 0.0000 | 0.0006 | 0.0005 | 11.4 | 0.00003 |
| 2026 | L01 | Excavators | 100 < hp <= 175 | 0.59 | 113.3 | 0.0010 | 0.0002 | 0.0033 | 0.0000 | 0.0002 | 0.0002 | 6.3 | 0.00001 |
| 2026 | L01 | Graders | 175 < hp <= 300 | 0.59 | 7.6 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |
| 2026 | L01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 6.9 | 0.0020 | 0.0004 | 0.0071 | 0.0000 | 0.0003 | 0.0003 | 1.3 | 0.00003 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | L01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,227.2 | 0.0688 | 0.0200 | 0.2634 | 0.0023 | 0.0167 | 0.0162 | 803.3 | 0.00100 |
| 2026 | L01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 309.1 | 0.0059 | 0.0014 | 0.0168 | 0.0000 | 0.0013 | 0.0013 | 12.5 | 0.00009 |
| 2026 | L01 | Pavers | 100 < hp <= 175 | 0.59 | 55.9 | 0.0008 | 0.0001 | 0.0019 | 0.0000 | 0.0002 | 0.0002 | 3.1 | 0.00001 |
| 2026 | L01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 49.2 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | L01 | Pumps | 6 < hp <= 11 | 0.43 | 6.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | L01 | Rollers | 75 < hp <= 100 | 0.59 | 90.4 | 0.0016 | 0.0001 | 0.0062 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2026 | L01 | Scrapers | 300 < hp <= 600 | 0.59 | 28.4 | 0.0023 | 0.0004 | 0.0063 | 0.0000 | 0.0004 | 0.0004 | 5.4 | 0.00002 |
| 2026 | L01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 52.4 | 0.0065 | 0.0012 | 0.0055 | 0.0000 | 0.0009 | 0.0009 | 0.6 | 0.00004 |
| 2026 | L01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 33.7 | 0.0008 | 0.0002 | 0.0021 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00002 |
| 2026 | L01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 70.4 | 0.0132 | 0.0040 | 0.0231 | 0.0000 | 0.0027 | 0.0027 | 4.5 | 0.00022 |
| 2026 | L01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 110.6 | 0.0101 | 0.0018 | 0.0093 | 0.0000 | 0.0013 | 0.0013 | 1.6 | 0.00008 |
| 2026 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2026 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2026 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2026 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2026 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2026 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2026 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2026 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2026 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2026 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2026 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2026 | L04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2026 | L04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2026 | L04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2026 | L04 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2026 | L04 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2026 | L04 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2026 | L04 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2026 | L04 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2026 | L04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2026 | L04 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2026 | L04 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2026 | L04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2026 | S02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 1,320.0 | 0.0503 | 0.0096 | 0.0837 | 0.0000 | 0.0060 | 0.0058 | 14.4 | 0.00052 |
| 2026 | S02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 456.0 | 0.0742 | 0.0117 | 0.0805 | 0.0001 | 0.0094 | 0.0091 | 18.7 | 0.00055 |
| 2026 | S02 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | S02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2026 | S02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2026 | S02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | S02 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2026 | S02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 78.5 | 0.0009 | 0.0001 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 4.4 | 0.00001 |
| 2026 | S02 | Excavators | 100 < hp <= 175 | 0.59 | 233.5 | 0.0021 | 0.0003 | 0.0069 | 0.0000 | 0.0005 | 0.0005 | 12.9 | 0.00002 |
| 2026 | S02 | Forklifts | 75 < hp <= 100 | 0.59 | 1,664.0 | 0.0056 | 0.0008 | 0.0928 | 0.0002 | 0.0013 | 0.0013 | 58.5 | 0.00005 |
| 2026 | S02 | Generator Sets | 25 < hp <= 40 | 0.43 | 171.0 | 0.0022 | 0.0006 | 0.0099 | 0.0000 | 0.0004 | 0.0004 | 1.7 | 0.00005 |
| 2026 | S02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 240.0 | 0.0007 | 0.0003 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 16.6 | 0.00001 |
| 2026 | S02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,268.5 | 0.0207 | 0.0060 | 0.0790 | 0.0007 | 0.0050 | 0.0049 | 241.0 | 0.00030 |
| 2026 | S02 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2026 | S02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | S02 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2026 | S02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2026 | S02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2026 | S02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 366.0 | 0.0255 | 0.0045 | 0.0277 | 0.0000 | 0.0034 | 0.0033 | 4.0 | 0.00022 |
| 2026 | S02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.0 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2026 | S04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2026 | S04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | S04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |
| 2026 | S04 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2026 | S04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 13.6 | 0.0002 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2026 | S04 | Excavators | 100 < hp <= 175 | 0.59 | 13.6 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2026 | S04 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2026 | S04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 323.2 | 0.0053 | 0.0015 | 0.0201 | 0.0002 | 0.0013 | 0.0012 | 61.4 | 0.00008 |
| 2026 | S04 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2026 | S04 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2026 | S04 |  | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2026 | S05 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2026 | S05 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |
| 2026 | S05 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |
| 2026 | S05 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2026 | S05 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 9.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2026 | S05 | Excavators | 100 < hp <= 175 | 0.59 | 9.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2026 | S05 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2026 | S05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 314.0 | 0.0051 | 0.0015 | 0.0196 | 0.0002 | 0.0012 | 0.0012 | 59.7 | 0.00007 |
| 2026 | S05 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | S05 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2026 | S05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2026 | S06 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2026 | S06 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |
| 2026 | S06 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |
| 2026 | S06 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2026 | S06 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 14.5 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2026 | S06 | Excavators | 100 < hp <= 175 | 0.59 | 14.5 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2026 | S06 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2026 | S06 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 325.0 | 0.0053 | 0.0015 | 0.0202 | 0.0002 | 0.0013 | 0.0012 | 61.8 | 0.00008 |
| 2026 | S06 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2026 | S06 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2026 | S06 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2026 | S07 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2026 | S07 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2026 | S07 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2026 | S07 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2026 | S07 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2026 | S07 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | S07 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2026 | S07 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 76.7 | 0.0009 | 0.0001 | 0.0024 | 0.0000 | 0.0002 | 0.0002 | 4.2 | 0.00001 |
| 2026 | S07 | Excavators | 100 < hp <= 175 | 0.59 | 307.1 | 0.0027 | 0.0004 | 0.0091 | 0.0000 | 0.0007 | 0.0006 | 17.0 | 0.00003 |
| 2026 | S07 | Forklifts | 75 < hp <= 100 | 0.59 | 3,584.0 | 0.0121 | 0.0018 | 0.1998 | 0.0004 | 0.0028 | 0.0027 | 126.1 | 0.00012 |
| 2026 | S07 | Generator Sets | 25 < hp <= 40 | 0.43 | 166.4 | 0.0022 | 0.0006 | 0.0097 | 0.0000 | 0.0004 | 0.0003 | 1.7 | 0.00005 |
| 2026 | S07 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2026 | S07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,029.0 | 0.1145 | 0.0333 | 0.4379 | 0.0039 | 0.0277 | 0.0269 | 1,335.7 | 0.00166 |
| 2026 | S07 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2026 | S07 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2026 | S07 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | S07 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2026 | S07 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2026 | S07 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2026 | S07 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2026 | S07 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 196.8 | 0.0137 | 0.0024 | 0.0149 | 0.0000 | 0.0018 | 0.0017 | 2.2 | 0.00012 |
| 2026 | S07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 600.0 | 0.0549 | 0.0095 | 0.0502 | 0.0000 | 0.0073 | 0.0071 | 8.7 | 0.00043 |
| 2027 | A01 | Air Compressors | 75 < hp <= 100 | 0.43 | 120.4 | 0.0025 | 0.0003 | 0.0080 | 0.0000 | 0.0004 | 0.0004 | 3.1 | 0.00002 |
| 2027 | A01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 90.0 | 0.0053 | 0.0010 | 0.0117 | 0.0000 | 0.0009 | 0.0009 | 2.3 | 0.00004 |
| 2027 | A01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 112.4 | 0.0009 | 0.0003 | 0.0075 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00003 |
| 2027 | A01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 90.0 | 0.0019 | 0.0006 | 0.0032 | 0.0000 | 0.0002 | 0.0002 | 0.4 | 0.00005 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | A01 | Cranes | 175 < hp <= 300 | 0.43 | 8.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2027 | A01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 687.3 | 0.0076 | 0.0012 | 0.0216 | 0.0001 | 0.0019 | 0.0018 | 38.1 | 0.00009 |
| 2027 | A01 | Excavators | 100 < hp <= 175 | 0.59 | 882.8 | 0.0078 | 0.0012 | 0.0260 | 0.0001 | 0.0019 | 0.0018 | 48.9 | 0.00009 |
| 2027 | A01 | Graders | 175 < hp <= 300 | 0.59 | 36.4 | 0.0003 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 3.5 | 0.00001 |
| 2027 | A01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 32.8 | 0.0095 | 0.0020 | 0.0341 | 0.0000 | 0.0016 | 0.0016 | 6.2 | 0.00013 |
| 2027 | A01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,913.4 | 0.1289 | 0.0374 | 0.4930 | 0.0044 | 0.0312 | 0.0303 | 1,503.7 | 0.00187 |
| 2027 | A01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,117.4 | 0.0214 | 0.0050 | 0.0608 | 0.0001 | 0.0047 | 0.0046 | 45.1 | 0.00033 |
| 2027 | A01 | Pavers | 100 < hp <= 175 | 0.59 | 112.4 | 0.0016 | 0.0003 | 0.0038 | 0.0000 | 0.0004 | 0.0004 | 6.2 | 0.00002 |
| 2027 | A01 | Pumps | 6 < hp <= 11 | 0.43 | 30.0 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | A01 | Rollers | 75 < hp <= 100 | 0.59 | 376.7 | 0.0065 | 0.0006 | 0.0258 | 0.0000 | 0.0010 | 0.0009 | 13.2 | 0.00004 |
| 2027 | A01 | Scrapers | 300 < hp <= 600 | 0.59 | 140.5 | 0.0114 | 0.0018 | 0.0310 | 0.0001 | 0.0019 | 0.0018 | 26.7 | 0.00012 |
| 2027 | A01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 55.8 | 0.0069 | 0.0013 | 0.0058 | 0.0000 | 0.0010 | 0.0009 | 0.6 | 0.00005 |
| 2027 | A01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 112.4 | 0.0027 | 0.0006 | 0.0069 | 0.0000 | 0.0003 | 0.0003 | 1.0 | 0.00005 |
| 2027 | A01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 256.7 | 0.0480 | 0.0145 | 0.0841 | 0.0001 | 0.0100 | 0.0097 | 16.6 | 0.00082 |
| 2027 | A01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 126.0 | 0.0115 | 0.0020 | 0.0105 | 0.0000 | 0.0015 | 0.0015 | 1.8 | 0.00009 |
| 2027 | A07 | Air Compressors | 75 < hp <= 100 | 0.43 | 42.7 | 0.0009 | 0.0001 | 0.0028 | 0.0000 | 0.0001 | 0.0001 | 1.1 | 0.00001 |
| 2027 | A07 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 33.6 | 0.0020 | 0.0004 | 0.0044 | 0.0000 | 0.0003 | 0.0003 | 0.9 | 0.00001 |
| 2027 | A07 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 42.7 | 0.0003 | 0.0001 | 0.0028 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2027 | A07 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 33.6 | 0.0007 | 0.0002 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | A07 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 232.0 | 0.0026 | 0.0004 | 0.0073 | 0.0000 | 0.0006 | 0.0006 | 12.9 | 0.00003 |
| 2027 | A07 | Excavators | 100 < hp <= 175 | 0.59 | 59.1 | 0.0005 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 3.3 | 0.00001 |
| 2027 | A07 | Graders | 175 < hp <= 300 | 0.59 | 13.6 | 0.0001 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 1.3 | 0.00000 |
| 2027 | A07 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 12.3 | 0.0036 | 0.0008 | 0.0128 | 0.0000 | 0.0006 | 0.0006 | 2.3 | 0.00005 |
| 2027 | A07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 3,749.2 | 0.0611 | 0.0177 | 0.2336 | 0.0021 | 0.0148 | 0.0143 | 712.4 | 0.00089 |
| 2027 | A07 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 395.8 | 0.0076 | 0.0018 | 0.0215 | 0.0000 | 0.0017 | 0.0016 | 16.0 | 0.00012 |
| 2027 | A07 | Pavers | 100 < hp <= 175 | 0.59 | 42.7 | 0.0006 | 0.0001 | 0.0015 | 0.0000 | 0.0002 | 0.0002 | 2.4 | 0.00001 |
| 2027 | A07 | Pumps | 6 < hp <= 11 | 0.43 | 11.2 | 0.0002 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | A07 | Rollers | 75 < hp <= 100 | 0.59 | 131.9 | 0.0023 | 0.0002 | 0.0090 | 0.0000 | 0.0003 | 0.0003 | 4.6 | 0.00002 |
| 2027 | A07 | Scrapers | 300 < hp <= 600 | 0.59 | 53.4 | 0.0043 | 0.0007 | 0.0118 | 0.0000 | 0.0007 | 0.0007 | 10.1 | 0.00004 |
| 2027 | A07 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 9.7 | 0.0012 | 0.0002 | 0.0010 | 0.0000 | 0.0002 | 0.0002 | 0.1 | 0.00001 |
| 2027 | A07 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 42.7 | 0.0010 | 0.0002 | 0.0026 | 0.0000 | 0.0001 | 0.0001 | 0.4 | 0.00002 |
| 2027 | A07 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 77.9 | 0.0146 | 0.0044 | 0.0255 | 0.0000 | 0.0030 | 0.0029 | 5.0 | 0.00025 |
| 2027 | A07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 30.0 | 0.0027 | 0.0005 | 0.0025 | 0.0000 | 0.0004 | 0.0004 | 0.4 | 0.00002 |
| 2027 | A08 | Air Compressors | 75 < hp <= 100 | 0.43 | 20.0 | 0.0004 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00000 |
| 2027 | A08 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 16.8 | 0.0010 | 0.0002 | 0.0022 | 0.0000 | 0.0002 | 0.0002 | 0.4 | 0.00001 |
| 2027 | A08 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 20.0 | 0.0002 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00001 |
| 2027 | A08 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 16.8 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | A08 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 251.4 | 0.0028 | 0.0004 | 0.0079 | 0.0000 | 0.0007 | 0.0007 | 13.9 | 0.00003 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | A08 | Excavators | 100 < hp <= 175 | 0.59 | 746.1 | 0.0066 | 0.0010 | 0.0220 | 0.0001 | 0.0016 | 0.0015 | 41.3 | 0.00007 |
| 2027 | A08 | Generator Sets | 25 < hp <= 40 | 0.43 | 576.0 | 0.0075 | 0.0021 | 0.0335 | 0.0000 | 0.0012 | 0.0012 | 5.8 | 0.00018 |
| 2027 | A08 | Graders | 175 < hp <= 300 | 0.59 | 6.5 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | A08 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 5.9 | 0.0017 | 0.0004 | 0.0061 | 0.0000 | 0.0003 | 0.0003 | 1.1 | 0.00002 |
| 2027 | A08 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 5,768.9 | 0.0939 | 0.0273 | 0.3594 | 0.0032 | 0.0227 | 0.0221 | 1,096.2 | 0.00136 |
| 2027 | A08 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 200.8 | 0.0038 | 0.0009 | 0.0109 | 0.0000 | 0.0008 | 0.0008 | 8.1 | 0.00006 |
| 2027 | A08 | Pavers | 100 < hp <= 175 | 0.59 | 20.0 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 1.1 | 0.00000 |
| 2027 | A08 | Pumps | 6 < hp <= 11 | 0.43 | 5.6 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | A08 | Rollers | 75 < hp <= 100 | 0.59 | 60.3 | 0.0010 | 0.0001 | 0.0041 | 0.0000 | 0.0002 | 0.0002 | 2.1 | 0.00001 |
| 2027 | A08 | Scrapers | 300 < hp <= 600 | 0.59 | 25.0 | 0.0020 | 0.0003 | 0.0055 | 0.0000 | 0.0003 | 0.0003 | 4.7 | 0.00002 |
| 2027 | A08 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 6.4 | 0.0008 | 0.0001 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2027 | A08 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 20.0 | 0.0005 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2027 | A08 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 35.8 | 0.0067 | 0.0020 | 0.0117 | 0.0000 | 0.0014 | 0.0013 | 2.3 | 0.00011 |
| 2027 | A08 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 1,152.0 | 0.0802 | 0.0141 | 0.0872 | 0.0000 | 0.0105 | 0.0102 | 12.6 | 0.00069 |
| 2027 | A08 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 15.4 | 0.0014 | 0.0002 | 0.0013 | 0.0000 | 0.0002 | 0.0002 | 0.2 | 0.00001 |
| 2027 | A09 | Air Compressors | 75 < hp <= 100 | 0.43 | 48.3 | 0.0010 | 0.0001 | 0.0032 | 0.0000 | 0.0002 | 0.0002 | 1.2 | 0.00001 |
| 2027 | A09 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 38.4 | 0.0022 | 0.0004 | 0.0050 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2027 | A09 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 48.3 | 0.0004 | 0.0001 | 0.0032 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00001 |
| 2027 | A09 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 38.4 | 0.0008 | 0.0003 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | A09 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 253.0 | 0.0028 | 0.0004 | 0.0079 | 0.0000 | 0.0007 | 0.0007 | 14.0 | 0.00003 |
| 2027 | A09 | Excavators | 100 < hp <= 175 | 0.59 | 57.9 | 0.0005 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 3.2 | 0.00001 |
| 2027 | A09 | Graders | 175 < hp <= 300 | 0.59 | 15.3 | 0.0001 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 1.5 | 0.00000 |
| 2027 | A09 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 13.8 | 0.0040 | 0.0009 | 0.0143 | 0.0000 | 0.0007 | 0.0007 | 2.6 | 0.00006 |
| 2027 | A09 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,723.4 | 0.0769 | 0.0223 | 0.2943 | 0.0026 | 0.0186 | 0.0181 | 897.6 | 0.00112 |
| 2027 | A09 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 471.1 | 0.0090 | 0.0021 | 0.0256 | 0.0001 | 0.0020 | 0.0019 | 19.0 | 0.00014 |
| 2027 | A09 | Pavers | 100 < hp <= 175 | 0.59 | 48.3 | 0.0007 | 0.0001 | 0.0017 | 0.0000 | 0.0002 | 0.0002 | 2.7 | 0.00001 |
| 2027 | A09 | Pumps | 6 < hp <= 11 | 0.43 | 12.8 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | A09 | Rollers | 75 < hp <= 100 | 0.59 | 140.1 | 0.0024 | 0.0002 | 0.0096 | 0.0000 | 0.0004 | 0.0003 | 4.9 | 0.00002 |
| 2027 | A09 | Scrapers | 300 < hp <= 600 | 0.59 | 60.4 | 0.0049 | 0.0008 | 0.0133 | 0.0000 | 0.0008 | 0.0008 | 11.5 | 0.00005 |
| 2027 | A09 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 9.9 | 0.0012 | 0.0002 | 0.0010 | 0.0000 | 0.0002 | 0.0002 | 0.1 | 0.00001 |
| 2027 | A09 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 48.3 | 0.0012 | 0.0003 | 0.0030 | 0.0000 | 0.0001 | 0.0001 | 0.4 | 0.00002 |
| 2027 | A09 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 73.1 | 0.0137 | 0.0041 | 0.0239 | 0.0000 | 0.0028 | 0.0028 | 4.7 | 0.00023 |
| 2027 | A09 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 28.0 | 0.0026 | 0.0004 | 0.0023 | 0.0000 | 0.0003 | 0.0003 | 0.4 | 0.00002 |
| 2027 | A10 | Air Compressors | 75 < hp <= 100 | 0.43 | 2.5 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | A10 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 3.6 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | A10 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 2.5 | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | A10 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 3.6 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | A10 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 28.9 | 0.0003 | 0.0000 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | A10 | Excavators | 100 < hp <= 175 | 0.59 | 17.2 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 1.0 | 0.00000 |
| 2027 | A10 | Graders | 175 < hp <= 300 | 0.59 | 1.3 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | A10 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 1.2 | 0.0003 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00000 |
| 2027 | A10 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 3,032.8 | 0.0494 | 0.0143 | 0.1890 | 0.0017 | 0.0120 | 0.0116 | 576.3 | 0.00072 |
| 2027 | A10 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 50.7 | 0.0010 | 0.0002 | 0.0028 | 0.0000 | 0.0002 | 0.0002 | 2.0 | 0.00002 |
| 2027 | A10 | Pavers | 100 < hp <= 175 | 0.59 | 2.5 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | A10 | Pumps | 6 < hp <= 11 | 0.43 | 1.2 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | A10 | Rollers | 75 < hp <= 100 | 0.59 | 22.0 | 0.0004 | 0.0000 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00000 |
| 2027 | A10 | Scrapers | 300 < hp <= 600 | 0.59 | 3.1 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | A10 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 6.2 | 0.0008 | 0.0001 | 0.0006 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2027 | A10 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 2.5 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | A10 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 31.6 | 0.0059 | 0.0018 | 0.0104 | 0.0000 | 0.0012 | 0.0012 | 2.0 | 0.00010 |
| 2027 | A10 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 15.6 | 0.0014 | 0.0002 | 0.0013 | 0.0000 | 0.0002 | 0.0002 | 0.2 | 0.00001 |
| 2027 | C02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | C02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2027 | C02 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2027 | C02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2027 | C02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 64.0 | 0.0037 | 0.0007 | 0.0083 | 0.0000 | 0.0007 | 0.0006 | 1.6 | 0.00003 |
| 2027 | C02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 64.0 | 0.0013 | 0.0005 | 0.0023 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00004 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | C02 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2027 | C02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 40.0 | 0.0004 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.00000 |
| 2027 | C02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2027 | C02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,724.0 | 0.0125 | 0.0018 | 0.2076 | 0.0004 | 0.0029 | 0.0029 | 131.0 | 0.00012 |
| 2027 | C02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2027 | C02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2027 | C02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2027 | C02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,864.0 | 0.1118 | 0.0325 | 0.4277 | 0.0038 | 0.0271 | 0.0263 | 1,304.3 | 0.00162 |
| 2027 | C02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2027 | C02 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2027 | C02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 40.0 | 0.0003 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | C02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2027 | C02 | Rollers | 75 < hp <= 100 | 0.59 | 56.0 | 0.0010 | 0.0001 | 0.0038 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00001 |
| 2027 | C02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2027 | C02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 64.0 | 0.0022 | 0.0003 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 1.6 | 0.00001 |
| 2027 | C02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2027 | C02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2027 | C02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 840.0 | 0.0769 | 0.0133 | 0.0703 | 0.0000 | 0.0102 | 0.0099 | 12.2 | 0.00061 |
| 2027 | L01 | Air Compressors | 75 < hp <= 100 | 0.43 | 22.8 | 0.0005 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | L01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 19.2 | 0.0011 | 0.0002 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |
| 2027 | L01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 22.8 | 0.0002 | 0.0001 | 0.0015 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00001 |
| 2027 | L01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 19.2 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | L01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 206.5 | 0.0023 | 0.0004 | 0.0065 | 0.0000 | 0.0006 | 0.0005 | 11.4 | 0.00003 |
| 2027 | L01 | Excavators | 100 < hp <= 175 | 0.59 | 113.3 | 0.0010 | 0.0002 | 0.0033 | 0.0000 | 0.0002 | 0.0002 | 6.3 | 0.00001 |
| 2027 | L01 | Graders | 175 < hp <= 300 | 0.59 | 7.6 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |
| 2027 | L01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 6.9 | 0.0020 | 0.0004 | 0.0071 | 0.0000 | 0.0003 | 0.0003 | 1.3 | 0.00003 |
| 2027 | L01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,227.2 | 0.0688 | 0.0200 | 0.2634 | 0.0023 | 0.0167 | 0.0162 | 803.3 | 0.00100 |
| 2027 | L01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 309.1 | 0.0059 | 0.0014 | 0.0168 | 0.0000 | 0.0013 | 0.0013 | 12.5 | 0.00009 |
| 2027 | L01 | Pavers | 100 < hp <= 175 | 0.59 | 55.9 | 0.0008 | 0.0001 | 0.0019 | 0.0000 | 0.0002 | 0.0002 | 3.1 | 0.00001 |
| 2027 | L01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 49.2 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | L01 | Pumps | 6 < hp <= 11 | 0.43 | 6.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | L01 | Rollers | 75 < hp <= 100 | 0.59 | 90.4 | 0.0016 | 0.0001 | 0.0062 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2027 | L01 | Scrapers | 300 < hp <= 600 | 0.59 | 28.4 | 0.0023 | 0.0004 | 0.0063 | 0.0000 | 0.0004 | 0.0004 | 5.4 | 0.00002 |
| 2027 | L01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 52.4 | 0.0065 | 0.0012 | 0.0055 | 0.0000 | 0.0009 | 0.0009 | 0.6 | 0.00004 |
| 2027 | L01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 33.7 | 0.0008 | 0.0002 | 0.0021 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00002 |
| 2027 | L01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 70.4 | 0.0132 | 0.0040 | 0.0231 | 0.0000 | 0.0027 | 0.0027 | 4.5 | 0.00022 |
| 2027 | L01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 110.6 | 0.0101 | 0.0018 | 0.0093 | 0.0000 | 0.0013 | 0.0013 | 1.6 | 0.00008 |
| 2027 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2027 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2027 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2027 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2027 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2027 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2027 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2027 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2027 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2027 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2027 | L04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | L04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2027 | L04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2027 | L04 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2027 | L04 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2027 | L04 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2027 | L04 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2027 | L04 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2027 | L04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | L04 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2027 | L04 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2027 | L04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2027 | L05 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 16.0 | 0.0026 | 0.0004 | 0.0028 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00002 |
| 2027 | L05 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2027 | L05 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 24.0 | 0.0115 | 0.0024 | 0.0432 | 0.0000 | 0.0016 | 0.0015 | 4.5 | 0.00012 |
| 2027 | L05 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2027 | L05 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | L05 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2027 | L05 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |
| 2027 | L05 | Forklifts | 75 < hp <= 100 | 0.59 | 24.0 | 0.0001 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2027 | L05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 164.0 | 0.0027 | 0.0008 | 0.0102 | 0.0001 | 0.0006 | 0.0006 | 31.2 | 0.00004 |
| 2027 | L05 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2027 | L05 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | L05 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | L05 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2027 | L05 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2027 | L05 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2027 | L05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 120.0 | 0.0110 | 0.0019 | 0.0100 | 0.0000 | 0.0015 | 0.0014 | 1.7 | 0.00009 |
| 2027 | S02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 1,320.0 | 0.0503 | 0.0096 | 0.0837 | 0.0000 | 0.0060 | 0.0058 | 14.4 | 0.00052 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 456.0 | 0.0742 | 0.0117 | 0.0805 | 0.0001 | 0.0094 | 0.0091 | 18.7 | 0.00055 |
| 2027 | S02 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2027 | S02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2027 | S02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2027 | S02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | S02 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2027 | S02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 98.5 | 0.0011 | 0.0002 | 0.0031 | 0.0000 | 0.0003 | 0.0003 | 5.5 | 0.00001 |
| 2027 | S02 | Excavators | 100 < hp <= 175 | 0.59 | 310.5 | 0.0027 | 0.0004 | 0.0092 | 0.0001 | 0.0007 | 0.0006 | 17.2 | 0.00003 |
| 2027 | S02 | Forklifts | 75 < hp <= 100 | 0.59 | 1,664.0 | 0.0056 | 0.0008 | 0.0928 | 0.0002 | 0.0013 | 0.0013 | 58.5 | 0.00005 |
| 2027 | S02 | Generator Sets | 25 < hp <= 40 | 0.43 | 228.0 | 0.0030 | 0.0008 | 0.0133 | 0.0000 | 0.0005 | 0.0005 | 2.3 | 0.00007 |
| 2027 | S02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 240.0 | 0.0007 | 0.0003 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 16.6 | 0.00001 |
| 2027 | S02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,489.0 | 0.0242 | 0.0070 | 0.0928 | 0.0008 | 0.0059 | 0.0057 | 282.9 | 0.00035 |
| 2027 | S02 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2027 | S02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | S02 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | S02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2027 | S02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2027 | S02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 480.0 | 0.0334 | 0.0059 | 0.0363 | 0.0000 | 0.0044 | 0.0043 | 5.2 | 0.00029 |
| 2027 | S02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.0 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S03 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 1,320.0 | 0.0503 | 0.0096 | 0.0837 | 0.0000 | 0.0060 | 0.0058 | 14.4 | 0.00052 |
| 2027 | S03 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 456.0 | 0.0742 | 0.0117 | 0.0805 | 0.0001 | 0.0094 | 0.0091 | 18.7 | 0.00055 |
| 2027 | S03 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2027 | S03 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2027 | S03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2027 | S03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | S03 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2027 | S03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |
| 2027 | S03 | Forklifts | 75 < hp <= 100 | 0.59 | 1,664.0 | 0.0056 | 0.0008 | 0.0928 | 0.0002 | 0.0013 | 0.0013 | 58.5 | 0.00005 |
| 2027 | S03 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 240.0 | 0.0007 | 0.0003 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 16.6 | 0.00001 |
| 2027 | S03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 602.0 | 0.0098 | 0.0028 | 0.0375 | 0.0003 | 0.0024 | 0.0023 | 114.4 | 0.00014 |
| 2027 | S03 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2027 | S03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | S03 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | S03 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2027 | S03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2027 | S03 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2027 | S03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.0 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2027 | S04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |
| 2027 | S04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |
| 2027 | S04 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 13.6 | 0.0002 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2027 | S04 | Excavators | 100 < hp <= 175 | 0.59 | 13.6 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2027 | S04 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2027 | S04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 323.2 | 0.0053 | 0.0015 | 0.0201 | 0.0002 | 0.0013 | 0.0012 | 61.4 | 0.00008 |
| 2027 | S04 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S04 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | S04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2027 | S05 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2027 | S05 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |
| 2027 | S05 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |
| 2027 | S05 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S05 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 7.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S05 | Excavators | 100 < hp <= 175 | 0.59 | 7.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S05 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2027 | S05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 310.0 | 0.0050 | 0.0015 | 0.0193 | 0.0002 | 0.0012 | 0.0012 | 58.9 | 0.00007 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S05 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S05 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | S05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2027 | S06 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2027 | S06 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |
| 2027 | S06 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |
| 2027 | S06 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S06 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 11.5 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | S06 | Excavators | 100 < hp <= 175 | 0.59 | 11.5 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | S06 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2027 | S06 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 319.0 | 0.0052 | 0.0015 | 0.0199 | 0.0002 | 0.0013 | 0.0012 | 60.6 | 0.00008 |
| 2027 | S06 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S06 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | S06 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2027 | S07 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | S07 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2027 | S07 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2027 | S07 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S07 | Chippers/Stump Grinders | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2027 | S07 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | S07 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2027 | S07 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 61.5 | 0.0007 | 0.0001 | 0.0019 | 0.0000 | 0.0002 | 0.0002 | 3.4 | 0.00001 |
| 2027 | S07 | Excavators | 100 < hp <= 175 | 0.59 | 270.3 | 0.0024 | 0.0004 | 0.0080 | 0.0000 | 0.0006 | 0.0006 | 15.0 | 0.00003 |
| 2027 | S07 | Forklifts | 75 < hp <= 100 | 0.59 | 3,584.0 | 0.0121 | 0.0018 | 0.1998 | 0.0004 | 0.0028 | 0.0027 | 126.1 | 0.00012 |
| 2027 | S07 | Generator Sets | 25 < hp <= 40 | 0.43 | 144.8 | 0.0019 | 0.0005 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 1.5 | 0.00004 |
| 2027 | S07 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2027 | S07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,930.2 | 0.1129 | 0.0328 | 0.4318 | 0.0038 | 0.0273 | 0.0265 | 1,316.9 | 0.00164 |
| 2027 | S07 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2027 | S07 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2027 | S07 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | S07 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2027 | S07 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | S07 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2027 | S07 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2027 | S07 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 153.6 | 0.0107 | 0.0019 | 0.0116 | 0.0000 | 0.0014 | 0.0014 | 1.7 | 0.00009 |
| 2027 | S07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 600.0 | 0.0549 | 0.0095 | 0.0502 | 0.0000 | 0.0073 | 0.0071 | 8.7 | 0.00043 |
| 2027 | S08 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | S08 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S08 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2027 | S08 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2027 | S08 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 9.9 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2027 | S08 | Excavators | 100 < hp <= 175 | 0.59 | 169.9 | 0.0015 | 0.0002 | 0.0050 | 0.0000 | 0.0004 | 0.0003 | 9.4 | 0.00002 |
| 2027 | S08 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2027 | S08 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2027 | S08 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2027 | S08 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,493.8 | 0.1057 | 0.0307 | 0.4046 | 0.0036 | 0.0256 | 0.0248 | 1,234.0 | 0.00154 |
| 2027 | S08 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2027 | S08 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2027 | S08 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2027 | S09 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | S09 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2027 | S09 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2027 | S09 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2027 | S09 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 9.9 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2027 | S09 | Excavators | 100 < hp <= 175 | 0.59 | 169.9 | 0.0015 | 0.0002 | 0.0050 | 0.0000 | 0.0004 | 0.0003 | 9.4 | 0.00002 |
| 2027 | S09 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2027 | S09 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S09 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2027 | S09 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,493.8 | 0.1057 | 0.0307 | 0.4046 | 0.0036 | 0.0256 | 0.0248 | 1,234.0 | 0.00154 |
| 2027 | S09 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2027 | S09 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2027 | S09 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2027 | T01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | T01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2027 | T01 | Air Compressors | 75 < hp <= 100 | 0.43 | 51.8 | 0.0011 | 0.0001 | 0.0034 | 0.0000 | 0.0002 | 0.0002 | 1.3 | 0.00001 |
| 2027 | T01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2027 | T01 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 82.0 | 0.0926 | 0.0214 | 0.0005 | 0.0000 | 0.0034 | 0.0031 | 0.2 | 0.00000 |
| 2027 | T01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 82.0 | 0.0048 | 0.0009 | 0.0106 | 0.0000 | 0.0008 | 0.0008 | 2.1 | 0.00004 |
| 2027 | T01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 51.8 | 0.0004 | 0.0001 | 0.0034 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00002 |
| 2027 | T01 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2027 | T01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 412.7 | 0.0046 | 0.0007 | 0.0130 | 0.0001 | 0.0011 | 0.0011 | 22.9 | 0.00005 |
| 2027 | T01 | Excavators | 100 < hp <= 175 | 0.59 | 558.8 | 0.0049 | 0.0008 | 0.0165 | 0.0001 | 0.0012 | 0.0011 | 31.0 | 0.00006 |
| 2027 | T01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,700.0 | 0.0125 | 0.0018 | 0.2062 | 0.0004 | 0.0029 | 0.0028 | 130.1 | 0.00012 |
| 2027 | T01 | Generator Sets | 25 < hp <= 40 | 0.43 | 301.0 | 0.0039 | 0.0011 | 0.0175 | 0.0000 | 0.0006 | 0.0006 | 3.1 | 0.00009 |
| 2027 | T01 | Graders | 175 < hp <= 300 | 0.59 | 16.9 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |
| 2027 | T01 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | T01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.2 | 0.0044 | 0.0009 | 0.0158 | 0.0000 | 0.0007 | 0.0007 | 2.9 | 0.00006 |
| 2027 | T01 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2027 | T01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 12,536.6 | 0.2042 | 0.0593 | 0.7811 | 0.0070 | 0.0494 | 0.0480 | 2,382.3 | 0.00297 |
| 2027 | T01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 516.6 | 0.0099 | 0.0023 | 0.0281 | 0.0001 | 0.0022 | 0.0021 | 20.9 | 0.00015 |
| 2027 | T01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2027 | T01 | Pavers | 100 < hp <= 175 | 0.59 | 51.8 | 0.0008 | 0.0001 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 2.9 | 0.00001 |
| 2027 | T01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | T01 | Pumps | 6 < hp <= 11 | 0.43 | 254.0 | 0.0034 | 0.0011 | 0.0056 | 0.0000 | 0.0004 | 0.0003 | 0.7 | 0.00008 |
| 2027 | T01 | Rollers | 75 < hp <= 100 | 0.59 | 194.3 | 0.0033 | 0.0003 | 0.0133 | 0.0000 | 0.0005 | 0.0005 | 6.8 | 0.00002 |
| 2027 | T01 | Scrapers | 300 < hp <= 600 | 0.59 | 64.8 | 0.0053 | 0.0008 | 0.0143 | 0.0000 | 0.0009 | 0.0008 | 12.3 | 0.00005 |
| 2027 | T01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 15.9 | 0.0020 | 0.0004 | 0.0017 | 0.0000 | 0.0003 | 0.0003 | 0.2 | 0.00001 |
| 2027 | T01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 51.8 | 0.0013 | 0.0003 | 0.0032 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |
| 2027 | T01 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2027 | T01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2027 | T01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 129.1 | 0.0241 | 0.0073 | 0.0423 | 0.0000 | 0.0050 | 0.0049 | 8.3 | 0.00041 |
| 2027 | T01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 466.1 | 0.0324 | 0.0057 | 0.0353 | 0.0000 | 0.0043 | 0.0041 | 5.1 | 0.00028 |
| 2027 | T01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 757.5 | 0.0693 | 0.0120 | 0.0634 | 0.0000 | 0.0092 | 0.0089 | 11.0 | 0.00055 |
| 2028 | A01 | Air Compressors | 75 < hp <= 100 | 0.43 | 120.4 | 0.0025 | 0.0003 | 0.0080 | 0.0000 | 0.0004 | 0.0004 | 3.1 | 0.00002 |
| 2028 | A01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 90.0 | 0.0053 | 0.0010 | 0.0117 | 0.0000 | 0.0009 | 0.0009 | 2.3 | 0.00004 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | A01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 112.4 | 0.0009 | 0.0003 | 0.0075 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00003 |
| 2028 | A01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 90.0 | 0.0019 | 0.0006 | 0.0032 | 0.0000 | 0.0002 | 0.0002 | 0.4 | 0.00005 |
| 2028 | A01 | Cranes | 175 < hp <= 300 | 0.43 | 8.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2028 | A01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 687.3 | 0.0076 | 0.0012 | 0.0216 | 0.0001 | 0.0019 | 0.0018 | 38.1 | 0.00009 |
| 2028 | A01 | Excavators | 100 < hp <= 175 | 0.59 | 882.8 | 0.0078 | 0.0012 | 0.0260 | 0.0001 | 0.0019 | 0.0018 | 48.9 | 0.00009 |
| 2028 | A01 | Graders | 175 < hp <= 300 | 0.59 | 36.4 | 0.0003 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 3.5 | 0.00001 |
| 2028 | A01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 32.8 | 0.0095 | 0.0020 | 0.0341 | 0.0000 | 0.0016 | 0.0016 | 6.2 | 0.00013 |
| 2028 | A01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,913.4 | 0.1289 | 0.0374 | 0.4930 | 0.0044 | 0.0312 | 0.0303 | 1,503.7 | 0.00187 |
| 2028 | A01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,117.4 | 0.0214 | 0.0050 | 0.0608 | 0.0001 | 0.0047 | 0.0046 | 45.1 | 0.00033 |
| 2028 | A01 | Pavers | 100 < hp <= 175 | 0.59 | 112.4 | 0.0016 | 0.0003 | 0.0038 | 0.0000 | 0.0004 | 0.0004 | 6.2 | 0.00002 |
| 2028 | A01 | Pumps | 6 < hp <= 11 | 0.43 | 30.0 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | A01 | Rollers | 75 < hp <= 100 | 0.59 | 376.7 | 0.0065 | 0.0006 | 0.0258 | 0.0000 | 0.0010 | 0.0009 | 13.2 | 0.00004 |
| 2028 | A01 | Scrapers | 300 < hp <= 600 | 0.59 | 140.5 | 0.0114 | 0.0018 | 0.0310 | 0.0001 | 0.0019 | 0.0018 | 26.7 | 0.00012 |
| 2028 | A01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 55.8 | 0.0069 | 0.0013 | 0.0058 | 0.0000 | 0.0010 | 0.0009 | 0.6 | 0.00005 |
| 2028 | A01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 112.4 | 0.0027 | 0.0006 | 0.0069 | 0.0000 | 0.0003 | 0.0003 | 1.0 | 0.00005 |
| 2028 | A01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 256.7 | 0.0480 | 0.0145 | 0.0841 | 0.0001 | 0.0100 | 0.0097 | 16.6 | 0.00082 |
| 2028 | A01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 126.0 | 0.0115 | 0.0020 | 0.0105 | 0.0000 | 0.0015 | 0.0015 | 1.8 | 0.00009 |
| 2028 | A04 | Air Compressors | 75 < hp <= 100 | 0.43 | 22.8 | 0.0005 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00000 |
| 2028 | A04 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 20.4 | 0.0012 | 0.0002 | 0.0026 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | A04 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 22.8 | 0.0002 | 0.0001 | 0.0015 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00001 |
| 2028 | A04 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 20.4 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | A04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 147.7 | 0.0016 | 0.0003 | 0.0046 | 0.0000 | 0.0004 | 0.0004 | 8.2 | 0.00002 |
| 2028 | A04 | Excavators | 100 < hp <= 175 | 0.59 | 375.7 | 0.0033 | 0.0005 | 0.0111 | 0.0001 | 0.0008 | 0.0008 | 20.8 | 0.00004 |
| 2028 | A04 | Graders | 175 < hp <= 300 | 0.59 | 8.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2028 | A04 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 7.2 | 0.0021 | 0.0004 | 0.0075 | 0.0000 | 0.0004 | 0.0003 | 1.3 | 0.00003 |
| 2028 | A04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 5,798.9 | 0.0944 | 0.0274 | 0.3613 | 0.0032 | 0.0229 | 0.0222 | 1,101.9 | 0.00137 |
| 2028 | A04 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,441.6 | 0.0276 | 0.0065 | 0.0784 | 0.0002 | 0.0061 | 0.0059 | 58.2 | 0.00043 |
| 2028 | A04 | Pavers | 100 < hp <= 175 | 0.59 | 22.8 | 0.0003 | 0.0001 | 0.0008 | 0.0000 | 0.0001 | 0.0001 | 1.3 | 0.00000 |
| 2028 | A04 | Pumps | 6 < hp <= 11 | 0.43 | 6.8 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A04 | Rollers | 75 < hp <= 100 | 0.59 | 92.7 | 0.0016 | 0.0001 | 0.0063 | 0.0000 | 0.0002 | 0.0002 | 3.3 | 0.00001 |
| 2028 | A04 | Scrapers | 300 < hp <= 600 | 0.59 | 28.5 | 0.0023 | 0.0004 | 0.0063 | 0.0000 | 0.0004 | 0.0004 | 5.4 | 0.00002 |
| 2028 | A04 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 22.1 | 0.0027 | 0.0005 | 0.0023 | 0.0000 | 0.0004 | 0.0004 | 0.2 | 0.00002 |
| 2028 | A04 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 22.8 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2028 | A04 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 91.9 | 0.0172 | 0.0052 | 0.0301 | 0.0000 | 0.0036 | 0.0035 | 5.9 | 0.00029 |
| 2028 | A04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 45.7 | 0.0042 | 0.0007 | 0.0038 | 0.0000 | 0.0006 | 0.0005 | 0.7 | 0.00003 |
| 2028 | A08 | Air Compressors | 75 < hp <= 100 | 0.43 | 53.3 | 0.0011 | 0.0001 | 0.0035 | 0.0000 | 0.0002 | 0.0002 | 1.4 | 0.00001 |
| 2028 | A08 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 42.0 | 0.0025 | 0.0005 | 0.0055 | 0.0000 | 0.0004 | 0.0004 | 1.1 | 0.00002 |
| 2028 | A08 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 53.3 | 0.0004 | 0.0001 | 0.0035 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00002 |
| 2028 | A08 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 42.0 | 0.0009 | 0.0003 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | A08 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 428.1 | 0.0048 | 0.0007 | 0.0134 | 0.0001 | 0.0012 | 0.0011 | 23.7 | 0.00005 |
| 2028 | A08 | Excavators | 100 < hp <= 175 | 0.59 | 789.0 | 0.0070 | 0.0011 | 0.0233 | 0.0001 | 0.0017 | 0.0016 | 43.7 | 0.00008 |
| 2028 | A08 | Generator Sets | 25 < hp <= 40 | 0.43 | 576.0 | 0.0075 | 0.0021 | 0.0335 | 0.0000 | 0.0012 | 0.0012 | 5.8 | 0.00018 |
| 2028 | A08 | Graders | 175 < hp <= 300 | 0.59 | 16.9 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |
| 2028 | A08 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.2 | 0.0044 | 0.0009 | 0.0158 | 0.0000 | 0.0007 | 0.0007 | 2.9 | 0.00006 |
| 2028 | A08 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,040.0 | 0.1146 | 0.0333 | 0.4386 | 0.0039 | 0.0278 | 0.0269 | 1,337.8 | 0.00167 |
| 2028 | A08 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 527.1 | 0.0101 | 0.0024 | 0.0287 | 0.0001 | 0.0022 | 0.0021 | 21.3 | 0.00016 |
| 2028 | A08 | Pavers | 100 < hp <= 175 | 0.59 | 53.3 | 0.0008 | 0.0001 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 3.0 | 0.00001 |
| 2028 | A08 | Pumps | 6 < hp <= 11 | 0.43 | 14.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A08 | Rollers | 75 < hp <= 100 | 0.59 | 159.6 | 0.0028 | 0.0003 | 0.0109 | 0.0000 | 0.0004 | 0.0004 | 5.6 | 0.00002 |
| 2028 | A08 | Scrapers | 300 < hp <= 600 | 0.59 | 66.6 | 0.0054 | 0.0009 | 0.0147 | 0.0000 | 0.0009 | 0.0009 | 12.7 | 0.00006 |
| 2028 | A08 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 10.4 | 0.0013 | 0.0002 | 0.0011 | 0.0000 | 0.0002 | 0.0002 | 0.1 | 0.00001 |
| 2028 | A08 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 53.3 | 0.0013 | 0.0003 | 0.0033 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |
| 2028 | A08 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 88.1 | 0.0165 | 0.0050 | 0.0289 | 0.0000 | 0.0034 | 0.0033 | 5.7 | 0.00028 |
| 2028 | A08 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 1,152.0 | 0.0802 | 0.0141 | 0.0872 | 0.0000 | 0.0105 | 0.0102 | 12.6 | 0.00069 |
| 2028 | A08 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 33.1 | 0.0030 | 0.0005 | 0.0028 | 0.0000 | 0.0004 | 0.0004 | 0.5 | 0.00002 |
| 2028 | A09 | Air Compressors | 75 < hp <= 100 | 0.43 | 48.3 | 0.0010 | 0.0001 | 0.0032 | 0.0000 | 0.0002 | 0.0002 | 1.2 | 0.00001 |
| 2028 | A09 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 38.4 | 0.0022 | 0.0004 | 0.0050 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2028 | A09 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 48.3 | 0.0004 | 0.0001 | 0.0032 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | A09 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 38.4 | 0.0008 | 0.0003 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2028 | A09 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 253.0 | 0.0028 | 0.0004 | 0.0079 | 0.0000 | 0.0007 | 0.0007 | 14.0 | 0.00003 |
| 2028 | A09 | Excavators | 100 < hp <= 175 | 0.59 | 57.9 | 0.0005 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 3.2 | 0.00001 |
| 2028 | A09 | Graders | 175 < hp <= 300 | 0.59 | 15.3 | 0.0001 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 1.5 | 0.00000 |
| 2028 | A09 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 13.8 | 0.0040 | 0.0009 | 0.0143 | 0.0000 | 0.0007 | 0.0007 | 2.6 | 0.00006 |
| 2028 | A09 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,723.4 | 0.0769 | 0.0223 | 0.2943 | 0.0026 | 0.0186 | 0.0181 | 897.6 | 0.00112 |
| 2028 | A09 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 471.1 | 0.0090 | 0.0021 | 0.0256 | 0.0001 | 0.0020 | 0.0019 | 19.0 | 0.00014 |
| 2028 | A09 | Pavers | 100 < hp <= 175 | 0.59 | 48.3 | 0.0007 | 0.0001 | 0.0017 | 0.0000 | 0.0002 | 0.0002 | 2.7 | 0.00001 |
| 2028 | A09 | Pumps | 6 < hp <= 11 | 0.43 | 12.8 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A09 | Rollers | 75 < hp <= 100 | 0.59 | 140.1 | 0.0024 | 0.0002 | 0.0096 | 0.0000 | 0.0004 | 0.0003 | 4.9 | 0.00002 |
| 2028 | A09 | Scrapers | 300 < hp <= 600 | 0.59 | 60.4 | 0.0049 | 0.0008 | 0.0133 | 0.0000 | 0.0008 | 0.0008 | 11.5 | 0.00005 |
| 2028 | A09 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 9.9 | 0.0012 | 0.0002 | 0.0010 | 0.0000 | 0.0002 | 0.0002 | 0.1 | 0.00001 |
| 2028 | A09 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 48.3 | 0.0012 | 0.0003 | 0.0030 | 0.0000 | 0.0001 | 0.0001 | 0.4 | 0.00002 |
| 2028 | A09 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 73.1 | 0.0137 | 0.0041 | 0.0239 | 0.0000 | 0.0028 | 0.0028 | 4.7 | 0.00023 |
| 2028 | A09 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 28.0 | 0.0026 | 0.0004 | 0.0023 | 0.0000 | 0.0003 | 0.0003 | 0.4 | 0.00002 |
| 2028 | A10 | Air Compressors | 75 < hp <= 100 | 0.43 | 1.9 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A10 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 2.4 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2028 | A10 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 1.9 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A10 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 2.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A10 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 22.5 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 1.2 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | A10 | Excavators | 100 < hp <= 175 | 0.59 | 13.5 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |
| 2028 | A10 | Graders | 175 < hp <= 300 | 0.59 | 1.0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2028 | A10 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 0.9 | 0.0003 | 0.0001 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2028 | A10 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 2,278.4 | 0.0371 | 0.0108 | 0.1420 | 0.0013 | 0.0090 | 0.0087 | 433.0 | 0.00054 |
| 2028 | A10 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 39.5 | 0.0008 | 0.0002 | 0.0021 | 0.0000 | 0.0002 | 0.0002 | 1.6 | 0.00001 |
| 2028 | A10 | Pavers | 100 < hp <= 175 | 0.59 | 1.9 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2028 | A10 | Pumps | 6 < hp <= 11 | 0.43 | 0.8 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A10 | Rollers | 75 < hp <= 100 | 0.59 | 17.2 | 0.0003 | 0.0000 | 0.0012 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2028 | A10 | Scrapers | 300 < hp <= 600 | 0.59 | 2.4 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2028 | A10 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 4.9 | 0.0006 | 0.0001 | 0.0005 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00000 |
| 2028 | A10 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 1.9 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A10 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 24.7 | 0.0046 | 0.0014 | 0.0081 | 0.0000 | 0.0010 | 0.0009 | 1.6 | 0.00008 |
| 2028 | A10 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 12.1 | 0.0011 | 0.0002 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2028 | C02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2028 | C02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2028 | C02 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2028 | C02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2028 | C02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 64.0 | 0.0037 | 0.0007 | 0.0083 | 0.0000 | 0.0007 | 0.0006 | 1.6 | 0.00003 |
| 2028 | C02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 64.0 | 0.0013 | 0.0005 | 0.0023 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00004 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | C02 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2028 | C02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 40.0 | 0.0004 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.00000 |
| 2028 | C02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2028 | C02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,724.0 | 0.0125 | 0.0018 | 0.2076 | 0.0004 | 0.0029 | 0.0029 | 131.0 | 0.00012 |
| 2028 | C02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2028 | C02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2028 | C02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | C02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,864.0 | 0.1118 | 0.0325 | 0.4277 | 0.0038 | 0.0271 | 0.0263 | 1,304.3 | 0.00162 |
| 2028 | C02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | C02 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2028 | C02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 40.0 | 0.0003 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | C02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2028 | C02 | Rollers | 75 < hp <= 100 | 0.59 | 56.0 | 0.0010 | 0.0001 | 0.0038 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00001 |
| 2028 | C02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2028 | C02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 64.0 | 0.0022 | 0.0003 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 1.6 | 0.00001 |
| 2028 | C02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2028 | C02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2028 | C02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 840.0 | 0.0769 | 0.0133 | 0.0703 | 0.0000 | 0.0102 | 0.0099 | 12.2 | 0.00061 |
| 2028 | C03 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | C03 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2028 | C03 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2028 | C03 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2028 | C03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 64.0 | 0.0037 | 0.0007 | 0.0083 | 0.0000 | 0.0007 | 0.0006 | 1.6 | 0.00003 |
| 2028 | C03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 64.0 | 0.0013 | 0.0005 | 0.0023 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00004 |
| 2028 | C03 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2028 | C03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 40.0 | 0.0004 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.00000 |
| 2028 | C03 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2028 | C03 | Forklifts | 75 < hp <= 100 | 0.59 | 3,724.0 | 0.0125 | 0.0018 | 0.2076 | 0.0004 | 0.0029 | 0.0029 | 131.0 | 0.00012 |
| 2028 | C03 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2028 | C03 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2028 | C03 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | C03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,864.0 | 0.1118 | 0.0325 | 0.4277 | 0.0038 | 0.0271 | 0.0263 | 1,304.3 | 0.00162 |
| 2028 | C03 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | C03 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2028 | C03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 40.0 | 0.0003 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | C03 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2028 | C03 | Rollers | 75 < hp <= 100 | 0.59 | 56.0 | 0.0010 | 0.0001 | 0.0038 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00001 |
| 2028 | C03 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2028 | C03 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 64.0 | 0.0022 | 0.0003 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 1.6 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | C03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2028 | C03 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2028 | C03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 840.0 | 0.0769 | 0.0133 | 0.0703 | 0.0000 | 0.0102 | 0.0099 | 12.2 | 0.00061 |
| 2028 | L01 | Air Compressors | 75 < hp <= 100 | 0.43 | 22.8 | 0.0005 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00000 |
| 2028 | L01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 19.2 | 0.0011 | 0.0002 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |
| 2028 | L01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 22.8 | 0.0002 | 0.0001 | 0.0015 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00001 |
| 2028 | L01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 19.2 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | L01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 206.5 | 0.0023 | 0.0004 | 0.0065 | 0.0000 | 0.0006 | 0.0005 | 11.4 | 0.00003 |
| 2028 | L01 | Excavators | 100 < hp <= 175 | 0.59 | 113.3 | 0.0010 | 0.0002 | 0.0033 | 0.0000 | 0.0002 | 0.0002 | 6.3 | 0.00001 |
| 2028 | L01 | Graders | 175 < hp <= 300 | 0.59 | 7.6 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |
| 2028 | L01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 6.9 | 0.0020 | 0.0004 | 0.0071 | 0.0000 | 0.0003 | 0.0003 | 1.3 | 0.00003 |
| 2028 | L01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,227.2 | 0.0688 | 0.0200 | 0.2634 | 0.0023 | 0.0167 | 0.0162 | 803.3 | 0.00100 |
| 2028 | L01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 309.1 | 0.0059 | 0.0014 | 0.0168 | 0.0000 | 0.0013 | 0.0013 | 12.5 | 0.00009 |
| 2028 | L01 | Pavers | 100 < hp <= 175 | 0.59 | 55.9 | 0.0008 | 0.0001 | 0.0019 | 0.0000 | 0.0002 | 0.0002 | 3.1 | 0.00001 |
| 2028 | L01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 49.2 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | L01 | Pumps | 6 < hp <= 11 | 0.43 | 6.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | L01 | Rollers | 75 < hp <= 100 | 0.59 | 90.4 | 0.0016 | 0.0001 | 0.0062 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2028 | L01 | Scrapers | 300 < hp <= 600 | 0.59 | 28.4 | 0.0023 | 0.0004 | 0.0063 | 0.0000 | 0.0004 | 0.0004 | 5.4 | 0.00002 |
| 2028 | L01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 52.4 | 0.0065 | 0.0012 | 0.0055 | 0.0000 | 0.0009 | 0.0009 | 0.6 | 0.00004 |
| 2028 | L01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 33.7 | 0.0008 | 0.0002 | 0.0021 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00002 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | L01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 70.4 | 0.0132 | 0.0040 | 0.0231 | 0.0000 | 0.0027 | 0.0027 | 4.5 | 0.00022 |
| 2028 | L01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 110.6 | 0.0101 | 0.0018 | 0.0093 | 0.0000 | 0.0013 | 0.0013 | 1.6 | 0.00008 |
| 2028 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2028 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2028 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2028 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2028 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2028 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2028 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2028 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2028 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2028 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2028 | L03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 10.8 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00000 |
| 2028 | L03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 10.8 | 0.0002 | 0.0001 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00001 |
| 2028 | L03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 80.4 | 0.0009 | 0.0001 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 4.5 | 0.00001 |
| 2028 | L03 | Excavators | 100 < hp <= 175 | 0.59 | 31.9 | 0.0003 | 0.0000 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 1.8 | 0.00000 |
| 2028 | L03 | Graders | 175 < hp <= 300 | 0.59 | 4.2 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | L03 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 3.8 | 0.0011 | 0.0002 | 0.0040 | 0.0000 | 0.0002 | 0.0002 | 0.7 | 0.00002 |
| 2028 | L03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,433.7 | 0.0233 | 0.0068 | 0.0893 | 0.0008 | 0.0057 | 0.0055 | 272.4 | 0.00034 |
| 2028 | L03 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 184.9 | 0.0035 | 0.0008 | 0.0101 | 0.0000 | 0.0008 | 0.0008 | 7.5 | 0.00006 |
| 2028 | L03 | Pavers | 100 < hp <= 175 | 0.59 | 29.3 | 0.0004 | 0.0001 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00000 |
| 2028 | L03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 50.0 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | L03 | Pumps | 6 < hp <= 11 | 0.43 | 3.6 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | L03 | Rollers | 75 < hp <= 100 | 0.59 | 56.5 | 0.0010 | 0.0001 | 0.0039 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00001 |
| 2028 | L03 | Scrapers | 300 < hp <= 600 | 0.59 | 14.5 | 0.0012 | 0.0002 | 0.0032 | 0.0000 | 0.0002 | 0.0002 | 2.7 | 0.00001 |
| 2028 | L03 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 48.9 | 0.0061 | 0.0011 | 0.0051 | 0.0000 | 0.0008 | 0.0008 | 0.5 | 0.00004 |
| 2028 | L03 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 5.6 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | L03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 48.4 | 0.0090 | 0.0027 | 0.0159 | 0.0000 | 0.0019 | 0.0018 | 3.1 | 0.00015 |
| 2028 | L03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 109.5 | 0.0100 | 0.0017 | 0.0092 | 0.0000 | 0.0013 | 0.0013 | 1.6 | 0.00008 |
| 2028 | L04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2028 | L04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2028 | L04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2028 | L04 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2028 | L04 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2028 | L04 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2028 | L04 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | L04 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | L04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2028 | L04 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | L04 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2028 | L04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2028 | L05 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 16.0 | 0.0026 | 0.0004 | 0.0028 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00002 |
| 2028 | L05 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2028 | L05 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 24.0 | 0.0115 | 0.0024 | 0.0432 | 0.0000 | 0.0016 | 0.0015 | 4.5 | 0.00012 |
| 2028 | L05 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2028 | L05 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | L05 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2028 | L05 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |
| 2028 | L05 | Forklifts | 75 < hp <= 100 | 0.59 | 24.0 | 0.0001 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2028 | L05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 164.0 | 0.0027 | 0.0008 | 0.0102 | 0.0001 | 0.0006 | 0.0006 | 31.2 | 0.00004 |
| 2028 | L05 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2028 | L05 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | L05 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2028 | L05 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2028 | L05 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2028 | L05 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | L05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 120.0 | 0.0110 | 0.0019 | 0.0100 | 0.0000 | 0.0015 | 0.0014 | 1.7 | 0.00009 |
| 2028 | S01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 16.0 | 0.0026 | 0.0004 | 0.0028 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00002 |
| 2028 | S01 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2028 | S01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 24.0 | 0.0115 | 0.0024 | 0.0432 | 0.0000 | 0.0016 | 0.0015 | 4.5 | 0.00012 |
| 2028 | S01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 28.8 | 0.0017 | 0.0003 | 0.0037 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00001 |
| 2028 | S01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 28.8 | 0.0006 | 0.0002 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00002 |
| 2028 | S01 | Cranes | 175 < hp <= 300 | 0.43 | 19.0 | 0.0002 | 0.0001 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 1.3 | 0.00000 |
| 2028 | S01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 158.8 | 0.0018 | 0.0003 | 0.0050 | 0.0000 | 0.0004 | 0.0004 | 8.8 | 0.00002 |
| 2028 | S01 | Excavators | 100 < hp <= 175 | 0.59 | 72.1 | 0.0006 | 0.0001 | 0.0021 | 0.0000 | 0.0002 | 0.0001 | 4.0 | 0.00001 |
| 2028 | S01 | Forklifts | 75 < hp <= 100 | 0.59 | 24.0 | 0.0001 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2028 | S01 | Generator Sets | 25 < hp <= 40 | 0.43 | 7.4 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2028 | S01 | Graders | 175 < hp <= 300 | 0.59 | 1.8 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2028 | S01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 1.6 | 0.0005 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2028 | S01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,353.5 | 0.0220 | 0.0064 | 0.0843 | 0.0008 | 0.0053 | 0.0052 | 257.2 | 0.00032 |
| 2028 | S01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 74.0 | 0.0014 | 0.0003 | 0.0040 | 0.0000 | 0.0003 | 0.0003 | 3.0 | 0.00002 |
| 2028 | S01 | Pavers | 100 < hp <= 175 | 0.59 | 1.6 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2028 | S01 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2028 | S01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | S01 | Pumps | 6 < hp <= 11 | 0.43 | 1.6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | S01 | Rollers | 75 < hp <= 100 | 0.59 | 95.5 | 0.0016 | 0.0002 | 0.0065 | 0.0000 | 0.0002 | 0.0002 | 3.4 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | S01 | Scrapers | 300 < hp <= 600 | 0.59 | 41.6 | 0.0034 | 0.0005 | 0.0092 | 0.0000 | 0.0006 | 0.0005 | 7.9 | 0.00003 |
| 2028 | S01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 22.4 | 0.0028 | 0.0005 | 0.0023 | 0.0000 | 0.0004 | 0.0004 | 0.2 | 0.00002 |
| 2028 | S01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 2.0 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | S01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2028 | S01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 71.5 | 0.0134 | 0.0040 | 0.0234 | 0.0000 | 0.0028 | 0.0027 | 4.6 | 0.00023 |
| 2028 | S01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 38.8 | 0.0027 | 0.0005 | 0.0029 | 0.0000 | 0.0004 | 0.0003 | 0.4 | 0.00002 |
| 2028 | S01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 142.4 | 0.0130 | 0.0023 | 0.0119 | 0.0000 | 0.0017 | 0.0017 | 2.1 | 0.00010 |
| 2028 | S02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 1,320.0 | 0.0503 | 0.0096 | 0.0837 | 0.0000 | 0.0060 | 0.0058 | 14.4 | 0.00052 |
| 2028 | S02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 456.0 | 0.0742 | 0.0117 | 0.0805 | 0.0001 | 0.0094 | 0.0091 | 18.7 | 0.00055 |
| 2028 | S02 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2028 | S02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2028 | S02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2028 | S02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | S02 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2028 | S02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 36.6 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00000 |
| 2028 | S02 | Excavators | 100 < hp <= 175 | 0.59 | 77.6 | 0.0007 | 0.0001 | 0.0023 | 0.0000 | 0.0002 | 0.0002 | 4.3 | 0.00001 |
| 2028 | S02 | Forklifts | 75 < hp <= 100 | 0.59 | 1,664.0 | 0.0056 | 0.0008 | 0.0928 | 0.0002 | 0.0013 | 0.0013 | 58.5 | 0.00005 |
| 2028 | S02 | Generator Sets | 25 < hp <= 40 | 0.43 | 57.0 | 0.0007 | 0.0002 | 0.0033 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00002 |
| 2028 | S02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 240.0 | 0.0007 | 0.0003 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 16.6 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | S02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 823.8 | 0.0134 | 0.0039 | 0.0513 | 0.0005 | 0.0032 | 0.0032 | 156.5 | 0.00019 |
| 2028 | S02 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2028 | S02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | S02 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2028 | S02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2028 | S02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2028 | S02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 138.0 | 0.0096 | 0.0017 | 0.0104 | 0.0000 | 0.0013 | 0.0012 | 1.5 | 0.00008 |
| 2028 | S02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.0 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2028 | S03 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 1,320.0 | 0.0503 | 0.0096 | 0.0837 | 0.0000 | 0.0060 | 0.0058 | 14.4 | 0.00052 |
| 2028 | S03 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 456.0 | 0.0742 | 0.0117 | 0.0805 | 0.0001 | 0.0094 | 0.0091 | 18.7 | 0.00055 |
| 2028 | S03 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2028 | S03 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2028 | S03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2028 | S03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | S03 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2028 | S03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |
| 2028 | S03 | Forklifts | 75 < hp <= 100 | 0.59 | 1,664.0 | 0.0056 | 0.0008 | 0.0928 | 0.0002 | 0.0013 | 0.0013 | 58.5 | 0.00005 |
| 2028 | S03 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 240.0 | 0.0007 | 0.0003 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 16.6 | 0.00001 |
| 2028 | S03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 602.0 | 0.0098 | 0.0028 | 0.0375 | 0.0003 | 0.0024 | 0.0023 | 114.4 | 0.00014 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | S03 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2028 | S03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | S03 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2028 | S03 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2028 | S03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2028 | S03 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2028 | S03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.0 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2028 | S04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2028 | S04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |
| 2028 | S04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |
| 2028 | S04 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2028 | S04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 10.4 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2028 | S04 | Excavators | 100 < hp <= 175 | 0.59 | 10.4 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2028 | S04 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2028 | S04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 316.8 | 0.0052 | 0.0015 | 0.0197 | 0.0002 | 0.0012 | 0.0012 | 60.2 | 0.00007 |
| 2028 | S04 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2028 | S04 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2028 | S04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2028 | S08 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | S08 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2028 | S08 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2028 | S08 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2028 | S08 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.5 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |
| 2028 | S08 | Excavators | 100 < hp <= 175 | 0.59 | 176.5 | 0.0016 | 0.0002 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 9.8 | 0.00002 |
| 2028 | S08 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2028 | S08 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2028 | S08 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | S08 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,507.0 | 0.1060 | 0.0308 | 0.4054 | 0.0036 | 0.0257 | 0.0249 | 1,236.5 | 0.00154 |
| 2028 | S08 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | S08 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2028 | S08 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2028 | S09 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2028 | S09 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2028 | S09 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2028 | S09 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2028 | S09 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.5 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |
| 2028 | S09 | Excavators | 100 < hp <= 175 | 0.59 | 176.5 | 0.0016 | 0.0002 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 9.8 | 0.00002 |
| 2028 | S09 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | S09 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2028 | S09 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | S09 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,507.0 | 0.1060 | 0.0308 | 0.4054 | 0.0036 | 0.0257 | 0.0249 | 1,236.5 | 0.00154 |
| 2028 | S09 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | S09 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2028 | S09 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2028 | T01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2028 | T01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2028 | T01 | Air Compressors | 75 < hp <= 100 | 0.43 | 51.8 | 0.0011 | 0.0001 | 0.0034 | 0.0000 | 0.0002 | 0.0002 | 1.3 | 0.00001 |
| 2028 | T01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2028 | T01 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 82.0 | 0.0926 | 0.0214 | 0.0005 | 0.0000 | 0.0034 | 0.0031 | 0.2 | 0.00000 |
| 2028 | T01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 82.0 | 0.0048 | 0.0009 | 0.0106 | 0.0000 | 0.0008 | 0.0008 | 2.1 | 0.00004 |
| 2028 | T01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 51.8 | 0.0004 | 0.0001 | 0.0034 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00002 |
| 2028 | T01 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2028 | T01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 412.7 | 0.0046 | 0.0007 | 0.0130 | 0.0001 | 0.0011 | 0.0011 | 22.9 | 0.00005 |
| 2028 | T01 | Excavators | 100 < hp <= 175 | 0.59 | 558.8 | 0.0049 | 0.0008 | 0.0165 | 0.0001 | 0.0012 | 0.0011 | 31.0 | 0.00006 |
| 2028 | T01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,700.0 | 0.0125 | 0.0018 | 0.2062 | 0.0004 | 0.0029 | 0.0028 | 130.1 | 0.00012 |
| 2028 | T01 | Generator Sets | 25 < hp <= 40 | 0.43 | 301.0 | 0.0039 | 0.0011 | 0.0175 | 0.0000 | 0.0006 | 0.0006 | 3.1 | 0.00009 |
| 2028 | T01 | Graders | 175 < hp <= 300 | 0.59 | 16.9 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | T01 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2028 | T01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.2 | 0.0044 | 0.0009 | 0.0158 | 0.0000 | 0.0007 | 0.0007 | 2.9 | 0.00006 |
| 2028 | T01 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | T01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 12,536.6 | 0.2042 | 0.0593 | 0.7811 | 0.0070 | 0.0494 | 0.0480 | 2,382.3 | 0.00297 |
| 2028 | T01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 516.6 | 0.0099 | 0.0023 | 0.0281 | 0.0001 | 0.0022 | 0.0021 | 20.9 | 0.00015 |
| 2028 | T01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | T01 | Pavers | 100 < hp <= 175 | 0.59 | 51.8 | 0.0008 | 0.0001 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 2.9 | 0.00001 |
| 2028 | T01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | T01 | Pumps | 6 < hp <= 11 | 0.43 | 254.0 | 0.0034 | 0.0011 | 0.0056 | 0.0000 | 0.0004 | 0.0003 | 0.7 | 0.00008 |
| 2028 | T01 | Rollers | 75 < hp <= 100 | 0.59 | 194.3 | 0.0033 | 0.0003 | 0.0133 | 0.0000 | 0.0005 | 0.0005 | 6.8 | 0.00002 |
| 2028 | T01 | Scrapers | 300 < hp <= 600 | 0.59 | 64.8 | 0.0053 | 0.0008 | 0.0143 | 0.0000 | 0.0009 | 0.0008 | 12.3 | 0.00005 |
| 2028 | T01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 15.9 | 0.0020 | 0.0004 | 0.0017 | 0.0000 | 0.0003 | 0.0003 | 0.2 | 0.00001 |
| 2028 | T01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 51.8 | 0.0013 | 0.0003 | 0.0032 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |
| 2028 | T01 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2028 | T01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2028 | T01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 129.1 | 0.0241 | 0.0073 | 0.0423 | 0.0000 | 0.0050 | 0.0049 | 8.3 | 0.00041 |
| 2028 | T01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 466.1 | 0.0324 | 0.0057 | 0.0353 | 0.0000 | 0.0043 | 0.0041 | 5.1 | 0.00028 |
| 2028 | T01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 757.5 | 0.0693 | 0.0120 | 0.0634 | 0.0000 | 0.0092 | 0.0089 | 11.0 | 0.00055 |
| 2028 | T02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | T02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |
| 2028 | T02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2028 | T02 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 40.0 | 0.0452 | 0.0104 | 0.0003 | 0.0000 | 0.0017 | 0.0015 | 0.1 | 0.00000 |
| 2028 | T02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2028 | T02 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2028 | T02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 110.6 | 0.0012 | 0.0002 | 0.0035 | 0.0000 | 0.0003 | 0.0003 | 6.1 | 0.00001 |
| 2028 | T02 | Excavators | 100 < hp <= 175 | 0.59 | 246.6 | 0.0022 | 0.0003 | 0.0073 | 0.0000 | 0.0005 | 0.0005 | 13.7 | 0.00002 |
| 2028 | T02 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |
| 2028 | T02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2028 | T02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2028 | T02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | T02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 8,061.3 | 0.1313 | 0.0381 | 0.5023 | 0.0045 | 0.0318 | 0.0308 | 1,531.8 | 0.00191 |
| 2028 | T02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |
| 2028 | T02 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2028 | T02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | T02 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2028 | T02 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2028 | T02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2028 | T02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2028 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.21 | 80.0 | 0.0030 | 0.0009 | 0.0053 | 0.0000 | 0.0006 | 0.0006 | 1.1 | 0.00005 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |
| 2028 | T02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2028 | T02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2028 | T02 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |
| 2029 | A01 | Air Compressors | 75 < hp <= 100 | 0.43 | 29.1 | 0.0006 | 0.0001 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 0.7 | 0.00001 |
| 2029 | A01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 27.6 | 0.0016 | 0.0003 | 0.0036 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00001 |
| 2029 | A01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 29.1 | 0.0002 | 0.0001 | 0.0019 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00001 |
| 2029 | A01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 27.6 | 0.0006 | 0.0002 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00002 |
| 2029 | A01 | Cranes | 175 < hp <= 300 | 0.43 | - | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | - | 0.00000 |
| 2029 | A01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 233.4 | 0.0026 | 0.0004 | 0.0073 | 0.0000 | 0.0006 | 0.0006 | 12.9 | 0.00003 |
| 2029 | A01 | Excavators | 100 < hp <= 175 | 0.59 | 277.0 | 0.0025 | 0.0004 | 0.0082 | 0.0000 | 0.0006 | 0.0006 | 15.4 | 0.00003 |
| 2029 | A01 | Graders | 175 < hp <= 300 | 0.59 | 11.3 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2029 | A01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 10.2 | 0.0030 | 0.0006 | 0.0106 | 0.0000 | 0.0005 | 0.0005 | 1.9 | 0.00004 |
| 2029 | A01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 2,244.7 | 0.0366 | 0.0106 | 0.1399 | 0.0012 | 0.0089 | 0.0086 | 426.6 | 0.00053 |
| 2029 | A01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 390.4 | 0.0075 | 0.0017 | 0.0212 | 0.0000 | 0.0016 | 0.0016 | 15.8 | 0.00012 |
| 2029 | A01 | Pavers | 100 < hp <= 175 | 0.59 | 29.1 | 0.0004 | 0.0001 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00000 |
| 2029 | A01 | Pumps | 6 < hp <= 11 | 0.43 | 9.2 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | A01 | Rollers | 75 < hp <= 100 | 0.59 | 153.1 | 0.0026 | 0.0002 | 0.0105 | 0.0000 | 0.0004 | 0.0004 | 5.4 | 0.00002 |
| 2029 | A01 | Scrapers | 300 < hp <= 600 | 0.59 | 36.4 | 0.0030 | 0.0005 | 0.0080 | 0.0000 | 0.0005 | 0.0005 | 6.9 | 0.00003 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | A01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 30.5 | 0.0038 | 0.0007 | 0.0032 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00003 |
| 2029 | A01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 29.1 | 0.0007 | 0.0002 | 0.0018 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2029 | A01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 172.1 | 0.0322 | 0.0097 | 0.0564 | 0.0000 | 0.0067 | 0.0065 | 11.1 | 0.00055 |
| 2029 | A01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 79.8 | 0.0073 | 0.0013 | 0.0067 | 0.0000 | 0.0010 | 0.0009 | 1.2 | 0.00006 |
| 2029 | A04 | Air Compressors | 75 < hp <= 100 | 0.43 | 30.5 | 0.0006 | 0.0001 | 0.0020 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00001 |
| 2029 | A04 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 26.4 | 0.0015 | 0.0003 | 0.0034 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00001 |
| 2029 | A04 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 30.5 | 0.0002 | 0.0001 | 0.0020 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00001 |
| 2029 | A04 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 26.4 | 0.0006 | 0.0002 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2029 | A04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 196.8 | 0.0022 | 0.0003 | 0.0062 | 0.0000 | 0.0005 | 0.0005 | 10.9 | 0.00002 |
| 2029 | A04 | Excavators | 100 < hp <= 175 | 0.59 | 493.1 | 0.0044 | 0.0007 | 0.0145 | 0.0001 | 0.0010 | 0.0010 | 27.3 | 0.00005 |
| 2029 | A04 | Graders | 175 < hp <= 300 | 0.59 | 10.6 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 1.0 | 0.00000 |
| 2029 | A04 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 9.6 | 0.0028 | 0.0006 | 0.0099 | 0.0000 | 0.0005 | 0.0005 | 1.8 | 0.00004 |
| 2029 | A04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,740.8 | 0.1261 | 0.0366 | 0.4823 | 0.0043 | 0.0305 | 0.0296 | 1,471.0 | 0.00183 |
| 2029 | A04 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,931.0 | 0.0370 | 0.0086 | 0.1050 | 0.0002 | 0.0081 | 0.0079 | 78.0 | 0.00058 |
| 2029 | A04 | Pavers | 100 < hp <= 175 | 0.59 | 30.5 | 0.0004 | 0.0001 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 1.7 | 0.00000 |
| 2029 | A04 | Pumps | 6 < hp <= 11 | 0.43 | 8.8 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | A04 | Rollers | 75 < hp <= 100 | 0.59 | 123.4 | 0.0021 | 0.0002 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 4.3 | 0.00001 |
| 2029 | A04 | Scrapers | 300 < hp <= 600 | 0.59 | 38.1 | 0.0031 | 0.0005 | 0.0084 | 0.0000 | 0.0005 | 0.0005 | 7.2 | 0.00003 |
| 2029 | A04 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 27.3 | 0.0034 | 0.0006 | 0.0029 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | A04 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 30.5 | 0.0007 | 0.0002 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2029 | A04 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 120.4 | 0.0225 | 0.0068 | 0.0394 | 0.0000 | 0.0047 | 0.0045 | 7.8 | 0.00038 |
| 2029 | A04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 58.5 | 0.0054 | 0.0009 | 0.0049 | 0.0000 | 0.0007 | 0.0007 | 0.9 | 0.00004 |
| 2029 | A05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 95.4 | 0.0016 | 0.0005 | 0.0059 | 0.0001 | 0.0004 | 0.0004 | 18.1 | 0.00002 |
| 2029 | A05 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 47.7 | 0.0009 | 0.0002 | 0.0026 | 0.0000 | 0.0002 | 0.0002 | 1.9 | 0.00001 |
| 2029 | A05 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 6.5 | 0.0008 | 0.0002 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2029 | A05 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 6.5 | 0.0012 | 0.0004 | 0.0021 | 0.0000 | 0.0003 | 0.0002 | 0.4 | 0.00002 |
| 2029 | A05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 6.5 | 0.0006 | 0.0001 | 0.0005 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00000 |
| 2029 | A08 | Air Compressors | 75 < hp <= 100 | 0.43 | 13.3 | 0.0003 | 0.0000 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00000 |
| 2029 | A08 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 10.8 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00000 |
| 2029 | A08 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 13.3 | 0.0001 | 0.0000 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2029 | A08 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 10.8 | 0.0002 | 0.0001 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00001 |
| 2029 | A08 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 108.1 | 0.0012 | 0.0002 | 0.0034 | 0.0000 | 0.0003 | 0.0003 | 6.0 | 0.00001 |
| 2029 | A08 | Excavators | 100 < hp <= 175 | 0.59 | 197.5 | 0.0017 | 0.0003 | 0.0058 | 0.0000 | 0.0004 | 0.0004 | 10.9 | 0.00002 |
| 2029 | A08 | Generator Sets | 25 < hp <= 40 | 0.43 | 144.0 | 0.0019 | 0.0005 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 1.5 | 0.00004 |
| 2029 | A08 | Graders | 175 < hp <= 300 | 0.59 | 4.5 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2029 | A08 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.0 | 0.0012 | 0.0003 | 0.0042 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2029 | A08 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,768.7 | 0.0288 | 0.0084 | 0.1102 | 0.0010 | 0.0070 | 0.0068 | 336.1 | 0.00042 |
| 2029 | A08 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 135.3 | 0.0026 | 0.0006 | 0.0074 | 0.0000 | 0.0006 | 0.0006 | 5.5 | 0.00004 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | A08 | Pavers | 100 < hp <= 175 | 0.59 | 13.3 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |
| 2029 | A08 | Pumps | 6 < hp <= 11 | 0.43 | 3.6 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | A08 | Rollers | 75 < hp <= 100 | 0.59 | 40.4 | 0.0007 | 0.0001 | 0.0028 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2029 | A08 | Scrapers | 300 < hp <= 600 | 0.59 | 16.7 | 0.0014 | 0.0002 | 0.0037 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2029 | A08 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 5.6 | 0.0007 | 0.0001 | 0.0006 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00000 |
| 2029 | A08 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 13.3 | 0.0003 | 0.0001 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2029 | A08 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 25.4 | 0.0047 | 0.0014 | 0.0083 | 0.0000 | 0.0010 | 0.0010 | 1.6 | 0.00008 |
| 2029 | A08 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 288.0 | 0.0200 | 0.0035 | 0.0218 | 0.0000 | 0.0026 | 0.0026 | 3.1 | 0.00017 |
| 2029 | A08 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 11.5 | 0.0011 | 0.0002 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2029 | A09 | Air Compressors | 75 < hp <= 100 | 0.43 | 12.5 | 0.0003 | 0.0000 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00000 |
| 2029 | A09 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 10.8 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00000 |
| 2029 | A09 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 12.5 | 0.0001 | 0.0000 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2029 | A09 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 10.8 | 0.0002 | 0.0001 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00001 |
| 2029 | A09 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 66.9 | 0.0007 | 0.0001 | 0.0021 | 0.0000 | 0.0002 | 0.0002 | 3.7 | 0.00001 |
| 2029 | A09 | Excavators | 100 < hp <= 175 | 0.59 | 15.2 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2029 | A09 | Graders | 175 < hp <= 300 | 0.59 | 4.3 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2029 | A09 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 3.9 | 0.0011 | 0.0002 | 0.0041 | 0.0000 | 0.0002 | 0.0002 | 0.7 | 0.00002 |
| 2029 | A09 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,210.1 | 0.0197 | 0.0057 | 0.0754 | 0.0007 | 0.0048 | 0.0046 | 230.0 | 0.00029 |
| 2029 | A09 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 126.9 | 0.0024 | 0.0006 | 0.0069 | 0.0000 | 0.0005 | 0.0005 | 5.1 | 0.00004 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | A09 | Pavers | 100 < hp <= 175 | 0.59 | 12.5 | 0.0002 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |
| 2029 | A09 | Pumps | 6 < hp <= 11 | 0.43 | 3.6 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | A09 | Rollers | 75 < hp <= 100 | 0.59 | 36.8 | 0.0006 | 0.0001 | 0.0025 | 0.0000 | 0.0001 | 0.0001 | 1.3 | 0.00000 |
| 2029 | A09 | Scrapers | 300 < hp <= 600 | 0.59 | 15.6 | 0.0013 | 0.0002 | 0.0034 | 0.0000 | 0.0002 | 0.0002 | 3.0 | 0.00001 |
| 2029 | A09 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 7.0 | 0.0009 | 0.0002 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2029 | A09 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 12.5 | 0.0003 | 0.0001 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2029 | A09 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 23.7 | 0.0044 | 0.0013 | 0.0078 | 0.0000 | 0.0009 | 0.0009 | 1.5 | 0.00008 |
| 2029 | A09 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 12.1 | 0.0011 | 0.0002 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2029 | C03 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2029 | C03 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2029 | C03 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2029 | C03 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2029 | C03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 64.0 | 0.0037 | 0.0007 | 0.0083 | 0.0000 | 0.0007 | 0.0006 | 1.6 | 0.00003 |
| 2029 | C03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 64.0 | 0.0013 | 0.0005 | 0.0023 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00004 |
| 2029 | C03 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2029 | C03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 40.0 | 0.0004 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.00000 |
| 2029 | C03 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2029 | C03 | Forklifts | 75 < hp <= 100 | 0.59 | 3,724.0 | 0.0125 | 0.0018 | 0.2076 | 0.0004 | 0.0029 | 0.0029 | 131.0 | 0.00012 |
| 2029 | C03 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | C03 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2029 | C03 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2029 | C03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,864.0 | 0.1118 | 0.0325 | 0.4277 | 0.0038 | 0.0271 | 0.0263 | 1,304.3 | 0.00162 |
| 2029 | C03 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2029 | C03 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2029 | C03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 40.0 | 0.0003 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2029 | C03 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2029 | C03 | Rollers | 75 < hp <= 100 | 0.59 | 56.0 | 0.0010 | 0.0001 | 0.0038 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00001 |
| 2029 | C03 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2029 | C03 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 64.0 | 0.0022 | 0.0003 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 1.6 | 0.00001 |
| 2029 | C03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2029 | C03 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2029 | C03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 840.0 | 0.0769 | 0.0133 | 0.0703 | 0.0000 | 0.0102 | 0.0099 | 12.2 | 0.00061 |
| 2029 | L01 | Air Compressors | 75 < hp <= 100 | 0.43 | 22.8 | 0.0005 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00000 |
| 2029 | L01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 19.2 | 0.0011 | 0.0002 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |
| 2029 | L01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 22.8 | 0.0002 | 0.0001 | 0.0015 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00001 |
| 2029 | L01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 19.2 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2029 | L01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 206.5 | 0.0023 | 0.0004 | 0.0065 | 0.0000 | 0.0006 | 0.0005 | 11.4 | 0.00003 |
| 2029 | L01 | Excavators | 100 < hp <= 175 | 0.59 | 113.3 | 0.0010 | 0.0002 | 0.0033 | 0.0000 | 0.0002 | 0.0002 | 6.3 | 0.00001 |
| 2029 | L01 | Graders | 175 < hp <= 300 | 0.59 | 7.6 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | L01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 6.9 | 0.0020 | 0.0004 | 0.0071 | 0.0000 | 0.0003 | 0.0003 | 1.3 | 0.00003 |
| 2029 | L01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,227.2 | 0.0688 | 0.0200 | 0.2634 | 0.0023 | 0.0167 | 0.0162 | 803.3 | 0.00100 |
| 2029 | L01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 309.1 | 0.0059 | 0.0014 | 0.0168 | 0.0000 | 0.0013 | 0.0013 | 12.5 | 0.00009 |
| 2029 | L01 | Pavers | 100 < hp <= 175 | 0.59 | 55.9 | 0.0008 | 0.0001 | 0.0019 | 0.0000 | 0.0002 | 0.0002 | 3.1 | 0.00001 |
| 2029 | L01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 49.2 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2029 | L01 | Pumps | 6 < hp <= 11 | 0.43 | 6.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | L01 | Rollers | 75 < hp <= 100 | 0.59 | 90.4 | 0.0016 | 0.0001 | 0.0062 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2029 | L01 | Scrapers | 300 < hp <= 600 | 0.59 | 28.4 | 0.0023 | 0.0004 | 0.0063 | 0.0000 | 0.0004 | 0.0004 | 5.4 | 0.00002 |
| 2029 | L01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 52.4 | 0.0065 | 0.0012 | 0.0055 | 0.0000 | 0.0009 | 0.0009 | 0.6 | 0.00004 |
| 2029 | L01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 33.7 | 0.0008 | 0.0002 | 0.0021 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00002 |
| 2029 | L01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 70.4 | 0.0132 | 0.0040 | 0.0231 | 0.0000 | 0.0027 | 0.0027 | 4.5 | 0.00022 |
| 2029 | L01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 110.6 | 0.0101 | 0.0018 | 0.0093 | 0.0000 | 0.0013 | 0.0013 | 1.6 | 0.00008 |
| 2029 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2029 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2029 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2029 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2029 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2029 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2029 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2029 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2029 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2029 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2029 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2029 | L03 | Air Compressors | 75 < hp <= 100 | 0.43 | 46.3 | 0.0009 | 0.0001 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 1.2 | 0.00001 |
| 2029 | L03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 42.0 | 0.0025 | 0.0005 | 0.0055 | 0.0000 | 0.0004 | 0.0004 | 1.1 | 0.00002 |
| 2029 | L03 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 46.3 | 0.0004 | 0.0001 | 0.0031 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00001 |
| 2029 | L03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 42.0 | 0.0009 | 0.0003 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2029 | L03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 320.1 | 0.0036 | 0.0005 | 0.0100 | 0.0001 | 0.0009 | 0.0009 | 17.7 | 0.00004 |
| 2029 | L03 | Excavators | 100 < hp <= 175 | 0.59 | 126.6 | 0.0011 | 0.0002 | 0.0037 | 0.0000 | 0.0003 | 0.0003 | 7.0 | 0.00001 |
| 2029 | L03 | Graders | 175 < hp <= 300 | 0.59 | 16.7 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |
| 2029 | L03 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.1 | 0.0044 | 0.0009 | 0.0157 | 0.0000 | 0.0007 | 0.0007 | 2.8 | 0.00006 |
| 2029 | L03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,058.6 | 0.0987 | 0.0287 | 0.3775 | 0.0034 | 0.0239 | 0.0232 | 1,151.3 | 0.00143 |
| 2029 | L03 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 829.6 | 0.0159 | 0.0037 | 0.0451 | 0.0001 | 0.0035 | 0.0034 | 33.5 | 0.00025 |
| 2029 | L03 | Pavers | 100 < hp <= 175 | 0.59 | 163.6 | 0.0024 | 0.0004 | 0.0056 | 0.0000 | 0.0006 | 0.0006 | 9.1 | 0.00003 |
| 2029 | L03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 200.0 | 0.0015 | 0.0005 | 0.0024 | 0.0000 | 0.0002 | 0.0001 | 0.3 | 0.00004 |
| 2029 | L03 | Pumps | 6 < hp <= 11 | 0.43 | 14.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | L03 | Rollers | 75 < hp <= 100 | 0.59 | 224.7 | 0.0039 | 0.0004 | 0.0154 | 0.0000 | 0.0006 | 0.0006 | 7.9 | 0.00003 |
| 2029 | L03 | Scrapers | 300 < hp <= 600 | 0.59 | 57.8 | 0.0047 | 0.0008 | 0.0127 | 0.0000 | 0.0008 | 0.0007 | 11.0 | 0.00005 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | L03 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 195.1 | 0.0242 | 0.0045 | 0.0204 | 0.0000 | 0.0033 | 0.0032 | 2.1 | 0.00017 |
| 2029 | L03 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 68.5 | 0.0017 | 0.0004 | 0.0042 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00003 |
| 2029 | L03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 237.9 | 0.0445 | 0.0134 | 0.0779 | 0.0001 | 0.0092 | 0.0090 | 15.4 | 0.00076 |
| 2029 | L03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 436.4 | 0.0399 | 0.0069 | 0.0365 | 0.0000 | 0.0053 | 0.0051 | 6.4 | 0.00032 |
| 2029 | L04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2029 | L04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2029 | L04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2029 | L04 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2029 | L04 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2029 | L04 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2029 | L04 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2029 | L04 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2029 | L04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2029 | L04 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2029 | L04 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2029 | L04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2029 | L07 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 400.8 | 0.0652 | 0.0103 | 0.0707 | 0.0001 | 0.0083 | 0.0080 | 16.4 | 0.00048 |
| 2029 | L07 | Bore/Drill Rigs | 100 < hp <= 175 | 0.43 | 120.0 | 0.0114 | 0.0038 | 0.0447 | 0.0000 | 0.0026 | 0.0025 | 4.8 | 0.00020 |
| 2029 | L07 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 660.0 | 0.3154 | 0.0674 | 1.1890 | 0.0005 | 0.0432 | 0.0419 | 123.9 | 0.00317 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | L07 | Cranes | 175 < hp <= 300 | 0.43 | 600.0 | 0.0060 | 0.0021 | 0.0253 | 0.0001 | 0.0014 | 0.0013 | 41.1 | 0.00012 |
| 2029 | L07 | Excavators | 100 < hp <= 175 | 0.59 | 160.8 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2029 | L07 | Forklifts | 75 < hp <= 100 | 0.59 | 801.6 | 0.0027 | 0.0004 | 0.0447 | 0.0001 | 0.0006 | 0.0006 | 28.2 | 0.00003 |
| 2029 | L07 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 160.8 | 0.0005 | 0.0002 | 0.0026 | 0.0000 | 0.0002 | 0.0001 | 11.1 | 0.00001 |
| 2029 | L07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,536.0 | 0.0250 | 0.0073 | 0.0957 | 0.0009 | 0.0061 | 0.0059 | 291.9 | 0.00036 |
| 2029 | L07 | Pavers | 100 < hp <= 175 | 0.59 | 79.2 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2029 | L07 | Pumps | 6 < hp <= 11 | 0.43 | 450.0 | 0.0061 | 0.0019 | 0.0099 | 0.0000 | 0.0006 | 0.0006 | 1.3 | 0.00015 |
| 2029 | L07 | Rubber Tire Loaders | 75 < hp <= 100 | 0.21 | 79.2 | 0.0005 | 0.0000 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00000 |
| 2029 | L07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 679.2 | 0.0621 | 0.0108 | 0.0568 | 0.0000 | 0.0083 | 0.0080 | 9.9 | 0.00049 |
| 2029 | L07 | Trenchers | 50 < hp <= 75 | 0.59 | 319.2 | 0.0111 | 0.0017 | 0.0445 | 0.0000 | 0.0013 | 0.0013 | 8.4 | 0.00017 |
| 2029 | S01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 16.0 | 0.0026 | 0.0004 | 0.0028 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00002 |
| 2029 | S01 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2029 | S01 | Air Compressors | 75 < hp <= 100 | 0.43 | 15.8 | 0.0003 | 0.0000 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.4 | 0.00000 |
| 2029 | S01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 24.0 | 0.0115 | 0.0024 | 0.0432 | 0.0000 | 0.0016 | 0.0015 | 4.5 | 0.00012 |
| 2029 | S01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 37.2 | 0.0022 | 0.0004 | 0.0048 | 0.0000 | 0.0004 | 0.0004 | 0.9 | 0.00002 |
| 2029 | S01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 15.8 | 0.0001 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2029 | S01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 37.2 | 0.0008 | 0.0003 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2029 | S01 | Cranes | 175 < hp <= 300 | 0.43 | 19.0 | 0.0002 | 0.0001 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 1.3 | 0.00000 |
| 2029 | S01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 508.0 | 0.0056 | 0.0009 | 0.0159 | 0.0001 | 0.0014 | 0.0014 | 28.2 | 0.00006 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | S01 | Excavators | 100 < hp <= 175 | 0.59 | 232.9 | 0.0021 | 0.0003 | 0.0069 | 0.0000 | 0.0005 | 0.0005 | 12.9 | 0.00002 |
| 2029 | S01 | Forklifts | 75 < hp <= 100 | 0.59 | 24.0 | 0.0001 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2029 | S01 | Generator Sets | 25 < hp <= 40 | 0.43 | 30.0 | 0.0004 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2029 | S01 | Graders | 175 < hp <= 300 | 0.59 | 5.4 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2029 | S01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.8 | 0.0014 | 0.0003 | 0.0050 | 0.0000 | 0.0002 | 0.0002 | 0.9 | 0.00002 |
| 2029 | S01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,815.9 | 0.0784 | 0.0228 | 0.3001 | 0.0027 | 0.0190 | 0.0184 | 915.1 | 0.00114 |
| 2029 | S01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 191.3 | 0.0037 | 0.0009 | 0.0104 | 0.0000 | 0.0008 | 0.0008 | 7.7 | 0.00006 |
| 2029 | S01 | Pavers | 100 < hp <= 175 | 0.59 | 21.7 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 1.2 | 0.00000 |
| 2029 | S01 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2029 | S01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | S01 | Pumps | 6 < hp <= 11 | 0.43 | 4.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | S01 | Rollers | 75 < hp <= 100 | 0.59 | 275.6 | 0.0048 | 0.0004 | 0.0189 | 0.0000 | 0.0007 | 0.0007 | 9.7 | 0.00003 |
| 2029 | S01 | Scrapers | 300 < hp <= 600 | 0.59 | 158.2 | 0.0129 | 0.0021 | 0.0348 | 0.0001 | 0.0021 | 0.0020 | 30.1 | 0.00013 |
| 2029 | S01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 28.9 | 0.0036 | 0.0007 | 0.0030 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2029 | S01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 23.4 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2029 | S01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2029 | S01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 89.5 | 0.0167 | 0.0050 | 0.0293 | 0.0000 | 0.0035 | 0.0034 | 5.8 | 0.00028 |
| 2029 | S01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 84.0 | 0.0058 | 0.0010 | 0.0064 | 0.0000 | 0.0008 | 0.0007 | 0.9 | 0.00005 |
| 2029 | S01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 147.3 | 0.0135 | 0.0023 | 0.0123 | 0.0000 | 0.0018 | 0.0017 | 2.1 | 0.00011 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | S03 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 1,320.0 | 0.0503 | 0.0096 | 0.0837 | 0.0000 | 0.0060 | 0.0058 | 14.4 | 0.00052 |
| 2029 | S03 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 456.0 | 0.0742 | 0.0117 | 0.0805 | 0.0001 | 0.0094 | 0.0091 | 18.7 | 0.00055 |
| 2029 | S03 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2029 | S03 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2029 | S03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2029 | S03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2029 | S03 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2029 | S03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |
| 2029 | S03 | Forklifts | 75 < hp <= 100 | 0.59 | 1,664.0 | 0.0056 | 0.0008 | 0.0928 | 0.0002 | 0.0013 | 0.0013 | 58.5 | 0.00005 |
| 2029 | S03 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 240.0 | 0.0007 | 0.0003 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 16.6 | 0.00001 |
| 2029 | S03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 602.0 | 0.0098 | 0.0028 | 0.0375 | 0.0003 | 0.0024 | 0.0023 | 114.4 | 0.00014 |
| 2029 | S03 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2029 | S03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | S03 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2029 | S03 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2029 | S03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2029 | S03 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2029 | S03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.0 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2029 | S10 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | S10 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |
| 2029 | S10 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2029 | S10 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2029 | S10 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 40.0 | 0.0008 | 0.0003 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2029 | S10 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2029 | S10 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 24.0 | 0.0003 | 0.0000 | 0.0008 | 0.0000 | 0.0001 | 0.0001 | 1.3 | 0.00000 |
| 2029 | S10 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2029 | S10 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |
| 2029 | S10 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2029 | S10 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2029 | S10 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2029 | S10 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,888.0 | 0.1285 | 0.0373 | 0.4915 | 0.0044 | 0.0311 | 0.0302 | 1,498.9 | 0.00187 |
| 2029 | S10 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |
| 2029 | S10 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2029 | S10 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | S10 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2029 | S10 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2029 | S10 | Rubber Tire Loaders | 75 < hp <= 100 | 0.21 | 80.0 | 0.0005 | 0.0000 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00000 |
| 2029 | S10 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2029 | S10 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | S10 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |
| 2029 | S10 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2029 | S10 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2029 | S10 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |
| 2029 | T01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2029 | T01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2029 | T01 | Air Compressors | 75 < hp <= 100 | 0.43 | 51.8 | 0.0011 | 0.0001 | 0.0034 | 0.0000 | 0.0002 | 0.0002 | 1.3 | 0.00001 |
| 2029 | T01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2029 | T01 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 82.0 | 0.0926 | 0.0214 | 0.0005 | 0.0000 | 0.0034 | 0.0031 | 0.2 | 0.00000 |
| 2029 | T01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 82.0 | 0.0048 | 0.0009 | 0.0106 | 0.0000 | 0.0008 | 0.0008 | 2.1 | 0.00004 |
| 2029 | T01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 51.8 | 0.0004 | 0.0001 | 0.0034 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00002 |
| 2029 | T01 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2029 | T01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 412.7 | 0.0046 | 0.0007 | 0.0130 | 0.0001 | 0.0011 | 0.0011 | 22.9 | 0.00005 |
| 2029 | T01 | Excavators | 100 < hp <= 175 | 0.59 | 558.8 | 0.0049 | 0.0008 | 0.0165 | 0.0001 | 0.0012 | 0.0011 | 31.0 | 0.00006 |
| 2029 | T01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,700.0 | 0.0125 | 0.0018 | 0.2062 | 0.0004 | 0.0029 | 0.0028 | 130.1 | 0.00012 |
| 2029 | T01 | Generator Sets | 25 < hp <= 40 | 0.43 | 301.0 | 0.0039 | 0.0011 | 0.0175 | 0.0000 | 0.0006 | 0.0006 | 3.1 | 0.00009 |
| 2029 | T01 | Graders | 175 < hp <= 300 | 0.59 | 16.9 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |
| 2029 | T01 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2029 | T01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.2 | 0.0044 | 0.0009 | 0.0158 | 0.0000 | 0.0007 | 0.0007 | 2.9 | 0.00006 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | T01 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2029 | T01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 12,536.6 | 0.2042 | 0.0593 | 0.7811 | 0.0070 | 0.0494 | 0.0480 | 2,382.3 | 0.00297 |
| 2029 | T01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 516.6 | 0.0099 | 0.0023 | 0.0281 | 0.0001 | 0.0022 | 0.0021 | 20.9 | 0.00015 |
| 2029 | T01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2029 | T01 | Pavers | 100 < hp <= 175 | 0.59 | 51.8 | 0.0008 | 0.0001 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 2.9 | 0.00001 |
| 2029 | T01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | T01 | Pumps | 6 < hp <= 11 | 0.43 | 254.0 | 0.0034 | 0.0011 | 0.0056 | 0.0000 | 0.0004 | 0.0003 | 0.7 | 0.00008 |
| 2029 | T01 | Rollers | 75 < hp <= 100 | 0.59 | 194.3 | 0.0033 | 0.0003 | 0.0133 | 0.0000 | 0.0005 | 0.0005 | 6.8 | 0.00002 |
| 2029 | T01 | Scrapers | 300 < hp <= 600 | 0.59 | 64.8 | 0.0053 | 0.0008 | 0.0143 | 0.0000 | 0.0009 | 0.0008 | 12.3 | 0.00005 |
| 2029 | T01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 15.9 | 0.0020 | 0.0004 | 0.0017 | 0.0000 | 0.0003 | 0.0003 | 0.2 | 0.00001 |
| 2029 | T01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 51.8 | 0.0013 | 0.0003 | 0.0032 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |
| 2029 | T01 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2029 | T01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2029 | T01 | Tractors/Loaders/Backhoes | 100 < hp <= 175 | 0.59 | 129.1 | 0.0241 | 0.0073 | 0.0423 | 0.0000 | 0.0050 | 0.0049 | 8.3 | 0.00041 |
| 2029 | T01 | Tractors/Loaders/Backhoes | 50 < hp <= 75 | 0.21 | 466.1 | 0.0324 | 0.0057 | 0.0353 | 0.0000 | 0.0043 | 0.0041 | 5.1 | 0.00028 |
| 2029 | T01 | Tractors/Loaders/Backhoes | 75 < hp <= 100 | 0.21 | 757.5 | 0.0693 | 0.0120 | 0.0634 | 0.0000 | 0.0092 | 0.0089 | 11.0 | 0.00055 |
| 2029 | T02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |
| 2029 | T02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |
| 2029 | T02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2029 | T02 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 40.0 | 0.0452 | 0.0104 | 0.0003 | 0.0000 | 0.0017 | 0.0015 | 0.1 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | T02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2029 | T02 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2029 | T02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 140.6 | 0.0016 | 0.0002 | 0.0044 | 0.0000 | 0.0004 | 0.0004 | 7.8 | 0.00002 |
| 2029 | T02 | Excavators | 100 < hp <= 175 | 0.59 | 276.6 | 0.0024 | 0.0004 | 0.0082 | 0.0000 | 0.0006 | 0.0006 | 15.3 | 0.00003 |
| 2029 | T02 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |
| 2029 | T02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2029 | T02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2029 | T02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2029 | T02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 8,121.1 | 0.1322 | 0.0384 | 0.5060 | 0.0045 | 0.0320 | 0.0311 | 1,543.2 | 0.00192 |
| 2029 | T02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |
| 2029 | T02 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2029 | T02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | T02 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2029 | T02 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2029 | T02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2029 | T02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2029 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.21 | 80.0 | 0.0030 | 0.0009 | 0.0053 | 0.0000 | 0.0006 | 0.0006 | 1.1 | 0.00005 |
| 2029 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |
| 2029 | T02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | T02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2029 | T02 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |
| 2030 | A04 | Air Compressors | 75 < hp <= 100 | 0.43 | 30.5 | 0.0006 | 0.0001 | 0.0020 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00001 |
| 2030 | A04 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 26.4 | 0.0015 | 0.0003 | 0.0034 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00001 |
| 2030 | A04 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 30.5 | 0.0002 | 0.0001 | 0.0020 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00001 |
| 2030 | A04 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 26.4 | 0.0006 | 0.0002 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2030 | A04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 196.8 | 0.0022 | 0.0003 | 0.0062 | 0.0000 | 0.0005 | 0.0005 | 10.9 | 0.00002 |
| 2030 | A04 | Excavators | 100 < hp <= 175 | 0.59 | 493.1 | 0.0044 | 0.0007 | 0.0145 | 0.0001 | 0.0010 | 0.0010 | 27.3 | 0.00005 |
| 2030 | A04 | Graders | 175 < hp <= 300 | 0.59 | 10.6 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 1.0 | 0.00000 |
| 2030 | A04 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 9.6 | 0.0028 | 0.0006 | 0.0099 | 0.0000 | 0.0005 | 0.0005 | 1.8 | 0.00004 |
| 2030 | A04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,740.8 | 0.1261 | 0.0366 | 0.4823 | 0.0043 | 0.0305 | 0.0296 | 1,471.0 | 0.00183 |
| 2030 | A04 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,931.0 | 0.0370 | 0.0086 | 0.1050 | 0.0002 | 0.0081 | 0.0079 | 78.0 | 0.00058 |
| 2030 | A04 | Pavers | 100 < hp <= 175 | 0.59 | 30.5 | 0.0004 | 0.0001 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 1.7 | 0.00000 |
| 2030 | A04 | Pumps | 6 < hp <= 11 | 0.43 | 8.8 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | A04 | Rollers | 75 < hp <= 100 | 0.59 | 123.4 | 0.0021 | 0.0002 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 4.3 | 0.00001 |
| 2030 | A04 | Scrapers | 300 < hp <= 600 | 0.59 | 38.1 | 0.0031 | 0.0005 | 0.0084 | 0.0000 | 0.0005 | 0.0005 | 7.2 | 0.00003 |
| 2030 | A04 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 27.3 | 0.0034 | 0.0006 | 0.0029 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2030 | A04 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 30.5 | 0.0007 | 0.0002 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2030 | A04 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 120.4 | 0.0225 | 0.0068 | 0.0394 | 0.0000 | 0.0047 | 0.0045 | 7.8 | 0.00038 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | A04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 58.5 | 0.0054 | 0.0009 | 0.0049 | 0.0000 | 0.0007 | 0.0007 | 0.9 | 0.00004 |
| 2030 | A05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 345.4 | 0.0056 | 0.0016 | 0.0215 | 0.0002 | 0.0014 | 0.0013 | 65.6 | 0.00008 |
| 2030 | A05 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 172.7 | 0.0033 | 0.0008 | 0.0094 | 0.0000 | 0.0007 | 0.0007 | 7.0 | 0.00005 |
| 2030 | A05 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 8.1 | 0.0010 | 0.0002 | 0.0008 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2030 | A05 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 8.1 | 0.0015 | 0.0005 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 0.5 | 0.00003 |
| 2030 | A05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 8.1 | 0.0007 | 0.0001 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2030 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2030 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2030 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2030 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2030 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2030 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2030 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2030 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2030 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2030 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2030 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2030 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2030 | L03 | Air Compressors | 75 < hp <= 100 | 0.43 | 34.7 | 0.0007 | 0.0001 | 0.0023 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | L03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 31.2 | 0.0018 | 0.0003 | 0.0041 | 0.0000 | 0.0003 | 0.0003 | 0.8 | 0.00001 |
| 2030 | L03 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 34.7 | 0.0003 | 0.0001 | 0.0023 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00001 |
| 2030 | L03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 31.2 | 0.0007 | 0.0002 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00002 |
| 2030 | L03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 240.2 | 0.0027 | 0.0004 | 0.0075 | 0.0000 | 0.0007 | 0.0006 | 13.3 | 0.00003 |
| 2030 | L03 | Excavators | 100 < hp <= 175 | 0.59 | 95.0 | 0.0008 | 0.0001 | 0.0028 | 0.0000 | 0.0002 | 0.0002 | 5.3 | 0.00001 |
| 2030 | L03 | Graders | 175 < hp <= 300 | 0.59 | 12.6 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 1.2 | 0.00000 |
| 2030 | L03 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 11.3 | 0.0033 | 0.0007 | 0.0118 | 0.0000 | 0.0006 | 0.0005 | 2.1 | 0.00005 |
| 2030 | L03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,544.0 | 0.0740 | 0.0215 | 0.2831 | 0.0025 | 0.0179 | 0.0174 | 863.5 | 0.00107 |
| 2030 | L03 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 622.4 | 0.0119 | 0.0028 | 0.0338 | 0.0001 | 0.0026 | 0.0025 | 25.1 | 0.00019 |
| 2030 | L03 | Pavers | 100 < hp <= 175 | 0.59 | 122.7 | 0.0018 | 0.0003 | 0.0042 | 0.0000 | 0.0005 | 0.0004 | 6.8 | 0.00002 |
| 2030 | L03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 150.0 | 0.0011 | 0.0004 | 0.0018 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00003 |
| 2030 | L03 | Pumps | 6 < hp <= 11 | 0.43 | 10.4 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | L03 | Rollers | 75 < hp <= 100 | 0.59 | 168.6 | 0.0029 | 0.0003 | 0.0115 | 0.0000 | 0.0004 | 0.0004 | 5.9 | 0.00002 |
| 2030 | L03 | Scrapers | 300 < hp <= 600 | 0.59 | 43.4 | 0.0035 | 0.0006 | 0.0096 | 0.0000 | 0.0006 | 0.0006 | 8.2 | 0.00004 |
| 2030 | L03 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 146.5 | 0.0181 | 0.0034 | 0.0153 | 0.0000 | 0.0025 | 0.0024 | 1.6 | 0.00012 |
| 2030 | L03 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 51.3 | 0.0012 | 0.0003 | 0.0031 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |
| 2030 | L03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 178.7 | 0.0334 | 0.0101 | 0.0585 | 0.0000 | 0.0069 | 0.0067 | 11.5 | 0.00057 |
| 2030 | L03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 327.4 | 0.0300 | 0.0052 | 0.0274 | 0.0000 | 0.0040 | 0.0039 | 4.8 | 0.00024 |
| 2030 | L07 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 400.8 | 0.0652 | 0.0103 | 0.0707 | 0.0001 | 0.0083 | 0.0080 | 16.4 | 0.00048 |
| 2030 | L07 | Bore/Drill Rigs | 100 < hp <= 175 | 0.43 | 120.0 | 0.0114 | 0.0038 | 0.0447 | 0.0000 | 0.0026 | 0.0025 | 4.8 | 0.00020 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | L07 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 660.0 | 0.3154 | 0.0674 | 1.1890 | 0.0005 | 0.0432 | 0.0419 | 123.9 | 0.00317 |
| 2030 | L07 | Cranes | 175 < hp <= 300 | 0.43 | 600.0 | 0.0060 | 0.0021 | 0.0253 | 0.0001 | 0.0014 | 0.0013 | 41.1 | 0.00012 |
| 2030 | L07 | Excavators | 100 < hp <= 175 | 0.59 | 160.8 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2030 | L07 | Forklifts | 75 < hp <= 100 | 0.59 | 801.6 | 0.0027 | 0.0004 | 0.0447 | 0.0001 | 0.0006 | 0.0006 | 28.2 | 0.00003 |
| 2030 | L07 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 160.8 | 0.0005 | 0.0002 | 0.0026 | 0.0000 | 0.0002 | 0.0001 | 11.1 | 0.00001 |
| 2030 | L07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,536.0 | 0.0250 | 0.0073 | 0.0957 | 0.0009 | 0.0061 | 0.0059 | 291.9 | 0.00036 |
| 2030 | L07 | Pavers | 100 < hp <= 175 | 0.59 | 79.2 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2030 | L07 | Pumps | 6 < hp <= 11 | 0.43 | 450.0 | 0.0061 | 0.0019 | 0.0099 | 0.0000 | 0.0006 | 0.0006 | 1.3 | 0.00015 |
| 2030 | L07 | Rubber Tire Loaders | 75 < hp <= 100 | 0.21 | 79.2 | 0.0005 | 0.0000 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00000 |
| 2030 | L07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 679.2 | 0.0621 | 0.0108 | 0.0568 | 0.0000 | 0.0083 | 0.0080 | 9.9 | 0.00049 |
| 2030 | L07 | Trenchers | 50 < hp <= 75 | 0.59 | 319.2 | 0.0111 | 0.0017 | 0.0445 | 0.0000 | 0.0013 | 0.0013 | 8.4 | 0.00017 |
| 2030 | S01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 16.0 | 0.0026 | 0.0004 | 0.0028 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00002 |
| 2030 | S01 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2030 | S01 | Air Compressors | 75 < hp <= 100 | 0.43 | 15.8 | 0.0003 | 0.0000 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.4 | 0.00000 |
| 2030 | S01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 24.0 | 0.0115 | 0.0024 | 0.0432 | 0.0000 | 0.0016 | 0.0015 | 4.5 | 0.00012 |
| 2030 | S01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 37.2 | 0.0022 | 0.0004 | 0.0048 | 0.0000 | 0.0004 | 0.0004 | 0.9 | 0.00002 |
| 2030 | S01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 15.8 | 0.0001 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2030 | S01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 37.2 | 0.0008 | 0.0003 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2030 | S01 | Cranes | 175 < hp <= 300 | 0.43 | 19.0 | 0.0002 | 0.0001 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 1.3 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | S01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 508.0 | 0.0056 | 0.0009 | 0.0159 | 0.0001 | 0.0014 | 0.0014 | 28.2 | 0.00006 |
| 2030 | S01 | Excavators | 100 < hp <= 175 | 0.59 | 232.9 | 0.0021 | 0.0003 | 0.0069 | 0.0000 | 0.0005 | 0.0005 | 12.9 | 0.00002 |
| 2030 | S01 | Forklifts | 75 < hp <= 100 | 0.59 | 24.0 | 0.0001 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2030 | S01 | Generator Sets | 25 < hp <= 40 | 0.43 | 30.0 | 0.0004 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2030 | S01 | Graders | 175 < hp <= 300 | 0.59 | 5.4 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2030 | S01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.8 | 0.0014 | 0.0003 | 0.0050 | 0.0000 | 0.0002 | 0.0002 | 0.9 | 0.00002 |
| 2030 | S01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,815.9 | 0.0784 | 0.0228 | 0.3001 | 0.0027 | 0.0190 | 0.0184 | 915.1 | 0.00114 |
| 2030 | S01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 191.3 | 0.0037 | 0.0009 | 0.0104 | 0.0000 | 0.0008 | 0.0008 | 7.7 | 0.00006 |
| 2030 | S01 | Pavers | 100 < hp <= 175 | 0.59 | 21.7 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 1.2 | 0.00000 |
| 2030 | S01 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2030 | S01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | S01 | Pumps | 6 < hp <= 11 | 0.43 | 4.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | S01 | Rollers | 75 < hp <= 100 | 0.59 | 275.6 | 0.0048 | 0.0004 | 0.0189 | 0.0000 | 0.0007 | 0.0007 | 9.7 | 0.00003 |
| 2030 | S01 | Scrapers | 300 < hp <= 600 | 0.59 | 158.2 | 0.0129 | 0.0021 | 0.0348 | 0.0001 | 0.0021 | 0.0020 | 30.1 | 0.00013 |
| 2030 | S01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 28.9 | 0.0036 | 0.0007 | 0.0030 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2030 | S01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 23.4 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2030 | S01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2030 | S01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 89.5 | 0.0167 | 0.0050 | 0.0293 | 0.0000 | 0.0035 | 0.0034 | 5.8 | 0.00028 |
| 2030 | S01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 84.0 | 0.0058 | 0.0010 | 0.0064 | 0.0000 | 0.0008 | 0.0007 | 0.9 | 0.00005 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | S01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 147.3 | 0.0135 | 0.0023 | 0.0123 | 0.0000 | 0.0018 | 0.0017 | 2.1 | 0.00011 |
| 2030 | S10 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |
| 2030 | S10 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |
| 2030 | S10 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2030 | S10 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2030 | S10 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 40.0 | 0.0008 | 0.0003 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2030 | S10 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2030 | S10 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 24.0 | 0.0003 | 0.0000 | 0.0008 | 0.0000 | 0.0001 | 0.0001 | 1.3 | 0.00000 |
| 2030 | S10 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2030 | S10 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |
| 2030 | S10 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2030 | S10 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2030 | S10 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2030 | S10 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,888.0 | 0.1285 | 0.0373 | 0.4915 | 0.0044 | 0.0311 | 0.0302 | 1,498.9 | 0.00187 |
| 2030 | S10 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |
| 2030 | S10 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2030 | S10 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | S10 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2030 | S10 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2030 | S10 | Rubber Tire Loaders | 75 < hp <= 100 | 0.21 | 80.0 | 0.0005 | 0.0000 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | S10 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2030 | S10 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2030 | S10 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |
| 2030 | S10 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2030 | S10 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2030 | S10 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |
| 2030 | T01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2030 | T01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2030 | T01 | Air Compressors | 75 < hp <= 100 | 0.43 | 51.8 | 0.0011 | 0.0001 | 0.0034 | 0.0000 | 0.0002 | 0.0002 | 1.3 | 0.00001 |
| 2030 | T01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2030 | T01 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 82.0 | 0.0926 | 0.0214 | 0.0005 | 0.0000 | 0.0034 | 0.0031 | 0.2 | 0.00000 |
| 2030 | T01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 82.0 | 0.0048 | 0.0009 | 0.0106 | 0.0000 | 0.0008 | 0.0008 | 2.1 | 0.00004 |
| 2030 | T01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 51.8 | 0.0004 | 0.0001 | 0.0034 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00002 |
| 2030 | T01 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2030 | T01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 412.7 | 0.0046 | 0.0007 | 0.0130 | 0.0001 | 0.0011 | 0.0011 | 22.9 | 0.00005 |
| 2030 | T01 | Excavators | 100 < hp <= 175 | 0.59 | 558.8 | 0.0049 | 0.0008 | 0.0165 | 0.0001 | 0.0012 | 0.0011 | 31.0 | 0.00006 |
| 2030 | T01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,700.0 | 0.0125 | 0.0018 | 0.2062 | 0.0004 | 0.0029 | 0.0028 | 130.1 | 0.00012 |
| 2030 | T01 | Generator Sets | 25 < hp <= 40 | 0.43 | 301.0 | 0.0039 | 0.0011 | 0.0175 | 0.0000 | 0.0006 | 0.0006 | 3.1 | 0.00009 |
| 2030 | T01 | Graders | 175 < hp <= 300 | 0.59 | 16.9 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | T01 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2030 | T01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.2 | 0.0044 | 0.0009 | 0.0158 | 0.0000 | 0.0007 | 0.0007 | 2.9 | 0.00006 |
| 2030 | T01 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2030 | T01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 12,536.6 | 0.2042 | 0.0593 | 0.7811 | 0.0070 | 0.0494 | 0.0480 | 2,382.3 | 0.00297 |
| 2030 | T01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 516.6 | 0.0099 | 0.0023 | 0.0281 | 0.0001 | 0.0022 | 0.0021 | 20.9 | 0.00015 |
| 2030 | T01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2030 | T01 | Pavers | 100 < hp <= 175 | 0.59 | 51.8 | 0.0008 | 0.0001 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 2.9 | 0.00001 |
| 2030 | T01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | T01 | Pumps | 6 < hp <= 11 | 0.43 | 254.0 | 0.0034 | 0.0011 | 0.0056 | 0.0000 | 0.0004 | 0.0003 | 0.7 | 0.00008 |
| 2030 | T01 | Rollers | 75 < hp <= 100 | 0.59 | 194.3 | 0.0033 | 0.0003 | 0.0133 | 0.0000 | 0.0005 | 0.0005 | 6.8 | 0.00002 |
| 2030 | T01 | Scrapers | 300 < hp <= 600 | 0.59 | 64.8 | 0.0053 | 0.0008 | 0.0143 | 0.0000 | 0.0009 | 0.0008 | 12.3 | 0.00005 |
| 2030 | T01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 15.9 | 0.0020 | 0.0004 | 0.0017 | 0.0000 | 0.0003 | 0.0003 | 0.2 | 0.00001 |
| 2030 | T01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 51.8 | 0.0013 | 0.0003 | 0.0032 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |
| 2030 | T01 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2030 | T01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2030 | T01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 129.1 | 0.0241 | 0.0073 | 0.0423 | 0.0000 | 0.0050 | 0.0049 | 8.3 | 0.00041 |
| 2030 | T01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 466.1 | 0.0324 | 0.0057 | 0.0353 | 0.0000 | 0.0043 | 0.0041 | 5.1 | 0.00028 |
| 2030 | T01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 757.5 | 0.0693 | 0.0120 | 0.0634 | 0.0000 | 0.0092 | 0.0089 | 11.0 | 0.00055 |
| 2030 | T02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | T02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |
| 2030 | T02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2030 | T02 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 40.0 | 0.0452 | 0.0104 | 0.0003 | 0.0000 | 0.0017 | 0.0015 | 0.1 | 0.00000 |
| 2030 | T02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2030 | T02 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2030 | T02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 140.6 | 0.0016 | 0.0002 | 0.0044 | 0.0000 | 0.0004 | 0.0004 | 7.8 | 0.00002 |
| 2030 | T02 | Excavators | 100 < hp <= 175 | 0.59 | 276.6 | 0.0024 | 0.0004 | 0.0082 | 0.0000 | 0.0006 | 0.0006 | 15.3 | 0.00003 |
| 2030 | T02 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |
| 2030 | T02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2030 | T02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2030 | T02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2030 | T02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 8,121.1 | 0.1322 | 0.0384 | 0.5060 | 0.0045 | 0.0320 | 0.0311 | 1,543.2 | 0.00192 |
| 2030 | T02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |
| 2030 | T02 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2030 | T02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | T02 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2030 | T02 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2030 | T02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2030 | T02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2030 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.21 | 80.0 | 0.0030 | 0.0009 | 0.0053 | 0.0000 | 0.0006 | 0.0006 | 1.1 | 0.00005 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |
| 2030 | T02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2030 | T02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2030 | T02 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |
| 2031 | A04 | Air Compressors | 75 < hp <= 100 | 0.43 | 30.5 | 0.0006 | 0.0001 | 0.0020 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00001 |
| 2031 | A04 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 26.4 | 0.0015 | 0.0003 | 0.0034 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00001 |
| 2031 | A04 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 30.5 | 0.0002 | 0.0001 | 0.0020 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00001 |
| 2031 | A04 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 26.4 | 0.0006 | 0.0002 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2031 | A04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 196.8 | 0.0022 | 0.0003 | 0.0062 | 0.0000 | 0.0005 | 0.0005 | 10.9 | 0.00002 |
| 2031 | A04 | Excavators | 100 < hp <= 175 | 0.59 | 493.1 | 0.0044 | 0.0007 | 0.0145 | 0.0001 | 0.0010 | 0.0010 | 27.3 | 0.00005 |
| 2031 | A04 | Graders | 175 < hp <= 300 | 0.59 | 10.6 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 1.0 | 0.00000 |
| 2031 | A04 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 9.6 | 0.0028 | 0.0006 | 0.0099 | 0.0000 | 0.0005 | 0.0005 | 1.8 | 0.00004 |
| 2031 | A04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,740.8 | 0.1261 | 0.0366 | 0.4823 | 0.0043 | 0.0305 | 0.0296 | 1,471.0 | 0.00183 |
| 2031 | A04 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,931.0 | 0.0370 | 0.0086 | 0.1050 | 0.0002 | 0.0081 | 0.0079 | 78.0 | 0.00058 |
| 2031 | A04 | Pavers | 100 < hp <= 175 | 0.59 | 30.5 | 0.0004 | 0.0001 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 1.7 | 0.00000 |
| 2031 | A04 | Pumps | 6 < hp <= 11 | 0.43 | 8.8 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2031 | A04 | Rollers | 75 < hp <= 100 | 0.59 | 123.4 | 0.0021 | 0.0002 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 4.3 | 0.00001 |
| 2031 | A04 | Scrapers | 300 < hp <= 600 | 0.59 | 38.1 | 0.0031 | 0.0005 | 0.0084 | 0.0000 | 0.0005 | 0.0005 | 7.2 | 0.00003 |
| 2031 | A04 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 27.3 | 0.0034 | 0.0006 | 0.0029 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | A04 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 30.5 | 0.0007 | 0.0002 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2031 | A04 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 120.4 | 0.0225 | 0.0068 | 0.0394 | 0.0000 | 0.0047 | 0.0045 | 7.8 | 0.00038 |
| 2031 | A04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 58.5 | 0.0054 | 0.0009 | 0.0049 | 0.0000 | 0.0007 | 0.0007 | 0.9 | 0.00004 |
| 2031 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2031 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2031 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2031 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2031 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2031 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2031 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2031 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2031 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2031 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2031 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2031 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2031 | L07 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 400.8 | 0.0652 | 0.0103 | 0.0707 | 0.0001 | 0.0083 | 0.0080 | 16.4 | 0.00048 |
| 2031 | L07 | Bore/Drill Rigs | 100 < hp <= 175 | 0.43 | 120.0 | 0.0114 | 0.0038 | 0.0447 | 0.0000 | 0.0026 | 0.0025 | 4.8 | 0.00020 |
| 2031 | L07 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 660.0 | 0.3154 | 0.0674 | 1.1890 | 0.0005 | 0.0432 | 0.0419 | 123.9 | 0.00317 |
| 2031 | L07 | Cranes | 175 < hp <= 300 | 0.43 | 600.0 | 0.0060 | 0.0021 | 0.0253 | 0.0001 | 0.0014 | 0.0013 | 41.1 | 0.00012 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | L07 | Excavators | 100 < hp <= 175 | 0.59 | 160.8 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2031 | L07 | Forklifts | 75 < hp <= 100 | 0.59 | 801.6 | 0.0027 | 0.0004 | 0.0447 | 0.0001 | 0.0006 | 0.0006 | 28.2 | 0.00003 |
| 2031 | L07 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 160.8 | 0.0005 | 0.0002 | 0.0026 | 0.0000 | 0.0002 | 0.0001 | 11.1 | 0.00001 |
| 2031 | L07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,536.0 | 0.0250 | 0.0073 | 0.0957 | 0.0009 | 0.0061 | 0.0059 | 291.9 | 0.00036 |
| 2031 | L07 | Pavers | 100 < hp <= 175 | 0.59 | 79.2 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2031 | L07 | Pumps | 6 < hp <= 11 | 0.43 | 450.0 | 0.0061 | 0.0019 | 0.0099 | 0.0000 | 0.0006 | 0.0006 | 1.3 | 0.00015 |
| 2031 | L07 | Rubber Tire Loaders | 75 < hp <= 100 | 0.21 | 79.2 | 0.0005 | 0.0000 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00000 |
| 2031 | L07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 679.2 | 0.0621 | 0.0108 | 0.0568 | 0.0000 | 0.0083 | 0.0080 | 9.9 | 0.00049 |
| 2031 | L07 | Trenchers | 50 < hp <= 75 | 0.59 | 319.2 | 0.0111 | 0.0017 | 0.0445 | 0.0000 | 0.0013 | 0.0013 | 8.4 | 0.00017 |
| 2031 | S01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 16.0 | 0.0026 | 0.0004 | 0.0028 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00002 |
| 2031 | S01 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2031 | S01 | Air Compressors | 75 < hp <= 100 | 0.43 | 15.8 | 0.0003 | 0.0000 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.4 | 0.00000 |
| 2031 | S01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 24.0 | 0.0115 | 0.0024 | 0.0432 | 0.0000 | 0.0016 | 0.0015 | 4.5 | 0.00012 |
| 2031 | S01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 37.2 | 0.0022 | 0.0004 | 0.0048 | 0.0000 | 0.0004 | 0.0004 | 0.9 | 0.00002 |
| 2031 | S01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 15.8 | 0.0001 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2031 | S01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 37.2 | 0.0008 | 0.0003 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2031 | S01 | Cranes | 175 < hp <= 300 | 0.43 | 19.0 | 0.0002 | 0.0001 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 1.3 | 0.00000 |
| 2031 | S01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 508.0 | 0.0056 | 0.0009 | 0.0159 | 0.0001 | 0.0014 | 0.0014 | 28.2 | 0.00006 |
| 2031 | S01 | Excavators | 100 < hp <= 175 | 0.59 | 232.9 | 0.0021 | 0.0003 | 0.0069 | 0.0000 | 0.0005 | 0.0005 | 12.9 | 0.00002 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | S01 | Forklifts | 75 < hp <= 100 | 0.59 | 24.0 | 0.0001 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2031 | S01 | Generator Sets | 25 < hp <= 40 | 0.43 | 30.0 | 0.0004 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2031 | S01 | Graders | 175 < hp <= 300 | 0.59 | 5.4 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2031 | S01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.8 | 0.0014 | 0.0003 | 0.0050 | 0.0000 | 0.0002 | 0.0002 | 0.9 | 0.00002 |
| 2031 | S01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,815.9 | 0.0784 | 0.0228 | 0.3001 | 0.0027 | 0.0190 | 0.0184 | 915.1 | 0.00114 |
| 2031 | S01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 191.3 | 0.0037 | 0.0009 | 0.0104 | 0.0000 | 0.0008 | 0.0008 | 7.7 | 0.00006 |
| 2031 | S01 | Pavers | 100 < hp <= 175 | 0.59 | 21.7 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 1.2 | 0.00000 |
| 2031 | S01 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2031 | S01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2031 | S01 | Pumps | 6 < hp <= 11 | 0.43 | 4.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2031 | S01 | Rollers | 75 < hp <= 100 | 0.59 | 275.6 | 0.0048 | 0.0004 | 0.0189 | 0.0000 | 0.0007 | 0.0007 | 9.7 | 0.00003 |
| 2031 | S01 | Scrapers | 300 < hp <= 600 | 0.59 | 158.2 | 0.0129 | 0.0021 | 0.0348 | 0.0001 | 0.0021 | 0.0020 | 30.1 | 0.00013 |
| 2031 | S01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 28.9 | 0.0036 | 0.0007 | 0.0030 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2031 | S01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 23.4 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2031 | S01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2031 | S01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 89.5 | 0.0167 | 0.0050 | 0.0293 | 0.0000 | 0.0035 | 0.0034 | 5.8 | 0.00028 |
| 2031 | S01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 84.0 | 0.0058 | 0.0010 | 0.0064 | 0.0000 | 0.0008 | 0.0007 | 0.9 | 0.00005 |
| 2031 | S01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 147.3 | 0.0135 | 0.0023 | 0.0123 | 0.0000 | 0.0018 | 0.0017 | 2.1 | 0.00011 |
| 2031 | T01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | T01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2031 | T01 | Air Compressors | 75 < hp <= 100 | 0.43 | 51.8 | 0.0011 | 0.0001 | 0.0034 | 0.0000 | 0.0002 | 0.0002 | 1.3 | 0.00001 |
| 2031 | T01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2031 | T01 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 82.0 | 0.0926 | 0.0214 | 0.0005 | 0.0000 | 0.0034 | 0.0031 | 0.2 | 0.00000 |
| 2031 | T01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 82.0 | 0.0048 | 0.0009 | 0.0106 | 0.0000 | 0.0008 | 0.0008 | 2.1 | 0.00004 |
| 2031 | T01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 51.8 | 0.0004 | 0.0001 | 0.0034 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00002 |
| 2031 | T01 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2031 | T01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 412.7 | 0.0046 | 0.0007 | 0.0130 | 0.0001 | 0.0011 | 0.0011 | 22.9 | 0.00005 |
| 2031 | T01 | Excavators | 100 < hp <= 175 | 0.59 | 558.8 | 0.0049 | 0.0008 | 0.0165 | 0.0001 | 0.0012 | 0.0011 | 31.0 | 0.00006 |
| 2031 | T01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,700.0 | 0.0125 | 0.0018 | 0.2062 | 0.0004 | 0.0029 | 0.0028 | 130.1 | 0.00012 |
| 2031 | T01 | Generator Sets | 25 < hp <= 40 | 0.43 | 301.0 | 0.0039 | 0.0011 | 0.0175 | 0.0000 | 0.0006 | 0.0006 | 3.1 | 0.00009 |
| 2031 | T01 | Graders | 175 < hp <= 300 | 0.59 | 16.9 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |
| 2031 | T01 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2031 | T01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.2 | 0.0044 | 0.0009 | 0.0158 | 0.0000 | 0.0007 | 0.0007 | 2.9 | 0.00006 |
| 2031 | T01 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2031 | T01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 12,536.6 | 0.2042 | 0.0593 | 0.7811 | 0.0070 | 0.0494 | 0.0480 | 2,382.3 | 0.00297 |
| 2031 | T01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 516.6 | 0.0099 | 0.0023 | 0.0281 | 0.0001 | 0.0022 | 0.0021 | 20.9 | 0.00015 |
| 2031 | T01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2031 | T01 | Pavers | 100 < hp <= 175 | 0.59 | 51.8 | 0.0008 | 0.0001 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 2.9 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | T01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2031 | T01 | Pumps | 6 < hp <= 11 | 0.43 | 254.0 | 0.0034 | 0.0011 | 0.0056 | 0.0000 | 0.0004 | 0.0003 | 0.7 | 0.00008 |
| 2031 | T01 | Rollers | 75 < hp <= 100 | 0.59 | 194.3 | 0.0033 | 0.0003 | 0.0133 | 0.0000 | 0.0005 | 0.0005 | 6.8 | 0.00002 |
| 2031 | T01 | Scrapers | 300 < hp <= 600 | 0.59 | 64.8 | 0.0053 | 0.0008 | 0.0143 | 0.0000 | 0.0009 | 0.0008 | 12.3 | 0.00005 |
| 2031 | T01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 15.9 | 0.0020 | 0.0004 | 0.0017 | 0.0000 | 0.0003 | 0.0003 | 0.2 | 0.00001 |
| 2031 | T01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 51.8 | 0.0013 | 0.0003 | 0.0032 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |
| 2031 | T01 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2031 | T01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2031 | T01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 129.1 | 0.0241 | 0.0073 | 0.0423 | 0.0000 | 0.0050 | 0.0049 | 8.3 | 0.00041 |
| 2031 | T01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 466.1 | 0.0324 | 0.0057 | 0.0353 | 0.0000 | 0.0043 | 0.0041 | 5.1 | 0.00028 |
| 2031 | T01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 757.5 | 0.0693 | 0.0120 | 0.0634 | 0.0000 | 0.0092 | 0.0089 | 11.0 | 0.00055 |
| 2031 | T02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |
| 2031 | T02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |
| 2031 | T02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2031 | T02 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 40.0 | 0.0452 | 0.0104 | 0.0003 | 0.0000 | 0.0017 | 0.0015 | 0.1 | 0.00000 |
| 2031 | T02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2031 | T02 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2031 | T02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 140.6 | 0.0016 | 0.0002 | 0.0044 | 0.0000 | 0.0004 | 0.0004 | 7.8 | 0.00002 |
| 2031 | T02 | Excavators | 100 < hp <= 175 | 0.59 | 276.6 | 0.0024 | 0.0004 | 0.0082 | 0.0000 | 0.0006 | 0.0006 | 15.3 | 0.00003 |
| 2031 | T02 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | T02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2031 | T02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2031 | T02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2031 | T02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 8,121.1 | 0.1322 | 0.0384 | 0.5060 | 0.0045 | 0.0320 | 0.0311 | 1,543.2 | 0.00192 |
| 2031 | T02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |
| 2031 | T02 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2031 | T02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2031 | T02 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2031 | T02 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2031 | T02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2031 | T02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2031 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.21 | 80.0 | 0.0030 | 0.0009 | 0.0053 | 0.0000 | 0.0006 | 0.0006 | 1.1 | 0.00005 |
| 2031 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |
| 2031 | T02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2031 | T02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2031 | T02 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |
| 2032 | A04 | Air Compressors | 75 < hp <= 100 | 0.43 | 15.4 | 0.0003 | 0.0000 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.4 | 0.00000 |
| 2032 | A04 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 13.2 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2032 | A04 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 15.4 | 0.0001 | 0.0000 | 0.0010 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2032 | A04 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 13.2 | 0.0003 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2032 | A04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 99.7 | 0.0011 | 0.0002 | 0.0031 | 0.0000 | 0.0003 | 0.0003 | 5.5 | 0.00001 |
| 2032 | A04 | Excavators | 100 < hp <= 175 | 0.59 | 247.1 | 0.0022 | 0.0003 | 0.0073 | 0.0000 | 0.0005 | 0.0005 | 13.7 | 0.00002 |
| 2032 | A04 | Graders | 175 < hp <= 300 | 0.59 | 5.4 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2032 | A04 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.9 | 0.0014 | 0.0003 | 0.0051 | 0.0000 | 0.0002 | 0.0002 | 0.9 | 0.00002 |
| 2032 | A04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 3,870.3 | 0.0630 | 0.0183 | 0.2411 | 0.0021 | 0.0153 | 0.0148 | 735.5 | 0.00092 |
| 2032 | A04 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 964.0 | 0.0185 | 0.0043 | 0.0524 | 0.0001 | 0.0040 | 0.0039 | 38.9 | 0.00029 |
| 2032 | A04 | Pavers | 100 < hp <= 175 | 0.59 | 15.4 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00000 |
| 2032 | A04 | Pumps | 6 < hp <= 11 | 0.43 | 4.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2032 | A04 | Rollers | 75 < hp <= 100 | 0.59 | 62.6 | 0.0011 | 0.0001 | 0.0043 | 0.0000 | 0.0002 | 0.0002 | 2.2 | 0.00001 |
| 2032 | A04 | Scrapers | 300 < hp <= 600 | 0.59 | 19.2 | 0.0016 | 0.0003 | 0.0042 | 0.0000 | 0.0003 | 0.0002 | 3.7 | 0.00002 |
| 2032 | A04 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 16.9 | 0.0021 | 0.0004 | 0.0018 | 0.0000 | 0.0003 | 0.0003 | 0.2 | 0.00001 |
| 2032 | A04 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 15.4 | 0.0004 | 0.0001 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2032 | A04 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 64.2 | 0.0120 | 0.0036 | 0.0210 | 0.0000 | 0.0025 | 0.0024 | 4.1 | 0.00020 |
| 2032 | A04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 32.7 | 0.0030 | 0.0005 | 0.0027 | 0.0000 | 0.0004 | 0.0004 | 0.5 | 0.00002 |
| 2032 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2032 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2032 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2032 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2032 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2032 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2032 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2032 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2032 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2032 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2032 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2032 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2032 | T02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |
| 2032 | T02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |
| 2032 | T02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2032 | T02 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 40.0 | 0.0452 | 0.0104 | 0.0003 | 0.0000 | 0.0017 | 0.0015 | 0.1 | 0.00000 |
| 2032 | T02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2032 | T02 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2032 | T02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 110.6 | 0.0012 | 0.0002 | 0.0035 | 0.0000 | 0.0003 | 0.0003 | 6.1 | 0.00001 |
| 2032 | T02 | Excavators | 100 < hp <= 175 | 0.59 | 246.6 | 0.0022 | 0.0003 | 0.0073 | 0.0000 | 0.0005 | 0.0005 | 13.7 | 0.00002 |
| 2032 | T02 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |
| 2032 | T02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2032 | T02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2032 | T02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |

**TABLE 6-4: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – PROPOSED ACTION *(CONTINUED)***

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2032 | T02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 8,061.3 | 0.1313 | 0.0381 | 0.5023 | 0.0045 | 0.0318 | 0.0308 | 1,531.8 | 0.00191 |
| 2032 | T02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |
| 2032 | T02 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2032 | T02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2032 | T02 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2032 | T02 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2032 | T02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2032 | T02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2032 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.21 | 80.0 | 0.0030 | 0.0009 | 0.0053 | 0.0000 | 0.0006 | 0.0006 | 1.1 | 0.00005 |
| 2032 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |
| 2032 | T02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2032 | T02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2032 | T02 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |

Note: HP denotes horsepower; LF denotes load factor; hrs denotes hours; ST denotes short tons; MT denotes metric tons; CO denotes carbon monoxide, $NO_x$ denotes nitrogen oxides, $SO_x$ denotes sulfur oxides, VOC denotes volatile organic compounds, $PM_{2.5}$ denotes fine particulate matter, $PM_{10}$ denotes coarse particulate matter, $CO_2$ denotes carbon dioxide, $CH_4$ denotes methane, $N_2O$ denotes nitrous oxide.

Source: MOVES 4, Landrum & Brown 2024

## EXHIBIT 6-2: CONSTRUCTION SCHEDULE - HYBRID TERMINAL OPTION

| ID | DESCRIPTION | 2025 | | | | 2026 | | | | 2027 | | | | 2028 | | | | 2029 | | | | 2030 | | | | 2031 | | | | 2032 | | | | Number of Quarters |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | |
| **AIRSIDE** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A01 | Taxiway A/B Extension | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 11 |
| A02 | Runway 16R/34L Blast Pads | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| A03 | Taxiway C/D Reconfiguration & RIM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 17 |
| A04 | Taxiway B 500' Separation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 17 |
| A05 | North Hold Pad | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| A06 | Runway 34L High-Speed Exit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| A07 | Taxiway D Extension | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 |
| A08 | North Cargo Hardstand | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 |
| A10 | Taxiway Fillets | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 11 |
| **CARGO** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C01 | Cargo 4 South Redevelopment | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| C02 | Offsite Cargo Phase 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 6 |
| CO3 | Offsite Cargo Phase 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| **LANDSIDE** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L01 | NAE Relocation (southbound lanes) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 17 |
| L02 | Elevated Busway & Stations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 27 |
| L03 | Second Terminal Roads & Curbside | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 8 |
| L04 | Northeast GTC | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 11 |
| L05 | North GT Holding Lot | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| L07 | Employee Parking Structure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 |
| **TERMINAL** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| T01 | North Gates | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 20 |
| T02 | Second Terminal & Parking | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 18 |
| **AIRPORT/AIRLINE SUPPORT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| S01 | Fuel Farm Expansion | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 13 |
| S02 | Primary ARFF Facility | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 8 |
| S03 | Secondary ARFF Facility | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 |
| S04 | Fuel Rack Relocation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 11 |
| S05 | Triculator | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 |
| S06 | De-icing Tanks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 |
| S07 | Westside Maintenance Campus | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 |
| S08 | North Airline Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| S09 | West Airline Support | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |
| S10 | Centralized Rec. & Dist. Center | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 |
| **CONCOURSE D EXTENSION - HYBRID ALT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| AS | Hardstand (central) (*Ph. 1 - Partial A09*) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| AS | Conc. D Hardstand Replacement (*Ph. 2*) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| AS | Demo Conc. D Hardstand *(Ph. 3)* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 |
| AS | Conc. D Widening - *(Ph. 4 - 7)* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 |
| AS | Conc. D Extension - *(completes A09 with Concourse)* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 |

## TABLE 6-5: ON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION

| Year | Task ID | Activity | Annual VMT | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (ST) | $CH_4$ (ST) | $N_2O$ (ST) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | C01 | Employee Commute | 109,825 | 0.4 | 0.00 | 0.01 | 0.0002 | 0.0003 | 0.0003 | 35.0 | 0.001 | 0.000 |
| 2025 | C01 | Material Delivery | 76,293 | 0.2 | 0.01 | 0.31 | 0.0005 | 0.0040 | 0.0037 | 124.8 | 0.001 | 0.017 |
| 2025 | L01 | Employee Commute | 250,770 | 0.9 | 0.01 | 0.03 | 0.0004 | 0.0007 | 0.0006 | 79.9 | 0.002 | 0.000 |
| 2025 | L01 | Material Delivery | 9,812 | 0.0 | 0.00 | 0.04 | 0.0001 | 0.0005 | 0.0005 | 16.0 | 0.000 | 0.002 |
| 2025 | L02 | Employee Commute | 491,394 | 1.7 | 0.02 | 0.06 | 0.0009 | 0.0013 | 0.0012 | 156.5 | 0.005 | 0.001 |
| 2025 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2025 | S07 | Employee Commute | 3,248,191 | 11.5 | 0.11 | 0.40 | 0.0057 | 0.0086 | 0.0076 | 1034.6 | 0.032 | 0.006 |
| 2025 | S07 | Material Delivery | 85,324 | 0.2 | 0.01 | 0.34 | 0.0005 | 0.0045 | 0.0041 | 139.6 | 0.002 | 0.019 |
| 2026 | A01 | Employee Commute | 1,651,716 | 5.8 | 0.06 | 0.20 | 0.0029 | 0.0044 | 0.0039 | 526.1 | 0.016 | 0.003 |
| 2026 | A01 | Material Delivery | 66,908 | 0.1 | 0.01 | 0.27 | 0.0004 | 0.0035 | 0.0032 | 109.4 | 0.001 | 0.015 |
| 2026 | A02 | Employee Commute | 1,936,176 | 6.8 | 0.07 | 0.24 | 0.0034 | 0.0051 | 0.0046 | 616.7 | 0.019 | 0.003 |
| 2026 | A02 | Material Delivery | 16,204 | 0.0 | 0.00 | 0.06 | 0.0001 | 0.0009 | 0.0008 | 26.5 | 0.000 | 0.004 |
| 2026 | A06 | Employee Commute | 1,936,176 | 6.8 | 0.07 | 0.24 | 0.0034 | 0.0051 | 0.0046 | 616.7 | 0.019 | 0.003 |
| 2026 | A06 | Material Delivery | 103,397 | 0.2 | 0.01 | 0.41 | 0.0006 | 0.0054 | 0.0050 | 169.1 | 0.002 | 0.023 |
| 2026 | A07 | Employee Commute | 163,020 | 0.6 | 0.01 | 0.02 | 0.0003 | 0.0004 | 0.0004 | 51.9 | 0.002 | 0.000 |
| 2026 | A07 | Material Delivery | 13,924 | 0.0 | 0.00 | 0.06 | 0.0001 | 0.0007 | 0.0007 | 22.8 | 0.000 | 0.003 |
| 2026 | A08 | Employee Commute | 148,590 | 0.5 | 0.01 | 0.02 | 0.0003 | 0.0004 | 0.0003 | 47.3 | 0.001 | 0.000 |
| 2026 | A08 | Material Delivery | 100,765 | 0.2 | 0.01 | 0.40 | 0.0006 | 0.0053 | 0.0049 | 164.8 | 0.002 | 0.022 |
| 2026 | A10 | Employee Commute | 936,540 | 3.3 | 0.03 | 0.12 | 0.0017 | 0.0025 | 0.0022 | 298.3 | 0.009 | 0.002 |
| 2026 | A10 | Material Delivery | 2,394 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0001 | 0.0001 | 3.9 | 0.000 | 0.001 |
| 2026 | C01 | Employee Commute | 1,736,856 | 6.1 | 0.06 | 0.21 | 0.0031 | 0.0046 | 0.0041 | 553.2 | 0.017 | 0.003 |
| 2026 | C01 | Material Delivery | 268,684 | 0.6 | 0.02 | 1.07 | 0.0016 | 0.0142 | 0.0130 | 439.5 | 0.005 | 0.059 |
| 2026 | C02 | Employee Commute | 181,253 | 0.6 | 0.01 | 0.02 | 0.0003 | 0.0005 | 0.0004 | 57.7 | 0.002 | 0.000 |
| 2026 | C02 | Material Delivery | 41,244 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0022 | 0.0020 | 67.5 | 0.001 | 0.009 |
| 2026 | L01 | Employee Commute | 3,116,124 | 11.0 | 0.11 | 0.38 | 0.0055 | 0.0083 | 0.0073 | 992.5 | 0.031 | 0.005 |
| 2026 | L01 | Material Delivery | 39,630 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0021 | 0.0019 | 64.8 | 0.001 | 0.009 |
| 2026 | L02 | Employee Commute | 1,965,578 | 6.9 | 0.07 | 0.24 | 0.0035 | 0.0052 | 0.0046 | 626.1 | 0.019 | 0.003 |
| 2026 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2026 | L04 | Employee Commute | 1,204,731 | 4.3 | 0.04 | 0.15 | 0.0021 | 0.0032 | 0.0028 | 383.7 | 0.012 | 0.002 |
| 2026 | L04 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2026 | S02 | Employee Commute | 1,273,800 | 4.5 | 0.04 | 0.16 | 0.0022 | 0.0034 | 0.0030 | 405.7 | 0.013 | 0.002 |
| 2026 | S02 | Material Delivery | 113,948 | 0.3 | 0.01 | 0.46 | 0.0007 | 0.0060 | 0.0055 | 186.4 | 0.002 | 0.025 |
| 2026 | S04 | Employee Commute | 4,282,542 | 15.1 | 0.15 | 0.53 | 0.0076 | 0.0114 | 0.0101 | 1364.0 | 0.042 | 0.007 |
| 2026 | S04 | Material Delivery | 4,319 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0002 | 0.0002 | 7.1 | 0.000 | 0.001 |
| 2026 | S05 | Employee Commute | 3,392,297 | 12.0 | 0.12 | 0.42 | 0.0060 | 0.0090 | 0.0080 | 1080.5 | 0.034 | 0.006 |
| 2026 | S05 | Material Delivery | 3,297 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0002 | 0.0002 | 5.4 | 0.000 | 0.001 |

## TABLE 6-5: ON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Activity | Annual VMT | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (ST) | $CH_4$ (ST) | $N_2O$ (ST) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | S06 | Employee Commute | 3,154,437 | 11.1 | 0.11 | 0.39 | 0.0056 | 0.0084 | 0.0074 | 1004.7 | 0.031 | 0.005 |
| 2026 | S06 | Material Delivery | 4,519 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0002 | 0.0002 | 7.4 | 0.000 | 0.001 |
| 2026 | S07 | Employee Commute | 5,789,520 | 20.4 | 0.20 | 0.71 | 0.0102 | 0.0154 | 0.0136 | 1844.0 | 0.057 | 0.010 |
| 2026 | S07 | Material Delivery | 100,695 | 0.2 | 0.01 | 0.40 | 0.0006 | 0.0053 | 0.0049 | 164.7 | 0.002 | 0.022 |
| 2027 | A01 | Employee Commute | 6,589,836 | 23.3 | 0.22 | 0.81 | 0.0116 | 0.0175 | 0.0155 | 2098.9 | 0.065 | 0.011 |
| 2027 | A01 | Material Delivery | 129,672 | 0.3 | 0.01 | 0.52 | 0.0008 | 0.0068 | 0.0063 | 212.1 | 0.002 | 0.028 |
| 2027 | A07 | Employee Commute | 1,452,132 | 5.1 | 0.05 | 0.18 | 0.0026 | 0.0039 | 0.0034 | 462.5 | 0.014 | 0.003 |
| 2027 | A07 | Material Delivery | 40,954 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0022 | 0.0020 | 67.0 | 0.001 | 0.009 |
| 2027 | A08 | Employee Commute | 1,047,222 | 3.7 | 0.04 | 0.13 | 0.0018 | 0.0028 | 0.0025 | 333.5 | 0.010 | 0.002 |
| 2027 | A08 | Material Delivery | 371,148 | 0.8 | 0.03 | 1.48 | 0.0022 | 0.0196 | 0.0180 | 607.1 | 0.007 | 0.081 |
| 2027 | A10 | Employee Commute | 936,540 | 3.3 | 0.03 | 0.12 | 0.0017 | 0.0025 | 0.0022 | 298.3 | 0.009 | 0.002 |
| 2027 | A10 | Material Delivery | 2,394 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0001 | 0.0001 | 3.9 | 0.000 | 0.001 |
| 2027 | C02 | Employee Commute | 2,894,760 | 10.2 | 0.10 | 0.36 | 0.0051 | 0.0077 | 0.0068 | 922.0 | 0.029 | 0.005 |
| 2027 | C02 | Material Delivery | 41,244 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0022 | 0.0020 | 67.5 | 0.001 | 0.009 |
| 2027 | L01 | Employee Commute | 3,116,124 | 11.0 | 0.11 | 0.38 | 0.0055 | 0.0083 | 0.0073 | 992.5 | 0.031 | 0.005 |
| 2027 | L01 | Material Delivery | 39,630 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0021 | 0.0019 | 64.8 | 0.001 | 0.009 |
| 2027 | L02 | Employee Commute | 1,965,578 | 6.9 | 0.07 | 0.24 | 0.0035 | 0.0052 | 0.0046 | 626.1 | 0.019 | 0.003 |
| 2027 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2027 | L04 | Employee Commute | 4,827,438 | 17.0 | 0.16 | 0.59 | 0.0085 | 0.0128 | 0.0114 | 1537.6 | 0.048 | 0.008 |
| 2027 | L04 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2027 | L05 | Employee Commute | 2,652,111 | 9.4 | 0.09 | 0.33 | 0.0047 | 0.0071 | 0.0062 | 844.7 | 0.026 | 0.005 |
| 2027 | L05 | Material Delivery | 1,353 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.000 | 0.000 |
| 2027 | S02 | Employee Commute | 2,281,752 | 8.1 | 0.08 | 0.28 | 0.0040 | 0.0061 | 0.0054 | 726.8 | 0.023 | 0.004 |
| 2027 | S02 | Material Delivery | 150,059 | 0.3 | 0.01 | 0.60 | 0.0009 | 0.0079 | 0.0073 | 245.4 | 0.003 | 0.033 |
| 2027 | S03 | Employee Commute | 1,019,040 | 3.6 | 0.03 | 0.13 | 0.0018 | 0.0027 | 0.0024 | 324.6 | 0.010 | 0.002 |
| 2027 | S03 | Material Delivery | 5,059 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0003 | 0.0002 | 8.3 | 0.000 | 0.001 |
| 2027 | S04 | Employee Commute | 4,282,542 | 15.1 | 0.15 | 0.53 | 0.0076 | 0.0114 | 0.0101 | 1364.0 | 0.042 | 0.007 |
| 2027 | S04 | Material Delivery | 4,319 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0002 | 0.0002 | 7.1 | 0.000 | 0.001 |
| 2027 | S05 | Employee Commute | 845,883 | 3.0 | 0.03 | 0.10 | 0.0015 | 0.0022 | 0.0020 | 269.4 | 0.008 | 0.001 |
| 2027 | S05 | Material Delivery | 2,853 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0002 | 0.0001 | 4.7 | 0.000 | 0.001 |
| 2027 | S06 | Employee Commute | 4,407,348 | 15.6 | 0.15 | 0.54 | 0.0078 | 0.0117 | 0.0104 | 1403.8 | 0.044 | 0.008 |
| 2027 | S06 | Material Delivery | 3,853 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0002 | 0.0002 | 6.3 | 0.000 | 0.001 |
| 2027 | S07 | Employee Commute | 3,248,191 | 11.5 | 0.11 | 0.40 | 0.0057 | 0.0086 | 0.0076 | 1034.6 | 0.032 | 0.006 |
| 2027 | S07 | Material Delivery | 85,324 | 0.2 | 0.01 | 0.34 | 0.0005 | 0.0045 | 0.0041 | 139.6 | 0.002 | 0.019 |
| 2027 | S08 | Employee Commute | 904,613 | 3.2 | 0.03 | 0.11 | 0.0016 | 0.0024 | 0.0021 | 288.1 | 0.009 | 0.002 |
| 2027 | S08 | Material Delivery | 40,058 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0021 | 0.0019 | 65.5 | 0.001 | 0.009 |

## TABLE 6-5: ON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Activity | Annual VMT | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (ST) | $CH_4$ (ST) | $N_2O$ (ST) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S09 | Employee Commute | 904,613 | 3.2 | 0.03 | 0.11 | 0.0016 | 0.0024 | 0.0021 | 288.1 | 0.009 | 0.002 |
| 2027 | S09 | Material Delivery | 40,058 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0021 | 0.0019 | 65.5 | 0.001 | 0.009 |
| 2027 | T01 | Employee Commute | 10,131,660 | 35.8 | 0.34 | 1.25 | 0.0179 | 0.0269 | 0.0238 | 3227.0 | 0.100 | 0.018 |
| 2027 | T01 | Material Delivery | 239,615 | 0.5 | 0.02 | 0.96 | 0.0014 | 0.0126 | 0.0116 | 391.9 | 0.004 | 0.052 |
| 2028 | A01 | Employee Commute | 6,589,836 | 23.3 | 0.22 | 0.81 | 0.0116 | 0.0175 | 0.0155 | 2098.9 | 0.065 | 0.011 |
| 2028 | A01 | Material Delivery | 129,672 | 0.3 | 0.01 | 0.52 | 0.0008 | 0.0068 | 0.0063 | 212.1 | 0.002 | 0.028 |
| 2028 | A04 | Employee Commute | 2,394,744 | 8.5 | 0.08 | 0.30 | 0.0042 | 0.0064 | 0.0056 | 762.7 | 0.024 | 0.004 |
| 2028 | A04 | Material Delivery | 100,575 | 0.2 | 0.01 | 0.40 | 0.0006 | 0.0053 | 0.0049 | 164.5 | 0.002 | 0.022 |
| 2028 | A08 | Employee Commute | 1,047,222 | 3.7 | 0.04 | 0.13 | 0.0018 | 0.0028 | 0.0025 | 333.5 | 0.010 | 0.002 |
| 2028 | A08 | Material Delivery | 403,060 | 0.9 | 0.04 | 1.61 | 0.0024 | 0.0212 | 0.0195 | 659.3 | 0.007 | 0.088 |
| 2028 | A10 | Employee Commute | 528,627 | 1.9 | 0.02 | 0.07 | 0.0009 | 0.0014 | 0.0012 | 168.4 | 0.005 | 0.001 |
| 2028 | A10 | Material Delivery | 1,862 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0001 | 0.0001 | 3.0 | 0.000 | 0.000 |
| 2028 | C02 | Employee Commute | 116,903 | 0.4 | 0.00 | 0.01 | 0.0002 | 0.0003 | 0.0003 | 37.2 | 0.001 | 0.000 |
| 2028 | C02 | Material Delivery | 41,244 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0022 | 0.0020 | 67.5 | 0.001 | 0.009 |
| 2028 | C03 | Employee Commute | 216,645 | 0.8 | 0.01 | 0.03 | 0.0004 | 0.0006 | 0.0005 | 69.0 | 0.002 | 0.000 |
| 2028 | C03 | Material Delivery | 41,244 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0022 | 0.0020 | 67.5 | 0.001 | 0.009 |
| 2028 | H01 | Employee Commute | 134,550 | 0.5 | 0.00 | 0.02 | 0.0002 | 0.0004 | 0.0003 | 42.9 | 0.001 | 0.000 |
| 2028 | H01 | Material Delivery | 25,929 | 0.1 | 0.00 | 0.10 | 0.0002 | 0.0014 | 0.0013 | 42.4 | 0.000 | 0.006 |
| 2028 | L01 | Employee Commute | 3,116,124 | 11.0 | 0.11 | 0.38 | 0.0055 | 0.0083 | 0.0073 | 992.5 | 0.031 | 0.005 |
| 2028 | L01 | Material Delivery | 39,630 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0021 | 0.0019 | 64.8 | 0.001 | 0.009 |
| 2028 | L02 | Employee Commute | 1,965,578 | 6.9 | 0.07 | 0.24 | 0.0035 | 0.0052 | 0.0046 | 626.1 | 0.019 | 0.003 |
| 2028 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2028 | L03 | Employee Commute | 418,275 | 1.5 | 0.01 | 0.05 | 0.0007 | 0.0011 | 0.0010 | 133.2 | 0.004 | 0.001 |
| 2028 | L03 | Material Delivery | 12,176 | 0.0 | 0.00 | 0.05 | 0.0001 | 0.0006 | 0.0006 | 19.9 | 0.000 | 0.003 |
| 2028 | L04 | Employee Commute | 4,827,438 | 17.0 | 0.16 | 0.59 | 0.0085 | 0.0128 | 0.0114 | 1537.6 | 0.048 | 0.008 |
| 2028 | L04 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2028 | L05 | Employee Commute | 5,955,015 | 21.0 | 0.20 | 0.73 | 0.0105 | 0.0158 | 0.0140 | 1896.7 | 0.059 | 0.010 |
| 2028 | L05 | Material Delivery | 1,353 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.000 | 0.000 |
| 2028 | S01 | Employee Commute | 386,685 | 1.4 | 0.01 | 0.05 | 0.0007 | 0.0010 | 0.0009 | 123.2 | 0.004 | 0.001 |
| 2028 | S01 | Material Delivery | 13,537 | 0.0 | 0.00 | 0.05 | 0.0001 | 0.0007 | 0.0007 | 22.1 | 0.000 | 0.003 |
| 2028 | S02 | Employee Commute | 145,860 | 0.5 | 0.00 | 0.02 | 0.0003 | 0.0004 | 0.0003 | 46.5 | 0.001 | 0.000 |
| 2028 | S02 | Material Delivery | 41,309 | 0.1 | 0.00 | 0.17 | 0.0002 | 0.0022 | 0.0020 | 67.6 | 0.001 | 0.009 |
| 2028 | S03 | Employee Commute | 1,813,482 | 6.4 | 0.06 | 0.22 | 0.0032 | 0.0048 | 0.0043 | 577.6 | 0.018 | 0.003 |
| 2028 | S03 | Material Delivery | 5,059 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0003 | 0.0002 | 8.3 | 0.000 | 0.001 |
| 2028 | S04 | Employee Commute | 2,401,113 | 8.5 | 0.08 | 0.30 | 0.0042 | 0.0064 | 0.0056 | 764.8 | 0.024 | 0.004 |
| 2028 | S04 | Material Delivery | 3,608 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0002 | 0.0002 | 5.9 | 0.000 | 0.001 |

## TABLE 6-5: ON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Activity | Annual VMT | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (ST) | $CH_4$ (ST) | $N_2O$ (ST) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | S08 | Employee Commute | 2,034,896 | 7.2 | 0.07 | 0.25 | 0.0036 | 0.0054 | 0.0048 | 648.1 | 0.020 | 0.004 |
| 2028 | S08 | Material Delivery | 41,525 | 0.1 | 0.00 | 0.17 | 0.0003 | 0.0022 | 0.0020 | 67.9 | 0.001 | 0.009 |
| 2028 | S09 | Employee Commute | 2,034,896 | 7.2 | 0.07 | 0.25 | 0.0036 | 0.0054 | 0.0048 | 648.1 | 0.020 | 0.004 |
| 2028 | S09 | Material Delivery | 41,525 | 0.1 | 0.00 | 0.17 | 0.0003 | 0.0022 | 0.0020 | 67.9 | 0.001 | 0.009 |
| 2028 | T01 | Employee Commute | 10,131,660 | 35.8 | 0.34 | 1.25 | 0.0179 | 0.0269 | 0.0238 | 3227.0 | 0.100 | 0.018 |
| 2028 | T01 | Material Delivery | 239,615 | 0.5 | 0.02 | 0.96 | 0.0014 | 0.0126 | 0.0116 | 391.9 | 0.004 | 0.052 |
| 2028 | T02 | Employee Commute | 9,000,176 | 31.8 | 0.31 | 1.11 | 0.0159 | 0.0239 | 0.0212 | 2866.6 | 0.089 | 0.016 |
| 2028 | T02 | Material Delivery | 117,474 | 0.3 | 0.01 | 0.47 | 0.0007 | 0.0062 | 0.0057 | 192.1 | 0.002 | 0.026 |
| 2029 | A01 | Employee Commute | 416,130 | 1.5 | 0.01 | 0.05 | 0.0007 | 0.0011 | 0.0010 | 132.5 | 0.004 | 0.001 |
| 2029 | A01 | Material Delivery | 33,493 | 0.1 | 0.00 | 0.13 | 0.0002 | 0.0018 | 0.0016 | 54.8 | 0.001 | 0.007 |
| 2029 | A04 | Employee Commute | 4,257,000 | 15.0 | 0.14 | 0.52 | 0.0075 | 0.0113 | 0.0100 | 1355.9 | 0.042 | 0.007 |
| 2029 | A04 | Material Delivery | 134,544 | 0.3 | 0.01 | 0.54 | 0.0008 | 0.0071 | 0.0065 | 220.1 | 0.002 | 0.029 |
| 2029 | A05 | Employee Commute | 130,845 | 0.5 | 0.00 | 0.02 | 0.0002 | 0.0003 | 0.0003 | 41.7 | 0.001 | 0.000 |
| 2029 | A05 | Material Delivery | 2,220 | 0.0 | 0.00 | 0.01 | 0.0000 | 0.0001 | 0.0001 | 3.6 | 0.000 | 0.000 |
| 2029 | A08 | Employee Commute | 148,590 | 0.5 | 0.01 | 0.02 | 0.0003 | 0.0004 | 0.0003 | 47.3 | 0.001 | 0.000 |
| 2029 | A08 | Material Delivery | 100,765 | 0.2 | 0.01 | 0.40 | 0.0006 | 0.0053 | 0.0049 | 164.8 | 0.002 | 0.022 |
| 2029 | C03 | Employee Commute | 3,473,712 | 12.3 | 0.12 | 0.43 | 0.0061 | 0.0092 | 0.0082 | 1106.4 | 0.034 | 0.006 |
| 2029 | C03 | Material Delivery | 41,244 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0022 | 0.0020 | 67.5 | 0.001 | 0.009 |
| 2029 | H01 | Employee Commute | 430,854 | 1.5 | 0.01 | 0.05 | 0.0008 | 0.0011 | 0.0010 | 137.2 | 0.004 | 0.001 |
| 2029 | H01 | Material Delivery | 25,929 | 0.1 | 0.00 | 0.10 | 0.0002 | 0.0014 | 0.0013 | 42.4 | 0.000 | 0.006 |
| 2029 | H02 | Employee Commute | 948,599 | 3.3 | 0.03 | 0.12 | 0.0017 | 0.0025 | 0.0022 | 302.1 | 0.009 | 0.002 |
| 2029 | H02 | Material Delivery | 56,259 | 0.1 | 0.01 | 0.23 | 0.0003 | 0.0030 | 0.0027 | 92.0 | 0.001 | 0.012 |
| 2029 | L01 | Employee Commute | 3,116,124 | 11.0 | 0.11 | 0.38 | 0.0055 | 0.0083 | 0.0073 | 992.5 | 0.031 | 0.005 |
| 2029 | L01 | Material Delivery | 39,630 | 0.1 | 0.00 | 0.16 | 0.0002 | 0.0021 | 0.0019 | 64.8 | 0.001 | 0.009 |
| 2029 | L02 | Employee Commute | 1,965,578 | 6.9 | 0.07 | 0.24 | 0.0035 | 0.0052 | 0.0046 | 626.1 | 0.019 | 0.003 |
| 2029 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2029 | L03 | Employee Commute | 6,632,406 | 23.4 | 0.23 | 0.82 | 0.0117 | 0.0176 | 0.0156 | 2112.5 | 0.066 | 0.012 |
| 2029 | L03 | Material Delivery | 48,706 | 0.1 | 0.00 | 0.19 | 0.0003 | 0.0026 | 0.0024 | 79.7 | 0.001 | 0.011 |
| 2029 | L04 | Employee Commute | 304,590 | 1.1 | 0.01 | 0.04 | 0.0005 | 0.0008 | 0.0007 | 97.0 | 0.003 | 0.001 |
| 2029 | L04 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2029 | L07 | Employee Commute | 1,894,365 | 6.7 | 0.06 | 0.23 | 0.0033 | 0.0050 | 0.0045 | 603.4 | 0.019 | 0.003 |
| 2029 | L07 | Material Delivery | 87,092 | 0.2 | 0.01 | 0.35 | 0.0005 | 0.0046 | 0.0042 | 142.5 | 0.002 | 0.019 |
| 2029 | S01 | Employee Commute | 5,585,184 | 19.7 | 0.19 | 0.69 | 0.0098 | 0.0148 | 0.0131 | 1778.9 | 0.055 | 0.010 |
| 2029 | S01 | Material Delivery | 48,368 | 0.1 | 0.00 | 0.19 | 0.0003 | 0.0025 | 0.0023 | 79.1 | 0.001 | 0.011 |
| 2029 | S03 | Employee Commute | 1,019,040 | 3.6 | 0.03 | 0.13 | 0.0018 | 0.0027 | 0.0024 | 324.6 | 0.010 | 0.002 |
| 2029 | S03 | Material Delivery | 5,059 | 0.0 | 0.00 | 0.02 | 0.0000 | 0.0003 | 0.0002 | 8.3 | 0.000 | 0.001 |

## TABLE 6-5: ON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Activity | Annual VMT | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (ST) | $CH_4$ (ST) | $N_2O$ (ST) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | S10 | Employee Commute | 8,275,608 | 29.2 | 0.28 | 1.02 | 0.0146 | 0.0220 | 0.0195 | 2635.8 | 0.082 | 0.014 |
| 2029 | S10 | Material Delivery | 98,224 | 0.2 | 0.01 | 0.39 | 0.0006 | 0.0052 | 0.0048 | 160.7 | 0.002 | 0.022 |
| 2029 | T01 | Employee Commute | 10,131,660 | 35.8 | 0.34 | 1.25 | 0.0179 | 0.0269 | 0.0238 | 3227.0 | 0.100 | 0.018 |
| 2029 | T01 | Material Delivery | 239,615 | 0.5 | 0.02 | 0.96 | 0.0014 | 0.0126 | 0.0116 | 391.9 | 0.004 | 0.052 |
| 2029 | T02 | Employee Commute | 16,041,705 | 56.6 | 0.55 | 1.98 | 0.0283 | 0.0426 | 0.0377 | 5109.4 | 0.158 | 0.028 |
| 2029 | T02 | Material Delivery | 124,124 | 0.3 | 0.01 | 0.50 | 0.0007 | 0.0065 | 0.0060 | 203.0 | 0.002 | 0.027 |
| 2030 | A04 | Employee Commute | 4,257,000 | 15.0 | 0.14 | 0.52 | 0.0075 | 0.0113 | 0.0100 | 1355.9 | 0.042 | 0.007 |
| 2030 | A04 | Material Delivery | 134,544 | 0.3 | 0.01 | 0.54 | 0.0008 | 0.0071 | 0.0065 | 220.1 | 0.002 | 0.029 |
| 2030 | A05 | Employee Commute | 2,068,902 | 7.3 | 0.07 | 0.25 | 0.0036 | 0.0055 | 0.0049 | 659.0 | 0.020 | 0.004 |
| 2030 | A05 | Material Delivery | 8,880 | 0.0 | 0.00 | 0.04 | 0.0001 | 0.0005 | 0.0004 | 14.5 | 0.000 | 0.002 |
| 2030 | H03 | Employee Commute | 633,229 | 2.2 | 0.02 | 0.08 | 0.0011 | 0.0017 | 0.0015 | 201.7 | 0.006 | 0.001 |
| 2030 | H03 | Material Delivery | 11,110 | 0.0 | 0.00 | 0.04 | 0.0001 | 0.0006 | 0.0005 | 18.2 | 0.000 | 0.002 |
| 2030 | H04 | Employee Commute | 140,718 | 0.5 | 0.00 | 0.02 | 0.0002 | 0.0004 | 0.0003 | 44.8 | 0.001 | 0.000 |
| 2030 | H04 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2030 | H05 | Employee Commute | 648,146 | 2.3 | 0.02 | 0.08 | 0.0011 | 0.0017 | 0.0015 | 206.4 | 0.006 | 0.001 |
| 2030 | H05 | Material Delivery | 63,787 | 0.1 | 0.01 | 0.26 | 0.0004 | 0.0034 | 0.0031 | 104.3 | 0.001 | 0.014 |
| 2030 | L02 | Employee Commute | 1,965,578 | 6.9 | 0.07 | 0.24 | 0.0035 | 0.0052 | 0.0046 | 626.1 | 0.019 | 0.003 |
| 2030 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2030 | L03 | Employee Commute | 3,725,865 | 13.2 | 0.13 | 0.46 | 0.0066 | 0.0099 | 0.0088 | 1186.7 | 0.037 | 0.006 |
| 2030 | L03 | Material Delivery | 36,530 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0019 | 0.0018 | 59.8 | 0.001 | 0.008 |
| 2030 | L07 | Employee Commute | 7,577,460 | 26.8 | 0.26 | 0.93 | 0.0134 | 0.0201 | 0.0178 | 2413.5 | 0.075 | 0.013 |
| 2030 | L07 | Material Delivery | 87,092 | 0.2 | 0.01 | 0.35 | 0.0005 | 0.0046 | 0.0042 | 142.5 | 0.002 | 0.019 |
| 2030 | S01 | Employee Commute | 5,585,184 | 19.7 | 0.19 | 0.69 | 0.0098 | 0.0148 | 0.0131 | 1778.9 | 0.055 | 0.010 |
| 2030 | S01 | Material Delivery | 48,368 | 0.1 | 0.00 | 0.19 | 0.0003 | 0.0025 | 0.0023 | 79.1 | 0.001 | 0.011 |
| 2030 | S10 | Employee Commute | 4,643,001 | 16.4 | 0.16 | 0.57 | 0.0082 | 0.0123 | 0.0109 | 1478.8 | 0.046 | 0.008 |
| 2030 | S10 | Material Delivery | 98,224 | 0.2 | 0.01 | 0.39 | 0.0006 | 0.0052 | 0.0048 | 160.7 | 0.002 | 0.022 |
| 2030 | T01 | Employee Commute | 10,131,660 | 35.8 | 0.34 | 1.25 | 0.0179 | 0.0269 | 0.0238 | 3227.0 | 0.100 | 0.018 |
| 2030 | T01 | Material Delivery | 239,615 | 0.5 | 0.02 | 0.96 | 0.0014 | 0.0126 | 0.0116 | 391.9 | 0.004 | 0.052 |
| 2030 | T02 | Employee Commute | 16,041,705 | 56.6 | 0.55 | 1.98 | 0.0283 | 0.0426 | 0.0377 | 5109.4 | 0.158 | 0.028 |
| 2030 | T02 | Material Delivery | 124,124 | 0.3 | 0.01 | 0.50 | 0.0007 | 0.0065 | 0.0060 | 203.0 | 0.002 | 0.027 |
| 2031 | A04 | Employee Commute | 4,257,000 | 15.0 | 0.14 | 0.52 | 0.0075 | 0.0113 | 0.0100 | 1355.9 | 0.042 | 0.007 |
| 2031 | A04 | Material Delivery | 134,544 | 0.3 | 0.01 | 0.54 | 0.0008 | 0.0071 | 0.0065 | 220.1 | 0.002 | 0.029 |
| 2031 | H04 | Employee Commute | 562,870 | 2.0 | 0.02 | 0.07 | 0.0010 | 0.0015 | 0.0013 | 179.3 | 0.006 | 0.001 |
| 2031 | H04 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2031 | H05 | Employee Commute | 977,224 | 3.4 | 0.03 | 0.12 | 0.0017 | 0.0026 | 0.0023 | 311.3 | 0.010 | 0.002 |
| 2031 | H05 | Material Delivery | 63,787 | 0.1 | 0.01 | 0.26 | 0.0004 | 0.0034 | 0.0031 | 104.3 | 0.001 | 0.014 |

## TABLE 6-5: ON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Activity | Annual VMT | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (ST) | $CH_4$ (ST) | $N_2O$ (ST) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | L02 | Employee Commute | 1,965,578 | 6.9 | 0.07 | 0.24 | 0.0035 | 0.0052 | 0.0046 | 626.1 | 0.019 | 0.003 |
| 2031 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2031 | L07 | Employee Commute | 478,335 | 1.7 | 0.02 | 0.06 | 0.0008 | 0.0013 | 0.0011 | 152.4 | 0.005 | 0.001 |
| 2031 | L07 | Material Delivery | 87,092 | 0.2 | 0.01 | 0.35 | 0.0005 | 0.0046 | 0.0042 | 142.5 | 0.002 | 0.019 |
| 2031 | S01 | Employee Commute | 5,585,184 | 19.7 | 0.19 | 0.69 | 0.0098 | 0.0148 | 0.0131 | 1778.9 | 0.055 | 0.010 |
| 2031 | S01 | Material Delivery | 48,368 | 0.1 | 0.00 | 0.19 | 0.0003 | 0.0025 | 0.0023 | 79.1 | 0.001 | 0.011 |
| 2031 | T01 | Employee Commute | 10,131,660 | 35.8 | 0.34 | 1.25 | 0.0179 | 0.0269 | 0.0238 | 3227.0 | 0.100 | 0.018 |
| 2031 | T01 | Material Delivery | 239,615 | 0.5 | 0.02 | 0.96 | 0.0014 | 0.0126 | 0.0116 | 391.9 | 0.004 | 0.052 |
| 2031 | T02 | Employee Commute | 16,041,705 | 56.6 | 0.55 | 1.98 | 0.0283 | 0.0426 | 0.0377 | 5109.4 | 0.158 | 0.028 |
| 2031 | T02 | Material Delivery | 124,124 | 0.3 | 0.01 | 0.50 | 0.0007 | 0.0065 | 0.0060 | 203.0 | 0.002 | 0.027 |
| 2032 | A04 | Employee Commute | 1,064,250 | 3.8 | 0.04 | 0.13 | 0.0019 | 0.0028 | 0.0025 | 339.0 | 0.011 | 0.002 |
| 2032 | A04 | Material Delivery | 67,115 | 0.1 | 0.01 | 0.27 | 0.0004 | 0.0035 | 0.0033 | 109.8 | 0.001 | 0.015 |
| 2032 | H04 | Employee Commute | 315,796 | 1.1 | 0.01 | 0.04 | 0.0006 | 0.0008 | 0.0007 | 100.6 | 0.003 | 0.001 |
| 2032 | H04 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2032 | L02 | Employee Commute | 123,801 | 0.4 | 0.00 | 0.02 | 0.0002 | 0.0003 | 0.0003 | 39.4 | 0.001 | 0.000 |
| 2032 | L02 | Material Delivery | 37,858 | 0.1 | 0.00 | 0.15 | 0.0002 | 0.0020 | 0.0018 | 61.9 | 0.001 | 0.008 |
| 2032 | T02 | Employee Commute | 9,000,160 | 31.8 | 0.31 | 1.11 | 0.0159 | 0.0239 | 0.0212 | 2866.6 | 0.089 | 0.016 |
| 2032 | T02 | Material Delivery | 117,474 | 0.3 | 0.01 | 0.47 | 0.0007 | 0.0062 | 0.0057 | 192.1 | 0.002 | 0.026 |

Note: VMT denotes vehicle miles traveled; ST denotes short tons; CO denotes carbon monoxide, $NO_x$ denotes nitrogen oxides, $SO_x$ denotes sulfur oxides, VOC denotes volatile organic compounds, $PM_{2.5}$ denotes fine particulate matter, $PM_{10}$ denotes coarse particulate matter, $CO_2$ denotes carbon dioxide, $CH_4$ denotes methane, $N_2O$ denotes nitrous oxide.

Source: MOVES 4, Landrum & Brown 2024

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | C01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 3,024.0 | 0.1152 | 0.0219 | 0.1918 | 0.0001 | 0.0137 | 0.0133 | 33.1 | 0.00119 |
| 2025 | C01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 936.1 | 0.1522 | 0.0241 | 0.1652 | 0.0001 | 0.0193 | 0.0187 | 38.4 | 0.00112 |
| 2025 | C01 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2025 | C01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2025 | C01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2025 | C01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2025 | C01 | Cranes | 175 < hp <= 300 | 0.43 | 336.1 | 0.0033 | 0.0012 | 0.0142 | 0.0001 | 0.0008 | 0.0007 | 23.0 | 0.00007 |
| 2025 | C01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 22.6 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 1.3 | 0.00000 |
| 2025 | C01 | Excavators | 100 < hp <= 175 | 0.59 | 119.4 | 0.0011 | 0.0002 | 0.0035 | 0.0000 | 0.0003 | 0.0002 | 6.6 | 0.00001 |
| 2025 | C01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,424.2 | 0.0115 | 0.0017 | 0.1909 | 0.0003 | 0.0027 | 0.0026 | 120.4 | 0.00011 |
| 2025 | C01 | Generator Sets | 25 < hp <= 40 | 0.43 | 412.8 | 0.0054 | 0.0015 | 0.0240 | 0.0000 | 0.0009 | 0.0009 | 4.2 | 0.00013 |
| 2025 | C01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 2,240.3 | 0.0365 | 0.0106 | 0.1396 | 0.0012 | 0.0088 | 0.0086 | 425.7 | 0.00053 |
| 2025 | C01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 12.0 | 0.0047 | 0.0006 | 0.0107 | 0.0000 | 0.0007 | 0.0007 | 2.3 | 0.00004 |
| 2025 | C01 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2025 | C01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | C01 | Pumps | 6 < hp <= 11 | 0.43 | 12.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | C01 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2025 | C01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2025 | C01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTIONN *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | C01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 249.6 | 0.0174 | 0.0030 | 0.0189 | 0.0000 | 0.0023 | 0.0022 | 2.7 | 0.00015 |
| 2025 | C01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.1 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2025 | L01 | Chippers/Stump Grinders | 75 < hp <= 100 | 0.43 | 4.8 | 0.0003 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2025 | L01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 4.8 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | L01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 51.7 | 0.0006 | 0.0001 | 0.0016 | 0.0000 | 0.0001 | 0.0001 | 2.9 | 0.00001 |
| 2025 | L01 | Excavators | 100 < hp <= 175 | 0.59 | 28.3 | 0.0003 | 0.0000 | 0.0008 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00000 |
| 2025 | L01 | Graders | 175 < hp <= 300 | 0.59 | 2.0 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2025 | L01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 1.8 | 0.0005 | 0.0001 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2025 | L01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,014.0 | 0.0165 | 0.0048 | 0.0632 | 0.0006 | 0.0040 | 0.0039 | 192.7 | 0.00024 |
| 2025 | L01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 65.5 | 0.0013 | 0.0003 | 0.0036 | 0.0000 | 0.0003 | 0.0003 | 2.6 | 0.00002 |
| 2025 | L01 | Pavers | 100 < hp <= 175 | 0.59 | 8.2 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2025 | L01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 12.2 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | L01 | Pumps | 6 < hp <= 11 | 0.43 | 1.6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | L01 | Rollers | 75 < hp <= 100 | 0.59 | 22.7 | 0.0004 | 0.0000 | 0.0016 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00000 |
| 2025 | L01 | Scrapers | 300 < hp <= 600 | 0.59 | 7.0 | 0.0006 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.3 | 0.00001 |
| 2025 | L01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 12.9 | 0.0016 | 0.0003 | 0.0013 | 0.0000 | 0.0002 | 0.0002 | 0.1 | 0.00001 |
| 2025 | L01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 2.7 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | L01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 12.1 | 0.0023 | 0.0007 | 0.0040 | 0.0000 | 0.0005 | 0.0005 | 0.8 | 0.00004 |
| 2025 | L01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 27.4 | 0.0025 | 0.0004 | 0.0023 | 0.0000 | 0.0003 | 0.0003 | 0.4 | 0.00002 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2025 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2025 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2025 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2025 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2025 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2025 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2025 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2025 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2025 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2025 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2025 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2025 | S07 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2025 | S07 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2025 | S07 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2025 | S07 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2025 | S07 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2025 | S07 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2025 | S07 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2025 | S07 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 61.5 | 0.0007 | 0.0001 | 0.0019 | 0.0000 | 0.0002 | 0.0002 | 3.4 | 0.00001 |
| 2025 | S07 | Excavators | 100 < hp <= 175 | 0.59 | 270.3 | 0.0024 | 0.0004 | 0.0080 | 0.0000 | 0.0006 | 0.0006 | 15.0 | 0.00003 |
| 2025 | S07 | Forklifts | 75 < hp <= 100 | 0.59 | 3,584.0 | 0.0121 | 0.0018 | 0.1998 | 0.0004 | 0.0028 | 0.0027 | 126.1 | 0.00012 |
| 2025 | S07 | Generator Sets | 25 < hp <= 40 | 0.43 | 144.8 | 0.0019 | 0.0005 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 1.5 | 0.00004 |
| 2025 | S07 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2025 | S07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,930.2 | 0.1129 | 0.0328 | 0.4318 | 0.0038 | 0.0273 | 0.0265 | 1,316.9 | 0.00164 |
| 2025 | S07 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2025 | S07 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2025 | S07 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2025 | S07 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2025 | S07 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2025 | S07 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2025 | S07 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2025 | S07 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 153.6 | 0.0107 | 0.0019 | 0.0116 | 0.0000 | 0.0014 | 0.0014 | 1.7 | 0.00009 |
| 2025 | S07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 600.0 | 0.0549 | 0.0095 | 0.0502 | 0.0000 | 0.0073 | 0.0071 | 8.7 | 0.00043 |
| 2026 | A01 | Air Compressors | 75 < hp <= 100 | 0.43 | 58.3 | 0.0012 | 0.0001 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 1.5 | 0.00001 |
| 2026 | A01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 50.4 | 0.0029 | 0.0005 | 0.0065 | 0.0000 | 0.0005 | 0.0005 | 1.3 | 0.00002 |
| 2026 | A01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 58.3 | 0.0005 | 0.0001 | 0.0039 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00002 |
| 2026 | A01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 50.4 | 0.0011 | 0.0004 | 0.0018 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00003 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | A01 | Cranes | 175 < hp <= 300 | 0.43 | - | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | - | 0.00000 |
| 2026 | A01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 386.6 | 0.0043 | 0.0007 | 0.0121 | 0.0001 | 0.0011 | 0.0010 | 21.4 | 0.00005 |
| 2026 | A01 | Excavators | 100 < hp <= 175 | 0.59 | 476.0 | 0.0042 | 0.0007 | 0.0140 | 0.0001 | 0.0010 | 0.0010 | 26.4 | 0.00005 |
| 2026 | A01 | Graders | 175 < hp <= 300 | 0.59 | 20.1 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.9 | 0.00000 |
| 2026 | A01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 18.1 | 0.0053 | 0.0011 | 0.0188 | 0.0000 | 0.0009 | 0.0009 | 3.4 | 0.00007 |
| 2026 | A01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,176.0 | 0.0680 | 0.0198 | 0.2602 | 0.0023 | 0.0165 | 0.0160 | 793.5 | 0.00099 |
| 2026 | A01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 636.8 | 0.0122 | 0.0029 | 0.0346 | 0.0001 | 0.0027 | 0.0026 | 25.7 | 0.00019 |
| 2026 | A01 | Pavers | 100 < hp <= 175 | 0.59 | 58.3 | 0.0009 | 0.0001 | 0.0020 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2026 | A01 | Pumps | 6 < hp <= 11 | 0.43 | 16.8 | 0.0002 | 0.0001 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00001 |
| 2026 | A01 | Rollers | 75 < hp <= 100 | 0.59 | 231.4 | 0.0040 | 0.0004 | 0.0158 | 0.0000 | 0.0006 | 0.0006 | 8.1 | 0.00003 |
| 2026 | A01 | Scrapers | 300 < hp <= 600 | 0.59 | 72.8 | 0.0059 | 0.0010 | 0.0160 | 0.0000 | 0.0010 | 0.0009 | 13.8 | 0.00006 |
| 2026 | A01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 30.9 | 0.0038 | 0.0007 | 0.0032 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00003 |
| 2026 | A01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 58.3 | 0.0014 | 0.0003 | 0.0036 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00003 |
| 2026 | A01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 201.7 | 0.0377 | 0.0114 | 0.0661 | 0.0000 | 0.0078 | 0.0076 | 13.0 | 0.00064 |
| 2026 | A01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 87.9 | 0.0080 | 0.0014 | 0.0074 | 0.0000 | 0.0011 | 0.0010 | 1.3 | 0.00006 |
| 2026 | A02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 30.0 | 0.0018 | 0.0003 | 0.0039 | 0.0000 | 0.0003 | 0.0003 | 0.8 | 0.00001 |
| 2026 | A02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 30.0 | 0.0006 | 0.0002 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00002 |
| 2026 | A02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 206.4 | 0.0023 | 0.0004 | 0.0065 | 0.0000 | 0.0006 | 0.0005 | 11.4 | 0.00003 |
| 2026 | A02 | Excavators | 100 < hp <= 175 | 0.59 | 53.1 | 0.0005 | 0.0001 | 0.0016 | 0.0000 | 0.0001 | 0.0001 | 2.9 | 0.00001 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | A02 | Graders | 175 < hp <= 300 | 0.59 | 12.1 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 1.2 | 0.00000 |
| 2026 | A02 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 10.9 | 0.0032 | 0.0007 | 0.0114 | 0.0000 | 0.0005 | 0.0005 | 2.1 | 0.00004 |
| 2026 | A02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 3,365.7 | 0.0548 | 0.0159 | 0.2097 | 0.0019 | 0.0133 | 0.0129 | 639.6 | 0.00080 |
| 2026 | A02 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 305.0 | 0.0058 | 0.0014 | 0.0166 | 0.0000 | 0.0013 | 0.0012 | 12.3 | 0.00009 |
| 2026 | A02 | Pavers | 100 < hp <= 175 | 0.59 | 14.2 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00000 |
| 2026 | A02 | Pumps | 6 < hp <= 11 | 0.43 | 10.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | A02 | Rollers | 75 < hp <= 100 | 0.59 | 131.8 | 0.0023 | 0.0002 | 0.0090 | 0.0000 | 0.0003 | 0.0003 | 4.6 | 0.00002 |
| 2026 | A02 | Scrapers | 300 < hp <= 600 | 0.59 | 47.3 | 0.0038 | 0.0006 | 0.0104 | 0.0000 | 0.0006 | 0.0006 | 9.0 | 0.00004 |
| 2026 | A02 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 23.3 | 0.0029 | 0.0005 | 0.0024 | 0.0000 | 0.0004 | 0.0004 | 0.3 | 0.00002 |
| 2026 | A02 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 18.2 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0000 | 0.2 | 0.00001 |
| 2026 | A02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 32.8 | 0.0061 | 0.0018 | 0.0107 | 0.0000 | 0.0013 | 0.0012 | 2.1 | 0.00010 |
| 2026 | A02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 27.6 | 0.0025 | 0.0004 | 0.0023 | 0.0000 | 0.0003 | 0.0003 | 0.4 | 0.00002 |
| 2026 | A06 | Air Compressors | 75 < hp <= 100 | 0.43 | 107.9 | 0.0022 | 0.0003 | 0.0071 | 0.0000 | 0.0004 | 0.0004 | 2.7 | 0.00002 |
| 2026 | A06 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 86.4 | 0.0051 | 0.0009 | 0.0112 | 0.0000 | 0.0009 | 0.0009 | 2.2 | 0.00004 |
| 2026 | A06 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 107.9 | 0.0009 | 0.0003 | 0.0072 | 0.0000 | 0.0001 | 0.0001 | 1.5 | 0.00003 |
| 2026 | A06 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 86.4 | 0.0018 | 0.0006 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.4 | 0.00005 |
| 2026 | A06 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 602.9 | 0.0067 | 0.0010 | 0.0189 | 0.0001 | 0.0017 | 0.0016 | 33.4 | 0.00007 |
| 2026 | A06 | Excavators | 100 < hp <= 175 | 0.59 | 165.8 | 0.0015 | 0.0002 | 0.0049 | 0.0000 | 0.0004 | 0.0003 | 9.2 | 0.00002 |
| 2026 | A06 | Graders | 175 < hp <= 300 | 0.59 | 34.6 | 0.0003 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 3.3 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | A06 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 31.1 | 0.0091 | 0.0019 | 0.0324 | 0.0000 | 0.0015 | 0.0015 | 5.8 | 0.00013 |
| 2026 | A06 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,231.1 | 0.1015 | 0.0295 | 0.3882 | 0.0035 | 0.0246 | 0.0238 | 1,184.1 | 0.00147 |
| 2026 | A06 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,027.4 | 0.0197 | 0.0046 | 0.0559 | 0.0001 | 0.0043 | 0.0042 | 41.5 | 0.00031 |
| 2026 | A06 | Pavers | 100 < hp <= 175 | 0.59 | 107.9 | 0.0016 | 0.0002 | 0.0037 | 0.0000 | 0.0004 | 0.0004 | 6.0 | 0.00002 |
| 2026 | A06 | Pumps | 6 < hp <= 11 | 0.43 | 28.8 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | A06 | Rollers | 75 < hp <= 100 | 0.59 | 349.8 | 0.0060 | 0.0006 | 0.0239 | 0.0000 | 0.0009 | 0.0009 | 12.3 | 0.00004 |
| 2026 | A06 | Scrapers | 300 < hp <= 600 | 0.59 | 134.9 | 0.0110 | 0.0018 | 0.0297 | 0.0001 | 0.0018 | 0.0017 | 25.6 | 0.00011 |
| 2026 | A06 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 26.2 | 0.0032 | 0.0006 | 0.0027 | 0.0000 | 0.0004 | 0.0004 | 0.3 | 0.00002 |
| 2026 | A06 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 107.9 | 0.0026 | 0.0006 | 0.0066 | 0.0000 | 0.0003 | 0.0003 | 0.9 | 0.00005 |
| 2026 | A06 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 224.1 | 0.0419 | 0.0126 | 0.0734 | 0.0001 | 0.0087 | 0.0084 | 14.5 | 0.00071 |
| 2026 | A06 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 87.1 | 0.0080 | 0.0014 | 0.0073 | 0.0000 | 0.0011 | 0.0010 | 1.3 | 0.00006 |
| 2026 | A07 | Air Compressors | 75 < hp <= 100 | 0.43 | 14.5 | 0.0003 | 0.0000 | 0.0010 | 0.0000 | 0.0001 | 0.0000 | 0.4 | 0.00000 |
| 2026 | A07 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 12.0 | 0.0007 | 0.0001 | 0.0016 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2026 | A07 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 14.5 | 0.0001 | 0.0000 | 0.0010 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2026 | A07 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 12.0 | 0.0003 | 0.0001 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | A07 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 79.7 | 0.0009 | 0.0001 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 4.4 | 0.00001 |
| 2026 | A07 | Excavators | 100 < hp <= 175 | 0.59 | 20.3 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2026 | A07 | Graders | 175 < hp <= 300 | 0.59 | 4.8 | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2026 | A07 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.3 | 0.0013 | 0.0003 | 0.0045 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | A07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,267.1 | 0.0206 | 0.0060 | 0.0790 | 0.0007 | 0.0050 | 0.0048 | 240.8 | 0.00030 |
| 2026 | A07 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 137.1 | 0.0026 | 0.0006 | 0.0075 | 0.0000 | 0.0006 | 0.0006 | 5.5 | 0.00004 |
| 2026 | A07 | Pavers | 100 < hp <= 175 | 0.59 | 14.5 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00000 |
| 2026 | A07 | Pumps | 6 < hp <= 11 | 0.43 | 4.0 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | A07 | Rollers | 75 < hp <= 100 | 0.59 | 45.2 | 0.0008 | 0.0001 | 0.0031 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00001 |
| 2026 | A07 | Scrapers | 300 < hp <= 600 | 0.59 | 18.2 | 0.0015 | 0.0002 | 0.0040 | 0.0000 | 0.0002 | 0.0002 | 3.5 | 0.00002 |
| 2026 | A07 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 5.3 | 0.0007 | 0.0001 | 0.0006 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00000 |
| 2026 | A07 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 14.5 | 0.0004 | 0.0001 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | A07 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 28.8 | 0.0054 | 0.0016 | 0.0094 | 0.0000 | 0.0011 | 0.0011 | 1.9 | 0.00009 |
| 2026 | A07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 12.5 | 0.0011 | 0.0002 | 0.0010 | 0.0000 | 0.0002 | 0.0001 | 0.2 | 0.00001 |
| 2026 | A08 | Air Compressors | 75 < hp <= 100 | 0.43 | 13.3 | 0.0003 | 0.0000 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00000 |
| 2026 | A08 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 10.8 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00000 |
| 2026 | A08 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 13.3 | 0.0001 | 0.0000 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2026 | A08 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 10.8 | 0.0002 | 0.0001 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00001 |
| 2026 | A08 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 108.1 | 0.0012 | 0.0002 | 0.0034 | 0.0000 | 0.0003 | 0.0003 | 6.0 | 0.00001 |
| 2026 | A08 | Excavators | 100 < hp <= 175 | 0.59 | 197.5 | 0.0017 | 0.0003 | 0.0058 | 0.0000 | 0.0004 | 0.0004 | 10.9 | 0.00002 |
| 2026 | A08 | Generator Sets | 25 < hp <= 40 | 0.43 | 144.0 | 0.0019 | 0.0005 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 1.5 | 0.00004 |
| 2026 | A08 | Graders | 175 < hp <= 300 | 0.59 | 4.5 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2026 | A08 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.0 | 0.0012 | 0.0003 | 0.0042 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | A08 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,768.7 | 0.0288 | 0.0084 | 0.1102 | 0.0010 | 0.0070 | 0.0068 | 336.1 | 0.00042 |
| 2026 | A08 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 135.3 | 0.0026 | 0.0006 | 0.0074 | 0.0000 | 0.0006 | 0.0006 | 5.5 | 0.00004 |
| 2026 | A08 | Pavers | 100 < hp <= 175 | 0.59 | 13.3 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |
| 2026 | A08 | Pumps | 6 < hp <= 11 | 0.43 | 3.6 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | A08 | Rollers | 75 < hp <= 100 | 0.59 | 40.4 | 0.0007 | 0.0001 | 0.0028 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2026 | A08 | Scrapers | 300 < hp <= 600 | 0.59 | 16.7 | 0.0014 | 0.0002 | 0.0037 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2026 | A08 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 5.6 | 0.0007 | 0.0001 | 0.0006 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00000 |
| 2026 | A08 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 13.3 | 0.0003 | 0.0001 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | A08 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 25.4 | 0.0047 | 0.0014 | 0.0083 | 0.0000 | 0.0010 | 0.0010 | 1.6 | 0.00008 |
| 2026 | A08 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 288.0 | 0.0200 | 0.0035 | 0.0218 | 0.0000 | 0.0026 | 0.0026 | 3.1 | 0.00017 |
| 2026 | A08 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 11.5 | 0.0011 | 0.0002 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2026 | A10 | Air Compressors | 75 < hp <= 100 | 0.43 | 2.5 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2026 | A10 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 3.6 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2026 | A10 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 2.5 | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | A10 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 3.6 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | A10 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 28.9 | 0.0003 | 0.0000 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00000 |
| 2026 | A10 | Excavators | 100 < hp <= 175 | 0.59 | 17.2 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 1.0 | 0.00000 |
| 2026 | A10 | Graders | 175 < hp <= 300 | 0.59 | 1.3 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2026 | A10 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 1.2 | 0.0003 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | A10 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 3,032.8 | 0.0494 | 0.0143 | 0.1890 | 0.0017 | 0.0120 | 0.0116 | 576.3 | 0.00072 |
| 2026 | A10 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 50.7 | 0.0010 | 0.0002 | 0.0028 | 0.0000 | 0.0002 | 0.0002 | 2.0 | 0.00002 |
| 2026 | A10 | Pavers | 100 < hp <= 175 | 0.59 | 2.5 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2026 | A10 | Pumps | 6 < hp <= 11 | 0.43 | 1.2 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | A10 | Rollers | 75 < hp <= 100 | 0.59 | 22.0 | 0.0004 | 0.0000 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00000 |
| 2026 | A10 | Scrapers | 300 < hp <= 600 | 0.59 | 3.1 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2026 | A10 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 6.2 | 0.0008 | 0.0001 | 0.0006 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2026 | A10 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 2.5 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | A10 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 31.6 | 0.0059 | 0.0018 | 0.0104 | 0.0000 | 0.0012 | 0.0012 | 2.0 | 0.00010 |
| 2026 | A10 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 15.6 | 0.0014 | 0.0002 | 0.0013 | 0.0000 | 0.0002 | 0.0002 | 0.2 | 0.00001 |
| 2026 | C01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 3,024.0 | 0.1152 | 0.0219 | 0.1918 | 0.0001 | 0.0137 | 0.0133 | 33.1 | 0.00119 |
| 2026 | C01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 936.1 | 0.1522 | 0.0241 | 0.1652 | 0.0001 | 0.0193 | 0.0187 | 38.4 | 0.00112 |
| 2026 | C01 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2026 | C01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2026 | C01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2026 | C01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | C01 | Cranes | 175 < hp <= 300 | 0.43 | 336.1 | 0.0033 | 0.0012 | 0.0142 | 0.0001 | 0.0008 | 0.0007 | 23.0 | 0.00007 |
| 2026 | C01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 42.4 | 0.0005 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 2.3 | 0.00001 |
| 2026 | C01 | Excavators | 100 < hp <= 175 | 0.59 | 477.6 | 0.0042 | 0.0007 | 0.0141 | 0.0001 | 0.0010 | 0.0010 | 26.5 | 0.00005 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | C01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,424.2 | 0.0115 | 0.0017 | 0.1909 | 0.0003 | 0.0027 | 0.0026 | 120.4 | 0.00011 |
| 2026 | C01 | Generator Sets | 25 < hp <= 40 | 0.43 | 751.2 | 0.0098 | 0.0027 | 0.0437 | 0.0000 | 0.0016 | 0.0016 | 7.6 | 0.00023 |
| 2026 | C01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 3,351.4 | 0.0546 | 0.0159 | 0.2088 | 0.0019 | 0.0132 | 0.0128 | 636.9 | 0.00079 |
| 2026 | C01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 12.0 | 0.0047 | 0.0006 | 0.0107 | 0.0000 | 0.0007 | 0.0007 | 2.3 | 0.00004 |
| 2026 | C01 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2026 | C01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | C01 | Pumps | 6 < hp <= 11 | 0.43 | 12.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | C01 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2026 | C01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2026 | C01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2026 | C01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 926.4 | 0.0645 | 0.0113 | 0.0701 | 0.0000 | 0.0085 | 0.0082 | 10.1 | 0.00055 |
| 2026 | C01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.1 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2026 | C02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2026 | C02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2026 | C02 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2026 | C02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2026 | C02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 64.0 | 0.0037 | 0.0007 | 0.0083 | 0.0000 | 0.0007 | 0.0006 | 1.6 | 0.00003 |
| 2026 | C02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 64.0 | 0.0013 | 0.0005 | 0.0023 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00004 |
| 2026 | C02 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | C02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 40.0 | 0.0004 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.00000 |
| 2026 | C02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2026 | C02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,724.0 | 0.0125 | 0.0018 | 0.2076 | 0.0004 | 0.0029 | 0.0029 | 131.0 | 0.00012 |
| 2026 | C02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2026 | C02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2026 | C02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2026 | C02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,864.0 | 0.1118 | 0.0325 | 0.4277 | 0.0038 | 0.0271 | 0.0263 | 1,304.3 | 0.00162 |
| 2026 | C02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2026 | C02 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2026 | C02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 40.0 | 0.0003 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | C02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2026 | C02 | Rollers | 75 < hp <= 100 | 0.59 | 56.0 | 0.0010 | 0.0001 | 0.0038 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00001 |
| 2026 | C02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2026 | C02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 64.0 | 0.0022 | 0.0003 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 1.6 | 0.00001 |
| 2026 | C02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2026 | C02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2026 | C02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 840.0 | 0.0769 | 0.0133 | 0.0703 | 0.0000 | 0.0102 | 0.0099 | 12.2 | 0.00061 |
| 2026 | L01 | Air Compressors | 75 < hp <= 100 | 0.43 | 22.8 | 0.0005 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00000 |
| 2026 | L01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 19.2 | 0.0011 | 0.0002 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | L01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 22.8 | 0.0002 | 0.0001 | 0.0015 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00001 |
| 2026 | L01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 19.2 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | L01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 206.5 | 0.0023 | 0.0004 | 0.0065 | 0.0000 | 0.0006 | 0.0005 | 11.4 | 0.00003 |
| 2026 | L01 | Excavators | 100 < hp <= 175 | 0.59 | 113.3 | 0.0010 | 0.0002 | 0.0033 | 0.0000 | 0.0002 | 0.0002 | 6.3 | 0.00001 |
| 2026 | L01 | Graders | 175 < hp <= 300 | 0.59 | 7.6 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |
| 2026 | L01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 6.9 | 0.0020 | 0.0004 | 0.0071 | 0.0000 | 0.0003 | 0.0003 | 1.3 | 0.00003 |
| 2026 | L01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,227.2 | 0.0688 | 0.0200 | 0.2634 | 0.0023 | 0.0167 | 0.0162 | 803.3 | 0.00100 |
| 2026 | L01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 309.1 | 0.0059 | 0.0014 | 0.0168 | 0.0000 | 0.0013 | 0.0013 | 12.5 | 0.00009 |
| 2026 | L01 | Pavers | 100 < hp <= 175 | 0.59 | 55.9 | 0.0008 | 0.0001 | 0.0019 | 0.0000 | 0.0002 | 0.0002 | 3.1 | 0.00001 |
| 2026 | L01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 49.2 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | L01 | Pumps | 6 < hp <= 11 | 0.43 | 6.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | L01 | Rollers | 75 < hp <= 100 | 0.59 | 90.4 | 0.0016 | 0.0001 | 0.0062 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2026 | L01 | Scrapers | 300 < hp <= 600 | 0.59 | 28.4 | 0.0023 | 0.0004 | 0.0063 | 0.0000 | 0.0004 | 0.0004 | 5.4 | 0.00002 |
| 2026 | L01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 52.4 | 0.0065 | 0.0012 | 0.0055 | 0.0000 | 0.0009 | 0.0009 | 0.6 | 0.00004 |
| 2026 | L01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 33.7 | 0.0008 | 0.0002 | 0.0021 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00002 |
| 2026 | L01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 70.4 | 0.0132 | 0.0040 | 0.0231 | 0.0000 | 0.0027 | 0.0027 | 4.5 | 0.00022 |
| 2026 | L01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 110.6 | 0.0101 | 0.0018 | 0.0093 | 0.0000 | 0.0013 | 0.0013 | 1.6 | 0.00008 |
| 2026 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2026 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2026 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2026 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2026 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2026 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2026 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2026 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2026 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2026 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2026 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2026 | L04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2026 | L04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2026 | L04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2026 | L04 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2026 | L04 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2026 | L04 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2026 | L04 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2026 | L04 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2026 | L04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | L04 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2026 | L04 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2026 | L04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2026 | S02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 1,320.0 | 0.0503 | 0.0096 | 0.0837 | 0.0000 | 0.0060 | 0.0058 | 14.4 | 0.00052 |
| 2026 | S02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 456.0 | 0.0742 | 0.0117 | 0.0805 | 0.0001 | 0.0094 | 0.0091 | 18.7 | 0.00055 |
| 2026 | S02 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2026 | S02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2026 | S02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2026 | S02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | S02 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2026 | S02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 78.5 | 0.0009 | 0.0001 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 4.4 | 0.00001 |
| 2026 | S02 | Excavators | 100 < hp <= 175 | 0.59 | 233.5 | 0.0021 | 0.0003 | 0.0069 | 0.0000 | 0.0005 | 0.0005 | 12.9 | 0.00002 |
| 2026 | S02 | Forklifts | 75 < hp <= 100 | 0.59 | 1,664.0 | 0.0056 | 0.0008 | 0.0928 | 0.0002 | 0.0013 | 0.0013 | 58.5 | 0.00005 |
| 2026 | S02 | Generator Sets | 25 < hp <= 40 | 0.43 | 171.0 | 0.0022 | 0.0006 | 0.0099 | 0.0000 | 0.0004 | 0.0004 | 1.7 | 0.00005 |
| 2026 | S02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 240.0 | 0.0007 | 0.0003 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 16.6 | 0.00001 |
| 2026 | S02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,268.5 | 0.0207 | 0.0060 | 0.0790 | 0.0007 | 0.0050 | 0.0049 | 241.0 | 0.00030 |
| 2026 | S02 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2026 | S02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | S02 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | S02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2026 | S02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2026 | S02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 366.0 | 0.0255 | 0.0045 | 0.0277 | 0.0000 | 0.0034 | 0.0033 | 4.0 | 0.00022 |
| 2026 | S02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.0 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2026 | S04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2026 | S04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |
| 2026 | S04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |
| 2026 | S04 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2026 | S04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 13.6 | 0.0002 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2026 | S04 | Excavators | 100 < hp <= 175 | 0.59 | 13.6 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2026 | S04 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2026 | S04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 323.2 | 0.0053 | 0.0015 | 0.0201 | 0.0002 | 0.0013 | 0.0012 | 61.4 | 0.00008 |
| 2026 | S04 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2026 | S04 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2026 | S04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2026 | S05 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2026 | S05 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |
| 2026 | S05 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | S05 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2026 | S05 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 9.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2026 | S05 | Excavators | 100 < hp <= 175 | 0.59 | 9.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2026 | S05 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2026 | S05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 314.0 | 0.0051 | 0.0015 | 0.0196 | 0.0002 | 0.0012 | 0.0012 | 59.7 | 0.00007 |
| 2026 | S05 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2026 | S05 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2026 | S05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2026 | S06 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2026 | S06 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |
| 2026 | S06 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |
| 2026 | S06 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2026 | S06 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 14.5 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2026 | S06 | Excavators | 100 < hp <= 175 | 0.59 | 14.5 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2026 | S06 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2026 | S06 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 325.0 | 0.0053 | 0.0015 | 0.0202 | 0.0002 | 0.0013 | 0.0012 | 61.8 | 0.00008 |
| 2026 | S06 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2026 | S06 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | S06 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2026 | S07 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2026 | S07 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2026 | S07 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2026 | S07 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2026 | S07 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2026 | S07 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2026 | S07 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2026 | S07 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 76.7 | 0.0009 | 0.0001 | 0.0024 | 0.0000 | 0.0002 | 0.0002 | 4.2 | 0.00001 |
| 2026 | S07 | Excavators | 100 < hp <= 175 | 0.59 | 307.1 | 0.0027 | 0.0004 | 0.0091 | 0.0000 | 0.0007 | 0.0006 | 17.0 | 0.00003 |
| 2026 | S07 | Forklifts | 75 < hp <= 100 | 0.59 | 3,584.0 | 0.0121 | 0.0018 | 0.1998 | 0.0004 | 0.0028 | 0.0027 | 126.1 | 0.00012 |
| 2026 | S07 | Generator Sets | 25 < hp <= 40 | 0.43 | 166.4 | 0.0022 | 0.0006 | 0.0097 | 0.0000 | 0.0004 | 0.0003 | 1.7 | 0.00005 |
| 2026 | S07 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2026 | S07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,029.0 | 0.1145 | 0.0333 | 0.4379 | 0.0039 | 0.0277 | 0.0269 | 1,335.7 | 0.00166 |
| 2026 | S07 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2026 | S07 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2026 | S07 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2026 | S07 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2026 | S07 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2026 | S07 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2026 | S07 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2026 | S07 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 196.8 | 0.0137 | 0.0024 | 0.0149 | 0.0000 | 0.0018 | 0.0017 | 2.2 | 0.00012 |
| 2026 | S07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 600.0 | 0.0549 | 0.0095 | 0.0502 | 0.0000 | 0.0073 | 0.0071 | 8.7 | 0.00043 |
| 2027 | A01 | Air Compressors | 75 < hp <= 100 | 0.43 | 120.4 | 0.0025 | 0.0003 | 0.0080 | 0.0000 | 0.0004 | 0.0004 | 3.1 | 0.00002 |
| 2027 | A01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 90.0 | 0.0053 | 0.0010 | 0.0117 | 0.0000 | 0.0009 | 0.0009 | 2.3 | 0.00004 |
| 2027 | A01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 112.4 | 0.0009 | 0.0003 | 0.0075 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00003 |
| 2027 | A01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 90.0 | 0.0019 | 0.0006 | 0.0032 | 0.0000 | 0.0002 | 0.0002 | 0.4 | 0.00005 |
| 2027 | A01 | Cranes | 175 < hp <= 300 | 0.43 | 8.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2027 | A01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 687.3 | 0.0076 | 0.0012 | 0.0216 | 0.0001 | 0.0019 | 0.0018 | 38.1 | 0.00009 |
| 2027 | A01 | Excavators | 100 < hp <= 175 | 0.59 | 882.8 | 0.0078 | 0.0012 | 0.0260 | 0.0001 | 0.0019 | 0.0018 | 48.9 | 0.00009 |
| 2027 | A01 | Graders | 175 < hp <= 300 | 0.59 | 36.4 | 0.0003 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 3.5 | 0.00001 |
| 2027 | A01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 32.8 | 0.0095 | 0.0020 | 0.0341 | 0.0000 | 0.0016 | 0.0016 | 6.2 | 0.00013 |
| 2027 | A01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,913.4 | 0.1289 | 0.0374 | 0.4930 | 0.0044 | 0.0312 | 0.0303 | 1,503.7 | 0.00187 |
| 2027 | A01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,117.4 | 0.0214 | 0.0050 | 0.0608 | 0.0001 | 0.0047 | 0.0046 | 45.1 | 0.00033 |
| 2027 | A01 | Pavers | 100 < hp <= 175 | 0.59 | 112.4 | 0.0016 | 0.0003 | 0.0038 | 0.0000 | 0.0004 | 0.0004 | 6.2 | 0.00002 |
| 2027 | A01 | Pumps | 6 < hp <= 11 | 0.43 | 30.0 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | A01 | Rollers | 75 < hp <= 100 | 0.59 | 376.7 | 0.0065 | 0.0006 | 0.0258 | 0.0000 | 0.0010 | 0.0009 | 13.2 | 0.00004 |
| 2027 | A01 | Scrapers | 300 < hp <= 600 | 0.59 | 140.5 | 0.0114 | 0.0018 | 0.0310 | 0.0001 | 0.0019 | 0.0018 | 26.7 | 0.00012 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | A01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 55.8 | 0.0069 | 0.0013 | 0.0058 | 0.0000 | 0.0010 | 0.0009 | 0.6 | 0.00005 |
| 2027 | A01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 112.4 | 0.0027 | 0.0006 | 0.0069 | 0.0000 | 0.0003 | 0.0003 | 1.0 | 0.00005 |
| 2027 | A01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 256.7 | 0.0480 | 0.0145 | 0.0841 | 0.0001 | 0.0100 | 0.0097 | 16.6 | 0.00082 |
| 2027 | A01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 126.0 | 0.0115 | 0.0020 | 0.0105 | 0.0000 | 0.0015 | 0.0015 | 1.8 | 0.00009 |
| 2027 | A07 | Air Compressors | 75 < hp <= 100 | 0.43 | 42.7 | 0.0009 | 0.0001 | 0.0028 | 0.0000 | 0.0001 | 0.0001 | 1.1 | 0.00001 |
| 2027 | A07 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 33.6 | 0.0020 | 0.0004 | 0.0044 | 0.0000 | 0.0003 | 0.0003 | 0.9 | 0.00001 |
| 2027 | A07 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 42.7 | 0.0003 | 0.0001 | 0.0028 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2027 | A07 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 33.6 | 0.0007 | 0.0002 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2027 | A07 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 232.0 | 0.0026 | 0.0004 | 0.0073 | 0.0000 | 0.0006 | 0.0006 | 12.9 | 0.00003 |
| 2027 | A07 | Excavators | 100 < hp <= 175 | 0.59 | 59.1 | 0.0005 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 3.3 | 0.00001 |
| 2027 | A07 | Graders | 175 < hp <= 300 | 0.59 | 13.6 | 0.0001 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 1.3 | 0.00000 |
| 2027 | A07 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 12.3 | 0.0036 | 0.0008 | 0.0128 | 0.0000 | 0.0006 | 0.0006 | 2.3 | 0.00005 |
| 2027 | A07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 3,749.2 | 0.0611 | 0.0177 | 0.2336 | 0.0021 | 0.0148 | 0.0143 | 712.4 | 0.00089 |
| 2027 | A07 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 395.8 | 0.0076 | 0.0018 | 0.0215 | 0.0000 | 0.0017 | 0.0016 | 16.0 | 0.00012 |
| 2027 | A07 | Pavers | 100 < hp <= 175 | 0.59 | 42.7 | 0.0006 | 0.0001 | 0.0015 | 0.0000 | 0.0002 | 0.0002 | 2.4 | 0.00001 |
| 2027 | A07 | Pumps | 6 < hp <= 11 | 0.43 | 11.2 | 0.0002 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | A07 | Rollers | 75 < hp <= 100 | 0.59 | 131.9 | 0.0023 | 0.0002 | 0.0090 | 0.0000 | 0.0003 | 0.0003 | 4.6 | 0.00002 |
| 2027 | A07 | Scrapers | 300 < hp <= 600 | 0.59 | 53.4 | 0.0043 | 0.0007 | 0.0118 | 0.0000 | 0.0007 | 0.0007 | 10.1 | 0.00004 |
| 2027 | A07 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 9.7 | 0.0012 | 0.0002 | 0.0010 | 0.0000 | 0.0002 | 0.0002 | 0.1 | 0.00001 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | A07 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 42.7 | 0.0010 | 0.0002 | 0.0026 | 0.0000 | 0.0001 | 0.0001 | 0.4 | 0.00002 |
| 2027 | A07 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 77.9 | 0.0146 | 0.0044 | 0.0255 | 0.0000 | 0.0030 | 0.0029 | 5.0 | 0.00025 |
| 2027 | A07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 30.0 | 0.0027 | 0.0005 | 0.0025 | 0.0000 | 0.0004 | 0.0004 | 0.4 | 0.00002 |
| 2027 | A08 | Air Compressors | 75 < hp <= 100 | 0.43 | 20.0 | 0.0004 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00000 |
| 2027 | A08 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 16.8 | 0.0010 | 0.0002 | 0.0022 | 0.0000 | 0.0002 | 0.0002 | 0.4 | 0.00001 |
| 2027 | A08 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 20.0 | 0.0002 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00001 |
| 2027 | A08 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 16.8 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | A08 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 251.4 | 0.0028 | 0.0004 | 0.0079 | 0.0000 | 0.0007 | 0.0007 | 13.9 | 0.00003 |
| 2027 | A08 | Excavators | 100 < hp <= 175 | 0.59 | 746.1 | 0.0066 | 0.0010 | 0.0220 | 0.0001 | 0.0016 | 0.0015 | 41.3 | 0.00007 |
| 2027 | A08 | Generator Sets | 25 < hp <= 40 | 0.43 | 576.0 | 0.0075 | 0.0021 | 0.0335 | 0.0000 | 0.0012 | 0.0012 | 5.8 | 0.00018 |
| 2027 | A08 | Graders | 175 < hp <= 300 | 0.59 | 6.5 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | A08 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 5.9 | 0.0017 | 0.0004 | 0.0061 | 0.0000 | 0.0003 | 0.0003 | 1.1 | 0.00002 |
| 2027 | A08 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 5,768.9 | 0.0939 | 0.0273 | 0.3594 | 0.0032 | 0.0227 | 0.0221 | 1,096.2 | 0.00136 |
| 2027 | A08 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 200.8 | 0.0038 | 0.0009 | 0.0109 | 0.0000 | 0.0008 | 0.0008 | 8.1 | 0.00006 |
| 2027 | A08 | Pavers | 100 < hp <= 175 | 0.59 | 20.0 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 1.1 | 0.00000 |
| 2027 | A08 | Pumps | 6 < hp <= 11 | 0.43 | 5.6 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | A08 | Rollers | 75 < hp <= 100 | 0.59 | 60.3 | 0.0010 | 0.0001 | 0.0041 | 0.0000 | 0.0002 | 0.0002 | 2.1 | 0.00001 |
| 2027 | A08 | Scrapers | 300 < hp <= 600 | 0.59 | 25.0 | 0.0020 | 0.0003 | 0.0055 | 0.0000 | 0.0003 | 0.0003 | 4.7 | 0.00002 |
| 2027 | A08 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 6.4 | 0.0008 | 0.0001 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | A08 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 20.0 | 0.0005 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2027 | A08 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 35.8 | 0.0067 | 0.0020 | 0.0117 | 0.0000 | 0.0014 | 0.0013 | 2.3 | 0.00011 |
| 2027 | A08 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 1,152.0 | 0.0802 | 0.0141 | 0.0872 | 0.0000 | 0.0105 | 0.0102 | 12.6 | 0.00069 |
| 2027 | A08 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 15.4 | 0.0014 | 0.0002 | 0.0013 | 0.0000 | 0.0002 | 0.0002 | 0.2 | 0.00001 |
| 2027 | A10 | Air Compressors | 75 < hp <= 100 | 0.43 | 2.5 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | A10 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 3.6 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | A10 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 2.5 | 0.0000 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | A10 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 3.6 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | A10 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 28.9 | 0.0003 | 0.0000 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00000 |
| 2027 | A10 | Excavators | 100 < hp <= 175 | 0.59 | 17.2 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 1.0 | 0.00000 |
| 2027 | A10 | Graders | 175 < hp <= 300 | 0.59 | 1.3 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | A10 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 1.2 | 0.0003 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00000 |
| 2027 | A10 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 3,032.8 | 0.0494 | 0.0143 | 0.1890 | 0.0017 | 0.0120 | 0.0116 | 576.3 | 0.00072 |
| 2027 | A10 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 50.7 | 0.0010 | 0.0002 | 0.0028 | 0.0000 | 0.0002 | 0.0002 | 2.0 | 0.00002 |
| 2027 | A10 | Pavers | 100 < hp <= 175 | 0.59 | 2.5 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | A10 | Pumps | 6 < hp <= 11 | 0.43 | 1.2 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | A10 | Rollers | 75 < hp <= 100 | 0.59 | 22.0 | 0.0004 | 0.0000 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00000 |
| 2027 | A10 | Scrapers | 300 < hp <= 600 | 0.59 | 3.1 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | A10 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 6.2 | 0.0008 | 0.0001 | 0.0006 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | A10 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 2.5 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | A10 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 31.6 | 0.0059 | 0.0018 | 0.0104 | 0.0000 | 0.0012 | 0.0012 | 2.0 | 0.00010 |
| 2027 | A10 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 15.6 | 0.0014 | 0.0002 | 0.0013 | 0.0000 | 0.0002 | 0.0002 | 0.2 | 0.00001 |
| 2027 | C02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | C02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2027 | C02 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2027 | C02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2027 | C02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 64.0 | 0.0037 | 0.0007 | 0.0083 | 0.0000 | 0.0007 | 0.0006 | 1.6 | 0.00003 |
| 2027 | C02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 64.0 | 0.0013 | 0.0005 | 0.0023 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00004 |
| 2027 | C02 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2027 | C02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 40.0 | 0.0004 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.00000 |
| 2027 | C02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2027 | C02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,724.0 | 0.0125 | 0.0018 | 0.2076 | 0.0004 | 0.0029 | 0.0029 | 131.0 | 0.00012 |
| 2027 | C02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2027 | C02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2027 | C02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2027 | C02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,864.0 | 0.1118 | 0.0325 | 0.4277 | 0.0038 | 0.0271 | 0.0263 | 1,304.3 | 0.00162 |
| 2027 | C02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | C02 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2027 | C02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 40.0 | 0.0003 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | C02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2027 | C02 | Rollers | 75 < hp <= 100 | 0.59 | 56.0 | 0.0010 | 0.0001 | 0.0038 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00001 |
| 2027 | C02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2027 | C02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 64.0 | 0.0022 | 0.0003 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 1.6 | 0.00001 |
| 2027 | C02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2027 | C02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2027 | C02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 840.0 | 0.0769 | 0.0133 | 0.0703 | 0.0000 | 0.0102 | 0.0099 | 12.2 | 0.00061 |
| 2027 | L01 | Air Compressors | 75 < hp <= 100 | 0.43 | 22.8 | 0.0005 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00000 |
| 2027 | L01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 19.2 | 0.0011 | 0.0002 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |
| 2027 | L01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 22.8 | 0.0002 | 0.0001 | 0.0015 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00001 |
| 2027 | L01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 19.2 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | L01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 206.5 | 0.0023 | 0.0004 | 0.0065 | 0.0000 | 0.0006 | 0.0005 | 11.4 | 0.00003 |
| 2027 | L01 | Excavators | 100 < hp <= 175 | 0.59 | 113.3 | 0.0010 | 0.0002 | 0.0033 | 0.0000 | 0.0002 | 0.0002 | 6.3 | 0.00001 |
| 2027 | L01 | Graders | 175 < hp <= 300 | 0.59 | 7.6 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |
| 2027 | L01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 6.9 | 0.0020 | 0.0004 | 0.0071 | 0.0000 | 0.0003 | 0.0003 | 1.3 | 0.00003 |
| 2027 | L01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,227.2 | 0.0688 | 0.0200 | 0.2634 | 0.0023 | 0.0167 | 0.0162 | 803.3 | 0.00100 |
| 2027 | L01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 309.1 | 0.0059 | 0.0014 | 0.0168 | 0.0000 | 0.0013 | 0.0013 | 12.5 | 0.00009 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | L01 | Pavers | 100 < hp <= 175 | 0.59 | 55.9 | 0.0008 | 0.0001 | 0.0019 | 0.0000 | 0.0002 | 0.0002 | 3.1 | 0.00001 |
| 2027 | L01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 49.2 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | L01 | Pumps | 6 < hp <= 11 | 0.43 | 6.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | L01 | Rollers | 75 < hp <= 100 | 0.59 | 90.4 | 0.0016 | 0.0001 | 0.0062 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2027 | L01 | Scrapers | 300 < hp <= 600 | 0.59 | 28.4 | 0.0023 | 0.0004 | 0.0063 | 0.0000 | 0.0004 | 0.0004 | 5.4 | 0.00002 |
| 2027 | L01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 52.4 | 0.0065 | 0.0012 | 0.0055 | 0.0000 | 0.0009 | 0.0009 | 0.6 | 0.00004 |
| 2027 | L01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 33.7 | 0.0008 | 0.0002 | 0.0021 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00002 |
| 2027 | L01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 70.4 | 0.0132 | 0.0040 | 0.0231 | 0.0000 | 0.0027 | 0.0027 | 4.5 | 0.00022 |
| 2027 | L01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 110.6 | 0.0101 | 0.0018 | 0.0093 | 0.0000 | 0.0013 | 0.0013 | 1.6 | 0.00008 |
| 2027 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2027 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2027 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2027 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2027 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2027 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2027 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2027 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2027 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2027 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2027 | L04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | L04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2027 | L04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2027 | L04 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2027 | L04 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2027 | L04 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2027 | L04 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2027 | L04 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2027 | L04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2027 | L04 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2027 | L04 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2027 | L04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2027 | L05 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 16.0 | 0.0026 | 0.0004 | 0.0028 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00002 |
| 2027 | L05 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2027 | L05 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 24.0 | 0.0115 | 0.0024 | 0.0432 | 0.0000 | 0.0016 | 0.0015 | 4.5 | 0.00012 |
| 2027 | L05 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2027 | L05 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | L05 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | L05 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |
| 2027 | L05 | Forklifts | 75 < hp <= 100 | 0.59 | 24.0 | 0.0001 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2027 | L05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 164.0 | 0.0027 | 0.0008 | 0.0102 | 0.0001 | 0.0006 | 0.0006 | 31.2 | 0.00004 |
| 2027 | L05 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2027 | L05 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | L05 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | L05 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2027 | L05 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2027 | L05 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2027 | L05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 120.0 | 0.0110 | 0.0019 | 0.0100 | 0.0000 | 0.0015 | 0.0014 | 1.7 | 0.00009 |
| 2027 | S02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 1,320.0 | 0.0503 | 0.0096 | 0.0837 | 0.0000 | 0.0060 | 0.0058 | 14.4 | 0.00052 |
| 2027 | S02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 456.0 | 0.0742 | 0.0117 | 0.0805 | 0.0001 | 0.0094 | 0.0091 | 18.7 | 0.00055 |
| 2027 | S02 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2027 | S02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2027 | S02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2027 | S02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | S02 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2027 | S02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 98.5 | 0.0011 | 0.0002 | 0.0031 | 0.0000 | 0.0003 | 0.0003 | 5.5 | 0.00001 |
| 2027 | S02 | Excavators | 100 < hp <= 175 | 0.59 | 310.5 | 0.0027 | 0.0004 | 0.0092 | 0.0001 | 0.0007 | 0.0006 | 17.2 | 0.00003 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S02 | Forklifts | 75 < hp <= 100 | 0.59 | 1,664.0 | 0.0056 | 0.0008 | 0.0928 | 0.0002 | 0.0013 | 0.0013 | 58.5 | 0.00005 |
| 2027 | S02 | Generator Sets | 25 < hp <= 40 | 0.43 | 228.0 | 0.0030 | 0.0008 | 0.0133 | 0.0000 | 0.0005 | 0.0005 | 2.3 | 0.00007 |
| 2027 | S02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 240.0 | 0.0007 | 0.0003 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 16.6 | 0.00001 |
| 2027 | S02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,489.0 | 0.0242 | 0.0070 | 0.0928 | 0.0008 | 0.0059 | 0.0057 | 282.9 | 0.00035 |
| 2027 | S02 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2027 | S02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | S02 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | S02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2027 | S02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2027 | S02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 480.0 | 0.0334 | 0.0059 | 0.0363 | 0.0000 | 0.0044 | 0.0043 | 5.2 | 0.00029 |
| 2027 | S02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.0 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2027 | S03 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 1,320.0 | 0.0503 | 0.0096 | 0.0837 | 0.0000 | 0.0060 | 0.0058 | 14.4 | 0.00052 |
| 2027 | S03 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 456.0 | 0.0742 | 0.0117 | 0.0805 | 0.0001 | 0.0094 | 0.0091 | 18.7 | 0.00055 |
| 2027 | S03 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2027 | S03 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2027 | S03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2027 | S03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | S03 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2027 | S03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S03 | Forklifts | 75 < hp <= 100 | 0.59 | 1,664.0 | 0.0056 | 0.0008 | 0.0928 | 0.0002 | 0.0013 | 0.0013 | 58.5 | 0.00005 |
| 2027 | S03 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 240.0 | 0.0007 | 0.0003 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 16.6 | 0.00001 |
| 2027 | S03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 602.0 | 0.0098 | 0.0028 | 0.0375 | 0.0003 | 0.0024 | 0.0023 | 114.4 | 0.00014 |
| 2027 | S03 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2027 | S03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | S03 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | S03 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2027 | S03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2027 | S03 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2027 | S03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.0 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2027 | S04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2027 | S04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |
| 2027 | S04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |
| 2027 | S04 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 13.6 | 0.0002 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2027 | S04 | Excavators | 100 < hp <= 175 | 0.59 | 13.6 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2027 | S04 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2027 | S04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 323.2 | 0.0053 | 0.0015 | 0.0201 | 0.0002 | 0.0013 | 0.0012 | 61.4 | 0.00008 |
| 2027 | S04 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S04 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | S04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2027 | S05 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2027 | S05 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |
| 2027 | S05 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |
| 2027 | S05 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S05 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 7.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S05 | Excavators | 100 < hp <= 175 | 0.59 | 7.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S05 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2027 | S05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 310.0 | 0.0050 | 0.0015 | 0.0193 | 0.0002 | 0.0012 | 0.0012 | 58.9 | 0.00007 |
| 2027 | S05 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S05 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | S05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2027 | S06 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2027 | S06 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |
| 2027 | S06 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |
| 2027 | S06 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S06 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 11.5 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S06 | Excavators | 100 < hp <= 175 | 0.59 | 11.5 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | S06 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2027 | S06 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 319.0 | 0.0052 | 0.0015 | 0.0199 | 0.0002 | 0.0013 | 0.0012 | 60.6 | 0.00008 |
| 2027 | S06 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2027 | S06 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2027 | S06 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2027 | S07 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | S07 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2027 | S07 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2027 | S07 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2027 | S07 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2027 | S07 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2027 | S07 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2027 | S07 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 61.5 | 0.0007 | 0.0001 | 0.0019 | 0.0000 | 0.0002 | 0.0002 | 3.4 | 0.00001 |
| 2027 | S07 | Excavators | 100 < hp <= 175 | 0.59 | 270.3 | 0.0024 | 0.0004 | 0.0080 | 0.0000 | 0.0006 | 0.0006 | 15.0 | 0.00003 |
| 2027 | S07 | Forklifts | 75 < hp <= 100 | 0.59 | 3,584.0 | 0.0121 | 0.0018 | 0.1998 | 0.0004 | 0.0028 | 0.0027 | 126.1 | 0.00012 |
| 2027 | S07 | Generator Sets | 25 < hp <= 40 | 0.43 | 144.8 | 0.0019 | 0.0005 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 1.5 | 0.00004 |
| 2027 | S07 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,930.2 | 0.1129 | 0.0328 | 0.4318 | 0.0038 | 0.0273 | 0.0265 | 1,316.9 | 0.00164 |
| 2027 | S07 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2027 | S07 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2027 | S07 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | S07 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2027 | S07 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2027 | S07 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2027 | S07 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2027 | S07 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 153.6 | 0.0107 | 0.0019 | 0.0116 | 0.0000 | 0.0014 | 0.0014 | 1.7 | 0.00009 |
| 2027 | S07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 600.0 | 0.0549 | 0.0095 | 0.0502 | 0.0000 | 0.0073 | 0.0071 | 8.7 | 0.00043 |
| 2027 | S08 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | S08 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2027 | S08 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2027 | S08 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2027 | S08 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 9.9 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2027 | S08 | Excavators | 100 < hp <= 175 | 0.59 | 169.9 | 0.0015 | 0.0002 | 0.0050 | 0.0000 | 0.0004 | 0.0003 | 9.4 | 0.00002 |
| 2027 | S08 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2027 | S08 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2027 | S08 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | S08 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,493.8 | 0.1057 | 0.0307 | 0.4046 | 0.0036 | 0.0256 | 0.0248 | 1,234.0 | 0.00154 |
| 2027 | S08 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2027 | S08 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2027 | S08 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2027 | S09 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | S09 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2027 | S09 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2027 | S09 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2027 | S09 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 9.9 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2027 | S09 | Excavators | 100 < hp <= 175 | 0.59 | 169.9 | 0.0015 | 0.0002 | 0.0050 | 0.0000 | 0.0004 | 0.0003 | 9.4 | 0.00002 |
| 2027 | S09 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2027 | S09 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2027 | S09 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2027 | S09 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,493.8 | 0.1057 | 0.0307 | 0.4046 | 0.0036 | 0.0256 | 0.0248 | 1,234.0 | 0.00154 |
| 2027 | S09 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2027 | S09 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2027 | S09 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2027 | T01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2027 | T01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | T01 | Air Compressors | 75 < hp <= 100 | 0.43 | 51.8 | 0.0011 | 0.0001 | 0.0034 | 0.0000 | 0.0002 | 0.0002 | 1.3 | 0.00001 |
| 2027 | T01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2027 | T01 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 82.0 | 0.0926 | 0.0214 | 0.0005 | 0.0000 | 0.0034 | 0.0031 | 0.2 | 0.00000 |
| 2027 | T01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 82.0 | 0.0048 | 0.0009 | 0.0106 | 0.0000 | 0.0008 | 0.0008 | 2.1 | 0.00004 |
| 2027 | T01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 51.8 | 0.0004 | 0.0001 | 0.0034 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00002 |
| 2027 | T01 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2027 | T01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 412.7 | 0.0046 | 0.0007 | 0.0130 | 0.0001 | 0.0011 | 0.0011 | 22.9 | 0.00005 |
| 2027 | T01 | Excavators | 100 < hp <= 175 | 0.59 | 558.8 | 0.0049 | 0.0008 | 0.0165 | 0.0001 | 0.0012 | 0.0011 | 31.0 | 0.00006 |
| 2027 | T01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,700.0 | 0.0125 | 0.0018 | 0.2062 | 0.0004 | 0.0029 | 0.0028 | 130.1 | 0.00012 |
| 2027 | T01 | Generator Sets | 25 < hp <= 40 | 0.43 | 301.0 | 0.0039 | 0.0011 | 0.0175 | 0.0000 | 0.0006 | 0.0006 | 3.1 | 0.00009 |
| 2027 | T01 | Graders | 175 < hp <= 300 | 0.59 | 16.9 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |
| 2027 | T01 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2027 | T01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.2 | 0.0044 | 0.0009 | 0.0158 | 0.0000 | 0.0007 | 0.0007 | 2.9 | 0.00006 |
| 2027 | T01 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2027 | T01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 12,536.6 | 0.2042 | 0.0593 | 0.7811 | 0.0070 | 0.0494 | 0.0480 | 2,382.3 | 0.00297 |
| 2027 | T01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 516.6 | 0.0099 | 0.0023 | 0.0281 | 0.0001 | 0.0022 | 0.0021 | 20.9 | 0.00015 |
| 2027 | T01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2027 | T01 | Pavers | 100 < hp <= 175 | 0.59 | 51.8 | 0.0008 | 0.0001 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 2.9 | 0.00001 |
| 2027 | T01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2027 | T01 | Pumps | 6 < hp <= 11 | 0.43 | 254.0 | 0.0034 | 0.0011 | 0.0056 | 0.0000 | 0.0004 | 0.0003 | 0.7 | 0.00008 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2027 | T01 | Rollers | 75 < hp <= 100 | 0.59 | 194.3 | 0.0033 | 0.0003 | 0.0133 | 0.0000 | 0.0005 | 0.0005 | 6.8 | 0.00002 |
| 2027 | T01 | Scrapers | 300 < hp <= 600 | 0.59 | 64.8 | 0.0053 | 0.0008 | 0.0143 | 0.0000 | 0.0009 | 0.0008 | 12.3 | 0.00005 |
| 2027 | T01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 15.9 | 0.0020 | 0.0004 | 0.0017 | 0.0000 | 0.0003 | 0.0003 | 0.2 | 0.00001 |
| 2027 | T01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 51.8 | 0.0013 | 0.0003 | 0.0032 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |
| 2027 | T01 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2027 | T01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2027 | T01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 129.1 | 0.0241 | 0.0073 | 0.0423 | 0.0000 | 0.0050 | 0.0049 | 8.3 | 0.00041 |
| 2027 | T01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 466.1 | 0.0324 | 0.0057 | 0.0353 | 0.0000 | 0.0043 | 0.0041 | 5.1 | 0.00028 |
| 2027 | T01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 757.5 | 0.0693 | 0.0120 | 0.0634 | 0.0000 | 0.0092 | 0.0089 | 11.0 | 0.00055 |
| 2028 | A01 | Air Compressors | 75 < hp <= 100 | 0.43 | 120.4 | 0.0025 | 0.0003 | 0.0080 | 0.0000 | 0.0004 | 0.0004 | 3.1 | 0.00002 |
| 2028 | A01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 90.0 | 0.0053 | 0.0010 | 0.0117 | 0.0000 | 0.0009 | 0.0009 | 2.3 | 0.00004 |
| 2028 | A01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 112.4 | 0.0009 | 0.0003 | 0.0075 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00003 |
| 2028 | A01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 90.0 | 0.0019 | 0.0006 | 0.0032 | 0.0000 | 0.0002 | 0.0002 | 0.4 | 0.00005 |
| 2028 | A01 | Cranes | 175 < hp <= 300 | 0.43 | 8.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2028 | A01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 687.3 | 0.0076 | 0.0012 | 0.0216 | 0.0001 | 0.0019 | 0.0018 | 38.1 | 0.00009 |
| 2028 | A01 | Excavators | 100 < hp <= 175 | 0.59 | 882.8 | 0.0078 | 0.0012 | 0.0260 | 0.0001 | 0.0019 | 0.0018 | 48.9 | 0.00009 |
| 2028 | A01 | Graders | 175 < hp <= 300 | 0.59 | 36.4 | 0.0003 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 3.5 | 0.00001 |
| 2028 | A01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 32.8 | 0.0095 | 0.0020 | 0.0341 | 0.0000 | 0.0016 | 0.0016 | 6.2 | 0.00013 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | A01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,913.4 | 0.1289 | 0.0374 | 0.4930 | 0.0044 | 0.0312 | 0.0303 | 1,503.7 | 0.00187 |
| 2028 | A01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,117.4 | 0.0214 | 0.0050 | 0.0608 | 0.0001 | 0.0047 | 0.0046 | 45.1 | 0.00033 |
| 2028 | A01 | Pavers | 100 < hp <= 175 | 0.59 | 112.4 | 0.0016 | 0.0003 | 0.0038 | 0.0000 | 0.0004 | 0.0004 | 6.2 | 0.00002 |
| 2028 | A01 | Pumps | 6 < hp <= 11 | 0.43 | 30.0 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | A01 | Rollers | 75 < hp <= 100 | 0.59 | 376.7 | 0.0065 | 0.0006 | 0.0258 | 0.0000 | 0.0010 | 0.0009 | 13.2 | 0.00004 |
| 2028 | A01 | Scrapers | 300 < hp <= 600 | 0.59 | 140.5 | 0.0114 | 0.0018 | 0.0310 | 0.0001 | 0.0019 | 0.0018 | 26.7 | 0.00012 |
| 2028 | A01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 55.8 | 0.0069 | 0.0013 | 0.0058 | 0.0000 | 0.0010 | 0.0009 | 0.6 | 0.00005 |
| 2028 | A01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 112.4 | 0.0027 | 0.0006 | 0.0069 | 0.0000 | 0.0003 | 0.0003 | 1.0 | 0.00005 |
| 2028 | A01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 256.7 | 0.0480 | 0.0145 | 0.0841 | 0.0001 | 0.0100 | 0.0097 | 16.6 | 0.00082 |
| 2028 | A01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 126.0 | 0.0115 | 0.0020 | 0.0105 | 0.0000 | 0.0015 | 0.0015 | 1.8 | 0.00009 |
| 2028 | A04 | Air Compressors | 75 < hp <= 100 | 0.43 | 22.8 | 0.0005 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00000 |
| 2028 | A04 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 20.4 | 0.0012 | 0.0002 | 0.0026 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |
| 2028 | A04 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 22.8 | 0.0002 | 0.0001 | 0.0015 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00001 |
| 2028 | A04 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 20.4 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | A04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 147.7 | 0.0016 | 0.0003 | 0.0046 | 0.0000 | 0.0004 | 0.0004 | 8.2 | 0.00002 |
| 2028 | A04 | Excavators | 100 < hp <= 175 | 0.59 | 375.7 | 0.0033 | 0.0005 | 0.0111 | 0.0001 | 0.0008 | 0.0008 | 20.8 | 0.00004 |
| 2028 | A04 | Graders | 175 < hp <= 300 | 0.59 | 8.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2028 | A04 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 7.2 | 0.0021 | 0.0004 | 0.0075 | 0.0000 | 0.0004 | 0.0003 | 1.3 | 0.00003 |
| 2028 | A04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 5,798.9 | 0.0944 | 0.0274 | 0.3613 | 0.0032 | 0.0229 | 0.0222 | 1,101.9 | 0.00137 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | A04 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,441.6 | 0.0276 | 0.0065 | 0.0784 | 0.0002 | 0.0061 | 0.0059 | 58.2 | 0.00043 |
| 2028 | A04 | Pavers | 100 < hp <= 175 | 0.59 | 22.8 | 0.0003 | 0.0001 | 0.0008 | 0.0000 | 0.0001 | 0.0001 | 1.3 | 0.00000 |
| 2028 | A04 | Pumps | 6 < hp <= 11 | 0.43 | 6.8 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A04 | Rollers | 75 < hp <= 100 | 0.59 | 92.7 | 0.0016 | 0.0001 | 0.0063 | 0.0000 | 0.0002 | 0.0002 | 3.3 | 0.00001 |
| 2028 | A04 | Scrapers | 300 < hp <= 600 | 0.59 | 28.5 | 0.0023 | 0.0004 | 0.0063 | 0.0000 | 0.0004 | 0.0004 | 5.4 | 0.00002 |
| 2028 | A04 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 22.1 | 0.0027 | 0.0005 | 0.0023 | 0.0000 | 0.0004 | 0.0004 | 0.2 | 0.00002 |
| 2028 | A04 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 22.8 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2028 | A04 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 91.9 | 0.0172 | 0.0052 | 0.0301 | 0.0000 | 0.0036 | 0.0035 | 5.9 | 0.00029 |
| 2028 | A04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 45.7 | 0.0042 | 0.0007 | 0.0038 | 0.0000 | 0.0006 | 0.0005 | 0.7 | 0.00003 |
| 2028 | A08 | Air Compressors | 75 < hp <= 100 | 0.43 | 53.3 | 0.0011 | 0.0001 | 0.0035 | 0.0000 | 0.0002 | 0.0002 | 1.4 | 0.00001 |
| 2028 | A08 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 42.0 | 0.0025 | 0.0005 | 0.0055 | 0.0000 | 0.0004 | 0.0004 | 1.1 | 0.00002 |
| 2028 | A08 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 53.3 | 0.0004 | 0.0001 | 0.0035 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00002 |
| 2028 | A08 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 42.0 | 0.0009 | 0.0003 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2028 | A08 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 428.1 | 0.0048 | 0.0007 | 0.0134 | 0.0001 | 0.0012 | 0.0011 | 23.7 | 0.00005 |
| 2028 | A08 | Excavators | 100 < hp <= 175 | 0.59 | 789.0 | 0.0070 | 0.0011 | 0.0233 | 0.0001 | 0.0017 | 0.0016 | 43.7 | 0.00008 |
| 2028 | A08 | Generator Sets | 25 < hp <= 40 | 0.43 | 576.0 | 0.0075 | 0.0021 | 0.0335 | 0.0000 | 0.0012 | 0.0012 | 5.8 | 0.00018 |
| 2028 | A08 | Graders | 175 < hp <= 300 | 0.59 | 16.9 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |
| 2028 | A08 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.2 | 0.0044 | 0.0009 | 0.0158 | 0.0000 | 0.0007 | 0.0007 | 2.9 | 0.00006 |
| 2028 | A08 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,040.0 | 0.1146 | 0.0333 | 0.4386 | 0.0039 | 0.0278 | 0.0269 | 1,337.8 | 0.00167 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | A08 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 527.1 | 0.0101 | 0.0024 | 0.0287 | 0.0001 | 0.0022 | 0.0021 | 21.3 | 0.00016 |
| 2028 | A08 | Pavers | 100 < hp <= 175 | 0.59 | 53.3 | 0.0008 | 0.0001 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 3.0 | 0.00001 |
| 2028 | A08 | Pumps | 6 < hp <= 11 | 0.43 | 14.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A08 | Rollers | 75 < hp <= 100 | 0.59 | 159.6 | 0.0028 | 0.0003 | 0.0109 | 0.0000 | 0.0004 | 0.0004 | 5.6 | 0.00002 |
| 2028 | A08 | Scrapers | 300 < hp <= 600 | 0.59 | 66.6 | 0.0054 | 0.0009 | 0.0147 | 0.0000 | 0.0009 | 0.0009 | 12.7 | 0.00006 |
| 2028 | A08 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 10.4 | 0.0013 | 0.0002 | 0.0011 | 0.0000 | 0.0002 | 0.0002 | 0.1 | 0.00001 |
| 2028 | A08 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 53.3 | 0.0013 | 0.0003 | 0.0033 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |
| 2028 | A08 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 88.1 | 0.0165 | 0.0050 | 0.0289 | 0.0000 | 0.0034 | 0.0033 | 5.7 | 0.00028 |
| 2028 | A08 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 1,152.0 | 0.0802 | 0.0141 | 0.0872 | 0.0000 | 0.0105 | 0.0102 | 12.6 | 0.00069 |
| 2028 | A08 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 33.1 | 0.0030 | 0.0005 | 0.0028 | 0.0000 | 0.0004 | 0.0004 | 0.5 | 0.00002 |
| 2028 | A10 | Air Compressors | 75 < hp <= 100 | 0.43 | 1.9 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A10 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 2.4 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2028 | A10 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 1.9 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A10 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 2.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A10 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 22.5 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 1.2 | 0.00000 |
| 2028 | A10 | Excavators | 100 < hp <= 175 | 0.59 | 13.5 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |
| 2028 | A10 | Graders | 175 < hp <= 300 | 0.59 | 1.0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2028 | A10 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 0.9 | 0.0003 | 0.0001 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2028 | A10 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 2,278.4 | 0.0371 | 0.0108 | 0.1420 | 0.0013 | 0.0090 | 0.0087 | 433.0 | 0.00054 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | A10 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 39.5 | 0.0008 | 0.0002 | 0.0021 | 0.0000 | 0.0002 | 0.0002 | 1.6 | 0.00001 |
| 2028 | A10 | Pavers | 100 < hp <= 175 | 0.59 | 1.9 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2028 | A10 | Pumps | 6 < hp <= 11 | 0.43 | 0.8 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A10 | Rollers | 75 < hp <= 100 | 0.59 | 17.2 | 0.0003 | 0.0000 | 0.0012 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2028 | A10 | Scrapers | 300 < hp <= 600 | 0.59 | 2.4 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2028 | A10 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 4.9 | 0.0006 | 0.0001 | 0.0005 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00000 |
| 2028 | A10 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 1.9 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | A10 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 24.7 | 0.0046 | 0.0014 | 0.0081 | 0.0000 | 0.0010 | 0.0009 | 1.6 | 0.00008 |
| 2028 | A10 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 12.1 | 0.0011 | 0.0002 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2028 | C02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2028 | C02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2028 | C02 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2028 | C02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2028 | C02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 64.0 | 0.0037 | 0.0007 | 0.0083 | 0.0000 | 0.0007 | 0.0006 | 1.6 | 0.00003 |
| 2028 | C02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 64.0 | 0.0013 | 0.0005 | 0.0023 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00004 |
| 2028 | C02 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2028 | C02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 40.0 | 0.0004 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.00000 |
| 2028 | C02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2028 | C02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,724.0 | 0.0125 | 0.0018 | 0.2076 | 0.0004 | 0.0029 | 0.0029 | 131.0 | 0.00012 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | C02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2028 | C02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2028 | C02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | C02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,864.0 | 0.1118 | 0.0325 | 0.4277 | 0.0038 | 0.0271 | 0.0263 | 1,304.3 | 0.00162 |
| 2028 | C02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | C02 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2028 | C02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 40.0 | 0.0003 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | C02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2028 | C02 | Rollers | 75 < hp <= 100 | 0.59 | 56.0 | 0.0010 | 0.0001 | 0.0038 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00001 |
| 2028 | C02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2028 | C02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 64.0 | 0.0022 | 0.0003 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 1.6 | 0.00001 |
| 2028 | C02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2028 | C02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2028 | C02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 840.0 | 0.0769 | 0.0133 | 0.0703 | 0.0000 | 0.0102 | 0.0099 | 12.2 | 0.00061 |
| 2028 | C03 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2028 | C03 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2028 | C03 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2028 | C03 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2028 | C03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 64.0 | 0.0037 | 0.0007 | 0.0083 | 0.0000 | 0.0007 | 0.0006 | 1.6 | 0.00003 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | C03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 64.0 | 0.0013 | 0.0005 | 0.0023 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00004 |
| 2028 | C03 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2028 | C03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 40.0 | 0.0004 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.00000 |
| 2028 | C03 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2028 | C03 | Forklifts | 75 < hp <= 100 | 0.59 | 3,724.0 | 0.0125 | 0.0018 | 0.2076 | 0.0004 | 0.0029 | 0.0029 | 131.0 | 0.00012 |
| 2028 | C03 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2028 | C03 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2028 | C03 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | C03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,864.0 | 0.1118 | 0.0325 | 0.4277 | 0.0038 | 0.0271 | 0.0263 | 1,304.3 | 0.00162 |
| 2028 | C03 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | C03 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2028 | C03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 40.0 | 0.0003 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | C03 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2028 | C03 | Rollers | 75 < hp <= 100 | 0.59 | 56.0 | 0.0010 | 0.0001 | 0.0038 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00001 |
| 2028 | C03 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2028 | C03 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 64.0 | 0.0022 | 0.0003 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 1.6 | 0.00001 |
| 2028 | C03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2028 | C03 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2028 | C03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 840.0 | 0.0769 | 0.0133 | 0.0703 | 0.0000 | 0.0102 | 0.0099 | 12.2 | 0.00061 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | H01 | Air Compressors | 75 < hp <= 100 | 0.43 | 27.1 | 0.0006 | 0.0001 | 0.0018 | 0.0000 | 0.0001 | 0.0001 | 0.7 | 0.00000 |
| 2028 | H01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 21.6 | 0.0013 | 0.0002 | 0.0028 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |
| 2028 | H01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 27.1 | 0.0002 | 0.0001 | 0.0018 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00001 |
| 2028 | H01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 21.6 | 0.0005 | 0.0002 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | H01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 151.8 | 0.0017 | 0.0003 | 0.0048 | 0.0000 | 0.0004 | 0.0004 | 8.4 | 0.00002 |
| 2028 | H01 | Excavators | 100 < hp <= 175 | 0.59 | 41.8 | 0.0004 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 2.3 | 0.00000 |
| 2028 | H01 | Graders | 175 < hp <= 300 | 0.59 | 8.8 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2028 | H01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 7.9 | 0.0023 | 0.0005 | 0.0082 | 0.0000 | 0.0004 | 0.0004 | 1.5 | 0.00003 |
| 2028 | H01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,833.7 | 0.0299 | 0.0087 | 0.1142 | 0.0010 | 0.0072 | 0.0070 | 348.4 | 0.00043 |
| 2028 | H01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 301.2 | 0.0058 | 0.0013 | 0.0164 | 0.0000 | 0.0013 | 0.0012 | 12.2 | 0.00009 |
| 2028 | H01 | Pavers | 100 < hp <= 175 | 0.59 | 27.1 | 0.0004 | 0.0001 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 1.5 | 0.00000 |
| 2028 | H01 | Pumps | 6 < hp <= 11 | 0.43 | 7.2 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | H01 | Rollers | 75 < hp <= 100 | 0.59 | 88.0 | 0.0015 | 0.0001 | 0.0060 | 0.0000 | 0.0002 | 0.0002 | 3.1 | 0.00001 |
| 2028 | H01 | Scrapers | 300 < hp <= 600 | 0.59 | 33.8 | 0.0028 | 0.0004 | 0.0075 | 0.0000 | 0.0004 | 0.0004 | 6.4 | 0.00003 |
| 2028 | H01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 28.2 | 0.0035 | 0.0007 | 0.0029 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2028 | H01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 27.1 | 0.0007 | 0.0002 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2028 | H01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 58.1 | 0.0109 | 0.0033 | 0.0190 | 0.0000 | 0.0023 | 0.0022 | 3.8 | 0.00018 |
| 2028 | H01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 43.5 | 0.0040 | 0.0007 | 0.0036 | 0.0000 | 0.0005 | 0.0005 | 0.6 | 0.00003 |
| 2028 | L01 | Air Compressors | 75 < hp <= 100 | 0.43 | 22.8 | 0.0005 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | L01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 19.2 | 0.0011 | 0.0002 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |
| 2028 | L01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 22.8 | 0.0002 | 0.0001 | 0.0015 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00001 |
| 2028 | L01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 19.2 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | L01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 206.5 | 0.0023 | 0.0004 | 0.0065 | 0.0000 | 0.0006 | 0.0005 | 11.4 | 0.00003 |
| 2028 | L01 | Excavators | 100 < hp <= 175 | 0.59 | 113.3 | 0.0010 | 0.0002 | 0.0033 | 0.0000 | 0.0002 | 0.0002 | 6.3 | 0.00001 |
| 2028 | L01 | Graders | 175 < hp <= 300 | 0.59 | 7.6 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |
| 2028 | L01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 6.9 | 0.0020 | 0.0004 | 0.0071 | 0.0000 | 0.0003 | 0.0003 | 1.3 | 0.00003 |
| 2028 | L01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,227.2 | 0.0688 | 0.0200 | 0.2634 | 0.0023 | 0.0167 | 0.0162 | 803.3 | 0.00100 |
| 2028 | L01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 309.1 | 0.0059 | 0.0014 | 0.0168 | 0.0000 | 0.0013 | 0.0013 | 12.5 | 0.00009 |
| 2028 | L01 | Pavers | 100 < hp <= 175 | 0.59 | 55.9 | 0.0008 | 0.0001 | 0.0019 | 0.0000 | 0.0002 | 0.0002 | 3.1 | 0.00001 |
| 2028 | L01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 49.2 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | L01 | Pumps | 6 < hp <= 11 | 0.43 | 6.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | L01 | Rollers | 75 < hp <= 100 | 0.59 | 90.4 | 0.0016 | 0.0001 | 0.0062 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2028 | L01 | Scrapers | 300 < hp <= 600 | 0.59 | 28.4 | 0.0023 | 0.0004 | 0.0063 | 0.0000 | 0.0004 | 0.0004 | 5.4 | 0.00002 |
| 2028 | L01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 52.4 | 0.0065 | 0.0012 | 0.0055 | 0.0000 | 0.0009 | 0.0009 | 0.6 | 0.00004 |
| 2028 | L01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 33.7 | 0.0008 | 0.0002 | 0.0021 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00002 |
| 2028 | L01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 70.4 | 0.0132 | 0.0040 | 0.0231 | 0.0000 | 0.0027 | 0.0027 | 4.5 | 0.00022 |
| 2028 | L01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 110.6 | 0.0101 | 0.0018 | 0.0093 | 0.0000 | 0.0013 | 0.0013 | 1.6 | 0.00008 |
| 2028 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2028 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2028 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2028 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2028 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2028 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2028 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2028 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2028 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2028 | L03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 10.8 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00000 |
| 2028 | L03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 10.8 | 0.0002 | 0.0001 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00001 |
| 2028 | L03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 80.4 | 0.0009 | 0.0001 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 4.5 | 0.00001 |
| 2028 | L03 | Excavators | 100 < hp <= 175 | 0.59 | 31.9 | 0.0003 | 0.0000 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 1.8 | 0.00000 |
| 2028 | L03 | Graders | 175 < hp <= 300 | 0.59 | 4.2 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2028 | L03 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 3.8 | 0.0011 | 0.0002 | 0.0040 | 0.0000 | 0.0002 | 0.0002 | 0.7 | 0.00002 |
| 2028 | L03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,433.7 | 0.0233 | 0.0068 | 0.0893 | 0.0008 | 0.0057 | 0.0055 | 272.4 | 0.00034 |
| 2028 | L03 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 184.9 | 0.0035 | 0.0008 | 0.0101 | 0.0000 | 0.0008 | 0.0008 | 7.5 | 0.00006 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | L03 | Pavers | 100 < hp <= 175 | 0.59 | 29.3 | 0.0004 | 0.0001 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00000 |
| 2028 | L03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 50.0 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | L03 | Pumps | 6 < hp <= 11 | 0.43 | 3.6 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | L03 | Rollers | 75 < hp <= 100 | 0.59 | 56.5 | 0.0010 | 0.0001 | 0.0039 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00001 |
| 2028 | L03 | Scrapers | 300 < hp <= 600 | 0.59 | 14.5 | 0.0012 | 0.0002 | 0.0032 | 0.0000 | 0.0002 | 0.0002 | 2.7 | 0.00001 |
| 2028 | L03 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 48.9 | 0.0061 | 0.0011 | 0.0051 | 0.0000 | 0.0008 | 0.0008 | 0.5 | 0.00004 |
| 2028 | L03 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 5.6 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | L03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 48.4 | 0.0090 | 0.0027 | 0.0159 | 0.0000 | 0.0019 | 0.0018 | 3.1 | 0.00015 |
| 2028 | L03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 109.5 | 0.0100 | 0.0017 | 0.0092 | 0.0000 | 0.0013 | 0.0013 | 1.6 | 0.00008 |
| 2028 | L04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2028 | L04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2028 | L04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2028 | L04 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2028 | L04 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2028 | L04 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2028 | L04 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2028 | L04 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | L04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2028 | L04 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | L04 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | L04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2028 | L05 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 16.0 | 0.0026 | 0.0004 | 0.0028 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00002 |
| 2028 | L05 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2028 | L05 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 24.0 | 0.0115 | 0.0024 | 0.0432 | 0.0000 | 0.0016 | 0.0015 | 4.5 | 0.00012 |
| 2028 | L05 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2028 | L05 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | L05 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2028 | L05 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |
| 2028 | L05 | Forklifts | 75 < hp <= 100 | 0.59 | 24.0 | 0.0001 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2028 | L05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 164.0 | 0.0027 | 0.0008 | 0.0102 | 0.0001 | 0.0006 | 0.0006 | 31.2 | 0.00004 |
| 2028 | L05 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2028 | L05 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | L05 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2028 | L05 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2028 | L05 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2028 | L05 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2028 | L05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 120.0 | 0.0110 | 0.0019 | 0.0100 | 0.0000 | 0.0015 | 0.0014 | 1.7 | 0.00009 |
| 2028 | S01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 16.0 | 0.0026 | 0.0004 | 0.0028 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00002 |
| 2028 | S01 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | S01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 24.0 | 0.0115 | 0.0024 | 0.0432 | 0.0000 | 0.0016 | 0.0015 | 4.5 | 0.00012 |
| 2028 | S01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 28.8 | 0.0017 | 0.0003 | 0.0037 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00001 |
| 2028 | S01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 28.8 | 0.0006 | 0.0002 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00002 |
| 2028 | S01 | Cranes | 175 < hp <= 300 | 0.43 | 19.0 | 0.0002 | 0.0001 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 1.3 | 0.00000 |
| 2028 | S01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 158.8 | 0.0018 | 0.0003 | 0.0050 | 0.0000 | 0.0004 | 0.0004 | 8.8 | 0.00002 |
| 2028 | S01 | Excavators | 100 < hp <= 175 | 0.59 | 72.1 | 0.0006 | 0.0001 | 0.0021 | 0.0000 | 0.0002 | 0.0001 | 4.0 | 0.00001 |
| 2028 | S01 | Forklifts | 75 < hp <= 100 | 0.59 | 24.0 | 0.0001 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2028 | S01 | Generator Sets | 25 < hp <= 40 | 0.43 | 7.4 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2028 | S01 | Graders | 175 < hp <= 300 | 0.59 | 1.8 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2028 | S01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 1.6 | 0.0005 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2028 | S01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,353.5 | 0.0220 | 0.0064 | 0.0843 | 0.0008 | 0.0053 | 0.0052 | 257.2 | 0.00032 |
| 2028 | S01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 74.0 | 0.0014 | 0.0003 | 0.0040 | 0.0000 | 0.0003 | 0.0003 | 3.0 | 0.00002 |
| 2028 | S01 | Pavers | 100 < hp <= 175 | 0.59 | 1.6 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2028 | S01 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2028 | S01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | S01 | Pumps | 6 < hp <= 11 | 0.43 | 1.6 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | S01 | Rollers | 75 < hp <= 100 | 0.59 | 95.5 | 0.0016 | 0.0002 | 0.0065 | 0.0000 | 0.0002 | 0.0002 | 3.4 | 0.00001 |
| 2028 | S01 | Scrapers | 300 < hp <= 600 | 0.59 | 41.6 | 0.0034 | 0.0005 | 0.0092 | 0.0000 | 0.0006 | 0.0005 | 7.9 | 0.00003 |
| 2028 | S01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 22.4 | 0.0028 | 0.0005 | 0.0023 | 0.0000 | 0.0004 | 0.0004 | 0.2 | 0.00002 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | S01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 2.0 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | S01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2028 | S01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 71.5 | 0.0134 | 0.0040 | 0.0234 | 0.0000 | 0.0028 | 0.0027 | 4.6 | 0.00023 |
| 2028 | S01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 38.8 | 0.0027 | 0.0005 | 0.0029 | 0.0000 | 0.0004 | 0.0003 | 0.4 | 0.00002 |
| 2028 | S01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 142.4 | 0.0130 | 0.0023 | 0.0119 | 0.0000 | 0.0017 | 0.0017 | 2.1 | 0.00010 |
| 2028 | S02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 1,320.0 | 0.0503 | 0.0096 | 0.0837 | 0.0000 | 0.0060 | 0.0058 | 14.4 | 0.00052 |
| 2028 | S02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 456.0 | 0.0742 | 0.0117 | 0.0805 | 0.0001 | 0.0094 | 0.0091 | 18.7 | 0.00055 |
| 2028 | S02 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2028 | S02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2028 | S02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2028 | S02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | S02 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2028 | S02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 36.6 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00000 |
| 2028 | S02 | Excavators | 100 < hp <= 175 | 0.59 | 77.6 | 0.0007 | 0.0001 | 0.0023 | 0.0000 | 0.0002 | 0.0002 | 4.3 | 0.00001 |
| 2028 | S02 | Forklifts | 75 < hp <= 100 | 0.59 | 1,664.0 | 0.0056 | 0.0008 | 0.0928 | 0.0002 | 0.0013 | 0.0013 | 58.5 | 0.00005 |
| 2028 | S02 | Generator Sets | 25 < hp <= 40 | 0.43 | 57.0 | 0.0007 | 0.0002 | 0.0033 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00002 |
| 2028 | S02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 240.0 | 0.0007 | 0.0003 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 16.6 | 0.00001 |
| 2028 | S02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 823.8 | 0.0134 | 0.0039 | 0.0513 | 0.0005 | 0.0032 | 0.0032 | 156.5 | 0.00019 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | S02 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2028 | S02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | S02 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2028 | S02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2028 | S02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2028 | S02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 138.0 | 0.0096 | 0.0017 | 0.0104 | 0.0000 | 0.0013 | 0.0012 | 1.5 | 0.00008 |
| 2028 | S02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.0 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2028 | S03 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 1,320.0 | 0.0503 | 0.0096 | 0.0837 | 0.0000 | 0.0060 | 0.0058 | 14.4 | 0.00052 |
| 2028 | S03 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 456.0 | 0.0742 | 0.0117 | 0.0805 | 0.0001 | 0.0094 | 0.0091 | 18.7 | 0.00055 |
| 2028 | S03 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2028 | S03 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2028 | S03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2028 | S03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2028 | S03 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2028 | S03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |
| 2028 | S03 | Forklifts | 75 < hp <= 100 | 0.59 | 1,664.0 | 0.0056 | 0.0008 | 0.0928 | 0.0002 | 0.0013 | 0.0013 | 58.5 | 0.00005 |
| 2028 | S03 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 240.0 | 0.0007 | 0.0003 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 16.6 | 0.00001 |
| 2028 | S03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 602.0 | 0.0098 | 0.0028 | 0.0375 | 0.0003 | 0.0024 | 0.0023 | 114.4 | 0.00014 |
| 2028 | S03 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | S03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | S03 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2028 | S03 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2028 | S03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2028 | S03 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2028 | S03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.0 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2028 | S04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 20.0 | 0.0008 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2028 | S04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 80.0 | 0.0130 | 0.0021 | 0.0141 | 0.0000 | 0.0016 | 0.0016 | 3.3 | 0.00010 |
| 2028 | S04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 160.0 | 0.0765 | 0.0163 | 0.2883 | 0.0001 | 0.0105 | 0.0102 | 30.0 | 0.00077 |
| 2028 | S04 | Cranes | 175 < hp <= 300 | 0.43 | 6.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2028 | S04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 10.4 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2028 | S04 | Excavators | 100 < hp <= 175 | 0.59 | 10.4 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2028 | S04 | Forklifts | 75 < hp <= 100 | 0.59 | 250.0 | 0.0008 | 0.0001 | 0.0139 | 0.0000 | 0.0002 | 0.0002 | 8.8 | 0.00001 |
| 2028 | S04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 316.8 | 0.0052 | 0.0015 | 0.0197 | 0.0002 | 0.0012 | 0.0012 | 60.2 | 0.00007 |
| 2028 | S04 | Paving Equipment | 100 < hp <= 175 | 0.59 | 8.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2028 | S04 | Rollers | 75 < hp <= 100 | 0.59 | 4.0 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00000 |
| 2028 | S04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 176.0 | 0.0161 | 0.0028 | 0.0147 | 0.0000 | 0.0021 | 0.0021 | 2.6 | 0.00013 |
| 2028 | S08 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2028 | S08 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | S08 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2028 | S08 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2028 | S08 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.5 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |
| 2028 | S08 | Excavators | 100 < hp <= 175 | 0.59 | 176.5 | 0.0016 | 0.0002 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 9.8 | 0.00002 |
| 2028 | S08 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2028 | S08 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2028 | S08 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | S08 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,507.0 | 0.1060 | 0.0308 | 0.4054 | 0.0036 | 0.0257 | 0.0249 | 1,236.5 | 0.00154 |
| 2028 | S08 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | S08 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2028 | S08 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2028 | S09 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2028 | S09 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2028 | S09 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2028 | S09 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2028 | S09 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.5 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |
| 2028 | S09 | Excavators | 100 < hp <= 175 | 0.59 | 176.5 | 0.0016 | 0.0002 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 9.8 | 0.00002 |
| 2028 | S09 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2028 | S09 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | S09 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | S09 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,507.0 | 0.1060 | 0.0308 | 0.4054 | 0.0036 | 0.0257 | 0.0249 | 1,236.5 | 0.00154 |
| 2028 | S09 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | S09 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2028 | S09 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2028 | T01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2028 | T01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2028 | T01 | Air Compressors | 75 < hp <= 100 | 0.43 | 51.8 | 0.0011 | 0.0001 | 0.0034 | 0.0000 | 0.0002 | 0.0002 | 1.3 | 0.00001 |
| 2028 | T01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2028 | T01 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 82.0 | 0.0926 | 0.0214 | 0.0005 | 0.0000 | 0.0034 | 0.0031 | 0.2 | 0.00000 |
| 2028 | T01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 82.0 | 0.0048 | 0.0009 | 0.0106 | 0.0000 | 0.0008 | 0.0008 | 2.1 | 0.00004 |
| 2028 | T01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 51.8 | 0.0004 | 0.0001 | 0.0034 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00002 |
| 2028 | T01 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2028 | T01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 412.7 | 0.0046 | 0.0007 | 0.0130 | 0.0001 | 0.0011 | 0.0011 | 22.9 | 0.00005 |
| 2028 | T01 | Excavators | 100 < hp <= 175 | 0.59 | 558.8 | 0.0049 | 0.0008 | 0.0165 | 0.0001 | 0.0012 | 0.0011 | 31.0 | 0.00006 |
| 2028 | T01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,700.0 | 0.0125 | 0.0018 | 0.2062 | 0.0004 | 0.0029 | 0.0028 | 130.1 | 0.00012 |
| 2028 | T01 | Generator Sets | 25 < hp <= 40 | 0.43 | 301.0 | 0.0039 | 0.0011 | 0.0175 | 0.0000 | 0.0006 | 0.0006 | 3.1 | 0.00009 |
| 2028 | T01 | Graders | 175 < hp <= 300 | 0.59 | 16.9 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |
| 2028 | T01 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | T01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.2 | 0.0044 | 0.0009 | 0.0158 | 0.0000 | 0.0007 | 0.0007 | 2.9 | 0.00006 |
| 2028 | T01 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | T01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 12,536.6 | 0.2042 | 0.0593 | 0.7811 | 0.0070 | 0.0494 | 0.0480 | 2,382.3 | 0.00297 |
| 2028 | T01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 516.6 | 0.0099 | 0.0023 | 0.0281 | 0.0001 | 0.0022 | 0.0021 | 20.9 | 0.00015 |
| 2028 | T01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2028 | T01 | Pavers | 100 < hp <= 175 | 0.59 | 51.8 | 0.0008 | 0.0001 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 2.9 | 0.00001 |
| 2028 | T01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | T01 | Pumps | 6 < hp <= 11 | 0.43 | 254.0 | 0.0034 | 0.0011 | 0.0056 | 0.0000 | 0.0004 | 0.0003 | 0.7 | 0.00008 |
| 2028 | T01 | Rollers | 75 < hp <= 100 | 0.59 | 194.3 | 0.0033 | 0.0003 | 0.0133 | 0.0000 | 0.0005 | 0.0005 | 6.8 | 0.00002 |
| 2028 | T01 | Scrapers | 300 < hp <= 600 | 0.59 | 64.8 | 0.0053 | 0.0008 | 0.0143 | 0.0000 | 0.0009 | 0.0008 | 12.3 | 0.00005 |
| 2028 | T01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 15.9 | 0.0020 | 0.0004 | 0.0017 | 0.0000 | 0.0003 | 0.0003 | 0.2 | 0.00001 |
| 2028 | T01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 51.8 | 0.0013 | 0.0003 | 0.0032 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |
| 2028 | T01 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2028 | T01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2028 | T01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 129.1 | 0.0241 | 0.0073 | 0.0423 | 0.0000 | 0.0050 | 0.0049 | 8.3 | 0.00041 |
| 2028 | T01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 466.1 | 0.0324 | 0.0057 | 0.0353 | 0.0000 | 0.0043 | 0.0041 | 5.1 | 0.00028 |
| 2028 | T01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 757.5 | 0.0693 | 0.0120 | 0.0634 | 0.0000 | 0.0092 | 0.0089 | 11.0 | 0.00055 |
| 2028 | T02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |
| 2028 | T02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | T02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2028 | T02 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 40.0 | 0.0452 | 0.0104 | 0.0003 | 0.0000 | 0.0017 | 0.0015 | 0.1 | 0.00000 |
| 2028 | T02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2028 | T02 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2028 | T02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 110.6 | 0.0012 | 0.0002 | 0.0035 | 0.0000 | 0.0003 | 0.0003 | 6.1 | 0.00001 |
| 2028 | T02 | Excavators | 100 < hp <= 175 | 0.59 | 246.6 | 0.0022 | 0.0003 | 0.0073 | 0.0000 | 0.0005 | 0.0005 | 13.7 | 0.00002 |
| 2028 | T02 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |
| 2028 | T02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2028 | T02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2028 | T02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2028 | T02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 8,061.3 | 0.1313 | 0.0381 | 0.5023 | 0.0045 | 0.0318 | 0.0308 | 1,531.8 | 0.00191 |
| 2028 | T02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |
| 2028 | T02 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2028 | T02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2028 | T02 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2028 | T02 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2028 | T02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2028 | T02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2028 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.21 | 80.0 | 0.0030 | 0.0009 | 0.0053 | 0.0000 | 0.0006 | 0.0006 | 1.1 | 0.00005 |
| 2028 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2028 | T02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2028 | T02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2028 | T02 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |
| 2029 | A01 | Air Compressors | 75 < hp <= 100 | 0.43 | 29.1 | 0.0006 | 0.0001 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 0.7 | 0.00001 |
| 2029 | A01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 27.6 | 0.0016 | 0.0003 | 0.0036 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00001 |
| 2029 | A01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 29.1 | 0.0002 | 0.0001 | 0.0019 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00001 |
| 2029 | A01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 27.6 | 0.0006 | 0.0002 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00002 |
| 2029 | A01 | Cranes | 175 < hp <= 300 | 0.43 | - | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | - | 0.00000 |
| 2029 | A01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 233.4 | 0.0026 | 0.0004 | 0.0073 | 0.0000 | 0.0006 | 0.0006 | 12.9 | 0.00003 |
| 2029 | A01 | Excavators | 100 < hp <= 175 | 0.59 | 277.0 | 0.0025 | 0.0004 | 0.0082 | 0.0000 | 0.0006 | 0.0006 | 15.4 | 0.00003 |
| 2029 | A01 | Graders | 175 < hp <= 300 | 0.59 | 11.3 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2029 | A01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 10.2 | 0.0030 | 0.0006 | 0.0106 | 0.0000 | 0.0005 | 0.0005 | 1.9 | 0.00004 |
| 2029 | A01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 2,244.7 | 0.0366 | 0.0106 | 0.1399 | 0.0012 | 0.0089 | 0.0086 | 426.6 | 0.00053 |
| 2029 | A01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 390.4 | 0.0075 | 0.0017 | 0.0212 | 0.0000 | 0.0016 | 0.0016 | 15.8 | 0.00012 |
| 2029 | A01 | Pavers | 100 < hp <= 175 | 0.59 | 29.1 | 0.0004 | 0.0001 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 1.6 | 0.00000 |
| 2029 | A01 | Pumps | 6 < hp <= 11 | 0.43 | 9.2 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | A01 | Rollers | 75 < hp <= 100 | 0.59 | 153.1 | 0.0026 | 0.0002 | 0.0105 | 0.0000 | 0.0004 | 0.0004 | 5.4 | 0.00002 |
| 2029 | A01 | Scrapers | 300 < hp <= 600 | 0.59 | 36.4 | 0.0030 | 0.0005 | 0.0080 | 0.0000 | 0.0005 | 0.0005 | 6.9 | 0.00003 |
| 2029 | A01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 30.5 | 0.0038 | 0.0007 | 0.0032 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00003 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | A01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 29.1 | 0.0007 | 0.0002 | 0.0018 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2029 | A01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 172.1 | 0.0322 | 0.0097 | 0.0564 | 0.0000 | 0.0067 | 0.0065 | 11.1 | 0.00055 |
| 2029 | A01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 79.8 | 0.0073 | 0.0013 | 0.0067 | 0.0000 | 0.0010 | 0.0009 | 1.2 | 0.00006 |
| 2029 | A04 | Air Compressors | 75 < hp <= 100 | 0.43 | 30.5 | 0.0006 | 0.0001 | 0.0020 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00001 |
| 2029 | A04 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 26.4 | 0.0015 | 0.0003 | 0.0034 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00001 |
| 2029 | A04 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 30.5 | 0.0002 | 0.0001 | 0.0020 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00001 |
| 2029 | A04 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 26.4 | 0.0006 | 0.0002 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2029 | A04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 196.8 | 0.0022 | 0.0003 | 0.0062 | 0.0000 | 0.0005 | 0.0005 | 10.9 | 0.00002 |
| 2029 | A04 | Excavators | 100 < hp <= 175 | 0.59 | 493.1 | 0.0044 | 0.0007 | 0.0145 | 0.0001 | 0.0010 | 0.0010 | 27.3 | 0.00005 |
| 2029 | A04 | Graders | 175 < hp <= 300 | 0.59 | 10.6 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 1.0 | 0.00000 |
| 2029 | A04 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 9.6 | 0.0028 | 0.0006 | 0.0099 | 0.0000 | 0.0005 | 0.0005 | 1.8 | 0.00004 |
| 2029 | A04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,740.8 | 0.1261 | 0.0366 | 0.4823 | 0.0043 | 0.0305 | 0.0296 | 1,471.0 | 0.00183 |
| 2029 | A04 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,931.0 | 0.0370 | 0.0086 | 0.1050 | 0.0002 | 0.0081 | 0.0079 | 78.0 | 0.00058 |
| 2029 | A04 | Pavers | 100 < hp <= 175 | 0.59 | 30.5 | 0.0004 | 0.0001 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 1.7 | 0.00000 |
| 2029 | A04 | Pumps | 6 < hp <= 11 | 0.43 | 8.8 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | A04 | Rollers | 75 < hp <= 100 | 0.59 | 123.4 | 0.0021 | 0.0002 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 4.3 | 0.00001 |
| 2029 | A04 | Scrapers | 300 < hp <= 600 | 0.59 | 38.1 | 0.0031 | 0.0005 | 0.0084 | 0.0000 | 0.0005 | 0.0005 | 7.2 | 0.00003 |
| 2029 | A04 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 27.3 | 0.0034 | 0.0006 | 0.0029 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2029 | A04 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 30.5 | 0.0007 | 0.0002 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | A04 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 120.4 | 0.0225 | 0.0068 | 0.0394 | 0.0000 | 0.0047 | 0.0045 | 7.8 | 0.00038 |
| 2029 | A04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 58.5 | 0.0054 | 0.0009 | 0.0049 | 0.0000 | 0.0007 | 0.0007 | 0.9 | 0.00004 |
| 2029 | A05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 95.4 | 0.0016 | 0.0005 | 0.0059 | 0.0001 | 0.0004 | 0.0004 | 18.1 | 0.00002 |
| 2029 | A05 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 47.7 | 0.0009 | 0.0002 | 0.0026 | 0.0000 | 0.0002 | 0.0002 | 1.9 | 0.00001 |
| 2029 | A05 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 6.5 | 0.0008 | 0.0002 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2029 | A05 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 6.5 | 0.0012 | 0.0004 | 0.0021 | 0.0000 | 0.0003 | 0.0002 | 0.4 | 0.00002 |
| 2029 | A05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 6.5 | 0.0006 | 0.0001 | 0.0005 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00000 |
| 2029 | A08 | Air Compressors | 75 < hp <= 100 | 0.43 | 13.3 | 0.0003 | 0.0000 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00000 |
| 2029 | A08 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 10.8 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00000 |
| 2029 | A08 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 13.3 | 0.0001 | 0.0000 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2029 | A08 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 10.8 | 0.0002 | 0.0001 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00001 |
| 2029 | A08 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 108.1 | 0.0012 | 0.0002 | 0.0034 | 0.0000 | 0.0003 | 0.0003 | 6.0 | 0.00001 |
| 2029 | A08 | Excavators | 100 < hp <= 175 | 0.59 | 197.5 | 0.0017 | 0.0003 | 0.0058 | 0.0000 | 0.0004 | 0.0004 | 10.9 | 0.00002 |
| 2029 | A08 | Generator Sets | 25 < hp <= 40 | 0.43 | 144.0 | 0.0019 | 0.0005 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 1.5 | 0.00004 |
| 2029 | A08 | Graders | 175 < hp <= 300 | 0.59 | 4.5 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00000 |
| 2029 | A08 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.0 | 0.0012 | 0.0003 | 0.0042 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2029 | A08 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,768.7 | 0.0288 | 0.0084 | 0.1102 | 0.0010 | 0.0070 | 0.0068 | 336.1 | 0.00042 |
| 2029 | A08 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 135.3 | 0.0026 | 0.0006 | 0.0074 | 0.0000 | 0.0006 | 0.0006 | 5.5 | 0.00004 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | A08 | Pavers | 100 < hp <= 175 | 0.59 | 13.3 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |
| 2029 | A08 | Pumps | 6 < hp <= 11 | 0.43 | 3.6 | 0.0000 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | A08 | Rollers | 75 < hp <= 100 | 0.59 | 40.4 | 0.0007 | 0.0001 | 0.0028 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2029 | A08 | Scrapers | 300 < hp <= 600 | 0.59 | 16.7 | 0.0014 | 0.0002 | 0.0037 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2029 | A08 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 5.6 | 0.0007 | 0.0001 | 0.0006 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00000 |
| 2029 | A08 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 13.3 | 0.0003 | 0.0001 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2029 | A08 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 25.4 | 0.0047 | 0.0014 | 0.0083 | 0.0000 | 0.0010 | 0.0010 | 1.6 | 0.00008 |
| 2029 | A08 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 288.0 | 0.0200 | 0.0035 | 0.0218 | 0.0000 | 0.0026 | 0.0026 | 3.1 | 0.00017 |
| 2029 | A08 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 11.5 | 0.0011 | 0.0002 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2029 | C03 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2029 | C03 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 976.0 | 0.1587 | 0.0251 | 0.1723 | 0.0001 | 0.0201 | 0.0195 | 40.0 | 0.00117 |
| 2029 | C03 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2029 | C03 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2029 | C03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 64.0 | 0.0037 | 0.0007 | 0.0083 | 0.0000 | 0.0007 | 0.0006 | 1.6 | 0.00003 |
| 2029 | C03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 64.0 | 0.0013 | 0.0005 | 0.0023 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00004 |
| 2029 | C03 | Cranes | 175 < hp <= 300 | 0.43 | 256.0 | 0.0025 | 0.0009 | 0.0108 | 0.0001 | 0.0006 | 0.0006 | 17.5 | 0.00005 |
| 2029 | C03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 40.0 | 0.0004 | 0.0001 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 2.2 | 0.00000 |
| 2029 | C03 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2029 | C03 | Forklifts | 75 < hp <= 100 | 0.59 | 3,724.0 | 0.0125 | 0.0018 | 0.2076 | 0.0004 | 0.0029 | 0.0029 | 131.0 | 0.00012 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | C03 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2029 | C03 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2029 | C03 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2029 | C03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,864.0 | 0.1118 | 0.0325 | 0.4277 | 0.0038 | 0.0271 | 0.0263 | 1,304.3 | 0.00162 |
| 2029 | C03 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2029 | C03 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2029 | C03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 40.0 | 0.0003 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2029 | C03 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2029 | C03 | Rollers | 75 < hp <= 100 | 0.59 | 56.0 | 0.0010 | 0.0001 | 0.0038 | 0.0000 | 0.0001 | 0.0001 | 2.0 | 0.00001 |
| 2029 | C03 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2029 | C03 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 64.0 | 0.0022 | 0.0003 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 1.6 | 0.00001 |
| 2029 | C03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2029 | C03 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2029 | C03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 840.0 | 0.0769 | 0.0133 | 0.0703 | 0.0000 | 0.0102 | 0.0099 | 12.2 | 0.00061 |
| 2029 | H01 | Air Compressors | 75 < hp <= 100 | 0.43 | 27.1 | 0.0006 | 0.0001 | 0.0018 | 0.0000 | 0.0001 | 0.0001 | 0.7 | 0.00000 |
| 2029 | H01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 21.6 | 0.0013 | 0.0002 | 0.0028 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |
| 2029 | H01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 27.1 | 0.0002 | 0.0001 | 0.0018 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00001 |
| 2029 | H01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 21.6 | 0.0005 | 0.0002 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2029 | H01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 151.8 | 0.0017 | 0.0003 | 0.0048 | 0.0000 | 0.0004 | 0.0004 | 8.4 | 0.00002 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | H01 | Excavators | 100 < hp <= 175 | 0.59 | 41.8 | 0.0004 | 0.0001 | 0.0012 | 0.0000 | 0.0001 | 0.0001 | 2.3 | 0.00000 |
| 2029 | H01 | Graders | 175 < hp <= 300 | 0.59 | 8.8 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2029 | H01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 7.9 | 0.0023 | 0.0005 | 0.0082 | 0.0000 | 0.0004 | 0.0004 | 1.5 | 0.00003 |
| 2029 | H01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 2,553.7 | 0.0416 | 0.0121 | 0.1591 | 0.0014 | 0.0101 | 0.0098 | 485.3 | 0.00060 |
| 2029 | H01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 301.2 | 0.0058 | 0.0013 | 0.0164 | 0.0000 | 0.0013 | 0.0012 | 12.2 | 0.00009 |
| 2029 | H01 | Pavers | 100 < hp <= 175 | 0.59 | 27.1 | 0.0004 | 0.0001 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 1.5 | 0.00000 |
| 2029 | H01 | Pumps | 6 < hp <= 11 | 0.43 | 7.2 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | H01 | Rollers | 75 < hp <= 100 | 0.59 | 88.0 | 0.0015 | 0.0001 | 0.0060 | 0.0000 | 0.0002 | 0.0002 | 3.1 | 0.00001 |
| 2029 | H01 | Scrapers | 300 < hp <= 600 | 0.59 | 33.8 | 0.0028 | 0.0004 | 0.0075 | 0.0000 | 0.0004 | 0.0004 | 6.4 | 0.00003 |
| 2029 | H01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 28.2 | 0.0035 | 0.0007 | 0.0029 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2029 | H01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 27.1 | 0.0007 | 0.0002 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2029 | H01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 58.1 | 0.0109 | 0.0033 | 0.0190 | 0.0000 | 0.0023 | 0.0022 | 3.8 | 0.00018 |
| 2029 | H01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 43.5 | 0.0040 | 0.0007 | 0.0036 | 0.0000 | 0.0005 | 0.0005 | 0.6 | 0.00003 |
| 2029 | H02 | Air Compressors | 75 < hp <= 100 | 0.43 | 50.0 | 0.0010 | 0.0001 | 0.0033 | 0.0000 | 0.0002 | 0.0002 | 1.3 | 0.00001 |
| 2029 | H02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 39.6 | 0.0023 | 0.0004 | 0.0051 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2029 | H02 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 50.0 | 0.0004 | 0.0001 | 0.0033 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00001 |
| 2029 | H02 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 39.6 | 0.0008 | 0.0003 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2029 | H02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 268.2 | 0.0030 | 0.0005 | 0.0084 | 0.0000 | 0.0007 | 0.0007 | 14.9 | 0.00003 |
| 2029 | H02 | Excavators | 100 < hp <= 175 | 0.59 | 426.5 | 0.0038 | 0.0006 | 0.0126 | 0.0001 | 0.0009 | 0.0009 | 23.6 | 0.00004 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | H02 | Graders | 175 < hp <= 300 | 0.59 | 15.9 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 1.5 | 0.00000 |
| 2029 | H02 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 14.3 | 0.0042 | 0.0009 | 0.0149 | 0.0000 | 0.0007 | 0.0007 | 2.7 | 0.00006 |
| 2029 | H02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,497.8 | 0.0732 | 0.0213 | 0.2802 | 0.0025 | 0.0177 | 0.0172 | 854.7 | 0.00106 |
| 2029 | H02 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 519.5 | 0.0099 | 0.0023 | 0.0282 | 0.0001 | 0.0022 | 0.0021 | 21.0 | 0.00016 |
| 2029 | H02 | Pavers | 100 < hp <= 175 | 0.59 | 50.0 | 0.0007 | 0.0001 | 0.0017 | 0.0000 | 0.0002 | 0.0002 | 2.8 | 0.00001 |
| 2029 | H02 | Pumps | 6 < hp <= 11 | 0.43 | 13.2 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | H02 | Rollers | 75 < hp <= 100 | 0.59 | 151.3 | 0.0026 | 0.0002 | 0.0103 | 0.0000 | 0.0004 | 0.0004 | 5.3 | 0.00002 |
| 2029 | H02 | Scrapers | 300 < hp <= 600 | 0.59 | 62.5 | 0.0051 | 0.0008 | 0.0138 | 0.0000 | 0.0008 | 0.0008 | 11.9 | 0.00005 |
| 2029 | H02 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 32.2 | 0.0040 | 0.0007 | 0.0034 | 0.0000 | 0.0006 | 0.0005 | 0.4 | 0.00003 |
| 2029 | H02 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 50.0 | 0.0012 | 0.0003 | 0.0031 | 0.0000 | 0.0001 | 0.0001 | 0.4 | 0.00002 |
| 2029 | H02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 85.4 | 0.0160 | 0.0048 | 0.0280 | 0.0000 | 0.0033 | 0.0032 | 5.5 | 0.00027 |
| 2029 | H02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 54.4 | 0.0050 | 0.0009 | 0.0046 | 0.0000 | 0.0007 | 0.0006 | 0.8 | 0.00004 |
| 2029 | L01 | Air Compressors | 75 < hp <= 100 | 0.43 | 22.8 | 0.0005 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00000 |
| 2029 | L01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 19.2 | 0.0011 | 0.0002 | 0.0025 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |
| 2029 | L01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 22.8 | 0.0002 | 0.0001 | 0.0015 | 0.0000 | 0.0000 | 0.0000 | 0.3 | 0.00001 |
| 2029 | L01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 19.2 | 0.0004 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2029 | L01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 206.5 | 0.0023 | 0.0004 | 0.0065 | 0.0000 | 0.0006 | 0.0005 | 11.4 | 0.00003 |
| 2029 | L01 | Excavators | 100 < hp <= 175 | 0.59 | 113.3 | 0.0010 | 0.0002 | 0.0033 | 0.0000 | 0.0002 | 0.0002 | 6.3 | 0.00001 |
| 2029 | L01 | Graders | 175 < hp <= 300 | 0.59 | 7.6 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | L01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 6.9 | 0.0020 | 0.0004 | 0.0071 | 0.0000 | 0.0003 | 0.0003 | 1.3 | 0.00003 |
| 2029 | L01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,227.2 | 0.0688 | 0.0200 | 0.2634 | 0.0023 | 0.0167 | 0.0162 | 803.3 | 0.00100 |
| 2029 | L01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 309.1 | 0.0059 | 0.0014 | 0.0168 | 0.0000 | 0.0013 | 0.0013 | 12.5 | 0.00009 |
| 2029 | L01 | Pavers | 100 < hp <= 175 | 0.59 | 55.9 | 0.0008 | 0.0001 | 0.0019 | 0.0000 | 0.0002 | 0.0002 | 3.1 | 0.00001 |
| 2029 | L01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 49.2 | 0.0004 | 0.0001 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2029 | L01 | Pumps | 6 < hp <= 11 | 0.43 | 6.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | L01 | Rollers | 75 < hp <= 100 | 0.59 | 90.4 | 0.0016 | 0.0001 | 0.0062 | 0.0000 | 0.0002 | 0.0002 | 3.2 | 0.00001 |
| 2029 | L01 | Scrapers | 300 < hp <= 600 | 0.59 | 28.4 | 0.0023 | 0.0004 | 0.0063 | 0.0000 | 0.0004 | 0.0004 | 5.4 | 0.00002 |
| 2029 | L01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 52.4 | 0.0065 | 0.0012 | 0.0055 | 0.0000 | 0.0009 | 0.0009 | 0.6 | 0.00004 |
| 2029 | L01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 33.7 | 0.0008 | 0.0002 | 0.0021 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00002 |
| 2029 | L01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 70.4 | 0.0132 | 0.0040 | 0.0231 | 0.0000 | 0.0027 | 0.0027 | 4.5 | 0.00022 |
| 2029 | L01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 110.6 | 0.0101 | 0.0018 | 0.0093 | 0.0000 | 0.0013 | 0.0013 | 1.6 | 0.00008 |
| 2029 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2029 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2029 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2029 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2029 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2029 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2029 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2029 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2029 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2029 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2029 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2029 | L03 | Air Compressors | 75 < hp <= 100 | 0.43 | 46.3 | 0.0009 | 0.0001 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 1.2 | 0.00001 |
| 2029 | L03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 42.0 | 0.0025 | 0.0005 | 0.0055 | 0.0000 | 0.0004 | 0.0004 | 1.1 | 0.00002 |
| 2029 | L03 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 46.3 | 0.0004 | 0.0001 | 0.0031 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00001 |
| 2029 | L03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 42.0 | 0.0009 | 0.0003 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2029 | L03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 320.1 | 0.0036 | 0.0005 | 0.0100 | 0.0001 | 0.0009 | 0.0009 | 17.7 | 0.00004 |
| 2029 | L03 | Excavators | 100 < hp <= 175 | 0.59 | 126.6 | 0.0011 | 0.0002 | 0.0037 | 0.0000 | 0.0003 | 0.0003 | 7.0 | 0.00001 |
| 2029 | L03 | Graders | 175 < hp <= 300 | 0.59 | 16.7 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |
| 2029 | L03 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.1 | 0.0044 | 0.0009 | 0.0157 | 0.0000 | 0.0007 | 0.0007 | 2.8 | 0.00006 |
| 2029 | L03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,058.6 | 0.0987 | 0.0287 | 0.3775 | 0.0034 | 0.0239 | 0.0232 | 1,151.3 | 0.00143 |
| 2029 | L03 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 829.6 | 0.0159 | 0.0037 | 0.0451 | 0.0001 | 0.0035 | 0.0034 | 33.5 | 0.00025 |
| 2029 | L03 | Pavers | 100 < hp <= 175 | 0.59 | 163.6 | 0.0024 | 0.0004 | 0.0056 | 0.0000 | 0.0006 | 0.0006 | 9.1 | 0.00003 |
| 2029 | L03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 200.0 | 0.0015 | 0.0005 | 0.0024 | 0.0000 | 0.0002 | 0.0001 | 0.3 | 0.00004 |
| 2029 | L03 | Pumps | 6 < hp <= 11 | 0.43 | 14.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | L03 | Rollers | 75 < hp <= 100 | 0.59 | 224.7 | 0.0039 | 0.0004 | 0.0154 | 0.0000 | 0.0006 | 0.0006 | 7.9 | 0.00003 |
| 2029 | L03 | Scrapers | 300 < hp <= 600 | 0.59 | 57.8 | 0.0047 | 0.0008 | 0.0127 | 0.0000 | 0.0008 | 0.0007 | 11.0 | 0.00005 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | L03 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 195.1 | 0.0242 | 0.0045 | 0.0204 | 0.0000 | 0.0033 | 0.0032 | 2.1 | 0.00017 |
| 2029 | L03 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 68.5 | 0.0017 | 0.0004 | 0.0042 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00003 |
| 2029 | L03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 237.9 | 0.0445 | 0.0134 | 0.0779 | 0.0001 | 0.0092 | 0.0090 | 15.4 | 0.00076 |
| 2029 | L03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 436.4 | 0.0399 | 0.0069 | 0.0365 | 0.0000 | 0.0053 | 0.0051 | 6.4 | 0.00032 |
| 2029 | L04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2029 | L04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2029 | L04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2029 | L04 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2029 | L04 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2029 | L04 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2029 | L04 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2029 | L04 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2029 | L04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2029 | L04 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2029 | L04 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2029 | L04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2029 | L07 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 400.8 | 0.0652 | 0.0103 | 0.0707 | 0.0001 | 0.0083 | 0.0080 | 16.4 | 0.00048 |
| 2029 | L07 | Bore/Drill Rigs | 100 < hp <= 175 | 0.43 | 120.0 | 0.0114 | 0.0038 | 0.0447 | 0.0000 | 0.0026 | 0.0025 | 4.8 | 0.00020 |
| 2029 | L07 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 660.0 | 0.3154 | 0.0674 | 1.1890 | 0.0005 | 0.0432 | 0.0419 | 123.9 | 0.00317 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | L07 | Cranes | 175 < hp <= 300 | 0.43 | 600.0 | 0.0060 | 0.0021 | 0.0253 | 0.0001 | 0.0014 | 0.0013 | 41.1 | 0.00012 |
| 2029 | L07 | Excavators | 100 < hp <= 175 | 0.59 | 160.8 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2029 | L07 | Forklifts | 75 < hp <= 100 | 0.59 | 801.6 | 0.0027 | 0.0004 | 0.0447 | 0.0001 | 0.0006 | 0.0006 | 28.2 | 0.00003 |
| 2029 | L07 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 160.8 | 0.0005 | 0.0002 | 0.0026 | 0.0000 | 0.0002 | 0.0001 | 11.1 | 0.00001 |
| 2029 | L07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,536.0 | 0.0250 | 0.0073 | 0.0957 | 0.0009 | 0.0061 | 0.0059 | 291.9 | 0.00036 |
| 2029 | L07 | Pavers | 100 < hp <= 175 | 0.59 | 79.2 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2029 | L07 | Pumps | 6 < hp <= 11 | 0.43 | 450.0 | 0.0061 | 0.0019 | 0.0099 | 0.0000 | 0.0006 | 0.0006 | 1.3 | 0.00015 |
| 2029 | L07 | Rubber Tire Loaders | 75 < hp <= 100 | 0.21 | 79.2 | 0.0005 | 0.0000 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00000 |
| 2029 | L07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 679.2 | 0.0621 | 0.0108 | 0.0568 | 0.0000 | 0.0083 | 0.0080 | 9.9 | 0.00049 |
| 2029 | L07 | Trenchers | 50 < hp <= 75 | 0.59 | 319.2 | 0.0111 | 0.0017 | 0.0445 | 0.0000 | 0.0013 | 0.0013 | 8.4 | 0.00017 |
| 2029 | S01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 16.0 | 0.0026 | 0.0004 | 0.0028 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00002 |
| 2029 | S01 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2029 | S01 | Air Compressors | 75 < hp <= 100 | 0.43 | 15.8 | 0.0003 | 0.0000 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.4 | 0.00000 |
| 2029 | S01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 24.0 | 0.0115 | 0.0024 | 0.0432 | 0.0000 | 0.0016 | 0.0015 | 4.5 | 0.00012 |
| 2029 | S01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 37.2 | 0.0022 | 0.0004 | 0.0048 | 0.0000 | 0.0004 | 0.0004 | 0.9 | 0.00002 |
| 2029 | S01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 15.8 | 0.0001 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2029 | S01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 37.2 | 0.0008 | 0.0003 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2029 | S01 | Cranes | 175 < hp <= 300 | 0.43 | 19.0 | 0.0002 | 0.0001 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 1.3 | 0.00000 |
| 2029 | S01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 508.0 | 0.0056 | 0.0009 | 0.0159 | 0.0001 | 0.0014 | 0.0014 | 28.2 | 0.00006 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | S01 | Excavators | 100 < hp <= 175 | 0.59 | 232.9 | 0.0021 | 0.0003 | 0.0069 | 0.0000 | 0.0005 | 0.0005 | 12.9 | 0.00002 |
| 2029 | S01 | Forklifts | 75 < hp <= 100 | 0.59 | 24.0 | 0.0001 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2029 | S01 | Generator Sets | 25 < hp <= 40 | 0.43 | 30.0 | 0.0004 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2029 | S01 | Graders | 175 < hp <= 300 | 0.59 | 5.4 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2029 | S01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.8 | 0.0014 | 0.0003 | 0.0050 | 0.0000 | 0.0002 | 0.0002 | 0.9 | 0.00002 |
| 2029 | S01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,815.9 | 0.0784 | 0.0228 | 0.3001 | 0.0027 | 0.0190 | 0.0184 | 915.1 | 0.00114 |
| 2029 | S01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 191.3 | 0.0037 | 0.0009 | 0.0104 | 0.0000 | 0.0008 | 0.0008 | 7.7 | 0.00006 |
| 2029 | S01 | Pavers | 100 < hp <= 175 | 0.59 | 21.7 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 1.2 | 0.00000 |
| 2029 | S01 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2029 | S01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | S01 | Pumps | 6 < hp <= 11 | 0.43 | 4.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | S01 | Rollers | 75 < hp <= 100 | 0.59 | 275.6 | 0.0048 | 0.0004 | 0.0189 | 0.0000 | 0.0007 | 0.0007 | 9.7 | 0.00003 |
| 2029 | S01 | Scrapers | 300 < hp <= 600 | 0.59 | 158.2 | 0.0129 | 0.0021 | 0.0348 | 0.0001 | 0.0021 | 0.0020 | 30.1 | 0.00013 |
| 2029 | S01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 28.9 | 0.0036 | 0.0007 | 0.0030 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2029 | S01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 23.4 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2029 | S01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2029 | S01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 89.5 | 0.0167 | 0.0050 | 0.0293 | 0.0000 | 0.0035 | 0.0034 | 5.8 | 0.00028 |
| 2029 | S01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 84.0 | 0.0058 | 0.0010 | 0.0064 | 0.0000 | 0.0008 | 0.0007 | 0.9 | 0.00005 |
| 2029 | S01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 147.3 | 0.0135 | 0.0023 | 0.0123 | 0.0000 | 0.0018 | 0.0017 | 2.1 | 0.00011 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | S03 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 1,320.0 | 0.0503 | 0.0096 | 0.0837 | 0.0000 | 0.0060 | 0.0058 | 14.4 | 0.00052 |
| 2029 | S03 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 456.0 | 0.0742 | 0.0117 | 0.0805 | 0.0001 | 0.0094 | 0.0091 | 18.7 | 0.00055 |
| 2029 | S03 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2029 | S03 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 84.0 | 0.0401 | 0.0086 | 0.1513 | 0.0001 | 0.0055 | 0.0053 | 15.8 | 0.00040 |
| 2029 | S03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 24.0 | 0.0014 | 0.0003 | 0.0031 | 0.0000 | 0.0002 | 0.0002 | 0.6 | 0.00001 |
| 2029 | S03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 24.0 | 0.0005 | 0.0002 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2029 | S03 | Cranes | 175 < hp <= 300 | 0.43 | 16.0 | 0.0002 | 0.0001 | 0.0007 | 0.0000 | 0.0000 | 0.0000 | 1.1 | 0.00000 |
| 2029 | S03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 16.0 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.9 | 0.00000 |
| 2029 | S03 | Forklifts | 75 < hp <= 100 | 0.59 | 1,664.0 | 0.0056 | 0.0008 | 0.0928 | 0.0002 | 0.0013 | 0.0013 | 58.5 | 0.00005 |
| 2029 | S03 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 240.0 | 0.0007 | 0.0003 | 0.0039 | 0.0000 | 0.0002 | 0.0002 | 16.6 | 0.00001 |
| 2029 | S03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 602.0 | 0.0098 | 0.0028 | 0.0375 | 0.0003 | 0.0024 | 0.0023 | 114.4 | 0.00014 |
| 2029 | S03 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2029 | S03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | S03 | Rollers | 75 < hp <= 100 | 0.59 | 16.0 | 0.0003 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00000 |
| 2029 | S03 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2029 | S03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 56.0 | 0.0105 | 0.0032 | 0.0183 | 0.0000 | 0.0022 | 0.0021 | 3.6 | 0.00018 |
| 2029 | S03 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2029 | S03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 440.0 | 0.0403 | 0.0070 | 0.0368 | 0.0000 | 0.0054 | 0.0052 | 6.4 | 0.00032 |
| 2029 | S10 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | S10 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |
| 2029 | S10 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2029 | S10 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2029 | S10 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 40.0 | 0.0008 | 0.0003 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2029 | S10 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2029 | S10 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 24.0 | 0.0003 | 0.0000 | 0.0008 | 0.0000 | 0.0001 | 0.0001 | 1.3 | 0.00000 |
| 2029 | S10 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2029 | S10 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |
| 2029 | S10 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2029 | S10 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2029 | S10 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2029 | S10 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,888.0 | 0.1285 | 0.0373 | 0.4915 | 0.0044 | 0.0311 | 0.0302 | 1,498.9 | 0.00187 |
| 2029 | S10 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |
| 2029 | S10 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2029 | S10 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | S10 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2029 | S10 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2029 | S10 | Rubber Tire Loaders | 75 < hp <= 100 | 0.21 | 80.0 | 0.0005 | 0.0000 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00000 |
| 2029 | S10 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | S10 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2029 | S10 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |
| 2029 | S10 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2029 | S10 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2029 | S10 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |
| 2029 | T01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2029 | T01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2029 | T01 | Air Compressors | 75 < hp <= 100 | 0.43 | 51.8 | 0.0011 | 0.0001 | 0.0034 | 0.0000 | 0.0002 | 0.0002 | 1.3 | 0.00001 |
| 2029 | T01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2029 | T01 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 82.0 | 0.0926 | 0.0214 | 0.0005 | 0.0000 | 0.0034 | 0.0031 | 0.2 | 0.00000 |
| 2029 | T01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 82.0 | 0.0048 | 0.0009 | 0.0106 | 0.0000 | 0.0008 | 0.0008 | 2.1 | 0.00004 |
| 2029 | T01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 51.8 | 0.0004 | 0.0001 | 0.0034 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00002 |
| 2029 | T01 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2029 | T01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 412.7 | 0.0046 | 0.0007 | 0.0130 | 0.0001 | 0.0011 | 0.0011 | 22.9 | 0.00005 |
| 2029 | T01 | Excavators | 100 < hp <= 175 | 0.59 | 558.8 | 0.0049 | 0.0008 | 0.0165 | 0.0001 | 0.0012 | 0.0011 | 31.0 | 0.00006 |
| 2029 | T01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,700.0 | 0.0125 | 0.0018 | 0.2062 | 0.0004 | 0.0029 | 0.0028 | 130.1 | 0.00012 |
| 2029 | T01 | Generator Sets | 25 < hp <= 40 | 0.43 | 301.0 | 0.0039 | 0.0011 | 0.0175 | 0.0000 | 0.0006 | 0.0006 | 3.1 | 0.00009 |
| 2029 | T01 | Graders | 175 < hp <= 300 | 0.59 | 16.9 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |
| 2029 | T01 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | T01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.2 | 0.0044 | 0.0009 | 0.0158 | 0.0000 | 0.0007 | 0.0007 | 2.9 | 0.00006 |
| 2029 | T01 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2029 | T01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 12,536.6 | 0.2042 | 0.0593 | 0.7811 | 0.0070 | 0.0494 | 0.0480 | 2,382.3 | 0.00297 |
| 2029 | T01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 516.6 | 0.0099 | 0.0023 | 0.0281 | 0.0001 | 0.0022 | 0.0021 | 20.9 | 0.00015 |
| 2029 | T01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2029 | T01 | Pavers | 100 < hp <= 175 | 0.59 | 51.8 | 0.0008 | 0.0001 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 2.9 | 0.00001 |
| 2029 | T01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | T01 | Pumps | 6 < hp <= 11 | 0.43 | 254.0 | 0.0034 | 0.0011 | 0.0056 | 0.0000 | 0.0004 | 0.0003 | 0.7 | 0.00008 |
| 2029 | T01 | Rollers | 75 < hp <= 100 | 0.59 | 194.3 | 0.0033 | 0.0003 | 0.0133 | 0.0000 | 0.0005 | 0.0005 | 6.8 | 0.00002 |
| 2029 | T01 | Scrapers | 300 < hp <= 600 | 0.59 | 64.8 | 0.0053 | 0.0008 | 0.0143 | 0.0000 | 0.0009 | 0.0008 | 12.3 | 0.00005 |
| 2029 | T01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 15.9 | 0.0020 | 0.0004 | 0.0017 | 0.0000 | 0.0003 | 0.0003 | 0.2 | 0.00001 |
| 2029 | T01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 51.8 | 0.0013 | 0.0003 | 0.0032 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |
| 2029 | T01 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2029 | T01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2029 | T01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 129.1 | 0.0241 | 0.0073 | 0.0423 | 0.0000 | 0.0050 | 0.0049 | 8.3 | 0.00041 |
| 2029 | T01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 466.1 | 0.0324 | 0.0057 | 0.0353 | 0.0000 | 0.0043 | 0.0041 | 5.1 | 0.00028 |
| 2029 | T01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 757.5 | 0.0693 | 0.0120 | 0.0634 | 0.0000 | 0.0092 | 0.0089 | 11.0 | 0.00055 |
| 2029 | T02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |
| 2029 | T02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | T02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2029 | T02 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 40.0 | 0.0452 | 0.0104 | 0.0003 | 0.0000 | 0.0017 | 0.0015 | 0.1 | 0.00000 |
| 2029 | T02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2029 | T02 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2029 | T02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 140.6 | 0.0016 | 0.0002 | 0.0044 | 0.0000 | 0.0004 | 0.0004 | 7.8 | 0.00002 |
| 2029 | T02 | Excavators | 100 < hp <= 175 | 0.59 | 276.6 | 0.0024 | 0.0004 | 0.0082 | 0.0000 | 0.0006 | 0.0006 | 15.3 | 0.00003 |
| 2029 | T02 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |
| 2029 | T02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2029 | T02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2029 | T02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2029 | T02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 8,121.1 | 0.1322 | 0.0384 | 0.5060 | 0.0045 | 0.0320 | 0.0311 | 1,543.2 | 0.00192 |
| 2029 | T02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |
| 2029 | T02 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2029 | T02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2029 | T02 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2029 | T02 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2029 | T02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2029 | T02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2029 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.21 | 80.0 | 0.0030 | 0.0009 | 0.0053 | 0.0000 | 0.0006 | 0.0006 | 1.1 | 0.00005 |
| 2029 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2029 | T02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2029 | T02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2029 | T02 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |
| 2030 | A04 | Air Compressors | 75 < hp <= 100 | 0.43 | 30.5 | 0.0006 | 0.0001 | 0.0020 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00001 |
| 2030 | A04 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 26.4 | 0.0015 | 0.0003 | 0.0034 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00001 |
| 2030 | A04 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 30.5 | 0.0002 | 0.0001 | 0.0020 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00001 |
| 2030 | A04 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 26.4 | 0.0006 | 0.0002 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2030 | A04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 196.8 | 0.0022 | 0.0003 | 0.0062 | 0.0000 | 0.0005 | 0.0005 | 10.9 | 0.00002 |
| 2030 | A04 | Excavators | 100 < hp <= 175 | 0.59 | 493.1 | 0.0044 | 0.0007 | 0.0145 | 0.0001 | 0.0010 | 0.0010 | 27.3 | 0.00005 |
| 2030 | A04 | Graders | 175 < hp <= 300 | 0.59 | 10.6 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 1.0 | 0.00000 |
| 2030 | A04 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 9.6 | 0.0028 | 0.0006 | 0.0099 | 0.0000 | 0.0005 | 0.0005 | 1.8 | 0.00004 |
| 2030 | A04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,740.8 | 0.1261 | 0.0366 | 0.4823 | 0.0043 | 0.0305 | 0.0296 | 1,471.0 | 0.00183 |
| 2030 | A04 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,931.0 | 0.0370 | 0.0086 | 0.1050 | 0.0002 | 0.0081 | 0.0079 | 78.0 | 0.00058 |
| 2030 | A04 | Pavers | 100 < hp <= 175 | 0.59 | 30.5 | 0.0004 | 0.0001 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 1.7 | 0.00000 |
| 2030 | A04 | Pumps | 6 < hp <= 11 | 0.43 | 8.8 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | A04 | Rollers | 75 < hp <= 100 | 0.59 | 123.4 | 0.0021 | 0.0002 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 4.3 | 0.00001 |
| 2030 | A04 | Scrapers | 300 < hp <= 600 | 0.59 | 38.1 | 0.0031 | 0.0005 | 0.0084 | 0.0000 | 0.0005 | 0.0005 | 7.2 | 0.00003 |
| 2030 | A04 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 27.3 | 0.0034 | 0.0006 | 0.0029 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2030 | A04 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 30.5 | 0.0007 | 0.0002 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | A04 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 120.4 | 0.0225 | 0.0068 | 0.0394 | 0.0000 | 0.0047 | 0.0045 | 7.8 | 0.00038 |
| 2030 | A04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 58.5 | 0.0054 | 0.0009 | 0.0049 | 0.0000 | 0.0007 | 0.0007 | 0.9 | 0.00004 |
| 2030 | A05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 345.4 | 0.0056 | 0.0016 | 0.0215 | 0.0002 | 0.0014 | 0.0013 | 65.6 | 0.00008 |
| 2030 | A05 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 172.7 | 0.0033 | 0.0008 | 0.0094 | 0.0000 | 0.0007 | 0.0007 | 7.0 | 0.00005 |
| 2030 | A05 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 8.1 | 0.0010 | 0.0002 | 0.0008 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2030 | A05 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 8.1 | 0.0015 | 0.0005 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 0.5 | 0.00003 |
| 2030 | A05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 8.1 | 0.0007 | 0.0001 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2030 | H03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 50.0 | 0.0006 | 0.0001 | 0.0016 | 0.0000 | 0.0001 | 0.0001 | 2.8 | 0.00001 |
| 2030 | H03 | Excavators | 100 < hp <= 175 | 0.59 | 50.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 2.8 | 0.00000 |
| 2030 | H03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 100.0 | 0.0016 | 0.0005 | 0.0062 | 0.0001 | 0.0004 | 0.0004 | 19.0 | 0.00002 |
| 2030 | H04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2030 | H04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2030 | H04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2030 | H04 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2030 | H04 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2030 | H04 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2030 | H04 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2030 | H04 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | H04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2030 | H04 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2030 | H04 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2030 | H04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2030 | H05 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2030 | H05 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2030 | H05 | Air Compressors | 75 < hp <= 100 | 0.43 | 27.1 | 0.0006 | 0.0001 | 0.0018 | 0.0000 | 0.0001 | 0.0001 | 0.7 | 0.00000 |
| 2030 | H05 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2030 | H05 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 21.6 | 0.0013 | 0.0002 | 0.0028 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |
| 2030 | H05 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 27.1 | 0.0002 | 0.0001 | 0.0018 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00001 |
| 2030 | H05 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 21.6 | 0.0005 | 0.0002 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2030 | H05 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2030 | H05 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 151.8 | 0.0017 | 0.0003 | 0.0048 | 0.0000 | 0.0004 | 0.0004 | 8.4 | 0.00002 |
| 2030 | H05 | Excavators | 100 < hp <= 175 | 0.59 | 201.8 | 0.0018 | 0.0003 | 0.0059 | 0.0000 | 0.0004 | 0.0004 | 11.2 | 0.00002 |
| 2030 | H05 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2030 | H05 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2030 | H05 | Graders | 175 < hp <= 300 | 0.59 | 8.8 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2030 | H05 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 7.9 | 0.0023 | 0.0005 | 0.0082 | 0.0000 | 0.0004 | 0.0004 | 1.5 | 0.00003 |
| 2030 | H05 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | H05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 9,747.7 | 0.1587 | 0.0461 | 0.6073 | 0.0054 | 0.0384 | 0.0373 | 1,852.3 | 0.00231 |
| 2030 | H05 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 301.2 | 0.0058 | 0.0013 | 0.0164 | 0.0000 | 0.0013 | 0.0012 | 12.2 | 0.00009 |
| 2030 | H05 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2030 | H05 | Pavers | 100 < hp <= 175 | 0.59 | 27.1 | 0.0004 | 0.0001 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 1.5 | 0.00000 |
| 2030 | H05 | Pumps | 6 < hp <= 11 | 0.43 | 247.2 | 0.0033 | 0.0011 | 0.0055 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2030 | H05 | Rollers | 75 < hp <= 100 | 0.59 | 88.0 | 0.0015 | 0.0001 | 0.0060 | 0.0000 | 0.0002 | 0.0002 | 3.1 | 0.00001 |
| 2030 | H05 | Scrapers | 300 < hp <= 600 | 0.59 | 33.8 | 0.0028 | 0.0004 | 0.0075 | 0.0000 | 0.0004 | 0.0004 | 6.4 | 0.00003 |
| 2030 | H05 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 28.2 | 0.0035 | 0.0007 | 0.0029 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2030 | H05 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 27.1 | 0.0007 | 0.0002 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2030 | H05 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 58.1 | 0.0109 | 0.0033 | 0.0190 | 0.0000 | 0.0023 | 0.0022 | 3.8 | 0.00018 |
| 2030 | H05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 523.5 | 0.0479 | 0.0083 | 0.0438 | 0.0000 | 0.0064 | 0.0062 | 7.6 | 0.00038 |
| 2030 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2030 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2030 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2030 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2030 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2030 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2030 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2030 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2030 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2030 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2030 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2030 | L03 | Air Compressors | 75 < hp <= 100 | 0.43 | 34.7 | 0.0007 | 0.0001 | 0.0023 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2030 | L03 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 31.2 | 0.0018 | 0.0003 | 0.0041 | 0.0000 | 0.0003 | 0.0003 | 0.8 | 0.00001 |
| 2030 | L03 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 34.7 | 0.0003 | 0.0001 | 0.0023 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00001 |
| 2030 | L03 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 31.2 | 0.0007 | 0.0002 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00002 |
| 2030 | L03 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 240.2 | 0.0027 | 0.0004 | 0.0075 | 0.0000 | 0.0007 | 0.0006 | 13.3 | 0.00003 |
| 2030 | L03 | Excavators | 100 < hp <= 175 | 0.59 | 95.0 | 0.0008 | 0.0001 | 0.0028 | 0.0000 | 0.0002 | 0.0002 | 5.3 | 0.00001 |
| 2030 | L03 | Graders | 175 < hp <= 300 | 0.59 | 12.6 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 1.2 | 0.00000 |
| 2030 | L03 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 11.3 | 0.0033 | 0.0007 | 0.0118 | 0.0000 | 0.0006 | 0.0005 | 2.1 | 0.00005 |
| 2030 | L03 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,544.0 | 0.0740 | 0.0215 | 0.2831 | 0.0025 | 0.0179 | 0.0174 | 863.5 | 0.00107 |
| 2030 | L03 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 622.4 | 0.0119 | 0.0028 | 0.0338 | 0.0001 | 0.0026 | 0.0025 | 25.1 | 0.00019 |
| 2030 | L03 | Pavers | 100 < hp <= 175 | 0.59 | 122.7 | 0.0018 | 0.0003 | 0.0042 | 0.0000 | 0.0005 | 0.0004 | 6.8 | 0.00002 |
| 2030 | L03 | Plate Compactors | 3 < hp <= 6 | 0.43 | 150.0 | 0.0011 | 0.0004 | 0.0018 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00003 |
| 2030 | L03 | Pumps | 6 < hp <= 11 | 0.43 | 10.4 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | L03 | Rollers | 75 < hp <= 100 | 0.59 | 168.6 | 0.0029 | 0.0003 | 0.0115 | 0.0000 | 0.0004 | 0.0004 | 5.9 | 0.00002 |
| 2030 | L03 | Scrapers | 300 < hp <= 600 | 0.59 | 43.4 | 0.0035 | 0.0006 | 0.0096 | 0.0000 | 0.0006 | 0.0006 | 8.2 | 0.00004 |
| 2030 | L03 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 146.5 | 0.0181 | 0.0034 | 0.0153 | 0.0000 | 0.0025 | 0.0024 | 1.6 | 0.00012 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | L03 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 51.3 | 0.0012 | 0.0003 | 0.0031 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |
| 2030 | L03 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 178.7 | 0.0334 | 0.0101 | 0.0585 | 0.0000 | 0.0069 | 0.0067 | 11.5 | 0.00057 |
| 2030 | L03 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 327.4 | 0.0300 | 0.0052 | 0.0274 | 0.0000 | 0.0040 | 0.0039 | 4.8 | 0.00024 |
| 2030 | L07 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 400.8 | 0.0652 | 0.0103 | 0.0707 | 0.0001 | 0.0083 | 0.0080 | 16.4 | 0.00048 |
| 2030 | L07 | Bore/Drill Rigs | 100 < hp <= 175 | 0.43 | 120.0 | 0.0114 | 0.0038 | 0.0447 | 0.0000 | 0.0026 | 0.0025 | 4.8 | 0.00020 |
| 2030 | L07 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 660.0 | 0.3154 | 0.0674 | 1.1890 | 0.0005 | 0.0432 | 0.0419 | 123.9 | 0.00317 |
| 2030 | L07 | Cranes | 175 < hp <= 300 | 0.43 | 600.0 | 0.0060 | 0.0021 | 0.0253 | 0.0001 | 0.0014 | 0.0013 | 41.1 | 0.00012 |
| 2030 | L07 | Excavators | 100 < hp <= 175 | 0.59 | 160.8 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2030 | L07 | Forklifts | 75 < hp <= 100 | 0.59 | 801.6 | 0.0027 | 0.0004 | 0.0447 | 0.0001 | 0.0006 | 0.0006 | 28.2 | 0.00003 |
| 2030 | L07 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 160.8 | 0.0005 | 0.0002 | 0.0026 | 0.0000 | 0.0002 | 0.0001 | 11.1 | 0.00001 |
| 2030 | L07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,536.0 | 0.0250 | 0.0073 | 0.0957 | 0.0009 | 0.0061 | 0.0059 | 291.9 | 0.00036 |
| 2030 | L07 | Pavers | 100 < hp <= 175 | 0.59 | 79.2 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2030 | L07 | Pumps | 6 < hp <= 11 | 0.43 | 450.0 | 0.0061 | 0.0019 | 0.0099 | 0.0000 | 0.0006 | 0.0006 | 1.3 | 0.00015 |
| 2030 | L07 | Rubber Tire Loaders | 75 < hp <= 100 | 0.21 | 79.2 | 0.0005 | 0.0000 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00000 |
| 2030 | L07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 679.2 | 0.0621 | 0.0108 | 0.0568 | 0.0000 | 0.0083 | 0.0080 | 9.9 | 0.00049 |
| 2030 | L07 | Trenchers | 50 < hp <= 75 | 0.59 | 319.2 | 0.0111 | 0.0017 | 0.0445 | 0.0000 | 0.0013 | 0.0013 | 8.4 | 0.00017 |
| 2030 | S01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 16.0 | 0.0026 | 0.0004 | 0.0028 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00002 |
| 2030 | S01 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2030 | S01 | Air Compressors | 75 < hp <= 100 | 0.43 | 15.8 | 0.0003 | 0.0000 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.4 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | S01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 24.0 | 0.0115 | 0.0024 | 0.0432 | 0.0000 | 0.0016 | 0.0015 | 4.5 | 0.00012 |
| 2030 | S01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 37.2 | 0.0022 | 0.0004 | 0.0048 | 0.0000 | 0.0004 | 0.0004 | 0.9 | 0.00002 |
| 2030 | S01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 15.8 | 0.0001 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2030 | S01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 37.2 | 0.0008 | 0.0003 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2030 | S01 | Cranes | 175 < hp <= 300 | 0.43 | 19.0 | 0.0002 | 0.0001 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 1.3 | 0.00000 |
| 2030 | S01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 508.0 | 0.0056 | 0.0009 | 0.0159 | 0.0001 | 0.0014 | 0.0014 | 28.2 | 0.00006 |
| 2030 | S01 | Excavators | 100 < hp <= 175 | 0.59 | 232.9 | 0.0021 | 0.0003 | 0.0069 | 0.0000 | 0.0005 | 0.0005 | 12.9 | 0.00002 |
| 2030 | S01 | Forklifts | 75 < hp <= 100 | 0.59 | 24.0 | 0.0001 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2030 | S01 | Generator Sets | 25 < hp <= 40 | 0.43 | 30.0 | 0.0004 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2030 | S01 | Graders | 175 < hp <= 300 | 0.59 | 5.4 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2030 | S01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.8 | 0.0014 | 0.0003 | 0.0050 | 0.0000 | 0.0002 | 0.0002 | 0.9 | 0.00002 |
| 2030 | S01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,815.9 | 0.0784 | 0.0228 | 0.3001 | 0.0027 | 0.0190 | 0.0184 | 915.1 | 0.00114 |
| 2030 | S01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 191.3 | 0.0037 | 0.0009 | 0.0104 | 0.0000 | 0.0008 | 0.0008 | 7.7 | 0.00006 |
| 2030 | S01 | Pavers | 100 < hp <= 175 | 0.59 | 21.7 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 1.2 | 0.00000 |
| 2030 | S01 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2030 | S01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | S01 | Pumps | 6 < hp <= 11 | 0.43 | 4.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | S01 | Rollers | 75 < hp <= 100 | 0.59 | 275.6 | 0.0048 | 0.0004 | 0.0189 | 0.0000 | 0.0007 | 0.0007 | 9.7 | 0.00003 |
| 2030 | S01 | Scrapers | 300 < hp <= 600 | 0.59 | 158.2 | 0.0129 | 0.0021 | 0.0348 | 0.0001 | 0.0021 | 0.0020 | 30.1 | 0.00013 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | S01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 28.9 | 0.0036 | 0.0007 | 0.0030 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2030 | S01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 23.4 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2030 | S01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2030 | S01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 89.5 | 0.0167 | 0.0050 | 0.0293 | 0.0000 | 0.0035 | 0.0034 | 5.8 | 0.00028 |
| 2030 | S01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 84.0 | 0.0058 | 0.0010 | 0.0064 | 0.0000 | 0.0008 | 0.0007 | 0.9 | 0.00005 |
| 2030 | S01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 147.3 | 0.0135 | 0.0023 | 0.0123 | 0.0000 | 0.0018 | 0.0017 | 2.1 | 0.00011 |
| 2030 | S10 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |
| 2030 | S10 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |
| 2030 | S10 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2030 | S10 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2030 | S10 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 40.0 | 0.0008 | 0.0003 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2030 | S10 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2030 | S10 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 24.0 | 0.0003 | 0.0000 | 0.0008 | 0.0000 | 0.0001 | 0.0001 | 1.3 | 0.00000 |
| 2030 | S10 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2030 | S10 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |
| 2030 | S10 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2030 | S10 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2030 | S10 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | S10 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,888.0 | 0.1285 | 0.0373 | 0.4915 | 0.0044 | 0.0311 | 0.0302 | 1,498.9 | 0.00187 |
| 2030 | S10 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |
| 2030 | S10 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2030 | S10 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | S10 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2030 | S10 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2030 | S10 | Rubber Tire Loaders | 75 < hp <= 100 | 0.21 | 80.0 | 0.0005 | 0.0000 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00000 |
| 2030 | S10 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2030 | S10 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2030 | S10 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |
| 2030 | S10 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2030 | S10 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2030 | S10 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |
| 2030 | T01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2030 | T01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2030 | T01 | Air Compressors | 75 < hp <= 100 | 0.43 | 51.8 | 0.0011 | 0.0001 | 0.0034 | 0.0000 | 0.0002 | 0.0002 | 1.3 | 0.00001 |
| 2030 | T01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2030 | T01 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 82.0 | 0.0926 | 0.0214 | 0.0005 | 0.0000 | 0.0034 | 0.0031 | 0.2 | 0.00000 |
| 2030 | T01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 82.0 | 0.0048 | 0.0009 | 0.0106 | 0.0000 | 0.0008 | 0.0008 | 2.1 | 0.00004 |
| 2030 | T01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 51.8 | 0.0004 | 0.0001 | 0.0034 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00002 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | T01 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2030 | T01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 412.7 | 0.0046 | 0.0007 | 0.0130 | 0.0001 | 0.0011 | 0.0011 | 22.9 | 0.00005 |
| 2030 | T01 | Excavators | 100 < hp <= 175 | 0.59 | 558.8 | 0.0049 | 0.0008 | 0.0165 | 0.0001 | 0.0012 | 0.0011 | 31.0 | 0.00006 |
| 2030 | T01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,700.0 | 0.0125 | 0.0018 | 0.2062 | 0.0004 | 0.0029 | 0.0028 | 130.1 | 0.00012 |
| 2030 | T01 | Generator Sets | 25 < hp <= 40 | 0.43 | 301.0 | 0.0039 | 0.0011 | 0.0175 | 0.0000 | 0.0006 | 0.0006 | 3.1 | 0.00009 |
| 2030 | T01 | Graders | 175 < hp <= 300 | 0.59 | 16.9 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |
| 2030 | T01 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2030 | T01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.2 | 0.0044 | 0.0009 | 0.0158 | 0.0000 | 0.0007 | 0.0007 | 2.9 | 0.00006 |
| 2030 | T01 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2030 | T01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 12,536.6 | 0.2042 | 0.0593 | 0.7811 | 0.0070 | 0.0494 | 0.0480 | 2,382.3 | 0.00297 |
| 2030 | T01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 516.6 | 0.0099 | 0.0023 | 0.0281 | 0.0001 | 0.0022 | 0.0021 | 20.9 | 0.00015 |
| 2030 | T01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2030 | T01 | Pavers | 100 < hp <= 175 | 0.59 | 51.8 | 0.0008 | 0.0001 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 2.9 | 0.00001 |
| 2030 | T01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | T01 | Pumps | 6 < hp <= 11 | 0.43 | 254.0 | 0.0034 | 0.0011 | 0.0056 | 0.0000 | 0.0004 | 0.0003 | 0.7 | 0.00008 |
| 2030 | T01 | Rollers | 75 < hp <= 100 | 0.59 | 194.3 | 0.0033 | 0.0003 | 0.0133 | 0.0000 | 0.0005 | 0.0005 | 6.8 | 0.00002 |
| 2030 | T01 | Scrapers | 300 < hp <= 600 | 0.59 | 64.8 | 0.0053 | 0.0008 | 0.0143 | 0.0000 | 0.0009 | 0.0008 | 12.3 | 0.00005 |
| 2030 | T01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 15.9 | 0.0020 | 0.0004 | 0.0017 | 0.0000 | 0.0003 | 0.0003 | 0.2 | 0.00001 |
| 2030 | T01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 51.8 | 0.0013 | 0.0003 | 0.0032 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | T01 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2030 | T01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2030 | T01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 129.1 | 0.0241 | 0.0073 | 0.0423 | 0.0000 | 0.0050 | 0.0049 | 8.3 | 0.00041 |
| 2030 | T01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 466.1 | 0.0324 | 0.0057 | 0.0353 | 0.0000 | 0.0043 | 0.0041 | 5.1 | 0.00028 |
| 2030 | T01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 757.5 | 0.0693 | 0.0120 | 0.0634 | 0.0000 | 0.0092 | 0.0089 | 11.0 | 0.00055 |
| 2030 | T02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |
| 2030 | T02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |
| 2030 | T02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2030 | T02 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 40.0 | 0.0452 | 0.0104 | 0.0003 | 0.0000 | 0.0017 | 0.0015 | 0.1 | 0.00000 |
| 2030 | T02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2030 | T02 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2030 | T02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 140.6 | 0.0016 | 0.0002 | 0.0044 | 0.0000 | 0.0004 | 0.0004 | 7.8 | 0.00002 |
| 2030 | T02 | Excavators | 100 < hp <= 175 | 0.59 | 276.6 | 0.0024 | 0.0004 | 0.0082 | 0.0000 | 0.0006 | 0.0006 | 15.3 | 0.00003 |
| 2030 | T02 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |
| 2030 | T02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2030 | T02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2030 | T02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2030 | T02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 8,121.1 | 0.1322 | 0.0384 | 0.5060 | 0.0045 | 0.0320 | 0.0311 | 1,543.2 | 0.00192 |
| 2030 | T02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2030 | T02 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2030 | T02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2030 | T02 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2030 | T02 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2030 | T02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2030 | T02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2030 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.21 | 80.0 | 0.0030 | 0.0009 | 0.0053 | 0.0000 | 0.0006 | 0.0006 | 1.1 | 0.00005 |
| 2030 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |
| 2030 | T02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2030 | T02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2030 | T02 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |
| 2031 | A04 | Air Compressors | 75 < hp <= 100 | 0.43 | 30.5 | 0.0006 | 0.0001 | 0.0020 | 0.0000 | 0.0001 | 0.0001 | 0.8 | 0.00001 |
| 2031 | A04 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 26.4 | 0.0015 | 0.0003 | 0.0034 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00001 |
| 2031 | A04 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 30.5 | 0.0002 | 0.0001 | 0.0020 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00001 |
| 2031 | A04 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 26.4 | 0.0006 | 0.0002 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 0.1 | 0.00001 |
| 2031 | A04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 196.8 | 0.0022 | 0.0003 | 0.0062 | 0.0000 | 0.0005 | 0.0005 | 10.9 | 0.00002 |
| 2031 | A04 | Excavators | 100 < hp <= 175 | 0.59 | 493.1 | 0.0044 | 0.0007 | 0.0145 | 0.0001 | 0.0010 | 0.0010 | 27.3 | 0.00005 |
| 2031 | A04 | Graders | 175 < hp <= 300 | 0.59 | 10.6 | 0.0001 | 0.0000 | 0.0004 | 0.0000 | 0.0000 | 0.0000 | 1.0 | 0.00000 |
| 2031 | A04 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 9.6 | 0.0028 | 0.0006 | 0.0099 | 0.0000 | 0.0005 | 0.0005 | 1.8 | 0.00004 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | A04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 7,740.8 | 0.1261 | 0.0366 | 0.4823 | 0.0043 | 0.0305 | 0.0296 | 1,471.0 | 0.00183 |
| 2031 | A04 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 1,931.0 | 0.0370 | 0.0086 | 0.1050 | 0.0002 | 0.0081 | 0.0079 | 78.0 | 0.00058 |
| 2031 | A04 | Pavers | 100 < hp <= 175 | 0.59 | 30.5 | 0.0004 | 0.0001 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 1.7 | 0.00000 |
| 2031 | A04 | Pumps | 6 < hp <= 11 | 0.43 | 8.8 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2031 | A04 | Rollers | 75 < hp <= 100 | 0.59 | 123.4 | 0.0021 | 0.0002 | 0.0084 | 0.0000 | 0.0003 | 0.0003 | 4.3 | 0.00001 |
| 2031 | A04 | Scrapers | 300 < hp <= 600 | 0.59 | 38.1 | 0.0031 | 0.0005 | 0.0084 | 0.0000 | 0.0005 | 0.0005 | 7.2 | 0.00003 |
| 2031 | A04 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 27.3 | 0.0034 | 0.0006 | 0.0029 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2031 | A04 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 30.5 | 0.0007 | 0.0002 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2031 | A04 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 120.4 | 0.0225 | 0.0068 | 0.0394 | 0.0000 | 0.0047 | 0.0045 | 7.8 | 0.00038 |
| 2031 | A04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 58.5 | 0.0054 | 0.0009 | 0.0049 | 0.0000 | 0.0007 | 0.0007 | 0.9 | 0.00004 |
| 2031 | H04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2031 | H04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2031 | H04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2031 | H04 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2031 | H04 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2031 | H04 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2031 | H04 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2031 | H04 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2031 | H04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | H04 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2031 | H04 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2031 | H04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2031 | H05 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2031 | H05 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2031 | H05 | Air Compressors | 75 < hp <= 100 | 0.43 | 27.1 | 0.0006 | 0.0001 | 0.0018 | 0.0000 | 0.0001 | 0.0001 | 0.7 | 0.00000 |
| 2031 | H05 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2031 | H05 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 21.6 | 0.0013 | 0.0002 | 0.0028 | 0.0000 | 0.0002 | 0.0002 | 0.5 | 0.00001 |
| 2031 | H05 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 27.1 | 0.0002 | 0.0001 | 0.0018 | 0.0000 | 0.0000 | 0.0000 | 0.4 | 0.00001 |
| 2031 | H05 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 21.6 | 0.0005 | 0.0002 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2031 | H05 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2031 | H05 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 151.8 | 0.0017 | 0.0003 | 0.0048 | 0.0000 | 0.0004 | 0.0004 | 8.4 | 0.00002 |
| 2031 | H05 | Excavators | 100 < hp <= 175 | 0.59 | 201.8 | 0.0018 | 0.0003 | 0.0059 | 0.0000 | 0.0004 | 0.0004 | 11.2 | 0.00002 |
| 2031 | H05 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2031 | H05 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2031 | H05 | Graders | 175 < hp <= 300 | 0.59 | 8.8 | 0.0001 | 0.0000 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2031 | H05 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 7.9 | 0.0023 | 0.0005 | 0.0082 | 0.0000 | 0.0004 | 0.0004 | 1.5 | 0.00003 |
| 2031 | H05 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2031 | H05 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 10,467.7 | 0.1705 | 0.0495 | 0.6522 | 0.0058 | 0.0413 | 0.0400 | 1,989.1 | 0.00248 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | H05 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 301.2 | 0.0058 | 0.0013 | 0.0164 | 0.0000 | 0.0013 | 0.0012 | 12.2 | 0.00009 |
| 2031 | H05 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2031 | H05 | Pavers | 100 < hp <= 175 | 0.59 | 27.1 | 0.0004 | 0.0001 | 0.0009 | 0.0000 | 0.0001 | 0.0001 | 1.5 | 0.00000 |
| 2031 | H05 | Pumps | 6 < hp <= 11 | 0.43 | 247.2 | 0.0033 | 0.0011 | 0.0055 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2031 | H05 | Rollers | 75 < hp <= 100 | 0.59 | 88.0 | 0.0015 | 0.0001 | 0.0060 | 0.0000 | 0.0002 | 0.0002 | 3.1 | 0.00001 |
| 2031 | H05 | Scrapers | 300 < hp <= 600 | 0.59 | 33.8 | 0.0028 | 0.0004 | 0.0075 | 0.0000 | 0.0004 | 0.0004 | 6.4 | 0.00003 |
| 2031 | H05 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 28.2 | 0.0035 | 0.0007 | 0.0029 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2031 | H05 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 27.1 | 0.0007 | 0.0002 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2031 | H05 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 58.1 | 0.0109 | 0.0033 | 0.0190 | 0.0000 | 0.0023 | 0.0022 | 3.8 | 0.00018 |
| 2031 | H05 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 523.5 | 0.0479 | 0.0083 | 0.0438 | 0.0000 | 0.0064 | 0.0062 | 7.6 | 0.00038 |
| 2031 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2031 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2031 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2031 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2031 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2031 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2031 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2031 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2031 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2031 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2031 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2031 | L07 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 400.8 | 0.0652 | 0.0103 | 0.0707 | 0.0001 | 0.0083 | 0.0080 | 16.4 | 0.00048 |
| 2031 | L07 | Bore/Drill Rigs | 100 < hp <= 175 | 0.43 | 120.0 | 0.0114 | 0.0038 | 0.0447 | 0.0000 | 0.0026 | 0.0025 | 4.8 | 0.00020 |
| 2031 | L07 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 660.0 | 0.3154 | 0.0674 | 1.1890 | 0.0005 | 0.0432 | 0.0419 | 123.9 | 0.00317 |
| 2031 | L07 | Cranes | 175 < hp <= 300 | 0.43 | 600.0 | 0.0060 | 0.0021 | 0.0253 | 0.0001 | 0.0014 | 0.0013 | 41.1 | 0.00012 |
| 2031 | L07 | Excavators | 100 < hp <= 175 | 0.59 | 160.8 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2031 | L07 | Forklifts | 75 < hp <= 100 | 0.59 | 801.6 | 0.0027 | 0.0004 | 0.0447 | 0.0001 | 0.0006 | 0.0006 | 28.2 | 0.00003 |
| 2031 | L07 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 160.8 | 0.0005 | 0.0002 | 0.0026 | 0.0000 | 0.0002 | 0.0001 | 11.1 | 0.00001 |
| 2031 | L07 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 1,536.0 | 0.0250 | 0.0073 | 0.0957 | 0.0009 | 0.0061 | 0.0059 | 291.9 | 0.00036 |
| 2031 | L07 | Pavers | 100 < hp <= 175 | 0.59 | 79.2 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2031 | L07 | Pumps | 6 < hp <= 11 | 0.43 | 450.0 | 0.0061 | 0.0019 | 0.0099 | 0.0000 | 0.0006 | 0.0006 | 1.3 | 0.00015 |
| 2031 | L07 | Rubber Tire Loaders | 75 < hp <= 100 | 0.21 | 79.2 | 0.0005 | 0.0000 | 0.0019 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00000 |
| 2031 | L07 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 679.2 | 0.0621 | 0.0108 | 0.0568 | 0.0000 | 0.0083 | 0.0080 | 9.9 | 0.00049 |
| 2031 | L07 | Trenchers | 50 < hp <= 75 | 0.59 | 319.2 | 0.0111 | 0.0017 | 0.0445 | 0.0000 | 0.0013 | 0.0013 | 8.4 | 0.00017 |
| 2031 | S01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 16.0 | 0.0026 | 0.0004 | 0.0028 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00002 |
| 2031 | S01 | Air Compressors | 100 < hp <= 175 | 0.43 | 24.0 | 0.0004 | 0.0001 | 0.0015 | 0.0000 | 0.0001 | 0.0001 | 1.0 | 0.00001 |
| 2031 | S01 | Air Compressors | 75 < hp <= 100 | 0.43 | 15.8 | 0.0003 | 0.0000 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.4 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | S01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 24.0 | 0.0115 | 0.0024 | 0.0432 | 0.0000 | 0.0016 | 0.0015 | 4.5 | 0.00012 |
| 2031 | S01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 37.2 | 0.0022 | 0.0004 | 0.0048 | 0.0000 | 0.0004 | 0.0004 | 0.9 | 0.00002 |
| 2031 | S01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 15.8 | 0.0001 | 0.0000 | 0.0011 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2031 | S01 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 37.2 | 0.0008 | 0.0003 | 0.0013 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00002 |
| 2031 | S01 | Cranes | 175 < hp <= 300 | 0.43 | 19.0 | 0.0002 | 0.0001 | 0.0008 | 0.0000 | 0.0000 | 0.0000 | 1.3 | 0.00000 |
| 2031 | S01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 508.0 | 0.0056 | 0.0009 | 0.0159 | 0.0001 | 0.0014 | 0.0014 | 28.2 | 0.00006 |
| 2031 | S01 | Excavators | 100 < hp <= 175 | 0.59 | 232.9 | 0.0021 | 0.0003 | 0.0069 | 0.0000 | 0.0005 | 0.0005 | 12.9 | 0.00002 |
| 2031 | S01 | Forklifts | 75 < hp <= 100 | 0.59 | 24.0 | 0.0001 | 0.0000 | 0.0013 | 0.0000 | 0.0000 | 0.0000 | 0.8 | 0.00000 |
| 2031 | S01 | Generator Sets | 25 < hp <= 40 | 0.43 | 30.0 | 0.0004 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2031 | S01 | Graders | 175 < hp <= 300 | 0.59 | 5.4 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2031 | S01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.8 | 0.0014 | 0.0003 | 0.0050 | 0.0000 | 0.0002 | 0.0002 | 0.9 | 0.00002 |
| 2031 | S01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 4,815.9 | 0.0784 | 0.0228 | 0.3001 | 0.0027 | 0.0190 | 0.0184 | 915.1 | 0.00114 |
| 2031 | S01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 191.3 | 0.0037 | 0.0009 | 0.0104 | 0.0000 | 0.0008 | 0.0008 | 7.7 | 0.00006 |
| 2031 | S01 | Pavers | 100 < hp <= 175 | 0.59 | 21.7 | 0.0003 | 0.0000 | 0.0007 | 0.0000 | 0.0001 | 0.0001 | 1.2 | 0.00000 |
| 2031 | S01 | Paving Equipment | 100 < hp <= 175 | 0.59 | 16.0 | 0.0004 | 0.0001 | 0.0011 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00001 |
| 2031 | S01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 16.0 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2031 | S01 | Pumps | 6 < hp <= 11 | 0.43 | 4.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2031 | S01 | Rollers | 75 < hp <= 100 | 0.59 | 275.6 | 0.0048 | 0.0004 | 0.0189 | 0.0000 | 0.0007 | 0.0007 | 9.7 | 0.00003 |
| 2031 | S01 | Scrapers | 300 < hp <= 600 | 0.59 | 158.2 | 0.0129 | 0.0021 | 0.0348 | 0.0001 | 0.0021 | 0.0020 | 30.1 | 0.00013 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | S01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 28.9 | 0.0036 | 0.0007 | 0.0030 | 0.0000 | 0.0005 | 0.0005 | 0.3 | 0.00002 |
| 2031 | S01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 23.4 | 0.0006 | 0.0001 | 0.0014 | 0.0000 | 0.0001 | 0.0001 | 0.2 | 0.00001 |
| 2031 | S01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 24.0 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.6 | 0.00001 |
| 2031 | S01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 89.5 | 0.0167 | 0.0050 | 0.0293 | 0.0000 | 0.0035 | 0.0034 | 5.8 | 0.00028 |
| 2031 | S01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 84.0 | 0.0058 | 0.0010 | 0.0064 | 0.0000 | 0.0008 | 0.0007 | 0.9 | 0.00005 |
| 2031 | S01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 147.3 | 0.0135 | 0.0023 | 0.0123 | 0.0000 | 0.0018 | 0.0017 | 2.1 | 0.00011 |
| 2031 | T01 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2031 | T01 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2031 | T01 | Air Compressors | 75 < hp <= 100 | 0.43 | 51.8 | 0.0011 | 0.0001 | 0.0034 | 0.0000 | 0.0002 | 0.0002 | 1.3 | 0.00001 |
| 2031 | T01 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 804.0 | 0.3843 | 0.0821 | 1.4484 | 0.0006 | 0.0526 | 0.0510 | 150.9 | 0.00387 |
| 2031 | T01 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 82.0 | 0.0926 | 0.0214 | 0.0005 | 0.0000 | 0.0034 | 0.0031 | 0.2 | 0.00000 |
| 2031 | T01 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 82.0 | 0.0048 | 0.0009 | 0.0106 | 0.0000 | 0.0008 | 0.0008 | 2.1 | 0.00004 |
| 2031 | T01 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 51.8 | 0.0004 | 0.0001 | 0.0034 | 0.0000 | 0.0000 | 0.0000 | 0.7 | 0.00002 |
| 2031 | T01 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2031 | T01 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 412.7 | 0.0046 | 0.0007 | 0.0130 | 0.0001 | 0.0011 | 0.0011 | 22.9 | 0.00005 |
| 2031 | T01 | Excavators | 100 < hp <= 175 | 0.59 | 558.8 | 0.0049 | 0.0008 | 0.0165 | 0.0001 | 0.0012 | 0.0011 | 31.0 | 0.00006 |
| 2031 | T01 | Forklifts | 75 < hp <= 100 | 0.59 | 3,700.0 | 0.0125 | 0.0018 | 0.2062 | 0.0004 | 0.0029 | 0.0028 | 130.1 | 0.00012 |
| 2031 | T01 | Generator Sets | 25 < hp <= 40 | 0.43 | 301.0 | 0.0039 | 0.0011 | 0.0175 | 0.0000 | 0.0006 | 0.0006 | 3.1 | 0.00009 |
| 2031 | T01 | Graders | 175 < hp <= 300 | 0.59 | 16.9 | 0.0002 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 1.6 | 0.00000 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | T01 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2031 | T01 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 15.2 | 0.0044 | 0.0009 | 0.0158 | 0.0000 | 0.0007 | 0.0007 | 2.9 | 0.00006 |
| 2031 | T01 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2031 | T01 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 12,536.6 | 0.2042 | 0.0593 | 0.7811 | 0.0070 | 0.0494 | 0.0480 | 2,382.3 | 0.00297 |
| 2031 | T01 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 516.6 | 0.0099 | 0.0023 | 0.0281 | 0.0001 | 0.0022 | 0.0021 | 20.9 | 0.00015 |
| 2031 | T01 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2031 | T01 | Pavers | 100 < hp <= 175 | 0.59 | 51.8 | 0.0008 | 0.0001 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 2.9 | 0.00001 |
| 2031 | T01 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2031 | T01 | Pumps | 6 < hp <= 11 | 0.43 | 254.0 | 0.0034 | 0.0011 | 0.0056 | 0.0000 | 0.0004 | 0.0003 | 0.7 | 0.00008 |
| 2031 | T01 | Rollers | 75 < hp <= 100 | 0.59 | 194.3 | 0.0033 | 0.0003 | 0.0133 | 0.0000 | 0.0005 | 0.0005 | 6.8 | 0.00002 |
| 2031 | T01 | Scrapers | 300 < hp <= 600 | 0.59 | 64.8 | 0.0053 | 0.0008 | 0.0143 | 0.0000 | 0.0009 | 0.0008 | 12.3 | 0.00005 |
| 2031 | T01 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 15.9 | 0.0020 | 0.0004 | 0.0017 | 0.0000 | 0.0003 | 0.0003 | 0.2 | 0.00001 |
| 2031 | T01 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 51.8 | 0.0013 | 0.0003 | 0.0032 | 0.0000 | 0.0001 | 0.0001 | 0.5 | 0.00002 |
| 2031 | T01 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2031 | T01 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2031 | T01 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 129.1 | 0.0241 | 0.0073 | 0.0423 | 0.0000 | 0.0050 | 0.0049 | 8.3 | 0.00041 |
| 2031 | T01 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 466.1 | 0.0324 | 0.0057 | 0.0353 | 0.0000 | 0.0043 | 0.0041 | 5.1 | 0.00028 |
| 2031 | T01 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 757.5 | 0.0693 | 0.0120 | 0.0634 | 0.0000 | 0.0092 | 0.0089 | 11.0 | 0.00055 |
| 2031 | T02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | T02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |
| 2031 | T02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2031 | T02 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 40.0 | 0.0452 | 0.0104 | 0.0003 | 0.0000 | 0.0017 | 0.0015 | 0.1 | 0.00000 |
| 2031 | T02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2031 | T02 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2031 | T02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 140.6 | 0.0016 | 0.0002 | 0.0044 | 0.0000 | 0.0004 | 0.0004 | 7.8 | 0.00002 |
| 2031 | T02 | Excavators | 100 < hp <= 175 | 0.59 | 276.6 | 0.0024 | 0.0004 | 0.0082 | 0.0000 | 0.0006 | 0.0006 | 15.3 | 0.00003 |
| 2031 | T02 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |
| 2031 | T02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2031 | T02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |
| 2031 | T02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2031 | T02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 8,121.1 | 0.1322 | 0.0384 | 0.5060 | 0.0045 | 0.0320 | 0.0311 | 1,543.2 | 0.00192 |
| 2031 | T02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |
| 2031 | T02 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2031 | T02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2031 | T02 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2031 | T02 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2031 | T02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2031 | T02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2031 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.21 | 80.0 | 0.0030 | 0.0009 | 0.0053 | 0.0000 | 0.0006 | 0.0006 | 1.1 | 0.00005 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2031 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |
| 2031 | T02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2031 | T02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2031 | T02 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |
| 2032 | A04 | Air Compressors | 75 < hp <= 100 | 0.43 | 15.4 | 0.0003 | 0.0000 | 0.0010 | 0.0000 | 0.0001 | 0.0001 | 0.4 | 0.00000 |
| 2032 | A04 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 13.2 | 0.0008 | 0.0001 | 0.0017 | 0.0000 | 0.0001 | 0.0001 | 0.3 | 0.00001 |
| 2032 | A04 | Concrete/Industrial Saws | 25 < hp <= 40 | 0.59 | 15.4 | 0.0001 | 0.0000 | 0.0010 | 0.0000 | 0.0000 | 0.0000 | 0.2 | 0.00000 |
| 2032 | A04 | Concrete/Industrial Saws | 6 < hp <= 11 | 0.7 | 13.2 | 0.0003 | 0.0001 | 0.0005 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2032 | A04 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 99.7 | 0.0011 | 0.0002 | 0.0031 | 0.0000 | 0.0003 | 0.0003 | 5.5 | 0.00001 |
| 2032 | A04 | Excavators | 100 < hp <= 175 | 0.59 | 247.1 | 0.0022 | 0.0003 | 0.0073 | 0.0000 | 0.0005 | 0.0005 | 13.7 | 0.00002 |
| 2032 | A04 | Graders | 175 < hp <= 300 | 0.59 | 5.4 | 0.0001 | 0.0000 | 0.0002 | 0.0000 | 0.0000 | 0.0000 | 0.5 | 0.00000 |
| 2032 | A04 | Irrigation Sets | 300 < hp <= 600 | 0.59 | 4.9 | 0.0014 | 0.0003 | 0.0051 | 0.0000 | 0.0002 | 0.0002 | 0.9 | 0.00002 |
| 2032 | A04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 3,870.3 | 0.0630 | 0.0183 | 0.2411 | 0.0021 | 0.0153 | 0.0148 | 735.5 | 0.00092 |
| 2032 | A04 | Other Construction Equipment | 100 < hp <= 175 | 0.43 | 964.0 | 0.0185 | 0.0043 | 0.0524 | 0.0001 | 0.0040 | 0.0039 | 38.9 | 0.00029 |
| 2032 | A04 | Pavers | 100 < hp <= 175 | 0.59 | 15.4 | 0.0002 | 0.0000 | 0.0005 | 0.0000 | 0.0001 | 0.0001 | 0.9 | 0.00000 |
| 2032 | A04 | Pumps | 6 < hp <= 11 | 0.43 | 4.4 | 0.0001 | 0.0000 | 0.0001 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2032 | A04 | Rollers | 75 < hp <= 100 | 0.59 | 62.6 | 0.0011 | 0.0001 | 0.0043 | 0.0000 | 0.0002 | 0.0002 | 2.2 | 0.00001 |
| 2032 | A04 | Scrapers | 300 < hp <= 600 | 0.59 | 19.2 | 0.0016 | 0.0003 | 0.0042 | 0.0000 | 0.0003 | 0.0002 | 3.7 | 0.00002 |
| 2032 | A04 | Skid Steer Loaders | 50 < hp <= 75 | 0.21 | 16.9 | 0.0021 | 0.0004 | 0.0018 | 0.0000 | 0.0003 | 0.0003 | 0.2 | 0.00001 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2032 | A04 | Surfacing Equipment | 16 < hp <= 25 | 0.59 | 15.4 | 0.0004 | 0.0001 | 0.0009 | 0.0000 | 0.0000 | 0.0000 | 0.1 | 0.00001 |
| 2032 | A04 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 64.2 | 0.0120 | 0.0036 | 0.0210 | 0.0000 | 0.0025 | 0.0024 | 4.1 | 0.00020 |
| 2032 | A04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 32.7 | 0.0030 | 0.0005 | 0.0027 | 0.0000 | 0.0004 | 0.0004 | 0.5 | 0.00002 |
| 2032 | H04 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2032 | H04 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2032 | H04 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2032 | H04 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |
| 2032 | H04 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2032 | H04 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2032 | H04 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2032 | H04 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2032 | H04 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2032 | H04 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2032 | H04 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2032 | H04 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2032 | L02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 4,920.0 | 0.1875 | 0.0357 | 0.3120 | 0.0002 | 0.0222 | 0.0216 | 53.8 | 0.00194 |
| 2032 | L02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 960.0 | 0.1561 | 0.0247 | 0.1694 | 0.0001 | 0.0198 | 0.0192 | 39.4 | 0.00115 |
| 2032 | L02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 780.0 | 0.3728 | 0.0796 | 1.4052 | 0.0006 | 0.0510 | 0.0495 | 146.4 | 0.00375 |
| 2032 | L02 | Cranes | 175 < hp <= 300 | 0.43 | 240.0 | 0.0024 | 0.0008 | 0.0101 | 0.0000 | 0.0006 | 0.0005 | 16.4 | 0.00005 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2032 | L02 | Excavators | 100 < hp <= 175 | 0.59 | 160.0 | 0.0014 | 0.0002 | 0.0047 | 0.0000 | 0.0003 | 0.0003 | 8.9 | 0.00002 |
| 2032 | L02 | Forklifts | 75 < hp <= 100 | 0.59 | 3,560.0 | 0.0120 | 0.0018 | 0.1984 | 0.0004 | 0.0028 | 0.0027 | 125.2 | 0.00012 |
| 2032 | L02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2032 | L02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2032 | L02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 6,474.0 | 0.1054 | 0.0306 | 0.4034 | 0.0036 | 0.0255 | 0.0248 | 1,230.2 | 0.00153 |
| 2032 | L02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 40.0 | 0.0156 | 0.0021 | 0.0358 | 0.0000 | 0.0023 | 0.0022 | 7.6 | 0.00012 |
| 2032 | L02 | Pumps | 6 < hp <= 11 | 0.43 | 240.0 | 0.0032 | 0.0010 | 0.0053 | 0.0000 | 0.0003 | 0.0003 | 0.7 | 0.00008 |
| 2032 | L02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 480.0 | 0.0439 | 0.0076 | 0.0402 | 0.0000 | 0.0058 | 0.0057 | 7.0 | 0.00035 |
| 2032 | T02 | Aerial Lifts | 50 < hp <= 75 | 0.21 | 5,040.0 | 0.1920 | 0.0366 | 0.3196 | 0.0002 | 0.0228 | 0.0221 | 55.2 | 0.00198 |
| 2032 | T02 | Aerial Lifts | 75 < hp <= 100 | 0.59 | 1,200.0 | 0.1951 | 0.0308 | 0.2118 | 0.0002 | 0.0247 | 0.0240 | 49.2 | 0.00144 |
| 2032 | T02 | Cement & Mortar Mixers | 300 < hp <= 600 | 0.59 | 1,164.0 | 0.5563 | 0.1188 | 2.0970 | 0.0009 | 0.0762 | 0.0739 | 218.5 | 0.00560 |
| 2032 | T02 | Chain Saws > 6 HP | 6 < hp <= 11 | 0.7 | 40.0 | 0.0452 | 0.0104 | 0.0003 | 0.0000 | 0.0017 | 0.0015 | 0.1 | 0.00000 |
| 2032 | T02 | Chippers/Stump Grinders (com) | 75 < hp <= 100 | 0.43 | 40.0 | 0.0023 | 0.0004 | 0.0052 | 0.0000 | 0.0004 | 0.0004 | 1.0 | 0.00002 |
| 2032 | T02 | Cranes | 175 < hp <= 300 | 0.43 | 524.0 | 0.0052 | 0.0018 | 0.0221 | 0.0001 | 0.0012 | 0.0012 | 35.9 | 0.00011 |
| 2032 | T02 | Crawler Tractor/Dozers | 100 < hp <= 175 | 0.59 | 110.6 | 0.0012 | 0.0002 | 0.0035 | 0.0000 | 0.0003 | 0.0003 | 6.1 | 0.00001 |
| 2032 | T02 | Excavators | 100 < hp <= 175 | 0.59 | 246.6 | 0.0022 | 0.0003 | 0.0073 | 0.0000 | 0.0005 | 0.0005 | 13.7 | 0.00002 |
| 2032 | T02 | Forklifts | 75 < hp <= 100 | 0.59 | 4,444.0 | 0.0150 | 0.0022 | 0.2477 | 0.0005 | 0.0035 | 0.0034 | 156.3 | 0.00014 |
| 2032 | T02 | Generator Sets | 25 < hp <= 40 | 0.43 | 80.0 | 0.0010 | 0.0003 | 0.0047 | 0.0000 | 0.0002 | 0.0002 | 0.8 | 0.00002 |
| 2032 | T02 | Graders | 40 < hp <= 50 | 0.59 | 40.0 | 0.0003 | 0.0001 | 0.0026 | 0.0000 | 0.0000 | 0.0000 | 0.6 | 0.00001 |

## TABLE 6-6: NON-ROAD CONSTRUCTION EMISSIONS INVENTORY – HYBRID TERMINAL OPTION *(CONTINUED)*

| Year | Task ID | Equipment Type | HP | LF | Usage (hrs) | CO (ST) | VOC (ST) | $NO_x$ (ST) | $SO_x$ (ST) | $PM_{10}$ (ST) | $PM_{2.5}$ (ST) | $CO_2$ (MT) | $CH_4$ (MT) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2032 | T02 | Off-highway Trucks | 175 < hp <= 300 | 0.43 | 920.0 | 0.0027 | 0.0013 | 0.0150 | 0.0002 | 0.0009 | 0.0009 | 63.7 | 0.00005 |
| 2032 | T02 | Off-highway Trucks | 300 < hp <= 600 | 0.59 | 8,061.3 | 0.1313 | 0.0381 | 0.5023 | 0.0045 | 0.0318 | 0.0308 | 1,531.8 | 0.00191 |
| 2032 | T02 | Other Construction Equipment | 300 < hp <= 600 | 0.59 | 72.0 | 0.0280 | 0.0038 | 0.0644 | 0.0000 | 0.0042 | 0.0040 | 13.7 | 0.00021 |
| 2032 | T02 | Pavers | 100 < hp <= 175 | 0.59 | 80.0 | 0.0012 | 0.0002 | 0.0027 | 0.0000 | 0.0003 | 0.0003 | 4.4 | 0.00001 |
| 2032 | T02 | Plate Compactors | 3 < hp <= 6 | 0.43 | 24.0 | 0.0002 | 0.0001 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0 | 0.00000 |
| 2032 | T02 | Pumps | 6 < hp <= 11 | 0.43 | 610.0 | 0.0082 | 0.0026 | 0.0135 | 0.0000 | 0.0008 | 0.0008 | 1.7 | 0.00020 |
| 2032 | T02 | Rollers | 75 < hp <= 100 | 0.59 | 40.0 | 0.0007 | 0.0001 | 0.0027 | 0.0000 | 0.0001 | 0.0001 | 1.4 | 0.00000 |
| 2032 | T02 | Surfacing Equipment | 300 < hp <= 600 | 0.59 | 16.0 | 0.0086 | 0.0012 | 0.0200 | 0.0000 | 0.0012 | 0.0012 | 3.0 | 0.00006 |
| 2032 | T02 | Surfacing Equipment | 75 < hp <= 100 | 0.43 | 40.0 | 0.0014 | 0.0002 | 0.0029 | 0.0000 | 0.0002 | 0.0002 | 1.0 | 0.00001 |
| 2032 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.21 | 80.0 | 0.0030 | 0.0009 | 0.0053 | 0.0000 | 0.0006 | 0.0006 | 1.1 | 0.00005 |
| 2032 | T02 | Tractors/Loaders/ Backhoes | 100 < hp <= 175 | 0.59 | 40.0 | 0.0075 | 0.0023 | 0.0131 | 0.0000 | 0.0016 | 0.0015 | 2.6 | 0.00013 |
| 2032 | T02 | Tractors/Loaders/ Backhoes | 50 < hp <= 75 | 0.21 | 24.0 | 0.0017 | 0.0003 | 0.0018 | 0.0000 | 0.0002 | 0.0002 | 0.3 | 0.00001 |
| 2032 | T02 | Tractors/Loaders/ Backhoes | 75 < hp <= 100 | 0.21 | 1,280.0 | 0.1171 | 0.0203 | 0.1071 | 0.0001 | 0.0156 | 0.0151 | 18.7 | 0.00092 |
| 2032 | T02 | Trenchers | 50 < hp <= 75 | 0.59 | 400.0 | 0.0139 | 0.0022 | 0.0558 | 0.0000 | 0.0016 | 0.0016 | 10.5 | 0.00021 |

Note: HP denotes horsepower; LF denotes load factor; hrs denotes hours; ST denotes short tons; MT denotes metric tons; CO denotes carbon monoxide, $NO_x$ denotes nitrogen oxides, $SO_x$ denotes sulfur oxides, VOC denotes volatile organic compounds, $PM_{2.5}$ denotes fine particulate matter, $PM_{10}$ denotes coarse particulate matter, $CO_2$ denotes carbon dioxide, $CH_4$ denotes methane, $N_2O$ denotes nitrous oxide.
Source: MOVES 4, Landrum & Brown 2024

# Attachment 7 NEPA Air Quality Protocol and NEPA Climate Protocol

This attachment contains the NEPA Air Quality Protocol and NEPA Climate Protocol.

# memorandum

Landrum & Brown, Incorporated
4445 Lake Forest Dr. Suite 700
Cincinnati, Ohio 45242
513.530.5333

| | |
|---|---|
| **Project:** | SEA SAMP Environmental Review |
| **Subject:** | Air Quality and Climate Assessment |
| **From:** | Landrum & Brown, Inc. |
| **Date:** | February 16, 2024 |

The approved NEPA Air Quality Assessment Protocol and NEPA Climate Assessment Protocol for the SEA SAMP Environmental Review assumed the use of the Federal Aviation Administration's Aviation Environmental Design Tool (AEDT) Version 3e and the Environmental Protection Agency's Motor Vehicle Emission Simulator Version 3 (MOVES3). The AEDT Version 3e was proposed for use to estimate airport-related emission sources, including aircraft, auxiliary power unit, ground support equipment, and stationary sources. The, the MOVES3 was proposed for use to estimate emissions from motor vehicles and construction equipment.

On September 12, 2023, the updated version MOVES4 was released; additionally, on December 13, 2023, AEDT Version 3f was released. For the purpose of the SEA SAMP Environmental Review air quality and climate assessment, the decision was made to update the modeling with MOVES4 and AEDT Version 3f.

# National Environmental Policy Act Environmental Assessment

## Air Quality Assessment Protocol

## Seattle-Tacoma International Airport

**August 2023**

PREPARED FOR
Port of Seattle

Contents Page

## List of Tables



## List of Exhibits

# 1 Protocol for Air Quality Assessment (NEPA)

The National Environmental Policy Act (NEPA) provides for an environmental review process to disclose the potential impacts, including air quality, from a proposed federal action on the human environment.

## 1.1 Purpose of this Document

This document describes the overall approach and methods to conduct an air quality assessment to demonstrate compliance to the NEPA.

The Port of Seattle, as the owner and operator of the Seattle-Tacoma International Airport (SEA or Airport), evaluated airport operations and facilities during the Sustainable Airport Master Plan (SAMP) planning process and identified a set of Near-Term Projects (NTPs) designed to help the Airport maintain its essential airport function in the future. The NTPs (as a whole) are referred to as the Proposed Action in this document.

The NEPA documentation will be prepared to investigate, analyze, and disclose the potential environmental impacts of the Proposed Action and the reasonable alternatives in compliance with the NEPA.

## 1.2 Agency Coordination

The Port of Seattle and the FAA have coordinated with PSCAA in the past on an earlier version of this protocol document, which received concurrence from PSCAA in June 2020. In coordination with the FAA, this air quality protocol document has been updated to reflect updated analysis years, an updated methodology for air quality, and the use of newer software. The climate discussion will be included in a separate protocol document with respect to updated guidance from the Council on Environmental Quality. It is intended that this air quality protocol document be coordinated with Puget Sound Clean Air Agency in an effort to:

- Familiarize the agency with the scope of the Proposed Action and identify any issues of concern early in the process;
- Engage in data exchange of information necessary to complete the air quality assessment; and,
- Obtain concurrence on procedure and methodology prior to the publication of the anticipated NEPA Environmental Assessment (EA).

## 1.3 Description of the Proposed Action

The Port identified a set of NTPs to address the near-term activity levels projected to occur at the Airport. The NTPs include more than 30 projects that would improve efficiency, safety, access to the Airport, and support facilities for airlines and the Airport.

The NTPs include the following primary elements:

- Second terminal concourse
- New passenger terminal and parking
- North Airport Expressway relocation
- North hold pad
- Central hardstand
- Elevated busway and stations
- Second terminal roads and curbside
- Main Terminal north ground transportation lot
- North cargo hardstand
- Cargo 4 south redevelopment
- Cargo warehousing
- Runway 16R/34L blast pads
- Relocated Taxiways A and B
- Extension of Taxiways C and D
- Taxiway infrastructure reconfiguration (south of Taxiway O)
- Runway 34L highspeed exit
- Taxiway D extension
- Fuel farm expansion

The elements of the Proposed Action are shown on **Exhibit 1**.

## Exhibit 1 Proposed Action

## 1.4 Overall Approach (NEPA)

The impacts to air quality due to the Proposed Action for NEPA will be determined in accordance with the guidelines provided in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures;* FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*; and FAA's Aviation Emissions and Air Quality Handbook Version 3 Update 1. Potential air quality impacts are categories that are required to be analyzed per these orders and guidance.

FAA 1050.1F, Exhibit 4-1 defines the significance threshold for air quality as when "[t]he action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the United States Environmental Protection Agency (USEPA) under the Clean Air Act, for any of the time period analyzed, or to increase the frequency or severity of any such existing violations." FAA guidance requests that Air Quality focus on the NAAQS criteria pollutants.

### *1.4.1* Clean Air Act

The Clean Air Act (CAA), including the 1990 Amendments, provides the establishment of standards and programs to evaluate, achieve, and maintain acceptable air quality in the United States. Under the CAA, the USEPA established a set of standards, or criteria, for six pollutants determined to be potentially harmful to human health and welfare.[1]

The USEPA considers the presence of the following six criteria pollutants to be indicators of air quality:

- Carbon monoxide (CO);
- Ozone ($O_3$);
- Nitrogen dioxide ($NO_2$);
- Sulfur dioxide ($SO_2$).
- Particulate matter ($PM_{10}$ and $PM_{2.5}$); and,
- Lead (Pb).

For each of the criteria pollutants, the USEPA established primary standards intended to protect public health, and secondary standards for the protection of public welfare, which captures factors such as preventing materials damage, preventing crop and vegetation damage, and assuring good visibility. The NAAQS are summarized in **Table 1**. Areas of the country where air pollution levels consistently exceed these standards may be designated nonattainment by the USEPA.

[1] USEPA, Code of Federal Regulations, Title 40, Part 50 (40 CFR Part 50) National Primary and Secondary Ambient Air Quality Standards (NAAQS), July 2011.

**Table 1 National Ambient Air Quality Standards**

| POLLUTANT | PRIMARY/ SECONDARY | AVERAGING TIME | LEVEL | FORM OF MEASUREMENT |
|---|---|---|---|---|
| Carbon Monoxide | Primary | 8 hour | 9 ppm | Not to be exceeded more than once per year |
| Carbon Monoxide | Primary | 1 hour | 35 ppm | Not to be exceeded more than once per year |
| Lead | primary and secondary | Rolling 3-month average | 0.15 µg/m3 (1) | Not to be exceeded |
| Nitrogen Dioxide | Primary | 1 hour | 100 ppb | 98$^{th}$ percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| Nitrogen Dioxide | primary and secondary | 1 year | 53 ppb (2) | Annual Mean |
| Ozone | primary and secondary | 8 hour | 0.070 ppm (3) | Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years |
| Fine Particulate Matter ($PM_{2.5}$) | Primary | 1 year | 12.0 µg/m$^3$ | Annual mean, averaged over 3 years |
| Fine Particulate Matter ($PM_{2.5}$) | Secondary | 1 year | 15.0 µg/m$^3$ | Annual mean, averaged over 3 years |
| Fine Particulate Matter ($PM_{2.5}$) | primary and secondary | 24 hour | 35 µg/m$^3$ | 98$^{th}$ percentile, averaged over 3 years |
| Coarse Particulate Matter ($PM_{10}$) | primary and secondary | 24 hour | 150 µg/m$^3$ | Not to be exceeded more than once per year on average over 3 years |
| Sulfur Dioxide | Primary | 1 hour | 75 ppb (4) | 99$^{th}$ percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| Sulfur Dioxide | Secondary | 3 hour | 0.5 ppm | Not to be exceeded more than once per year |

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

(2) The level of the annual NO2 standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O3 standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O3 standards.

(4) The previous SO2 standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO2 standards or is not meeting the requirements of a SIP call under the previous SO2 standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

Notes: ppm is parts per million; ppb is parts per billion, and µg/m3 is micrograms per cubic meter.

Source: EPA, https://www.epa.gov/criteria-air-pollutants/naaqs-table, Accessed December 2022.

A nonattainment area is a homogeneous geographical area (usually referred to as an air quality control region or airshed) that is in violation of one or more NAAQS and has been designated as nonattainment by the USEPA as provided for under the CAA. Each nonattainment area is required to have a State Implementation Plan (SIP), developed by the state that quantifies current conditions, projects future conditions through the date of prescribed attainment, and then identifies mitigation measures that are to be used to bring the area back into attainment.

A maintenance area describes the air quality designation of an area previously designated nonattainment by the USEPA and subsequently redesignated attainment after emissions are reduced. Such an area remains designated as maintenance for a period up to 20 years at which time the state can apply for redesignation to attainment, provided that the NAAQS were sufficiently maintained throughout the maintenance period.

### *1.4.2* King County Air Quality Status

SEA is located within King County, Washington, which is included in the Puget Sound Intrastate Air Quality Control Region. The area was previously designated maintenance for ozone under the 1-hour 1979 ozone standard; however, the 1-hour standard was revoked by USEPA effective June 15, 2005. The maintenance period for ozone ended on November 25, 2016.[2] The region is currently designated as in attainment for both the 2015 and 2008 8-hour ozone standard. The region is not subject to a maintenance plan for ozone, although ozone has been considered an important pollutant tracked by the state and local agencies.

In the past, King County was also designated as nonattainment for carbon monoxide (CO); however, on October 11, 1996, the USEPA determined the area had attained the standard and the region was redesignated to attainment of the 1971 standard. The maintenance period for CO ended on October 11, 2016.[3] Several areas within King County are classified as maintenance for the $PM_{10}$ (coarse particles) standard, including Kent, Duwamish and Tacoma. Neither the Proposed Action nor any part of the Airport is within any of these areas. Therefore, the Proposed Action will occur in an area considered in attainment for all criteria pollutants.

#### *1.4.2.1 Conformity*

**General Conformity**

The General Conformity Rule under the CAA is conducted in three phases, depending on the extent of the proposed Federal action: (1) applicability, (2) evaluation, and (3) determination. The applicability phase has two parts. The first part is to determine if the Proposed Action is located in a USEPA-designated nonattainment or maintenance area for one or more of the regulated criteria pollutants. If it is not, then the general conformity rule does not apply. Since the Proposed Action is not located in a USEPA-designated nonattainment or maintenance area for one or more of the regulated criteria pollutants, the general conformity rule does not apply.

**Transportation Conformity**

Transportation conformity does not apply to the Proposed Action because it does not include actions funded through U.S.C. Title 23 or the Federal Transit Act.

[2] State of Washington's Department of Ecology. Plans for Maintaining Air Quality. Website accessed December 2022 at https://ecology.wa.gov/Regulations-Permits/Plans-policies/State-implementation-plans/Maintenance-SIPs

[3] State of Washington's Department of Ecology. Plans for Maintaining Air Quality. Website accessed December 2022 at https://ecology.wa.gov/Regulations-Permits/Plans-policies/State-implementation-plans/Maintenance-SIPs

### *1.4.3* Lead

In general, an analysis of lead is limited to projects that emit significant quantities of the pollutant (i.e. lead smelters). While some active general aviation airports prepare lead emissions inventories due to the large quantity of leaded Avgas used, this is not warranted for SEA because the area is attainment for lead, Avgas fueling at SEA ceased in 2018, and because there are no development project elements in the Proposed Action that would affect or change Avgas-based aircraft.

### *1.4.4* Hazardous Air Pollutants (NEPA)

Per FAA guidance provided in the Aviation Emissions and Air Quality Handbook, a Hazardous Air Pollutants (HAPs) emissions inventory should be considered if the Proposed Action is considered “major” (e.g., new airport, new runway, major runway extension, new terminal or major terminal expansion or major construction activity); if the Proposed Action is located in a nonattainment or maintenance area; and/or if a criteria air pollutant emissions inventory is also prepared. A HAPs inventory analysis will not be conducted as part of the NEPA assessment because the Proposed Action is not located in a nonattainment or maintenance area.

### *1.4.5* Ultrafine Particles (NEPA)

UFPs are defined as particles with a diameter less than 0.1 micrometers ($PM_{0.1}$). The existing science is not fully mature, and the measurement and understanding of UFPs and their related health risks has not been clearly defined. Currently UFPs are not regulated by the USEPA or the state either through rate of emissions or concentrations (other than being a subset component of $PM_{2.5}$) and are therefore not typically considered in formal environmental assessments or reviews.

Furthermore, since UFPs are not specifically listed as a criteria pollutant, air toxic, or HAP, an analysis of UFPs will not be considered a requirement of NEPA or the CAA. Therefore, no analysis or discussion of UFPs will be included in the NEPA evaluation.

## 1.5 Prepare Emissions Inventories for Criteria Pollutants (NEPA)

An emissions inventory is a summary of the total pollutants generated by all active emissions sources that may be affected by the Proposed Action. The emissions inventory provides the total annual pollutant emissions as tons per year.

The elements of the Proposed Action would be anticipated to cause direct and indirect emissions from construction and operational activities. For NEPA purposes, construction refers to the process of building or putting in place the proposed airport improvements. Operational emissions refer to the emissions that are emitted once the proposed improvements are put in place and are operating.

Therefore, an air quality analysis incorporating separate evaluations will be conducted including:

- Preparation of an Aircraft Emissions Inventory including Auxiliary Power Unit (APU) emissions;
- Preparation of a Motor Vehicle and Ground Support Equipment Emissions Inventory;
- Preparation of a Stationary Source Emissions Inventory; and,
- Preparation of a Construction Emissions Inventory.

The emissions results for all inventories will be summed and will be provided in tabular form for each analysis year.

As previously stated, a separate climate protocol document will be developed. The methodology to evaluate impacts to climate due to the Proposed Action for NEPA will be developed in accordance with the guidelines provided in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*; FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*; FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*; and the CEQ's *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change*.

### *1.5.1* Analysis Years

The air quality analysis will disclose emissions for existing conditions, which will represent calendar year 2022. The analysis will also disclose the emissions and potential air quality impacts due to operation of the Proposed Action, No Action, and any identified alternatives for the projected future conditions in 2032 and 2037. The year 2032 will be used as a basis for analysis because 2032 is the projected opening year of the Proposed Action. In addition, 2037 will be used as a basis for analysis, because it represents a condition five years beyond the opening year.[4] The air quality analysis will also disclose the potential air quality impacts due to construction activities during the years 2025 to 2032. Because the area of the Proposed Action is in attainment and conformity does not apply, no potential SIP milestone years will be analyzed.

The overall criteria pollutant assessment approach to prepare the emissions inventories is summarized in **Table 2**.

4 The FAA's Desk Reference Section 11.3 states "The environmental consequences section of the NEPA document will include the analysis of the potential noise impacts of the proposed action and alternative(s) for each timeframe evaluated… Timeframes usually selected are the year of anticipated project implementation and 5 to 10 years after implementation." The FAA's Desk Reference Section 1.3.2 for air quality states, "the emissions inventory usually is calculated for the year(s) of project implementation, the planning horizon year(s) in the EA or EIS, and sometimes for intermediate years, if appropriate due to project phasing or if requested by a reviewing agency." The air quality analysis would be conducted consistent with the noise analysis and therefore include an assessment of the implementation year and of the project five years after implementation.

**Table 2 NEPA Approach for Emissions Inventories**

| Emissions Source | Data / Conditions | Data Source | Models to be Used |
|---|---|---|---|
| Aircraft | Number of operations, Fleet Mix, and Engine Types | For existing conditions, FAA's Air Traffic Activity Data System and the Port's EnvironmentalVue Flight Track Monitoring System. For future conditions, Port aircraft statistics and forecast of operations. | FAA AEDT |
| Aircraft | Taxi Time and other Aircraft Times in Modes | For existing conditions, the Port of Seattle will use FAA's Aviation System Performance Metrics (ASPM). For future conditions, the Port of Seattle will use the delay analysis developed with the Total Airspace and Airport Modeler (TAAM) tool normalized to the ASPM data.[5] | FAA AEDT |
| Aircraft | Auxiliary Power Unit (APU) Operating Times | For existing and future conditions, the AEDT database will be used to assign the APU type and the Port of Seattle's Rules and Regulations will be used to assign APU usage. | FAA AEDT |
| Aircraft | Aircraft Run-Ups | For existing conditions, Port of Seattle records will be used. For the future conditions, usage would be based on the increases in aircraft levels. | FAA AEDT |

[5] Leigh Fisher. Environmental Review Airside Modeling, June 2020.

| Emissions Source | Data / Conditions | Data Source | Models to be Used |
|---|---|---|---|
| Ground Support Equipment (GSE) | GSE equipment types, Fuel types, and Operating Times | *Tenant-Owned*<br>For existing conditions, a GSE survey (i.e., field verification and Port of Seattle data) will be used to identify equipment types and usage. Usage for future conditions would be increased based on the increases in aircraft levels.<br>*Port-Owned*<br>Additionally, for existing conditions, Port-owned airfield vehicles and equipment usage would be obtained from the Port. Usage for future conditions would be adjusted based on the increases in aircraft levels. | FAA AEDT |
| Motor Vehicles | Number of vehicles by roadway segment, Vehicle Miles Travelled (VMTs) by vehicle type and average speed | *Off-Airport Roadways*<br>For existing and future conditions, information from the surface transportation study developed for the NEPA EA will be used. Where data is not being collected for roadway segments within the study area, WSDOT data will be utilized.<br>*On-Airport Roadways*<br>For existing conditions, Port of Seattle information on the number and types of airside delivery vehicles accessing the airfield through security gates. For future conditions, the increase would be based on the increase in passenger levels.<br>*Parking Facilities*<br>For existing conditions, information from the Port of Seattle would be used. For future conditions, the increase would be based on the increase in passenger levels and aircraft operations. | USEPA's MOVES3 |

| Emissions Source | Data / Conditions | Data Source | Models to be Used |
|---|---|---|---|
| Stationary Sources | Number, type, and usage for emergency generators, boilers, and fuel tanks, the usage of which may be affected by the Proposed Action | For existing conditions, Port of Seattle records will be used. For future conditions, estimates will be based on increases in aircraft and passenger levels and anticipated new facilities. | FAA AEDT and USEPA AP-42 and other regional Puget Sound Clean Air Agency guidance documents, spreadsheet calculations. |
| Construction Equipment | Number and type of vehicles, duration of use | Port of Seattle construction phasing schedule, ACEIT database for types and usage of construction equipment, MOVES3 emission factors for King County, WA. | ACEIT and USEPA's MOVES3 |

Source: Port of Seattle and L&B, 2022.

### *1.5.2* Aircraft Operational Emissions Inventory

The number and type of aircraft operations directly affect emissions. The emission inventory for aircraft operations will be developed using the AEDT model Version 3e. AEDT models aircraft performance in space and time to estimate fuel consumption, air quality emissions, and noise consequences at airports. Aircraft emissions depend partly on the physical characteristics and performance parameters of each unique aircraft type. These include the airframe type, the type and number of engines, takeoff weight, and approach angle.

In addition to the physical characteristics of the aircraft operating at the Airport, emissions further depend on the number of times that each aircraft type operates in the various modes that define a landing and takeoff cycle (LTO). An LTO consists of the approach, taxi in, startup, taxi out, takeoff, and climb out. In AEDT, these modes are reported as time below mixing height and climb below mixing height.

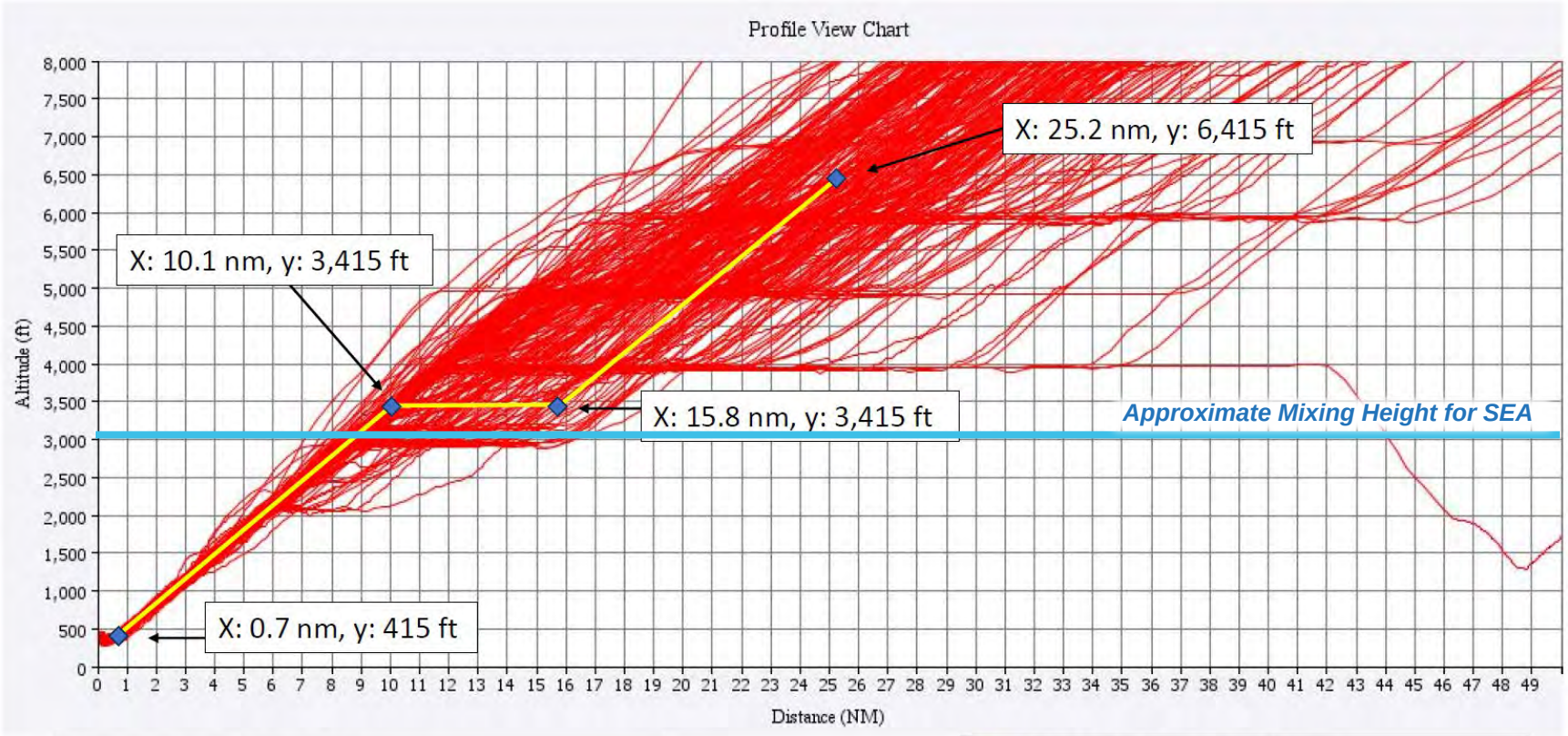
For the NEPA EA, emissions from aircraft will only be calculated when aircraft are operating in these modes within the atmospheric mixing layer, below the mixing height, where the emissions may influence ground-based pollutant concentrations. The mixing height, by definition, is the height below which emissions will be readily mixed to the surface in a time frame of a few minutes to an hour. Thus, the pollutants emitted within this mixing layer are the most important. The mixing height, combined with the angle of approach and the departure angle, determines the total time an aircraft operates in the mixing layer during approach and climb out, and thus potentially impacts human health. The mixing height used in this assessment will be defined as 3,084 feet in altitude above field elevation, which is the recommendation by the FAA based on the USPEA's *Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution Throughout the Contiguous United States*.[6]

Information on the number and type of aircraft operations for the existing conditions will be obtained from the Port of Seattle and by FAA's Air Traffic Activity Data System (ATADS) radar data. The radar data will be used to develop flight tracks in the AEDT. Additional data including aircraft types and engine combinations will then be researched and downloaded from the Port's EnvironmentalVue Flight Track Monitoring System. The assigning of aircraft engines will be based on the specific airframe and the operator. This information will be used to develop a representative aircraft fleet for input into the AEDT model. A review of radar data and the AEDT database confirmed the standard profiles included in AEDT are representative of actual aircraft performance (altitude, speed, thrust) at SEA. See **Exhibit 2** for an example of the comparison of an arrival aircraft altitude with the AEDT arrival standard profile conducted for the purpose of the NEPA EA.

With or without the Proposed Action, aircraft operations are expected to increase each year and by 2037, the number of annual aircraft operations will be higher as compared to the existing condition. Information on the number and type of aircraft operations for the future Proposed Action, No Action, and any identified alternatives will be based on the Port of Seattle's future aircraft activity forecasts and operational analysis. It is anticipated that the Proposed Action alternative will include a higher number of aircraft operations than the No Action alternative in both the 2032 and 2037 timeframes. The resulting emissions from these conditions will be disclosed as part of the analysis. Aircraft operational emissions inventories will be prepared for the existing condition, Proposed Action (2032 and 2037), No Action (2032 and 2037), and any identified alternatives. A qualitative discussion on the FAA's Continuous Lower Energy, Emissions, and Noise (CLEEN) Program and the Port of Seattle's sustainable fuel goals and how they could reduce future emissions will also be included.

[6] USEPA. Mixing Heights, Wind Speeds, and Potential for Urban Air Pollution Throughout the Contiguous United States, January 1972. Page 110. Seattle, Washington has a reported diurnal variation of mixing heights between 705 meters (2,313 feet) and 1,175 meters (3,855 feet), with the daily average being 940 meters (3,084 feet).

**Exhibit 2 Radar Data and AEDT Arrival Profile Comparison**



#### *1.5.2.1 Taxi Time and other Aircraft Times in Mode*

The Proposed Action includes various elements that would have the potential to change average aircraft taxi time (delay time) at the Airport. The average taxi in and taxi out time is dependent on the airfield configuration, annual operating levels, and available facilities. The average taxi in and taxi out time for the existing conditions will be based on the FAA's operations and performance data for SEA including Aviation System Performance Metrics (ASPM).

The average taxi in and taxi out time for the future conditions will be determined by delay modeling developed with the Total Airspace and Airport Modeler (TAAM) tool normalized to ASPM. This information will be provided by the Port of Seattle.[7]

#### *1.5.2.2 Aircraft Run-Ups*

Aircraft engine ground run-ups are routine aircraft engine maintenance tests performed to test engines and diagnose engine issues. Aircraft run-up activity logs will be provided by the Port of Seattle to determine the amount of run-up operations, the location of the run-up, average duration, and the associated airframe and engine in the existing conditions. Run-up activity in the future conditions will be based on the Port of Seattle's future aircraft activity forecasts and operational analysis.

### *1.5.3* Auxiliary Power Units Emissions Inventory

Most of the larger jet aircraft use auxiliary power units (APUs) while at the gate to operate the heating, air conditioning, and electric systems. The APU is also used to 'start up' or restart the aircraft engines before departing from the gate or cargo area. APU usage is within the control of the pilot; therefore, APU use and emissions can vary greatly from one airline/operator to another and even one aircraft to another. Most of the smaller general aviation aircraft in the SEA aircraft fleet do not have APUs. Additionally, the use of hardstand and cargo operations (when aircraft are not using gates and jet bridges) impacts the amount of APU emissions. For the existing and future conditions analysis, the AEDT database will be used to assign the specific types of APU used for each aircraft type and the Port of Seattle's Rules and Regulations will be used to determine APU usage.

### *1.5.4* Ground Support Equipment Emissions Inventory.

Typical ground support equipment (GSE) includes baggage tractors, belt loaders, and catering vehicles that support airport operations.

#### *1.5.4.1 Tenant-Owned*

A GSE survey (i.e., field verification and Port of Seattle data) will be used in AEDT modeling of tenant-owned GSE. The survey will be used to identify the most commonly used GSE types and duration of usage for a select group of representative aircraft by airline operating at the Airport. The results of the survey will be used to develop the AEDT inputs for GSE by aircraft operation. Usage for future conditions would be increased based on the increases in aircraft levels. Operational emissions from vehicles such as catering trucks that operate on airport roadways beyond the immediate vicinity of the aircraft will be quantified in the motor vehicle emissions inventory (see Section 1.5.5).

#### *1.5.4.2 Port-Owned GSE*

The airport maintains a fleet of GSE vehicles such as sweepers, and other portable equipment such as pressure washers and lighting trailers. GSE owned by the Port of Seattle that are determined not to be included in the GSE for each aircraft operation, will be modeled in AEDT as a separate population.

[7] Leigh Fisher. Environmental Review Airside Modeling, June 2020.

## *1.5.5* Motor Vehicle Emissions Inventory

### *1.5.5.1 Off-Airport Roadways*

Motor vehicles operating on off-airport roadways include passenger cars, light duty and heavy-duty trucks, and buses. These vehicles are also referred to as Ground Access Vehicles (GAVs). The study area to be used for this air quality analysis will be the same as that used for the surface transportation study developed for the NEPA EA. The surface transportation study intersections are shown in **Exhibit 3** and the resulting air quality study area is shown in **Exhibit 4**. The USEPA's Motor Vehicle Emissions Simulator version 3 (MOVES3) will be used to develop the emissions inventory for GAVs on roadways that may be directly affected by the Proposed Action.

The Proposed Action includes roadway changes that will offer a greater level of efficiency for GAVs than the No Action, resulting in less idling of engines:

- Construct approximately 7,300 linear feet of new Airport roadways to access the new Second Terminal.
- New Vehicle Service Road bridge over S 188 Street.
- Elevated Busway: Construct a 6,000 linear foot elevated busway to provide a landside connection for non-secure passengers to transfer among the Main Terminal, New Second Terminal, and Rental Car Facility.
- Charter/Cruise Ground Transportation Lot: Expand the existing ground transportation lot on the north side of the existing parking garage.

The Proposed Action also includes relocation of facilities including employee parking lots and cargo facilities that may cause GAVs to travel a further distance.

Each roadway segment to be analyzed for the No Action and Proposed Action scenarios will be measured to define the distance. Data pertaining to the existing number of vehicles traveling on each roadway will be obtained from the surface transportation study being conducted for this project. Where data is not being collected for roadway segments within the study area, WSDOT data will be utilized. MOVES3 will be used to assign the type of vehicles distribution, fuel efficiency, etc. applicable to King County. The Port of Seattle is preparing a surface transportation study to forecast the potential number of vehicles on future roadways included in the Proposed Action. The results of the surface transportation study will be used to determine the motor vehicle emissions for the existing, Proposed Action (2032 and 2037), and No Action (2032 and 2037) conditions.

### *1.5.5.2 On-Airport Roadways*

Additionally, motor vehicles operate on airport roadways related to airside deliveries, which include light duty and heavy-duty trucks, and buses. Information on the number and types of airside delivery vehicles accessing the airfield through security gates will be obtained from the Port. The NEPA emissions inventory for mobile sources will include vehicle activity related to airside deliveries.

### *1.5.5.3 Parking Facilities*

Additionally, motor vehicles operate on airport parking facilities, which include passenger cars, light duty and heavy-duty trucks, and buses. Only emissions for vehicles in parking facilities where it is reasonable to anticipate changes in vehicle traffic due to the Proposed Action would be estimated. The NEPA emissions inventory for mobile sources will include vehicle activity related to parking facilities.

**Exhibit 3 Surface Transportation Study Intersections**

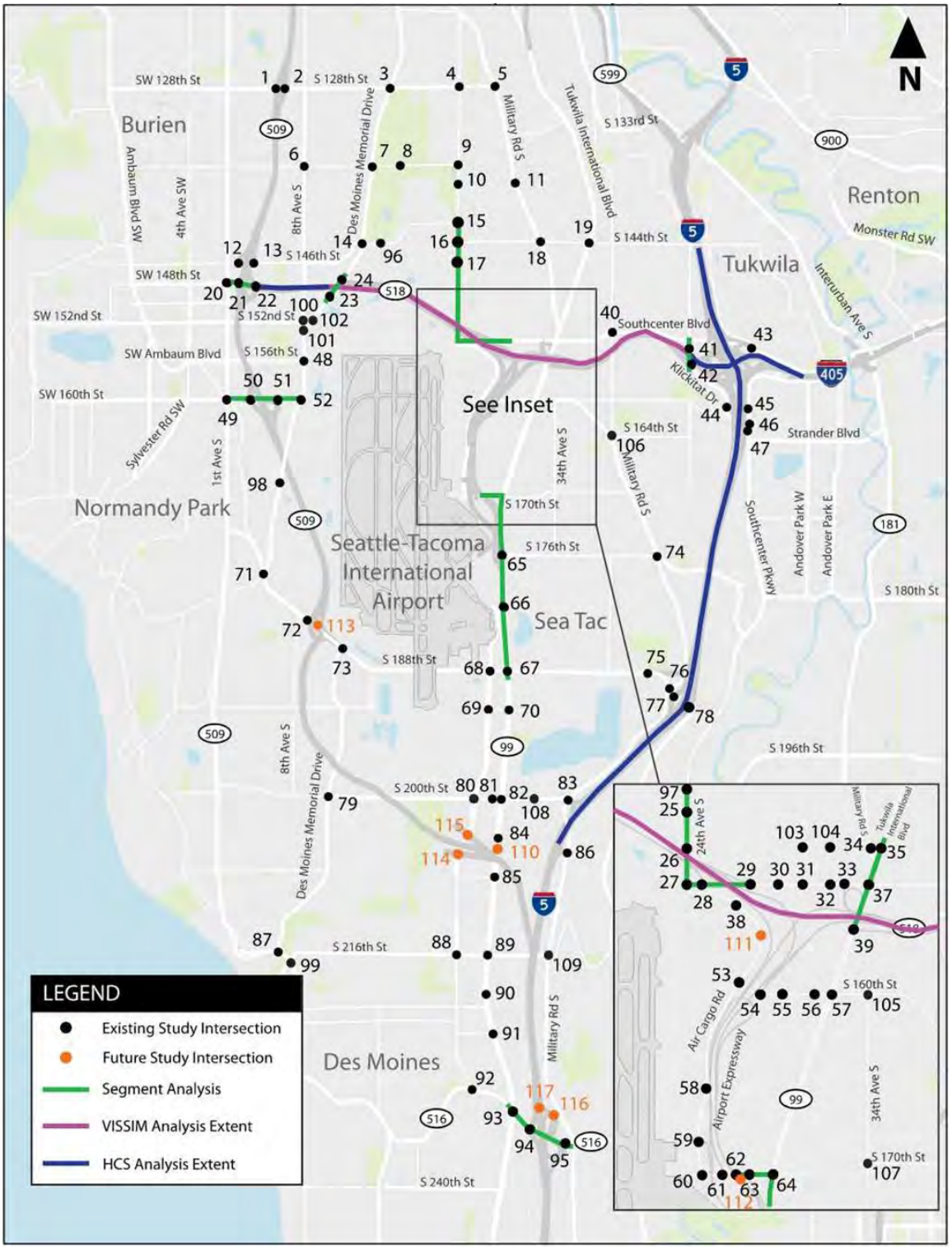
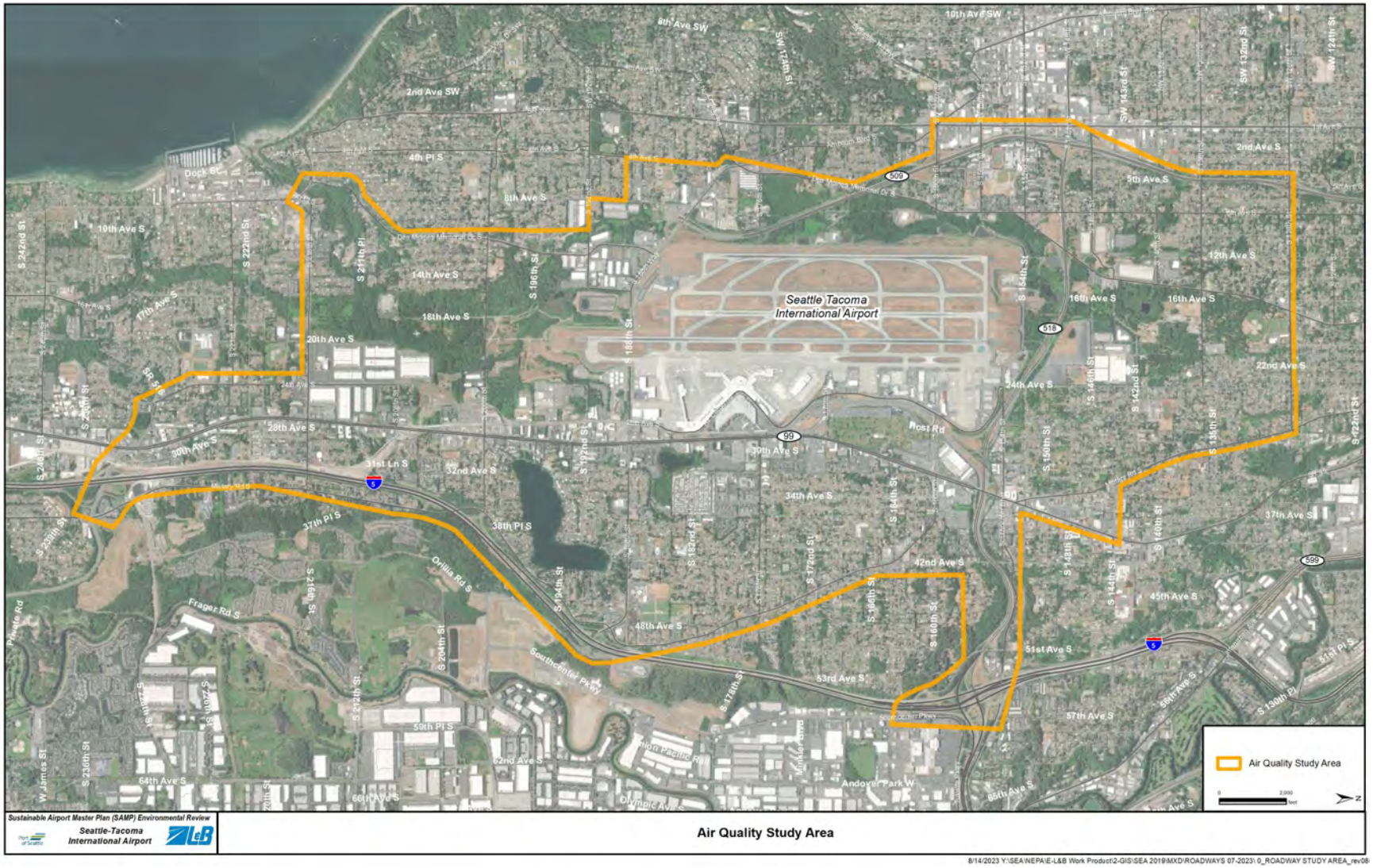


**Exhibit 4 Air Quality Study Area**



### *1.5.6* Stationary Source Emissions Inventory

Stationary sources of air pollution include generators, boilers, and fuel tanks located on airport property which may be directly affected by the Proposed Action. The emission inventory for stationary sources will be developed using FAA's AEDT based on the type of stationary source equipment and the duration of its usage. The Proposed Action includes construction and use of additional fuel tanks. Inputs to estimate fuel tank emissions include the size of the tank, type of fuel, and the fuel throughput. Assumptions and emission factors will be based on USEPA AP-42 and other regional Air Quality Management District guidance documents, should a particular equipment type not exist within the AEDT model.

Data will be obtained from the Port of Seattle on the existing use of stationary sources, on an annual basis, which will be projected for 2032 and 2037 for the No Action scenario based on increases of aircraft and passenger levels where applicable. Data will also be obtained from the Port of Seattle for the estimated number and type of stationary sources including anticipated heating and cooling systems and backup generators associated with the proposed new facilities that would be used for the Proposed Action scenario in 2032 and 2037.

### *1.5.7* Construction Emissions Inventory

Temporary air quality impacts would result from construction activities associated with the Proposed Action. Air pollutants would be emitted by construction equipment and fugitive dust generated during demolition and construction of the proposed development. Construction activities associated with the Proposed Action are set to begin in 2025 and all projects being in construction by 2032. A detailed construction phasing schedule will be used to identify which projects will occur between 2025 and 2032. Potential sources of construction emissions include construction vehicles and equipment. Emissions for on-road and non-road construction equipment will be estimated separately following standard industry practices.

**Non-Road Construction Equipment**

Potential non-road construction emissions will be estimated using the following formula as provided in the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*.

*Equipment Emission Rate (tons/year) = Full Throttle Emission Factor (grams/hp-hour) x size (hp) x hours per year x Load Factor x usage Factor x (1 pound/453.59 grams) x (1 ton/2,000 pounds)*

Data will be obtained from the Port of Seattle concerning each phase of construction, the duration of the phase, the tasks to be completed, and other additional information for input into the Airport Construction Emissions Inventory Tool (ACEIT) to estimate the type of construction equipment, horsepower, load factor, and operating hours for each project element and phase. The ACEIT was developed by the Airport Cooperative Research Program (ACRP) and the equipment and assumptions used in the program are drawn from ACRP Report 102, Guidance for Estimating Airport Construction Emissions. The USEPA's MOVES3 model will be used to identify the emission factor of each criteria air pollutant for each equipment type. Non-road construction equipment emissions will be calculated based on the number of operating hours of equipment use and the emission factors.

Evaporative VOC emissions associated with the application of hot mix asphalt will be estimated using the formula provided in the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1.*

*Asphalt VOCs Emissions Rate (tons/year) = 0.053 tons/acre of asphalt placed x acres of asphalt placed per year*

The emissions results for all equipment will be summed and will be provided in tabular form for each year of construction.

### On-Road Construction Vehicles

Potential on-road construction emissions will be estimated using the following formula as provided in the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*.

> *Emission Rate (tons/year) for on-road vehicles = Emission Factor (grams/mile) x miles per day x # of days/year x (1 pound/453.59 grams) x (1 ton/2,000 pounds)*

Emission factors for on-road construction vehicles will be developed using the MOVES3 model. For employee vehicle trips related to construction activities, the model will be run using gasoline passenger vehicles including cars and light duty pickup trucks. For material delivery and off-site haul vehicle trips, diesel combination long-haul trucks will be assumed in order to estimate maximum potential emissions.

Total vehicle miles traveled (VMT) for vehicles operating during each Proposed Action element and for each type of on-road construction activity during each construction year will be estimated. This includes construction employee vehicle trips to and from the job site using model default distances. The analysis will also include material delivery trips and off-site hauling trips using heavy duty trucks using model default distances. Potential on-road construction emissions will be estimated by multiplying the VMT data by the appropriate emission factors and the necessary conversion factors to present the criteria air pollutant emissions in tons. The results will be provided in tabular form for each year of construction.

# 2 Protocol for Cumulative Impact Analysis for Air Quality (NEPA)

The Council on Environmental Quality (CEQ) Regulations define a cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (see 40 CFR § 1508.7). The analysis of cumulative impacts recognizes that while the impacts of individual actions may be small, when combined with the impacts of past, present, and reasonably foreseeable future actions on populations or resources in and around SEA, the impacts could be potentially significant.

Pursuant to FAA guidance, past, present, and reasonably foreseeable future actions must be considered in determining whether there are potential cumulative impacts. Based on the guidance from 1050.1F Desk Reference, "[t]he significance of cumulative impacts should be determined in the same manner as the significance of direct and indirect impacts." FAA Order 1050.1F uses the same threshold of significance for project significant impacts as it does for cumulative impacts.

## 2.1 Review the List of Past, Present, and Reasonably Foreseeable Future Projects

### Past Projects

CEQ NEPA regulations require analysis of past actions to the extent they are relevant and useful in analyzing whether the reasonably foreseeable effects of the current action combined with the past action would create cumulative effects. It is important to note that according to the CEQ's memorandum, *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis*, focus should be on whether the information from past projects is "relevant to reasonably foreseeable significant adverse impacts," is "essential to a reasoned choice among alternatives," and can be obtained without exorbitant cost. Furthermore, present impacts of past actions that are relevant and useful are those that may have a significant cause-and-effect relationship with the

direct and indirect impacts of the proposed action and alternative(s). Only information that is useful to decision-makers and the public should be included, and the CEQ warns against including extraneous background data.

For this analysis, past projects are defined as those which occurred within the past seven years (between 2015 and 2022). This timeframe goes back far enough to provide a reasonable historical context about the current state of the resource.[8]

### Present Projects

Present projects are any actions occurring within the same study area as the existing conditions for the Proposed Action.

### Reasonably Foreseeable Future Projects

Reasonably foreseeable future projects are defined as actions that are likely to be completed within the time period from 2022 through 2032 and that have been developed with enough specificity to provide meaningful data for analysis. No projects past 2032 are included because there is a lack of adequate detail about those later projects to enable meaningful review; any analysis of those projects or their impacts would be speculative.

## 2.2 Identify Air Quality Impacts of the Proposed Action

A review will be conducted of the air quality analyses that have been undertaken for the cumulative projects identified (past, present, and reasonably foreseeable future projects). A qualitative evaluation of the air quality cumulative impacts with consideration of the cumulative projects' will be developed.

Note, the NEPA EA will evaluate the potential air quality impacts on environmental justice communities (areas where minority and low-income populations represent a higher fraction of the population compared with the general population) independent of the air quality analysis. As such, an environmental justice impact analysis will not be included in the air quality analysis.

[8] The FAA has discretion to determine whether, and to what extent, information about the specific nature, design, or present impacts of a past action are useful for the analysis of the impacts of the proposed action and alternative(s).

# National Environmental Policy Act Environmental Assessment

## Climate Assessment Protocol

## Seattle-Tacoma International Airport

**August 2023**

Revised August 17, 2023

PREPARED FOR

Port of Seattle

Contents Page

## List of Tables



## List of Exhibits

# 1 Protocol for Climate Assessment (NEPA)

The National Environmental Policy Act (NEPA) provides for an environmental review process to disclose the potential impacts, including climate, from a proposed federal action on the human environment. Additionally, the Council on Environmental Quality (CEQ) issued guidance for agencies in January 2023 to guide the quantification of reasonably foreseeable GHG emission for the proposed action, no action alternative, and any reasonable alternatives, using available information and data.

## 1.1 Purpose of this Document

This document describes the overall approach and methods to conduct a climate assessment to demonstrate compliance to the NEPA, including the January 2023 CEQ guidance.

The Port of Seattle, as the owner and operator of the Seattle-Tacoma International Airport (SEA or Airport), evaluated airport operations and facilities during the Sustainable Airport Master Plan (SAMP) planning process and identified a set of Near-Term Projects (NTPs) designed to help the Airport maintain its essential airport function in the future. The NTPs (as a whole) are referred to as the Proposed Action in this document.

The NEPA documentation will be prepared to investigate, analyze, and disclose the potential environmental impacts of the Proposed Action and any identified alternatives in compliance with the NEPA.

## 1.2 Agency Coordination

The Port of Seattle and the FAA coordinated an air quality protocol with the Puget Sound Clean Air Agency (PSCAA) in 2020 that included the proposed climate assessment methodology. The air quality protocol was updated in 2023 to reflect changes in the analysis years and the use of newer software. During this update, the Port of Seattle and the FAA decided to create a separate climate assessment protocol. It is intended that this climate assessment protocol document be coordinated with the PSCAA in an effort to:

- Familiarize the agency with the scope of the Proposed Action and identify any issues of concern early in the process;
- Engage in data exchange of information necessary to complete the climate assessment; and,
- Obtain concurrence on procedure and methodology prior to the publication of the anticipated NEPA Environmental Assessment (EA).

## 1.3 Description of the Proposed Action

The Port identified a set of NTPs to address the near-term activity levels projected to occur at the Airport. The NTPs include more than 30 projects that would improve efficiency, safety, access to the Airport, and support facilities for airlines and the Airport.

The NTPs include the following primary elements:

- Second terminal concourse
- New passenger terminal and parking
- North Airport Expressway relocation
- North hold pad
- Central hardstand

- Elevated busway and stations
- Second terminal roads and curbside
- Main Terminal north ground transportation lot
- North ground transportation holding lot
- North cargo hardstand
- Cargo 4 south redevelopment
- Cargo warehousing
- Runway 16R/34L blast pads
- Relocated Taxiways A and B
- Extension of Taxiways C and D
- Taxiway infrastructure reconfiguration (south of Taxiway O)
- Runway 34L highspeed exit
- Taxiway D extension
- Fuel farm expansion
- Employee parking structure

The elements of the Proposed Action are shown on **Exhibit 1**.

## Exhibit 1 Proposed Action

# 2 Prepare Climate Assessment (NEPA)

The impacts to climate due to the Proposed Action for NEPA will be determined in accordance with the guidelines provided in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures;* FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*; FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*; and the CEQ's *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change.* Per these guidelines, the climate assessment will include the development of a NEPA greenhouse gas (GHG) emissions inventory, disclosure of estimated GHG emissions, and a qualitative climate evaluation for the proposed action, no action alternative, and any reasonable alternatives as detailed below.

## 2.1 Develop Greenhouse Gas (GHG) Emissions Inventory (NEPA)

A GHG emissions inventory is a summary of the GHG pollutants generated by all active emissions sources that may be affected by the Proposed Action. The GHG emissions inventories are prepared based on actual and/or estimated energy or fuel consumption or vehicle miles travelled (VMTs) and an appropriate emission factor.

The elements of the Proposed Action would be anticipated to cause direct and indirect GHG emissions from construction and operational activities. For NEPA purposes, construction refers to the process of building or putting in place the proposed airport improvements. Operational emissions refer to the emissions that are emitted once the proposed improvements are put in place and are operating.

Therefore, a climate analysis incorporating separate evaluations will be conducted including the preparation of:

- Aircraft GHG Emissions Inventory including Auxiliary Power Unit (APU) GHG emissions;
- Motor Vehicle and Ground Support Equipment (GSE) GHG Emissions Inventory;
- Stationary Source GHG Emissions Inventory;
- Electricity Consumption GHG Emissions Inventory; and,
- Construction GHG Emissions Inventory.

### *2.1.1* Short Term and Long-Term Effects

According to CEQ's *National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change*, "[w]hen considering effects, agencies should take into account both the short and long-term adverse and beneficial effects using a temporal scope that is grounded in the concept of reasonable foreseeability. Agencies should identify an appropriate lifetime for the proposed action using available indicators and guided by the concept of reasonable foreseeability."

The GHG emissions will be disclosed for existing conditions, which will represent calendar year 2022. The GHG emissions and potential climate impacts due to the operation of the Proposed Action, No Action, and any identified alternatives for the projected future conditions in 2032 and 2037 will be estimated and disclosed. The year 2032 will be used as a basis for analysis because 2032 is the projected opening year of the Proposed Action. In addition, 2037 will be used as a basis for analysis, because it represents a condition five years beyond the opening year, and is consistent with the analysis years used for noise and air quality (criteria pollutant) analysis.[1] The climate assessment will also disclose the potential climate impacts due to construction activities during the years 2025 to 2032.

1 The FAA's Desk Reference Section 11.3 states "The environmental consequences section of the NEPA document will include the analysis of the potential noise impacts of the proposed action and alternative(s) for each timeframe

A qualitative discussion will be included in the NEPA EA regarding the potential emissions over the projected lifetime of the Proposed Action and any identified alternatives past 2037.[2]

### *2.1.2* Greenhouse Gases and Global Warming Potential

GHGs are gases that trap heat in the earth's atmosphere. The primary GHGs which will be the focus of this assessment include the following:

- **Carbon dioxide ($CO_2$)**, which enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), agriculture, irrigation, and deforestation, as well as the manufacturing of cement.
- **Methane ($CH_4$)**, which is emitted through the production and transportation of coal, natural gas, and oil, as well as from livestock. Other major human-caused sources of methane emissions include agricultural activities, and the decay of waste in landfills and wastewater treatment plants.
- **Nitrous oxide ($N_2O$)**, which at airports is released most often during the burning of fuel at high temperatures. This greenhouse gas is caused mostly by agricultural soil management, but also by motor vehicles, which also include non-road vehicles, such as those used for agriculture.

Two key ways in which these GHGs differ from each other are their ability to absorb energy and how long they stay in the atmosphere. The Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different gases by converting each gas amount to a carbon dioxide equivalent ($CO_2E$).[3] GWPs provide a common unit of measure, which allows for one emission estimate of the different GHGs. $CO_2$ has a GWP of one because it is the gas used as the reference point. For this analysis, GWPs would be based on a 100-year period provided in the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1* and based on the Intergovernmental Panel on Climate Change (IPCC), Fifth Assessment Report (AR5).[4] Methane does not last as long in the atmosphere as $CO_2$ , however, it absorbs much more energy. Therefore, one ton of methane has 34 times more heat capturing potential than one ton of carbon dioxide. The amount of methane emissions will be multiplied by 34 to determine its $CO_2E$ value. Nitrous oxide lasts in the atmosphere far longer than $CO_2$. The amount of nitrous oxide emissions will be multiplied by 298 to determine its $CO_2E$ value.

The NEPA GHG emissions inventory will be conducted to provide the estimate of the annual rate (metric tons per year) of GHG emissions attributable to airport sources for each analysis year.

evaluated… Timeframes usually selected are the year of anticipated project implementation and 5 to 10 years after implementation." The FAA's Desk Reference Section 1.3.2 for air quality states, "the emissions inventory usually is calculated for the year(s) of project implementation, the planning horizon year(s) in the EA or EIS, and sometimes for intermediate years, if appropriate due to project phasing or if requested by a reviewing agency." The air quality analysis would be conducted consistent with the noise analysis and therefore include an assessment of the implementation year and of the project five years after implementation.

2 Because the lifetime of airport projects are virtually unlimited if well maintained, decommissioning of the airport is not included as part of this analysis.

3 EPA, 2017, Understanding Global Warming Potentials. https://www.epa.gov/ghgemissions/understanding-global-warming-potentials, Accessed August 2017.

4 There are also 20-year GWP values which prioritizes gases with shorter lifetimes. For example, the GWP 20 value for methane is 86, according to IPCC AR5, as compared to the GWP 100 value of 34. There is no difference between GWP 100 and GWP 20 for $CO_2$ and only a minor difference for nitrous oxide (GWP 100 is 298 and GWP 20 is 268). It is acknowledged that GHG emissions, especially for methane, would be higher using the GWP 20 instead of the GWP 100. This analysis used FAA guidance specifically provided in the FAA's Aviation Emissions and Air Quality Handbook to determine potential GHG emissions.

### *2.1.3* Scope/Categories of Emissions

GHG emissions inventories are presented in a different manner than air quality criteria pollutant emissions inventories. GHG emissions inventories are categorized into three groups, Scope 1, 2, and 3 emissions, as described below.

- Scope 1 – GHG emissions from sources owned or controlled by the Port at the Airport, including Port-owned vehicles, equipment, and stationary sources such as natural gas boilers and diesel generators. These GHGs are primarily limited to the project site.
- Scope 2 – GHG emissions from off-Airport generation of electricity purchased by the Port and consumed at the Airport. It is recognized that the estimation of GHG emissions from electricity generation is a widely accepted methodology according to international and FAA guidelines on preparing GHG emissions inventories.
- Scope 3 –GHG emissions caused by airport operations that are not under the direct control of the Port, including sources like aircraft and passenger-related motor vehicle emissions.

Furthermore, GHG emissions are categorized by the degrees of control that an airport operator may have over them. These categories are defined as follows:

- Category 1 – GHG emissions from sources that are controlled by the reporting entity, such as Port-owned ground support equipment (GSE) or vehicles and electrical consumption by the Port. In the case of an airport operator these include Scope 1 emissions but can also include some Scope 2 and Scope 3 sources over which the entity can exert some control. Examples of the latter can include personal vehicle use for business purposes that is reimbursed by the airport operator.
- Category 2 – This category comprises Scope 3 emissions associated with sources owned and controlled by airlines and airport tenants. Examples include aircraft, APUs, tenant-owned GSE, electrical consumption, and other stationary sources controlled by tenants.
- Category 3 – This category generally comprises Scope 3 emissions associated with public sources associated with the airport. Examples include private automobiles, taxis used for drop-off, limousines, buses, and shuttle vans traveling to and from the airport.

### *2.1.4* Operational Emissions Sources

The overall GHG assessment approach to develop the operational emissions inventories for NEPA is summarized in **Table 1**, with further details following.

**Table 1 NEPA Approach for GHG Emissions Inventories**

| Emissions Source | Data / Conditions | Data Source | Models to be Used | Scope and Category |
|---|---|---|---|---|
| Aircraft | Fuel Dispensed | For existing conditions, fuel dispensed will be used to estimate emissions from aircraft fuel consumption. For future conditions, the fuel consumption would be based on the increases in aircraft levels. | Fuel Emission Factors from FAA *Aviation Emissions and Air Quality Handbook Version 3 Update 1* | Scope 3, Category 2 |
| Aircraft | Auxiliary Power Unit (APU) Operating Times | For existing and future conditions, the AEDT database will be used to assign the APU type and the Port of Seattle's Rules and Regulations will be used to assign APU usage. The AEDT output will be used to determine hours of APU run time per type/model. | Fuel flow rates and Emission Factors from FAA *Aviation Emissions and Air Quality Handbook Version 3 Update 1.* Number of APU, fuel type, operating time from AEDT. | Scope 3, Category 2 |
| Ground Support Equipment (GSE) | GSE equipment types, Fuel types, and Operating Times | *Tenant-Owned*<br>For existing conditions, a GSE survey (i.e., field verification and Port of Seattle data) will be used to identify equipment types and usage. Usage for future conditions would be increased based on the increases in aircraft levels. | Emission factors from USEPA's MOVES3 and FAA *Aviation Emissions and Air Quality Handbook Version 3 Update 1.* Number of GSE, fuel type, operating time from AEDT. | Scope 3, Category 2 |

| Emissions Source | Data / Conditions | Data Source | Models to be Used | Scope and Category |
|---|---|---|---|---|
| Ground Support Equipment (GSE) | GSE equipment types, Fuel types, and Operating Times | *Port-Owned*<br>For existing conditions, Port-owned airfield vehicles and equipment usage would be obtained from the Port. Usage for future conditions would be based on the increases in aircraft levels.<br>The AEDT output will be used to determine hours of GSE run time per type/model. | Emission factors from USEPA's MOVES3 and FAA *Aviation Emissions and Air Quality Handbook Version 3 Update 1.* Number of GSE, fuel type, operating time from AEDT. | Scope 1, Category 1 |
| Motor Vehicles | Number of vehicles by roadway segment, Vehicle Miles Travelled (VMTs) by vehicle type and average speed | *Off-Airport Roadways*<br>For existing and future conditions, information from the surface transportation study developed for the NEPA EA will be used. Where data is not being collected for roadway segments within the study area, WSDOT data will be utilized.<br>*On-Airport Roadways*<br>For existing conditions, Port of Seattle information on the number and types of airside delivery vehicles accessing the airfield through security gates. For future conditions, the increase would be based on the increase in passenger levels.<br>*Parking Facilities*<br>For existing conditions, information from the Port of Seattle would be used. For future conditions, the increase would be based on the increase in passenger levels and aircraft operations. | USEPA's MOVES3 | Scope 3, Category 3 |

| Emissions Source | Data / Conditions | Data Source | Models to be Used | Scope and Category |
|---|---|---|---|---|
| Stationary Sources | Number, type, and usage for emergency generators, boilers, and fuel tanks, the usage of which may be affected by the Proposed Action | For existing conditions, Port of Seattle records will be used. For future conditions, estimates will be based on increases in aircraft and passenger levels and anticipated new facilities. | Fuel consumption from Port records and Emission Factors from USEPA. | Scope 1, Category 1 |
| Electricity Consumption | *Port of Seattle Electricity Consumption* Electricity use in Airport buildings, airfield lighting | For existing conditions, Port of Seattle records will be used. For the future conditions, electricity consumption would be based on the change in new facility square footage for each scenario. | Port to provide emission factors | Scope 2, Category 1 |
| Electricity Consumption | *Tenant Electricity Consumption* Electricity provided by the Port directly to tenants | For existing conditions, Port of Seattle records will be used. For the future conditions, electricity consumption would be based on the change in square footage for each scenario. | Port to provide emission factors | Scope 3, Category 2 |

Port of Seattle and L&B, 2023.

### *2.1.5* Aircraft

Aircraft activity at the Airport are considered Scope 3, Category 2. The existing GHG emission inventory for aircraft operations, APU use, and aircraft engine ground run-ups will be developed using the fuel dispensed at the Airport to estimate emissions from aircraft activity. With or without the Proposed Action, aircraft operations and aircraft engine ground run-ups are expected to increase each year and by 2037, the number of annual aircraft operations will be higher as compared to the existing condition. For future conditions, the fuel consumption would be based on the increases in aircraft levels. The resulting operational emissions from these conditions will be disclosed as part of the analysis for the existing condition, Proposed Action (2032 and 2037), No Action (2032 and 2037), and any identified alternatives.

The emission factors for Jet A LTO shown in **Table 2** will be used to determine GHG emissions from the fuel dispensed at the Airport.

**Table 2 GHG Emission Factors for Aircraft Fuel**

| Fuel | $CO_2$ | $N_2O$ | $CH_4$ |
|---|---|---|---|
| Jet A- LTO | 9.75 kg/gallon | 0.30 g/gallon | 0.0 g/gallon |
| Jet A- Startup mode | 9.75 kg/gallon | 0.30 g/gallon | 0.0 g/gallon |
| Avgas LTO/Startup | 8.31 kg/gallon | 0.11 g/gallon | 7.06 g/gallon |

Source: US EPA, Emission Factors for Greenhouse Gas Inventories, Center for Corporate Climate Leadership, April 2022, https://www.epa.gov/system/files/documents/2022-04/ghg_emission_factors_hub.pdf

### *2.1.6* Auxiliary Power Units

Most of the larger jet aircraft use auxiliary power units (APUs) while at the gate to operate the heating, air conditioning, and electric systems. The APU is also used to 'start up' or restart the aircraft engines before departing from the gate or cargo area. APU usage is within the control of the pilot; therefore, APU use and emissions can vary greatly from one airline/operator to another and even one aircraft to another.

APUs are considered Scope 3, Category 2. Most of the smaller general aviation aircraft in the SEA aircraft fleet do not have APUs. Additionally, the use of hardstand and cargo operations (when aircraft are not using gates and jet bridges) impacts the amount of APU emissions. For the existing and future conditions analysis, the AEDT database will be used to assign the specific types of APU used for each aircraft type. The Port of Seattle's Rules and Regulations will be used to determine existing and future APU usage.

The AEDT will be used to estimate the hours of usage and type of APU equipment. Fuel usage will be determined using the following formula from the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*.

> *Fuel Usage (gallons) = Fuel Flow Rate (pounds per hour) x Operating Time (minutes) x number of operations x 1 hour per 60 minutes / 6.84 pounds per gallon*

Fuel flow rates (pounds per hour) will be taken from the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1 Table C-2*. Operating time will come from the Port of Seattle's Rules and Regulations and number of operations will be based on aircraft operations as developed through AEDT modeling. Once the number of gallons is determined, the emission factors for Jet A Startup mode shown in **Table 2** will be used to determine GHG emissions.

### *2.1.7* Ground Support Equipment

Typical ground support equipment (GSE) includes baggage tractors, belt loaders, and catering vehicles that support airport operations. Annual GHG emissions will be determined using the following formula from the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*.

> *Equipment Emission Rate (tons/year) = Full Throttle Emission Factor (grams/hp-hour) x size (hp) x hours per year x Load Factor x Usage Factor x (1 pound/453.59 grams) x (1 ton/2,000 pounds)*

The full throttle emission factor will be developed from MOVES3.[5] Horsepower, operating time per unit and number of operations, and load factor will be obtained from the AEDT outputs as detailed below.

#### *2.1.7.1 Tenant-Owned*

Tenant-owned GSE are considered Scope 3, Category 2. A GSE survey (i.e., field verification and Port of Seattle data) will be used in AEDT modeling of tenant-owned GSE. The survey will be used to identify the most commonly used GSE types and duration of usage for a select group of representative aircraft by airline operating at the Airport. The results of the survey will be used to develop the AEDT inputs for GSE by aircraft operation. The AEDT will provide the estimated annual usage for each GSE type and the FAA's equipment emission rate equation identified in Section 2.1.7 will be used to estimate the annual tenant-owned GSE emissions. Usage for future conditions would be increased based on the increases in aircraft levels. Operational emissions from vehicles such as catering trucks that operate on airport roadways beyond the immediate vicinity of the aircraft will be quantified in the motor vehicles NEPA GHG emissions inventory.

#### *2.1.7.2 Port-Owned GSE*

The airport maintains a fleet of GSE vehicles such as sweepers, and other portable equipment such as pressure washers and lighting trailers used on the airfield. Port-owned GSE vehicles are considered Scope 1, Category 1. GSE owned by the Port of Seattle that are determined not to be included in the GSE for each aircraft operation, will be modeled in AEDT as a separate population.

### *2.1.8* Stationary Source

Stationary sources of air pollution include generators, boilers, and fuel tanks located on airport property which may be directly affected by the Proposed Action. Stationary sources used by the Port are also included in Scope 1, Category 1. The emission inventory for stationary sources will be developed using FAA's AEDT based on the type of stationary source equipment and the duration of its usage. The Proposed Action includes construction and use of additional fuel tanks. Inputs to estimate fuel tank emissions include the size of the tank, type of fuel, and the fuel throughput. Assumptions and emission factors will be based on USEPA AP-42 and other regional air quality regulatory agency guidance documents, should a particular equipment type not exist within the AEDT model.

Data will be obtained from the Port of Seattle on the existing fuel or run-time use of stationary sources, on an annual basis, which will be projected for 2032 and 2037 for the No Action scenario based on projected increases of aircraft and passenger levels where applicable. Data will also be obtained from the Port of Seattle for the estimated number and type of stationary sources including anticipated heating and cooling systems and backup generators associated with the proposed new facilities that would be used for the Proposed Action scenario in 2032 and 2037.

In order to determine GHG emissions, the emission factors shown in **Table 3** will be used.

[5] The Airport Support Equipment available in MOVES3 will be used for Ground Support Equipment

**Table 3 GHG Emission Factors for Stationary Sources**

| Fuel | $CO_2$ | $N_2O$ | $CH_4$ |
|---|---|---|---|
| Natural Gas | 0.05444 kg/ standard cubic foot (scf) | 0.00010 g/scf | 0.00103 g/scf |
| No. 2 Oil (Diesel) | 10.21 kg/gallon | 0.08 g/gallon | 0.41 g/gallon |

Source: US EPA, Emission Factors for Greenhouse Gas Inventories, Center for Corporate Climate Leadership, April 2022, https://www.epa.gov/system/files/documents/2022-04/ghg_emission_factors_hub.pdf

### *2.1.9* Motor Vehicles

GHG emissions from motor vehicles operating on on- and off-airport roadways and within select parking lots are considered Scope 3, Category 3.

#### *2.1.9.1 Off-Airport Roadways*

Motor vehicles operating on off-airport roadways include passenger cars, light duty and heavy-duty trucks, and buses. These vehicles are also referred to as Ground Access Vehicles (GAVs). The study area to be used for this analysis will be the same as that used for the surface transportation study developed for the NEPA EA. The USEPA's Motor Vehicle Emissions Simulator version 3 (MOVES3) will be used to develop the NEPA GHG emissions inventory for GAVs on roadways that may be directly affected by the Proposed Action.

The Proposed Action includes roadway changes that will offer a greater level of efficiency for GAVs than the No Action:

- Construct approximately 7,300 linear feet of new Airport roadways to access the new Second Terminal.
- New Vehicle Service Road bridge over S 188 Street.
- Elevated Busway: Construct a 6,000 linear foot elevated busway to provide a landside connection for non-secure passengers to transfer among the Main Terminal, New Second Terminal, and Rental Car Facility.
- Charter/Cruise Ground Transportation Lot: Expand the existing ground transportation lot on the north side of the existing parking garage.

The Proposed Action also includes relocation of facilities including employee parking lots and cargo facilities that may cause GAVs to travel a further distance.

Each roadway segment to be analyzed for the No Action and Proposed Action scenarios will be measured to define the distance. Data will be obtained from the Port of Seattle and WSDOT pertaining to the existing number of vehicles traveling on each roadway. Within King County, MOVES3 will be used to assign the distribution of vehicle types, fuel efficiency, etc. to the respective roadways. The Port of Seattle is preparing a surface transportation study to forecast the potential number of vehicles on future roadways included in the Proposed Action. The results of the surface transportation study will be used to determine the motor vehicle emissions for the existing, Proposed Action (2032 and 2037), and No Action (2032 and 2037) conditions.

#### *2.1.9.2 On-Airport Roadways*

Additionally, motor vehicles operate on airport roadways related to airside deliveries, which include light duty and heavy-duty trucks, and buses. Information on the number and types of airside delivery vehicles accessing the airfield through security gates will be obtained from the Port, and average trip distances on the airfield calculated. The NEPA GHG emissions inventory for mobile sources will include vehicle activity related to airside deliveries.

#### *2.1.9.3 Parking Facilities*

Additionally, motor vehicles operate on airport parking facilities, which include passenger cars, light duty and heavy-duty trucks, and buses. Only emissions for vehicles in parking facilities where it is reasonable to anticipate changes in vehicle traffic due to the Proposed Action would be estimated. The NEPA GHG emissions inventory for mobile sources will include vehicle activity related to parking facilities.

### *2.1.10* Electricity Consumption

GHG emissions are created as a result of the generation of electricity used in Airport buildings (e.g., Airport terminals, distribution center, bus maintenance facility, and other miscellaneous sources), airfield lighting, and provided from the Port directly to tenants.

#### *2.1.10.1 Port of Seattle Electricity Consumption*

Port of Seattle electricity consumption is a result of electricity use in Airport buildings (e.g., Airport terminals, distribution center, bus maintenance facility, and other miscellaneous sources) and the airfield lighting which are generated from offsite power plant locations. This is considered Scope 2, Category 1.

GHG emissions from the consumption of electricity are calculated by multiplying the total annual electrical consumption by the emission factor of the electricity provider. The total annual electrical consumption and the appropriate emission factors will be provided by the Port.

#### *2.1.10.2 Tenant Electricity Consumption*

Tenant electricity consumption includes electricity used by tenant facilities including electricity for charging electrified GSE. This is considered Scope 3, Category 2.

GHG emissions from the consumption of electricity are calculated by multiplying the total annual electrical consumption by the emission factor of the electricity provider. The total annual electrical consumption and the appropriate emission factors will be provided by the Port.

### *2.1.11* Construction

Temporary increase in GHG emissions would result from construction activities associated with the Proposed Action. GHG pollutants would be emitted by construction equipment during demolition and construction of the proposed development.[6] Construction activities associated with the Proposed Action are set to begin in 2025 and all projects being in construction by 2032. A detailed construction phasing schedule will be used to identify which projects will occur between 2025 and 2032. Potential sources of construction emissions include construction vehicles and equipment. Emissions for on-road and non-road construction equipment will be estimated separately following standard industry practices.

The USEPA's MOVES3 model will be used to identify the emission factor for each equipment type. Non-road construction equipment GHG emissions will be calculated based on the number of operating hours and the emission factors. The GHG emissions results for all equipment will be summed and provided in tabular form for each year of construction.

Emission factors for on-road construction vehicles will also be developed using MOVES3. Potential on-road construction GHG emissions will be estimated by multiplying the VMT data by the appropriate emission factors and the necessary conversion factors to present the GHG emissions in metric tons. The results will be provided in tabular form for each year of construction.

[6] Embodied carbon associated with building materials used in the construction of the Proposed Action will not be included in this analysis.

### Non-Road Construction Equipment

Potential non-road construction emissions will be estimated using the following formula as provided in the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*.

> *Equipment Emission Rate (tons/year) = Full Throttle Emission Factor (grams/hp-hour) x size (hp) x hours per year x Load Factor x usage Factor x (1 pound/453.59 grams) x (1 ton/2,000 pounds)*

Data will be obtained from the Port of Seattle concerning each phase of construction, the duration of the phase, the tasks to be completed, and other additional information for input into the Airport Construction Emissions Inventory Tool (ACEIT) to estimate the type of construction equipment, horsepower, load factor, and operating hours for each project element and phase. The ACEIT was developed by the Airport Cooperative Research Program (ACRP) and the equipment and assumptions used in the program are drawn from ACRP Report 102, Guidance for Estimating Airport Construction Emissions. The USEPA's MOVES3 model will be used to identify the emission factor of each GHG pollutant for each equipment type. Non-road construction equipment emissions will be calculated based on the number of operating hours of equipment use and the emission factors.

The GHG emissions results for all equipment will be summed and will be provided in tabular form for each year of construction.

### On-Road Construction Vehicles

Potential on-road construction emissions will be estimated using the following formula as provided in the FAA's *Aviation Emissions and Air Quality Handbook Version 3 Update 1*.

> *Emission Rate (tons/year) for on-road vehicles = Emission Factor (grams/mile) x miles per day x # of days/year x (1 pound/453.59 grams) x (1 ton/2,000 pounds)*

Emission factors for on-road construction vehicles will be developed using the MOVES3 model. For employee vehicle trips related to construction activities, the model will be run using gasoline passenger vehicles including cars and light duty pickup trucks. For material delivery and off-site haul vehicle trips, diesel combination long-haul trucks will be assumed in order to estimate maximum potential emissions.

Total vehicle miles traveled (VMT) for vehicles operating during each Proposed Action element and for each type of on-road construction activity during each construction year will be estimated. This includes construction employee vehicle trips to and from the job site using model default distances. The analysis will also include material delivery trips and off-site hauling trips using heavy duty trucks using model default distances. Potential on-road construction emissions will be estimated by multiplying the VMT data by the appropriate emission factors and the necessary conversion factors to present the GHG emissions in tons. The results will be provided in tabular form for each year of construction.

## 2.2 Conduct Qualitative Climate Evaluation (NEPA)

Per CEQ and FAA guidance, the NEPA EA will include a discussion on the level of preparedness with respect to the impacts of climate change and a discussion of the extent to which the Proposed Action and any identified alternatives could be affected by future climate conditions.

### *2.2.1* Level of Preparedness

FAA 1050.1F Desk Reference states that the affected environment should discuss the current level of preparedness in the study area with respect to the impacts of climate change. This involves describing current

measures in place within the study area to adapt to the impacts of climate change.[7] As such, the following items will be qualitatively discussed in the NEPA EA.

1. Review the Port sustainability initiatives, opportunities, and actions to aid with achieving climate adaptation in its SAMP Planning Technical Memorandum.8
2. Identify additional GHG reduction programs which the Port may implement independent of the Proposed Action. This would include, for example, a qualitative discussion of the implementation of SAF consumption at the Airport, further electrification of GSE, and the usage of renewable natural gas for future boilers.
3. Discussion of the Port's vulnerability assessment that identifies the existing and future vulnerabilities of the Airport related to climate change.

### *2.2.2* Climate Adaptation

The NEPA EA will include a discussion of the extent to which the Proposed Action and any identified alternatives could be affected by future climate conditions. This discussion will include the following items:

1. Identify potential long-term effects of climate on the Airport's infrastructure, based on the Port's vulnerability assessment.
2. Search for other climate change assessments in the local area to discuss potential climate change impacts that may occur in the short term (through 2037) and beyond. This includes outreach to state agencies, city government and local universities for existing studies. One piece will include a review of the most recent State of Knowledge reports from the University of Washington's Climate Impacts Research Group.
3. Review National Climate Assessment (NCA)9 section for the region for a high-level overview of key messages related to expected climate changes and their impacts in the region that may occur in the short term (through 2037) and beyond. For example, the Northwest may be susceptible to changes in relative amounts and timing of snow and rainfall which can post threats to reliable hydropower production.
4. Review existing climate action plans and goals, as available, for the county and state, and how the Proposed Action and any identified alternatives will meet or retract from achieving these goals.
5. Conduct a desktop review to identify and discuss additional climate action plans and goals of stakeholders at SEA, including but not limited to, the FAA's Aviation Climate Action Plan, and that of the airlines operating at SEA, where available.
6. Use the ACRP Airport Climate Risk Operational Screening Tool to conduct a screening level assessment that identifies potential long-term climate risks, including:
   – Potential changes in climate in various periods based on specific climate vectors (e.g. higher temperatures, increased storm frequency, etc.) in years 2040 and 2070.
   – Impacts to airport infrastructure and operations.

In addition, this discussion will also include any considerations for the Proposed Action to adapt to forecasted climate change conditions.

Note, the NEPA EA will evaluate the potential climate impacts on the local environmental justice communities (areas where minority and low-income populations represent a higher fraction of the population compared with the general population) independent of the climate assessment. As such, an environmental justice impact analysis will not be included in the climate assessment.

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7 FAA, 1050.1F Desk Reference, Section 3.2, July 2015.
8 Port of Seattle, Sustainability Planning and Management Strategy, Technical Memorandum No. 9 Final, May 2018.
9 U.S. Global Change Research Program. Fourth National Climate Assessment. Volume II: Impacts, Risks, and Adaptation in the United States. Available online: https://nca2018.globalchange.gov/

# 3 Protocol for Cumulative GHG Impact Analysis (NEPA)

The Council on Environmental Quality (CEQ) Regulations define a cumulative impact as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (see 40 CFR § 1508.7).

The analysis of cumulative impacts recognizes that while the impacts of individual actions may be small, when combined with the impacts of past, present, and reasonably foreseeable future actions on populations or resources in and around SEA, the impacts could be potentially significant.

Pursuant to FAA guidance, past, present, and reasonably foreseeable future actions must be considered in determining whether there are potential cumulative impacts. Based on the guidance from 1050.1F Desk Reference, "[t]he significance of cumulative impacts should be determined in the same manner as the significance of direct and indirect impacts." FAA Order 1050.1F uses the same threshold of significance for project significant impacts as it does for cumulative impacts.

## 3.1 Review the List of Past, Present, and Reasonably Foreseeable Future Projects

### Past Projects

CEQ NEPA regulations require analysis of past actions to the extent they are relevant and useful in analyzing whether the reasonably foreseeable effects of the current action combined with the past action would create cumulative effects. It is important to note that according to the CEQ's memorandum, *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis*, focus should be on whether the information from past projects is "relevant to reasonably foreseeable significant adverse impacts," is "essential to a reasoned choice among alternatives," and can be obtained without exorbitant cost. Furthermore, present impacts of past actions that are relevant and useful are those that may have a significant cause-and-effect relationship with the direct and indirect impacts of the proposed action and alternative(s). Only information that is useful to decision-makers and the public should be included, and the CEQ warns against including extraneous background data.

For this analysis, past projects are defined as those which occurred within the past seven years (between 2015 and 2022). This timeframe goes back far enough to provide a reasonable historical context about the current state of the resource.[10]

### Present Projects

Present projects are any actions occurring within the same study area as the existing conditions for the Proposed Action.

### Reasonably Foreseeable Future Projects

Reasonably foreseeable future projects are defined as actions that are likely to be completed within the time period from 2022 through 2032 and that have been developed with enough specificity to provide meaningful data

[10] The FAA has discretion to determine whether, and to what extent, information about the specific nature, design, or present impacts of a past action are useful for the analysis of the impacts of the proposed action and alternative(s).

for analysis. No projects past 2032 are included because there is a lack of adequate detail about those later projects to enable meaningful review; any analysis of those projects or their impacts would be speculative.

## 3.2 Identify Climate Impacts of the Proposed Action

A review will be conducted of the climate analyses that have been undertaken for the cumulative projects identified (past, present, and reasonably foreseeable future projects). A qualitative evaluation of the climate cumulative impacts with consideration of the cumulative projects' will be developed.

Note, the NEPA EA will evaluate the potential climate impacts on environmental justice communities (areas where minority and low-income populations represent a higher fraction of the population compared with the general population) independent of the climate assessment. As such, an environmental justice impact analysis will not be included in the climate assessment.

# APPENDIX C

## Air Quality & Climate

### References

Erik Saganić, PSCAA, Email to Kandice Krull, FAA, RE: SEA SAMP NTP EA NEPA AQ Protocol, July 26, 2023
Erik Saganić, PSCAA, Email to Kandice Krull, FAA, RE: Sea-Tac Int'l Airport: Sustainable Airport Master Plan Near-Term Projects Environmental Review - Climate Assessment Protocol - November 21, 2023
USEPA NAAQA Table
Erik Saganić, PSCAA, Email to Kandice Krull, FAA, RE: Sea-Tac International Airport Preliminary Air Results, December 14, 2023
Emission Factors for Greenhouse Gas Inventories
Climate Change Impacts in King County

| | |
|---|---|
| **From:** | Sarah Potter |
| **To:** | Gaby Elizondo |
| **Subject:** | FW: SEA SAMP NTP EA NEPA AQ Protocol |
| **Date:** | Saturday, July 29, 2023 6:06:44 AM |

FYI

**Sarah Potter**
Executive Vice President

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---

**From:** Erik Saganić <ErikS@pscleanair.gov>
**Sent:** Wednesday, July 26, 2023 4:43 PM
**To:** Krull, Kandice (FAA) <Kandice.Krull@faa.gov>; Phil Swartzendruber <PhilS@pscleanair.gov>; Kathy Strange <KathyS@pscleanair.gov>
**Cc:** Rybolt, Steve (Rybolt.S@portseattle.org) <Rybolt.S@portseattle.org>; Sarah Potter <Sarah.Potter@landrumbrown.com>
**Subject:** RE: SEA SAMP NTP EA NEPA AQ Protocol

Hi Kandice and all,

Thanks so much for taking the time to meet and after review, we have no further comments, thanks again, Erik

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**From:** Krull, Kandice (FAA) <Kandice.Krull@faa.gov>
**Sent:** Thursday, July 13, 2023 9:27 AM
**To:** Phil Swartzendruber <PhilS@pscleanair.gov>; Erik Saganić <ErikS@pscleanair.gov>; Kathy Strange <KathyS@pscleanair.gov>
**Cc:** Rybolt, Steve (Rybolt.S@portseattle.org) <Rybolt.S@portseattle.org>; Sarah Potter <Sarah.Potter@landrumbrown.com>
**Subject:** SEA SAMP NTP EA NEPA AQ Protocol

Good morning everyone,

Thank you again for taking the time yesterday to discuss the AQ Protocol. Attached is the updated AQ Protocol for the NTP NEPA EA. Changes were made utilizing track changes to make it easier for you to track. Included below are the links to the resource materials the FAA agreed to provide. Please let me know if you would prefer attachments instead of links.

We would greatly appreciate any comments or concurrence with the Air Quality Protocol by Friday July 28.

Thanks so much
Kandice

**Kandice Krull**
**Environmental Protection Specialist**
**FAA - Denver Airports District Office**
**303-342-1261**

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**From:** Majeed, Mohammed (FAA) <Mohammed.Majeed@faa.gov>
**Sent:** Wednesday, July 12, 2023 4:12 PM
**To:** Krull, Kandice (FAA) <Kandice.Krull@faa.gov>
**Cc:** Iovinelli, Ralph (FAA) <Ralph.Iovinelli@faa.gov>; Strasser, Alan (FAA) <Alan.Strasser@faa.gov>
**Subject:** RE: AEDT Tech and User Manual documents

Kandice,

PS: You may want to share the URL links to these documents rather than the documents as attachments; see URL links below.

AEDT: Product Information (faa.gov). You can find all AEDT 3e documentation including the User and Tech Manuals.

Aviation Emissions and Air Quality Handbook | Federal Aviation Administration (faa.gov)

Let me know if you have any questions.

Thanks,

Mohammed

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**From:** Majeed, Mohammed (FAA)
**Sent:** Wednesday, July 12, 2023 5:59 PM
**To:** Krull, Kandice (FAA) <Kandice.Krull@faa.gov>
**Cc:** Iovinelli, Ralph (FAA) <Ralph.Iovinelli@faa.gov>; Strasser, Alan (FAA) <Alan.Strasser@faa.gov>
**Subject:** AEDT Tech and User Manual documents

Kandice,

Per our discussion, see attached two AEDT documents – the Tech and User Manuals. See below the relevant sections in these documents for discussion on the mixing height and how to modify it in the

tool. The Air Quality Handbook cannot be attached because of its size. I will send it in a separate message.

AEDT Tech Manual: Section 5.1.1 Airborne Emissions
AEDT User Manual: Appendix B.1.16 Preferences – Study

Regards,

Mohammed

Mohammed A Majeed, Ph.D., P.E.
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Office of Environment and Energy
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800 Independence Ave SW
Building 10A Room 902
Washington, DC 20591
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Mobile: (302) 766-3239

| | |
|---|---|
| **From:** | Sarah Potter |
| **To:** | Gaby Elizondo |
| **Subject:** | FW: [EXTERNAL] RE: Sea-Tac Int"l Airport: Sustainable Airport Master Plan Near-Term Projects Environmental Review - Climate Assessment Protocol - PLEASE REVIEW |
| **Date:** | Monday, November 27, 2023 8:30:20 AM |

**Sarah Potter**
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**From:** Erik Saganić <ErikS@pscleanair.gov>
**Sent:** Tuesday, November 21, 2023 5:07 PM
**To:** Krull, Kandice (FAA) <Kandice.Krull@faa.gov>; 'Rybolt, Steve' <Rybolt.S@portseattle.org>
**Cc:** Phil Swartzendruber <PhilS@pscleanair.gov>; Kathy Strange <KathyS@pscleanair.gov>; Sarah Potter <sarah.potter@landrumbrown.com>
**Subject:** RE: [EXTERNAL] RE: Sea-Tac Int'l Airport: Sustainable Airport Master Plan Near-Term Projects Environmental Review - Climate Assessment Protocol - PLEASE REVIEW



No further comment at this time, thanks for checking in, Erik

**From:** Krull, Kandice (FAA) <Kandice.Krull@faa.gov>
**Sent:** Tuesday, November 21, 2023 12:23 PM
**To:** Erik Saganić <ErikS@pscleanair.gov>; 'Rybolt, Steve' <Rybolt.S@portseattle.org>
**Cc:** Phil Swartzendruber <PhilS@pscleanair.gov>; Kathy Strange <KathyS@pscleanair.gov>; 'Sarah Potter' <sarah.potter@landrumbrown.com>
**Subject:** RE: [EXTERNAL] RE: Sea-Tac Int'l Airport: Sustainable Airport Master Plan Near-Term Projects Environmental Review - Climate Assessment Protocol - PLEASE REVIEW

Good afternoon Eric,

I was following up to see if you had any additional comments or concerns given the additional information I provided. We are ready to start on the analysis but wanted to confirm that there were no outstanding issues before we got too far.

Please let me know by the end of the month if there are any additional comments or questions.

Thanks so much,
Kandice

**Kandice Krull**
**Environmental Protection Specialist**
**FAA - Denver Airports District Office**
**303-342-1261**

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**From:** Krull, Kandice (FAA)
**Sent:** Thursday, November 2, 2023 8:52 AM
**To:** Erik Saganic <ErikS@pscleanair.gov>; Rybolt, Steve <Rybolt.S@portseattle.org>
**Cc:** Phil Swartzendruber <PhilS@pscleanair.gov>; Kathy Strange <KathyS@pscleanair.gov>; Sarah Potter <sarah.potter@landrumbrown.com>
**Subject:** RE: [EXTERNAL] RE: Sea-Tac Int'l Airport: Sustainable Airport Master Plan Near-Term Projects Environmental Review - Climate Assessment Protocol - PLEASE REVIEW

Good morning Eric,

I realized after I received you email that some of our responses were not included with the submittal of the revised Climate Assessment Protocol. The following were the responses for the comments that did not result in changes to the Protocol:

- **PSCAA Comment:** Black carbon, as a pollutant category, also has a significant CO2e for many sources. This discussion suggests that it's not included, is that correct, if so, why?
    - **FAA Response:** While black carbon aerosols play a role in climate impacts, the contribution of black carbon to current climate change remains highly uncertain. The FAA is currently studying how to measure and predict non-volatile particulate matter emissions (a.k.a. soot or black carbon) from sustainable and conventional aviation fuels. The EA will likely include a qualitative discussion on how advances in engine combustion designs are yielding reductions in emissions of non-volatile particulate matter.
- **PSCAA Comment:** So, this implies that APUs use Jet-A? Is this correct? Naively, I find this surprising as most other types of generators don't use Jet-A, and I'd think other fuels would be cheaper.
    - **FAA Response:** APUs are engine-driven generators contained in the aircraft (usually in the tail) that provide the aircraft with necessary energy during the time the aircraft is at the gate. Part of the generated energy is used for air conditioning. As an alternative, the required energy can be supplied by ground-based equipment that delivers electrical power at 400 Hz and preconditioned air to the aircraft. The use of fuel dispensed metric will capture APU usage and therefore APUs will be removed as a separate source. Port owned ground power units (GPUs) and preconditioned air units (PCAs) will be captured under Ground Support Equipment.
- **PSCAA Comment:** GSE electrification is a known GHG reduction pathway, and so the (lack of) infrastructure could be a key limiting (non)Action. Not clear this is in the proposed Action or Alternative, but it could be. It's quantifiable and should be discussed. Directly its Scope 3, but it actually seems like a Scope1-Scope 3 split incentive/responsibility problem. A plausible

alternative could include full electrification of GSE. So this section would need mention of a model or calculation method for electric GSE.
    - **FAA Respon**se: The Port has installed over 400 charging points/stations for electric ground support equipment (eGSE) throughout the Airport across all terminals. While there is no requirement by the Port for airlines to utilize eGSE, several airlines have opted to utilize eGSE. The eGSE will be captured in the GSE survey and accounted for in the AEDT modeling for the existing conditions. Since there are no requirements for the implementation of additional electric GSE in the future by the Port or by the Proposed Action, any additional use of eGSE in the future than what is accounted for in the existing conditions would be speculative for both the No Action and Proposed Action. As such, no further alternatives, such as those including full electrification of GSE, as recommended for the purpose of this analysis.
- **PSCAA Comment:** The proposed Action includes SAF tanks and infrastructure, correct? So, there should be some semi-quantitative discussion (relative emission factor * fuel volume) of the potential GHG reduction that would be enabled. And, that the enabled (potential) SAF fuel volume is in excess (it is?) of the projected demand/use, such that the proposed tanks aren't the limiting factor (and thus GHG emission causing).
    - **FAA Response:** While SAF tanks and infrastructure are included in the Proposed Action, there is no requirement for the Port or tenants to utilize SAF. In addition, there are supply chain issues with obtaining SAF and isn't clear when these issues will be resolved. As such, any use of SAF in the future would be speculative for both the No Action and Proposed Action. As such, no quantitative discussion is recommended for the purpose of this analysis. Qualitative discussions on the FAA's CLEEN program and the Port's sustainable fuel goals and how they could reduce future emissions will be included--see Section 2.2.
- **PSCAA Comment:** Are these then all "Full Throttle" emission factors, when most of the use isn't at "full throttle"? The issue being that the fuel-use/hp-hour (fuel efficiency) is probably fairly different across the range of "throttle settings". Same note applies to all the full throttle references above
    - **FAA Response:** Yes--the use of the "full throttle emission factor" is based on FAA guidance.

I hope these responses help explain why changes were or were not made in the Protocol. Please let me know if you have any questions or comments.

Kandice

**Kandice Krull**
**Environmental Protection Specialist**
**FAA - Denver Airports District Office**
**303-342-1261**

---

**From:** Erik Saganić <ErikS@pscleanair.gov>
**Sent:** Monday, October 16, 2023 2:14 PM

**To:** Rybolt, Steve <Rybolt.S@portseattle.org>
**Cc:** Phil Swartzendruber <PhilS@pscleanair.gov>; Kathy Strange <KathyS@pscleanair.gov>; Sarah Potter <sarah.potter@landrumbrown.com>; Krull, Kandice (FAA) <Kandice.Krull@faa.gov>
**Subject:** RE: [EXTERNAL] RE: Sea-Tac Int'l Airport: Sustainable Airport Master Plan Near-Term Projects Environmental Review - Climate Assessment Protocol - PLEASE REVIEW

Thanks so much for the follow up and edits.

I do have one more comment regarding the black carbon estimates that we provided earlier that do not seem included in the revisions.

As black carbon is one of the largest positive contributors to radiative forcing to the atmosphere (https://www.ipcc.ch/apps/njlite/ar5wg2/njlite_download2.php?id=9465#page=72), we request that you revisit including estimated black carbon emissions through available data from model outputs. Although you likely won't be able to put emissions in equivalent $CO_2$ units, cataloguing the emissions would help track the potential impact in different modeled scenarios. From the MOVES model output, we would request including elemental carbon be reported. And from the AEDT model, we request the non-volatile particulate matter be reported.

We appreciate you again for all of your time and energy in this process, Erik Saganić

---

**From:** Rybolt, Steve <Rybolt.S@portseattle.org>
**Sent:** Monday, October 9, 2023 4:19 PM
**To:** Erik Saganić <ErikS@pscleanair.gov>
**Cc:** Phil Swartzendruber <PhilS@pscleanair.gov>; Kathy Strange <KathyS@pscleanair.gov>; Sarah Potter <sarah.potter@landrumbrown.com>; Krull, Kandice (FAA) <Kandice.Krull@faa.gov>
**Subject:** RE: [EXTERNAL] RE: Sea-Tac Int'l Airport: Sustainable Airport Master Plan Near-Term Projects Environmental Review - Climate Assessment Protocol - PLEASE REVIEW

Hi Erik,

Attached is an updated Climate Assessment Protocol that we've updated with the Federal Aviation Administration (I have also included your original comments). We believe it addresses all of the Puget Sound Clear Air Agency's (PSCAA) comments.

I am looking for the PSCAA's concurrence on this protocol by Friday, October 20, 2023.

Please let Kandice or I know if you have any questions.

We have also just started the modeling of the Proposed Action (i.e. future conditions with projects) and will reach out when we have initial results later this Fall.

Thank you,

**Steve Rybolt**
Senior Environmental Program Manager
Port of Seattle | Sea-Tac International Airport
C: 206.554.1235
F: 206.787.6617

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**From:** Erik Saganić <ErikS@pscleanair.gov>
**Sent:** Thursday, August 10, 2023 4:49 PM
**To:** Rybolt, Steve <Rybolt.S@portseattle.org>
**Cc:** Phil Swartzendruber <PhilS@pscleanair.gov>; Kathy Strange <KathyS@pscleanair.gov>; Sarah Potter <sarah.potter@landrumbrown.com>; Krull, Kandice (FAA) <Kandice.Krull@faa.gov>
**Subject:** [EXTERNAL] RE: Sea-Tac Int'l Airport: Sustainable Airport Master Plan Near-Term Projects Environmental Review - Climate Assessment Protocol - PLEASE REVIEW



Hi Steve,

Please see the attached notes and some minor edits to the NEPA Climate Assessment Protocol, thanks for the chance to review, Erik

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**From:** Rybolt, Steve <Rybolt.S@portseattle.org>
**Sent:** Monday, July 31, 2023 1:28 PM
**To:** Erik Saganić <ErikS@pscleanair.gov>
**Cc:** Phil Swartzendruber <PhilS@pscleanair.gov>; Kathy Strange <KathyS@pscleanair.gov>; Sarah Potter <sarah.potter@landrumbrown.com>; Krull, Kandice (FAA) <Kandice.Krull@faa.gov>
**Subject:** Sea-Tac Int'l Airport: Sustainable Airport Master Plan Near-Term Projects Environmental Review - Climate Assessment Protocol - PLEASE REVIEW

Hi Erik,

Thanks to you and the PSCAA Team for reviewing our NEPA Air Quality Protocol. We have begun our analyses and once we have initial data, we will be sharing that with you to determine if dispersion modeling may be warranted to support the analysis.

As we identified in the NEPA Air Quality Protocol, we have drafted a separate Climate Assessment Protocol.

**Attached you will find the NEPA Climate Assessment Protocol. We are seeking any comments to the document no later than August 11, 2023.**

I'm happy to set up a time to discuss and if you need more time, please let us know.

Please let Kandice or I know if you have any questions.

Thank you,

**Steve Rybolt**
Senior Environmental Program Manager
Port of Seattle | Sea-Tac International Airport
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F: 206.787.6617

# NAAQS Table

The Clean Air Act <https://epa.gov/clean-air-act-overview>, which was last amended in 1990, requires EPA to set National Ambient Air Quality Standards (40 CFR part 50) for six principal pollutants ("criteria" air pollutants <https://epa.gov/criteria-air-pollutants>) which can be harmful to public health and the environment. The Clean Air Act identifies two types of national ambient air quality standards. ***Primary standards*** provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. ***Secondary standards*** provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

Periodically, the standards are reviewed and sometimes may be revised, establishing new standards. The most recently established standards are listed below. In some areas of the U.S., certain regulatory requirements may also remain for implementation of previously established standards <https://epa.gov/ground-level-ozone-pollution/ozone-implementation-regulatory-actions>.

Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb) by volume, and micrograms per cubic meter of air ($\mu g/m^3$).

| **Pollutant [links to historical tables of NAAQS reviews]** | **Primary/ Secondary** | **Averaging Time** | **Level** | **Form** |
|---|---|---|---|---|
| Carbon Monoxide (CO) <https://epa.gov/co-pollution/timeline-carbon-monoxide-co-national-ambient-air-quality-standards-naaqs> | primary | 8 hours | 9 ppm | Not to be exceeded more than once per year |
| | | 1 hour | 35 ppm | |

| **Pollutant [links to historical tables of NAAQS reviews]** | **Primary/ Secondary** | **Averaging Time** | **Level** | **Form** |
|---|---|---|---|---|
| Lead (Pb) <https://epa.gov/lead-air-pollution/timeline-lead-pb-national-ambient-air-quality-standards-naaqs> | primary and secondary | Rolling 3 month average | 0.15 µg/$m^3$ (1) | Not to be exceeded |
| Nitrogen Dioxide ($NO_2$) <https://epa.gov/no2-pollution/timeline-nitrogen-dioxide-no2-national-ambient-air-quality-standards-naaqs> | primary | 1 hour | 100 ppb | 98th percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| | primary and secondary | 1 year | 53 ppb (2) | Annual Mean |
| Ozone ($O_3$) <https://epa.gov/ground-level-ozone-pollution/timeline-ozone-national-ambient-air-quality-standards-naaqs> | primary and secondary | 8 hours | 0.070 ppm (3) | Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years |

| **Pollutant [links to historical tables of NAAQS reviews]** | | **Primary/ Secondary** | **Averaging Time** | **Level** | **Form** |
|---|---|---|---|---|---|
| Particle Pollution (PM) <https://epa.gov/pm-pollution/timeline-particulate-matter-pm-national-ambient-air-quality-standards-naaqs> | $PM_{2.5}$ | primary | 1 year | 9.0 µg/$m^3$ | annual mean, averaged over 3 years |
| | | secondary | 1 year | 15.0 µg/$m^3$ | annual mean, averaged over 3 years |
| | | primary and secondary | 24 hours | 35 µg/$m^3$ | 98th percentile, averaged over 3 years |
| | $PM_{10}$ | primary and secondary | 24 hours | 150 µg/$m^3$ | Not to be exceeded more than once per year on average over 3 years |
| Sulfur Dioxide ($SO_2$) <https://epa.gov/so2-pollution/timeline-sulfur-dioxide-national-ambient-air-quality-standards-naaqs> | | primary | 1 hour | 75 ppb (4) | 99th percentile of 1-hour daily maximum concentrations, averaged over 3 years |
| | | secondary | 3 hours | 0.5 ppm | Not to be exceeded more than once per year |

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m3 as a calendar quarter average) also remain in effect.

(2) The level of the annual $NO_2$ standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) $O_3$ standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) $O_3$ standards.

(4) The previous $SO_2$ standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2)any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous $SO_2$ standards or is not meeting the requirements of a SIP call under the previous $SO_2$ standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

### Menu of Control Measures for NAAQS Implementation

The Menu of Control Measures (MCM) provides state, local and tribal air agencies with the existing emission reduction measures as well as relevant information concerning the efficiency and cost effectiveness of the measures. State, local and tribal agencies will be able to use this information in developing emission reduction strategies, plans and programs to assure they attain and maintain the National Ambient Air Quality Standards (NAAQS). The MCM is a living document that can be updated with newly available or more current data as it becomes available.

- Menu of Control Measures <https://epa.gov/criteria-air-pollutants/menu-control-measures-naaqs-implementation>

Criteria Air Pollutants Home <https://epa.gov/criteria-air-pollutants>

Information by Pollutant <https://epa.gov/criteria-air-pollutants/information-pollutant>

NAAQS Review Process <https://epa.gov/criteria-air-pollutants/process-reviewing-national-ambient-air-quality-standards>

NAAQS Designations Process <https://epa.gov/criteria-air-pollutants/process-determine-whether-areas-meet-naaqs-designations-process>

NAAQS Implementation Process <https://epa.gov/criteria-air-pollutants/process-working-areas-attain-and-maintain-naaqs-implementation-process>

**Current NAAQS Table**

Contact Us <https://epa.gov/criteria-air-pollutants/forms/contact-us-about-criteria-air-pollutants> to ask a question, provide feedback, or report a problem.

LAST UPDATED ON FEBRUARY 7, 2024

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# Follow.

# FW: Sea-Tac International Airport Preliminary Air Results

Sarah Potter <sarah.potter@landrumbrown.com>

Fri 12/15/2023 8:11 AM

To:Gaby Elizondo <Gaby.Elizondo@landrumbrown.com>

See below.


**Sarah Potter**

Executive Vice President

**Landrum & Brown**

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---

**From:** Krull, Kandice (FAA) <Kandice.Krull@faa.gov>
**Sent:** Thursday, December 14, 2023 1:10 PM
**To:** Erik Saganić <ErikS@pscleanair.gov>
**Cc:** Rybolt, Steve (Rybolt.S@portseattle.org) <Rybolt.S@portseattle.org>; Sarah Potter <sarah.potter@landrumbrown.com>; Kathy Strange <KathyS@pscleanair.gov>; Phil Swartzendruber <PhilS@pscleanair.gov>
**Subject:** RE: Sea-Tac International Airport Preliminary Air Results



Thanks for the quick response Erik. We really appreciate all of your help with this project.

We will share the entire air quality analysis, including the climate analysis, once it is completed.

Happy holidays

Kandice

**Kandice Krull**

**Environmental Protection Specialist**

**FAA - Denver Airports District Office**

**303-342-1261**

---

**From:** Erik Saganić <ErikS@pscleanair.gov>
**Sent:** Thursday, December 14, 2023 10:19 AM
**To:** Krull, Kandice (FAA) <Kandice.Krull@faa.gov>
**Cc:** Rybolt, Steve (Rybolt.S@portseattle.org) <Rybolt.S@portseattle.org>; Sarah Potter <sarah.potter@landrumbrown.com>; Kathy Strange <KathyS@pscleanair.gov>; Phil Swartzendruber <PhilS@pscleanair.gov>
**Subject:** RE: Sea-Tac International Airport Preliminary Air Results

Thanks Kandice,

I have no further comments on the table below. I would not expect these numbers to result in an exceedance of the NAAQS.

Erik

**From:** Krull, Kandice (FAA)
**Sent:** Thursday, December 7, 2023 2:55 PM
**To:** erics@pscleanair.gov
**Cc:** Rybolt, Steve (Rybolt.S@portseattle.org) <Rybolt.S@portseattle.org>; Phil Swartzendruber <PhilS@pscleanair.gov>; Kathy Strange <KathyS@pscleanair.gov>; Sarah Potter <sarah.potter@landrumbrown.com>
**Subject:** Sea-Tac International Airport Preliminary Air Results

Hi Eric,

We have preliminary results from the air quality analysis for the SEA SAMP NTP EA ready for PSCAA review. We are hoping to get input from the PSCAA on the potential for the project to cause an exceedance of the NAAQS within the region. We are more than willing to have a call to discuss the results and get feedback if that would be easier.

We are requesting a response by Friday January 12, 2024.

Thanks so much,

Kandice

**Kandice Krull**

**Environmental Protection Specialist**

**FAA - Denver Airports District Office**

**303-342-1261**

---

**From:** Sarah Potter <Sarah.Potter@landrumbrown.com>
**Sent:** Wednesday, December 6, 2023 4:13 PM
**To:** Krull, Kandice (FAA) <Kandice.Krull@faa.gov>
**Cc:** Rybolt, Steve <Rybolt.S@portseattle.org>
**Subject:** FW: SEA SAMP - Preliminary AQ Operational Emissions Inventories

HI Kandice – The following are the results that were prepared using AEDT version 3e.

**Sarah Potter**

Executive Vice President

**Landrum & Brown**

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**From:** Gaby Elizondo <Gaby.Elizondo@landrumbrown.com>
**Sent:** Wednesday, December 6, 2023 6:07 PM
**To:** Sarah Potter <Sarah.Potter@landrumbrown.com>
**Subject:** SEA SAMP - Preliminary AQ Operational Emissions Inventories

Hey Sarah,

See below for the SEA SAMP preliminary air quality operational emissions inventories for 2032 and 2037.  Let me know if you need anything else.

**Table 1: 2032 No Action and 2032 Proposed Action Operational Emissions Inventory**

| | Annual Emissions (tons per year) | | | | | |
|---|---|---|---|---|---|---|
| | CO | VOC | NOx | SOx | PM 10 | PM 2·5 |

**2032 No Action**

| | | | | | | |
|---|---|---|---|---|---|---|
| Aircraft | 2,587 | 282 | 2,857 | 259 | 28 | 28 |
| GSE | 314 | 11 | 22 | 0 | 2 | 2 |
| Stationary Sources | 19 | 12 | 34 | 1 | 1 | 1 |
| Motor Vehicles | 1,916 | 15 | 176 | 2 | 3 | 3 |
| *2032 No Action Subtotal* | *4,837* | *320* | *3,089* | *263* | *35* | *35* |

**2032 Proposed Action**

| | | | | | | |
|---|---|---|---|---|---|---|
| Aircraft | 2,603 | 284 | 2,904 | 262 | 29 | 29 |
| GSE | 320 | 12 | 23 | 0 | 3 | 2 |
| Stationary Sources | 26 | 16 | 47 | 2 | 2 | 2 |
| Motor Vehicles | 1,961 | 15 | 179 | 3 | 3 | 3 |
| *2032 Proposed Action Subtotal* | *4,910* | *327* | *3,153* | *267* | *37* | *36* |
| ***2032 Net Emissions*** | ***73*** | ***7*** | ***64*** | ***4*** | ***1*** | ***1*** |

## Table 2: 2037 No Action and 2037 Proposed Action Operational Emissions Inventory

| | Annual Emissions (tons per year) | | | | | |
|---|---|---|---|---|---|---|
| | CO | VOC | NOx | SOx | PM 10 | PM 2·5 |

**2037 No Action**

| | | | | | | |
|---|---|---|---|---|---|---|
| Aircraft | 2,511 | 267 | 3,076 | 266 | 30 | 30 |
| GSE | 320 | 12 | 22 | 0 | 3 | 2 |
| Stationary Sources | 19 | 12 | 34 | 1 | 1 | 1 |
| Motor Vehicles | 1,620 | 12 | 160 | 3 | 2 | 2 |
| *2037 No Action Subtotal* | *4,470* | *302* | *3,292* | *270* | *36* | *36* |

**2037 Proposed Action**

| | | | | | | |
|---|---|---|---|---|---|---|
| Aircraft | 2,819 | 292 | 3,324 | 293 | 32 | 32 |
| GSE | 343 | 12 | 24 | 0 | 3 | 2 |
| Stationary Sources | 26 | 16 | 47 | 2 | 2 | 2 |
| Motor Vehicles | 1,720 | 12 | 168 | 3 | 2 | 2 |
| *2037 Proposed Action Subtotal* | *4,908* | *333* | *3,564* | *298* | *39* | *39* |
| ***2037 Net Emissions*** | ***438*** | ***31*** | ***272*** | ***27*** | ***3*** | ***3*** |

Thanks,

**Gaby Elizondo, AICP**

Senior Consultant

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# Emission Factors for Greenhouse Gas Inventories

Last Modified: 1 April 2022

**Red text indicates an update from the 2021 version of this document.**

Typically, greenhouse gas emissions are reported in units of carbon dioxide equivalent ($CO_2e$). Gases are converted to $CO_2e$ by multiplying by their global warming potential (GWP). The emission factors listed in this document have not been converted to $CO_2e$. To do so, multiply the emissions by the corresponding GWP listed in the table below.

| Gas | 100-Year GWP |
|---|---|
| $CH_4$ | 25 |
| $N_2O$ | 298 |

**Source:** Intergovernmental Panel on Climate Change (IPCC), Fourth Assessment Report (AR4), 2007. See the source note to Table 11 for further explanation.

## Table 1 Stationary Combustion

| Fuel Type | Heat Content (HHV) | $CO_2$ Factor | $CH_4$ Factor | $N_2O$ Factor | $CO_2$ Factor | $CH_4$ Factor | $N_2O$ Factor |
|---|---|---|---|---|---|---|---|
| | mmBtu per short ton | kg $CO_2$ per mmBtu | g $CH_4$ per mmBtu | g $N_2O$ per mmBtu | kg $CO_2$ per short ton | g $CH_4$ per short ton | g $N_2O$ per short ton |
| **Coal and Coke** | | | | | | | |
| Anthracite Coal | 25.09 | 103.69 | 11 | 1.6 | 2,602 | 276 | 40 |
| Bituminous Coal | 24.93 | 93.28 | 11 | 1.6 | 2,325 | 274 | 40 |
| Sub-bituminous Coal | 17.25 | 97.17 | 11 | 1.6 | 1,676 | 190 | 28 |
| Lignite Coal | 14.21 | 97.72 | 11 | 1.6 | 1,389 | 156 | 23 |
| Mixed (Commercial Sector) | 21.39 | 94.27 | 11 | 1.6 | 2,016 | 235 | 34 |
| Mixed (Electric Power Sector) | 19.73 | 95.52 | 11 | 1.6 | 1,885 | 217 | 32 |
| Mixed (Industrial Coking) | 26.28 | 93.90 | 11 | 1.6 | 2,468 | 289 | 42 |
| Mixed (Industrial Sector) | 22.35 | 94.67 | 11 | 1.6 | 2,116 | 246 | 36 |
| Coal Coke | 24.80 | 113.67 | 11 | 1.6 | 2,819 | 273 | 40 |
| **Other Fuels - Solid** | | | | | | | |
| Municipal Solid Waste | 9.95 | 90.70 | 32 | 4.2 | 902 | 318 | 42 |
| Petroleum Coke (Solid) | 30.00 | 102.41 | 32 | 4.2 | 3,072 | 960 | 126 |
| Plastics | 38.00 | 75.00 | 32 | 4.2 | 2,850 | 1,216 | 160 |
| Tires | 28.00 | 85.97 | 32 | 4.2 | 2,407 | 896 | 118 |
| **Biomass Fuels - Solid** | | | | | | | |
| Agricultural Byproducts | 8.25 | 118.17 | 32 | 4.2 | 975 | 264 | 35 |
| Peat | 8.00 | 111.84 | 32 | 4.2 | 895 | 256 | 34 |
| Solid Byproducts | 10.39 | 105.51 | 32 | 4.2 | 1,096 | 332 | 44 |
| Wood and Wood Residuals | 17.48 | 93.80 | 7.2 | 3.6 | 1,640 | 126 | 63 |
| | mmBtu per scf | kg $CO_2$ per mmBtu | g $CH_4$ per mmBtu | g $N_2O$ per mmBtu | kg $CO_2$ per scf | g $CH_4$ per scf | g $N_2O$ per scf |
| **Natural Gas** | | | | | | | |
| Natural Gas | 0.001026 | 53.06 | 1.0 | 0.10 | 0.05444 | 0.00103 | 0.00010 |
| **Other Fuels - Gaseous** | | | | | | | |
| Blast Furnace Gas | 0.000092 | 274.32 | 0.022 | 0.10 | 0.02524 | 0.000002 | 0.000009 |
| Coke Oven Gas | 0.000599 | 46.85 | 0.48 | 0.10 | 0.02806 | 0.000288 | 0.000060 |
| Fuel Gas | 0.001388 | 59.00 | 3.0 | 0.60 | 0.08189 | 0.004164 | 0.000833 |
| Propane Gas | 0.002516 | 61.46 | 3.0 | 0.60 | 0.15463 | 0.007548 | 0.001510 |
| **Biomass Fuels - Gaseous** | | | | | | | |
| Landfill Gas | 0.000485 | 52.07 | 3.2 | 0.63 | 0.025254 | 0.001552 | 0.000306 |
| Other Biomass Gases | 0.000655 | 52.07 | 3.2 | 0.63 | 0.034106 | 0.002096 | 0.000413 |
| | mmBtu per gallon | kg $CO_2$ per mmBtu | g $CH_4$ per mmBtu | g $N_2O$ per mmBtu | kg $CO_2$ per gallon | g $CH_4$ per gallon | g $N_2O$ per gallon |
| **Petroleum Products** | | | | | | | |
| Asphalt and Road Oil | 0.158 | 75.36 | 3.0 | 0.60 | 11.91 | 0.47 | 0.09 |
| Aviation Gasoline | 0.120 | 69.25 | 3.0 | 0.60 | 8.31 | 0.36 | 0.07 |
| Butane | 0.103 | 64.77 | 3.0 | 0.60 | 6.67 | 0.31 | 0.06 |
| Butylene | 0.105 | 68.72 | 3.0 | 0.60 | 7.22 | 0.32 | 0.06 |
| Crude Oil | 0.138 | 74.54 | 3.0 | 0.60 | 10.29 | 0.41 | 0.08 |
| Distillate Fuel Oil No. 1 | 0.139 | 73.25 | 3.0 | 0.60 | 10.18 | 0.42 | 0.08 |
| Distillate Fuel Oil No. 2 | 0.138 | 73.96 | 3.0 | 0.60 | 10.21 | 0.41 | 0.08 |
| Distillate Fuel Oil No. 4 | 0.146 | 75.04 | 3.0 | 0.60 | 10.96 | 0.44 | 0.09 |
| Ethane | 0.068 | 59.60 | 3.0 | 0.60 | 4.05 | 0.20 | 0.04 |
| Ethylene | 0.058 | 65.96 | 3.0 | 0.60 | 3.83 | 0.17 | 0.03 |
| Heavy Gas Oils | 0.148 | 74.92 | 3.0 | 0.60 | 11.09 | 0.44 | 0.09 |
| Isobutane | 0.099 | 64.94 | 3.0 | 0.60 | 6.43 | 0.30 | 0.06 |
| Isobutylene | 0.103 | 68.86 | 3.0 | 0.60 | 7.09 | 0.31 | 0.06 |
| Kerosene | 0.135 | 75.20 | 3.0 | 0.60 | 10.15 | 0.41 | 0.08 |
| Kerosene-Type Jet Fuel | 0.135 | 72.22 | 3.0 | 0.60 | 9.75 | 0.41 | 0.08 |
| Liquefied Petroleum Gases (LPG) | 0.092 | 61.71 | 3.0 | 0.60 | 5.68 | 0.28 | 0.06 |
| Lubricants | 0.144 | 74.27 | 3.0 | 0.60 | 10.69 | 0.43 | 0.09 |
| Motor Gasoline | 0.125 | 70.22 | 3.0 | 0.60 | 8.78 | 0.38 | 0.08 |
| Naphtha (<401 deg F) | 0.125 | 68.02 | 3.0 | 0.60 | 8.50 | 0.38 | 0.08 |
| Natural Gasoline | 0.110 | 66.88 | 3.0 | 0.60 | 7.36 | 0.33 | 0.07 |
| Other Oil (>401 deg F) | 0.139 | 76.22 | 3.0 | 0.60 | 10.59 | 0.42 | 0.08 |
| Pentanes Plus | 0.110 | 70.02 | 3.0 | 0.60 | 7.70 | 0.33 | 0.07 |
| Petrochemical Feedstocks | 0.125 | 71.02 | 3.0 | 0.60 | 8.88 | 0.38 | 0.08 |
| Propane | 0.091 | 62.87 | 3.0 | 0.60 | 5.72 | 0.27 | 0.05 |
| Propylene | 0.091 | 67.77 | 3.0 | 0.60 | 6.17 | 0.27 | 0.05 |
| Residual Fuel Oil No. 5 | 0.140 | 72.93 | 3.0 | 0.60 | 10.21 | 0.42 | 0.08 |
| Residual Fuel Oil No. 6 | 0.150 | 75.10 | 3.0 | 0.60 | 11.27 | 0.45 | 0.09 |
| Special Naphtha | 0.125 | 72.34 | 3.0 | 0.60 | 9.04 | 0.38 | 0.08 |
| Unfinished Oils | 0.139 | 74.54 | 3.0 | 0.60 | 10.36 | 0.42 | 0.08 |
| Used Oil | 0.138 | 74.00 | 3.0 | 0.60 | 10.21 | 0.41 | 0.08 |
| **Biomass Fuels - Liquid** | | | | | | | |
| Biodiesel (100%) | 0.128 | 73.84 | 1.1 | 0.11 | 9.45 | 0.14 | 0.01 |
| Ethanol (100%) | 0.084 | 68.44 | 1.1 | 0.11 | 5.75 | 0.09 | 0.01 |
| Rendered Animal Fat | 0.125 | 71.06 | 1.1 | 0.11 | 8.88 | 0.14 | 0.01 |
| Vegetable Oil | 0.120 | 81.55 | 1.1 | 0.11 | 9.79 | 0.13 | 0.01 |
| **Biomass Fuels - Kraft Pulping Liquor, by Wood Furnish** | | | | | | | |
| North American Softwood | | 94.4 | 1.9 | 0.42 | | | |
| North American Hardwood | | 93.7 | 1.9 | 0.42 | | | |
| Bagasse | | 95.5 | 1.9 | 0.42 | | | |
| Bamboo | | 93.7 | 1.9 | 0.42 | | | |
| Straw | | 95.1 | 1.9 | 0.42 | | | |

**Source:**
Federal Register EPA; 40 CFR Part 98; e-CFR, (see link below). Table C-1, Table C-2 (as amended at 81 FR 89252, Dec. 9, 2016), Table AA-1 (78 FR 71965, Nov. 29, 2013).
https://www.ecfr.gov/cgi-bin/text-idx?SID=ae265d7d6f98ec86fcd8640b9793a3f6&mc=true&node=pt40.23.98&rgn=div5#ap40.23.98_19.1

**Note:** Emission factors are per unit of heat content using higher heating values (HHV). If heat content is available from the fuel supplier, it is preferable to use that value. If not, default heat contents are provided.

## Table 2 Mobile Combustion $CO_2$

| Fuel Type | kg $CO_2$ per unit | Unit |
|---|---|---|
| Aviation Gasoline | 8.31 | gallon |
| Biodiesel (100%) | 9.45 | gallon |
| Compressed Natural Gas (CNG) | 0.05444 | scf |
| Diesel Fuel | 10.21 | gallon |
| Ethanol (100%) | 5.75 | gallon |
| Kerosene-Type Jet Fuel | 9.75 | gallon |
| Liquefied Natural Gas (LNG) | 4.50 | gallon |
| Liquefied Petroleum Gases (LPG) | 5.68 | gallon |
| Motor Gasoline | 8.78 | gallon |
| Residual Fuel Oil | 11.27 | gallon |

**Source:**
Federal Register EPA; 40 CFR Part 98; e-CFR, (see link below). Table C-1 (as amended at 81 FR 89252, Dec. 9, 2016).
https://www.ecfr.gov/cgi-bin/text-idx?SID=ae265d7d6f98ec86fcd8640b9793a3f6&mc=true&node=pt40.23.98&rgn=div5#ap40.23.98_19.1
LNG: The factor was developed based on the $CO_2$ factor for Natural Gas factor and LNG fuel density from GREET1_2021.xlsx Model, Argonne National Laboratory (Fuel_Specs worksheet).

## Table 3 Mobile Combustion $CH_4$ and $N_2O$ for On-Road Gasoline Vehicles

| Vehicle Type | Year | $CH_4$ Factor (g / mile) | $N_2O$ Factor (g / mile) |
|---|---|---|---|
| Gasoline Passenger Cars | 1973-1974 | 0.1696 | 0.0197 |
| | 1975 | 0.1423 | 0.0443 |
| | 1976-1977 | 0.1406 | 0.0458 |
| | 1978-1979 | 0.1389 | 0.0473 |
| | 1980 | 0.1326 | 0.0499 |
| | 1981 | 0.0802 | 0.0626 |
| | 1982 | 0.0795 | 0.0627 |
| | 1983 | 0.0782 | 0.0630 |
| | 1984-1993 | 0.0704 | 0.0647 |
| | 1994 | 0.0617 | 0.0603 |
| | 1995 | 0.0531 | 0.0560 |
| | 1996 | 0.0434 | 0.0503 |
| | 1997 | 0.0337 | 0.0446 |
| | 1998 | 0.0240 | 0.0389 |
| | 1999 | 0.0215 | 0.0355 |
| | 2000 | 0.0175 | 0.0304 |
| | 2001 | 0.0105 | 0.0212 |
| | 2002 | 0.0102 | 0.0207 |
| | 2003 | 0.0095 | 0.0181 |
| | 2004 | 0.0078 | 0.0085 |
| | 2005 | 0.0075 | 0.0067 |
| | 2006 | 0.0076 | 0.0075 |
| | 2007 | 0.0072 | 0.0052 |
| | 2008 | 0.0072 | 0.0049 |
| | 2009 | 0.0071 | 0.0046 |
| | 2010 | 0.0071 | 0.0046 |
| | 2011 | 0.0071 | 0.0046 |
| | 2012 | 0.0071 | 0.0046 |
| | 2013 | 0.0071 | 0.0046 |
| | 2014 | 0.0071 | 0.0046 |
| | 2015 | 0.0068 | 0.0042 |
| | 2016 | 0.0065 | 0.0038 |
| | 2017 | 0.0054 | 0.0018 |
| | 2018 | 0.0052 | 0.0016 |
| | 2019 | 0.0051 | 0.0015 |
| Gasoline Light-Duty Trucks (Vans, Pickup Trucks, SUVs) | 1973-1974 | 0.1908 | 0.0218 |
| | 1975 | 0.1634 | 0.0513 |
| | 1976 | 0.1594 | 0.0555 |
| | 1977-1978 | 0.1614 | 0.0534 |
| | 1979-1980 | 0.1594 | 0.0555 |
| | 1981 | 0.1479 | 0.0660 |
| | 1982 | 0.1442 | 0.0681 |
| | 1983 | 0.1368 | 0.0722 |
| | 1984 | 0.1294 | 0.0764 |
| | 1985 | 0.1220 | 0.0806 |
| | 1986 | 0.1146 | 0.0848 |
| | 1987-1993 | 0.0813 | 0.1035 |
| | 1994 | 0.0646 | 0.0982 |
| | 1995 | 0.0517 | 0.0908 |
| | 1996 | 0.0452 | 0.0871 |
| | 1997 | 0.0452 | 0.0871 |
| | 1998 | 0.0412 | 0.0787 |
| | 1999 | 0.0333 | 0.0618 |
| | 2000 | 0.0340 | 0.0631 |
| | 2001 | 0.0221 | 0.0379 |
| | 2002 | 0.0242 | 0.0424 |
| | 2003 | 0.0221 | 0.0373 |
| | 2004 | 0.0115 | 0.0088 |
| | 2005 | 0.0105 | 0.0064 |
| | 2006 | 0.0108 | 0.0080 |
| | 2007 | 0.0103 | 0.0061 |
| | 2008 | 0.0095 | 0.0036 |
| | 2009 | 0.0095 | 0.0036 |
| | 2010 | 0.0095 | 0.0035 |
| | 2011 | 0.0096 | 0.0034 |
| | 2012 | 0.0096 | 0.0033 |
| | 2013 | 0.0095 | 0.0035 |
| | 2014 | 0.0095 | 0.0033 |
| | 2015 | 0.0094 | 0.0031 |
| | 2016 | 0.0091 | 0.0029 |
| | 2017 | 0.0084 | 0.0018 |
| | 2018 | 0.0081 | 0.0015 |
| | 2019 | 0.0080 | 0.0013 |
| Gasoline Heavy-Duty Vehicles | ≤1980 | 0.4604 | 0.0497 |
| | 1981-1984 | 0.4492 | 0.0538 |
| | 1985-1986 | 0.4090 | 0.0515 |
| | 1987 | 0.3675 | 0.0849 |
| | 1988-1989 | 0.3492 | 0.0933 |
| | 1990-1995 | 0.3246 | 0.1142 |
| | 1996 | 0.1278 | 0.1680 |
| | 1997 | 0.0924 | 0.1726 |
| | 1998 | 0.0655 | 0.1750 |
| | 1999 | 0.0648 | 0.1724 |
| | 2000 | 0.0630 | 0.1660 |
| | 2001 | 0.0577 | 0.1468 |
| | 2002 | 0.0634 | 0.1673 |
| | 2003 | 0.0602 | 0.1553 |
| | 2004 | 0.0298 | 0.0164 |
| | 2005 | 0.0297 | 0.0083 |
| | 2006 | 0.0299 | 0.0241 |
| | 2007 | 0.0322 | 0.0015 |
| | 2008 | 0.0340 | 0.0015 |
| | 2009 | 0.0339 | 0.0015 |
| | 2010 | 0.0320 | 0.0015 |
| | 2011 | 0.0304 | 0.0015 |
| | 2012 | 0.0313 | 0.0015 |
| | 2013 | 0.0313 | 0.0015 |
| | 2014 | 0.0315 | 0.0015 |
| | 2015 | 0.0332 | 0.0021 |
| | 2016 | 0.0321 | 0.0061 |
| | 2017 | 0.0329 | 0.0084 |
| | 2018 | 0.0326 | 0.0082 |
| | 2019 | 0.0330 | 0.0091 |
| Gasoline Motorcycles | 1960-1995 | 0.0899 | 0.0087 |
| | 1996-2019 | 0.0672 | 0.0069 |

**Source**: EPA (2021) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019 (Annexes). All values are calculated from Tables A-90 through A-94.

## Table 4 Mobile Combustion $CH_4$ and $N_2O$ for On-Road Diesel and Alternative Fuel Vehicles

| Vehicle Type | Fuel Type | Vehicle Year | $CH_4$ Factor (g / mile) | $N_2O$ Factor (g / mile) |
|---|---|---|---|---|
| Passenger Cars | Diesel | 1960-1982 | 0.0006 | 0.0012 |
| | | 1983-2006 | 0.0005 | 0.0010 |
| | | 2007-2019 | 0.0302 | 0.0192 |
| Light-Duty Trucks | Diesel | 1960-1982 | 0.0011 | 0.0017 |
| | | 1983-2006 | 0.0009 | 0.0014 |
| | | 2007-2019 | 0.0290 | 0.0214 |
| Medium- and Heavy-Duty Vehicles | Diesel | 1960-2006 | 0.0051 | 0.0048 |
| | | 2007-2019 | 0.0095 | 0.0431 |
| Light-Duty Cars | Methanol | | 0.0080 | 0.0050 |
| | Ethanol | | 0.0080 | 0.0050 |
| | CNG | | 0.0810 | 0.0050 |
| | LPG | | 0.0080 | 0.0050 |
| | Biodiesel | | 0.0300 | 0.0190 |
| Light-Duty Trucks | Ethanol | | 0.0120 | 0.0090 |
| | CNG | | 0.1210 | 0.0090 |
| | LPG | | 0.0120 | 0.0120 |
| | LNG | | 0.1210 | 0.0090 |
| | Biodiesel | | 0.0290 | 0.0210 |
| Medium-Duty Trucks | CNG | | 4.200 | 0.0010 |
| | LPG | | 0.0140 | 0.0340 |
| | LNG | | 4.200 | 0.0010 |
| | Biodiesel | | 0.0090 | 0.0430 |
| Heavy-Duty Trucks | Methanol | | 0.0750 | 0.0280 |
| | Ethanol | | 0.0750 | 0.0280 |
| | CNG | | 3.70 | 0.0010 |
| | LPG | | 0.0130 | 0.0260 |
| | LNG | | 3.70 | 0.0010 |
| | Biodiesel | | 0.0090 | 0.0430 |
| Buses | Methanol | | 0.0160 | 0.0320 |
| | Ethanol | | 0.0160 | 0.0320 |
| | CNG | | 10.00 | 0.0010 |
| | LPG | | 0.0340 | 0.0170 |
| | LNG | | 10.00 | 0.0010 |
| | Biodiesel | | 0.0090 | 0.0430 |

**Source**: EPA (2021) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019 (Annexes). All values are calculated from Tables A-93 through A-96.

## Table 5 Mobile Combustion $CH_4$ and $N_2O$ for Non-Road Vehicles

| Vehicle Type | Fuel Type | $CH_4$ Factor (g / gallon) | $N_2O$ Factor (g / gallon) |
|---|---|---|---|
| Ships and Boats | Residual Fuel Oil | 1.11 | 0.32 |
| | Gasoline (2 stroke) | 4.58 | 0.08 |
| | Gasoline (4 stroke) | 2.24 | 0.01 |
| | Diesel | 6.41 | 0.17 |
| Locomotives | Diesel | 0.80 | 0.26 |
| Aircraft | Jet Fuel | - | 0.30 |
| | Aviation Gasoline | 7.06 | 0.11 |
| Agricultural Equipment[A] | Gasoline (2 stroke) | 9.19 | 0.26 |
| | Gasoline (4 stroke) | 3.33 | 1.83 |
| | Diesel | 0.97 | 0.90 |
| | LPG | 0.42 | 0.60 |
| Agricultural Offroad Trucks | Gasoline | 3.33 | 1.84 |
| | Diesel | 0.99 | 0.92 |
| Construction/Mining Equipment[B] | Gasoline (2 stroke) | 12.11 | 0.34 |
| | Gasoline (4 stroke) | 3.03 | 1.67 |
| | Diesel | 0.94 | 0.87 |
| | LPG | 0.44 | 0.63 |
| Construction/Mining Offroad Trucks | Gasoline | 3.03 | 1.67 |
| | Diesel | 0.99 | 0.92 |
| Lawn and Garden Equipment | Gasoline (2 stroke) | 10.21 | 0.28 |
| | Gasoline (4 stroke) | 2.85 | 1.56 |
| | Diesel | 0.93 | 0.86 |
| | LPG | 0.45 | 0.64 |
| Airport Equipment | Gasoline | 3.88 | 2.13 |
| | Diesel | 0.99 | 0.91 |
| | LPG | 0.45 | 0.64 |
| Industrial/Commercial Equipment | Gasoline (2 stroke) | 9.21 | 0.26 |
| | Gasoline (4 stroke) | 3.04 | 1.67 |
| | Diesel | 0.93 | 0.87 |
| | LPG | 0.45 | 0.64 |
| Logging Equipment | Gasoline (2 stroke) | 12.48 | 0.35 |
| | Gasoline (4 stroke) | 2.85 | 1.57 |
| | Diesel | 0.99 | 0.92 |
| Railroad Equipment | Gasoline | 2.87 | 1.59 |
| | Diesel | 0.83 | 0.78 |
| | LPG | 0.43 | 0.63 |
| Recreational Equipment | Gasoline (2 stroke) | 4.27 | 0.20 |
| | Gasoline (4 stroke) | 4.30 | 2.22 |
| | Diesel | 0.80 | 0.75 |
| | LPG | 0.41 | 0.58 |

**Source**: EPA (2021) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019 (Annexes). All values are calculated from Tables A-97 through A-98.

**Notes:**
$CH_4$ and $N_2O$ Emission Factors: Updates due to a methodology change.
[A] Includes equipment, such as tractors and combines, as well as fuel consumption from trucks that are used off-road in agriculture.
[B] Includes equipment, such as cranes, dumpers, and excavators, as well as fuel consumption from trucks that are used off-road in construction.

## Table 6 Electricity

| eGRID Subregion | Total Output Emission Factors | | | Non-Baseload Emission Factors | | |
|---|---|---|---|---|---|---|
| | $CO_2$ Factor (lb / MWh) | $CH_4$ Factor (lb / MWh) | $N_2O$ Factor (lb / MWh) | $CO_2$ Factor (lb / MWh) | $CH_4$ Factor (lb / MWh) | $N_2O$ Factor (lb / MWh) |
| AKGD (ASCC Alaska Grid) | 1,097.6 | 0.100 | 0.014 | 1,315.1 | 0.126 | 0.017 |
| AKMS (ASCC Miscellaneous) | 534.1 | 0.027 | 0.005 | 1,517.7 | 0.066 | 0.012 |
| AZNM (WECC Southwest) | 846.6 | 0.054 | 0.007 | 1,368.6 | 0.090 | 0.013 |
| CAMX (WECC California) | 513.5 | 0.032 | 0.004 | 1,006.5 | 0.053 | 0.007 |
| ERCT (ERCOT All) | 818.6 | 0.052 | 0.007 | 1,296.6 | 0.086 | 0.012 |
| FRCC (FRCC All) | 835.1 | 0.049 | 0.006 | 1,011.0 | 0.052 | 0.007 |
| HIMS (HICC Miscellaneous) | 1,143.2 | 0.110 | 0.017 | 1,542.1 | 0.134 | 0.022 |
| HIOA (HICC Oahu) | 1,653.0 | 0.178 | 0.027 | 1,753.5 | 0.175 | 0.027 |
| MROE (MRO East) | 1,526.4 | 0.139 | 0.020 | 1,628.9 | 0.143 | 0.021 |
| MROW (MRO West) | 979.5 | 0.104 | 0.015 | 1,810.0 | 0.185 | 0.027 |
| NEWE (NPCC New England) | 528.2 | 0.074 | 0.010 | 882.5 | 0.070 | 0.009 |
| NWPP (WECC Northwest) | 600.0 | 0.056 | 0.008 | 1,653.0 | 0.159 | 0.023 |
| NYCW (NPCC NYC/Westchester) | 634.6 | 0.022 | 0.003 | 970.2 | 0.021 | 0.002 |
| NYLI (NPCC Long Island) | 1,203.9 | 0.138 | 0.018 | 1,260.6 | 0.034 | 0.004 |
| NYUP (NPCC Upstate NY) | 233.5 | 0.016 | 0.002 | 877.9 | 0.042 | 0.005 |
| PRMS (Puerto Rico Miscellaneous) | 1,602.2 | 0.085 | 0.014 | 1,673.3 | 0.070 | 0.013 |
| RFCE (RFC East) | 652.5 | 0.045 | 0.006 | 1,233.4 | 0.085 | 0.012 |
| RFCM (RFC Michigan) | 1,153.1 | 0.101 | 0.014 | 1,725.7 | 0.163 | 0.023 |
| RFCW (RFC West) | 985.0 | 0.086 | 0.012 | 1,810.4 | 0.173 | 0.025 |
| RMPA (WECC Rockies) | 1,144.8 | 0.101 | 0.014 | 1,651.9 | 0.131 | 0.019 |
| SPNO (SPP North) | 954.0 | 0.100 | 0.014 | 1,969.9 | 0.205 | 0.030 |
| SPSO (SPP South) | 931.8 | 0.060 | 0.009 | 1,514.1 | 0.100 | 0.014 |
| SRMV (SERC Mississippi Valley) | 740.4 | 0.032 | 0.004 | 1,137.4 | 0.055 | 0.008 |
| SRMW (SERC Midwest) | 1,480.7 | 0.156 | 0.023 | 1,866.5 | 0.194 | 0.028 |
| SRSO (SERC South) | 860.2 | 0.060 | 0.009 | 1,336.9 | 0.094 | 0.013 |
| SRTV (SERC Tennessee Valley) | 834.2 | 0.075 | 0.011 | 1,511.8 | 0.135 | 0.019 |
| SRVC (SERC Virginia/Carolina) | 623.1 | 0.050 | 0.007 | 1,323.9 | 0.114 | 0.016 |
| US Average | 818.3 | 0.065 | 0.009 | 1,399.6 | 0.109 | 0.015 |

**Source:** EPA eGRID2020, February 2022

**Note:** Total output emission factors can be used as default factors for estimating GHG emissions from electricity use when developing a carbon footprint or emissions inventory. Annual non-baseload output emission factors should not be used for those purposes, but can be used to estimate GHG emissions reductions from reductions in electricity use.


## Table 7 Steam and Heat

| | $CO_2$ Factor (kg / mmBtu) | $CH_4$ Factor (g / mmBtu) | $N_2O$ Factor (g / mmBtu) |
|---|---|---|---|
| Steam and Heat | 66.33 | 1.250 | 0.125 |

**Note:** Emission factors are per mmBtu of steam or heat purchased. These factors assume natural gas fuel is used to generate steam or heat at 80 percent thermal efficiency.

## Scope 3 Emission Factors

Scope 3 emission factors provided below are aligned with the Greenhouse Gas Protocol Technical Guidance for Calculating Scope 3 Emissions, version 1.0 (Scope 3 Calculation Guidance). Where applicable, the specific calculation method is referenced. Refer to the Scope 3 Calculation Guidance for more information (http://www.ghgprotocol.org/scope-3-technical-calculation-guidance).

### Table 8 Scope 3 Category 4: Upstream Transportation and Distribution and Category 9: Downstream Transportation and Distribution

These factors are intended for use in the distance-based method defined in the Scope 3 Calculation Guidance. If fuel data are available, then the fuel-based method should be used, with factors from Tables 2 through 5.

| Vehicle Type | $CO_2$ Factor (kg / unit) | $CH_4$ Factor (g / unit) | $N_2O$ Factor (g / unit) | Units |
|---|---|---|---|---|
| Medium- and Heavy-Duty Truck | 1.450 | 0.013 | 0.034 | vehicle-mile |
| Passenger Car [A] | 0.332 | 0.007 | 0.007 | vehicle-mile |
| Light-Duty Truck [B] | 0.454 | 0.012 | 0.009 | vehicle-mile |
| Medium- and Heavy-Duty Truck | 0.211 | 0.0020 | 0.0049 | ton-mile |
| Rail | 0.022 | 0.0017 | 0.0006 | ton-mile |
| Waterborne Craft | 0.041 | 0.0183 | 0.0008 | ton-mile |
| Aircraft[C] | 1.165 | - | 0.0359 | ton-mile |

**Source:**
$CO_2$, $CH_4$, and $N_2O$ emissions data for road vehicles are from Table 2-13 of the EPA (2021) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019.
Vehicle-miles and passenger-miles data for road vehicles are from Table VM-1 of the Federal Highway Administration Highway Statistics 2019.
$CO_2$e emissions data for non-road vehicles are based on Table A-107 of the EPA (2021) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2019, which are distributed into $CO_2$, $CH_4$, and $N_2O$ emissions based on fuel/vehicle emission factors.
Freight ton-mile data are from Table 1-50 of the Bureau of Transportation Statistics, National Transportation Statistics for 2021 (Data based on 2019 for rail, waterborne craft and aircraft; medium- and heavy-duty truck based on 2018, due to data availability).

**Notes:**
Vehicle-mile factors are appropriate to use when the entire vehicle is dedicated to transporting the reporting company's product. Ton-mile factors are appropriate when the vehicle is shared with products from other companies.
[A] Passenger car: includes passenger cars, minivans, SUVs, and small pickup trucks (vehicles with wheelbase less than 121 inches).
[B] Light-duty truck: includes full-size pickup trucks, full-size vans, and extended-length SUVs (vehicles with wheelbase greater than 121 inches).
[C] Medium- and Heavy-Duty Truck: includes Combination Trucks and single frame trucks that have 2-Axles and at least 6 tires or a gross vehicle weight rating exceeding 10,000 lbs.

## Table 9 Scope 3 Category 5: Waste Generated in Operations and Category 12: End-of-Life Treatment of Sold Products

These factors are intended for use in the waste-type-specific method or the average-data method defined in the Scope 3 Calculation Guidance for category 5 and category 12. Choose the appropriate material and disposal method from the table below. For the average-data method, use one of the mixed material types, such as mixed MSW.

| | Metric Tons $CO_2e$ / Short Ton Material | | | | | |
|---|---|---|---|---|---|---|
| **Material** | **Recycled[A]** | **Landfilled[B]** | **Combusted[C]** | **Composted[D]** | **Anaerobically Digested (Dry Digestate with Curing)** | **Anaerobically Digested (Wet Digestate with Curing)** |
| Aluminum Cans | 0.06 | 0.02 | 0.01 | NA | NA | NA |
| Aluminum Ingot | 0.04 | 0.02 | 0.01 | NA | NA | NA |
| Steel Cans | 0.32 | 0.02 | 0.01 | NA | NA | NA |
| Copper Wire | 0.18 | 0.02 | 0.01 | NA | NA | NA |
| Glass | 0.05 | 0.02 | 0.01 | NA | NA | NA |
| HDPE | 0.21 | 0.02 | 2.80 | NA | NA | NA |
| LDPE | NA | 0.02 | 2.80 | NA | NA | NA |
| PET | 0.23 | 0.02 | 2.05 | NA | NA | NA |
| LLDPE | NA | 0.02 | 2.80 | NA | NA | NA |
| PP | NA | 0.02 | 2.80 | NA | NA | NA |
| PS | NA | 0.02 | 3.02 | NA | NA | NA |
| PVC | NA | 0.02 | 1.26 | NA | NA | NA |
| PLA | NA | 0.02 | 0.01 | 0.17 | NA | NA |
| Corrugated Containers | 0.11 | 0.90 | 0.05 | NA | NA | NA |
| Magazines/Third-class mail | 0.02 | 0.42 | 0.05 | NA | NA | NA |
| Newspaper | 0.02 | 0.35 | 0.05 | NA | NA | NA |
| Office Paper | 0.02 | 1.25 | 0.05 | NA | NA | NA |
| Phonebooks | 0.04 | 0.35 | 0.05 | NA | NA | NA |
| Textbooks | 0.04 | 1.25 | 0.05 | NA | NA | NA |
| Dimensional Lumber | 0.09 | 0.17 | 0.05 | NA | NA | NA |
| Medium-density Fiberboard | 0.15 | 0.07 | 0.05 | NA | NA | NA |
| Food Waste (non-meat) | NA | 0.58 | 0.05 | 0.15 | 0.14 | 0.11 |
| Food Waste (meat only) | NA | 0.58 | 0.05 | NA | 0.14 | 0.11 |
| Beef | NA | 0.58 | 0.05 | 0.15 | 0.14 | 0.11 |
| Poultry | NA | 0.58 | 0.05 | 0.15 | 0.14 | 0.11 |
| Grains | NA | 0.58 | 0.05 | 0.15 | 0.14 | 0.11 |
| Bread | NA | 0.58 | 0.05 | 0.15 | 0.14 | 0.11 |
| Fruits and Vegetables | NA | 0.58 | 0.05 | 0.15 | 0.14 | 0.11 |
| Dairy Products | NA | 0.58 | 0.05 | 0.15 | 0.14 | 0.11 |
| Yard Trimmings | NA | 0.33 | 0.05 | 0.19 | 0.11 | NA |
| Grass | NA | 0.26 | 0.05 | 0.19 | 0.09 | NA |
| Leaves | NA | 0.26 | 0.05 | 0.19 | 0.13 | NA |
| Branches | NA | 0.53 | 0.05 | 0.19 | 0.16 | NA |
| Mixed Paper (general) | 0.07 | 0.80 | 0.05 | NA | NA | NA |
| Mixed Paper (primarily residential) | 0.07 | 0.77 | 0.05 | NA | NA | NA |
| Mixed Paper (primarily from offices) | 0.03 | 0.75 | 0.05 | NA | NA | NA |
| Mixed Metals | 0.23 | 0.02 | 0.01 | NA | NA | NA |
| Mixed Plastics | 0.22 | 0.02 | 2.34 | NA | NA | NA |
| Mixed Recyclables | 0.09 | 0.68 | 0.11 | NA | NA | NA |
| Food Waste | NA | 0.58 | 0.05 | 0.15 | NA | NA |
| Mixed Organics | NA | 0.48 | 0.05 | 0.17 | NA | NA |
| Mixed MSW | NA | 0.52 | 0.43 | NA | NA | NA |
| Carpet | NA | 0.02 | 1.68 | NA | NA | NA |
| Desktop CPUs | NA | 0.02 | 0.40 | NA | NA | NA |
| Portable Electronic Devices | NA | 0.02 | 0.89 | NA | NA | NA |
| Flat-panel Displays | NA | 0.02 | 0.74 | NA | NA | NA |
| CRT Displays | NA | 0.02 | 0.64 | NA | NA | NA |
| Electronic Peripherals | NA | 0.02 | 2.23 | NA | NA | NA |
| Hard-copy Devices | NA | 0.02 | 1.92 | NA | NA | NA |
| Mixed Electronics | NA | 0.02 | 0.87 | NA | NA | NA |
| Clay Bricks | NA | 0.02 | NA | NA | NA | NA |
| Concrete | 0.01 | 0.02 | NA | NA | NA | NA |
| Fly Ash | 0.01 | 0.02 | NA | NA | NA | NA |
| Tires | 0.10 | 0.02 | 2.21 | NA | NA | NA |
| Asphalt Concrete | - | 0.02 | NA | NA | NA | NA |
| Asphalt Shingles | 0.03 | 0.02 | 0.70 | NA | NA | NA |
| Drywall | NA | 0.02 | NA | NA | NA | NA |
| Fiberglass Insulation | 0.05 | 0.02 | NA | NA | NA | NA |
| Vinyl Flooring | NA | 0.02 | 0.29 | NA | NA | NA |
| Wood Flooring | NA | 0.18 | 0.08 | NA | NA | NA |

**Source:** EPA, Office of Resource Conservation and Recovery (February 2016) Documentation for Greenhouse Gas Emission and Energy Factors used in the Waste Reduction Model (WARM). Factors from tables provided in the Management Practices Chapters and Background Chapters. WARM Version 15, November 2020 Update. Additional data provided by EPA, WARM-15 Background Data.

**Notes:** These factors do not include any avoided emissions impact from any of the disposal methods. All the factors presented here include transportation emissions, which are optional in the Scope 3 Calculation Guidance, with an assumed average distance traveled to the processing facility. AR4 GWPs are used to convert all waste emission factors into $CO_2e$.

[A] Recycling emissions include transport to recycling facility and sorting of recycled materials at material recovery facility.
[B] Landfilling emissions include transport to landfill, equipment use at landfill and fugitive landfill $CH_4$ emissions. Landfill $CH_4$ is based on typical landfill gas collection practices and average landfill moisture conditions.
[C] Combustion emissions include transport to combustion facility and combustion-related non-biogenic $CO_2$ and $N_2O$
[D] Composting emissions include transport to composting facility, equipment use at composting facility and $CH_4$ and $N_2O$ emissions during composting.

## Table 10 Scope 3 Category 6: Business Travel and Category 7: Employee Commuting

These factors are intended for use in the distance-based method defined in the Scope 3 Calculation Guidance. If fuel data are available, then the fuel-based method should be used, with factors from Tables 2 through 5.

| Vehicle Type | $CO_2$ Factor (kg / unit) | $CH_4$ Factor (g / unit) | $N_2O$ Factor (g / unit) | Units |
|---|---|---|---|---|
| Passenger Car [A] | 0.332 | 0.007 | 0.007 | vehicle-mile |
| Light-Duty Truck [B] | 0.454 | 0.012 | 0.009 | vehicle-mile |
| Motorcycle | 0.183 | 0.070 | 0.007 | vehicle-mile |
| Intercity Rail - Northeast Corridor [C] | 0.058 | 0.0055 | 0.0007 | passenger-mile |
| Intercity Rail - Other Routes [C] | 0.150 | 0.0117 | 0.0038 | passenger-mile |
| Intercity Rail - National Average [C] | 0.113 | 0.0092 | 0.0026 | passenger-mile |
| Commuter Rail [D] | 0.139 | 0.0112 | 0.0028 | passenger-mile |
| Transit Rail (i.e. Subway, Tram) [E] | 0.099 | 0.0084 | 0.0012 | passenger-mile |
| Bus | 0.056 | 0.0210 | 0.0009 | passenger-mile |
| Air Travel - Short Haul (< 300 miles) | 0.207 | 0.0064 | 0.0066 | passenger-mile |
| Air Travel - Medium Haul (>= 300 miles, < 2300 miles) | 0.129 | 0.0006 | 0.0041 | passenger-mile |
| Air Travel - Long Haul (>= 2300 miles | 0.163 | 0.0006 | 0.0052 | passenger-mile |

**Source:**
$CO_2$, $CH_4$, and $N_2O$ emissions data for highway vehicles are from Table 2-13 of the EPA (2021) Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2019.
Vehicle-miles and passenger-miles data for highway vehicles are from Table VM-1 of the Federal Highway Administration Highway Statistics 2019.
Fuel consumption data and passenger-miles data for rail are from Tables A.14 to A.16 and C.9 to C.11 of the Transportation Energy Data Book: Edition 39. Fuel consumption was converted to emissions by using fuel and electricity emission factors presented in the tables above.
Intercity Rail factors from communication with Amtrak (Laura Fotiou), March 2020. These are based on 2019 values.
Air Travel factors from 2021 Guidelines to Defra / DECC's GHG Conversion Factors for Company Reporting. Version 1.0 June 2021.

**Notes:**
[A] Passenger car: includes passenger cars, minivans, SUVs, and small pickup trucks (vehicles with wheelbase less than 121 inches).
[B] Light-duty truck: includes full-size pickup trucks, full-size vans, and extended-length SUVs (vehicles with wheelbase greater than 121 inches).
[C] Intercity rail: Amtrak long-distance rail between major cities. Northeast Corridor extends from Boston to Washington D.C. Other Routes are all routes outside the Northeast Corridor.
[D] Commuter rail: rail service between a central city and adjacent suburbs (also called regional rail or suburban rail).
[E] Transit rail: rail typically within an urban center, such as subways, elevated railways, metropolitan railways (metro), streetcars, trolley cars, and tramways.

## Global Warming Potentials

### Table 11 Global Warming Potentials (GWPs)

| Gas | 100-Year GWP |
|---|---|
| $CO_2$ | 1 |
| $CH_4$ | 25 |
| $N_2O$ | 298 |
| HFC-23 | 14,800 |
| HFC-32 | 675 |
| HFC-41 | 92 |
| HFC-125 | 3,500 |
| HFC-134 | 1,100 |
| HFC-134a | 1,430 |
| HFC-143 | 353 |
| HFC-143a | 4,470 |
| HFC-152 | 53 |
| HFC-152a | 124 |
| HFC-161 | 12 |
| HFC-227ea | 3,220 |
| HFC-236cb | 1,340 |
| HFC-236ea | 1,370 |
| HFC-236fa | 9,810 |
| HFC-245ca | 693 |
| HFC-245fa | 1,030 |
| HFC-365mfc | 794 |
| HFC-43-10mee | 1,640 |
| $SF_6$ | 22,800 |
| $NF_3$ | 17,200 |
| $CF_4$ | 7,390 |
| $C_2F_6$ | 12,200 |
| $C_3F_8$ | 8,830 |
| c-$C_4F_8$ | 10,300 |
| $C_4F_{10}$ | 8,860 |
| $C_5F_{12}$ | 9,160 |
| $C_6F_{14}$ | 9,300 |
| $C_{10}F_{18}$ | >7,500 |

**Source:**
100-year GWPs from IPCC Fourth Assessment Report (AR4), 2007. IPCC AR4 was published in 2007 and is among the most current and comprehensive peer-reviewed assessments of climate change. AR4 provides revised GWPs of several GHGs relative to the values provided in previous assessment reports, following advances in scientific knowledge on the radiative efficiencies and atmospheric lifetimes of these GHGs and of $CO_2$. Because the GWPs provided in AR4 reflect an improved scientific understanding of the radiative effects of these gases in the atmosphere, the values provided are more appropriate for supporting the overall goal of organizational GHG reporting than the Second Assessment Report (SAR) GWP values previously used in the Emission Factors Hub.
While EPA recognizes that Fifth Assessment Report (AR5) GWPs have been published, in an effort to ensure consistency and comparability of GHG data between EPA's voluntary and non-voluntary GHG reporting programs (e.g. GHG Reporting Program and National Inventory), EPA recommends the use of AR4 GWPs. The United States and other developed countries to the UNFCCC have agreed to submit annual inventories in 2015 and future years to the UNFCCC using GWP values from AR4, which will replace the current use of SAR GWP values. Utilizing AR4 GWPs improves EPA's ability to analyze corporate, national, and sub-national GHG data consistently, enhances communication of GHG information between programs, and gives outside stakeholders a consistent, predictable set of GWPs to avoid confusion and additional burden.

### Table 12 Global Warming Potentials (GWPs) for Blended Refrigerants

| ASHRAE # | 100-year GWP | Blend Composition |
|---|---|---|
| R-401A | 16 | 53% HCFC-22 , 34% HCFC-124 , 13% HFC-152a |
| R-401B | 14 | 61% HCFC-22 , 28% HCFC-124 , 11% HFC-152a |
| R-401C | 19 | 33% HCFC-22 , 52% HCFC-124 , 15% HFC-152a |
| R-402A | 2,100 | 38% HCFC-22 , 6% HFC-125 , 2% propane |
| R-402B | 1,330 | 6% HCFC-22 , 38% HFC-125 , 2% propane |
| R-403B | 3,444 | 56% HCFC-22 , 39% PFC-218 , 5% propane |
| R-404A | 3,922 | 44% HFC-125 , 4% HFC-134a , 52% HFC 143a |
| R-406A | 0 | 55% HCFC-22 , 41% HCFC-142b , 4% isobutane |
| R-407A | 2,107 | 20% HFC-32 , 40% HFC-125 , 40% HFC-134a |
| R-407B | 2,804 | 10% HFC-32 , 70% HFC-125 , 20% HFC-134a |
| R-407C | 1,774 | 23% HFC-32 , 25% HFC-125 , 52% HFC-134a |
| R-407D | 1,627 | 15% HFC-32 , 15% HFC-125 , 70% HFC-134a |
| R-407E | 1,552 | 25% HFC-32 , 15% HFC-125 , 60% HFC-134a |
| R-408A | 2,301 | 47% HCFC-22 , 7% HFC-125 , 46% HFC 143a |
| R-409A | 0 | 60% HCFC-22 , 25% HCFC-124 , 15% HCFC-142b |
| R-410A | 2,088 | 50% HFC-32 , 50% HFC-125 |
| R-410B | 2,229 | 45% HFC-32 , 55% HFC-125 |
| R-411A | 14 | 87.5% HCFC-22 , 11 HFC-152a , 1.5% propylene |
| R-411B | 4 | 94% HCFC-22 , 3% HFC-152a , 3% propylene |
| R-413A | 2,053 | 88% HFC-134a , 9% PFC-218 , 3% isobutane |
| R-414A | 0 | 51% HCFC-22 , 28.5% HCFC-124 , 16.5% HCFC-142b |
| R-414B | 0 | 5% HCFC-22 , 39% HCFC-124 , 9.5% HCFC-142b |
| R-417A | 2,346 | 46.6% HFC-125 , 5% HFC-134a , 3.4% butane |
| R-422A | 3,143 | 85.1% HFC-125 , 11.5% HFC-134a , 3.4% isobutane |
| R-422D | 2,729 | 65.1% HFC-125 , 31.5% HFC-134a , 3.4% isobutane |
| R-423A | 2,280 | 47.5% HFC-227ea , 52.5% HFC-134a , |
| R-424A | 2,440 | 50.5% HFC-125, 47% HFC-134a, 2.5% butane/pentane |
| R-426A | 1,508 | 5.1% HFC-125, 93% HFC-134a, 1.9% butane/pentane |
| R-428A | 3,607 | 77.5% HFC-125 , 2% HFC-143a , 1.9% isobutane |
| R-434A | 3,245 | 63.2% HFC-125, 16% HFC-134a, 18% HFC-143a, 2.8% isobutane |
| R-500 | 32 | 73.8% CFC-12 , 26.2% HFC-152a , 48.8% HCFC-22 |
| R-502 | 0 | 48.8% HCFC-22 , 51.2% CFC-115 |
| R-504 | 325 | 48.2% HFC-32 , 51.8% CFC-115 |
| R-507 | 3,985 | 5% HFC-125 , 5% HFC143a |
| R-508A | 13,214 | 39% HFC-23 , 61% PFC-116 |
| R-508B | 13,396 | 46% HFC-23 , 54% PFC-116 |

**Source:**
100-year GWPs from IPCC Fourth Assessment Report (AR4), 2007. See the source note to Table 11 for further explanation. GWPs of blended refrigerants are based on their HFC and PFC constituents, which are based on data from http://www.epa.gov/ozone/snap/refrigerants/refblend.html.

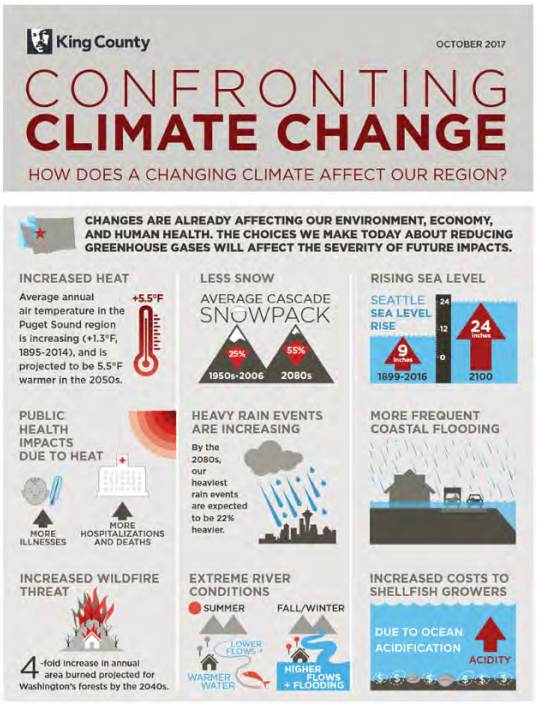
# Climate change impacts in King County

## King County is already experiencing the impacts of climate change

Our climate is changing. Since 1900, average annual air temperature in the Puget Sound region has increased by 1.3 degrees F. Heavy rain events are getting heavier, we are experiencing a long-term decline in snow and ice in the Cascades and Olympic mountains, sea level is rising, summers are warmer, and ocean chemistry is changing in ways that are harmful to marine species. Additionally, climate change will harm people and communities differently across King County based on age, gender, health, where they live, and what they do for work. And rising greenhouse gas emissions will only accelerate these impacts and other changes in the coming decades, affecting the environment, communities and public health, and the economy and infrastructure.

Explore the infographic to learn more about how climate change is affecting our region.

https://kingcounty.gov/en/legacy/services/environment/climate/our-changing-climate/impacts#:~:text=Heavy%20rain%20events%20are%20getting,are%20harmful%20to%20marine%20species




https://kingcounty.gov/en/legacy/services/environment/climate/our-changing-climate/impacts#:~:text=Heavy%20rain%20events%20are%20getting,are%20harmful%20to%20marine%20species