



California Emissions Estimator Model®

User's Guide

Version 2016.3.1

Prepared for:
California Air Pollution Control Officers Association (CAPCOA)

Prepared by:
BREEZE Software, A Division of Trinity Consultants
in collaboration with **South Coast Air Quality Management District and**
the California Air Districts

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California Emission Estimator Model (CalEEMod)[®]

Version 2016.3.1

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1 Introduction

This User's Guide (Guide) to the California Emission Estimator Model (CalEEMod)[®] is meant to give the user an introduction on how to use the program as well as to document the detailed calculations and default assumptions made in associated appendices. The purpose of CalEEMod is to provide a uniform platform for government agencies, land use planners, and environmental professionals to estimate potential emissions associated with both construction and operational use of land use projects. It is intended that these emission estimates are suitable for quantifying air quality and climate change impacts as part of the preparation of California Environmental Quality Act (CEQA) documents. In addition, individual districts may rely on the model's emission estimates to show compliance with local agency rules.

CalEEMod utilizes widely accepted methodologies for estimating emissions combined with default data that can be used when site-specific information is not available. Sources of these methodologies and default data include but are not limited to the United States Environmental Protection Agency (USEPA) AP-42 emission factors, California Air Resources Board (CARB) vehicle emission models, studies commissioned by California agencies such as the California Energy Commission (CEC) and CalRecycle. In addition, some local air districts provided customized values for their default data and existing regulation methodologies for use for projects located in their jurisdictions. When no customized information was provided and no regional differences were defined for local air districts, then state-wide default values were utilized. Since resource data and regulations are constantly changing, local agencies should be consulted to determine whether there are any circumstances when updated values should be used in place of the defaults currently incorporated into CalEEMod. A majority of CalEEMod's default data associated with locations and land use is derived from surveys of existing land uses. For any project that substantially deviates from the types and features included in the surveys, site-specific data that are supported by substantial evidence should be used, if available.

The model provides a number of opportunities for the user to change the defaults in the model; however, users are required to provide justification for all changes made to the default settings (e.g., reference more appropriate data sources) in the Remarks box provided at the bottom of the screen before the user will be able to proceed to the next screen. Further, the user should make every effort to ensure that correct data is entered, including the choice and percent reduction of mitigation most applicable to the land use project being evaluated.

1.1 Purpose of Model

CalEEMod provides a simple platform to calculate both construction emissions and operational emissions from a land use project. It can calculate both the daily maximum and annual average for criteria pollutants as well as annual greenhouse gas (GHG) emissions. The output from these calculations can be used in the preparation of quality and GHG analyses in CEQA documents such as Environmental Impact Reports (EIRs) and Negative Declarations. For projects located in the jurisdiction of San Luis Obispo APCD, the model can also calculate the sum of reactive organic gas (ROG) and nitrogen oxide (NO_x) emissions on a rolling quarterly basis. In addition, CalEEMod contains default values for estimating water and energy use

which may be useful for preparing hydrology and energy analyses in other sections of a CEQA document. Specifically, the model can aid the user by conducting the following calculations:

- Short-term construction emissions associated with the demolition, site preparation, grading, building, coating, and paving from the following sources:
 - Off-road construction equipment;
 - On-road mobile equipment associated with workers, vendors, and hauling;
 - Fugitive dust associated with grading, demolition, truck loading, and on-road vehicles traveling along paved and unpaved roads. (Fugitive dust from wind blown sources such as storage piles and inactive disturbed areas, as well as fugitive dust from off-road vehicle travel, are not quantified in CalEEMod, which is consistent with approaches taken in other comprehensive models.)
 - Architectural coating activities (*including the painting/stripping of parking lots*) and paving (ROG).
- Operational emissions for fully built-out land use development from the following sources:
 - On-road mobile vehicle traffic generated by the land uses;
 - Fugitive dust associated with roads;
 - Architectural coating activities (ROG);
 - Off-road equipment (e.g., forklifts, cranes) used during operation;
 - Landscaping equipment;
 - Emergency generators, fire pumps, and process boilers;
 - Use of consumer products, parking lot degreasers, fertilizers/pesticides, and cleaning supplies (ROG);
 - Wood stoves and hearth usage;
 - Natural gas usage in the buildings;
 - Electricity usage in the buildings (GHG only);
 - Electricity usage from lighting in parking lots and lighting, ventilation and elevators in parking structures;
 - Water usage per land use (GHG only); and,
 - Solid waste disposal per land use (GHG only).
- One-time vegetation sequestration changes
 - Permanent vegetation land use changes
 - New tree plantings

- Mitigation adjustments to both short-term construction and operational emissions. Several of the mitigation measures described in CAPCOA's Quantifying Greenhouse Gas Mitigation Measures¹ have been incorporated into CalEEMod.

¹ Available at: <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>

2 Program Installation

The program is distributed and maintained by the California Air Pollution Control Officers Association². The most recent version can be downloaded from www.caleemod.com.

2.1 Operating System Requirements

CalEEMod was programmed by Trinity using Microsoft SQL Compact Edition in conjunction with a Visual Basic Graphical User Interface (GUI). CalEEMod requires the following system requirements:

- Microsoft Windows 8 or 10 Operating System with Microsoft .NET Framework 3.5 (includes .NET 2.0 and 3.0)
- Microsoft Windows XP, Vista, or 7 Operating System with Microsoft .Net Framework 4 or higher
- Microsoft SQL Server Compact 3.5 SP2
- 300 Mb hard drive space available

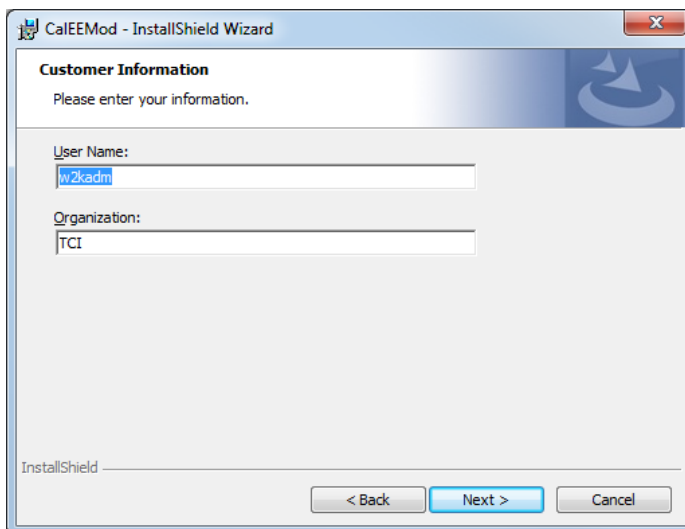
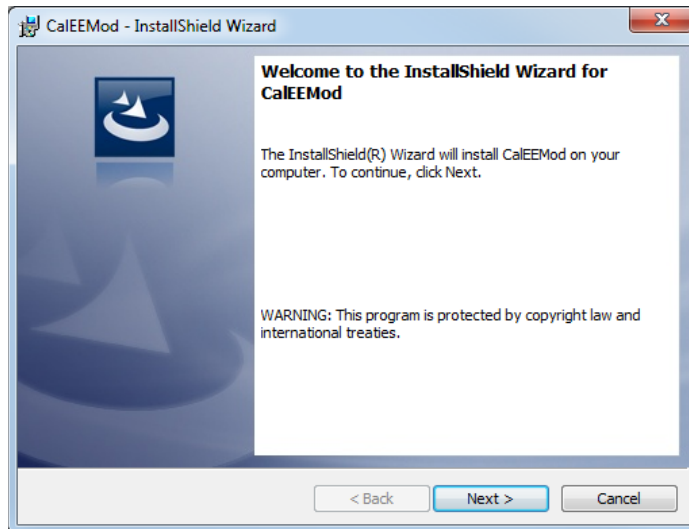
2.2 Installation Procedures

To install

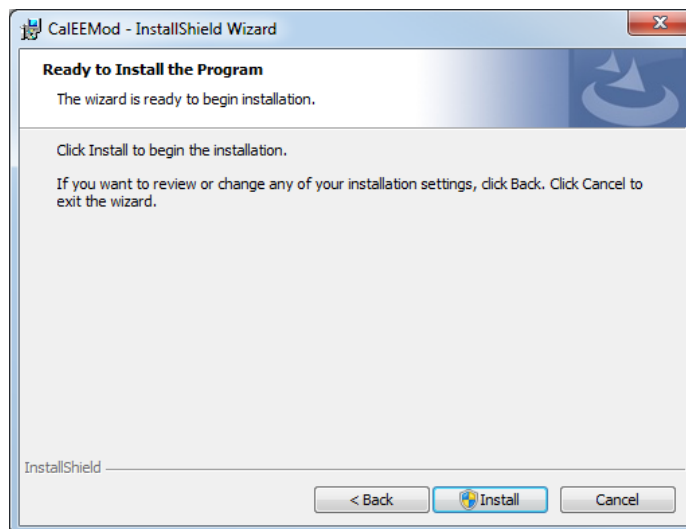
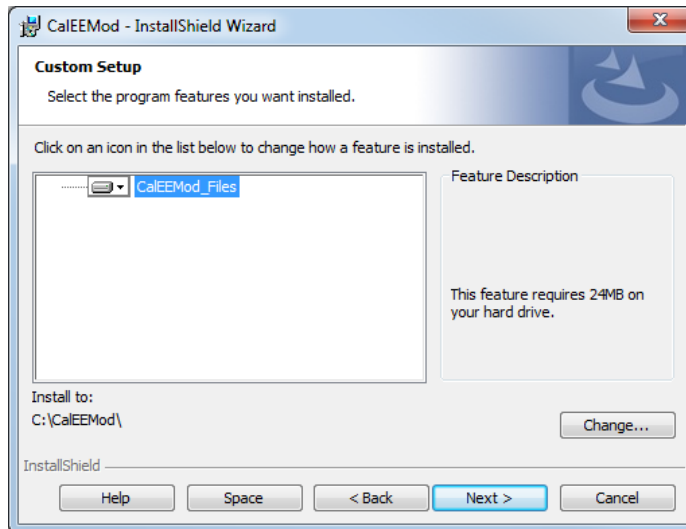
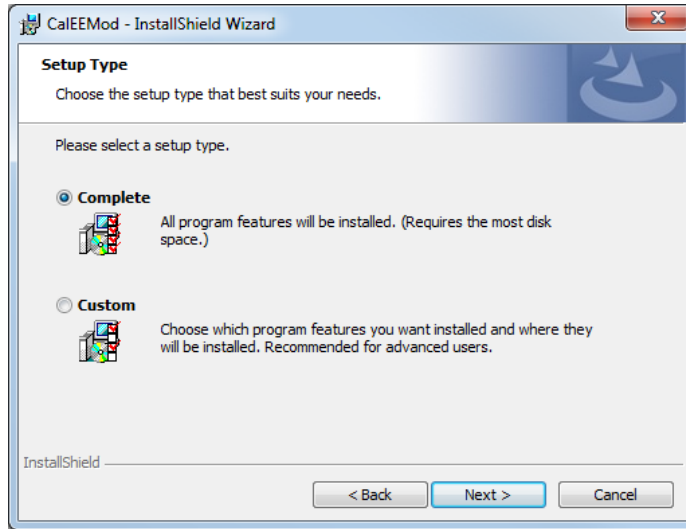
1. Be sure to uninstall any previous versions of CalEEMod before installing a new version as some file names will be the same potentially confusing the computer. To uninstall for most computers, under Settings, Control Panel, Programs and Features, highlight CalEEMod and then click 'uninstall.'
2. Ensure you have the required Microsoft .Net framework installed on your machine. Microsoft .NET Framework 3.5 is available free from Microsoft at <https://www.microsoft.com/en-us/download/details.aspx?id=21>, and Microsoft .NET Framework 4.0 or higher is available free from Microsoft at <https://www.microsoft.com/en-us/download/details.aspx?id=17851>. Once this file is downloaded, unzip the file anywhere on your computer and run the installation file (setup.exe) and follow the instructions on Microsoft's website to locate the appropriate .msi file. To install Microsoft SQL Server Compact 3.5 SP2, go to <https://www.microsoft.com/en-us/download/details.aspx?id=5783>. For 32-bit computers, you will need to install SSCERuntime_x86-ENU.msi. For a 64-bit computer, you will need to install both the 32-bit and the 64-bit version of the SQL Server Compact 3.5 SP2 MSI files because the existing SQL Server Compact 3.5 applications may fail if only the 32-bit version of the .msi file is installed on the 64-bit computer.
3. From www.CalEEMod.com, download the installation file (CalEEMod2016.3.1.exe), click on file and follow the instructions. Pages 5 through 7 show screen shots of the CalEEMod InstallShield Wizard.

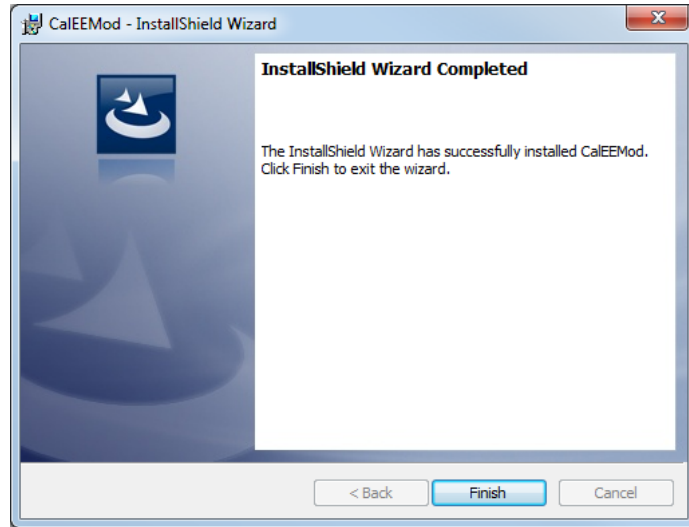
² CalEEMod[®] 2016 All Rights Reserved by California Air Pollution Control Officers Association.

4. The default directory for CalEEMod is C:\CalEEMod\. To select an alternative directory location, choose Custom Installation³.
5. Click Next until the installation has completed, then click Finish to exit the installer.
6. If you have any further trouble installing CalEEMod, verify that you have appropriate user privileges and that your computer meets the operating system requirements.



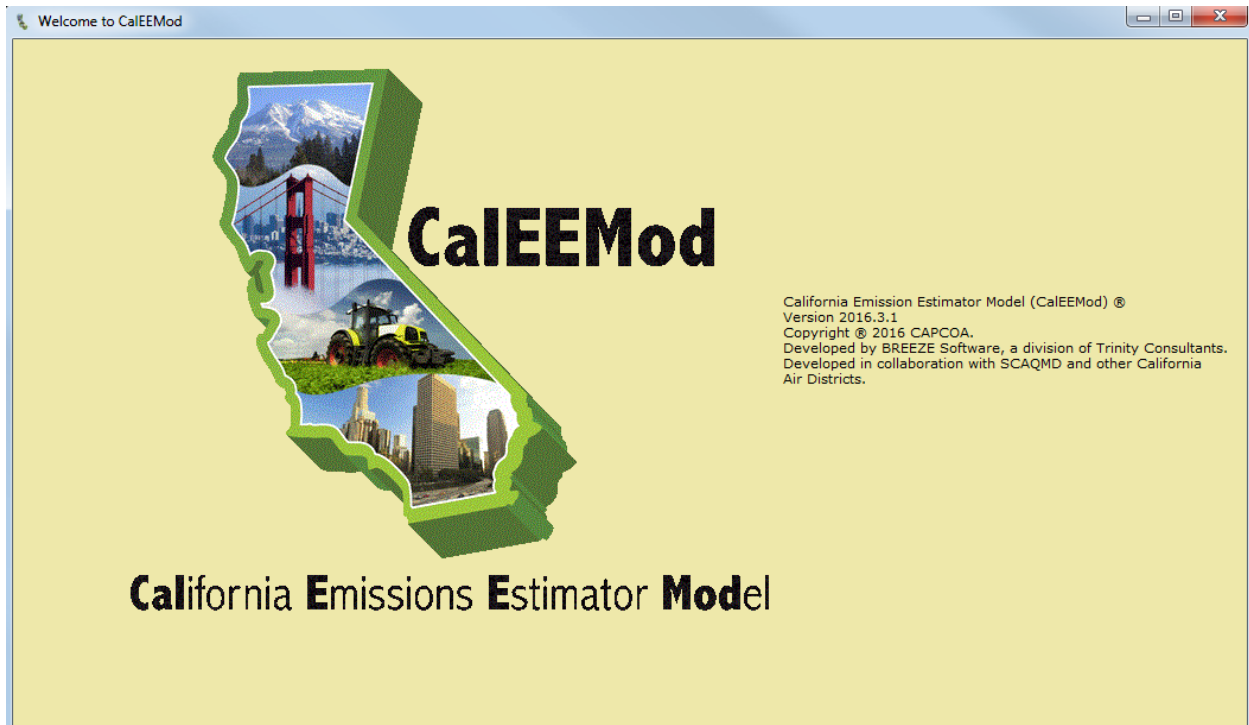
³ If you use Windows Vista, 7, 8 or 10, file privileges may not allow access rights to some folders during program operations such as C:\Program Files\.





2.3 Starting CalEEMod

After the installation is complete, a CalEEMod short cut icon will be appear on the desktop and CalEEMod will appear in the list of Programs available from the Start Button. To start the model, select CalEEMod from the program files or double click on the CalEEMod short cut icon.



3 Using CalEEMod

3.1 Key Features

CalEEMod is comprised of a linear series of screens with each screen designed with an individual purpose to define features of the project such as project characteristics, construction schedule and equipment, operational activity, mitigation measures, etc. The user will need to input basic information about the project such as location, land use type (e.g., residential, commercial, retail, etc.) and project size and the model will populate later screens with pre-determined defaults. The user may override the defaults to input more accurate, project-specific information as appropriate.

The figure on page 10 identifies some key features of CalEEMod which are described below.

1. **Menu Bar:** A drop down menu bar is found on all screens. For example, the Home menu controls file features such as New Project, Open Project, Save Project, and Save As Project. The Help menu will link to appropriate information for the relevant screen from this User's Guide. All of the other menus will allow navigation between the screens in any order.
2. **Screen Name:** Identifies the name of the current screen.
3. **Default Button:** This button allows the user to restore the program defaults after the user has changed any default values on the screen. User-entered values will be highlighted in yellow to clearly indicate the defaults that have been changed. The user will be prompted to specify whether the default should be restored for the current or last cell on the screen or for the entire screen. The Import csv option will allow the user to load in a .csv file for a specific data grid. Clicking on the Undo button will allow the user to cancel or undo the previous action.
4. **Remarks:** This section is located at the bottom of each screen and it requires the user to enter comments regarding any defaults that have been replaced with user-defined values. The Remarks section is meant to assist project reviewers to determine or assess the justification for user-defined values entered.
5. **Next Button:** When the user clicks on this button, the next sequential screen will appear. As the user progresses through the model, later screens will also show a Previous button that will take the user to the previous screen.
6. **Data Grid:** This is a common box where values for the variables defined across the top are to be filled in with data. The number of rows will automatically be adjusted based on the number of rows of information required to define the information. On some data grids, the last row may have an asterisk (*) and once the user begins adding information to this row, a new row will be added at the end. To delete a row, select the desired row to delete, and hit the delete button on your keyboard. (Deleting information is generally allowed unless the data grid contains a fixed list such as the Pollutant selection list.)

Scroll bars (both horizontal and vertical) may also occur on some data grids, as appropriate.

7. Cascade Defaults: CalEEMod has a feature that freezes the automatic downloading of the programmed defaults. Each input screen displays a box called Cascade Default which will be automatically checked to populate defaults in future screens. However, if user unchecks the Cascade Default box, no defaults will be populated in subsequent screens and the user will need to input project-specific data. Unless all the necessary input parameters required for a proper analysis are known, the user should run the model at least once with "Cascade Default" button checked to allow the defaults to be populated. Then, if the user would like to change the project's parameters (e.g., number of dwelling units, building square footage, etc.) without cascading new defaults in later screens, then the user should uncheck the Cascade Default box when in the Land Use screen. This feature may be helpful when the defaults are replaced with project-specific information (e.g., construction schedule, construction equipment, water use, energy use, etc.) and the user would like to evaluate different project scenarios with the same basic project information (e.g., land use type, location, etc.). In addition, by unchecking the Cascade Default box, the following will occur:

- The defaults in *ALL* subsequent screens will be frozen.
- Any changes that are made to screens that follow the Land Use screen (e.g., adding a new construction phase) will not cascade defaults relating to that change or add new tabs (e.g., trips and VMT, dust material movement). Thus, the user will need to manually input project-specific information in order for the impacts to be calculated.
- If any changes to land use type (e.g., from single family housing to a hospital) are made, the subsequent screens will not reflect the new land use type causing some incorrect calculations (e.g., impacts from energy and water use) to be performed.

When changing or adding a land use type, the user should click on the Cascade Default button so the future screens will be populated with appropriate defaults and the correct calculations specific to the changed or added land use type will occur.

The screenshot displays the CalEEMod 2016.3.1 software interface. The menu bar at the top includes Home, Project Characteristics, Land Use, Construction, Operational, Vegetation, Mitigation, Reporting, and Help. The main content area is divided into several sections:

- Project Characteristics:** A section on the left containing input fields for Project Name, Project Location, Windspeed (m/s), Precipitation Frequency (days), CEC Forecasting Climate Zone, Land Use Setting, Start of Construction, and Operational Year. A "CEC Forecasting Climate Zone Look-up" button is also present.
- Utility Information:** A section below Project Characteristics with a dropdown for "Select Utility Company" and input fields for CO2, CH4, and N2O Intensity Factors (lb/MWh).
- Pollutants:** A table on the right with columns for "Pollutant Selection" and "Pollutant Full Name". All items in the table are checked. The items listed are: Reactive Organic Gases (ROG), Nitrogen Oxides (NOx), Carbon Monoxide (CO), Sulfur Dioxide (SO2), Particulate Matter 10um (PM10), Particulate Matter 2.5um (PM2.5), Fugitive PM10um (PM10), Fugitive PM2.5um (PM2.5), Biogenic Carbon Dioxide (CO2), Non-Biogenic Carbon Dioxide (CO2), Carbon Dioxide (CO2), Methane (CH4), Nitrous Oxide (N2O), and CO2 Equivalent GHGs (CO2e).

Seven callouts are present in the image:

- 1. Menu Bar:** Points to the top navigation bar.
- 2. Screen Name:** Points to the "Project Name" input field.
- 3. Default Button:** Points to the "Default" button in the "Pollutants" section.
- 4. Remarks Box:** Points to the "Remarks" input field at the bottom left.
- 5. Next Button:** Points to the "Next >>" button at the bottom right.
- 6. Data Grid:** Points to the "Pollutants" table.
- 7. Cascade Default:** Points to the "Cascade Defaults" checkbox at the top right.

3.2 Home

The Home tab on the file menu bar that controls the file saving and opening features. The available options are:

- New Project
- Open Project
- Save
- Save As
- Exit

The user should select Open Project to open a project that has been previously created and saved or New Project to create a new project. Note that opening a previously saved project will remove any information that has been entered into the GUI unless it has been saved to a file. Save will save the currently loaded project database as a Microsoft Excel file and this file can be closed, and then re-opened later. Save As will allow the user to change the name of the saved project file. Exit will close CalEEMod. The Microsoft Excel file can be edited following the format of the save file to quickly make edits outside of the Graphical User Interface (GUI) but the user will still need to use the GUI in order to report the results. This can be most useful in making changes to construction lists. Data for individual tabs can be uploaded as a .csv file in various places in CalEEMod to minimize the data entry.

3.3 Defining a Project

In order to define a project, the user will need to enter information on both the Project Characteristics screen and the Land Use screen. After entering information on these two screens, CalEEMod will populate all of the other information required to calculate unmitigated construction (unless there is demolition, grading, or site preparation) and operation emissions using default data. If demolition, grading, and/or site preparation activities are part of the project, then the user will need to enter additional information on the appropriate construction screens, including but not limited to, the amount of material to be demolished and transported to or from the site. If site-specific information is not needed for the project, the user can skip this part and jump to the Mitigation screen and enter mitigation measures. After completing the Mitigation screen, the user can proceed to the Reporting screen to select the type of report to be generated for the project.

3.4 Altering Default Data

CalEEMod was designed with default assumptions supported by substantial evidence to the extent available at the time of programming. The functionality and content of CalEEMod is based on fully adopted methods and data. However, CalEEMod was also designed to allow the user to change the defaults to reflect site- or project-specific information, when available, provided that the information is supported by substantial evidence as required by CEQA. If the user chooses to modify any defaults, an explanation will be required in the Remarks box found

at the bottom of the screen to justify and support the modification before the user will be able to proceed to the next screen. Modifications to defaults and the explanations are noted in the output report. Comments in the Remarks box are also included in the report and alert reviewers of modifications to the defaults. Comments are important because they show the user's justification for the modifications, which allows the reviewers the ability to determine whether or not the modifications are appropriate and sufficiently justified.

3.5 Mitigation

Common construction mitigation measures that impact the calculations in CalEEMod have been incorporated as options for the user to select. It is important to note that compliance with fugitive dust rules vary widely by district and include requirements to reduce dust. Even though the fugitive dust rules contain requirements that when implemented, have the effect of mitigating dust emissions, these requirements are not considered to be mitigation per se. For these reasons, requirements such as percentage adjustments to fugitive dust rules have not been incorporated into the unmitigated fugitive dust calculations.

Several mitigation measures from CAPCOA's Quantifying Greenhouse Mitigation Measures have been incorporated including combinations and caps when using multiple mitigation measures. . CalEEMod was designed to include typical mitigation measures that are some of the more effective measures available to development projects. If mitigation measures are not available as options in CalEEMod, the user can alter the inputs in the program to adjust to account for mitigation measures that may be less common. This will require separate runs of CalEEMod files in order to properly account for unmitigated and mitigated scenarios. For more details regarding mitigation, see Subchapter 4.11.

3.6 Reporting

The Reporting tab allows the user to select the type of report (e.g., annual, winter or summer) to present the results of the calculations. The reports can be viewed on screen and then saved as either a Microsoft Excel file or a .pdf file. For more details regarding reporting, see Subchapter 4.11.

4 Detailed Program Screens

4.1 Project Characteristics

The Project Characteristics screen is starting point where the user enters the project name, project location, and selects utility provider, climate zone, and pollutants to be analyzed. The information entered on this screen will trigger project appropriate default data to populate subsequent screens. Any changes entered on this screen will override any previously entered user-defined data and the corresponding default data. The project name will appear in the reports. Each of the information categories on this screen are described in more detail below.

Project Location

To define the region where the project is located, the user is given the option to select Air District, Air Basin, County, or Statewide. The second drop down box will reveal a list of specific locations to the region selected. If the user selects County, It is important to note that there may be some counties that are shared by multiple Air Districts, Air Basins or District-specific sub-regions and the default values (e.g., on-road vehicle emissions, trip lengths, water supply and treatment electricity use, solid waste disposal rates, amount of paved roads, days of landscaping equipment use, architectural coating emissions, and hearth usage) may vary accordingly. Thus, if the user selects County, the user may also be prompted to select the sub-county area. If you are uncertain about what region to choose for your project location, consult your lead agency.

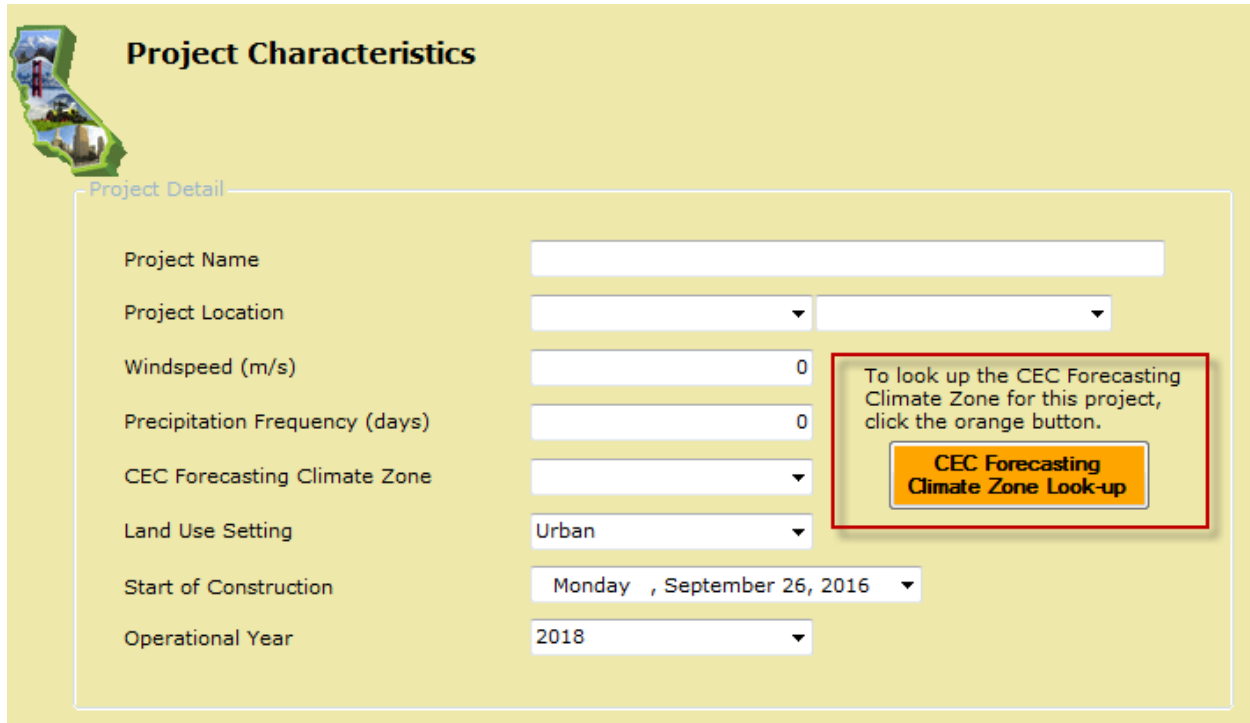
Wind Speed and Precipitation Frequency

Selection of project location will automatically fill in the default wind speed and precipitation frequency. The user can also choose to override this information and enter a different value. The wind speed, in meters per second (m/s), is used in the fugitive dust calculations. Precipitation frequency, e.g. the number of days per year with a precipitation amount measuring greater than 0.01 inches in one day, is used in the fugitive dust calculations.

Climate Zone

Selection of project location will restrict the climate zones available for the user to choose from based on the climate zones in the project location. The climate zones that have been programmed into CalEEMod are based on the California Energy Commission's (CEC) Forecasting Climate Zones, which are different from the Title 24 Building Climate Zones. The user should determine the correct climate zone by either referring to the figure below or by clicking on the orange button that says "CEC Climate Zone Forecasting Look-up" on the Project Characteristics screen. In addition, the user may also determine the climate zone by city or zip code from the look up tables in Appendix F.

CEC Forecasting Climate Zone Look-up Button



Project Characteristics

Project Detail

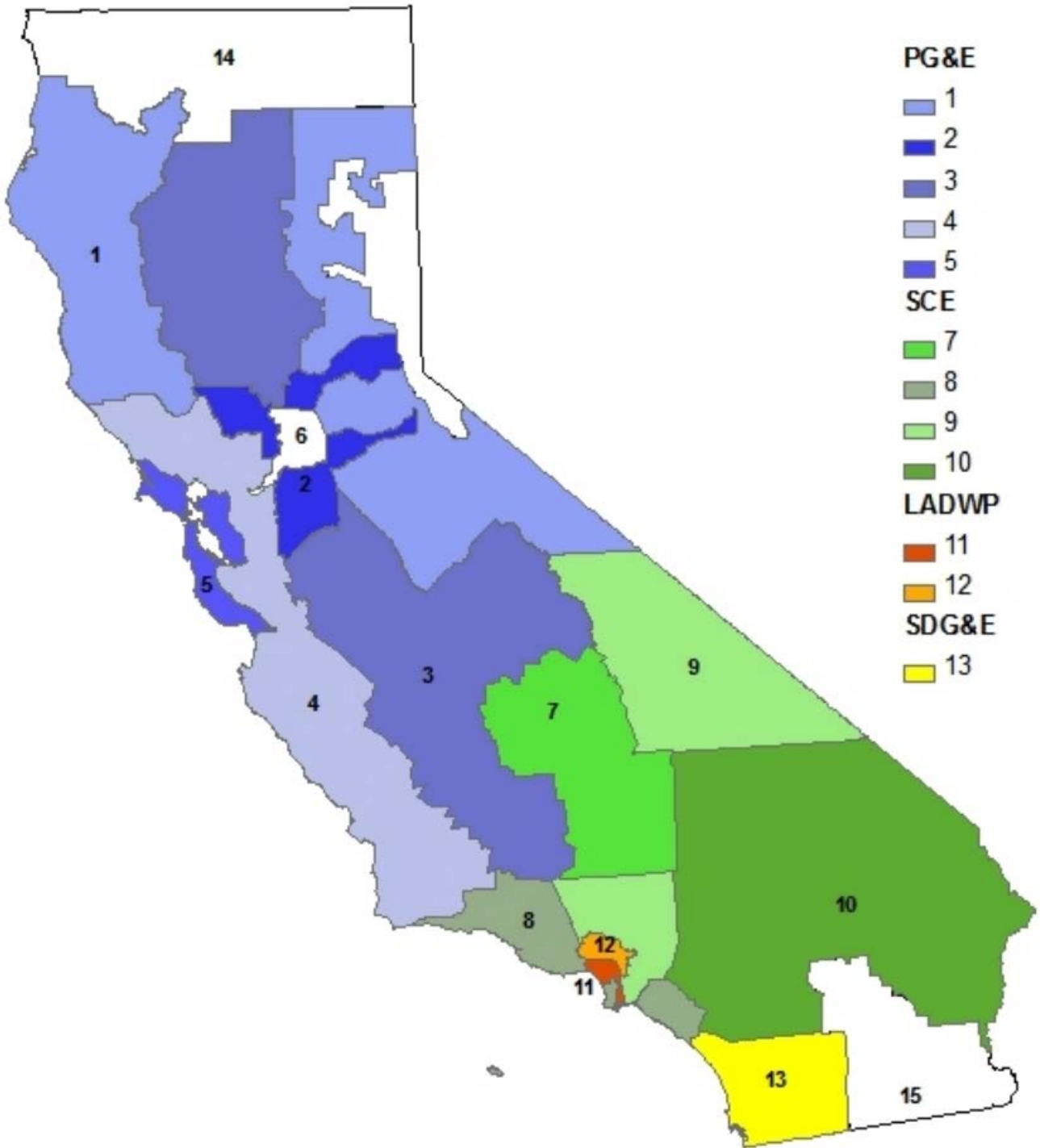
Project Name	<input type="text"/>
Project Location	<input type="text"/> <input type="text"/>
Windspeed (m/s)	<input type="text"/> 0
Precipitation Frequency (days)	<input type="text"/> 0
CEC Forecasting Climate Zone	<input type="text"/>
Land Use Setting	Urban <input type="text"/>
Start of Construction	Monday , September 26, 2016 <input type="text"/>
Operational Year	2018 <input type="text"/>

To look up the CEC Forecasting Climate Zone for this project, click the orange button.

CEC Forecasting Climate Zone Look-up

CalEEMod utilizes the Forecasting Climate Zones because the baseline data in the 2002 California Commercial End Use Survey (CEUS) and 2009 Residential Appliance Saturation Survey (RASS), upon which CalEEMod relies, are categorized in this manner. Further information on the calculation of building energy usage, including the application of data specific to the Forecasting Climate Zones, is contained in Appendix E.

CEC Forecasting Climate Zones^{4,5}



4 Adapted from Figure ES-2 of CEC. 2010. Residential Appliance Saturation Survey. Available at: <http://www.energy.ca.gov/2010publications/CEC-200-2010-004/CEC-200-2010-004-ES.PDF>

5 White spaces represent areas served by other electric utilities not included in survey.

Land Use Setting

The Land Use Setting tab is where the user indicates whether the project is located in a rural or urban setting. The user should contact the local air district for the region where the project is located for guidance on the appropriate Land Use Setting to select.

Start of Construction

To indicate when construction of the project will begin, the user will need to insert a date in the Start of Construction field. The date when construction will start triggers a rolling calendar that starts with the construction start date and follows by various construction phases that will be populated with default date ranges in the Construction screen.

Operational Year

CalEEMod is currently designed to key off of one year to initiate the beginning of the full operation of the project. Thus, to indicate when the project will begin operation activities, the user will need to insert a year. CalEEMod will use this year to determine the appropriate emission factors to be used in all operational module calculations. CalEEMod can accommodate the following years for the initial operational year: 2000, 2005, 2010-2035, 2040, 2045, and 2050. To conduct a backcasting analysis by inserting an operational year that occurs in the past, the selection of years is limited to minimize the file size associated with vehicle emission factors. For a project that consists of multiple phases with operation activities occurring over multiple years, the user should run the model multiple times for the various input parameters for each operational year.

Utility Company

From the drop down list, the user will need to select the appropriate utility company that will serve the project location. . When a specific utility is selected, the intensity factors for CO₂, CH₄ and N₂O will be automatically populated with defaults applicable to the specified utility. However, if the utility for the project is not in the drop down list, the user may select User Defined and the user will need to manually enter the various intensity factors. In addition, the user will need to identify the utility in the Remarks section.

The intensity factors are used in various modules to calculate the GHG emissions associated with electricity use. The default values are based on CARB's Local Government Operations Protocol (LGO)⁶ for CO₂, updated public utility protocols for CO₂, and E-Grid values for CH₄ and N₂O. Each default CO₂ intensity factor is based on the latest reporting year available for each utility. Appendix D, Table 1.2 provides the default CO₂ intensity factor and reporting year from which the factor was identified for each utility identified in the drop down list. As with other defaults in the model, if a new intensity factor is identified before the defaults in CalEEMod are updated, the user may override the default and provide justification for the change in the Remarks section at the bottom of the Project Characteristics screen.

6 Available at: <http://www.arb.ca.gov/cc/protocols/localgov/localgov.htm>

Pollutants

CalEEMod provides a list of pollutants with adjacent check boxes for the user to select. Upon starting a new project, all of the boxes are automatically checked and if the boxes remain checked, all pollutants will be quantified and identified in the reports. If user unchecks any of the boxes, the unchecked pollutants will be excluded from the calculations and the reports. Some of the pollutants may overlap other identified pollutants. For example, carbon dioxide (CO₂) is identified on its own, and it is separated into biogenic and non-biogenic categories. In addition, CO₂ Equivalent GHGs represents, all CO₂ emissions plus methane (CH₄) and nitrous oxide (N₂O) as adjusted by their corresponding Global Warming Potential (GWP) weighted value. The GWPs are based on the 2007 IPCC's Fourth Assessment Report (AR4)⁷, and are consistent with 2014 CARB's Scoping Plan Update⁸.

Remarks

As previously explained in Subchapter 3.4, if the user chooses to modify any defaults, the user will be required to provide an explanation or justification in the Remarks section for incorporating user defined (e.g., non-default) values before the user will be able to proceed to the next screen. Any remarks that are entered will be included in the reports and will assist a reviewer in understanding the reasons for a change in the default value (e.g., new trip rate based on a project-specific traffic study conducted by traffic engineers).

4.2 Land Use

The Land Use screen is where the user identifies the land use(s) that will occur at the project site. The data in the land use types and subtypes, unit amounts, size metric, lot acreage, square feet and population fields determine the default variables that are used in the calculations. It is important to note that for any project that includes a city park, golf course, or recreational swimming pool land use, the user will be prompted to enter the square footage of the buildings associated with these land uses (e.g., restrooms/changing rooms, pro-shop, etc.). By excluding the entire lot size for these three land use types, and instead only using the square footage of the buildings, the calculations for consumer product use will provide a more accurate representation of where these materials are actually used and avoid incorrectly attributing consumer products use to greenspaces and pool water. For more information on the calculations for consumer product use, see Subchapter 4.5, Section 4.5.2.0

7 Available at: https://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_full_report.pdf

8 Available at: <http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm>

CalEEMod.2016.3.1

Home Project Characteristics Land Use Construction Operational Vegetation Mitigation Reporting Help

Cascade Defaults

Land Use

Import csv Default Undo

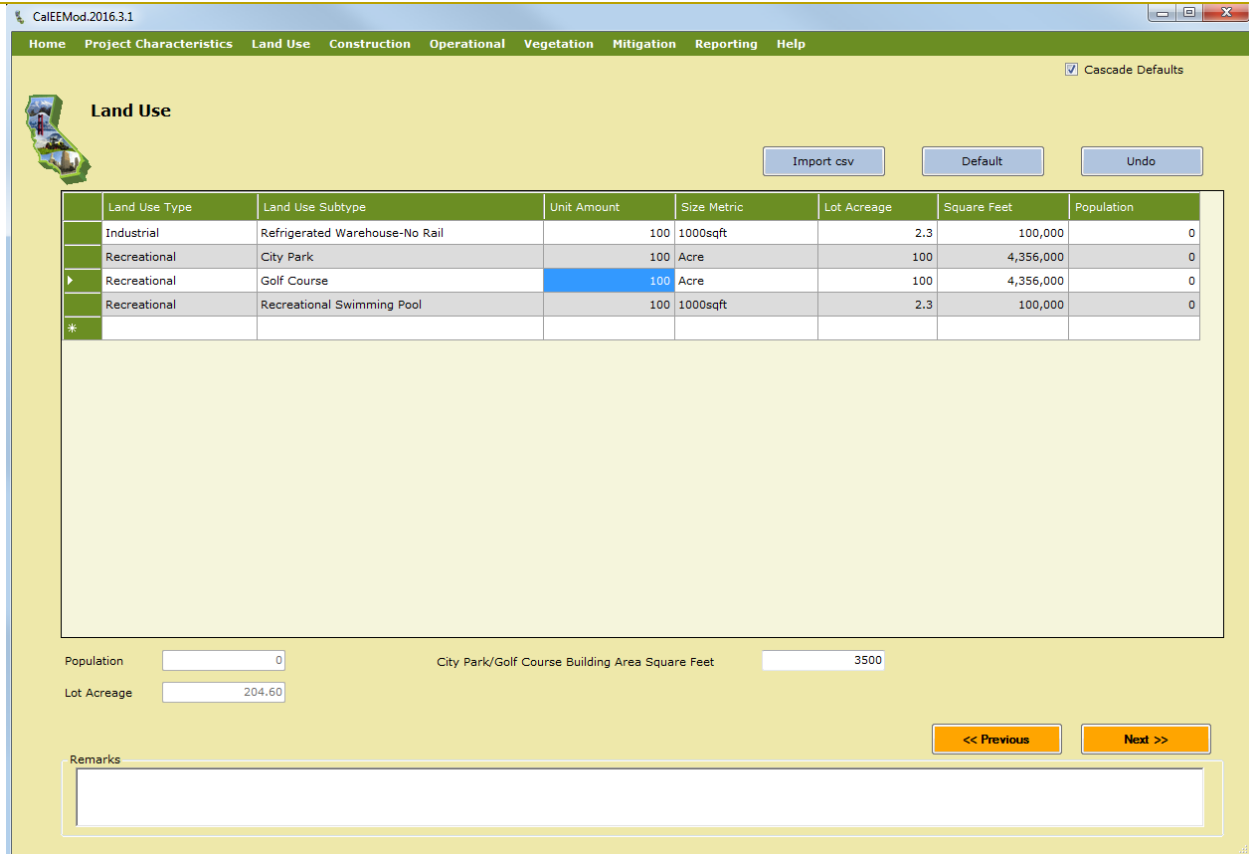
	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Square Feet	Population
	Industrial	Refrigerated Warehouse-No Rail	100	1000sqft	2.3	100,000	0
	Recreational	City Park	100	Acre	100	4,356,000	0
	Recreational	Golf Course	100	Acre	100	4,356,000	0
▶	Recreational	Recreational Swimming Pool	100	1000sqft	2.3	100,000	0
*							

Population

Lot Acreage Recreational Swimming Pool Building Area Square Feet

Remarks

<< Previous Next >>



CalEEMod.2016.3.1

Home Project Characteristics Land Use Construction Operational Vegetation Mitigation Reporting Help

Cascade Defaults

Land Use

Import csv Default Undo

	Land Use Type	Land Use Subtype	Unit Amount	Size Metric	Lot Acreage	Square Feet	Population
	Industrial	Refrigerated Warehouse-No Rail	100	1000sqft	2.3	100,000	0
	Recreational	City Park	100	Acre	100	4,356,000	0
	Recreational	Golf Course	100	Acre	100	4,356,000	0
	Recreational	Recreational Swimming Pool	100	1000sqft	2.3	100,000	0
*							

Population City Park/Golf Course Building Area Square Feet

Lot Acreage

Remarks

<< Previous Next >>

Land Use Type

The Land Use Type tab allows the user to select any of the following primary land use types from a drop down list: Commercial, Educational, Industrial, Parking, Recreational, Residential, and Retail. The 63 different land use types were chosen for inclusion in CalEEMod because each has an established trip rate critical for mobile source calculations.

CalEEMod specifically designates parking areas as a separate land use rather than as a part of an associated non-residential land use (e.g., commercial buildings, retail facilities, etc.). However, no separate parking land use for a driveway or garage needs to be identified for residential land uses because parking is already included in the calculation. For more information on how CalEEMod treats parking based on the footprint and lot acreage of residential and non-residential land uses, please refer to the following figure. As depicted, the lot acreage of a residential land use includes the parking and building footprint. For non-residential land uses, the lot acreage is the same as the building footprint, so parking needs to be entered as a separate land use.

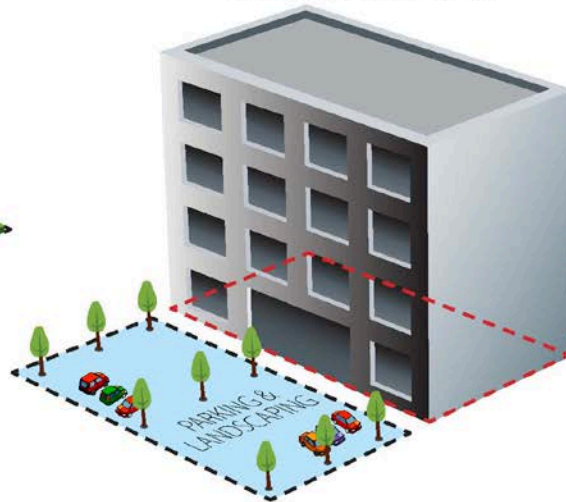
CalEEMod Default Lot Acreage for Res and Non Res Land Uses

**RESIDENTIAL
SINGLE FAMILY DWELLING**



Lot acreage & building footprint are NOT equal. Lot acreage includes grading for parking & landscaping.

**NON-RESIDENTIAL
COMMERCIAL OFFICE BUILDING**



Lot acreage & building footprint are equal; add parking as separate land use and assign associated square footage and acreage.

For the parking land use subtype, two primary options are available: parking lot or parking structure (e.g., garage). There are four types of parking structures: 1) enclosed; 2) enclosed with an elevator; 3) unenclosed; and, 4) unenclosed with an elevator. The reason for these specific descriptions is so that the model properly accounts for energy impacts associated with ventilation and elevator operations.

For land use subtypes that are not listed (e.g., roads, underground parking, pipelines, etc.) or that do not accurately represent the project being analyzed, each land use subtype has a User Defined option that the user can select. If a User Defined land use subtype is selected, there is no default data (including size metric) that will automatically populate the data fields. Instead, the user will need to manually enter the unit amount, size metric, lot acreage, etc.. If these fields are left blank, no emissions will be calculated for the User Defined land use subtype. Also, whatever size metric (e.g., per acre, per 1000 square foot, etc.) the user chooses for the User Defined land use subtype needs to be consistently applied to all subsequent default values (e.g., gallons of water used *per acre* or *per 1000 square foot*). An alternative approach to entering a User Defined land use subtype would be to choose a land use subtype that most closely fits the project and allow the model to populate the data fields with the defaults. Then,

the user can go back through the model and modify the defaults with any known specific project information and enter the required Remarks to explain why the defaults are modified.

Land Use Subtype

63 land use subtypes have been included in CalEEMod and each has an established trip rate that is used for calculating mobile source emissions. By tabbing over to the next column in a row, the user can select a variety of land use subtypes. The user also has the option to select a User Defined land use subtype; however, as explained previously, there is no default data (including size metric) that will automatically populate the data fields. Instead, the user will need to manually enter the unit amount, size metric, lot acreage, etc. Land use subtypes are based primarily on the land use definitions used for (mobile source) trip generation rate information from the Institute of Transportation Engineers (ITE) 9th edition of the Trip Generation Manual. In some cases similar generalized land uses or surrogate data was mapped to some land use subtypes in order to generate the default data needed for various modules.

Table 1: Land Use Subtype Descriptions

Land Use Subtype	Description ¹	ITE Number
RESIDENTIAL		
Apartments High Rise	High-rise apartments are units located in rental buildings that have more than 10 levels and most likely have one or more elevators.	222
Apartments Low Rise	Low-rise apartments are units located in rental buildings that have 1-2 levels.	221
Apartments Mid Rise	Mid-rise apartments in rental buildings that have between 3 and 10 levels.	223
Condo/Townhouse	These are ownership units that have at least one other owned unit within the same building structure.	230
Condo/Townhouse High Rise	These are ownership units that have three or more levels.	232
Congregate Care (Assisted Living)	These facilities are independent living developments that provide centralized amenities such as dining, housekeeping, transportation and organized social/recreational activities. Limited medical services may or may not be provided.	253
Mobile Home Park	Mobile home parks consist of manufactured homes that are sited and installed on permanent foundations and typically have community facilities such as recreation rooms, swimming pools and laundry facilities.	240
Retirement Community	These communities provide multiple elements of senior adult living. Housing options may include various combinations of senior adult housing, congregate care, assisted living, and skilled nursing care aimed at allowing the residents to live in one community as their medical needs change.	255
Single Family Housing	All single-family detached homes on individual lots typical of a suburban subdivision	210

Table 1: Land Use Subtype Descriptions

Land Use Subtype	Description ¹	ITE Number
EDUCATIONAL		
Day-Care Center	A day care center is a facility where care for pre-school age children is provided, normally during the daytime hours. Day care facilities generally include classrooms, offices, eating areas and playgrounds.	565
Elementary School	Elementary schools typically serve students attending kindergarten through the fifth or sixth grade. They are usually centrally located in residential communities in order to facilitate student access and have no student drivers.	520
High School	High schools serve students who have completed middle or junior high school.	530
Junior College (2Yr)	This land use includes two-year junior, community, or technical colleges.	540
Junior High School	Junior High schools serve students who have completed elementary school and have not yet entered high school.	522
Library	A library is a facility that consists of shelved books; reading rooms or areas; and sometimes meeting rooms.	590
Place Of Worship	A church is a building in which public worship services are held. A church houses an assembly hall or sanctuary; it may also house meeting rooms, classrooms and occasionally dining catering or party facilities.	560
University/College (4Yr)	This land use includes four-year universities or colleges that may or may not offer graduate programs.	550
RECREATIONAL		
Arena	Arenas are large indoor structures in which spectator events are held. These events vary from professional ice hockey and basketball to non-sporting events such as concerts, shows, or religious services. Arenas generally have large parking facilities, except when located in or around the downtown of a large city.	460
City Park	City parks are owned and operated by a city.	411
Fast Food Restaurant W/O Drive Thru	This land use includes fast-food restaurants without drive-through windows. Patrons generally order at a cash register and pay before they eat.	933
Fast Food Restaurant With Drive Thru	This category includes fast-food restaurants with drive-through windows.	934
Golf Course	Golf courses include 9, 18, 27 and 36 hole courses. Some sites may also have driving ranges and clubhouses with a pro shop, restaurant, lounge and banquet facilities.	430
Health Club	These are privately-owned facilities that primarily focus on individual fitness or training. Typically they provide exercise classes; weightlifting, fitness and gymnastics equipment; spas; locker rooms; and small restaurants or snack bars.	492

Table 1: Land Use Subtype Descriptions

Land Use Subtype	Description¹	ITE Number
High Turnover (Sit Down Restaurant)	This land use consists of sit-down, full-service eating establishments with turnover rates of approximately one hour or less. This type of restaurant is usually moderately priced and frequently belongs to a restaurant chain.	932
Hotel	Hotels are places of lodging that provide sleeping accommodations and supporting facilities such as restaurants; cocktail lounges; meeting and banquet rooms or convention facilities; limited recreational facilities and other retail and service shops.	310
Motel	Motels are places of lodging that provide sleeping accommodations and often a restaurant. Motels generally offer free on-site parking and provide little or no meeting space and few supporting facilities.	320
Movie Theater (No Matinee)	Movie theaters consist of audience seating, single or multiple screens and auditoriums, a lobby and a refreshment stand. Movie theaters without matinees show movies on weekday evenings and weekends only; there are no weekday daytime showings.	443
Quality Restaurant	This land use consists of high quality, full-service eating establishments with typical turnover rates of at least one hour or longer. Quality restaurants generally do not serve breakfast, some do not serve lunch; all serve dinner. This type of restaurant usually requires reservations and is generally not part of a chain. Patrons commonly wait to be seated, are served by a waiter, order from menus and pay for meals after they eat.	931
Racquet Club	These are privately-owned facilities that primarily cater to racquet sports.	491
Recreational Swimming Pool	This is a typical recreational swimming pool that may be associated with community centers, parks, swim clubs, etc.	495
PARKING		
Enclosed Parking Structure	This is an enclosed parking structure that may be above or below ground. It is not covered in asphalt. This land use will require lighting and ventilation, and will be more than one floor with no elevator.	
Enclosed Parking with Elevator	This is an enclosed parking structure that may be above or below ground. It is not covered in asphalt. This land use will require lighting and ventilation, and will be more than one floor with an elevator.	
Other Asphalt Surfaces	This is an asphalt area not used as a parking lot (e.g., long driveway, basketball court, etc.)	
Other Non-Asphalt Surfaces	This is a non-asphalt area (e.g., equipment foundation, loading dock area, etc.).	
Parking Lot	This is a typical single surface parking lot typically covered with asphalt. This land use will require lighting.	
Unenclosed Parking Structure	This is an unenclosed parking structure that may be above or below ground. It is not covered in asphalt. This land use will require lighting but not ventilation. It will be more than one floor with no elevator.	
Unenclosed Parking with Elevator	This is a unenclosed parking structure that may be above or below ground. It is not covered in asphalt. This land use will require lighting but not ventilation. It will be more than one floor with an elevator.	

Table 1: Land Use Subtype Descriptions

Land Use Subtype	Description ¹	ITE Number
RETAIL		
Automobile Care Center	An automobile care center houses numerous businesses that provide automobile-related services, such as repair and servicing; stereo installation; and seat cover upholstery.	942
Convenience Market (24 Hour)	These markets sell convenience foods, newspapers, magazines and often beer and wine. They do not sell or dispense motor vehicle fuels (e.g., gasoline and diesel).	851
Convenience Market With Gas Pumps	These markets sell or dispense motor vehicle fuels (e.g., gasoline and diesel), convenience foods, newspapers, magazines and often beer and wine. This includes convenience markets with motor vehicle fueling dispensers where the primary business is the selling of convenience items, not the fueling of motor vehicles.	853
Discount Club	A discount club is a discount store or warehouse where shoppers pay a membership fee in order to take advantage of discounted prices on a wide variety of items such as food, clothing, tires and appliances. Many items are sold in large quantities or in bulk.	857
Electronic Superstore	These are free-standing facilities that specialize in the sale of electronic merchandise.	863
Free-Standing Discount Store	Discount stores offer centralized cashiering and sell products that are advertised at discount prices. These stores offer a variety of customer services and maintain long store hours seven days a week.	815
Free-Standing Discount Superstore	The discount superstore is similar to the free-standing discount stores with the addition that they also contain a full-service grocery department under the same roof that shares entrances and exits with the discount store area.	813
Gasoline/Service Station	This land use includes service stations where the primary business is the fueling of motor vehicles. They may also have ancillary facilities for servicing and repairing motor vehicles.	944
Hardware/Paint Store	These stores sell hardware and paint supplies and are generally free-standing buildings.	816
Home Improvement Superstore	These are free-standing facilities that specialize in the sale of home improvement merchandise.	862
Regional Shopping Center	A shopping center is an integrated group of commercial establishments that is planned, developed, owned and managed as a unit. A shopping center's composition is related to its market area in terms of size, location and type of store.	820
Strip Mall	Small strip shopping centers contain a variety of retail shops and specialize in quality apparel, hard goods and services such as real estate offices, dance studios, florists and small restaurants.	826

Table 1: Land Use Subtype Descriptions

Land Use Subtype	Description ¹	ITE Number
Supermarket	Supermarkets are free-standing retail stores selling a complete assortment of food: food preparation and wrapping materials; and household, cleaning items. Supermarkets may also contain the following products and services: ATMs, automobile supplies, bakeries, books and magazines, dry cleaning, floral arrangements, greeting cards, limited-service banks, photo centers, pharmacies and video rental areas.	850
COMMERCIAL		
Bank (With Drive-Through)	Drive-in banks provide banking facilities for motorists who conduct financial transactions from their vehicles; many also serve patrons who walk into the building.	912
General Office Building	A general office building houses multiple tenants where affairs of businesses commercial or industrial organizations or professional persons or firms are conducted. If information is known about individual buildings, it is suggested that this land use be used instead of the more generic office park.	710
Government (Civic Center)	A group of government buildings that are interconnected by pedestrian walkways.	733
Government Office Building	This is an individual building containing either the entire function or simply one agency of a city, county, state, federal, or other governmental unit.	730
Hospital	A hospital is any institution where medical or surgical care and overnight accommodations are provided to non-ambulatory and ambulatory patients. However, it does not refer to medical clinics or nursing homes.	610
Medical Office Building	This is a facility that provides diagnoses and outpatient care on a routine basis but is unable to provide prolonged in-house medical and surgical care. One or more private physicians or dentists generally operate this type of facility.	720
Office Park	Office parks are usually suburban subdivisions or planned unit developments containing general office buildings and support services, such as banks, restaurants and service stations, arranged in a park-or campus-like atmosphere. This should be used if details on individual buildings are not available.	750
Pharmacy/Drugstore W/O Drive Thru	These are retail facilities that primarily sell prescription and non-prescription drugs. These facilities may also sell cosmetics, toiletries, medications, stationery, personal care products, limited food products and general merchandise. The drug stores in this category do not contain drive-through windows.	880

Table 1: Land Use Subtype Descriptions

Land Use Subtype	Description ¹	ITE Number
Pharmacy/Drugstore With Drive Thru	These are retail facilities that primarily sell prescription and non-prescription drugs. These facilities may also sell cosmetics, toiletries, medications, stationery, personal care products, limited food products and general merchandise. The drug stores in this category contain drive-through windows.	881
Research & Development	R&D centers are facilities devoted almost exclusively to R&D activities. The range of specific types of businesses contained in this land use category varies significantly. R&D centers may contain offices and light fabrication areas.	760
INDUSTRIAL		
General Heavy Industry	Heavy industrial facilities usually have a high number of employees per industrial plant and are generally limited to the manufacturing of large items.	120
General Light Industry	Light industrial facilities are free-standing facilities devoted to a single use. The facilities have an emphasis on activities other than manufacturing and typically have minimal office space. Typical light industrial activities include printing, material testing and assembly of data processing equipment.	110
Industrial Park	Industrial parks contain a number of industrial or related facilities. They are characterized by a mix of manufacturing, service and warehouse facilities with a wide variation in the proportion of each type of use from one location to another. Many industrial parks contain highly diversified facilities.	130
Manufacturing	Manufacturing facilities are areas where the primary activity is the conversion of raw materials or parts into finished products. It generally also has office, warehouse, and R&D functions at the site.	140
Refrigerated Warehouse-No Rail	This is a warehouse that has refrigeration but no rail spur.	152
Refrigerated Warehouse-Rail	This is a warehouse that has refrigeration and a rail spur.	152
Unrefrigerated Warehouse-No Rail	This is a warehouse that does not have refrigeration and no rail spur.	152
Unrefrigerated Warehouse-Rail	This is a warehouse that does not have refrigeration but has a rail spur.	152

1. Based on land use descriptions in Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition.

Unit Amount and Size Metric

By tabbing over to the Unit Amount and Size Metric columns, respectively, the user can enter the number of units (e.g., houses, apartments, etc.) and the corresponding size metric (e.g., per

1000 sq ft, employees, students, etc.). This data combination will be used to populate the lot acreage, square feet and population columns on this screen. For example, a school land use allows the user to define its size by the number of students, building square footage, or number of employees. It is important to note that the square footage, which is used for calculating such impacts as architectural coatings and energy use, relates to the total building square footage and not the building footprint or lot acreage which is used for housing density as well as grading and site preparation calculations.

Lot Acreage

If actual lot acreage data is available, the user should override the default value. However, for a mixed use, multi-story building, the user should not override the square footage default value for each individual land use or the acreage default value assigned to the residential portion or the split between the non-residential land uses if there is no residential portion. The figure below provides an example of a mixed use project and instructions for applying the appropriate square footage and acreage.

Acreage is used to estimate housing density and assign construction default data (e.g., grading, site preparation, etc.). Table 2 contains housing density default data per land use in terms of dwelling units (DU) per acre. By using this data, CalEEMod can estimate the number of acres per dwelling unit (DU) for residential land use. For example, if the user enters 10 apartments in a low rise building, then the lot acreage will be 0.625 acre (10 DU divided by 16 acres/DU). According to the California Energy Commission's Residential Appliance Saturation Survey (RASS), the metric for low rise apartments is 1,000 square feet per DU (see Table 2.1). Similarly, using the same example, the building footprint will be 0.23 acre (10 DU x 1000 sq ft/DU x 1 acre/43,560 sq ft). Thus, the total lot acreage includes the residential footprint plus driveway and landscaping/open space.

Example of Mixed Use Project in CalEEMod

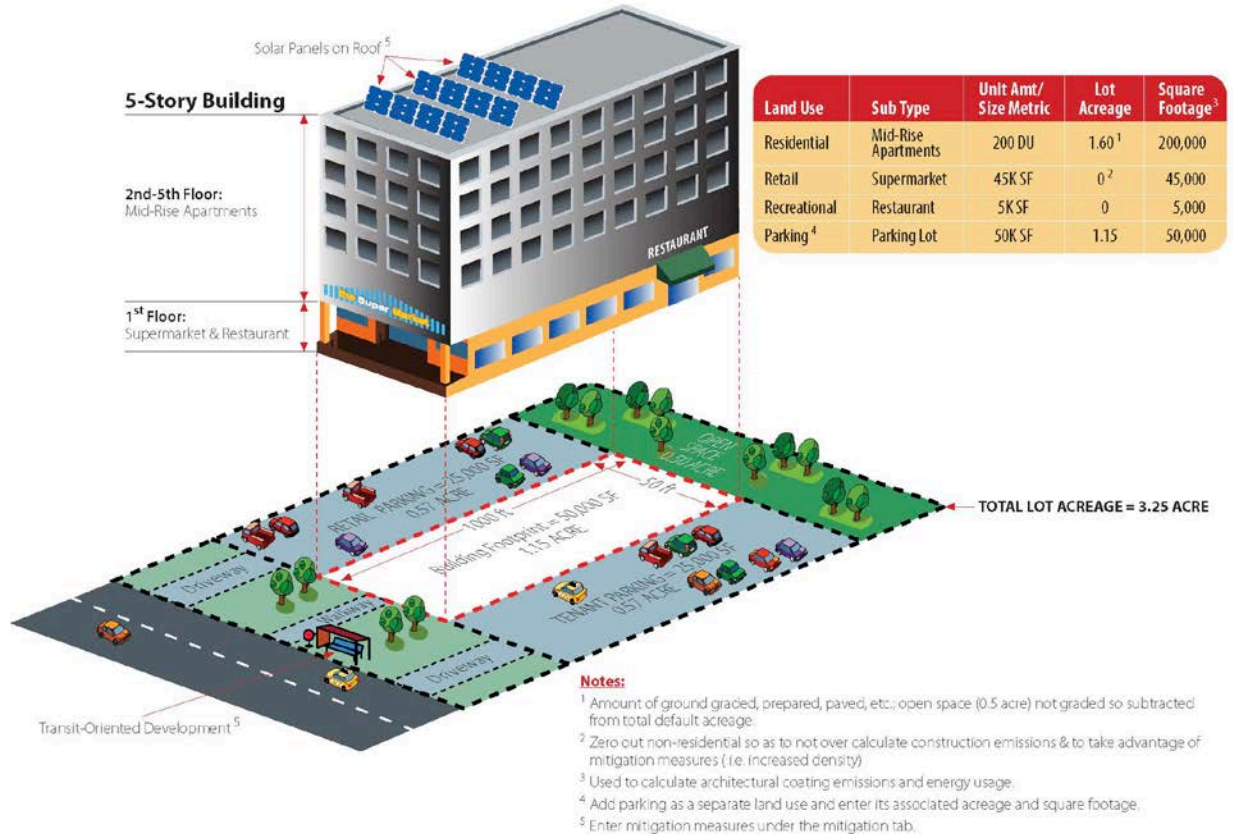


Table 2: Default Housing Density

Land Use Subtype	Density (Dwelling Units/Acre)
Single Family Housing	3
Apartments low rise	16
Apartments mid rise	38
Apartments high rise	62
Condo/townhouse	16
Condo/townhouse high rise	64
Mobile Home Park	8
Retirement Community	5
Congregate care (Assisted Living)	16

1. Based on the density assumed in ITE Trip Generation 8th Edition

After the user has completed entering all of land uses for the project, CalEEMod will add the lot

acreage values for each land use and the total will be reflected in the lot acreage text box located at the bottom of the screen. The value in the total lot acreage box cannot be modified by the user.

Square Footage

If actual square footage of the total building or building footprint is known, the user should override the default value.

Population

After the completing the tabs for unit amount, size metric, lot acreage, and square footage, the population field will contain a default which represents an estimate of the population for each land use type and subtype selected by the user. If the actual population data is known, the user should override the default value.

After the user has completed entering all of land uses for the project, CalEEMod will add the population values for each land use and the total will be reflected in the population text box located at the bottom of the screen. The value in the total population box cannot be modified by the user.

City Park/Golf Course Building Area Square Feet (text box)

If the user selects a City Park and/or Golf Course land use, a text box will appear at the bottom of the screen that will prompt the user to enter the building square footage of all the buildings that will be located on the City Park and/or Golf Course property (e.g., restrooms/changing rooms, pro-shop, etc.). The user must input site-specific building square footage data because there are no default values for building footprints on these types of land uses. If the building square footage is left blank (e.g., zero square feet), a warning message will appear to remind the user to enter a value in this field.

Recreational Swimming Pool Building Area Square Feet (text box)

If the user selects a Recreational Swimming Pool land use, a text box will appear at the bottom of the screen that will prompt the user to enter the building square footage of all the buildings that will be located on the property (e.g., restrooms/changing rooms, pro-shop, etc.). The user must input site-specific building square footage data because there is no default value for the building footprint on this type of land use. If the building square footage is left blank (e.g., zero square feet), a warning message appear to remind the user to enter a value in this field.

4.3 Construction

After completing the Land Use screen and clicking on the Next button, the Construction screen will appear along with seven tabs/sub-screens that cover the following construction topic areas: Construction Phase; Off-Road Equipment; Dust from Material Movement; Demolition; Trips and VMT, On-Road Fugitive Dust, and Architectural Coatings. To move from one tab/subscreen to another, the user can use the Next and Previous buttons, or click on any of grey tabs. The

construction tabs/sub-screens contain default information that was obtained from a survey of construction sites conducted by South Coast Air Quality Management District (SCAQMD). The construction survey data is grouped by construction phase and lot acreage and can be found in Appendix E1. The default construction equipment list and phase length data were determined to be the most appropriate for the size and types surveyed. In addition, some data in the survey was extrapolated to create default values for project sizes that were not in the survey. However, if the user has more detailed site-specific equipment and phase information, the user should override the default values.

4.3.1 Construction Phase

The Construction Phase tab is where the user can enter the type of each construction phase and the date range for each phase. . Default phases are based on the total lot acreage of the project. Depending on the project being modeled, not all phases may be necessary so the user may need to delete phases that are not applicable to the project. For example, not all projects require demolition. In addition, the user may need to add multiple phases of similar types for large projects with staged build out scenarios. It is important to note that if a project has demolition, grading, and site preparation phases, the user will need to provide additional project-specific data on the Demolition and Dust from Material Movement sub-screens.

Phase Name and Phase Type

The Phase Name and Phase Type fields will be automatically populated with the following default construction phases: Site Preparation; Demolition; Grading; Building Construction; Paving; and, Architectural Coating. The inclusion of any of these phases will define the types of calculations and default assumptions for on-road vehicle trips and fugitive emissions that occur in subsequent construction sub-screens. The definitions of the default phase types are as follows:

- Demolition involves removing buildings or structures.
- Site Preparation involves clearing vegetation (grubbing and tree/stump removal) and removing stones and other unwanted material or debris prior to grading.
- Grading involves the cut and fill of land to ensure that the proper base and slope is created for the foundation.
- Building Construction involves the construction of the foundation, structures and buildings.
- Architectural Coating involves the application of coatings to both the interior and exterior of buildings or structures, the painting of parking lot or parking garage striping, associated signage and curbs, and the painting of the walls or other components such as stair railings inside parking structures.
- Paving involves the laying of concrete or asphalt such as in parking lots, roads, driveways, or sidewalks.

Start Date and End Date

The user can enter with the aid of a calendar, the Start Date and End Dates for each construction phase. The default Start Date is the Start of Construction date defined on the Project Characteristics screen. The cells will be automatically populated with a default construction schedule starting with the Demolition phase, with subsequent phases starting the following day after the previous phase's end date. The user may change the defaults to alter the total days estimated for each phase. Because CARB's emission factors vary from year to year, when the user inserts the start and end dates for each construction phase, the model will select the correct emission factors for the year when each piece of off-road equipment will be utilized.

Days per Week

The user can select from a drop down box the number of days per week (either 5, 6, or 7 days) that construction will occur. Five days per week assumes that construction will occur from Monday through Friday, and six days per week assumes that construction will occur Monday through Saturday.

Total Days

The Total Days field is intended to indicate the number of days that it will take to complete a particular construction phase and this field is initially populated with default values. If the End Date or the Days per Week fields are changed, clicking the Total Days field will trigger a recalculation of the Total Days. If the Total Days field for any phase is changed, then once leaving this field, the program will automatically adjust the End Date based on the Start Date for that phase.

4.3.2 Off-Road Equipment

The Off-Road Equipment tab is for the user to select the type and quantity of off-road equipment needed for each construction phase and to define the daily usage schedule. Since equipment lists can be lengthy and vary widely for each construction phase, the user will need to first select the phase from Phase Name drop down list or by clicking on the Previous or Next buttons located next to the phase name, and then select the off-road equipment that will be used for each construction phase. The Off-Road Equipment screen calculates emissions based on the expected off-road equipment engine use for each piece of equipment listed over the duration of the phase length. It is important to note that fugitive emissions from off-road equipment are calculated elsewhere on other construction screens.

After the user enters the Equipment Type, Number of Units, and Hours per Day for each piece of equipment that will be used in any phase, The Horsepower and Load Factor fields will be automatically populated with the default average values from CARB's OFFROAD2011., If equipment-specific information is available, the user can override these default values. In some cases, CARB's OFFROAD2011 emission factors are not available for all years. Thus, if the user selects a construction year that does not have corresponding emission factors, CalEEMod has been programmed to substitute the emissions factors from nearest, lower end (e.g., oldest) year. For example, if construction will occur in year 2037 (a year which does not have emission factors), CalEEMod will substitute the emission factors from year 2035 instead. Since newer

equipment tends to have less emissions than older equipment, by selecting emission factors from year 2035 (an older year), the calculations may result in a conservative, slight overestimate of emissions.

If the project requires the use of off-road equipment that is not specifically listed in the drop down list, the user can select from three generalized equipment categories to add customized equipment to the analysis: 1) Other Construction Equipment; 2) Other General Industrial Equipment; and, 3) Other Material Handling Equipment. In addition, the user may choose to select a surrogate equipment type which has a similar horsepower rating and load factor. To include water trucks and cement trucks in the analysis, the user needs to first determine if these trucks are off-road or on-road vehicles. If they are only driven off-road, then the user can select the Off-Highway Trucks category in the Off-Road Equipment screen. If the trucks are driven on-road, the user can account for the on-road emissions by entering this information as Additional Vendor Trips on the Trips and VMT screen (see Subchapter 4.3.5).

4.3.3 Dust from Material Movement

The Dust from Material Movement sub-screen is intended for calculating fugitive dust emissions associated with the Site Preparation and Grading phases (defaults) during construction. This sub-screen calculates the following three types of fugitive dust: 1) fugitive dust from dozers moving dirt; 2) fugitive dust from graders or scrapers leveling the land; and; 3) fugitive dust from loading or unloading dirt into haul trucks. These methods have been adapted from USEPA's AP-42 method for Western Coal Mining. Once the user enters the amount of material imported and exported to the site, CalEEMod will estimate the number of hauling trips associated with from material transport activities. The user may define the units in terms of Ton of Debris or Cubic Yards. The user may also select whether the import/export of material is phased (e.g., a the same truck that arrives with material departs with another load of material to export in one round trip or two-one way trips. The calculations for non-phased material import/export trips assume that one truck arrives empty and departs full and a different truck arrives full for a total of two round trips (or four one-way trips). Thus, phasing material import and export trips reduces the number of haul trips.

The Total Acres Graded field represents the cumulative distance traversed on the property by the grading equipment, assuming a blade width of 12 feet. In order to properly grade a piece of land, multiple passes with grading equipment may be required. So even though the lot size is a fixed number of acres, the Total Acres Graded could be an order of magnitude higher than the footprint of the lot and is calculated based on the equipment list (including number of equipment), the number of days need to complete the grading and/or site preparation phase, and the maximum number of acres a given piece of equipment can traverse in an 8-hour workday. For more information regarding how Dust from Material Movement is calculated, including grading rates, see Appendix A, Subchapter 4.3.

4.3.4 Demolition

The Demolition sub-screen is intended for the user to enter the amount of material that is demolished, if a demolition phase is selected by the user as part of the construction project.

The user can select the Size Metric to define the amount of demolished material that is expected to be generated during the demolition phase in terms of Ton of Debris or Building Square Footage. With this data, fugitive dust emissions generated during demolition are calculated. The calculation of fugitive dust emissions during demolition is derived from the methodology described in the report prepared for the USEPA by Midwest Research Institute, Gap Filling PM₁₀ Emission Factors for Selected Open Area Dust Sources.

4.3.5 Trip and VMT

The Trip and VMT sub-screen is used to provide the number and length (in terms of vehicle miles traveled or VMT) of on-road vehicle trips for workers, vendors, and hauling for each construction phase. Depending on the land use type and subtype combined with the various construction phases, CalEEMod will populate the fields for Number of Trips, Trip Length, and Vehicle Class for worker, vendor and haul trips, respectively, with default values. The vehicle class descriptor HHDT, MHDT means that there is a 50/50 percent mix of heavy-heavy duty trucks and medium-heavy duty trucks. Similarly, the vehicle class descriptor LDA, LDT1, LDT2 means that there is a 50/25/25 percent mix of light duty autos, light duty truck class 1 and light duty truck class 2, respectively. The user may override the defaults and enter different weightings of vehicle fleet mixes. It is important to note that if the user selects a construction year that does not have corresponding EMFAC2014 emission factors for on-road vehicles, CalEEMod has been programmed to substitute the emissions factors from nearest, lower end (e.g., oldest) year. For example, if construction will occur in year 2037 (a year which does not have emission factors), CalEEMod will substitute the emission factors from year 2035 instead. Since newer equipment tends to have less emissions than older equipment, by selecting emission factors from year 2035 (an older year), the calculations may result in a conservative, slight overestimate of emissions.

CalEEMod quantifies the number of construction workers by multiplying 1.25 times the number of pieces of equipment for all phases (except Building Construction and Architectural Coating). For the Building Construction, the number of workers is derived from a study conducted by the Sacramento Metropolitan Air Quality Management District (SMAQMD) which determined the number of workers needed for various types of land uses and corresponding project size. This study and its analysis are included in Appendix E2. For the Architectural Coating phase, the number of workers is approximately 20% of the number of workers needed during the Building Construction phase.

The number of vendor trips during the Building Construction phase is also derived from a study conducted by the SMAQMD. The SMAQMD trip survey during construction counted cement and water trucks as vendor trips (instead of counting them as off-road vehicle trips) and these trip rates were incorporated into the calculations for the Building Construction phase. If the user deletes the Building Construction phase from the analysis, but the project will require water and/or cement trucks, then the user will need to account for these either as vendor trips under another construction phase or under the Off-Road equipment screen.

The default values for hauling trips are based on the assumption that a truck can haul 20 tons (or 16 cubic yards) of material per load. If one load of material is delivered, CalEEMod assumes that one haul truck importing material will also have a return trip with an empty truck (e.g., 2 one-way trips). Similarly, a haul truck needed to export material is assumed to have an arrival trip in an empty truck and a loaded departure truck (e.g., 2 one-way trips). Thus, each trip to import and export material is considered as two separate round trips (or 4 one-way trips). However, if the Phase box is checked, the same haul truck that imported the material will be assumed to be the same haul truck that export material resulting in one round trip (or 2 one-way trips).

4.3.6 On-Road Fugitive Dust

The On-Road Fugitive Dust sub-screen defines the variables that will be used to determine the fugitive dust emissions from on-road vehicles driving over paved and unpaved roads during construction. CalEEMod automatically populates the data fields based on the construction phase. The calculations use emission factors from USEPA's AP-42 for paved roads (January 2011 edition) and unpaved roads (November 2006 edition). Each data field is the same as those defined in the aforementioned AP-42 sections.

4.3.7 Architectural Coatings

The Architectural Coatings sub-screen is intended to calculate ROG emissions associated with painting the interior/exterior of residential and non-residential buildings as well as calculate emissions from parking lot painting or striping. The user may override any of the default interior and exterior surface areas estimated for residential and non-residential buildings. In addition, each of these surface types has a different emission factor indicating the ROG content of the paint in grams per liter (g/L). It is important to note that the parking area square footage is not included in the non-residential interior/exterior square footage when calculating emissions attributable to parking lot striping. See Appendix A, Subchapter 4.7 for the methodology of estimating surface areas to be coated from building square footage.

4.4 Operational Mobile

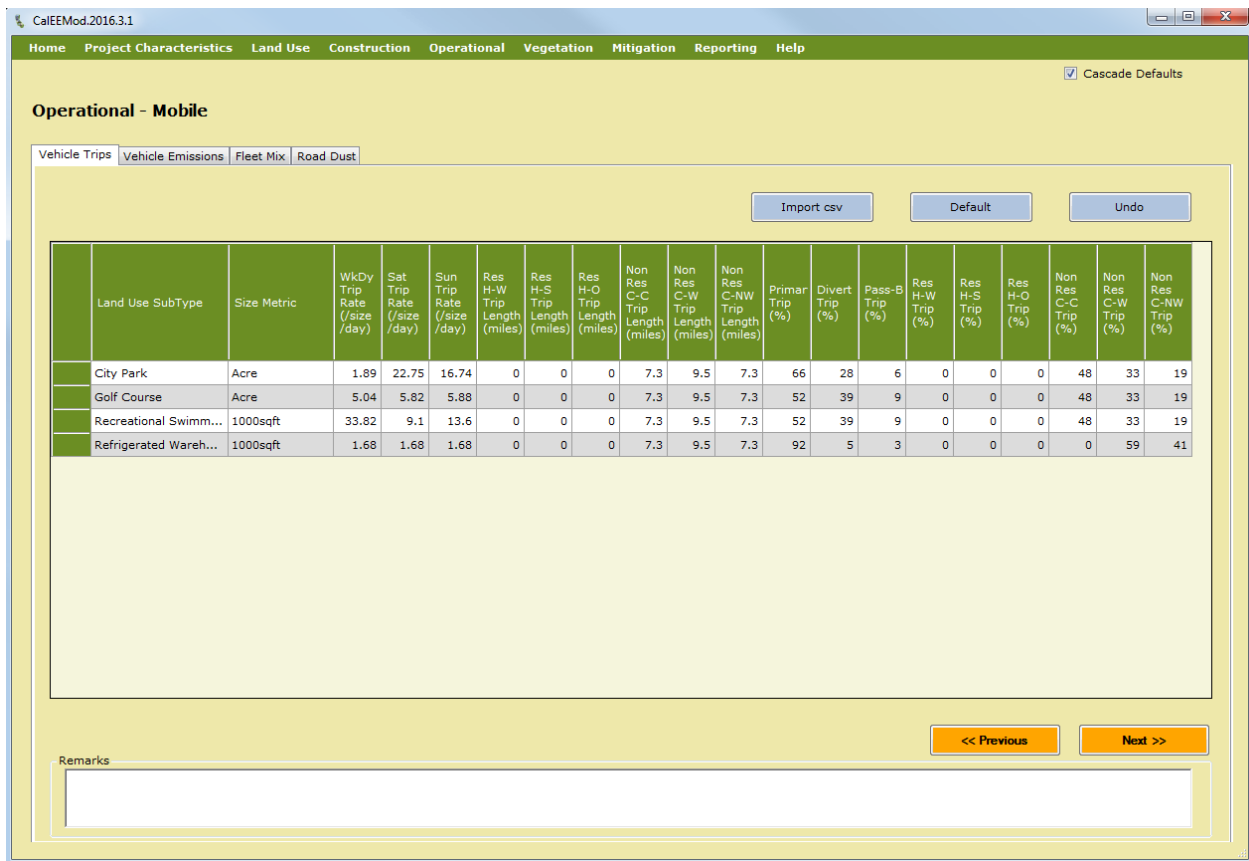
The operational mobile screen is made up of four sub-screens: Vehicle Trips, Vehicle Emissions, Fleet Mix and Road Dust. These screens are used in defining the information necessary to calculate the emissions associated with operational on-road vehicles.

4.4.1 Vehicle Trips

This sub-screen includes the trip rates, trip lengths, trip purpose, and trip type percentages for each land use subtype in the project. The user can edit any of this information by entering a new value in the appropriate cell. Trip rates are in terms of the size metric (thousand square footage or dwelling unit) defined on the land use screen and are listed for weekday, Saturday and Sunday if available. Trip lengths are for primary trips. Trip purposes are primary, diverted, and pass-by trips. Diverted trips are assumed to take a slightly different path than a primary trip and are assumed to be 25% of the primary trip lengths. Pass-by trips are assumed to be 0.1 miles in length and are a result of no diversion from the primary route. Residential trip types are

defined as home-work (H-W), home-shop (H-S), and home-other (H-O). Non-residential trip types are defined as commercial –customer (C-C), commercial-work (C-W), and commercial-nonwork (C-NW) such as delivery trips. Appendix A includes the equations and methodology used to calculate motor vehicle emissions from the operation of a project.

The trip rates are based on ITE 9th edition average trip rates for the respective land use categories.



Operational - Mobile

Vehicle Trips | Vehicle Emissions | Fleet Mix | Road Dust

Import csv | Default | Undo

Land Use SubType	Size Metric	WkDy Trip Rate (/size /day)	Sat Trip Rate (/size /day)	Sun Trip Rate (/size /day)	Res H-W Trip Length (miles)	Res H-S Trip Length (miles)	Res H-O Trip Length (miles)	Non Res C-C Trip Length (miles)	Non Res C-W Trip Length (miles)	Non Res C-NW Trip Length (miles)	Primar Trip (%)	Divert Trip (%)	Pass-B Trip (%)	Res H-W Trip (%)	Res H-S Trip (%)	Res H-O Trip (%)	Non Res C-C Trip (%)	Non Res C-W Trip (%)	Non Res C-NW Trip (%)
City Park	Acre	1.89	22.75	16.74	0	0	0	7.3	9.5	7.3	66	28	6	0	0	0	48	33	19
Golf Course	Acre	5.04	5.82	5.88	0	0	0	7.3	9.5	7.3	52	39	9	0	0	0	48	33	19
Recreational Swimm...	1000sqft	33.82	9.1	13.6	0	0	0	7.3	9.5	7.3	52	39	9	0	0	0	48	33	19
Refrigerated Wareh...	1000sqft	1.68	1.68	1.68	0	0	0	7.3	9.5	7.3	92	5	3	0	0	0	0	59	41

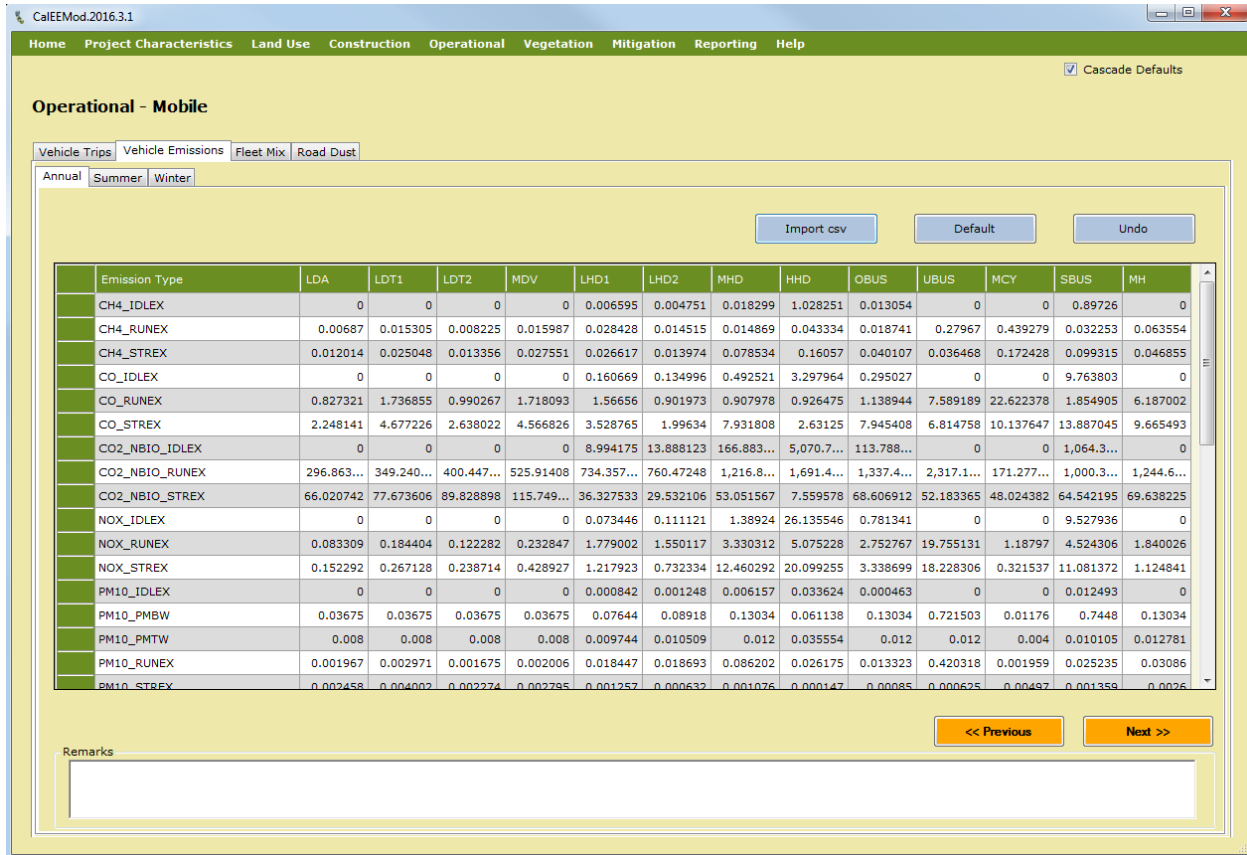
Remarks

<< Previous | Next >>

4.4.2 Vehicle Emissions

This sub-screen contains the detailed vehicle emission factors based on EMFAC2014. Appendix A includes the description of how these emission factors were derived from EMFAC2014. It is anticipated that most users will not edit data in this sub-screen. There are separate tabs for annual, summer, and winter emissions values. If the user wants to alter the breakdown of fuel types (catalytic, non-catalytic, and other) within a vehicle class, they will have to provide their own data. This will likely be an infrequent change due to CEQA enforceability requirements.

This screen along with the previous screen (Vehicle Trips) and next screen (Fleet Mix) will provide the data for the model to calculate the emissions associated with on-road motor vehicle use. The calculation does not include the fugitive dust emissions from travel over roads as these are associated with the next screen (Road Dust).

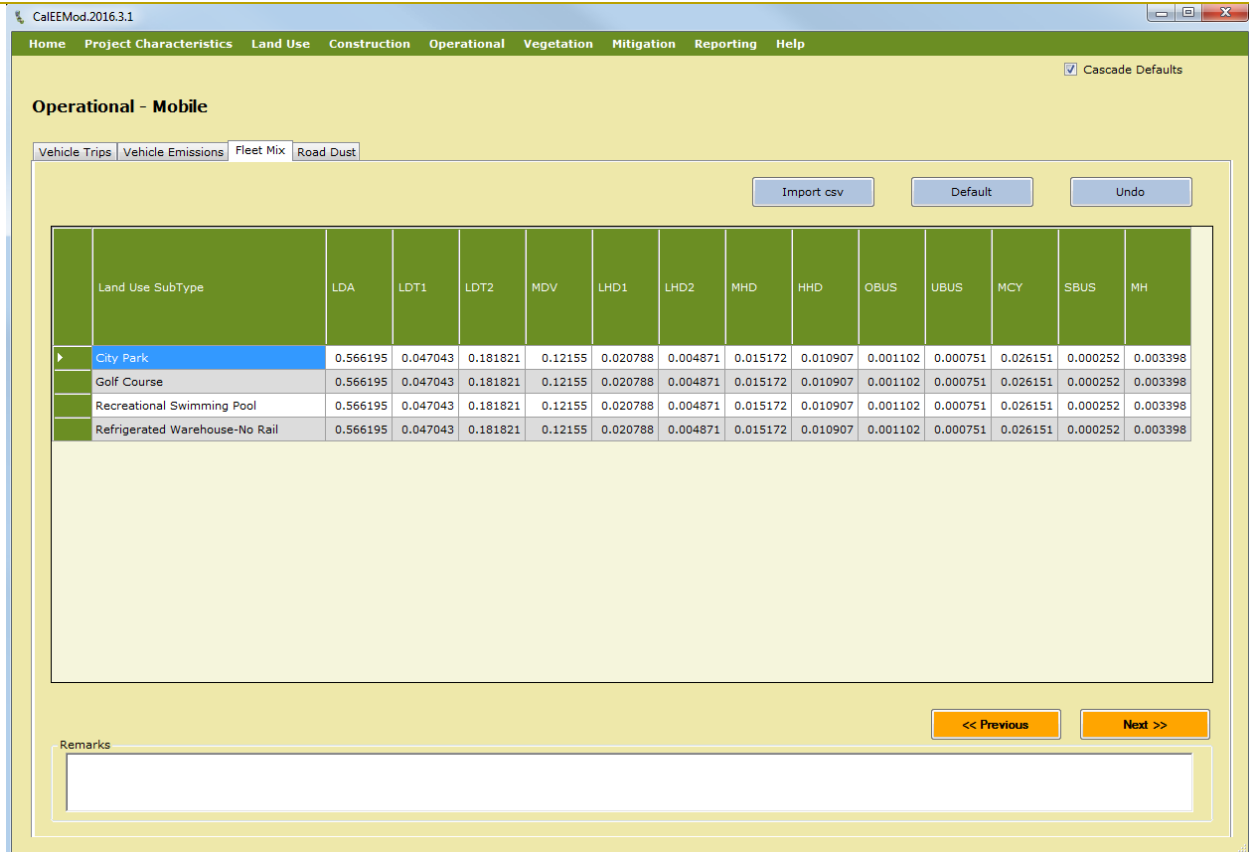


The screenshot shows the 'Operational - Mobile' screen in CalEEMod 2016.3.1. The interface includes a menu bar (Home, Project Characteristics, Land Use, Construction, Operational, Vegetation, Mitigation, Reporting, Help) and a 'Cascade Defaults' checkbox. Below the menu, there are tabs for 'Vehicle Trips', 'Vehicle Emissions', 'Fleet Mix', and 'Road Dust'. The 'Vehicle Emissions' tab is active, showing a sub-tab for 'Annual' with 'Summer' and 'Winter' options. There are buttons for 'Import csv', 'Default', and 'Undo'. A large table displays emission factors for various pollutants and vehicle types. At the bottom, there are 'Previous' and 'Next' navigation buttons and a 'Remarks' text area.

Emission Type	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
CH4_IDLEX	0	0	0	0	0.006595	0.004751	0.018299	1.028251	0.013054	0	0	0.89726	0
CH4_RUNEX	0.00687	0.015305	0.008225	0.015987	0.028428	0.014515	0.014869	0.043334	0.018741	0.27967	0.439279	0.032253	0.063554
CH4_STREX	0.012014	0.025048	0.013356	0.027551	0.026617	0.013974	0.078534	0.16057	0.040107	0.036468	0.172428	0.099315	0.046855
CO_IDLEX	0	0	0	0	0.160669	0.134996	0.492521	3.297964	0.295027	0	0	9.763803	0
CO_RUNEX	0.827321	1.736855	0.990267	1.718093	1.56656	0.901973	0.907978	0.926475	1.138944	7.589189	22.622378	1.854905	6.187002
CO_STREX	2.248141	4.677226	2.638022	4.566826	3.528765	1.99634	7.931808	2.63125	7.945408	6.814758	10.137647	13.887045	9.665493
CO2_NBIO_IDLEX	0	0	0	0	8.994175	13.888123	166.883...	5,070.7...	113.788...	0	0	1,064.3...	0
CO2_NBIO_RUNEX	296.863...	349.240...	400.447...	525.91408	734.357...	760.47248	1,216.8...	1,691.4...	1,337.4...	2,317.1...	171.277...	1,000.3...	1,244.6...
CO2_NBIO_STREX	66.020742	77.673606	89.828898	115.749...	36.327533	29.532106	53.051567	7.559578	68.606912	52.183365	48.024382	64.542195	69.638225
NOX_IDLEX	0	0	0	0	0.073446	0.111121	1.38924	26.135546	0.781341	0	0	9.527936	0
NOX_RUNEX	0.083309	0.184404	0.122282	0.232847	1.779002	1.550117	3.330312	5.075228	2.752767	19.755131	1.18797	4.524306	1.840026
NOX_STREX	0.152292	0.267128	0.238714	0.428927	1.217923	0.732334	12.460292	20.099255	3.338699	18.228306	0.321537	11.081372	1.124841
PM10_IDLEX	0	0	0	0	0.000842	0.001248	0.006157	0.033624	0.000463	0	0	0.012493	0
PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.08918	0.13034	0.061138	0.13034	0.721503	0.01176	0.7448	0.13034
PM10_PMTW	0.008	0.008	0.008	0.008	0.009744	0.010509	0.012	0.035554	0.012	0.012	0.004	0.010105	0.012781
PM10_RUNEX	0.001967	0.002971	0.001675	0.002006	0.018447	0.018693	0.086202	0.026175	0.013323	0.420318	0.001959	0.025235	0.03086
PM10_STREX	0.002458	0.004002	0.002274	0.002785	0.001257	0.000632	0.001076	0.000147	0.00085	0.000625	0.00497	0.001359	0.0026

4.4.3 Fleet Mix

CalEEMod Version 2016.3.1 separates the fleet mix from the Vehicle Emissions screen and creates a Fleet Mix screen so that users are able to change default fleet mix associated with different land use subtypes.



CalEEMod.2016.3.1

Home Project Characteristics Land Use Construction Operational Vegetation Mitigation Reporting Help

Cascade Defaults

Operational - Mobile

Vehicle Trips Vehicle Emissions **Fleet Mix** Road Dust

Import csv Default Undo

Land Use SubType	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.566195	0.047043	0.181821	0.12155	0.020788	0.004871	0.015172	0.010907	0.001102	0.000751	0.026151	0.000252	0.003398
Golf Course	0.566195	0.047043	0.181821	0.12155	0.020788	0.004871	0.015172	0.010907	0.001102	0.000751	0.026151	0.000252	0.003398
Recreational Swimming Pool	0.566195	0.047043	0.181821	0.12155	0.020788	0.004871	0.015172	0.010907	0.001102	0.000751	0.026151	0.000252	0.003398
Refrigerated Warehouse-No Rail	0.566195	0.047043	0.181821	0.12155	0.020788	0.004871	0.015172	0.010907	0.001102	0.000751	0.026151	0.000252	0.003398

Remarks

<< Previous Next >>

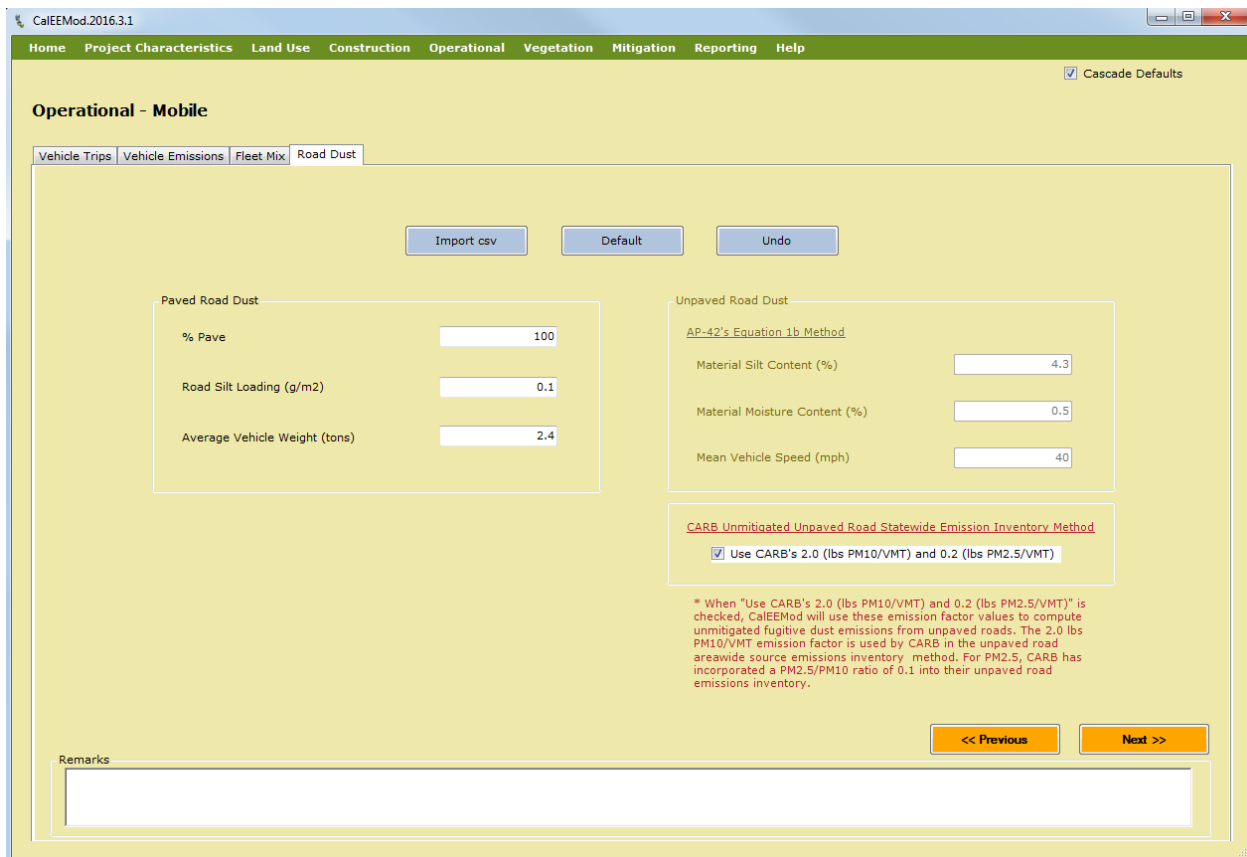
4.4.4 Road Dust

This sub-screen is used to change any of the default values that are used in the USEPA's AP-42 methods for calculating fugitive emissions from paved and unpaved roads. The defaults for the road dust (e.g., material silt content, material moisture content, and mean vehicle speed) are statewide averages, but the user has the ability to override the defaults if data specific to the project is known. Local jurisdictions can also provide guidance to users as to what default properly reflects known regional road dust parameters.

For the San Luis Obispo region, the user is recommended to provide the following unpaved road dust parameters overriding the statewide defaults if users choose to use USEPA's AP-42 methods:

- 9.3 for Material Silt Content (%) (*instead of 4.3 statewide default*)
- 0.1 for Material Moisture Content (%) (*instead of 0.5 statewide default*)
- 32.4 for Mean Vehicle Speed (mph) (*instead of 40 statewide default*)

For San Luis Obispo County APCD and Sacramento Metropolitan AQMD, the user has a new **default** option in CalEEMod Version 2016.3.1 to use CARB's 2.0 lbs PM₁₀/VMT⁹ as the unmitigated fugitive dust emission factor for unpaved roads during the operational phase. An emission factor of 0.2 lbs PM_{2.5}/VMT is applied based on a 10% PM_{2.5}/ PM₁₀ ratio^{10, 11}. By checking the box, the program will use CARB's emission factor to override the calculated emission factor based on USEPA AP-42. Note: For project locations other than San Luis Obispo County APCD and Sacramento Metropolitan AQMD, CARB's 2.0 lbs PM₁₀/VMT is not a selection option.



CalEEMod.2016.3.1

Home Project Characteristics Land Use Construction Operational Vegetation Mitigation Reporting Help

Operational - Mobile

Vehicle Trips Vehicle Emissions Fleet Mix Road Dust

Import csv Default Undo

Paved Road Dust

% Pave	100
Road Silt Loading (g/m2)	0.1
Average Vehicle Weight (tons)	2.4

Unpaved Road Dust

AP-42's Equation 1b Method

Material Silt Content (%)	4.3
Material Moisture Content (%)	0.5
Mean Vehicle Speed (mph)	40

CARB Unmitigated Unpaved Road Statewide Emission Inventory Method

Use CARB's 2.0 (lbs PM10/VMT) and 0.2 (lbs PM2.5/VMT)

* When "Use CARB's 2.0 (lbs PM10/VMT) and 0.2 (lbs PM2.5/VMT)" is checked, CalEEMod will use these emission factor values to compute unmitigated fugitive dust emissions from unpaved roads. The 2.0 lbs PM10/VMT emission factor is used by CARB in the unpaved road areawide source emissions inventory method. For PM2.5, CARB has incorporated a PM2.5/PM10 ratio of 0.1 into their unpaved road emissions inventory.

Remarks

<< Previous Next >>

4.5 Area

The area source screen consists of four sub-screens: Hearths, Consumer Products, Area Architectural Coatings, and Landscaping Equipment. Natural gas emission variables from all uses except hearths are included in the energy use screen (described in Section 4.6).

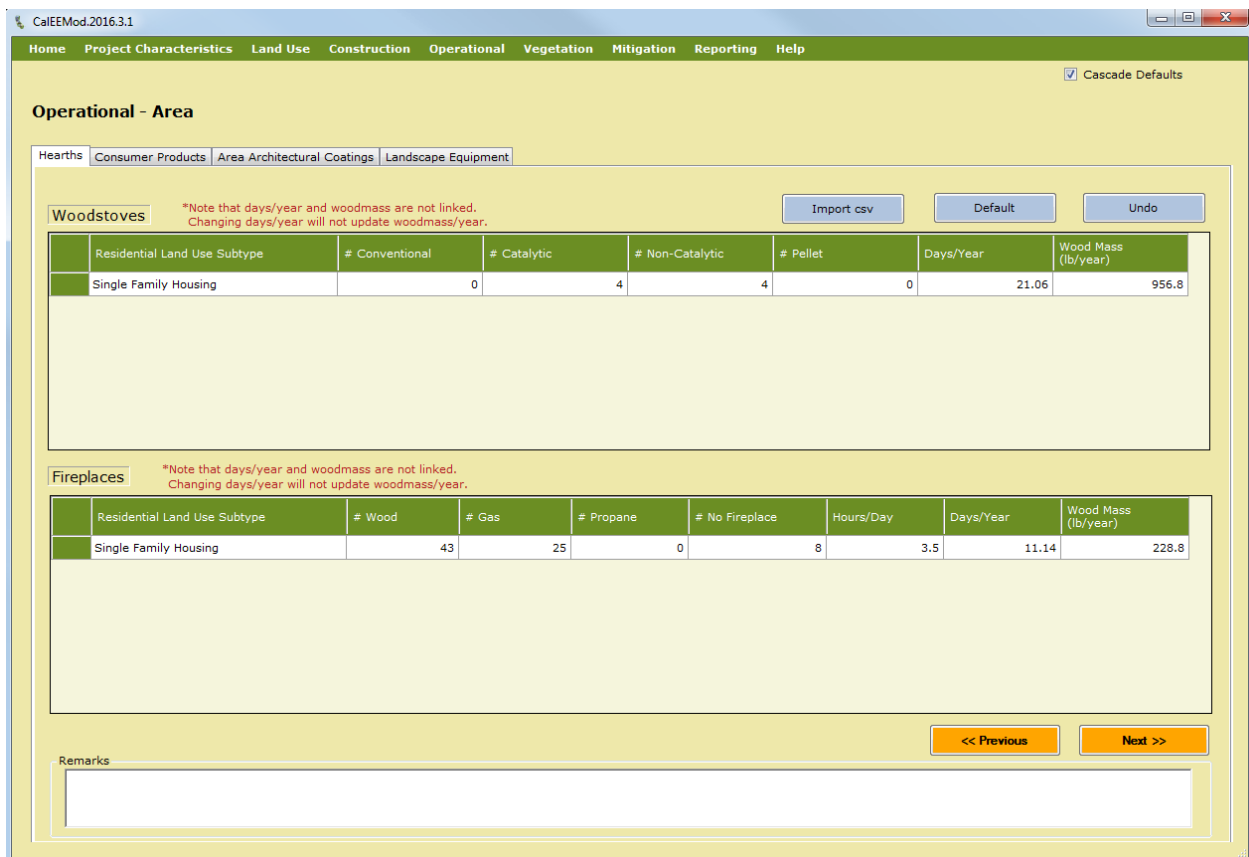
9 Available at: <http://www.arb.ca.gov/ei/areasrc/fullpdf/full7-10.pdf>

10 Available at: http://www3.epa.gov/ttnchie1/ap42/ch13/related/mri_final_fine_fraction_dust_report.pdf

11 Available at: http://www.arb.ca.gov/app/emsinv/emssumcat_query.php?F_YR=2015&F_DIV=-4&F_SEASON=A&SP=2009&F_AREA=CA#0

4.5.1 Hearths and Woodstoves

This sub-screen allows the user to enter the number of woodstoves and hearths of various types as well as the usage of these devices. Woodstoves are separate from fireplaces since a home may have both and these devices may have different use patterns. The number of devices that is entered for each device type represents the total number of devices installed in the dwelling units for a particular land use. Appendix A contains the emissions calculation methodology and details of variables that the user cannot override. Some of these emissions may be classified as biogenic and are therefore reported as CO₂-Biogenic. For most locations a default percent of hearths and stoves was provided by air districts and is multiplied through. The number of devices was chosen to include in CalEEMod instead of a percentage to allow for incorporation of various air district rules regarding hearths and woodstoves in new residences without having specialized data entry screens. Commercial land uses by default do not have hearths or woodstoves in CalEEMod. These are included for those cases where they may occur such as in restaurants or hotels.



The screenshot shows the 'Operational - Area' screen in CalEEMod 2016.3.1. The 'Hearths' tab is selected, and the 'Woodstoves' section is active. A note states: '*Note that days/year and woodmass are not linked. Changing days/year will not update woodmass/year.*' Buttons for 'Import csv', 'Default', and 'Undo' are present. Below is a table for Woodstoves:

Residential Land Use Subtype	# Conventional	# Catalytic	# Non-Catalytic	# Pellet	Days/Year	Wood Mass (lb/year)
Single Family Housing	0	4	4	0	21.06	956.8

The 'Fireplaces' section is also visible with a similar note. Its table is as follows:

Residential Land Use Subtype	# Wood	# Gas	# Propane	# No Fireplace	Hours/Day	Days/Year	Wood Mass (lb/year)
Single Family Housing	43	25	0	8	3.5	11.14	228.8

At the bottom, there are 'Remarks' and navigation buttons: '<< Previous' and 'Next >>'.

The San Joaquin Valley jurisdiction has a regulatory limit on the number of hearths depending upon the type and number of residential development. The regulatory limit is generated by CalEEMod but all the input parameters (e.g., unit density, etc.) are necessary to determine the value. Thus, the regulatory limit is disclosed during the reporting stage under the Default Value

box in the report. The model, however, calculates emission impacts from the number of hearths inputted on the Area source screen (listed under the New Value column in the report).

Therefore, if the user wants to calculate emissions from regulatory limit, the report needs to be run to determine the regulatory limit and the user needs to go back to the Area Source screen to input that value and re-run the report. If the user chooses to calculate emissions from a different number of hearths (e.g., a number of hearths less than the regulatory limit), then that number needs to be inputted on the Area Source screen to properly calculate emissions. Again, the report will provide the regulatory limit under the Default Value column and the user input value under New Value column.

4.5.2 Consumer Products

Consumer products are various solvents used in non-industrial applications which emit ROG_s during their product use. These typically include cleaning supplies, kitchen aerosols, cosmetics and toiletries. SCAQMD has developed an emission factor based on the total of all building square footage for both residential and non-residential buildings. Details of how this emission factor was developed can be found in Appendix E. The user can change this emission factor if they have more relevant data. CalEEMod Version 2016.3.1 separates ROG emissions from pesticides/fertilizers for City Parks and Golf Courses and ROG emissions from parking surface degreasers from the general category consumer products. CalEEMod Version 2016.3.1 also assumes that there would be no ROG emissions from the actual pool surface area for Recreational Swimming Pools because the chemicals used for maintaining pools are not considered to be ROG_s. Details of how the ROG emission factors for pesticides/fertilizers and parking surface degreasers were determined can be found in Appendix E.

4.5.3 Area Architectural Coatings

This sub-screen has text boxes for the reapplication rate and coating ROG content for each building surface type and parking surface. The reapplication rate is the percentage of the total surface area that is repainted each year. A default of 10% is used, meaning that 10% of the surface area is repainted each year (i.e., all surface areas are repainted once every 10 years). Daily emissions divide the annual rate by 365 days per year. This is based on assumptions used by SCAQMD in their district rules regarding architectural coatings. Some districts provided details on their coating regulations that phase-in over time, which have been incorporated to the extent feasible, given the general classifications of paint (interior or exterior for residential and non-residential). Coating ROG content from state regulations are used for air districts that did not provide specific architectural coating information. Consult your local air district for suggested values that may be lower than the state regulations.

The ROG contents under the Operational Area Architectural Coatings screen (either CalEEMod defaults or site-specific values defined by users) become the default ROG contents for the Area Mitigation screen. The user may check the box under the Area Mitigation screen and specify a lower ROG content limit.

4.5.4 Landscape Equipment

This sub-screen has two text boxes to show the number of snow days or summer days. In addition, the defaults consider a realistic number of days which the landscaping equipment would be operated. For example, landscaping at commercial facilities typically do not take place during a weekend or during the summer at educational facilities that are not open. The number of days are applied to the appropriate landscape equipment types available in OFFROAD2011 using the average horsepower and load factors of the population mode. The derivation of emission factors used for each equipment type from OFFROAD2011 is described in Appendix A.

4.6 Energy Use

The energy use screen is used to gather the information necessary to estimate the emissions associated with building electricity and natural gas usage (non-hearth). The electricity energy use is in units of kilowatt hours (kWh) per size metric for each land use subtype. Natural gas use is in units of a thousand British Thermal Units (kBtu) per size metric for each land use subtype.

Title 24 of the California Code of Regulations, known as the California Building Standards Code or Title 24, contains energy conservation standards applicable to all residential and non-residential buildings throughout California. With CalEEMod, building electricity and natural gas use is divided into two categories: 1) end uses subject to Title 24 standards; and, 2) end uses not subject to Title 24 standards. The distinction is used when the mitigation measure for exceeding Title 24 standards (BE-1) is applied. Lighting is also a separate category in CalEEMod for which a separate mitigation measures (LUT-1) may be applied for using energy efficient lighting.

For electricity, Title 24 uses include the major building envelope systems covered by Part 6 (California Energy Code) of Title 24 such as space heating, space cooling, water heating, and ventilation. Non-Title 24 uses include all other end uses, such as appliances, electronics, and other miscellaneous plug-in uses. Because some lighting is not considered as part of the building envelope energy budget, and since a separate mitigation measure is applicable to this end use, CalEEMod makes lighting a separate category.

For natural gas, uses are likewise categorized as Title 24 or Non-Title 24, with Title 24 uses including building heating and hot water end uses. Non-Title 24 natural gas uses include cooking and appliances (including pool/spa heaters).

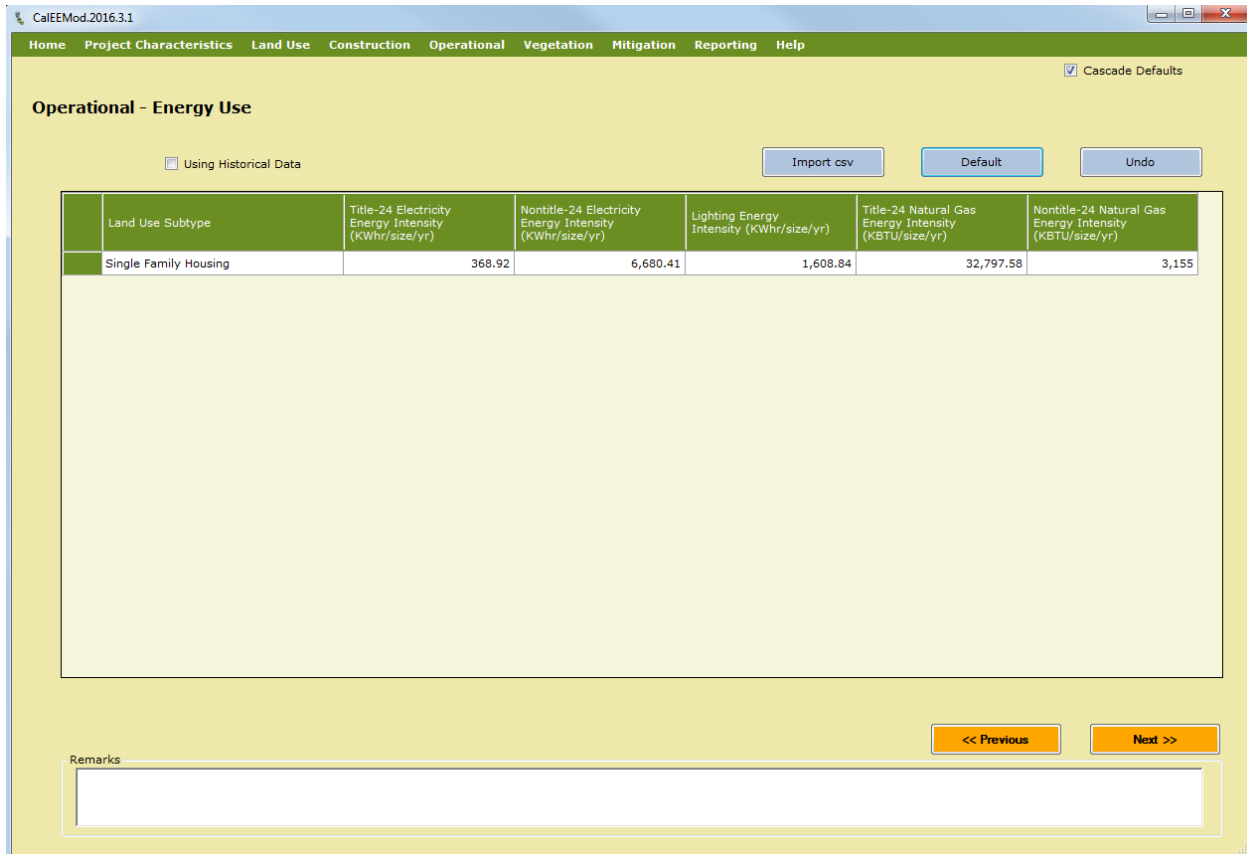
The baseline values are based on the CEC sponsored California Commercial End Use Survey (CEUS) and Residential Appliance Saturation Survey (RASS) studies¹². For climate zones not included in these surveys, data from the closest climate zone was used as a surrogate. Since these studies are based on older buildings, adjustments have been made to account for

¹² CEC. October 2010. Residential Appliance Saturation Survey. Available at:

<http://www.energy.ca.gov/appliances/rass>

CEC. March 2006. Commercial End-Use Survey. Available at: <http://www.energy.ca.gov/ceus/>

changes due to Title 24 building codes as described in Appendix E. The user should select the use historical box if they only want an adjustment to the 2005 standards which were in effect when CARB developed its Scoping Plan 2020 No Action Taken predictions. After selecting the historical button, the user must also click the default button to load the historical default values.



Operational - Energy Use

Using Historical Data

Import csv Default Undo

Land Use Subtype	Title-24 Electricity Energy Intensity (KWhr/size/yr)	Nontitle-24 Electricity Energy Intensity (KWhr/size/yr)	Lighting Energy Intensity (KWhr/size/yr)	Title-24 Natural Gas Energy Intensity (KBTU/size/yr)	Nontitle-24 Natural Gas Energy Intensity (KBTU/size/yr)
Single Family Housing	368.92	6,680.41	1,608.84	32,797.58	3,155

Remarks

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4.7 Water and Wastewater Use

This screen estimates the land uses contribution of GHG emissions associated with supplying and treating water and wastewater. This screen is used to enter the amount of water in gallons used indoors and outdoors for each land use subtype¹³. The indoor water is also used to

13 Gleick, P.H.; Haasz, D.; Henges-Jeck, C.; Srinivasan, V.; Cushing, K.K.; Mann, A. 2003. Waste Not, Want Not: The Potential for Urban Water Conservation in California. Published by the Pacific Institute for Studies in Development, Environment, and Security. Full report available at: http://www.pacinst.org/reports/urban_usage/waste_not_want_not_full_report.pdf. Appendices available at: <http://pacinst.org/publication/waste-not-want-not/>

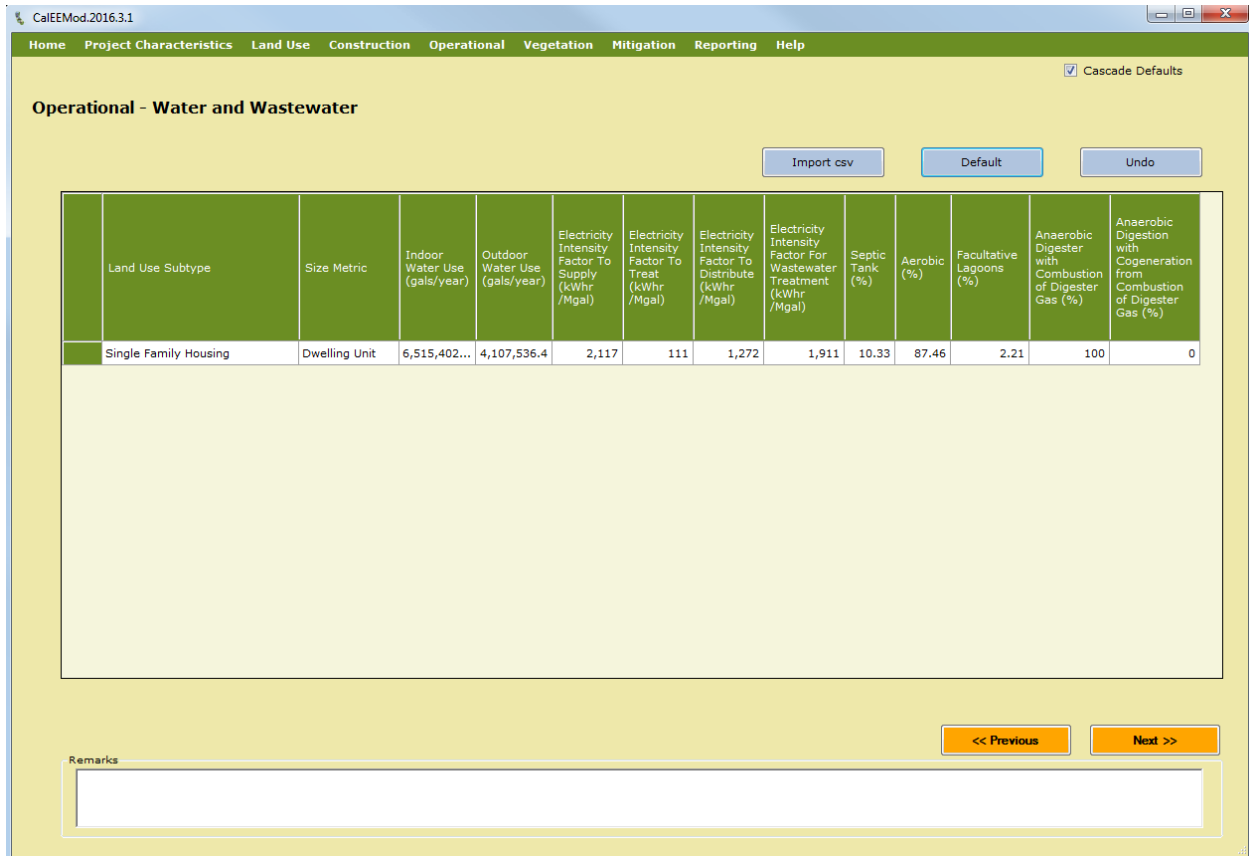
Dziegielewski, B.; Kiefer, J.C.; Optiz, E.M.; Porter, G.A.; Lantz, G.L.; DeOreo, W.B.; Mayer, P.W.; Nelson, J.O. 2000. Commercial and Institutional End Uses of Water. Published by the American Water Works Association Research Foundation.

Northern California Golf Association. Improving California Golf Course Water Efficiency. Available at: <http://www.water.ca.gov/wateruseefficiency/docs/2004Apps/2004-079.pdf>

estimate the amount of wastewater. The electricity intensity factor for various phases of providing water is provided. Depending on the specific water supply used or treatment method used these numbers can vary over a wide range. Supplying water is bringing the water from its primary source such as the ground, river, or snowpack to the treatment plant. Distributing the water is bringing the water from the treatment plant to the end users. The electricity intensity factors are multiplied by the utility GHG emissions intensity factors for the GHGs and are classified as indirect emissions. The default electricity intensity is from the CEC's 2006 Refining Estimates of Water-Related Energy Use in California using the average values for Northern and Southern California¹⁴. The location will automatically select the appropriate values if using these defaults. Since the electricity can vary greatly based on locations, the user should override these values if they have more specific information regarding their specific water supply and treatment.

Wastewater may also have direct emissions of GHGs. These depend on the type of wastewater treatment system (e.g., septic, aerobic or lagoons) used and therefore the wastewater treatment type percentages are variables. In addition, the model calculates impacts if the solids are digested either through an anaerobic digester or with co-generation from combustion of digester gas. Each type has associated GHG emission factors. Some of these may be classified as biogenic. Not all of the biogenic emissions are accounted for since there are not adequate emissions factors at this time. Refer to Appendix A on how to properly change the defaults, if necessary, and the methodology used to calculate impacts from wastewater treatment.

¹⁴ CEC-500-2006-118. Available at <http://www.energy.ca.gov/2006publications/CEC-500-2006-118/CEC-500-2006-118.PDF>.



Operational - Water and Wastewater

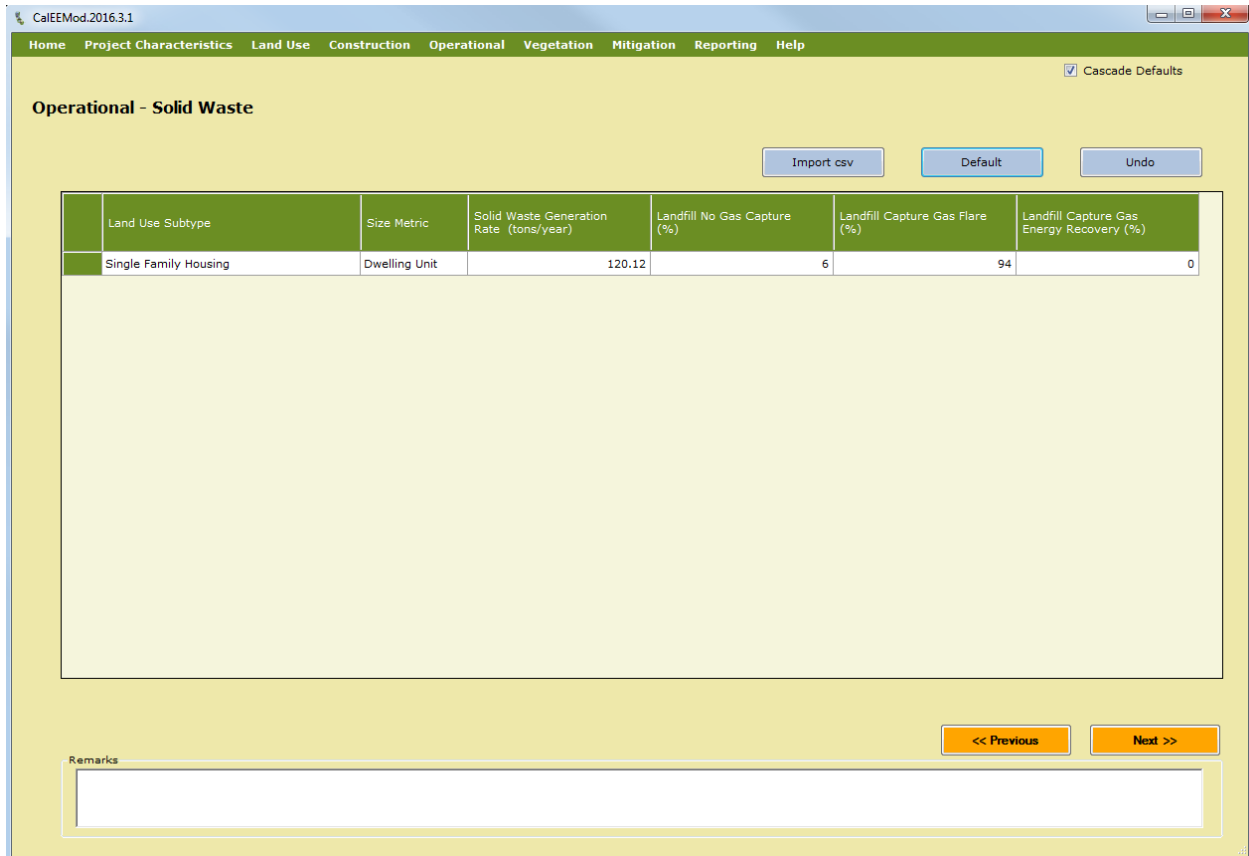
Land Use Subtype	Size Metric	Indoor Water Use (gals/year)	Outdoor Water Use (gals/year)	Electricity Intensity Factor To Supply (kWhr/Mgal)	Electricity Intensity Factor To Treat (kWhr/Mgal)	Electricity Intensity Factor To Distribute (kWhr/Mgal)	Electricity Intensity Factor For Wastewater Treatment (kWhr/Mgal)	Septic Tank (%)	Aerobic (%)	Facultative Lagoons (%)	Anaerobic Digester with Combustion of Digester Gas (%)	Anaerobic Digestion with Cogeneration from Combustion of Digester Gas (%)
Single Family Housing	Dwelling Unit	6,515,402...	4,107,536.4	2,117	111	1,272	1,911	10.33	87.46	2.21	100	0

Remarks

4.8 Solid Waste

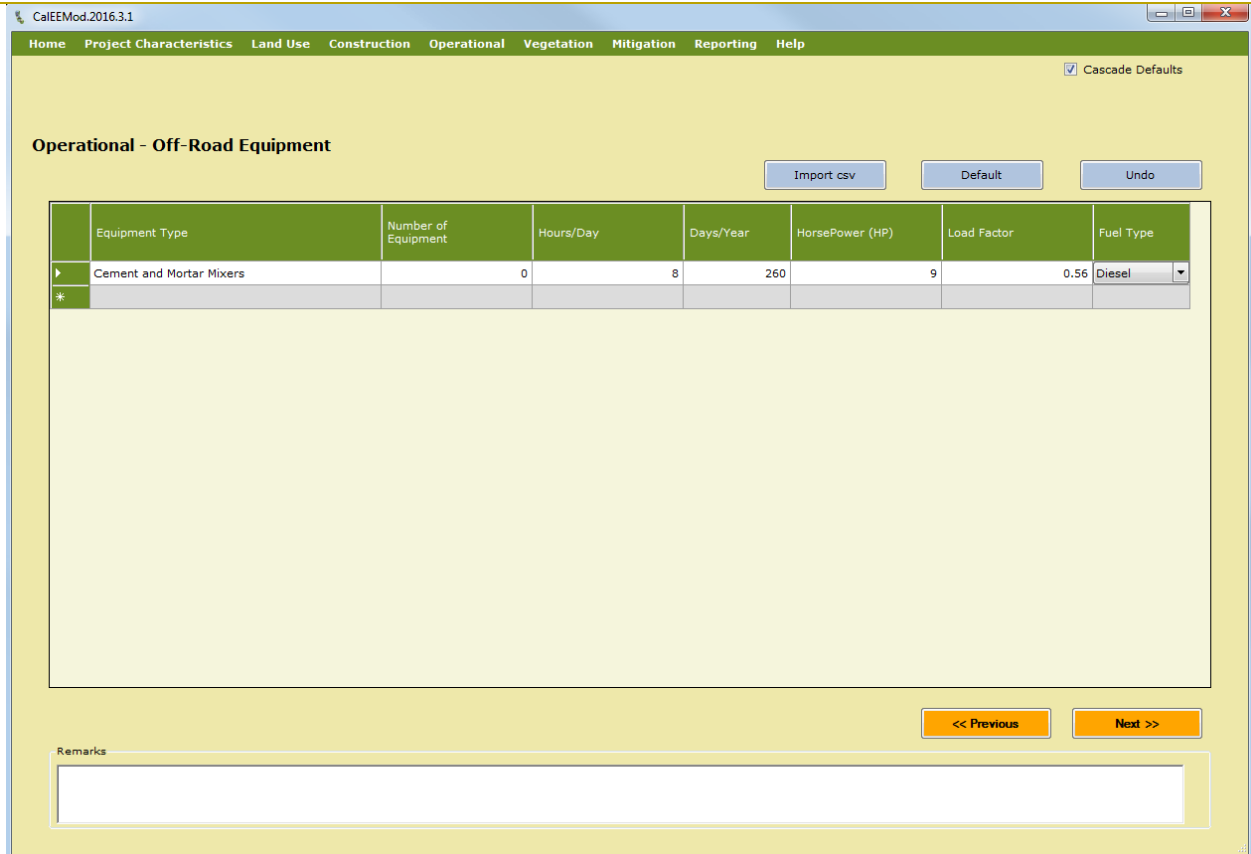
The solid waste screen determines the GHG emissions associated with disposal of solid waste into landfills. In order to estimate the eventual contribution of GHG emissions from solid waste disposed by a land use annually, the total amount of carbon dioxide and methane that would be evolved over the span of many years is calculated. This is based on the IPCC's methods for quantifying GHG emissions from solid waste using the degradable organic content of waste¹⁵. Waste disposal rates by land use and overall composition of municipal solid waste in California is primarily based on CalRecycle data. The amount of methane emitted depends on characteristics of the landfill, and therefore the default percentage is based on the types of landfills assumed by CARB in their GHG emissions inventories. Portions of these emissions are biogenic. The defaults for the gas capture (e.g., no capture, flaring, energy recovery) are statewide averages except for Santa Barbara APCD which has a 100% landfill capture gas flare. The user has the ability to override the defaults if the gas capture at the landfill to be used by the project is known. Local jurisdictions can also provide guidance to users as to what default properly reflects known regional solid waste gas capture.

¹⁵ IPCC. 2006. 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 5 Waste. Available at <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>.



4.9 Off-Road Equipment

The Operational - Off-Road Equipment sub-screen allows the user to identify any off-road equipment used during operational activities (e.g., forklifts, cranes, loaders, generator sets, pumps, pressure washers, etc.) at the project site. Because such equipment cannot be assumed to be needed for a particular land use project, a user must provide the data in order for CalEEMod to calculate the resulting emissions from off-road equipment operation. A dropdown list of off-road equipment is provided for the user to identify each piece of equipment. The model requires the following specific information per equipment type. The user would need to provide the number of pieces for each equipment type. The model assumes an operation activity of 8 hours per day and 260 days per year, as well as the horsepower and load factor of the equipment type, but the user has the ability to override the default assumptions with project specific information. Finally, the model assumes diesel fuel, but a dropdown menu is provided to allow the user to choose bio-diesel, compressed natural gas (CNG) or electrical if known, to power the equipment.



4.10 Stationary Sources

The Stationary Sources screen consists of five sub-screens: Emergency Generators and Fire Pumps and their default emission factors, Process Boilers and their default emission factors, and User Defined Sources. Consult with the local air district to determine if permitted stationary sources should be included in the project analysis using CalEEMod.

4.10.1 Emergency Generator and Fire Pumps and Default Emission Factors

Two sub-screens allow the user to enter emergency power generators and diesel fueled fire pumps and to estimate emissions. This type of equipment operates only for maintenance and testing, or during emergency situations, such as power failures. To calculate emissions, the user must enter the engine rating (in horsepower), the anticipated maximum daily usage, and the anticipated maximum annual usage into the Emergency Generators and Fire Pumps sub-screen. The user may change the default load factor. The default emission factors for the equipment are shown on the separate Generators/Fire Pumps EF (emission factor) sub-screen. The user can replace the default emission factors, but needs to provide custom emission factors in the predefined units. See Appendix A for the sources of default emission factors and emission calculation methodology.

CalEEMod.2016.3.1

Home Project Characteristics Land Use Construction Operational Vegetation Mitigation Reporting Help

Cascade Defaults

Operational - Stationary Sources

Emergency Generators and Fire Pumps Generators / Fire Pumps EF Process Boilers Boilers EF User Defined

Import csv Default Undo

	Equipment Type	Number of Equipment	Fuel Type	Horsepower (HP)	Load Factor (0-1)	Hours/Day	Hours/Year	Equipment Description
*	Emergency Generator	0	Diesel	50	0.73	8	100	Emergency Generator - Diesel (50 ...

Remarks

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CalEEMod.2016.3.1

Home Project Characteristics Land Use Construction Operational Vegetation Mitigation Reporting Help

Cascade Defaults

Operational - Stationary Sources

Emergency Generators and Fire Pumps Generators / Fire Pumps EF Process Boilers Boilers EF User Defined

Import csv Default Undo

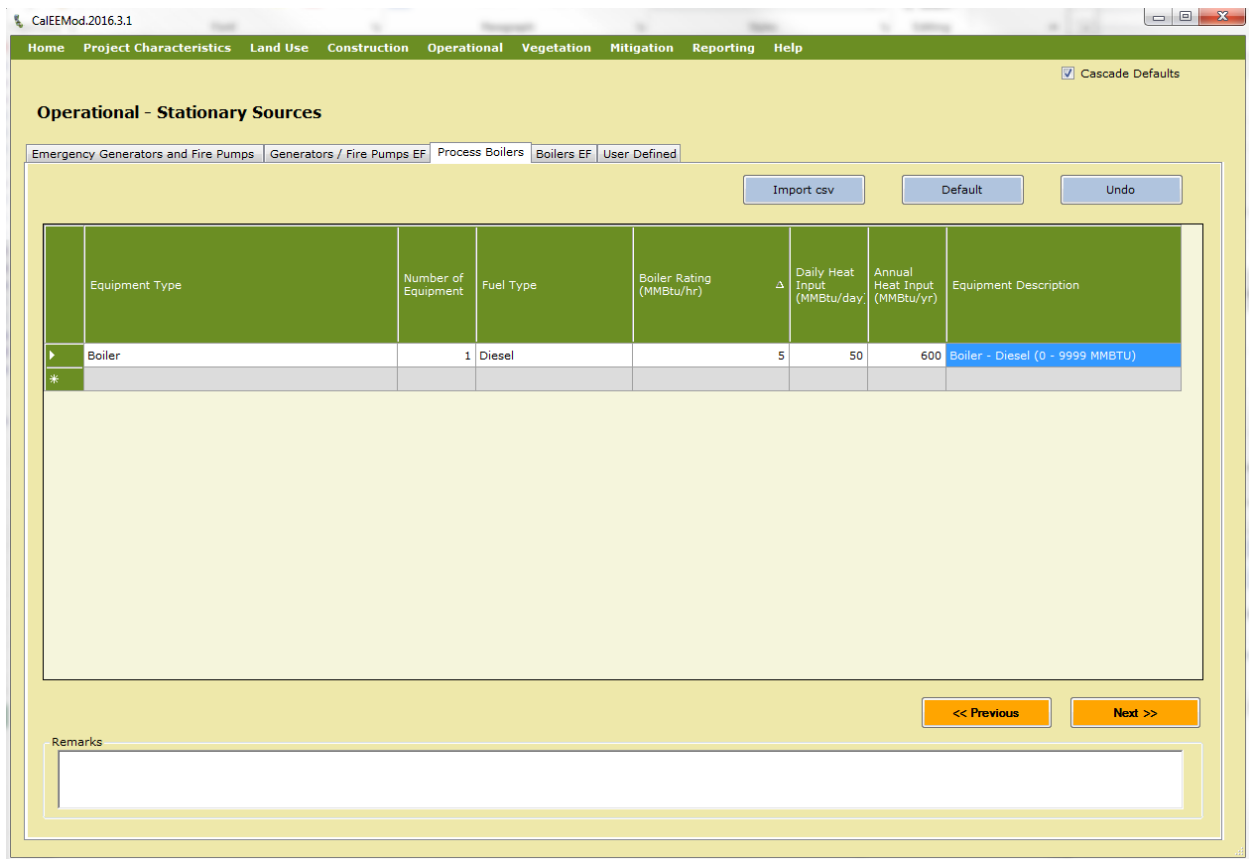
Equipment Description	TOG E.F.	TOG E.F. Units	ROG E.F.	ROG E.F. Units	CO E.F.	CO E.F. Units	NOX E.F.	NOX E.F. Units	SO2 E.F.	SO2 E.F. Units	PM 10 E.F.	PM 10 E.F. Units	PM 2.5 E.F.	PM 2.5 E.F. Units	CO2 E.F.	CO2 E.F. Units	CH4 E.F.	CH4 E.F. Units
Emergency Generator - Dese...	0.00247	lb/hp-hr	0.002...	lb/hp-hr	3.7	g/hp-hr	3.325	g/hp-hr	0.0049	g/hp-hr	0.15	g/hp-hr	0.15	g/hp-hr	1.15	lb/hp...	0.07...	g/hp

Remarks

<< Previous Next >>

4.10.2 Process Boilers and Default Emission Factors

Two sub-screens allow the user to enter process boilers and to estimate emissions. Do not use this option for boilers providing space heating or building hot water, as these uses are included building energy use (See Subchapter 4.6). To calculate process boiler emissions, the user must enter the boiler rating (in million BTU/hr) and maximum anticipated daily and annual heat input in the Process Boilers sub-screen. The default emission factors for boilers are shown on the separate Boiler EF (emission factor) sub-screen. The user can replace the default emission factors, but needs to provide custom emission factors in the predefined units. See Appendix A for the sources of default emission factors and emission calculation methodology.



The screenshot shows the 'Operational - Stationary Sources' sub-screen in CalEEMod. The 'Process Boilers' tab is selected, and the 'Boilers EF' sub-tab is active. The interface includes buttons for 'Import csv', 'Default', and 'Undo'. A table lists boiler equipment with the following data:

Equipment Type	Number of Equipment	Fuel Type	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)	Equipment Description
Boiler	1	Diesel	5	50	600	Boiler - Diesel (0 - 9999 MMBTU)

Below the table is a 'Remarks' text area and navigation buttons for '<< Previous' and 'Next >>'. A 'Cascade Defaults' checkbox is checked in the top right corner.

CalEEMod.2016.3.1

Home Project Characteristics Land Use Construction Operational Vegetation Mitigation Reporting Help

Cascade Defaults

Operational - Stationary Sources

Emergency Generators and Fire Pumps Generators / Fire Pumps EF Process Boilers Boilers EF User Defined

Import csv Default Undo

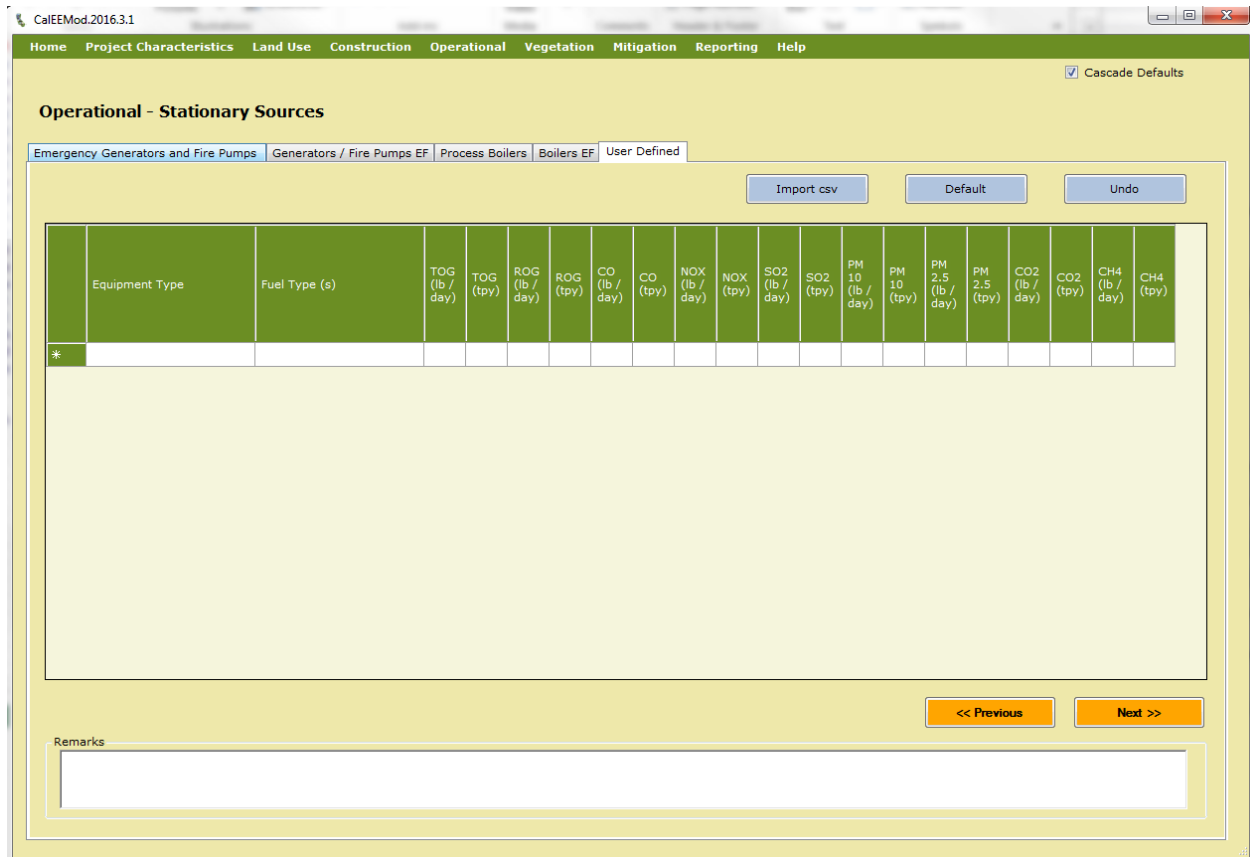
Equipment Description	TOG E.F.	TOG E.F. Units	ROG E.F.	ROG E.F. Units	CO E.F.	CO E.F. Units	NOX E.F.	NOX E.F. Units	SO2 E.F.	SO2 E.F. Units	PM 10 E.F.	PM 10 E.F. Units	PM 2.5 E.F.	PM 2.5 E.F. Units	CO2 E.F.	CO2 E.F. Units	CH4 E.F.
Boiler - Diesel (0 - 9999 MMB...	0.556	lb/10 ³ gal	0.34	lb/10 ³ gal	5	lb/10 ³ gal	0.052	lb/M...	0.225	lb/10...	1	lb/10...	0.25	lb/10...	25,000	lb/10...	0.21

Remarks

<< Previous Next >>

4.10.3 User Defined

An option for the user to define stationary sources other than emergency generators, fire pumps and process boiler has been included in the User Defined sub-screen. Emissions for this source would include any other miscellaneous sources that typically require permits to operate issued by an air district. Emissions may be manually entered here, either by transferring values from the permits to operate, or by calculating emissions outside of CalEEMod. Any emissions entered here will be transferred to the appropriate reports.



CalEEMod.2016.3.1

Home Project Characteristics Land Use Construction Operational Vegetation Mitigation Reporting Help

Cascade Defaults

Operational - Stationary Sources

Emergency Generators and Fire Pumps | Generators / Fire Pumps EF | Process Boilers | Boilers EF | **User Defined**

Import csv Default Undo

Equipment Type	Fuel Type (s)	TOG (lb / day)	TOG (tpy)	ROG (lb / day)	ROG (tpy)	CO (lb / day)	CO (tpy)	NOX (lb / day)	NOX (tpy)	SO2 (lb / day)	SO2 (tpy)	PM 10 (lb / day)	PM 10 (tpy)	PM 2.5 (lb / day)	PM 2.5 (tpy)	CO2 (lb / day)	CO2 (tpy)	CH4 (lb / day)	CH4 (tpy)
*																			

Remarks

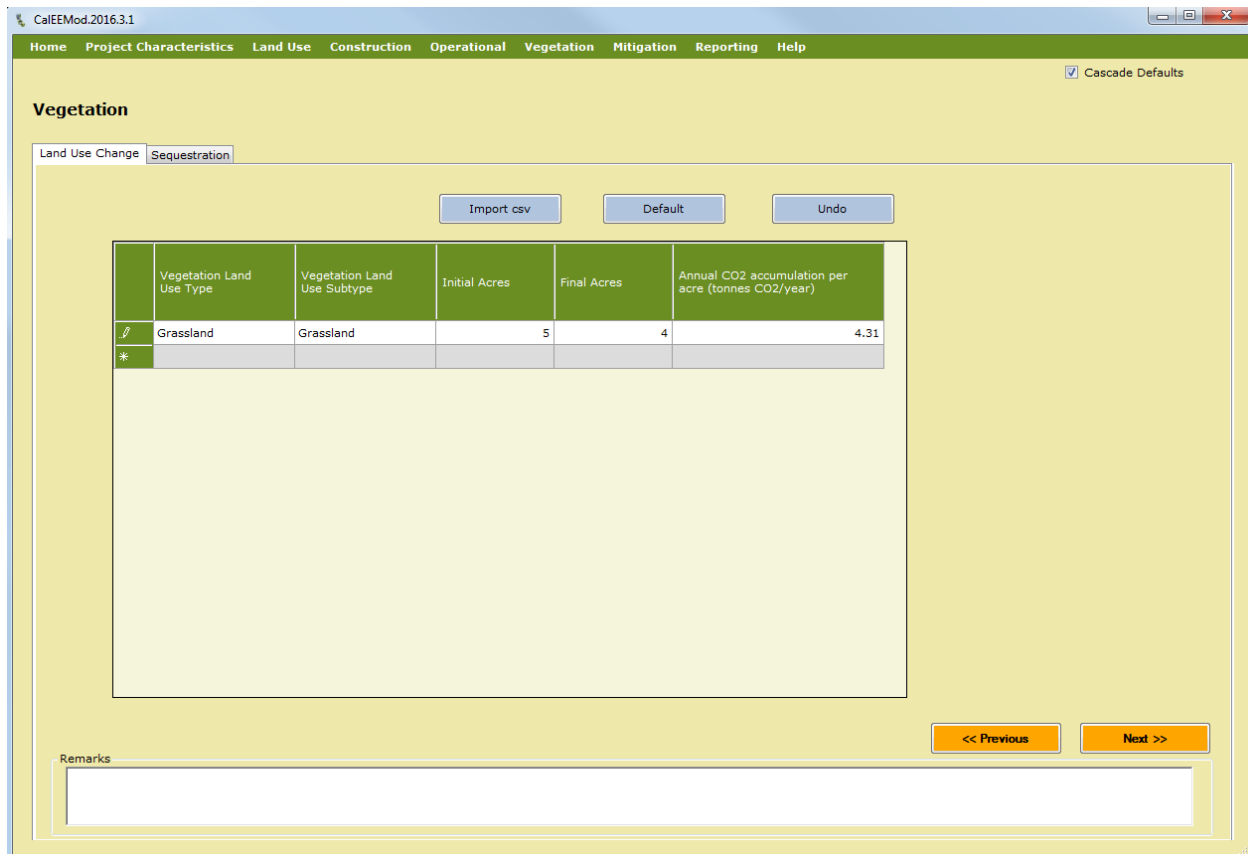
<< Previous Next >>

4.11 Vegetation

The vegetation screen is used to estimate the one-time change in carbon sequestration capacity due to a project. There are two sub-screens, Land Use Change and Sequestration. The methods used are based on IPCC¹⁶.

4.11.1 Land Use Change

The Land Use Change sub-screen estimates GHG emissions due to a change in vegetation resulting from a change in land use type. The user enters the vegetation land use type, the initial and final acreage of the vegetation land use type, and the annual carbon dioxide equivalent accumulation per acre if the user chooses to override the default value. Settlement land use acreage is not considered since it is a net zero at steady state unless trees are added.



CalEEMod.2016.3.1

Home Project Characteristics Land Use Construction Operational Vegetation Mitigation Reporting Help

Cascade Defaults

Vegetation

Land Use Change | Sequestration

Import csv Default Undo

	Vegetation Land Use Type	Vegetation Land Use Subtype	Initial Acres	Final Acres	Annual CO2 accumulation per acre (tonnes CO2/year)
✎	Grassland	Grassland	5	4	4.31
*					

Remarks

<< Previous Next >>

4.11.2 Sequestration

This sub-screen of Vegetation is used to estimate the GHG emissions associated with the sequestration of net new trees added to the project site. Consistent with IPCC recommendations a 20 year active growth period is assumed. The user enters the tree type or

16 IPCC. 2006. 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4. Available at <http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html>



miscellaneous if it is not known, and the total number of trees. The user can override the default carbon sequestration rate.

4.12 Mitigation

The mitigation screen consists of six sub-screens that the user can indicate and supply the necessary information to estimate the emissions after mitigation measures have been implemented. The mitigation measures included in CalEEMod are largely based on the CAPCOA Quantifying Greenhouse Gas Mitigation Measures (<http://www.capcoa.org/wp-content/uploads/downloads/2010/09/CAPCOA-Quantification-Report-9-14-Final.pdf>) document. The CAPCOA measure numbers are provided next to the mitigation measures in CalEEMod to assist the user in understanding each measure by referencing back to the CAPCOA document. This User's Guide focuses on key aspects of the Mitigation sub-screens that users should pay particular attention.

4.12.1 Construction Mitigation

This sub-screen consists of a datagrid of off-road construction equipment to apply various mitigation measures and check boxes with supplemental information for fugitive dust emissions mitigation.

The screenshot shows the CalEEMod 2016.3.1 software interface. The 'Mitigation' sub-screen is active, with the 'Construction' tab selected. The interface includes a menu bar, a 'Cascade Defaults' checkbox, and a sub-menu for 'Construction' (Traffic, Area, Energy, Water, Solid Waste). The main area is titled 'Off-Road Equipment' and contains a table with columns: Equipment Type, Fuel Type, Engine Tier, Number of Equipments Mitigated, Total Number Of Offroad Equipments, DPF Level, and Using Oxidation Catalyst (%Reduction). Below the table are 'Fugitive Dust' mitigation options, including checkboxes for 'Soil Stabilizer for Unpaved Roads', 'Water Exposed Area', 'Replace Ground Cover of Area Disturbed', 'Unpaved Road Mitigation' (Moisture Content and Vehicle Speed), and 'Clean Paved Road'. A 'Remarks' box is at the bottom, and navigation buttons '<< Previous' and 'Next >>' are present.

Equipment Type	Fuel Type	Engine Tier	Number of Equipments Mitigated	Total Number Of Offroad Equipments	DPF Level	Using Oxidation Catalyst (%Reduction)
Air Compressors	Diesel	No Change	0	1	No Change	0
Concrete/Industrial Saws	Diesel	No Change	0	1	No Change	0
Cranes	Diesel	No Change	0	1	No Change	0
Excavators	Diesel	No Change	0	5	No Change	0
Forklifts	Diesel	No Change	0	3	No Change	0
Generator Sets	Diesel	No Change	0	1	No Change	0
Graders	Diesel	No Change	0	1	No Change	0

To apply mitigation to construction equipment, the user selects the equipment type, notes the number of equipment mitigated (of the total number of off-road equipment listed), and type of mitigation that applies. If substantial evidence supporting reductions was available at the time of development, options include fuel type (diesel, CNG, electric, hybrid, biodiesel), engine tier (typically select Tier 4), diesel particulate filter tiers (Tier 3 being the most effective), and use of oxidative catalysts. The program estimates how much if any increase or decrease in emissions to apply for each pollutant. Some mitigation measures have trade-offs in pollutant reductions and therefore may result in increases of some pollutants. The mitigation option to use alternative fuel for construction equipment is consistent with mitigation measure C-1 in the CAPCOA Quantifying GHG Mitigation document.

To apply mitigation to construction fugitive dust, the user selects the check box in front of the mitigation measure name, and enters in the appropriate information in the drop down or text boxes. Some fugitive dust mitigation required by some air districts do not appear here since the fugitive dust source they mitigate is not quantified by CalEEMod, in particular this includes fugitive dust generated by wind over land and storage piles. Since the fugitive dust source is not quantified it is not appropriate to apply the reduction.

For Unpaved Road Mitigation for construction fugitive dust, the maximum vehicle speed and the minimum moisture content for unpaved roads are entered. Defaults for these values are those entered on the On-Road Fugitive Dust screen. Mitigated emissions are calculated using the VMT from on-road vehicles traveling along unpaved roads, previously calculated from the percentages entered on the On-road Fugitive Dust Screen (e.g., % Pave Worker, % Pave Vendor or % Pave Hauling).

Users may check the boxes and provide a lower vehicle speed and a higher moisture content to conduct the mitigation calculation. If during a particular construction phase the user defined mitigated vehicle speed is higher than the unmitigated vehicle speed and/or the user defined mitigated moisture content is lower than the unmitigated moisture content, a warning message will be displayed. In this case, the unmitigated values will be used, resulting in no mitigation being calculated.

4.12.2 Traffic Mitigation

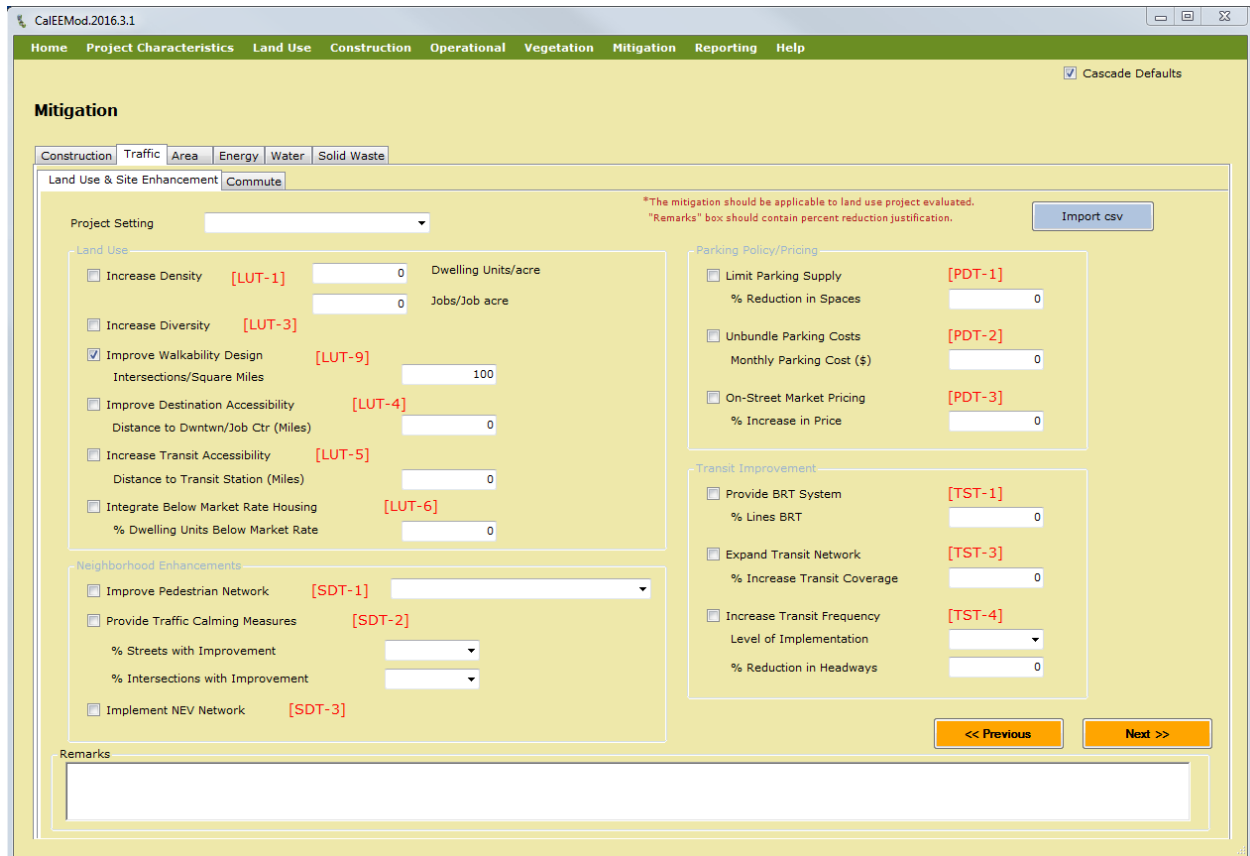
There are two traffic mitigation sub-screens that the user can select from, Land Use & Site Enhancement and Commute. First, the user must select the Project Setting as defined in the CAPCOA document (pp. 59-60).

- Low Density Suburban: An area characterized by dispersed, low-density, single-use, automobile dependent land use patterns, usually outside of the central city (a suburb).
- Suburban Center: An area that serves the population of the suburb with office, retail and housing which is denser than the surrounding suburb.

- Urban: An area which is located within the central city with higher density of land uses than you would find in the suburbs. It may be characterized by multi-family housing and located near office and retail.
- Urban Center (*referred to as Compact Infill in the CAPCOA document*): An area which is located within or contiguous with the central city. Examples may include redevelopment areas, abandoned sites, or underutilized older buildings/sites.

If the CAPCOA measure did not distinguish between Suburban Center and Low Density Suburban, values for Low Density Suburban were used. Similarly, if Urban Center and Urban values were not distinguished, Urban values were used.

The user checks the box next to each mitigation measure and fills in the appropriate information as required. The maximum reduction caps defined in the CAPCOA Quantifying GHG Mitigation document are integrated into these calculations. The CAPCOA traffic mitigation measure numbers included in CalEEMod are the following: LUT-1, LUT-3, LUT-9, LUT-4, LUT-5, LUT-6, SDT-1, SDT-2, SDT-3, PDT-1, PDT-2, PDT-3, TST-1, TST-3, TST-4, TRT-1, TRT-2, TRT-4, TRT-15, TRT-14, TRT-6, TRT-7, TRT-11, TRT-3, and TRT-13. The NEV network mitigation measure (SDT-3) assumes the low end of the CAPCOA recommendations.



CalEEMod.2016.3.1

Home Project Characteristics Land Use Construction Operational Vegetation Mitigation Reporting Help

✓ Cascade Defaults

Mitigation

Construction Traffic Area Energy Water Solid Waste

Land Use & Site Enhancement Commute

Project Setting [Dropdown]

Land Use

- Increase Density [LUT-1] [0] Dwelling Units/acre
- Increase Diversity [LUT-3] [0] Jobs/Job acre
- Improve Walkability Design [LUT-9] 100 Intersections/Square Miles
- Improve Destination Accessibility [LUT-4] [0] Distance to Dwntrwn/Job Ctr (Miles)
- Increase Transit Accessibility [LUT-5] [0] Distance to Transit Station (Miles)
- Integrate Below Market Rate Housing [LUT-6] [0] % Dwelling Units Below Market Rate

Neighborhood Enhancements

- Improve Pedestrian Network [SDT-1] [Dropdown]
- Provide Traffic Calming Measures [SDT-2] % Streets with Improvement [Dropdown] % Intersections with Improvement [Dropdown]
- Implement NEV Network [SDT-3]

Parking Policy/Pricing

- Limit Parking Supply [PDT-1] % Reduction in Spaces [0]
- Unbundle Parking Costs [PDT-2] Monthly Parking Cost (\$) [0]
- On-Street Market Pricing [PDT-3] % Increase in Price [0]

Transit Improvement

- Provide BRT System [TST-1] % Lines BRT [0]
- Expand Transit Network [TST-3] % Increase Transit Coverage [0]
- Increase Transit Frequency [TST-4] Level of Implementation [Dropdown] % Reduction in Headways [0]

Remarks

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Home Project Characteristics Land Use Construction Operational Vegetation Mitigation Reporting Help

Cascade Defaults

Mitigation

Construction Traffic Area Energy Water Solid Waste

Land Use & Site Enhancement Commute

Commute Trip

<input type="checkbox"/> Implement Trip Reduction Program [TRT-1, TRT-2]	<input type="checkbox"/> Encourage Telecommuting and Alternative Work schedules [TRT-6]
% employee eligible <input type="text" value="0"/>	% employee work 9/80 <input type="text" value=""/>
Program Type <input type="text" value=""/>	% employee work 4/40 <input type="text" value=""/>
<input type="checkbox"/> Transit Subsidy [TRT-4]	% employee telecommute 1.5 days <input type="text" value=""/>
% employee eligible <input type="text" value="0"/>	<input type="checkbox"/> Market Commute Trip Reduction Option [TRT-7]
Daily Transit Subsidy Amount (\$) <input type="text" value=""/>	% employee eligible <input type="text" value="0"/>
<input type="checkbox"/> Implement Employee Parking "Cash-Out" [TRT-15]	<input type="checkbox"/> Employee Vanpool/Shuttle [TRT-11]
% employee eligible <input type="text" value="0"/>	% employee eligible <input type="text" value="0"/>
<input type="checkbox"/> Workplace Parking Charge [TRT-14]	% vanpool mode share <input type="text" value="2"/>
% employee eligible <input type="text" value="0"/>	<input type="checkbox"/> Provide Ride Sharing Program [TRT-3]
Daily Parking Charge (\$) <input type="text" value=""/>	% employee eligible <input type="text" value="0"/>

School Trip

Implement School Bus Program [TRT-13]

% family using

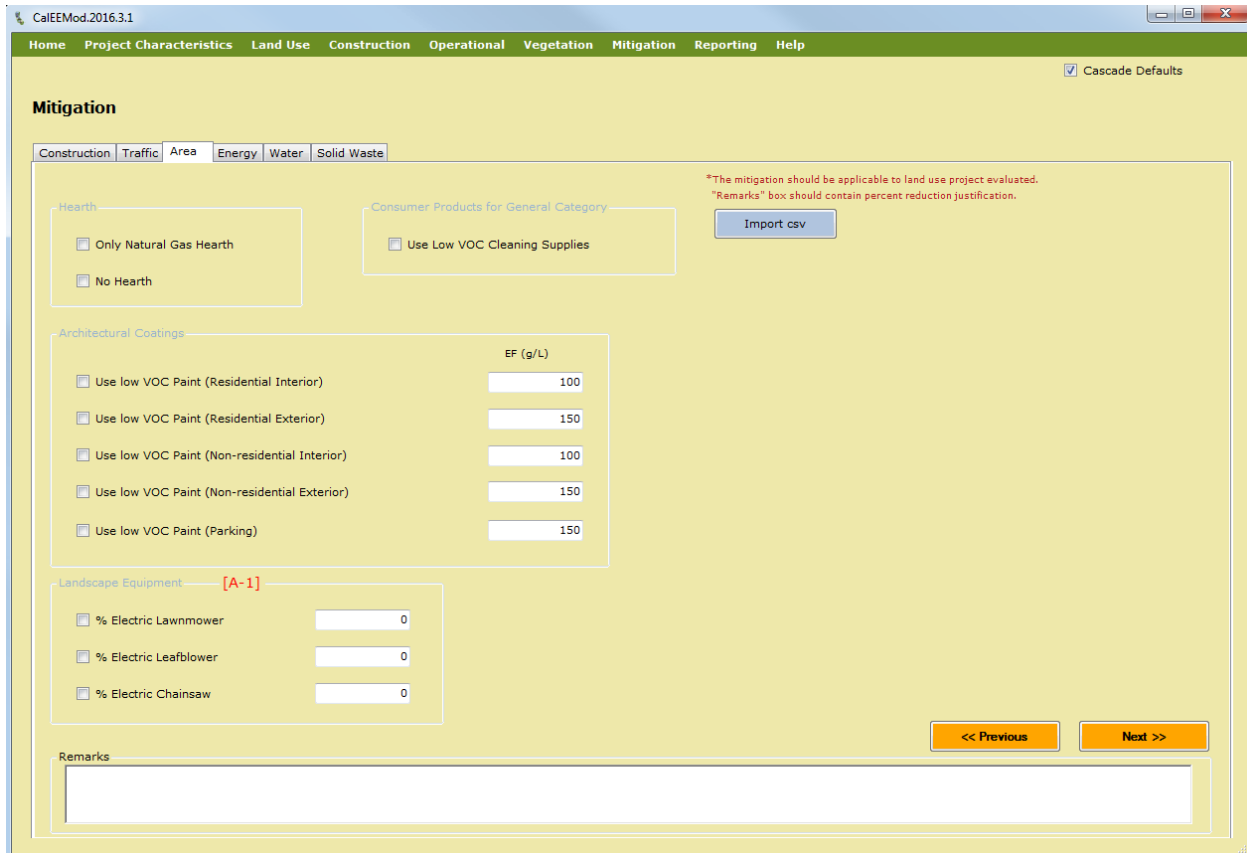
*The mitigation should be applicable to land use project evaluated.
"Remarks" box should contain percent reduction justification.

Import csv << Previous Next >>

Remarks

4.12.3 Area Mitigation

The user can select from a few area source mitigation measures on the Area sub-screen by checking the appropriate box and supplying any additional information in the text boxes. These measures include all natural gas hearths, no hearths, electric landscaping equipment use, reduced ROG coatings, and reduced general category consumer product ROG content. The area landscaping mitigation to prohibit gas powered landscape equipment is consistent with mitigation A-1 in the CAPCOA Quantifying GHG Mitigation document.

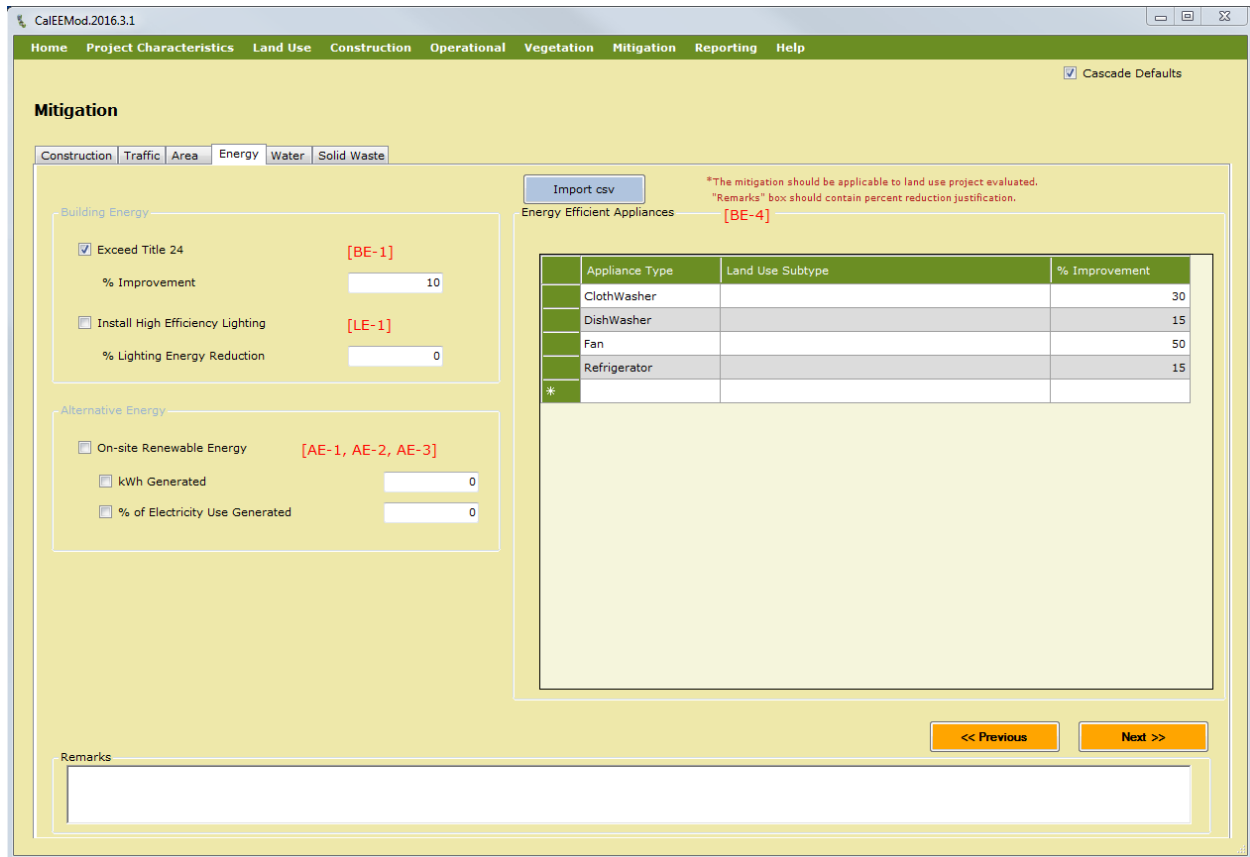


4.12.4 Energy Mitigation

The user selects energy mitigation measures on the Energy sub-screen by using the check boxes or the datagrid. These correspond to CAPCOA Mitigation Measures LE-1, BE-1, AE-1, AE-2, AE-3 and BE-4 as listed in the CAPCOA Quantifying GHG Mitigation document. The lighting is a percentage reduction in lighting as supplied by the user. The datagrid is used to enter the land use subtypes that will use energy efficient appliances. The percent improvement is the typical percent improvement above standard appliances according to the 2008 Energy Star Annual Report¹⁷. Alternative Energy has two methods to enter the amount of alternative energy. The first is the amount of kW-hr generated. The second is the percentage of the total

¹⁷ Available at: https://www.energystar.gov/ia/partners/annualreports/annual_report_2008.pdf

electricity use by buildings that is generated. At this time alternative energy methods that are not carbon neutral are not quantified. To apply the amount of alternative energy only one of the two methods (kW-hr or percentage) needs to be entered for CalEEMod to calculate emission reductions.



4.12.5 Water Mitigation

On the Water sub-screen, water mitigation can either be estimated as the percent reduction based on a water conservation strategy or the other individual mitigation measures. The CAPCOA Quantifying GHG Mitigation document includes water supply and use measures WSW-1 & 2, and WUW-1 through 5.

For CAPCOA Mitigation Measure WSW- 3 (Use Locally Sourced Water Supply), using locally-sourced water or water from less energy-intensive sources reduces the electricity and indirect CO₂ emissions associated with water supply and transport because water from local or nearby groundwater basins, nearby surface water and gravity-dominated systems have smaller energy-intensity factors. This mitigation measure is not included in the Water mitigation sub-screen, therefore, to implement WSW-3, the user should alter the energy intensity values in water and run a separate CalEEMod run to accommodate these values.

CalEEMod.2016.3.1

Home Project Characteristics Land Use Construction Operational Vegetation Mitigation Reporting Help

Cascade Defaults

Mitigation

Construction Traffic Area Energy Water Solid Waste

*The mitigation should be applicable to land use project evaluated.
Remarks box should contain percent reduction justification.

Import csv

Water Conservation Strategy

* Cannot be used with other water mitigation strategies

Apply Water Conservation Strategy [WUW-2]

% Reduction Indoor

% Reduction Outdoor

Water Supply

Use Reclaimed Water [WSW-1]

% Indoor Water Use

% Outdoor Water Use

Use Grey Water [WSW-2]

% Indoor Water Use

% Outdoor Water Use

Indoor Water Use

Install Low-flow Bathroom Faucet [WUW-1]

% Reduction in flow

Install Low-flow Kitchen Faucet [WUW-1]

% Reduction in flow

Install Low-flow Toilet [WUW-1]

% Reduction in flow

Install Low-flow Shower [WUW-1]

% Reduction in flow

Outdoor Water Use

Turf Reduction [WUW-5]

Turf Reduction Area (acres)

% Reduction turf

Use Water-Efficient Irrigation Systems [WUW-4]

% Reduction

Water Efficient Landscape [WUW-3]

MAWA (gal/yr)

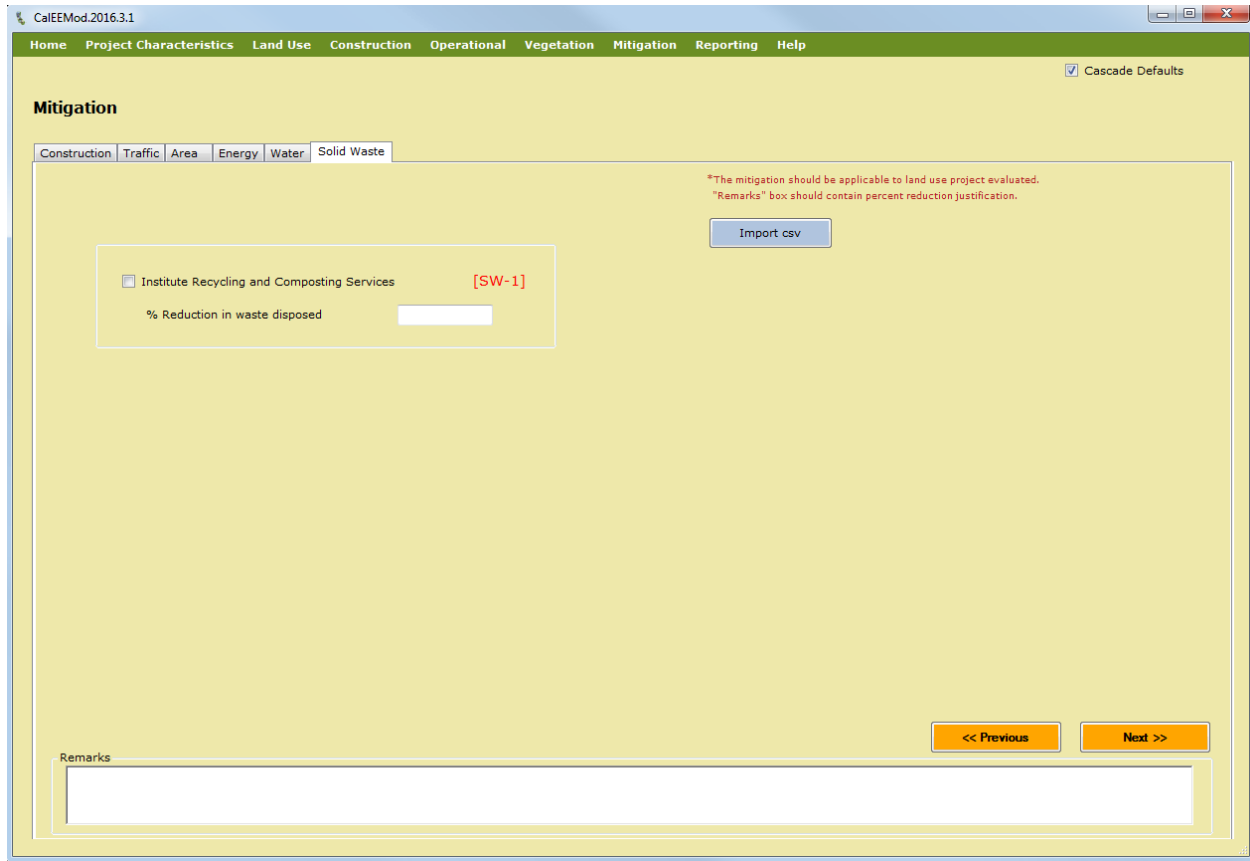
ETWU (gal/yr)

Remarks

<< Previous Next >>

4.12.6 Solid Waste Mitigation

The user can get calculate an emissions reduction for recycling waste. This mitigation measure corresponds to CAPCOA Mitigation Measure: SW-1.



4.13 Reporting

The user initiates final emission calculations by selecting the report and clicking on the Recalculate All Emissions and Run Report button. The available reports include: Annual, Summer (peak) Daily, Winter (peak) Daily, Mitigation and Summary of peak daily emissions and annual GHG emissions. A separate report viewer will come up. From this report viewer, the user can view their report on-screen, print reports, save as Microsoft Excel xls file or save as an Adobe Acrobat pdf file, or in the case of the Mitigation report, a Microsoft Word doc file. The data in the Excel file has already been calculated and placed in the grids as text, thus, for example, the user cannot change an emission value and expect the report to change the summed total value. These values, however, can be copied to new Excel spreadsheet for any further desired calculation with the data.





California Emissions Estimator Model®

Appendix A
Calculation Details for CalEEMod

Prepared for:
**California Air Pollution Control Officers Association
(CAPCOA)**

Prepared by:
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**September 2016
CalEEMod2016.3.1**

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1 Overview of Program

California Emissions Estimator Model (CalEEMod) calculates both the criteria air pollutant emissions and greenhouse gas (GHG) emissions associated with construction and operational sources as part of development projects. In addition it calculates GHG emissions associated with one-time changes in vegetation land use. These emission estimates can be used for quantification and reporting as part of the California Environmental Quality Act (CEQA) environmental impact reports and other environmental documentation.

This Appendix A serves as the basis for all methods and assumptions and data source references that are used for calculating all emission categories. These category modules include construction, operational energy use, operational mobile sources, operational landscape maintenance, operational consumer product use, operational architectural coating use, operational hearth use, operational stationary sources, indirect emissions from water and wastewater use, vegetation carbon sequestration, and emissions associated with solid waste disposal.

1.1 Structure of this document

This Appendix will discuss each major module in detail with appropriate subdivisions. These major modules include the following:

- Project Characteristics
- Land Use
- Construction
- Operational Mobile
- Operational Area Sources
- Energy Use
- Water and Wastewater
- Solid Waste
- Stationary Sources
- Vegetation
- Mitigation
- Results

2 Project Characteristics

The Project Characteristics screen has no calculations associated with it. It is used to provide information on appropriate default values in subsequent screens. A detailed description of this screen and the areas requiring user input is given in the User's Guide main text. Some further information regarding some of the inputs are below.

- Mendocino County requested county subdivisions as follows:
 - Inland
 - Coastal
 - Rural Inland North
 - Rural Inland South
- Santa Barbara County requested county subdivisions as follows:
 - North Santa Barbara County: North of Santa Ynez range
 - South Santa Barbara County: South of Santa Ynez range
- Wind speeds are from District supplied information, nearby weather stations if easily identifiable¹, or a default of 2.2 m/s.
- Precipitation Frequency was based on data from the Western Regional Climate Center (WRCC)² which is an average of all of the stations found in that county, air basin, or district.

2.1 Utility Information

Several of the modules require an estimation of the indirect GHG emissions associated with supplying electricity to the Project site. The end user will need to specify the utility company that will be providing electricity to the Project. The default carbon intensities for the major utility companies as well as a state-wide default are based on Table G6 of the California Air Resources Board (CARB) Local Government Operation Protocol version 1.1 or the latest public utilities inventory reports. This is consistent with recommendations in the California Air Pollution Control Officer Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures document. The complete list of the utilities powering California and the reporting year from which the CO₂ intensity factor currently used in CalEEMod can be found in Table 1.2 in Appendix D. The CH₄ and N₂O values are based on E-grid values for the region since more refined data is not readily available. The end user will also be able to provide an alternative value that is recommended by the local agency, if applicable.

2.2 Criteria Pollutants

The criteria pollutants are those pollutants or precursor pollutants to the chemicals that have National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS). These pollutants are listed below:

- Particulate Matter: The program will define both Particulate Matter with aerodynamic radius less than 10 microns (PM₁₀) and Particulate Matter with aerodynamic radius less than 2.5 microns (PM_{2.5}). Since emission factors for PM_{2.5} have not been fully defined, the conversion assumption for each generating source will be described in more detail with the

¹ <http://www.wrcc.dri.edu/htmlfiles/westwind.final.html>

² <http://www.wrcc.dri.edu/htmlfiles/ca/ca.01.html>

specific modules. Particulate matter will be tracked by subtype which will include fugitive dust and equipment exhaust.

- Carbon Monoxide: The emissions from carbon monoxide (CO) will be calculated for all direct combustion sources associated with the project.
- Lead: The emissions from lead (Pb) will be calculated for all direct combustion sources associated with the project.
- Sulfur Dioxide: The emissions associated with sulfur dioxide (SO₂) will be calculated for all direct combustion sources associated with the project.
- Nitrogen Oxides: The emissions associated with nitrogen oxides (NO_x) will be calculated for all direct combustion sources associated with the project or direct emissions associated with area sources. Note that there may be some nitrous oxide (N₂O) emissions that are calculated under the GHG module indirect sources that will not be incorporated into the nitrogen oxide emission tally for criteria pollutants since these emissions may be out of basin.
- Ozone: The ozone (O₃) emissions are not calculated directly in this program. Instead the emissions associated with ozone precursors are calculated.
- Ozone Precursors: Ozone precursors will be quantified as reactive organic gases (ROG). ROGs when released will interact in the atmosphere and produce ozone.

By definition, a Volatile Organic Compound (VOC) is an organic compound that can evaporate into an organic gas. VOCs can be either reactive or non-reactive. Over the years, non-reactive VOCs have been exempt from regulation. CalEEMod calculates the VOC emissions from the application of architectural coatings based on the locally required VOC content limit of the coatings. ROG is an organic gas that undergoes a photochemical reaction, thus, is reactive. ROG emissions are generated from the exhaust of mobile sources and these combustion emissions are calculated in CalEEMod based on CARB's ROG emission factors. Both VOC and ROGs are precursors to ozone so they are summed in the CalEEMod report under the header ROG. For the purposes of comparing the ROG value to a VOC significance threshold, the terms can be used interchangeably.

2.3 Greenhouse Gas Pollutants

The greenhouse gas (GHG) pollutants are those recognized by the state of California under Assembly Bill 32 (AB32). The most common GHGs emitted in association with land use developments include carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). All GHGs will be reported on a common currency of carbon dioxide equivalent (CO₂e). In order to obtain the CO₂e, an individual GHG is multiplied by its global warming potential (GWP). The GWP designates on a pound for pound basis the potency of the GHG compared to CO₂. The program

will use GWP from the 2007 IPCC Fourth Assessment Report (SAR)³, and are consistent with 2014 CARB's Scoping Plan Update⁴.

3 Land Use

The primary project description data that needs to be entered by the user is a listing of all land use types and size of the land use types that make up the project. CalEEMod contains several land use categories that are mainly based on ITE land use classifications. Some further division of some land uses (mainly warehouses) has been added. The land use subtype is the basis to define several default values used by the modules. The user-defined land use does not have any default information and the end user is required to enter all of the necessary information. The program currently places a value of 0 for all areas where user defined values would be required for a blank land use.

The land use size has several different size metrics that the end user can choose from. In order for the information to be cross-compatible, the user can enter all of the metrics for a given land use or default conversions between the metrics will be used. The cross-comparison data generally came from the following sources:

- The value for average dwelling unit square footage is rounded based on the average square footage reported in the Residential Appliance Saturation Survey (RASS). Retirement communities and congregate care facilities are assumed to be similar in size to multifamily units.
- The conversion value is based on taking the ratios of different metrics reported in the Institute of Transportation Engineers (ITE) trip rate manual.
- Equivalent commercial building metrics as noted in Table B1 of the Energy Information Administration (EIA) Commercial Building Energy Consumption Survey (CBECS).
- South Coast Air Basin land use statistics (see Appendix E for this reference data).

Unlike other programs, CalEEMod does not account for additional acreage associated with commercial buildings. This was deemed unnecessary since parking lots have been separated out as a separate land use and multi-story buildings should have their lot acreage known.

3.1 Population

The population is used to estimate some metrics. The population per dwelling unit is based on the statewide default or information supplied by individual air districts. Population data can be found in Appendix D, Table 2.2.

³ Available at: https://www.ipcc.ch/pdf/assessment-report/ar4/syr/ar4_syr_full_report.pdf

⁴ Available at: <http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm>

4 Construction

The construction module is used to calculate the emissions associated with the construction of the project. Construction has several different types of sources which contribute to emissions of pollutants. These source types include off-road equipment usage, on-road vehicle travel, fugitive dust, architectural coating, and paving off-gassing. Each of these source types is discussed in more detail in the subsequent sections. These emission sources are associated with various types of construction phases. Typical construction phases include demolition, site preparation, grading, trenching, building construction, paving, and architectural coating. The extent to which these phases occur depends on the specific project. For instance, a demolition phase would only occur if demolition of existing structures was required. Similarly, trenching only occurs if the project requires trenching generally associated with underground utilities. Unique aspects and default assumptions associated with these phases is discussed below in the context of the different emission source calculations.

4.1 Construction Phase

No emission calculations are associated with this sub-screen. The SCAQMD construction survey is used to estimate default phase lengths based on total project acreage as calculated from the acreage entered on the land use screen. If the acreage is in between the acreages in the survey, the next highest acreage tier is used. If the project size defined by the user is between the sizes of two surveyed projects, CalEEMod conservatively uses the phase duration for the larger project. For instance, if the given project is 7 acres, the program will use the phase duration for the 10-acre project rather than that for the 5-acre project. For large acreage sites, the survey was extrapolated by adding additional phase time equivalent to adding phase time from two acreage ranges in the survey. This occurs for sites with acreage larger than 34 acres. In these situations, the user should consider the accuracy of the equipment and phase duration estimations or using site-specific construction schedules and equipment lists.

The date range, work days per week and total days are dynamically linked to each other and will influence one another if the user changes these values.

4.2 Off-road Equipment

Construction consists of several types of off-road equipment. Since the majority of the off-road construction equipment used for construction projects are diesel fueled, CalEEMod assumes all of the equipment operates on diesel fuel. However, there are mitigation measures that can be implemented that will allow for use of alternative fueled equipment.

The SCAQMD construction survey is used to estimate default equipment lists based on total project acreage as calculated from the acreage entered on the land use screen. If the acreage is in between the acreages in the survey, the next highest acreage tier is used. For large acreage sites, the survey was extrapolated by adding additional phase time equivalent to adding phase time from two acreage ranges in the survey. This occurs for sites with acreage larger than 34 acres. In these situations, the user should consider the accuracy of the equipment and phase duration estimations or using site-specific construction schedules and equipment lists.

The calculations associated with this screen include the running exhaust emissions from off-road equipment. Since the equipment is assumed to be diesel, there are no starting or evaporative emissions associated with the equipment as these are *de minimis* for diesel-fueled equipment⁵. The software program calculates the exhaust emissions based on California Air Resources Board (CARB) OFFROAD2011 methodology using the equation presented below.⁵

$$\text{Emission}_{\text{DieselEx}} = \sum_i (\text{EF}_i \times \text{Pop}_i \times \text{AvgHp}_i \times \text{Load}_i \times \text{Activity}_i)$$

Where:

EF = Emission factor in grams per horsepower-hour (g/bhp-hr) as processed from OFFROAD2011

Pop = Population, or the number of pieces of equipment

AvgHp = Maximum rated average horsepower

Load = Load factor

Activity = Hours of operation

i = equipment type

The program allows the end user to enter the number of pieces of equipment, horsepower, load factor, and daily hours of operation for each selected equipment type. CalEEMod assigns default parameters for the construction equipment as explained below:

Emission Factor

OFFROAD2011 was run for statewide with averaging days of MON-SUN for 22 scenario years each. All scenarios were run for three seasons – Annual, Summer, and Winter. The exhaust emission factors for each equipment at each horsepower range were back calculated from total daily emissions reported in the model output files using the following formula:

$$\text{Emission Factor [g/hp-hr]} = \frac{\text{Total Daily Exhaust} \times 907,184.74}{\text{Activity} \times \text{AvgHP} \times \text{LF}}$$

Where:

- Total Daily Exhaust = Total pollutant emissions [tons/day]
- Activity = Total daily statewide usage of equipment [hours/day]
- AvgHP = Average HP of equipment within the horsepower range [HP]
- LF = Load Factor of equipment [unitless]
- 907,185 = Conversion factor tons to grams (2000 lbs/ton x 453.6 g/lb)

Total Daily Exhaust and Activity were obtained from OFFROAD2011 model output, while AvgHP and LF were obtained from input files to the model.

⁵ CARB. 2006. Program Structure of the OFFROAD2007. Dec. Available at http://www.arb.ca.gov/msei/offroad/pubs/offroad_overview.pdf

AvgHP

The default average equipment horsepower is from OFFROAD2011. OFFROAD2011 has an average horsepower for each engine tier which was used in developing the emission factor (from equip.csv). This is different than the default horsepower used for default data which is based on the average horsepower of the mode of populations for the various engine horsepower tiers in OFFROAD.

Load

The load factor is the ratio of the actual output to the maximum output of a piece of equipment. The program uses the OFFROAD2011 load factor as default. Based on OFFROAD2011, the load factor is equipment type-specific and does not vary with horsepower (hp) (e.g., the load factors of a 125-hp dozer and a 500-hp dozer are the same).

Activity

The default hours of operation are 8 hours a day and 5 days a week over the construction phase duration unless specified otherwise in the equipment list. The construction phase length is used from the construction phase screen.

i (Equipment Type) and Pop

The default equipment list and number of pieces of equipment for each equipment type is determined based on the size (i.e., acreage) of the construction project based on the construction activity survey performed by the SCAQMD (Appendix E). If the project size defined by the user is between the sizes of two surveyed projects, the program will use the equipment list and number for the larger project. All equipment in the construction category of OFFROAD2011 is included in CalEEMod.

Trenching Emissions

There is no default equipment list associated with trenching emissions at this time. The user can enter site-specific equipment lists for these situations.

4.3 Dust From Material Movement

Fugitive dust is generated by the various source activities occurring at a construction site. This dust contributes PM₁₀ and PM_{2.5} emissions and for detailed emission breakdowns are distinguished from exhaust particulate matter emissions. The program calculates fugitive dust associated with the site preparation and grading phases from three major activities: haul road grading, earth bulldozing, and truck loading. As recommended by SCAQMD, the fugitive dust emissions from the grading phase are calculated using the methodology described in USEPA AP-42.

Grading Equipment Passes

Fugitive dust emissions from grading equipment passes are estimated using the methodology described in Section 11.9, Western Surface Coal Mining, of the USEPA AP-42.⁶ AP-42 estimates the emission factor of PM₁₀ applying a scaling factor to that of PM₁₅. Similarly, the

⁶ Available at: <http://www.epa.gov/ttn/chief/ap42/ch11/final/c11s09.pdf>

emission factor of PM_{2.5} is scaled from that of total suspended particulates (TSP). The equations used to calculate the emission factors for PM₁₅ and TSP and the scaling factor for those of PM₁₀ and PM_{2.5} are presented below:

$$EF_{PM15} = 0.051 \times (S)^{2.0}, \text{ and } EF_{PM10} = EF_{PM15} \times F_{PM10}$$

$$EF_{TSP} = 0.04 \times (S)^{2.5}, \text{ and } EF_{PM2.5} = EF_{TSP} \times F_{PM2.5}$$

Where:

- EF = emission factor (lb/VMT)
- S = mean vehicle speed (mph). The AP-42 default value is 7.1 mph.
- F_{PM2.5} = PM_{2.5} scaling factor. The AP-42 default value is 0.031.
- F_{PM10} = PM₁₀ scaling factor. The AP-42 default value is 0.6.

The grading dust emissions are calculated by multiplying the emission factors with the total vehicle miles traveled (VMT) for the grading equipment (i.e., grader). The VMT are estimated based on the dimensions of the grading area and the blade width of the grading equipment.

$$E = EF \times VMT, \text{ and}$$

$$VMT = A_s / W_b \times 43,560(\text{sqft} / \text{acre}) / 5,280(\text{ft} / \text{mile})$$

Where:

- E: emissions (lb)
- EF: emission factor (lb/VMT)
- VMT: vehicle miles traveled (mile)
- A_s: the acreage of the grading site (acre)
- W_b: Blade width of the grading equipment. The program uses a default blade width of 12 ft based on Caterpillar’s 140 Motor Grader.⁷

Note that the dimensions (i.e., length and width) of the grading site have no impact on the calculation, only the total area to be graded. In order to properly grade a piece of land multiple passes with equipment may be required. The acres is based on the equipment list and days in grading or site preparation phase according to the anticipated maximum number of acres a given piece of equipment can pass over in an 8-hour workday. The equipment specific grading rates are given in the table below as determined by SCAQMD in consultation with building estimator references.

Equipment Type	Acres/8hr-day
Crawler Tractors	0.5
Graders	0.5
Rubber Tired Dozers	0.5
Scrapers	1

⁷ <http://www.cat.com/cmms/16897760?x=7>

Bulldozing

Similar to the grading equipment passes emission estimation, the bulldozing emission factors for PM₁₀ and PM_{2.5} are scaled from those of PM₁₅ and TSP. Based on Section 11.9 of AP-42, the dust emission factor for bulldozing is calculated using the following equations:

$$EF_{TSP} = \frac{C_{TSP} \times S^{1.2}}{M^{1.3}}, \text{ and } EF_{PM2.5} = EF_{TSP} \times F_{PM2.5}$$

$$EF_{PM15} = \frac{C_{PM15} \times S^{1.5}}{M^{1.4}}, \text{ and } EF_{PM10} = EF_{PM15} \times F_{PM10}$$

Where:

- EF* = emission factor (lb/hr)
- C* = arbitrary coefficient used by AP-42
- M* = material moisture content (%)
- S* = material silt content (%)
- F* = scaling factor

C, M, s, and F vary depending on the bulldozed material. The table below summarizes the constants for overburden⁸ presented in AP-42⁹.

Bulldozing Fugitive Emission Factors

Constant	Overburden
C _{TSP}	5.7
C _{PM15}	1.0
M	7.9%
s	6.9%
F _{PM10}	0.75
F _{PM2.5}	0.105

The program uses the constants associated with overburden as default for calculation of bulldozing dust emissions since overburden more closely models the bulldozed materials during the development construction. The dust emissions are calculated by multiplying the emission factor with the hours of operation for the dozers listed in the equipment list using the formula below:

$$E = EF \times Hr$$

Where:

⁸ The earth that is between the topsoil and the coal seam (USEPA AP-42).

⁹ Tables 11.9-1 and 11.9-3 of USEPA AP-42.

E = emissions (lb)
 EF = emission factor (lb/hr)
 Hr = hours of operation

Truck Loading

Processes such as truck dumping on the pile or loading out from the pile to a truck with a front-end loader also cause fugitive dust emissions. The program calculates these emissions using the methodology described in Section 13.2, Introduction to Fugitive Dust Sources, of USEPA AP-42. The emission factor that is based on the material moisture content and mean wind speed is calculated using the following formula:

$$EF_D = k \times (0.0032) \times \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

Where:

EF = emission factor (lb/ton)

K = particle size multiplier. The AP-42 default value for PM_{10} is 0.35 and that for $PM_{2.5}$ is 0.053

U = mean wind speed. The program selects wind speed based on the value listed on the Project Characteristics screen. It has been converted internally to miles per hour.

M = material moisture content (%). The moisture contents of different materials are listed in Table 13.2.4-1 of AP-42. The program uses the moisture content of cover (12%) as default.

The fugitive dust emissions are calculated by multiplying the emission factor with the throughput of loaded and unloaded material that is entered by the end user.

$$E = EF \times TP$$

Where:

E = emissions (lb)

EF = emission factor (lb/ton)

TP = throughput of loaded and unloaded materials (ton)

CalEEMod assumes that 1.2641662 tons per cubic yard based on a bulk density of 1.5 grams per cubic centimeter. Typical soil densities range from about 1.25 to about 1.6. 1.5 is the approximate density of a silty loam soil which is relatively common in most other parts of the

state. The density reported above does not account for watering to suppress dust, it only accounts for natural moisture.

4.4 Demolition

The program calculates the demolition dust emissions using the methodology described in the report prepared for the USEPA by Midwest Research Institute (MRI).¹⁰ The three primary operations that generate dust emission during the demolition phase are mechanical or explosive dismemberment, site removal of debris, and on-site truck traffic on paved and unpaved road. The truck traffic on roads is described with the trips and VMT information.

Mechanical or Explosive Dismemberment

Based on the MRI report, there is no AP-42 emission factor data available for this mechanical or explosive dismemberment. Thus, the emission factor for dismemberment and collapse of a structure is calculated using the following AP-42 equation for batch drop operations:

$$EF_D = k \times (0.0032) \times \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

Where:

EF_D = emission factor (lb PM/ton of debris)

$EF_{D-PM_{10}}$ = 0.0011 lb PM₁₀/ton of debris

$EF_{D-PM_{2.5}}$ = 0.00017 lb PM_{2.5}/ton of debris

k = particle size multiplier. The AP-42 default value for PM₁₀ is 0.35 and that for PM_{2.5} is 0.053.

U = mean wind speed. The program selects the default mean wind speed based on the wind speed (m/s) provided on the project characteristics screen.

M = material moisture content. The program uses 2% as the default based on the MRI report.

The dust emissions are calculated by multiplying the above emission factors with the total weight of building waste using the following equation:

$$E_D = EF_D \times W$$

Where:

E_D = emissions (lb of PM)

¹⁰ Midwest Research Institute. 1988. Gap Filling PM₁₀ Emission Factors for Selected Open Area Dust Sources.

EF_D = emission factor (lb of PM/ton of debris)
 W = building waste (ton of debris)

If the total building waste weight is not known, the program will estimate the tonnage using the *building waste tonnage – structural floor space* relationship determined from a 1976 analysis by Murphy and Chatterjee of the demolition of 12 commercial brick, concrete, and steel buildings. The following data are cited directly from the MRI report:

1 ft² floor space = 10 ft³ original building volume,
 1 ft³ building volume = 0.25 ft³ waste volume,
 1 yd³ building waste = 0.5 ton weight,
 Mean truck capacity = 20 yd³ haulage volume, and therefore
 1 ft² represents 0.046 ton of waste material.

The total building waste is then calculated using the following equation:

$$E_D = EF_D \times SF \times 0.046(\text{ton} / \text{ft}^2)$$

Where:

E_D = emissions (lb of PM)
 EF_D = emission factor (lb of PM/ton of debris)
 SF = building square footage (ft²)

Debris Loading

The dust emission factor of PM₁₀ and PM_{2.5} in pounds per ton building waste is estimated based on the measured total suspended particulates (TSP) emission factor using the following equation:

$$EF_L = k \times EF_{L-TSP}$$

Where:

EF_L = emission factor (lb/ton)
 k = particle size multiplier. The AP-42 default value for PM₁₀ is 0.35 and that for PM_{2.5} is 0.053.

The default value for EF_{L-TSP} is 0.058 lb/ton, the average of the two TSP factor (i.e. 0.053 and 0.063 lb/ton) measured from two tests of the filling of trucks with crushed limestone using a front-end loader.

The dust emissions from debris loading are then calculated following the same methodology used for mechanical and or explosive dismemberment:

$$E_L = EF_L \times SF \times 0.046(\text{ton} / \text{ft}^2)$$

Where:

E_L = emissions (lb)
 EF_L = emission factor (lb/ton)
 SF = building square footage (ft²)

4.5 Trips and VMT

The number of worker, vendor, and hauling trips and associated vehicle miles traveled (VMT) are used to determine both the exhaust emissions associated with on-road vehicle use and fugitive dust emissions.

Trips

Worker trips for all construction phases except building construction and architectural coating is based on 1.25 workers per equipment in that phase resulting in one roundtrip per worker. For building construction workers, the trip number is estimated using the trip generation rate from a survey conducted by SMAQMD. This has been reanalyzed and results in slightly different numbers than used by other programs and that was previously reported in some agency documents. The analysis and data supporting these values can be found in Appendix E. The land types selected for the project are grouped into four categories presented in the following table which also presents the associated SMAQMD trip generation rates.

Building Construction Worker and Vendor Trip Rates

Land Use SubType	Rate Metric	Worker Trip Rate	Vendor Trip Rate
Single Family	Daily Trips per DU	0.36	0.1069
Multi-Family	Daily Trips per DU	0.72	0.1069
Commercial/Retail	Daily Trips per 1000 sqft	0.32	0.1639
Office/Industrial	Daily Trips per 1000 sqft	0.42	0.1639
Source: SCAQMD's analysis of SMAQMD Building Construction Worker and Vendor trip rates found in Appendix E.			

Architectural coating worker trips are 20% of building construction phase trips. Vendor trips are only associated with building construction and is based on the land uses and trip rate indicated in the table above.

Haul trips are based on the amount of material that is demolished, imported or exported assuming a truck can handle 16 cubic yards of material. For phased trips, the truck is assumed to be full both ways. For non-phased trips, the truck is assumed to be empty one direction and thus results in more haul trips calculated.

VMT

The VMT is estimated from the trip lengths input in this screen. The default trip length for workers is based on the location H-W trip length. The default trip length for vendors is the C-NW trip length. The hauling trip length default is set at 20 miles.

On-Road Vehicle Emissions

Construction generates on-road vehicle exhaust, evaporative, and dust emissions from personal vehicles for worker and vendor commuting, and trucks for soil and material hauling. These

emissions are based on the number of trips and VMT along with emission factors from EMFAC2014.

Emission rates of all vehicle categories were obtained from EMFAC2014 Web Database based on aggregated model year and aggregated speed for all counties, air basins, air districts and statewide average for 31 scenario years that each includes three seasons – Annual, Summer, and Winter.¹¹ Emission rates of methane (CH4) were provide by CARB directly because they are not included in web database.

Running emissions for all pollutants, PM emissions from tire and brake wear, and running loss emissions of TOG and ROG were divided by the VMT of each respective vehicle class from each scenario year and adjusted for unit conversions to derive emission factors in units of grams per VMT. All other emissions (including evaporative) were divided by the number of trips to derive emission factors in units of grams per trip.

VMT fractions, calculated as the ratio of VMT for each vehicle class to total VMT for all vehicles were also derived for each scenario year. The emissions from mobile sources were calculated with the trip rates, trip lengths and emission factors for running from EMFAC2014 as follows:

$$\text{Emissions}_{\text{pollutant}} = \text{VMT} * \text{EF}_{\text{running,pollutant}}$$

Where:

$\text{Emissions}_{\text{pollutant}}$ = emissions from vehicle running for each pollutant

VMT = vehicle miles traveled

$\text{EF}_{\text{running,pollutant}}$ = emission factor for running emissions

Evaporative emissions, starting and idling emissions are multiplied by the number of trips times the respective emission factor for each pollutant.

Brake Wear and Tire Wear Emissions

As vehicles are driven, particulate matter is generated from degradation of brakes and tires. This is calculated based on the EMFAC emission factors for each vehicle class and the total VMT traveled by that vehicle class according to the following equation:

$$\text{Emission}_{\text{brakewearortirewear}} = \sum_{\text{class}} (\text{E.F.}_{\text{brakewearortirewear,class}} \times \text{VMT}_{\text{class}})$$

Vehicle Mix

The user can select the type of vehicle mix. The EMFAC mix is the total mix of all vehicles provided by EMFAC. The program can also assume that the workers’ personal vehicles consist of 50% light-duty auto (or passenger car), 25% light-duty truck type 1 (LDT1), and 25% light-

¹¹ 2000, 2005, 2010 to 2035 inclusive, 2040, 2045, and 2050

duty truck type 2 (LDT2). The equivalent test weight (ETW) from EMFAC2014 for each type of vehicle is presented below¹²:

Gross Vehicle Weights

Vehicle Type	ETW (lb)
LDA	All
LDT1	<= 3,750
LDT2	3,751 - 5,750

For vendor trips, CalEEMod has the option to choose the EMFAC mix or also choose all HHDT or all MHDT vehicles. The program default assumes that all vendors' vehicles are heavy heavy-duty trucks (HHDT).

For hauling trips, CalEEMod has the option to choose the EMFAC mix, all MHDT, all HHDT or a 50% mix of MHDT and HHDT vehicles.

4.6 On-Road Fugitive Dust

CalEEMod calculates all on-road fugitive dust associated with paved and unpaved roads consistent with the method discussed in the traffic section. All vehicle miles traveled from worker commuting, vendor commutes, soil hauling, and demolition hauling are accounted for. The same equations described in section 5.3 are used here with the variables coming from this screen.

4.7 Architectural Coatings

Volatile organic compounds¹³ (VOC) off-gassing emissions result from evaporation of solvents contained in surface coatings. The program calculates the VOC evaporative emissions from application of residential and non-residential surface coatings using the following equation:

$$E_{AC} = EF_{AC} \times F \cdot A_{\text{paint}}$$

Where:

E = emissions (lb VOC)

EF = emission factor (lb/sqft)

A = building surface area (sqft).

¹² CARB. EMFAC2007 version 2.30 User's Guide.

Available at: <http://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol1-users-guide-052015.pdf>

¹³ This program will assume that all VOCs are represented by reactive organic gases (ROGs)

The program assumes the total surface for painting equals 2.7 times the floor square footage for residential and 2 times that for nonresidential square footage defined by the user.¹⁴ All of the land use information provided by a metric other than square footage will be converted to square footage using the default conversions or user defined equivalence. Green area square footage of City Parks and Golf Courses, pool surface area square footage of Recreational Swimming Pools, and parking surface area square footage are excluded from the floor square footage in calculating VOC emission due to architectural coatings.

F = fraction of surface area. The default values based on SCAQMD methods used in their coating rules are 75% for the interior surfaces and 25% for the exterior shell.

The emission factor (EF) is based on the VOC content of the surface coatings and is calculated estimated using the equation below:

$$EF_{AC} = C_{VOC} / 454(g/lb) \times 3.785(L / Gal) / 180(sqft)$$

Where:

EF = emission factor (lb/sqft)

C = VOC content (g/L). This varies by location and year.

The emission factors for coating categories are calculated using the equation above based on default VOC content provided by the air districts or ARB’s statewide limits if an air district did not provide VOC content¹⁵.

CalEEMod also calculates the VOC emissions from the painting of stripes, handicap symbols, directional arrows and car space descriptions in parking lots. Please refer to Appendix E for the studies conducted to determine a default percent of parking lot square footage that is painted. The equation for striping emission is the same as that for *E_{AC}* above, but *A_{paint}* is:

$$A_{paint} = A_{PL} \times P\%$$

Where:

A_{PL} = Parking lot area (sqft)

P% = Default percent of parking lot area that is painted (6%)

The VOC content limit for parking lot area is either provided by local air districts or based on the exterior coating VOC limit of the region where the project is located. If the user has more specific VOC content limit on the coating being applied the default can be overridden but the user is expected to explain and justify the change in the “Remarks” box at the bottom of the screen.

¹⁴ The factors 2.7 and 2 are based on page A9-124 of SCAQMD’s 1993 CEQA Guide.

¹⁵ Received via email from James Koizumi dated April 27, 2010.

4.8 Asphalt Paving Off-Gassing Emissions

While there is no specific screen associated with asphalt paving emissions, CalEEMod estimates VOC off-gassing emissions associated with asphalt paving of parking lots using the following equation:

$$E_{AP} = EF_{AP} \times A_{Parking}$$

Where:

E = emissions (lb)

EF = emission factor (lb/acre). The SMAQMD default emission factor is 2.62 lb/acre.¹⁶

A = area of the parking lot (acre)

The size (acre) of the parking lot is calculated by multiplying the paved area associated with each parking stall with the capacity of the parking lot, or the number of parking stalls.

$$A_{Parking_lot} = A_{Parking_Stall} \times Capacity$$

Where the paved area associated with parking stall includes the area of the parking stall and that of the immediate access road, or aisle.

$$A_{Parking_Stall} = W_{Stall} \times D_{Stall} + W_{Stall} \times W_{Aisle}$$

Where:

A = area (sqft)

W = width (ft)

D = depth (ft)

The dimensions (i.e., width and depth) of a parking stall and the aisle width vary depending on the local government planning guidance. The program conservatively assumes 400 square feet (0.009 acre) of paved area per parking stall as default based on the city guidance or municipal code of the following cities in the State of California and a one-way aisle:

Table 4.4 Parking Stall Size Estimate

Location	Dimensions	
	Compact	Full Size

¹⁶ Sacramento Metropolitan Air Quality Management District. 1994. Air quality thresholds of significance, first edition. Sacramento, CA.

	Width (ft)	Depth (ft)	Aisle Width (ft)	Area (two- way) (sqft)	Area (one- way) (sqft)	Width	Depth	Aisle	Area (two- way) (sqft)	Area (one- way) (sqft)
City of San Jose	8	16	20	208	288	9	18	26	279	396
Menlo Park	8	16.5	23	224	316	9	18	23	265.5	369
Escondido Municipal Code ¹⁷	8.5	16	24	238	340	8.5	18	24	255	357
Davis	8	16	20	208	288	9	18	20	252	342

The program allows the end user to override the total acres assumed in the land use screen.

4.9 Maximum Daily Construction Emissions

Since construction phases may or may not overlap in time, the maximum daily construction emissions will not necessarily be the sum of all possible daily emissions. CalEEMod therefore calculates the maximum daily emissions for each construction phase. The program will then add together the maximum daily emissions for each construction phase that overlaps in time. Finally the program will report the highest of these combined overlapping phases as a daily maximum. For fugitive dust calculations during grading, the maximum amount of acres graded in a day is determined by the number of grading equipment which is assumed to operate for 8 hours.

¹⁷ Available at: http://www.qcode.us/codes/escondido/view.php?topic=33-39-33_768&frames=on

5 Operational Mobile

CalEEMod calculates the emissions associated with on-road mobile sources. These are associated with residents, workers, customers, and delivery vehicles visiting the land use types in the project. The emissions associated with on-road mobile sources includes running and starting exhaust emissions, evaporative emissions, brake and tire wear, and fugitive dust from paved and unpaved roads. Starting and evaporative emissions are associated with the number of starts or time between vehicle uses and the assumptions used in determining these values are described below. All of the other emissions are dependent on vehicle miles traveled (VMT). The methods and assumptions used by the program are described in the following sections.

5.1 Vehicle Trips

The first step in determining the number of starts and vehicle miles traveled is to determine the number of trips associated with the various project land uses. These trips are calculated based on either an average daily or a peak daily. The average daily is used when calculating annual emissions from a project, and peak daily is used when calculating peak daily summer or winter emissions. Since CalEEMod has different trip rates for different days of the week, the daily maximum will be determined based on the highest total of either weekday, Saturday, or Sunday trip emissions. To calculate average daily trips, the weekday trips are multiplied by five and added to the Saturday and Sunday trips, then divided by 7. The average daily trip rates for the individual land uses being modeled are used by CalEEMod in the calculation of a project's annual vehicle miles traveled and as just described are determined from the following equation:

Average Daily Trip Rate $_i$ =

$$(Triprate_{Weekday} \times 5 + Triprate_{Sat} + Triprate_{Sun})_i / 7 \times LandUse_i$$

Where

Trip Rate = Weekday, Saturday, or Sunday daily trip generation rate

Land Use = Size metric for a land use type (e.g., number of dwelling units)

i = Land use type

For peak daily trips, CalEEMod chooses the highest trip rate amongst weekday, Saturday and Sunday data, and multiplies by the size metric to get total peak daily trips.

Trip rate describes the amount of trips generated by each land use. Multiplying trip rate per unit size of land use (e.g., per dwelling unit, per 1,000 sqft, etc.) by land use size yields total daily trips generated by each land use. The Institute of Transportation Engineers (ITE) trip generation rate¹⁸ are used as default in the program. Like all standard references, it should be noted that ITE has guidance about how their trip rates should be used. For example, some land

¹⁸ ITE. 2012, ITE Trip Generation 9th edition.

uses (e.g., electronic superstore, fast food without drive-thru, general heavy industrial, government (civic center), hardware/paint store, movie theater without a matinee) are based on a limited number of survey samples so the user might consider gaining more refined trip rate information for their project. If the user needs more specific information than the default trip rates provided by CalEEMod, they are encouraged to consult with licensed traffic engineers. If more accurate trip rate information is available, the user has the ability to override the default Trip Rate. The end user will be required to provide justification from alternative sources of data (e.g., project-specific traffic study) that demonstrate that a different trip rate is appropriate for their project. Metropolitan Planning Organizations (MPOs) may be another source of trip generation rates specific for the given region.

Trip Type

Once the total number of trips for a land use type is determined, the next step is to determine the trip type. The trip type breakdown describes the purpose of the trip generated at each land use. For example, the trip type breakdown indicates the percentage of trips generated at single family home for work, for shopping, and for other purposes. Multiplying the total trips for a land use by trip type breakdown percentage yields trips of a given trip type. Two sets of trip type breakdown are used in CalEEMod— residential breakdown and commercial breakdown.

Residential trip type: These include home-work (H-W), home-shop (H-S), or home-other (H-O). A home-work trip represents the trip from the home to the workplace. A home-shop trip represents the trip from the home to a land use where shopping takes place (generally retail). A home-other represents all other types of trips generated from the resident such as school, entertainment, etc. The default trip type breakdown is either from air district supplied information or the 1999 Caltrans Statewide Travel Survey. It is recommended that the District or Project Applicant go to accredited sources such as the regional Metropolitan Planning Organization (MPO) to obtain trip type breakdown specific for the given region. The trip type breakdown can be overwritten if users can provide sufficient justification for alternative sources of data (e.g., project-specific traffic study) that demonstrate a different breakdown.

Commercial trip type: These include commercial-customer (C-C), commercial-work (C-W) and commercial-nonwork (C-NW). A commercial-customer trip represents a trip made by someone who is visiting the commercial land use to partake in the services offered by the site. The commercial-work trip represents a trip made by someone who is employed by the commercial land use sector. The commercial-nonwork trip represents a trip associated with the commercial land use other than by customers or workers. An example of C-NW trips includes trips made by delivery vehicles of goods associated with the land use. The trip type breakdown from the number of workers and or truck trips from ITE and an analysis of information provided for the SCAB was used as default to assign the trip type breakdowns for all land uses. If an exact match to a land use was not available, data from a similar land use was used as a surrogate. Trip type breakdown can be overwritten if users can provide justification for alternative sources of data (e.g., project-specific traffic study) that demonstrates different breakdown.

Primary Trip Lengths

Each trip type has a primary trip length associated with it. These trip lengths are based on the location and urbanization selected on the project characteristic screen. These values were supplied by the air districts or use a default average for the state. Each district (or county) also assigns trip lengths for urban and rural settings. For residential projects, average primary trip lengths of all trip types are determined with the below equation. Commercial and industrial land use types use a similar equation based on their trip types.

Average Primary Trip Length i =

$$H - W_{miles} \times H - W_{trip\%} + H - S_{miles} \times H - S_{trip\%} + H - O_{miles} \times H - O_{trip\%}$$

Where

$H - W_{miles}$	= Home to Work trip length
$H - W_{trip\%}$	= % of the total primary trips that are Home to Work trips
$H - S_{miles}$	= Home to Shopping trip length
$H - S_{trip\%}$	= % of the total primary trips that are Home to Shopping trips
$H - O_{miles}$	= Home to Other trip length
$H - O_{trip\%}$	= % of the total primary trips that are Home to Other trips
i	= land use type.

Primary, Pass-by and Diverted Trip Links

Trip link types further describe the characteristics of the trip attracted to each land use, whether it's a primary trip, a diverted link trip, or a pass-by trip. For example, a commercial customer pass-by trip could be a person going from home to shop on his/her way to work. In addition, a commercial customer diverted-link trip could be a person going from home to work, and on its way making a diversion to shop. Pass-by trips generate virtually no additional running emissions but could generate additional resting and startup emissions. Diverted trips generate less running emissions compared to primary trips, and can also generate additional resting and startup emissions. The average VMT associated with a trip is adjusted by modifying the primary trip length to account for reductions from pass-by and diverted trips. The trip lengths mentioned above are for primary trip links. For pass-by trip links the trip length will be 0.1 miles and diverted trip links the trip length will be 25% of the primary trip length.

An average overall trip length can be calculated as follows:

$$\text{Average Overall Trip Length}_i = \text{Link\%}_{\text{primary}} \times \text{TripLength}_{\text{Avg Primary}} + \text{Link\%}_{\text{diverted}} \times 0.25 \times \text{TripLength}_{\text{Avg Primary}} + \text{Link\%}_{\text{passby}} \times 0.1 \text{ mile}$$

Where

Link % = percentage of link types

Trip Length_{AvgPrimary} = Average primary trip length for each trip type

i = land use type

The trip link percentages from the ITE Generation book and SANDAG are used as defaults. The trip link percentages can be overwritten if users can provide justification for alternative sources of data (e.g., project-specific traffic study) that demonstrate different breakdowns. If diverted or pass-by trips are not desired, the end user can change the default percentages to zero for these and have primary equal 100%.

Vehicle Miles Traveled

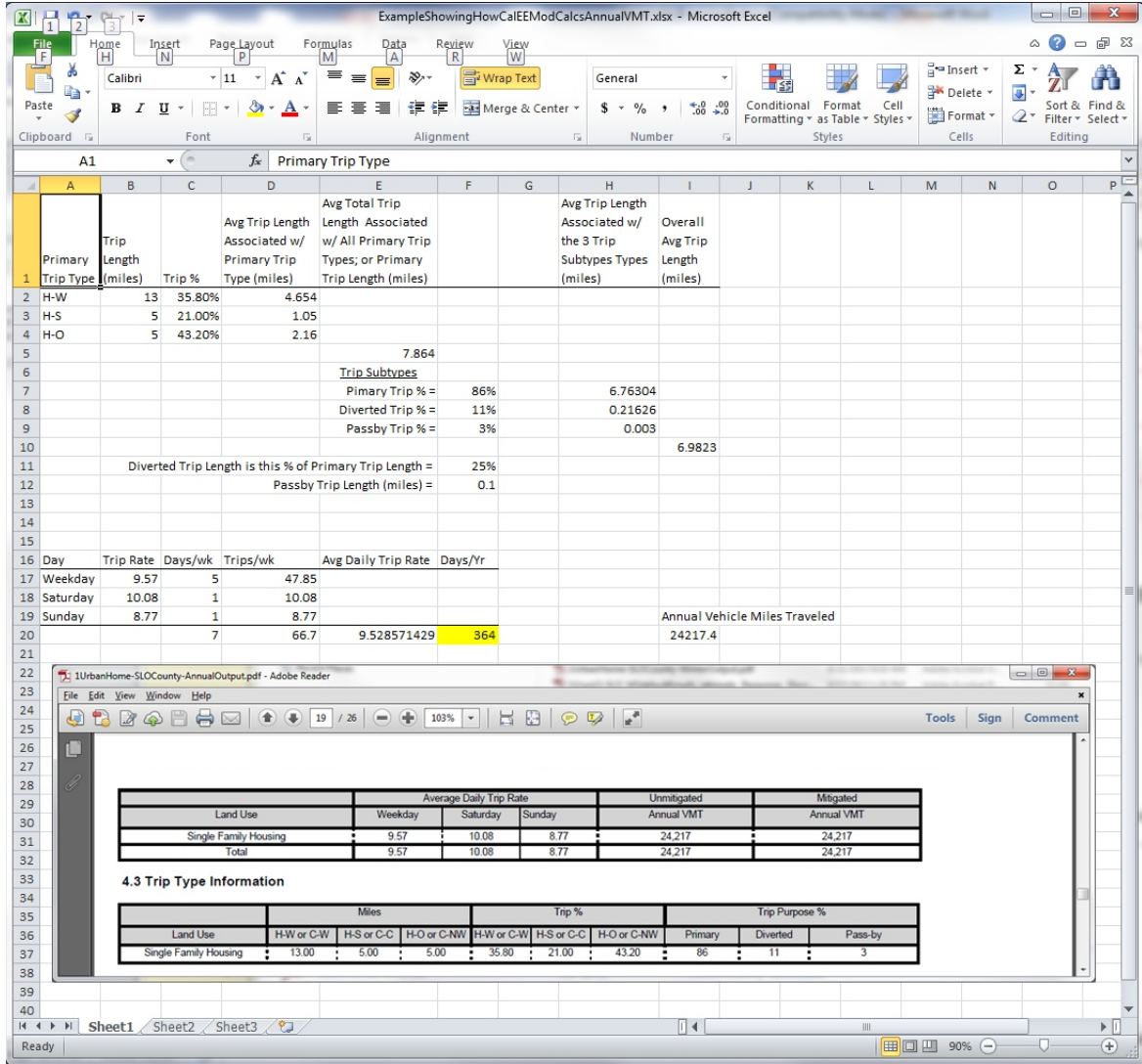
The daily vehicle miles traveled (VMT_d) for a modeled project is calculated with the below equation using average daily trip rates and lengths calculated from equations above. CalEEMod calculates Annual VMT by multiplying VMT_d by 365 days/year.

$$\text{VMT}_d = \Sigma(\text{Average Daily Trip Rate}_i * \text{Average Overall Trip Length}_i)_n$$

Where:

n = Number of land uses being modeled.

The following screen shot shows an example of how CalEEMod calculated the Annual VMT for a single residential dwelling in an urban setting.



5.2 Vehicle Emissions

The emissions from mobile sources were calculated with the trip rates, trip lengths and emission factors for running from EMFAC2014 as follows:

$$\text{Emissions}_{\text{pollutant}} = \text{VMT} * \text{EF}_{\text{running,pollutant}}$$

Where:

$\text{Emissions}_{\text{pollutant}}$ = emissions from vehicle running for each pollutant

VMT = vehicle miles traveled

$\text{EF}_{\text{running,pollutant}}$ = emission factor for running emissions

In order to obtain the emission factor for running emissions, emission rates were obtained from EMFAC2014 for all counties, air basins, air districts and statewide average with default settings

for 31 scenario years each.¹⁹ All years have emission rates for three seasons – Annual, Summer, and Winter. Running emissions for all pollutants and PM emissions from tire and brake wear were divided by the VMT of each respective vehicle class from each scenario year and adjusted for unit conversion to derive emission factors in units of grams per VMT. VMT fractions, calculated as the ratio of VMT for each vehicle class to total VMT for all vehicles were also derived for each scenario year.

Similarly, evaporative, starting, and idling emissions were divided by the number of trips to derive emission factors in units of grams per trip. Evaporative emissions, starting and idling emissions are multiplied by the number of trips times the respective emission factor for each pollutant.

Brake Wear and Tire Wear Emissions

As vehicles are driven, particulate matter is generated from degradation of brakes and tires. This is calculated based on the EMFAC emission factors for each vehicle class and the total VMT traveled by that vehicle class according to the following equation:

$$\text{Emission}_{\text{brakewearortirewear}} = \sum_{\text{class}} (\text{E.F.}_{\text{brakewearortirewear,class}} \times \text{VMT}_{\text{class}})$$

5.3 Road Dust

Vehicles that drive on both paved and unpaved roads generate fugitive dust by dispersing the silt from the roads. The following equation is used to calculate the fugitive dust emissions associated with paved roads:

$$E_{\text{ext}} = [k (sL)^{0.91} \times (W)^{1.02}] (1 - P/4N)$$

Where:

E_{ext} = annual or other long-term average emission factor in the same units as k ,

k = particle size multiplier for particle size range and units of interest (see below),

sL = road surface silt loading (grams per square meter) (g/m^2),

W = average weight (tons) of *all the vehicles* traveling the road (2.4 tons)

P = number of “wet” days with at least 0.254 mm (0.01 in) of precipitation during the averaging period, and

N = number of days in the averaging period (e.g., 365 for annual, 91 for seasonal, 30 for monthly).

¹⁹ 2000, 2005, 2010 to 2035 inclusive, 2040, 2045, and 2050

The above is the average emission factor by land use for paved roads. The default values for the required parameters are based on recommendations in AP-42. For daily emissions it is assumed to have no precipitation.

The following equation is used to calculate the fugitive dust emissions associated with unpaved roads (if the user does not check the box to select CARB's 2.0 lbs PM₁₀/VMT option, which is only for San Luis Obispo County APCD and Sacramento Metropolitan AQMD):

$$E.F._{dust,i} = \left(\frac{k(s/12)^1(S/30)^{0.5}}{(M/0.5)^{0.2}} - C \right) \left(1 - \frac{P}{365} \right)$$

Where:

- k = particle size multiplier for particle size range and units of interest (see below)
- s = surface material silt content (%)
- M = surface material moisture content (%)
- S = mean vehicle speed (mph)
- C = emission factor for 1980's vehicle fleet exhaust, brake wear and tire wear, and
- P = number of days in a year with at least 0.254 mm (0.01 in) of precipitation

The above is the average emission factor by land use for unpaved roads. For daily emissions it is assumed to have no precipitation.

By default, CalEEMod assumes the percentage of paved and unpaved roads for each district as provided by the district. The end user is allowed to modify the percentage of unpaved roads if specific information is available.

Once emission factors are determined, dust emissions can be calculated by

$$\text{Emissions}_{dust} = \sum_i (E.F._{dust,i} \times VMT)$$

The VMT is the same used in vehicle trips.

5.4 Operational Off-Road Equipment

CalEEMod also calculates emissions from off-road equipment (e.g., forklifts, cranes, loaders, generator sets, etc.) used during the operation of the land use being analyzed. This is an optional calculation so the user would need to provide the type and number of off-road equipment being used during operation. From that information, CalEEMod provides horsepower, load factor, hours of operation and fuel type. The user has the ability to override the defaults.

The emission factors are from OFFROAD2011. Please refer to section 4.2 for the equations in calculating emissions from off-road equipment.

6 Area Sources

The area source module is used to calculate direct sources of air emissions located at the project site. This includes hearths, consumer product use, architectural coatings, and landscape maintenance equipment. This does not include the emissions associated with natural gas usage in space heating, water heating, and stoves as these are calculated in the building energy use module.

6.1 Hearths

GHG emissions from the combustion of wood or biomass are calculated and are considered biogenic emissions of CO₂. Some protocols do not consider these emissions to be a part of the emission inventory. Therefore, these CO₂ emissions will be kept distinct from the anthropogenic GHG emissions. The method to calculate the criteria and biogenic GHG emissions associated with wood stoves is shown. Emissions from wood stoves are calculated using the formula below for each wood stove type:

$$\text{Wood hearth emissions (MT/year)} = \frac{\text{Emission Rate (g CO}_2 \text{ per kg wood burned)}}{\text{Wood Burned (tons per year)}} \times 907,185 \frac{\text{g}}{\text{ton}} \times \text{number of stoves} \times \frac{1 \text{ MT CO}_2}{1 \times 10^6 \text{ g CO}_2}$$

where:

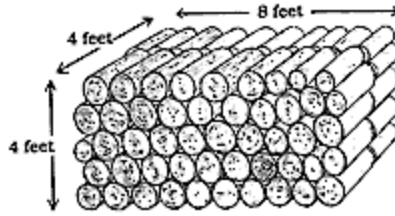
Emission Rate = Based on AP-42²⁰.

Wood Burned = Weight of wood burned per year per residential unit.

Number of stoves = Number of this type of stove in the project.

Using the formula above and the number of residential units with wood stoves, it is possible to estimate the GHG emissions from wood stoves. Default values for the emission factors and the amount of wood burned by different hearth types and the percentage of different hearths in various areas of California are based on CARB, USEPA, and air district supplied emission factor values for hearths and woodstoves. The number of wood stoves or hearths is based on percentages supplied by districts or state defaults. If applicable, CalEEMod incorporates the restrictions on the number of wood burning fireplaces and stoves from SJVUAPCD Rule 4901 Amended 10/16/2008. For projects in the San Luis Obispo region, the wood burned per year is 2,016.5 lbs/year (3,081 lbs/cord X 0.6545 cords/year). For visual clarification, a standard cord of wood is defined as a stack of wood with a volume of 128 cubic feet (4 ft. x 4 ft. x 8 ft.)

²⁰ US EPA AP-42, Chapter 1.9 (<http://www.epa.gov/ttnchie1/ap42/ch01/bgdocs/b01s09.pdf>) and Chapter 1.10 (<http://www.epa.gov/ttnchie1/ap42/ch01/bgdocs/b01s10.pdf>)



Criteria pollutant emissions from wood stoves or hearths are computed by CalEEMod in a similar manner with emission factors also coming from AP-42²¹.

6.1.1.1 Natural Gas Fireplaces/Stoves

GHG emissions associated with natural gas fired fireplaces are calculated using emission factors from the California Climate Action Registry (CCAR). The criteria pollutant emission factors are based on AP-42. The average heating rate in British Thermal Units (BTU) per hour for fireplaces in homes is 60,000 BTU/hr²². Default values for annual fireplace usage needs to be determined for each county. Natural gas is assumed to have 1,020 BTU per standard cubic foot²³. Criteria pollutant emissions from natural gas fireplaces/stoves are computed by CalEEMod in a similar manner with emission factors also coming from AP-42²⁷.

6.2 Consumer Products

Consumer products are chemically formulated products used by household and institutional consumers, including, but not limited to, degreasers, fertilizers/pesticides, detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products; but does not include other paint products, furniture coatings, or architectural coatings. SCAQMD did an evaluation of consumer product use compared to the total square footage of buildings using data from CARB consumer product Emission Inventory. Trinity and SCAQMD performed an evaluation of degreaser use for parking lots and pesticide/fertilizer use for City Parks/Golf Courses. These analyses can be found in Appendix E. To calculate the ROG emissions from consumer product use, the following equation is used:

$$\text{Emissions} = \text{EF} \cdot \text{BuildingArea}$$

Where:

EF = pounds of VOC per building square foot per day

The factor is 2.14×10^{-5} lbs/sqft/day for everywhere except SCAQMD

The factor is 2.04×10^{-5} lbs/sqft/day for SCAQMD areas.

Building Area = The total square footage of all buildings including residential square footage.

²¹ US EPA AP-42, Chapter 1.9. Page 3, Table 1.9-1 (<http://www.epa.gov/ttnchie1/ap42/ch01/bgdocs/b01s09.pdf>) and Chapter 1.10 (<http://www.epa.gov/ttnchie1/ap42/ch01/bgdocs/b01s10.pdf>)

²² SCAQMD Rule 445 Staff Report and SCAQMD Final EA.

²³ USEPA. 1998. AP-42 Emission Factors. Chapter 1.4 Natural Gas Combustion, Pages 5-6, Tables 1.4-1 and 1.4-2, <http://www.epa.gov/ttnchie1/ap42/ch01/final/c01s04.pdf>.

6.3 Architectural Coatings

VOC off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers. The program calculates the VOC evaporative emissions from application of residential and non-residential surface coatings using the following equation:

$$E_{AC} = EF_{AC} \times F \cdot A_{\text{paint}} \times \text{Reapplication}$$

Where:

E = emissions (lb)

EF = emission factor (lb/sqft)

F = fraction of surface area. The default values based on SCAQMD are 25% for the exterior surface and 75% for the interior.

A = building surface area (sqft). The program assumes the total surface area for painting equals 2.7 times the floor square footage for residential land use and 2 times the floor square footage for nonresidential land use.²⁴ All land use information provided by a metric other than square footage will be converted to square footage using the default conversions or user-defined equivalence. Green area of City Parks/Golf Courses, pool surface area of Recreational Swimming Pools, and Parking surface area square footage are excluded from building floor square footage.

Reapplication = Rate at which surfaces are repainted.

The emission factor is based on the VOC content of the surface coatings and is calculated estimated using the equation below:

$$EF_{AC} = C_{VOC} / 454(\text{g/lb}) \times 3.785(\text{L/Gal}) / 180(\text{sqft})$$

Where:

EF = emission factor (lb/sqft)

C = VOC content (g/L). This is anticipated to vary by air district and year.

CalEEMod also calculates the VOC emissions from the painting of stripes, handicap symbols, directional arrows, and car space descriptions in parking lots. Please refer to Appendix E for the studies conducted to determine a default percent of parking lot square footage that is painted. The equation for striping emission is the same as that for E_{AC} above, but A_{paint} is:

$$A_{\text{paint}} = A_{PL} \times P\%$$

Where:

A_{PL} = Parking lot area (sqft)

$P\%$ = Default percent of parking lot area that is painted (6%)

²⁴ The factors 2.7 and 2 are based on page A9-124 of SCAQMD's 1993 CEQA Guide.

The VOC content limit for parking area coatings is either provided by local air districts or based on the exterior coating VOC limit of the area where the project is located. If the user has more specific VOC content limit on the coating being applied, the default can be overridden but the user is expected to explain and justify the change in the “Remarks” box at the bottom of the screen.

Reapplication rate

All land use buildings are assumed to be repainted at a rate of 10% of area per year. This is based on the assumptions used by SCAQMD.

6.4 Landscape Equipment

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, roto tillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. The emissions associated from landscape equipment use were processed using OFFROAD 2011 and CARB’s Technical Memo: Change in Population and Activity Factors for Lawn and Garden Equipment (6/13/2003²⁵). The information was used along with the total building square footage and dwelling units in California to determine two emission factors. The first is for the commercial landscape equipment which is in terms of grams per square foot of non-residential building space per day. The second is for the residential landscape equipment which is in terms of grams per dwelling unit per day. These emission factors are multiplied by the number of summer days or winter days that represent the number of operational days. For example, pieces of equipment that would typically be used in snow conditions were used with winter days this includes equipment such as snow blowers while all others were used with summer days. For those regions with 365 or 330 summer days (South Coast, Sacramento, San Joaquin Valley), it is assumed non-residential (e.g., commercial land uses) landscaping equipment would likely only operate during the week (not weekends) so operational days are 250 days per year.

²⁵ http://www.arb.ca.gov/msei/offroad/techmemo/Lawn_and_Garden_Activity.doc

7 Energy Use

Criteria pollutants and GHGs are emitted as a result of activities in buildings that consume energy in the form of natural gas and electricity.

Combustion of any type of fuel, including natural gas, emits criteria pollutants and GHGs directly into the atmosphere. When this occurs within buildings, it is considered a direct emission source²⁶ associated with that building, and the program will calculate emissions of all of criteria pollutants and GHGs accordingly. Fuel oil, kerosene, and liquefied petroleum gas can also be used as fuels in buildings, but are not widely used in California compared to natural gas. As such, CalEEMod does not calculate emissions from combustion of these fuels within buildings. Emissions from wood combustion in wood burning stoves and fireplaces is calculated under the Area Source category of Hearths (See Section 6.1).

Criteria pollutants and GHGs are also emitted during the generation of electricity at fossil fuel power plants. When electricity is used in buildings, the electricity generation typically takes place offsite power plants, the majority of which burn fossil fuels. Because power plants are existing stationary sources permitted by air districts and/or the USEPA, criteria pollutant emissions are generally associated with the power plants themselves, and not individual buildings or electricity users. Additionally, criteria pollutant emissions from power plants are subject to local, state, and federal control measures, which can be considered to be the maximum feasible level of mitigation for stack emissions.

In contrast, GHG emissions from power plants are not subject to stationary source permitting requirements to the same degree as criteria pollutants. Likewise, it is difficult to mitigate GHG emissions emitted at power plants using exhaust after treatment control technologies. The most effective way to control GHGs from power plants is to reduce electricity demand. As such, GHGs emitted by power plants may be indirectly attributed to individual buildings and electricity users, who have the greatest ability to decrease usage by applying mitigation measures to individual electricity “end uses.” The program therefore calculates GHG emissions (but not criteria pollutant emissions) from regional power plants associated with building electricity use.

Since 1978, the CEC has established building energy efficiency standards with the aim of conserving the state’s electricity and natural gas resources. The standards are contained Title 24 of the California Code of Regulations (The Building Standards Code), which are updated periodically. The 2005 standards were relied upon during the formation of CARB’s initial AB 32 Scoping Plan and were subsequently revised in 2008,²⁷ 2013²⁸, and 2016.²⁹ The effective date of the 2016 standards is January 1, 2017. Because the 2016 standards were not finalized at the time of the most recent program update, they are not included. It is anticipated that the 2016 standards will be included in future versions of the program.

²⁶ California Climate Action Registry (CCAR) General Reporting Protocol (GRP), Version 3.1 (January). Available at: http://sfenvironment.org/sites/default/files/fliers/files/ccar_grp_3-1_january2009_sfe-web.pdf Chapter 8

²⁷ <http://www.energy.ca.gov/title24/2008standards/>

²⁸ <http://www.energy.ca.gov/title24/2013standards/>

²⁹ <http://www.energy.ca.gov/title24/2016standards/>

The program has the capability of calculating building energy use incorporating only the 2005 Title 24 standards. This option would be used in some air districts that have adopted CEQA thresholds and/or guidance linked to values from CARB's initial AB 32 Scoping Plan. To use this option, users must check the "using historical data" box. Once the box is clicked, the user then must click the "Default" button to download the historical (2005) data.

Energy use in buildings (both natural gas and electricity) is divided by the program into end use categories subject to Title 24 requirements (end uses associated with the building envelope, such as the HVAC system, water heating system, and integrated lighting) and those not subject to Title 24 requirements (such as appliances, electronics, and miscellaneous "plug-in" uses).

The program will calculate the emissions associated with buildings by multiplying by the natural gas use by appropriate emission factors and by multiplying electricity use by the GHG intensity factors of the utility selected on the Project Characteristics screen. The following sections describe the methodologies used to estimate building energy use and emissions.

7.1 Estimating Non-residential Building Energy Use

The program uses the California Commercial End Use Survey (CEUS)³⁰ database to develop energy intensity values (electricity and natural gas usage per square foot per year) for non-residential buildings.

The CEUS data³¹ lists energy use intensity by building type, "end-use," and CEC forecasting climate zone³². Each nonresidential land use in CalEEMod is matched to the appropriate CEUS building type. The CEUS end uses are grouped according to whether the end use is subject to Title 24 building requirements or not.

Appendix E describes in detail the method used to analyze the CEUS data.

7.2 Estimating Residential Building Energy Use

The program uses data collected during the Residential Appliance Saturation Survey (RASS) to develop energy intensity values (electricity and natural gas usage per square foot per year) for residential buildings.

Similar to CEUS, the RASS data³³ lists energy use intensity by building type, "end-use," and CEC forecasting climate zone³⁴. Each residential land use in CalEEMod is matched to the appropriate RASS residence type. The RASS end uses are grouped according to whether the end use is subject to Title 24 building requirements or not.

Appendix E describes in detail the method used to analyze the RASS data.

³⁰ California Energy Commission (CEC). California Commercial End-Use Survey Results. Data available from Itron Inc. at <http://capabilities.itron.com/CeusWeb/Chart.aspx>

³¹ Workbooks downloaded from <http://capabilities.itron.com/CeusWeb/Chart.aspx> for all building categories

³² A few climate zones were not included in the CEUS data. These climate zones will be mapped to another related climate zone that was included in the data.

³³ Workbooks downloaded from <https://webtools.dnvgl.com/rass2009/> for all building categories

³⁴ A few climate zones were not included in the RASS data. These climate zones will be mapped to another related climate zone that was included in the data.

7.3 Estimating Energy Use from Other Land Uses

There are a few remaining land use categories that are not included in the CEUS or RASS data. These include golf courses, parks, and recreational pools. These currently do not have associated default energy use values within the program; however, users may enter non-default values estimated apart from the program.

For parking lots, several studies have been published regarding the energy use from lighting, ventilation and elevators in parking lots and structures. This data has been incorporated into the program to calculate electricity use, based on the type of parking lot selected by the user: Open Parking Lot, Unenclosed Parking Structure, Unenclosed Parking Structure with Elevators, Enclosed Parking Structure, or Enclosed Parking Structure with Elevators.

Appendix E contains further information regarding the assessment of the electricity usage by parking lots and structures, as well as guidance for overriding the default values (e.g., if the number of elevators is known).

The following table provides a summary of the energy use factors included in CalEEMod for parking lots and structures, depending on the type selected by the user.

Type of Parking Lot	Electricity Use	Annual Energy Use (kWh/sq ft)
Open parking lot	Lighting	0.876
Unenclosed parking structure	Lighting	2.63
Enclosed parking structure	Lighting, ventilation	6.55
Parking structure with elevators	Elevators	0.19

7.4 Calculating Emissions from Energy Use

As previously discussed, natural gas use will contribute to both criteria and GHG emissions. The emission factors for natural gas combustion are from AP-42 and the CCAR. Electricity use will contribute to GHG emissions only.

Emissions from natural gas and electricity use are calculated by the program for each land use using the equations below. (See section 8.2 for further information about electricity carbon intensity).

$$\text{Natural Gas Emissions}_i = \sum_j (\text{EF}_j \times \text{Energy Intensity} \times \text{Size})$$

Where:

EF	= emission factor based on AP-42 or CCAR (lbs/kBtu)
Energy Intensity	= natural gas energy intensity for a land use (kBTU/sq.ft. or kBTU/DU)
Size	= size metric (square feet or dwelling units)
i	= each criteria and GHG pollutant
j	= land use type

$$\text{Electricity Emissions} = \sum_i (\text{Utility} \times \text{Energy Intensity} \times \text{Size})$$

Where:

Utility	= Carbon intensity of Local Utility (CO ₂ e/kWh)
Energy Intensity	= electricity energy intensity for a land use (kWh/sq.ft. or kWh/DU)
Size	= size metric Dwelling units (square feet or dwelling units)
i	= land use type

8 Water and Wastewater

The amount of water used and wastewater generated by a project has indirect GHG emissions associated with it. These emissions are a result of the energy used to supply, distribute, and treat the water and wastewater. It will often be the case that the water treatment and wastewater treatment occur outside of the project area. In this case, it is still important to quantify the energy and associated GHG emissions attributable to the water use. In addition to the indirect GHG emissions associated with energy use, wastewater treatment can directly emit both methane and nitrous oxide.

8.1 Annual Indoor and Outdoor Water Use by Land Use Category

Total residential indoor and outdoor water use for all of California for the year 2000 is reported in Table ES-1 of the Pacific Institute “Waste Not Want Not” report.³⁵ These values were divided by the total number of occupied households in California in the year 2000³⁶ to give water

³⁵ Gleick, P.H.; Haasz, D.; Henges-Jeck, C.; Srinivasan, V.; Cushing, K.K.; Mann, A. 2003. Waste Not, Want Not: The Potential for Urban Water Conservation in California. Published by the Pacific Institute for Studies in Development, Environment, and Security. Full report available online at: http://www.pacinst.org/reports/urban_usage/waste_not_want_not_full_report.pdf. Appendices available online at: <http://pacinst.org/publication/waste-not-want-not/>

³⁶ US Census Bureau. 2000 Census. Table QT-H1: General Housing Characteristics 2000.

demand per dwelling unit. It is assumed that these water use values are representative of all residential dwelling unit types (single-family, apartment, condo, etc.) and will be used unless alternate values are supplied by the air districts or the end user.

Data for most commercial and industrial land uses was obtained from Appendices E and F of the Pacific Institute's "Waste Not Want Not" report.³⁷ Total gallons of water used per day per metric were reported, where the metric is employee, student, room, acre, or square foot, depending on the land use. For example, water use at office and retail land uses was reported in a metric of gallons per employee per day, while water use at hotels and motels was reported in a metric of gallons per room per day. The total daily water use was converted to annual water use based on the number of days of operation for that land use. For example, it was assumed that schools operate for 180 days per year while offices operate for 225 days per year (excluding weekends and holidays). Figures in Appendices E and F of the Pacific Institute report shows the percent of water use dedicated to landscape irrigation; this percent was multiplied by the total water use to obtain the outdoor water use. The remainder was assigned to indoor water use.

For a few land uses (library, place of worship, movie theater, arena, and civic center), The Pacific Institute report did not provide sufficient data and so the American Water Works Association Research Foundation's Commercial and Institutional End Uses of Water report³⁸ was used. This data is specific to Southern California and was obtained from sample sizes ranging from 1 to 26. In all cases, the total gallons of water used per employee per day was reported.

Specifically for industrial land use categories, the default indoor water use rate is 231,250 gallons/work-year/ thousand square feet. This value was computed by dividing the annual water use in California industry (Table ES-6 in Gleick et al. 2002; 963,071,916 gallons/industrial work day) by the industrial work area in California (Dun & Bradstreet, Business Population Report aggregated by Standard Industrial Classification (SIC) and Census Block, May 2002; 1,041,386 thousand square feet). This yields 925 gallons/work-day/thousand square feet and the annual value is derived using 250 workdays in a year. For those industrial projects where the anticipated water use rate is known or can be estimated from similar projects, the project specific indoor water use rate should overwrite the default value and specific rationale needs to be entered in the Remarks section of the Water and Wastewater CalEEMod input page.

Indoor water end-use intensities were also obtained from the Pacific Institute report.³⁹ End-use categories include toilets, showerheads, bathroom faucets, kitchen faucets, dishwashers, clothes washers, and leaks. End-use intensity is given in terms of percent of total indoor water use. For example, The Pacific Institute estimates that toilets contribute to 33% of indoor

³⁷ Gleick et al. 2003. Appendices E and F.

³⁸ Dziegielewski, B.; Kiefer, J.C.; Optiz, E.M.; Porter, G.A.; Lantz, G.L.; DeOreo, W.B.; Mayer, P.W.; Nelson, J.O. 2000. Commercial and Institutional End Uses of Water. Published by the American Water Works Association Research Foundation.

³⁹ Gleick et al. 2003. Residential end-use intensities found in Figure 2-4c of main report. Commercial end-use intensities found in Appendix E.

residential water use. Water end-use intensity must be known in order to calculate the expected water and GHG savings from installing low-flow or high-efficiency water fixtures.

8.2 Electricity Intensity Factors

Electricity intensity factors were obtained from the 2006 CEC report, “Refining Estimates of Water-Related Energy Use in California.” The electricity intensity factors are reported in units of kWh per million gallons (MG) of water used, and represent the amount of electricity needed to (1) supply and convey the water from the source, (2) treat the water to usable standards, and (3) distribute the water to individual users. The sum of these factors gives the total electricity required to supply, treat, and distribute water for outdoor uses. For indoor uses, the electricity needed to process the resulting wastewater is also included. The program will allow the end user to specify project specific electricity intensity factors if they are available for the project.

CO_{2e} emissions associated with *indoor water use* are calculated according to the following equation:

$$\text{GHG emissions} = \text{Water}_{\text{indoor}} \times \text{Electricity}_{\text{indoor}} \times \text{Utility}$$

Where:

GHG emissions = Tonnes CO_{2e}

Water_{indoor} = Total volume of water used indoors (million gallons)

Electricity_{indoor} = Electricity required to supply, treat, and distribute water and the resulting wastewater (kWh/million gallons)

This is assigned for each location.

Utility = Carbon intensity of Local Utility (CO_{2e}/kWh)

CO_{2e} emissions associated with *outdoor water use* are calculated according to the following equation:

$$\text{GHG emissions} = \text{Water}_{\text{outdoor}} \times \text{Electricity}_{\text{outdoor}} \times \text{Utility}$$

Where:

GHG emissions = Tonnes CO_{2e}

Water_{outdoor} = Total volume of water used outdoors (million gallons)

Electricity_{outdoor} = Electricity required to supply, treat, and distribute water (kWh/million gallons)

This is assigned for each location.

Utility = Carbon intensity of Local Utility (CO_{2e}/kWh)

The sum of emissions from indoor and outdoor water use for each land use category gives the total CO_{2e} emissions associated with water use at the Project.

8.3 Wastewater Treatment Methods by County and Air District

Depending on the method, the treatment of wastewater can produce methane (CH₄), nitrous oxide (N₂O), and carbon dioxide (CO₂) emissions, which are all greenhouse gases. Methane and nitrous oxide emissions are converted to carbon dioxide equivalent (CO_{2e}) emissions based on their GWP. When a development generates waste and wastewater, the waste is typically

either treated on-site in septic tanks or sent to a centralized wastewater treatment plant to be treated by one of several possible methods. The various wastewater treatment methods employed by each county or air district and the percent of total wastewater treated by each method was used if provided, otherwise the default percentage used in ARB's GHG emission inventories was used. Wastewater treatment methods include on-site septic tanks and centralized wastewater treatment plants which may be composed of aerobic processes, or facultative lagoons. The solids from the latter two treatments could be digested anaerobically to produce digester gas. In some cases, the combusted digester gas may be part of a cogeneration system which recovers the heat generated from combustion and generates electricity which is used for on-site processes. Thus, for aerobic and facultative lagoons wastewater treatment, digestion (*listed in the last two column on the wastewater screen*) should equal 100% percent. For septic systems, the digestion could be zero percent or 100 percent.

The majority of nitrous oxide emissions are generated when treated wastewater is discharged to water bodies as effluent. The default assumption is for non-recycled water. The program calculates total GHG emissions from wastewater treatment based on the region-specific distribution of wastewater treatment methods which the end user can modify with project specific data.

8.4 Wastewater Treatment Methods – Calculation of Greenhouse Gas Emissions

The GHGs emitted from each type of wastewater treatment are based on the CARB's Local Government Operations Protocol (LGOP)⁴⁰, which are in turn based on USEPA methodologies.⁴¹ The methodologies are summarized below.

Wastewater (or sewage) treatment can occur one of three ways - aerobically, in septic tanks or in facultative lagoons, specifically described below. In CalEEMod, the following defaults for sewage treatment options were used unless an air district provided an alternative percentage of treatment appropriate to the particular project region. The user has the ability to override the defaults but the total percentage must equal 100% and must justify the reason for the change in the "Remarks" box at the bottom of the screen.

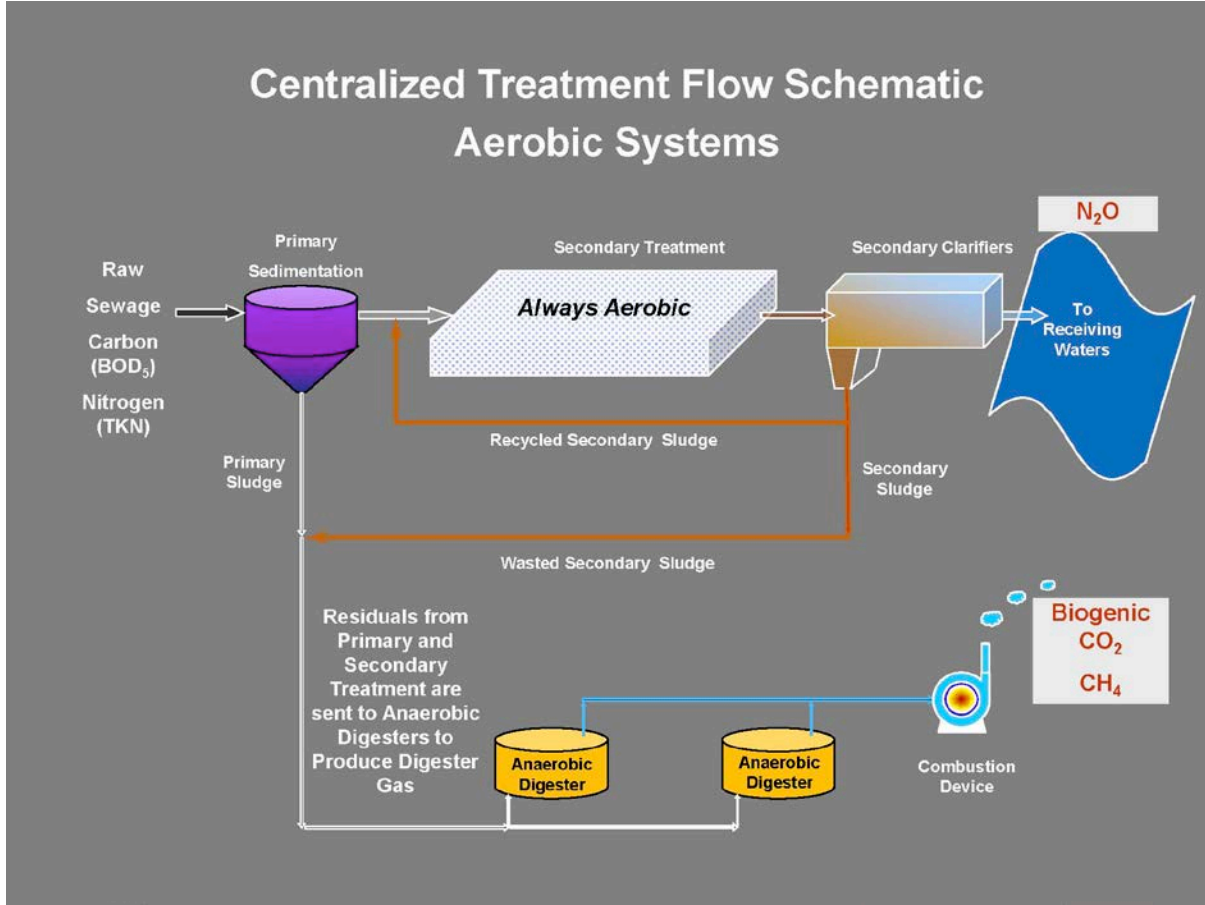
Statewide Default Treatment Distribution		
Septic Tank (%)	Aerobic (%)	Facultative Lagoons (%)
10.33	87.46	2.21

Solids produced from primary treatment, aerobic processes, or facultative lagoons are typically digested in anaerobic digesters. The gas produced by these digesters may be flared or burned in some other simple device, or sent to a cogeneration process for heat recovery and/or electrical generation. The default condition is to assume no cogeneration; however, the user has the ability to input an estimate of the percentage of the digester gas combusted in such systems ranging from 0% to 100%.

⁴⁰ <https://www.arb.ca.gov/cc/protocols/localgov/localgov.htm>

⁴¹ <https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-archive>

Anaerobic decomposition in septic tanks and facultative lagoons can produce fugitive emissions of methane. The following figure provides an example of the process flow for a centralized wastewater treatment facility that treats the sewage aerobically, produces digester gas in anaerobic digesters and combusts the gas. The figure also shows where the GHG emissions are occurring in the process.



As depicted in the figure above, nitrous oxide is produced when treated wastewater is released as effluent into aquatic environments such as rivers and estuaries. Although nitrification/denitrification processes within the wastewater treatment plant may also produce nitrous oxide, the USEPA estimated that this contributed to less than 3% of national N₂O emissions associated with wastewater in 2005.⁴² Therefore, the program assumes that all N₂O emissions are generated from effluent discharged into aquatic environments.

CO₂ emissions are generated from both aerobic and anaerobic processes, as well as from the combustion of digester gas, but CalEEMod only calculates combustion emissions because there are currently no authoritative emission factors for process CO₂ emissions. When digester gas is combusted to generate electricity, fossil fuel emissions are offset by this renewable power generation. CalEEMod allows the user to provide an estimate of how much renewable power is

⁴² USEPA. 2008. Page 8-7.

expected from the project and will debit the biogenic combustion CO₂ with the CO₂ that would otherwise have been sourced from fossil fuel combustion.

Septic Systems

Developments may use *septic systems* to treat wastewater on-site. These systems utilize microbes to decompose wastewater anaerobically. A by-product of this anaerobic decomposition is methane, which is quantified using **Equation 10.5** from LGOP:

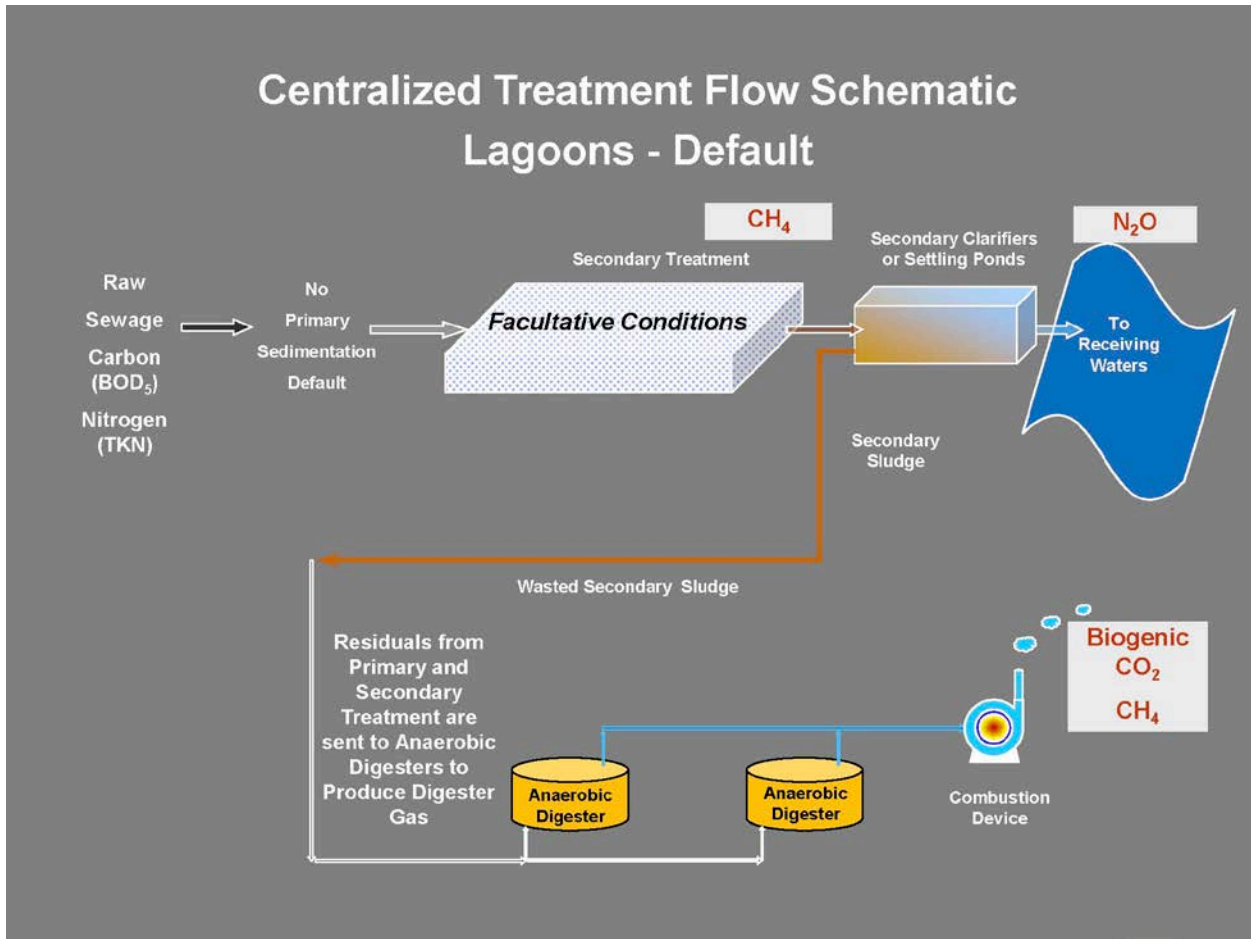
$$\text{CH}_4 \text{ emissions (MT)} = \text{Wastewater} \times \text{BOD}_5 \text{ load} \times 10^{-6} \times \text{Bo} \times \text{MCF}_{\text{septic}} \times 10^{-3}$$

Term	Description	Value	Unit	Reference
Wastewater	= volume of wastewater	INPUT	liters	User
BOD ₅ load	= concentration of BOD ₅ in wastewater	200	mg / liter wastewater	
10 ⁻⁶	= conversion factor	--	kg / mg	--
Bo	= maximum CH ₄ -producing capacity for domestic wastewater	0.6	kg CH ₄ / kg BOD ₅ removed	LGOP default
MCF _{septic}	= CH ₄ correction factor for septic systems	0.5	--	LGOP default
10 ⁻³	= conversion factor	--	MT / kg	--

The LGOP provides default values for all terms in the equation except BOD₅ load, which is the amount of BOD₅ sent to these decentralized systems per day. BOD, or Biochemical Oxygen Demand, measures the degradable organic component of the wastewater that could deplete dissolved oxygen in receiving waters if left untreated (BOD₅ is the measurement of dissolved oxygen depletion from a liquid sample held for a 5-day test). The program assumes a default BOD₅ load value of 200 mg per liter of wastewater. This value is typical for residential and commercial wastewater. A higher value is typically associated with certain types of industrial wastewater.

Facultative Lagoons

Centralized wastewater treatment facilities may use *facultative lagoons* to treat wastewater. The following figure is an example of the treatment process if facultative lagoons provide the secondary treatment assuming process solids are sent to anaerobic digesters and the digester gas is combusted. In addition, the figure shows where the GHG emissions are occurring in the process.



The methane emissions expected from facultative lagoons are calculated using **Equation 10.3** from LGOP:

$$\text{CH}_4 \text{ emissions (MT)} = \text{Wastewater} \times \text{BOD}_5 \text{ load} \times 10^{-6} \times (1-F_p) \times B_o \times \text{MCF}_{\text{anaerobic}} \times F_{\text{removed}} \times 10^{-3}$$

Term	Description	Value	Unit	Reference
Wastewater	= volume of wastewater	INPUT	liters	User
BOD ₅ load	= concentration of BOD ₅ in wastewater	200	mg / liter wastewater	
10 ⁻⁶	= conversion factor	--	kg / mg	--
F _p	= fraction of BOD ₅ removed in primary treatment	0	--	no primary treatment
B _o	= maximum CH ₄ -producing capacity for domestic wastewater	0.6	kg CH ₄ / kg BOD ₅ removed	LGOP default
MCF _{anaerobic}	= CH ₄ correction factor for anaerobic systems	0.8	--	LGOP default

$F_{removed}$	=	fraction of overall lagoon BOD ₅ removal performance	1	--	LGOP default (see Eq. 10.4)
10^{-3}	=	conversion factor	--	MT / kg	--

The LGOP provides default values for all terms in the equation except BOD₅ load and F_P , the fraction of BOD₅ removed in primary treatment, if present. As before, the program assumes a default BOD₅ load value of 200 mg per liter of wastewater. The program assumes $F_P = 0$, indicating no primary treatment.

Anaerobic Digestion

Anaerobic digesters produce methane-rich biogas which is typically combusted on-site. In some cases the biogas is combusted simply for the purpose of converting methane to CO₂, which has a lower global warming potential than methane. In many cases, a cogeneration system is used to harvest the heat from combustion and use it to generate electricity for on-site energy needs. In both cases, inherent inefficiencies in the system result in incomplete combustion of the biogas, which results in remaining methane emissions. The methane emissions from incomplete combustion of digester gas are quantified using **Equation 10.1** from LGOP:

$$CH_4 \text{ emissions (MT)} = \text{Wastewater} \times \text{Digester Gas} \times F_{CH_4} \times \rho_{CH_4} \times (1-DE) \times 0.0283 \times 10^{-3} \times 10^{-3}$$

Term	Description	Value	Unit	Reference
Wastewater	= volume of wastewater	INPUT	gallons	User
Digester Gas	= volume of biogas generated per volume of wastewater treated	0.01	ft ³ biogas / gallon wastewater	USEPA 2008
F_{CH_4}	= fraction of CH ₄ in biogas	0.65	--	USEPA 2008
ρ_{CH_4}	= density of CH ₄ at standard conditions	662.00	g / m ³	LGOP default
DE	= CH ₄ destruction efficiency	0.99	--	LGOP default
0.0283	= conversion factor	--	m ³ / ft ³	LGOP default
10^{-3}	= conversion factor	--	MT / kg	--
10^{-3}	= conversion factor	--	kg / g	--

The LGOP provides default values for all terms in the equation except the volume of digester gas produced per day (Digester Gas), and the fraction of methane in the biogas (F_{CH_4}). The program assumes a digester gas production of 0.01 cubic feet of biogas per gallon of

wastewater treated based on USEPA methodology.^{43,44} The program assumes $F_{CH_4} = 0.65$ based on the USEPA methodology.⁴⁵

The amount of biogenic CO₂ produced from the combustion of biogas is calculated using the following equation based on flow sent to centralized systems (i.e., not sent to septic tanks):

$$\text{Biogenic CO}_2 \text{ emissions (MT CO}_2\text{)} = \text{Wastewater} \times \text{Digester Gas} \times F_{CH_4} \times EF / 2204.623$$

Where:

Wastewater	=	Volume of Wastewater sent to centralized systems (gallons)
Digester Gas	=	Volume of biogas produced from wastewater treatment 0.01 ft ³ biogas / gallon wastewater treated
F_{CH_4}	=	Fraction of CH ₄ in biogas 0.65
EF	=	Emission factor for methane combustion ⁴⁶ 0.120 lb CO ₂ / ft ³ CH ₄
2204.623	=	Conversion factor from lb CO ₂ to MT CO ₂

If a *cogeneration system* is used to generate electricity from the combusted biogas, the following equation derived from USEPA’s Solid Waste Management and Greenhouse Gases report⁴⁷ is used to calculate the amount of electricity generated based on flow sent to centralized systems.

$$\text{Electricity Generated (kWh)} = \text{Wastewater} \times \text{Digester Gas} \times F_{CH_4} \times HHV_{CH_4} \times ECF \times EFF$$

Where:

Wastewater	=	Volume of Wastewater sent to centralized systems (gallons)
Digester Gas	=	Volume of biogas produced from wastewater treatment 0.01 ft ³ biogas / gallon wastewater treated

⁴³ USEPA 2008. Page 8-9. USEPA estimates 1.0 cubic feet of digester gas per person per day and 100 gallons of wastewater per person per day.

⁴⁴ USEPA reports 1.0 cubic feet of digester gas per person per day based on Metcalf & Eddy, Inc., 1991, “Wastewater Engineering: Treatment, Disposal, and Reuse,” 3rd Ed. McGraw Hill Publishing. USEPA reports 100 gallons of wastewater per person per day based on Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 2004, “Recommended Standards for Wastewater Facilities (Ten-State Standards).” USEPA also reports 100 gallons of wastewater per person per day on the USEPA Water & Wastewater Pricing website, based on the U.S. Geological Survey Circular 1200, 1995, “Estimated Use of Water in the United States in 1995.”

⁴⁵ USEPA. 2008. Page 8-9. USEPA cites Metcalf & Eddy, Inc., 1991, “Wastewater Engineering: Treatment, Disposal, and Reuse,” 3rd Ed. McGraw Hill Publishing.

⁴⁶ USDOE. 2005. Form EIA-1605: Long Form for Voluntary Reporting of Greenhouse Gases. Available online at: http://ftp.eia.doe.gov/pub/oiaf/1605/cdrom/pdf/FormEIA-1605_2004_Instructions.pdf

⁴⁷ USEPA. 2006. Solid Waste Management and Greenhouse Gases: A Life-Cycle Assessment of Emissions and Sinks, 3rd Ed. Sections 6.2-6.5. Available online at: <http://www.epa.gov/climatechange/wycd/waste/downloads/fullreport.pdf>

F_{CH_4}	=	Fraction of CH ₄ in biogas 0.65
HHV	=	Heating value of methane 1,012 BTU / ft ³ CH ₄
ECF	=	Energy conversion factor 0.00009 kWh/BTU
EFF	=	Efficiency Factor ⁴⁸ 0.85

Since this amount of electricity is generated on-site and no longer needs to be supplied by the local electricity utility, the indirect CO_{2e} emissions associated with that utility electricity generation are also avoided. The avoided CO_{2e} emissions are calculated by multiplying the amount of electricity generated (in kWh) by the local utility carbon-intensity factor from Table 2.8.

Net CO₂ emissions are then the difference between the CO₂ produced from the combustion of digester gas and the CO₂ avoided by generating renewable energy, thus:

$$\text{Net CO}_2 \text{ Emissions} = \text{CO}_2 \text{ (digester gas combustion)} - \text{CO}_2 \text{ (avoided emissions)}$$

Nitrous oxide is produced when treated wastewater is discharged to aquatic environments such as rivers or estuaries. The nitrogen which remains in treated wastewater effluent is converted to nitrous oxide in a multi-step process accomplished by bacteria which is present in soil and aquatic environments. The nitrous oxide emissions are quantified using **Equation 10.9** from the LGOP:

$$\text{N}_2\text{O emissions (MT)} = \text{Wastewater} \times 10^{-6} \times \text{N Load} \times 44/28 \times \text{EF effluent} \times 10^{-3}$$

Term	Description	Value	Unit	Reference
Wastewater	= volume of wastewater	INPUT	liters	User
10 ⁻⁶	= conversion factor	--	kg / mg	--
N Load	= mass of nitrogen discharged per volume of wastewater	26	mg / liter of wastewater	USEPA 2013 (CA Statewide Average)
44/28	= Ratio of molecular weights for N ₂ O and N ₂			USEPA 2008
EF effluent	= N ₂ O effluent emission factor	0.005	kg N ₂ O / kg N	LGOP default

⁴⁸ Ibid. USEPA assumes a 15% system efficiency loss, to account for system down-time. USEPA assumes that methane is flared during down-time.

10^{-3} = conversion factor -- MT / kg --

The LGOP provides default values for all terms in the equation except N Load, the total mass of nitrogen discharged in the wastewater effluent per day. CalEEMod assumes N Load = 26 mg N per liter of wastewater effluent based on the USEPA methodology.⁴⁹ This value is appropriate for residential and commercial wastewater. A higher value may be more appropriate for certain types of industrial wastewater.

Methane and nitrous oxide emissions are converted to carbon dioxide equivalent emissions by multiplying by their GWPs. The GWPs for methane and nitrous oxide are 25 and 298, respectively.⁵⁰

9 Solid Waste

Municipal solid waste (MSW) is the amount of material that is disposed of by land filling, recycling, or composting. CalEEMod calculates the indirect GHG emissions associated with waste that is disposed of at a landfill. The program uses annual waste disposal rates from the California Department of Resources Recycling and Recovery (CalRecycle) data for individual land uses. If waste disposal information was not available, waste generation data was used. CalEEMod uses the overall California Waste Stream composition to generate the necessary types of different waste disposed into landfills. The program quantifies the GHG emissions associated with the decomposition of the waste which generates methane based on the total amount of degradable organic carbon.⁵¹ The program will also quantify the CO₂ emissions associated with the combustion of methane, if applicable. Default landfill gas concentrations were used as reported in Section 2.4 of AP-42. The IPCC has a similar method to calculate GHG emissions from MSW in its 2006 Guidelines for National Greenhouse Gas Inventories.

The amount of methane and CO₂ generated is calculated as:

$$Gen = DOC \cdot DANF \cdot 0.5$$

Where:

Gen = Amount of CO₂ or methane generated

⁴⁹ USEPA. 2013. California Statewide average. USEPA Database at http://cfpub.epa.gov/dmr/ez_search.cfm

⁵⁰ Provided in Appendix E, Table E.1 of CARB's LGOP. As specified in Appendix E, Second Assessment Report (SAR) GWPs are still used by international convention and the United States.

⁵¹ Landfill gas generation is dependent upon the amount, type, age and moisture content of the disposed waste. The United States Environmental Protection Agency (USEPA) has developed emission factors for landfill gas as specified in Section 2.4 of AP-42 which are incorporated in the LANDGEM model. This model uses a first order decay equation that will vary with time. However, there is no need to use a time-varying emissions model, as we are interested in total emissions of gases that could be emitted from a ton of waste. Therefore, instead of using the LANDGEM model, the volume of landfill gas from solid waste will be based on the total amount of degradable organic carbon.

DOC = Degradable organic carbon

DANF = Degradable anaerobic fraction (0.5)

0.5 = Assumes half anaerobic carbon is methane and other half is CO₂.

IPCC lists default values for the DOC in its 2006 Guidelines in Table 2.4.

The amount of methane and CO₂ emitted is calculated by assuming collection and destruction efficiencies. The end user will be able to select if the landfill the waste is sent to has a landfill gas collection system. The collection efficiency will be assumed to be 75% if this is selected otherwise it will be 0%. The destruction efficiency is assumed to be 98%. The calculations take into account the oxidation of methane to CO₂ as it rises through the landfill. The methane and CO₂ emitted are described as:

$$Emit_{methane} = Gen \cdot [Collect \cdot (1 - destruct) + (1 - Collect) \cdot (1 - ox)]$$

$$Emit_{CO_2} = Gen \cdot [Collect \cdot destruct + (1 - Collect) \cdot (ox) + 1]$$

Where

Emit_{methane} = Methane emitted per ton of green waste

Emit_{CO2} = Carbon dioxide emitted per ton of green waste

Gen = Amount of CO₂ or methane generated

Collect = Collection efficiency of landfill gas (75%)

Destruct = Destruction efficiency of landfill gas (98%)

Ox = Oxidation efficiency of methane (10%)

The CO₂ emissions will be classified as biogenic emissions. The amount of methane emitted will be multiplied by its GWP to convert to CO₂e.

10 Stationary Sources

Starting with CalEEMod version 2016.3.1, criteria pollutant emissions and GHG emissions from stationary sources can be integrated into the project emission totals. The user can either enter stationary sources and their operation conditions, then let the program calculate the emissions, or the user can enter stationary source emissions to the program directly. The second option is provided for stationary equipment that is not included in the program.

10.1 Emergency Generators and Fire Pumps

Emissions for emergency generators and fire pumps are calculated as:

$$\text{Emission} = \text{EF} * \text{HP} * \text{LF} * \text{Operation Hours}$$

Where:

EF = Emission factor

HP = Horsepower

LF = Load factor

In emission calculations, a default emission factor may be adjusted for unit conversion to grams/horsepower-hour.

The table below summarizes source references and assumptions to obtain default emission factors of diesel emergency generators.

Pollutant	Emission Factor Source and Assumptions for Diesel Emergency Generators
TOG	AP42 Table 3.3-1
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG
CO	CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp
NOx	CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp assumes NOx accounts for 95% of (NMHC+NOx)
SO2	Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 Btu/lb, Brake specific fuel consumption (BSFC) of 7000 Btu/hp-hr
PM10	CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp
PM2.5	CCR 2423 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5
CO2	AP42 Table 3.3-1
CH4	Based on 0.0014 kg/gallon diesel (California Climate Action Registry General Reporting Protocol), diesel density 6.943 lb/gallon, diesel heat value 19300 Btu/lb, BSFC of 7000 Btu/hp-hr

The table below summarizes sources references and assumptions to obtain default emission factors of diesel fire pumps.

Pollutant	Emission Factor Source and Assumptions for Diesel Fire Pumps
TOG	AP42 Table 3.3-1
ROG	AP42 Table 3.3-1 and assumes ROG accounts for 91% of TOG
CO	40 CFR 60.4202 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp
NOx	40 CFR 60.4202 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes NOx accounts for 95% of (NMHC+NOx)
SO2	Based on diesel fuel sulfur content 15 ppmw, diesel heat value 19300 Btu/lb, Brake specific fuel consumption (BSFC) of 7000 Btu/hp-hr
PM10	40 CFR 60.4202 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp
PM2.5	40 CFR 60.4202 for engines < 50 hp, CARB ATCM Final Regulation for engines >= 50 hp, assumes all PM10 is PM2.5
CO2	AP42 Table 3.3-1
CH4	Based on 0.0014 kg/gallon diesel (California Climate Action Registry General Reporting Protocol), diesel density 6.943 lb/gallon, diesel heat value 19300 Btu/lb, BSFC of 7000 Btu/hp-hr

The table below summarizes source references and assumptions to obtain default emission factors of natural gas emergency generators.

Pollutant	Emission Factor Source and Assumptions for Natural Gas Emergency Generators
TOG	AP42 Table 3.2-3
ROG	SCAQMD Rule 1110.2
CO	SCAQMD Rule 1110.2
NOx	SCAQMD Rule 1110.2
SO2	AP42 Table 3.2-3, assumes 100% conversion of fuel sulfur to SO2 and sulfur content of 2,000 gr/10 ⁶ scf
PM10	AP42 Table 3.2-3
PM2.5	AP42 Table 3.2-3
CO2	AP42 Table 3.3-1
CH4	AP42 Table 3.3-1

For natural gas emergency generators, conversion from emission factor in pound per MMBtu of fuel input (lb/MMBtu) to emission factor in grams per brake horsepower hour is derived as:

$$\frac{1 \text{ lb}}{\text{MMBtu}} * \frac{1 \text{ MMBtu}}{1000,000 \text{ Btu}} * \frac{7000 \text{ Btu}}{1 \text{ hp} - \text{hr}} * \frac{453.6 \text{ grams}}{1 \text{ lb}} = 3.1752 \text{ gram/hp} - \text{hr}$$

Where BSFC of 7000 Btu/hp-hr is used.

For natural gas emergency generators, conversion from emission limit of parts per million by volume (ppmv) to emission factor in pound per MMBtu of fuel input (lb/MMBtu) is performed as:

$$\frac{\text{Pollutant lb}}{\text{MMBtu}} = \text{ppmv} * \frac{1}{\text{molar volum}} * \text{MW} * \text{Fd} * 20.9 / (20.9 - \%O2)$$

Where:

Molar Volume = 379.5 dscf/lbmol @ 14.696 psia, 60 deg. F

Fd = 8579 dscf/MMBtu for 1020 Btu/scf Natural Gas @60 deg F

%O2 = Oxygen percentage in emission (Rule 1110.2 limits are based on 15% oxygen)

MW = molecular weight, lb/lb-mol.

Molecular weight for ROG is set at 86 lb/lb-mol based on Hexane.

10.2 Process Boilers

Emissions for process boilers are calculated as:

Emission = Emission Factor * Total Fuel MMBtu input

In emission calculations, a default emission factor may be adjusted for unit conversion to lb/MMBtu.

The table below summarizes source references and assumptions to obtain default emission factors of diesel boilers.

Pollutant	Emission Factor Source and Assumptions for Diesel Boilers
TOG	AP42 Table 1.3-3, Commercial/institutional/residential combustors, Distillate oil
ROG	AP42 Table 1.3-3, assumes ROG = TOG – CH ₄
CO	AP42 Table 1.3-3, No. 4 oil
NO _x	SJVAPCD Rule 4306
SO ₂	AP42 Table 1.3-3, No. 4 oil, diesel fuel sulfur content 15 ppmw
PM ₁₀	AP42 Table 1.3-6
PM _{2.5}	AP42 Table 1.3-6
CO ₂	AP42 Table 1.3-12
CH ₄	AP42 Table 1.3-3, Commercial/institutional/residential combustors, Distillate oil

Diesel heat value of 140 MMBtu/10³ gallon is used to convert emission factor in lb/10³ gal to emission factor in lb/MMBtu.

The table below summarizes source references and assumptions to obtain default emission factors of natural gas boilers.

Pollutant	Emission Factor Source and Assumptions for Natural Gas Boilers
TOG	AP42 Table 1.4-2
ROG	AP42 Table 1.4-2
CO	AP42 Table 1.4-1
NO _x	SCAQMD Rule 1146, 1146.1, 1146.2,
SO ₂	AP42 Table 1.4-2, assumes 100% conversion of fuel sulfur and sulfur content of 2,000 gr/10 ⁶ scf
PM ₁₀	AP42 Table 1.4-2
PM _{2.5}	AP42 Table 1.4-2
CO ₂	AP42 Table 1.4-2
CH ₄	AP42 Table 1.4-2

Natural gas heat value of 1020 Btu/scf is used to convert emission factor in lb/10⁶ scf to emission factor in lb/MMBtu.

11 Vegetation

The program calculates GHG emissions associated with the vegetation activities of land use change and the planting of new trees.

The program calculates GHG emissions from vegetation activities according to the IPCC protocol for vegetation since it has default values that work well with the information typically available for development projects. This method is similar to the CAR Forest Protocol⁵² and the Center for Urban Forest Research Tree Carbon Calculator⁵³, but it has more general default values available that will generally apply to all areas of California without requiring detailed site-specific information⁵⁴.

11.1 Land Use Change

A development which changes land use type results in changes in CO₂ sequestration from the atmosphere which would not have been captured had there been no land-type change.

Overall Change in Sequestered CO₂ [MT CO₂]

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

Where:

SeqCO ₂	=	mass of sequestered CO ₂ per unit area [MT CO ₂ /acre]
area	=	area of land for specific land use type [acre]
i	=	index for final land use type
j	=	index for initial land use type

Overall change in sequestered CO₂ is the summation of sequestered CO₂ from initial land use type multiplied by area of land for initial land use type subtracted by the summation of sequestered CO₂ from final land use type multiplied by area of land for final land use type. There is no reduction in GHG emissions associated with preservation of a land.

SeqCO₂

The mass of sequestered CO₂ per unit area [MT CO₂/acre] is dependent on the specific land use type. The program uses default CO₂ sequestration values from CCAR for each land use that will be preserved or created:

⁵² CCAR. 2007. Forest Sector Protocol Version 2.1. September. Available at:

https://www.arb.ca.gov/cc/ccei/forestry/forestry_protocols/ccar_forest_protocols.pdf

⁵³ Available at: <http://cares.ucdavis.edu/resource/center-urban-forest-research-tree-carbon-calculator-ctcc>

⁵⁴ The CAR Forest Protocol and Urban Forest Research Tree Carbon Calculator are not used since their main focus is annual emissions for carbon offset considerations. As such they are designed to work with very specific details of the vegetation that is not available at a CEQA level of analysis.

Land Use	Sub-Category	Default CO ₂ accumulation per acre (MT CO ₂ / acre)
Forest Land	Scrub	14.3
	Trees	111
Cropland	--	6.20
Grassland	--	4.31
Wetlands	--	0

The default annual CO₂ is calculated by multiplying total biomass (MT dry matter/acre) from IPCC data by the carbon fraction in plant material (0.47), then using the ratio of molecular weights (44/12) to convert from MT of carbon (C) to MT of carbon dioxide (CO₂).

Vegetation Type

Vegetation types are defined by IPCC as follows:

(i) Forest Land

This category includes all land with woody vegetation consistent with thresholds used to define Forest Land in the national greenhouse gas inventory. It also includes systems with a vegetation structure that currently fall below, but *in situ* could potentially reach the threshold values used by a country to define the Forest Land category.

(ii) Cropland

This category includes cropped land, including rice fields, and agro-forestry systems where the vegetation structure falls below the thresholds used for the Forest Land category.

(iii) Grassland

This category includes rangelands and pasture land that are not considered Cropland. It also includes systems with woody vegetation and other non-grass vegetation such as herbs and brushes that fall below the threshold values used in the Forest Land category. The category also includes all grassland from wild lands to recreational areas as well as agricultural and silvi-pastoral systems, consistent with national definitions.

(iv) Wetlands

This category includes areas of peat extraction and land that is covered or saturated by water for all or part of the year (e.g., peatlands) and that does not fall into the Forest Land, Cropland, Grassland or Settlements categories. It includes reservoirs as a managed sub-division and natural rivers and lakes as unmanaged sub-divisions.

Area

The user must specify area of land in acres for specific final and initial land use types. These area changes include not only the area of land that will be converted to buildings, but also areas disrupted by the construction of utility corridors, water tank sites, and associated borrow and

grading areas. Areas temporarily disturbed that will eventually recover to become vegetated will not be counted as vegetation removed as there is no net change in vegetation or land use.⁵⁵

11.2 Sequestration

Planting trees will sequester CO₂ and is considered to result in a one-time carbon-stock change. Trees sequester CO₂ while they are actively growing. The amount of CO₂ sequestered depends on the type of tree.

$$\text{Total Sequestered CO}_2 = (\text{Growing Period} \times \sum_{i=1}^n [\text{Sequestration } i \times \text{Trees } i])$$

Where:

Growing Period = Growing period for all trees, expressed in years (20).

n = Number of broad species classes.

Sequestration i = Default annual CO₂ accumulation per tree for broad species class i .

Trees i = Number of net new trees of broad species class i .

Total Sequestered CO₂ is the growing period for all trees multiplied by the summation of annual CO₂ accumulation multiplied by the number of new trees per broad species class.

Growing Period

The program assumes the IPCC active growing period of 20 years. Thereafter, the accumulation of carbon in biomass slows with age, and will be completely offset by losses from clipping, pruning, and occasional death. Actual active growing periods are subject to, among other things, species, climate regime, and planting density. Note that trees may also be replaced at the end of the 20-year cycle, which would result in additional years of carbon sequestration. However, this would be offset by the potential net release of carbon from the removal of the replaced tree.

⁵⁵ This assumption facilitates the calculation as a yearly growth rate and CO₂ removal rate does not have to be calculated. As long as the disturbed land will indeed return to its original state, this assumption is valid for time periods over 20 years.

Sequestration

The program uses default annual CO₂ accumulation per tree for broad species class as follows:

Broad species class	Default annual CO₂ accumulation per tree¹ (MT CO₂/ year)
Aspen	0.0352
Soft maple	0.0433
Mixed hardwood	0.0367
Hardwood maple	0.0521
Juniper	0.0121
Cedar/larch	0.0264
Douglas fir	0.0447
True fir/Hemlock	0.0381
Pine	0.0319
Spruce	0.0337
Miscellaneous ²	0.0354

1. IPCC's carbon (C) values converted to carbon dioxide (CO₂) using ratio of molecular weights (44/12).
2. Average of all other broad species classes. To be assumed if tree type is not known.

12 Mitigation

12.1 Construction Mitigation Measures and Regulatory Adjustments

The section below describes the types of reduction in emissions that CalEEMod incorporates. All end user information required in this section will require the end user to supply a source to support the parameter they select. This source will be displayed in the result output to enhance the communication of the assumptions used in determining the final mitigated emissions reported.

Mitigation Measures for Onsite Off-Road Construction Diesel Equipment

The emissions mitigation measures for onsite off-road construction diesel equipment include use of alternative fuel, electric equipment, diesel particulate filters (DPF), oxidation catalysts, newer tier engines, and dust suppression. The program has options allowing the user to apply mitigation measures to single pieces of equipment or the entire fleet.

Exhaust Emissions Reduction

Alternative Fuel: The use of alternative fuels (i.e., biodiesel, compressed natural gas, propane, etc.) can change both criteria and GHG emissions. Alternative fuels can change emissions (increase or decrease) for each pollutant. These values are based on values for alternative fuels in OFFROAD2011. Therefore they may not be available for all pieces of equipment. The biodiesel emissions are based on a report from NREL⁵⁶. Biodiesel emissions are separated into both biogenic and non-biogenic CO₂ emissions. These values may be a slight under estimation since no starting or evaporative emissions are calculated in the program.

Electric Equipment: The use of electric equipment reduces emissions by 100% for all criteria pollutants. However, there are indirect GHG emissions associated with the electricity use. This is calculated by converting the horsepower to kilowatts and multiplying by the electricity carbon intensity factor. This is only available for those pieces of equipment where values have been identified as listed in the CAPCOA's Quantification of Greenhouse Gas Mitigation Measures.

DPF: The use of DPFs reduces the emissions of PM₁₀ and PM_{2.5}. The program allows the end user to choose filters that meet different CARB standardized abatement and certification levels as needed⁵⁷. The program also allows the end user to enter filter specification in case a filter with higher abatement level becomes available.

Diesel Oxidation Catalyst: The use of an oxidation catalyst assumes the combination operation of a selective catalytic reduction (SCR) that reduces NO_x emissions by 0 to 40% percent. Minor PM emissions reductions are also achieved.

Newer Tier Engines: The program allows the end user to choose newer engines that meet more stringent USEPA tier emissions standards than is anticipated from the statewide fleet mix.

⁵⁶ <http://www.nrel.gov/docs/fy06osti/37508.pdf> (see Table 2)

⁵⁷ <http://www.arb.ca.gov/diesel/verdev/vt/cvt.htm>

If this option is checked, user will be required to enter the expected tier level, and CalEEMod will use the emission standard of the selected tier for the emissions calculation⁵⁸.

The mitigation measure-pollutant applicability matrix presented in the table below:

Mitigation Measure	Applicability						
	VOC	SOx	NOx	PM ₁₀	PM _{2.5}	GHG Anthropogenic	GHG Biogenic
Alternative Fuel		x	x	x	x	x	x
Electric Equipment	x	x	x	x	x	x	x
DPF				x	x		
Diesel Oxidation Catalyst/SCR			x	x	x		
Newer Tier Engines	x	x	x	x	x		
User Input	x	x	x	x	x	x	x

Fugitive Dust Emissions Reduction

The mitigation measures in this section apply the specified percent reduction in PM₁₀ or PM_{2.5} to the applicable fugitive dust calculations. Watering of unpaved roads recalculates the unpaved road equations using the updated values supplied by the user in this section. These are based on mitigation measures described by SCAQMD.

12.2 Mobile Mitigation

All mitigation associated with mobile sources is consistent with the methods described in CAPCOA's Quantification of GHG Mitigation Measures.

12.3 Hearths Mitigation Measures

The end user will be able to change the default percentage of hearths including no hearths or all natural gas hearths. This will recalculate the number of hearths and the corresponding emissions.

12.4 Architectural Coating Mitigation

The end user can select lower VOC content in paints than required by regulation. This value will be used instead of the usual emission factor.

12.5 Landscape Equipment Mitigation

The end user will be able to specify the percentage of landscape equipment that will be electric. This will be incorporated consistent with CAPCOA Mitigation Measures methodology.

⁵⁸ CARB and USEPA Off-Road Compression-Ignition (Diesel) Engine Standard available here: http://www.arb.ca.gov/msprog/ordiesel/documents/Off-Road_Diesel_Std.xls

12.6 Improve Building Envelope Beyond Title 24 part 6

The end user will enter their commitment to improve building envelope related systems (space heating, space cooling, water heating, and ventilation) beyond current (2013) Title 24 regulations. The end user will enter the percentage improvement.

12.7 Install Energy Efficient Appliances

The end user can designate the appliances that they will install that meet USEPA's Energy Star criteria. In order to meet CEQA enforceability criteria, these appliances need to be supplied by the builder. The program will use the average savings for an Energy Star appliance as reported in the Energy Star's most recent annual report. The following appliances will be available: refrigerators, dish washers, fans, and clothes washers. The reduction will only apply to these end uses.

12.8 Install Renewable or Alternative Energy systems

The end user will be able to specify the percentage of the electricity use that will be supplied from renewable or alternative energy systems. This includes energy from sources such as photovoltaic cells, wind turbines, geothermal sources, and fuel cells. The end user will enter the total annual kilowatt-hours anticipated to be generated or the percentage of the annual building energy that will be supplied by the alternative energy systems. Information on how to calculate these can be found in CAPCOA's Quantification of Greenhouse Gas Mitigation Measures.

12.9 Water Mitigation

All water mitigation methods are consistent with those described in the CAPCOA Quantifying GHG Mitigation Measures document.

12.10 Waste Mitigation

The amount of waste disposed will be reduced by the percentage entered by the user. There is no reallocation of the type of material disposed.



California Emissions Estimator Model[®]

Appendix D
Default Data Tables

Prepared for:
**California Air Pollution Control Officers Association
(CAPCOA)**

Prepared by:
**BREEZE Software, A Division of Trinity Consultants
Dallas, Texas
in collaboration with
South Coast Air Quality Management District and the
California Air Districts**

Date:
September 2016

Table 1.1: Weather Data

LocationType	DisplayName	Number Precipitation Days >0.1 inches		WindSpeed		Evapotranspiration	
		Days	Source	meter/second	Source	inches/year	Source
Counties	Alameda	63	1	2.2	4	44.33	5
	Alpine	74	1	2.2	4	40.60	5
	Amador	63	1	2.2	4	48.85	5
	Butte	71	1	2.2	4	51.55	5
	Calaveras	61	1	2.2	4	48.80	5
	Colusa	56	1	2.2	4	51.80	5
	Contra Costa	58	1	2.2	4	44.79	5
	Del Norte	113	1	2.2	4	27.70	5
	El Dorado-Lake Tahoe	70	1	2.7	3. South Lake Tahoe	47.30	5
	El Dorado-Mountain County	70	1	2.7	3. South Lake Tahoe	47.30	5
	Fresno	45	1	2.2	4	54.31	5
	Glenn	61	1	2.2	4	51.70	5
	Humboldt	103	1	2.2	4	31.38	5
	Imperial	12	1	3.4	2	75.50	5
	Inyo	34	1	2.2	4	72.66	5
	Kern-Mojave Desert	32	1	2.7	3. Bakersfield	55.91	5
	Kern-San Joaquin	32	1	2.7	3. Bakersfield	55.91	5
	Kings	37	1	2.2	4	56.98	5
	Lake	67	1	2.2	4	44.10	5
	Lassen	56	1	2.2	4	46.90	5
	Los Angeles-Mojave Desert	33	1	2.2	4	52.03	5
	Los Angeles-South Coast	33	1	2.2	4	52.03	5
	Madera	51	1	2.9	3. Madera	51.13	5
	Marin	69	1	2.2	4	40.40	5
	Mariposa	58	1	2.2	4	46.40	5
	Mendocino-Coastal	86	1	2.7	2	37.90	5
	Mendocino-Inland	86	1	2.2	2	37.90	5
	Mendocino-Rural Inland North	86	1	2.2	2	37.90	5
	Mendocino-Rural Inland South	86	1	2.2	2	37.90	5
	Merced	49	1	2.2	4	52.20	5
	Modoc	78	1	2.5	3. Alturas	43.20	5
	Mono	54	1	2.2	4	43.00	5
	Monterey	55	2	3.6	3. Monterey	45.31	5
	Napa	64	1	3.6	3. Napa	47.36	5
	Nevada	80	1	2.2	4	47.70	5
	Orange	30	1	2.2	4	47.00	5
	Placer-Lake Tahoe	74	1	2.2	4	42.61	5
	Placer-Mountain Counties	74	1	2.2	4	42.61	5
	Placer-Sacramento	74	1	2.2	4	42.61	5
	Plumas	73	1	2.2	4	39.80	5
	Riverside-Mojave Desert MDAQMD	28	1	2.6	3. Riverside	68.49	5
	Riverside-Mojave Desert SCAQMD	28	1	2.6	3. Riverside	68.49	5
	Riverside-Salton Sea	28	1	2.4	3. Riverside	68.49	5
	Riverside-South Coast	28	1	2.4	3. Riverside	68.49	5
	Sacramento	58	1	3.5	2	53.43	5
	San Benito	50	2	2.5	4	47.13	5
	San Bernardino-Mojave Desert	32	1	2.6	2	69.27	5
	San Bernardino-South Coast	32	1	2.2	4	69.27	5
	San Diego	40	1	2.6	3. San Diego	48.96	5
	San Francisco	64	1	4.6	3. San Francisco	35.10	5
	San Joaquin	51	1	2.7	3. Fresno	49.44	5
	San Luis Obispo	44	1	3.2	3. San Luis Obispo	44.45	5
San Mateo	70	1	2.2	4	42.00	5	
Santa Barbara-North of Santa Ynez	37	1	3.13	2	46.90	5	
Santa Barbara-South of Santa Ynez Range	37	1	2.73	2	46.90	5	
Santa Clara	58	1	2.2	4	44.86	5	
Santa Cruz	61	1	1.8	4	40.38	5	
Shasta	82	1	2.7	3. Redding	44.08	5	
Sierra	64	1	2.2	4	40.45	5	
Siskiyou	85	1	2.2	4	39.52	5	
Solano-Sacramento	56	1	6.8	4	50.24	5	
Solano-San Francisco	56	1	2.2	2	50.24	5	
Sonoma-North Coast	75	1	2.2	4	42.40	5	
Sonoma-San Francisco	75	1	2.2	4	42.40	5	
Stanislaus	46	1	2.2	4	51.34	5	
Sutter	61	1	2.2	4	48.45	5	
Tehama	68	1	3.13	2	53.00	5	
Trinity	88	1	2.2	4	40.05	5	
Tulare	51	1	2.2	4	50.99	5	
Tuolumne	66	1	2.2	4	47.55	5	
Ventura	31	1	2.6	2	47.98	5	
Yolo	54	1	6.8	2	52.18	5	
Yuba	72	1	3.4	3. Marysville-Yuba City	50.15	5	

Table 1.1: Weather Data

LocationType	DisplayName	Number Precipitation Days >0.1 inches		WindSpeed		Evapotranspiration	
		Days	Source	meter/second	Source	inches/year	Source
Air Basins	Great Basin Valleys	54	1	2.2	4	52.09	5
	Lake County	67	1	2.2	4	44.10	5
	Lake Tahoe	72	1	2.7	3. South Lake Tahoe	44.96	5
	Mojave Desert	31	1	2.6	2	61.42	5
	Mountain Counties	8	1	2.2	4	45.50	5
	North Central Coast	53	1	2.8	3 average	44.28	5
	North Coast	93	1	2.2	4	35.89	5
	Northeast Plateau	73	1	2.5	3 average	43.21	5
	Sacramento Valley	65	1	3.5	2	49.93	5
	Salton Sea	20	1	3.4	3 average	71.99	5
	San Diego	40	1	2.6	3. San Diego	48.96	5
	San Francisco Bay Area	64	1	2.2	4	43.64	5
	San Joaquin Valley	45	1	2.7	3 average	53.05	5
	South Central Coast	37	1	2.9	3 average	46.44	5
South Coast	31	1	2.2	4	59.20	5	
Air Districts	Amador County APCD	63	1	2.2	4	48.85	5
	Antelope Valley APCD	33	1	2.2	4	52.03	5
	Bay Area AQMD	64	1	2.2	4	43.64	5
	Butte County AQMD	71	1	2.2	4	51.55	5
	Calaveras County AQMD	61	1	2.2	4	48.80	5
	Colusa County APCD	56	1	2.2	4	51.80	5
	El Dorado County AQMD	70	1	2.7	3 average	47.30	5
	Feather River AQMD	67	1	3.4	3 average	49.30	5
	Glenn County APCD	61	1	2.2	4	51.70	5
	Great Basin UAPCD	54	1	2.2	4	52.09	5
	Imperial County APCD	12	1	3.4	2	75.50	5
	Kern County APCD	32	1	2.7	3. Bakersfield	55.91	5
	Lake County AQMD	67	1	2.2	4	44.10	5
	Lassen County APCD	56	1	2.2	4	46.90	5
	Mariposa County APCD	58	1	2.2	4	46.40	5
	Mendocino County AQMD	86	1	2.2	4	37.90	5
	Modoc County APCD	78	1	2.5	3 average	43.20	5
	Mojave Desert AQMD	30	1	2.6	2	68.88	5
	Monterey Bay Unified APCD	53	1	2.8	3 average	44.28	5
	North Coast Unified APCD	101	1	2.2	4	33.04	5
	Northern Sierra AQMD	72	1	2.2	4	42.65	5
	Northern Sonoma County APCD	75	1	2.2	4	42.40	5
	Placer County APCD	74	1	2.2	4	42.61	5
	Sacramento Metropolitan AQMD	58	1	3.5	2	53.43	5
	San Diego County APCD	40	1	2.6	3. San Diego	48.96	5
	San Joaquin Valley Unified APCD	45	1	2.7	3 average	53.05	5
	San Luis Obispo County APCD	44	1	3.2	3. San Luis Obispo	44.45	5
	Santa Barbara County APCD	37	1	2.9	3 average	46.90	5
	Shasta County AQMD	82	1	2.7	3 average	44.08	5
	Siskiyou County APCD	85	1	2.2	4	39.52	5
South Coast AQMD	31	1	2.2	4	59.20	5	
Tehama County APCD	68	1	3.13	2	53.00	5	
Tuolumne County APCD	66	1	2.2	4	47.55	5	
Ventura County APCD	31	1	2.6	2	47.98	5	
Yolo/Solano AQMD	55	1	6.8	2	51.21	5	
State	Statewide	54	1	2.2	4	47.93	5

Notes:

1. Precipitation Data based on the average of locations in this area according to data from the Western Regional Climate Center available at <http://www.wrcc.dri.edu/htmlfiles/ca/ca.01.html>
2. Data based on District provided information.
3. Wind speed data based on information from the Western Regional Climate Center available at: <http://www.wrcc.dri.edu/htmlfiles/westwind.final.html>
4. The statewide default windspeed is 2.2 meters per second.
5. Evapotranspiration rates from Appendix A of Model Water Efficient Landscape Ordinance from the California Department of Water Resources Available online at: <http://www.water.ca.gov/wateruseefficiency/docs/MWELO09-10-09.pdf>

Table 1.2: Electrical Utility Emission Factors of Greenhouse Gases

Utility Company	CO ₂ Intensity Factor	CH ₄ Intensity Factor ^a	N ₂ O Intensity Factor ^a	Reporting Year for CO ₂ ^b EF
	lb/MWhr			
Statewide Average	1,002	0.029	0.00617	2009
Anaheim Public Utilities	1,543	0.029	0.00617	2007
Austin Energy	1,083	0.029	0.00617	2008
Burbank Water & Power	1,096	0.029	0.00617	2007
City and County of San Francisco	76	0.029	0.00617	2005
City of Palo Alto Public Utilities	354	0.029	0.00617	2009
City of Vernon	761	0.029	0.00617	2013 ^c
Glendale Water & Power	1,115	0.029	0.00617	2009
Imperial Irrigation District	1,271	0.029	0.00617	2008
Los Angeles Department of Water & Power	1,228	0.029	0.00617	2007
Martines Cogen Ltd. Partnership	945	0.029	0.00617	2008
Modesto Irrigation District	833	0.029	0.00617	2007
Pacific Gas & Electric Company	641	0.029	0.00617	2008
PacifiCorp	1,656	0.029	0.00617	2009
Pasadena Water & Power	1,664	0.029	0.00617	2006
Platte River Power Authority	1,848	0.029	0.00617	2007
Riverside Public Utilities	1,326	0.029	0.00617	2007
Roseville Electric	794	0.029	0.00617	2007
Sacramento Municipal Utility District	590	0.029	0.00617	2009
Salt River Project	1,470	0.029	0.00617	2007
San Diego Gas & Electric	720	0.029	0.00617	2009
Seattle City Light	31	0.029	0.00617	2009
Sierra Pacific Resources	1,328	0.029	0.00617	2008
Southern California Edison	702	0.029	0.00617	2012 ^d
Turlock Irrigation District	790	0.029	0.00617	2008

Notes:

a. Methane and Nitrous Oxide Intensity Factors based on 2012 E-Grid for California (2009 inventory)

b. Emission Factors from May 2010 Local Government Operations Protocol

c. <http://www.theclimateregistry.org/tools-resources/reporting-protocols/general-reporting-protocol/>

d. [Click Here](#)

The report provides intensity factor of CO₂e

The CO₂ intensity factor is calculated as $705 - 25 * 0.029 - 298 * 0.00617 = 702.44$ to avoid double counting.

The 25 and 298 are GWPs used in CalEEMod2016.3.1

Table 2.1 Land Use Size Comparisons

LandUseType	LandUseSubType	Acres Per Dwelling Unit ¹	Square Feet Per Dwelling Unit ²
Residential	Single Family Housing	0.32	1800
	Apartments low rise	0.063	1000
	Apartments mid rise	0.026	1000
	Apartments high rise	0.016	1000
	Condo/townhouse	0.063	1000
	Condo/townhouse high rise	0.016	1000
	Mobile Home Park	0.13	1200
	Retirement Community	0.20	1000
	Congregate care (Assisted Living)	0.063	1000

LandUseType	LandUseSubType	LandUseSizeMetric	Acres Per Size Metric	SquareFeet	Other Per 1000 SQFT	
					Value	Metric
Educational	Day-Care Center	1000sqft	0.023	1000	18	Student
					2.8	Employee ³
Educational	Elementary School	1000sqft	0.023	1000	12	Student
					1.0	Employee ³
Educational	Junior High School	1000sqft	0.023	1000	8.5	Student
					0.8	Employee ³
Educational	High School	1000sqft	0.023	1000	7.5	Student
					0.8	Employee ³
Educational	Junior College (2yr)	1000sqft	0.023	1000	23	Student
					0.8	Employee ³
Educational	University/College (4yr)	Student	0.0042	184	1.4	Employee ³
Educational	Library	1000sqft	0.023	1000	1.1	Employee ³
Educational	Place of Worship	1000sqft	0.023	1000	20	Seat
Recreational	City Park	Acre	1	43560		
Recreational	Golf Course	Acre	1	43560		
Recreational	Recreational Swimming Pool	1000sqft	0.023	1000	143	Hole
Recreational	Racquet Club	1000sqft	0.023	1000		
Recreational	Health Club	1000sqft	0.023	1000		
Recreational	Movie Theater (No Matinee)	1000sqft	0.023	1000	0.36	Screen
					44	Seat
Recreational	Arena	1000sqft	0.32	1000	0.023	Acre
Recreational	Quality Restaurant	1000sqft	0.023	1000		
Recreational	High Turnover (Sit Down Restaurant)	1000sqft	0.023	1000		
Recreational	Fast Food Restaurant with Drive Thru	1000sqft	0.023	1000		
Recreational	Fast Food Restaurant w/o Drive Thru	1000sqft	0.023	1000		
Recreational	Hotel	Room	0.033	1452		
Recreational	Motel	Room	0.045	1960		
Parking	Parking Lot	1000sqft	0.023	1000	0.023	Acre
					2.5	Space
Parking	Unenclosed Parking Structure	1000sqft	0.023	1000	0.02	Acre
					2.5	Space
Parking	Enclosed Parking Structure	1000sqft	0.023	1000	0.02	Acre
					2.5	Space
Parking	Unenclosed Parking with Elevator	1000sqft	0.023	1000	0.02	Acre
					2.5	Space
Parking	Enclosed Parking with Elevator	1000sqft	0.023	1000	0.02	Acre
					2.5	Space
Parking	Other Non-Asphalt Surfaces	1000sqft	0.023	1000	0.02	Acre
Parking	Other Asphalt Surfaces	1000sqft	0.023	1000	0.02	Acre
Retail	Free-Standing Discount store	1000sqft	0.023	1000		
Retail	Free-Standing Discount Superstore	1000sqft	0.023	1000		
Retail	Discount Club	1000sqft	0.023	1000		
Retail	Regional Shopping Center	1000sqft	0.023	1000		
Retail	Electronic Superstore	1000sqft	0.023	1000		
Retail	Home Improvement Superstore	1000sqft	0.023	1000		
Retail	Strip Mall	1000sqft	0.023	1000		
Retail	Hardware/Paint Store	1000sqft	0.023	1000		
Retail	Supermarket	1000sqft	0.023	1000		
Retail	Convenience Market (24 hour)	1000sqft	0.023	1000		
Retail	Convenience Market with Gas Pumps	1000sqft	0.023	1000	7.1	Pump
Retail	Automobile Care Center	1000sqft	0.023	1000		
Retail	Gasoline/Service Station	Pump	0.003	141		
Commercial	Bank (with Drive-Through)	1000sqft	0.023	1000		
Commercial	General Office Building	1000sqft	0.023	1000		
Commercial	Office Park	1000sqft	0.023	1000		
Commercial	Research & Development	1000sqft	0.023	1000		
Commercial	Government Office Building	1000sqft	0.023	1000		
Commercial	Government (Civic Center)	1000sqft	0.023	1000		
Commercial	Pharmacy/Drugstore with Drive Thru	1000sqft	0.023	1000		
Commercial	Pharmacy/Drugstore w/o Drive Thru	1000sqft	0.023	1000		
Commercial	Medical Office Building	1000sqft	0.023	1000		
Commercial	Hospital	1000sqft	0.023	1000	1.40	Bed
Industrial	Unrefrigerated Warehouse-No Rail	1000sqft	0.023	1000		
Industrial	Unrefrigerated Warehouse-Rail	1000sqft	0.023	1000		
Industrial	Refrigerated Warehouse-No Rail	1000sqft	0.023	1000		
Industrial	Refrigerated Warehouse-Rail	1000sqft	0.023	1000		
Industrial	General Light Industry	1000sqft	0.023	1000		
Industrial	General Heavy Industry	1000sqft	0.023	1000		
Industrial	Industrial Park	1000sqft	0.023	1000		
Industrial	Manufacturing	1000sqft	0.023	1000		

Notes:

1. Based on ratio of trip rates for the same land uses in the ITE Trip Generation Manual.
2. The value for average dwelling unit square footage is rounded based on the average square footage reported in the RASS.
3. Values based on SCAB survey information of employees per square foot of buildings.

Table 2.2 Population per Dwelling Unit

LocationType	DisplayName	Single Family Homes	Multi-Family Homes	Source
Counties	Alameda	2.86	2.86	1
	Alpine	2.86	2.86	1
	Amador	2.86	2.86	1
	Butte	2.86	2.86	1
	Calaveras	2.86	2.86	1
	Colusa	2.86	2.86	1
	Contra Costa	2.86	2.86	1
	Del Norte	2.86	2.86	1
	El Dorado-Lake Tahoe	2.86	2.86	1
	El Dorado-Mountain County	2.86	2.86	1
	Fresno	2.86	2.86	1
	Glenn	2.86	2.86	1
	Humboldt	2.86	2.86	1
	Imperial	3.23	3.23	2
	Inyo	2.86	2.86	1
	Kern-Mojave Desert	2.86	2.86	1
	Kern-San Joaquin	2.86	2.86	1
	Kings	2.86	2.86	1
	Lake	2.86	2.86	1
	Lassen	2.86	2.86	1
	Los Angeles-Mojave Desert	2.86	2.86	1
	Los Angeles-South Coast	2.86	2.86	1
	Madera	2.86	2.86	1
	Marin	2.86	2.86	1
	Mariposa	2.86	2.86	1
	Mendocino-Coastal	2.86	2.86	1
	Mendocino-Inland	2.86	2.86	1
	Mendocino-Rural Inland North	2.86	2.86	1
	Mendocino-Rural Inland South	2.86	2.86	1
	Merced	2.86	2.86	1
	Modoc	2.86	2.86	1
	Mono	2.86	2.86	1
	Monterey	2.86	2.86	1
	Napa	2.86	2.86	1
	Nevada	2.86	2.86	1
	Orange	2.86	2.86	1
	Placer-Lake Tahoe	2.86	2.86	1
	Placer-Mountain Counties	2.86	2.86	1
	Placer-Sacramento	2.86	2.86	1
	Plumas	2.86	2.86	1
	Riverside-Mojave Desert MDAQMD	2.86	2.86	1
	Riverside-Mojave Desert SCAQMD	2.86	2.86	1
	Riverside-Salton Sea	2.86	2.86	1
	Riverside-South Coast	2.86	2.86	1
	Sacramento	2.67	2.67	2
	San Benito	2.86	2.86	1
	San Bernardino-Mojave Desert	2.86	2.86	1
	San Bernardino-South Coast	2.86	2.86	1
	San Diego	2.86	2.86	1
	San Francisco	2.86	2.86	1
San Joaquin	3.172	3.172	2	
San Luis Obispo	2.86	2.86	1	
San Mateo	2.86	2.86	1	
Santa Barbara-North of Santa Ynez	2.72	2.72	2	
Santa Barbara-South of Santa Ynez Range	2.72	2.72	2	
Santa Clara	2.86	2.86	1	
Santa Cruz	2.86	2.86	1	
Shasta	2.86	2.86	1	
Sierra	2.86	2.86	1	
Siskiyou	2.86	2.86	1	
Solano-San Francisco	2.86	2.86	1	
Solano-San Joaquin	2.86	2.86	1	
Sonoma-North Coast	2.86	2.86	1	
Sonoma-San Francisco	2.86	2.86	1	
Stanislaus	2.86	2.86	1	
Sutter	2.86	2.86	1	
Tehama	2.6	2.6	2	
Trinity	2.86	2.86	1	
Tulare	2.86	2.86	1	
Tuolumne	2.86	2.86	1	
Ventura	3.06	3.06	2	
Yolo	2.86	2.86	1	
Yuba	2.86	2.86	1	

Table 2.2 Population per Dwelling Unit

LocationType	DisplayName	Single Family Homes	Multi-Family Homes	Source
Air Basin	Great Basin Valleys	2.86	2.86	1
	Lake County	2.86	2.86	1
	Lake Tahoe	2.86	2.86	1
	Mojave Desert	2.86	2.86	1
	Mountain Counties	2.86	2.86	1
	North Central Coast	2.86	2.86	1
	North Coast	2.86	2.86	1
	Northeast Plateau	2.86	2.86	1
	Sacramento Valley	2.86	2.86	1
	Salton Sea	3.23	3.23	2
	San Diego	2.86	2.86	1
	San Francisco Bay Area	2.86	2.86	1
	San Joaquin Valley	2.86	2.86	1
	South Central Coast	2.86	2.86	1
South Coast	2.86	2.86	1	
Air District	Amador County APCD	2.86	2.86	1
	Antelope Valley APCD	2.86	2.86	1
	Bay Area AQMD	2.86	2.86	1
	Butte County AQMD	2.86	2.86	1
	Calaveras County AQMD	2.86	2.86	1
	Colusa County APCD	2.86	2.86	1
	El Dorado County APCD	2.86	2.86	1
	Feather River AQMD	2.86	2.86	1
	Glenn County APCD	2.86	2.86	1
	Great Basin UAPCD	2.86	2.86	1
	Imperial County APCD	3.23	3.23	2
	Kern County APCD	2.86	2.86	1
	Lake County AQMD	2.86	2.86	1
	Lassen County APCD	2.86	2.86	1
	Mariposa County APCD	2.86	2.86	1
	Mendocino County AQMD	2.86	2.86	1
	Modoc County APCD	2.86	2.86	1
	Mojave Desert AQMD	2.86	2.86	1
	Monterey Bay Unified APCD	2.86	2.86	1
	North Coast Unified APCD	2.86	2.86	1
	Northern Sierra AQMD	2.86	2.86	1
	Northern Sonoma County APCD	2.86	2.86	1
	Placer County APCD	2.86	2.86	1
	Sacramento Metropolitan AQMD	2.67	2.67	2
	San Diego County APCD	2.86	2.86	1
	San Joaquin Valley Unified APCD	3.172	3.172	2
	San Luis Obispo County APCD	2.86	2.86	1
	Santa Barbara County APCD	2.72	2.72	2
	Shasta County AQMD	2.86	2.86	1
	Siskiyou County APCD	2.86	2.86	1
	South Coast AQMD	2.86	2.86	1
	Tehama County APCD	2.6	2.6	2
	Tuolumne County APCD	2.86	2.86	1
Ventura County APCD	3.06	3.06	2	
Yolo/Solano AQMD	2.86	2.86	1	
Statewide	Statewide	2.86	2.86	1

Notes:

1. Based on statewide default of 2.86 people per dwelling unit.
2. Based on district supplied information.

Table 3.1 Phase Length

Project Acres	Demolition Days	Grading Days	Building Construction Days	Architectural Coating Days	Site Preparation Days	Paving Days
≥ 0	10	2	100	5	1	5
≥ 1	20	4	200	10	2	10
≥ 2	20	6	220	10	3	10
≥ 3	20	8	230	18	5	18
≥ 5	20	20	230	20	10	20
≥ 10	20	30	300	20	10	20
≥ 15	20	30	300	20	10	20
≥ 20	20	35	370	20	10	20
≥ 25	30	45	440	35	20	35
≥ 30	30	45	500	35	20	35
≥ 34	50	75	740	55	30	55
≥ 50	70	110	1110	75	40	75
≥ 75	100	155	1550	110	60	110
≥ 100	200	310	3100	220	120	220
≥ 200	300	465	4650	330	180	330
≥ 300	400	620	6200	440	240	440
≥ 400	500	775	7750	550	300	550
≥ 500	600	930	9300	660	360	660
≥ 600	700	1085	10850	770	420	770
≥ 700	800	1240	12400	880	480	880
≥ 800	900	1395	13950	990	540	990
≥ 900	1000	1550	15500	1100	600	1100
≥ 1000	10000	15500	155000	11000	6000	11000

Notes:

1. Based on construction survey performed by SCAQMD and included in Appendix E. For larger sites beyond the survey size, the number of days from several sites were added together.

Table 3.2 Equipment Lists Based on Project Acreage

PhaseType	EquipmentType	Number of Equipment																					
		≥1	≥2	≥3	≥5	≥10	≥15	≥20	≥25	≥30	≥34	≥50	≥75	≥100	≥200	≥300	≥400	≥500	≥600	≥700	≥800	≥900	≥1000
Demolition	Excavators				3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	Rubber Tired Dozers	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Concrete/Industrial Saws	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Tractors/Loaders/Backhoes	2	3	3																			
Site Preparation	Graders	1	1	1																			
	Tractors/Loaders/Backhoes	1	1	1	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	Rubber Tired Dozers		1		3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	Scrapers			1																			
Grading	Rubber Tired Dozers	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Concrete/Industrial Saws	1																					
	Tractors/Loaders/Backhoes	2	1	2	3	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Graders		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Excavators				1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Building Construction	Scrapers					2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Cranes	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Forklifts	2	1	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	Tractors/Loaders/Backhoes	2	1	1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
	Welders		3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Architectural Coating	Generator Sets		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Air Compressors	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Paving	Pavers	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Cement and Mortar Mixers	4	1	1	2																		
	Rollers	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
	Tractors/Loaders/Backhoes	1	1	1	1																		
	Paving Equipment		1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Table 3.2 Equipment Lists Based on Project Acreage

PhaseType	EquipmentType	Hours per Day per Equipment																					
		≥1	≥2	≥3	≥5	≥10	≥15	≥20	≥25	≥30	≥34	≥50	≥75	≥100	≥200	≥300	≥400	≥500	≥600	≥700	≥800	≥900	≥1000
Demolition	Excavators				8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Rubber Tired Dozers	1	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Concrete/Industrial Saws	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Tractors/Loaders/Backhoes	6	8	8																			
Site Preparation	Graders	8	8	8																			
	Tractors/Loaders/Backhoes	8	8	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Rubber Tired Dozers		7		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Scrapers			8																			
Grading	Rubber Tired Dozers	1	6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Concrete/Industrial Saws	8																					
	Tractors/Loaders/Backhoes	6	7	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Graders		6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Excavators				8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
Building Construction	Scrapers					8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Cranes	4	6	8	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
	Forklifts	6	6	7	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Tractors/Loaders/Backhoes	8	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
	Welders		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
Architectural Coating	Generator Sets		8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Air Compressors	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
Paving	Pavers	7	6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Cement and Mortar Mixers	6	6	8	6																		
	Rollers	7	7	8	6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
	Tractors/Loaders/Backhoes	7	8	8	8																		
	Paving Equipment		8	8	6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	

Notes:

1. Based on construction survey performed by SCAQMD and included in Appendix E. For acreage beyond the survey size, equipment lists were kept the same.
2. An air compressor for architectural coating phases has been added to reflect the use of such equipment in many architectural coating operations.

Table 3.3 OFFROAD Default Horsepower and Load Factors

OFFROAD Equipment Type	Horsepower	Load Factor
Aerial Lifts	63	0.31
Air Compressors	78	0.48
Bore/Drill Rigs	221	0.50
Cement and Mortar Mixers	9	0.56
Concrete/Industrial Saws	81	0.73
Cranes	231	0.29
Crawler Tractors	212	0.43
Crushing/Proc. Equipment	85	0.78
Dumpers/Tenders	16	0.38
Excavators	158	0.38
Forklifts	89	0.20
Generator Sets	84	0.74
Graders	187	0.41
Off-Highway Tractors	124	0.44
Off-Highway Trucks	402	0.38
Other Construction Equipment	172	0.42
Other General Industrial Equipment	88	0.34
Other Material Handling Equipment	168	0.40
Pavers	130	0.42
Paving Equipment	132	0.36
Plate Compactors	8	0.43
Pressure Washers	13	0.30
Pumps	84	0.74
Rollers	80	0.38
Rough Terrain Forklifts	100	0.40
Rubber Tired Dozers	247	0.40
Rubber Tired Loaders	203	0.36
Scrapers	367	0.48
Signal Boards	6	0.82
Skid Steer Loaders	65	0.37
Surfacing Equipment	263	0.30
Sweepers/Scrubbers	64	0.46
Tractors/Loaders/Backhoes	97	0.37
Trenchers	78	0.50
Welders	46	0.45

Notes:

1. Based on the weighted average horsepower (by equipment population) and load factors for the mode of the engine groupings in 2011 OFFROAD

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Aerial Lifts	1990	6	15	5.436	1.804	4.999	9.999	0.833	0.968	0.968	568.299	0.162
Aerial Lifts	1990	16	25	8.446	2.213	5	6.92	0.679	0.735	0.735	568.299	0.199
Aerial Lifts	1990	26	50	22.237	3.256	6.91	7.372	0.692	0.948	0.948	568.299	0.293
Aerial Lifts	1990	51	120	25.547	1.927	5.026	13.323	0.628	1.005	1.005	568.299	0.173
Aerial Lifts	1990	251	500	90.051	1.214	6.888	11.7	0.525	0.605	0.605	568.299	0.109
Aerial Lifts	1990	501	750	162.768	1.214	6.887	11.7	0.538	0.605	0.605	568.299	0.109
Aerial Lifts	2000	6	15	4.911	1.629	4.729	8.804	0.079	0.737	0.737	568.299	0.147
Aerial Lifts	2000	16	25	7.927	2.077	4.749	6.401	0.064	0.569	0.569	568.299	0.187
Aerial Lifts	2000	26	50	21.066	3.084	6.643	6.596	0.065	0.711	0.711	568.3	0.278
Aerial Lifts	2000	51	120	20.809	1.569	4.216	9.602	0.059	0.705	0.705	568.299	0.141
Aerial Lifts	2000	251	500	60.706	0.819	3.931	8.191	0.049	0.31	0.31	568.3	0.073
Aerial Lifts	2000	501	750	109.732	0.819	3.931	8.191	0.051	0.31	0.31	568.299	0.073
Aerial Lifts	2005	6	15	2.733	0.907	3.649	5.927	0.079	0.424	0.424	568.3	0.081
Aerial Lifts	2005	16	25	5.948	1.558	3.804	5.978	0.064	0.474	0.474	568.299	0.14
Aerial Lifts	2005	26	50	18.56	2.717	6.122	6.139	0.065	0.657	0.657	568.299	0.245
Aerial Lifts	2005	51	120	17.765	1.34	3.898	8.079	0.059	0.651	0.651	568.299	0.12
Aerial Lifts	2005	251	500	41.275	0.556	2.307	6.521	0.049	0.217	0.217	568.299	0.05
Aerial Lifts	2005	501	750	76.693	0.572	2.307	6.666	0.051	0.219	0.219	568.299	0.051
Aerial Lifts	2010	6	15	0.646663	0.543	3.62771	4.927	0.005	0.322	0.296	583.4159	0.17
Aerial Lifts	2010	16	25	0.646663	0.543	3.62771	4.927	0.005	0.322	0.296	583.4159	0.17
Aerial Lifts	2010	26	50	0.646663	0.543	3.62771	4.927	0.005	0.322	0.296	583.4159	0.17
Aerial Lifts	2010	51	120	0.478206	0.402	3.35167	5.13121	0.005	0.329	0.303	524.5713	0.153
Aerial Lifts	2010	251	500	0.542967	0.456	1.70527	7.02372	0.005	0.22	0.202	524.505	0.153
Aerial Lifts	2010	501	750	54.853	0.409	1.535	5.216	0.005	0.16	0.16	568.299	0.036
Aerial Lifts	2011	6	15	0.492997	0.414	3.43961	4.84101	0.005	0.274	0.253	581.9574	0.17
Aerial Lifts	2011	16	25	0.492997	0.414	3.43961	4.84101	0.005	0.274	0.253	581.9574	0.17
Aerial Lifts	2011	26	50	0.492997	0.414	3.43961	4.84101	0.005	0.274	0.253	581.9574	0.17
Aerial Lifts	2011	51	120	0.406188	0.341	3.31532	4.72007	0.005	0.287	0.264	523.2599	0.153
Aerial Lifts	2011	251	500	0.547278	0.46	1.71344	7.05257	0.005	0.222	0.204	523.1938	0.153
Aerial Lifts	2011	501	750	50.06	0.373	1.402	4.839	0.005	0.144	0.144	568.299	0.033
Aerial Lifts	2012	6	15	0.448839	0.377	3.41137	4.66755	0.005	0.247	0.227	580.4989	0.17
Aerial Lifts	2012	16	25	0.448839	0.377	3.41137	4.66755	0.005	0.247	0.227	580.4989	0.17
Aerial Lifts	2012	26	50	0.448839	0.377	3.41137	4.66755	0.005	0.247	0.227	580.4989	0.17
Aerial Lifts	2012	51	120	0.348327	0.293	3.28979	4.38748	0.005	0.251	0.231	521.9485	0.153
Aerial Lifts	2012	251	500	0.551589	0.463	1.72161	7.08141	0.005	0.225	0.207	521.8825	0.153
Aerial Lifts	2012	501	750	46.364	0.346	1.307	4.488	0.005	0.131	0.131	568.299	0.031
Aerial Lifts	2013	6	15	0.365114	0.307	3.29997	4.33199	0.005	0.196	0.18	577.5818	0.17
Aerial Lifts	2013	16	25	0.365114	0.307	3.29997	4.33199	0.005	0.196	0.18	577.5818	0.17
Aerial Lifts	2013	26	50	0.365114	0.307	3.29997	4.33199	0.005	0.196	0.18	577.5818	0.17
Aerial Lifts	2013	51	120	0.288639	0.243	3.25075	3.92887	0.005	0.202	0.186	519.3256	0.153
Aerial Lifts	2013	251	500	0.277309	0.233	0.97787	4.58384	0.005	0.1	0.092	519.26	0.153
Aerial Lifts	2013	501	750	43.268	0.322	1.237	4.155	0.005	0.119	0.119	568.299	0.029
Aerial Lifts	2014	6	15	0.309966	0.26	3.23337	4.09559	0.005	0.158	0.145	574.6647	0.17
Aerial Lifts	2014	16	25	0.309966	0.26	3.23337	4.09559	0.005	0.158	0.145	574.6647	0.17
Aerial Lifts	2014	26	50	0.309966	0.26	3.23337	4.09559	0.005	0.158	0.145	574.6647	0.17
Aerial Lifts	2014	51	120	0.240786	0.202	3.2195	3.37278	0.005	0.161	0.148	516.7028	0.153
Aerial Lifts	2014	251	500	0.281092	0.236	0.98271	4.60231	0.005	0.101	0.093	516.6375	0.153
Aerial Lifts	2014	501	750	40.165	0.299	1.178	3.761	0.005	0.109	0.109	568.299	0.027
Aerial Lifts	2015	6	15	0.295589	0.248	3.23342	3.93284	0.005	0.136	0.125	568.8305	0.17
Aerial Lifts	2015	16	25	0.295589	0.248	3.23342	3.93284	0.005	0.136	0.125	568.8305	0.17
Aerial Lifts	2015	26	50	0.295589	0.248	3.23342	3.93284	0.005	0.136	0.125	568.8305	0.17
Aerial Lifts	2015	51	120	0.226785	0.191	3.21782	3.1134	0.005	0.143	0.132	511.457	0.153
Aerial Lifts	2015	251	500	0.284874	0.239	0.98755	4.62077	0.005	0.102	0.094	511.3924	0.153
Aerial Lifts	2015	501	750	37.246	0.278	1.13	3.38	0.005	0.098	0.098	568.299	0.025
Aerial Lifts	2016	6	15	0.271111	0.228	3.19737	3.67571	0.005	0.105	0.096	562.9964	0.17
Aerial Lifts	2016	16	25	0.271111	0.228	3.19737	3.67571	0.005	0.105	0.096	562.9964	0.17
Aerial Lifts	2016	26	50	0.271111	0.228	3.19737	3.67571	0.005	0.105	0.096	562.9964	0.17
Aerial Lifts	2016	51	120	0.196986	0.166	3.20103	2.72218	0.005	0.112	0.103	506.2113	0.153
Aerial Lifts	2016	251	500	0.288656	0.243	0.99238	4.63924	0.005	0.103	0.095	506.1474	0.153
Aerial Lifts	2016	501	750	34.529	0.257	1.089	3.015	0.005	0.088	0.088	568.299	0.023
Aerial Lifts	2017	6	15	0.248829	0.209	3.16913	3.46956	0.005	0.079	0.073	554.2451	0.17
Aerial Lifts	2017	16	25	0.248829	0.209	3.16913	3.46956	0.005	0.079	0.073	554.2451	0.17
Aerial Lifts	2017	26	50	0.248829	0.209	3.16913	3.46956	0.005	0.079	0.073	554.2451	0.17
Aerial Lifts	2017	51	120	0.169799	0.143	3.18429	2.36368	0.005	0.083	0.077	498.3428	0.153
Aerial Lifts	2017	251	500	0.292438	0.246	0.99722	4.6577	0.005	0.105	0.096	498.2798	0.153
Aerial Lifts	2017	501	750	32.148	0.239	1.059	2.68	0.005	0.079	0.079	568.299	0.021
Aerial Lifts	2018	6	15	0.216292	0.182	3.11639	3.2101	0.005	0.054	0.05	545.4939	0.17
Aerial Lifts	2018	16	25	0.216292	0.182	3.11639	3.2101	0.005	0.054	0.05	545.4939	0.17
Aerial Lifts	2018	26	50	0.216292	0.182	3.11639	3.2101	0.005	0.054	0.05	545.4939	0.17
Aerial Lifts	2018	51	120	0.145088	0.122	3.16685	2.0636	0.005	0.057	0.052	490.4742	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Aerial Lifts	2018	251	500	0.074117	0.062	0.93655	0.63368	0.005	0.009	0.008	490.4122	0.153
Aerial Lifts	2018	501	750	30.169	0.225	1.037	2.385	0.005	0.071	0.071	568.299	0.02
Aerial Lifts	2019	6	15	0.204518	0.172	3.11451	3.07945	0.005	0.042	0.038	536.7427	0.17
Aerial Lifts	2019	16	25	0.204518	0.172	3.11451	3.07945	0.005	0.042	0.038	536.7427	0.17
Aerial Lifts	2019	26	50	0.204518	0.172	3.11451	3.07945	0.005	0.042	0.038	536.7427	0.17
Aerial Lifts	2019	51	120	0.14071	0.118	3.17254	1.97658	0.005	0.049	0.045	482.6056	0.153
Aerial Lifts	2019	251	500	0.077988	0.066	0.94139	0.63586	0.005	0.009	0.008	482.5446	0.153
Aerial Lifts	2019	501	750	28.429	0.212	1.023	2.117	0.005	0.064	0.064	568.299	0.019
Aerial Lifts	2020	6	15	0.199447	0.168	3.09942	2.95486	0.005	0.031	0.028	525.0743	0.17
Aerial Lifts	2020	16	25	0.199447	0.168	3.09942	2.95486	0.005	0.031	0.028	525.0743	0.17
Aerial Lifts	2020	26	50	0.199447	0.168	3.09942	2.95486	0.005	0.031	0.028	525.0743	0.17
Aerial Lifts	2020	51	120	0.136778	0.115	3.1768	1.86859	0.005	0.042	0.038	472.1142	0.153
Aerial Lifts	2020	251	500	0.081859	0.069	0.94623	0.63803	0.005	0.009	0.008	472.0545	0.153
Aerial Lifts	2020	501	750	26.846	0.2	1.013	1.868	0.005	0.057	0.057	568.299	0.018
Aerial Lifts	2021	6	15	0.196174	0.165	3.11369	2.92238	0.005	0.027	0.024	525.0743	0.17
Aerial Lifts	2021	16	25	0.196174	0.165	3.11369	2.92238	0.005	0.027	0.024	525.0743	0.17
Aerial Lifts	2021	26	50	0.196174	0.165	3.11369	2.92238	0.005	0.027	0.024	525.0743	0.17
Aerial Lifts	2021	51	120	0.129509	0.109	3.17624	1.74368	0.005	0.033	0.031	472.1142	0.153
Aerial Lifts	2021	251	500	0.08573	0.072	0.95107	0.64021	0.005	0.009	0.008	472.0545	0.153
Aerial Lifts	2021	501	750	25.065	0.187	1.004	1.61	0.005	0.05	0.05	568.299	0.016
Aerial Lifts	2022	6	15	0.192664	0.162	3.11231	2.90676	0.005	0.024	0.022	525.0743	0.17
Aerial Lifts	2022	16	25	0.192664	0.162	3.11231	2.90676	0.005	0.024	0.022	525.0743	0.17
Aerial Lifts	2022	26	50	0.192664	0.162	3.11231	2.90676	0.005	0.024	0.022	525.0743	0.17
Aerial Lifts	2022	51	120	0.124613	0.105	3.17602	1.62659	0.005	0.03	0.028	472.1142	0.153
Aerial Lifts	2022	251	500	0.089601	0.075	0.95591	0.64238	0.005	0.009	0.008	472.0545	0.153
Aerial Lifts	2022	501	750	23.788	0.177	0.998	1.424	0.005	0.044	0.044	568.299	0.016
Aerial Lifts	2023	6	15	0.19346	0.163	3.12196	2.89722	0.005	0.023	0.021	525.0743	0.17
Aerial Lifts	2023	16	25	0.19346	0.163	3.12196	2.89722	0.005	0.023	0.021	525.0743	0.17
Aerial Lifts	2023	26	50	0.19346	0.163	3.12196	2.89722	0.005	0.023	0.021	525.0743	0.17
Aerial Lifts	2023	51	120	0.119594	0.1	3.17029	1.5481	0.005	0.027	0.025	472.1142	0.153
Aerial Lifts	2023	251	500	0.093472	0.079	0.96074	0.64456	0.005	0.009	0.008	472.0545	0.153
Aerial Lifts	2023	501	750	22.675	0.169	0.995	1.265	0.005	0.038	0.038	568.299	0.015
Aerial Lifts	2024	6	15	0.188737	0.159	3.11285	2.88821	0.005	0.022	0.02	525.0743	0.17
Aerial Lifts	2024	16	25	0.188737	0.159	3.11285	2.88821	0.005	0.022	0.02	525.0743	0.17
Aerial Lifts	2024	26	50	0.188737	0.159	3.11285	2.88821	0.005	0.022	0.02	525.0743	0.17
Aerial Lifts	2024	51	120	0.119572	0.1	3.17255	1.52789	0.005	0.026	0.024	472.1142	0.153
Aerial Lifts	2024	251	500	0.097343	0.082	0.96558	0.64674	0.005	0.009	0.009	472.0545	0.153
Aerial Lifts	2024	501	750	21.618	0.161	0.991	1.115	0.005	0.033	0.033	568.299	0.014
Aerial Lifts	2025	6	15	0.182854	0.154	3.08837	2.87882	0.005	0.021	0.019	525.0743	0.17
Aerial Lifts	2025	16	25	0.182854	0.154	3.08837	2.87882	0.005	0.021	0.019	525.0743	0.17
Aerial Lifts	2025	26	50	0.182854	0.154	3.08837	2.87882	0.005	0.021	0.019	525.0743	0.17
Aerial Lifts	2025	51	120	0.117586	0.099	3.16742	1.51077	0.005	0.026	0.024	472.1142	0.153
Aerial Lifts	2025	251	500	0.101214	0.085	0.97042	0.64891	0.005	0.009	0.009	472.0545	0.153
Aerial Lifts	2025	501	750	20.597	0.153	0.989	0.974	0.005	0.028	0.028	568.299	0.013
Aerial Lifts	2030	6	15	1.993	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Aerial Lifts	2030	16	25	2.616	0.685	2.339	4.332	0.007	0.162	0.162	568.299	0.061
Aerial Lifts	2030	26	50	2.317	0.339	3.764	3.135	0.007	0.04	0.04	568.3	0.03
Aerial Lifts	2030	51	120	2.504	0.188	3.352	1.657	0.006	0.036	0.036	568.299	0.017
Aerial Lifts	2030	251	500	9.37	0.126	0.986	0.479	0.005	0.016	0.016	568.299	0.011
Aerial Lifts	2030	501	750	16.962	0.126	0.986	0.485	0.005	0.016	0.016	568.299	0.011
Aerial Lifts	2035	6	15	1.993	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Aerial Lifts	2035	16	25	2.616	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Aerial Lifts	2035	26	50	2.033	0.297	3.726	3.017	0.007	0.019	0.019	568.299	0.026
Aerial Lifts	2035	51	120	2.202	0.166	3.345	1.466	0.006	0.017	0.017	568.299	0.014
Aerial Lifts	2035	251	500	8.659	0.116	0.986	0.33	0.005	0.011	0.011	568.299	0.01
Aerial Lifts	2035	501	750	15.653	0.116	0.986	0.33	0.005	0.011	0.011	568.299	0.01
Aerial Lifts	2040	6	15	1.993	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Aerial Lifts	2040	16	25	2.616	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Aerial Lifts	2040	26	50	2.015	0.295	3.723	2.966	0.007	0.013	0.013	568.299	0.026
Aerial Lifts	2040	51	120	2.141	0.161	3.344	1.407	0.006	0.012	0.012	568.299	0.014
Aerial Lifts	2040	251	500	8.324	0.112	0.986	0.279	0.005	0.009	0.009	568.299	0.01
Aerial Lifts	2040	501	750	15.046	0.112	0.986	0.279	0.005	0.009	0.009	568.299	0.01
Air Compressors	1990	6	15	4.702	1.804	4.999	9.999	1.018	0.974	0.974	568.299	0.162
Air Compressors	1990	16	25	11.537	2.213	4.999	6.919	0.83	0.74	0.74	568.299	0.199
Air Compressors	1990	26	50	34.016	4.232	8.684	7.735	0.846	1.152	1.152	568.3	0.381
Air Compressors	1990	51	120	37.275	2.2	5.46	14.348	0.768	1.216	1.216	568.299	0.198
Air Compressors	1990	121	175	48.032	1.504	4.835	12.906	0.736	0.806	0.806	568.299	0.135
Air Compressors	1990	176	250	71.231	1.504	4.835	12.906	0.736	0.806	0.806	568.299	0.135
Air Compressors	1990	251	500	112.803	1.348	9.633	12.363	0.642	0.704	0.704	568.299	0.121
Air Compressors	1990	501	750	174.334	1.348	9.633	12.363	0.658	0.704	0.704	568.299	0.121

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Air Compressors	1990	751	1000	235.953	1.344	9.633	12.363	0.658	0.699	0.699	568.3	0.121
Air Compressors	2000	6	15	4.493	1.723	4.875	9.08	0.079	0.747	0.747	568.299	0.155
Air Compressors	2000	16	25	10.924	2.095	4.783	6.405	0.065	0.569	0.569	568.299	0.189
Air Compressors	2000	26	50	31.858	3.963	8.261	6.902	0.066	0.851	0.851	568.299	0.357
Air Compressors	2000	51	120	30.02	1.771	4.544	10.276	0.06	0.835	0.835	568.3	0.159
Air Compressors	2000	121	175	37.86	1.185	3.7	9.332	0.057	0.494	0.494	568.299	0.106
Air Compressors	2000	176	250	47.101	0.994	2.949	8.985	0.057	0.406	0.406	568.299	0.089
Air Compressors	2000	251	500	76.009	0.908	5.008	8.611	0.05	0.36	0.36	568.299	0.082
Air Compressors	2000	501	750	117.469	0.908	5.008	8.611	0.051	0.36	0.36	568.299	0.082
Air Compressors	2000	751	1000	176.359	1.004	5.6	9.212	0.051	0.379	0.379	568.299	0.09
Air Compressors	2005	6	15	3.634	1.394	4.38	7.817	0.079	0.621	0.621	568.299	0.125
Air Compressors	2005	16	25	8.461	1.622	3.922	6.014	0.065	0.483	0.483	568.299	0.146
Air Compressors	2005	26	50	28.493	3.545	7.671	6.447	0.066	0.792	0.792	568.299	0.319
Air Compressors	2005	51	120	25.731	1.518	4.196	8.646	0.06	0.775	0.775	568.299	0.137
Air Compressors	2005	121	175	31.762	0.994	3.339	7.911	0.057	0.428	0.428	568.299	0.089
Air Compressors	2005	176	250	33.701	0.711	1.989	7.465	0.057	0.281	0.281	568.299	0.064
Air Compressors	2005	251	500	52.734	0.63	2.602	6.868	0.05	0.252	0.252	568.299	0.056
Air Compressors	2005	501	750	83.252	0.644	2.602	7.019	0.051	0.255	0.255	568.299	0.058
Air Compressors	2005	751	1000	135.834	0.773	3.154	8.036	0.051	0.271	0.271	568.299	0.069
Air Compressors	2010	6	15	2.931	1.124	4.027	6.554	0.008	0.473	0.473	568.299	0.101
Air Compressors	2010	16	25	6.607	1.267	3.309	5.477	0.007	0.384	0.384	568.299	0.114
Air Compressors	2010	26	50	23.546	2.929	7.121	6.067	0.007	0.669	0.669	568.299	0.264
Air Compressors	2010	51	120	20.566	1.213	4.044	7.183	0.006	0.653	0.653	568.299	0.109
Air Compressors	2010	121	175	25.827	0.808	3.277	6.422	0.006	0.361	0.361	568.299	0.072
Air Compressors	2010	176	250	24.871	0.525	1.468	6.008	0.006	0.198	0.198	568.299	0.047
Air Compressors	2010	251	500	39.447	0.471	1.648	5.363	0.005	0.182	0.182	568.299	0.042
Air Compressors	2010	501	750	62.011	0.479	1.648	5.507	0.005	0.185	0.185	568.299	0.043
Air Compressors	2010	751	1000	105.623	0.601	2.147	6.994	0.005	0.209	0.209	568.299	0.054
Air Compressors	2011	6	15	2.782	1.067	3.952	6.283	0.008	0.441	0.441	568.299	0.096
Air Compressors	2011	16	25	6.215	1.192	3.179	5.36	0.007	0.361	0.361	568.299	0.107
Air Compressors	2011	26	50	22.03	2.741	6.919	5.972	0.007	0.636	0.636	568.299	0.247
Air Compressors	2011	51	120	19.321	1.14	4.005	6.805	0.006	0.626	0.626	568.299	0.102
Air Compressors	2011	121	175	24.432	0.765	3.264	6.065	0.006	0.347	0.347	568.299	0.069
Air Compressors	2011	176	250	22.999	0.485	1.372	5.603	0.006	0.177	0.177	568.299	0.043
Air Compressors	2011	251	500	36.661	0.438	1.497	4.981	0.005	0.165	0.165	568.299	0.039
Air Compressors	2011	501	750	57.58	0.445	1.497	5.123	0.005	0.167	0.167	568.299	0.04
Air Compressors	2011	751	1000	98.738	0.562	1.971	6.637	0.005	0.196	0.196	568.299	0.05
Air Compressors	2012	6	15	2.626	1.007	3.874	5.999	0.008	0.407	0.407	568.299	0.09
Air Compressors	2012	16	25	5.803	1.113	3.043	5.239	0.007	0.337	0.337	568.299	0.1
Air Compressors	2012	26	50	20.318	2.527	6.682	5.869	0.007	0.6	0.6	568.299	0.228
Air Compressors	2012	51	120	17.991	1.061	3.964	6.39	0.006	0.587	0.587	568.299	0.095
Air Compressors	2012	121	175	22.92	0.717	3.251	5.684	0.006	0.324	0.324	568.299	0.064
Air Compressors	2012	176	250	21.576	0.455	1.312	5.216	0.006	0.161	0.161	568.299	0.041
Air Compressors	2012	251	500	34.608	0.413	1.392	4.618	0.005	0.15	0.15	568.299	0.037
Air Compressors	2012	501	750	54.283	0.419	1.392	4.758	0.005	0.153	0.153	568.299	0.037
Air Compressors	2012	751	1000	91.671	0.522	1.8	6.263	0.005	0.183	0.183	568.299	0.047
Air Compressors	2013	6	15	2.471	0.948	3.796	5.716	0.008	0.373	0.373	568.299	0.085
Air Compressors	2013	16	25	5.393	1.034	2.907	5.117	0.007	0.314	0.314	568.299	0.093
Air Compressors	2013	26	50	18.508	2.302	6.43	5.643	0.007	0.553	0.553	568.299	0.207
Air Compressors	2013	51	120	16.632	0.981	3.921	5.978	0.006	0.543	0.543	568.299	0.088
Air Compressors	2013	121	175	21.377	0.669	3.238	5.321	0.006	0.298	0.298	568.299	0.06
Air Compressors	2013	176	250	20.386	0.43	1.271	4.839	0.006	0.147	0.147	568.299	0.038
Air Compressors	2013	251	500	32.936	0.393	1.313	4.268	0.005	0.137	0.137	568.3	0.035
Air Compressors	2013	501	750	51.584	0.399	1.313	4.406	0.005	0.14	0.14	568.299	0.036
Air Compressors	2013	751	1000	84.725	0.482	1.639	5.883	0.005	0.17	0.17	568.299	0.043
Air Compressors	2014	6	15	2.324	0.891	3.723	5.445	0.008	0.341	0.341	568.3	0.08
Air Compressors	2014	16	25	5.008	0.96	2.78	5	0.007	0.291	0.291	568.299	0.086
Air Compressors	2014	26	50	16.691	2.076	6.181	5.421	0.007	0.505	0.505	568.299	0.187
Air Compressors	2014	51	120	15.28	0.901	3.88	5.608	0.006	0.495	0.495	568.299	0.081
Air Compressors	2014	121	175	19.856	0.621	3.227	4.973	0.006	0.272	0.272	568.299	0.056
Air Compressors	2014	176	250	19.194	0.405	1.237	4.399	0.006	0.134	0.134	568.299	0.036
Air Compressors	2014	251	500	31.25	0.373	1.249	3.855	0.005	0.125	0.125	568.299	0.033
Air Compressors	2014	501	750	48.868	0.378	1.249	3.991	0.005	0.128	0.128	568.299	0.034
Air Compressors	2014	751	1000	78.19	0.445	1.493	5.512	0.005	0.157	0.157	568.3	0.04
Air Compressors	2015	6	15	2.191	0.84	3.658	5.196	0.008	0.311	0.311	568.299	0.075
Air Compressors	2015	16	25	4.662	0.894	2.666	4.89	0.007	0.27	0.27	568.299	0.08
Air Compressors	2015	26	50	15.015	1.868	5.968	5.223	0.007	0.459	0.459	568.299	0.168
Air Compressors	2015	51	120	13.925	0.821	3.84	5.19	0.006	0.446	0.446	568.299	0.074
Air Compressors	2015	121	175	18.243	0.571	3.218	4.504	0.006	0.245	0.245	568.299	0.051
Air Compressors	2015	176	250	18.067	0.381	1.207	3.967	0.006	0.121	0.121	568.299	0.034

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Air Compressors	2015	251	500	29.662	0.354	1.198	3.455	0.005	0.113	0.113	568.3	0.032
Air Compressors	2015	501	750	46.316	0.358	1.198	3.586	0.005	0.116	0.116	568.299	0.032
Air Compressors	2015	751	1000	71.885	0.409	1.37	5.157	0.005	0.142	0.142	568.299	0.036
Air Compressors	2016	6	15	2.109	0.809	3.622	5.023	0.008	0.289	0.289	568.299	0.073
Air Compressors	2016	16	25	4.462	0.855	2.604	4.803	0.007	0.255	0.255	568.299	0.077
Air Compressors	2016	26	50	13.429	1.67	5.779	5.042	0.007	0.415	0.415	568.299	0.15
Air Compressors	2016	51	120	12.618	0.744	3.804	4.79	0.006	0.397	0.397	568.299	0.067
Air Compressors	2016	121	175	16.69	0.522	3.211	4.052	0.006	0.219	0.219	568.299	0.047
Air Compressors	2016	176	250	17.023	0.359	1.182	3.553	0.006	0.109	0.109	568.299	0.032
Air Compressors	2016	251	500	28.188	0.337	1.155	3.08	0.005	0.102	0.102	568.299	0.03
Air Compressors	2016	501	750	43.972	0.34	1.155	3.201	0.005	0.104	0.104	568.299	0.03
Air Compressors	2016	751	1000	67.278	0.383	1.295	4.854	0.005	0.131	0.131	568.299	0.034
Air Compressors	2017	6	15	2.05	0.786	3.599	4.887	0.008	0.272	0.272	568.299	0.07
Air Compressors	2017	16	25	4.327	0.83	2.564	4.729	0.007	0.243	0.243	568.299	0.074
Air Compressors	2017	26	50	11.908	1.481	5.604	4.871	0.007	0.371	0.371	568.299	0.133
Air Compressors	2017	51	120	11.385	0.671	3.772	4.412	0.006	0.35	0.35	568.299	0.06
Air Compressors	2017	121	175	15.244	0.477	3.207	3.627	0.006	0.194	0.194	568.299	0.043
Air Compressors	2017	176	250	16.09	0.339	1.162	3.163	0.006	0.098	0.098	568.299	0.03
Air Compressors	2017	251	500	26.901	0.321	1.123	2.755	0.005	0.092	0.092	568.299	0.029
Air Compressors	2017	501	750	41.87	0.323	1.123	2.845	0.005	0.094	0.094	568.299	0.029
Air Compressors	2017	751	1000	63.572	0.362	1.246	4.583	0.005	0.121	0.121	568.299	0.032
Air Compressors	2018	6	15	1.998	0.766	3.58	4.762	0.008	0.256	0.256	568.299	0.069
Air Compressors	2018	16	25	4.211	0.807	2.531	4.661	0.007	0.232	0.232	568.3	0.072
Air Compressors	2018	26	50	10.449	1.3	5.439	4.707	0.007	0.329	0.329	568.299	0.117
Air Compressors	2018	51	120	10.218	0.603	3.744	4.05	0.006	0.304	0.304	568.3	0.054
Air Compressors	2018	121	175	13.906	0.435	3.205	3.228	0.006	0.17	0.17	568.299	0.039
Air Compressors	2018	176	250	15.223	0.321	1.146	2.797	0.006	0.087	0.087	568.3	0.029
Air Compressors	2018	251	500	25.723	0.307	1.101	2.465	0.005	0.083	0.083	568.299	0.027
Air Compressors	2018	501	750	39.953	0.309	1.101	2.533	0.005	0.084	0.084	568.299	0.027
Air Compressors	2018	751	1000	60.205	0.343	1.21	4.325	0.005	0.111	0.111	568.299	0.03
Air Compressors	2019	6	15	1.951	0.748	3.562	4.647	0.008	0.241	0.241	568.299	0.067
Air Compressors	2019	16	25	4.106	0.787	2.501	4.596	0.007	0.222	0.222	568.299	0.071
Air Compressors	2019	26	50	9.076	1.129	5.283	4.546	0.007	0.287	0.287	568.299	0.101
Air Compressors	2019	51	120	9.123	0.538	3.718	3.706	0.006	0.26	0.26	568.299	0.048
Air Compressors	2019	121	175	12.833	0.401	3.204	2.874	0.006	0.15	0.15	568.299	0.036
Air Compressors	2019	176	250	14.416	0.304	1.132	2.469	0.006	0.078	0.078	568.299	0.027
Air Compressors	2019	251	500	24.559	0.293	1.086	2.193	0.005	0.075	0.075	568.299	0.026
Air Compressors	2019	501	750	38.104	0.294	1.086	2.247	0.005	0.076	0.076	568.299	0.026
Air Compressors	2019	751	1000	56.984	0.324	1.182	4.073	0.005	0.102	0.102	568.299	0.029
Air Compressors	2020	6	15	1.907	0.731	3.546	4.542	0.008	0.227	0.227	568.299	0.066
Air Compressors	2020	16	25	4.009	0.769	2.473	4.538	0.007	0.212	0.212	568.3	0.069
Air Compressors	2020	26	50	8.048	1.001	5.164	4.397	0.007	0.25	0.25	568.299	0.09
Air Compressors	2020	51	120	8.287	0.489	3.698	3.4	0.006	0.224	0.224	568.299	0.044
Air Compressors	2020	121	175	11.957	0.374	3.203	2.558	0.006	0.133	0.133	568.299	0.033
Air Compressors	2020	176	250	13.668	0.288	1.121	2.172	0.006	0.069	0.069	568.299	0.026
Air Compressors	2020	251	500	23.406	0.279	1.076	1.935	0.005	0.067	0.067	568.299	0.025
Air Compressors	2020	501	750	36.303	0.28	1.076	1.982	0.005	0.067	0.067	568.299	0.025
Air Compressors	2020	751	1000	53.87	0.306	1.158	3.828	0.005	0.093	0.093	568.3	0.027
Air Compressors	2021	6	15	1.87	0.717	3.531	4.462	0.008	0.214	0.214	568.299	0.064
Air Compressors	2021	16	25	3.923	0.752	2.446	4.497	0.007	0.201	0.201	568.299	0.067
Air Compressors	2021	26	50	7.136	0.887	5.021	4.221	0.007	0.212	0.212	568.299	0.08
Air Compressors	2021	51	120	7.502	0.442	3.67	3.083	0.006	0.19	0.19	568.299	0.039
Air Compressors	2021	121	175	10.967	0.343	3.192	2.218	0.006	0.115	0.115	568.299	0.03
Air Compressors	2021	176	250	12.728	0.268	1.108	1.859	0.006	0.06	0.06	568.299	0.024
Air Compressors	2021	251	500	21.887	0.261	1.064	1.663	0.005	0.058	0.058	568.299	0.023
Air Compressors	2021	501	750	33.933	0.262	1.064	1.699	0.005	0.058	0.058	568.299	0.023
Air Compressors	2021	751	1000	49.951	0.284	1.134	3.565	0.005	0.082	0.082	568.3	0.025
Air Compressors	2022	6	15	1.844	0.707	3.519	4.408	0.008	0.203	0.203	568.299	0.063
Air Compressors	2022	16	25	3.857	0.739	2.426	4.47	0.007	0.193	0.193	568.299	0.066
Air Compressors	2022	26	50	6.549	0.814	4.959	4.093	0.007	0.183	0.183	568.299	0.073
Air Compressors	2022	51	120	7.001	0.413	3.662	2.844	0.006	0.165	0.165	568.299	0.037
Air Compressors	2022	121	175	10.29	0.322	3.194	1.959	0.006	0.101	0.101	568.299	0.029
Air Compressors	2022	176	250	12.099	0.255	1.102	1.617	0.006	0.052	0.052	568.3	0.023
Air Compressors	2022	251	500	20.881	0.249	1.059	1.472	0.005	0.051	0.051	568.299	0.022
Air Compressors	2022	501	750	32.363	0.25	1.059	1.502	0.005	0.051	0.051	568.299	0.022
Air Compressors	2022	751	1000	47.338	0.269	1.117	3.378	0.005	0.075	0.075	568.3	0.024
Air Compressors	2023	6	15	1.82	0.698	3.508	4.359	0.008	0.194	0.194	568.299	0.063
Air Compressors	2023	16	25	3.798	0.728	2.407	4.447	0.007	0.186	0.186	568.299	0.065
Air Compressors	2023	26	50	6.056	0.753	4.913	3.975	0.007	0.156	0.156	568.299	0.067
Air Compressors	2023	51	120	6.568	0.387	3.657	2.631	0.006	0.143	0.143	568.299	0.034

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Air Compressors	2023	121	175	9.693	0.303	3.197	1.748	0.006	0.089	0.089	568.299	0.027
Air Compressors	2023	176	250	11.532	0.243	1.099	1.42	0.006	0.045	0.045	568.299	0.021
Air Compressors	2023	251	500	19.964	0.238	1.055	1.305	0.005	0.044	0.044	568.299	0.021
Air Compressors	2023	501	750	30.933	0.239	1.055	1.331	0.005	0.044	0.044	568.299	0.021
Air Compressors	2023	751	1000	44.985	0.256	1.102	3.221	0.005	0.068	0.068	568.299	0.023
Air Compressors	2024	6	15	1.799	0.69	3.499	4.316	0.008	0.188	0.188	568.3	0.062
Air Compressors	2024	16	25	3.746	0.718	2.39	4.426	0.007	0.181	0.181	568.3	0.064
Air Compressors	2024	26	50	5.647	0.702	4.88	3.864	0.007	0.135	0.135	568.299	0.063
Air Compressors	2024	51	120	6.194	0.365	3.655	2.461	0.006	0.123	0.123	568.299	0.032
Air Compressors	2024	121	175	9.143	0.286	3.202	1.561	0.006	0.077	0.077	568.299	0.025
Air Compressors	2024	176	250	10.986	0.232	1.096	1.247	0.006	0.039	0.039	568.299	0.02
Air Compressors	2024	251	500	19.07	0.228	1.053	1.148	0.005	0.038	0.038	568.299	0.02
Air Compressors	2024	501	750	29.542	0.228	1.053	1.171	0.005	0.038	0.038	568.299	0.02
Air Compressors	2024	751	1000	42.762	0.243	1.09	3.082	0.005	0.061	0.061	568.299	0.021
Air Compressors	2025	6	15	1.781	0.683	3.491	4.278	0.008	0.183	0.183	568.3	0.061
Air Compressors	2025	16	25	3.701	0.709	2.376	4.407	0.007	0.177	0.177	568.299	0.064
Air Compressors	2025	26	50	5.297	0.659	4.851	3.755	0.007	0.116	0.116	568.299	0.059
Air Compressors	2025	51	120	5.855	0.345	3.653	2.313	0.006	0.104	0.104	568.299	0.031
Air Compressors	2025	121	175	8.602	0.269	3.205	1.383	0.006	0.065	0.065	568.299	0.024
Air Compressors	2025	176	250	10.451	0.22	1.094	1.086	0.006	0.033	0.033	568.299	0.019
Air Compressors	2025	251	500	18.188	0.217	1.051	1.001	0.005	0.032	0.032	568.299	0.019
Air Compressors	2025	501	750	28.169	0.217	1.051	1.021	0.005	0.032	0.032	568.299	0.019
Air Compressors	2025	751	1000	40.592	0.231	1.079	2.954	0.005	0.055	0.055	568.299	0.02
Air Compressors	2030	6	15	1.73	0.663	3.47	4.164	0.008	0.166	0.166	568.299	0.059
Air Compressors	2030	16	25	3.582	0.687	2.34	4.347	0.007	0.165	0.165	568.299	0.061
Air Compressors	2030	26	50	4.073	0.506	4.712	3.34	0.007	0.046	0.046	568.299	0.045
Air Compressors	2030	51	120	4.485	0.264	3.63	1.729	0.006	0.041	0.041	568.299	0.023
Air Compressors	2030	121	175	6.186	0.193	3.205	0.633	0.006	0.027	0.027	568.299	0.017
Air Compressors	2030	176	250	8.495	0.179	1.092	0.529	0.006	0.018	0.018	568.299	0.016
Air Compressors	2030	251	500	14.937	0.178	1.048	0.499	0.005	0.017	0.017	568.299	0.016
Air Compressors	2030	501	750	23.104	0.178	1.048	0.505	0.005	0.017	0.017	568.3	0.016
Air Compressors	2030	751	1000	32.103	0.182	1.049	2.6	0.005	0.033	0.033	568.299	0.016
Air Compressors	2035	6	15	1.724	0.661	3.469	4.143	0.008	0.162	0.162	568.3	0.059
Air Compressors	2035	16	25	3.574	0.685	2.339	4.332	0.007	0.162	0.162	568.299	0.061
Air Compressors	2035	26	50	3.722	0.463	4.674	3.215	0.007	0.023	0.023	568.299	0.041
Air Compressors	2035	51	120	4.047	0.238	3.623	1.53	0.006	0.02	0.02	568.299	0.021
Air Compressors	2035	121	175	5.429	0.17	3.205	0.391	0.006	0.015	0.015	568.3	0.015
Air Compressors	2035	176	250	7.862	0.166	1.091	0.347	0.006	0.012	0.012	568.299	0.014
Air Compressors	2035	251	500	13.882	0.166	1.048	0.343	0.005	0.012	0.012	568.299	0.014
Air Compressors	2035	501	750	21.455	0.166	1.048	0.344	0.005	0.012	0.012	568.299	0.014
Air Compressors	2035	751	1000	29.363	0.167	1.048	2.473	0.005	0.026	0.026	568.299	0.015
Air Compressors	2040	6	15	1.724	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Air Compressors	2040	16	25	3.574	0.685	2.339	4.332	0.007	0.161	0.161	568.3	0.061
Air Compressors	2040	26	50	3.683	0.458	4.659	3.159	0.007	0.016	0.016	568.3	0.041
Air Compressors	2040	51	120	3.94	0.232	3.619	1.468	0.006	0.015	0.015	568.299	0.02
Air Compressors	2040	121	175	5.155	0.161	3.201	0.307	0.006	0.012	0.012	568.299	0.014
Air Compressors	2040	176	250	7.58	0.16	1.09	0.291	0.006	0.01	0.01	568.299	0.014
Air Compressors	2040	251	500	13.386	0.16	1.047	0.291	0.005	0.01	0.01	568.3	0.014
Air Compressors	2040	501	750	20.688	0.16	1.047	0.291	0.005	0.01	0.01	568.299	0.014
Air Compressors	2040	751	1000	28.179	0.16	1.047	2.439	0.005	0.023	0.023	568.299	0.014
Bore/Drill Rigs	1990	6	15	4.968	1.804	4.999	9.999	1.049	0.975	0.975	568.299	0.162
Bore/Drill Rigs	1990	16	25	9.418	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Bore/Drill Rigs	1990	26	50	34.076	4.124	8.505	7.685	0.871	1.134	1.134	568.299	0.372
Bore/Drill Rigs	1990	51	120	42.911	2.09	5.23	13.647	0.791	1.172	1.172	568.299	0.188
Bore/Drill Rigs	1990	121	175	53.24	1.417	4.578	12.365	0.758	0.749	0.749	568.299	0.127
Bore/Drill Rigs	1990	176	250	70.987	1.417	4.578	12.365	0.758	0.749	0.749	568.299	0.127
Bore/Drill Rigs	1990	251	500	105.966	1.278	8.788	11.861	0.662	0.658	0.658	568.299	0.115
Bore/Drill Rigs	1990	501	750	209.372	1.278	8.788	11.861	1.018	0.67	0.67	568.3	0.115
Bore/Drill Rigs	1990	751	1000	313.129	1.267	8.788	11.861	1.018	0.656	0.656	568.3	0.114
Bore/Drill Rigs	2000	6	15	4.063	1.475	4.49	8.242	0.079	0.676	0.676	568.299	0.133
Bore/Drill Rigs	2000	16	25	8.334	1.958	4.53	6.358	0.065	0.563	0.563	568.299	0.176
Bore/Drill Rigs	2000	26	50	27.226	3.295	7.058	6.48	0.066	0.748	0.748	568.299	0.297
Bore/Drill Rigs	2000	51	120	30.002	1.461	3.947	8.27	0.06	0.726	0.726	568.299	0.131
Bore/Drill Rigs	2000	121	175	37.634	1.002	3.062	7.789	0.057	0.405	0.405	568.3	0.09
Bore/Drill Rigs	2000	176	250	32.523	0.649	1.698	7.203	0.057	0.238	0.238	568.3	0.058
Bore/Drill Rigs	2000	251	500	51.06	0.616	1.728	6.993	0.05	0.224	0.224	568.299	0.055
Bore/Drill Rigs	2000	501	750	100.887	0.616	1.728	6.993	0.052	0.224	0.224	568.299	0.055
Bore/Drill Rigs	2000	751	1000	199.748	0.808	2.73	8.005	0.052	0.282	0.282	568.299	0.072
Bore/Drill Rigs	2005	6	15	2.109	0.766	3.469	5.228	0.079	0.361	0.361	568.299	0.069
Bore/Drill Rigs	2005	16	25	3.913	0.919	2.642	5.412	0.065	0.347	0.347	568.299	0.082

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Bore/Drill Rigs	2005	26	50	20.086	2.431	5.897	5.697	0.066	0.625	0.625	568.299	0.219
Bore/Drill Rigs	2005	51	120	24.211	1.179	3.812	6.895	0.06	0.64	0.64	568.3	0.106
Bore/Drill Rigs	2005	121	175	27.251	0.725	3.035	6.246	0.057	0.328	0.328	568.299	0.065
Bore/Drill Rigs	2005	176	250	19.806	0.395	1.094	5.8	0.057	0.145	0.145	568.299	0.035
Bore/Drill Rigs	2005	251	500	27.527	0.332	1.068	5.051	0.05	0.133	0.133	568.299	0.029
Bore/Drill Rigs	2005	501	750	58.103	0.354	1.068	5.347	0.052	0.138	0.138	568.299	0.032
Bore/Drill Rigs	2005	751	1000	132.307	0.535	1.427	6.8	0.052	0.183	0.183	568.299	0.048
Bore/Drill Rigs	2010	6	15	1.052412	0.884	4.58435	5.42137	0.006	0.406	0.374	604.3903	0.176
Bore/Drill Rigs	2010	16	25	1.052412	0.884	4.58435	5.42137	0.006	0.406	0.374	604.3903	0.176
Bore/Drill Rigs	2010	26	50	1.052412	0.884	4.58435	5.42137	0.006	0.406	0.374	604.3903	0.176
Bore/Drill Rigs	2010	51	120	0.45108	0.379	3.31487	4.84273	0.005	0.313	0.288	505.1218	0.147
Bore/Drill Rigs	2010	121	175	0.420915	0.354	3.03422	4.77962	0.005	0.231	0.213	533.3654	0.155
Bore/Drill Rigs	2010	176	250	0.301395	0.253	1.2308	4.60173	0.005	0.139	0.128	525.165	0.153
Bore/Drill Rigs	2010	251	500	0.270831	0.228	1.39755	3.90774	0.005	0.131	0.12	517.3193	0.151
Bore/Drill Rigs	2010	501	750	0.19905	0.167	1.08296	3.03556	0.005	0.108	0.099	533.5969	0.155
Bore/Drill Rigs	2010	751	1000	0.189693	0.159	0.96001	4.32965	0.005	0.099	0.091	524.3394	0.153
Bore/Drill Rigs	2011	6	15	1.019273	0.856	4.60411	5.41672	0.006	0.4	0.368	602.9382	0.176
Bore/Drill Rigs	2011	16	25	1.019273	0.856	4.60411	5.41672	0.006	0.4	0.368	602.9382	0.176
Bore/Drill Rigs	2011	26	50	1.019273	0.856	4.60411	5.41672	0.006	0.4	0.368	602.9382	0.176
Bore/Drill Rigs	2011	51	120	0.435142	0.366	3.32121	4.72727	0.005	0.303	0.279	504.2171	0.147
Bore/Drill Rigs	2011	121	175	0.404145	0.34	3.03462	4.59259	0.005	0.219	0.202	531.8097	0.155
Bore/Drill Rigs	2011	176	250	0.289986	0.244	1.21102	4.34748	0.005	0.132	0.122	522.3643	0.152
Bore/Drill Rigs	2011	251	500	0.264468	0.222	1.36917	3.72448	0.005	0.125	0.115	512.0559	0.149
Bore/Drill Rigs	2011	501	750	0.195451	0.164	1.06361	2.89424	0.005	0.098	0.09	532.4717	0.155
Bore/Drill Rigs	2011	751	1000	0.200744	0.169	0.96855	4.35634	0.005	0.101	0.093	523.0129	0.153
Bore/Drill Rigs	2012	6	15	1.043679	0.877	4.70758	5.45218	0.006	0.406	0.374	601.7336	0.176
Bore/Drill Rigs	2012	16	25	1.043679	0.877	4.70758	5.45218	0.006	0.406	0.374	601.7336	0.176
Bore/Drill Rigs	2012	26	50	1.043679	0.877	4.70758	5.45218	0.006	0.406	0.374	601.7336	0.176
Bore/Drill Rigs	2012	51	120	0.439737	0.37	3.34211	4.70854	0.005	0.302	0.278	503.4212	0.147
Bore/Drill Rigs	2012	121	175	0.401496	0.337	3.05178	4.52801	0.005	0.215	0.198	531.6414	0.156
Bore/Drill Rigs	2012	176	250	0.299105	0.251	1.23628	4.31574	0.005	0.134	0.123	520.9621	0.152
Bore/Drill Rigs	2012	251	500	0.271498	0.228	1.3973	3.71268	0.005	0.124	0.115	511.0099	0.149
Bore/Drill Rigs	2012	501	750	0.195855	0.165	1.06675	2.78397	0.005	0.094	0.086	530.0759	0.155
Bore/Drill Rigs	2012	751	1000	0.210392	0.177	0.976	4.3794	0.005	0.103	0.094	521.6821	0.153
Bore/Drill Rigs	2013	6	15	1.019153	0.856	4.71588	5.44353	0.006	0.398	0.366	598.6307	0.176
Bore/Drill Rigs	2013	16	25	1.019153	0.856	4.71588	5.44353	0.006	0.398	0.366	598.6307	0.176
Bore/Drill Rigs	2013	26	50	1.019153	0.856	4.71588	5.44353	0.006	0.398	0.366	598.6307	0.176
Bore/Drill Rigs	2013	51	120	0.417421	0.351	3.33685	4.52552	0.005	0.279	0.257	501.3795	0.147
Bore/Drill Rigs	2013	121	175	0.380511	0.32	3.04123	4.3027	0.005	0.199	0.183	527.5089	0.155
Bore/Drill Rigs	2013	176	250	0.286183	0.24	1.21872	4.0183	0.005	0.124	0.114	517.8225	0.152
Bore/Drill Rigs	2013	251	500	0.260559	0.219	1.35236	3.49492	0.005	0.115	0.106	507.7707	0.149
Bore/Drill Rigs	2013	501	750	0.192576	0.162	1.07935	2.57636	0.005	0.088	0.081	527.7286	0.155
Bore/Drill Rigs	2013	751	1000	0.160352	0.135	0.96188	3.46658	0.005	0.082	0.075	519.8525	0.153
Bore/Drill Rigs	2014	6	15	0.992547	0.834	4.69064	5.33236	0.006	0.382	0.351	591.4418	0.175
Bore/Drill Rigs	2014	16	25	0.992547	0.834	4.69064	5.33236	0.006	0.382	0.351	591.4418	0.175
Bore/Drill Rigs	2014	26	50	0.992547	0.834	4.69064	5.33236	0.006	0.382	0.351	591.4418	0.175
Bore/Drill Rigs	2014	51	120	0.379477	0.319	3.32686	4.19515	0.005	0.249	0.229	501.365	0.148
Bore/Drill Rigs	2014	121	175	0.366384	0.308	3.04026	4.06571	0.005	0.186	0.171	524.0522	0.155
Bore/Drill Rigs	2014	176	250	0.258607	0.217	1.17442	3.52453	0.005	0.105	0.097	512.3362	0.151
Bore/Drill Rigs	2014	251	500	0.240166	0.202	1.239	3.18617	0.005	0.101	0.093	506.1536	0.15
Bore/Drill Rigs	2014	501	750	0.186731	0.157	1.08678	2.37324	0.005	0.08	0.074	525.2397	0.155
Bore/Drill Rigs	2014	751	1000	0.12496	0.105	0.95104	2.98435	0.005	0.058	0.054	516.5998	0.153
Bore/Drill Rigs	2015	6	15	1.007942	0.847	4.73461	5.30345	0.006	0.379	0.349	585.1707	0.175
Bore/Drill Rigs	2015	16	25	1.007942	0.847	4.73461	5.30345	0.006	0.379	0.349	585.1707	0.175
Bore/Drill Rigs	2015	26	50	1.007942	0.847	4.73461	5.30345	0.006	0.379	0.349	585.1707	0.175
Bore/Drill Rigs	2015	51	120	0.378573	0.318	3.3349	4.02775	0.005	0.239	0.22	496.9494	0.148
Bore/Drill Rigs	2015	121	175	0.359562	0.302	3.03526	3.90422	0.005	0.176	0.162	517.2068	0.154
Bore/Drill Rigs	2015	176	250	0.253803	0.213	1.17834	3.3245	0.005	0.1	0.092	506.5047	0.151
Bore/Drill Rigs	2015	251	500	0.237097	0.199	1.25564	3.00307	0.005	0.096	0.088	499.9023	0.149
Bore/Drill Rigs	2015	501	750	0.19253	0.162	1.10541	2.37558	0.005	0.081	0.074	520.4733	0.155
Bore/Drill Rigs	2015	751	1000	0.130029	0.109	0.95583	2.99386	0.005	0.059	0.054	511.2533	0.153
Bore/Drill Rigs	2016	6	15	1.034535	0.869	4.79659	5.29821	0.006	0.383	0.352	579.3262	0.175
Bore/Drill Rigs	2016	16	25	1.034535	0.869	4.79659	5.29821	0.006	0.383	0.352	579.3262	0.175
Bore/Drill Rigs	2016	26	50	1.034535	0.869	4.79659	5.29821	0.006	0.383	0.352	579.3262	0.175
Bore/Drill Rigs	2016	51	120	0.365397	0.307	3.32648	3.82088	0.005	0.221	0.204	491.6548	0.148
Bore/Drill Rigs	2016	121	175	0.33987	0.286	3.02337	3.61582	0.005	0.162	0.149	511.4327	0.154
Bore/Drill Rigs	2016	176	250	0.229144	0.193	1.13299	2.9021	0.005	0.085	0.078	502.128	0.151
Bore/Drill Rigs	2016	251	500	0.203588	0.171	1.13338	2.50955	0.005	0.077	0.071	494.7606	0.149
Bore/Drill Rigs	2016	501	750	0.182018	0.153	1.11952	2.16636	0.005	0.072	0.066	514.8829	0.155
Bore/Drill Rigs	2016	751	1000	0.137307	0.115	0.96409	3.00833	0.005	0.059	0.055	505.9997	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Bore/Drill Rigs	2017	6	15	0.957137	0.804	4.65158	5.06335	0.006	0.351	0.323	563.9173	0.173
Bore/Drill Rigs	2017	16	25	0.957137	0.804	4.65158	5.06335	0.006	0.351	0.323	563.9173	0.173
Bore/Drill Rigs	2017	26	50	0.957137	0.804	4.65158	5.06335	0.006	0.351	0.323	563.9173	0.173
Bore/Drill Rigs	2017	51	120	0.354597	0.298	3.33142	3.68536	0.005	0.211	0.194	485.322	0.149
Bore/Drill Rigs	2017	121	175	0.290928	0.244	3.0013	2.98245	0.005	0.131	0.121	503.7704	0.154
Bore/Drill Rigs	2017	176	250	0.20647	0.173	1.1021	2.5215	0.005	0.072	0.067	494.1381	0.151
Bore/Drill Rigs	2017	251	500	0.197407	0.166	1.11891	2.36747	0.005	0.072	0.067	489.4612	0.15
Bore/Drill Rigs	2017	501	750	0.184153	0.155	1.13653	2.15656	0.005	0.071	0.066	505.1248	0.155
Bore/Drill Rigs	2017	751	1000	0.143503	0.121	0.97127	3.02051	0.005	0.06	0.055	498.1225	0.153
Bore/Drill Rigs	2018	6	15	0.9127	0.767	4.56857	4.86917	0.005	0.329	0.303	554.2038	0.173
Bore/Drill Rigs	2018	16	25	0.9127	0.767	4.56857	4.86917	0.005	0.329	0.303	554.2038	0.173
Bore/Drill Rigs	2018	26	50	0.9127	0.767	4.56857	4.86917	0.005	0.329	0.303	554.2038	0.173
Bore/Drill Rigs	2018	51	120	0.320098	0.269	3.32325	3.39962	0.005	0.184	0.17	479.6719	0.149
Bore/Drill Rigs	2018	121	175	0.241793	0.203	2.96107	2.35662	0.005	0.103	0.095	495.0734	0.154
Bore/Drill Rigs	2018	176	250	0.183927	0.155	1.07328	2.15308	0.005	0.061	0.056	484.5605	0.151
Bore/Drill Rigs	2018	251	500	0.160513	0.135	1.03203	1.74562	0.005	0.052	0.048	485.6893	0.151
Bore/Drill Rigs	2018	501	750	0.14994	0.126	1.00559	1.67873	0.005	0.054	0.05	489.7301	0.152
Bore/Drill Rigs	2018	751	1000	0.149052	0.125	0.97772	3.03153	0.005	0.06	0.056	490.2427	0.153
Bore/Drill Rigs	2019	6	15	0.858717	0.722	4.49723	4.71795	0.005	0.303	0.278	545.293	0.173
Bore/Drill Rigs	2019	16	25	0.858717	0.722	4.49723	4.71795	0.005	0.303	0.278	545.293	0.173
Bore/Drill Rigs	2019	26	50	0.858717	0.722	4.49723	4.71795	0.005	0.303	0.278	545.293	0.173
Bore/Drill Rigs	2019	51	120	0.317934	0.267	3.33202	3.32102	0.005	0.18	0.166	472.4527	0.149
Bore/Drill Rigs	2019	121	175	0.215784	0.181	2.95563	2.01775	0.005	0.088	0.081	487.3552	0.154
Bore/Drill Rigs	2019	176	250	0.170614	0.143	1.06058	1.8943	0.005	0.054	0.049	475.7896	0.151
Bore/Drill Rigs	2019	251	500	0.153732	0.129	1.03449	1.55098	0.005	0.048	0.044	477.0462	0.151
Bore/Drill Rigs	2019	501	750	0.138617	0.116	0.97074	1.44865	0.005	0.048	0.044	481.8363	0.152
Bore/Drill Rigs	2019	751	1000	0.153944	0.129	0.98342	3.04139	0.005	0.061	0.056	482.3593	0.153
Bore/Drill Rigs	2020	6	15	0.851825	0.716	4.51013	4.6451	0.006	0.294	0.271	535.2948	0.173
Bore/Drill Rigs	2020	16	25	0.851825	0.716	4.51013	4.6451	0.006	0.294	0.271	535.2948	0.173
Bore/Drill Rigs	2020	26	50	0.851825	0.716	4.51013	4.6451	0.006	0.294	0.271	535.2948	0.173
Bore/Drill Rigs	2020	51	120	0.292949	0.246	3.32347	3.06601	0.005	0.159	0.146	463.5827	0.15
Bore/Drill Rigs	2020	121	175	0.207426	0.174	2.96948	1.87149	0.005	0.082	0.076	477.722	0.155
Bore/Drill Rigs	2020	176	250	0.169462	0.142	1.06766	1.80732	0.005	0.052	0.048	466.8342	0.151
Bore/Drill Rigs	2020	251	500	0.148188	0.125	1.01263	1.40938	0.005	0.045	0.041	466.8219	0.151
Bore/Drill Rigs	2020	501	750	0.129293	0.109	0.97413	1.23085	0.005	0.041	0.038	473.6679	0.153
Bore/Drill Rigs	2020	751	1000	0.158163	0.133	0.98839	3.05008	0.005	0.061	0.056	471.8492	0.153
Bore/Drill Rigs	2021	6	15	0.845639	0.711	4.54836	4.63432	0.006	0.291	0.268	535.3782	0.173
Bore/Drill Rigs	2021	16	25	0.845639	0.711	4.54836	4.63432	0.006	0.291	0.268	535.3782	0.173
Bore/Drill Rigs	2021	26	50	0.845639	0.711	4.54836	4.63432	0.006	0.291	0.268	535.3782	0.173
Bore/Drill Rigs	2021	51	120	0.258162	0.217	3.30573	2.73675	0.005	0.131	0.12	464.9725	0.15
Bore/Drill Rigs	2021	121	175	0.183454	0.154	2.9614	1.5983	0.005	0.07	0.064	477.0482	0.154
Bore/Drill Rigs	2021	176	250	0.157647	0.132	1.06418	1.55102	0.005	0.047	0.043	467.9916	0.151
Bore/Drill Rigs	2021	251	500	0.139268	0.117	1.01479	1.22069	0.005	0.041	0.038	469.8158	0.152
Bore/Drill Rigs	2021	501	750	0.116134	0.098	0.97176	0.95517	0.005	0.033	0.031	474.079	0.153
Bore/Drill Rigs	2021	751	1000	0.161679	0.136	0.99261	3.05759	0.005	0.061	0.057	471.8158	0.153
Bore/Drill Rigs	2022	6	15	0.751445	0.631	4.33356	4.28474	0.005	0.241	0.221	529.8703	0.171
Bore/Drill Rigs	2022	16	25	0.751445	0.631	4.33356	4.28474	0.005	0.241	0.221	529.8703	0.171
Bore/Drill Rigs	2022	26	50	0.751445	0.631	4.33356	4.28474	0.005	0.241	0.221	529.8703	0.171
Bore/Drill Rigs	2022	51	120	0.227425	0.191	3.25974	2.42459	0.005	0.107	0.099	462.2674	0.15
Bore/Drill Rigs	2022	121	175	0.162807	0.137	2.95431	1.28831	0.005	0.057	0.052	477.3719	0.154
Bore/Drill Rigs	2022	176	250	0.136848	0.115	1.04734	1.16293	0.005	0.037	0.034	468.7604	0.152
Bore/Drill Rigs	2022	251	500	0.12801	0.108	1.00212	1.03525	0.005	0.035	0.032	467.1923	0.151
Bore/Drill Rigs	2022	501	750	0.10809	0.091	0.97519	0.77309	0.005	0.028	0.026	477.141	0.154
Bore/Drill Rigs	2022	751	1000	0.067607	0.057	0.9452	2.27813	0.005	0.018	0.017	472.9214	0.153
Bore/Drill Rigs	2023	6	15	0.721105	0.606	4.31077	4.20831	0.005	0.226	0.208	531.9856	0.172
Bore/Drill Rigs	2023	16	25	0.721105	0.606	4.31077	4.20831	0.005	0.226	0.208	531.9856	0.172
Bore/Drill Rigs	2023	26	50	0.721105	0.606	4.31077	4.20831	0.005	0.226	0.208	531.9856	0.172
Bore/Drill Rigs	2023	51	120	0.222828	0.187	3.25754	2.35656	0.005	0.102	0.093	461.214	0.149
Bore/Drill Rigs	2023	121	175	0.149078	0.125	2.9693	1.07773	0.005	0.048	0.044	479.6465	0.155
Bore/Drill Rigs	2023	176	250	0.131367	0.11	1.04309	1.04653	0.005	0.034	0.031	469.7058	0.152
Bore/Drill Rigs	2023	251	500	0.120261	0.101	0.98883	0.89764	0.005	0.03	0.028	464.0407	0.15
Bore/Drill Rigs	2023	501	750	0.108039	0.091	0.98235	0.71664	0.005	0.026	0.024	479.2199	0.155
Bore/Drill Rigs	2023	751	1000	0.062646	0.053	0.93615	2.26246	0.005	0.018	0.016	472.0201	0.153
Bore/Drill Rigs	2024	6	15	0.724524	0.609	4.33098	4.15902	0.005	0.219	0.202	529.8661	0.171
Bore/Drill Rigs	2024	16	25	0.724524	0.609	4.33098	4.15902	0.005	0.219	0.202	529.8661	0.171
Bore/Drill Rigs	2024	26	50	0.724524	0.609	4.33098	4.15902	0.005	0.219	0.202	529.8661	0.171
Bore/Drill Rigs	2024	51	120	0.211018	0.177	3.25123	2.21634	0.005	0.09	0.083	461.2076	0.149
Bore/Drill Rigs	2024	121	175	0.148172	0.125	2.97803	1.02855	0.005	0.046	0.043	478.9441	0.155
Bore/Drill Rigs	2024	176	250	0.128551	0.108	1.04591	0.97542	0.005	0.032	0.03	470.7115	0.152
Bore/Drill Rigs	2024	251	500	0.122153	0.103	0.99426	0.86053	0.005	0.029	0.027	464.4796	0.15

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Bore/Drill Rigs	2024	501	750	0.10623	0.089	0.98491	0.67139	0.005	0.026	0.024	480.2246	0.155
Bore/Drill Rigs	2024	751	1000	0.067347	0.057	0.94304	2.27306	0.005	0.018	0.017	471.9261	0.153
Bore/Drill Rigs	2025	6	15	0.703036	0.591	4.2728	3.97786	0.005	0.193	0.178	532.8212	0.172
Bore/Drill Rigs	2025	16	25	0.703036	0.591	4.2728	3.97786	0.005	0.193	0.178	532.8212	0.172
Bore/Drill Rigs	2025	26	50	0.703036	0.591	4.2728	3.97786	0.005	0.193	0.178	532.8212	0.172
Bore/Drill Rigs	2025	51	120	0.183914	0.155	3.21758	1.96363	0.005	0.067	0.062	459.8291	0.149
Bore/Drill Rigs	2025	121	175	0.135422	0.114	2.9736	0.88787	0.005	0.039	0.036	478.2657	0.155
Bore/Drill Rigs	2025	176	250	0.127813	0.107	1.04484	0.95717	0.005	0.031	0.029	470.6535	0.152
Bore/Drill Rigs	2025	251	500	0.120956	0.102	0.99738	0.82299	0.005	0.028	0.026	467.2892	0.151
Bore/Drill Rigs	2025	501	750	0.100521	0.084	0.98349	0.59628	0.005	0.023	0.021	481.2495	0.156
Bore/Drill Rigs	2025	751	1000	0.07426	0.062	0.95339	2.28923	0.005	0.019	0.017	471.9168	0.153
Bore/Drill Rigs	2030	6	15	1.821	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Bore/Drill Rigs	2030	16	25	2.917	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Bore/Drill Rigs	2030	26	50	2.88	0.348	4.029	3.02	0.007	0.013	0.013	568.299	0.031
Bore/Drill Rigs	2030	51	120	3.773	0.183	3.434	1.415	0.006	0.012	0.012	568.299	0.016
Bore/Drill Rigs	2030	121	175	4.786	0.127	3.038	0.279	0.006	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2030	176	250	6.363	0.127	1.035	0.274	0.006	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2030	251	500	10.531	0.127	1.006	0.274	0.005	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2030	501	750	20.808	0.127	1.006	0.274	0.005	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2030	751	1000	31.441	0.127	1.006	2.372	0.005	0.021	0.021	568.299	0.011
Bore/Drill Rigs	2035	6	15	1.821	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Bore/Drill Rigs	2035	16	25	2.917	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Bore/Drill Rigs	2035	26	50	2.881	0.348	4.03	3.019	0.007	0.013	0.013	568.299	0.031
Bore/Drill Rigs	2035	51	120	3.768	0.183	3.434	1.411	0.006	0.012	0.012	568.3	0.016
Bore/Drill Rigs	2035	121	175	4.767	0.126	3.039	0.272	0.006	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2035	176	250	6.357	0.126	1.035	0.272	0.006	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2035	251	500	10.52	0.126	1.006	0.272	0.005	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2035	501	750	20.787	0.126	1.006	0.272	0.005	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2035	751	1000	31.372	0.126	1.006	2.372	0.005	0.021	0.021	568.299	0.011
Bore/Drill Rigs	2040	6	15	1.821	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Bore/Drill Rigs	2040	16	25	2.917	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Bore/Drill Rigs	2040	26	50	2.883	0.348	4.032	3.019	0.007	0.013	0.013	568.3	0.031
Bore/Drill Rigs	2040	51	120	3.77	0.183	3.435	1.411	0.006	0.012	0.012	568.299	0.016
Bore/Drill Rigs	2040	121	175	4.77	0.127	3.039	0.272	0.006	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2040	176	250	6.36	0.127	1.035	0.272	0.006	0.01	0.01	568.3	0.011
Bore/Drill Rigs	2040	251	500	10.526	0.127	1.006	0.272	0.005	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2040	501	750	20.799	0.127	1.006	0.272	0.005	0.01	0.01	568.299	0.011
Bore/Drill Rigs	2040	751	1000	31.389	0.127	1.006	2.372	0.005	0.021	0.021	568.299	0.011
Cement and Mortar Mixers	1990	6	15	2.932	1.804	4.999	9.999	1.049	0.975	0.975	568.299	0.162
Cement and Mortar Mixers	1990	16	25	9.992	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Cement and Mortar Mixers	2000	6	15	2.702	1.662	4.78	8.911	0.079	0.745	0.745	568.299	0.15
Cement and Mortar Mixers	2000	16	25	9.397	2.081	4.757	6.401	0.065	0.569	0.569	568.299	0.187
Cement and Mortar Mixers	2005	6	15	1.628	1.001	3.791	6.3	0.079	0.465	0.465	568.299	0.09
Cement and Mortar Mixers	2005	16	25	6.992	1.548	3.786	5.963	0.065	0.471	0.471	568.299	0.139
Cement and Mortar Mixers	2010	6	15	1.153	0.709	3.492	4.545	0.008	0.26	0.26	568.299	0.064
Cement and Mortar Mixers	2010	16	25	5.056	1.119	3.049	5.286	0.007	0.346	0.346	568.299	0.101
Cement and Mortar Mixers	2011	6	15	1.114	0.685	3.479	4.351	0.008	0.231	0.231	568.299	0.061
Cement and Mortar Mixers	2011	16	25	4.656	1.031	2.897	5.144	0.007	0.319	0.319	568.299	0.093
Cement and Mortar Mixers	2012	6	15	1.096	0.674	3.472	4.272	0.008	0.209	0.209	568.299	0.06
Cement and Mortar Mixers	2012	16	25	4.288	0.949	2.757	5.012	0.007	0.293	0.293	568.299	0.085
Cement and Mortar Mixers	2013	6	15	1.087	0.669	3.469	4.223	0.008	0.191	0.191	568.299	0.06
Cement and Mortar Mixers	2013	16	25	3.952	0.875	2.63	4.887	0.007	0.269	0.269	568.299	0.078
Cement and Mortar Mixers	2014	6	15	1.082	0.666	3.469	4.191	0.008	0.177	0.177	568.299	0.06
Cement and Mortar Mixers	2014	16	25	3.783	0.837	2.57	4.793	0.007	0.253	0.253	568.299	0.075
Cement and Mortar Mixers	2015	6	15	1.079	0.663	3.469	4.168	0.008	0.171	0.171	568.3	0.059
Cement and Mortar Mixers	2015	16	25	3.664	0.811	2.531	4.712	0.007	0.24	0.24	568.299	0.073
Cement and Mortar Mixers	2016	6	15	1.076	0.662	3.469	4.153	0.008	0.167	0.167	568.3	0.059
Cement and Mortar Mixers	2016	16	25	3.558	0.788	2.496	4.636	0.007	0.227	0.227	568.299	0.071
Cement and Mortar Mixers	2017	6	15	1.075	0.661	3.469	4.145	0.008	0.165	0.165	568.299	0.059
Cement and Mortar Mixers	2017	16	25	3.466	0.767	2.466	4.567	0.007	0.216	0.216	568.299	0.069
Cement and Mortar Mixers	2018	6	15	1.075	0.661	3.469	4.142	0.008	0.163	0.163	568.299	0.059
Cement and Mortar Mixers	2018	16	25	3.384	0.749	2.44	4.504	0.007	0.205	0.205	568.299	0.067
Cement and Mortar Mixers	2019	6	15	1.075	0.661	3.469	4.142	0.008	0.162	0.162	568.299	0.059
Cement and Mortar Mixers	2019	16	25	3.321	0.735	2.417	4.469	0.007	0.196	0.196	568.299	0.066
Cement and Mortar Mixers	2020	6	15	1.075	0.661	3.47	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2020	16	25	3.265	0.723	2.397	4.442	0.007	0.187	0.187	568.299	0.065
Cement and Mortar Mixers	2021	6	15	1.075	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2021	16	25	3.219	0.712	2.381	4.419	0.007	0.18	0.18	568.299	0.064
Cement and Mortar Mixers	2022	6	15	1.075	0.661	3.47	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2022	16	25	3.182	0.704	2.367	4.399	0.007	0.175	0.175	568.299	0.063

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Cement and Mortar Mixers	2023	6	15	1.075	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2023	16	25	3.151	0.697	2.356	4.382	0.007	0.172	0.172	568.299	0.062
Cement and Mortar Mixers	2024	6	15	1.075	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2024	16	25	3.129	0.693	2.349	4.369	0.007	0.17	0.17	568.299	0.062
Cement and Mortar Mixers	2025	6	15	1.075	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2025	16	25	3.113	0.689	2.344	4.357	0.007	0.168	0.168	568.299	0.062
Cement and Mortar Mixers	2030	6	15	1.075	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2030	16	25	3.095	0.685	2.339	4.333	0.007	0.162	0.162	568.299	0.061
Cement and Mortar Mixers	2035	6	15	1.075	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2035	16	25	3.095	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Cement and Mortar Mixers	2040	6	15	1.075	0.661	3.47	4.142	0.008	0.161	0.161	568.299	0.059
Cement and Mortar Mixers	2040	16	25	3.095	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	1990	16	25	4.947	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Concrete/Industrial Saws	1990	26	50	20.26	4.943	9.962	8.008	0.871	1.297	1.297	568.299	0.446
Concrete/Industrial Saws	1990	51	120	24.821	2.467	5.934	15.608	0.791	1.385	1.385	568.299	0.222
Concrete/Industrial Saws	1990	121	175	45.581	2.097	5.376	15.952	0.758	1.172	1.172	568.3	0.189
Concrete/Industrial Saws	2000	16	25	4.266	1.908	4.438	6.326	0.065	0.555	0.555	568.299	0.172
Concrete/Industrial Saws	2000	26	50	14.64	3.572	7.547	6.784	0.066	0.789	0.789	568.299	0.322
Concrete/Industrial Saws	2000	51	120	16.713	1.661	4.354	9.903	0.06	0.77	0.77	568.299	0.149
Concrete/Industrial Saws	2000	121	175	24.252	1.115	3.531	9.017	0.057	0.452	0.452	568.3	0.1
Concrete/Industrial Saws	2005	16	25	1.899	0.849	2.519	5.321	0.065	0.333	0.333	568.299	0.076
Concrete/Industrial Saws	2005	26	50	13.023	3.177	6.994	6.32	0.066	0.732	0.732	568.299	0.286
Concrete/Industrial Saws	2005	51	120	14.366	1.428	4.05	8.401	0.06	0.714	0.714	568.299	0.128
Concrete/Industrial Saws	2005	121	175	20.277	0.932	3.223	7.685	0.057	0.393	0.393	568.299	0.084
Concrete/Industrial Saws	2010	16	25	1.545	0.691	2.339	4.411	0.007	0.216	0.216	568.299	0.062
Concrete/Industrial Saws	2010	26	50	9.492	2.316	6.039	5.774	0.007	0.565	0.565	568.299	0.208
Concrete/Industrial Saws	2010	51	120	10.348	1.028	3.813	6.592	0.006	0.551	0.551	568.299	0.092
Concrete/Industrial Saws	2010	121	175	14.859	0.683	3.116	5.838	0.006	0.306	0.306	568.299	0.061
Concrete/Industrial Saws	2011	16	25	1.539	0.688	2.339	4.372	0.007	0.193	0.193	568.299	0.062
Concrete/Industrial Saws	2011	26	50	8.781	2.142	5.854	5.68	0.007	0.534	0.534	568.299	0.193
Concrete/Industrial Saws	2011	51	120	9.617	0.955	3.775	6.222	0.006	0.524	0.524	568.299	0.086
Concrete/Industrial Saws	2011	121	175	13.917	0.64	3.104	5.491	0.006	0.293	0.293	568.299	0.057
Concrete/Industrial Saws	2012	16	25	1.535	0.686	2.339	4.348	0.007	0.173	0.173	568.299	0.061
Concrete/Industrial Saws	2012	26	50	8.071	1.969	5.671	5.59	0.007	0.503	0.503	568.299	0.177
Concrete/Industrial Saws	2012	51	120	8.902	0.884	3.74	5.844	0.006	0.489	0.489	568.299	0.079
Concrete/Industrial Saws	2012	121	175	12.992	0.597	3.094	5.146	0.006	0.272	0.272	568.299	0.053
Concrete/Industrial Saws	2013	16	25	1.533	0.685	2.339	4.335	0.007	0.168	0.168	568.299	0.061
Concrete/Industrial Saws	2013	26	50	7.362	1.796	5.489	5.377	0.007	0.463	0.463	568.299	0.162
Concrete/Industrial Saws	2013	51	120	8.209	0.816	3.706	5.483	0.006	0.451	0.451	568.299	0.073
Concrete/Industrial Saws	2013	121	175	12.096	0.556	3.086	4.829	0.006	0.25	0.25	568.299	0.05
Concrete/Industrial Saws	2014	16	25	1.532	0.685	2.339	4.332	0.007	0.164	0.164	568.299	0.061
Concrete/Industrial Saws	2014	26	50	6.665	1.626	5.313	5.172	0.007	0.424	0.424	568.299	0.146
Concrete/Industrial Saws	2014	51	120	7.539	0.749	3.675	5.16	0.006	0.412	0.412	568.299	0.067
Concrete/Industrial Saws	2014	121	175	11.238	0.517	3.08	4.531	0.006	0.228	0.228	568.299	0.046
Concrete/Industrial Saws	2015	16	25	1.532	0.685	2.339	4.332	0.007	0.162	0.162	568.299	0.061
Concrete/Industrial Saws	2015	26	50	6.027	1.47	5.165	4.989	0.007	0.386	0.386	568.299	0.132
Concrete/Industrial Saws	2015	51	120	6.878	0.683	3.647	4.789	0.006	0.372	0.372	568.3	0.061
Concrete/Industrial Saws	2015	121	175	10.333	0.475	3.077	4.112	0.006	0.207	0.207	568.299	0.042
Concrete/Industrial Saws	2016	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2016	26	50	5.419	1.322	5.029	4.818	0.007	0.35	0.35	568.3	0.119
Concrete/Industrial Saws	2016	51	120	6.237	0.62	3.62	4.432	0.006	0.333	0.333	568.3	0.055
Concrete/Industrial Saws	2016	121	175	9.455	0.435	3.074	3.708	0.006	0.186	0.186	568.299	0.039
Concrete/Industrial Saws	2017	16	25	1.532	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2017	26	50	4.816	1.175	4.894	4.652	0.007	0.313	0.313	568.299	0.106
Concrete/Industrial Saws	2017	51	120	5.61	0.557	3.595	4.086	0.006	0.294	0.294	568.299	0.05
Concrete/Industrial Saws	2017	121	175	8.602	0.395	3.073	3.316	0.006	0.165	0.165	568.299	0.035
Concrete/Industrial Saws	2018	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2018	26	50	4.233	1.032	4.766	4.492	0.007	0.277	0.277	568.299	0.093
Concrete/Industrial Saws	2018	51	120	5.014	0.498	3.571	3.754	0.006	0.256	0.256	568.299	0.044
Concrete/Industrial Saws	2018	121	175	7.805	0.359	3.072	2.945	0.006	0.145	0.145	568.299	0.032
Concrete/Industrial Saws	2019	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2019	26	50	3.686	0.899	4.645	4.338	0.007	0.242	0.242	568.299	0.081
Concrete/Industrial Saws	2019	51	120	4.463	0.443	3.55	3.441	0.006	0.22	0.22	568.3	0.04
Concrete/Industrial Saws	2019	121	175	7.177	0.33	3.072	2.618	0.006	0.128	0.128	568.299	0.029
Concrete/Industrial Saws	2020	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2020	26	50	3.271	0.798	4.552	4.196	0.007	0.212	0.212	568.299	0.072
Concrete/Industrial Saws	2020	51	120	4.042	0.401	3.535	3.163	0.006	0.19	0.19	568.299	0.036
Concrete/Industrial Saws	2020	121	175	6.669	0.306	3.072	2.324	0.006	0.114	0.114	568.299	0.027
Concrete/Industrial Saws	2021	16	25	1.532	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2021	26	50	2.959	0.722	4.481	4.063	0.007	0.184	0.184	568.3	0.065

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Concrete/Industrial Saws	2021	51	120	3.721	0.369	3.523	2.913	0.006	0.166	0.166	568.299	0.033
Concrete/Industrial Saws	2021	121	175	6.227	0.286	3.072	2.055	0.006	0.101	0.101	568.299	0.025
Concrete/Industrial Saws	2022	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2022	26	50	2.705	0.66	4.422	3.936	0.007	0.158	0.158	568.3	0.059
Concrete/Industrial Saws	2022	51	120	3.457	0.343	3.514	2.686	0.006	0.144	0.144	568.299	0.031
Concrete/Industrial Saws	2022	121	175	5.819	0.267	3.072	1.806	0.006	0.089	0.089	568.3	0.024
Concrete/Industrial Saws	2023	16	25	1.532	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2023	26	50	2.484	0.606	4.372	3.815	0.007	0.134	0.134	568.299	0.054
Concrete/Industrial Saws	2023	51	120	3.223	0.32	3.507	2.478	0.006	0.123	0.123	568.3	0.028
Concrete/Industrial Saws	2023	121	175	5.453	0.25	3.072	1.599	0.006	0.077	0.077	568.299	0.022
Concrete/Industrial Saws	2024	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2024	26	50	2.303	0.561	4.33	3.701	0.007	0.115	0.115	568.3	0.05
Concrete/Industrial Saws	2024	51	120	3.023	0.3	3.5	2.315	0.006	0.106	0.106	568.299	0.027
Concrete/Industrial Saws	2024	121	175	5.117	0.235	3.072	1.418	0.006	0.067	0.067	568.299	0.021
Concrete/Industrial Saws	2025	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2025	26	50	2.153	0.525	4.297	3.592	0.007	0.099	0.099	568.299	0.047
Concrete/Industrial Saws	2025	51	120	2.849	0.283	3.495	2.176	0.006	0.089	0.089	568.3	0.025
Concrete/Industrial Saws	2025	121	175	4.8	0.22	3.073	1.249	0.006	0.056	0.056	568.3	0.019
Concrete/Industrial Saws	2030	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2030	26	50	1.679	0.409	4.199	3.222	0.007	0.041	0.041	568.299	0.036
Concrete/Industrial Saws	2030	51	120	2.226	0.221	3.48	1.667	0.006	0.036	0.036	568.299	0.019
Concrete/Industrial Saws	2030	121	175	3.551	0.163	3.074	0.59	0.006	0.025	0.025	568.299	0.014
Concrete/Industrial Saws	2035	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2035	26	50	1.54	0.375	4.174	3.107	0.007	0.021	0.021	568.3	0.033
Concrete/Industrial Saws	2035	51	120	2.015	0.2	3.476	1.491	0.006	0.018	0.018	568.299	0.018
Concrete/Industrial Saws	2035	121	175	3.121	0.143	3.075	0.374	0.006	0.014	0.014	568.299	0.012
Concrete/Industrial Saws	2040	16	25	1.532	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Concrete/Industrial Saws	2040	26	50	1.532	0.373	4.175	3.058	0.007	0.014	0.014	568.299	0.033
Concrete/Industrial Saws	2040	51	120	1.968	0.195	3.477	1.434	0.006	0.013	0.013	568.299	0.017
Concrete/Industrial Saws	2040	121	175	2.965	0.136	3.076	0.297	0.006	0.011	0.011	568.3	0.012
Cranes	1990	26	50	13.537	5.179	10.396	8.093	0.871	1.345	1.345	568.299	0.467
Cranes	1990	51	120	14.178	2.508	5.983	15.674	0.791	1.427	1.427	568.299	0.226
Cranes	1990	121	175	18.412	2.033	5.387	15.601	0.758	1.142	1.142	568.299	0.183
Cranes	1990	176	250	25.703	2.033	5.387	15.601	0.758	1.142	1.142	568.299	0.183
Cranes	1990	251	500	36.191	1.782	12.529	14.718	0.662	0.968	0.968	568.299	0.16
Cranes	1990	501	750	60.897	1.782	12.529	14.718	1.018	0.986	0.986	568.299	0.16
Cranes	1990	1001	9999	194.538	1.778	12.529	14.718	1.018	0.98	0.98	568.299	0.16
Cranes	2000	26	50	12.119	4.636	9.507	7.163	0.066	0.958	0.958	568.3	0.418
Cranes	2000	51	120	10.887	1.926	4.81	10.905	0.06	0.93	0.93	568.299	0.173
Cranes	2000	121	175	11.77	1.299	3.932	9.929	0.057	0.552	0.552	568.299	0.117
Cranes	2000	176	250	14.291	1.13	3.285	9.635	0.057	0.47	0.47	568.299	0.101
Cranes	2000	251	500	20.704	1.019	5.545	9.139	0.05	0.411	0.411	568.299	0.092
Cranes	2000	501	750	34.838	1.019	5.545	9.139	0.052	0.411	0.411	568.299	0.092
Cranes	2000	1001	9999	116.509	1.064	6.045	9.643	0.052	0.394	0.394	568.299	0.096
Cranes	2005	26	50	10.96	4.193	8.893	6.736	0.066	0.898	0.898	568.3	0.378
Cranes	2005	51	120	9.53	1.686	4.493	9.357	0.06	0.875	0.875	568.299	0.152
Cranes	2005	121	175	10.036	1.108	3.6	8.542	0.057	0.487	0.487	568.299	0.099
Cranes	2005	176	250	10.718	0.847	2.367	8.163	0.057	0.343	0.343	568.299	0.076
Cranes	2005	251	500	15.234	0.75	3.287	7.448	0.05	0.303	0.303	568.299	0.067
Cranes	2005	501	750	25.971	0.76	3.283	7.598	0.052	0.305	0.305	568.299	0.068
Cranes	2005	1001	9999	91.74	0.838	3.718	8.503	0.052	0.293	0.293	568.299	0.075
Cranes	2010	26	50	2.786882	2.342	7.37084	6.30432	0.005	0.665	0.612	575.653	0.168
Cranes	2010	51	120	1.626435	1.367	5.06328	11.2099	0.005	0.834	0.767	522.2692	0.152
Cranes	2010	121	175	0.999512	0.84	3.96843	9.06236	0.005	0.483	0.445	527.7153	0.154
Cranes	2010	176	250	0.826087	0.694	2.85637	8.39974	0.005	0.383	0.353	525.6477	0.153
Cranes	2010	251	500	0.629842	0.529	4.77692	7.05496	0.005	0.292	0.268	524.2494	0.153
Cranes	2010	501	750	0.3105	0.261	1.59747	4.49648	0.005	0.149	0.137	523.8164	0.152
Cranes	2010	1001	9999	0.387608	0.326	1.00751	6.39903	0.005	0.151	0.139	524.505	0.153
Cranes	2011	26	50	2.66715	2.241	7.21121	6.2271	0.005	0.641	0.59	574.2181	0.168
Cranes	2011	51	120	1.579127	1.327	5.02442	10.9169	0.005	0.81	0.745	521.0055	0.152
Cranes	2011	121	175	0.990868	0.833	3.9727	8.96629	0.005	0.48	0.441	526.3466	0.154
Cranes	2011	176	250	0.818849	0.688	2.82731	8.29972	0.005	0.379	0.349	524.3412	0.153
Cranes	2011	251	500	0.613791	0.516	4.61471	6.85019	0.005	0.283	0.26	523.002	0.153
Cranes	2011	501	750	0.317708	0.267	1.60931	4.47987	0.005	0.151	0.139	522.4977	0.152
Cranes	2011	1001	9999	0.392668	0.33	1.01544	6.442	0.005	0.153	0.141	523.1938	0.153
Cranes	2012	26	50	2.575229	2.164	7.10245	6.16881	0.005	0.622	0.573	572.7834	0.168
Cranes	2012	51	120	1.549708	1.302	4.99918	10.7338	0.005	0.795	0.732	519.357	0.152
Cranes	2012	121	175	0.992021	0.834	3.98552	8.9416	0.005	0.481	0.442	525.0081	0.154
Cranes	2012	176	250	0.82388	0.692	2.83394	8.30152	0.005	0.381	0.35	522.9802	0.153
Cranes	2012	251	500	0.612564	0.515	4.5553	6.7893	0.005	0.281	0.259	521.6408	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Cranes	2012	501	750	0.324471	0.273	1.62066	4.45619	0.005	0.152	0.14	521.1061	0.152
Cranes	2012	1001	9999	0.397633	0.334	1.02322	6.48415	0.005	0.156	0.144	521.8825	0.153
Cranes	2013	26	50	2.54578	2.139	7.11869	6.10837	0.005	0.61	0.561	569.9097	0.168
Cranes	2013	51	120	1.506211	1.266	4.95084	10.4655	0.005	0.775	0.713	516.6909	0.152
Cranes	2013	121	175	0.982629	0.826	3.98019	8.83222	0.005	0.476	0.438	522.3332	0.154
Cranes	2013	176	250	0.813083	0.683	2.80099	8.15558	0.005	0.375	0.345	520.3446	0.153
Cranes	2013	251	500	0.59291	0.498	4.36265	6.51563	0.005	0.27	0.248	519.0961	0.153
Cranes	2013	501	750	0.327629	0.275	1.62896	4.36739	0.005	0.15	0.138	518.355	0.152
Cranes	2013	1001	9999	0.402502	0.338	1.03085	6.5255	0.005	0.159	0.146	519.26	0.153
Cranes	2014	26	50	2.516704	2.115	7.12566	6.09324	0.005	0.607	0.559	567.0058	0.168
Cranes	2014	51	120	1.481452	1.245	4.92305	10.3017	0.005	0.765	0.704	514.0286	0.152
Cranes	2014	121	175	0.944168	0.793	3.93186	8.47052	0.005	0.457	0.42	519.5114	0.154
Cranes	2014	176	250	0.786323	0.661	2.72625	7.86026	0.005	0.36	0.331	517.6833	0.153
Cranes	2014	251	500	0.574656	0.483	4.17708	6.26415	0.005	0.26	0.239	516.5784	0.153
Cranes	2014	501	750	0.333096	0.28	1.63547	4.32737	0.005	0.151	0.139	515.6071	0.152
Cranes	2014	1001	9999	0.143297	0.12	0.94782	2.28075	0.005	0.054	0.05	516.6375	0.153
Cranes	2015	26	50	2.483294	2.087	7.12517	6.07491	0.005	0.601	0.552	561.2236	0.168
Cranes	2015	51	120	1.444394	1.214	4.88366	10.0604	0.005	0.747	0.687	508.8366	0.152
Cranes	2015	121	175	0.930749	0.782	3.91821	8.3254	0.005	0.45	0.414	514.2598	0.154
Cranes	2015	176	250	0.764242	0.642	2.65334	7.62156	0.005	0.348	0.32	512.4484	0.153
Cranes	2015	251	500	0.565318	0.475	4.10962	6.12404	0.005	0.253	0.233	511.1972	0.153
Cranes	2015	501	750	0.340293	0.286	1.64279	4.31183	0.005	0.152	0.14	510.3342	0.152
Cranes	2015	1001	9999	0.156078	0.131	0.95679	2.29477	0.005	0.055	0.051	511.3924	0.153
Cranes	2016	26	50	2.535089	2.13	7.2684	6.11027	0.005	0.61	0.561	555.4414	0.168
Cranes	2016	51	120	1.373103	1.154	4.79702	9.60772	0.005	0.709	0.653	503.5992	0.152
Cranes	2016	121	175	0.884915	0.744	3.86156	7.88718	0.005	0.427	0.393	508.9515	0.154
Cranes	2016	176	250	0.741297	0.623	2.5822	7.38068	0.005	0.335	0.308	507.1552	0.153
Cranes	2016	251	500	0.527153	0.443	3.83445	5.64865	0.005	0.233	0.215	506.0882	0.153
Cranes	2016	501	750	0.347738	0.292	1.65024	4.31387	0.005	0.153	0.141	505.0695	0.152
Cranes	2016	1001	9999	0.168646	0.142	0.96562	2.30856	0.005	0.056	0.052	506.1474	0.153
Cranes	2017	26	50	2.585562	2.173	7.40804	6.14479	0.005	0.62	0.57	546.7815	0.168
Cranes	2017	51	120	1.304913	1.096	4.71022	9.15389	0.005	0.678	0.624	495.7534	0.152
Cranes	2017	121	175	0.828528	0.696	3.78744	7.36009	0.005	0.397	0.366	501.093	0.154
Cranes	2017	176	250	0.667136	0.561	2.38452	6.65526	0.005	0.297	0.273	499.3721	0.153
Cranes	2017	251	500	0.488095	0.41	3.54746	5.23184	0.005	0.212	0.195	498.439	0.153
Cranes	2017	501	750	0.34114	0.287	1.63305	4.1579	0.005	0.147	0.135	497.1865	0.152
Cranes	2017	1001	9999	0.181003	0.152	0.97429	2.32212	0.005	0.057	0.053	498.2798	0.153
Cranes	2018	26	50	2.466121	2.072	7.24744	6.00385	0.005	0.624	0.574	538.1219	0.168
Cranes	2018	51	120	1.108698	0.932	4.45237	7.93075	0.005	0.583	0.536	488.1172	0.152
Cranes	2018	121	175	0.739223	0.621	3.66571	6.5572	0.005	0.351	0.323	493.0451	0.153
Cranes	2018	176	250	0.574877	0.483	2.13445	5.77298	0.005	0.25	0.23	491.4069	0.153
Cranes	2018	251	500	0.440014	0.37	3.1871	4.63433	0.005	0.187	0.172	490.8912	0.153
Cranes	2018	501	750	0.322048	0.271	1.61304	3.7688	0.005	0.137	0.126	489.0536	0.152
Cranes	2018	1001	9999	0.193147	0.162	0.98282	2.33544	0.005	0.058	0.054	490.4122	0.153
Cranes	2019	26	50	2.434147	2.045	7.24465	5.95197	0.005	0.615	0.566	529.4626	0.168
Cranes	2019	51	120	0.955908	0.803	4.26491	6.95786	0.005	0.5	0.46	480.3251	0.152
Cranes	2019	121	175	0.675554	0.568	3.5982	5.94857	0.005	0.318	0.292	485.1817	0.154
Cranes	2019	176	250	0.50769	0.427	1.94079	5.0842	0.005	0.216	0.198	483.4616	0.153
Cranes	2019	251	500	0.415431	0.349	2.96893	4.29654	0.005	0.173	0.159	483.1422	0.153
Cranes	2019	501	750	0.299943	0.252	1.44568	3.42803	0.005	0.124	0.114	481.1192	0.152
Cranes	2019	1001	9999	0.205078	0.172	0.9912	2.34854	0.005	0.059	0.055	482.5446	0.153
Cranes	2020	26	50	2.47956	2.084	7.37625	5.98471	0.005	0.624	0.574	517.9263	0.168
Cranes	2020	51	120	0.871016	0.732	4.17141	6.38117	0.005	0.453	0.417	469.8821	0.152
Cranes	2020	121	175	0.638941	0.537	3.56232	5.5697	0.005	0.298	0.274	474.5939	0.153
Cranes	2020	176	250	0.45669	0.384	1.7904	4.56329	0.005	0.188	0.173	472.9488	0.153
Cranes	2020	251	500	0.381547	0.321	2.66037	3.86243	0.005	0.155	0.142	472.5579	0.153
Cranes	2020	501	750	0.287724	0.242	1.44353	3.10471	0.005	0.116	0.107	470.4254	0.152
Cranes	2020	1001	9999	0.216797	0.182	0.99943	2.3614	0.005	0.06	0.056	472.0545	0.153
Cranes	2021	26	50	2.516467	2.115	7.48883	6.01375	0.005	0.631	0.581	517.8995	0.167
Cranes	2021	51	120	0.77522	0.651	4.06507	5.73085	0.005	0.398	0.366	469.8867	0.152
Cranes	2021	121	175	0.593174	0.498	3.51648	5.1125	0.005	0.273	0.251	474.5458	0.153
Cranes	2021	176	250	0.415905	0.349	1.67824	4.10439	0.005	0.167	0.153	472.9057	0.153
Cranes	2021	251	500	0.351498	0.295	2.44833	3.44253	0.005	0.139	0.127	472.4553	0.153
Cranes	2021	501	750	0.271141	0.228	1.43956	2.72739	0.005	0.107	0.098	470.5495	0.152
Cranes	2021	1001	9999	0.228304	0.192	1.00751	2.37402	0.005	0.061	0.056	472.0545	0.153
Cranes	2022	26	50	2.41359	2.028	7.36828	5.8991	0.005	0.603	0.555	517.8722	0.167
Cranes	2022	51	120	0.687651	0.578	3.97198	5.14893	0.005	0.346	0.318	469.9929	0.152
Cranes	2022	121	175	0.543527	0.457	3.4753	4.6169	0.005	0.246	0.227	474.5887	0.153
Cranes	2022	176	250	0.375691	0.316	1.60164	3.54149	0.005	0.147	0.135	472.9832	0.153
Cranes	2022	251	500	0.31051	0.261	2.21201	2.89369	0.005	0.117	0.108	472.1806	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Cranes	2022	501	750	0.238348	0.2	1.28309	2.25087	0.005	0.089	0.082	470.4755	0.152
Cranes	2022	1001	9999	0.239599	0.201	1.01544	2.38641	0.005	0.062	0.057	472.0545	0.153
Cranes	2023	26	50	2.435567	2.047	7.45254	5.9225	0.005	0.608	0.559	517.8722	0.167
Cranes	2023	51	120	0.656595	0.552	3.9444	4.87461	0.005	0.323	0.297	469.8891	0.152
Cranes	2023	121	175	0.503663	0.423	3.44284	4.22184	0.005	0.224	0.206	474.595	0.153
Cranes	2023	176	250	0.353966	0.297	1.55262	3.22938	0.005	0.135	0.124	472.9738	0.153
Cranes	2023	251	500	0.281202	0.236	2.01	2.5105	0.005	0.102	0.093	472.294	0.153
Cranes	2023	501	750	0.23207	0.195	1.28213	2.07257	0.005	0.084	0.077	470.2508	0.152
Cranes	2023	1001	9999	0.250681	0.211	1.02322	2.39857	0.005	0.063	0.058	472.0545	0.153
Cranes	2024	26	50	2.304795	1.937	7.26852	5.78796	0.005	0.577	0.531	517.8722	0.167
Cranes	2024	51	120	0.623876	0.524	3.90649	4.61888	0.005	0.301	0.277	469.9032	0.152
Cranes	2024	121	175	0.453764	0.381	3.3893	3.7029	0.005	0.196	0.18	474.6358	0.154
Cranes	2024	176	250	0.334159	0.281	1.50208	2.96596	0.005	0.123	0.114	472.9638	0.153
Cranes	2024	251	500	0.274315	0.231	1.93263	2.38291	0.005	0.096	0.089	472.0664	0.153
Cranes	2024	501	750	0.227031	0.191	1.28334	1.89979	0.005	0.08	0.073	470.3306	0.152
Cranes	2024	1001	9999	0.261551	0.22	1.03085	2.4105	0.005	0.064	0.059	472.0545	0.153
Cranes	2025	26	50	2.155227	1.811	7.07168	5.63562	0.005	0.543	0.499	517.8722	0.167
Cranes	2025	51	120	0.551396	0.463	3.83081	4.13532	0.005	0.26	0.24	469.5332	0.152
Cranes	2025	121	175	0.397698	0.334	3.33544	3.16038	0.005	0.166	0.153	474.7477	0.154
Cranes	2025	176	250	0.31508	0.265	1.4697	2.68128	0.005	0.114	0.105	472.9798	0.153
Cranes	2025	251	500	0.259914	0.218	1.83363	2.15424	0.005	0.088	0.081	471.9671	0.153
Cranes	2025	501	750	0.204336	0.172	1.27366	1.63763	0.005	0.068	0.062	470.2756	0.152
Cranes	2025	1001	9999	0.272209	0.229	1.03833	2.42219	0.005	0.065	0.06	472.0545	0.153
Cranes	2030	26	50	1.788	0.684	5.366	3.598	0.007	0.075	0.075	568.299	0.061
Cranes	2030	51	120	1.941	0.343	3.812	1.987	0.006	0.067	0.067	568.299	0.03
Cranes	2030	121	175	2.293	0.253	3.356	0.916	0.006	0.042	0.042	568.299	0.022
Cranes	2030	176	250	2.835	0.224	1.147	0.748	0.006	0.024	0.024	568.299	0.02
Cranes	2030	251	500	4.512	0.222	1.09	0.697	0.005	0.023	0.023	568.299	0.02
Cranes	2030	501	750	7.602	0.222	1.09	0.709	0.005	0.024	0.024	568.3	0.02
Cranes	2030	1001	9999	26.83	0.245	1.108	2.8	0.005	0.043	0.043	568.299	0.022
Cranes	2035	26	50	1.568	0.6	5.292	3.401	0.007	0.039	0.039	568.299	0.054
Cranes	2035	51	120	1.696	0.3	3.801	1.676	0.006	0.036	0.036	568.3	0.027
Cranes	2035	121	175	1.923	0.212	3.357	0.519	0.006	0.024	0.024	568.299	0.019
Cranes	2035	176	250	2.568	0.203	1.143	0.463	0.006	0.016	0.016	568.299	0.018
Cranes	2035	251	500	4.111	0.202	1.087	0.441	0.005	0.016	0.016	568.299	0.018
Cranes	2035	501	750	6.923	0.202	1.087	0.446	0.005	0.016	0.016	568.299	0.018
Cranes	2035	1001	9999	22.949	0.209	1.089	2.618	0.005	0.031	0.031	568.299	0.018
Cranes	2040	26	50	1.483	0.567	5.268	3.324	0.007	0.024	0.024	568.299	0.051
Cranes	2040	51	120	1.598	0.282	3.797	1.552	0.006	0.021	0.021	568.299	0.025
Cranes	2040	121	175	1.79	0.197	3.358	0.371	0.006	0.016	0.016	568.299	0.017
Cranes	2040	176	250	2.465	0.195	1.144	0.344	0.006	0.013	0.013	568.299	0.017
Cranes	2040	251	500	3.958	0.195	1.087	0.34	0.005	0.013	0.013	568.299	0.017
Cranes	2040	501	750	6.661	0.195	1.087	0.341	0.005	0.013	0.013	568.299	0.017
Cranes	2040	1001	9999	21.703	0.198	1.087	2.534	0.005	0.027	0.027	568.299	0.017
Crawler Tractors	1990	26	50	11.254	4.903	9.907	7.983	0.871	1.291	1.291	568.299	0.442
Crawler Tractors	1990	51	120	14.413	2.374	5.73	14.967	0.791	1.353	1.353	568.299	0.214
Crawler Tractors	1990	121	175	19.335	1.729	5.079	13.979	0.758	0.962	0.962	568.299	0.156
Crawler Tractors	1990	176	250	26.505	1.729	5.079	13.979	0.758	0.962	0.962	568.299	0.156
Crawler Tractors	1990	251	500	36.545	1.528	11.319	13.238	0.662	0.822	0.822	568.3	0.137
Crawler Tractors	1990	501	750	65.509	1.528	11.319	13.238	1.018	0.837	0.837	568.299	0.137
Crawler Tractors	1990	751	1000	92.189	1.518	11.319	13.238	1.018	0.826	0.826	568.299	0.137
Crawler Tractors	2000	26	50	10.858	4.73	9.675	7.197	0.066	0.973	0.973	568.299	0.426
Crawler Tractors	2000	51	120	11.94	1.966	4.886	11.097	0.06	0.949	0.949	568.299	0.177
Crawler Tractors	2000	121	175	14.976	1.339	4.018	10.157	0.057	0.57	0.57	568.3	0.12
Crawler Tractors	2000	176	250	17.901	1.168	3.367	9.863	0.057	0.486	0.486	568.299	0.105
Crawler Tractors	2000	251	500	25.11	1.049	5.849	9.341	0.05	0.424	0.424	568.299	0.094
Crawler Tractors	2000	501	750	45.011	1.049	5.849	9.341	0.052	0.424	0.424	568.299	0.094
Crawler Tractors	2000	751	1000	66.528	1.095	6.349	9.844	0.052	0.407	0.407	568.299	0.098
Crawler Tractors	2005	26	50	9.923	4.323	9.124	6.809	0.066	0.919	0.919	568.299	0.39
Crawler Tractors	2005	51	120	10.68	1.759	4.63	9.75	0.06	0.903	0.903	568.299	0.158
Crawler Tractors	2005	121	175	13.006	1.163	3.749	8.886	0.057	0.513	0.513	568.299	0.104
Crawler Tractors	2005	176	250	13.95	0.91	2.557	8.523	0.057	0.371	0.371	568.299	0.082
Crawler Tractors	2005	251	500	19.249	0.804	3.945	7.791	0.05	0.326	0.326	568.299	0.072
Crawler Tractors	2005	501	750	34.852	0.813	3.938	7.93	0.052	0.328	0.328	568.299	0.073
Crawler Tractors	2005	751	1000	54.011	0.889	4.359	8.804	0.052	0.319	0.319	568.3	0.08
Crawler Tractors	2010	26	50	3.193884	2.684	8.18872	6.54779	0.005	0.785	0.722	572.972	0.167
Crawler Tractors	2010	51	120	1.069208	0.898	4.10668	7.76656	0.005	0.628	0.578	530.0152	0.154
Crawler Tractors	2010	121	175	0.755513	0.635	3.40812	7.15822	0.005	0.378	0.348	524.4997	0.153
Crawler Tractors	2010	176	250	0.540569	0.454	1.89919	6.46768	0.005	0.249	0.229	526.1431	0.153
Crawler Tractors	2010	251	500	0.491926	0.413	3.0665	5.96739	0.005	0.227	0.209	528.681	0.154

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Crawler Tractors	2010	501	750	0.418044	0.351	1.75694	5.31967	0.005	0.189	0.174	525.9395	0.153
Crawler Tractors	2010	751	1000	0.545095	0.458	2.04187	7.25547	0.005	0.21	0.193	527.6019	0.154
Crawler Tractors	2011	26	50	3.090465	2.597	8.06059	6.48764	0.005	0.762	0.701	571.2544	0.167
Crawler Tractors	2011	51	120	1.055307	0.887	4.11149	7.65924	0.005	0.624	0.574	528.5468	0.154
Crawler Tractors	2011	121	175	0.753531	0.633	3.422	7.0937	0.005	0.378	0.347	523.1105	0.153
Crawler Tractors	2011	176	250	0.541549	0.455	1.8844	6.42306	0.005	0.248	0.228	524.8932	0.153
Crawler Tractors	2011	251	500	0.494702	0.416	3.04503	5.91443	0.005	0.226	0.208	527.4003	0.154
Crawler Tractors	2011	501	750	0.416615	0.35	1.70832	5.23606	0.005	0.186	0.171	524.9577	0.153
Crawler Tractors	2011	751	1000	0.550612	0.463	2.05264	7.30105	0.005	0.212	0.195	526.3508	0.154
Crawler Tractors	2012	26	50	3.127964	2.628	8.16399	6.51312	0.005	0.77	0.708	569.8895	0.167
Crawler Tractors	2012	51	120	1.066067	0.896	4.14375	7.67928	0.005	0.633	0.582	527.2248	0.154
Crawler Tractors	2012	121	175	0.762695	0.641	3.4484	7.11308	0.005	0.382	0.351	521.7707	0.153
Crawler Tractors	2012	176	250	0.549863	0.462	1.8924	6.43904	0.005	0.25	0.23	523.5287	0.153
Crawler Tractors	2012	251	500	0.502104	0.422	3.05662	5.9107	0.005	0.227	0.209	526.0223	0.154
Crawler Tractors	2012	501	750	0.425611	0.358	1.71661	5.25574	0.005	0.189	0.173	523.7088	0.153
Crawler Tractors	2012	751	1000	0.555874	0.467	2.06265	7.34463	0.005	0.214	0.197	525.1067	0.154
Crawler Tractors	2013	26	50	3.060938	2.572	8.10275	6.42928	0.005	0.753	0.692	567.3537	0.167
Crawler Tractors	2013	51	120	1.067402	0.897	4.16448	7.64718	0.005	0.636	0.585	524.5941	0.154
Crawler Tractors	2013	121	175	0.758762	0.638	3.4566	7.02367	0.005	0.38	0.349	519.0712	0.153
Crawler Tractors	2013	176	250	0.548046	0.461	1.8715	6.36771	0.005	0.247	0.227	520.7236	0.153
Crawler Tractors	2013	251	500	0.501212	0.421	2.99715	5.82738	0.005	0.225	0.207	523.5592	0.154
Crawler Tractors	2013	501	750	0.418079	0.351	1.67885	5.09878	0.005	0.183	0.168	520.5693	0.153
Crawler Tractors	2013	751	1000	0.560878	0.471	2.07187	7.3862	0.005	0.216	0.199	522.5513	0.154
Crawler Tractors	2014	26	50	3.000333	2.521	8.04733	6.39578	0.005	0.743	0.684	564.5641	0.167
Crawler Tractors	2014	51	120	1.051605	0.884	4.16815	7.52434	0.005	0.628	0.578	522.1187	0.154
Crawler Tractors	2014	121	175	0.748303	0.629	3.45911	6.87548	0.005	0.374	0.344	516.4039	0.153
Crawler Tractors	2014	176	250	0.54035	0.454	1.83765	6.23751	0.005	0.241	0.222	518.0363	0.153
Crawler Tractors	2014	251	500	0.490461	0.412	2.91108	5.61601	0.005	0.217	0.2	520.5153	0.154
Crawler Tractors	2014	501	750	0.412689	0.347	1.67523	4.89468	0.005	0.179	0.164	517.8612	0.153
Crawler Tractors	2014	751	1000	0.565619	0.475	2.08028	7.42576	0.005	0.218	0.201	520.0052	0.154
Crawler Tractors	2015	26	50	2.990271	2.513	8.07628	6.37736	0.005	0.741	0.682	558.8878	0.167
Crawler Tractors	2015	51	120	1.05262	0.884	4.18907	7.4938	0.005	0.63	0.58	516.8433	0.154
Crawler Tractors	2015	121	175	0.751623	0.632	3.47922	6.84937	0.005	0.376	0.346	511.3059	0.153
Crawler Tractors	2015	176	250	0.536796	0.451	1.81586	6.14312	0.005	0.237	0.218	512.8973	0.153
Crawler Tractors	2015	251	500	0.485596	0.408	2.84505	5.48324	0.005	0.212	0.195	515.3725	0.154
Crawler Tractors	2015	501	750	0.41802	0.351	1.66415	4.88301	0.005	0.179	0.165	512.5402	0.153
Crawler Tractors	2015	751	1000	0.570092	0.479	2.08783	7.46329	0.005	0.22	0.202	514.83	0.154
Crawler Tractors	2016	26	50	2.99791	2.519	8.10441	6.31718	0.005	0.733	0.674	553.214	0.167
Crawler Tractors	2016	51	120	1.034441	0.869	4.18548	7.34589	0.005	0.619	0.57	511.268	0.154
Crawler Tractors	2016	121	175	0.743125	0.624	3.48211	6.7205	0.005	0.371	0.341	506.0335	0.153
Crawler Tractors	2016	176	250	0.534039	0.449	1.80295	6.04745	0.005	0.233	0.215	507.355	0.153
Crawler Tractors	2016	251	500	0.473782	0.398	2.74397	5.27907	0.005	0.205	0.188	510.3385	0.154
Crawler Tractors	2016	501	750	0.41158	0.346	1.6206	4.7238	0.005	0.174	0.16	507.2527	0.153
Crawler Tractors	2016	751	1000	0.57429	0.483	2.09448	7.4988	0.005	0.222	0.204	509.6671	0.154
Crawler Tractors	2017	26	50	2.926516	2.459	8.00596	6.20834	0.005	0.712	0.655	544.6762	0.167
Crawler Tractors	2017	51	120	1.010844	0.849	4.17611	7.141	0.005	0.604	0.555	503.2791	0.154
Crawler Tractors	2017	121	175	0.731209	0.614	3.48322	6.55188	0.005	0.364	0.335	498.1245	0.153
Crawler Tractors	2017	176	250	0.511144	0.43	1.7418	5.75969	0.005	0.22	0.202	499.832	0.153
Crawler Tractors	2017	251	500	0.458057	0.385	2.6349	5.02932	0.005	0.195	0.179	502.422	0.154
Crawler Tractors	2017	501	750	0.386074	0.324	1.5221	4.36108	0.005	0.16	0.147	499.1046	0.153
Crawler Tractors	2017	751	1000	0.578206	0.486	2.10018	7.53226	0.005	0.223	0.205	501.8777	0.154
Crawler Tractors	2018	26	50	2.910335	2.445	8.0094	6.16323	0.005	0.704	0.647	536.1409	0.167
Crawler Tractors	2018	51	120	0.949614	0.798	4.1231	6.72257	0.005	0.566	0.52	494.9217	0.154
Crawler Tractors	2018	121	175	0.660412	0.555	3.42131	5.8588	0.005	0.325	0.299	490.0002	0.153
Crawler Tractors	2018	176	250	0.473989	0.398	1.65354	5.28959	0.005	0.2	0.184	491.606	0.153
Crawler Tractors	2018	251	500	0.409351	0.344	2.38218	4.37324	0.005	0.169	0.156	493.5104	0.154
Crawler Tractors	2018	501	750	0.351876	0.296	1.4447	3.8336	0.005	0.141	0.13	491.2659	0.153
Crawler Tractors	2018	751	1000	0.581827	0.489	2.10483	7.56366	0.005	0.225	0.207	494.1052	0.154
Crawler Tractors	2019	26	50	2.648469	2.225	7.58896	5.85476	0.005	0.64	0.589	525.9767	0.166
Crawler Tractors	2019	51	120	0.901167	0.757	4.08842	6.39347	0.005	0.535	0.492	486.9909	0.154
Crawler Tractors	2019	121	175	0.615173	0.517	3.37886	5.38191	0.005	0.3	0.276	481.6222	0.152
Crawler Tractors	2019	176	250	0.45175	0.38	1.60445	4.9721	0.005	0.187	0.172	483.4489	0.153
Crawler Tractors	2019	251	500	0.37933	0.319	2.21938	3.93412	0.005	0.153	0.141	485.8645	0.154
Crawler Tractors	2019	501	750	0.316919	0.266	1.35585	3.34253	0.005	0.123	0.113	483.3879	0.153
Crawler Tractors	2019	751	1000	0.547243	0.46	2.02037	7.21215	0.005	0.211	0.194	486.2545	0.154
Crawler Tractors	2020	26	50	2.443056	2.053	7.3	5.64276	0.005	0.591	0.544	515.679	0.167
Crawler Tractors	2020	51	120	0.850709	0.715	4.04412	6.00933	0.005	0.5	0.46	476.3284	0.154
Crawler Tractors	2020	121	175	0.566576	0.476	3.33989	4.87226	0.005	0.272	0.25	471.015	0.152
Crawler Tractors	2020	176	250	0.428471	0.36	1.55491	4.63225	0.005	0.175	0.161	472.941	0.153
Crawler Tractors	2020	251	500	0.358593	0.301	2.0875	3.62175	0.005	0.141	0.13	475.2338	0.154

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Crawler Tractors	2020	501	750	0.304872	0.256	1.31018	3.13716	0.005	0.115	0.106	473.3119	0.153
Crawler Tractors	2020	751	1000	0.551035	0.463	2.02764	7.23682	0.005	0.212	0.195	475.6525	0.154
Crawler Tractors	2021	26	50	2.456387	2.064	7.34869	5.61511	0.005	0.591	0.543	516.1077	0.167
Crawler Tractors	2021	51	120	0.800723	0.673	4.00549	5.65746	0.005	0.466	0.428	476.437	0.154
Crawler Tractors	2021	121	175	0.518367	0.436	3.30982	4.3947	0.005	0.245	0.225	471.421	0.152
Crawler Tractors	2021	176	250	0.407794	0.343	1.51456	4.33394	0.005	0.163	0.15	472.9246	0.153
Crawler Tractors	2021	251	500	0.337066	0.283	2.02434	3.27633	0.005	0.129	0.119	474.4843	0.153
Crawler Tractors	2021	501	750	0.284829	0.239	1.26985	2.82478	0.005	0.104	0.095	473.0941	0.153
Crawler Tractors	2021	751	1000	0.475256	0.399	1.89563	6.3992	0.005	0.182	0.167	471.8224	0.153
Crawler Tractors	2022	26	50	2.25944	1.899	7.04118	5.37962	0.005	0.539	0.496	516.1476	0.167
Crawler Tractors	2022	51	120	0.714244	0.6	3.92498	5.10103	0.005	0.408	0.375	476.0219	0.154
Crawler Tractors	2022	121	175	0.463094	0.389	3.26382	3.82659	0.005	0.214	0.197	471.5674	0.153
Crawler Tractors	2022	176	250	0.364117	0.306	1.43975	3.73672	0.005	0.141	0.13	472.0975	0.153
Crawler Tractors	2022	251	500	0.30258	0.254	1.91628	2.74435	0.005	0.111	0.102	474.4115	0.153
Crawler Tractors	2022	501	750	0.235465	0.198	1.18638	2.12552	0.005	0.079	0.073	472.876	0.153
Crawler Tractors	2022	751	1000	0.424397	0.357	1.73227	5.92299	0.005	0.162	0.149	470.7007	0.152
Crawler Tractors	2023	26	50	2.228685	1.873	7.02687	5.32514	0.005	0.526	0.484	516.1587	0.167
Crawler Tractors	2023	51	120	0.663952	0.558	3.88936	4.76208	0.005	0.373	0.343	476.1575	0.154
Crawler Tractors	2023	121	175	0.41309	0.347	3.23526	3.33004	0.005	0.185	0.17	471.7805	0.153
Crawler Tractors	2023	176	250	0.328767	0.276	1.39549	3.18735	0.005	0.124	0.114	471.6244	0.153
Crawler Tractors	2023	251	500	0.286276	0.241	1.85216	2.47635	0.005	0.102	0.094	474.6128	0.153
Crawler Tractors	2023	501	750	0.218505	0.184	1.15892	1.86667	0.005	0.069	0.064	472.5297	0.153
Crawler Tractors	2023	751	1000	0.319268	0.268	1.6104	4.76968	0.005	0.118	0.109	473.6655	0.153
Crawler Tractors	2024	26	50	2.089827	1.756	6.68497	4.97522	0.005	0.466	0.429	515.4658	0.167
Crawler Tractors	2024	51	120	0.610839	0.513	3.85173	4.40892	0.005	0.335	0.309	476.2342	0.154
Crawler Tractors	2024	121	175	0.387606	0.326	3.22706	3.04107	0.005	0.17	0.157	471.8291	0.153
Crawler Tractors	2024	176	250	0.313897	0.264	1.36992	2.95319	0.005	0.115	0.105	471.8603	0.153
Crawler Tractors	2024	251	500	0.271114	0.228	1.77984	2.2441	0.005	0.093	0.085	474.025	0.153
Crawler Tractors	2024	501	750	0.215283	0.181	1.15921	1.76658	0.005	0.066	0.061	472.2827	0.153
Crawler Tractors	2024	751	1000	0.313081	0.263	1.58774	4.68945	0.005	0.115	0.106	474.6448	0.154
Crawler Tractors	2025	26	50	2.075042	1.744	6.68642	4.93567	0.005	0.456	0.42	516.1279	0.167
Crawler Tractors	2025	51	120	0.540303	0.454	3.78839	3.96126	0.005	0.285	0.262	476.1336	0.154
Crawler Tractors	2025	121	175	0.354345	0.298	3.20909	2.68768	0.005	0.15	0.138	471.5923	0.153
Crawler Tractors	2025	176	250	0.276616	0.232	1.30849	2.46158	0.005	0.096	0.088	471.6224	0.153
Crawler Tractors	2025	251	500	0.247477	0.208	1.71697	1.92007	0.005	0.081	0.074	474.0072	0.153
Crawler Tractors	2025	501	750	0.198724	0.167	1.12199	1.54452	0.005	0.057	0.052	472.4081	0.153
Crawler Tractors	2025	751	1000	0.308836	0.26	1.59298	4.59799	0.005	0.111	0.103	475.4901	0.154
Crawler Tractors	2030	26	50	1.912	0.833	5.605	3.808	0.007	0.116	0.116	568.299	0.075
Crawler Tractors	2030	51	120	2.461	0.405	3.871	2.341	0.006	0.105	0.105	568.299	0.036
Crawler Tractors	2030	121	175	3.315	0.296	3.397	1.266	0.006	0.065	0.065	568.299	0.026
Crawler Tractors	2030	176	250	4.019	0.262	1.207	1.104	0.006	0.04	0.04	568.299	0.023
Crawler Tractors	2030	251	500	6.146	0.257	1.2	1.016	0.005	0.038	0.038	568.299	0.023
Crawler Tractors	2030	501	750	11.033	0.257	1.2	1.033	0.005	0.038	0.038	568.299	0.023
Crawler Tractors	2030	751	1000	16.147	0.265	1.225	3.094	0.005	0.056	0.056	568.3	0.023
Crawler Tractors	2035	26	50	1.626	0.708	5.493	3.558	0.007	0.066	0.066	568.299	0.063
Crawler Tractors	2035	51	120	2.099	0.345	3.85	1.922	0.006	0.06	0.06	568.299	0.031
Crawler Tractors	2035	121	175	2.772	0.247	3.391	0.794	0.006	0.038	0.038	568.299	0.022
Crawler Tractors	2035	176	250	3.521	0.229	1.182	0.695	0.006	0.026	0.026	568.299	0.02
Crawler Tractors	2035	251	500	5.432	0.227	1.145	0.657	0.005	0.025	0.025	568.299	0.02
Crawler Tractors	2035	501	750	9.744	0.227	1.145	0.664	0.005	0.025	0.025	568.299	0.02
Crawler Tractors	2035	751	1000	14.073	0.231	1.159	2.792	0.005	0.041	0.041	568.299	0.02
Crawler Tractors	2040	26	50	1.499	0.653	5.443	3.42	0.007	0.042	0.042	568.299	0.058
Crawler Tractors	2040	51	120	1.924	0.316	3.839	1.709	0.006	0.039	0.039	568.299	0.028
Crawler Tractors	2040	121	175	2.48	0.221	3.388	0.539	0.006	0.025	0.025	568.299	0.02
Crawler Tractors	2040	176	250	3.247	0.211	1.167	0.491	0.006	0.018	0.018	568.299	0.019
Crawler Tractors	2040	251	500	5.035	0.21	1.113	0.47	0.005	0.018	0.018	568.299	0.018
Crawler Tractors	2040	501	750	9.03	0.21	1.113	0.475	0.005	0.018	0.018	568.299	0.019
Crawler Tractors	2040	751	1000	12.945	0.213	1.122	2.652	0.005	0.032	0.032	568.299	0.019
Crushing/Proc. Equipment	1990	26	50	11.643	4.43	9.044	7.809	0.871	1.194	1.194	568.299	0.399
Crushing/Proc. Equipment	1990	51	120	11.193	2.255	5.547	14.555	0.791	1.258	1.258	568.299	0.203
Crushing/Proc. Equipment	1990	121	175	15.383	1.54	4.913	13.086	0.758	0.834	0.834	568.299	0.138
Crushing/Proc. Equipment	1990	176	250	22.49	1.54	4.913	13.086	0.758	0.834	0.834	568.299	0.138
Crushing/Proc. Equipment	1990	251	500	30.672	1.374	10.176	12.492	0.662	0.724	0.724	568.299	0.124
Crushing/Proc. Equipment	1990	501	750	48.337	1.374	10.175	12.492	1.018	0.737	0.737	568.299	0.124
Crushing/Proc. Equipment	1990	1001	9999	106.942	1.369	10.175	12.492	1.018	0.731	0.731	568.299	0.123
Crushing/Proc. Equipment	2000	26	50	10.827	4.12	8.551	6.954	0.066	0.876	0.876	568.299	0.371
Crushing/Proc. Equipment	2000	51	120	8.945	1.802	4.594	10.363	0.06	0.857	0.857	568.299	0.162
Crushing/Proc. Equipment	2000	121	175	12.05	1.206	3.737	9.416	0.057	0.506	0.506	568.299	0.108
Crushing/Proc. Equipment	2000	176	250	14.723	1.008	2.963	9.058	0.057	0.414	0.414	568.299	0.09
Crushing/Proc. Equipment	2000	251	500	20.487	0.918	5.011	8.658	0.05	0.366	0.366	568.299	0.082

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Crushing/Proc. Equipment	2000	501	750	30.946	0.88	4.658	8.459	0.052	0.348	0.348	568.299	0.079
Crushing/Proc. Equipment	2000	1001	9999	77.281	0.989	5.329	9.138	0.052	0.37	0.37	568.299	0.089
Crushing/Proc. Equipment	2005	26	50	9.624	3.662	7.904	6.477	0.066	0.812	0.812	568.3	0.33
Crushing/Proc. Equipment	2005	51	120	7.644	1.54	4.24	8.68	0.06	0.794	0.794	568.299	0.138
Crushing/Proc. Equipment	2005	121	175	10.064	1.007	3.372	7.941	0.057	0.438	0.438	568.299	0.09
Crushing/Proc. Equipment	2005	176	250	10.399	0.712	1.97	7.484	0.057	0.282	0.282	568.299	0.064
Crushing/Proc. Equipment	2005	251	500	14.029	0.628	2.549	6.846	0.05	0.252	0.252	568.299	0.056
Crushing/Proc. Equipment	2005	501	750	22.225	0.632	2.431	6.974	0.052	0.249	0.249	568.299	0.057
Crushing/Proc. Equipment	2005	1001	9999	60.257	0.771	3.042	8.054	0.052	0.268	0.268	568.299	0.069
Crushing/Proc. Equipment	2010	26	50	7.704	2.931	7.22	6.068	0.007	0.671	0.671	568.299	0.264
Crushing/Proc. Equipment	2010	51	120	5.971	1.203	4.071	7.096	0.006	0.656	0.656	568.299	0.108
Crushing/Proc. Equipment	2010	121	175	8.033	0.804	3.307	6.322	0.006	0.362	0.362	568.299	0.072
Crushing/Proc. Equipment	2010	176	250	7.61	0.521	1.446	5.918	0.006	0.195	0.195	568.299	0.047
Crushing/Proc. Equipment	2010	251	500	10.487	0.47	1.603	5.248	0.005	0.18	0.18	568.299	0.042
Crushing/Proc. Equipment	2010	501	750	16.814	0.478	1.568	5.449	0.005	0.183	0.183	568.299	0.043
Crushing/Proc. Equipment	2010	1001	9999	46.933	0.601	2.091	6.987	0.005	0.209	0.209	568.299	0.054
Crushing/Proc. Equipment	2011	26	50	7.155	2.722	6.995	5.972	0.007	0.636	0.636	568.299	0.245
Crushing/Proc. Equipment	2011	51	120	5.588	1.125	4.03	6.704	0.006	0.625	0.625	568.3	0.101
Crushing/Proc. Equipment	2011	121	175	7.581	0.759	3.294	5.953	0.006	0.347	0.347	568.299	0.068
Crushing/Proc. Equipment	2011	176	250	7.059	0.483	1.356	5.498	0.006	0.175	0.175	568.299	0.043
Crushing/Proc. Equipment	2011	251	500	9.796	0.439	1.462	4.858	0.005	0.162	0.162	568.299	0.039
Crushing/Proc. Equipment	2011	501	750	15.681	0.446	1.435	5.054	0.005	0.165	0.165	568.299	0.04
Crushing/Proc. Equipment	2011	1001	9999	44.108	0.564	1.923	6.609	0.005	0.196	0.196	568.299	0.05
Crushing/Proc. Equipment	2012	26	50	6.538	2.488	6.733	5.867	0.007	0.596	0.596	568.299	0.224
Crushing/Proc. Equipment	2012	51	120	5.173	1.042	3.984	6.269	0.006	0.582	0.582	568.299	0.094
Crushing/Proc. Equipment	2012	121	175	7.084	0.709	3.28	5.553	0.006	0.321	0.321	568.299	0.064
Crushing/Proc. Equipment	2012	176	250	6.627	0.453	1.299	5.088	0.006	0.158	0.158	568.299	0.04
Crushing/Proc. Equipment	2012	251	500	9.273	0.415	1.362	4.48	0.005	0.147	0.147	568.3	0.037
Crushing/Proc. Equipment	2012	501	750	14.786	0.42	1.341	4.662	0.005	0.15	0.15	568.299	0.037
Crushing/Proc. Equipment	2012	1001	9999	41.105	0.526	1.755	6.197	0.005	0.182	0.182	568.299	0.047
Crushing/Proc. Equipment	2013	26	50	5.908	2.248	6.467	5.628	0.007	0.545	0.545	568.299	0.202
Crushing/Proc. Equipment	2013	51	120	4.758	0.958	3.94	5.845	0.006	0.532	0.532	568.299	0.086
Crushing/Proc. Equipment	2013	121	175	6.588	0.659	3.267	5.177	0.006	0.293	0.293	568.299	0.059
Crushing/Proc. Equipment	2013	176	250	6.27	0.429	1.26	4.695	0.006	0.144	0.144	568.299	0.038
Crushing/Proc. Equipment	2013	251	500	8.85	0.396	1.289	4.121	0.005	0.134	0.134	568.299	0.035
Crushing/Proc. Equipment	2013	501	750	14.055	0.399	1.273	4.285	0.005	0.136	0.136	568.299	0.036
Crushing/Proc. Equipment	2013	1001	9999	38.235	0.489	1.599	5.785	0.005	0.168	0.168	568.299	0.044
Crushing/Proc. Equipment	2014	26	50	5.288	2.012	6.212	5.399	0.007	0.494	0.494	568.299	0.181
Crushing/Proc. Equipment	2014	51	120	4.356	0.877	3.898	5.468	0.006	0.481	0.481	568.299	0.079
Crushing/Proc. Equipment	2014	121	175	6.112	0.612	3.256	4.823	0.006	0.265	0.265	568.299	0.055
Crushing/Proc. Equipment	2014	176	250	5.916	0.405	1.228	4.239	0.006	0.13	0.13	568.299	0.036
Crushing/Proc. Equipment	2014	251	500	8.415	0.377	1.23	3.702	0.005	0.121	0.121	568.299	0.034
Crushing/Proc. Equipment	2014	501	750	13.314	0.378	1.218	3.844	0.005	0.123	0.123	568.299	0.034
Crushing/Proc. Equipment	2014	1001	9999	35.652	0.456	1.46	5.391	0.005	0.155	0.155	568.299	0.041
Crushing/Proc. Equipment	2015	26	50	4.722	1.796	5.996	5.195	0.007	0.446	0.446	568.299	0.162
Crushing/Proc. Equipment	2015	51	120	3.959	0.797	3.859	5.04	0.006	0.43	0.43	568.299	0.071
Crushing/Proc. Equipment	2015	121	175	5.614	0.562	3.247	4.343	0.006	0.237	0.237	568.299	0.05
Crushing/Proc. Equipment	2015	176	250	5.585	0.382	1.201	3.801	0.006	0.117	0.117	568.299	0.034
Crushing/Proc. Equipment	2015	251	500	8	0.358	1.184	3.304	0.005	0.109	0.109	568.299	0.032
Crushing/Proc. Equipment	2015	501	750	12.614	0.358	1.176	3.422	0.005	0.111	0.111	568.299	0.032
Crushing/Proc. Equipment	2015	1001	9999	32.981	0.422	1.343	5.019	0.005	0.14	0.14	568.299	0.038
Crushing/Proc. Equipment	2016	26	50	4.186	1.593	5.801	5.006	0.007	0.399	0.399	568.299	0.143
Crushing/Proc. Equipment	2016	51	120	3.576	0.72	3.823	4.631	0.006	0.379	0.379	568.299	0.065
Crushing/Proc. Equipment	2016	121	175	5.132	0.513	3.241	3.883	0.006	0.21	0.21	568.299	0.046
Crushing/Proc. Equipment	2016	176	250	5.267	0.36	1.178	3.381	0.006	0.105	0.105	568.299	0.032
Crushing/Proc. Equipment	2016	251	500	7.601	0.34	1.146	2.928	0.005	0.098	0.098	568.299	0.03
Crushing/Proc. Equipment	2016	501	750	11.944	0.339	1.14	3.021	0.005	0.099	0.099	568.299	0.03
Crushing/Proc. Equipment	2016	1001	9999	31.036	0.397	1.274	4.7	0.005	0.127	0.127	568.299	0.035
Crushing/Proc. Equipment	2017	26	50	3.684	1.402	5.623	4.827	0.007	0.354	0.354	568.299	0.126
Crushing/Proc. Equipment	2017	51	120	3.216	0.647	3.791	4.244	0.006	0.33	0.33	568.299	0.058
Crushing/Proc. Equipment	2017	121	175	4.681	0.468	3.236	3.45	0.006	0.185	0.185	568.299	0.042
Crushing/Proc. Equipment	2017	176	250	4.974	0.34	1.16	2.987	0.006	0.094	0.094	568.299	0.03
Crushing/Proc. Equipment	2017	251	500	7.242	0.324	1.118	2.602	0.005	0.088	0.088	568.299	0.029
Crushing/Proc. Equipment	2017	501	750	11.359	0.323	1.114	2.664	0.005	0.088	0.088	568.299	0.029
Crushing/Proc. Equipment	2017	1001	9999	29.544	0.378	1.231	4.423	0.005	0.117	0.117	568.299	0.034
Crushing/Proc. Equipment	2018	26	50	3.219	1.225	5.461	4.657	0.007	0.31	0.31	568.299	0.11
Crushing/Proc. Equipment	2018	51	120	2.881	0.58	3.763	3.881	0.006	0.284	0.284	568.299	0.052
Crushing/Proc. Equipment	2018	121	175	4.267	0.427	3.234	3.049	0.006	0.161	0.161	568.299	0.038
Crushing/Proc. Equipment	2018	176	250	4.701	0.322	1.146	2.622	0.006	0.083	0.083	568.299	0.029
Crushing/Proc. Equipment	2018	251	500	6.912	0.309	1.099	2.312	0.005	0.079	0.079	568.299	0.027

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Crushing/Proc. Equipment	2018	501	750	10.84	0.308	1.097	2.358	0.005	0.079	0.079	568.299	0.027
Crushing/Proc. Equipment	2018	1001	9999	28.23	0.361	1.198	4.168	0.005	0.107	0.107	568.299	0.032
Crushing/Proc. Equipment	2019	26	50	2.798	1.064	5.316	4.495	0.007	0.269	0.269	568.299	0.096
Crushing/Proc. Equipment	2019	51	120	2.577	0.519	3.739	3.544	0.006	0.241	0.241	568.299	0.046
Crushing/Proc. Equipment	2019	121	175	3.938	0.394	3.233	2.7	0.006	0.141	0.141	568.299	0.035
Crushing/Proc. Equipment	2019	176	250	4.451	0.304	1.134	2.3	0.006	0.074	0.074	568.299	0.027
Crushing/Proc. Equipment	2019	251	500	6.592	0.295	1.087	2.046	0.005	0.071	0.071	568.299	0.026
Crushing/Proc. Equipment	2019	501	750	10.352	0.294	1.085	2.085	0.005	0.071	0.071	568.299	0.026
Crushing/Proc. Equipment	2019	1001	9999	26.978	0.345	1.173	3.927	0.005	0.098	0.098	568.299	0.031
Crushing/Proc. Equipment	2020	26	50	2.489	0.947	5.211	4.347	0.007	0.233	0.233	568.299	0.085
Crushing/Proc. Equipment	2020	51	120	2.348	0.473	3.722	3.249	0.006	0.206	0.206	568.299	0.042
Crushing/Proc. Equipment	2020	121	175	3.673	0.367	3.234	2.392	0.006	0.124	0.124	568.299	0.033
Crushing/Proc. Equipment	2020	176	250	4.222	0.289	1.125	2.014	0.006	0.065	0.065	568.299	0.026
Crushing/Proc. Equipment	2020	251	500	6.283	0.281	1.078	1.799	0.005	0.063	0.063	568.299	0.025
Crushing/Proc. Equipment	2020	501	750	9.884	0.281	1.077	1.835	0.005	0.063	0.063	568.299	0.025
Crushing/Proc. Equipment	2020	1001	9999	25.755	0.329	1.153	3.699	0.005	0.089	0.089	568.299	0.029
Crushing/Proc. Equipment	2021	26	50	2.265	0.862	5.136	4.211	0.007	0.201	0.201	568.299	0.077
Crushing/Proc. Equipment	2021	51	120	2.176	0.438	3.711	2.989	0.006	0.178	0.178	568.299	0.039
Crushing/Proc. Equipment	2021	121	175	3.442	0.344	3.235	2.114	0.006	0.109	0.109	568.299	0.031
Crushing/Proc. Equipment	2021	176	250	4.009	0.274	1.119	1.756	0.006	0.057	0.057	568.299	0.024
Crushing/Proc. Equipment	2021	251	500	5.988	0.268	1.072	1.574	0.005	0.055	0.055	568.3	0.024
Crushing/Proc. Equipment	2021	501	750	9.434	0.268	1.072	1.606	0.005	0.055	0.055	568.299	0.024
Crushing/Proc. Equipment	2021	1001	9999	24.586	0.314	1.136	3.487	0.005	0.08	0.08	568.299	0.028
Crushing/Proc. Equipment	2022	26	50	2.09	0.795	5.081	4.083	0.007	0.172	0.172	568.299	0.071
Crushing/Proc. Equipment	2022	51	120	2.036	0.41	3.704	2.758	0.006	0.154	0.154	568.299	0.037
Crushing/Proc. Equipment	2022	121	175	3.231	0.323	3.237	1.861	0.006	0.095	0.095	568.299	0.029
Crushing/Proc. Equipment	2022	176	250	3.808	0.26	1.114	1.521	0.006	0.05	0.05	568.299	0.023
Crushing/Proc. Equipment	2022	251	500	5.706	0.255	1.067	1.389	0.005	0.048	0.048	568.299	0.023
Crushing/Proc. Equipment	2022	501	750	9.002	0.256	1.067	1.416	0.005	0.048	0.048	568.299	0.023
Crushing/Proc. Equipment	2022	1001	9999	23.492	0.3	1.121	3.31	0.005	0.073	0.073	568.299	0.027
Crushing/Proc. Equipment	2023	26	50	1.944	0.739	5.039	3.962	0.007	0.146	0.146	568.299	0.066
Crushing/Proc. Equipment	2023	51	120	1.914	0.385	3.7	2.552	0.006	0.132	0.132	568.299	0.034
Crushing/Proc. Equipment	2023	121	175	3.042	0.304	3.24	1.654	0.006	0.083	0.083	568.299	0.027
Crushing/Proc. Equipment	2023	176	250	3.623	0.248	1.111	1.33	0.006	0.043	0.043	568.299	0.022
Crushing/Proc. Equipment	2023	251	500	5.444	0.244	1.064	1.227	0.005	0.042	0.042	568.299	0.022
Crushing/Proc. Equipment	2023	501	750	8.598	0.244	1.065	1.251	0.005	0.042	0.042	568.3	0.022
Crushing/Proc. Equipment	2023	1001	9999	22.463	0.287	1.107	3.16	0.005	0.066	0.066	568.299	0.025
Crushing/Proc. Equipment	2024	26	50	1.825	0.694	5.008	3.85	0.007	0.125	0.125	568.299	0.062
Crushing/Proc. Equipment	2024	51	120	1.81	0.364	3.697	2.389	0.006	0.112	0.112	568.299	0.032
Crushing/Proc. Equipment	2024	121	175	2.866	0.287	3.243	1.472	0.006	0.071	0.071	568.299	0.025
Crushing/Proc. Equipment	2024	176	250	3.448	0.236	1.109	1.165	0.006	0.036	0.036	568.299	0.021
Crushing/Proc. Equipment	2024	251	500	5.193	0.232	1.062	1.077	0.005	0.035	0.035	568.299	0.021
Crushing/Proc. Equipment	2024	501	750	8.207	0.233	1.063	1.098	0.005	0.036	0.036	568.299	0.021
Crushing/Proc. Equipment	2024	1001	9999	21.454	0.274	1.096	3.029	0.005	0.059	0.059	568.299	0.024
Crushing/Proc. Equipment	2025	26	50	1.724	0.656	4.982	3.742	0.007	0.107	0.107	568.299	0.059
Crushing/Proc. Equipment	2025	51	120	1.716	0.345	3.694	2.248	0.006	0.095	0.095	568.299	0.031
Crushing/Proc. Equipment	2025	121	175	2.696	0.27	3.246	1.301	0.006	0.06	0.06	568.299	0.024
Crushing/Proc. Equipment	2025	176	250	3.279	0.224	1.108	1.012	0.006	0.031	0.031	568.299	0.02
Crushing/Proc. Equipment	2025	251	500	4.95	0.221	1.061	0.937	0.005	0.03	0.03	568.299	0.02
Crushing/Proc. Equipment	2025	501	750	7.826	0.222	1.061	0.955	0.005	0.03	0.03	568.299	0.02
Crushing/Proc. Equipment	2025	1001	9999	20.429	0.261	1.087	2.91	0.005	0.053	0.053	568.299	0.023
Crushing/Proc. Equipment	2030	26	50	1.381	0.525	4.857	3.351	0.007	0.043	0.043	568.299	0.047
Crushing/Proc. Equipment	2030	51	120	1.35	0.272	3.673	1.708	0.006	0.038	0.038	568.299	0.024
Crushing/Proc. Equipment	2030	121	175	1.976	0.197	3.244	0.6	0.006	0.025	0.025	568.299	0.017
Crushing/Proc. Equipment	2030	176	250	2.701	0.185	1.105	0.502	0.006	0.017	0.017	568.299	0.016
Crushing/Proc. Equipment	2030	251	500	4.113	0.184	1.058	0.476	0.005	0.017	0.017	568.299	0.016
Crushing/Proc. Equipment	2030	501	750	6.473	0.184	1.058	0.478	0.005	0.017	0.017	568.299	0.016
Crushing/Proc. Equipment	2030	1001	9999	15.345	0.196	1.059	2.59	0.005	0.032	0.032	568.299	0.017
Crushing/Proc. Equipment	2035	26	50	1.282	0.487	4.819	3.237	0.007	0.023	0.023	568.299	0.044
Crushing/Proc. Equipment	2035	51	120	1.236	0.249	3.665	1.531	0.006	0.02	0.02	568.299	0.022
Crushing/Proc. Equipment	2035	121	175	1.76	0.176	3.242	0.382	0.006	0.015	0.015	568.299	0.015
Crushing/Proc. Equipment	2035	176	250	2.521	0.172	1.104	0.342	0.006	0.012	0.012	568.3	0.015
Crushing/Proc. Equipment	2035	251	500	3.852	0.172	1.058	0.338	0.005	0.012	0.012	568.299	0.015
Crushing/Proc. Equipment	2035	501	750	6.064	0.172	1.058	0.338	0.005	0.012	0.012	568.299	0.015
Crushing/Proc. Equipment	2035	1001	9999	13.865	0.177	1.058	2.482	0.005	0.026	0.026	568.299	0.016
Crushing/Proc. Equipment	2040	26	50	1.284	0.488	4.833	3.194	0.007	0.017	0.017	568.299	0.044
Crushing/Proc. Equipment	2040	51	120	1.219	0.245	3.67	1.477	0.006	0.015	0.015	568.299	0.022
Crushing/Proc. Equipment	2040	121	175	1.698	0.17	3.246	0.306	0.006	0.012	0.012	568.299	0.015
Crushing/Proc. Equipment	2040	176	250	2.464	0.168	1.106	0.292	0.006	0.011	0.011	568.299	0.015
Crushing/Proc. Equipment	2040	251	500	3.766	0.168	1.059	0.292	0.005	0.011	0.011	568.299	0.015

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Crushing/Proc. Equipment	2040	501	750	5.941	0.169	1.059	0.292	0.005	0.011	0.011	568.299	0.015
Crushing/Proc. Equipment	2040	1001	9999	13.333	0.17	1.059	2.457	0.005	0.024	0.024	568.299	0.015
Dumpers/Tenders	1990	16	25	2.645	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Dumpers/Tenders	2000	16	25	2.444	2.045	4.69	6.397	0.065	0.571	0.571	568.299	0.184
Dumpers/Tenders	2005	16	25	1.554	1.3	3.337	5.74	0.065	0.426	0.426	568.299	0.117
Dumpers/Tenders	2010	16	25	0.963	0.806	2.507	4.804	0.007	0.271	0.271	568.299	0.072
Dumpers/Tenders	2011	16	25	0.921	0.771	2.456	4.686	0.007	0.251	0.251	568.299	0.069
Dumpers/Tenders	2012	16	25	0.887	0.742	2.416	4.576	0.007	0.232	0.232	568.299	0.066
Dumpers/Tenders	2013	16	25	0.86	0.719	2.385	4.477	0.007	0.216	0.216	568.3	0.064
Dumpers/Tenders	2014	16	25	0.842	0.705	2.364	4.433	0.007	0.2	0.2	568.3	0.063
Dumpers/Tenders	2015	16	25	0.831	0.696	2.35	4.402	0.007	0.187	0.187	568.299	0.062
Dumpers/Tenders	2016	16	25	0.825	0.69	2.342	4.378	0.007	0.175	0.175	568.299	0.062
Dumpers/Tenders	2017	16	25	0.821	0.687	2.34	4.362	0.007	0.171	0.171	568.299	0.062
Dumpers/Tenders	2018	16	25	0.82	0.686	2.339	4.35	0.007	0.169	0.169	568.299	0.061
Dumpers/Tenders	2019	16	25	0.82	0.686	2.339	4.341	0.007	0.167	0.167	568.299	0.061
Dumpers/Tenders	2020	16	25	0.819	0.685	2.339	4.336	0.007	0.165	0.165	568.299	0.061
Dumpers/Tenders	2021	16	25	0.819	0.685	2.339	4.333	0.007	0.163	0.163	568.299	0.061
Dumpers/Tenders	2022	16	25	0.819	0.685	2.339	4.332	0.007	0.162	0.162	568.299	0.061
Dumpers/Tenders	2023	16	25	0.819	0.685	2.339	4.332	0.007	0.162	0.162	568.299	0.061
Dumpers/Tenders	2024	16	25	0.819	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Dumpers/Tenders	2025	16	25	0.819	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Dumpers/Tenders	2030	16	25	0.819	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Dumpers/Tenders	2035	16	25	0.819	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Dumpers/Tenders	2040	16	25	0.819	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Excavators	1990	16	25	5.933	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Excavators	1990	26	50	21.032	5.155	10.359	8.08	0.871	1.341	1.341	568.299	0.465
Excavators	1990	51	120	29.647	2.469	5.901	15.421	0.791	1.413	1.413	568.299	0.222
Excavators	1990	121	175	35.634	1.947	5.271	15.075	0.758	1.096	1.096	568.299	0.175
Excavators	1990	176	250	50.388	1.947	5.271	15.075	0.758	1.096	1.096	568.299	0.175
Excavators	1990	251	500	65.206	1.71	12.155	14.225	0.662	0.93	0.93	568.3	0.154
Excavators	1990	501	750	108.079	1.71	12.155	14.225	1.018	0.947	0.947	568.299	0.154
Excavators	2000	16	25	4.937	1.841	4.315	6.281	0.065	0.543	0.543	568.299	0.166
Excavators	2000	26	50	18.836	4.616	9.494	7.102	0.066	0.958	0.958	568.299	0.416
Excavators	2000	51	120	21.925	1.826	4.602	10.156	0.06	0.913	0.913	568.299	0.164
Excavators	2000	121	175	22.624	1.236	3.672	9.345	0.057	0.525	0.525	568.299	0.111
Excavators	2000	176	250	25.927	1.001	2.794	8.952	0.057	0.409	0.409	568.299	0.09
Excavators	2000	251	500	34.719	0.91	3.974	8.491	0.05	0.362	0.362	568.299	0.082
Excavators	2000	501	750	57.546	0.91	3.974	8.491	0.052	0.362	0.362	568.299	0.082
Excavators	2005	16	25	2.091	0.779	2.397	5.219	0.065	0.319	0.319	568.299	0.07
Excavators	2005	26	50	16.217	3.974	8.597	6.562	0.066	0.871	0.871	568.299	0.358
Excavators	2005	51	120	19.001	1.582	4.354	8.632	0.06	0.853	0.853	568.299	0.142
Excavators	2005	121	175	18.9	1.032	3.452	7.905	0.057	0.461	0.461	568.299	0.093
Excavators	2005	176	250	18.379	0.71	1.892	7.456	0.057	0.276	0.276	568.299	0.064
Excavators	2005	251	500	24.005	0.629	2.194	6.685	0.05	0.248	0.248	568.299	0.056
Excavators	2005	501	750	40.443	0.64	2.192	6.888	0.052	0.251	0.251	568.299	0.057
Excavators	2010	16	25	0.993664	0.835	4.56926	5.19123	0.005	0.413	0.38	584.0737	0.17
Excavators	2010	26	50	0.993664	0.835	4.56926	5.19123	0.005	0.413	0.38	584.0737	0.17
Excavators	2010	51	120	0.73275	0.616	3.69337	6.10169	0.005	0.469	0.432	518.9941	0.151
Excavators	2010	121	175	0.572846	0.481	3.1674	5.82964	0.005	0.299	0.275	525.0484	0.153
Excavators	2010	176	250	0.422004	0.355	1.45526	5.78636	0.005	0.182	0.167	525.2427	0.153
Excavators	2010	251	500	0.315965	0.265	1.44794	4.38582	0.005	0.143	0.132	522.2909	0.152
Excavators	2010	501	750	0.327987	0.276	1.53784	4.52996	0.005	0.149	0.137	520.4269	0.151
Excavators	2011	16	25	0.999474	0.84	4.67202	5.21824	0.005	0.413	0.38	582.8586	0.17
Excavators	2011	26	50	0.999474	0.84	4.67202	5.21824	0.005	0.413	0.38	582.8586	0.17
Excavators	2011	51	120	0.675188	0.567	3.65807	5.70006	0.005	0.436	0.401	517.4139	0.151
Excavators	2011	121	175	0.533269	0.448	3.15702	5.44943	0.005	0.278	0.255	523.5178	0.153
Excavators	2011	176	250	0.400356	0.336	1.41809	5.41822	0.005	0.171	0.157	523.6886	0.153
Excavators	2011	251	500	0.303301	0.255	1.41288	4.1131	0.005	0.133	0.123	521.2972	0.152
Excavators	2011	501	750	0.326107	0.274	1.47034	4.42127	0.005	0.146	0.134	519.1221	0.151
Excavators	2012	16	25	1.018057	0.855	4.79179	5.19511	0.005	0.412	0.379	581.4648	0.17
Excavators	2012	26	50	1.018057	0.855	4.79179	5.19511	0.005	0.412	0.379	581.4648	0.17
Excavators	2012	51	120	0.67458	0.567	3.68099	5.63138	0.005	0.434	0.399	516.083	0.151
Excavators	2012	121	175	0.534632	0.449	3.17839	5.38897	0.005	0.275	0.253	522.0959	0.153
Excavators	2012	176	250	0.402641	0.338	1.42562	5.32577	0.005	0.169	0.155	522.4958	0.153
Excavators	2012	251	500	0.308496	0.259	1.4255	4.05714	0.005	0.131	0.121	520.034	0.152
Excavators	2012	501	750	0.334165	0.281	1.47962	4.3898	0.005	0.145	0.134	517.8167	0.151
Excavators	2013	16	25	0.995402	0.836	4.80774	5.0526	0.005	0.393	0.362	578.236	0.17
Excavators	2013	26	50	0.995402	0.836	4.80774	5.0526	0.005	0.393	0.362	578.236	0.17
Excavators	2013	51	120	0.639011	0.537	3.66866	5.3703	0.005	0.404	0.372	513.7321	0.151
Excavators	2013	121	175	0.503929	0.423	3.16966	5.08991	0.005	0.253	0.233	519.496	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Excavators	2013	176	250	0.383779	0.322	1.40068	4.93756	0.005	0.157	0.145	519.8753	0.153
Excavators	2013	251	500	0.295491	0.248	1.38754	3.73509	0.005	0.121	0.111	517.7809	0.152
Excavators	2013	501	750	0.301827	0.254	1.36166	3.92892	0.005	0.126	0.116	514.1872	0.151
Excavators	2014	16	25	0.981904	0.825	4.84434	4.96504	0.005	0.38	0.35	575.2674	0.17
Excavators	2014	26	50	0.981904	0.825	4.84434	4.96504	0.005	0.38	0.35	575.2674	0.17
Excavators	2014	51	120	0.610505	0.513	3.66313	5.13137	0.005	0.382	0.352	511.3057	0.151
Excavators	2014	121	175	0.464169	0.39	3.15438	4.65701	0.005	0.229	0.211	516.9066	0.153
Excavators	2014	176	250	0.350137	0.294	1.34557	4.37384	0.005	0.139	0.128	517.3234	0.153
Excavators	2014	251	500	0.276896	0.233	1.32721	3.35284	0.005	0.108	0.099	515.2151	0.152
Excavators	2014	501	750	0.284069	0.239	1.34745	3.54089	0.005	0.114	0.105	511.9453	0.151
Excavators	2015	16	25	0.991068	0.833	4.92488	4.91817	0.005	0.375	0.345	569.5116	0.17
Excavators	2015	26	50	0.991068	0.833	4.92488	4.91817	0.005	0.375	0.345	569.5116	0.17
Excavators	2015	51	120	0.60346	0.507	3.67943	5.01907	0.005	0.373	0.344	506.1727	0.151
Excavators	2015	121	175	0.456597	0.384	3.16762	4.4807	0.005	0.221	0.203	511.6869	0.153
Excavators	2015	176	250	0.343545	0.289	1.33148	4.18222	0.005	0.133	0.122	512.0555	0.153
Excavators	2015	251	500	0.276143	0.232	1.31662	3.21395	0.005	0.104	0.096	509.8675	0.152
Excavators	2015	501	750	0.28808	0.242	1.35372	3.47287	0.005	0.113	0.104	506.6816	0.151
Excavators	2016	16	25	0.970016	0.815	4.94198	4.82432	0.005	0.359	0.33	563.8026	0.17
Excavators	2016	26	50	0.970016	0.815	4.94198	4.82432	0.005	0.359	0.33	563.8026	0.17
Excavators	2016	51	120	0.566011	0.476	3.66066	4.70806	0.005	0.344	0.317	500.9659	0.151
Excavators	2016	121	175	0.425494	0.358	3.15771	4.08095	0.005	0.201	0.185	506.495	0.153
Excavators	2016	176	250	0.312033	0.262	1.27749	3.66736	0.005	0.116	0.107	506.544	0.153
Excavators	2016	251	500	0.253752	0.213	1.23344	2.81451	0.005	0.091	0.083	504.2899	0.152
Excavators	2016	501	750	0.287698	0.242	1.34881	3.35762	0.005	0.11	0.101	501.6596	0.151
Excavators	2017	16	25	0.91741	0.771	4.88904	4.67818	0.005	0.332	0.305	554.9101	0.17
Excavators	2017	26	50	0.91741	0.771	4.88904	4.67818	0.005	0.332	0.305	554.9101	0.17
Excavators	2017	51	120	0.523542	0.44	3.63939	4.37952	0.005	0.31	0.285	493.409	0.151
Excavators	2017	121	175	0.397029	0.334	3.15091	3.69967	0.005	0.182	0.167	498.5222	0.153
Excavators	2017	176	250	0.293543	0.247	1.24911	3.31872	0.005	0.105	0.097	498.4364	0.153
Excavators	2017	251	500	0.237788	0.2	1.19852	2.50715	0.005	0.081	0.075	496.8098	0.152
Excavators	2017	501	750	0.249769	0.21	1.22803	2.71934	0.005	0.09	0.083	494.5496	0.152
Excavators	2018	16	25	0.818091	0.687	4.70022	4.39518	0.005	0.284	0.261	545.3468	0.17
Excavators	2018	26	50	0.818091	0.687	4.70022	4.39518	0.005	0.284	0.261	545.3468	0.17
Excavators	2018	51	120	0.438055	0.368	3.56214	3.76366	0.005	0.25	0.23	486.056	0.151
Excavators	2018	121	175	0.324959	0.273	3.09338	2.92361	0.005	0.142	0.13	490.6725	0.153
Excavators	2018	176	250	0.240329	0.202	1.15209	2.59377	0.005	0.079	0.073	490.2569	0.153
Excavators	2018	251	500	0.207823	0.175	1.13951	2.05045	0.005	0.066	0.061	489.1025	0.152
Excavators	2018	501	750	0.22476	0.189	1.22359	2.26567	0.005	0.076	0.07	487.6528	0.152
Excavators	2019	16	25	0.75855	0.637	4.59698	4.19867	0.005	0.25	0.23	536.9132	0.17
Excavators	2019	26	50	0.75855	0.637	4.59698	4.19867	0.005	0.25	0.23	536.9132	0.17
Excavators	2019	51	120	0.386598	0.325	3.52421	3.36874	0.005	0.211	0.194	478.2452	0.151
Excavators	2019	121	175	0.293021	0.246	3.08163	2.53264	0.005	0.122	0.112	482.6838	0.153
Excavators	2019	176	250	0.220917	0.186	1.12671	2.24187	0.005	0.068	0.063	482.2503	0.153
Excavators	2019	251	500	0.192898	0.162	1.1135	1.77986	0.005	0.058	0.053	481.2361	0.152
Excavators	2019	501	750	0.209677	0.176	1.17289	1.98661	0.005	0.067	0.062	479.2876	0.152
Excavators	2020	16	25	0.705964	0.593	4.50032	4.03131	0.005	0.222	0.204	525.3675	0.17
Excavators	2020	26	50	0.705964	0.593	4.50032	4.03131	0.005	0.222	0.204	525.3675	0.17
Excavators	2020	51	120	0.356064	0.299	3.50495	3.08964	0.005	0.185	0.17	468.0546	0.151
Excavators	2020	121	175	0.275327	0.231	3.08597	2.27838	0.005	0.11	0.102	472.2891	0.153
Excavators	2020	176	250	0.211076	0.177	1.11778	2.02738	0.005	0.061	0.056	471.8828	0.153
Excavators	2020	251	500	0.182542	0.153	1.1016	1.57199	0.005	0.052	0.048	470.2956	0.152
Excavators	2020	501	750	0.202011	0.17	1.14543	1.79718	0.005	0.061	0.056	468.8706	0.152
Excavators	2021	16	25	0.669315	0.562	4.46094	3.91866	0.005	0.202	0.186	525.3774	0.17
Excavators	2021	26	50	0.669315	0.562	4.46094	3.91866	0.005	0.202	0.186	525.3774	0.17
Excavators	2021	51	120	0.327314	0.275	3.49196	2.84891	0.005	0.161	0.148	467.7906	0.151
Excavators	2021	121	175	0.257574	0.216	3.08975	2.03357	0.005	0.099	0.091	472.3586	0.153
Excavators	2021	176	250	0.193738	0.163	1.10324	1.70572	0.005	0.052	0.048	471.7931	0.153
Excavators	2021	251	500	0.170127	0.143	1.08777	1.33174	0.005	0.045	0.041	469.6156	0.152
Excavators	2021	501	750	0.196683	0.165	1.14978	1.61856	0.005	0.056	0.052	469.547	0.152
Excavators	2022	16	25	0.568779	0.478	4.27341	3.70039	0.005	0.16	0.147	525.4468	0.17
Excavators	2022	26	50	0.568779	0.478	4.27341	3.70039	0.005	0.16	0.147	525.4468	0.17
Excavators	2022	51	120	0.299503	0.252	3.47329	2.60649	0.005	0.138	0.127	467.6256	0.151
Excavators	2022	121	175	0.22749	0.191	3.074	1.6781	0.005	0.081	0.075	472.1917	0.153
Excavators	2022	176	250	0.176606	0.148	1.09157	1.38616	0.005	0.044	0.04	472.0412	0.153
Excavators	2022	251	500	0.152263	0.128	1.06126	1.03988	0.005	0.035	0.032	469.7105	0.152
Excavators	2022	501	750	0.178436	0.15	1.144	1.2865	0.005	0.047	0.043	469.2892	0.152
Excavators	2023	16	25	0.535724	0.45	4.23393	3.59356	0.005	0.139	0.128	525.4286	0.17
Excavators	2023	26	50	0.535724	0.45	4.23393	3.59356	0.005	0.139	0.128	525.4286	0.17
Excavators	2023	51	120	0.273823	0.23	3.45367	2.38066	0.005	0.116	0.107	467.1573	0.151
Excavators	2023	121	175	0.212046	0.178	3.07648	1.46245	0.005	0.072	0.066	472.277	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Excavators	2023	176	250	0.168964	0.142	1.08965	1.20943	0.005	0.039	0.036	472.2131	0.153
Excavators	2023	251	500	0.145171	0.122	1.05093	0.89311	0.005	0.03	0.028	469.8892	0.152
Excavators	2023	501	750	0.171247	0.144	1.13199	1.15865	0.005	0.043	0.04	468.6826	0.152
Excavators	2024	16	25	0.495634	0.416	4.20529	3.50816	0.005	0.12	0.11	525.979	0.17
Excavators	2024	26	50	0.495634	0.416	4.20529	3.50816	0.005	0.12	0.11	525.979	0.17
Excavators	2024	51	120	0.258544	0.217	3.45322	2.24781	0.005	0.102	0.094	467.3843	0.151
Excavators	2024	121	175	0.202572	0.17	3.08336	1.32479	0.005	0.065	0.06	472.4279	0.153
Excavators	2024	176	250	0.165297	0.139	1.0899	1.10808	0.005	0.036	0.033	472.4415	0.153
Excavators	2024	251	500	0.144133	0.121	1.05369	0.83129	0.005	0.029	0.026	469.7108	0.152
Excavators	2024	501	750	0.169017	0.142	1.13421	1.10467	0.005	0.041	0.037	468.652	0.152
Excavators	2025	16	25	0.47994	0.403	4.21941	3.45298	0.005	0.107	0.099	525.7772	0.17
Excavators	2025	26	50	0.47994	0.403	4.21941	3.45298	0.005	0.107	0.099	525.7772	0.17
Excavators	2025	51	120	0.23878	0.201	3.43876	2.08246	0.005	0.085	0.078	466.7376	0.151
Excavators	2025	121	175	0.187811	0.158	3.078	1.15367	0.005	0.057	0.052	472.4964	0.153
Excavators	2025	176	250	0.155588	0.131	1.08136	0.96211	0.005	0.032	0.029	472.5599	0.153
Excavators	2025	251	500	0.137039	0.115	1.05072	0.72641	0.005	0.026	0.024	470.2915	0.152
Excavators	2025	501	750	0.165305	0.139	1.13484	1.02571	0.005	0.038	0.035	468.5582	0.152
Excavators	2030	16	25	1.838	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Excavators	2030	26	50	2.458	0.602	5.309	3.393	0.007	0.038	0.038	568.299	0.054
Excavators	2030	51	120	3.618	0.301	3.806	1.676	0.006	0.034	0.034	568.299	0.027
Excavators	2030	121	175	3.914	0.213	3.362	0.525	0.006	0.023	0.023	568.299	0.019
Excavators	2030	176	250	5.258	0.203	1.145	0.452	0.006	0.016	0.016	568.299	0.018
Excavators	2030	251	500	7.722	0.202	1.088	0.433	0.005	0.016	0.016	568.299	0.018
Excavators	2030	501	750	12.807	0.202	1.088	0.437	0.005	0.016	0.016	568.299	0.018
Excavators	2035	16	25	1.838	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Excavators	2035	26	50	2.333	0.572	5.287	3.323	0.007	0.024	0.024	568.299	0.051
Excavators	2035	51	120	3.411	0.284	3.802	1.551	0.006	0.021	0.021	568.299	0.025
Excavators	2035	121	175	3.622	0.197	3.363	0.365	0.006	0.015	0.015	568.299	0.017
Excavators	2035	176	250	5.059	0.195	1.145	0.342	0.006	0.013	0.013	568.3	0.017
Excavators	2035	251	500	7.45	0.195	1.089	0.337	0.005	0.013	0.013	568.299	0.017
Excavators	2035	501	750	12.348	0.195	1.088	0.338	0.005	0.013	0.013	568.299	0.017
Excavators	2040	16	25	1.838	0.685	2.339	4.332	0.007	0.161	0.161	568.3	0.061
Excavators	2040	26	50	2.314	0.567	5.283	3.29	0.007	0.019	0.019	568.299	0.051
Excavators	2040	51	120	3.36	0.279	3.802	1.507	0.006	0.017	0.017	568.299	0.025
Excavators	2040	121	175	3.532	0.193	3.363	0.311	0.006	0.013	0.013	568.299	0.017
Excavators	2040	176	250	4.971	0.192	1.145	0.3	0.006	0.011	0.011	568.299	0.017
Excavators	2040	251	500	7.322	0.192	1.089	0.3	0.005	0.011	0.011	568.299	0.017
Excavators	2040	501	750	12.137	0.192	1.089	0.3	0.005	0.011	0.011	568.299	0.017
Forklifts	1990	26	50	11.848	4.826	9.773	7.952	0.692	1.266	1.266	568.299	0.435
Forklifts	1990	51	120	12.154	2.326	5.638	14.699	0.628	1.32	1.32	568.3	0.209
Forklifts	1990	121	175	14.423	1.537	4.938	12.932	0.602	0.849	0.849	568.299	0.138
Forklifts	1990	176	250	19.845	1.537	4.938	12.932	0.602	0.849	0.849	568.299	0.138
Forklifts	1990	251	500	25.356	1.365	10.853	12.267	0.525	0.73	0.73	568.299	0.123
Forklifts	2000	26	50	10.952	4.461	9.216	7.035	0.065	0.934	0.934	568.3	0.402
Forklifts	2000	51	120	9.146	1.75	4.459	9.75	0.059	0.882	0.882	568.299	0.157
Forklifts	2000	121	175	11.149	1.188	3.519	9.001	0.057	0.502	0.502	568.299	0.107
Forklifts	2000	176	250	11.958	0.926	2.534	8.546	0.057	0.372	0.372	568.299	0.083
Forklifts	2000	251	500	15.747	0.848	3.255	8.126	0.049	0.333	0.333	568.299	0.076
Forklifts	2005	26	50	10.087	4.108	8.778	6.62	0.065	0.891	0.891	568.299	0.37
Forklifts	2005	51	120	8.425	1.612	4.35	8.602	0.059	0.876	0.876	568.299	0.145
Forklifts	2005	121	175	9.959	1.061	3.418	7.94	0.057	0.475	0.475	568.299	0.095
Forklifts	2005	176	250	8.606	0.666	1.693	7.367	0.057	0.253	0.253	568.299	0.06
Forklifts	2005	251	500	10.976	0.591	1.803	6.611	0.049	0.23	0.23	568.299	0.053
Forklifts	2010	26	50	2.846117	2.392	7.62516	6.31187	0.005	0.729	0.671	583.8704	0.17
Forklifts	2010	51	120	1.045472	0.878	4.10764	7.63494	0.005	0.625	0.575	523.9205	0.153
Forklifts	2010	121	175	0.764801	0.643	3.54812	7.24303	0.005	0.389	0.357	524.5625	0.153
Forklifts	2010	176	250	0.852639	0.716	2.88991	8.49545	0.005	0.398	0.366	525.9172	0.153
Forklifts	2010	251	500	0.814667	0.685	5.79345	8.13812	0.005	0.381	0.351	526.239	0.153
Forklifts	2011	26	50	2.771689	2.329	7.5619	6.26642	0.005	0.715	0.657	582.4107	0.17
Forklifts	2011	51	120	1.023636	0.86	4.10232	7.45983	0.005	0.617	0.568	522.6107	0.153
Forklifts	2011	121	175	0.759385	0.638	3.55732	7.14122	0.005	0.385	0.355	523.2511	0.153
Forklifts	2011	176	250	0.819463	0.689	2.77115	8.17495	0.005	0.381	0.35	524.6024	0.153
Forklifts	2011	251	500	0.787175	0.661	5.42187	7.84	0.005	0.368	0.338	524.9234	0.153
Forklifts	2012	26	50	2.800937	2.354	7.68036	6.27736	0.005	0.72	0.663	580.951	0.17
Forklifts	2012	51	120	1.026513	0.863	4.13104	7.43066	0.005	0.62	0.571	521.3009	0.153
Forklifts	2012	121	175	0.764904	0.643	3.58413	7.11981	0.005	0.387	0.356	521.9397	0.153
Forklifts	2012	176	250	0.82428	0.693	2.77846	8.14199	0.005	0.381	0.35	523.2876	0.153
Forklifts	2012	251	500	0.795085	0.668	5.42806	7.85628	0.005	0.369	0.34	523.6078	0.153
Forklifts	2013	26	50	2.655997	2.232	7.4937	6.14743	0.005	0.689	0.634	578.0317	0.17
Forklifts	2013	51	120	0.996839	0.838	4.11855	7.21545	0.005	0.603	0.555	518.6813	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Forklifts	2013	121	175	0.743778	0.625	3.57971	6.90229	0.005	0.375	0.345	519.3169	0.153
Forklifts	2013	176	250	0.786493	0.661	2.67477	7.77338	0.005	0.36	0.332	520.658	0.153
Forklifts	2013	251	500	0.686735	0.577	4.6871	6.91072	0.005	0.314	0.289	520.9766	0.153
Forklifts	2014	26	50	2.515249	2.114	7.32058	6.00609	0.005	0.656	0.604	575.1123	0.17
Forklifts	2014	51	120	0.945485	0.794	4.07936	6.84833	0.005	0.574	0.528	516.0617	0.153
Forklifts	2014	121	175	0.688099	0.578	3.52073	6.35205	0.005	0.345	0.317	516.694	0.153
Forklifts	2014	176	250	0.731475	0.615	2.50114	7.27612	0.005	0.33	0.304	518.0284	0.153
Forklifts	2014	251	500	0.644228	0.541	4.25186	6.35258	0.005	0.289	0.266	518.3454	0.153
Forklifts	2015	26	50	2.466892	2.073	7.29982	5.93143	0.005	0.643	0.591	569.2736	0.17
Forklifts	2015	51	120	0.914509	0.768	4.06346	6.60091	0.005	0.555	0.51	510.8225	0.153
Forklifts	2015	121	175	0.673169	0.566	3.51969	6.13482	0.005	0.335	0.308	511.4484	0.153
Forklifts	2015	176	250	0.672054	0.565	2.32501	6.69668	0.005	0.298	0.274	512.7693	0.153
Forklifts	2015	251	500	0.539875	0.454	3.29951	5.33227	0.005	0.237	0.218	513.083	0.153
Forklifts	2016	26	50	2.217878	1.864	6.93473	5.66211	0.005	0.583	0.537	563.4349	0.17
Forklifts	2016	51	120	0.860278	0.723	4.02311	6.22192	0.005	0.52	0.479	505.5833	0.153
Forklifts	2016	121	175	0.630613	0.53	3.47253	5.67466	0.005	0.31	0.285	506.2028	0.153
Forklifts	2016	176	250	0.641979	0.539	2.22626	6.35303	0.005	0.28	0.257	507.5101	0.153
Forklifts	2016	251	500	0.419581	0.353	2.57209	4.04212	0.005	0.174	0.16	507.8206	0.153
Forklifts	2017	26	50	2.026819	1.703	6.67251	5.45035	0.005	0.536	0.493	554.6769	0.17
Forklifts	2017	51	120	0.799635	0.672	3.97881	5.81772	0.005	0.48	0.442	497.7245	0.153
Forklifts	2017	121	175	0.604568	0.508	3.45188	5.36215	0.005	0.294	0.27	498.3344	0.153
Forklifts	2017	176	250	0.589964	0.496	2.0923	5.75116	0.005	0.252	0.232	499.6213	0.153
Forklifts	2017	251	500	0.401897	0.338	2.50803	3.7797	0.005	0.161	0.148	499.927	0.153
Forklifts	2018	26	50	1.658295	1.393	6.10276	5.05181	0.005	0.447	0.411	545.9188	0.17
Forklifts	2018	51	120	0.675301	0.567	3.85819	5.0153	0.005	0.4	0.368	489.8657	0.153
Forklifts	2018	121	175	0.508414	0.427	3.33646	4.42984	0.005	0.241	0.222	490.4659	0.153
Forklifts	2018	176	250	0.506009	0.425	1.83475	4.93757	0.005	0.207	0.191	491.7326	0.153
Forklifts	2018	251	500	0.335655	0.282	1.87814	3.01864	0.005	0.125	0.115	492.0335	0.153
Forklifts	2019	26	50	1.480074	1.244	5.88034	4.86189	0.005	0.401	0.369	537.1608	0.17
Forklifts	2019	51	120	0.606336	0.509	3.80391	4.54965	0.005	0.352	0.324	482.0069	0.153
Forklifts	2019	121	175	0.454984	0.382	3.28831	3.86458	0.005	0.21	0.193	482.5975	0.153
Forklifts	2019	176	250	0.445406	0.374	1.6773	4.2498	0.005	0.175	0.161	483.8438	0.153
Forklifts	2019	251	500	0.31829	0.267	1.814	2.75148	0.005	0.112	0.103	484.1399	0.153
Forklifts	2020	26	50	1.337399	1.124	5.70563	4.68572	0.005	0.36	0.331	525.4833	0.17
Forklifts	2020	51	120	0.545921	0.459	3.75954	4.13299	0.005	0.308	0.283	471.5285	0.153
Forklifts	2020	121	175	0.402357	0.338	3.24885	3.3196	0.005	0.18	0.165	472.1062	0.153
Forklifts	2020	176	250	0.348476	0.293	1.44178	3.24149	0.005	0.126	0.116	473.3255	0.153
Forklifts	2020	251	500	0.299035	0.251	1.47807	2.43991	0.005	0.097	0.089	473.6151	0.153
Forklifts	2021	26	50	1.192536	1.002	5.53477	4.5202	0.005	0.318	0.292	525.4833	0.17
Forklifts	2021	51	120	0.490261	0.412	3.72	3.75592	0.005	0.267	0.245	471.5285	0.153
Forklifts	2021	121	175	0.366939	0.308	3.23128	2.9207	0.005	0.158	0.145	472.1062	0.153
Forklifts	2021	176	250	0.296154	0.249	1.33672	2.58195	0.005	0.099	0.091	473.3255	0.153
Forklifts	2021	251	500	0.301833	0.254	1.48481	2.30266	0.005	0.094	0.086	473.6151	0.153
Forklifts	2022	26	50	1.02259	0.859	5.30418	4.31214	0.005	0.27	0.248	525.4833	0.17
Forklifts	2022	51	120	0.430627	0.362	3.67507	3.36021	0.005	0.223	0.205	471.5285	0.153
Forklifts	2022	121	175	0.324265	0.272	3.19749	2.47982	0.005	0.132	0.122	472.1062	0.153
Forklifts	2022	176	250	0.280841	0.236	1.3171	2.31941	0.005	0.09	0.083	473.3255	0.153
Forklifts	2022	251	500	0.275829	0.232	1.21922	1.99119	0.005	0.077	0.071	473.6151	0.153
Forklifts	2023	26	50	0.911766	0.766	5.16597	4.15219	0.005	0.232	0.213	525.4833	0.17
Forklifts	2023	51	120	0.388709	0.327	3.64655	3.0569	0.005	0.189	0.174	471.5285	0.153
Forklifts	2023	121	175	0.289923	0.244	3.1799	2.11214	0.005	0.111	0.102	472.1062	0.153
Forklifts	2023	176	250	0.242474	0.204	1.23515	1.80718	0.005	0.069	0.063	473.3255	0.153
Forklifts	2023	251	500	0.261765	0.22	1.21596	1.78772	0.005	0.069	0.063	473.6151	0.153
Forklifts	2024	26	50	0.823848	0.692	5.0885	4.03948	0.005	0.203	0.187	525.4833	0.17
Forklifts	2024	51	120	0.357083	0.3	3.62907	2.81432	0.005	0.163	0.15	471.5285	0.153
Forklifts	2024	121	175	0.266701	0.224	3.17389	1.86129	0.005	0.096	0.088	472.1062	0.153
Forklifts	2024	176	250	0.232645	0.195	1.21846	1.6253	0.005	0.061	0.056	473.3255	0.153
Forklifts	2024	251	500	0.258844	0.218	1.21901	1.72336	0.005	0.065	0.06	473.6151	0.153
Forklifts	2025	26	50	0.757155	0.636	5.02929	3.93206	0.005	0.178	0.164	525.4833	0.17
Forklifts	2025	51	120	0.329382	0.277	3.61138	2.60732	0.005	0.14	0.128	471.5285	0.153
Forklifts	2025	121	175	0.248361	0.209	3.17013	1.653	0.005	0.084	0.078	472.1062	0.153
Forklifts	2025	176	250	0.226669	0.19	1.2143	1.46623	0.005	0.056	0.052	473.3255	0.153
Forklifts	2025	251	500	0.255656	0.215	1.22207	1.65848	0.005	0.062	0.057	473.6151	0.153
Forklifts	2030	26	50	1.388	0.565	5.272	3.33	0.007	0.023	0.023	568.299	0.051
Forklifts	2030	51	120	1.48	0.283	3.799	1.555	0.006	0.021	0.021	568.299	0.025
Forklifts	2030	121	175	1.875	0.199	3.36	0.391	0.006	0.015	0.015	568.299	0.018
Forklifts	2030	176	250	2.524	0.195	1.144	0.341	0.006	0.012	0.012	568.299	0.017
Forklifts	2030	251	500	3.633	0.195	1.088	0.341	0.005	0.012	0.012	568.299	0.017
Forklifts	2035	26	50	1.371	0.558	5.234	3.268	0.007	0.017	0.017	568.299	0.05
Forklifts	2035	51	120	1.438	0.275	3.787	1.495	0.006	0.016	0.016	568.299	0.024

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Forklifts	2035	121	175	1.775	0.189	3.35	0.299	0.006	0.012	0.012	568.3	0.017
Forklifts	2035	176	250	2.433	0.188	1.141	0.29	0.006	0.011	0.011	568.3	0.017
Forklifts	2035	251	500	3.502	0.188	1.085	0.29	0.005	0.011	0.011	568.299	0.017
Forklifts	2040	26	50	1.38	0.562	5.256	3.272	0.007	0.017	0.017	568.299	0.05
Forklifts	2040	51	120	1.444	0.276	3.794	1.491	0.006	0.016	0.016	568.299	0.024
Forklifts	2040	121	175	1.777	0.189	3.356	0.288	0.006	0.012	0.012	568.299	0.017
Forklifts	2040	176	250	2.445	0.189	1.143	0.288	0.006	0.011	0.011	568.299	0.017
Forklifts	2040	251	500	3.518	0.189	1.087	0.288	0.005	0.011	0.011	568.299	0.017
Generator Sets	1990	6	15	4.791	1.804	4.999	10	1.018	0.974	0.974	568.299	0.162
Generator Sets	1990	16	25	10.151	2.213	4.999	6.919	0.83	0.74	0.74	568.299	0.199
Generator Sets	1990	26	50	24.936	3.13	6.681	7.325	0.846	0.928	0.928	568.299	0.282
Generator Sets	1990	51	120	38.362	1.891	4.97	13.19	0.768	0.985	0.985	568.299	0.17
Generator Sets	1990	121	175	47.754	1.292	4.395	11.864	0.736	0.653	0.653	568.3	0.116
Generator Sets	1990	176	250	71.475	1.292	4.395	11.864	0.736	0.653	0.653	568.299	0.116
Generator Sets	1990	251	500	104.891	1.196	6.53	11.613	0.642	0.596	0.596	568.299	0.107
Generator Sets	1990	501	750	169.323	1.196	6.53	11.612	0.658	0.596	0.596	568.299	0.107
Generator Sets	1990	1001	9999	326.002	1.195	6.53	11.612	0.658	0.594	0.594	568.299	0.107
Generator Sets	2000	6	15	4.033	1.518	4.875	8.846	0.079	0.613	0.613	568.299	0.137
Generator Sets	2000	16	25	7.648	1.667	4.783	6.405	0.065	0.51	0.51	568.299	0.15
Generator Sets	2000	26	50	23.582	2.96	6.415	6.55	0.066	0.692	0.692	568.299	0.267
Generator Sets	2000	51	120	31.137	1.535	4.158	9.468	0.06	0.686	0.686	568.299	0.138
Generator Sets	2000	121	175	38.027	1.029	3.381	8.612	0.057	0.404	0.404	568.299	0.092
Generator Sets	2000	176	250	46.981	0.849	2.656	8.277	0.057	0.325	0.325	568.299	0.076
Generator Sets	2000	251	500	70.308	0.802	3.7	8.102	0.05	0.301	0.301	568.299	0.072
Generator Sets	2000	501	750	113.5	0.802	3.7	8.102	0.051	0.301	0.301	568.3	0.072
Generator Sets	2000	1001	9999	251.503	0.921	4.274	8.686	0.051	0.344	0.344	568.299	0.083
Generator Sets	2005	6	15	3.219	1.212	4.38	7.615	0.079	0.505	0.505	568.299	0.109
Generator Sets	2005	16	25	5.748	1.253	3.922	6.014	0.065	0.432	0.432	568.299	0.113
Generator Sets	2005	26	50	20.78	2.608	5.919	6.099	0.066	0.64	0.64	568.3	0.235
Generator Sets	2005	51	120	26.634	1.313	3.853	7.987	0.06	0.634	0.634	568.299	0.118
Generator Sets	2005	121	175	31.579	0.854	3.067	7.306	0.057	0.35	0.35	568.299	0.077
Generator Sets	2005	176	250	33.443	0.604	1.801	6.892	0.057	0.229	0.229	568.299	0.054
Generator Sets	2005	251	500	47.834	0.545	2.206	6.465	0.05	0.211	0.211	568.299	0.049
Generator Sets	2005	501	750	79.444	0.561	2.206	6.609	0.051	0.214	0.214	568.3	0.05
Generator Sets	2005	1001	9999	195.712	0.717	2.719	7.582	0.051	0.255	0.255	568.299	0.064
Generator Sets	2010	6	15	2.532	0.953	4.027	6.387	0.008	0.38	0.38	568.299	0.086
Generator Sets	2010	16	25	4.408	0.961	3.309	5.477	0.007	0.342	0.342	568.299	0.086
Generator Sets	2010	26	50	16.299	2.045	5.353	5.68	0.007	0.522	0.522	568.299	0.184
Generator Sets	2010	51	120	20.399	1.005	3.677	6.573	0.006	0.516	0.516	568.299	0.09
Generator Sets	2010	121	175	24.447	0.661	2.986	5.87	0.006	0.286	0.286	568.299	0.059
Generator Sets	2010	176	250	23.668	0.428	1.333	5.501	0.006	0.163	0.163	568.299	0.038
Generator Sets	2010	251	500	33.685	0.384	1.482	5.015	0.005	0.153	0.153	568.299	0.034
Generator Sets	2010	501	750	56.116	0.396	1.482	5.147	0.005	0.155	0.155	568.299	0.035
Generator Sets	2010	1001	9999	147.466	0.54	1.93	6.544	0.005	0.193	0.193	568.299	0.048
Generator Sets	2011	6	15	2.413	0.908	3.952	6.134	0.008	0.358	0.358	568.299	0.081
Generator Sets	2011	16	25	4.22	0.92	3.179	5.36	0.007	0.325	0.325	568.299	0.083
Generator Sets	2011	26	50	15.152	1.901	5.2	5.585	0.007	0.495	0.495	568.3	0.171
Generator Sets	2011	51	120	19.003	0.937	3.64	6.226	0.006	0.493	0.493	568.299	0.084
Generator Sets	2011	121	175	22.889	0.619	2.974	5.544	0.006	0.274	0.274	568.299	0.055
Generator Sets	2011	176	250	21.62	0.391	1.249	5.125	0.006	0.147	0.147	568.299	0.035
Generator Sets	2011	251	500	30.74	0.35	1.36	4.654	0.005	0.138	0.138	568.299	0.031
Generator Sets	2011	501	750	51.271	0.362	1.36	4.784	0.005	0.14	0.14	568.299	0.032
Generator Sets	2011	1001	9999	137.042	0.502	1.784	6.202	0.005	0.18	0.18	568.299	0.045
Generator Sets	2012	6	15	2.298	0.865	3.874	5.874	0.008	0.338	0.338	568.299	0.078
Generator Sets	2012	16	25	4.059	0.884	3.043	5.239	0.007	0.307	0.307	568.299	0.079
Generator Sets	2012	26	50	13.912	1.746	5.03	5.485	0.007	0.466	0.466	568.299	0.157
Generator Sets	2012	51	120	17.544	0.865	3.603	5.848	0.006	0.46	0.46	568.299	0.078
Generator Sets	2012	121	175	21.243	0.575	2.963	5.198	0.006	0.254	0.254	568.299	0.051
Generator Sets	2012	176	250	19.998	0.361	1.196	4.77	0.006	0.133	0.133	568.3	0.032
Generator Sets	2012	251	500	28.44	0.324	1.275	4.315	0.005	0.125	0.125	568.299	0.029
Generator Sets	2012	501	750	47.464	0.335	1.275	4.441	0.005	0.127	0.127	568.299	0.03
Generator Sets	2012	1001	9999	126.39	0.463	1.639	5.849	0.005	0.166	0.166	568.3	0.041
Generator Sets	2013	6	15	2.187	0.823	3.796	5.616	0.008	0.318	0.318	568.299	0.074
Generator Sets	2013	16	25	3.907	0.851	2.907	5.117	0.007	0.289	0.289	568.299	0.076
Generator Sets	2013	26	50	12.634	1.585	4.854	5.263	0.007	0.428	0.428	568.299	0.143
Generator Sets	2013	51	120	16.078	0.792	3.567	5.478	0.006	0.424	0.424	568.299	0.071
Generator Sets	2013	121	175	19.587	0.53	2.953	4.873	0.006	0.233	0.233	568.299	0.047
Generator Sets	2013	176	250	18.602	0.336	1.16	4.428	0.006	0.122	0.122	568.299	0.03
Generator Sets	2013	251	500	26.484	0.302	1.211	3.989	0.005	0.114	0.114	568.299	0.027
Generator Sets	2013	501	750	44.22	0.312	1.211	4.113	0.005	0.116	0.116	568.299	0.028

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Generator Sets	2013	1001	9999	115.946	0.425	1.502	5.494	0.005	0.152	0.152	568.299	0.038
Generator Sets	2014	6	15	2.081	0.783	3.723	5.369	0.008	0.298	0.298	568.299	0.07
Generator Sets	2014	16	25	3.767	0.821	2.78	5	0.007	0.272	0.272	568.299	0.074
Generator Sets	2014	26	50	11.368	1.427	4.683	5.048	0.007	0.389	0.389	568.299	0.128
Generator Sets	2014	51	120	14.638	0.721	3.532	5.147	0.006	0.385	0.385	568.299	0.065
Generator Sets	2014	121	175	17.974	0.486	2.945	4.565	0.006	0.212	0.212	568.299	0.043
Generator Sets	2014	176	250	17.205	0.311	1.13	4.025	0.006	0.111	0.111	568.3	0.028
Generator Sets	2014	251	500	24.516	0.279	1.157	3.603	0.005	0.104	0.104	568.299	0.025
Generator Sets	2014	501	750	40.956	0.289	1.157	3.724	0.005	0.106	0.106	568.299	0.026
Generator Sets	2014	1001	9999	106.127	0.389	1.377	5.15	0.005	0.138	0.138	568.299	0.035
Generator Sets	2015	6	15	1.984	0.747	3.658	5.141	0.008	0.28	0.28	568.299	0.067
Generator Sets	2015	16	25	3.639	0.793	2.666	4.89	0.007	0.256	0.256	568.299	0.071
Generator Sets	2015	26	50	10.213	1.281	4.538	4.858	0.007	0.353	0.353	568.299	0.115
Generator Sets	2015	51	120	13.208	0.651	3.499	4.769	0.006	0.347	0.347	568.299	0.058
Generator Sets	2015	121	175	16.277	0.44	2.938	4.138	0.006	0.191	0.191	568.299	0.039
Generator Sets	2015	176	250	15.884	0.287	1.104	3.633	0.006	0.1	0.1	568.3	0.025
Generator Sets	2015	251	500	22.677	0.258	1.114	3.231	0.005	0.094	0.094	568.299	0.023
Generator Sets	2015	501	750	37.88	0.267	1.114	3.347	0.005	0.096	0.096	568.299	0.024
Generator Sets	2015	1001	9999	95.984	0.351	1.269	4.822	0.005	0.124	0.124	568.299	0.031
Generator Sets	2016	6	15	1.914	0.72	3.622	4.978	0.008	0.264	0.264	568.299	0.065
Generator Sets	2016	16	25	3.548	0.773	2.604	4.803	0.007	0.244	0.244	568.299	0.069
Generator Sets	2016	26	50	9.132	1.146	4.41	4.685	0.007	0.318	0.318	568.299	0.103
Generator Sets	2016	51	120	11.84	0.583	3.469	4.41	0.006	0.309	0.309	568.299	0.052
Generator Sets	2016	121	175	14.658	0.396	2.934	3.731	0.006	0.17	0.17	568.299	0.035
Generator Sets	2016	176	250	14.652	0.265	1.081	3.259	0.006	0.09	0.09	568.299	0.023
Generator Sets	2016	251	500	21.002	0.239	1.077	2.882	0.005	0.084	0.084	568.299	0.021
Generator Sets	2016	501	750	35.041	0.247	1.077	2.989	0.005	0.086	0.086	568.3	0.022
Generator Sets	2016	1001	9999	88.441	0.324	1.204	4.542	0.005	0.113	0.113	568.299	0.029
Generator Sets	2017	6	15	1.857	0.699	3.599	4.847	0.008	0.25	0.25	568.299	0.063
Generator Sets	2017	16	25	3.476	0.757	2.564	4.729	0.007	0.233	0.233	568.299	0.068
Generator Sets	2017	26	50	8.107	1.017	4.292	4.522	0.007	0.285	0.285	568.299	0.091
Generator Sets	2017	51	120	10.557	0.52	3.442	4.072	0.006	0.274	0.274	568.299	0.046
Generator Sets	2017	121	175	13.162	0.356	2.931	3.347	0.006	0.151	0.151	568.299	0.032
Generator Sets	2017	176	250	13.548	0.245	1.063	2.91	0.006	0.081	0.081	568.299	0.022
Generator Sets	2017	251	500	19.649	0.224	1.048	2.579	0.005	0.076	0.076	568.299	0.02
Generator Sets	2017	501	750	32.544	0.23	1.048	2.66	0.005	0.077	0.077	568.299	0.02
Generator Sets	2017	1001	9999	82.27	0.301	1.161	4.293	0.005	0.104	0.104	568.299	0.027
Generator Sets	2018	6	15	1.805	0.679	3.58	4.728	0.008	0.237	0.237	568.299	0.061
Generator Sets	2018	16	25	3.412	0.744	2.531	4.661	0.007	0.224	0.224	568.299	0.067
Generator Sets	2018	26	50	7.133	0.895	4.182	4.366	0.007	0.253	0.253	568.299	0.08
Generator Sets	2018	51	120	9.356	0.461	3.418	3.752	0.006	0.239	0.239	568.299	0.041
Generator Sets	2018	121	175	11.794	0.319	2.93	2.989	0.006	0.133	0.133	568.299	0.028
Generator Sets	2018	176	250	12.549	0.226	1.048	2.582	0.006	0.072	0.072	568.299	0.02
Generator Sets	2018	251	500	18.523	0.211	1.028	2.31	0.005	0.069	0.069	568.299	0.019
Generator Sets	2018	501	750	30.476	0.215	1.028	2.37	0.005	0.07	0.07	568.299	0.019
Generator Sets	2018	1001	9999	76.62	0.28	1.128	4.058	0.005	0.095	0.095	568.299	0.025
Generator Sets	2019	6	15	1.758	0.662	3.562	4.617	0.008	0.224	0.224	568.299	0.059
Generator Sets	2019	16	25	3.356	0.731	2.501	4.596	0.007	0.214	0.214	568.299	0.066
Generator Sets	2019	26	50	6.208	0.779	4.076	4.215	0.007	0.222	0.222	568.299	0.07
Generator Sets	2019	51	120	8.233	0.405	3.396	3.446	0.006	0.206	0.206	568.299	0.036
Generator Sets	2019	121	175	10.727	0.29	2.929	2.669	0.006	0.118	0.118	568.299	0.026
Generator Sets	2019	176	250	11.695	0.211	1.036	2.285	0.006	0.064	0.064	568.299	0.019
Generator Sets	2019	251	500	17.492	0.199	1.015	2.056	0.005	0.062	0.062	568.299	0.018
Generator Sets	2019	501	750	28.675	0.202	1.015	2.104	0.005	0.062	0.062	568.299	0.018
Generator Sets	2019	1001	9999	71.228	0.261	1.103	3.829	0.005	0.087	0.087	568.299	0.023
Generator Sets	2020	6	15	1.715	0.646	3.546	4.516	0.008	0.212	0.212	568.299	0.058
Generator Sets	2020	16	25	3.307	0.721	2.473	4.538	0.007	0.205	0.205	568.299	0.065
Generator Sets	2020	26	50	5.508	0.691	3.995	4.075	0.007	0.194	0.194	568.299	0.062
Generator Sets	2020	51	120	7.383	0.364	3.38	3.173	0.006	0.179	0.179	568.299	0.032
Generator Sets	2020	121	175	9.884	0.267	2.93	2.38	0.006	0.105	0.105	568.299	0.024
Generator Sets	2020	176	250	10.963	0.198	1.026	2.016	0.006	0.057	0.057	568.299	0.017
Generator Sets	2020	251	500	16.528	0.188	1.005	1.816	0.005	0.055	0.055	568.299	0.017
Generator Sets	2020	501	750	27.045	0.191	1.005	1.858	0.005	0.056	0.056	568.299	0.017
Generator Sets	2020	1001	9999	66.08	0.242	1.082	3.608	0.005	0.079	0.079	568.3	0.021
Generator Sets	2021	6	15	1.683	0.634	3.531	4.441	0.008	0.201	0.201	568.299	0.057
Generator Sets	2021	16	25	3.268	0.712	2.446	4.497	0.007	0.196	0.196	568.299	0.064
Generator Sets	2021	26	50	4.884	0.613	3.905	3.916	0.007	0.165	0.165	568.299	0.055
Generator Sets	2021	51	120	6.62	0.326	3.361	2.888	0.006	0.153	0.153	568.299	0.029
Generator Sets	2021	121	175	8.995	0.243	2.925	2.068	0.006	0.091	0.091	568.299	0.021
Generator Sets	2021	176	250	10.146	0.183	1.016	1.73	0.006	0.049	0.049	568.299	0.016

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Generator Sets	2021	251	500	15.395	0.175	0.996	1.562	0.005	0.048	0.048	568.299	0.015
Generator Sets	2021	501	750	25.135	0.177	0.996	1.596	0.005	0.048	0.048	568.299	0.016
Generator Sets	2021	1001	9999	60.247	0.22	1.06	3.372	0.005	0.07	0.07	568.3	0.019
Generator Sets	2022	6	15	1.662	0.626	3.519	4.39	0.008	0.193	0.193	568.299	0.056
Generator Sets	2022	16	25	3.242	0.706	2.426	4.47	0.007	0.188	0.188	568.299	0.063
Generator Sets	2022	26	50	4.466	0.56	3.858	3.796	0.007	0.143	0.143	568.299	0.05
Generator Sets	2022	51	120	6.113	0.301	3.353	2.671	0.006	0.134	0.134	568.299	0.027
Generator Sets	2022	121	175	8.363	0.226	2.926	1.83	0.006	0.081	0.081	568.299	0.02
Generator Sets	2022	176	250	9.575	0.173	1.01	1.508	0.006	0.043	0.043	568.299	0.015
Generator Sets	2022	251	500	14.616	0.166	0.99	1.384	0.005	0.042	0.042	568.299	0.015
Generator Sets	2022	501	750	23.822	0.168	0.99	1.412	0.005	0.043	0.043	568.299	0.015
Generator Sets	2022	1001	9999	56.346	0.206	1.045	3.202	0.005	0.063	0.063	568.299	0.018
Generator Sets	2023	6	15	1.643	0.618	3.508	4.345	0.008	0.186	0.186	568.299	0.055
Generator Sets	2023	16	25	3.219	0.701	2.407	4.447	0.007	0.182	0.182	568.299	0.063
Generator Sets	2023	26	50	4.102	0.514	3.819	3.685	0.007	0.124	0.124	568.299	0.046
Generator Sets	2023	51	120	5.671	0.279	3.347	2.477	0.006	0.117	0.117	568.299	0.025
Generator Sets	2023	121	175	7.812	0.211	2.927	1.635	0.006	0.071	0.071	568.299	0.019
Generator Sets	2023	176	250	9.077	0.164	1.006	1.328	0.006	0.038	0.038	568.299	0.014
Generator Sets	2023	251	500	13.922	0.158	0.986	1.228	0.005	0.037	0.037	568.299	0.014
Generator Sets	2023	501	750	22.664	0.16	0.986	1.253	0.005	0.037	0.037	568.299	0.014
Generator Sets	2023	1001	9999	53.06	0.194	1.031	3.058	0.005	0.058	0.058	568.299	0.017
Generator Sets	2024	6	15	1.627	0.612	3.499	4.305	0.008	0.181	0.181	568.299	0.055
Generator Sets	2024	16	25	3.2	0.697	2.39	4.426	0.007	0.178	0.178	568.299	0.062
Generator Sets	2024	26	50	3.789	0.475	3.787	3.582	0.007	0.107	0.107	568.299	0.042
Generator Sets	2024	51	120	5.287	0.26	3.342	2.321	0.006	0.101	0.101	568.299	0.023
Generator Sets	2024	121	175	7.312	0.197	2.929	1.462	0.006	0.062	0.062	568.299	0.017
Generator Sets	2024	176	250	8.611	0.155	1.003	1.169	0.006	0.033	0.033	568.299	0.014
Generator Sets	2024	251	500	13.26	0.151	0.983	1.082	0.005	0.032	0.032	568.3	0.013
Generator Sets	2024	501	750	21.567	0.152	0.983	1.104	0.005	0.032	0.032	568.299	0.013
Generator Sets	2024	1001	9999	50.108	0.183	1.018	2.929	0.005	0.052	0.052	568.3	0.016
Generator Sets	2025	6	15	1.613	0.607	3.491	4.269	0.008	0.178	0.178	568.299	0.054
Generator Sets	2025	16	25	3.185	0.694	2.376	4.407	0.007	0.175	0.175	568.299	0.062
Generator Sets	2025	26	50	3.511	0.44	3.758	3.481	0.007	0.093	0.093	568.3	0.039
Generator Sets	2025	51	120	4.942	0.243	3.338	2.185	0.006	0.087	0.087	568.299	0.021
Generator Sets	2025	121	175	6.832	0.184	2.93	1.297	0.006	0.053	0.053	568.299	0.016
Generator Sets	2025	176	250	8.168	0.147	1	1.02	0.006	0.028	0.028	568.299	0.013
Generator Sets	2025	251	500	12.627	0.144	0.981	0.945	0.005	0.027	0.027	568.3	0.013
Generator Sets	2025	501	750	20.518	0.145	0.981	0.964	0.005	0.027	0.027	568.299	0.013
Generator Sets	2025	1001	9999	47.32	0.173	1.008	2.812	0.005	0.047	0.047	568.299	0.015
Generator Sets	2030	6	15	1.573	0.592	3.47	4.164	0.008	0.166	0.166	568.299	0.053
Generator Sets	2030	16	25	3.15	0.686	2.34	4.347	0.007	0.165	0.165	568.299	0.061
Generator Sets	2030	26	50	2.512	0.315	3.64	3.107	0.007	0.038	0.038	568.299	0.028
Generator Sets	2030	51	120	3.616	0.178	3.316	1.645	0.006	0.034	0.034	568.299	0.016
Generator Sets	2030	121	175	4.837	0.13	2.929	0.601	0.006	0.023	0.023	568.299	0.011
Generator Sets	2030	176	250	6.637	0.12	0.998	0.504	0.006	0.016	0.016	568.299	0.01
Generator Sets	2030	251	500	10.441	0.119	0.978	0.476	0.005	0.015	0.015	568.299	0.01
Generator Sets	2030	501	750	16.888	0.119	0.978	0.482	0.005	0.015	0.015	568.299	0.01
Generator Sets	2030	1001	9999	35.17	0.128	0.979	2.483	0.005	0.029	0.029	568.299	0.011
Generator Sets	2035	6	15	1.565	0.589	3.47	4.143	0.008	0.162	0.162	568.299	0.053
Generator Sets	2035	16	25	3.144	0.685	2.34	4.332	0.007	0.162	0.162	568.299	0.061
Generator Sets	2035	26	50	2.206	0.276	3.607	2.991	0.007	0.018	0.018	568.299	0.024
Generator Sets	2035	51	120	3.176	0.156	3.31	1.458	0.006	0.016	0.016	568.299	0.014
Generator Sets	2035	121	175	4.187	0.113	2.929	0.373	0.006	0.013	0.013	568.299	0.01
Generator Sets	2035	176	250	6.1	0.11	0.998	0.331	0.006	0.011	0.011	568.299	0.009
Generator Sets	2035	251	500	9.666	0.11	0.978	0.328	0.005	0.011	0.011	568.299	0.009
Generator Sets	2035	501	750	15.606	0.11	0.978	0.328	0.005	0.011	0.011	568.299	0.009
Generator Sets	2035	1001	9999	31.223	0.114	0.978	2.362	0.005	0.022	0.022	568.299	0.01
Generator Sets	2040	6	15	1.565	0.589	3.469	4.142	0.008	0.161	0.161	568.299	0.053
Generator Sets	2040	16	25	3.144	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Generator Sets	2040	26	50	2.182	0.273	3.601	2.941	0.007	0.012	0.012	568.3	0.024
Generator Sets	2040	51	120	3.086	0.152	3.308	1.399	0.006	0.012	0.012	568.299	0.013
Generator Sets	2040	121	175	3.958	0.107	2.928	0.293	0.006	0.01	0.01	568.299	0.009
Generator Sets	2040	176	250	5.86	0.106	0.997	0.277	0.006	0.009	0.009	568.299	0.009
Generator Sets	2040	251	500	9.29	0.106	0.978	0.277	0.005	0.009	0.009	568.299	0.009
Generator Sets	2040	501	750	14.997	0.106	0.978	0.277	0.005	0.009	0.009	568.3	0.009
Generator Sets	2040	1001	9999	29.36	0.107	0.978	2.33	0.005	0.02	0.02	568.299	0.009
Graders	1990	26	50	10.997	4.776	9.678	7.935	0.871	1.265	1.265	568.3	0.431
Graders	1990	51	120	14.614	2.332	5.658	14.78	0.791	1.325	1.325	568.299	0.21
Graders	1990	121	175	17.684	1.707	5.007	13.838	0.758	0.946	0.946	568.299	0.154
Graders	1990	176	250	24.561	1.707	5.007	13.838	0.758	0.946	0.946	568.299	0.154

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Graders	1990	251	500	29.01	1.512	10.95	13.128	0.662	0.811	0.811	568.299	0.136
Graders	1990	501	750	61.406	1.512	10.95	13.128	1.018	0.826	0.826	568.3	0.136
Graders	2000	26	50	10.331	4.487	9.239	7.082	0.066	0.935	0.935	568.299	0.404
Graders	2000	51	120	11.628	1.855	4.675	10.486	0.06	0.904	0.904	568.3	0.167
Graders	2000	121	175	13.017	1.256	3.786	9.601	0.057	0.531	0.531	568.299	0.113
Graders	2000	176	250	15.266	1.061	3.039	9.264	0.057	0.437	0.437	568.299	0.095
Graders	2000	251	500	18.455	0.961	4.848	8.805	0.05	0.384	0.384	568.3	0.086
Graders	2000	501	750	39.064	0.961	4.848	8.805	0.052	0.384	0.384	568.299	0.086
Graders	2005	26	50	9.193	3.993	8.559	6.612	0.066	0.868	0.868	568.299	0.36
Graders	2005	51	120	10.174	1.623	4.406	9.021	0.06	0.849	0.849	568.3	0.146
Graders	2005	121	175	11.01	1.062	3.522	8.238	0.057	0.469	0.469	568.299	0.095
Graders	2005	176	250	11.283	0.784	2.17	7.837	0.057	0.314	0.314	568.299	0.07
Graders	2005	251	500	13.286	0.692	2.913	7.117	0.05	0.279	0.279	568.299	0.062
Graders	2005	501	750	28.569	0.703	2.909	7.284	0.052	0.282	0.282	568.299	0.063
Graders	2010	26	50	3.618169	3.04	8.828	6.50487	0.005	0.852	0.783	547.2284	0.159
Graders	2010	51	120	1.572744	1.322	4.95239	10.4805	0.005	0.854	0.786	523.7684	0.152
Graders	2010	121	175	1.025452	0.862	3.90428	8.98998	0.005	0.496	0.456	536.7031	0.156
Graders	2010	176	250	0.425787	0.358	1.43786	5.73143	0.005	0.182	0.167	530.3343	0.154
Graders	2010	251	500	0.323814	0.272	1.81115	3.80781	0.005	0.142	0.13	525.6597	0.153
Graders	2010	501	750	21.764	0.535	1.861	5.386	0.005	0.202	0.202	568.299	0.048
Graders	2011	26	50	3.655035	3.071	8.9223	6.52829	0.005	0.86	0.791	545.8822	0.159
Graders	2011	51	120	1.554125	1.306	4.9423	10.3495	0.005	0.847	0.78	522.5082	0.152
Graders	2011	121	175	1.019798	0.857	3.91881	8.91245	0.005	0.494	0.455	535.2864	0.156
Graders	2011	176	250	0.436805	0.367	1.44556	5.74733	0.005	0.183	0.169	529.0473	0.154
Graders	2011	251	500	0.341103	0.287	1.83104	3.81827	0.005	0.144	0.132	524.3479	0.153
Graders	2011	501	750	20.697	0.509	1.744	4.992	0.005	0.184	0.184	568.299	0.045
Graders	2012	26	50	3.689945	3.101	9.01183	6.55055	0.005	0.867	0.798	544.5383	0.159
Graders	2012	51	120	1.550155	1.303	4.94871	10.2881	0.005	0.848	0.78	521.1967	0.152
Graders	2012	121	175	1.022941	0.86	3.94251	8.89699	0.005	0.496	0.456	533.878	0.156
Graders	2012	176	250	0.449323	0.378	1.45898	5.777	0.005	0.185	0.171	527.8224	0.154
Graders	2012	251	500	0.355329	0.299	1.82432	3.8123	0.005	0.145	0.133	522.8547	0.153
Graders	2012	501	750	19.697	0.485	1.642	4.624	0.005	0.168	0.168	568.299	0.043
Graders	2013	26	50	3.722893	3.128	9.0966	6.57166	0.005	0.874	0.804	541.8285	0.159
Graders	2013	51	120	1.548648	1.301	4.95898	10.2424	0.005	0.849	0.781	518.5552	0.152
Graders	2013	121	175	1.020021	0.857	3.95423	8.8338	0.005	0.495	0.455	530.9753	0.156
Graders	2013	176	250	0.455824	0.383	1.45924	5.74577	0.005	0.185	0.17	525.0407	0.154
Graders	2013	251	500	0.359627	0.302	1.7965	3.71231	0.005	0.141	0.13	520.0526	0.153
Graders	2013	501	750	18.765	0.462	1.556	4.281	0.005	0.152	0.152	568.299	0.041
Graders	2014	26	50	3.681797	3.094	9.06534	6.54967	0.005	0.867	0.798	539.1216	0.159
Graders	2014	51	120	1.510465	1.269	4.91977	9.98567	0.005	0.832	0.765	515.3819	0.152
Graders	2014	121	175	1.007876	0.847	3.95083	8.70206	0.005	0.488	0.449	527.8337	0.156
Graders	2014	176	250	0.463867	0.39	1.46245	5.73998	0.005	0.185	0.171	522.3298	0.154
Graders	2014	251	500	0.373775	0.314	1.79096	3.71371	0.005	0.143	0.131	517.3766	0.153
Graders	2014	501	750	17.784	0.437	1.483	3.876	0.005	0.138	0.138	568.299	0.039
Graders	2015	26	50	3.711306	3.119	9.14399	6.56967	0.005	0.874	0.804	533.6812	0.159
Graders	2015	51	120	1.474627	1.239	4.88439	9.73775	0.005	0.813	0.748	509.597	0.152
Graders	2015	121	175	1.004333	0.844	3.95849	8.63742	0.005	0.486	0.447	522.2182	0.156
Graders	2015	176	250	0.471304	0.396	1.46577	5.72754	0.005	0.186	0.171	517.1275	0.154
Graders	2015	251	500	0.388063	0.326	1.79107	3.72122	0.005	0.144	0.133	512.0975	0.153
Graders	2015	501	750	16.846	0.414	1.42	3.501	0.005	0.124	0.124	568.299	0.037
Graders	2016	26	50	3.670899	3.085	9.10623	6.51973	0.005	0.864	0.795	528.2444	0.159
Graders	2016	51	120	1.419659	1.193	4.82948	9.41488	0.005	0.78	0.718	503.1614	0.152
Graders	2016	121	175	0.963567	0.81	3.91624	8.24966	0.005	0.463	0.426	516.1305	0.156
Graders	2016	176	250	0.473996	0.398	1.45911	5.6628	0.005	0.184	0.169	511.6959	0.154
Graders	2016	251	500	0.397787	0.334	1.77374	3.6858	0.005	0.144	0.132	506.5064	0.153
Graders	2016	501	750	15.959	0.393	1.367	3.154	0.005	0.112	0.112	568.299	0.035
Graders	2017	26	50	3.5783	3.007	8.97826	6.423	0.005	0.843	0.776	520.0747	0.159
Graders	2017	51	120	1.385767	1.164	4.81041	9.19125	0.005	0.759	0.698	495.9186	0.152
Graders	2017	121	175	0.901	0.757	3.84518	7.66265	0.005	0.43	0.396	506.7478	0.155
Graders	2017	176	250	0.471391	0.396	1.44905	5.52488	0.005	0.18	0.166	503.8022	0.154
Graders	2017	251	500	0.397706	0.334	1.70747	3.55709	0.005	0.139	0.128	498.5996	0.153
Graders	2017	501	750	15.127	0.372	1.323	2.835	0.005	0.1	0.1	568.299	0.033
Graders	2018	26	50	3.342571	2.809	8.62631	6.17962	0.005	0.79	0.726	511.9098	0.159
Graders	2018	51	120	1.27956	1.075	4.69711	8.51954	0.005	0.697	0.641	487.6979	0.152
Graders	2018	121	175	0.78708	0.661	3.70957	6.60465	0.005	0.371	0.342	497.3767	0.155
Graders	2018	176	250	0.457376	0.384	1.41595	5.27094	0.005	0.171	0.158	495.431	0.154
Graders	2018	251	500	0.385909	0.324	1.56446	3.34465	0.005	0.129	0.119	490.5758	0.153
Graders	2018	501	750	14.353	0.353	1.286	2.543	0.005	0.09	0.09	568.299	0.031
Graders	2019	26	50	3.11378	2.616	8.27912	5.94463	0.005	0.737	0.678	503.7509	0.159
Graders	2019	51	120	1.228249	1.032	4.6424	8.1592	0.005	0.665	0.612	479.9011	0.152

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Graders	2019	121	175	0.724541	0.609	3.65586	6.01354	0.005	0.337	0.31	489.0419	0.155
Graders	2019	176	250	0.428358	0.36	1.35927	4.86575	0.005	0.156	0.144	486.3288	0.154
Graders	2019	251	500	0.384059	0.323	1.52849	3.21794	0.005	0.124	0.114	482.5879	0.153
Graders	2019	501	750	13.635	0.335	1.255	2.276	0.005	0.08	0.08	568.299	0.03
Graders	2020	26	50	2.994737	2.516	8.13394	5.82549	0.005	0.709	0.652	492.8615	0.159
Graders	2020	51	120	1.161574	0.976	4.56142	7.72513	0.005	0.622	0.572	469.3371	0.152
Graders	2020	121	175	0.674427	0.567	3.62102	5.53045	0.005	0.309	0.284	478.0403	0.155
Graders	2020	176	250	0.41877	0.352	1.34183	4.67787	0.005	0.15	0.138	475.3037	0.154
Graders	2020	251	500	0.383198	0.322	1.5256	3.10731	0.005	0.121	0.111	471.9795	0.153
Graders	2020	501	750	12.961	0.319	1.229	2.031	0.005	0.072	0.072	568.299	0.028
Graders	2021	26	50	2.660206	2.235	7.62621	5.48468	0.005	0.631	0.581	492.9352	0.159
Graders	2021	51	120	1.072144	0.901	4.45175	7.12535	0.005	0.57	0.524	469.0701	0.152
Graders	2021	121	175	0.601372	0.505	3.55896	4.83947	0.005	0.27	0.248	478.5289	0.155
Graders	2021	176	250	0.398657	0.335	1.30687	4.38134	0.005	0.139	0.128	474.5386	0.153
Graders	2021	251	500	0.383194	0.322	1.46044	3.01257	0.005	0.117	0.108	471.8981	0.153
Graders	2021	501	750	12.333	0.303	1.207	1.808	0.005	0.064	0.064	568.299	0.027
Graders	2022	26	50	2.506375	2.106	7.42848	5.33188	0.005	0.595	0.547	493.0249	0.159
Graders	2022	51	120	0.947815	0.796	4.32966	6.36004	0.005	0.493	0.453	469.6301	0.152
Graders	2022	121	175	0.524016	0.44	3.49283	4.12488	0.005	0.229	0.211	478.5664	0.155
Graders	2022	176	250	0.365229	0.307	1.27327	3.8881	0.005	0.124	0.114	474.239	0.153
Graders	2022	251	500	0.370143	0.311	1.38967	2.80191	0.005	0.108	0.1	471.9278	0.153
Graders	2022	501	750	11.747	0.289	1.187	1.606	0.005	0.057	0.057	568.299	0.026
Graders	2023	26	50	2.316861	1.947	7.19094	5.14799	0.005	0.549	0.505	494.0202	0.16
Graders	2023	51	120	0.855685	0.719	4.22811	5.74006	0.005	0.436	0.401	469.2859	0.152
Graders	2023	121	175	0.463941	0.39	3.45006	3.54785	0.005	0.195	0.18	478.4629	0.155
Graders	2023	176	250	0.337478	0.284	1.25173	3.44101	0.005	0.111	0.103	473.9256	0.153
Graders	2023	251	500	0.367269	0.309	1.38481	2.70451	0.005	0.105	0.097	471.0306	0.152
Graders	2023	501	750	11.215	0.276	1.17	1.425	0.005	0.051	0.051	568.3	0.024
Graders	2024	26	50	2.201935	1.85	7.05059	5.0278	0.005	0.52	0.479	493.7913	0.16
Graders	2024	51	120	0.812369	0.683	4.20033	5.43389	0.005	0.408	0.375	469.8208	0.152
Graders	2024	121	175	0.433005	0.364	3.43239	3.20219	0.005	0.177	0.163	478.4966	0.155
Graders	2024	176	250	0.312074	0.262	1.22497	3.07323	0.005	0.1	0.092	473.6685	0.153
Graders	2024	251	500	0.348233	0.293	1.35613	2.43171	0.005	0.095	0.088	470.2664	0.152
Graders	2024	501	750	10.734	0.264	1.155	1.265	0.005	0.046	0.046	568.3	0.023
Graders	2025	26	50	2.21878	1.864	7.12535	5.04301	0.005	0.522	0.48	493.5322	0.16
Graders	2025	51	120	0.759044	0.638	4.14911	5.07379	0.005	0.371	0.342	468.3155	0.151
Graders	2025	121	175	0.391287	0.329	3.41759	2.77396	0.005	0.152	0.14	478.5084	0.155
Graders	2025	176	250	0.273788	0.23	1.17888	2.55629	0.005	0.082	0.076	473.4704	0.153
Graders	2025	251	500	0.332717	0.28	1.31461	2.26485	0.005	0.088	0.081	470.7533	0.152
Graders	2025	501	750	10.301	0.253	1.141	1.125	0.005	0.041	0.041	568.3	0.022
Graders	2030	26	50	1.493	0.648	5.239	3.53	0.007	0.065	0.065	568.299	0.058
Graders	2030	51	120	2.028	0.323	3.775	1.903	0.006	0.058	0.058	568.299	0.029
Graders	2030	121	175	2.458	0.237	3.326	0.815	0.006	0.038	0.038	568.3	0.021
Graders	2030	176	250	3.114	0.216	1.148	0.684	0.006	0.024	0.024	568.299	0.019
Graders	2030	251	500	4.115	0.214	1.097	0.647	0.005	0.023	0.023	568.299	0.019
Graders	2030	501	750	8.717	0.214	1.097	0.654	0.005	0.023	0.023	568.299	0.019
Graders	2035	26	50	1.367	0.593	5.189	3.356	0.007	0.037	0.037	568.299	0.053
Graders	2035	51	120	1.837	0.293	3.767	1.661	0.006	0.034	0.034	568.299	0.026
Graders	2035	121	175	2.136	0.206	3.326	0.506	0.006	0.022	0.022	568.3	0.018
Graders	2035	176	250	2.822	0.196	1.137	0.452	0.006	0.016	0.016	568.299	0.017
Graders	2035	251	500	3.746	0.195	1.083	0.434	0.005	0.016	0.016	568.299	0.017
Graders	2035	501	750	7.933	0.195	1.083	0.438	0.005	0.016	0.016	568.299	0.017
Graders	2040	26	50	1.297	0.563	5.161	3.298	0.007	0.026	0.026	568.3	0.05
Graders	2040	51	120	1.747	0.278	3.764	1.56	0.006	0.024	0.024	568.299	0.025
Graders	2040	121	175	2.002	0.193	3.326	0.38	0.006	0.017	0.017	568.299	0.017
Graders	2040	176	250	2.719	0.188	1.133	0.36	0.006	0.013	0.013	568.299	0.017
Graders	2040	251	500	3.619	0.188	1.079	0.351	0.005	0.013	0.013	568.299	0.017
Graders	2040	501	750	7.663	0.188	1.079	0.353	0.005	0.013	0.013	568.299	0.017
Off-Highway Tractors	1990	51	120	7.901	2.432	5.842	15.285	0.791	1.384	1.384	568.299	0.219
Off-Highway Tractors	1990	121	175	8.363	1.85	5.217	14.647	0.758	1.033	1.033	568.299	0.166
Off-Highway Tractors	1990	176	250	8.363	1.85	5.217	14.647	0.758	1.033	1.033	568.299	0.166
Off-Highway Tractors	1990	501	750	32.077	1.629	11.847	13.849	1.018	0.896	0.896	568.3	0.147
Off-Highway Tractors	1990	751	1000	45.779	1.622	11.847	13.849	1.018	0.888	0.888	568.3	0.146
Off-Highway Tractors	2000	51	120	6.648	2.047	5.046	11.606	0.06	0.972	0.972	568.299	0.184
Off-Highway Tractors	2000	121	175	6.386	1.413	4.213	10.675	0.057	0.602	0.602	568.299	0.127
Off-Highway Tractors	2000	176	250	5.736	1.269	3.665	10.426	0.057	0.532	0.532	568.299	0.114
Off-Highway Tractors	2000	501	750	22.339	1.134	6.836	9.864	0.052	0.461	0.461	568.299	0.102
Off-Highway Tractors	2000	751	1000	33.036	1.17	7.259	10.29	0.052	0.444	0.444	568.299	0.105
Off-Highway Tractors	2005	51	120	6.042	1.86	4.801	10.379	0.06	0.932	0.932	568.299	0.167
Off-Highway Tractors	2005	121	175	5.63	1.246	3.943	9.479	0.057	0.547	0.547	568.299	0.112

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Off-Highway Tractors	2005	176	250	4.641	1.027	2.923	9.16	0.057	0.425	0.425	568.299	0.092
Off-Highway Tractors	2005	501	750	17.978	0.913	4.992	8.543	0.052	0.372	0.372	568.299	0.082
Off-Highway Tractors	2005	751	1000	27.525	0.975	5.369	9.293	0.052	0.359	0.359	568.299	0.088
Off-Highway Tractors	2010	51	120	1.004164	0.844	4.06859	7.39576	0.005	0.61	0.561	529.8898	0.154
Off-Highway Tractors	2010	121	175	0.623556	0.524	3.25207	6.19445	0.005	0.322	0.297	526.0485	0.153
Off-Highway Tractors	2010	176	250	0.540439	0.454	1.80076	6.56823	0.005	0.241	0.222	522.8212	0.152
Off-Highway Tractors	2010	501	750	0.353776	0.297	1.65183	4.74911	0.005	0.163	0.15	526.6401	0.153
Off-Highway Tractors	2010	751	1000	1.235451	1.038	13.844	12.2723	0.005	0.624	0.574	524.505	0.153
Off-Highway Tractors	2011	51	120	0.958318	0.805	4.04749	7.12201	0.005	0.588	0.541	528.6123	0.154
Off-Highway Tractors	2011	121	175	0.588696	0.495	3.25718	5.88095	0.005	0.307	0.282	524.5528	0.153
Off-Highway Tractors	2011	176	250	0.522937	0.439	1.73271	6.3706	0.005	0.23	0.212	521.5328	0.152
Off-Highway Tractors	2011	501	750	0.366196	0.308	1.66137	4.77936	0.005	0.166	0.153	525.3172	0.153
Off-Highway Tractors	2011	751	1000	1.235451	1.038	13.844	12.2723	0.005	0.624	0.574	523.1938	0.153
Off-Highway Tractors	2012	51	120	0.956826	0.804	4.07302	7.07175	0.005	0.588	0.541	527.1281	0.154
Off-Highway Tractors	2012	121	175	0.573556	0.482	3.27598	5.70904	0.005	0.299	0.276	523.1986	0.153
Off-Highway Tractors	2012	176	250	0.51645	0.434	1.70131	6.26836	0.005	0.225	0.207	520.2636	0.152
Off-Highway Tractors	2012	501	750	0.3785	0.318	1.67078	4.80904	0.005	0.169	0.155	523.9941	0.153
Off-Highway Tractors	2012	751	1000	1.235451	1.038	13.844	12.2723	0.005	0.624	0.574	521.8825	0.153
Off-Highway Tractors	2013	51	120	0.915141	0.769	4.04714	6.79599	0.005	0.564	0.519	524.1555	0.154
Off-Highway Tractors	2013	121	175	0.54434	0.457	3.28016	5.42114	0.005	0.281	0.258	520.6151	0.153
Off-Highway Tractors	2013	176	250	0.508791	0.428	1.67153	6.11434	0.005	0.219	0.201	517.5627	0.152
Off-Highway Tractors	2013	501	750	0.342496	0.288	1.42496	4.32547	0.005	0.149	0.137	519.6246	0.153
Off-Highway Tractors	2013	751	1000	1.235451	1.038	13.844	12.2723	0.005	0.624	0.574	519.26	0.153
Off-Highway Tractors	2014	51	120	0.830806	0.698	3.97241	6.28073	0.005	0.513	0.472	520.8244	0.154
Off-Highway Tractors	2014	121	175	0.504784	0.424	3.26511	5.02525	0.005	0.258	0.237	518.1639	0.153
Off-Highway Tractors	2014	176	250	0.481559	0.405	1.62822	5.66092	0.005	0.203	0.187	514.3699	0.152
Off-Highway Tractors	2014	501	750	0.317193	0.267	1.33448	4.00651	0.005	0.133	0.122	516.904	0.153
Off-Highway Tractors	2014	751	1000	0.100665	0.085	0.94694	2.27938	0.005	0.054	0.05	516.6375	0.153
Off-Highway Tractors	2015	51	120	0.802587	0.674	3.96474	6.06726	0.005	0.494	0.455	515.3203	0.154
Off-Highway Tractors	2015	121	175	0.478075	0.402	3.26419	4.72365	0.005	0.239	0.22	512.6079	0.153
Off-Highway Tractors	2015	176	250	0.476529	0.4	1.60534	5.52773	0.005	0.199	0.183	509.1896	0.152
Off-Highway Tractors	2015	501	750	0.312134	0.262	1.17195	3.87437	0.005	0.126	0.116	511.0814	0.153
Off-Highway Tractors	2015	751	1000	0.114305	0.096	0.96003	2.29983	0.005	0.056	0.051	511.3924	0.153
Off-Highway Tractors	2016	51	120	0.743357	0.625	3.92464	5.6465	0.005	0.454	0.418	509.4472	0.154
Off-Highway Tractors	2016	121	175	0.465284	0.391	3.27806	4.51093	0.005	0.229	0.211	507.6294	0.153
Off-Highway Tractors	2016	176	250	0.426838	0.359	1.47177	4.92994	0.005	0.171	0.157	504.1229	0.152
Off-Highway Tractors	2016	501	750	0.299821	0.252	1.14348	3.57265	0.005	0.117	0.108	505.762	0.153
Off-Highway Tractors	2016	751	1000	0.127675	0.107	0.97285	2.31987	0.005	0.057	0.053	506.1474	0.153
Off-Highway Tractors	2017	51	120	0.697857	0.586	3.90108	5.31726	0.005	0.423	0.389	501.2453	0.154
Off-Highway Tractors	2017	121	175	0.423504	0.356	3.2589	4.02594	0.005	0.205	0.189	499.2446	0.153
Off-Highway Tractors	2017	176	250	0.389773	0.328	1.403	4.38216	0.005	0.151	0.139	496.4983	0.152
Off-Highway Tractors	2017	501	750	0.294592	0.248	1.14456	3.32351	0.005	0.112	0.103	497.6181	0.152
Off-Highway Tractors	2017	751	1000	0.140776	0.118	0.98542	2.33951	0.005	0.059	0.054	498.2798	0.153
Off-Highway Tractors	2018	51	120	0.621057	0.522	3.83227	4.78732	0.005	0.373	0.343	492.8709	0.153
Off-Highway Tractors	2018	121	175	0.374746	0.315	3.2191	3.49764	0.005	0.176	0.162	491.3128	0.153
Off-Highway Tractors	2018	176	250	0.323278	0.272	1.29494	3.45421	0.005	0.119	0.109	488.6765	0.152
Off-Highway Tractors	2018	501	750	0.232675	0.196	1.11871	2.1656	0.005	0.081	0.074	490.1818	0.153
Off-Highway Tractors	2018	751	1000	0.153606	0.129	0.99773	2.35874	0.005	0.06	0.055	490.4122	0.153
Off-Highway Tractors	2019	51	120	0.562974	0.473	3.79465	4.42145	0.005	0.331	0.305	484.2693	0.153
Off-Highway Tractors	2019	121	175	0.350048	0.294	3.21895	3.20755	0.005	0.159	0.146	483.4306	0.153
Off-Highway Tractors	2019	176	250	0.283777	0.238	1.21832	2.9142	0.005	0.098	0.09	481.2751	0.152
Off-Highway Tractors	2019	501	750	0.244248	0.205	1.12934	2.17682	0.005	0.082	0.075	482.3091	0.153
Off-Highway Tractors	2019	751	1000	0.166166	0.14	1.00978	2.37757	0.005	0.062	0.057	482.5446	0.153
Off-Highway Tractors	2020	51	120	0.533073	0.448	3.78798	4.18317	0.005	0.307	0.282	474.1481	0.153
Off-Highway Tractors	2020	121	175	0.322507	0.271	3.21511	2.89032	0.005	0.14	0.129	472.9169	0.153
Off-Highway Tractors	2020	176	250	0.263453	0.221	1.1813	2.57547	0.005	0.086	0.079	470.943	0.152
Off-Highway Tractors	2020	501	750	0.239679	0.201	1.13143	2.04663	0.005	0.076	0.07	471.8151	0.153
Off-Highway Tractors	2020	751	1000	0.178457	0.15	1.02156	2.39599	0.005	0.063	0.058	472.0545	0.153
Off-Highway Tractors	2021	51	120	0.469894	0.395	3.74258	3.77306	0.005	0.261	0.24	474.5155	0.153
Off-Highway Tractors	2021	121	175	0.307902	0.259	3.21953	2.65962	0.005	0.129	0.118	472.9236	0.153
Off-Highway Tractors	2021	176	250	0.237665	0.2	1.16179	2.11341	0.005	0.072	0.067	471.0028	0.152
Off-Highway Tractors	2021	501	750	0.215694	0.181	1.12237	1.71505	0.005	0.063	0.058	471.8056	0.153
Off-Highway Tractors	2021	751	1000	0.190478	0.16	1.0331	2.41401	0.005	0.064	0.059	472.0545	0.153
Off-Highway Tractors	2022	51	120	0.414344	0.348	3.70994	3.39986	0.005	0.219	0.202	475.2338	0.154
Off-Highway Tractors	2022	121	175	0.275155	0.231	3.18586	2.23877	0.005	0.107	0.099	472.8111	0.153
Off-Highway Tractors	2022	176	250	0.213642	0.18	1.14284	1.73242	0.005	0.06	0.055	471.1313	0.152
Off-Highway Tractors	2022	501	750	0.20345	0.171	1.12111	1.43309	0.005	0.055	0.05	471.939	0.153
Off-Highway Tractors	2022	751	1000	0.202228	0.17	1.04437	2.43162	0.005	0.066	0.06	472.0545	0.153
Off-Highway Tractors	2023	51	120	0.37642	0.316	3.68654	3.09527	0.005	0.187	0.172	476.0871	0.154
Off-Highway Tractors	2023	121	175	0.239199	0.201	3.14329	1.78476	0.005	0.085	0.079	472.9962	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Off-Highway Tractors	2023	176	250	0.20356	0.171	1.13796	1.49148	0.005	0.053	0.049	470.845	0.152
Off-Highway Tractors	2023	501	750	0.199838	0.168	1.12418	1.28868	0.005	0.051	0.047	471.9321	0.153
Off-Highway Tractors	2023	751	1000	0.213709	0.18	1.05538	2.44883	0.005	0.067	0.062	472.0545	0.153
Off-Highway Tractors	2024	51	120	0.359218	0.302	3.69095	2.94932	0.005	0.171	0.157	476.3711	0.154
Off-Highway Tractors	2024	121	175	0.21727	0.183	3.1328	1.49579	0.005	0.071	0.066	473.097	0.153
Off-Highway Tractors	2024	176	250	0.200963	0.169	1.13461	1.37732	0.005	0.049	0.045	470.6894	0.152
Off-Highway Tractors	2024	501	750	0.200706	0.169	1.13006	1.23477	0.005	0.048	0.044	471.9247	0.153
Off-Highway Tractors	2024	751	1000	0.22492	0.189	1.06613	2.46563	0.005	0.068	0.063	472.0545	0.153
Off-Highway Tractors	2025	51	120	0.32831	0.276	3.66914	2.70745	0.005	0.144	0.132	476.9211	0.154
Off-Highway Tractors	2025	121	175	0.208537	0.175	3.14246	1.34858	0.005	0.065	0.059	473.3021	0.153
Off-Highway Tractors	2025	176	250	0.183862	0.154	1.13017	1.11624	0.005	0.04	0.037	470.861	0.152
Off-Highway Tractors	2025	501	750	0.199094	0.167	1.13452	1.11804	0.005	0.045	0.041	471.9169	0.153
Off-Highway Tractors	2025	751	1000	0.235862	0.198	1.07663	2.48203	0.005	0.069	0.064	472.0545	0.153
Off-Highway Tractors	2030	51	120	1.683	0.518	3.944	2.959	0.006	0.175	0.175	568.299	0.046
Off-Highway Tractors	2030	121	175	1.689	0.373	3.435	1.916	0.006	0.104	0.104	568.299	0.033
Off-Highway Tractors	2030	176	250	1.423	0.315	1.286	1.715	0.006	0.064	0.064	568.299	0.028
Off-Highway Tractors	2030	501	750	5.992	0.304	1.351	1.59	0.005	0.06	0.06	568.299	0.027
Off-Highway Tractors	2030	751	1000	8.981	0.318	1.409	3.569	0.005	0.078	0.078	568.3	0.028
Off-Highway Tractors	2035	51	120	1.359	0.418	3.902	2.35	0.006	0.107	0.107	568.299	0.037
Off-Highway Tractors	2035	121	175	1.361	0.301	3.421	1.252	0.006	0.065	0.065	568.299	0.027
Off-Highway Tractors	2035	176	250	1.211	0.268	1.232	1.115	0.006	0.042	0.042	568.299	0.024
Off-Highway Tractors	2035	501	750	5.163	0.262	1.238	1.045	0.005	0.04	0.04	568.299	0.023
Off-Highway Tractors	2035	751	1000	7.617	0.269	1.268	3.116	0.005	0.056	0.056	568.299	0.024
Off-Highway Tractors	2040	51	120	1.176	0.362	3.878	1.976	0.006	0.067	0.067	568.299	0.032
Off-Highway Tractors	2040	121	175	1.162	0.257	3.412	0.836	0.006	0.041	0.041	568.299	0.023
Off-Highway Tractors	2040	176	250	1.073	0.237	1.198	0.747	0.006	0.028	0.028	568.299	0.021
Off-Highway Tractors	2040	501	750	4.612	0.234	1.164	0.71	0.005	0.027	0.027	568.299	0.021
Off-Highway Tractors	2040	751	1000	6.743	0.238	1.183	2.844	0.005	0.042	0.042	568.299	0.021
Off-Highway Trucks	1990	121	175	6.457	2.005	5.36	15.394	0.758	1.133	1.133	568.299	0.18
Off-Highway Trucks	1990	176	250	8.597	2.005	5.36	15.394	0.758	1.133	1.133	568.299	0.18
Off-Highway Trucks	1990	251	500	12.319	1.757	12.538	14.499	0.662	0.959	0.959	568.299	0.158
Off-Highway Trucks	1990	501	750	19.982	1.757	12.538	14.499	1.018	0.976	0.976	568.299	0.158
Off-Highway Trucks	1990	751	1000	28.084	1.746	12.538	14.499	1.018	0.963	0.963	568.3	0.157
Off-Highway Trucks	2000	121	175	4.115	1.278	3.772	9.57	0.057	0.548	0.548	568.299	0.115
Off-Highway Trucks	2000	176	250	4.454	1.039	2.896	9.178	0.057	0.425	0.425	568.299	0.093
Off-Highway Trucks	2000	251	500	6.594	0.94	4.214	8.675	0.05	0.376	0.376	568.299	0.084
Off-Highway Trucks	2000	501	750	10.696	0.94	4.214	8.675	0.052	0.376	0.376	568.299	0.084
Off-Highway Trucks	2000	751	1000	16.13	1.003	4.878	9.339	0.052	0.355	0.355	568.3	0.09
Off-Highway Trucks	2005	121	175	3.462	1.075	3.531	8.1	0.057	0.481	0.481	568.299	0.097
Off-Highway Trucks	2005	176	250	3.21	0.748	1.978	7.652	0.057	0.291	0.291	568.299	0.067
Off-Highway Trucks	2005	251	500	4.695	0.669	2.332	6.848	0.05	0.26	0.26	568.299	0.06
Off-Highway Trucks	2005	501	750	7.697	0.677	2.33	7.052	0.052	0.264	0.264	568.299	0.061
Off-Highway Trucks	2005	751	1000	12.436	0.773	2.812	8.177	0.052	0.266	0.266	568.299	0.069
Off-Highway Trucks	2010	121	175	0.758703	0.638	3.51002	6.59182	0.005	0.39	0.359	522.6455	0.152
Off-Highway Trucks	2010	176	250	0.657432	0.552	2.13151	6.86617	0.005	0.29	0.267	521.8781	0.152
Off-Highway Trucks	2010	251	500	0.5118	0.43	2.32222	5.52051	0.005	0.213	0.196	528.8078	0.154
Off-Highway Trucks	2010	501	750	0.633984	0.533	3.68555	6.54487	0.005	0.276	0.254	530.4366	0.154
Off-Highway Trucks	2010	751	1000	0.549873	0.462	2.05613	7.15365	0.005	0.211	0.194	526.5915	0.153
Off-Highway Trucks	2011	121	175	0.704506	0.592	3.48667	6.13879	0.005	0.357	0.328	521.3222	0.152
Off-Highway Trucks	2011	176	250	0.640546	0.538	2.08881	6.53722	0.005	0.278	0.256	520.1539	0.152
Off-Highway Trucks	2011	251	500	0.515485	0.433	2.27798	5.39802	0.005	0.21	0.193	527.2602	0.154
Off-Highway Trucks	2011	501	750	0.643792	0.541	3.68121	6.51376	0.005	0.276	0.254	529.0143	0.154
Off-Highway Trucks	2011	751	1000	0.55014	0.462	2.03783	7.09609	0.005	0.211	0.194	524.7459	0.153
Off-Highway Trucks	2012	121	175	0.704248	0.592	3.51164	6.0668	0.005	0.354	0.325	519.901	0.152
Off-Highway Trucks	2012	176	250	0.646155	0.543	2.1013	6.43814	0.005	0.277	0.255	518.7133	0.152
Off-Highway Trucks	2012	251	500	0.525914	0.442	2.29017	5.37678	0.005	0.21	0.193	525.9398	0.154
Off-Highway Trucks	2012	501	750	0.661317	0.556	3.73128	6.55684	0.005	0.28	0.258	527.6141	0.154
Off-Highway Trucks	2012	751	1000	0.55909	0.47	2.05327	7.10377	0.005	0.213	0.196	523.3305	0.153
Off-Highway Trucks	2013	121	175	0.671819	0.565	3.51059	5.78297	0.005	0.33	0.304	517.0124	0.152
Off-Highway Trucks	2013	176	250	0.623589	0.524	2.04802	6.05816	0.005	0.263	0.242	515.8273	0.152
Off-Highway Trucks	2013	251	500	0.502477	0.422	2.17762	5.06239	0.005	0.197	0.181	523.5459	0.154
Off-Highway Trucks	2013	501	750	0.645495	0.542	3.55888	6.30864	0.005	0.268	0.247	525.1075	0.154
Off-Highway Trucks	2013	751	1000	0.543085	0.456	1.9094	6.89277	0.005	0.205	0.189	520.5876	0.153
Off-Highway Trucks	2014	121	175	0.610195	0.513	3.47308	5.21922	0.005	0.292	0.269	514.0574	0.152
Off-Highway Trucks	2014	176	250	0.574728	0.483	1.93163	5.4411	0.005	0.235	0.217	512.8333	0.152
Off-Highway Trucks	2014	251	500	0.468214	0.393	2.07518	4.68575	0.005	0.18	0.165	521.0573	0.154
Off-Highway Trucks	2014	501	750	0.576983	0.485	2.95299	5.57816	0.005	0.231	0.212	521.2295	0.154
Off-Highway Trucks	2014	751	1000	0.493307	0.415	1.77934	6.36534	0.005	0.187	0.172	516.9385	0.153
Off-Highway Trucks	2015	121	175	0.604782	0.508	3.48853	5.10449	0.005	0.284	0.262	508.7011	0.152
Off-Highway Trucks	2015	176	250	0.563373	0.473	1.89994	5.24228	0.005	0.227	0.209	507.8087	0.152

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Off-Highway Trucks	2015	251	500	0.457555	0.384	2.0367	4.52794	0.005	0.173	0.159	515.8419	0.154
Off-Highway Trucks	2015	501	750	0.537539	0.452	2.61969	5.12427	0.005	0.208	0.192	514.6436	0.154
Off-Highway Trucks	2015	751	1000	0.489174	0.411	1.77206	6.28012	0.005	0.185	0.17	511.1369	0.153
Off-Highway Trucks	2016	121	175	0.562854	0.473	3.45883	4.64707	0.005	0.258	0.237	503.5515	0.152
Off-Highway Trucks	2016	176	250	0.530487	0.446	1.82377	4.82646	0.005	0.208	0.191	502.4732	0.152
Off-Highway Trucks	2016	251	500	0.418147	0.351	1.88523	4.04798	0.005	0.153	0.141	509.8604	0.154
Off-Highway Trucks	2016	501	750	0.497396	0.418	2.43646	4.64247	0.005	0.187	0.172	508.3916	0.153
Off-Highway Trucks	2016	751	1000	0.467579	0.393	1.70739	6.0352	0.005	0.175	0.161	505.7218	0.153
Off-Highway Trucks	2017	121	175	0.525186	0.441	3.43636	4.23649	0.005	0.233	0.215	495.924	0.152
Off-Highway Trucks	2017	176	250	0.496493	0.417	1.75281	4.36785	0.005	0.189	0.174	494.7935	0.152
Off-Highway Trucks	2017	251	500	0.387096	0.325	1.74773	3.66841	0.005	0.136	0.125	501.4368	0.154
Off-Highway Trucks	2017	501	750	0.468516	0.394	2.35644	4.25656	0.005	0.17	0.157	500.1987	0.153
Off-Highway Trucks	2017	751	1000	0.430867	0.362	1.54555	5.65254	0.005	0.159	0.146	497.1154	0.152
Off-Highway Trucks	2018	121	175	0.456313	0.383	3.38333	3.54273	0.005	0.192	0.177	488.0439	0.152
Off-Highway Trucks	2018	176	250	0.405448	0.341	1.54329	3.45071	0.005	0.141	0.13	487.6353	0.152
Off-Highway Trucks	2018	251	500	0.341588	0.287	1.5595	3.08995	0.005	0.113	0.104	493.5059	0.154
Off-Highway Trucks	2018	501	750	0.413946	0.348	2.17619	3.69054	0.005	0.143	0.132	492.1136	0.153
Off-Highway Trucks	2018	751	1000	0.352998	0.297	1.35734	4.85753	0.005	0.126	0.116	487.7902	0.152
Off-Highway Trucks	2019	121	175	0.38382	0.323	3.32598	2.82463	0.005	0.149	0.137	480.3623	0.152
Off-Highway Trucks	2019	176	250	0.365362	0.307	1.46079	2.98481	0.005	0.119	0.109	480.1703	0.152
Off-Highway Trucks	2019	251	500	0.313575	0.263	1.48346	2.66851	0.005	0.097	0.089	485.3832	0.154
Off-Highway Trucks	2019	501	750	0.389037	0.327	2.04129	3.32044	0.005	0.129	0.118	483.2182	0.153
Off-Highway Trucks	2019	751	1000	0.351304	0.295	1.3561	4.76495	0.005	0.124	0.114	480.3479	0.152
Off-Highway Trucks	2020	121	175	0.36879	0.31	3.3388	2.62769	0.005	0.137	0.126	470.0967	0.152
Off-Highway Trucks	2020	176	250	0.327003	0.275	1.39106	2.50726	0.005	0.098	0.09	470.1675	0.152
Off-Highway Trucks	2020	251	500	0.292906	0.246	1.41417	2.34677	0.005	0.086	0.079	474.5787	0.153
Off-Highway Trucks	2020	501	750	0.371665	0.312	2.02683	3.05816	0.005	0.12	0.11	472.7499	0.153
Off-Highway Trucks	2020	751	1000	0.360605	0.303	1.37163	4.79365	0.005	0.125	0.115	469.8892	0.152
Off-Highway Trucks	2021	121	175	0.331341	0.278	3.32405	2.24626	0.005	0.113	0.104	470.2898	0.152
Off-Highway Trucks	2021	176	250	0.29675	0.249	1.34839	2.10869	0.005	0.082	0.076	470.1932	0.152
Off-Highway Trucks	2021	251	500	0.267636	0.225	1.33781	1.95357	0.005	0.072	0.066	474.542	0.153
Off-Highway Trucks	2021	501	750	0.348975	0.293	1.93522	2.66798	0.005	0.106	0.098	472.991	0.153
Off-Highway Trucks	2021	751	1000	0.304392	0.256	1.25154	4.15817	0.005	0.099	0.091	471.0552	0.152
Off-Highway Trucks	2022	121	175	0.286556	0.241	3.28383	1.81091	0.005	0.088	0.081	470.1813	0.152
Off-Highway Trucks	2022	176	250	0.255309	0.215	1.27852	1.61794	0.005	0.064	0.059	469.6151	0.152
Off-Highway Trucks	2022	251	500	0.233409	0.196	1.24664	1.48975	0.005	0.054	0.05	474.7136	0.154
Off-Highway Trucks	2022	501	750	0.313397	0.263	1.74571	2.26799	0.005	0.088	0.081	473.9773	0.153
Off-Highway Trucks	2022	751	1000	0.27833	0.234	1.2141	3.84239	0.005	0.086	0.079	472.3437	0.153
Off-Highway Trucks	2023	121	175	0.280582	0.236	3.30432	1.68277	0.005	0.081	0.074	470.2917	0.152
Off-Highway Trucks	2023	176	250	0.24623	0.207	1.27325	1.45572	0.005	0.059	0.054	469.4464	0.152
Off-Highway Trucks	2023	251	500	0.222566	0.187	1.22057	1.32428	0.005	0.048	0.044	475.0488	0.154
Off-Highway Trucks	2023	501	750	0.312722	0.263	1.71923	2.18151	0.005	0.084	0.078	473.7666	0.153
Off-Highway Trucks	2023	751	1000	0.254284	0.214	1.19398	3.54374	0.005	0.074	0.068	472.8574	0.153
Off-Highway Trucks	2024	121	175	0.266426	0.224	3.3248	1.49436	0.005	0.07	0.064	470.2638	0.152
Off-Highway Trucks	2024	176	250	0.240426	0.202	1.25915	1.35543	0.005	0.054	0.05	469.1126	0.152
Off-Highway Trucks	2024	251	500	0.219543	0.184	1.20637	1.23518	0.005	0.044	0.041	475.2203	0.154
Off-Highway Trucks	2024	501	750	0.308071	0.259	1.64986	2.08486	0.005	0.079	0.073	473.8394	0.153
Off-Highway Trucks	2024	751	1000	0.248432	0.209	1.19994	3.43925	0.005	0.069	0.064	473.0969	0.153
Off-Highway Trucks	2025	121	175	0.254265	0.214	3.32765	1.3354	0.005	0.065	0.06	470.0035	0.152
Off-Highway Trucks	2025	176	250	0.220008	0.185	1.21268	1.12886	0.005	0.043	0.04	469.1258	0.152
Off-Highway Trucks	2025	251	500	0.210955	0.177	1.18233	1.06379	0.005	0.038	0.035	474.9697	0.154
Off-Highway Trucks	2025	501	750	0.280009	0.235	1.57807	1.75055	0.005	0.066	0.061	476.314	0.154
Off-Highway Trucks	2025	751	1000	0.222695	0.187	1.14565	3.13521	0.005	0.057	0.052	473.3693	0.153
Off-Highway Trucks	2030	121	175	0.739	0.229	3.425	0.563	0.006	0.025	0.025	568.299	0.02
Off-Highway Trucks	2030	176	250	0.932	0.217	1.166	0.481	0.006	0.017	0.017	568.3	0.019
Off-Highway Trucks	2030	251	500	1.52	0.216	1.104	0.458	0.005	0.017	0.017	568.299	0.019
Off-Highway Trucks	2030	501	750	2.467	0.217	1.104	0.463	0.005	0.017	0.017	568.299	0.019
Off-Highway Trucks	2030	751	1000	3.55	0.22	1.107	2.651	0.005	0.033	0.033	568.3	0.019
Off-Highway Trucks	2035	121	175	0.68	0.211	3.425	0.38	0.006	0.016	0.016	568.299	0.019
Off-Highway Trucks	2035	176	250	0.894	0.208	1.167	0.353	0.006	0.013	0.013	568.299	0.018
Off-Highway Trucks	2035	251	500	1.461	0.208	1.105	0.348	0.005	0.013	0.013	568.299	0.018
Off-Highway Trucks	2035	501	750	2.371	0.208	1.105	0.348	0.005	0.013	0.013	568.299	0.018
Off-Highway Trucks	2035	751	1000	3.368	0.209	1.105	2.565	0.005	0.028	0.028	568.299	0.018
Off-Highway Trucks	2040	121	175	0.662	0.205	3.426	0.318	0.006	0.013	0.013	568.299	0.018
Off-Highway Trucks	2040	176	250	0.877	0.204	1.167	0.305	0.006	0.012	0.012	568.3	0.018
Off-Highway Trucks	2040	251	500	1.434	0.204	1.105	0.305	0.005	0.012	0.012	568.299	0.018
Off-Highway Trucks	2040	501	750	2.327	0.204	1.105	0.305	0.005	0.012	0.012	568.299	0.018
Off-Highway Trucks	2040	751	1000	3.296	0.205	1.105	2.532	0.005	0.026	0.026	568.299	0.018
Other Construction Equipment	1990	6	15	5.348	1.804	4.999	9.999	1.049	0.975	0.975	568.3	0.162
Other Construction Equipment	1990	16	25	8.578	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other Construction Equipment	1990	26	50	39.33	4.791	9.693	7.947	0.871	1.267	1.267	568.299	0.432
Other Construction Equipment	1990	51	120	56.637	2.388	5.782	15.176	0.791	1.343	1.343	568.299	0.215
Other Construction Equipment	1990	121	175	60.86	1.948	5.191	15.112	0.758	1.085	1.085	568.299	0.175
Other Construction Equipment	1990	251	500	128.26	1.72	11.412	14.332	0.662	0.927	0.927	568.299	0.155
Other Construction Equipment	2000	6	15	4.374	1.475	4.49	8.242	0.079	0.676	0.676	568.299	0.133
Other Construction Equipment	2000	16	25	7.591	1.958	4.53	6.358	0.065	0.563	0.563	568.3	0.176
Other Construction Equipment	2000	26	50	30.619	3.73	7.85	6.784	0.066	0.816	0.816	568.299	0.336
Other Construction Equipment	2000	51	120	38.817	1.636	4.283	9.507	0.06	0.786	0.786	568.3	0.147
Other Construction Equipment	2000	121	175	34.573	1.106	3.417	8.749	0.057	0.453	0.453	568.299	0.099
Other Construction Equipment	2000	251	500	61.92	0.83	3.67	8.069	0.05	0.321	0.321	568.299	0.074
Other Construction Equipment	2005	6	15	2.271	0.766	3.469	5.228	0.079	0.361	0.361	568.299	0.069
Other Construction Equipment	2005	16	25	3.564	0.919	2.642	5.412	0.065	0.347	0.347	568.3	0.082
Other Construction Equipment	2005	26	50	26.204	3.192	7.102	6.226	0.066	0.739	0.739	568.299	0.288
Other Construction Equipment	2005	51	120	33.145	1.397	4.043	8.067	0.06	0.725	0.725	568.299	0.126
Other Construction Equipment	2005	121	175	28.235	0.903	3.208	7.379	0.057	0.392	0.392	568.299	0.081
Other Construction Equipment	2005	251	500	41.035	0.55	2.051	6.334	0.05	0.22	0.22	568.299	0.049
Other Construction Equipment	2010	6	15	1.52864	1.284	5.29076	5.55407	0.005	0.497	0.457	587.5495	0.171
Other Construction Equipment	2010	16	25	1.52864	1.284	5.29076	5.55407	0.005	0.497	0.457	587.5495	0.171
Other Construction Equipment	2010	26	50	1.52864	1.284	5.29076	5.55407	0.005	0.497	0.457	587.5495	0.171
Other Construction Equipment	2010	51	120	0.92739	0.779	3.89903	7.11752	0.005	0.549	0.505	523.1661	0.152
Other Construction Equipment	2010	121	175	0.769602	0.647	3.47406	7.30949	0.005	0.38	0.349	522.1244	0.152
Other Construction Equipment	2010	251	500	0.480247	0.404	3.20434	5.78616	0.005	0.219	0.201	530.8514	0.155
Other Construction Equipment	2011	6	15	1.531741	1.287	5.36962	5.5686	0.005	0.499	0.459	586.0703	0.171
Other Construction Equipment	2011	16	25	1.531741	1.287	5.36962	5.5686	0.005	0.499	0.459	586.0703	0.171
Other Construction Equipment	2011	26	50	1.531741	1.287	5.36962	5.5686	0.005	0.499	0.459	586.0703	0.171
Other Construction Equipment	2011	51	120	0.909764	0.764	3.89723	6.98332	0.005	0.542	0.498	521.5282	0.152
Other Construction Equipment	2011	121	175	0.725704	0.61	3.41832	6.92098	0.005	0.361	0.332	520.664	0.152
Other Construction Equipment	2011	251	500	0.449646	0.378	2.91483	5.42766	0.005	0.204	0.188	529.9639	0.155
Other Construction Equipment	2012	6	15	1.548775	1.301	5.47004	5.58169	0.005	0.503	0.463	584.6639	0.171
Other Construction Equipment	2012	16	25	1.548775	1.301	5.47004	5.58169	0.005	0.503	0.463	584.6639	0.171
Other Construction Equipment	2012	26	50	1.548775	1.301	5.47004	5.58169	0.005	0.503	0.463	584.6639	0.171
Other Construction Equipment	2012	51	120	0.910724	0.765	3.91674	6.95644	0.005	0.543	0.5	519.9075	0.152
Other Construction Equipment	2012	121	175	0.730754	0.614	3.4429	6.91612	0.005	0.363	0.334	519.3479	0.152
Other Construction Equipment	2012	251	500	0.458869	0.386	2.95715	5.42334	0.005	0.206	0.189	528.6246	0.155
Other Construction Equipment	2013	6	15	1.571874	1.321	5.57699	5.60361	0.005	0.509	0.468	581.8471	0.171
Other Construction Equipment	2013	16	25	1.571874	1.321	5.57699	5.60361	0.005	0.509	0.468	581.8471	0.171
Other Construction Equipment	2013	26	50	1.571874	1.321	5.57699	5.60361	0.005	0.509	0.468	581.8471	0.171
Other Construction Equipment	2013	51	120	0.892781	0.75	3.91866	6.82868	0.005	0.532	0.489	517.5939	0.152
Other Construction Equipment	2013	121	175	0.708053	0.595	3.41257	6.69102	0.005	0.351	0.323	516.9857	0.152
Other Construction Equipment	2013	251	500	0.440093	0.37	2.79519	5.14317	0.005	0.194	0.179	525.1086	0.154
Other Construction Equipment	2014	6	15	1.547867	1.301	5.60223	5.56546	0.005	0.502	0.462	578.9591	0.171
Other Construction Equipment	2014	16	25	1.547867	1.301	5.60223	5.56546	0.005	0.502	0.462	578.9591	0.171
Other Construction Equipment	2014	26	50	1.547867	1.301	5.60223	5.56546	0.005	0.502	0.462	578.9591	0.171
Other Construction Equipment	2014	51	120	0.866935	0.728	3.90558	6.63282	0.005	0.518	0.476	515.2847	0.152
Other Construction Equipment	2014	121	175	0.674237	0.567	3.38516	6.37185	0.005	0.333	0.307	514.5518	0.152
Other Construction Equipment	2014	251	500	0.392211	0.33	2.47571	4.5608	0.005	0.168	0.155	520.9444	0.154
Other Construction Equipment	2015	6	15	1.557753	1.309	5.68113	5.56397	0.005	0.503	0.463	573.0198	0.171
Other Construction Equipment	2015	16	25	1.557753	1.309	5.68113	5.56397	0.005	0.503	0.463	573.0198	0.171
Other Construction Equipment	2015	26	50	1.557753	1.309	5.68113	5.56397	0.005	0.503	0.463	573.0198	0.171
Other Construction Equipment	2015	51	120	0.860334	0.723	3.9159	6.53649	0.005	0.512	0.471	510.1706	0.152
Other Construction Equipment	2015	121	175	0.66302	0.557	3.38183	6.2305	0.005	0.326	0.3	509.3069	0.152
Other Construction Equipment	2015	251	500	0.386006	0.324	2.40724	4.41519	0.005	0.163	0.15	515.1953	0.154
Other Construction Equipment	2016	6	15	1.524032	1.281	5.67687	5.49921	0.005	0.492	0.453	566.9782	0.171
Other Construction Equipment	2016	16	25	1.524032	1.281	5.67687	5.49921	0.005	0.492	0.453	566.9782	0.171
Other Construction Equipment	2016	26	50	1.524032	1.281	5.67687	5.49921	0.005	0.492	0.453	566.9782	0.171
Other Construction Equipment	2016	51	120	0.837049	0.703	3.90894	6.32533	0.005	0.496	0.456	505.349	0.152
Other Construction Equipment	2016	121	175	0.62413	0.524	3.35672	5.81763	0.005	0.306	0.281	503.9641	0.152
Other Construction Equipment	2016	251	500	0.366005	0.308	2.28488	4.08972	0.005	0.151	0.139	509.7062	0.154
Other Construction Equipment	2017	6	15	1.480652	1.244	5.65509	5.42066	0.005	0.477	0.439	558.0007	0.171
Other Construction Equipment	2017	16	25	1.480652	1.244	5.65509	5.42066	0.005	0.477	0.439	558.0007	0.171
Other Construction Equipment	2017	26	50	1.480652	1.244	5.65509	5.42066	0.005	0.477	0.439	558.0007	0.171
Other Construction Equipment	2017	51	120	0.804436	0.676	3.88542	6.06955	0.005	0.475	0.437	497.3832	0.152
Other Construction Equipment	2017	121	175	0.595557	0.5	3.33767	5.49424	0.005	0.29	0.267	495.9311	0.152
Other Construction Equipment	2017	251	500	0.3449	0.29	2.12114	3.77706	0.005	0.138	0.127	501.1295	0.154
Other Construction Equipment	2018	6	15	1.39068	1.169	5.54108	5.27161	0.005	0.449	0.413	548.9388	0.171
Other Construction Equipment	2018	16	25	1.39068	1.169	5.54108	5.27161	0.005	0.449	0.413	548.9388	0.171
Other Construction Equipment	2018	26	50	1.39068	1.169	5.54108	5.27161	0.005	0.449	0.413	548.9388	0.171
Other Construction Equipment	2018	51	120	0.711314	0.598	3.79863	5.44123	0.005	0.417	0.383	490.018	0.153
Other Construction Equipment	2018	121	175	0.519398	0.436	3.26346	4.75499	0.005	0.25	0.23	487.9859	0.152
Other Construction Equipment	2018	251	500	0.298599	0.251	1.81261	3.16693	0.005	0.115	0.105	493.36	0.154

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other Construction Equipment	2019	6	15	1.370834	1.152	5.54123	5.20338	0.005	0.437	0.402	539.7349	0.171
Other Construction Equipment	2019	16	25	1.370834	1.152	5.54123	5.20338	0.005	0.437	0.402	539.7349	0.171
Other Construction Equipment	2019	26	50	1.370834	1.152	5.54123	5.20338	0.005	0.437	0.402	539.7349	0.171
Other Construction Equipment	2019	51	120	0.655004	0.55	3.7535	5.04831	0.005	0.379	0.349	482.2177	0.153
Other Construction Equipment	2019	121	175	0.490382	0.412	3.25619	4.4331	0.005	0.233	0.215	469.4518	0.152
Other Construction Equipment	2019	251	500	0.277883	0.233	1.66739	2.85547	0.005	0.103	0.094	485.4127	0.154
Other Construction Equipment	2020	6	15	1.276029	1.072	5.40446	5.03626	0.005	0.405	0.373	527.9656	0.171
Other Construction Equipment	2020	16	25	1.276029	1.072	5.40446	5.03626	0.005	0.405	0.373	527.9656	0.171
Other Construction Equipment	2020	26	50	1.276029	1.072	5.40446	5.03626	0.005	0.405	0.373	527.9656	0.171
Other Construction Equipment	2020	51	120	0.617777	0.519	3.73189	4.7712	0.005	0.354	0.325	472.2162	0.153
Other Construction Equipment	2020	121	175	0.461441	0.388	3.23528	4.11203	0.005	0.217	0.2	469.9837	0.152
Other Construction Equipment	2020	251	500	0.266788	0.224	1.6338	2.63672	0.005	0.096	0.088	475.2326	0.154
Other Construction Equipment	2021	6	15	1.201423	1.01	5.30749	4.90234	0.005	0.382	0.351	527.7834	0.171
Other Construction Equipment	2021	16	25	1.201423	1.01	5.30749	4.90234	0.005	0.382	0.351	527.7834	0.171
Other Construction Equipment	2021	26	50	1.201423	1.01	5.30749	4.90234	0.005	0.382	0.351	527.7834	0.171
Other Construction Equipment	2021	51	120	0.573212	0.482	3.70304	4.4558	0.005	0.323	0.298	472.275	0.153
Other Construction Equipment	2021	121	175	0.392185	0.33	3.18275	3.43847	0.005	0.18	0.165	469.7642	0.152
Other Construction Equipment	2021	251	500	0.256006	0.215	1.59874	2.42822	0.005	0.09	0.082	475.2124	0.154
Other Construction Equipment	2022	6	15	1.094466	0.92	5.16732	4.74117	0.005	0.348	0.32	529.1825	0.171
Other Construction Equipment	2022	16	25	1.094466	0.92	5.16732	4.74117	0.005	0.348	0.32	529.1825	0.171
Other Construction Equipment	2022	26	50	1.094466	0.92	5.16732	4.74117	0.005	0.348	0.32	529.1825	0.171
Other Construction Equipment	2022	51	120	0.523663	0.44	3.66623	4.09846	0.005	0.288	0.265	472.3178	0.153
Other Construction Equipment	2022	121	175	0.351187	0.295	3.15539	2.99437	0.005	0.156	0.144	469.6126	0.152
Other Construction Equipment	2022	251	500	0.223796	0.188	1.43828	1.97544	0.005	0.074	0.068	475.9983	0.154
Other Construction Equipment	2023	6	15	1.030598	0.866	5.07368	4.59446	0.005	0.322	0.296	529.3389	0.171
Other Construction Equipment	2023	16	25	1.030598	0.866	5.07368	4.59446	0.005	0.322	0.296	529.3389	0.171
Other Construction Equipment	2023	26	50	1.030598	0.866	5.07368	4.59446	0.005	0.322	0.296	529.3389	0.171
Other Construction Equipment	2023	51	120	0.482844	0.406	3.63188	3.79013	0.005	0.259	0.238	471.9899	0.153
Other Construction Equipment	2023	121	175	0.325455	0.273	3.14152	2.69821	0.005	0.14	0.129	469.5579	0.152
Other Construction Equipment	2023	251	500	0.214667	0.18	1.39596	1.81226	0.005	0.069	0.063	476.1847	0.154
Other Construction Equipment	2024	6	15	0.984979	0.828	5.03181	4.51017	0.005	0.305	0.28	529.2094	0.171
Other Construction Equipment	2024	16	25	0.984979	0.828	5.03181	4.51017	0.005	0.305	0.28	529.2094	0.171
Other Construction Equipment	2024	26	50	0.984979	0.828	5.03181	4.51017	0.005	0.305	0.28	529.2094	0.171
Other Construction Equipment	2024	51	120	0.454266	0.382	3.61958	3.58173	0.005	0.237	0.218	472.1254	0.153
Other Construction Equipment	2024	121	175	0.310043	0.261	3.14951	2.52019	0.005	0.13	0.12	469.5445	0.152
Other Construction Equipment	2024	251	500	0.208244	0.175	1.38248	1.67692	0.005	0.064	0.059	476.4838	0.154
Other Construction Equipment	2025	6	15	0.901061	0.757	4.87388	4.30575	0.005	0.268	0.246	528.9535	0.171
Other Construction Equipment	2025	16	25	0.901061	0.757	4.87388	4.30575	0.005	0.268	0.246	528.9535	0.171
Other Construction Equipment	2025	26	50	0.901061	0.757	4.87388	4.30575	0.005	0.268	0.246	528.9535	0.171
Other Construction Equipment	2025	51	120	0.40612	0.341	3.58397	3.25221	0.005	0.203	0.187	472.7482	0.153
Other Construction Equipment	2025	121	175	0.279358	0.235	3.13647	2.16742	0.005	0.112	0.103	469.843	0.152
Other Construction Equipment	2025	251	500	0.200431	0.168	1.3582	1.55241	0.005	0.059	0.055	476.2959	0.154
Other Construction Equipment	2030	6	15	1.96	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Other Construction Equipment	2030	16	25	2.657	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Other Construction Equipment	2030	26	50	3.526	0.429	4.39	3.19	0.007	0.03	0.03	568.299	0.038
Other Construction Equipment	2030	51	120	5.348	0.225	3.538	1.576	0.006	0.027	0.027	568.3	0.02
Other Construction Equipment	2030	121	175	5.057	0.161	3.127	0.459	0.006	0.019	0.019	568.299	0.014
Other Construction Equipment	2030	251	500	11.523	0.154	1.028	0.391	0.005	0.014	0.014	568.3	0.013
Other Construction Equipment	2035	6	15	1.96	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Other Construction Equipment	2035	16	25	2.657	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Other Construction Equipment	2035	26	50	3.367	0.41	4.377	3.124	0.007	0.018	0.018	568.299	0.037
Other Construction Equipment	2035	51	120	5.057	0.213	3.536	1.474	0.006	0.017	0.017	568.299	0.019
Other Construction Equipment	2035	121	175	4.686	0.15	3.128	0.334	0.006	0.013	0.013	568.299	0.013
Other Construction Equipment	2035	251	500	11.034	0.147	1.029	0.311	0.005	0.011	0.011	568.299	0.013
Other Construction Equipment	2040	6	15	1.96	0.661	3.47	4.142	0.008	0.161	0.161	568.3	0.059
Other Construction Equipment	2040	16	25	2.657	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Other Construction Equipment	2040	26	50	3.359	0.409	4.377	3.096	0.007	0.015	0.015	568.3	0.036
Other Construction Equipment	2040	51	120	4.992	0.21	3.536	1.441	0.006	0.014	0.014	568.299	0.018
Other Construction Equipment	2040	121	175	4.556	0.145	3.128	0.29	0.006	0.011	0.011	568.299	0.013
Other Construction Equipment	2040	251	500	10.825	0.145	1.029	0.282	0.005	0.01	0.01	568.299	0.013
Other General Industrial Equipment	1990	6	15	4.264	1.804	4.999	9.999	0.833	0.968	0.968	568.299	0.162
Other General Industrial Equipment	1990	16	25	12.555	2.213	4.999	6.919	0.679	0.735	0.735	568.299	0.199
Other General Industrial Equipment	1990	26	50	38.808	4.828	9.768	7.957	0.692	1.266	1.266	568.299	0.435
Other General Industrial Equipment	1990	51	120	54.2	2.363	5.72	14.962	0.628	1.331	1.331	568.299	0.213
Other General Industrial Equipment	1990	121	175	57.106	1.61	5.066	13.434	0.602	0.88	0.88	568.299	0.145
Other General Industrial Equipment	1990	176	250	80.71	1.61	5.066	13.434	0.602	0.88	0.88	568.299	0.145
Other General Industrial Equipment	1990	251	500	139.861	1.425	11.207	12.743	0.525	0.756	0.756	568.299	0.128
Other General Industrial Equipment	1990	501	750	230.516	1.425	11.207	12.743	0.538	0.756	0.756	568.299	0.128
Other General Industrial Equipment	1990	751	1000	293.256	1.417	11.207	12.743	0.538	0.746	0.746	568.299	0.127
Other General Industrial Equipment	2000	6	15	2.475	1.047	4.258	7.362	0.079	0.428	0.428	568.299	0.094

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other General Industrial Equipment	2000	16	25	5.83	1.027	4.322	6.284	0.064	0.431	0.431	568.299	0.092
Other General Industrial Equipment	2000	26	50	36.086	4.49	9.236	7.09	0.065	0.935	0.935	568.299	0.405
Other General Industrial Equipment	2000	51	120	43.196	1.883	4.733	10.664	0.059	0.91	0.91	568.299	0.169
Other General Industrial Equipment	2000	121	175	44.74	1.261	3.852	9.686	0.057	0.536	0.536	568.299	0.113
Other General Industrial Equipment	2000	176	250	53	1.057	3.072	9.325	0.057	0.438	0.438	568.299	0.095
Other General Industrial Equipment	2000	251	500	93.834	0.956	5.179	8.862	0.049	0.385	0.385	568.299	0.086
Other General Industrial Equipment	2000	501	750	154.656	0.956	5.179	8.862	0.051	0.385	0.385	568.3	0.086
Other General Industrial Equipment	2000	751	1000	214.063	1.034	5.791	9.479	0.051	0.385	0.385	568.299	0.093
Other General Industrial Equipment	2005	6	15	1.674	0.708	3.469	4.985	0.079	0.35	0.35	568.299	0.063
Other General Industrial Equipment	2005	16	25	4.288	0.755	2.4	5.226	0.064	0.315	0.315	568.299	0.068
Other General Industrial Equipment	2005	26	50	33.133	4.122	8.765	6.676	0.065	0.888	0.888	568.299	0.371
Other General Industrial Equipment	2005	51	120	37.812	1.649	4.418	9.041	0.059	0.867	0.867	568.299	0.148
Other General Industrial Equipment	2005	121	175	38.439	1.084	3.513	8.273	0.057	0.479	0.479	568.299	0.097
Other General Industrial Equipment	2005	176	250	38.228	0.762	2.065	7.795	0.057	0.301	0.301	568.299	0.068
Other General Industrial Equipment	2005	251	500	66.246	0.675	2.681	7.094	0.049	0.269	0.269	568.299	0.06
Other General Industrial Equipment	2005	501	750	110.94	0.686	2.681	7.252	0.051	0.272	0.272	568.3	0.061
Other General Industrial Equipment	2005	751	1000	166.893	0.806	3.276	8.322	0.051	0.28	0.28	568.299	0.072
Other General Industrial Equipment	2010	6	15	1.873274	1.574	6.00712	5.68505	0.005	0.563	0.518	584.6401	0.17
Other General Industrial Equipment	2010	16	25	1.873274	1.574	6.00712	5.68505	0.005	0.563	0.518	584.6401	0.17
Other General Industrial Equipment	2010	26	50	1.873274	1.574	6.00712	5.68505	0.005	0.563	0.518	584.6401	0.17
Other General Industrial Equipment	2010	51	120	1.01726	0.855	4.0773	7.36447	0.005	0.611	0.562	522.222	0.152
Other General Industrial Equipment	2010	121	175	0.746027	0.627	3.51505	7.0202	0.005	0.379	0.349	524.278	0.153
Other General Industrial Equipment	2010	176	250	0.769173	0.646	2.61803	8.04899	0.005	0.359	0.33	525.8035	0.153
Other General Industrial Equipment	2010	251	500	0.489206	0.411	2.96412	5.68219	0.005	0.219	0.202	525.4767	0.153
Other General Industrial Equipment	2010	501	750	0.368598	0.31	1.62081	4.78207	0.005	0.168	0.154	526.0709	0.153
Other General Industrial Equipment	2010	751	1000	0.368913	0.31	1.02418	6.10226	0.005	0.148	0.136	524.505	0.153
Other General Industrial Equipment	2011	6	15	1.86071	1.564	6.08575	5.69446	0.005	0.562	0.517	583.1785	0.17
Other General Industrial Equipment	2011	16	25	1.86071	1.564	6.08575	5.69446	0.005	0.562	0.517	583.1785	0.17
Other General Industrial Equipment	2011	26	50	1.86071	1.564	6.08575	5.69446	0.005	0.562	0.517	583.1785	0.17
Other General Industrial Equipment	2011	51	120	1.006419	0.846	4.08854	7.24885	0.005	0.609	0.56	520.9164	0.152
Other General Industrial Equipment	2011	121	175	0.688559	0.579	3.47165	6.5273	0.005	0.352	0.324	522.9673	0.153
Other General Industrial Equipment	2011	176	250	0.679053	0.571	2.33422	7.30022	0.005	0.313	0.288	524.489	0.153
Other General Industrial Equipment	2011	251	500	0.467324	0.393	2.74249	5.42881	0.005	0.207	0.19	524.163	0.153
Other General Industrial Equipment	2011	501	750	0.373245	0.314	1.62791	4.72869	0.005	0.163	0.15	524.7557	0.153
Other General Industrial Equipment	2011	751	1000	0.37971	0.319	1.03813	6.1714	0.005	0.153	0.141	523.1938	0.153
Other General Industrial Equipment	2012	6	15	1.895405	1.593	6.24676	5.71254	0.005	0.569	0.524	581.7169	0.17
Other General Industrial Equipment	2012	16	25	1.895405	1.593	6.24676	5.71254	0.005	0.569	0.524	581.7169	0.17
Other General Industrial Equipment	2012	26	50	1.895405	1.593	6.24676	5.71254	0.005	0.569	0.524	581.7169	0.17
Other General Industrial Equipment	2012	51	120	1.008569	0.847	4.12133	7.21493	0.005	0.612	0.563	519.6109	0.152
Other General Industrial Equipment	2012	121	175	0.685664	0.576	3.49618	6.44491	0.005	0.349	0.321	521.6566	0.153
Other General Industrial Equipment	2012	176	250	0.675065	0.567	2.33594	7.14362	0.005	0.308	0.284	523.1745	0.153
Other General Industrial Equipment	2012	251	500	0.47625	0.4	2.75094	5.39821	0.005	0.207	0.19	522.8493	0.153
Other General Industrial Equipment	2012	501	750	0.379047	0.319	1.63473	4.69855	0.005	0.161	0.148	523.4405	0.153
Other General Industrial Equipment	2012	751	1000	0.390508	0.328	1.05208	6.24054	0.005	0.158	0.145	521.8825	0.153
Other General Industrial Equipment	2013	6	15	1.848739	1.553	6.26146	5.64536	0.005	0.556	0.511	578.7937	0.17
Other General Industrial Equipment	2013	16	25	1.848739	1.553	6.26146	5.64536	0.005	0.556	0.511	578.7937	0.17
Other General Industrial Equipment	2013	26	50	1.848739	1.553	6.26146	5.64536	0.005	0.556	0.511	578.7937	0.17
Other General Industrial Equipment	2013	51	120	0.982208	0.825	4.11871	7.03299	0.005	0.597	0.549	516.9998	0.152
Other General Industrial Equipment	2013	121	175	0.6403	0.538	3.4592	6.02319	0.005	0.324	0.298	519.0352	0.153
Other General Industrial Equipment	2013	176	250	0.609561	0.512	2.15134	6.51958	0.005	0.273	0.251	520.5455	0.153
Other General Industrial Equipment	2013	251	500	0.434695	0.365	2.62159	4.82071	0.005	0.183	0.168	520.2219	0.153
Other General Industrial Equipment	2013	501	750	0.344704	0.29	1.58393	4.12057	0.005	0.139	0.128	520.8102	0.153
Other General Industrial Equipment	2013	751	1000	0.401306	0.337	1.06602	6.30968	0.005	0.162	0.149	519.26	0.153
Other General Industrial Equipment	2014	6	15	1.810128	1.521	6.28785	5.58361	0.005	0.544	0.5	575.8705	0.17
Other General Industrial Equipment	2014	16	25	1.810128	1.521	6.28785	5.58361	0.005	0.544	0.5	575.8705	0.17
Other General Industrial Equipment	2014	26	50	1.810128	1.521	6.28785	5.58361	0.005	0.544	0.5	575.8705	0.17
Other General Industrial Equipment	2014	51	120	0.938561	0.789	4.09005	6.72277	0.005	0.574	0.528	514.3886	0.152
Other General Industrial Equipment	2014	121	175	0.621882	0.523	3.46929	5.79166	0.005	0.312	0.287	516.4138	0.153
Other General Industrial Equipment	2014	176	250	0.580321	0.488	2.05376	6.15263	0.005	0.255	0.234	517.9164	0.153
Other General Industrial Equipment	2014	251	500	0.422239	0.355	2.49943	4.56494	0.005	0.172	0.159	517.5945	0.153
Other General Industrial Equipment	2014	501	750	0.304364	0.256	1.48882	3.62195	0.005	0.115	0.106	518.1798	0.153
Other General Industrial Equipment	2014	751	1000	0.412103	0.346	1.07997	6.37883	0.005	0.167	0.153	516.6375	0.153
Other General Industrial Equipment	2015	6	15	1.779268	1.495	6.32452	5.52435	0.005	0.532	0.49	570.0241	0.17
Other General Industrial Equipment	2015	16	25	1.779268	1.495	6.32452	5.52435	0.005	0.532	0.49	570.0241	0.17
Other General Industrial Equipment	2015	26	50	1.779268	1.495	6.32452	5.52435	0.005	0.532	0.49	570.0241	0.17
Other General Industrial Equipment	2015	51	120	0.905303	0.761	4.0811	6.50163	0.005	0.553	0.509	509.1664	0.152
Other General Industrial Equipment	2015	121	175	0.589015	0.495	3.45434	5.3974	0.005	0.294	0.27	511.171	0.153
Other General Industrial Equipment	2015	176	250	0.538134	0.452	1.9257	5.64293	0.005	0.23	0.211	512.6584	0.153
Other General Industrial Equipment	2015	251	500	0.420225	0.353	2.43603	4.42481	0.005	0.167	0.154	512.3397	0.153
Other General Industrial Equipment	2015	501	750	0.298831	0.251	1.49062	3.36512	0.005	0.109	0.1	512.9191	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other General Industrial Equipment	2015	751	1000	0.422901	0.355	1.09391	6.44797	0.005	0.171	0.158	511.3924	0.153
Other General Industrial Equipment	2016	6	15	1.690474	1.42	6.25866	5.40705	0.005	0.506	0.466	564.1777	0.17
Other General Industrial Equipment	2016	16	25	1.690474	1.42	6.25866	5.40705	0.005	0.506	0.466	564.1777	0.17
Other General Industrial Equipment	2016	26	50	1.690474	1.42	6.25866	5.40705	0.005	0.506	0.466	564.1777	0.17
Other General Industrial Equipment	2016	51	120	0.851445	0.715	4.04541	6.14411	0.005	0.518	0.476	503.9442	0.152
Other General Industrial Equipment	2016	121	175	0.559455	0.47	3.43665	5.05466	0.005	0.276	0.254	505.9282	0.153
Other General Industrial Equipment	2016	176	250	0.519923	0.437	1.8667	5.40733	0.005	0.217	0.2	507.4004	0.153
Other General Industrial Equipment	2016	251	500	0.407021	0.342	2.36652	4.14966	0.005	0.159	0.146	507.085	0.153
Other General Industrial Equipment	2016	501	750	0.289084	0.243	1.49061	3.10202	0.005	0.1	0.092	507.6584	0.153
Other General Industrial Equipment	2016	751	1000	0.288345	0.242	1.04483	4.7462	0.005	0.112	0.103	506.1474	0.153
Other General Industrial Equipment	2017	6	15	1.605819	1.349	6.17923	5.27694	0.005	0.479	0.441	555.4081	0.17
Other General Industrial Equipment	2017	16	25	1.605819	1.349	6.17923	5.27694	0.005	0.479	0.441	555.4081	0.17
Other General Industrial Equipment	2017	26	50	1.605819	1.349	6.17923	5.27694	0.005	0.479	0.441	555.4081	0.17
Other General Industrial Equipment	2017	51	120	0.785454	0.66	3.99811	5.72138	0.005	0.47	0.433	496.1109	0.152
Other General Industrial Equipment	2017	121	175	0.520155	0.437	3.39928	4.53359	0.005	0.25	0.23	498.0641	0.153
Other General Industrial Equipment	2017	176	250	0.489435	0.411	1.78	5.02246	0.005	0.199	0.183	499.5133	0.153
Other General Industrial Equipment	2017	251	500	0.397215	0.334	2.36453	3.9491	0.005	0.152	0.14	499.2028	0.153
Other General Industrial Equipment	2017	501	750	0.260833	0.219	1.48016	2.59187	0.005	0.086	0.079	499.7673	0.153
Other General Industrial Equipment	2017	751	1000	0.29828	0.251	1.05719	4.7865	0.005	0.114	0.105	498.2798	0.153
Other General Industrial Equipment	2018	6	15	1.373834	1.154	5.82717	4.97857	0.005	0.414	0.381	546.6385	0.17
Other General Industrial Equipment	2018	16	25	1.373834	1.154	5.82717	4.97857	0.005	0.414	0.381	546.6385	0.17
Other General Industrial Equipment	2018	26	50	1.373834	1.154	5.82717	4.97857	0.005	0.414	0.381	546.6385	0.17
Other General Industrial Equipment	2018	51	120	0.663253	0.557	3.87633	4.95455	0.005	0.392	0.36	488.2775	0.152
Other General Industrial Equipment	2018	121	175	0.377931	0.318	3.23662	3.23673	0.005	0.172	0.158	490.1999	0.153
Other General Industrial Equipment	2018	176	250	0.360768	0.303	1.45525	3.64819	0.005	0.135	0.124	491.6263	0.153
Other General Industrial Equipment	2018	251	500	0.301755	0.254	1.58301	2.90735	0.005	0.104	0.095	491.3207	0.153
Other General Industrial Equipment	2018	501	750	0.257602	0.216	1.48303	2.41933	0.005	0.083	0.076	491.8763	0.153
Other General Industrial Equipment	2018	751	1000	0.306245	0.257	1.06646	4.81007	0.005	0.116	0.107	490.4122	0.153
Other General Industrial Equipment	2019	6	15	1.240314	1.042	5.66186	4.80683	0.005	0.374	0.344	537.8689	0.17
Other General Industrial Equipment	2019	16	25	1.240314	1.042	5.66186	4.80683	0.005	0.374	0.344	537.8689	0.17
Other General Industrial Equipment	2019	26	50	1.240314	1.042	5.66186	4.80683	0.005	0.374	0.344	537.8689	0.17
Other General Industrial Equipment	2019	51	120	0.594634	0.5	3.82128	4.49674	0.005	0.343	0.315	480.4442	0.152
Other General Industrial Equipment	2019	121	175	0.359068	0.302	3.24129	2.99891	0.005	0.156	0.144	482.3357	0.153
Other General Industrial Equipment	2019	176	250	0.307665	0.259	1.29893	3.01996	0.005	0.106	0.097	483.7392	0.153
Other General Industrial Equipment	2019	251	500	0.283854	0.239	1.56115	2.57531	0.005	0.092	0.085	483.4385	0.153
Other General Industrial Equipment	2019	501	750	0.236758	0.199	1.47441	2.11518	0.005	0.076	0.07	483.9852	0.153
Other General Industrial Equipment	2019	751	1000	0.31421	0.264	1.07573	4.83364	0.005	0.117	0.108	482.5446	0.153
Other General Industrial Equipment	2020	6	15	1.125869	0.946	5.50397	4.62219	0.005	0.334	0.307	526.1761	0.17
Other General Industrial Equipment	2020	16	25	1.125869	0.946	5.50397	4.62219	0.005	0.334	0.307	526.1761	0.17
Other General Industrial Equipment	2020	26	50	1.125869	0.946	5.50397	4.62219	0.005	0.334	0.307	526.1761	0.17
Other General Industrial Equipment	2020	51	120	0.53075	0.446	3.77073	4.06079	0.005	0.296	0.272	469.9998	0.152
Other General Industrial Equipment	2020	121	175	0.319281	0.268	3.22922	2.57503	0.005	0.135	0.124	471.8502	0.153
Other General Industrial Equipment	2020	176	250	0.281815	0.237	1.23914	2.66782	0.005	0.09	0.083	473.2231	0.153
Other General Industrial Equipment	2020	251	500	0.247036	0.208	1.34424	2.06187	0.005	0.072	0.067	472.929	0.153
Other General Industrial Equipment	2020	501	750	0.207847	0.175	1.46184	1.67591	0.005	0.062	0.057	473.4638	0.153
Other General Industrial Equipment	2020	751	1000	0.322174	0.271	1.085	4.85721	0.005	0.119	0.109	472.0545	0.153
Other General Industrial Equipment	2021	6	15	0.989462	0.831	5.31354	4.42532	0.005	0.289	0.266	526.1761	0.17
Other General Industrial Equipment	2021	16	25	0.989462	0.831	5.31354	4.42532	0.005	0.289	0.266	526.1761	0.17
Other General Industrial Equipment	2021	26	50	0.989462	0.831	5.31354	4.42532	0.005	0.289	0.266	526.1761	0.17
Other General Industrial Equipment	2021	51	120	0.480398	0.404	3.74029	3.7177	0.005	0.256	0.235	469.9998	0.152
Other General Industrial Equipment	2021	121	175	0.302394	0.254	3.23421	2.34745	0.005	0.121	0.111	471.8502	0.153
Other General Industrial Equipment	2021	176	250	0.242448	0.204	1.17138	2.0939	0.005	0.07	0.064	473.2231	0.153
Other General Industrial Equipment	2021	251	500	0.232592	0.195	1.32956	1.79624	0.005	0.064	0.059	472.929	0.153
Other General Industrial Equipment	2021	501	750	0.197551	0.166	1.46305	1.38672	0.005	0.054	0.05	473.4638	0.153
Other General Industrial Equipment	2021	751	1000	0.328625	0.276	1.09291	4.87557	0.005	0.12	0.11	472.0545	0.153
Other General Industrial Equipment	2022	6	15	0.835231	0.702	5.07591	4.19687	0.005	0.238	0.219	526.1761	0.17
Other General Industrial Equipment	2022	16	25	0.835231	0.702	5.07591	4.19687	0.005	0.238	0.219	526.1761	0.17
Other General Industrial Equipment	2022	26	50	0.835231	0.702	5.07591	4.19687	0.005	0.238	0.219	526.1761	0.17
Other General Industrial Equipment	2022	51	120	0.403101	0.339	3.66821	3.19968	0.005	0.199	0.183	469.9998	0.152
Other General Industrial Equipment	2022	121	175	0.289798	0.244	3.23346	2.14959	0.005	0.111	0.102	471.8502	0.153
Other General Industrial Equipment	2022	176	250	0.222216	0.187	1.13752	1.75874	0.005	0.057	0.052	473.2231	0.153
Other General Industrial Equipment	2022	251	500	0.208015	0.175	1.17139	1.43348	0.005	0.05	0.046	472.929	0.153
Other General Industrial Equipment	2022	501	750	0.177285	0.149	1.45658	1.06247	0.005	0.046	0.042	473.4638	0.153
Other General Industrial Equipment	2022	751	1000	0.223076	0.187	1.03925	3.942	0.005	0.079	0.073	472.0545	0.153
Other General Industrial Equipment	2023	6	15	0.717857	0.603	4.88317	3.99304	0.005	0.194	0.178	526.1761	0.17
Other General Industrial Equipment	2023	16	25	0.717857	0.603	4.88317	3.99304	0.005	0.194	0.178	526.1761	0.17
Other General Industrial Equipment	2023	26	50	0.717857	0.603	4.88317	3.99304	0.005	0.194	0.178	526.1761	0.17
Other General Industrial Equipment	2023	51	120	0.366077	0.308	3.64703	2.92394	0.005	0.168	0.155	469.9998	0.152
Other General Industrial Equipment	2023	121	175	0.238568	0.2	3.17453	1.60937	0.005	0.08	0.074	471.8502	0.153
Other General Industrial Equipment	2023	176	250	0.214876	0.181	1.14024	1.53043	0.005	0.051	0.047	473.2231	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other General Industrial Equipment	2023	251	500	0.195172	0.164	1.12057	1.25618	0.005	0.043	0.04	472.929	0.153
Other General Industrial Equipment	2023	501	750	0.131565	0.111	1.10458	0.62571	0.005	0.023	0.021	473.4638	0.153
Other General Industrial Equipment	2023	751	1000	0.229255	0.193	1.04852	3.95649	0.005	0.08	0.073	472.0545	0.153
Other General Industrial Equipment	2024	6	15	0.649743	0.546	4.78022	3.85892	0.005	0.165	0.152	526.1761	0.17
Other General Industrial Equipment	2024	16	25	0.649743	0.546	4.78022	3.85892	0.005	0.165	0.152	526.1761	0.17
Other General Industrial Equipment	2024	26	50	0.649743	0.546	4.78022	3.85892	0.005	0.165	0.152	526.1761	0.17
Other General Industrial Equipment	2024	51	120	0.341745	0.287	3.63929	2.70778	0.005	0.146	0.134	469.9998	0.152
Other General Industrial Equipment	2024	121	175	0.226791	0.191	3.18534	1.44774	0.005	0.073	0.067	471.8502	0.153
Other General Industrial Equipment	2024	176	250	0.205547	0.173	1.14124	1.31888	0.005	0.046	0.042	473.2231	0.153
Other General Industrial Equipment	2024	251	500	0.187509	0.158	1.11102	1.15288	0.005	0.04	0.036	472.929	0.153
Other General Industrial Equipment	2024	501	750	0.137014	0.115	1.11228	0.62782	0.005	0.023	0.021	473.4638	0.153
Other General Industrial Equipment	2024	751	1000	0.235434	0.198	1.05779	3.97098	0.005	0.08	0.074	472.0545	0.153
Other General Industrial Equipment	2025	6	15	0.585572	0.492	4.67981	3.71721	0.005	0.136	0.125	526.1761	0.17
Other General Industrial Equipment	2025	16	25	0.585572	0.492	4.67981	3.71721	0.005	0.136	0.125	526.1761	0.17
Other General Industrial Equipment	2025	26	50	0.585572	0.492	4.67981	3.71721	0.005	0.136	0.125	526.1761	0.17
Other General Industrial Equipment	2025	51	120	0.306396	0.257	3.61204	2.43889	0.005	0.118	0.109	469.9998	0.152
Other General Industrial Equipment	2025	121	175	0.224974	0.189	3.20434	1.36379	0.005	0.07	0.065	471.8502	0.153
Other General Industrial Equipment	2025	176	250	0.184121	0.155	1.13176	1.02801	0.005	0.036	0.033	473.2231	0.153
Other General Industrial Equipment	2025	251	500	0.180295	0.151	1.10932	1.05334	0.005	0.035	0.032	472.929	0.153
Other General Industrial Equipment	2025	501	750	0.139282	0.117	1.1152	0.629	0.005	0.023	0.021	473.4638	0.153
Other General Industrial Equipment	2025	751	1000	0.241613	0.203	1.06706	3.98546	0.005	0.081	0.074	472.0545	0.153
Other General Industrial Equipment	2030	6	15	1.393	0.589	3.469	4.142	0.008	0.161	0.161	568.299	0.053
Other General Industrial Equipment	2030	16	25	3.889	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Other General Industrial Equipment	2030	26	50	4.896	0.609	5.299	3.46	0.007	0.048	0.048	568.299	0.054
Other General Industrial Equipment	2030	51	120	7.091	0.309	3.802	1.766	0.006	0.043	0.043	568.299	0.027
Other General Industrial Equipment	2030	121	175	7.93	0.223	3.357	0.641	0.006	0.028	0.028	568.299	0.02
Other General Industrial Equipment	2030	176	250	10.485	0.209	1.143	0.536	0.006	0.018	0.018	568.299	0.018
Other General Industrial Equipment	2030	251	500	20.447	0.208	1.087	0.506	0.005	0.018	0.018	568.299	0.018
Other General Industrial Equipment	2030	501	750	33.725	0.208	1.087	0.512	0.005	0.018	0.018	568.299	0.018
Other General Industrial Equipment	2030	751	1000	44.002	0.212	1.088	2.66	0.005	0.035	0.035	568.299	0.019
Other General Industrial Equipment	2035	6	15	1.393	0.589	3.469	4.142	0.008	0.161	0.161	568.299	0.053
Other General Industrial Equipment	2035	16	25	3.889	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Other General Industrial Equipment	2035	26	50	4.535	0.564	5.255	3.334	0.007	0.025	0.025	568.299	0.05
Other General Industrial Equipment	2035	51	120	6.486	0.282	3.794	1.567	0.006	0.022	0.022	568.3	0.025
Other General Industrial Equipment	2035	121	175	7.079	0.199	3.355	0.399	0.006	0.016	0.016	568.3	0.018
Other General Industrial Equipment	2035	176	250	9.803	0.195	1.143	0.355	0.006	0.013	0.013	568.299	0.017
Other General Industrial Equipment	2035	251	500	19.187	0.195	1.087	0.351	0.005	0.013	0.013	568.299	0.017
Other General Industrial Equipment	2035	501	750	31.624	0.195	1.087	0.351	0.005	0.013	0.013	568.299	0.017
Other General Industrial Equipment	2035	751	1000	40.723	0.196	1.087	2.532	0.005	0.028	0.028	568.299	0.017
Other General Industrial Equipment	2040	6	15	1.393	0.589	3.47	4.142	0.008	0.161	0.161	568.299	0.053
Other General Industrial Equipment	2040	16	25	3.889	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Other General Industrial Equipment	2040	26	50	4.521	0.562	5.257	3.283	0.007	0.019	0.019	568.299	0.05
Other General Industrial Equipment	2040	51	120	6.373	0.277	3.794	1.506	0.006	0.017	0.017	568.299	0.025
Other General Industrial Equipment	2040	121	175	6.806	0.191	3.356	0.315	0.006	0.012	0.012	568.299	0.017
Other General Industrial Equipment	2040	176	250	9.551	0.19	1.143	0.299	0.006	0.011	0.011	568.299	0.017
Other General Industrial Equipment	2040	251	500	18.696	0.19	1.087	0.299	0.005	0.011	0.011	568.299	0.017
Other General Industrial Equipment	2040	501	750	30.815	0.19	1.087	0.299	0.005	0.011	0.011	568.299	0.017
Other General Industrial Equipment	2040	751	1000	39.521	0.191	1.087	2.5	0.005	0.025	0.025	568.299	0.017
Other Material Handling Equipment	1990	26	50	12.278	4.763	9.649	7.932	0.692	1.252	1.252	568.3	0.429
Other Material Handling Equipment	1990	51	120	12.096	2.346	5.692	14.896	0.628	1.317	1.317	568.299	0.211
Other Material Handling Equipment	1990	121	175	16.59	1.599	5.041	13.377	0.602	0.872	0.872	568.299	0.144
Other Material Handling Equipment	1990	176	250	19.708	1.599	5.041	13.377	0.602	0.872	0.872	568.3	0.144
Other Material Handling Equipment	1990	251	500	23.083	1.417	11.046	12.702	0.525	0.75	0.75	568.299	0.127
Other Material Handling Equipment	1990	1001	9999	88.844	1.41	11.046	12.702	0.525	0.741	0.741	568.3	0.127
Other Material Handling Equipment	2000	26	50	11.414	4.428	9.121	7.068	0.065	0.925	0.925	568.299	0.399
Other Material Handling Equipment	2000	51	120	9.647	1.871	4.712	10.623	0.059	0.901	0.901	568.299	0.168
Other Material Handling Equipment	2000	121	175	13	1.253	3.836	9.648	0.057	0.531	0.531	568.299	0.113
Other Material Handling Equipment	2000	176	250	12.957	1.051	3.061	9.289	0.057	0.435	0.435	568.3	0.094
Other Material Handling Equipment	2000	251	500	15.5	0.951	5.171	8.836	0.049	0.383	0.383	568.299	0.085
Other Material Handling Equipment	2000	1001	9999	65.006	1.031	5.779	9.45	0.049	0.384	0.384	568.299	0.093
Other Material Handling Equipment	2005	26	50	10.467	4.06	8.646	6.65	0.065	0.878	0.878	568.299	0.366
Other Material Handling Equipment	2005	51	120	8.426	1.634	4.393	9.001	0.059	0.857	0.857	568.3	0.147
Other Material Handling Equipment	2005	121	175	11.141	1.073	3.493	8.235	0.057	0.473	0.473	568.299	0.096
Other Material Handling Equipment	2005	176	250	9.335	0.757	2.058	7.76	0.057	0.299	0.299	568.299	0.068
Other Material Handling Equipment	2005	251	500	10.914	0.67	2.676	7.071	0.049	0.268	0.268	568.299	0.06
Other Material Handling Equipment	2005	1001	9999	50.601	0.803	3.267	8.291	0.049	0.278	0.278	568.299	0.072
Other Material Handling Equipment	2010	26	50	2.513226	2.112	7.14242	6.11921	0.005	0.673	0.619	581.8987	0.169
Other Material Handling Equipment	2010	51	120	0.880333	0.74	3.91836	6.86036	0.005	0.55	0.506	526.2094	0.153
Other Material Handling Equipment	2010	121	175	0.703937	0.592	3.45939	6.62945	0.005	0.364	0.335	524.6881	0.153
Other Material Handling Equipment	2010	176	250	0.639111	0.537	2.2178	7.05748	0.005	0.292	0.269	523.8689	0.152

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other Material Handling Equipment	2010	251	500	0.474577	0.399	2.89546	5.53948	0.005	0.225	0.207	522.5525	0.152
Other Material Handling Equipment	2010	1001	9999	0.19342	0.163	0.96514	4.31467	0.005	0.1	0.092	524.505	0.153
Other Material Handling Equipment	2011	26	50	2.357707	1.981	6.95209	6.0264	0.005	0.644	0.593	580.4439	0.169
Other Material Handling Equipment	2011	51	120	0.835489	0.702	3.89742	6.54765	0.005	0.527	0.485	524.8938	0.153
Other Material Handling Equipment	2011	121	175	0.695125	0.584	3.45599	6.48588	0.005	0.36	0.331	523.3764	0.153
Other Material Handling Equipment	2011	176	250	0.63663	0.535	2.18416	6.98965	0.005	0.288	0.265	522.5592	0.152
Other Material Handling Equipment	2011	251	500	0.474482	0.399	2.78574	5.43165	0.005	0.221	0.203	521.2461	0.152
Other Material Handling Equipment	2011	1001	9999	0.210247	0.177	0.97804	4.35542	0.005	0.103	0.095	523.1938	0.153
Other Material Handling Equipment	2012	26	50	2.238738	1.881	6.81597	5.92499	0.005	0.62	0.57	578.9892	0.169
Other Material Handling Equipment	2012	51	120	0.817068	0.687	3.90414	6.36758	0.005	0.516	0.475	523.5783	0.153
Other Material Handling Equipment	2012	121	175	0.692769	0.582	3.47827	6.40913	0.005	0.357	0.328	522.0647	0.153
Other Material Handling Equipment	2012	176	250	0.646463	0.543	2.19514	7.02565	0.005	0.29	0.267	521.2496	0.152
Other Material Handling Equipment	2012	251	500	0.470349	0.395	2.61135	5.30246	0.005	0.214	0.197	519.9397	0.152
Other Material Handling Equipment	2012	1001	9999	0.227073	0.191	0.99094	4.39617	0.005	0.106	0.098	521.8825	0.153
Other Material Handling Equipment	2013	26	50	2.105942	1.77	6.66457	5.85572	0.005	0.596	0.548	576.0797	0.169
Other Material Handling Equipment	2013	51	120	0.724086	0.608	3.82317	5.76277	0.005	0.447	0.411	520.9473	0.153
Other Material Handling Equipment	2013	121	175	0.665996	0.56	3.43613	6.15356	0.005	0.333	0.306	519.4412	0.153
Other Material Handling Equipment	2013	176	250	0.634565	0.533	2.16882	6.82184	0.005	0.281	0.259	518.6302	0.152
Other Material Handling Equipment	2013	251	500	0.438071	0.368	2.33558	4.87099	0.005	0.195	0.179	517.327	0.152
Other Material Handling Equipment	2013	1001	9999	0.2439	0.205	1.00384	4.43692	0.005	0.11	0.101	519.26	0.153
Other Material Handling Equipment	2014	26	50	2.017454	1.695	6.58988	5.75119	0.005	0.575	0.529	573.1702	0.169
Other Material Handling Equipment	2014	51	120	0.66398	0.558	3.77914	5.37202	0.005	0.412	0.379	518.3162	0.153
Other Material Handling Equipment	2014	121	175	0.628738	0.528	3.43064	5.79759	0.005	0.313	0.288	516.8178	0.153
Other Material Handling Equipment	2014	176	250	0.565441	0.475	1.93605	6.17254	0.005	0.242	0.223	516.0109	0.152
Other Material Handling Equipment	2014	251	500	0.394393	0.331	1.92674	4.35658	0.005	0.169	0.155	514.7142	0.152
Other Material Handling Equipment	2014	1001	9999	0.168044	0.141	0.97804	3.4363	0.005	0.066	0.061	516.6375	0.153
Other Material Handling Equipment	2015	26	50	2.062891	1.733	6.75642	5.7994	0.005	0.586	0.539	567.3512	0.169
Other Material Handling Equipment	2015	51	120	0.628094	0.528	3.75787	4.98312	0.005	0.383	0.352	513.0541	0.153
Other Material Handling Equipment	2015	121	175	0.624881	0.525	3.43301	5.6445	0.005	0.306	0.282	511.5709	0.153
Other Material Handling Equipment	2015	176	250	0.503855	0.423	1.74236	5.5323	0.005	0.207	0.191	510.7722	0.152
Other Material Handling Equipment	2015	251	500	0.396328	0.333	1.91761	4.27243	0.005	0.166	0.152	509.4887	0.152
Other Material Handling Equipment	2015	1001	9999	0.1762	0.148	0.98449	3.45753	0.005	0.068	0.063	511.3924	0.153
Other Material Handling Equipment	2016	26	50	2.100647	1.765	6.89161	5.80157	0.005	0.593	0.546	561.5322	0.169
Other Material Handling Equipment	2016	51	120	0.611519	0.514	3.76606	4.79843	0.005	0.367	0.338	507.792	0.153
Other Material Handling Equipment	2016	121	175	0.581687	0.489	3.41823	5.21152	0.005	0.279	0.257	506.324	0.153
Other Material Handling Equipment	2016	176	250	0.474176	0.398	1.64277	5.19629	0.005	0.189	0.174	505.5335	0.152
Other Material Handling Equipment	2016	251	500	0.384009	0.323	1.87077	4.05322	0.005	0.156	0.143	504.2631	0.152
Other Material Handling Equipment	2016	1001	9999	0.188654	0.159	0.99739	3.48884	0.005	0.07	0.065	506.1474	0.153
Other Material Handling Equipment	2017	26	50	1.922269	1.615	6.63527	5.57447	0.005	0.546	0.502	552.8037	0.169
Other Material Handling Equipment	2017	51	120	0.580499	0.488	3.75788	4.56113	0.005	0.341	0.314	499.8989	0.153
Other Material Handling Equipment	2017	121	175	0.508007	0.427	3.35117	4.48809	0.005	0.238	0.219	498.4537	0.153
Other Material Handling Equipment	2017	176	250	0.42771	0.359	1.51249	4.70454	0.005	0.163	0.15	497.6755	0.152
Other Material Handling Equipment	2017	251	500	0.386945	0.325	1.86256	3.9709	0.005	0.154	0.141	496.4249	0.152
Other Material Handling Equipment	2017	1001	9999	0.201109	0.169	1.01029	3.52015	0.005	0.072	0.066	498.2798	0.153
Other Material Handling Equipment	2018	26	50	1.534491	1.289	6.06083	5.18225	0.005	0.457	0.42	544.0753	0.169
Other Material Handling Equipment	2018	51	120	0.484553	0.407	3.67482	3.9436	0.005	0.271	0.249	492.0058	0.153
Other Material Handling Equipment	2018	121	175	0.38852	0.326	3.21803	3.33231	0.005	0.173	0.159	490.5834	0.153
Other Material Handling Equipment	2018	176	250	0.376195	0.316	1.3884	4.09187	0.005	0.135	0.124	489.8174	0.152
Other Material Handling Equipment	2018	251	500	0.352182	0.296	1.63271	3.52439	0.005	0.133	0.123	488.5866	0.152
Other Material Handling Equipment	2018	1001	9999	0.213564	0.179	1.02319	3.55146	0.005	0.074	0.068	490.4122	0.153
Other Material Handling Equipment	2019	26	50	1.5177	1.275	6.13945	5.17904	0.005	0.452	0.416	535.3468	0.169
Other Material Handling Equipment	2019	51	120	0.428699	0.36	3.63634	3.56573	0.005	0.231	0.212	484.1126	0.153
Other Material Handling Equipment	2019	121	175	0.332757	0.28	3.1852	2.77369	0.005	0.139	0.128	482.7131	0.153
Other Material Handling Equipment	2019	176	250	0.357063	0.3	1.34052	3.81716	0.005	0.123	0.113	481.9594	0.152
Other Material Handling Equipment	2019	251	500	0.346245	0.291	1.61951	3.37078	0.005	0.128	0.118	480.7483	0.152
Other Material Handling Equipment	2019	1001	9999	0.226018	0.19	1.03609	3.58277	0.005	0.076	0.07	482.5446	0.153
Other Material Handling Equipment	2020	26	50	1.481858	1.245	6.1671	5.13925	0.005	0.439	0.404	523.7088	0.169
Other Material Handling Equipment	2020	51	120	0.36479	0.307	3.58938	3.10396	0.005	0.182	0.168	473.5884	0.153
Other Material Handling Equipment	2020	121	175	0.299922	0.252	3.17089	2.36653	0.005	0.118	0.109	472.2193	0.153
Other Material Handling Equipment	2020	176	250	0.346024	0.291	1.31882	3.59889	0.005	0.115	0.106	471.482	0.152
Other Material Handling Equipment	2020	251	500	0.336187	0.282	1.52346	3.20974	0.005	0.12	0.11	470.2972	0.152
Other Material Handling Equipment	2020	1001	9999	0.238473	0.2	1.04898	3.61407	0.005	0.078	0.072	472.0545	0.153
Other Material Handling Equipment	2021	26	50	1.318509	1.108	5.95956	4.96638	0.005	0.396	0.364	523.7088	0.169
Other Material Handling Equipment	2021	51	120	0.349969	0.294	3.60203	2.95622	0.005	0.166	0.152	473.5884	0.153
Other Material Handling Equipment	2021	121	175	0.296084	0.249	3.19638	2.24633	0.005	0.114	0.105	472.2193	0.153
Other Material Handling Equipment	2021	176	250	0.32063	0.269	1.30911	3.08193	0.005	0.102	0.094	471.482	0.152
Other Material Handling Equipment	2021	251	500	0.302407	0.254	1.44188	2.60166	0.005	0.101	0.093	470.2972	0.152
Other Material Handling Equipment	2021	1001	9999	0.086228	0.072	0.97159	2.3179	0.005	0.019	0.018	472.0545	0.153
Other Material Handling Equipment	2022	26	50	1.313129	1.103	5.98386	4.92048	0.005	0.385	0.354	523.7088	0.169
Other Material Handling Equipment	2022	51	120	0.294157	0.247	3.55673	2.56673	0.005	0.121	0.111	473.5884	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Other Material Handling Equipment	2022	121	175	0.268495	0.226	3.17607	1.89383	0.005	0.103	0.095	472.2193	0.153
Other Material Handling Equipment	2022	176	250	0.272302	0.229	1.23917	2.42542	0.005	0.083	0.076	471.482	0.152
Other Material Handling Equipment	2022	251	500	0.269417	0.226	1.34592	2.06254	0.005	0.083	0.077	470.2972	0.152
Other Material Handling Equipment	2022	1001	9999	0.090526	0.076	0.97804	2.32798	0.005	0.02	0.018	472.0545	0.153
Other Material Handling Equipment	2023	26	50	1.203044	1.011	5.75727	4.68435	0.005	0.34	0.313	523.7088	0.169
Other Material Handling Equipment	2023	51	120	0.267491	0.225	3.51535	2.29768	0.005	0.104	0.095	473.5884	0.153
Other Material Handling Equipment	2023	121	175	0.25813	0.217	3.17066	1.76898	0.005	0.096	0.088	472.2193	0.153
Other Material Handling Equipment	2023	176	250	0.246291	0.207	1.20917	2.00366	0.005	0.069	0.064	471.482	0.152
Other Material Handling Equipment	2023	251	500	0.258837	0.217	1.34382	1.87023	0.005	0.078	0.072	470.2972	0.152
Other Material Handling Equipment	2023	1001	9999	0.064735	0.054	0.93935	2.26751	0.005	0.018	0.017	472.0545	0.153
Other Material Handling Equipment	2024	26	50	1.121754	0.943	5.6693	4.5789	0.005	0.314	0.289	523.7088	0.169
Other Material Handling Equipment	2024	51	120	0.262084	0.22	3.51036	2.22162	0.005	0.096	0.089	473.5884	0.153
Other Material Handling Equipment	2024	121	175	0.247908	0.208	3.18111	1.63864	0.005	0.088	0.081	472.2193	0.153
Other Material Handling Equipment	2024	176	250	0.250036	0.21	1.21822	1.98559	0.005	0.068	0.063	471.482	0.152
Other Material Handling Equipment	2024	251	500	0.252116	0.212	1.26223	1.75588	0.005	0.072	0.066	470.2972	0.152
Other Material Handling Equipment	2024	1001	9999	0.069034	0.058	0.9458	2.27759	0.005	0.018	0.017	472.0545	0.153
Other Material Handling Equipment	2025	26	50	0.88573	0.744	5.24797	4.23278	0.005	0.239	0.219	523.7088	0.169
Other Material Handling Equipment	2025	51	120	0.241784	0.203	3.49652	2.05524	0.005	0.081	0.074	473.5884	0.153
Other Material Handling Equipment	2025	121	175	0.225132	0.189	3.1679	1.39583	0.005	0.072	0.067	472.2193	0.153
Other Material Handling Equipment	2025	176	250	0.237677	0.2	1.19728	1.77352	0.005	0.06	0.055	471.482	0.152
Other Material Handling Equipment	2025	251	500	0.242568	0.204	1.25988	1.60116	0.005	0.067	0.061	470.2972	0.152
Other Material Handling Equipment	2025	1001	9999	0.077631	0.065	0.9587	2.29775	0.005	0.019	0.017	472.0545	0.153
Other Material Handling Equipment	2030	26	50	1.542	0.598	5.237	3.447	0.007	0.048	0.048	568.299	0.053
Other Material Handling Equipment	2030	51	120	1.57	0.304	3.784	1.762	0.006	0.043	0.043	568.299	0.027
Other Material Handling Equipment	2030	121	175	2.287	0.22	3.341	0.64	0.006	0.028	0.028	568.299	0.019
Other Material Handling Equipment	2030	176	250	2.539	0.206	1.138	0.535	0.006	0.018	0.018	568.299	0.018
Other Material Handling Equipment	2030	251	500	3.342	0.205	1.083	0.505	0.005	0.018	0.018	568.299	0.018
Other Material Handling Equipment	2030	1001	9999	13.763	0.218	1.084	2.653	0.005	0.035	0.035	568.299	0.019
Other Material Handling Equipment	2035	26	50	1.425	0.552	5.189	3.321	0.007	0.025	0.025	568.299	0.049
Other Material Handling Equipment	2035	51	120	1.432	0.277	3.774	1.563	0.006	0.022	0.022	568.299	0.025
Other Material Handling Equipment	2035	121	175	2.036	0.196	3.338	0.398	0.006	0.016	0.016	568.299	0.017
Other Material Handling Equipment	2035	176	250	2.369	0.192	1.137	0.354	0.006	0.013	0.013	568.299	0.017
Other Material Handling Equipment	2035	251	500	3.13	0.192	1.082	0.35	0.005	0.013	0.013	568.299	0.017
Other Material Handling Equipment	2035	1001	9999	12.454	0.197	1.082	2.525	0.005	0.027	0.027	568.299	0.017
Other Material Handling Equipment	2040	26	50	1.42	0.551	5.191	3.269	0.007	0.018	0.018	568.299	0.049
Other Material Handling Equipment	2040	51	120	1.407	0.272	3.775	1.502	0.006	0.017	0.017	568.3	0.024
Other Material Handling Equipment	2040	121	175	1.956	0.188	3.339	0.314	0.006	0.012	0.012	568.299	0.017
Other Material Handling Equipment	2040	176	250	2.307	0.187	1.137	0.298	0.006	0.011	0.011	568.299	0.016
Other Material Handling Equipment	2040	251	500	3.048	0.187	1.082	0.298	0.005	0.011	0.011	568.299	0.016
Other Material Handling Equipment	2040	1001	9999	11.917	0.189	1.082	2.493	0.005	0.025	0.025	568.3	0.017
Pavers	1990	16	25	5.971	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Pavers	1990	26	50	19.405	4.794	9.701	7.946	0.871	1.268	1.268	568.299	0.432
Pavers	1990	51	120	23.749	2.373	5.748	15.062	0.791	1.339	1.339	568.299	0.214
Pavers	1990	121	175	33.808	1.822	5.135	14.503	0.758	1.01	1.01	568.3	0.164
Pavers	1990	176	250	51.225	1.822	5.135	14.503	0.758	1.01	1.01	568.299	0.164
Pavers	1990	251	500	54.32	1.61	11.305	13.755	0.662	0.864	0.864	568.3	0.145
Pavers	2000	16	25	5.517	2.044	4.689	6.391	0.065	0.569	0.569	568.299	0.184
Pavers	2000	26	50	18.072	4.464	9.175	7.116	0.066	0.93	0.93	568.299	0.402
Pavers	2000	51	120	19.415	1.94	4.853	11.121	0.06	0.916	0.916	568.299	0.175
Pavers	2000	121	175	24.566	1.324	4.022	10.172	0.057	0.558	0.558	568.299	0.119
Pavers	2000	176	250	33.03	1.175	3.443	9.909	0.057	0.488	0.488	568.299	0.106
Pavers	2000	251	500	35.713	1.058	6.242	9.422	0.05	0.426	0.426	568.299	0.095
Pavers	2005	16	25	3.746	1.388	3.497	5.819	0.065	0.444	0.444	568.299	0.125
Pavers	2005	26	50	16.699	4.125	8.722	6.746	0.066	0.883	0.883	568.299	0.372
Pavers	2005	51	120	17.345	1.733	4.584	9.797	0.06	0.869	0.869	568.299	0.156
Pavers	2005	121	175	21.287	1.147	3.731	8.921	0.057	0.5	0.5	568.299	0.103
Pavers	2005	176	250	26.087	0.928	2.661	8.591	0.057	0.382	0.382	568.299	0.083
Pavers	2005	251	500	27.622	0.818	4.283	7.91	0.05	0.335	0.335	568.299	0.073
Pavers	2010	16	25	2.244446	1.886	6.22261	5.97127	0.005	0.619	0.569	585.4019	0.17
Pavers	2010	26	50	2.244446	1.886	6.22261	5.97127	0.005	0.619	0.569	585.4019	0.17
Pavers	2010	51	120	0.922393	0.775	3.82417	7.01944	0.005	0.54	0.497	521.2606	0.152
Pavers	2010	121	175	0.693583	0.583	3.10662	6.66867	0.005	0.337	0.31	525.3233	0.153
Pavers	2010	176	250	0.236627	0.199	1.01703	4.38018	0.005	0.111	0.102	526.8527	0.153
Pavers	2010	251	500	0.240458	0.202	1.1256	3.56944	0.005	0.123	0.113	517.8758	0.151
Pavers	2011	16	25	2.255759	1.895	6.28822	5.97418	0.005	0.621	0.571	583.8947	0.17
Pavers	2011	26	50	2.255759	1.895	6.28822	5.97418	0.005	0.621	0.571	583.8947	0.17
Pavers	2011	51	120	0.882284	0.741	3.7912	6.70468	0.005	0.521	0.479	519.7431	0.152
Pavers	2011	121	175	0.67473	0.567	3.11177	6.45159	0.005	0.327	0.301	524.0864	0.153
Pavers	2011	176	250	0.244703	0.206	1.02596	4.38871	0.005	0.112	0.103	525.5251	0.153
Pavers	2011	251	500	0.249329	0.21	1.13249	3.58498	0.005	0.125	0.115	516.5811	0.151

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pavers	2012	16	25	2.286702	1.921	6.36408	5.86068	0.005	0.609	0.56	582.5825	0.17
Pavers	2012	26	50	2.286702	1.921	6.36408	5.86068	0.005	0.609	0.56	582.5825	0.17
Pavers	2012	51	120	0.886577	0.745	3.81157	6.67323	0.005	0.523	0.481	518.3581	0.152
Pavers	2012	121	175	0.677654	0.569	3.13178	6.44162	0.005	0.329	0.303	522.8325	0.153
Pavers	2012	176	250	0.2532	0.213	1.035	4.41317	0.005	0.114	0.105	524.2222	0.153
Pavers	2012	251	500	0.257974	0.217	1.13914	3.59993	0.005	0.127	0.117	515.2863	0.151
Pavers	2013	16	25	2.27571	1.912	6.39148	5.84153	0.005	0.605	0.557	580.2093	0.171
Pavers	2013	26	50	2.27571	1.912	6.39148	5.84153	0.005	0.605	0.557	580.2093	0.171
Pavers	2013	51	120	0.845721	0.711	3.79289	6.43604	0.005	0.501	0.461	516.6013	0.152
Pavers	2013	121	175	0.630117	0.529	3.11657	6.05919	0.005	0.304	0.28	519.6823	0.153
Pavers	2013	176	250	0.245733	0.206	1.01743	4.23038	0.005	0.106	0.098	521.5314	0.153
Pavers	2013	251	500	0.242925	0.204	1.08604	3.39449	0.005	0.118	0.108	514.2313	0.151
Pavers	2014	16	25	2.258865	1.898	6.3806	5.71682	0.005	0.595	0.547	577.016	0.171
Pavers	2014	26	50	2.258865	1.898	6.3806	5.71682	0.005	0.595	0.547	577.016	0.171
Pavers	2014	51	120	0.81298	0.683	3.77256	6.19872	0.005	0.483	0.444	514.3769	0.152
Pavers	2014	121	175	0.597911	0.502	3.1146	5.73631	0.005	0.287	0.264	516.745	0.153
Pavers	2014	176	250	0.247393	0.208	1.02279	4.14032	0.005	0.105	0.097	518.7225	0.153
Pavers	2014	251	500	0.214341	0.18	1.00469	3.04734	0.005	0.101	0.093	512.1908	0.151
Pavers	2015	16	25	2.205076	1.853	6.34019	5.63731	0.005	0.579	0.533	571.0859	0.17
Pavers	2015	26	50	2.205076	1.853	6.34019	5.63731	0.005	0.579	0.533	571.0859	0.17
Pavers	2015	51	120	0.809163	0.68	3.78832	6.14096	0.005	0.479	0.441	509.3767	0.152
Pavers	2015	121	175	0.582419	0.489	3.11546	5.53669	0.005	0.277	0.255	511.6457	0.153
Pavers	2015	176	250	0.254974	0.214	1.03121	4.16051	0.005	0.107	0.098	513.4682	0.153
Pavers	2015	251	500	0.209561	0.176	0.97787	2.91741	0.005	0.097	0.089	506.0973	0.151
Pavers	2016	16	25	2.174792	1.827	6.33993	5.57882	0.005	0.569	0.523	565.2336	0.17
Pavers	2016	26	50	2.174792	1.827	6.33993	5.57882	0.005	0.569	0.523	565.2336	0.17
Pavers	2016	51	120	0.773362	0.65	3.76854	5.88646	0.005	0.457	0.42	503.7795	0.152
Pavers	2016	121	175	0.515586	0.433	3.08023	4.87397	0.005	0.242	0.223	506.5401	0.153
Pavers	2016	176	250	0.254126	0.214	1.03591	4.02384	0.005	0.104	0.096	508.0698	0.153
Pavers	2016	251	500	0.214564	0.18	0.9829	2.88492	0.005	0.096	0.089	500.9364	0.151
Pavers	2017	16	25	2.059621	1.731	6.19932	5.43675	0.005	0.54	0.496	556.4528	0.17
Pavers	2017	26	50	2.059621	1.731	6.19932	5.43675	0.005	0.54	0.496	556.4528	0.17
Pavers	2017	51	120	0.744072	0.625	3.75882	5.69243	0.005	0.437	0.402	495.9253	0.152
Pavers	2017	121	175	0.462819	0.389	3.06282	4.35312	0.005	0.214	0.197	498.967	0.153
Pavers	2017	176	250	0.247933	0.208	1.03652	3.80866	0.005	0.1	0.092	499.5617	0.153
Pavers	2017	251	500	0.199578	0.168	0.97942	2.48674	0.005	0.087	0.08	491.7843	0.151
Pavers	2018	16	25	1.831035	1.539	5.8493	5.12103	0.005	0.478	0.44	547.0785	0.17
Pavers	2018	26	50	1.831035	1.539	5.8493	5.12103	0.005	0.478	0.44	547.0785	0.17
Pavers	2018	51	120	0.637446	0.536	3.66032	5.01936	0.005	0.375	0.345	488.1812	0.152
Pavers	2018	121	175	0.403099	0.339	3.03913	3.7472	0.005	0.183	0.168	491.322	0.153
Pavers	2018	176	250	0.235833	0.198	1.03446	3.47438	0.005	0.092	0.085	491.543	0.153
Pavers	2018	251	500	0.195547	0.164	0.98125	2.32002	0.005	0.083	0.076	484.2774	0.151
Pavers	2019	16	25	1.687019	1.418	5.65687	4.91634	0.005	0.436	0.401	538.3246	0.17
Pavers	2019	26	50	1.687019	1.418	5.65687	4.91634	0.005	0.436	0.401	538.3246	0.17
Pavers	2019	51	120	0.589904	0.496	3.62215	4.67048	0.005	0.345	0.318	480.2509	0.152
Pavers	2019	121	175	0.355588	0.299	3.01323	3.24473	0.005	0.159	0.146	483.3938	0.153
Pavers	2019	176	250	0.222293	0.187	1.03181	3.11084	0.005	0.084	0.077	483.5743	0.153
Pavers	2019	251	500	0.198123	0.166	0.98586	2.26992	0.005	0.081	0.075	476.9707	0.151
Pavers	2020	16	25	1.568718	1.318	5.52345	4.76401	0.005	0.402	0.37	526.2098	0.17
Pavers	2020	26	50	1.568718	1.318	5.52345	4.76401	0.005	0.402	0.37	526.2098	0.17
Pavers	2020	51	120	0.558949	0.47	3.60405	4.42718	0.005	0.325	0.299	469.8815	0.152
Pavers	2020	121	175	0.324615	0.273	3.0097	2.91833	0.005	0.142	0.131	472.7746	0.153
Pavers	2020	176	250	0.209036	0.176	1.02834	2.77699	0.005	0.076	0.07	472.8337	0.153
Pavers	2020	251	500	0.195949	0.165	0.98677	2.13394	0.005	0.077	0.071	466.2059	0.151
Pavers	2021	16	25	1.43708	1.208	5.30162	4.60183	0.005	0.37	0.34	526.5153	0.17
Pavers	2021	26	50	1.43708	1.208	5.30162	4.60183	0.005	0.37	0.34	526.5153	0.17
Pavers	2021	51	120	0.499355	0.42	3.56251	4.02622	0.005	0.285	0.262	469.7736	0.152
Pavers	2021	121	175	0.304315	0.256	3.01647	2.6948	0.005	0.13	0.12	472.5552	0.153
Pavers	2021	176	250	0.196899	0.165	1.02422	2.4844	0.005	0.07	0.064	472.4765	0.153
Pavers	2021	251	500	0.195105	0.164	0.9877	2.05298	0.005	0.074	0.068	465.5908	0.151
Pavers	2022	16	25	1.299052	1.092	5.11433	4.42092	0.005	0.33	0.303	526.8963	0.17
Pavers	2022	26	50	1.299052	1.092	5.11433	4.42092	0.005	0.33	0.303	526.8963	0.17
Pavers	2022	51	120	0.443951	0.373	3.52511	3.65932	0.005	0.248	0.228	470.1854	0.152
Pavers	2022	121	175	0.255688	0.215	2.99478	2.17958	0.005	0.104	0.095	472.7599	0.153
Pavers	2022	176	250	0.167123	0.14	1.01231	1.89985	0.005	0.055	0.05	472.3718	0.153
Pavers	2022	251	500	0.178545	0.15	0.98238	1.81028	0.005	0.063	0.058	466.0042	0.151
Pavers	2023	16	25	1.198318	1.007	5.00667	4.28484	0.005	0.299	0.275	526.8595	0.17
Pavers	2023	26	50	1.198318	1.007	5.00667	4.28484	0.005	0.299	0.275	526.8595	0.17
Pavers	2023	51	120	0.415607	0.349	3.50733	3.42661	0.005	0.226	0.208	470.0839	0.152
Pavers	2023	121	175	0.237199	0.199	2.99398	1.95517	0.005	0.092	0.085	472.7178	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pavers	2023	176	250	0.154288	0.13	1.01018	1.6106	0.005	0.047	0.043	472.6051	0.153
Pavers	2023	251	500	0.18061	0.152	0.98653	1.77101	0.005	0.062	0.057	466.0038	0.151
Pavers	2024	16	25	1.130978	0.95	4.95625	4.20308	0.005	0.279	0.257	526.8565	0.17
Pavers	2024	26	50	1.130978	0.95	4.95625	4.20308	0.005	0.279	0.257	526.8565	0.17
Pavers	2024	51	120	0.40131	0.337	3.50784	3.2771	0.005	0.213	0.196	470.2262	0.152
Pavers	2024	121	175	0.226916	0.191	3.0042	1.80882	0.005	0.084	0.078	472.6605	0.153
Pavers	2024	176	250	0.141914	0.119	1.00872	1.34323	0.005	0.041	0.038	473.2362	0.153
Pavers	2024	251	500	0.169789	0.143	0.98624	1.54798	0.005	0.054	0.049	467.1711	0.151
Pavers	2025	16	25	1.092933	0.918	4.94451	4.13112	0.005	0.265	0.243	526.8533	0.17
Pavers	2025	26	50	1.092933	0.918	4.94451	4.13112	0.005	0.265	0.243	526.8533	0.17
Pavers	2025	51	120	0.373474	0.314	3.49286	3.06788	0.005	0.19	0.175	469.8988	0.152
Pavers	2025	121	175	0.214799	0.18	3.0071	1.64396	0.005	0.077	0.071	472.485	0.153
Pavers	2025	176	250	0.127304	0.107	1.00414	1.03493	0.005	0.034	0.031	473.4832	0.153
Pavers	2025	251	500	0.136633	0.115	0.96892	1.13351	0.005	0.039	0.036	465.8824	0.151
Pavers	2030	16	25	1.849	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Pavers	2030	26	50	3.42	0.845	5.396	3.841	0.007	0.134	0.134	568.299	0.076
Pavers	2030	51	120	4.084	0.408	3.8	2.468	0.006	0.121	0.121	568.3	0.036
Pavers	2030	121	175	5.577	0.3	3.326	1.425	0.006	0.074	0.074	568.299	0.027
Pavers	2030	176	250	7.306	0.259	1.192	1.246	0.006	0.045	0.045	568.299	0.023
Pavers	2030	251	500	8.558	0.253	1.181	1.141	0.005	0.043	0.043	568.299	0.022
Pavers	2035	16	25	1.849	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Pavers	2035	26	50	2.812	0.694	5.26	3.555	0.007	0.076	0.076	568.299	0.062
Pavers	2035	51	120	3.386	0.338	3.774	1.986	0.006	0.069	0.069	568.299	0.03
Pavers	2035	121	175	4.543	0.244	3.319	0.889	0.006	0.043	0.043	568.299	0.022
Pavers	2035	176	250	6.219	0.221	1.157	0.772	0.006	0.027	0.027	568.3	0.019
Pavers	2035	251	500	7.364	0.218	1.111	0.722	0.005	0.026	0.026	568.299	0.019
Pavers	2040	16	25	1.849	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Pavers	2040	26	50	2.504	0.618	5.189	3.393	0.007	0.047	0.047	568.299	0.055
Pavers	2040	51	120	3.03	0.302	3.763	1.731	0.006	0.043	0.043	568.299	0.027
Pavers	2040	121	175	3.958	0.213	3.319	0.583	0.006	0.027	0.027	568.299	0.019
Pavers	2040	176	250	5.625	0.2	1.138	0.525	0.006	0.018	0.018	568.299	0.018
Pavers	2040	251	500	6.703	0.198	1.085	0.498	0.005	0.018	0.018	568.299	0.017
Paving Equipment	1990	16	25	5.257	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Paving Equipment	1990	26	50	21.788	4.84	9.783	7.965	0.871	1.277	1.277	568.299	0.436
Paving Equipment	1990	51	120	24.593	2.398	5.796	15.202	0.791	1.352	1.352	568.299	0.216
Paving Equipment	1990	121	175	35.738	1.88	5.196	14.821	0.758	1.044	1.044	568.3	0.169
Paving Equipment	1990	176	250	43.262	1.88	5.196	14.821	0.758	1.044	1.044	568.299	0.169
Paving Equipment	2000	16	25	4.652	1.958	4.53	6.358	0.065	0.563	0.563	568.299	0.176
Paving Equipment	2000	26	50	19.86	4.412	9.076	7.101	0.066	0.921	0.921	568.299	0.398
Paving Equipment	2000	51	120	19.826	1.933	4.844	11.122	0.06	0.909	0.909	568.299	0.174
Paving Equipment	2000	121	175	25.015	1.316	4.018	10.15	0.057	0.553	0.553	568.299	0.118
Paving Equipment	2000	176	250	26.974	1.172	3.458	9.895	0.057	0.486	0.486	568.299	0.105
Paving Equipment	2005	16	25	2.184	0.919	2.642	5.412	0.065	0.347	0.347	568.299	0.082
Paving Equipment	2005	26	50	18.352	4.077	8.626	6.73	0.066	0.875	0.875	568.299	0.367
Paving Equipment	2005	51	120	17.633	1.719	4.557	9.754	0.06	0.86	0.86	568.299	0.155
Paving Equipment	2005	121	175	21.589	1.135	3.705	8.873	0.057	0.494	0.494	568.299	0.102
Paving Equipment	2005	176	250	21.201	0.921	2.655	8.548	0.057	0.38	0.38	568.299	0.083
Paving Equipment	2010	16	25	1.378997	1.159	4.92203	5.35696	0.005	0.47	0.433	578.6236	0.168
Paving Equipment	2010	26	50	1.378997	1.159	4.92203	5.35696	0.005	0.47	0.433	578.6236	0.168
Paving Equipment	2010	51	120	0.934999	0.786	3.90118	7.23593	0.005	0.553	0.508	526.5834	0.153
Paving Equipment	2010	121	175	0.573407	0.482	3.13688	6.09511	0.005	0.295	0.271	523.4127	0.152
Paving Equipment	2010	176	250	0.486641	0.409	1.69744	6.03614	0.005	0.224	0.206	524.3728	0.153
Paving Equipment	2011	16	25	1.380687	1.16	4.99687	5.36974	0.005	0.472	0.434	577.1303	0.168
Paving Equipment	2011	26	50	1.380687	1.16	4.99687	5.36974	0.005	0.472	0.434	577.1303	0.168
Paving Equipment	2011	51	120	0.895349	0.752	3.87125	6.99544	0.005	0.536	0.493	524.9269	0.153
Paving Equipment	2011	121	175	0.56507	0.475	3.14337	5.97526	0.005	0.29	0.267	522.1549	0.152
Paving Equipment	2011	176	250	0.466258	0.392	1.64572	5.77978	0.005	0.213	0.196	523.0323	0.153
Paving Equipment	2012	16	25	1.384947	1.164	5.06516	5.34363	0.005	0.47	0.432	575.687	0.168
Paving Equipment	2012	26	50	1.384947	1.164	5.06516	5.34363	0.005	0.47	0.432	575.687	0.168
Paving Equipment	2012	51	120	0.910401	0.765	3.90635	7.04165	0.005	0.546	0.503	523.5886	0.153
Paving Equipment	2012	121	175	0.56544	0.475	3.15801	5.9326	0.005	0.29	0.267	520.7286	0.152
Paving Equipment	2012	176	250	0.474854	0.399	1.657	5.81292	0.005	0.215	0.198	521.7154	0.153
Paving Equipment	2013	16	25	1.327494	1.115	5.02677	5.2986	0.005	0.459	0.422	572.4644	0.168
Paving Equipment	2013	26	50	1.327494	1.115	5.02677	5.2986	0.005	0.459	0.422	572.4644	0.168
Paving Equipment	2013	51	120	0.845445	0.71	3.86369	6.6576	0.005	0.507	0.467	520.6724	0.153
Paving Equipment	2013	121	175	0.532035	0.447	3.1205	5.60344	0.005	0.271	0.249	517.6606	0.152
Paving Equipment	2013	176	250	0.40741	0.342	1.48037	5.25206	0.005	0.18	0.166	519.5215	0.153
Paving Equipment	2014	16	25	1.253528	1.053	4.95215	5.18385	0.005	0.437	0.402	569.4822	0.168
Paving Equipment	2014	26	50	1.253528	1.053	4.95215	5.18385	0.005	0.437	0.402	569.4822	0.168
Paving Equipment	2014	51	120	0.805438	0.677	3.83664	6.36952	0.005	0.486	0.447	518.0756	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Paving Equipment	2014	121	175	0.494038	0.415	3.09686	5.21567	0.005	0.249	0.229	515.0343	0.152
Paving Equipment	2014	176	250	0.369032	0.31	1.37011	4.78232	0.005	0.158	0.146	516.8998	0.153
Paving Equipment	2015	16	25	1.166929	0.981	4.86895	5.02757	0.005	0.407	0.374	563.5534	0.168
Paving Equipment	2015	26	50	1.166929	0.981	4.86895	5.02757	0.005	0.407	0.374	563.5534	0.168
Paving Equipment	2015	51	120	0.786628	0.661	3.83329	6.14454	0.005	0.471	0.433	513.1672	0.153
Paving Equipment	2015	121	175	0.48887	0.411	3.10403	4.96561	0.005	0.242	0.223	509.8942	0.152
Paving Equipment	2015	176	250	0.374849	0.315	1.37947	4.77176	0.005	0.159	0.146	511.6544	0.153
Paving Equipment	2016	16	25	1.178909	0.991	4.93662	4.98487	0.005	0.403	0.371	557.7058	0.168
Paving Equipment	2016	26	50	1.178909	0.991	4.93662	4.98487	0.005	0.403	0.371	557.7058	0.168
Paving Equipment	2016	51	120	0.741701	0.623	3.79639	5.7333	0.005	0.438	0.403	507.9102	0.153
Paving Equipment	2016	121	175	0.442497	0.372	3.08114	4.3217	0.005	0.214	0.197	504.8201	0.152
Paving Equipment	2016	176	250	0.353542	0.297	1.33145	4.42821	0.005	0.148	0.136	506.1965	0.153
Paving Equipment	2017	16	25	1.102141	0.926	4.80403	4.72756	0.005	0.359	0.33	548.6481	0.168
Paving Equipment	2017	26	50	1.102141	0.926	4.80403	4.72756	0.005	0.359	0.33	548.6481	0.168
Paving Equipment	2017	51	120	0.670017	0.563	3.74146	5.20745	0.005	0.391	0.359	500.1649	0.153
Paving Equipment	2017	121	175	0.407568	0.342	3.07321	3.89633	0.005	0.195	0.179	497.148	0.152
Paving Equipment	2017	176	250	0.342633	0.288	1.333	4.12109	0.005	0.141	0.13	498.7323	0.153
Paving Equipment	2018	16	25	0.877571	0.737	4.41578	4.31244	0.005	0.286	0.263	540.6115	0.168
Paving Equipment	2018	26	50	0.877571	0.737	4.41578	4.31244	0.005	0.286	0.263	540.6115	0.168
Paving Equipment	2018	51	120	0.534861	0.449	3.60743	4.27034	0.005	0.302	0.278	492.1184	0.153
Paving Equipment	2018	121	175	0.337615	0.284	3.02602	3.17208	0.005	0.155	0.143	489.2024	0.152
Paving Equipment	2018	176	250	0.307374	0.258	1.28117	3.58656	0.005	0.123	0.113	490.6833	0.153
Paving Equipment	2019	16	25	0.838543	0.705	4.40798	4.23779	0.005	0.27	0.248	531.8612	0.168
Paving Equipment	2019	26	50	0.838543	0.705	4.40798	4.23779	0.005	0.27	0.248	531.8612	0.168
Paving Equipment	2019	51	120	0.50594	0.425	3.59849	4.04152	0.005	0.281	0.258	484.387	0.153
Paving Equipment	2019	121	175	0.302373	0.254	3.0109	2.6924	0.005	0.134	0.123	481.2251	0.152
Paving Equipment	2019	176	250	0.286526	0.241	1.24449	3.25106	0.005	0.112	0.103	482.6441	0.153
Paving Equipment	2020	16	25	0.73951	0.621	4.22322	3.9519	0.005	0.217	0.2	520.1235	0.168
Paving Equipment	2020	26	50	0.73951	0.621	4.22322	3.9519	0.005	0.217	0.2	520.1235	0.168
Paving Equipment	2020	51	120	0.472907	0.397	3.58172	3.78064	0.005	0.256	0.235	473.3249	0.153
Paving Equipment	2020	121	175	0.294586	0.248	3.02393	2.55498	0.005	0.128	0.118	470.7359	0.152
Paving Equipment	2020	176	250	0.289784	0.243	1.25215	3.2202	0.005	0.111	0.102	472.1514	0.153
Paving Equipment	2021	16	25	0.698022	0.587	4.21072	3.88226	0.005	0.2	0.184	520.3965	0.168
Paving Equipment	2021	26	50	0.698022	0.587	4.21072	3.88226	0.005	0.2	0.184	520.3965	0.168
Paving Equipment	2021	51	120	0.422572	0.355	3.5537	3.45065	0.005	0.219	0.201	473.2205	0.153
Paving Equipment	2021	121	175	0.272687	0.229	3.03229	2.31505	0.005	0.114	0.105	470.6495	0.152
Paving Equipment	2021	176	250	0.250607	0.211	1.20904	2.58202	0.005	0.092	0.085	472.151	0.153
Paving Equipment	2022	16	25	0.68013	0.571	4.24448	3.83611	0.005	0.188	0.173	520.6594	0.168
Paving Equipment	2022	26	50	0.68013	0.571	4.24448	3.83611	0.005	0.188	0.173	520.6594	0.168
Paving Equipment	2022	51	120	0.351718	0.296	3.50075	2.99968	0.005	0.171	0.157	473.4475	0.153
Paving Equipment	2022	121	175	0.253077	0.213	3.03777	2.07331	0.005	0.101	0.093	470.6646	0.152
Paving Equipment	2022	176	250	0.232653	0.195	1.20363	2.22813	0.005	0.083	0.076	472.169	0.153
Paving Equipment	2023	16	25	0.644074	0.541	4.24108	3.77446	0.005	0.173	0.159	521.1138	0.169
Paving Equipment	2023	26	50	0.644074	0.541	4.24108	3.77446	0.005	0.173	0.159	521.1138	0.169
Paving Equipment	2023	51	120	0.331302	0.278	3.50331	2.83717	0.005	0.152	0.14	473.427	0.153
Paving Equipment	2023	121	175	0.242414	0.204	3.05059	1.91255	0.005	0.093	0.086	470.663	0.152
Paving Equipment	2023	176	250	0.208228	0.175	1.16523	1.88495	0.005	0.07	0.065	472.169	0.153
Paving Equipment	2024	16	25	0.622364	0.523	4.27468	3.74329	0.005	0.164	0.151	521.0575	0.169
Paving Equipment	2024	26	50	0.622364	0.523	4.27468	3.74329	0.005	0.164	0.151	521.0575	0.169
Paving Equipment	2024	51	120	0.311995	0.262	3.50288	2.67309	0.005	0.135	0.125	473.1748	0.153
Paving Equipment	2024	121	175	0.233948	0.197	3.06623	1.78512	0.005	0.086	0.079	470.6614	0.152
Paving Equipment	2024	176	250	0.164733	0.138	1.11417	1.29567	0.005	0.048	0.044	472.2124	0.153
Paving Equipment	2025	16	25	0.566694	0.476	4.20347	3.62672	0.005	0.141	0.13	520.9975	0.169
Paving Equipment	2025	26	50	0.566694	0.476	4.20347	3.62672	0.005	0.141	0.13	520.9975	0.169
Paving Equipment	2025	51	120	0.287394	0.241	3.48256	2.49628	0.005	0.118	0.108	473.4239	0.153
Paving Equipment	2025	121	175	0.208465	0.175	3.03837	1.509	0.005	0.075	0.069	470.4844	0.152
Paving Equipment	2025	176	250	0.158556	0.133	1.11653	1.10952	0.005	0.043	0.04	472.2341	0.153
Paving Equipment	2030	16	25	1.628	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Paving Equipment	2030	26	50	3.613	0.802	5.309	3.809	0.007	0.126	0.126	568.299	0.072
Paving Equipment	2030	51	120	4.007	0.39	3.774	2.393	0.006	0.114	0.114	568.3	0.035
Paving Equipment	2030	121	175	5.525	0.29	3.306	1.363	0.006	0.07	0.07	568.299	0.026
Paving Equipment	2030	176	250	5.771	0.25	1.171	1.176	0.006	0.042	0.042	568.299	0.022
Paving Equipment	2035	16	25	1.628	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Paving Equipment	2035	26	50	2.991	0.664	5.181	3.511	0.007	0.07	0.07	568.3	0.059
Paving Equipment	2035	51	120	3.343	0.326	3.753	1.928	0.006	0.064	0.064	568.299	0.029
Paving Equipment	2035	121	175	4.485	0.235	3.303	0.832	0.006	0.04	0.04	568.299	0.021
Paving Equipment	2035	176	250	4.886	0.212	1.14	0.714	0.006	0.024	0.024	568.299	0.019
Paving Equipment	2040	16	25	1.628	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Paving Equipment	2040	26	50	2.651	0.589	5.111	3.361	0.007	0.042	0.042	568.3	0.053
Paving Equipment	2040	51	120	2.989	0.291	3.744	1.687	0.006	0.039	0.039	568.299	0.026

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Paving Equipment	2040	121	175	3.901	0.205	3.304	0.536	0.006	0.025	0.025	568.299	0.018
Paving Equipment	2040	176	250	4.452	0.193	1.127	0.485	0.006	0.017	0.017	568.299	0.017
Plate Compactors	1990	6	15	2.156	1.804	4.999	9.999	1.049	0.975	0.975	568.299	0.162
Plate Compactors	2000	6	15	1.852	1.55	4.606	8.519	0.079	0.708	0.708	568.299	0.139
Plate Compactors	2005	6	15	0.955	0.799	3.503	5.435	0.079	0.377	0.377	568.299	0.072
Plate Compactors	2010	6	15	0.794	0.664	3.469	4.178	0.008	0.198	0.198	568.299	0.059
Plate Compactors	2011	6	15	0.791	0.662	3.469	4.15	0.008	0.172	0.172	568.299	0.059
Plate Compactors	2012	6	15	0.79	0.661	3.469	4.142	0.008	0.165	0.165	568.3	0.059
Plate Compactors	2013	6	15	0.79	0.661	3.469	4.142	0.008	0.162	0.162	568.3	0.059
Plate Compactors	2014	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2015	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2016	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2017	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2018	6	15	0.79	0.661	3.47	4.142	0.008	0.161	0.161	568.3	0.059
Plate Compactors	2019	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2020	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2021	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2022	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2023	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2024	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2025	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2030	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2035	6	15	0.79	0.661	3.47	4.142	0.008	0.161	0.161	568.299	0.059
Plate Compactors	2040	6	15	0.79	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Pressure Washers	1990	6	15	4.972	1.804	4.999	9.999	1.018	0.974	0.974	568.299	0.162
Pressure Washers	1990	16	25	8.915	2.213	5	6.92	0.83	0.74	0.74	568.3	0.199
Pressure Washers	1990	26	50	20.959	2.601	5.721	7.129	0.846	0.821	0.821	568.299	0.234
Pressure Washers	1990	51	120	23.659	1.743	4.735	12.634	0.768	0.874	0.874	568.299	0.157
Pressure Washers	1990	121	175	82.001	1.272	4.353	11.763	1.123	0.649	0.649	568.299	0.114
Pressure Washers	1990	176	250	77.237	0.953	3.084	9.035	1.077	0.476	0.476	568.299	0.086
Pressure Washers	2000	6	15	4.186	1.518	4.875	8.846	0.079	0.613	0.613	568.299	0.137
Pressure Washers	2000	16	25	6.717	1.667	4.783	6.405	0.065	0.51	0.51	568.299	0.15
Pressure Washers	2000	26	50	19.934	2.474	5.524	6.381	0.066	0.615	0.615	568.3	0.223
Pressure Washers	2000	51	120	19.23	1.417	3.967	9.062	0.06	0.613	0.613	568.3	0.127
Pressure Washers	2000	121	175	66.055	1.024	3.38	8.685	0.059	0.399	0.399	568.299	0.092
Pressure Washers	2000	176	250	35.508	0.438	1.005	6.315	0.058	0.143	0.143	568.299	0.039
Pressure Washers	2005	6	15	3.341	1.212	4.38	7.615	0.079	0.505	0.505	568.3	0.109
Pressure Washers	2005	16	25	5.048	1.253	3.922	6.014	0.065	0.432	0.432	568.299	0.113
Pressure Washers	2005	26	50	17.362	2.154	5.075	5.932	0.066	0.566	0.566	568.299	0.194
Pressure Washers	2005	51	120	16.424	1.21	3.682	7.651	0.06	0.566	0.566	568.299	0.109
Pressure Washers	2005	121	175	55.65	0.863	3.072	7.441	0.059	0.349	0.349	568.299	0.077
Pressure Washers	2005	176	250	21.871	0.27	0.986	4.822	0.058	0.111	0.111	568.299	0.024
Pressure Washers	2010	6	15	2.628	0.953	4.027	6.387	0.008	0.38	0.38	568.299	0.086
Pressure Washers	2010	16	25	3.872	0.961	3.309	5.477	0.007	0.342	0.342	568.299	0.086
Pressure Washers	2010	26	50	13.073	1.622	4.517	5.501	0.007	0.453	0.453	568.299	0.146
Pressure Washers	2010	51	120	12.296	0.906	3.503	6.273	0.006	0.451	0.451	568.299	0.081
Pressure Washers	2010	121	175	41.062	0.637	2.967	5.773	0.006	0.275	0.275	568.299	0.057
Pressure Washers	2010	176	250	16.502	0.203	0.986	2.5	0.006	0.1	0.1	568.299	0.018
Pressure Washers	2011	6	15	2.504	0.908	3.952	6.134	0.008	0.358	0.358	568.299	0.081
Pressure Washers	2011	16	25	3.706	0.92	3.179	5.36	0.007	0.325	0.325	568.299	0.083
Pressure Washers	2011	26	50	12.056	1.496	4.382	5.405	0.007	0.428	0.428	568.299	0.135
Pressure Washers	2011	51	120	11.392	0.839	3.468	5.939	0.006	0.43	0.43	568.299	0.075
Pressure Washers	2011	121	175	38.303	0.594	2.953	5.441	0.006	0.263	0.263	568.299	0.053
Pressure Washers	2011	176	250	15.247	0.188	0.986	2.086	0.006	0.072	0.072	568.299	0.016
Pressure Washers	2012	6	15	2.385	0.865	3.874	5.874	0.008	0.338	0.338	568.299	0.078
Pressure Washers	2012	16	25	3.564	0.884	3.043	5.239	0.007	0.307	0.307	568.299	0.079
Pressure Washers	2012	26	50	10.983	1.363	4.238	5.306	0.007	0.402	0.402	568.299	0.123
Pressure Washers	2012	51	120	10.457	0.77	3.433	5.578	0.006	0.4	0.4	568.299	0.069
Pressure Washers	2012	121	175	35.56	0.551	2.941	5.109	0.006	0.244	0.244	568.299	0.049
Pressure Washers	2012	176	250	13.887	0.171	0.986	1.749	0.006	0.046	0.046	568.299	0.015
Pressure Washers	2013	6	15	2.27	0.823	3.796	5.616	0.008	0.318	0.318	568.299	0.074
Pressure Washers	2013	16	25	3.431	0.851	2.907	5.117	0.007	0.289	0.289	568.299	0.076
Pressure Washers	2013	26	50	9.897	1.228	4.092	5.086	0.007	0.367	0.367	568.299	0.11
Pressure Washers	2013	51	120	9.523	0.701	3.399	5.226	0.006	0.366	0.366	568.299	0.063
Pressure Washers	2013	121	175	32.885	0.51	2.931	4.803	0.006	0.225	0.225	568.299	0.046
Pressure Washers	2013	176	250	12.508	0.154	0.986	1.468	0.006	0.021	0.021	568.299	0.013
Pressure Washers	2014	6	15	2.16	0.783	3.723	5.369	0.008	0.298	0.298	568.299	0.07
Pressure Washers	2014	16	25	3.308	0.821	2.78	5	0.007	0.272	0.272	568.299	0.074
Pressure Washers	2014	26	50	8.833	1.096	3.951	4.873	0.007	0.332	0.332	568.299	0.098
Pressure Washers	2014	51	120	8.608	0.634	3.367	4.912	0.006	0.332	0.332	568.299	0.057

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pressure Washers	2014	121	175	30.292	0.469	2.923	4.513	0.006	0.206	0.206	568.299	0.042
Pressure Washers	2014	176	250	11.167	0.137	0.986	1.047	0.006	0.014	0.014	568.299	0.012
Pressure Washers	2015	6	15	2.059	0.747	3.657	5.141	0.008	0.28	0.28	568.299	0.067
Pressure Washers	2015	16	25	3.196	0.793	2.666	4.89	0.007	0.256	0.256	568.299	0.071
Pressure Washers	2015	26	50	7.868	0.976	3.833	4.685	0.007	0.3	0.3	568.299	0.088
Pressure Washers	2015	51	120	7.703	0.567	3.336	4.551	0.006	0.297	0.297	568.299	0.051
Pressure Washers	2015	121	175	27.567	0.427	2.917	4.115	0.006	0.187	0.187	568.299	0.038
Pressure Washers	2015	176	250	9.864	0.121	0.986	0.69	0.006	0.01	0.01	568.299	0.01
Pressure Washers	2016	6	15	1.986	0.72	3.622	4.978	0.008	0.264	0.264	568.299	0.065
Pressure Washers	2016	16	25	3.116	0.773	2.604	4.803	0.007	0.244	0.244	568.299	0.069
Pressure Washers	2016	26	50	6.97	0.865	3.729	4.515	0.007	0.269	0.269	568.299	0.078
Pressure Washers	2016	51	120	6.839	0.504	3.308	4.209	0.006	0.264	0.264	568.299	0.045
Pressure Washers	2016	121	175	24.906	0.386	2.913	3.726	0.006	0.168	0.168	568.299	0.034
Pressure Washers	2016	176	250	8.667	0.107	0.986	0.399	0.006	0.009	0.009	568.299	0.009
Pressure Washers	2017	6	15	1.927	0.699	3.599	4.847	0.008	0.25	0.25	568.299	0.063
Pressure Washers	2017	16	25	3.053	0.757	2.564	4.729	0.007	0.233	0.233	568.299	0.068
Pressure Washers	2017	26	50	6.126	0.76	3.632	4.355	0.007	0.24	0.24	568.299	0.068
Pressure Washers	2017	51	120	6.031	0.444	3.283	3.888	0.006	0.233	0.233	568.3	0.04
Pressure Washers	2017	121	175	22.349	0.346	2.91	3.349	0.006	0.149	0.149	568.299	0.031
Pressure Washers	2017	176	250	8.288	0.102	0.986	0.317	0.006	0.009	0.009	568.299	0.009
Pressure Washers	2018	6	15	1.874	0.679	3.58	4.728	0.008	0.237	0.237	568.299	0.061
Pressure Washers	2018	16	25	2.997	0.744	2.531	4.661	0.007	0.224	0.224	568.299	0.067
Pressure Washers	2018	26	50	5.332	0.661	3.542	4.202	0.007	0.212	0.212	568.299	0.059
Pressure Washers	2018	51	120	5.276	0.388	3.26	3.584	0.006	0.203	0.203	568.299	0.035
Pressure Washers	2018	121	175	19.96	0.309	2.908	2.989	0.006	0.132	0.132	568.299	0.027
Pressure Washers	2018	176	250	8.072	0.099	0.986	0.277	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2019	6	15	1.824	0.662	3.562	4.617	0.008	0.224	0.224	568.299	0.059
Pressure Washers	2019	16	25	2.947	0.731	2.501	4.596	0.007	0.214	0.214	568.299	0.066
Pressure Washers	2019	26	50	4.585	0.569	3.457	4.053	0.007	0.184	0.184	568.299	0.051
Pressure Washers	2019	51	120	4.575	0.337	3.24	3.295	0.006	0.174	0.174	568.299	0.03
Pressure Washers	2019	121	175	18.102	0.28	2.907	2.67	0.006	0.117	0.117	568.299	0.025
Pressure Washers	2019	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2020	6	15	1.78	0.646	3.546	4.516	0.008	0.212	0.212	568.299	0.058
Pressure Washers	2020	16	25	2.904	0.721	2.473	4.538	0.007	0.205	0.205	568.299	0.065
Pressure Washers	2020	26	50	4.025	0.499	3.393	3.917	0.007	0.161	0.161	568.299	0.045
Pressure Washers	2020	51	120	4.048	0.298	3.225	3.036	0.006	0.151	0.151	568.299	0.026
Pressure Washers	2020	121	175	16.638	0.258	2.907	2.383	0.006	0.104	0.104	568.299	0.023
Pressure Washers	2020	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2021	6	15	1.747	0.634	3.531	4.441	0.008	0.201	0.201	568.299	0.057
Pressure Washers	2021	16	25	2.87	0.712	2.446	4.497	0.007	0.196	0.196	568.299	0.064
Pressure Washers	2021	26	50	3.542	0.439	3.329	3.765	0.007	0.136	0.136	568.299	0.039
Pressure Washers	2021	51	120	3.592	0.264	3.21	2.766	0.006	0.129	0.129	568.299	0.023
Pressure Washers	2021	121	175	15.389	0.238	2.907	2.118	0.006	0.093	0.093	568.299	0.021
Pressure Washers	2021	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2022	6	15	1.725	0.626	3.519	4.39	0.008	0.193	0.193	568.299	0.056
Pressure Washers	2022	16	25	2.847	0.706	2.426	4.47	0.007	0.188	0.188	568.299	0.063
Pressure Washers	2022	26	50	3.213	0.398	3.291	3.649	0.007	0.117	0.117	568.3	0.035
Pressure Washers	2022	51	120	3.281	0.241	3.202	2.56	0.006	0.112	0.112	568.299	0.021
Pressure Washers	2022	121	175	14.252	0.221	2.907	1.871	0.006	0.082	0.082	568.299	0.019
Pressure Washers	2022	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2023	6	15	1.706	0.618	3.508	4.345	0.008	0.186	0.186	568.299	0.055
Pressure Washers	2023	16	25	2.827	0.701	2.407	4.447	0.007	0.182	0.182	568.299	0.063
Pressure Washers	2023	26	50	2.928	0.363	3.26	3.541	0.007	0.101	0.101	568.299	0.032
Pressure Washers	2023	51	120	3.012	0.222	3.196	2.377	0.006	0.097	0.097	568.299	0.02
Pressure Washers	2023	121	175	13.244	0.205	2.907	1.665	0.006	0.072	0.072	568.299	0.018
Pressure Washers	2023	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2024	6	15	1.689	0.612	3.499	4.305	0.008	0.181	0.181	568.299	0.055
Pressure Washers	2024	16	25	2.811	0.697	2.39	4.426	0.007	0.178	0.178	568.299	0.062
Pressure Washers	2024	26	50	2.685	0.333	3.233	3.441	0.007	0.087	0.087	568.299	0.03
Pressure Washers	2024	51	120	2.78	0.204	3.191	2.229	0.006	0.084	0.084	568.299	0.018
Pressure Washers	2024	121	175	12.332	0.191	2.907	1.482	0.006	0.062	0.062	568.299	0.017
Pressure Washers	2024	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2025	6	15	1.674	0.607	3.491	4.269	0.008	0.178	0.178	568.299	0.054
Pressure Washers	2025	16	25	2.797	0.694	2.376	4.407	0.007	0.175	0.175	568.299	0.062
Pressure Washers	2025	26	50	2.472	0.306	3.21	3.344	0.007	0.075	0.075	568.299	0.027
Pressure Washers	2025	51	120	2.575	0.189	3.186	2.1	0.006	0.072	0.072	568.299	0.017
Pressure Washers	2025	121	175	11.476	0.178	2.907	1.31	0.006	0.053	0.053	568.299	0.016
Pressure Washers	2025	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2030	6	15	1.632	0.592	3.47	4.164	0.008	0.166	0.166	568.3	0.053
Pressure Washers	2030	16	25	2.766	0.686	2.34	4.347	0.007	0.165	0.165	568.299	0.061

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pressure Washers	2030	26	50	1.735	0.215	3.124	2.989	0.007	0.03	0.03	568.299	0.019
Pressure Washers	2030	51	120	1.821	0.134	3.167	1.594	0.006	0.028	0.028	568.3	0.012
Pressure Washers	2030	121	175	8.178	0.126	2.907	0.619	0.006	0.024	0.024	568.299	0.011
Pressure Washers	2030	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2035	6	15	1.624	0.589	3.47	4.143	0.008	0.162	0.162	568.3	0.053
Pressure Washers	2035	16	25	2.761	0.685	2.34	4.332	0.007	0.162	0.162	568.299	0.061
Pressure Washers	2035	26	50	1.515	0.188	3.101	2.882	0.007	0.015	0.015	568.299	0.016
Pressure Washers	2035	51	120	1.58	0.116	3.161	1.421	0.006	0.014	0.014	568.299	0.01
Pressure Washers	2035	121	175	7.052	0.109	2.907	0.382	0.006	0.013	0.013	568.299	0.009
Pressure Washers	2035	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pressure Washers	2040	6	15	1.624	0.589	3.469	4.142	0.008	0.161	0.161	568.299	0.053
Pressure Washers	2040	16	25	2.761	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Pressure Washers	2040	26	50	1.5	0.186	3.098	2.836	0.007	0.01	0.01	568.299	0.016
Pressure Washers	2040	51	120	1.54	0.113	3.16	1.365	0.006	0.01	0.01	568.299	0.01
Pressure Washers	2040	121	175	6.649	0.103	2.907	0.293	0.006	0.01	0.01	568.299	0.009
Pressure Washers	2040	176	250	8.005	0.098	0.986	0.265	0.006	0.009	0.009	568.299	0.008
Pumps	1990	6	15	3.929	1.804	4.999	10	1.018	0.974	0.974	568.299	0.162
Pumps	1990	16	25	12.652	2.213	4.999	6.92	0.83	0.74	0.74	568.299	0.199
Pumps	1990	26	50	33.318	3.307	7.004	7.391	0.846	0.964	0.964	568.299	0.298
Pumps	1990	51	120	44.398	1.941	5.049	13.378	0.768	1.022	1.022	568.299	0.175
Pumps	1990	121	175	54.599	1.328	4.466	12.036	0.736	0.678	0.678	568.299	0.119
Pumps	1990	176	250	78.462	1.328	4.466	12.036	0.736	0.678	0.678	568.299	0.119
Pumps	1990	251	500	123.784	1.222	7.034	11.736	0.642	0.614	0.614	568.3	0.11
Pumps	1990	501	750	204.643	1.222	7.034	11.736	0.658	0.614	0.614	568.299	0.11
Pumps	1990	1001	9999	484.933	1.22	7.034	11.736	0.658	0.612	0.612	568.299	0.11
Pumps	2000	6	15	3.754	1.723	4.875	9.08	0.079	0.747	0.747	568.299	0.155
Pumps	2000	16	25	11.979	2.095	4.783	6.405	0.065	0.569	0.569	568.299	0.189
Pumps	2000	26	50	31.461	3.123	6.715	6.608	0.066	0.718	0.718	568.299	0.281
Pumps	2000	51	120	36.02	1.575	4.223	9.604	0.06	0.711	0.711	568.3	0.142
Pumps	2000	121	175	43.406	1.055	3.435	8.734	0.057	0.419	0.419	568.299	0.095
Pumps	2000	176	250	51.67	0.874	2.707	8.397	0.057	0.339	0.339	568.299	0.078
Pumps	2000	251	500	83.09	0.82	3.956	8.188	0.05	0.311	0.311	568.299	0.074
Pumps	2000	501	750	137.368	0.82	3.956	8.188	0.051	0.311	0.311	568.299	0.074
Pumps	2000	1001	9999	372.377	0.936	4.533	8.775	0.051	0.351	0.351	568.299	0.084
Pumps	2005	6	15	3.036	1.394	4.38	7.817	0.079	0.621	0.621	568.299	0.125
Pumps	2005	16	25	9.278	1.622	3.922	6.014	0.065	0.483	0.483	568.299	0.146
Pumps	2005	26	50	27.809	2.76	6.203	6.155	0.066	0.664	0.664	568.299	0.249
Pumps	2005	51	120	30.825	1.348	3.91	8.1	0.06	0.657	0.657	568.3	0.121
Pumps	2005	121	175	36.106	0.878	3.114	7.408	0.057	0.363	0.363	568.299	0.079
Pumps	2005	176	250	36.853	0.623	1.836	6.99	0.057	0.239	0.239	568.299	0.056
Pumps	2005	251	500	56.766	0.56	2.32	6.535	0.05	0.219	0.219	568.299	0.05
Pumps	2005	501	750	96.43	0.575	2.32	6.679	0.051	0.221	0.221	568.299	0.051
Pumps	2005	1001	9999	289.357	0.728	2.838	7.658	0.051	0.258	0.258	568.299	0.065
Pumps	2010	6	15	2.449	1.124	4.027	6.554	0.008	0.473	0.473	568.299	0.101
Pumps	2010	16	25	7.245	1.267	3.309	5.477	0.007	0.384	0.384	568.299	0.114
Pumps	2010	26	50	22.041	2.188	5.634	5.74	0.007	0.545	0.545	568.3	0.197
Pumps	2010	51	120	23.77	1.039	3.735	6.675	0.006	0.538	0.538	568.299	0.093
Pumps	2010	121	175	28.171	0.685	3.033	5.961	0.006	0.298	0.298	568.299	0.061
Pumps	2010	176	250	26.273	0.444	1.359	5.586	0.006	0.17	0.17	568.299	0.04
Pumps	2010	251	500	40.384	0.398	1.536	5.074	0.005	0.158	0.158	568.299	0.035
Pumps	2010	501	750	68.724	0.41	1.536	5.207	0.005	0.161	0.161	568.299	0.037
Pumps	2010	1001	9999	218.911	0.55	1.991	6.617	0.005	0.196	0.196	568.299	0.049
Pumps	2011	6	15	2.324	1.067	3.952	6.283	0.008	0.441	0.441	568.299	0.096
Pumps	2011	16	25	6.815	1.192	3.179	5.36	0.007	0.361	0.361	568.299	0.107
Pumps	2011	26	50	20.53	2.038	5.474	5.645	0.007	0.518	0.518	568.299	0.183
Pumps	2011	51	120	22.177	0.969	3.698	6.322	0.006	0.514	0.514	568.299	0.087
Pumps	2011	121	175	26.426	0.642	3.02	5.63	0.006	0.286	0.286	568.299	0.058
Pumps	2011	176	250	24.051	0.407	1.272	5.206	0.006	0.153	0.153	568.299	0.036
Pumps	2011	251	500	36.969	0.365	1.405	4.71	0.005	0.143	0.143	568.299	0.032
Pumps	2011	501	750	62.964	0.376	1.405	4.841	0.005	0.145	0.145	568.299	0.033
Pumps	2011	1001	9999	203.755	0.512	1.835	6.273	0.005	0.183	0.183	568.299	0.046
Pumps	2012	6	15	2.194	1.007	3.874	5.999	0.008	0.407	0.407	568.299	0.09
Pumps	2012	16	25	6.363	1.113	3.043	5.239	0.007	0.337	0.337	568.299	0.1
Pumps	2012	26	50	18.887	1.875	5.296	5.545	0.007	0.488	0.488	568.299	0.169
Pumps	2012	51	120	20.51	0.896	3.66	5.939	0.006	0.481	0.481	568.299	0.08
Pumps	2012	121	175	24.576	0.597	3.009	5.28	0.006	0.265	0.265	568.299	0.053
Pumps	2012	176	250	22.301	0.377	1.218	4.846	0.006	0.139	0.139	568.299	0.034
Pumps	2012	251	500	34.322	0.338	1.311	4.367	0.005	0.13	0.13	568.299	0.03
Pumps	2012	501	750	58.469	0.349	1.311	4.495	0.005	0.132	0.132	568.299	0.031
Pumps	2012	1001	9999	188.287	0.473	1.682	5.916	0.005	0.168	0.168	568.299	0.042

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pumps	2013	6	15	2.065	0.948	3.796	5.716	0.008	0.373	0.373	568.299	0.085
Pumps	2013	16	25	5.914	1.034	2.907	5.117	0.007	0.314	0.314	568.3	0.093
Pumps	2013	26	50	17.185	1.706	5.11	5.323	0.007	0.448	0.448	568.299	0.153
Pumps	2013	51	120	18.831	0.823	3.623	5.563	0.006	0.443	0.443	568.299	0.074
Pumps	2013	121	175	22.712	0.552	2.998	4.949	0.006	0.244	0.244	568.299	0.049
Pumps	2013	176	250	20.801	0.352	1.181	4.498	0.006	0.127	0.127	568.3	0.031
Pumps	2013	251	500	32.081	0.316	1.241	4.037	0.005	0.119	0.119	568.299	0.028
Pumps	2013	501	750	54.658	0.326	1.241	4.163	0.005	0.121	0.121	568.299	0.029
Pumps	2013	1001	9999	173.151	0.435	1.538	5.558	0.005	0.154	0.154	568.299	0.039
Pumps	2014	6	15	1.942	0.891	3.723	5.445	0.008	0.341	0.341	568.299	0.08
Pumps	2014	16	25	5.492	0.96	2.78	5	0.007	0.291	0.291	568.299	0.086
Pumps	2014	26	50	15.493	1.538	4.929	5.107	0.007	0.409	0.409	568.299	0.138
Pumps	2014	51	120	17.179	0.751	3.587	5.226	0.006	0.403	0.403	568.299	0.067
Pumps	2014	121	175	20.895	0.508	2.989	4.635	0.006	0.222	0.222	568.299	0.045
Pumps	2014	176	250	19.3	0.326	1.149	4.09	0.006	0.115	0.115	568.299	0.029
Pumps	2014	251	500	29.829	0.294	1.181	3.648	0.005	0.108	0.108	568.299	0.026
Pumps	2014	501	750	50.824	0.303	1.181	3.77	0.005	0.11	0.11	568.299	0.027
Pumps	2014	1001	9999	158.959	0.399	1.406	5.21	0.005	0.141	0.141	568.299	0.036
Pumps	2015	6	15	1.831	0.84	3.658	5.196	0.008	0.311	0.311	568.299	0.075
Pumps	2015	16	25	5.112	0.894	2.666	4.89	0.007	0.27	0.27	568.299	0.08
Pumps	2015	26	50	13.946	1.384	4.775	4.916	0.007	0.371	0.371	568.3	0.124
Pumps	2015	51	120	15.537	0.679	3.554	4.842	0.006	0.364	0.364	568.3	0.061
Pumps	2015	121	175	18.983	0.461	2.983	4.202	0.006	0.2	0.2	568.299	0.041
Pumps	2015	176	250	17.881	0.302	1.122	3.693	0.006	0.104	0.104	568.299	0.027
Pumps	2015	251	500	27.722	0.273	1.134	3.272	0.005	0.097	0.097	568.299	0.024
Pumps	2015	501	750	47.213	0.281	1.134	3.389	0.005	0.099	0.099	568.299	0.025
Pumps	2015	1001	9999	144.304	0.363	1.293	4.878	0.005	0.127	0.127	568.299	0.032
Pumps	2016	6	15	1.762	0.809	3.622	5.023	0.008	0.289	0.289	568.299	0.073
Pumps	2016	16	25	4.893	0.855	2.604	4.803	0.007	0.255	0.255	568.299	0.077
Pumps	2016	26	50	12.497	1.24	4.64	4.742	0.007	0.335	0.335	568.299	0.111
Pumps	2016	51	120	13.964	0.61	3.523	4.478	0.006	0.325	0.325	568.299	0.055
Pumps	2016	121	175	17.155	0.417	2.978	3.789	0.006	0.179	0.179	568.299	0.037
Pumps	2016	176	250	16.558	0.28	1.099	3.313	0.006	0.094	0.094	568.299	0.025
Pumps	2016	251	500	25.804	0.254	1.093	2.919	0.005	0.088	0.088	568.299	0.022
Pumps	2016	501	750	43.884	0.262	1.093	3.028	0.005	0.089	0.089	568.299	0.023
Pumps	2016	1001	9999	133.448	0.335	1.223	4.596	0.005	0.116	0.116	568.3	0.03
Pumps	2017	6	15	1.713	0.786	3.599	4.887	0.008	0.272	0.272	568.299	0.07
Pumps	2017	16	25	4.745	0.83	2.564	4.729	0.007	0.243	0.243	568.299	0.074
Pumps	2017	26	50	11.12	1.104	4.514	4.578	0.007	0.301	0.301	568.299	0.099
Pumps	2017	51	120	12.49	0.546	3.495	4.134	0.006	0.287	0.287	568.299	0.049
Pumps	2017	121	175	15.466	0.376	2.975	3.4	0.006	0.159	0.159	568.299	0.033
Pumps	2017	176	250	15.375	0.26	1.08	2.958	0.006	0.084	0.084	568.299	0.023
Pumps	2017	251	500	24.243	0.239	1.062	2.613	0.005	0.079	0.079	568.299	0.021
Pumps	2017	501	750	40.958	0.244	1.062	2.695	0.005	0.08	0.08	568.299	0.022
Pumps	2017	1001	9999	124.604	0.313	1.177	4.343	0.005	0.106	0.106	568.299	0.028
Pumps	2018	6	15	1.669	0.766	3.58	4.762	0.008	0.256	0.256	568.299	0.069
Pumps	2018	16	25	4.618	0.807	2.531	4.661	0.007	0.232	0.232	568.299	0.072
Pumps	2018	26	50	9.809	0.973	4.397	4.422	0.007	0.267	0.267	568.299	0.087
Pumps	2018	51	120	11.107	0.485	3.471	3.808	0.006	0.252	0.252	568.299	0.043
Pumps	2018	121	175	13.918	0.338	2.974	3.035	0.006	0.14	0.14	568.299	0.03
Pumps	2018	176	250	14.304	0.242	1.065	2.624	0.006	0.075	0.075	568.299	0.021
Pumps	2018	251	500	22.927	0.226	1.041	2.34	0.005	0.071	0.071	568.299	0.02
Pumps	2018	501	750	38.511	0.23	1.041	2.401	0.005	0.072	0.072	568.299	0.02
Pumps	2018	1001	9999	116.529	0.293	1.144	4.105	0.005	0.098	0.098	568.299	0.026
Pumps	2019	6	15	1.63	0.748	3.562	4.647	0.008	0.241	0.241	568.3	0.067
Pumps	2019	16	25	4.503	0.787	2.501	4.596	0.007	0.222	0.222	568.3	0.071
Pumps	2019	26	50	8.56	0.849	4.284	4.269	0.007	0.235	0.235	568.299	0.076
Pumps	2019	51	120	9.812	0.429	3.449	3.497	0.006	0.217	0.217	568.299	0.038
Pumps	2019	121	175	12.706	0.309	2.974	2.711	0.006	0.124	0.124	568.299	0.027
Pumps	2019	176	250	13.378	0.226	1.052	2.323	0.006	0.067	0.067	568.299	0.02
Pumps	2019	251	500	21.711	0.214	1.027	2.084	0.005	0.064	0.064	568.3	0.019
Pumps	2019	501	750	36.35	0.217	1.027	2.133	0.005	0.065	0.065	568.299	0.019
Pumps	2019	1001	9999	108.825	0.273	1.118	3.873	0.005	0.089	0.089	568.299	0.024
Pumps	2020	6	15	1.593	0.731	3.546	4.542	0.008	0.227	0.227	568.299	0.066
Pumps	2020	16	25	4.396	0.769	2.473	4.538	0.007	0.212	0.212	568.299	0.069
Pumps	2020	26	50	7.613	0.755	4.197	4.128	0.007	0.206	0.206	568.299	0.068
Pumps	2020	51	120	8.832	0.386	3.432	3.219	0.006	0.189	0.189	568.299	0.034
Pumps	2020	121	175	11.744	0.285	2.974	2.418	0.006	0.111	0.111	568.299	0.025
Pumps	2020	176	250	12.575	0.212	1.042	2.05	0.006	0.06	0.06	568.299	0.019
Pumps	2020	251	500	20.565	0.203	1.017	1.841	0.005	0.057	0.057	568.3	0.018

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pumps	2020	501	750	34.373	0.205	1.017	1.884	0.005	0.058	0.058	568.299	0.018
Pumps	2020	1001	9999	101.462	0.255	1.096	3.649	0.005	0.081	0.081	568.3	0.023
Pumps	2021	6	15	1.563	0.717	3.531	4.462	0.008	0.214	0.214	568.299	0.064
Pumps	2021	16	25	4.302	0.752	2.446	4.497	0.007	0.201	0.201	568.299	0.067
Pumps	2021	26	50	6.761	0.671	4.099	3.966	0.007	0.175	0.175	568.299	0.06
Pumps	2021	51	120	7.94	0.347	3.412	2.928	0.006	0.162	0.162	568.3	0.031
Pumps	2021	121	175	10.713	0.26	2.968	2.101	0.006	0.096	0.096	568.299	0.023
Pumps	2021	176	250	11.658	0.197	1.031	1.759	0.006	0.052	0.052	568.299	0.017
Pumps	2021	251	500	19.186	0.189	1.007	1.584	0.005	0.05	0.05	568.299	0.017
Pumps	2021	501	750	32.005	0.191	1.007	1.618	0.005	0.05	0.05	568.299	0.017
Pumps	2021	1001	9999	92.954	0.233	1.074	3.409	0.005	0.072	0.072	568.3	0.021
Pumps	2022	6	15	1.54	0.707	3.519	4.408	0.008	0.203	0.203	568.299	0.063
Pumps	2022	16	25	4.229	0.739	2.426	4.47	0.007	0.193	0.193	568.299	0.066
Pumps	2022	26	50	6.194	0.614	4.048	3.846	0.007	0.152	0.152	568.299	0.055
Pumps	2022	51	120	7.351	0.321	3.404	2.708	0.006	0.142	0.142	568.299	0.029
Pumps	2022	121	175	9.985	0.242	2.969	1.86	0.006	0.085	0.085	568.299	0.021
Pumps	2022	176	250	11.025	0.186	1.025	1.534	0.006	0.045	0.045	568.299	0.016
Pumps	2022	251	500	18.249	0.18	1.001	1.404	0.005	0.044	0.044	568.3	0.016
Pumps	2022	501	750	30.396	0.181	1.001	1.432	0.005	0.044	0.044	568.3	0.016
Pumps	2022	1001	9999	87.313	0.219	1.058	3.236	0.005	0.065	0.065	568.299	0.019
Pumps	2023	6	15	1.521	0.698	3.508	4.359	0.008	0.194	0.194	568.299	0.063
Pumps	2023	16	25	4.165	0.728	2.407	4.447	0.007	0.186	0.186	568.299	0.065
Pumps	2023	26	50	5.699	0.565	4.007	3.734	0.007	0.131	0.131	568.299	0.051
Pumps	2023	51	120	6.838	0.299	3.398	2.511	0.006	0.123	0.123	568.299	0.026
Pumps	2023	121	175	9.349	0.227	2.971	1.662	0.006	0.075	0.075	568.299	0.02
Pumps	2023	176	250	10.47	0.177	1.021	1.351	0.006	0.04	0.04	568.299	0.015
Pumps	2023	251	500	17.411	0.171	0.998	1.246	0.005	0.038	0.038	568.3	0.015
Pumps	2023	501	750	28.971	0.173	0.998	1.271	0.005	0.039	0.039	568.299	0.015
Pumps	2023	1001	9999	82.523	0.207	1.043	3.09	0.005	0.059	0.059	568.299	0.018
Pumps	2024	6	15	1.503	0.69	3.499	4.316	0.008	0.188	0.188	568.299	0.062
Pumps	2024	16	25	4.107	0.718	2.39	4.426	0.007	0.181	0.181	568.299	0.064
Pumps	2024	26	50	5.272	0.523	3.974	3.63	0.007	0.114	0.114	568.299	0.047
Pumps	2024	51	120	6.391	0.279	3.393	2.352	0.006	0.107	0.107	568.299	0.025
Pumps	2024	121	175	8.769	0.213	2.973	1.486	0.006	0.065	0.065	568.299	0.019
Pumps	2024	176	250	9.948	0.168	1.018	1.189	0.006	0.034	0.034	568.3	0.015
Pumps	2024	251	500	16.61	0.164	0.994	1.098	0.005	0.033	0.033	568.299	0.014
Pumps	2024	501	750	27.614	0.164	0.994	1.12	0.005	0.034	0.034	568.299	0.014
Pumps	2024	1001	9999	78.184	0.196	1.031	2.96	0.005	0.054	0.054	568.299	0.017
Pumps	2025	6	15	1.488	0.683	3.491	4.278	0.008	0.183	0.183	568.299	0.061
Pumps	2025	16	25	4.058	0.709	2.376	4.407	0.007	0.177	0.177	568.299	0.064
Pumps	2025	26	50	4.891	0.485	3.943	3.528	0.007	0.099	0.099	568.299	0.043
Pumps	2025	51	120	5.988	0.261	3.389	2.213	0.006	0.092	0.092	568.299	0.023
Pumps	2025	121	175	8.209	0.199	2.974	1.318	0.006	0.056	0.056	568.3	0.018
Pumps	2025	176	250	9.449	0.159	1.016	1.038	0.006	0.029	0.029	568.299	0.014
Pumps	2025	251	500	15.837	0.156	0.992	0.958	0.005	0.028	0.028	568.3	0.014
Pumps	2025	501	750	26.308	0.157	0.992	0.977	0.005	0.029	0.029	568.3	0.014
Pumps	2025	1001	9999	74.054	0.186	1.02	2.84	0.005	0.049	0.049	568.299	0.016
Pumps	2030	6	15	1.445	0.663	3.47	4.164	0.008	0.166	0.166	568.299	0.059
Pumps	2030	16	25	3.928	0.687	2.34	4.347	0.007	0.165	0.165	568.3	0.061
Pumps	2030	26	50	3.513	0.348	3.814	3.146	0.007	0.04	0.04	568.299	0.031
Pumps	2030	51	120	4.416	0.193	3.367	1.662	0.006	0.036	0.036	568.299	0.017
Pumps	2030	121	175	5.842	0.142	2.973	0.61	0.006	0.024	0.024	568.299	0.012
Pumps	2030	176	250	7.699	0.13	1.013	0.511	0.006	0.016	0.016	568.299	0.011
Pumps	2030	251	500	13.115	0.129	0.989	0.482	0.005	0.016	0.016	568.299	0.011
Pumps	2030	501	750	21.709	0.129	0.989	0.488	0.005	0.016	0.016	568.299	0.011
Pumps	2030	1001	9999	55.475	0.139	0.99	2.504	0.005	0.03	0.03	568.299	0.012
Pumps	2035	6	15	1.44	0.661	3.469	4.143	0.008	0.162	0.162	568.299	0.059
Pumps	2035	16	25	3.919	0.685	2.34	4.332	0.007	0.162	0.162	568.299	0.061
Pumps	2035	26	50	3.089	0.306	3.778	3.028	0.007	0.019	0.019	568.299	0.027
Pumps	2035	51	120	3.891	0.17	3.36	1.47	0.006	0.017	0.017	568.299	0.015
Pumps	2035	121	175	5.059	0.123	2.973	0.377	0.006	0.014	0.014	568.299	0.011
Pumps	2035	176	250	7.07	0.119	1.012	0.335	0.006	0.011	0.011	568.299	0.01
Pumps	2035	251	500	12.118	0.119	0.989	0.331	0.005	0.011	0.011	568.299	0.01
Pumps	2035	501	750	20.034	0.119	0.989	0.331	0.005	0.011	0.011	568.299	0.01
Pumps	2035	1001	9999	49.373	0.124	0.989	2.38	0.005	0.023	0.023	568.299	0.011
Pumps	2040	6	15	1.44	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Pumps	2040	16	25	3.919	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Pumps	2040	26	50	3.056	0.303	3.77	2.976	0.007	0.013	0.013	568.299	0.027
Pumps	2040	51	120	3.777	0.165	3.358	1.41	0.006	0.012	0.012	568.299	0.014
Pumps	2040	121	175	4.771	0.116	2.971	0.295	0.006	0.01	0.01	568.299	0.01

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Pumps	2040	176	250	6.779	0.114	1.012	0.279	0.006	0.009	0.009	568.299	0.01
Pumps	2040	251	500	11.622	0.114	0.989	0.279	0.005	0.009	0.009	568.299	0.01
Pumps	2040	501	750	19.214	0.114	0.989	0.279	0.005	0.009	0.009	568.299	0.01
Pumps	2040	1001	9999	46.343	0.116	0.989	2.347	0.005	0.02	0.02	568.299	0.01
Rollers	1990	6	15	4.21	1.804	4.999	9.999	1.049	0.975	0.975	568.299	0.162
Rollers	1990	16	25	10.903	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Rollers	1990	26	50	45.466	4.738	9.598	7.927	0.871	1.256	1.256	568.299	0.427
Rollers	1990	51	120	51.677	2.372	5.756	15.111	0.791	1.332	1.332	568.3	0.214
Rollers	1990	121	175	75.451	1.889	5.165	14.858	0.758	1.046	1.046	568.299	0.17
Rollers	1990	176	250	106.808	1.889	5.165	14.858	0.758	1.046	1.046	568.299	0.17
Rollers	1990	251	500	135.093	1.669	11.266	14.103	0.662	0.896	0.896	568.299	0.15
Rollers	2000	6	15	3.444	1.475	4.49	8.242	0.079	0.676	0.676	568.3	0.133
Rollers	2000	16	25	9.648	1.958	4.53	6.358	0.065	0.563	0.563	568.299	0.176
Rollers	2000	26	50	38.643	4.027	8.379	6.941	0.066	0.861	0.861	568.299	0.363
Rollers	2000	51	120	39.062	1.793	4.585	10.425	0.06	0.844	0.844	568.299	0.161
Rollers	2000	121	175	48.357	1.21	3.749	9.501	0.057	0.503	0.503	568.299	0.109
Rollers	2000	176	250	59.24	1.047	3.108	9.211	0.057	0.427	0.427	568.299	0.094
Rollers	2000	251	500	77.413	0.956	5.254	8.821	0.05	0.379	0.379	568.299	0.086
Rollers	2005	6	15	1.788	0.766	3.469	5.228	0.079	0.361	0.361	568.299	0.069
Rollers	2005	16	25	4.53	0.919	2.642	5.412	0.065	0.347	0.347	568.299	0.082
Rollers	2005	26	50	34.997	3.647	7.864	6.51	0.066	0.808	0.808	568.299	0.329
Rollers	2005	51	120	34.046	1.563	4.289	8.963	0.06	0.79	0.79	568.299	0.141
Rollers	2005	121	175	40.854	1.023	3.44	8.18	0.057	0.441	0.441	568.299	0.092
Rollers	2005	176	250	44.594	0.788	2.262	7.822	0.057	0.319	0.319	568.299	0.071
Rollers	2005	251	500	56.466	0.697	3.183	7.196	0.05	0.282	0.282	568.299	0.062
Rollers	2010	6	15	1.637529	1.376	5.19619	5.58863	0.005	0.516	0.475	584.6125	0.17
Rollers	2010	16	25	1.637529	1.376	5.19619	5.58863	0.005	0.516	0.475	584.6125	0.17
Rollers	2010	26	50	1.637529	1.376	5.19619	5.58863	0.005	0.516	0.475	584.6125	0.17
Rollers	2010	51	120	0.983879	0.827	3.91429	7.50147	0.005	0.56	0.516	527.6279	0.154
Rollers	2010	121	175	0.511697	0.43	3.00505	5.60543	0.005	0.264	0.243	524.1952	0.153
Rollers	2010	176	250	0.616159	0.518	2.19572	7.34127	0.005	0.268	0.247	526.2539	0.153
Rollers	2010	251	500	0.682816	0.574	4.92169	7.52047	0.005	0.313	0.288	533.878	0.155
Rollers	2011	6	15	1.599963	1.344	5.18315	5.5647	0.005	0.508	0.467	583.1085	0.17
Rollers	2011	16	25	1.599963	1.344	5.18315	5.5647	0.005	0.508	0.467	583.1085	0.17
Rollers	2011	26	50	1.599963	1.344	5.18315	5.5647	0.005	0.508	0.467	583.1085	0.17
Rollers	2011	51	120	0.924436	0.777	3.86451	7.13388	0.005	0.533	0.491	525.9391	0.153
Rollers	2011	121	175	0.498798	0.419	3.00845	5.44712	0.005	0.257	0.237	522.9396	0.153
Rollers	2011	176	250	0.556319	0.467	2.03431	6.69107	0.005	0.242	0.222	524.8924	0.153
Rollers	2011	251	500	0.597293	0.502	4.46947	6.64358	0.005	0.275	0.253	529.5965	0.155
Rollers	2012	6	15	1.624226	1.365	5.26844	5.568	0.005	0.511	0.471	581.6678	0.17
Rollers	2012	16	25	1.624226	1.365	5.26844	5.568	0.005	0.511	0.471	581.6678	0.17
Rollers	2012	26	50	1.624226	1.365	5.26844	5.568	0.005	0.511	0.471	581.6678	0.17
Rollers	2012	51	120	0.924087	0.776	3.87893	7.08604	0.005	0.534	0.491	524.5269	0.153
Rollers	2012	121	175	0.497788	0.418	3.02294	5.38313	0.005	0.255	0.235	521.5511	0.153
Rollers	2012	176	250	0.555818	0.467	2.02691	6.64215	0.005	0.241	0.222	523.5608	0.153
Rollers	2012	251	500	0.604557	0.508	4.53336	6.66671	0.005	0.278	0.256	528.1357	0.155
Rollers	2013	6	15	1.5981	1.343	5.27142	5.50162	0.005	0.5	0.46	578.8662	0.17
Rollers	2013	16	25	1.5981	1.343	5.27142	5.50162	0.005	0.5	0.46	578.8662	0.17
Rollers	2013	26	50	1.5981	1.343	5.27142	5.50162	0.005	0.5	0.46	578.8662	0.17
Rollers	2013	51	120	0.873627	0.734	3.84356	6.74964	0.005	0.504	0.464	521.8163	0.153
Rollers	2013	121	175	0.468308	0.394	3.00794	5.11335	0.005	0.238	0.219	519.0689	0.153
Rollers	2013	176	250	0.495332	0.416	1.86858	5.94235	0.005	0.213	0.196	520.4083	0.153
Rollers	2013	251	500	0.470274	0.395	3.53436	5.43748	0.005	0.213	0.196	524.7654	0.154
Rollers	2014	6	15	1.556684	1.308	5.24275	5.39309	0.005	0.484	0.445	575.7953	0.17
Rollers	2014	16	25	1.556684	1.308	5.24275	5.39309	0.005	0.484	0.445	575.7953	0.17
Rollers	2014	26	50	1.556684	1.308	5.24275	5.39309	0.005	0.484	0.445	575.7953	0.17
Rollers	2014	51	120	0.827072	0.695	3.80915	6.39036	0.005	0.476	0.438	518.7866	0.153
Rollers	2014	121	175	0.43778	0.368	2.99804	4.72375	0.005	0.219	0.202	516.591	0.153
Rollers	2014	176	250	0.453642	0.381	1.75988	5.40344	0.005	0.191	0.176	517.8111	0.153
Rollers	2014	251	500	0.449616	0.378	3.3182	5.18322	0.005	0.202	0.185	522.0518	0.154
Rollers	2015	6	15	1.559602	1.31	5.29043	5.36547	0.005	0.481	0.443	569.9207	0.17
Rollers	2015	16	25	1.559602	1.31	5.29043	5.36547	0.005	0.481	0.443	569.9207	0.17
Rollers	2015	26	50	1.559602	1.31	5.29043	5.36547	0.005	0.481	0.443	569.9207	0.17
Rollers	2015	51	120	0.813228	0.683	3.80891	6.27158	0.005	0.467	0.43	513.5052	0.153
Rollers	2015	121	175	0.433087	0.364	3.00605	4.63035	0.005	0.215	0.198	511.3935	0.153
Rollers	2015	176	250	0.41293	0.347	1.65049	4.93191	0.005	0.171	0.157	512.8234	0.153
Rollers	2015	251	500	0.441373	0.371	3.24549	5.03147	0.005	0.195	0.179	517.2848	0.154
Rollers	2016	6	15	1.498736	1.259	5.23066	5.2356	0.005	0.459	0.423	563.9722	0.17
Rollers	2016	16	25	1.498736	1.259	5.23066	5.2356	0.005	0.459	0.423	563.9722	0.17
Rollers	2016	26	50	1.498736	1.259	5.23066	5.2356	0.005	0.459	0.423	563.9722	0.17

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rollers	2016	51	120	0.747631	0.628	3.75537	5.80563	0.005	0.428	0.393	508.1987	0.153
Rollers	2016	121	175	0.402004	0.338	2.99334	4.23872	0.005	0.197	0.181	505.9041	0.153
Rollers	2016	176	250	0.366563	0.308	1.50673	4.39492	0.005	0.15	0.138	507.6939	0.153
Rollers	2016	251	500	0.397483	0.334	2.95647	4.45617	0.005	0.173	0.159	513.4154	0.155
Rollers	2017	6	15	1.425352	1.198	5.14727	5.09771	0.005	0.436	0.401	555.0199	0.17
Rollers	2017	16	25	1.425352	1.198	5.14727	5.09771	0.005	0.436	0.401	555.0199	0.17
Rollers	2017	26	50	1.425352	1.198	5.14727	5.09771	0.005	0.436	0.401	555.0199	0.17
Rollers	2017	51	120	0.690109	0.58	3.71315	5.4114	0.005	0.392	0.361	500.1525	0.153
Rollers	2017	121	175	0.373471	0.314	2.98069	3.87384	0.005	0.18	0.166	497.9088	0.153
Rollers	2017	176	250	0.326364	0.274	1.40849	3.92097	0.005	0.129	0.119	499.7021	0.153
Rollers	2017	251	500	0.353236	0.297	2.68487	3.84047	0.005	0.15	0.138	505.8318	0.155
Rollers	2018	6	15	1.26668	1.064	4.92335	4.8416	0.005	0.387	0.356	546.2905	0.17
Rollers	2018	16	25	1.26668	1.064	4.92335	4.8416	0.005	0.387	0.356	546.2905	0.17
Rollers	2018	26	50	1.26668	1.064	4.92335	4.8416	0.005	0.387	0.356	546.2905	0.17
Rollers	2018	51	120	0.572467	0.481	3.60981	4.65049	0.005	0.32	0.294	492.2118	0.153
Rollers	2018	121	175	0.315632	0.265	2.94895	3.18126	0.005	0.147	0.135	490.1805	0.153
Rollers	2018	176	250	0.251419	0.211	1.24341	2.99492	0.005	0.094	0.086	491.6643	0.153
Rollers	2018	251	500	0.291314	0.245	2.23145	3.09814	0.005	0.119	0.11	497.9962	0.155
Rollers	2019	6	15	1.156606	0.972	4.77841	4.64491	0.005	0.349	0.321	537.546	0.17
Rollers	2019	16	25	1.156606	0.972	4.77841	4.64491	0.005	0.349	0.321	537.546	0.17
Rollers	2019	26	50	1.156606	0.972	4.77841	4.64491	0.005	0.349	0.321	537.546	0.17
Rollers	2019	51	120	0.502836	0.423	3.55726	4.17949	0.005	0.275	0.253	484.3362	0.153
Rollers	2019	121	175	0.27475	0.231	2.93251	2.69941	0.005	0.124	0.114	482.4531	0.153
Rollers	2019	176	250	0.250477	0.21	1.24854	2.88327	0.005	0.092	0.084	483.7769	0.153
Rollers	2019	251	500	0.278634	0.234	2.10142	2.90839	0.005	0.111	0.102	489.9774	0.155
Rollers	2020	6	15	1.102095	0.926	4.72504	4.53426	0.005	0.329	0.303	525.8798	0.17
Rollers	2020	16	25	1.102095	0.926	4.72504	4.53426	0.005	0.329	0.303	525.8798	0.17
Rollers	2020	26	50	1.102095	0.926	4.72504	4.53426	0.005	0.329	0.303	525.8798	0.17
Rollers	2020	51	120	0.462004	0.388	3.53135	3.88153	0.005	0.247	0.228	473.8594	0.153
Rollers	2020	121	175	0.256128	0.215	2.93333	2.45176	0.005	0.113	0.104	471.9177	0.153
Rollers	2020	176	250	0.248138	0.209	1.25343	2.75095	0.005	0.089	0.082	473.3669	0.153
Rollers	2020	251	500	0.279691	0.235	2.11346	2.82823	0.005	0.109	0.101	479.3254	0.155
Rollers	2021	6	15	1.008559	0.847	4.59681	4.35097	0.005	0.294	0.27	525.7908	0.17
Rollers	2021	16	25	1.008559	0.847	4.59681	4.35097	0.005	0.294	0.27	525.7908	0.17
Rollers	2021	26	50	1.008559	0.847	4.59681	4.35097	0.005	0.294	0.27	525.7908	0.17
Rollers	2021	51	120	0.42061	0.353	3.50719	3.5889	0.005	0.219	0.202	473.9012	0.153
Rollers	2021	121	175	0.229571	0.193	2.9256	2.11691	0.005	0.097	0.09	471.9799	0.153
Rollers	2021	176	250	0.23384	0.196	1.22849	2.49332	0.005	0.081	0.075	473.4704	0.153
Rollers	2021	251	500	0.26246	0.221	1.94995	2.58936	0.005	0.1	0.092	479.3294	0.155
Rollers	2022	6	15	0.878567	0.738	4.40241	4.12773	0.005	0.25	0.23	525.691	0.17
Rollers	2022	16	25	0.878567	0.738	4.40241	4.12773	0.005	0.25	0.23	525.691	0.17
Rollers	2022	26	50	0.878567	0.738	4.40241	4.12773	0.005	0.25	0.23	525.691	0.17
Rollers	2022	51	120	0.369089	0.31	3.46973	3.21896	0.005	0.186	0.171	473.9291	0.153
Rollers	2022	121	175	0.195547	0.164	2.91331	1.71408	0.005	0.079	0.072	471.9475	0.153
Rollers	2022	176	250	0.221959	0.187	1.22821	2.2116	0.005	0.077	0.071	473.5135	0.153
Rollers	2022	251	500	0.259221	0.218	1.95495	2.46341	0.005	0.097	0.089	478.9817	0.155
Rollers	2023	6	15	0.786211	0.661	4.25236	3.9211	0.005	0.212	0.195	525.8616	0.17
Rollers	2023	16	25	0.786211	0.661	4.25236	3.9211	0.005	0.212	0.195	525.8616	0.17
Rollers	2023	26	50	0.786211	0.661	4.25236	3.9211	0.005	0.212	0.195	525.8616	0.17
Rollers	2023	51	120	0.341189	0.287	3.45461	3.00302	0.005	0.165	0.152	473.9363	0.153
Rollers	2023	121	175	0.1784	0.15	2.90949	1.4833	0.005	0.068	0.062	471.9351	0.153
Rollers	2023	176	250	0.223864	0.188	1.23448	2.17272	0.005	0.076	0.07	473.5164	0.153
Rollers	2023	251	500	0.25159	0.211	1.95626	2.29003	0.005	0.093	0.085	478.3028	0.155
Rollers	2024	6	15	0.738433	0.62	4.20667	3.82449	0.005	0.192	0.177	525.9565	0.17
Rollers	2024	16	25	0.738433	0.62	4.20667	3.82449	0.005	0.192	0.177	525.9565	0.17
Rollers	2024	26	50	0.738433	0.62	4.20667	3.82449	0.005	0.192	0.177	525.9565	0.17
Rollers	2024	51	120	0.323417	0.272	3.45055	2.843	0.005	0.15	0.138	474.0072	0.153
Rollers	2024	121	175	0.168235	0.141	2.91426	1.32428	0.005	0.061	0.056	472.012	0.153
Rollers	2024	176	250	0.213553	0.179	1.21417	1.97675	0.005	0.07	0.064	473.512	0.153
Rollers	2024	251	500	0.24978	0.21	1.96121	2.21612	0.005	0.09	0.083	477.9001	0.155
Rollers	2025	6	15	0.677074	0.569	4.12543	3.68893	0.005	0.167	0.154	526.1406	0.17
Rollers	2025	16	25	0.677074	0.569	4.12543	3.68893	0.005	0.167	0.154	526.1406	0.17
Rollers	2025	26	50	0.677074	0.569	4.12543	3.68893	0.005	0.167	0.154	526.1406	0.17
Rollers	2025	51	120	0.303987	0.255	3.44432	2.69137	0.005	0.135	0.125	473.851	0.153
Rollers	2025	121	175	0.150791	0.127	2.90859	1.10088	0.005	0.049	0.045	471.9696	0.153
Rollers	2025	176	250	0.205768	0.173	1.21477	1.78252	0.005	0.066	0.06	473.6813	0.153
Rollers	2025	251	500	0.251787	0.212	1.96754	2.19998	0.005	0.09	0.083	477.5732	0.154
Rollers	2030	6	15	1.543	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Rollers	2030	16	25	3.377	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Rollers	2030	26	50	5.638	0.587	4.784	3.48	0.007	0.073	0.073	568.299	0.053

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rollers	2030	51	120	6.528	0.299	3.639	1.95	0.006	0.066	0.066	568.299	0.027
Rollers	2030	121	175	8.923	0.223	3.203	0.907	0.006	0.042	0.042	568.299	0.02
Rollers	2030	176	250	11.047	0.195	1.099	0.745	0.006	0.024	0.024	568.299	0.017
Rollers	2030	251	500	15.637	0.193	1.056	0.697	0.005	0.023	0.023	568.299	0.017
Rollers	2035	6	15	1.543	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Rollers	2035	16	25	3.377	0.685	2.34	4.332	0.007	0.161	0.161	568.3	0.061
Rollers	2035	26	50	4.867	0.507	4.711	3.28	0.007	0.038	0.038	568.299	0.045
Rollers	2035	51	120	5.632	0.258	3.629	1.65	0.006	0.035	0.035	568.299	0.023
Rollers	2035	121	175	7.351	0.184	3.204	0.523	0.006	0.023	0.023	568.299	0.016
Rollers	2035	176	250	9.79	0.173	1.091	0.465	0.006	0.016	0.016	568.299	0.015
Rollers	2035	251	500	13.949	0.172	1.048	0.442	0.005	0.016	0.016	568.3	0.015
Rollers	2040	6	15	1.543	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Rollers	2040	16	25	3.377	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Rollers	2040	26	50	4.508	0.469	4.682	3.207	0.007	0.024	0.024	568.299	0.042
Rollers	2040	51	120	5.228	0.24	3.625	1.525	0.006	0.021	0.021	568.299	0.021
Rollers	2040	121	175	6.731	0.168	3.205	0.373	0.006	0.015	0.015	568.299	0.015
Rollers	2040	176	250	9.355	0.165	1.092	0.348	0.006	0.012	0.012	568.299	0.014
Rollers	2040	251	500	13.378	0.165	1.048	0.341	0.005	0.012	0.012	568.299	0.014
Rough Terrain Forklifts	1990	26	50	13.299	5.191	10.416	8.098	0.871	1.348	1.348	568.299	0.468
Rough Terrain Forklifts	1990	51	120	11.91	2.52	6.008	15.753	0.791	1.432	1.432	568.299	0.227
Rough Terrain Forklifts	1990	121	175	19.775	2.092	5.422	15.888	0.758	1.178	1.178	568.299	0.188
Rough Terrain Forklifts	1990	176	250	27.042	2.092	5.422	15.888	0.758	1.178	1.178	568.299	0.188
Rough Terrain Forklifts	1990	251	500	35.607	1.834	12.637	14.986	0.662	0.998	0.998	568.299	0.165
Rough Terrain Forklifts	2000	26	50	11.216	4.378	9.045	7.041	0.066	0.919	0.919	568.3	0.395
Rough Terrain Forklifts	2000	51	120	8.517	1.802	4.574	10.225	0.06	0.881	0.881	568.299	0.162
Rough Terrain Forklifts	2000	121	175	11.484	1.215	3.676	9.36	0.057	0.511	0.511	568.3	0.109
Rough Terrain Forklifts	2000	176	250	13.186	1.02	2.927	9.021	0.057	0.418	0.418	568.299	0.092
Rough Terrain Forklifts	2000	251	500	18.049	0.929	4.415	8.59	0.05	0.37	0.37	568.299	0.083
Rough Terrain Forklifts	2005	26	50	9.835	3.839	8.285	6.528	0.066	0.844	0.844	568.299	0.346
Rough Terrain Forklifts	2005	51	120	7.351	1.555	4.289	8.677	0.06	0.82	0.82	568.299	0.14
Rough Terrain Forklifts	2005	121	175	9.61	1.016	3.403	7.941	0.057	0.447	0.447	568.3	0.091
Rough Terrain Forklifts	2005	176	250	9.418	0.728	1.995	7.52	0.057	0.289	0.289	568.299	0.065
Rough Terrain Forklifts	2005	251	500	12.496	0.643	2.406	6.82	0.05	0.258	0.258	568.299	0.058
Rough Terrain Forklifts	2010	26	50	1.514602	1.273	4.9076	5.57504	0.005	0.495	0.455	583.8316	0.17
Rough Terrain Forklifts	2010	51	120	0.607871	0.511	3.47103	5.81073	0.005	0.386	0.355	525.5318	0.153
Rough Terrain Forklifts	2010	121	175	0.37661	0.316	2.9137	4.78775	0.005	0.212	0.195	524.1127	0.153
Rough Terrain Forklifts	2010	176	250	0.759196	0.638	2.86785	7.87723	0.005	0.351	0.323	527.6921	0.154
Rough Terrain Forklifts	2010	251	500	0.386691	0.325	1.82955	5.79984	0.005	0.168	0.155	518.8116	0.151
Rough Terrain Forklifts	2011	26	50	1.444446	1.214	4.83823	5.52279	0.005	0.48	0.442	582.3751	0.17
Rough Terrain Forklifts	2011	51	120	0.549079	0.461	3.4365	5.4371	0.005	0.352	0.324	524.0504	0.153
Rough Terrain Forklifts	2011	121	175	0.339518	0.285	2.87624	4.45534	0.005	0.193	0.177	522.735	0.153
Rough Terrain Forklifts	2011	176	250	0.686556	0.577	2.63351	7.1588	0.005	0.317	0.292	525.8441	0.153
Rough Terrain Forklifts	2011	251	500	0.390538	0.328	1.84589	5.81691	0.005	0.17	0.156	517.5182	0.151
Rough Terrain Forklifts	2012	26	50	1.441034	1.211	4.88018	5.49331	0.005	0.476	0.438	580.9231	0.17
Rough Terrain Forklifts	2012	51	120	0.530399	0.446	3.43501	5.29115	0.005	0.34	0.312	522.6299	0.153
Rough Terrain Forklifts	2012	121	175	0.336361	0.283	2.88643	4.38447	0.005	0.189	0.174	521.4414	0.153
Rough Terrain Forklifts	2012	176	250	0.693119	0.582	2.65596	7.11155	0.005	0.319	0.293	524.4406	0.153
Rough Terrain Forklifts	2012	251	500	0.394706	0.332	1.86253	5.83389	0.005	0.171	0.157	516.2249	0.151
Rough Terrain Forklifts	2013	26	50	1.427232	1.199	4.88715	5.34043	0.005	0.454	0.417	578.2559	0.17
Rough Terrain Forklifts	2013	51	120	0.469882	0.395	3.39906	4.92337	0.005	0.299	0.275	519.906	0.153
Rough Terrain Forklifts	2013	121	175	0.283862	0.239	2.86094	3.90677	0.005	0.153	0.141	518.7027	0.153
Rough Terrain Forklifts	2013	176	250	0.418518	0.352	1.88921	4.79966	0.005	0.184	0.169	521.6392	0.153
Rough Terrain Forklifts	2013	251	500	0.334838	0.281	1.86541	4.62017	0.005	0.141	0.129	514.2815	0.151
Rough Terrain Forklifts	2014	26	50	1.40671	1.182	4.88713	5.22634	0.005	0.436	0.401	575.3526	0.17
Rough Terrain Forklifts	2014	51	120	0.417386	0.351	3.36705	4.46728	0.005	0.261	0.24	517.2602	0.153
Rough Terrain Forklifts	2014	121	175	0.263476	0.221	2.85182	3.59442	0.005	0.139	0.128	516.0907	0.153
Rough Terrain Forklifts	2014	176	250	0.221616	0.186	1.21218	2.98369	0.005	0.087	0.08	517.7663	0.153
Rough Terrain Forklifts	2014	251	500	0.202465	0.17	0.95399	3.49973	0.005	0.076	0.07	511.6567	0.151
Rough Terrain Forklifts	2015	26	50	1.414803	1.189	4.93325	5.18984	0.005	0.431	0.397	569.4875	0.17
Rough Terrain Forklifts	2015	51	120	0.401892	0.338	3.36619	4.28003	0.005	0.247	0.228	512.0859	0.153
Rough Terrain Forklifts	2015	121	175	0.25808	0.217	2.85917	3.42042	0.005	0.133	0.122	510.8541	0.153
Rough Terrain Forklifts	2015	176	250	0.166466	0.14	1.01164	2.4626	0.005	0.058	0.054	512.1638	0.153
Rough Terrain Forklifts	2015	251	500	0.207111	0.174	0.95822	3.52067	0.005	0.077	0.071	506.4349	0.151
Rough Terrain Forklifts	2016	26	50	1.378654	1.158	4.91773	5.09924	0.005	0.415	0.382	563.3598	0.17
Rough Terrain Forklifts	2016	51	120	0.358928	0.302	3.34169	3.84005	0.005	0.213	0.196	507.0659	0.153
Rough Terrain Forklifts	2016	121	175	0.248476	0.209	2.865	3.2087	0.005	0.124	0.114	505.596	0.153
Rough Terrain Forklifts	2016	176	250	0.171278	0.144	1.0177	2.46843	0.005	0.059	0.054	506.8956	0.153
Rough Terrain Forklifts	2016	251	500	0.211667	0.178	0.96236	3.54169	0.005	0.078	0.072	501.2134	0.151
Rough Terrain Forklifts	2017	26	50	1.318488	1.108	4.83344	4.90253	0.005	0.382	0.352	554.6234	0.17
Rough Terrain Forklifts	2017	51	120	0.322506	0.271	3.31778	3.41759	0.005	0.182	0.167	499.1682	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rough Terrain Forklifts	2017	121	175	0.231401	0.194	2.86636	2.90167	0.005	0.112	0.103	497.7766	0.153
Rough Terrain Forklifts	2017	176	250	0.175965	0.148	1.02362	2.47389	0.005	0.059	0.054	499.0007	0.153
Rough Terrain Forklifts	2017	251	500	0.216551	0.182	0.96636	3.56771	0.005	0.079	0.073	493.3362	0.151
Rough Terrain Forklifts	2018	26	50	1.273116	1.07	4.76839	4.73469	0.005	0.359	0.33	545.8693	0.17
Rough Terrain Forklifts	2018	51	120	0.264415	0.222	3.26976	2.84496	0.005	0.136	0.125	491.2107	0.153
Rough Terrain Forklifts	2018	121	175	0.194786	0.164	2.84245	2.34168	0.005	0.088	0.081	489.9869	0.153
Rough Terrain Forklifts	2018	176	250	0.181003	0.152	1.02948	2.48748	0.005	0.06	0.055	491.0997	0.153
Rough Terrain Forklifts	2018	251	500	0.172771	0.145	0.95802	2.70063	0.005	0.06	0.055	485.9543	0.151
Rough Terrain Forklifts	2019	26	50	1.200779	1.009	4.67405	4.55745	0.005	0.328	0.301	537.3287	0.17
Rough Terrain Forklifts	2019	51	120	0.240277	0.202	3.25848	2.6222	0.005	0.117	0.107	483.3105	0.153
Rough Terrain Forklifts	2019	121	175	0.177689	0.149	2.84092	2.05752	0.005	0.075	0.069	482.1188	0.153
Rough Terrain Forklifts	2019	176	250	0.130153	0.109	0.97423	1.63905	0.005	0.036	0.033	483.0882	0.153
Rough Terrain Forklifts	2019	251	500	0.138302	0.116	0.95034	1.96109	0.005	0.043	0.039	477.2539	0.151
Rough Terrain Forklifts	2020	26	50	1.188595	0.999	4.68594	4.4946	0.005	0.316	0.291	525.6222	0.17
Rough Terrain Forklifts	2020	51	120	0.225188	0.189	3.25575	2.45218	0.005	0.103	0.094	472.9842	0.153
Rough Terrain Forklifts	2020	121	175	0.170092	0.143	2.84466	1.86888	0.005	0.068	0.063	471.7152	0.153
Rough Terrain Forklifts	2020	176	250	0.132727	0.112	0.97848	1.60906	0.005	0.037	0.034	472.5671	0.153
Rough Terrain Forklifts	2020	251	500	0.105484	0.089	0.94184	1.30199	0.005	0.028	0.026	465.7709	0.151
Rough Terrain Forklifts	2021	26	50	1.152538	0.968	4.65658	4.41145	0.005	0.304	0.279	525.3844	0.17
Rough Terrain Forklifts	2021	51	120	0.207836	0.175	3.25191	2.28534	0.005	0.089	0.081	473.11	0.153
Rough Terrain Forklifts	2021	121	175	0.154972	0.13	2.8447	1.61661	0.005	0.06	0.055	471.7575	0.153
Rough Terrain Forklifts	2021	176	250	0.136824	0.115	0.98379	1.61186	0.005	0.037	0.034	472.5469	0.153
Rough Terrain Forklifts	2021	251	500	0.109168	0.092	0.94604	1.30199	0.005	0.028	0.026	465.7442	0.151
Rough Terrain Forklifts	2022	26	50	0.93878	0.789	4.3038	4.04131	0.005	0.238	0.219	525.0151	0.17
Rough Terrain Forklifts	2022	51	120	0.18871	0.159	3.24374	2.0983	0.005	0.073	0.067	473.089	0.153
Rough Terrain Forklifts	2022	121	175	0.142314	0.12	2.84439	1.40475	0.005	0.051	0.047	471.6773	0.153
Rough Terrain Forklifts	2022	176	250	0.140994	0.118	0.98924	1.61688	0.005	0.037	0.034	472.5408	0.153
Rough Terrain Forklifts	2022	251	500	0.081218	0.068	0.93709	0.55798	0.005	0.009	0.008	466.5598	0.151
Rough Terrain Forklifts	2023	26	50	0.82158	0.69	4.12519	3.85338	0.005	0.204	0.187	524.8024	0.17
Rough Terrain Forklifts	2023	51	120	0.178416	0.15	3.24217	1.9836	0.005	0.064	0.059	473.1584	0.153
Rough Terrain Forklifts	2023	121	175	0.132417	0.111	2.84289	1.21796	0.005	0.043	0.04	471.6217	0.153
Rough Terrain Forklifts	2023	176	250	0.137509	0.116	0.98987	1.47399	0.005	0.034	0.032	472.7784	0.153
Rough Terrain Forklifts	2023	251	500	0.082146	0.069	0.93788	0.55845	0.005	0.009	0.008	466.554	0.151
Rough Terrain Forklifts	2024	26	50	0.678189	0.57	3.91822	3.65343	0.005	0.166	0.152	524.9235	0.17
Rough Terrain Forklifts	2024	51	120	0.172725	0.145	3.24468	1.91392	0.005	0.058	0.054	473.0631	0.153
Rough Terrain Forklifts	2024	121	175	0.122467	0.103	2.83416	1.04413	0.005	0.039	0.035	471.5346	0.153
Rough Terrain Forklifts	2024	176	250	0.141528	0.119	0.99524	1.48012	0.005	0.035	0.032	472.8527	0.153
Rough Terrain Forklifts	2024	251	500	0.078846	0.066	0.93746	0.47582	0.005	0.009	0.008	466.5479	0.151
Rough Terrain Forklifts	2025	26	50	0.542352	0.456	3.74002	3.47668	0.005	0.128	0.118	525.027	0.17
Rough Terrain Forklifts	2025	51	120	0.16354	0.137	3.23971	1.82053	0.005	0.051	0.047	473.0366	0.153
Rough Terrain Forklifts	2025	121	175	0.103861	0.087	2.82091	0.78628	0.005	0.03	0.028	471.4745	0.152
Rough Terrain Forklifts	2025	176	250	0.145736	0.122	1.00073	1.48888	0.005	0.035	0.033	472.9267	0.153
Rough Terrain Forklifts	2025	251	500	0.081817	0.069	0.94151	0.47663	0.005	0.009	0.008	466.5414	0.151
Rough Terrain Forklifts	2030	26	50	1.404	0.548	5.031	3.359	0.007	0.039	0.039	568.299	0.049
Rough Terrain Forklifts	2030	51	120	1.321	0.279	3.725	1.671	0.006	0.034	0.034	568.299	0.025
Rough Terrain Forklifts	2030	121	175	1.898	0.2	3.291	0.537	0.006	0.023	0.023	568.299	0.018
Rough Terrain Forklifts	2030	176	250	2.47	0.191	1.121	0.463	0.006	0.016	0.016	568.299	0.017
Rough Terrain Forklifts	2030	251	500	3.702	0.19	1.07	0.443	0.005	0.016	0.016	568.3	0.017
Rough Terrain Forklifts	2035	26	50	1.335	0.521	5.011	3.267	0.007	0.022	0.022	568.299	0.047
Rough Terrain Forklifts	2035	51	120	1.24	0.262	3.722	1.53	0.006	0.02	0.02	568.299	0.023
Rough Terrain Forklifts	2035	121	175	1.742	0.184	3.292	0.364	0.006	0.015	0.015	568.299	0.016
Rough Terrain Forklifts	2035	176	250	2.346	0.181	1.121	0.334	0.006	0.012	0.012	568.299	0.016
Rough Terrain Forklifts	2035	251	500	3.524	0.181	1.071	0.331	0.005	0.012	0.012	568.3	0.016
Rough Terrain Forklifts	2040	26	50	1.331	0.519	5.01	3.228	0.007	0.017	0.017	568.3	0.046
Rough Terrain Forklifts	2040	51	120	1.222	0.258	3.722	1.485	0.006	0.016	0.016	568.299	0.023
Rough Terrain Forklifts	2040	121	175	1.687	0.178	3.292	0.303	0.006	0.012	0.012	568.3	0.016
Rough Terrain Forklifts	2040	176	250	2.296	0.177	1.121	0.292	0.006	0.011	0.011	568.299	0.016
Rough Terrain Forklifts	2040	251	500	3.449	0.177	1.071	0.292	0.005	0.011	0.011	568.299	0.016
Rubber Tired Dozers	1990	121	175	6.172	1.886	5.29	14.831	0.758	1.059	1.059	568.299	0.17
Rubber Tired Dozers	1990	176	250	8.746	1.886	5.29	14.831	0.758	1.059	1.059	568.299	0.17
Rubber Tired Dozers	1990	251	500	11.084	1.655	12.26	13.986	0.662	0.899	0.899	568.299	0.149
Rubber Tired Dozers	1990	501	750	16.688	1.655	12.26	13.986	1.018	0.915	0.915	568.3	0.149
Rubber Tired Dozers	1990	751	1000	24.619	1.645	12.26	13.986	1.018	0.903	0.903	568.299	0.148
Rubber Tired Dozers	2000	121	175	4.761	1.454	4.295	10.881	0.057	0.624	0.624	568.299	0.131
Rubber Tired Dozers	2000	176	250	6.043	1.303	3.733	10.625	0.057	0.548	0.548	568.299	0.117
Rubber Tired Dozers	2000	251	500	7.775	1.161	6.982	10.023	0.05	0.474	0.474	568.299	0.104
Rubber Tired Dozers	2000	501	750	11.706	1.161	6.982	10.023	0.052	0.474	0.474	568.3	0.104
Rubber Tired Dozers	2000	751	1000	17.842	1.192	7.415	10.456	0.052	0.451	0.451	568.3	0.107
Rubber Tired Dozers	2005	121	175	4.21	1.286	4.026	9.666	0.057	0.567	0.567	568.299	0.116
Rubber Tired Dozers	2005	176	250	4.912	1.059	2.99	9.344	0.057	0.437	0.437	568.299	0.095

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rubber Tired Dozers	2005	251	500	6.277	0.937	5.159	8.574	0.05	0.38	0.38	568.299	0.084
Rubber Tired Dozers	2005	501	750	9.496	0.942	5.15	8.694	0.052	0.382	0.382	568.299	0.085
Rubber Tired Dozers	2005	751	1000	14.937	0.998	5.524	9.444	0.052	0.369	0.369	568.299	0.09
Rubber Tired Dozers	2010	121	175	1.12265	0.943	4.17063	9.78349	0.005	0.555	0.511	526.3128	0.153
Rubber Tired Dozers	2010	176	250	0.840919	0.707	2.68761	8.22344	0.005	0.394	0.362	527.9126	0.154
Rubber Tired Dozers	2010	251	500	0.88356	0.742	6.7191	8.70703	0.005	0.406	0.374	533.1476	0.155
Rubber Tired Dozers	2010	501	750	0.619996	0.521	3.1214	7.42352	0.005	0.269	0.248	525.7054	0.153
Rubber Tired Dozers	2010	751	1000	12.178	0.814	4.027	8.149	0.005	0.29	0.29	568.299	0.073
Rubber Tired Dozers	2011	121	175	1.128595	0.948	4.18594	9.7992	0.005	0.557	0.513	524.9639	0.153
Rubber Tired Dozers	2011	176	250	0.852039	0.716	2.69892	8.24976	0.005	0.396	0.364	526.5967	0.154
Rubber Tired Dozers	2011	251	500	0.878525	0.738	6.65601	8.60406	0.005	0.402	0.37	532.0871	0.155
Rubber Tired Dozers	2011	501	750	0.62921	0.529	3.13084	7.4622	0.005	0.272	0.25	524.3841	0.153
Rubber Tired Dozers	2011	751	1000	11.693	0.781	3.772	7.805	0.005	0.276	0.276	568.299	0.07
Rubber Tired Dozers	2012	121	175	1.133798	0.953	4.1998	9.81194	0.005	0.559	0.515	523.6318	0.153
Rubber Tired Dozers	2012	176	250	0.862577	0.725	2.70943	8.27234	0.005	0.398	0.366	525.281	0.154
Rubber Tired Dozers	2012	251	500	0.883165	0.742	6.62489	8.58436	0.005	0.401	0.369	530.6589	0.155
Rubber Tired Dozers	2012	501	750	0.635938	0.534	3.13648	7.48052	0.005	0.274	0.252	523.0626	0.153
Rubber Tired Dozers	2012	751	1000	11.228	0.75	3.531	7.474	0.005	0.262	0.262	568.299	0.067
Rubber Tired Dozers	2013	121	175	1.138698	0.957	4.21297	9.82334	0.005	0.561	0.516	520.9836	0.153
Rubber Tired Dozers	2013	176	250	0.859983	0.723	2.71092	8.10695	0.005	0.395	0.363	522.6456	0.154
Rubber Tired Dozers	2013	251	500	0.864011	0.726	6.42295	8.33658	0.005	0.39	0.359	527.9093	0.155
Rubber Tired Dozers	2013	501	750	0.641687	0.539	3.14069	7.49129	0.005	0.275	0.253	520.4266	0.153
Rubber Tired Dozers	2013	751	1000	10.78	0.72	3.306	7.155	0.005	0.249	0.249	568.299	0.065
Rubber Tired Dozers	2014	121	175	1.143391	0.961	4.22564	9.83401	0.005	0.563	0.518	518.335	0.153
Rubber Tired Dozers	2014	176	250	0.858402	0.721	2.71199	7.97218	0.005	0.392	0.361	520.0105	0.154
Rubber Tired Dozers	2014	251	500	0.841688	0.707	6.16471	8.05819	0.005	0.376	0.346	524.6758	0.155
Rubber Tired Dozers	2014	501	750	0.610646	0.513	2.75605	7.14705	0.005	0.258	0.237	517.7903	0.153
Rubber Tired Dozers	2014	751	1000	10.347	0.691	3.096	6.849	0.005	0.236	0.236	568.3	0.062
Rubber Tired Dozers	2015	121	175	1.147937	0.965	4.23794	9.84425	0.005	0.564	0.519	513.0549	0.153
Rubber Tired Dozers	2015	176	250	0.866859	0.728	2.7204	7.9837	0.005	0.394	0.362	514.7359	0.154
Rubber Tired Dozers	2015	251	500	0.842228	0.708	6.10151	7.99736	0.005	0.373	0.343	519.1472	0.155
Rubber Tired Dozers	2015	501	750	0.616719	0.518	2.76062	7.15777	0.005	0.259	0.238	512.5253	0.153
Rubber Tired Dozers	2015	751	1000	9.895	0.661	2.901	6.556	0.005	0.222	0.222	568.299	0.059
Rubber Tired Dozers	2016	121	175	1.152013	0.968	4.24901	9.85328	0.005	0.566	0.52	507.7744	0.153
Rubber Tired Dozers	2016	176	250	0.875531	0.736	2.72943	7.99508	0.005	0.395	0.364	509.4615	0.154
Rubber Tired Dozers	2016	251	500	0.819146	0.688	5.82829	7.71034	0.005	0.359	0.33	513.3109	0.155
Rubber Tired Dozers	2016	501	750	0.622662	0.523	2.7651	7.16821	0.005	0.26	0.239	507.2601	0.153
Rubber Tired Dozers	2016	751	1000	9.45	0.631	2.723	6.277	0.005	0.208	0.208	568.3	0.057
Rubber Tired Dozers	2017	121	175	1.074198	0.903	4.14895	9.12915	0.005	0.525	0.483	499.4096	0.153
Rubber Tired Dozers	2017	176	250	0.840865	0.707	2.65514	7.67081	0.005	0.375	0.345	501.5475	0.154
Rubber Tired Dozers	2017	251	500	0.787455	0.662	5.52569	7.33345	0.005	0.341	0.313	505.8493	0.155
Rubber Tired Dozers	2017	501	750	0.625767	0.526	2.76746	7.17226	0.005	0.26	0.239	499.3665	0.153
Rubber Tired Dozers	2017	751	1000	9.018	0.602	2.56	6.013	0.005	0.195	0.195	568.299	0.054
Rubber Tired Dozers	2018	121	175	0.954751	0.802	3.98965	8.02079	0.005	0.46	0.424	491.4921	0.153
Rubber Tired Dozers	2018	176	250	0.796398	0.669	2.51156	7.20787	0.005	0.35	0.322	493.6337	0.154
Rubber Tired Dozers	2018	251	500	0.71175	0.598	4.98205	6.50184	0.005	0.3	0.276	498.1862	0.155
Rubber Tired Dozers	2018	501	750	0.602699	0.506	2.75902	6.72652	0.005	0.248	0.228	491.4726	0.153
Rubber Tired Dozers	2018	751	1000	8.6	0.574	2.413	5.764	0.005	0.183	0.183	568.299	0.051
Rubber Tired Dozers	2019	121	175	0.90312	0.759	3.94854	7.52037	0.005	0.433	0.398	483.5585	0.153
Rubber Tired Dozers	2019	176	250	0.774882	0.651	2.45855	6.92923	0.005	0.338	0.311	485.172	0.154
Rubber Tired Dozers	2019	251	500	0.680848	0.572	4.74309	6.14335	0.005	0.283	0.26	490.383	0.155
Rubber Tired Dozers	2019	501	750	0.541107	0.455	2.59814	6.12249	0.005	0.218	0.201	483.5786	0.153
Rubber Tired Dozers	2019	751	1000	8.196	0.547	2.281	5.528	0.005	0.171	0.171	568.299	0.049
Rubber Tired Dozers	2020	121	175	0.864425	0.726	3.89288	7.18525	0.005	0.411	0.378	473.0116	0.153
Rubber Tired Dozers	2020	176	250	0.737248	0.619	2.37104	6.50332	0.005	0.318	0.293	474.7928	0.154
Rubber Tired Dozers	2020	251	500	0.636621	0.535	4.41134	5.64089	0.005	0.259	0.238	479.7569	0.155
Rubber Tired Dozers	2020	501	750	0.543245	0.456	2.60108	6.12255	0.005	0.218	0.201	473.0562	0.153
Rubber Tired Dozers	2020	751	1000	7.811	0.522	2.164	5.306	0.005	0.16	0.16	568.299	0.047
Rubber Tired Dozers	2021	121	175	0.822557	0.691	3.84814	6.79037	0.005	0.386	0.355	472.9751	0.153
Rubber Tired Dozers	2021	176	250	0.714624	0.6	2.31719	6.29617	0.005	0.306	0.281	474.7984	0.154
Rubber Tired Dozers	2021	251	500	0.585817	0.492	4.04107	5.081	0.005	0.232	0.214	478.9868	0.155
Rubber Tired Dozers	2021	501	750	0.545338	0.458	2.60396	6.12254	0.005	0.218	0.201	473.0459	0.153
Rubber Tired Dozers	2021	751	1000	7.448	0.497	2.057	5.095	0.005	0.15	0.15	568.299	0.044
Rubber Tired Dozers	2022	121	175	0.714312	0.6	3.75194	5.80781	0.005	0.326	0.3	473.9122	0.153
Rubber Tired Dozers	2022	176	250	0.571708	0.48	2.05563	5.04648	0.005	0.24	0.22	474.6166	0.154
Rubber Tired Dozers	2022	251	500	0.565033	0.475	3.89489	4.80775	0.005	0.22	0.202	479.3107	0.155
Rubber Tired Dozers	2022	501	750	0.547387	0.46	2.60677	6.12245	0.005	0.218	0.201	473.035	0.153
Rubber Tired Dozers	2022	751	1000	7.106	0.475	1.961	4.896	0.005	0.14	0.14	568.299	0.042
Rubber Tired Dozers	2023	121	175	0.700073	0.588	3.7664	5.65638	0.005	0.316	0.291	473.9009	0.153
Rubber Tired Dozers	2023	176	250	0.467601	0.393	1.78266	4.09011	0.005	0.184	0.169	474.5967	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rubber Tired Dozers	2023	251	500	0.531484	0.447	3.68617	4.40835	0.005	0.202	0.185	479.4678	0.155
Rubber Tired Dozers	2023	501	750	0.502999	0.423	2.59131	5.33389	0.005	0.196	0.18	473.0234	0.153
Rubber Tired Dozers	2023	751	1000	6.786	0.453	1.874	4.709	0.005	0.131	0.131	568.299	0.04
Rubber Tired Dozers	2024	121	175	0.633623	0.532	3.69636	5.0144	0.005	0.279	0.257	473.5147	0.153
Rubber Tired Dozers	2024	176	250	0.474702	0.399	1.79685	4.0904	0.005	0.184	0.17	474.5854	0.153
Rubber Tired Dozers	2024	251	500	0.495724	0.417	3.45746	4.03046	0.005	0.182	0.168	479.3938	0.155
Rubber Tired Dozers	2024	501	750	0.506146	0.425	2.59604	5.33372	0.005	0.196	0.18	473.0111	0.153
Rubber Tired Dozers	2024	751	1000	6.485	0.433	1.796	4.532	0.005	0.123	0.123	568.299	0.039
Rubber Tired Dozers	2025	121	175	0.548636	0.461	3.61238	4.22886	0.005	0.23	0.212	474.1029	0.153
Rubber Tired Dozers	2025	176	250	0.442605	0.372	1.72032	3.80547	0.005	0.167	0.153	474.5734	0.153
Rubber Tired Dozers	2025	251	500	0.436562	0.367	2.95895	3.36957	0.005	0.151	0.139	479.0915	0.155
Rubber Tired Dozers	2025	501	750	0.509225	0.428	2.60066	5.33346	0.005	0.196	0.18	472.9981	0.153
Rubber Tired Dozers	2025	751	1000	6.203	0.414	1.725	4.365	0.005	0.115	0.115	568.299	0.037
Rubber Tired Dozers	2030	121	175	1.303	0.398	3.496	2.034	0.006	0.111	0.111	568.299	0.035
Rubber Tired Dozers	2030	176	250	1.556	0.335	1.322	1.828	0.006	0.069	0.069	568.299	0.03
Rubber Tired Dozers	2030	251	500	2.16	0.322	1.401	1.658	0.005	0.064	0.064	568.299	0.029
Rubber Tired Dozers	2030	501	750	3.261	0.323	1.401	1.694	0.005	0.064	0.064	568.299	0.029
Rubber Tired Dozers	2030	751	1000	5.063	0.338	1.465	3.676	0.005	0.082	0.082	568.299	0.03
Rubber Tired Dozers	2035	121	175	1.054	0.322	3.481	1.345	0.006	0.071	0.071	568.299	0.029
Rubber Tired Dozers	2035	176	250	1.326	0.286	1.262	1.203	0.006	0.046	0.046	568.299	0.025
Rubber Tired Dozers	2035	251	500	1.868	0.279	1.279	1.107	0.005	0.043	0.043	568.3	0.025
Rubber Tired Dozers	2035	501	750	2.816	0.279	1.279	1.126	0.005	0.043	0.043	568.299	0.025
Rubber Tired Dozers	2035	751	1000	4.306	0.287	1.312	3.204	0.005	0.06	0.06	568.299	0.025
Rubber Tired Dozers	2040	121	175	0.9	0.275	3.47	0.903	0.006	0.045	0.045	568.299	0.024
Rubber Tired Dozers	2040	176	250	1.176	0.253	1.225	0.81	0.006	0.031	0.031	568.299	0.022
Rubber Tired Dozers	2040	251	500	1.672	0.249	1.198	0.758	0.005	0.029	0.029	568.299	0.022
Rubber Tired Dozers	2040	501	750	2.519	0.25	1.198	0.767	0.005	0.029	0.029	568.3	0.022
Rubber Tired Dozers	2040	751	1000	3.814	0.254	1.218	2.91	0.005	0.045	0.045	568.3	0.023
Rubber Tired Loaders	1990	16	25	5.92	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Rubber Tired Loaders	1990	26	50	23.869	4.848	9.805	7.964	0.871	1.279	1.279	568.299	0.437
Rubber Tired Loaders	1990	51	120	22.055	2.368	5.728	14.978	0.791	1.345	1.345	568.299	0.213
Rubber Tired Loaders	1990	121	175	30.1	1.791	5.094	14.294	0.758	0.995	0.995	568.299	0.161
Rubber Tired Loaders	1990	176	250	42.179	1.791	5.094	14.294	0.758	0.995	0.995	568.3	0.161
Rubber Tired Loaders	1990	251	500	59.295	1.583	11.282	13.545	0.662	0.851	0.851	568.3	0.142
Rubber Tired Loaders	1990	501	750	121.471	1.583	11.282	13.545	1.018	0.867	0.867	568.299	0.142
Rubber Tired Loaders	1990	751	1000	147.851	1.575	11.282	13.545	1.018	0.858	0.858	568.299	0.142
Rubber Tired Loaders	2000	16	25	5.105	1.908	4.438	6.326	0.065	0.555	0.555	568.299	0.172
Rubber Tired Loaders	2000	26	50	21.853	4.439	9.15	7.065	0.066	0.928	0.928	568.299	0.4
Rubber Tired Loaders	2000	51	120	17.155	1.842	4.652	10.433	0.06	0.896	0.896	568.299	0.166
Rubber Tired Loaders	2000	121	175	20.951	1.246	3.765	9.552	0.057	0.526	0.526	568.299	0.112
Rubber Tired Loaders	2000	176	250	24.776	1.052	3.019	9.216	0.057	0.433	0.433	568.299	0.094
Rubber Tired Loaders	2000	251	500	35.779	0.955	4.797	8.766	0.05	0.381	0.381	568.299	0.086
Rubber Tired Loaders	2000	501	750	73.296	0.955	4.797	8.766	0.052	0.381	0.381	568.299	0.086
Rubber Tired Loaders	2000	751	1000	95.549	1.018	5.369	9.342	0.052	0.372	0.372	568.299	0.091
Rubber Tired Loaders	2005	16	25	2.273	0.849	2.519	5.321	0.065	0.333	0.333	568.299	0.076
Rubber Tired Loaders	2005	26	50	19.43	3.947	8.471	6.59	0.066	0.86	0.86	568.299	0.356
Rubber Tired Loaders	2005	51	120	14.973	1.608	4.379	8.954	0.06	0.841	0.841	568.3	0.145
Rubber Tired Loaders	2005	121	175	17.677	1.052	3.496	8.183	0.057	0.464	0.464	568.299	0.094
Rubber Tired Loaders	2005	176	250	18.23	0.774	2.143	7.781	0.057	0.31	0.31	568.3	0.069
Rubber Tired Loaders	2005	251	500	25.602	0.683	2.836	7.066	0.05	0.275	0.275	568.3	0.061
Rubber Tired Loaders	2005	501	750	53.332	0.695	2.831	7.236	0.052	0.278	0.278	568.299	0.062
Rubber Tired Loaders	2005	751	1000	74.257	0.791	3.279	8.232	0.052	0.275	0.275	568.299	0.071
Rubber Tired Loaders	2010	16	25	2.807425	2.359	7.88269	6.29919	0.005	0.734	0.675	581.9969	0.169
Rubber Tired Loaders	2010	26	50	2.807425	2.359	7.88269	6.29919	0.005	0.734	0.675	581.9969	0.169
Rubber Tired Loaders	2010	51	120	1.132276	0.951	4.28386	7.85298	0.005	0.68	0.626	519.5038	0.151
Rubber Tired Loaders	2010	121	175	0.772004	0.649	3.56499	7.01127	0.005	0.387	0.356	523.9006	0.152
Rubber Tired Loaders	2010	176	250	0.475737	0.4	1.50852	5.94632	0.005	0.199	0.183	522.3501	0.152
Rubber Tired Loaders	2010	251	500	0.495122	0.416	2.61599	5.66307	0.005	0.211	0.194	521.885	0.152
Rubber Tired Loaders	2010	501	750	0.454547	0.382	2.10254	5.06362	0.005	0.197	0.181	507.2864	0.148
Rubber Tired Loaders	2010	751	1000	0.464861	0.391	1.45926	6.63966	0.005	0.187	0.172	523.2526	0.152
Rubber Tired Loaders	2011	16	25	2.679774	2.252	7.77095	6.24779	0.005	0.711	0.654	581.4262	0.17
Rubber Tired Loaders	2011	26	50	2.679774	2.252	7.77095	6.24779	0.005	0.711	0.654	581.4262	0.17
Rubber Tired Loaders	2011	51	120	1.113092	0.935	4.28739	7.68957	0.005	0.671	0.618	517.9363	0.151
Rubber Tired Loaders	2011	121	175	0.757164	0.636	3.57219	6.81375	0.005	0.378	0.348	522.5315	0.152
Rubber Tired Loaders	2011	176	250	0.481296	0.404	1.50155	5.87694	0.005	0.197	0.181	520.9732	0.152
Rubber Tired Loaders	2011	251	500	0.501144	0.421	2.56846	5.5868	0.005	0.209	0.192	520.154	0.152
Rubber Tired Loaders	2011	501	750	0.472712	0.397	2.12943	5.09397	0.005	0.2	0.184	505.881	0.148
Rubber Tired Loaders	2011	751	1000	0.476526	0.4	1.47057	6.69396	0.005	0.191	0.176	521.9232	0.152
Rubber Tired Loaders	2012	16	25	2.730745	2.295	7.96233	6.30427	0.005	0.724	0.666	579.9785	0.17
Rubber Tired Loaders	2012	26	50	2.730745	2.295	7.96233	6.30427	0.005	0.724	0.666	579.9785	0.17

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rubber Tired Loaders	2012	51	120	1.113822	0.936	4.31845	7.65616	0.005	0.671	0.617	516.6239	0.151
Rubber Tired Loaders	2012	121	175	0.765409	0.643	3.60616	6.79567	0.005	0.38	0.349	521.0995	0.152
Rubber Tired Loaders	2012	176	250	0.492248	0.414	1.51119	5.85805	0.005	0.198	0.182	519.646	0.152
Rubber Tired Loaders	2012	251	500	0.515336	0.433	2.59983	5.58714	0.005	0.211	0.194	518.7236	0.152
Rubber Tired Loaders	2012	501	750	0.485752	0.408	2.14848	5.07921	0.005	0.201	0.185	504.6824	0.148
Rubber Tired Loaders	2012	751	1000	0.48616	0.409	1.47877	6.73245	0.005	0.194	0.178	520.592	0.152
Rubber Tired Loaders	2013	16	25	2.60616	2.19	7.83573	6.18494	0.005	0.695	0.64	577.0156	0.17
Rubber Tired Loaders	2013	26	50	2.60616	2.19	7.83573	6.18494	0.005	0.695	0.64	577.0156	0.17
Rubber Tired Loaders	2013	51	120	1.087575	0.914	4.31523	7.47698	0.005	0.654	0.602	513.9368	0.151
Rubber Tired Loaders	2013	121	175	0.750707	0.631	3.60722	6.6063	0.005	0.369	0.339	518.3787	0.152
Rubber Tired Loaders	2013	176	250	0.496511	0.417	1.5142	5.75293	0.005	0.196	0.181	516.9736	0.152
Rubber Tired Loaders	2013	251	500	0.517428	0.435	2.55447	5.4738	0.005	0.208	0.191	515.9429	0.152
Rubber Tired Loaders	2013	501	750	0.49047	0.412	2.0823	4.99146	0.005	0.199	0.183	502.8589	0.148
Rubber Tired Loaders	2013	751	1000	0.484243	0.407	1.45163	6.66719	0.005	0.193	0.178	517.9506	0.152
Rubber Tired Loaders	2014	16	25	2.51646	2.115	7.7699	6.10324	0.005	0.676	0.622	573.5218	0.169
Rubber Tired Loaders	2014	26	50	2.51646	2.115	7.7699	6.10324	0.005	0.676	0.622	573.5218	0.169
Rubber Tired Loaders	2014	51	120	1.032758	0.868	4.26762	7.12932	0.005	0.619	0.569	510.0099	0.151
Rubber Tired Loaders	2014	121	175	0.720145	0.605	3.58536	6.27196	0.005	0.35	0.322	515.7685	0.152
Rubber Tired Loaders	2014	176	250	0.483874	0.407	1.48551	5.49539	0.005	0.187	0.172	514.2167	0.152
Rubber Tired Loaders	2014	251	500	0.501158	0.421	2.40656	5.19438	0.005	0.196	0.18	512.5095	0.151
Rubber Tired Loaders	2014	501	750	0.483251	0.406	1.94616	4.81047	0.005	0.19	0.175	499.6952	0.148
Rubber Tired Loaders	2014	751	1000	0.492279	0.414	1.45724	6.69249	0.005	0.195	0.179	515.307	0.152
Rubber Tired Loaders	2015	16	25	2.508512	2.108	7.83443	6.11232	0.005	0.675	0.621	567.672	0.169
Rubber Tired Loaders	2015	26	50	2.508512	2.108	7.83443	6.11232	0.005	0.675	0.621	567.672	0.169
Rubber Tired Loaders	2015	51	120	1.018295	0.856	4.27362	7.01153	0.005	0.606	0.558	505.0231	0.151
Rubber Tired Loaders	2015	121	175	0.708161	0.595	3.58815	6.09735	0.005	0.341	0.313	510.4677	0.152
Rubber Tired Loaders	2015	176	250	0.482642	0.406	1.47986	5.36927	0.005	0.183	0.169	508.9127	0.152
Rubber Tired Loaders	2015	251	500	0.494223	0.415	2.33208	5.0195	0.005	0.19	0.174	506.3723	0.151
Rubber Tired Loaders	2015	501	750	0.469822	0.395	1.78908	4.55578	0.005	0.179	0.165	495.31	0.148
Rubber Tired Loaders	2015	751	1000	0.499538	0.42	1.46167	6.71262	0.005	0.197	0.181	510.0449	0.152
Rubber Tired Loaders	2016	16	25	2.445921	2.055	7.79111	6.05258	0.005	0.66	0.607	561.9032	0.169
Rubber Tired Loaders	2016	26	50	2.445921	2.055	7.79111	6.05258	0.005	0.66	0.607	561.9032	0.169
Rubber Tired Loaders	2016	51	120	0.955142	0.803	4.21236	6.58334	0.005	0.565	0.52	499.5935	0.151
Rubber Tired Loaders	2016	121	175	0.67267	0.565	3.56236	5.72558	0.005	0.319	0.294	505.1308	0.152
Rubber Tired Loaders	2016	176	250	0.468005	0.393	1.45212	5.1151	0.005	0.174	0.16	503.6542	0.152
Rubber Tired Loaders	2016	251	500	0.465473	0.391	2.15506	4.62743	0.005	0.174	0.16	500.4314	0.151
Rubber Tired Loaders	2016	501	750	0.443728	0.373	1.70263	4.17165	0.005	0.164	0.151	491.9183	0.148
Rubber Tired Loaders	2016	751	1000	0.505153	0.424	1.46404	6.72411	0.005	0.198	0.182	504.7801	0.152
Rubber Tired Loaders	2017	16	25	2.32856	1.957	7.65953	5.95377	0.005	0.633	0.582	553.5831	0.17
Rubber Tired Loaders	2017	26	50	2.32856	1.957	7.65953	5.95377	0.005	0.633	0.582	553.5831	0.17
Rubber Tired Loaders	2017	51	120	0.900842	0.757	4.17083	6.23569	0.005	0.53	0.487	491.8531	0.151
Rubber Tired Loaders	2017	121	175	0.620654	0.522	3.5175	5.19525	0.005	0.289	0.266	497.3533	0.152
Rubber Tired Loaders	2017	176	250	0.443532	0.373	1.4172	4.75473	0.005	0.162	0.149	495.9499	0.152
Rubber Tired Loaders	2017	251	500	0.439436	0.369	2.06046	4.25314	0.005	0.16	0.147	492.2764	0.151
Rubber Tired Loaders	2017	501	750	0.436922	0.367	1.70044	4.05049	0.005	0.16	0.147	484.3661	0.148
Rubber Tired Loaders	2017	751	1000	0.493245	0.414	1.45641	6.55319	0.005	0.192	0.176	496.8966	0.152
Rubber Tired Loaders	2018	16	25	2.100538	1.765	7.29915	5.67925	0.005	0.576	0.53	545.0529	0.17
Rubber Tired Loaders	2018	26	50	2.100538	1.765	7.29915	5.67925	0.005	0.576	0.53	545.0529	0.17
Rubber Tired Loaders	2018	51	120	0.779856	0.655	4.04742	5.47032	0.005	0.452	0.416	484.0931	0.151
Rubber Tired Loaders	2018	121	175	0.533198	0.448	3.42332	4.36814	0.005	0.242	0.223	489.5114	0.152
Rubber Tired Loaders	2018	176	250	0.396861	0.333	1.34644	4.13133	0.005	0.14	0.129	487.9023	0.152
Rubber Tired Loaders	2018	251	500	0.397312	0.334	1.86807	3.72607	0.005	0.14	0.128	484.5709	0.151
Rubber Tired Loaders	2018	501	750	0.393495	0.331	1.55549	3.5437	0.005	0.14	0.129	476.5663	0.148
Rubber Tired Loaders	2018	751	1000	0.399711	0.336	1.21289	5.67315	0.005	0.154	0.142	488.4037	0.152
Rubber Tired Loaders	2019	16	25	1.906195	1.602	6.97769	5.43193	0.005	0.518	0.476	536.2254	0.17
Rubber Tired Loaders	2019	26	50	1.906195	1.602	6.97769	5.43193	0.005	0.518	0.476	536.2254	0.17
Rubber Tired Loaders	2019	51	120	0.707701	0.595	3.97887	5.00611	0.005	0.402	0.37	475.8636	0.151
Rubber Tired Loaders	2019	121	175	0.482139	0.405	3.38084	3.85918	0.005	0.213	0.196	481.7364	0.152
Rubber Tired Loaders	2019	176	250	0.368194	0.309	1.30248	3.74452	0.005	0.126	0.116	480.0997	0.152
Rubber Tired Loaders	2019	251	500	0.363843	0.306	1.7248	3.28755	0.005	0.123	0.113	477.0415	0.151
Rubber Tired Loaders	2019	501	750	0.348958	0.293	1.45157	3.01875	0.005	0.118	0.109	471.1874	0.149
Rubber Tired Loaders	2019	751	1000	0.384887	0.323	1.20834	5.45926	0.005	0.146	0.134	480.523	0.152
Rubber Tired Loaders	2020	16	25	1.761913	1.48	6.76793	5.25369	0.005	0.474	0.436	524.6967	0.17
Rubber Tired Loaders	2020	26	50	1.761913	1.48	6.76793	5.25369	0.005	0.474	0.436	524.6967	0.17
Rubber Tired Loaders	2020	51	120	0.661113	0.556	3.94839	4.68644	0.005	0.367	0.338	465.6735	0.151
Rubber Tired Loaders	2020	121	175	0.450696	0.379	3.36809	3.51735	0.005	0.194	0.178	471.2135	0.152
Rubber Tired Loaders	2020	176	250	0.345399	0.29	1.26885	3.42116	0.005	0.114	0.104	469.5127	0.152
Rubber Tired Loaders	2020	251	500	0.343959	0.289	1.6304	3.01666	0.005	0.112	0.103	466.7831	0.151
Rubber Tired Loaders	2020	501	750	0.329462	0.277	1.39991	2.76722	0.005	0.107	0.099	462.193	0.149
Rubber Tired Loaders	2020	751	1000	0.370676	0.311	1.20366	5.25309	0.005	0.139	0.127	469.9352	0.152

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Rubber Tired Loaders	2021	16	25	1.577419	1.325	6.44855	4.97419	0.005	0.409	0.376	524.5505	0.17
Rubber Tired Loaders	2021	26	50	1.577419	1.325	6.44855	4.97419	0.005	0.409	0.376	524.5505	0.17
Rubber Tired Loaders	2021	51	120	0.592559	0.498	3.8917	4.21491	0.005	0.316	0.291	466.4213	0.151
Rubber Tired Loaders	2021	121	175	0.411896	0.346	3.35381	3.11886	0.005	0.171	0.157	471.0804	0.152
Rubber Tired Loaders	2021	176	250	0.316703	0.266	1.24034	2.9977	0.005	0.1	0.092	469.5642	0.152
Rubber Tired Loaders	2021	251	500	0.314488	0.264	1.52922	2.61037	0.005	0.097	0.09	467.9277	0.151
Rubber Tired Loaders	2021	501	750	0.322962	0.271	1.39703	2.64092	0.005	0.102	0.094	462.0548	0.149
Rubber Tired Loaders	2021	751	1000	0.350105	0.294	1.2055	4.97489	0.005	0.128	0.118	471.2577	0.152
Rubber Tired Loaders	2022	16	25	1.402643	1.179	6.20445	4.74817	0.005	0.354	0.326	524.7914	0.17
Rubber Tired Loaders	2022	26	50	1.402643	1.179	6.20445	4.74817	0.005	0.354	0.326	524.7914	0.17
Rubber Tired Loaders	2022	51	120	0.523774	0.44	3.83931	3.7684	0.005	0.267	0.245	466.4936	0.151
Rubber Tired Loaders	2022	121	175	0.350975	0.295	3.30208	2.5181	0.005	0.136	0.125	470.9274	0.152
Rubber Tired Loaders	2022	176	250	0.269035	0.226	1.188	2.34693	0.005	0.079	0.072	469.9041	0.152
Rubber Tired Loaders	2022	251	500	0.281674	0.237	1.441	2.17525	0.005	0.081	0.075	468.1288	0.151
Rubber Tired Loaders	2022	501	750	0.27713	0.233	1.31524	2.0971	0.005	0.08	0.074	463.8194	0.15
Rubber Tired Loaders	2022	751	1000	0.229104	0.193	1.16216	3.61655	0.005	0.074	0.069	472.8577	0.153
Rubber Tired Loaders	2023	16	25	1.248748	1.049	5.97233	4.52113	0.005	0.304	0.279	524.304	0.17
Rubber Tired Loaders	2023	26	50	1.248748	1.049	5.97233	4.52113	0.005	0.304	0.279	524.304	0.17
Rubber Tired Loaders	2023	51	120	0.490267	0.412	3.82678	3.51183	0.005	0.238	0.219	466.5584	0.151
Rubber Tired Loaders	2023	121	175	0.320411	0.269	3.29198	2.19586	0.005	0.118	0.108	470.6601	0.152
Rubber Tired Loaders	2023	176	250	0.249759	0.21	1.17136	2.05963	0.005	0.069	0.063	469.824	0.152
Rubber Tired Loaders	2023	251	500	0.258421	0.217	1.38396	1.86629	0.005	0.069	0.064	468.466	0.152
Rubber Tired Loaders	2023	501	750	0.269537	0.226	1.32307	1.92719	0.005	0.074	0.069	464.5553	0.15
Rubber Tired Loaders	2023	751	1000	0.229405	0.193	1.17379	3.52792	0.005	0.071	0.065	472.3032	0.153
Rubber Tired Loaders	2024	16	25	1.200513	1.009	5.98698	4.46751	0.005	0.286	0.263	524.2299	0.17
Rubber Tired Loaders	2024	26	50	1.200513	1.009	5.98698	4.46751	0.005	0.286	0.263	524.2299	0.17
Rubber Tired Loaders	2024	51	120	0.472864	0.397	3.83209	3.33895	0.005	0.22	0.203	466.8084	0.151
Rubber Tired Loaders	2024	121	175	0.292737	0.246	3.28823	1.88365	0.005	0.1	0.092	470.3567	0.152
Rubber Tired Loaders	2024	176	250	0.234511	0.197	1.1607	1.80598	0.005	0.06	0.056	469.7875	0.152
Rubber Tired Loaders	2024	251	500	0.249195	0.209	1.3518	1.70166	0.005	0.063	0.058	468.5133	0.152
Rubber Tired Loaders	2024	501	750	0.268468	0.226	1.33327	1.88137	0.005	0.072	0.066	464.8656	0.15
Rubber Tired Loaders	2024	751	1000	0.238754	0.201	1.19144	3.54358	0.005	0.071	0.066	472.3454	0.153
Rubber Tired Loaders	2025	16	25	1.142731	0.96	5.9413	4.34846	0.005	0.259	0.238	523.9076	0.169
Rubber Tired Loaders	2025	26	50	1.142731	0.96	5.9413	4.34846	0.005	0.259	0.238	523.9076	0.169
Rubber Tired Loaders	2025	51	120	0.418779	0.352	3.79086	2.97026	0.005	0.179	0.165	466.8982	0.151
Rubber Tired Loaders	2025	121	175	0.266202	0.224	3.28059	1.59023	0.005	0.084	0.077	470.4594	0.152
Rubber Tired Loaders	2025	176	250	0.211073	0.177	1.1417	1.44207	0.005	0.048	0.045	469.8711	0.152
Rubber Tired Loaders	2025	251	500	0.22979	0.193	1.2763	1.43264	0.005	0.053	0.048	469.1434	0.152
Rubber Tired Loaders	2025	501	750	0.252566	0.212	1.33262	1.65408	0.005	0.064	0.059	465.0523	0.15
Rubber Tired Loaders	2025	751	1000	0.196905	0.165	1.12172	3.08852	0.005	0.052	0.048	472.4559	0.153
Rubber Tired Loaders	2030	16	25	1.834	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Rubber Tired Loaders	2030	26	50	3.121	0.634	5.181	3.5	0.007	0.062	0.062	568.3	0.057
Rubber Tired Loaders	2030	51	120	2.953	0.317	3.759	1.875	0.006	0.056	0.056	568.299	0.028
Rubber Tired Loaders	2030	121	175	3.898	0.232	3.312	0.787	0.006	0.036	0.036	568.299	0.02
Rubber Tired Loaders	2030	176	250	4.951	0.21	1.138	0.655	0.006	0.022	0.022	568.299	0.018
Rubber Tired Loaders	2030	251	500	7.812	0.208	1.085	0.619	0.005	0.021	0.021	568.299	0.018
Rubber Tired Loaders	2030	501	750	16.018	0.208	1.085	0.627	0.005	0.022	0.022	568.299	0.018
Rubber Tired Loaders	2030	751	1000	20.168	0.214	1.099	2.722	0.005	0.039	0.039	568.299	0.019
Rubber Tired Loaders	2035	16	25	1.834	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Rubber Tired Loaders	2035	26	50	2.833	0.575	5.126	3.337	0.007	0.035	0.035	568.299	0.051
Rubber Tired Loaders	2035	51	120	2.663	0.286	3.751	1.639	0.006	0.033	0.033	568.299	0.025
Rubber Tired Loaders	2035	121	175	3.376	0.2	3.312	0.481	0.006	0.022	0.022	568.299	0.018
Rubber Tired Loaders	2035	176	250	4.514	0.191	1.129	0.434	0.006	0.015	0.015	568.299	0.017
Rubber Tired Loaders	2035	251	500	7.156	0.191	1.076	0.416	0.005	0.015	0.015	568.299	0.017
Rubber Tired Loaders	2035	501	750	14.669	0.191	1.076	0.421	0.005	0.015	0.015	568.299	0.017
Rubber Tired Loaders	2035	751	1000	18.204	0.193	1.082	2.584	0.005	0.03	0.03	568.299	0.017
Rubber Tired Loaders	2040	16	25	1.834	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Rubber Tired Loaders	2040	26	50	2.684	0.545	5.102	3.283	0.007	0.024	0.024	568.3	0.049
Rubber Tired Loaders	2040	51	120	2.53	0.271	3.748	1.543	0.006	0.022	0.022	568.3	0.024
Rubber Tired Loaders	2040	121	175	3.172	0.188	3.314	0.365	0.006	0.016	0.016	568.299	0.017
Rubber Tired Loaders	2040	176	250	4.375	0.185	1.128	0.346	0.006	0.013	0.013	568.299	0.016
Rubber Tired Loaders	2040	251	500	6.953	0.185	1.076	0.338	0.005	0.013	0.013	568.3	0.016
Rubber Tired Loaders	2040	501	750	14.247	0.185	1.076	0.34	0.005	0.013	0.013	568.299	0.016
Rubber Tired Loaders	2040	751	1000	17.496	0.186	1.076	2.522	0.005	0.026	0.026	568.299	0.016
Scrapers	1990	51	120	7.335	2.413	5.806	15.182	0.791	1.373	1.373	568.299	0.217
Scrapers	1990	121	175	8.743	1.823	5.174	14.491	0.758	1.017	1.017	568.299	0.164
Scrapers	1990	176	250	12.369	1.823	5.174	14.491	0.758	1.017	1.017	568.299	0.164
Scrapers	1990	251	500	16.73	1.607	11.673	13.709	0.662	0.867	0.867	568.299	0.145
Scrapers	1990	501	750	28.902	1.607	11.673	13.709	1.018	0.883	0.883	568.299	0.145
Scrapers	2000	51	120	6.006	1.975	4.906	11.177	0.06	0.949	0.949	568.299	0.178

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Scrapers	2000	121	175	6.456	1.346	4.046	10.226	0.057	0.572	0.572	568.299	0.121
Scrapers	2000	176	250	8.023	1.183	3.423	9.944	0.057	0.493	0.493	568.299	0.106
Scrapers	2000	251	500	11.061	1.062	6.04	9.42	0.05	0.43	0.43	568.299	0.095
Scrapers	2000	501	750	19.108	1.062	6.04	9.42	0.052	0.43	0.43	568.299	0.095
Scrapers	2005	51	120	5.36	1.763	4.636	9.807	0.06	0.901	0.901	568.299	0.159
Scrapers	2005	121	175	5.592	1.166	3.76	8.934	0.057	0.514	0.514	568.299	0.105
Scrapers	2005	176	250	6.251	0.921	2.602	8.58	0.057	0.377	0.377	568.299	0.083
Scrapers	2005	251	500	8.477	0.814	4.07	7.854	0.05	0.331	0.331	568.3	0.073
Scrapers	2005	501	750	14.794	0.822	4.063	7.99	0.052	0.333	0.333	568.299	0.074
Scrapers	2010	51	120	0.828186	0.696	3.97834	7.09453	0.005	0.507	0.466	537.9051	0.157
Scrapers	2010	121	175	0.907518	0.763	3.83189	8.55764	0.005	0.444	0.408	532.551	0.155
Scrapers	2010	176	250	0.939807	0.79	3.25278	9.42837	0.005	0.434	0.399	520.9381	0.152
Scrapers	2010	251	500	0.595043	0.5	4.1939	6.75544	0.005	0.272	0.25	525.1553	0.153
Scrapers	2010	501	750	0.454495	0.382	3.13671	5.53444	0.005	0.209	0.192	525.522	0.153
Scrapers	2011	51	120	0.831534	0.699	4.00655	7.06921	0.005	0.509	0.469	536.4691	0.157
Scrapers	2011	121	175	0.907072	0.762	3.84357	8.51777	0.005	0.444	0.409	531.1835	0.155
Scrapers	2011	176	250	0.933155	0.784	3.22574	9.34756	0.005	0.43	0.396	519.6705	0.152
Scrapers	2011	251	500	0.590447	0.496	4.14563	6.64672	0.005	0.268	0.246	523.9083	0.153
Scrapers	2011	501	750	0.45862	0.385	3.14165	5.48614	0.005	0.208	0.191	524.1241	0.153
Scrapers	2012	51	120	0.847004	0.712	4.04661	7.11199	0.005	0.519	0.477	535.1238	0.157
Scrapers	2012	121	175	0.915185	0.769	3.8659	8.53485	0.005	0.448	0.412	529.8158	0.155
Scrapers	2012	176	250	0.935111	0.786	3.22909	9.33173	0.005	0.43	0.396	518.3695	0.152
Scrapers	2012	251	500	0.596548	0.501	4.16192	6.64299	0.005	0.269	0.247	522.6784	0.153
Scrapers	2012	501	750	0.468161	0.393	3.16628	5.49999	0.005	0.209	0.193	522.7621	0.153
Scrapers	2013	51	120	0.850862	0.715	4.06971	7.08801	0.005	0.523	0.482	532.4144	0.157
Scrapers	2013	121	175	0.895558	0.753	3.85136	8.33026	0.005	0.438	0.403	527.0754	0.155
Scrapers	2013	176	250	0.923168	0.776	3.18463	9.20338	0.005	0.423	0.389	515.7585	0.152
Scrapers	2013	251	500	0.590637	0.496	4.08663	6.51716	0.005	0.264	0.242	520.0884	0.153
Scrapers	2013	501	750	0.462466	0.389	3.09865	5.3398	0.005	0.204	0.187	520.1031	0.153
Scrapers	2014	51	120	0.855598	0.719	4.09983	7.0654	0.005	0.526	0.484	529.9445	0.157
Scrapers	2014	121	175	0.85473	0.718	3.80661	7.90715	0.005	0.419	0.385	524.1709	0.155
Scrapers	2014	176	250	0.882887	0.742	3.06131	8.81494	0.005	0.403	0.371	512.8529	0.152
Scrapers	2014	251	500	0.569739	0.479	3.89824	6.23299	0.005	0.251	0.231	517.3608	0.153
Scrapers	2014	501	750	0.438954	0.369	2.84564	5.01248	0.005	0.19	0.174	517.3937	0.153
Scrapers	2015	51	120	0.869823	0.731	4.13678	7.10509	0.005	0.535	0.492	524.5601	0.157
Scrapers	2015	121	175	0.849601	0.714	3.80865	7.76471	0.005	0.415	0.382	518.8294	0.155
Scrapers	2015	176	250	0.868271	0.73	3.00753	8.66317	0.005	0.395	0.364	507.5699	0.152
Scrapers	2015	251	500	0.561967	0.472	3.788	6.08577	0.005	0.246	0.226	511.9471	0.153
Scrapers	2015	501	750	0.427981	0.36	2.68469	4.83862	0.005	0.182	0.167	512.0837	0.153
Scrapers	2016	51	120	0.883537	0.742	4.17273	7.14312	0.005	0.543	0.5	519.1668	0.157
Scrapers	2016	121	175	0.818244	0.688	3.78062	7.3844	0.005	0.397	0.365	513.4363	0.155
Scrapers	2016	176	250	0.814194	0.684	2.8398	8.10864	0.005	0.367	0.338	502.255	0.151
Scrapers	2016	251	500	0.538344	0.452	3.60633	5.75749	0.005	0.232	0.213	506.3503	0.153
Scrapers	2016	501	750	0.404454	0.34	2.48181	4.48425	0.005	0.167	0.154	506.6381	0.153
Scrapers	2017	51	120	0.896722	0.753	4.20744	7.17946	0.005	0.551	0.507	511.1123	0.157
Scrapers	2017	121	175	0.748819	0.629	3.70478	6.67066	0.005	0.359	0.331	505.3309	0.155
Scrapers	2017	176	250	0.74607	0.627	2.64676	7.39867	0.005	0.333	0.306	494.5231	0.152
Scrapers	2017	251	500	0.505877	0.425	3.33699	5.33951	0.005	0.214	0.197	498.4571	0.153
Scrapers	2017	501	750	0.386598	0.325	2.29479	4.21648	0.005	0.156	0.143	498.6929	0.153
Scrapers	2018	51	120	0.881019	0.74	4.20429	7.03577	0.005	0.543	0.499	502.8288	0.157
Scrapers	2018	121	175	0.640866	0.539	3.56847	5.64105	0.005	0.303	0.279	497.3396	0.155
Scrapers	2018	176	250	0.662403	0.557	2.40704	6.56304	0.005	0.29	0.267	486.9908	0.152
Scrapers	2018	251	500	0.439318	0.369	2.82811	4.56771	0.005	0.18	0.166	490.7734	0.153
Scrapers	2018	501	750	0.349618	0.294	1.96493	3.74582	0.005	0.135	0.124	490.5775	0.153
Scrapers	2019	51	120	0.854498	0.718	4.19661	6.84136	0.005	0.525	0.483	494.1	0.156
Scrapers	2019	121	175	0.606989	0.51	3.53297	5.26356	0.005	0.283	0.261	489.2546	0.155
Scrapers	2019	176	250	0.596624	0.501	2.23321	5.83102	0.005	0.257	0.236	479.0317	0.152
Scrapers	2019	251	500	0.40804	0.343	2.59466	4.15646	0.005	0.163	0.15	482.7319	0.153
Scrapers	2019	501	750	0.329384	0.277	1.82903	3.43103	0.005	0.123	0.113	482.5963	0.153
Scrapers	2020	51	120	0.834143	0.701	4.19756	6.6767	0.005	0.51	0.469	483.745	0.156
Scrapers	2020	121	175	0.568453	0.478	3.50114	4.86851	0.005	0.262	0.241	478.6077	0.155
Scrapers	2020	176	250	0.531032	0.446	2.06469	5.089	0.005	0.223	0.205	468.9883	0.152
Scrapers	2020	251	500	0.380326	0.32	2.40063	3.78254	0.005	0.148	0.136	472.1751	0.153
Scrapers	2020	501	750	0.311991	0.262	1.72502	3.12592	0.005	0.113	0.104	471.7776	0.153
Scrapers	2021	51	120	0.837922	0.704	4.21819	6.65882	0.005	0.512	0.471	483.7128	0.156
Scrapers	2021	121	175	0.514014	0.432	3.45599	4.34133	0.005	0.232	0.213	478.654	0.155
Scrapers	2021	176	250	0.464853	0.391	1.88374	4.36706	0.005	0.189	0.174	469.1258	0.152
Scrapers	2021	251	500	0.356021	0.299	2.25454	3.44481	0.005	0.134	0.123	472.4636	0.153
Scrapers	2021	501	750	0.298025	0.25	1.65772	2.88702	0.005	0.105	0.097	471.7859	0.153
Scrapers	2022	51	120	0.809995	0.681	4.20484	6.45548	0.005	0.494	0.454	483.4481	0.156

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Scrapers	2022	121	175	0.463814	0.39	3.41662	3.83296	0.005	0.204	0.187	478.7411	0.155
Scrapers	2022	176	250	0.406319	0.341	1.74265	3.66905	0.005	0.16	0.147	469.2686	0.152
Scrapers	2022	251	500	0.313802	0.264	2.05212	2.87856	0.005	0.112	0.103	473.2304	0.153
Scrapers	2022	501	750	0.266627	0.224	1.50816	2.47537	0.005	0.09	0.083	471.2788	0.152
Scrapers	2023	51	120	0.7496	0.63	4.14443	6.02603	0.005	0.458	0.421	483.0296	0.156
Scrapers	2023	121	175	0.430003	0.361	3.39533	3.47913	0.005	0.184	0.169	478.6814	0.155
Scrapers	2023	176	250	0.37772	0.317	1.67839	3.2838	0.005	0.144	0.133	469.5597	0.152
Scrapers	2023	251	500	0.301363	0.253	1.97527	2.66611	0.005	0.105	0.096	473.1772	0.153
Scrapers	2023	501	750	0.26361	0.222	1.51295	2.38587	0.005	0.087	0.08	471.2953	0.152
Scrapers	2024	51	120	0.683919	0.575	4.09486	5.63222	0.005	0.414	0.381	482.7009	0.156
Scrapers	2024	121	175	0.399992	0.336	3.37249	3.15631	0.005	0.166	0.153	478.8089	0.155
Scrapers	2024	176	250	0.358714	0.301	1.62739	3.01379	0.005	0.133	0.122	469.3521	0.152
Scrapers	2024	251	500	0.291137	0.245	1.92055	2.47694	0.005	0.098	0.09	472.8455	0.153
Scrapers	2024	501	750	0.253257	0.213	1.46065	2.18653	0.005	0.081	0.074	471.4291	0.152
Scrapers	2025	51	120	0.673967	0.566	4.09423	5.50259	0.005	0.405	0.372	482.3629	0.156
Scrapers	2025	121	175	0.34526	0.29	3.3209	2.63098	0.005	0.137	0.126	478.9476	0.155
Scrapers	2025	176	250	0.346529	0.291	1.60249	2.80326	0.005	0.125	0.115	469.4459	0.152
Scrapers	2025	251	500	0.257328	0.216	1.7318	2.05051	0.005	0.081	0.074	472.5394	0.153
Scrapers	2025	501	750	0.218534	0.184	1.33825	1.71287	0.005	0.064	0.059	472.115	0.153
Scrapers	2030	51	120	1.248	0.41	3.866	2.384	0.006	0.111	0.111	568.299	0.037
Scrapers	2030	121	175	1.445	0.301	3.389	1.32	0.006	0.068	0.068	568.299	0.027
Scrapers	2030	176	250	1.794	0.264	1.206	1.149	0.006	0.042	0.042	568.299	0.023
Scrapers	2030	251	500	2.697	0.259	1.184	1.057	0.005	0.04	0.04	568.299	0.023
Scrapers	2030	501	750	4.666	0.259	1.184	1.075	0.005	0.04	0.04	568.299	0.023
Scrapers	2035	51	120	1.058	0.348	3.842	1.943	0.006	0.064	0.064	568.299	0.031
Scrapers	2035	121	175	1.199	0.25	3.382	0.824	0.006	0.04	0.04	568.299	0.022
Scrapers	2035	176	250	1.553	0.229	1.175	0.717	0.006	0.026	0.026	568.299	0.02
Scrapers	2035	251	500	2.356	0.226	1.123	0.674	0.005	0.025	0.025	568.3	0.02
Scrapers	2035	501	750	4.075	0.226	1.123	0.682	0.005	0.025	0.025	568.299	0.02
Scrapers	2040	51	120	0.962	0.316	3.833	1.715	0.006	0.04	0.04	568.299	0.028
Scrapers	2040	121	175	1.063	0.221	3.381	0.549	0.006	0.026	0.026	568.299	0.02
Scrapers	2040	176	250	1.425	0.21	1.159	0.498	0.006	0.018	0.018	568.3	0.018
Scrapers	2040	251	500	2.175	0.209	1.1	0.475	0.005	0.017	0.017	568.299	0.018
Scrapers	2040	501	750	3.76	0.209	1.1	0.48	0.005	0.017	0.017	568.299	0.018
Signal Boards	1990	6	15	2.838	1.804	4.999	9.999	1.049	0.975	0.975	568.299	0.162
Signal Boards	1990	26	50	33.688	3.65	7.626	7.518	0.871	1.035	1.035	568.299	0.329
Signal Boards	1990	51	120	41.675	2.037	5.201	13.738	0.791	1.095	1.095	568.3	0.183
Signal Boards	1990	121	175	54.982	1.395	4.603	12.364	0.758	0.728	0.728	568.3	0.125
Signal Boards	1990	176	250	90.827	1.685	5.563	14.94	0.917	0.88	0.88	686.695	0.152
Signal Boards	2000	6	15	2.085	1.325	4.257	7.675	0.079	0.61	0.61	568.299	0.119
Signal Boards	2000	26	50	31.608	3.424	7.268	6.709	0.066	0.765	0.765	568.299	0.309
Signal Boards	2000	51	120	33.68	1.646	4.338	9.835	0.06	0.756	0.756	568.299	0.148
Signal Boards	2000	121	175	43.484	1.103	3.53	8.941	0.057	0.447	0.447	568.299	0.099
Signal Boards	2000	176	250	59.587	1.105	3.359	10.385	0.069	0.438	0.438	686.695	0.099
Signal Boards	2005	6	15	1.168	0.742	3.469	4.981	0.079	0.35	0.35	568.299	0.066
Signal Boards	2005	26	50	27.711	3.002	6.663	6.227	0.066	0.704	0.704	568.299	0.27
Signal Boards	2005	51	120	28.596	1.398	4	8.234	0.06	0.695	0.695	568.299	0.126
Signal Boards	2005	121	175	35.881	0.91	3.185	7.528	0.057	0.383	0.383	568.3	0.082
Signal Boards	2005	176	250	41.93	0.778	2.245	8.577	0.069	0.303	0.303	686.695	0.07
Signal Boards	2010	6	15	1.04	0.661	3.469	4.142	0.008	0.155	0.155	568.299	0.059
Signal Boards	2010	26	50	21.63	2.343	6.009	5.792	0.007	0.571	0.571	568.299	0.211
Signal Boards	2010	51	120	21.667	1.059	3.811	6.693	0.006	0.56	0.56	568.299	0.095
Signal Boards	2010	121	175	27.641	0.701	3.102	5.958	0.006	0.311	0.311	568.299	0.063
Signal Boards	2010	176	250	29.698	0.551	1.651	6.749	0.007	0.212	0.212	686.695	0.049
Signal Boards	2011	6	15	1.04	0.661	3.469	4.142	0.008	0.156	0.156	568.299	0.059
Signal Boards	2011	26	50	20.109	2.178	5.834	5.698	0.007	0.541	0.541	568.299	0.196
Signal Boards	2011	51	120	20.187	0.986	3.774	6.327	0.006	0.535	0.535	568.299	0.089
Signal Boards	2011	121	175	25.933	0.658	3.09	5.615	0.006	0.298	0.298	568.299	0.059
Signal Boards	2011	176	250	27.264	0.506	1.548	6.272	0.007	0.19	0.19	686.695	0.045
Signal Boards	2012	6	15	1.04	0.661	3.469	4.142	0.008	0.16	0.16	568.299	0.059
Signal Boards	2012	26	50	18.413	1.995	5.632	5.596	0.007	0.508	0.508	568.299	0.18
Signal Boards	2012	51	120	18.605	0.909	3.733	5.923	0.006	0.498	0.498	568.299	0.082
Signal Boards	2012	121	175	24.082	0.611	3.077	5.246	0.006	0.275	0.275	568.3	0.055
Signal Boards	2012	176	250	25.308	0.469	1.483	5.81	0.007	0.171	0.171	686.695	0.042
Signal Boards	2013	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2013	26	50	16.687	1.808	5.427	5.362	0.007	0.465	0.465	568.299	0.163
Signal Boards	2013	51	120	17.043	0.833	3.694	5.532	0.006	0.456	0.456	568.299	0.075
Signal Boards	2013	121	175	22.253	0.564	3.067	4.903	0.006	0.252	0.252	568.3	0.05
Signal Boards	2013	176	250	23.66	0.439	1.439	5.369	0.007	0.156	0.156	686.695	0.039
Signal Boards	2014	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Signal Boards	2014	26	50	15.005	1.625	5.231	5.139	0.007	0.422	0.422	568.299	0.146
Signal Boards	2014	51	120	15.539	0.759	3.658	5.186	0.006	0.414	0.414	568.299	0.068
Signal Boards	2014	121	175	20.512	0.52	3.058	4.582	0.006	0.228	0.228	568.299	0.046
Signal Boards	2014	176	250	22.034	0.408	1.402	4.857	0.007	0.141	0.141	686.695	0.036
Signal Boards	2015	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2015	26	50	13.489	1.461	5.068	4.943	0.007	0.382	0.382	568.299	0.131
Signal Boards	2015	51	120	14.067	0.687	3.624	4.791	0.006	0.371	0.371	568.299	0.062
Signal Boards	2015	121	175	18.694	0.474	3.052	4.136	0.006	0.205	0.205	568.299	0.042
Signal Boards	2015	176	250	20.523	0.38	1.371	4.365	0.007	0.127	0.127	686.695	0.034
Signal Boards	2016	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2016	26	50	12.061	1.306	4.921	4.761	0.007	0.343	0.343	568.299	0.117
Signal Boards	2016	51	120	12.653	0.618	3.594	4.414	0.006	0.33	0.33	568.299	0.055
Signal Boards	2016	121	175	16.949	0.43	3.047	3.708	0.006	0.183	0.183	568.299	0.038
Signal Boards	2016	176	250	19.106	0.354	1.344	3.894	0.007	0.114	0.114	686.695	0.031
Signal Boards	2017	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2017	26	50	10.695	1.158	4.785	4.59	0.007	0.306	0.306	568.299	0.104
Signal Boards	2017	51	120	11.32	0.553	3.566	4.059	0.006	0.29	0.29	568.299	0.049
Signal Boards	2017	121	175	15.322	0.388	3.044	3.305	0.006	0.161	0.161	568.299	0.035
Signal Boards	2017	176	250	17.83	0.33	1.323	3.452	0.007	0.101	0.101	686.695	0.029
Signal Boards	2018	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2018	26	50	9.4	1.018	4.657	4.427	0.007	0.27	0.27	568.299	0.091
Signal Boards	2018	51	120	10.078	0.492	3.541	3.723	0.006	0.252	0.252	568.299	0.044
Signal Boards	2018	121	175	13.836	0.351	3.043	2.93	0.006	0.141	0.141	568.299	0.031
Signal Boards	2018	176	250	16.678	0.309	1.306	3.04	0.007	0.09	0.09	686.695	0.027
Signal Boards	2019	6	15	1.04	0.661	3.47	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2019	26	50	8.189	0.887	4.538	4.272	0.007	0.236	0.236	568.3	0.08
Signal Boards	2019	51	120	8.938	0.437	3.519	3.41	0.006	0.216	0.216	568.299	0.039
Signal Boards	2019	121	175	12.677	0.321	3.043	2.601	0.006	0.125	0.125	568.299	0.029
Signal Boards	2019	176	250	15.682	0.291	1.292	2.676	0.007	0.08	0.08	686.695	0.026
Signal Boards	2020	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2020	26	50	7.28	0.788	4.448	4.132	0.007	0.206	0.206	568.299	0.071
Signal Boards	2020	51	120	8.081	0.395	3.504	3.134	0.006	0.187	0.187	568.299	0.035
Signal Boards	2020	121	175	11.756	0.298	3.043	2.309	0.006	0.11	0.11	568.299	0.026
Signal Boards	2020	176	250	14.813	0.274	1.281	2.35	0.007	0.071	0.071	686.695	0.024
Signal Boards	2021	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2021	26	50	6.598	0.714	4.38	4.002	0.007	0.179	0.179	568.299	0.064
Signal Boards	2021	51	120	7.434	0.363	3.493	2.889	0.006	0.162	0.162	568.299	0.032
Signal Boards	2021	121	175	10.965	0.278	3.043	2.043	0.006	0.098	0.098	568.299	0.025
Signal Boards	2021	176	250	14.033	0.26	1.273	2.053	0.007	0.063	0.063	686.695	0.023
Signal Boards	2022	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.3	0.059
Signal Boards	2022	26	50	6.047	0.655	4.325	3.88	0.007	0.154	0.154	568.299	0.059
Signal Boards	2022	51	120	6.908	0.337	3.484	2.668	0.006	0.141	0.141	568.299	0.03
Signal Boards	2022	121	175	10.249	0.26	3.044	1.801	0.006	0.086	0.086	568.299	0.023
Signal Boards	2022	176	250	13.317	0.247	1.266	1.782	0.007	0.055	0.055	686.695	0.022
Signal Boards	2023	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2023	26	50	5.57	0.603	4.282	3.767	0.007	0.132	0.132	568.299	0.054
Signal Boards	2023	51	120	6.449	0.315	3.478	2.472	0.006	0.122	0.122	568.299	0.028
Signal Boards	2023	121	175	9.619	0.244	3.045	1.602	0.006	0.075	0.075	568.299	0.022
Signal Boards	2023	176	250	12.678	0.235	1.263	1.562	0.007	0.048	0.048	686.695	0.021
Signal Boards	2024	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2024	26	50	5.168	0.559	4.247	3.662	0.007	0.114	0.114	568.299	0.05
Signal Boards	2024	51	120	6.055	0.296	3.474	2.315	0.006	0.105	0.105	568.299	0.026
Signal Boards	2024	121	175	9.047	0.229	3.047	1.427	0.006	0.065	0.065	568.299	0.02
Signal Boards	2024	176	250	12.079	0.224	1.259	1.37	0.007	0.041	0.041	686.695	0.02
Signal Boards	2025	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2025	26	50	4.819	0.522	4.217	3.561	0.007	0.098	0.098	568.299	0.047
Signal Boards	2025	51	120	5.705	0.278	3.47	2.179	0.006	0.089	0.089	568.299	0.025
Signal Boards	2025	121	175	8.5	0.215	3.049	1.262	0.006	0.055	0.055	568.299	0.019
Signal Boards	2025	176	250	11.509	0.213	1.257	1.192	0.007	0.035	0.035	686.695	0.019
Signal Boards	2030	6	15	1.04	0.661	3.47	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2030	26	50	3.631	0.393	4.099	3.193	0.007	0.04	0.04	568.299	0.035
Signal Boards	2030	51	120	4.366	0.213	3.451	1.657	0.006	0.035	0.035	568.3	0.019
Signal Boards	2030	121	175	6.201	0.157	3.048	0.586	0.006	0.024	0.024	568.299	0.014
Signal Boards	2030	176	250	9.484	0.176	1.255	0.594	0.007	0.019	0.019	686.695	0.015
Signal Boards	2035	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Signal Boards	2035	26	50	3.294	0.356	4.067	3.082	0.007	0.02	0.02	568.299	0.032
Signal Boards	2035	51	120	3.929	0.192	3.445	1.482	0.006	0.018	0.018	568.299	0.017
Signal Boards	2035	121	175	5.439	0.138	3.048	0.372	0.006	0.014	0.014	568.299	0.012
Signal Boards	2035	176	250	8.75	0.162	1.254	0.401	0.007	0.014	0.014	686.695	0.014
Signal Boards	2040	6	15	1.04	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Signal Boards	2040	26	50	3.289	0.356	4.074	3.037	0.007	0.014	0.014	568.299	0.032
Signal Boards	2040	51	120	3.848	0.188	3.447	1.428	0.006	0.013	0.013	568.299	0.016
Signal Boards	2040	121	175	5.177	0.131	3.05	0.296	0.006	0.011	0.011	568.299	0.011
Signal Boards	2040	176	250	8.473	0.157	1.255	0.341	0.007	0.012	0.012	686.695	0.014
Skid Steer Loaders	1990	16	25	4.928	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Skid Steer Loaders	1990	26	50	18.4	4.466	9.113	7.821	0.871	1.202	1.202	568.299	0.403
Skid Steer Loaders	1990	51	120	15.551	2.252	5.536	14.506	0.791	1.262	1.262	568.299	0.203
Skid Steer Loaders	2000	16	25	4.659	2.092	4.777	6.403	0.065	0.568	0.568	568.299	0.188
Skid Steer Loaders	2000	26	50	15.338	3.723	7.849	6.733	0.066	0.816	0.816	568.299	0.335
Skid Steer Loaders	2000	51	120	10.902	1.579	4.162	9.028	0.06	0.779	0.779	568.299	0.142
Skid Steer Loaders	2005	16	25	3.352	1.505	3.709	5.913	0.065	0.461	0.461	568.299	0.135
Skid Steer Loaders	2005	26	50	12.458	3.024	6.864	6.068	0.066	0.716	0.716	568.3	0.272
Skid Steer Loaders	2005	51	120	9.248	1.339	3.988	7.653	0.06	0.712	0.712	568.299	0.12
Skid Steer Loaders	2010	16	25	1.189544	1	4.48486	5.29745	0.005	0.435	0.401	586.3356	0.171
Skid Steer Loaders	2010	26	50	1.189544	1	4.48486	5.29745	0.005	0.435	0.401	586.3356	0.171
Skid Steer Loaders	2010	51	120	0.504832	0.424	3.40768	5.19396	0.005	0.344	0.317	525.6915	0.153
Skid Steer Loaders	2011	16	25	1.055747	0.887	4.32754	5.2163	0.005	0.402	0.37	584.7285	0.171
Skid Steer Loaders	2011	26	50	1.055747	0.887	4.32754	5.2163	0.005	0.402	0.37	584.7285	0.171
Skid Steer Loaders	2011	51	120	0.460213	0.387	3.38539	4.88341	0.005	0.316	0.291	524.0915	0.153
Skid Steer Loaders	2012	16	25	1.031332	0.867	4.33156	5.12974	0.005	0.388	0.357	583.1258	0.171
Skid Steer Loaders	2012	26	50	1.031332	0.867	4.33156	5.12974	0.005	0.388	0.357	583.1258	0.171
Skid Steer Loaders	2012	51	120	0.443294	0.372	3.38462	4.73478	0.005	0.303	0.279	522.5357	0.153
Skid Steer Loaders	2013	16	25	0.908612	0.763	4.17576	4.84472	0.005	0.337	0.31	580.0144	0.171
Skid Steer Loaders	2013	26	50	0.908612	0.763	4.17576	4.84472	0.005	0.337	0.31	580.0144	0.171
Skid Steer Loaders	2013	51	120	0.404938	0.34	3.36337	4.44237	0.005	0.271	0.249	519.6388	0.153
Skid Steer Loaders	2014	16	25	0.790746	0.664	4.01585	4.54075	0.005	0.286	0.263	577.0757	0.171
Skid Steer Loaders	2014	26	50	0.790746	0.664	4.01585	4.54075	0.005	0.286	0.263	577.0757	0.171
Skid Steer Loaders	2014	51	120	0.361873	0.304	3.33829	4.0133	0.005	0.235	0.216	517.0621	0.153
Skid Steer Loaders	2015	16	25	0.760751	0.639	4.00436	4.43612	0.005	0.267	0.246	571.4195	0.171
Skid Steer Loaders	2015	26	50	0.760751	0.639	4.00436	4.43612	0.005	0.267	0.246	571.4195	0.171
Skid Steer Loaders	2015	51	120	0.349713	0.294	3.33751	3.8106	0.005	0.22	0.203	511.595	0.153
Skid Steer Loaders	2016	16	25	0.713135	0.599	3.95661	4.26784	0.005	0.241	0.221	565.2281	0.17
Skid Steer Loaders	2016	26	50	0.713135	0.599	3.95661	4.26784	0.005	0.241	0.221	565.2281	0.17
Skid Steer Loaders	2016	51	120	0.325064	0.273	3.32767	3.53439	0.005	0.197	0.182	506.2971	0.153
Skid Steer Loaders	2017	16	25	0.676461	0.568	3.91907	4.11272	0.005	0.217	0.2	556.7144	0.171
Skid Steer Loaders	2017	26	50	0.676461	0.568	3.91907	4.11272	0.005	0.217	0.2	556.7144	0.171
Skid Steer Loaders	2017	51	120	0.303772	0.255	3.31863	3.28618	0.005	0.177	0.162	498.3256	0.153
Skid Steer Loaders	2018	16	25	0.579635	0.487	3.78725	3.88962	0.005	0.178	0.164	547.5575	0.17
Skid Steer Loaders	2018	26	50	0.579635	0.487	3.78725	3.88962	0.005	0.178	0.164	547.5575	0.17
Skid Steer Loaders	2018	51	120	0.256853	0.216	3.28204	2.86	0.005	0.14	0.129	490.0935	0.153
Skid Steer Loaders	2019	16	25	0.531282	0.446	3.73957	3.75009	0.005	0.154	0.141	539.2667	0.171
Skid Steer Loaders	2019	26	50	0.531282	0.446	3.73957	3.75009	0.005	0.154	0.141	539.2667	0.171
Skid Steer Loaders	2019	51	120	0.2373	0.199	3.27736	2.65586	0.005	0.122	0.112	482.3844	0.153
Skid Steer Loaders	2020	16	25	0.522771	0.439	3.76397	3.69113	0.005	0.145	0.133	527.7577	0.171
Skid Steer Loaders	2020	26	50	0.522771	0.439	3.76397	3.69113	0.005	0.145	0.133	527.7577	0.171
Skid Steer Loaders	2020	51	120	0.224183	0.188	3.2771	2.5046	0.005	0.108	0.1	471.9075	0.153
Skid Steer Loaders	2021	16	25	0.486515	0.409	3.73158	3.57304	0.005	0.126	0.116	527.4501	0.171
Skid Steer Loaders	2021	26	50	0.486515	0.409	3.73158	3.57304	0.005	0.126	0.116	527.4501	0.171
Skid Steer Loaders	2021	51	120	0.211817	0.178	3.27687	2.36588	0.005	0.096	0.089	471.9774	0.153
Skid Steer Loaders	2022	16	25	0.434318	0.365	3.65597	3.43256	0.005	0.103	0.095	527.2726	0.171
Skid Steer Loaders	2022	26	50	0.434318	0.365	3.65597	3.43256	0.005	0.103	0.095	527.2726	0.171
Skid Steer Loaders	2022	51	120	0.195311	0.164	3.27037	2.18922	0.005	0.081	0.075	472.4321	0.153
Skid Steer Loaders	2023	16	25	0.420524	0.353	3.65358	3.37057	0.005	0.093	0.086	527.4231	0.171
Skid Steer Loaders	2023	26	50	0.420524	0.353	3.65358	3.37057	0.005	0.093	0.086	527.4231	0.171
Skid Steer Loaders	2023	51	120	0.182613	0.153	3.26613	2.03854	0.005	0.069	0.063	472.656	0.153
Skid Steer Loaders	2024	16	25	0.415881	0.349	3.67076	3.34552	0.005	0.089	0.082	527.8005	0.171
Skid Steer Loaders	2024	26	50	0.415881	0.349	3.67076	3.34552	0.005	0.089	0.082	527.8005	0.171
Skid Steer Loaders	2024	51	120	0.174841	0.147	3.26403	1.94841	0.005	0.063	0.058	472.847	0.153
Skid Steer Loaders	2025	16	25	0.406183	0.341	3.6601	3.30934	0.005	0.084	0.077	527.8608	0.171
Skid Steer Loaders	2025	26	50	0.406183	0.341	3.6601	3.30934	0.005	0.084	0.077	527.8608	0.171
Skid Steer Loaders	2025	51	120	0.166357	0.14	3.25156	1.86736	0.005	0.057	0.052	472.6295	0.153
Skid Steer Loaders	2030	16	25	1.526	0.685	2.34	4.332	0.007	0.162	0.162	568.299	0.061
Skid Steer Loaders	2030	26	50	1.694	0.411	4.386	3.128	0.007	0.018	0.018	568.299	0.037
Skid Steer Loaders	2030	51	120	1.478	0.214	3.538	1.477	0.006	0.017	0.017	568.299	0.019
Skid Steer Loaders	2035	16	25	1.526	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Skid Steer Loaders	2035	26	50	1.694	0.411	4.39	3.097	0.007	0.015	0.015	568.299	0.037
Skid Steer Loaders	2035	51	120	1.459	0.211	3.54	1.442	0.006	0.014	0.014	568.299	0.019
Skid Steer Loaders	2040	16	25	1.526	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Skid Steer Loaders	2040	26	50	1.696	0.411	4.392	3.093	0.007	0.014	0.014	568.299	0.037
Skid Steer Loaders	2040	51	120	1.456	0.211	3.54	1.435	0.006	0.013	0.013	568.3	0.019

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Surfacing Equipment	1990	26	50	8.011	4.203	8.629	7.726	0.871	1.147	1.147	568.299	0.379
Surfacing Equipment	1990	51	120	18.985	2.203	5.473	14.403	0.791	1.214	1.214	568.299	0.198
Surfacing Equipment	1990	121	175	19.781	1.707	4.883	13.91	0.758	0.927	0.927	568.3	0.154
Surfacing Equipment	1990	176	250	31.103	1.707	4.883	13.91	0.758	0.927	0.927	568.299	0.154
Surfacing Equipment	1990	251	500	45.625	1.526	9.66	13.316	0.662	0.805	0.805	568.299	0.137
Surfacing Equipment	1990	501	750	71.58	1.526	9.66	13.316	1.018	0.82	0.82	568.299	0.137
Surfacing Equipment	2000	26	50	6.689	3.509	7.426	6.755	0.066	0.779	0.779	568.299	0.316
Surfacing Equipment	2000	51	120	14.399	1.671	4.385	9.991	0.06	0.768	0.768	568.299	0.15
Surfacing Equipment	2000	121	175	13.132	1.133	3.583	9.132	0.057	0.458	0.458	568.299	0.102
Surfacing Equipment	2000	176	250	17.689	0.97	2.937	8.84	0.057	0.385	0.385	568.299	0.087
Surfacing Equipment	2000	251	500	26.875	0.899	4.584	8.551	0.05	0.347	0.347	568.299	0.081
Surfacing Equipment	2000	501	750	42.164	0.899	4.584	8.551	0.052	0.347	0.347	568.299	0.081
Surfacing Equipment	2005	26	50	6.001	3.148	6.936	6.318	0.066	0.727	0.727	568.3	0.284
Surfacing Equipment	2005	51	120	12.568	1.458	4.122	8.636	0.06	0.718	0.718	568.299	0.131
Surfacing Equipment	2005	121	175	11.032	0.952	3.316	7.874	0.057	0.402	0.402	568.3	0.085
Surfacing Equipment	2005	176	250	13.31	0.73	2.16	7.529	0.057	0.29	0.29	568.299	0.065
Surfacing Equipment	2005	251	500	19.448	0.65	3.023	6.988	0.05	0.26	0.26	568.299	0.058
Surfacing Equipment	2005	501	750	31.164	0.664	3.019	7.132	0.052	0.262	0.262	568.299	0.059
Surfacing Equipment	2010	26	50	1.528976	1.285	4.99949	5.66618	0.005	0.479	0.44	593.0498	0.173
Surfacing Equipment	2010	51	120	0.730908	0.614	3.59404	6.16537	0.005	0.437	0.402	524.0289	0.153
Surfacing Equipment	2010	121	175	0.662829	0.557	3.09066	6.60554	0.005	0.318	0.292	522.4909	0.152
Surfacing Equipment	2010	176	250	0.488779	0.411	1.7501	6.37687	0.005	0.212	0.195	530.3611	0.154
Surfacing Equipment	2010	251	500	0.29849	0.251	1.5491	4.43284	0.005	0.144	0.133	522.9659	0.152
Surfacing Equipment	2010	501	750	0.208991	0.176	1.09654	3.5514	0.005	0.112	0.103	524.8847	0.153
Surfacing Equipment	2011	26	50	1.476255	1.24	4.95391	5.62022	0.005	0.467	0.43	590.2612	0.172
Surfacing Equipment	2011	51	120	0.710662	0.597	3.58797	5.98734	0.005	0.427	0.393	522.8446	0.153
Surfacing Equipment	2011	121	175	0.6472	0.544	3.07389	6.46356	0.005	0.312	0.287	521.1883	0.152
Surfacing Equipment	2011	176	250	0.481299	0.404	1.72048	6.2863	0.005	0.207	0.191	529.0217	0.154
Surfacing Equipment	2011	251	500	0.289572	0.243	1.48634	4.26701	0.005	0.136	0.125	520.4212	0.152
Surfacing Equipment	2011	501	750	0.214952	0.181	1.10325	3.56055	0.005	0.113	0.104	523.5482	0.153
Surfacing Equipment	2012	26	50	1.500607	1.261	5.03037	5.63914	0.005	0.473	0.435	588.7118	0.172
Surfacing Equipment	2012	51	120	0.709653	0.596	3.59999	5.94999	0.005	0.426	0.392	521.4233	0.153
Surfacing Equipment	2012	121	175	0.653605	0.549	3.0893	6.48747	0.005	0.315	0.29	519.886	0.152
Surfacing Equipment	2012	176	250	0.481696	0.405	1.72816	6.22653	0.005	0.207	0.191	527.6815	0.154
Surfacing Equipment	2012	251	500	0.290035	0.244	1.49574	4.20283	0.005	0.134	0.124	519.0487	0.152
Surfacing Equipment	2012	501	750	0.210249	0.177	1.04051	3.45723	0.005	0.109	0.1	521.0672	0.152
Surfacing Equipment	2013	26	50	1.455428	1.223	4.99596	5.53803	0.005	0.457	0.421	585.7193	0.172
Surfacing Equipment	2013	51	120	0.69949	0.588	3.60266	5.8163	0.005	0.415	0.382	518.7481	0.153
Surfacing Equipment	2013	121	175	0.588968	0.495	3.00889	5.94134	0.005	0.286	0.263	518.4738	0.152
Surfacing Equipment	2013	176	250	0.441295	0.371	1.62196	5.8812	0.005	0.187	0.172	524.5301	0.154
Surfacing Equipment	2013	251	500	0.288988	0.243	1.50462	4.09243	0.005	0.131	0.121	516.1488	0.152
Surfacing Equipment	2013	501	750	0.215353	0.181	1.04387	3.46124	0.005	0.11	0.101	518.3853	0.152
Surfacing Equipment	2014	26	50	1.358041	1.141	4.87668	5.42525	0.005	0.434	0.399	582.7249	0.172
Surfacing Equipment	2014	51	120	0.665267	0.559	3.58043	5.52029	0.005	0.391	0.36	516.3377	0.153
Surfacing Equipment	2014	121	175	0.561853	0.472	3.01212	5.71146	0.005	0.273	0.251	515.8203	0.152
Surfacing Equipment	2014	176	250	0.364211	0.306	1.43363	5.10182	0.005	0.149	0.137	521.4518	0.154
Surfacing Equipment	2014	251	500	0.2821	0.237	1.50147	3.8952	0.005	0.125	0.115	513.6157	0.152
Surfacing Equipment	2014	501	750	0.206755	0.174	1.02007	3.28435	0.005	0.103	0.095	516.3212	0.153
Surfacing Equipment	2015	26	50	1.223408	1.028	4.69178	5.25471	0.005	0.402	0.37	576.7706	0.172
Surfacing Equipment	2015	51	120	0.651534	0.547	3.57496	5.37414	0.005	0.378	0.348	510.1417	0.152
Surfacing Equipment	2015	121	175	0.568	0.477	3.02727	5.73307	0.005	0.276	0.254	510.5481	0.152
Surfacing Equipment	2015	176	250	0.36864	0.31	1.44156	5.11205	0.005	0.151	0.139	516.058	0.154
Surfacing Equipment	2015	251	500	0.286581	0.241	1.51303	3.90037	0.005	0.126	0.116	508.3985	0.152
Surfacing Equipment	2015	501	750	0.211433	0.178	1.02353	3.28678	0.005	0.104	0.096	511.1157	0.153
Surfacing Equipment	2016	26	50	1.243319	1.045	4.7626	5.27275	0.005	0.406	0.374	570.8145	0.172
Surfacing Equipment	2016	51	120	0.621267	0.522	3.54977	5.05142	0.005	0.349	0.321	505.0873	0.152
Surfacing Equipment	2016	121	175	0.544572	0.458	3.00649	5.45794	0.005	0.265	0.244	504.5576	0.152
Surfacing Equipment	2016	176	250	0.365495	0.307	1.42946	5.04791	0.005	0.148	0.136	510.7058	0.154
Surfacing Equipment	2016	251	500	0.258417	0.217	1.42484	3.46816	0.005	0.111	0.102	502.4709	0.152
Surfacing Equipment	2016	501	750	0.192579	0.162	0.99966	2.87955	0.005	0.093	0.085	506.967	0.153
Surfacing Equipment	2017	26	50	1.10469	0.928	4.60324	5.0643	0.006	0.365	0.336	564.4772	0.173
Surfacing Equipment	2017	51	120	0.604716	0.508	3.55587	4.94212	0.005	0.337	0.31	498.36	0.153
Surfacing Equipment	2017	121	175	0.541755	0.455	3.00273	5.39296	0.005	0.264	0.243	496.2741	0.152
Surfacing Equipment	2017	176	250	0.325463	0.273	1.3431	4.46793	0.005	0.129	0.119	501.8465	0.154
Surfacing Equipment	2017	251	500	0.242435	0.204	1.3962	3.10636	0.005	0.103	0.094	496.885	0.152
Surfacing Equipment	2017	501	750	0.190932	0.16	1.00272	2.76955	0.005	0.09	0.083	499.7117	0.153
Surfacing Equipment	2018	26	50	0.927049	0.779	4.35302	4.81982	0.006	0.32	0.294	555.7363	0.173
Surfacing Equipment	2018	51	120	0.49279	0.414	3.48871	4.28388	0.005	0.268	0.247	491.3172	0.153
Surfacing Equipment	2018	121	175	0.44632	0.375	2.97609	4.47527	0.005	0.215	0.198	488.4406	0.152
Surfacing Equipment	2018	176	250	0.286758	0.241	1.234	3.98866	0.005	0.113	0.104	494.1388	0.154

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Surfacing Equipment	2018	251	500	0.187325	0.157	1.22557	2.20389	0.005	0.076	0.07	487.8722	0.152
Surfacing Equipment	2018	501	750	0.169556	0.142	0.99347	2.26863	0.005	0.078	0.072	488.86	0.152
Surfacing Equipment	2019	26	50	0.765383	0.643	4.0998	4.41999	0.006	0.25	0.23	547.0462	0.173
Surfacing Equipment	2019	51	120	0.42278	0.355	3.44856	3.82306	0.005	0.226	0.208	484.0757	0.153
Surfacing Equipment	2019	121	175	0.425034	0.357	2.97177	4.23866	0.005	0.204	0.187	479.6717	0.152
Surfacing Equipment	2019	176	250	0.257694	0.217	1.21576	3.39993	0.005	0.101	0.093	486.8417	0.154
Surfacing Equipment	2019	251	500	0.173135	0.145	1.2143	1.89944	0.005	0.068	0.063	481.8965	0.152
Surfacing Equipment	2019	501	750	0.168821	0.142	0.99372	2.17879	0.005	0.076	0.07	480.166	0.152
Surfacing Equipment	2020	26	50	0.637406	0.536	3.93357	4.23906	0.006	0.216	0.199	535.5275	0.173
Surfacing Equipment	2020	51	120	0.392345	0.33	3.43932	3.61216	0.005	0.206	0.19	473.8188	0.153
Surfacing Equipment	2020	121	175	0.365927	0.307	2.93068	3.67232	0.005	0.175	0.161	469.2079	0.152
Surfacing Equipment	2020	176	250	0.252128	0.212	1.21774	3.22243	0.005	0.097	0.089	476.4261	0.154
Surfacing Equipment	2020	251	500	0.173203	0.146	1.21902	1.83755	0.005	0.067	0.062	471.6331	0.153
Surfacing Equipment	2020	501	750	0.168871	0.142	0.99569	2.09374	0.005	0.074	0.068	469.6252	0.152
Surfacing Equipment	2021	26	50	0.60314	0.507	3.93231	4.18875	0.006	0.204	0.188	535.784	0.173
Surfacing Equipment	2021	51	120	0.370907	0.312	3.43619	3.46112	0.005	0.191	0.175	474.0906	0.153
Surfacing Equipment	2021	121	175	0.307112	0.258	2.91895	3.09858	0.005	0.145	0.134	469.1687	0.152
Surfacing Equipment	2021	176	250	0.245986	0.207	1.21854	2.99364	0.005	0.092	0.085	476.8023	0.154
Surfacing Equipment	2021	251	500	0.167588	0.141	1.20226	1.75282	0.005	0.064	0.058	471.7484	0.153
Surfacing Equipment	2021	501	750	0.148862	0.125	0.99181	1.59712	0.005	0.062	0.057	470.4087	0.152
Surfacing Equipment	2022	26	50	0.509163	0.428	3.77243	3.9114	0.006	0.154	0.142	535.8364	0.173
Surfacing Equipment	2022	51	120	0.34882	0.293	3.40936	3.24974	0.005	0.175	0.161	473.6362	0.153
Surfacing Equipment	2022	121	175	0.283918	0.239	2.90957	2.70137	0.005	0.13	0.12	469.1259	0.152
Surfacing Equipment	2022	176	250	0.233135	0.196	1.21737	2.66709	0.005	0.085	0.078	476.9511	0.154
Surfacing Equipment	2022	251	500	0.157417	0.132	1.16047	1.5573	0.005	0.057	0.053	470.5248	0.152
Surfacing Equipment	2022	501	750	0.136805	0.115	0.98819	1.35503	0.005	0.052	0.048	470.4004	0.152
Surfacing Equipment	2023	26	50	0.51987	0.437	3.83184	3.92432	0.006	0.155	0.143	535.9295	0.173
Surfacing Equipment	2023	51	120	0.321277	0.27	3.39556	3.05811	0.005	0.157	0.144	474.4698	0.153
Surfacing Equipment	2023	121	175	0.267066	0.224	2.91383	2.45516	0.005	0.119	0.11	470.0141	0.152
Surfacing Equipment	2023	176	250	0.22795	0.192	1.21946	2.50162	0.005	0.082	0.075	476.9606	0.154
Surfacing Equipment	2023	251	500	0.156473	0.131	1.16329	1.47556	0.005	0.056	0.051	470.3746	0.152
Surfacing Equipment	2023	501	750	0.119512	0.1	0.98543	1.08063	0.005	0.04	0.037	472.4466	0.153
Surfacing Equipment	2024	26	50	0.396453	0.333	3.66193	3.72069	0.006	0.116	0.107	536.0304	0.173
Surfacing Equipment	2024	51	120	0.29879	0.251	3.3893	2.8828	0.005	0.142	0.131	475.3806	0.154
Surfacing Equipment	2024	121	175	0.271298	0.228	2.92962	2.46372	0.005	0.12	0.111	470.0767	0.152
Surfacing Equipment	2024	176	250	0.209166	0.176	1.18272	2.23638	0.005	0.071	0.065	477.096	0.154
Surfacing Equipment	2024	251	500	0.159183	0.134	1.16767	1.47769	0.005	0.056	0.051	470.2521	0.152
Surfacing Equipment	2024	501	750	0.112194	0.094	0.98493	0.94669	0.005	0.034	0.032	472.9833	0.153
Surfacing Equipment	2025	26	50	0.279239	0.235	3.53733	3.57642	0.006	0.082	0.075	536.14	0.173
Surfacing Equipment	2025	51	120	0.276433	0.232	3.38535	2.6591	0.005	0.124	0.114	476.7656	0.154
Surfacing Equipment	2025	121	175	0.222452	0.187	2.92602	1.9987	0.005	0.094	0.087	471.0403	0.152
Surfacing Equipment	2025	176	250	0.176026	0.148	1.14337	1.74736	0.005	0.055	0.051	477.11	0.154
Surfacing Equipment	2025	251	500	0.152175	0.128	1.16861	1.3268	0.005	0.051	0.047	470.2827	0.152
Surfacing Equipment	2025	501	750	0.101486	0.085	0.9776	0.76806	0.005	0.027	0.025	470.5508	0.152
Surfacing Equipment	2030	26	50	0.988	0.518	4.295	3.4	0.007	0.075	0.075	568.299	0.046
Surfacing Equipment	2030	51	120	2.281	0.264	3.492	1.959	0.006	0.068	0.068	568.299	0.023
Surfacing Equipment	2030	121	175	2.286	0.197	3.071	0.939	0.006	0.043	0.043	568.299	0.017
Surfacing Equipment	2030	176	250	3.134	0.172	1.064	0.789	0.006	0.026	0.026	568.299	0.015
Surfacing Equipment	2030	251	500	5.062	0.169	1.032	0.738	0.005	0.025	0.025	568.299	0.015
Surfacing Equipment	2030	501	750	7.953	0.169	1.032	0.749	0.005	0.025	0.025	568.299	0.015
Surfacing Equipment	2035	26	50	0.836	0.439	4.221	3.193	0.007	0.041	0.041	568.299	0.039
Surfacing Equipment	2035	51	120	1.954	0.226	3.482	1.659	0.006	0.038	0.038	568.299	0.02
Surfacing Equipment	2035	121	175	1.887	0.162	3.072	0.567	0.006	0.025	0.025	568.299	0.014
Surfacing Equipment	2035	176	250	2.725	0.149	1.05	0.497	0.006	0.016	0.016	568.299	0.013
Surfacing Equipment	2035	251	500	4.436	0.148	1.018	0.471	0.005	0.016	0.016	568.299	0.013
Surfacing Equipment	2035	501	750	6.967	0.148	1.018	0.477	0.005	0.016	0.016	568.3	0.013
Surfacing Equipment	2040	26	50	0.753	0.395	4.183	3.114	0.007	0.025	0.025	568.299	0.035
Surfacing Equipment	2040	51	120	1.782	0.206	3.477	1.521	0.006	0.024	0.024	568.299	0.018
Surfacing Equipment	2040	121	175	1.691	0.146	3.073	0.397	0.006	0.017	0.017	568.299	0.013
Surfacing Equipment	2040	176	250	2.566	0.14	1.047	0.37	0.006	0.013	0.013	568.299	0.012
Surfacing Equipment	2040	251	500	4.197	0.14	1.015	0.358	0.005	0.012	0.012	568.299	0.012
Surfacing Equipment	2040	501	750	6.59	0.14	1.015	0.361	0.005	0.013	0.013	568.299	0.012
Sweepers/Scrubbers	1990	6	15	4.971	1.804	5	9.999	0.833	0.968	0.968	568.299	0.162
Sweepers/Scrubbers	1990	16	25	10.019	2.213	5	6.92	0.679	0.735	0.735	568.299	0.199
Sweepers/Scrubbers	1990	26	50	32.867	4.512	9.199	7.836	0.692	1.202	1.202	568.299	0.407
Sweepers/Scrubbers	1990	51	120	39.044	2.254	5.53	14.467	0.628	1.259	1.259	568.299	0.203
Sweepers/Scrubbers	1990	121	175	48.318	1.505	4.861	12.813	0.602	0.818	0.818	568.299	0.135
Sweepers/Scrubbers	1990	176	250	56.322	1.505	4.861	12.813	0.602	0.818	0.818	568.299	0.135
Sweepers/Scrubbers	2000	6	15	2.886	1.047	4.258	7.362	0.079	0.428	0.428	568.299	0.094
Sweepers/Scrubbers	2000	16	25	4.933	1.089	4.438	6.325	0.064	0.442	0.442	568.299	0.098

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Sweepers/Scrubbers	2000	26	50	30.182	4.144	8.622	6.934	0.065	0.882	0.882	568.299	0.373
Sweepers/Scrubbers	2000	51	120	29.565	1.706	4.394	9.702	0.059	0.84	0.84	568.299	0.154
Sweepers/Scrubbers	2000	121	175	37.084	1.155	3.49	8.929	0.057	0.481	0.481	568.299	0.104
Sweepers/Scrubbers	2000	176	250	34.578	0.924	2.598	8.516	0.057	0.371	0.371	568.3	0.083
Sweepers/Scrubbers	2005	6	15	1.951	0.708	3.469	4.985	0.079	0.35	0.35	568.299	0.063
Sweepers/Scrubbers	2005	16	25	3.505	0.774	2.526	5.326	0.064	0.323	0.323	568.299	0.069
Sweepers/Scrubbers	2005	26	50	28.008	3.845	8.25	6.52	0.065	0.844	0.844	568.299	0.346
Sweepers/Scrubbers	2005	51	120	27.009	1.559	4.253	8.538	0.059	0.826	0.826	568.299	0.14
Sweepers/Scrubbers	2005	121	175	32.779	1.021	3.349	7.851	0.057	0.45	0.45	568.3	0.092
Sweepers/Scrubbers	2005	176	250	25.002	0.668	1.76	7.318	0.057	0.258	0.258	568.299	0.06
Sweepers/Scrubbers	2010	6	15	2.154395	1.81	6.34286	5.8263	0.005	0.615	0.566	583.6982	0.17
Sweepers/Scrubbers	2010	16	25	2.154395	1.81	6.34286	5.8263	0.005	0.615	0.566	583.6982	0.17
Sweepers/Scrubbers	2010	26	50	2.154395	1.81	6.34286	5.8263	0.005	0.615	0.566	583.6982	0.17
Sweepers/Scrubbers	2010	51	120	1.093749	0.919	4.10149	7.68967	0.005	0.657	0.604	526.7953	0.153
Sweepers/Scrubbers	2010	121	175	1.189152	0.999	4.21032	10.3895	0.005	0.578	0.532	525.6912	0.153
Sweepers/Scrubbers	2010	176	250	0.69332	0.583	2.35018	7.47446	0.005	0.319	0.294	522.3625	0.152
Sweepers/Scrubbers	2011	6	15	2.104606	1.768	6.34227	5.80317	0.005	0.606	0.557	582.239	0.17
Sweepers/Scrubbers	2011	16	25	2.104606	1.768	6.34227	5.80317	0.005	0.606	0.557	582.239	0.17
Sweepers/Scrubbers	2011	26	50	2.104606	1.768	6.34227	5.80317	0.005	0.606	0.557	582.239	0.17
Sweepers/Scrubbers	2011	51	120	1.070043	0.899	4.08877	7.49949	0.005	0.651	0.599	525.4783	0.153
Sweepers/Scrubbers	2011	121	175	1.134336	0.953	4.14616	9.92737	0.005	0.554	0.509	524.377	0.153
Sweepers/Scrubbers	2011	176	250	0.623199	0.524	2.16425	7.01091	0.005	0.284	0.261	521.0566	0.152
Sweepers/Scrubbers	2012	6	15	2.177617	1.83	6.54958	5.85015	0.005	0.621	0.571	580.7797	0.17
Sweepers/Scrubbers	2012	16	25	2.177617	1.83	6.54958	5.85015	0.005	0.621	0.571	580.7797	0.17
Sweepers/Scrubbers	2012	26	50	2.177617	1.83	6.54958	5.85015	0.005	0.621	0.571	580.7797	0.17
Sweepers/Scrubbers	2012	51	120	1.078889	0.907	4.12474	7.50259	0.005	0.659	0.606	524.1613	0.153
Sweepers/Scrubbers	2012	121	175	1.141423	0.959	4.16243	9.95689	0.005	0.558	0.513	523.0627	0.153
Sweepers/Scrubbers	2012	176	250	0.63315	0.532	2.17716	7.05573	0.005	0.286	0.264	519.7507	0.152
Sweepers/Scrubbers	2013	6	15	2.124198	1.785	6.54294	5.78778	0.005	0.608	0.559	577.8612	0.17
Sweepers/Scrubbers	2013	16	25	2.124198	1.785	6.54294	5.78778	0.005	0.608	0.559	577.8612	0.17
Sweepers/Scrubbers	2013	26	50	2.124198	1.785	6.54294	5.78778	0.005	0.608	0.559	577.8612	0.17
Sweepers/Scrubbers	2013	51	120	1.019559	0.857	4.07918	7.14773	0.005	0.626	0.576	521.5273	0.153
Sweepers/Scrubbers	2013	121	175	1.122038	0.943	4.12302	9.76352	0.005	0.547	0.503	520.4343	0.153
Sweepers/Scrubbers	2013	176	250	0.590836	0.496	2.05413	6.66337	0.005	0.263	0.242	517.1389	0.152
Sweepers/Scrubbers	2014	6	15	2.103399	1.767	6.59249	5.75157	0.005	0.603	0.555	574.9427	0.17
Sweepers/Scrubbers	2014	16	25	2.103399	1.767	6.59249	5.75157	0.005	0.603	0.555	574.9427	0.17
Sweepers/Scrubbers	2014	26	50	2.103399	1.767	6.59249	5.75157	0.005	0.603	0.555	574.9427	0.17
Sweepers/Scrubbers	2014	51	120	0.990916	0.833	4.07085	6.93387	0.005	0.61	0.562	518.8933	0.153
Sweepers/Scrubbers	2014	121	175	1.041854	0.875	4.04161	9.10792	0.005	0.503	0.463	517.8058	0.153
Sweepers/Scrubbers	2014	176	250	0.600544	0.505	2.06593	6.70399	0.005	0.265	0.244	514.5271	0.152
Sweepers/Scrubbers	2015	6	15	2.151059	1.807	6.75408	5.77191	0.005	0.611	0.562	569.1058	0.17
Sweepers/Scrubbers	2015	16	25	2.151059	1.807	6.75408	5.77191	0.005	0.611	0.562	569.1058	0.17
Sweepers/Scrubbers	2015	26	50	2.151059	1.807	6.75408	5.77191	0.005	0.611	0.562	569.1058	0.17
Sweepers/Scrubbers	2015	51	120	0.991855	0.833	4.09682	6.8863	0.005	0.61	0.561	513.6254	0.153
Sweepers/Scrubbers	2015	121	175	0.998266	0.839	3.98239	8.69682	0.005	0.479	0.441	512.5489	0.153
Sweepers/Scrubbers	2015	176	250	0.610252	0.513	2.07774	6.7446	0.005	0.268	0.246	509.3035	0.152
Sweepers/Scrubbers	2016	6	15	2.119969	1.781	6.78514	5.72609	0.005	0.603	0.555	563.2688	0.17
Sweepers/Scrubbers	2016	16	25	2.119969	1.781	6.78514	5.72609	0.005	0.603	0.555	563.2688	0.17
Sweepers/Scrubbers	2016	26	50	2.119969	1.781	6.78514	5.72609	0.005	0.603	0.555	563.2688	0.17
Sweepers/Scrubbers	2016	51	120	0.931404	0.783	4.05916	6.45405	0.005	0.571	0.525	508.3574	0.153
Sweepers/Scrubbers	2016	121	175	0.887319	0.746	3.83865	7.78746	0.005	0.419	0.385	507.292	0.153
Sweepers/Scrubbers	2016	176	250	0.61965	0.521	2.08905	6.78244	0.005	0.27	0.248	504.0799	0.152
Sweepers/Scrubbers	2017	6	15	2.037349	1.712	6.7185	5.62558	0.005	0.582	0.535	554.5133	0.17
Sweepers/Scrubbers	2017	16	25	2.037349	1.712	6.7185	5.62558	0.005	0.582	0.535	554.5133	0.17
Sweepers/Scrubbers	2017	26	50	2.037349	1.712	6.7185	5.62558	0.005	0.582	0.535	554.5133	0.17
Sweepers/Scrubbers	2017	51	120	0.857444	0.72	4.01005	6.0202	0.005	0.52	0.479	500.4555	0.153
Sweepers/Scrubbers	2017	121	175	0.845582	0.711	3.78429	7.42433	0.005	0.395	0.363	499.4066	0.153
Sweepers/Scrubbers	2017	176	250	0.610026	0.513	2.08973	6.50894	0.005	0.264	0.243	496.2444	0.152
Sweepers/Scrubbers	2018	6	15	1.838607	1.545	6.4442	5.39866	0.005	0.531	0.488	545.7578	0.17
Sweepers/Scrubbers	2018	16	25	1.838607	1.545	6.4442	5.39866	0.005	0.531	0.488	545.7578	0.17
Sweepers/Scrubbers	2018	26	50	1.838607	1.545	6.4442	5.39866	0.005	0.531	0.488	545.7578	0.17
Sweepers/Scrubbers	2018	51	120	0.713411	0.599	3.88173	5.13595	0.005	0.428	0.394	492.5536	0.153
Sweepers/Scrubbers	2018	121	175	0.700892	0.589	3.58832	6.07101	0.005	0.32	0.294	491.5213	0.153
Sweepers/Scrubbers	2018	176	250	0.415916	0.349	1.60478	4.30158	0.005	0.169	0.156	488.409	0.152
Sweepers/Scrubbers	2019	6	15	1.703052	1.431	6.26782	5.22487	0.005	0.491	0.452	537.0023	0.17
Sweepers/Scrubbers	2019	16	25	1.703052	1.431	6.26782	5.22487	0.005	0.491	0.452	537.0023	0.17
Sweepers/Scrubbers	2019	26	50	1.703052	1.431	6.26782	5.22487	0.005	0.491	0.452	537.0023	0.17
Sweepers/Scrubbers	2019	51	120	0.654062	0.55	3.84602	4.77259	0.005	0.387	0.356	484.6516	0.153
Sweepers/Scrubbers	2019	121	175	0.62277	0.523	3.4491	5.30082	0.005	0.277	0.255	483.6359	0.153
Sweepers/Scrubbers	2019	176	250	0.279258	0.235	1.23013	2.86598	0.005	0.099	0.091	480.5735	0.152

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Sweepers/Scrubbers	2020	6	15	1.599203	1.344	6.1554	5.09515	0.005	0.463	0.426	525.3284	0.17
Sweepers/Scrubbers	2020	16	25	1.599203	1.344	6.1554	5.09515	0.005	0.463	0.426	525.3284	0.17
Sweepers/Scrubbers	2020	26	50	1.599203	1.344	6.1554	5.09515	0.005	0.463	0.426	525.3284	0.17
Sweepers/Scrubbers	2020	51	120	0.618762	0.52	3.82752	4.4821	0.005	0.36	0.331	474.1157	0.153
Sweepers/Scrubbers	2020	121	175	0.549287	0.462	3.35909	4.60809	0.005	0.237	0.218	473.1221	0.153
Sweepers/Scrubbers	2020	176	250	0.246498	0.207	1.13655	2.4856	0.005	0.079	0.073	470.1263	0.152
Sweepers/Scrubbers	2021	6	15	1.450842	1.219	5.89996	4.84946	0.005	0.412	0.379	525.3284	0.17
Sweepers/Scrubbers	2021	16	25	1.450842	1.219	5.89996	4.84946	0.005	0.412	0.379	525.3284	0.17
Sweepers/Scrubbers	2021	26	50	1.450842	1.219	5.89996	4.84946	0.005	0.412	0.379	525.3284	0.17
Sweepers/Scrubbers	2021	51	120	0.523878	0.44	3.75746	3.96194	0.005	0.291	0.268	474.1157	0.153
Sweepers/Scrubbers	2021	121	175	0.457963	0.385	3.24726	3.70723	0.005	0.187	0.172	473.1221	0.153
Sweepers/Scrubbers	2021	176	250	0.195441	0.164	1.1084	1.75821	0.005	0.055	0.051	470.1263	0.152
Sweepers/Scrubbers	2022	6	15	1.199805	1.008	5.45118	4.49049	0.005	0.335	0.308	525.3284	0.17
Sweepers/Scrubbers	2022	16	25	1.199805	1.008	5.45118	4.49049	0.005	0.335	0.308	525.3284	0.17
Sweepers/Scrubbers	2022	26	50	1.199805	1.008	5.45118	4.49049	0.005	0.335	0.308	525.3284	0.17
Sweepers/Scrubbers	2022	51	120	0.443216	0.372	3.69196	3.47218	0.005	0.232	0.214	474.1157	0.153
Sweepers/Scrubbers	2022	121	175	0.382446	0.321	3.22176	3.00243	0.005	0.145	0.133	473.1221	0.153
Sweepers/Scrubbers	2022	176	250	0.181362	0.152	1.10147	1.60484	0.005	0.05	0.046	470.1263	0.152
Sweepers/Scrubbers	2023	6	15	0.903476	0.759	4.97095	4.12735	0.005	0.248	0.229	525.3284	0.17
Sweepers/Scrubbers	2023	16	25	0.903476	0.759	4.97095	4.12735	0.005	0.248	0.229	525.3284	0.17
Sweepers/Scrubbers	2023	26	50	0.903476	0.759	4.97095	4.12735	0.005	0.248	0.229	525.3284	0.17
Sweepers/Scrubbers	2023	51	120	0.417244	0.351	3.69499	3.28536	0.005	0.21	0.193	474.1157	0.153
Sweepers/Scrubbers	2023	121	175	0.347747	0.292	3.22298	2.60853	0.005	0.126	0.116	473.1221	0.153
Sweepers/Scrubbers	2023	176	250	0.188622	0.158	1.11413	1.61028	0.005	0.05	0.046	470.1263	0.152
Sweepers/Scrubbers	2024	6	15	0.887865	0.746	5.00321	4.0788	0.005	0.239	0.219	525.3284	0.17
Sweepers/Scrubbers	2024	16	25	0.887865	0.746	5.00321	4.0788	0.005	0.239	0.219	525.3284	0.17
Sweepers/Scrubbers	2024	26	50	0.887865	0.746	5.00321	4.0788	0.005	0.239	0.219	525.3284	0.17
Sweepers/Scrubbers	2024	51	120	0.395131	0.332	3.69288	3.09846	0.005	0.188	0.173	474.1157	0.153
Sweepers/Scrubbers	2024	121	175	0.316819	0.266	3.23374	2.2533	0.005	0.107	0.099	473.1221	0.153
Sweepers/Scrubbers	2024	176	250	0.195631	0.164	1.12729	1.61357	0.005	0.051	0.046	470.1263	0.152
Sweepers/Scrubbers	2025	6	15	0.740656	0.622	4.76791	3.85568	0.005	0.191	0.176	525.3284	0.17
Sweepers/Scrubbers	2025	16	25	0.740656	0.622	4.76791	3.85568	0.005	0.191	0.176	525.3284	0.17
Sweepers/Scrubbers	2025	26	50	0.740656	0.622	4.76791	3.85568	0.005	0.191	0.176	525.3284	0.17
Sweepers/Scrubbers	2025	51	120	0.360743	0.303	3.66402	2.81733	0.005	0.16	0.147	474.1157	0.153
Sweepers/Scrubbers	2025	121	175	0.25385	0.213	3.201	1.63811	0.005	0.072	0.066	473.1221	0.153
Sweepers/Scrubbers	2025	176	250	0.202235	0.17	1.14005	1.61588	0.005	0.051	0.047	470.1263	0.152
Sweepers/Scrubbers	2030	6	15	1.624	0.589	3.47	4.142	0.008	0.161	0.161	568.299	0.053
Sweepers/Scrubbers	2030	16	25	3.103	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Sweepers/Scrubbers	2030	26	50	3.714	0.509	4.947	3.294	0.007	0.026	0.026	568.299	0.046
Sweepers/Scrubbers	2030	51	120	4.528	0.261	3.703	1.569	0.006	0.023	0.023	568.299	0.023
Sweepers/Scrubbers	2030	121	175	6.02	0.187	3.275	0.431	0.006	0.017	0.017	568.299	0.016
Sweepers/Scrubbers	2030	176	250	6.813	0.182	1.116	0.37	0.006	0.013	0.013	568.299	0.016
Sweepers/Scrubbers	2035	6	15	1.624	0.589	3.47	4.142	0.008	0.161	0.161	568.299	0.053
Sweepers/Scrubbers	2035	16	25	3.103	0.685	2.34	4.332	0.007	0.161	0.161	568.3	0.061
Sweepers/Scrubbers	2035	26	50	3.681	0.505	4.929	3.214	0.007	0.017	0.017	568.299	0.045
Sweepers/Scrubbers	2035	51	120	4.386	0.253	3.698	1.486	0.006	0.016	0.016	568.299	0.022
Sweepers/Scrubbers	2035	121	175	5.628	0.175	3.271	0.313	0.006	0.012	0.012	568.299	0.015
Sweepers/Scrubbers	2035	176	250	6.501	0.173	1.114	0.294	0.006	0.011	0.011	568.299	0.015
Sweepers/Scrubbers	2040	6	15	1.624	0.589	3.47	4.142	0.008	0.161	0.161	568.3	0.053
Sweepers/Scrubbers	2040	16	25	3.103	0.685	2.34	4.332	0.007	0.161	0.161	568.299	0.061
Sweepers/Scrubbers	2040	26	50	3.675	0.504	4.925	3.203	0.007	0.016	0.016	568.3	0.045
Sweepers/Scrubbers	2040	51	120	4.354	0.251	3.697	1.469	0.006	0.015	0.015	568.299	0.022
Sweepers/Scrubbers	2040	121	175	5.537	0.172	3.27	0.284	0.006	0.011	0.011	568.299	0.015
Sweepers/Scrubbers	2040	176	250	6.454	0.172	1.114	0.284	0.006	0.011	0.011	568.299	0.015
Tractors/Loaders/Backhoes	1990	16	25	5.699	2.213	4.999	6.919	0.855	0.741	0.741	568.299	0.199
Tractors/Loaders/Backhoes	1990	26	50	23.587	4.787	9.698	7.939	0.871	1.267	1.267	568.299	0.431
Tractors/Loaders/Backhoes	1990	51	120	19.595	2.333	5.659	14.779	0.791	1.327	1.327	568.299	0.21
Tractors/Loaders/Backhoes	1990	121	175	28.833	1.751	5.008	14.021	0.758	0.974	0.974	568.299	0.158
Tractors/Loaders/Backhoes	1990	176	250	48.841	1.751	5.008	14.021	0.758	0.974	0.974	568.299	0.158
Tractors/Loaders/Backhoes	1990	251	500	86.854	1.551	10.967	13.298	0.758	0.834	0.834	568.3	0.139
Tractors/Loaders/Backhoes	1990	501	750	130.281	1.551	10.967	13.298	1.139	0.85	0.85	568.299	0.139
Tractors/Loaders/Backhoes	2000	16	25	5.225	2.029	4.66	6.391	0.065	0.57	0.57	568.299	0.183
Tractors/Loaders/Backhoes	2000	26	50	21.043	4.271	8.855	6.964	0.066	0.903	0.903	568.299	0.385
Tractors/Loaders/Backhoes	2000	51	120	14.597	1.738	4.448	9.784	0.06	0.862	0.862	568.299	0.156
Tractors/Loaders/Backhoes	2000	121	175	19.393	1.178	3.534	9.027	0.057	0.494	0.494	568.299	0.106
Tractors/Loaders/Backhoes	2000	176	250	26.283	0.942	2.634	8.625	0.057	0.38	0.38	568.299	0.085
Tractors/Loaders/Backhoes	2000	251	500	48.341	0.863	3.629	8.225	0.057	0.339	0.339	568.299	0.077
Tractors/Loaders/Backhoes	2000	501	750	72.512	0.863	3.629	8.225	0.059	0.339	0.339	568.299	0.077
Tractors/Loaders/Backhoes	2005	16	25	3.067	1.191	3.137	5.648	0.065	0.404	0.404	568.299	0.107
Tractors/Loaders/Backhoes	2005	26	50	18.069	3.667	8.018	6.405	0.066	0.819	0.819	568.299	0.33

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Tractors/Loaders/Backhoes	2005	51	120	12.595	1.499	4.22	8.325	0.06	0.802	0.802	568.299	0.135
Tractors/Loaders/Backhoes	2005	121	175	16.035	0.974	3.341	7.629	0.057	0.432	0.432	568.3	0.087
Tractors/Loaders/Backhoes	2005	176	250	18.392	0.659	1.774	7.181	0.057	0.256	0.256	568.3	0.059
Tractors/Loaders/Backhoes	2005	251	500	32.511	0.58	1.993	6.451	0.057	0.23	0.23	568.299	0.052
Tractors/Loaders/Backhoes	2005	501	750	49.91	0.594	1.99	6.656	0.059	0.234	0.234	568.299	0.053
Tractors/Loaders/Backhoes	2010	16	25	1.894649	1.592	5.95576	5.63221	0.005	0.561	0.516	569.9866	0.166
Tractors/Loaders/Backhoes	2010	26	50	1.894649	1.592	5.95576	5.63221	0.005	0.561	0.516	569.9866	0.166
Tractors/Loaders/Backhoes	2010	51	120	0.792369	0.666	3.83197	6.31224	0.005	0.504	0.464	533.5879	0.155
Tractors/Loaders/Backhoes	2010	121	175	0.559066	0.47	3.20391	5.68573	0.005	0.285	0.263	521.9624	0.152
Tractors/Loaders/Backhoes	2010	176	250	0.408454	0.343	1.44044	5.58586	0.005	0.178	0.163	522.8516	0.152
Tractors/Loaders/Backhoes	2010	251	500	0.391383	0.329	2.07689	5.18517	0.005	0.172	0.158	526.5923	0.153
Tractors/Loaders/Backhoes	2010	501	750	0.330642	0.278	1.80487	4.39795	0.005	0.153	0.141	517.4169	0.151
Tractors/Loaders/Backhoes	2011	16	25	1.788969	1.503	5.86306	5.58613	0.005	0.54	0.497	569.4176	0.166
Tractors/Loaders/Backhoes	2011	26	50	1.788969	1.503	5.86306	5.58613	0.005	0.54	0.497	569.4176	0.166
Tractors/Loaders/Backhoes	2011	51	120	0.766159	0.644	3.83083	6.12981	0.005	0.491	0.451	531.2907	0.155
Tractors/Loaders/Backhoes	2011	121	175	0.544391	0.457	3.21464	5.49667	0.005	0.277	0.255	520.8772	0.152
Tractors/Loaders/Backhoes	2011	176	250	0.400263	0.336	1.41416	5.38873	0.005	0.172	0.158	521.7143	0.152
Tractors/Loaders/Backhoes	2011	251	500	0.383321	0.322	2.01155	4.98779	0.005	0.167	0.154	525.0356	0.153
Tractors/Loaders/Backhoes	2011	501	750	0.337174	0.283	1.80098	4.35896	0.005	0.153	0.14	516.0241	0.151
Tractors/Loaders/Backhoes	2012	16	25	1.778006	1.494	5.92961	5.57167	0.005	0.537	0.494	568.1171	0.166
Tractors/Loaders/Backhoes	2012	26	50	1.778006	1.494	5.92961	5.57167	0.005	0.537	0.494	568.1171	0.166
Tractors/Loaders/Backhoes	2012	51	120	0.765477	0.643	3.85825	6.07938	0.005	0.49	0.45	529.8013	0.155
Tractors/Loaders/Backhoes	2012	121	175	0.55208	0.464	3.24733	5.48812	0.005	0.279	0.257	519.5807	0.152
Tractors/Loaders/Backhoes	2012	176	250	0.408595	0.343	1.42415	5.3794	0.005	0.173	0.159	520.5233	0.152
Tractors/Loaders/Backhoes	2012	251	500	0.391545	0.329	2.03631	4.9585	0.005	0.168	0.154	523.6066	0.153
Tractors/Loaders/Backhoes	2012	501	750	0.34578	0.291	1.81138	4.30593	0.005	0.153	0.141	514.6158	0.151
Tractors/Loaders/Backhoes	2013	16	25	1.710175	1.437	5.8983	5.50692	0.005	0.52	0.478	566.4101	0.167
Tractors/Loaders/Backhoes	2013	26	50	1.710175	1.437	5.8983	5.50692	0.005	0.52	0.478	566.4101	0.167
Tractors/Loaders/Backhoes	2013	51	120	0.736849	0.619	3.85259	5.88177	0.005	0.468	0.431	526.7149	0.155
Tractors/Loaders/Backhoes	2013	121	175	0.53894	0.453	3.25593	5.32658	0.005	0.269	0.248	516.748	0.152
Tractors/Loaders/Backhoes	2013	176	250	0.404183	0.34	1.40715	5.22143	0.005	0.168	0.155	517.9916	0.152
Tractors/Loaders/Backhoes	2013	251	500	0.386263	0.325	1.98237	4.77348	0.005	0.162	0.149	520.6472	0.153
Tractors/Loaders/Backhoes	2013	501	750	0.357231	0.3	1.8218	4.31599	0.005	0.155	0.143	511.8955	0.151
Tractors/Loaders/Backhoes	2014	16	25	1.58953	1.336	5.77182	5.36869	0.005	0.488	0.449	564.0421	0.167
Tractors/Loaders/Backhoes	2014	26	50	1.58953	1.336	5.77182	5.36869	0.005	0.488	0.449	564.0421	0.167
Tractors/Loaders/Backhoes	2014	51	120	0.692813	0.582	3.82724	5.58081	0.005	0.438	0.403	523.0168	0.155
Tractors/Loaders/Backhoes	2014	121	175	0.503298	0.423	3.23863	4.93788	0.005	0.248	0.228	513.8903	0.152
Tractors/Loaders/Backhoes	2014	176	250	0.389056	0.327	1.37555	4.92175	0.005	0.159	0.146	515.1747	0.152
Tractors/Loaders/Backhoes	2014	251	500	0.371559	0.312	1.87787	4.48819	0.005	0.152	0.14	517.1237	0.153
Tractors/Loaders/Backhoes	2014	501	750	0.362599	0.305	1.8331	4.24344	0.005	0.154	0.141	511.3367	0.151
Tractors/Loaders/Backhoes	2015	16	25	1.555682	1.307	5.79091	5.32019	0.005	0.477	0.439	558.7085	0.167
Tractors/Loaders/Backhoes	2015	26	50	1.555682	1.307	5.79091	5.32019	0.005	0.477	0.439	558.7085	0.167
Tractors/Loaders/Backhoes	2015	51	120	0.677539	0.569	3.83198	5.4221	0.005	0.424	0.39	517.3652	0.154
Tractors/Loaders/Backhoes	2015	121	175	0.501434	0.421	3.2559	4.83599	0.005	0.244	0.225	508.6819	0.152
Tractors/Loaders/Backhoes	2015	176	250	0.387795	0.326	1.37366	4.7831	0.005	0.155	0.143	509.6269	0.152
Tractors/Loaders/Backhoes	2015	251	500	0.371246	0.312	1.88403	4.34833	0.005	0.149	0.137	511.8685	0.153
Tractors/Loaders/Backhoes	2015	501	750	0.36596	0.308	1.823	4.1848	0.005	0.152	0.14	506.1469	0.151
Tractors/Loaders/Backhoes	2016	16	25	1.488115	1.25	5.74113	5.21373	0.005	0.455	0.418	553.3996	0.167
Tractors/Loaders/Backhoes	2016	26	50	1.488115	1.25	5.74113	5.21373	0.005	0.455	0.418	553.3996	0.167
Tractors/Loaders/Backhoes	2016	51	120	0.640315	0.538	3.81146	5.14235	0.005	0.396	0.364	511.3456	0.154
Tractors/Loaders/Backhoes	2016	121	175	0.46319	0.389	3.23229	4.37945	0.005	0.222	0.204	502.6294	0.152
Tractors/Loaders/Backhoes	2016	176	250	0.369743	0.311	1.34719	4.42611	0.005	0.145	0.133	504.4014	0.152
Tractors/Loaders/Backhoes	2016	251	500	0.337794	0.284	1.78642	3.7866	0.005	0.131	0.121	505.2698	0.152
Tractors/Loaders/Backhoes	2016	501	750	0.357237	0.3	1.67424	4.0216	0.005	0.144	0.133	500.955	0.151
Tractors/Loaders/Backhoes	2017	16	25	1.421071	1.194	5.68921	5.10958	0.005	0.433	0.398	544.9286	0.167
Tractors/Loaders/Backhoes	2017	26	50	1.421071	1.194	5.68921	5.10958	0.005	0.433	0.398	544.9286	0.167
Tractors/Loaders/Backhoes	2017	51	120	0.595595	0.5	3.7818	4.8087	0.005	0.362	0.333	502.7952	0.154
Tractors/Loaders/Backhoes	2017	121	175	0.420865	0.354	3.19961	3.87876	0.005	0.197	0.181	493.912	0.151
Tractors/Loaders/Backhoes	2017	176	250	0.346619	0.291	1.30369	4.04062	0.005	0.132	0.121	496.8449	0.152
Tractors/Loaders/Backhoes	2017	251	500	0.323689	0.272	1.73851	3.48988	0.005	0.122	0.112	497.1129	0.152
Tractors/Loaders/Backhoes	2017	501	750	0.35268	0.296	1.64567	3.86196	0.005	0.139	0.128	492.9529	0.151
Tractors/Loaders/Backhoes	2018	16	25	1.180685	0.992	5.31043	4.76441	0.005	0.363	0.334	536.1115	0.167
Tractors/Loaders/Backhoes	2018	26	50	1.180685	0.992	5.31043	4.76441	0.005	0.363	0.334	536.1115	0.167
Tractors/Loaders/Backhoes	2018	51	120	0.5003	0.42	3.69155	4.15444	0.005	0.294	0.271	494.1237	0.154
Tractors/Loaders/Backhoes	2018	121	175	0.353485	0.297	3.13727	3.16806	0.005	0.16	0.147	485.7754	0.151
Tractors/Loaders/Backhoes	2018	176	250	0.308076	0.259	1.24197	3.45965	0.005	0.112	0.103	489.4562	0.152
Tractors/Loaders/Backhoes	2018	251	500	0.264454	0.222	1.44545	2.66877	0.005	0.092	0.085	486.2939	0.151
Tractors/Loaders/Backhoes	2018	501	750	0.322751	0.271	1.60068	3.40235	0.005	0.124	0.114	485.0099	0.151
Tractors/Loaders/Backhoes	2019	16	25	1.095082	0.92	5.20327	4.60928	0.005	0.33	0.304	527.6843	0.167
Tractors/Loaders/Backhoes	2019	26	50	1.095082	0.92	5.20327	4.60928	0.005	0.33	0.304	527.6843	0.167

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Tractors/Loaders/Backhoes	2019	51	120	0.437701	0.368	3.63777	3.69257	0.005	0.247	0.227	485.8548	0.154
Tractors/Loaders/Backhoes	2019	121	175	0.321856	0.27	3.12158	2.78412	0.005	0.14	0.129	477.9151	0.151
Tractors/Loaders/Backhoes	2019	176	250	0.291458	0.245	1.22027	3.14683	0.005	0.102	0.094	481.4206	0.152
Tractors/Loaders/Backhoes	2019	251	500	0.245176	0.206	1.38918	2.34458	0.005	0.082	0.075	479.0826	0.152
Tractors/Loaders/Backhoes	2019	501	750	0.311873	0.262	1.6025	3.12046	0.005	0.117	0.107	478.9216	0.152
Tractors/Loaders/Backhoes	2020	16	25	0.987255	0.83	5.03491	4.39784	0.005	0.288	0.265	515.874	0.167
Tractors/Loaders/Backhoes	2020	26	50	0.987255	0.83	5.03491	4.39784	0.005	0.288	0.265	515.874	0.167
Tractors/Loaders/Backhoes	2020	51	120	0.393883	0.331	3.60147	3.32571	0.005	0.21	0.193	475.1543	0.154
Tractors/Loaders/Backhoes	2020	121	175	0.29217	0.246	3.10518	2.41467	0.005	0.122	0.112	467.5132	0.151
Tractors/Loaders/Backhoes	2020	176	250	0.268036	0.225	1.19592	2.73794	0.005	0.09	0.083	470.4998	0.152
Tractors/Loaders/Backhoes	2020	251	500	0.230511	0.194	1.35815	2.07976	0.005	0.073	0.067	468.2447	0.151
Tractors/Loaders/Backhoes	2020	501	750	0.318709	0.268	1.60984	3.11926	0.005	0.117	0.108	468.6602	0.152
Tractors/Loaders/Backhoes	2021	16	25	0.899672	0.756	4.90172	4.22643	0.005	0.254	0.234	515.1213	0.167
Tractors/Loaders/Backhoes	2021	26	50	0.899672	0.756	4.90172	4.22643	0.005	0.254	0.234	515.1213	0.167
Tractors/Loaders/Backhoes	2021	51	120	0.35209	0.296	3.57072	2.995	0.005	0.177	0.162	475.3621	0.154
Tractors/Loaders/Backhoes	2021	121	175	0.263016	0.221	3.0907	2.06221	0.005	0.104	0.096	467.5285	0.151
Tractors/Loaders/Backhoes	2021	176	250	0.249239	0.209	1.18606	2.36922	0.005	0.08	0.074	470.5716	0.152
Tractors/Loaders/Backhoes	2021	251	500	0.213479	0.179	1.34147	1.776	0.005	0.064	0.059	469.3025	0.152
Tractors/Loaders/Backhoes	2021	501	750	0.294477	0.247	1.43254	2.75417	0.005	0.104	0.096	466.4564	0.151
Tractors/Loaders/Backhoes	2022	16	25	0.818675	0.688	4.75954	4.03024	0.005	0.218	0.2	514.4613	0.166
Tractors/Loaders/Backhoes	2022	26	50	0.818675	0.688	4.75954	4.03024	0.005	0.218	0.2	514.4613	0.166
Tractors/Loaders/Backhoes	2022	51	120	0.309669	0.26	3.53551	2.64718	0.005	0.142	0.131	475.8975	0.154
Tractors/Loaders/Backhoes	2022	121	175	0.237945	0.2	3.07944	1.75274	0.005	0.089	0.082	467.8004	0.151
Tractors/Loaders/Backhoes	2022	176	250	0.222521	0.187	1.16248	1.94251	0.005	0.067	0.062	470.1236	0.152
Tractors/Loaders/Backhoes	2022	251	500	0.190771	0.16	1.28026	1.43694	0.005	0.053	0.049	469.2562	0.152
Tractors/Loaders/Backhoes	2022	501	750	0.276438	0.232	1.35272	2.4532	0.005	0.094	0.087	466.6327	0.151
Tractors/Loaders/Backhoes	2023	16	25	0.738634	0.621	4.62935	3.85698	0.005	0.185	0.17	513.7962	0.166
Tractors/Loaders/Backhoes	2023	26	50	0.738634	0.621	4.62935	3.85698	0.005	0.185	0.17	513.7962	0.166
Tractors/Loaders/Backhoes	2023	51	120	0.284572	0.239	3.52504	2.42607	0.005	0.12	0.11	476.4307	0.154
Tractors/Loaders/Backhoes	2023	121	175	0.219196	0.184	3.0777	1.52095	0.005	0.077	0.07	468.821	0.152
Tractors/Loaders/Backhoes	2023	176	250	0.201205	0.169	1.14809	1.58768	0.005	0.058	0.053	469.7518	0.152
Tractors/Loaders/Backhoes	2023	251	500	0.180818	0.152	1.27923	1.24708	0.005	0.047	0.043	469.4652	0.152
Tractors/Loaders/Backhoes	2023	501	750	0.278685	0.234	1.36081	2.41861	0.005	0.095	0.087	466.6756	0.151
Tractors/Loaders/Backhoes	2024	16	25	0.701609	0.59	4.60899	3.76811	0.005	0.166	0.153	513.8517	0.166
Tractors/Loaders/Backhoes	2024	26	50	0.701609	0.59	4.60899	3.76811	0.005	0.166	0.153	513.8517	0.166
Tractors/Loaders/Backhoes	2024	51	120	0.270597	0.227	3.5318	2.28795	0.005	0.105	0.097	476.7313	0.154
Tractors/Loaders/Backhoes	2024	121	175	0.209421	0.176	3.08913	1.37643	0.005	0.068	0.063	469.4029	0.152
Tractors/Loaders/Backhoes	2024	176	250	0.199431	0.168	1.15125	1.49113	0.005	0.054	0.05	469.9143	0.152
Tractors/Loaders/Backhoes	2024	251	500	0.178929	0.15	1.277	1.16321	0.005	0.044	0.041	470.0841	0.152
Tractors/Loaders/Backhoes	2024	501	750	0.262816	0.221	1.31051	2.21548	0.005	0.085	0.079	466.6381	0.151
Tractors/Loaders/Backhoes	2025	16	25	0.654585	0.55	4.55974	3.66186	0.005	0.145	0.133	513.8025	0.166
Tractors/Loaders/Backhoes	2025	26	50	0.654585	0.55	4.55974	3.66186	0.005	0.145	0.133	513.8025	0.166
Tractors/Loaders/Backhoes	2025	51	120	0.248412	0.209	3.52242	2.10918	0.005	0.085	0.079	477.188	0.154
Tractors/Loaders/Backhoes	2025	121	175	0.192617	0.162	3.08323	1.18039	0.005	0.058	0.054	469.3289	0.152
Tractors/Loaders/Backhoes	2025	176	250	0.183368	0.154	1.14554	1.23458	0.005	0.047	0.044	470.5976	0.152
Tractors/Loaders/Backhoes	2025	251	500	0.171862	0.144	1.23405	1.04575	0.005	0.039	0.036	470.9102	0.152
Tractors/Loaders/Backhoes	2025	501	750	0.222943	0.187	1.26139	1.64868	0.005	0.067	0.062	466.4517	0.151
Tractors/Loaders/Backhoes	2030	16	25	1.765	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Tractors/Loaders/Backhoes	2030	26	50	2.657	0.539	4.966	3.299	0.007	0.033	0.033	568.299	0.048
Tractors/Loaders/Backhoes	2030	51	120	2.285	0.272	3.705	1.624	0.006	0.03	0.03	568.299	0.024
Tractors/Loaders/Backhoes	2030	121	175	3.178	0.193	3.273	0.485	0.006	0.02	0.02	568.299	0.017
Tractors/Loaders/Backhoes	2030	176	250	5.112	0.183	1.115	0.418	0.006	0.014	0.014	568.299	0.016
Tractors/Loaders/Backhoes	2030	251	500	10.236	0.182	1.066	0.403	0.006	0.014	0.014	568.299	0.016
Tractors/Loaders/Backhoes	2030	501	750	15.363	0.182	1.066	0.407	0.006	0.014	0.014	568.299	0.016
Tractors/Loaders/Backhoes	2035	16	25	1.765	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Tractors/Loaders/Backhoes	2035	26	50	2.538	0.515	4.949	3.244	0.007	0.022	0.022	568.299	0.046
Tractors/Loaders/Backhoes	2035	51	120	2.17	0.258	3.703	1.521	0.006	0.02	0.02	568.299	0.023
Tractors/Loaders/Backhoes	2035	121	175	2.956	0.179	3.275	0.348	0.006	0.015	0.015	568.299	0.016
Tractors/Loaders/Backhoes	2035	176	250	4.945	0.177	1.115	0.331	0.006	0.012	0.012	568.299	0.016
Tractors/Loaders/Backhoes	2035	251	500	9.922	0.177	1.066	0.326	0.006	0.012	0.012	568.299	0.015
Tractors/Loaders/Backhoes	2035	501	750	14.886	0.177	1.066	0.327	0.006	0.012	0.012	568.299	0.015
Tractors/Loaders/Backhoes	2040	16	25	1.765	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Tractors/Loaders/Backhoes	2040	26	50	2.506	0.508	4.946	3.22	0.007	0.018	0.018	568.299	0.045
Tractors/Loaders/Backhoes	2040	51	120	2.135	0.254	3.703	1.485	0.006	0.016	0.016	568.299	0.022
Tractors/Loaders/Backhoes	2040	121	175	2.891	0.175	3.276	0.305	0.006	0.012	0.012	568.299	0.015
Tractors/Loaders/Backhoes	2040	176	250	4.877	0.174	1.116	0.297	0.006	0.011	0.011	568.3	0.015
Tractors/Loaders/Backhoes	2040	251	500	9.794	0.174	1.066	0.297	0.006	0.011	0.011	568.299	0.015
Tractors/Loaders/Backhoes	2040	501	750	14.69	0.174	1.066	0.297	0.006	0.011	0.011	568.299	0.015
Trenchers	1990	6	15	3.844	1.804	4.999	9.999	1.049	0.975	0.975	568.299	0.162
Trenchers	1990	16	25	18.341	2.213	4.999	6.919	0.855	0.741	0.741	568.3	0.199

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Trenchers	1990	26	50	37.589	4.535	9.232	7.849	0.871	1.215	1.215	568.3	0.409
Trenchers	1990	51	120	37.519	2.296	5.621	14.752	0.791	1.284	1.284	568.299	0.207
Trenchers	1990	121	175	63.364	1.748	5.014	14.125	0.758	0.96	0.96	568.299	0.157
Trenchers	1990	176	250	98.152	1.748	5.014	14.125	0.758	0.96	0.96	568.299	0.157
Trenchers	1990	251	500	121.775	1.553	10.572	13.45	0.662	0.827	0.827	568.299	0.14
Trenchers	1990	501	750	229.57	1.553	10.572	13.45	1.018	0.843	0.843	568.299	0.14
Trenchers	2000	6	15	2.824	1.325	4.257	7.675	0.079	0.61	0.61	568.299	0.119
Trenchers	2000	16	25	15.815	1.908	4.438	6.326	0.065	0.555	0.555	568.299	0.172
Trenchers	2000	26	50	34.945	4.216	8.713	7.029	0.066	0.89	0.89	568.299	0.38
Trenchers	2000	51	120	30.939	1.893	4.777	10.98	0.06	0.882	0.882	568.299	0.17
Trenchers	2000	121	175	46.959	1.296	3.969	10.057	0.057	0.541	0.541	568.299	0.116
Trenchers	2000	176	250	64.645	1.151	3.402	9.8	0.057	0.474	0.474	568.299	0.103
Trenchers	2000	251	500	81.678	1.042	6.221	9.354	0.05	0.416	0.416	568.299	0.094
Trenchers	2000	501	750	153.98	1.042	6.221	9.354	0.052	0.416	0.416	568.299	0.094
Trenchers	2005	6	15	1.582	0.742	3.469	4.981	0.079	0.35	0.35	568.299	0.066
Trenchers	2005	16	25	7.043	0.849	2.519	5.321	0.065	0.333	0.333	568.3	0.076
Trenchers	2005	26	50	32.497	3.921	8.33	6.674	0.066	0.849	0.849	568.299	0.353
Trenchers	2005	51	120	27.751	1.698	4.526	9.727	0.06	0.839	0.839	568.299	0.153
Trenchers	2005	121	175	40.799	1.126	3.695	8.861	0.057	0.487	0.487	568.299	0.101
Trenchers	2005	176	250	51.63	0.92	2.668	8.545	0.057	0.379	0.379	568.299	0.083
Trenchers	2005	251	500	63.694	0.812	4.395	7.903	0.05	0.332	0.332	568.299	0.073
Trenchers	2005	501	750	121.568	0.822	4.387	8.023	0.052	0.333	0.333	568.299	0.074
Trenchers	2010	6	15	1.531711	1.287	5.11336	5.52761	0.005	0.509	0.468	586.297	0.171
Trenchers	2010	16	25	1.531711	1.287	5.11336	5.52761	0.005	0.509	0.468	586.297	0.171
Trenchers	2010	26	50	1.531711	1.287	5.11336	5.52761	0.005	0.509	0.468	586.297	0.171
Trenchers	2010	51	120	1.099287	0.924	4.07421	7.99924	0.005	0.62	0.571	529.306	0.154
Trenchers	2010	121	175	0.922781	0.775	3.7406	8.65095	0.005	0.441	0.406	519.6876	0.151
Trenchers	2010	176	250	0.705197	0.593	2.36576	7.86432	0.005	0.314	0.288	527.3537	0.154
Trenchers	2010	251	500	0.380701	0.32	2.10547	4.85363	0.005	0.176	0.162	523.7828	0.152
Trenchers	2010	501	750	0.194919	0.164	1.33412	3.20501	0.005	0.113	0.104	525.788	0.153
Trenchers	2011	6	15	1.520162	1.277	5.14932	5.52336	0.005	0.507	0.467	585.033	0.171
Trenchers	2011	16	25	1.520162	1.277	5.14932	5.52336	0.005	0.507	0.467	585.033	0.171
Trenchers	2011	26	50	1.520162	1.277	5.14932	5.52336	0.005	0.507	0.467	585.033	0.171
Trenchers	2011	51	120	1.045215	0.878	4.02646	7.67483	0.005	0.598	0.55	527.7187	0.154
Trenchers	2011	121	175	0.916044	0.77	3.73004	8.56359	0.005	0.438	0.403	518.4008	0.151
Trenchers	2011	176	250	0.655301	0.551	2.19702	7.41222	0.005	0.29	0.267	525.9543	0.153
Trenchers	2011	251	500	0.372561	0.313	2.04569	4.66474	0.005	0.171	0.158	522.8418	0.153
Trenchers	2011	501	750	0.180473	0.152	1.33856	2.67369	0.005	0.097	0.089	525.691	0.153
Trenchers	2012	6	15	1.545009	1.298	5.24421	5.53504	0.005	0.512	0.471	583.5639	0.171
Trenchers	2012	16	25	1.545009	1.298	5.24421	5.53504	0.005	0.512	0.471	583.5639	0.171
Trenchers	2012	26	50	1.545009	1.298	5.24421	5.53504	0.005	0.512	0.471	583.5639	0.171
Trenchers	2012	51	120	1.052636	0.885	4.05076	7.69459	0.005	0.604	0.556	526.3562	0.154
Trenchers	2012	121	175	0.907539	0.763	3.7162	8.45762	0.005	0.436	0.401	517.1147	0.151
Trenchers	2012	176	250	0.662356	0.557	2.20863	7.44867	0.005	0.293	0.27	524.572	0.153
Trenchers	2012	251	500	0.369046	0.31	2.03349	4.58546	0.005	0.168	0.155	521.6264	0.153
Trenchers	2012	501	750	0.135931	0.114	0.95532	2.04792	0.005	0.069	0.064	524.8533	0.154
Trenchers	2013	6	15	1.53809	1.292	5.2883	5.51013	0.005	0.509	0.469	580.7693	0.171
Trenchers	2013	16	25	1.53809	1.292	5.2883	5.51013	0.005	0.509	0.469	580.7693	0.171
Trenchers	2013	26	50	1.53809	1.292	5.2883	5.51013	0.005	0.509	0.469	580.7693	0.171
Trenchers	2013	51	120	1.010936	0.849	4.02389	7.45031	0.005	0.582	0.536	523.4236	0.154
Trenchers	2013	121	175	0.916392	0.77	3.73732	8.49431	0.005	0.441	0.406	514.53	0.151
Trenchers	2013	176	250	0.626949	0.527	2.13383	7.03951	0.005	0.276	0.254	520.4335	0.153
Trenchers	2013	251	500	0.376293	0.316	2.04997	4.60225	0.005	0.17	0.156	519.043	0.153
Trenchers	2013	501	750	0.144323	0.121	0.96183	2.05561	0.005	0.07	0.065	522.2778	0.154
Trenchers	2014	6	15	1.508934	1.268	5.29329	5.45539	0.005	0.501	0.46	577.7275	0.171
Trenchers	2014	16	25	1.508934	1.268	5.29329	5.45539	0.005	0.501	0.46	577.7275	0.171
Trenchers	2014	26	50	1.508934	1.268	5.29329	5.45539	0.005	0.501	0.46	577.7275	0.171
Trenchers	2014	51	120	0.973633	0.818	3.99876	7.2172	0.005	0.563	0.518	520.7658	0.154
Trenchers	2014	121	175	0.824366	0.693	3.66799	7.69921	0.005	0.395	0.364	512.1475	0.151
Trenchers	2014	176	250	0.591196	0.497	2.07009	6.48427	0.005	0.258	0.237	517.7188	0.153
Trenchers	2014	251	500	0.364023	0.306	2.03515	4.37019	0.005	0.161	0.148	513.7439	0.152
Trenchers	2014	501	750	0.140019	0.118	0.96403	1.825	0.005	0.061	0.056	519.6576	0.154
Trenchers	2015	6	15	1.498018	1.259	5.32346	5.40567	0.005	0.493	0.454	571.6674	0.171
Trenchers	2015	16	25	1.498018	1.259	5.32346	5.40567	0.005	0.493	0.454	571.6674	0.171
Trenchers	2015	26	50	1.498018	1.259	5.32346	5.40567	0.005	0.493	0.454	571.6674	0.171
Trenchers	2015	51	120	0.972367	0.817	4.01434	7.17857	0.005	0.562	0.517	515.3955	0.154
Trenchers	2015	121	175	0.829448	0.697	3.68389	7.67382	0.005	0.396	0.364	506.9434	0.151
Trenchers	2015	176	250	0.597101	0.502	2.0797	6.50988	0.005	0.26	0.239	512.4325	0.153
Trenchers	2015	251	500	0.370644	0.311	2.05093	4.38344	0.005	0.163	0.15	508.3296	0.152
Trenchers	2015	501	750	0.135272	0.114	0.96532	1.62336	0.005	0.053	0.049	514.4002	0.154

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Trenchers	2016	6	15	1.450442	1.219	5.28497	5.29818	0.005	0.475	0.437	565.9942	0.171
Trenchers	2016	16	25	1.450442	1.219	5.28497	5.29818	0.005	0.475	0.437	565.9942	0.171
Trenchers	2016	26	50	1.450442	1.219	5.28497	5.29818	0.005	0.475	0.437	565.9942	0.171
Trenchers	2016	51	120	0.937737	0.788	3.98822	6.90219	0.005	0.541	0.498	509.9027	0.154
Trenchers	2016	121	175	0.693219	0.582	3.50717	6.50303	0.005	0.328	0.302	501.7809	0.151
Trenchers	2016	176	250	0.58008	0.487	2.03007	6.31168	0.005	0.251	0.231	507.1448	0.153
Trenchers	2016	251	500	0.351818	0.296	1.96649	4.09912	0.005	0.15	0.138	504.4103	0.152
Trenchers	2016	501	750	0.142468	0.12	0.97148	1.63008	0.005	0.054	0.05	509.1433	0.154
Trenchers	2017	6	15	1.367315	1.149	5.19682	5.16614	0.005	0.449	0.413	557.4601	0.171
Trenchers	2017	16	25	1.367315	1.149	5.19682	5.16614	0.005	0.449	0.413	557.4601	0.171
Trenchers	2017	26	50	1.367315	1.149	5.19682	5.16614	0.005	0.449	0.413	557.4601	0.171
Trenchers	2017	51	120	0.906302	0.762	3.96827	6.67876	0.005	0.523	0.481	501.9916	0.154
Trenchers	2017	121	175	0.638299	0.536	3.43391	5.92725	0.005	0.3	0.276	493.7642	0.151
Trenchers	2017	176	250	0.577948	0.486	2.03655	6.19428	0.005	0.25	0.23	499.2281	0.153
Trenchers	2017	251	500	0.315778	0.265	1.96603	3.44157	0.005	0.129	0.119	497.0197	0.152
Trenchers	2017	501	750	0.135465	0.114	0.97168	1.42958	0.005	0.046	0.042	501.1831	0.154
Trenchers	2018	6	15	1.236195	1.039	5.01831	4.95997	0.005	0.409	0.377	548.3607	0.171
Trenchers	2018	16	25	1.236195	1.039	5.01831	4.95997	0.005	0.409	0.377	548.3607	0.171
Trenchers	2018	26	50	1.236195	1.039	5.01831	4.95997	0.005	0.409	0.377	548.3607	0.171
Trenchers	2018	51	120	0.78315	0.658	3.85487	5.91527	0.005	0.45	0.414	493.715	0.154
Trenchers	2018	121	175	0.559787	0.47	3.33134	5.12742	0.005	0.261	0.24	485.9254	0.151
Trenchers	2018	176	250	0.498602	0.419	1.84856	5.29554	0.005	0.212	0.195	491.5649	0.153
Trenchers	2018	251	500	0.30464	0.256	1.97444	3.21114	0.005	0.121	0.112	489.6281	0.152
Trenchers	2018	501	750	0.111849	0.094	0.96632	1.02523	0.005	0.029	0.026	494.6426	0.154
Trenchers	2019	6	15	1.136688	0.955	4.89183	4.78464	0.005	0.377	0.347	539.1037	0.171
Trenchers	2019	16	25	1.136688	0.955	4.89183	4.78464	0.005	0.377	0.347	539.1037	0.171
Trenchers	2019	26	50	1.136688	0.955	4.89183	4.78464	0.005	0.377	0.347	539.1037	0.171
Trenchers	2019	51	120	0.751452	0.631	3.83677	5.69508	0.005	0.431	0.396	485.3635	0.154
Trenchers	2019	121	175	0.547248	0.46	3.34151	4.95976	0.005	0.255	0.234	478.1294	0.151
Trenchers	2019	176	250	0.481784	0.405	1.81019	5.04653	0.005	0.203	0.187	484.1167	0.153
Trenchers	2019	251	500	0.302803	0.254	1.98689	3.12824	0.005	0.118	0.109	482.1648	0.153
Trenchers	2019	501	750	0.09296	0.078	0.95644	0.70662	0.005	0.015	0.014	484.5422	0.153
Trenchers	2020	6	15	1.076913	0.905	4.8331	4.67651	0.005	0.356	0.328	527.0962	0.17
Trenchers	2020	16	25	1.076913	0.905	4.8331	4.67651	0.005	0.356	0.328	527.0962	0.17
Trenchers	2020	26	50	1.076913	0.905	4.8331	4.67651	0.005	0.356	0.328	527.0962	0.17
Trenchers	2020	51	120	0.726229	0.61	3.83272	5.51952	0.005	0.413	0.38	475.1265	0.154
Trenchers	2020	121	175	0.500709	0.421	3.32968	4.46042	0.005	0.228	0.21	467.7348	0.151
Trenchers	2020	176	250	0.466499	0.392	1.77405	4.8091	0.005	0.195	0.179	473.5951	0.153
Trenchers	2020	251	500	0.276702	0.233	1.85932	2.775	0.005	0.105	0.097	470.6367	0.152
Trenchers	2020	501	750	0.083454	0.07	0.95004	0.56006	0.005	0.009	0.008	472.6556	0.153
Trenchers	2021	6	15	0.962829	0.809	4.66576	4.45891	0.005	0.313	0.288	527.0165	0.17
Trenchers	2021	16	25	0.962829	0.809	4.66576	4.45891	0.005	0.313	0.288	527.0165	0.17
Trenchers	2021	26	50	0.962829	0.809	4.66576	4.45891	0.005	0.313	0.288	527.0165	0.17
Trenchers	2021	51	120	0.661739	0.556	3.78912	5.10594	0.005	0.371	0.341	475.287	0.154
Trenchers	2021	121	175	0.483838	0.407	3.30363	4.27237	0.005	0.219	0.201	467.7343	0.151
Trenchers	2021	176	250	0.42408	0.356	1.66826	4.36036	0.005	0.172	0.158	473.8538	0.153
Trenchers	2021	251	500	0.263326	0.221	1.86493	2.49105	0.005	0.1	0.092	470.701	0.152
Trenchers	2021	501	750	0.078358	0.066	0.94677	0.47513	0.005	0.009	0.008	472.5289	0.153
Trenchers	2022	6	15	0.859634	0.722	4.51833	4.26873	0.005	0.275	0.253	527.0258	0.17
Trenchers	2022	16	25	0.859634	0.722	4.51833	4.26873	0.005	0.275	0.253	527.0258	0.17
Trenchers	2022	26	50	0.859634	0.722	4.51833	4.26873	0.005	0.275	0.253	527.0258	0.17
Trenchers	2022	51	120	0.629528	0.529	3.77843	4.91345	0.005	0.348	0.32	475.3262	0.154
Trenchers	2022	121	175	0.470645	0.395	3.31289	4.10333	0.005	0.211	0.195	467.7337	0.151
Trenchers	2022	176	250	0.398562	0.335	1.66329	3.85292	0.005	0.16	0.148	473.8512	0.153
Trenchers	2022	251	500	0.252168	0.212	1.87233	2.21226	0.005	0.094	0.086	470.5845	0.152
Trenchers	2022	501	750	0.067683	0.057	0.94489	0.30138	0.005	0.009	0.008	474.2887	0.153
Trenchers	2023	6	15	0.763609	0.642	4.30164	3.95873	0.005	0.22	0.202	527.0954	0.17
Trenchers	2023	16	25	0.763609	0.642	4.30164	3.95873	0.005	0.22	0.202	527.0954	0.17
Trenchers	2023	26	50	0.763609	0.642	4.30164	3.95873	0.005	0.22	0.202	527.0954	0.17
Trenchers	2023	51	120	0.599816	0.504	3.76842	4.70045	0.005	0.326	0.3	475.6903	0.154
Trenchers	2023	121	175	0.427489	0.359	3.29061	3.65725	0.005	0.185	0.171	467.7332	0.151
Trenchers	2023	176	250	0.390278	0.328	1.6386	3.7365	0.005	0.155	0.143	473.8485	0.153
Trenchers	2023	251	500	0.236268	0.199	1.72273	2.00504	0.005	0.085	0.078	471.6125	0.153
Trenchers	2023	501	750	0.071688	0.06	0.95111	0.30278	0.005	0.009	0.008	474.4705	0.153
Trenchers	2024	6	15	0.714783	0.601	4.23326	3.83415	0.005	0.197	0.181	527.0216	0.17
Trenchers	2024	16	25	0.714783	0.601	4.23326	3.83415	0.005	0.197	0.181	527.0216	0.17
Trenchers	2024	26	50	0.714783	0.601	4.23326	3.83415	0.005	0.197	0.181	527.0216	0.17
Trenchers	2024	51	120	0.588274	0.494	3.76854	4.59319	0.005	0.318	0.292	475.6324	0.154
Trenchers	2024	121	175	0.432612	0.364	3.31073	3.66715	0.005	0.187	0.172	467.7326	0.151
Trenchers	2024	176	250	0.370794	0.312	1.59847	3.48285	0.005	0.145	0.134	473.8455	0.153

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Trenchers	2024	251	500	0.228039	0.192	1.66789	1.85871	0.005	0.08	0.074	469.9942	0.152
Trenchers	2024	501	750	0.076605	0.064	0.95838	0.30435	0.005	0.009	0.008	474.4782	0.153
Trenchers	2025	6	15	0.645012	0.542	4.11956	3.65681	0.005	0.163	0.15	527.1603	0.17
Trenchers	2025	16	25	0.645012	0.542	4.11956	3.65681	0.005	0.163	0.15	527.1603	0.17
Trenchers	2025	26	50	0.645012	0.542	4.11956	3.65681	0.005	0.163	0.15	527.1603	0.17
Trenchers	2025	51	120	0.5433	0.457	3.73437	4.279	0.005	0.285	0.262	475.9014	0.154
Trenchers	2025	121	175	0.426125	0.358	3.30907	3.54907	0.005	0.179	0.165	467.732	0.151
Trenchers	2025	176	250	0.365033	0.307	1.60076	3.31521	0.005	0.144	0.132	473.9168	0.153
Trenchers	2025	251	500	0.227307	0.191	1.67595	1.82613	0.005	0.079	0.072	470.4394	0.152
Trenchers	2025	501	750	0.079299	0.067	0.96233	0.30526	0.005	0.009	0.008	474.4863	0.153
Trenchers	2030	6	15	1.409	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Trenchers	2030	16	25	5.681	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Trenchers	2030	26	50	7.055	0.851	5.208	3.835	0.007	0.144	0.144	568.299	0.076
Trenchers	2030	51	120	6.697	0.409	3.743	2.559	0.006	0.132	0.132	568.299	0.036
Trenchers	2030	121	175	10.904	0.3	3.273	1.529	0.006	0.08	0.08	568.3	0.027
Trenchers	2030	176	250	14.406	0.256	1.188	1.348	0.006	0.049	0.049	568.3	0.023
Trenchers	2030	251	500	19.534	0.249	1.209	1.231	0.005	0.046	0.046	568.299	0.022
Trenchers	2030	501	750	36.902	0.249	1.209	1.254	0.005	0.047	0.047	568.299	0.022
Trenchers	2035	6	15	1.409	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Trenchers	2035	16	25	5.681	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Trenchers	2035	26	50	5.645	0.681	5.055	3.548	0.007	0.084	0.084	568.299	0.061
Trenchers	2035	51	120	5.437	0.332	3.713	2.049	0.006	0.076	0.076	568.3	0.03
Trenchers	2035	121	175	8.756	0.241	3.264	0.966	0.006	0.048	0.048	568.299	0.021
Trenchers	2035	176	250	12.171	0.216	1.149	0.847	0.006	0.031	0.031	568.299	0.019
Trenchers	2035	251	500	16.707	0.213	1.126	0.79	0.005	0.029	0.029	568.299	0.019
Trenchers	2035	501	750	31.529	0.213	1.126	0.801	0.005	0.029	0.029	568.3	0.019
Trenchers	2040	6	15	1.409	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Trenchers	2040	16	25	5.681	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Trenchers	2040	26	50	4.961	0.598	4.98	3.374	0.007	0.052	0.052	568.299	0.054
Trenchers	2040	51	120	4.791	0.293	3.699	1.767	0.006	0.047	0.047	568.299	0.026
Trenchers	2040	121	175	7.533	0.207	3.26	0.639	0.006	0.03	0.03	568.3	0.018
Trenchers	2040	176	250	10.853	0.193	1.126	0.573	0.006	0.02	0.02	568.3	0.017
Trenchers	2040	251	500	15.011	0.191	1.081	0.542	0.005	0.02	0.02	568.3	0.017
Trenchers	2040	501	750	28.323	0.191	1.081	0.549	0.005	0.02	0.02	568.299	0.017
Welders	1990	6	15	4.525	1.804	4.999	9.999	1.018	0.974	0.974	568.299	0.162
Welders	1990	16	25	10.092	2.213	4.999	6.919	0.83	0.74	0.74	568.299	0.199
Welders	1990	26	50	40.899	3.899	8.078	7.611	0.846	1.085	1.085	568.3	0.351
Welders	1990	51	120	33.632	2.107	5.312	13.999	0.768	1.146	1.146	568.3	0.19
Welders	1990	121	175	57.219	1.442	4.703	12.598	0.736	0.761	0.761	568.299	0.13
Welders	1990	176	250	69.387	1.442	4.703	12.598	0.736	0.761	0.761	568.299	0.13
Welders	1990	251	500	88.323	1.304	8.704	12.141	0.642	0.672	0.672	568.3	0.117
Welders	2000	6	15	4.323	1.723	4.875	9.08	0.079	0.747	0.747	568.299	0.155
Welders	2000	16	25	9.556	2.095	4.783	6.405	0.065	0.569	0.569	568.299	0.189
Welders	2000	26	50	38.432	3.664	7.708	6.797	0.066	0.803	0.803	568.299	0.33
Welders	2000	51	120	27.201	1.704	4.433	10.046	0.06	0.791	0.791	568.3	0.153
Welders	2000	121	175	45.269	1.14	3.61	9.126	0.057	0.468	0.468	568.299	0.102
Welders	2000	176	250	45.901	0.954	2.869	8.783	0.057	0.384	0.384	568.299	0.086
Welders	2000	251	500	59.514	0.878	4.719	8.466	0.05	0.344	0.344	568.299	0.079
Welders	2005	6	15	3.497	1.394	4.38	7.817	0.079	0.621	0.621	568.299	0.125
Welders	2005	16	25	7.401	1.622	3.922	6.014	0.065	0.483	0.483	568.299	0.146
Welders	2005	26	50	34.243	3.264	7.144	6.342	0.066	0.746	0.746	568.299	0.294
Welders	2005	51	120	23.288	1.459	4.096	8.459	0.06	0.733	0.733	568.299	0.131
Welders	2005	121	175	37.837	0.953	3.26	7.736	0.057	0.405	0.405	568.299	0.086
Welders	2005	176	250	32.839	0.682	1.941	7.302	0.057	0.268	0.268	568.299	0.061
Welders	2005	251	500	41.097	0.606	2.566	6.755	0.05	0.241	0.241	568.299	0.054
Welders	2010	6	15	2.82	1.124	4.027	6.554	0.008	0.473	0.473	568.3	0.101
Welders	2010	16	25	5.78	1.267	3.309	5.477	0.007	0.384	0.384	568.299	0.114
Welders	2010	26	50	27.885	2.658	6.571	5.944	0.007	0.623	0.623	568.299	0.239
Welders	2010	51	120	18.341	1.149	3.928	6.999	0.006	0.61	0.61	568.299	0.103
Welders	2010	121	175	30.26	0.762	3.185	6.255	0.006	0.338	0.338	568.299	0.068
Welders	2010	176	250	23.908	0.496	1.433	5.857	0.006	0.189	0.189	568.299	0.044
Welders	2010	251	500	30.15	0.445	1.621	5.26	0.005	0.174	0.174	568.299	0.04
Welders	2011	6	15	2.677	1.067	3.952	6.283	0.008	0.441	0.441	568.299	0.096
Welders	2011	16	25	5.436	1.192	3.179	5.36	0.007	0.361	0.361	568.3	0.107
Welders	2011	26	50	26.104	2.488	6.392	5.85	0.007	0.593	0.593	568.299	0.224
Welders	2011	51	120	17.199	1.077	3.891	6.632	0.006	0.584	0.584	568.3	0.097
Welders	2011	121	175	28.559	0.719	3.173	5.91	0.006	0.325	0.325	568.299	0.064
Welders	2011	176	250	22.03	0.457	1.34	5.462	0.006	0.17	0.17	568.299	0.041
Welders	2011	251	500	27.869	0.411	1.473	4.886	0.005	0.157	0.157	568.299	0.037
Welders	2012	6	15	2.527	1.007	3.874	5.999	0.008	0.407	0.407	568.299	0.09

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Welders	2012	16	25	5.076	1.113	3.043	5.239	0.007	0.337	0.337	568.299	0.1
Welders	2012	26	50	24.122	2.299	6.185	5.749	0.007	0.56	0.56	568.299	0.207
Welders	2012	51	120	15.992	1.001	3.852	6.232	0.006	0.549	0.549	568.299	0.09
Welders	2012	121	175	26.736	0.673	3.161	5.543	0.006	0.303	0.303	568.299	0.06
Welders	2012	176	250	20.583	0.427	1.281	5.087	0.006	0.154	0.154	568.299	0.038
Welders	2012	251	500	26.151	0.386	1.369	4.532	0.005	0.144	0.144	568.299	0.034
Welders	2013	6	15	2.378	0.948	3.796	5.716	0.008	0.373	0.373	568.299	0.085
Welders	2013	16	25	4.718	1.034	2.907	5.117	0.007	0.314	0.314	568.299	0.093
Welders	2013	26	50	22.037	2.101	5.967	5.526	0.007	0.517	0.517	568.299	0.189
Welders	2013	51	120	14.766	0.925	3.813	5.836	0.006	0.507	0.507	568.3	0.083
Welders	2013	121	175	24.884	0.627	3.151	5.195	0.006	0.279	0.279	568.299	0.056
Welders	2013	176	250	19.36	0.402	1.241	4.723	0.006	0.141	0.141	568.299	0.036
Welders	2013	251	500	24.728	0.365	1.291	4.191	0.005	0.131	0.131	568.299	0.032
Welders	2014	6	15	2.237	0.891	3.723	5.445	0.008	0.341	0.341	568.3	0.08
Welders	2014	16	25	4.381	0.96	2.78	5	0.007	0.291	0.291	568.299	0.086
Welders	2014	26	50	19.935	1.9	5.749	5.308	0.007	0.473	0.473	568.3	0.171
Welders	2014	51	120	13.552	0.849	3.774	5.481	0.006	0.464	0.464	568.299	0.076
Welders	2014	121	175	23.067	0.581	3.141	4.862	0.006	0.255	0.255	568.299	0.052
Welders	2014	176	250	18.135	0.376	1.207	4.297	0.006	0.128	0.128	568.299	0.034
Welders	2014	251	500	23.294	0.343	1.227	3.788	0.005	0.119	0.119	568.299	0.031
Welders	2015	6	15	2.109	0.84	3.658	5.196	0.008	0.311	0.311	568.299	0.075
Welders	2015	16	25	4.078	0.894	2.666	4.89	0.007	0.27	0.27	568.299	0.08
Welders	2015	26	50	17.994	1.715	5.562	5.113	0.007	0.43	0.43	568.3	0.154
Welders	2015	51	120	12.337	0.772	3.738	5.077	0.006	0.419	0.419	568.299	0.069
Welders	2015	121	175	21.139	0.532	3.133	4.408	0.006	0.23	0.23	568.299	0.048
Welders	2015	176	250	16.976	0.352	1.178	3.88	0.006	0.116	0.116	568.299	0.031
Welders	2015	251	500	21.953	0.324	1.176	3.398	0.005	0.108	0.108	568.299	0.029
Welders	2016	6	15	2.03	0.809	3.622	5.023	0.008	0.289	0.289	568.299	0.073
Welders	2016	16	25	3.903	0.855	2.604	4.803	0.007	0.255	0.255	568.299	0.077
Welders	2016	26	50	16.155	1.54	5.395	4.936	0.007	0.389	0.389	568.299	0.138
Welders	2016	51	120	11.165	0.699	3.705	4.692	0.006	0.375	0.375	568.3	0.063
Welders	2016	121	175	19.285	0.486	3.128	3.973	0.006	0.206	0.206	568.299	0.043
Welders	2016	176	250	15.901	0.33	1.153	3.481	0.006	0.104	0.104	568.299	0.029
Welders	2016	251	500	20.731	0.306	1.134	3.032	0.005	0.097	0.097	568.299	0.027
Welders	2017	6	15	1.973	0.786	3.599	4.887	0.008	0.272	0.272	568.299	0.07
Welders	2017	16	25	3.785	0.83	2.564	4.729	0.007	0.243	0.243	568.299	0.074
Welders	2017	26	50	14.392	1.372	5.239	4.768	0.007	0.35	0.35	568.299	0.123
Welders	2017	51	120	10.06	0.63	3.675	4.328	0.006	0.332	0.332	568.299	0.056
Welders	2017	121	175	17.561	0.442	3.124	3.562	0.006	0.183	0.183	568.299	0.039
Welders	2017	176	250	14.942	0.31	1.133	3.105	0.006	0.094	0.094	568.299	0.028
Welders	2017	251	500	19.705	0.29	1.102	2.713	0.005	0.088	0.088	568.299	0.026
Welders	2018	6	15	1.923	0.766	3.58	4.762	0.008	0.256	0.256	568.3	0.069
Welders	2018	16	25	3.684	0.807	2.531	4.661	0.007	0.232	0.232	568.299	0.072
Welders	2018	26	50	12.698	1.21	5.092	4.607	0.007	0.311	0.311	568.299	0.109
Welders	2018	51	120	9.016	0.564	3.648	3.98	0.006	0.29	0.29	568.299	0.05
Welders	2018	121	175	15.966	0.402	3.123	3.176	0.006	0.162	0.162	568.299	0.036
Welders	2018	176	250	14.068	0.292	1.118	2.751	0.006	0.084	0.084	568.299	0.026
Welders	2018	251	500	18.804	0.277	1.08	2.43	0.005	0.08	0.08	568.299	0.025
Welders	2019	6	15	1.877	0.748	3.562	4.647	0.008	0.241	0.241	568.299	0.067
Welders	2019	16	25	3.592	0.787	2.501	4.596	0.007	0.222	0.222	568.299	0.071
Welders	2019	26	50	11.071	1.055	4.95	4.449	0.007	0.273	0.273	568.299	0.095
Welders	2019	51	120	8.032	0.503	3.623	3.648	0.006	0.25	0.25	568.299	0.045
Welders	2019	121	175	14.693	0.37	3.122	2.832	0.006	0.143	0.143	568.3	0.033
Welders	2019	176	250	13.284	0.276	1.104	2.432	0.006	0.075	0.075	568.299	0.024
Welders	2019	251	500	17.937	0.264	1.065	2.163	0.005	0.072	0.072	568.3	0.023
Welders	2020	6	15	1.835	0.731	3.546	4.542	0.008	0.227	0.227	568.299	0.066
Welders	2020	16	25	3.507	0.769	2.473	4.538	0.007	0.212	0.212	568.299	0.069
Welders	2020	26	50	9.83	0.937	4.84	4.304	0.007	0.238	0.238	568.299	0.084
Welders	2020	51	120	7.278	0.455	3.605	3.351	0.006	0.216	0.216	568.299	0.041
Welders	2020	121	175	13.663	0.344	3.122	2.523	0.006	0.127	0.127	568.299	0.031
Welders	2020	176	250	12.577	0.261	1.093	2.143	0.006	0.066	0.066	568.299	0.023
Welders	2020	251	500	17.094	0.252	1.055	1.91	0.005	0.064	0.064	568.299	0.022
Welders	2021	6	15	1.8	0.717	3.531	4.462	0.008	0.214	0.214	568.299	0.064
Welders	2021	16	25	3.431	0.752	2.446	4.497	0.007	0.201	0.201	568.299	0.067
Welders	2021	26	50	8.704	0.829	4.708	4.133	0.007	0.203	0.203	568.299	0.074
Welders	2021	51	120	6.572	0.411	3.579	3.042	0.006	0.184	0.184	568.299	0.037
Welders	2021	121	175	12.512	0.315	3.112	2.189	0.006	0.11	0.11	568.299	0.028
Welders	2021	176	250	11.711	0.243	1.081	1.836	0.006	0.057	0.057	568.299	0.021
Welders	2021	251	500	15.998	0.236	1.044	1.642	0.005	0.055	0.055	568.299	0.021
Welders	2022	6	15	1.774	0.707	3.519	4.408	0.008	0.203	0.203	568.3	0.063

Table 3.4 OFFROAD Equipment Emission Factors (g/bhp-hr)

Equipment Type	Year	Low HP	High HP	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
Welders	2022	16	25	3.374	0.739	2.426	4.47	0.007	0.193	0.193	568.299	0.066
Welders	2022	26	50	7.959	0.758	4.645	4.007	0.007	0.175	0.175	568.299	0.068
Welders	2022	51	120	6.112	0.382	3.57	2.808	0.006	0.16	0.16	568.299	0.034
Welders	2022	121	175	11.714	0.295	3.113	1.935	0.006	0.097	0.097	568.3	0.026
Welders	2022	176	250	11.128	0.231	1.074	1.598	0.006	0.05	0.05	568.299	0.02
Welders	2022	251	500	15.267	0.225	1.038	1.454	0.005	0.049	0.049	568.3	0.02
Welders	2023	6	15	1.751	0.698	3.508	4.359	0.008	0.194	0.194	568.3	0.063
Welders	2023	16	25	3.322	0.728	2.407	4.447	0.007	0.186	0.186	568.299	0.065
Welders	2023	26	50	7.318	0.697	4.596	3.891	0.007	0.151	0.151	568.299	0.062
Welders	2023	51	120	5.713	0.357	3.564	2.599	0.006	0.139	0.139	568.299	0.032
Welders	2023	121	175	11.013	0.277	3.115	1.726	0.006	0.085	0.085	568.299	0.025
Welders	2023	176	250	10.606	0.22	1.071	1.404	0.006	0.044	0.044	568.299	0.019
Welders	2023	251	500	14.602	0.215	1.034	1.289	0.005	0.042	0.042	568.299	0.019
Welders	2024	6	15	1.731	0.69	3.499	4.316	0.008	0.188	0.188	568.299	0.062
Welders	2024	16	25	3.276	0.718	2.39	4.426	0.007	0.181	0.181	568.299	0.064
Welders	2024	26	50	6.78	0.646	4.557	3.782	0.007	0.13	0.13	568.299	0.058
Welders	2024	51	120	5.366	0.336	3.56	2.43	0.006	0.12	0.12	568.299	0.03
Welders	2024	121	175	10.369	0.261	3.118	1.541	0.006	0.074	0.074	568.299	0.023
Welders	2024	176	250	10.107	0.21	1.068	1.234	0.006	0.038	0.038	568.299	0.018
Welders	2024	251	500	13.957	0.206	1.032	1.135	0.005	0.037	0.037	568.299	0.018
Welders	2025	6	15	1.713	0.683	3.491	4.278	0.008	0.183	0.183	568.3	0.061
Welders	2025	16	25	3.237	0.709	2.376	4.407	0.007	0.177	0.177	568.299	0.064
Welders	2025	26	50	6.315	0.602	4.524	3.676	0.007	0.112	0.112	568.299	0.054
Welders	2025	51	120	5.055	0.316	3.557	2.283	0.006	0.102	0.102	568.299	0.028
Welders	2025	121	175	9.743	0.245	3.121	1.365	0.006	0.063	0.063	568.299	0.022
Welders	2025	176	250	9.621	0.199	1.065	1.075	0.006	0.032	0.032	568.299	0.018
Welders	2025	251	500	13.325	0.196	1.029	0.99	0.005	0.031	0.031	568.299	0.017
Welders	2030	6	15	1.665	0.663	3.47	4.164	0.008	0.166	0.166	568.299	0.059
Welders	2030	16	25	3.133	0.687	2.34	4.347	0.007	0.165	0.165	568.299	0.061
Welders	2030	26	50	4.719	0.449	4.387	3.273	0.007	0.045	0.045	568.299	0.04
Welders	2030	51	120	3.827	0.239	3.535	1.707	0.006	0.04	0.04	568.299	0.021
Welders	2030	121	175	7.011	0.176	3.121	0.628	0.006	0.027	0.027	568.299	0.015
Welders	2030	176	250	7.829	0.162	1.063	0.525	0.006	0.017	0.017	568.299	0.014
Welders	2030	251	500	10.967	0.161	1.027	0.495	0.005	0.017	0.017	568.299	0.014
Welders	2035	6	15	1.659	0.661	3.469	4.143	0.008	0.162	0.162	568.299	0.059
Welders	2035	16	25	3.126	0.685	2.339	4.332	0.007	0.162	0.162	568.299	0.061
Welders	2035	26	50	4.262	0.406	4.349	3.147	0.007	0.022	0.022	568.299	0.036
Welders	2035	51	120	3.418	0.214	3.528	1.509	0.006	0.019	0.019	568.299	0.019
Welders	2035	121	175	6.087	0.153	3.121	0.387	0.006	0.015	0.015	568.299	0.013
Welders	2035	176	250	7.189	0.149	1.063	0.343	0.006	0.012	0.012	568.299	0.013
Welders	2035	251	500	10.118	0.149	1.027	0.339	0.005	0.012	0.012	568.299	0.013
Welders	2040	6	15	1.659	0.661	3.469	4.142	0.008	0.161	0.161	568.299	0.059
Welders	2040	16	25	3.126	0.685	2.339	4.332	0.007	0.161	0.161	568.299	0.061
Welders	2040	26	50	4.218	0.402	4.336	3.093	0.007	0.015	0.015	568.3	0.036
Welders	2040	51	120	3.322	0.208	3.524	1.447	0.006	0.014	0.014	568.299	0.018
Welders	2040	121	175	5.753	0.145	3.118	0.303	0.006	0.011	0.011	568.299	0.013
Welders	2040	176	250	6.911	0.143	1.062	0.287	0.006	0.01	0.01	568.3	0.012
Welders	2040	251	500	9.728	0.143	1.026	0.287	0.005	0.01	0.01	568.299	0.012

Table 3.5 OFFROAD Emission Factor Based on Engine Tier

Tier	Low HP	High HP	CO, g/bhp-hr	NOx, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	ROG, g/bhp-hr
Tier 1	25	49	4.1	5.26	0.48	0.48	1.74
	50	74	6.9	6.54	0.552	0.552	1.19
	75	119	6.9	6.54	0.552	0.552	1.19
	120	174	6.9	6.54	0.274	0.274	0.82
	175	299	6.9	5.93	0.108	0.108	0.38
	300	599	6.9	5.93	0.108	0.108	0.38
	600	750	6.9	5.93	0.108	0.108	0.38
Tier 2	751	2000	6.9	5.93	0.108	0.108	0.38
	25	49	4.1	4.63	0.28	0.28	0.29
	50	74	3.7	4.75	0.192	0.192	0.23
	75	119	3.7	4.75	0.192	0.192	0.23
	120	174	3.7	4.17	0.128	0.128	0.19
	175	299	2.6	4.15	0.088	0.088	0.12
	300	599	2.6	3.79	0.088	0.088	0.12
Tier 3	600	750	2.6	3.79	0.088	0.088	0.12
	751	2000	2.6	3.79	0.088	0.088	0.12
	25	49	4.1	4.63	0.28	0.28	0.29
	50	74	3.7	2.74	0.192	0.192	0.12
	75	119	3.7	2.74	0.192	0.192	0.12
	120	174	3.7	2.32	0.112	0.112	0.12
	175	299	2.6	2.32	0.088	0.088	0.12
Tier 4 Interim	300	599	2.6	2.32	0.088	0.088	0.12
	600	750	2.6	2.32	0.088	0.088	0.12
	751	2000	2.6	2.32	0.088	0.088	0.12
	25	49	4.1	4.55	0.128	0.128	0.12
	50	74	3.7	2.74	0.112	0.112	0.12
	75	119	3.7	2.14	0.008	0.008	0.11
	120	174	3.7	2.15	0.008	0.008	0.06
Tier 4 Final	175	299	2.6	1.29	0.008	0.008	0.08
	300	599	2.6	1.29	0.008	0.008	0.08
	600	750	2.6	1.29	0.008	0.008	0.08
	751	2000	2.6	2.24	0.048	0.048	0.12
	25	49	4.1	2.75	0.008	0.008	0.12
	50	74	3.7	2.74	0.008	0.008	0.12
	75	119	3.7	0.26	0.008	0.008	0.06
Tier 4 Final	120	174	3.7	0.26	0.008	0.008	0.06
	175	299	2.2	0.26	0.008	0.008	0.06
	300	599	2.2	0.26	0.008	0.008	0.06
	600	750	2.2	0.26	0.008	0.008	0.06
	751	2000	2.6	2.24	0.016	0.016	0.06

Source:

ARB. 2011. The Carl Moyer Program Guidelines. Available at:

http://www.arb.ca.gov/msprog/moyer/guidelines/2011gl/2011cmpgl_3_27_13.pdf

**Table 3.6 Percent Reduction in Diesel Emission Factors For Compressed Natural Gas Equipment
Based on Data Available in OFFROAD2011**

Equipment Type	MinYear	MaxYear	Low HP	High HP	CO	CO2E	NOX	PM10	PM2.5	ROG	SO2	TOG
Aerial Lifts	1990	2009	0	15	-27.49	-0.27	0.55	0.36	0.36	0.73	1	0.73
Aerial Lifts	1990	2009	16	25	-29.12	-0.31	0.46	0.26	0.26	0.74	1	0.74
Air Conditioner	1990	2009	0	175	-4.51	-0.21	-0.3	0.84	0.84	0.87	1	0.87
Baggage Tug	1990	2009	0	120	-5.07	-0.24	0.1	0.94	0.94	0.88	1	0.88
Belt Loader	1990	2009	0	120	-4.69	-0.23	0.06	0.93	0.93	0.89	1	0.89
Bobtail	1990	2009	0	120	-4.41	-0.22	0.23	0.93	0.93	0.91	1	0.91
Cargo Loader	1990	2009	0	120	-6.25	-0.25	-0.04	0.93	0.93	0.84	1	0.84
Catering Truck	1990	2009	0	250	-11.52	-0.22	-0.44	0.7	0.7	0.78	1	0.78
Forklifts	1990	2009	0	50	-0.21	-0.23	-0.51	0.93	0.93	0.95	1	0.95
Forklifts	1990	2009	51	120	-5.94	-0.25	0.05	0.93	0.93	0.87	1	0.87
Forklifts	1990	2009	121	175	-5.81	-0.22	-0.02	0.88	0.88	0.89	1	0.89
Generator Sets	1990	2009	0	120	-3.97	-0.12	-0.02	0.92	0.92	0.91	1	0.91
Generator Sets	1990	2009	121	175	-4.15	-0.12	-0.11	0.85	0.85	0.89	1	0.89
Lav Truck	1990	2009	0	175	-4.57	-0.22	-0.11	0.88	0.88	0.89	1	0.89
Lift	1990	2009	0	120	-4.65	-0.23	-0.05	0.92	0.92	0.89	1	0.89
Aerial Lifts	2010	2014	0	15	-30.37	-0.27	0.31	-0.29	-0.29	0.59	1	0.59
Aerial Lifts	2010	2014	16	25	-37.55	-0.32	0.4	-0.03	-0.03	0.6	1	0.6
Air Conditioner	2010	2014	0	175	-4.5	-0.2	-0.36	0.73	0.73	0.85	1	0.85
Baggage Tug	2010	2014	0	120	-5.56	-0.22	0.22	0.92	0.92	0.88	1	0.88
Belt Loader	2010	2014	0	120	-5.13	-0.22	0.21	0.92	0.92	0.9	1	0.9
Bobtail	2010	2014	0	120	-4.8	-0.19	0.64	0.91	0.91	0.96	1	0.96
Cargo Loader	2010	2014	0	120	-6.78	-0.24	0.06	0.91	0.91	0.84	1	0.84
Catering Truck	2010	2014	0	250	-17.32	-0.21	-0.38	0.53	0.53	0.73	1	0.73
Forklifts	2010	2014	0	50	-0.421	-0.18053	0.3063	0.91412	0.9066507	0.9572	1	0.9118
Forklifts	2010	2014	51	120	-6.412	-0.32006	0.4354	0.90105	0.8924417	0.8764	1	0.4569
Forklifts	2010	2014	121	175	-5.588	-0.30615	0.5219	0.84295	0.8292897	0.8844	1	0.0884
Generator Sets	2010	2014	0	120	-4.3	-0.11	0.11	0.89	0.89	0.91	1	0.91
Generator Sets	2010	2014	121	175	-4.36	-0.11	0	0.81	0.81	0.89	1	0.89
Lav Truck	2010	2014	0	175	-4.77	-0.21	0.01	0.84	0.84	0.9	1	0.9
Lift	2010	2014	0	120	-5.03	-0.22	0.09	0.9	0.9	0.89	1	0.89
Aerial Lifts	2015	2019	0	15	-30.4	-0.27	0.28	-0.86	-0.86	0.57	1	0.57
Aerial Lifts	2015	2019	16	25	-44.65	-0.32	0.32	-0.48	-0.48	0.46	1	0.46
Air Conditioner	2015	2019	0	175	-4.5	-0.19	-0.41	0.47	0.47	0.85	1	0.85
Baggage Tug	2015	2019	0	120	-5.9	-0.21	0.3	0.91	0.91	0.89	1	0.89
Belt Loader	2015	2019	0	120	-5.41	-0.21	0.31	0.9	0.9	0.91	1	0.91
Bobtail	2015	2019	0	120	-5.05	-0.19	0.65	0.89	0.89	0.96	1	0.96
Cargo Loader	2015	2019	0	120	-7.2	-0.22	0.04	0.88	0.88	0.83	1	0.83
Catering Truck	2015	2019	0	250	-18.99	-0.2	-0.54	0.16	0.16	0.72	1	0.72

**Table 3.6 Percent Reduction in Diesel Emission Factors For Compressed Natural Gas Equipment
Based on Data Available in OFFROAD2011**

Equipment Type	MinYear	MaxYear	Low HP	High HP	CO	CO2E	NOX	PM10	PM2.5	ROG	SO2	TOG
Forklifts	2015	2019	0	50	-0.486	-0.16566	0.4918	0.90744	0.899394	0.9643	1	0.9263
Forklifts	2015	2019	51	120	-6.492	-0.30722	0.5103	0.89309	0.8837969	0.9112	1	0.6099
Forklifts	2015	2019	121	175	-5.638	-0.29426	0.6395	0.82031	0.8046898	0.9225	1	0.3883
Generator Sets	2015	2019	0	120	-4.56	-0.11	0.22	0.84	0.84	0.91	1	0.91
Generator Sets	2015	2019	121	175	-4.44	-0.1	0.12	0.71	0.71	0.9	1	0.9
Lav Truck	2015	2019	0	175	-4.83	-0.2	0.1	0.76	0.76	0.91	1	0.91
Lift	2015	2019	0	120	-5.31	-0.21	0.17	0.85	0.85	0.89	1	0.89
Aerial Lifts	2020	2024	0	15	-30.4	-0.27	0.28	-0.91	-0.91	0.57	1	0.57
Aerial Lifts	2020	2024	16	25	-47.22	-0.32	0.29	-0.91	-0.91	0.39	1	0.39
Air Conditioner	2020	2024	0	175	-4.49	-0.19	-1.04	-0.81	-0.81	0.88	1	0.88
Baggage Tug	2020	2024	0	120	-6.21	-0.2	0.31	0.87	0.87	0.9	1	0.9
Belt Loader	2020	2024	0	120	-5.69	-0.2	0.31	0.85	0.85	0.91	1	0.91
Bobtail	2020	2024	0	120	-5.26	-0.19	0.53	0.84	0.84	0.95	1	0.95
Cargo Loader	2020	2024	0	120	-7.57	-0.21	-0.09	0.78	0.78	0.81	1	0.81
Catering Truck	2020	2024	0	250	-19.46	-0.2	-1.2	-0.75	-0.75	0.73	1	0.73
Forklifts	2020	2024	0	50	-0.898	-0.16373	0.3924	0.83451	0.8201159	0.9414	1	0.8791
Forklifts	2020	2024	51	120	-7.096	-0.30625	0.2609	0.80708	0.7903095	0.858	1	0.3757
Forklifts	2020	2024	121	175	-6.198	-0.29359	0.3988	0.66593	0.63688	0.89	1	0.1317
Generator Sets	2020	2024	0	120	-4.76	-0.1	0.25	0.69	0.69	0.91	1	0.91
Generator Sets	2020	2024	121	175	-4.46	-0.1	0.05	0.48	0.48	0.9	1	0.9
Lav Truck	2020	2024	0	175	-4.85	-0.19	-0.03	0.56	0.56	0.91	1	0.91
Lift	2020	2024	0	120	-5.53	-0.2	0.13	0.72	0.72	0.89	1	0.89
Aerial Lifts	2025	2040	0	15	-30.4	-0.27	0.28	-0.91	-0.91	0.57	1	0.57
Aerial Lifts	2025	2040	16	25	-48.03	-0.32	0.27	-1.09	-1.09	0.37	1	0.37
Air Conditioner	2025	2040	0	175	-4.5	-0.19	-3.46	-3.31	-3.31	0.88	1	0.88
Baggage Tug	2025	2040	0	120	-6.4	-0.19	0.17	0.79	0.79	0.89	1	0.89
Belt Loader	2025	2040	0	120	-5.87	-0.2	0.16	0.72	0.72	0.9	1	0.9
Bobtail	2025	2040	0	120	-5.48	-0.19	0.32	0.72	0.72	0.93	1	0.93
Cargo Loader	2025	2040	0	120	-7.63	-0.2	-0.4	0.56	0.56	0.78	1	0.78
Catering Truck	2025	2040	0	250	-19.36	-0.2	-3.3	-2.94	-2.94	0.72	1	0.72
Forklifts	2025	2040	0	50	-1.152	-0.16313	0.2811	0.6679	0.6390223	0.9001	1	0.7938
Forklifts	2025	2040	51	120	-7.432	-0.30582	-0.17	0.57587	0.5389851	0.7693	1	-0.014
Forklifts	2025	2040	121	175	-6.368	-0.29311	-0.205	0.30273	0.2420976	0.8135	1	-0.476
Generator Sets	2025	2040	0	120	-4.83	-0.1	0.13	0.37	0.37	0.9	1	0.9
Generator Sets	2025	2040	121	175	-4.46	-0.1	-0.37	-0.03	-0.03	0.9	1	0.9
Lav Truck	2025	2040	0	175	-4.86	-0.19	-0.57	0.05	0.05	0.9	1	0.9
Lift	2025	2040	0	120	-5.6	-0.2	-0.08	0.37	0.37	0.87	1	0.87

Table 3.7 Grading Equipment Acres Per Day

Equipment Type	Acres per 8-hour Day
Crawler Tractors	0.5
Graders	0.5
Rubber Tired Dozers	0
Scrapers	1

Notes:

1. Based on Walker's Building Estimator's Reference Book and determinations by SCAQMD.

Table 4.1 Road Characteristics

Location Type	Name	Average Vehicle Weight	Percent of Paved Roads			
			Construction Worker	Construction Hauling	Construction Vendor	Operational Mobile
Air Basin	San Francisco Bay Area	2.4	100	100	100	100
	San Joaquin Valley	2.4	100	100	100	100
	South Central Coast	2.4	100	100	100	100
	South Coast	2.4	100	100	100	100
	Amador County APCD	2.4	100	100	100	100
	Antelope Valley APCD	2.4	100	100	100	100
	Bay Area AQMD	2.4	100	100	100	100
	Butte County AQMD	2.4	100	100	100	100
	Calaveras County AQMD	2.4	100	100	100	100
	Colusa County APCD	2.4	100	100	100	100
	El Dorado County AQMD	2.4	100	100	100	100
	Feather River AQMD	2.4	100	100	100	100
	Glenn County APCD	2.4	100	100	100	100
	Great Basin UAPCD	2.4	100	100	100	100
Imperial County APCD	2.4	50	50	50	50	
Air District	Kern County APCD	2.4	100	100	100	100
	Lake County AQMD	2.4	100	100	100	100
	Lassen County APCD	2.4	100	100	100	100
	Mariposa County APCD	2.4	100	100	100	100
	Mendocino County AQMD	2.4	55	55	55	55
	Modoc County APCD	2.4	100	100	100	100
	Mojave Desert AQMD	2.4	100	100	100	100
	Monterey Bay Unified APCD	2.4	100	100	100	100
	North Coast Unified APCD	2.4	100	100	100	100
	Northern Sierra AQMD	2.4	100	100	100	100
	Northern Sonoma County APCD	2.4	100	100	100	100
	Placer County APCD	2.4	100	100	100	100
	Sacramento Metropolitan AQMD	2.4	100	100	100	100
	San Diego County APCD	2.4	100	100	100	100
	San Joaquin Valley Unified APCD	2.4	100	100	100	100
	San Luis Obispo County APCD	2.4	100	100	100	100
	Santa Barbara County APCD	2.4	100	100	100	100
	Shasta County AQMD	2.4	100	100	100	100
	Siskiyou County APCD	2.4	100	100	100	100
	South Coast AQMD	2.4	100	100	100	100
	Tehama County APCD	2.4	100	100	100	100
	Tuolumne County APCD	2.4	100	100	100	100
	Ventura County APCD	2.4	100	100	100	100
	Yolo/Solano AQMD	2.4	94	94	94	94
	Alameda	2.4	100	100	100	100
	Alpine	2.4	100	100	100	100
	Amador	2.4	100	100	100	100
	Butte	2.4	100	100	100	100
	Calaveras	2.4	100	100	100	100
	Colusa	2.4	100	100	100	100
	Contra Costa	2.4	100	100	100	100
	Del Norte	2.4	100	100	100	100
	El Dorado-Lake Tahoe	2.4	100	100	100	100
El Dorado-Mountain County	2.4	100	100	100	100	
Fresno	2.4	100	100	100	100	

Table 4.1 Road Characteristics

Location Type	Name	Average Vehicle Weight	Percent of Paved Roads			
			Construction Worker	Construction Hauling	Construction Vendor	Operational Mobile
Counties	Glenn	2.4	100	100	100	100
	Humboldt	2.4	100	100	100	100
	Imperial	2.4	50	50	50	50
	Inyo	2.4	100	100	100	100
	Kern-Mojave Desert	2.4	100	100	100	100
	Kern-San Joaquin	2.4	100	100	100	100
	Kings	2.4	100	100	100	100
	Lake	2.4	100	100	100	100
	Lassen	2.4	100	100	100	100
	Los Angeles-Mojave Desert	2.4	100	100	100	100
	Los Angeles-South Coast	2.4	100	100	100	100
	Madera	2.4	100	100	100	100
	Marin	2.4	100	100	100	100
	Mariposa	2.4	100	100	100	100
	Mendocino-Coastal	2.4	70	70	70	70
	Mendocino-Inland	2.4	80	80	80	80
	Mendocino-Rural Inland North	2.4	30	30	30	30
	Mendocino-Rural Inland South	2.4	40	40	40	40
	Merced	2.4	100	100	100	100
	Modoc	2.4	100	100	100	100
	Mono	2.4	100	100	100	100
	Monterey	2.4	100	100	100	100
	Napa	2.4	100	100	100	100
	Nevada	2.4	100	100	100	100
	Orange	2.4	100	100	100	100
	Placer-Lake Tahoe	2.4	100	100	100	100
	Placer-Mountain Counties	2.4	100	100	100	100
	Placer-Sacramento	2.4	100	100	100	100
	Plumas	2.4	100	100	100	100
	Riverside-Mojave Desert MDAQMD	2.4	100	100	100	100
	Riverside-Mojave Desert SCAQMD	2.4	100	100	100	100
	Riverside-Salton Sea	2.4	100	100	100	100
	Riverside-South Coast	2.4	100	100	100	100
	Sacramento	2.4	100	100	100	100
	San Benito	2.4	100	100	100	100
	San Bernardino-Mojave Desert	2.4	100	100	100	100
	San Bernardino-South Coast	2.4	100	100	100	100
	San Diego	2.4	100	100	100	100
	San Francisco	2.4	100	100	100	100
	San Joaquin	2.4	100	100	100	100
	San Luis Obispo	2.4	100	100	100	100
	San Mateo	2.4	100	100	100	100
	Santa Barbara-North of Santa Ynez	2.4	100	100	100	100
	Santa Barbara-South of Santa Ynez Range	2.4	100	100	100	100
	Santa Clara	2.4	100	100	100	100
	Santa Cruz	2.4	100	100	100	100
	Shasta	2.4	100	100	100	100
	Sierra	2.4	100	100	100	100
	Siskiyou	2.4	100	100	100	100
	Solano-Sacramento	2.4	94	94	94	94
Solano-San Francisco	2.4	100	100	100	100	
Sonoma-North Coast	2.4	100	100	100	100	
Sonoma-San Francisco	2.4	100	100	100	100	
Stanislaus	2.4	100	100	100	100	
Sutter	2.4	100	100	100	100	
Tehama	2.4	100	100	100	100	

Table 4.1 Road Characteristics

Location Type	Name	Average Vehicle Weight	Percent of Paved Roads			
			Construction Worker	Construction Hauling	Construction Vendor	Operational Mobile
	Trinity	2.4	100	100	100	100
	Tulare	2.4	100	100	100	100
	Tuolumne	2.4	100	100	100	100
	Ventura	2.4	100	100	100	100
	Yolo	2.4	94	94	94	94
	Yuba	2.4	100	100	100	100
	Statewide	2.4	100	100	100	100
	Sonoma-San Francisco	2.4	100	100	100	100
	Stanislaus	2.4	100	100	100	100
	Sutter	2.4	100	100	100	100
	Tehama	2.4	100	100	100	100
	Trinity	2.4	100	100	100	100
	Tulare	2.4	100	100	100	100
	Tuolumne	2.4	100	100	100	100
	Ventura	2.4	100	100	100	100
	Yolo	2.4	94	94	94	94
	Yuba	2.4	100	100	100	100
Statewide	Statewide	2.4	100	100	100	100

Notes:

1. Average Vehicle Weight is based on average for vehicles in California on all Roads.
2. Percent paved roads was set to 100% by default unless the district supplied a different

Table 4.2 Mobile Trip Characteristics Dependent on Location

Location Type	Name	Rural Trip Length (miles)						Urban Trip Length (miles)						Residential Trip Type Percentage		
		C-C	C-NW	C-W	H-O	H-S	H-W	C-C	C-NW	C-W	H-O	H-S	H-W	H-W	H-S	H-O
Air Basin	Great Basin Valleys	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Lake County	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Lake Tahoe	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Mojave Desert	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	40.2	19.2	40.6
	Mountain Counties	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	37.3	20.7	42
	North Central Coast	6.6	6.6	14.7	13.6	9.8	17.1	7.3	7.3	9.5	7.2	6.2	12.3	23	15	62
	North Coast	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Northeast Plateau	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Sacramento Valley	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	32.9	18	49.1
	Salton Sea	6.2	6.2	13.8	8.1	6.9	14.6	4.2	5.4	12.5	4.5	3.5	11	40.2	19.2	40.6
	San Diego	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	41.6	18.8	39.6
	San Francisco Bay Area	6.6	6.6	14.7	5.7	4.8	10.8	7.3	7.3	9.5	5.7	4.8	10.8	31	15	54
	San Joaquin Valley	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	45.6	19	35.4
	South Central Coast	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	37.5	15	47.5
South Coast	10.1	7.9	18.5	12.9	9.6	19.8	8.4	6.9	16.6	8.7	5.9	14.7	40.2	19.2	40.6	
Air District	Amador County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	37.3	20.7	42
	Antelope Valley APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	40.2	19.2	40.6
	Bay Area AQMD	6.6	6.6	14.7	5.7	4.8	10.8	7.3	7.3	9.5	5.7	4.8	10.8	31	15	54
	Butte County AQMD	10.52	10.52	10.5	7.22	7.22	12.54	10.5	10.52	10.52	7.22	7.22	12.54	35	17	48
	Calaveras County AQMD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	37.3	20.7	42
	Colusa County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	El Dorado County AQMD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.6	21	36.4
	Feather River AQMD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.6	21	36.4
	Glenn County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Great Basin UAPCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Imperial County APCD	9.5	11.9	16.4	8.1	11.7	10.2	5	8.9	6.7	3.7	3.9	7.3	40.2	19.2	40.6
	Kern County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	46.4	16.4	37.2
	Lake County AQMD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Lassen County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Mariposa County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	37.3	20.7	42
	Mendocino County AQMD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Modoc County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Mojave Desert AQMD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	40.2	19.2	40.6
	Monterey Bay Unified APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	44	18.8	37.2
	North Coast Unified APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Northern Sierra AQMD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	37.3	20.7	42
	Northern Sonoma County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.9	19.5	37.6
	Placer County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.6	21	36.4
	Sacramento Metropolitan AQMD	7.5	8.5	15	8.5	7.5	15	5	6.5	10	6.5	5	10	46.5	12.5	41
	San Diego County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	41.6	18.8	39.6
	San Joaquin Valley Unified APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	45.6	19	35.4
	San Luis Obispo County APCD	13	13	13	13	13	13	5	5	13	5	5	13	35.8	21	43.2
	Santa Barbara County APCD	5.5	6.4	6.6	4.9	4.5	8.3	5.5	6.4	6.6	4.9	4.5	8.3	25.6	9.9	64.5
	Shasta County AQMD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42	21.2	37.8

Table 4.2 Mobile Trip Characteristics Dependent on Location

Location Type	Name	Rural Trip Length (miles)						Urban Trip Length (miles)						Residential Trip Type Percentage		
		C-C	C-NW	C-W	H-O	H-S	H-W	C-C	C-NW	C-W	H-O	H-S	H-W	H-W	H-S	H-O
	Siskiyou County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	South Coast AQMD	10.1	7.9	18.5	12.9	9.6	19.8	8.4	6.9	16.6	8.7	5.9	14.7	40.2	19.2	40.6
	Tehama County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	41	21.2	37.8
	Tuolumne County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	37.3	20.7	42
	Ventura County APCD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	32.9	18	49.1
	Yolo/Solano AQMD	8	9	15	9	8	15	5	7	10	7	5	10	46	13	41
Counties	Alameda	6.6	6.6	14.7	5.7	4.8	10.8	7.3	7.3	9.5	5.7	4.8	10.8	31	15	54
	Alpine	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Amador	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	37.3	20.7	42
	Butte	10.52	10.52	10.5	7.22	7.22	12.54	10.5	10.52	10.52	7.22	7.22	12.54	35	17	48
	Calaveras	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	37.3	20.7	42
	Colusa	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Contra Costa	6.6	6.6	14.7	5.7	4.8	10.8	7.3	7.3	9.5	5.7	4.8	10.8	31	15	54
	Del Norte	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	El Dorado-Lake Tahoe	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.6	21	36.4
	El Dorado-Mountain County	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.6	21	36.4
	Fresno	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	48.4	15.9	35.7
	Glenn	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Humboldt	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Imperial	9.5	11.9	16.4	8.1	11.7	10.2	5	8.9	6.7	3.7	3.9	7.3	40.2	19.2	40.6
	Inyo	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Kern-Mojave Desert	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	46.4	16.4	37.2
	Kern-San Joaquin	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	46.4	16.4	37.2
	Kings	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Lake	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Lassen	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Los Angeles-Mojave Desert	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	40.2	19.2	40.6
	Los Angeles-South Coast	10.1	7.9	18.5	12.9	9.6	19.8	8.4	6.9	16.6	8.7	5.9	14.7	40.2	19.2	40.6
	Madera	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Marin	6.6	6.6	14.7	5.7	4.8	10.8	7.3	7.3	9.5	5.7	4.8	10.8	31	15	54
	Mariposa	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	37.3	20.7	42
	Mendocino-Coastal	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Mendocino-Inland	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Mendocino-Rural Inland North	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Mendocino-Rural Inland South	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Merced	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	46.9	17.4	35.7
	Modoc	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Mono	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1
	Monterey	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	44	18.8	37.2
Napa	6.6	6.6	14.7	5.7	4.8	10.8	7.3	7.3	9.5	5.7	4.8	10.8	31	15	54	
Nevada	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1	
Orange	10.1	7.9	18.5	12.9	9.6	19.8	8.4	6.9	16.6	8.7	5.9	14.7	40.2	19.2	40.6	
Placer-Lake Tahoe	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.6	21	36.4	
Placer-Mountain Counties	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.6	21	36.4	

Table 4.2 Mobile Trip Characteristics Dependent on Location

Location Type	Name	Rural Trip Length (miles)						Urban Trip Length (miles)						Residential Trip Type Percentage		
		C-C	C-NW	C-W	H-O	H-S	H-W	C-C	C-NW	C-W	H-O	H-S	H-W	H-W	H-S	H-O
		Placer-Sacramento	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.6	21
Plumas	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1	
Riverside-Mojave Desert MDAQMD	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	40.2	19.2	40.6	
Riverside-Mojave Desert SCAQMD	10.1	7.9	18.5	12.9	9.6	19.8	8.4	6.9	16.6	8.7	5.9	14.7	40.2	19.2	40.6	
Riverside-Salton Sea	6.2	6.2	13.8	8.1	6.9	14.6	4.2	5.4	12.5	4.5	3.5	11	40.2	19.2	40.6	
Riverside-South Coast	10.1	7.9	18.5	12.9	9.6	19.8	8.4	6.9	16.6	8.7	5.9	14.7	40.2	19.2	40.6	
Sacramento	7.5	8.5	15	8.5	7.5	15	5	6.5	10	6.5	5	10	46.5	12.5	41	
San Benito	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	44	18.8	37.2	
San Bernardino-Mojave Desert	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	40.2	19.2	40.6	
San Bernardino-South Coast	10.1	7.9	18.5	12.9	9.6	19.8	8.4	6.9	16.6	8.7	5.9	14.7	40.2	19.2	40.6	
San Diego	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	41.6	18.8	39.6	
San Francisco	6.6	6.6	14.7	5.7	4.8	10.8	7.3	7.3	9.5	5.7	4.8	10.8	31	15	54	
San Joaquin	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	45.6	19	35.4	
San Luis Obispo	13	13	13	13	13	13	5	5	13	5	5	13	35.8	21	43.2	
San Mateo	6.6	6.6	14.7	5.7	4.8	10.8	7.3	7.3	9.5	5.7	4.8	10.8	31	15	54	
Santa Barbara-North of Santa Ynez	5.5	6.4	6.6	4.9	4.5	8.3	5.5	6.4	6.6	4.9	4.5	8.3	25.6	9.9	64.5	
Santa Barbara-South of Santa Ynez Range	5.5	6.4	6.6	4.9	4.5	8.3	5.5	6.4	6.6	4.9	4.5	8.3	25.6	9.9	64.5	
Santa Clara	6.6	6.6	14.7	5.7	4.8	10.8	7.3	7.3	9.5	5.7	4.8	10.8	31	15	54	
Santa Cruz	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	44	18.8	37.2	
Shasta	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	41	21.2	37.8	
Sierra	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1	
Siskiyou	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1	
Solano-Sacramento	8	9	15	9	8	15	5	7	10	7	5	10	46	13	41	
Solano-San Francisco	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	31	15	54	
Sonoma-North Coast	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.9	19.5	37.6	
Sonoma-San Francisco	6.6	6.6	14.7	5.7	4.8	10.8	7.3	7.3	9.5	5.7	4.8	10.8	31	15	54	
Stanislaus	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	48.4	13.9	37.7	
Sutter	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.6	21	36.4	
Tehama	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	41	21.2	37.8	
Trinity	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.3	19.6	38.1	
Tulare	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	38.4	22.6	39	
Tuolumne	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	37.3	20.7	42	
Ventura	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	32.9	18	49.1	
Yolo	8	9	15	9	8	15	5	7	10	7	5	10	46	13	41	
Yuba	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	42.6	21	36.4	
Statewide	Statewide	6.6	6.6	14.7	7.9	7.1	16.8	7.3	7.3	9.5	7.5	7.3	10.8	41.4	19.3	39.3

Table 4.3 Mobile Trip Rates, Trip Purpose, Trip Type by Land Use

Land Use Type	Land Use Sub Type	Size Metric	Trip Rate			Primary %	Diverted %	PassBy %	Trip Type		
			Week day	Saturday	Sunday				C-C %	C-W %	C-NW %
Residential	Single Family Housing	Dwelling Unit	9.52	9.91	8.62	86	11	3	0	0	0
Residential	Apartments Low Rise	Dwelling Unit	6.59	7.16	6.07	86	11	3	0	0	0
Residential	Apartments Mid Rise	Dwelling Unit	6.65	6.39	5.86	86	11	3	0	0	0
Residential	Apartments High Rise	Dwelling Unit	4.2	4.98	3.65	86	11	3	0	0	0
Residential	Condo/Townhouse	Dwelling Unit	5.81	5.67	4.84	86	11	3	0	0	0
Residential	Condo/Townhouse High Rise	Dwelling Unit	4.18	4.31	3.43	86	11	3	0	0	0
Residential	Mobile Home Park	Dwelling Unit	4.99	5	4.36	86	11	3	0	0	0
Residential	Retirement Community	Dwelling Unit	2.4	2.03	1.95	86	11	3	0	0	0
Residential	Congregate Care (Assisted Living)	Dwelling Unit	2.74	2.2	2.44	86	11	3	0	0	0
Educational	Day-Care Center	Student	4.38	0.39	0.37	28	58	14	82.3	12.7	5
Educational	Day-Care Center	1000sqft	74.06	6.21	5.83	28	58	14	82.3	12.7	5
Educational	Day-Care Center	Employee	26.73	2.61	2.45	28	58	14	82.3	12.7	5
Educational	Elementary School	Student	1.29			63	25	12	30	65	5
Educational	Elementary School	1000sqft	15.43			63	25	12	30	65	5
Educational	Elementary School	Employee	15.71			63	25	12	30	65	5
Educational	Junior High School	Student	1.62			63	25	12	22.2	72.8	5
Educational	Junior High School	1000sqft	13.78			63	25	12	22.2	72.8	5
Educational	Junior High School	Employee	16.39			63	25	12	22.2	72.8	5
Educational	High School	Student	1.71	0.61	0.25	75	19	6	17.2	77.8	5
Educational	High School	1000sqft	12.89	4.37	1.79	75	19	6	17.2	77.8	5
Educational	High School	Employee	19.74	6.57	2.68	75	19	6	17.2	77.8	5
Educational	Junior College (2yr)	Student	1.23	0.42	0.04	92	7	1	88.6	6.4	5
Educational	Junior College (2yr)	1000sqft	27.49	11.23	1.21	92	7	1	88.6	6.4	5
Educational	Junior College (2yr)	Employee	15.55	6.16	0.66	92	7	1	88.6	6.4	5
Educational	University/College (4yr)	Student	1.71	1.3		91	9	0	88.6	6.4	5
Educational	University/College (4yr)	Employee	8.96	3.12		91	9	0	88.6	6.4	5
Educational	Library	Employee	52.52	47.68	23.54	44	44	12	43	52	5
Educational	Library	1000sqft	56.24	46.55	25.49	44	44	12	43	52	5
Educational	Place of Worship	Seat	0.61	0.9	1.85	64	25	11	95	0	5
Educational	Place of Worship	1000sqft	9.11	10.37	36.63	64	25	11	95	0	5
Recreational	City Park	Acre	1.89	22.75	16.74	66	28	6	48	33	19
Recreational	Golf Course	Acre	5.04	5.82	5.88	52	39	9	48	33	19
Recreational	Golf Course	Hole	35.74	40.63	39.53	52	39	9	48	33	19
Recreational	Recreational Swimming Pool	1000sqft	33.82	9.1	13.6	52	39	9	48	33	19
Recreational	Racquet Club	1000sqft	14.03	21.35	17.4	52	39	9	69.5	11.5	19
Recreational	Health Club	1000sqft	32.93	20.87	26.73	52	39	9	64.1	16.9	19
Recreational	Movie Theater (No Matinee)	Screen	220	376	314	66	17	17	79.2	1.8	19
Recreational	Movie Theater (No Matinee)	Seat	1.76	2.24	1.85	66	17	17	79.2	1.8	19
Recreational	Movie Theater (No Matinee)	1000sqft	78.06	99.28	81.9	66	17	17	79.2	1.8	19
Recreational	Arena	Acre	33.33			66	28	6	81	0	19
Recreational	Arena	1000sqft	10.713214	10.71321	10.71321	66	28	6	81	0	19
Recreational	Quality Restaurant	1000sqft	89.95	94.36	72.16	38	18	44	69	12	19
Recreational	High Turnover (Sit Down Restaurant)	1000sqft	127.15	158.37	131.84	37	20	43	72.5	8.5	19
Recreational	Fast Food Restaurant with Drive Thru	1000sqft	496.12	722.03	542.72	29	21	50	78.8	2.2	19
Recreational	Fast Food Restaurant w/o Drive Thru	1000sqft	716	696	500	51	37	12	79.5	1.5	19
Recreational	Hotel	Room	8.17	8.19	5.95	58	38	4	61.6	19.4	19
Recreational	Motel	Room	5.63	5.63	5.63	58	38	4	62	19	19
Parking	Parking Lot	Space	0	0	0	0	0	0	0	0	0
Parking	Parking Lot	Acre	0	0	0	0	0	0	0	0	0
Parking	Parking Lot	1000sqft	0	0	0	0	0	0	0	0	0
Parking	Unenclosed Parking Structure	Space	0	0	0	0	0	0	0	0	0
Parking	Unenclosed Parking Structure	Acre	0	0	0	0	0	0	0	0	0
Parking	Unenclosed Parking Structure	1000sqft	0	0	0	0	0	0	0	0	0
Parking	Enclosed Parking Structure	Space	0	0	0	0	0	0	0	0	0
Parking	Enclosed Parking Structure	Acre	0	0	0	0	0	0	0	0	0
Parking	Enclosed Parking Structure	1000sqft	0	0	0	0	0	0	0	0	0
Parking	Unenclosed Parking with Elevator	Space	0	0	0	0	0	0	0	0	0
Parking	Unenclosed Parking with Elevator	Acre	0	0	0	0	0	0	0	0	0
Parking	Unenclosed Parking with Elevator	1000sqft	0	0	0	0	0	0	0	0	0
Parking	Enclosed Parking with Elevator	Space	0	0	0	0	0	0	0	0	0
Parking	Enclosed Parking with Elevator	Acre	0	0	0	0	0	0	0	0	0
Parking	Enclosed Parking with Elevator	1000sqft	0	0	0	0	0	0	0	0	0
Parking	Other Non-Asphalt Surfaces	Acre	0	0	0	0	0	0	0	0	0
Parking	Other Asphalt Surfaces	1000sqft	0	0	0	0	0	0	0	0	0
Parking	Other Non-Asphalt Surfaces	1000sqft	0	0	0	0	0	0	0	0	0
Parking	Other Asphalt Surfaces	Acre	0	0	0	0	0	0	0	0	0
Retail	Free-Standing Discount store	1000sqft	57.24	71.07	56.36	47.5	35.5	17	68.8	12.2	19
Retail	Free-Standing Discount Superstore	1000sqft	50.75	64.07	56.12	47.5	35.5	17	67.8	13.2	19
Retail	Discount Club	1000sqft	41.8	53.75	33.67	45	40	15	64.3	16.7	19
Retail	Regional Shopping Center	1000sqft	42.7	49.97	25.24	54	35	11	64.7	16.3	19
Retail	Electronic Superstore	1000sqft	45.04	45.04	45.04	27	33	40	65.5	15.5	19
Retail	Home Improvement Superstore	1000sqft	30.74	56.72	55.8	32	20	48	57.6	23.4	19
Retail	Strip Mall	1000sqft	44.32	42.04	20.43	45	40	15	64.4	16.6	19
Retail	Hardware/Paint Store	1000sqft	51.29	82.52	68.65	45	29	26	67.4	13.6	19
Retail	Supermarket	1000sqft	102.24	177.59	166.44	34	30	36	74.5	6.5	19
Retail	Convenience Market (24 hour)	1000sqft	737.99	863.1	758.45	24	15	61	80.1	0.9	19
Retail	Convenience Market with Gas Pumps	1000sqft	845.6	1448.33	1182.08	14	21	65	80.2	0.8	19
Retail	Convenience Market with Gas Pumps	Pump	542.6	204.47	166.88	14	21	65	80.2	0.8	19
Retail	Automobile Care Center	1000sqft	23.72	23.72	11.88	21	51	28	48	33	19

Table 4.3 Mobile Trip Rates, Trip Purpose, Trip Type by Land Use

Land Use Type	Land Use Sub Type	Size Metric	Trip Rate			Primary %	Diverted %	PassBy %	Trip Type		
			Week day	Saturday	Sunday				C-C %	C-W %	C-NW %
Retail	Gasoline/Service Station	Pump	168.56	168.56	168.56	14	27	59	79	2	19
Commercial	Bank (with Drive-Through)	1000sqft	148.15	86.32	31.9	27	26	47	74.4	6.6	19
Commercial	General Office Building	1000sqft	11.03	2.46	1.05	77	19	4	48	33	19
Commercial	Office Park	1000sqft	11.42	1.64	0.76	82	15	3	48	33	19
Commercial	Research & Development	1000sqft	8.11	1.9	1.11	82	15	3	48	33	19
Commercial	Government Office Building	1000sqft	68.93			50	34	16	62	33	5
Commercial	Government (Civic Center)	1000sqft	27.92			50	34	16	20	75	5
Commercial	Pharmacy/Drugstore with Drive Thru	1000sqft	96.91	96.91	96.91	38	13	49	73.5	7.5	19
Commercial	Pharmacy/Drugstore w/o Drive Thru	1000sqft	90.06	90.06	90.06	41	6	53	73.6	7.4	19
Commercial	Medical Office Building	1000sqft	36.13	8.96	1.55	60	30	10	51.4	29.6	19
Commercial	Hospital	1000sqft	13.22	10.18	8.91	73	25	2	16.1	64.9	19
Commercial	Hospital	Bed	12.94	8.14	7.19	73	25	2	16.1	64.9	19
Industrial	Unrefrigerated Warehouse-No Rail	1000sqft	1.68	1.68	1.68	92	5	3	0	59	41
Industrial	Unrefrigerated Warehouse-Rail	1000sqft	1.68	1.68	1.68	92	5	3	0	59	41
Industrial	Refrigerated Warehouse-No Rail	1000sqft	1.68	1.68	1.68	92	5	3	0	59	41
Industrial	Refrigerated Warehouse-Rail	1000sqft	1.68	1.68	1.68	92	5	3	0	59	41
Industrial	General Light Industry	1000sqft	6.97	1.32	0.68	92	5	3	28	59	13
Industrial	General Heavy Industry	1000sqft	1.5	1.5	1.5	92	5	3	28	59	13
Industrial	Industrial Park	1000sqft	6.83	2.49	0.73	79	19	2	28	59	13
Industrial	Manufacturing	1000sqft	3.82	1.49	0.62	92	5	3	28	59	13

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	Great Basin Valleys Air Basin	Annual	2010	351.71	410.12	479.62	598.88	74.54	91.99	101.41	124.88
AB	Great Basin Valleys Air Basin	Annual	2011	351.58	409.65	479.10	599.56	74.30	90.81	101.24	125.01
AB	Great Basin Valleys Air Basin	Annual	2012	351.55	409.23	478.69	600.33	74.12	89.78	101.13	125.19
AB	Great Basin Valleys Air Basin	Annual	2013	351.50	408.84	478.36	601.12	73.86	88.90	101.03	125.40
AB	Great Basin Valleys Air Basin	Annual	2014	351.45	408.49	478.12	601.90	73.59	88.09	100.88	125.62
AB	Great Basin Valleys Air Basin	Annual	2015	351.50	408.21	477.92	602.74	73.49	87.37	100.88	125.86
AB	Great Basin Valleys Air Basin	Annual	2016	351.62	407.99	477.76	603.56	73.49	86.82	100.85	126.11
AB	Great Basin Valleys Air Basin	Annual	2017	351.64	407.78	477.63	604.31	73.40	86.29	100.83	126.37
AB	Great Basin Valleys Air Basin	Annual	2018	351.66	407.60	477.52	604.96	73.33	85.85	100.80	126.61
AB	Great Basin Valleys Air Basin	Annual	2019	351.69	407.52	477.42	605.53	73.29	85.59	100.75	126.84
AB	Great Basin Valleys Air Basin	Annual	2020	351.72	407.45	477.34	606.03	73.36	85.50	100.79	127.06
AB	Great Basin Valleys Air Basin	Annual	2021	351.66	407.35	477.26	606.36	73.36	85.50	100.84	127.21
AB	Great Basin Valleys Air Basin	Annual	2022	351.57	407.28	477.17	606.67	73.35	85.52	100.88	127.36
AB	Great Basin Valleys Air Basin	Annual	2023	351.48	407.18	477.10	606.89	73.33	85.53	100.90	127.53
AB	Great Basin Valleys Air Basin	Annual	2024	351.41	407.09	477.03	607.04	73.32	85.55	100.92	127.69
AB	Great Basin Valleys Air Basin	Annual	2025	351.37	407.16	477.00	607.21	73.31	85.62	100.95	127.84
AB	Great Basin Valleys Air Basin	Annual	2026	351.39	407.29	476.94	607.42	73.33	85.71	100.97	127.99
AB	Great Basin Valleys Air Basin	Annual	2027	351.40	407.43	476.89	607.63	73.34	85.79	100.99	128.14
AB	Great Basin Valleys Air Basin	Annual	2028	351.40	407.56	476.84	607.84	73.35	85.87	101.00	128.27
AB	Great Basin Valleys Air Basin	Annual	2029	351.39	407.69	476.77	608.06	73.36	85.94	101.00	128.39
AB	Great Basin Valleys Air Basin	Annual	2030	351.38	407.82	476.71	608.27	73.36	86.00	101.00	128.51
AB	Great Basin Valleys Air Basin	Annual	2031	351.38	407.96	476.68	608.50	73.36	86.07	101.01	128.63
AB	Great Basin Valleys Air Basin	Annual	2032	351.38	408.09	476.65	608.73	73.37	86.13	101.01	128.74
AB	Great Basin Valleys Air Basin	Annual	2033	351.38	408.21	476.62	608.94	73.37	86.18	101.01	128.84
AB	Great Basin Valleys Air Basin	Annual	2034	351.37	408.32	476.60	609.12	73.38	86.23	101.02	128.94
AB	Great Basin Valleys Air Basin	Annual	2035	351.37	408.41	476.58	609.28	73.38	86.28	101.02	129.02
AB	Great Basin Valleys Air Basin	Summer	2010	368.80	426.31	499.33	622.32	74.54	91.99	101.41	124.88
AB	Great Basin Valleys Air Basin	Summer	2011	368.81	426.47	498.98	623.07	74.30	90.81	101.24	125.01
AB	Great Basin Valleys Air Basin	Summer	2012	368.86	426.56	498.74	623.95	74.12	89.78	101.13	125.19
AB	Great Basin Valleys Air Basin	Summer	2013	368.89	426.59	498.57	624.87	73.86	88.90	101.03	125.40
AB	Great Basin Valleys Air Basin	Summer	2014	368.92	426.59	498.50	625.78	73.59	88.09	100.88	125.62
AB	Great Basin Valleys Air Basin	Summer	2015	369.01	426.63	498.39	626.79	73.49	87.37	100.88	125.86
AB	Great Basin Valleys Air Basin	Summer	2016	369.15	426.65	498.34	627.79	73.49	86.82	100.85	126.11
AB	Great Basin Valleys Air Basin	Summer	2017	369.19	426.65	498.29	628.71	73.40	86.29	100.83	126.37
AB	Great Basin Valleys Air Basin	Summer	2018	369.21	426.63	498.22	629.47	73.33	85.85	100.80	126.61
AB	Great Basin Valleys Air Basin	Summer	2019	369.25	426.71	498.16	630.15	73.29	85.59	100.75	126.84
AB	Great Basin Valleys Air Basin	Summer	2020	369.30	426.76	498.11	630.75	73.36	85.50	100.79	127.06
AB	Great Basin Valleys Air Basin	Summer	2021	369.22	426.73	498.07	631.17	73.36	85.50	100.84	127.21
AB	Great Basin Valleys Air Basin	Summer	2022	369.14	426.72	498.03	631.56	73.35	85.52	100.88	127.36
AB	Great Basin Valleys Air Basin	Summer	2023	369.04	426.67	498.01	631.85	73.33	85.53	100.90	127.53
AB	Great Basin Valleys Air Basin	Summer	2024	368.98	426.64	498.01	632.03	73.32	85.55	100.92	127.69
AB	Great Basin Valleys Air Basin	Summer	2025	368.96	426.73	498.02	632.24	73.31	85.62	100.95	127.84
AB	Great Basin Valleys Air Basin	Summer	2026	368.99	426.89	497.97	632.46	73.33	85.71	100.97	127.99
AB	Great Basin Valleys Air Basin	Summer	2027	369.03	427.08	497.94	632.69	73.34	85.79	100.99	128.14
AB	Great Basin Valleys Air Basin	Summer	2028	369.05	427.25	497.90	632.94	73.35	85.87	101.00	128.27
AB	Great Basin Valleys Air Basin	Summer	2029	369.06	427.42	497.85	633.19	73.36	85.94	101.00	128.39
AB	Great Basin Valleys Air Basin	Summer	2030	369.07	427.57	497.80	633.43	73.36	86.00	101.00	128.51
AB	Great Basin Valleys Air Basin	Summer	2031	369.06	427.77	497.77	633.69	73.36	86.07	101.01	128.63
AB	Great Basin Valleys Air Basin	Summer	2032	369.06	427.93	497.74	633.93	73.37	86.13	101.01	128.74
AB	Great Basin Valleys Air Basin	Summer	2033	369.06	428.08	497.72	634.18	73.37	86.18	101.01	128.84
AB	Great Basin Valleys Air Basin	Summer	2034	369.05	428.21	497.70	634.38	73.38	86.23	101.02	128.94
AB	Great Basin Valleys Air Basin	Summer	2035	369.04	428.32	497.68	634.56	73.38	86.28	101.02	129.02
AB	Great Basin Valleys Air Basin	Winter	2010	367.72	425.30	498.12	620.89	74.54	91.99	101.41	124.88
AB	Great Basin Valleys Air Basin	Winter	2011	367.73	425.41	497.76	621.64	74.30	90.81	101.24	125.01

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	Great Basin Valleys Air Basin	Winter	2012	367.77	425.48	497.51	622.51	74.12	89.78	101.13	125.19
AB	Great Basin Valleys Air Basin	Winter	2013	367.80	425.47	497.33	623.43	73.86	88.90	101.03	125.40
AB	Great Basin Valleys Air Basin	Winter	2014	367.82	425.45	497.25	624.33	73.59	88.09	100.88	125.62
AB	Great Basin Valleys Air Basin	Winter	2015	367.92	425.48	497.13	625.32	73.49	87.37	100.88	125.86
AB	Great Basin Valleys Air Basin	Winter	2016	368.05	425.48	497.08	626.32	73.49	86.82	100.85	126.11
AB	Great Basin Valleys Air Basin	Winter	2017	368.09	425.46	497.03	627.23	73.40	86.29	100.83	126.37
AB	Great Basin Valleys Air Basin	Winter	2018	368.11	425.44	496.95	627.98	73.33	85.85	100.80	126.61
AB	Great Basin Valleys Air Basin	Winter	2019	368.14	425.50	496.89	628.66	73.29	85.59	100.75	126.84
AB	Great Basin Valleys Air Basin	Winter	2020	368.19	425.55	496.84	629.25	73.36	85.50	100.79	127.06
AB	Great Basin Valleys Air Basin	Winter	2021	368.12	425.51	496.80	629.66	73.36	85.50	100.84	127.21
AB	Great Basin Valleys Air Basin	Winter	2022	368.04	425.50	496.75	630.05	73.35	85.52	100.88	127.36
AB	Great Basin Valleys Air Basin	Winter	2023	367.94	425.45	496.73	630.33	73.33	85.53	100.90	127.53
AB	Great Basin Valleys Air Basin	Winter	2024	367.88	425.41	496.72	630.51	73.32	85.55	100.92	127.69
AB	Great Basin Valleys Air Basin	Winter	2025	367.85	425.50	496.73	630.71	73.31	85.62	100.95	127.84
AB	Great Basin Valleys Air Basin	Winter	2026	367.89	425.66	496.68	630.94	73.33	85.71	100.97	127.99
AB	Great Basin Valleys Air Basin	Winter	2027	367.93	425.85	496.65	631.16	73.34	85.79	100.99	128.14
AB	Great Basin Valleys Air Basin	Winter	2028	367.95	426.02	496.61	631.41	73.35	85.87	101.00	128.27
AB	Great Basin Valleys Air Basin	Winter	2029	367.95	426.19	496.56	631.66	73.36	85.94	101.00	128.39
AB	Great Basin Valleys Air Basin	Winter	2030	367.96	426.33	496.51	631.90	73.36	86.00	101.00	128.51
AB	Great Basin Valleys Air Basin	Winter	2031	367.95	426.53	496.47	632.15	73.36	86.07	101.01	128.63
AB	Great Basin Valleys Air Basin	Winter	2032	367.95	426.69	496.45	632.40	73.37	86.13	101.01	128.74
AB	Great Basin Valleys Air Basin	Winter	2033	367.95	426.84	496.42	632.64	73.37	86.18	101.01	128.84
AB	Great Basin Valleys Air Basin	Winter	2034	367.94	426.96	496.41	632.84	73.38	86.23	101.02	128.94
AB	Great Basin Valleys Air Basin	Winter	2035	367.94	427.07	496.38	633.02	73.38	86.28	101.02	129.02
AB	Lake County Air Basin	Annual	2010	342.07	393.50	467.77	584.22	74.77	89.34	101.91	124.46
AB	Lake County Air Basin	Annual	2011	342.02	394.05	467.30	584.79	74.52	88.47	101.71	124.54
AB	Lake County Air Basin	Annual	2012	342.06	394.51	466.93	585.54	74.36	87.81	101.56	124.69
AB	Lake County Air Basin	Annual	2013	342.12	394.89	466.63	586.41	74.20	87.25	101.40	124.90
AB	Lake County Air Basin	Annual	2014	342.14	395.21	466.41	587.25	73.98	86.77	101.22	125.12
AB	Lake County Air Basin	Annual	2015	342.23	395.51	466.24	588.17	73.90	86.33	101.09	125.37
AB	Lake County Air Basin	Annual	2016	342.33	395.78	466.10	589.06	73.88	85.99	101.00	125.66
AB	Lake County Air Basin	Annual	2017	342.36	396.00	465.97	589.89	73.79	85.60	100.88	125.95
AB	Lake County Air Basin	Annual	2018	342.39	396.17	465.87	590.62	73.73	85.27	100.83	126.22
AB	Lake County Air Basin	Annual	2019	342.41	396.35	465.79	591.26	73.69	85.13	100.79	126.48
AB	Lake County Air Basin	Annual	2020	342.44	396.52	465.72	591.82	73.77	85.14	100.79	126.73
AB	Lake County Air Basin	Annual	2021	342.39	396.64	465.65	592.21	73.79	85.21	100.84	126.90
AB	Lake County Air Basin	Annual	2022	342.31	396.75	465.57	592.55	73.78	85.27	100.85	127.07
AB	Lake County Air Basin	Annual	2023	342.19	396.83	465.51	592.77	73.76	85.32	100.87	127.26
AB	Lake County Air Basin	Annual	2024	342.07	396.89	465.44	592.97	73.71	85.36	100.88	127.45
AB	Lake County Air Basin	Annual	2025	342.01	396.99	465.40	593.14	73.71	85.45	100.91	127.61
AB	Lake County Air Basin	Annual	2026	342.02	397.10	465.36	593.32	73.73	85.55	100.93	127.78
AB	Lake County Air Basin	Annual	2027	342.03	397.21	465.31	593.53	73.74	85.64	100.94	127.94
AB	Lake County Air Basin	Annual	2028	342.03	397.32	465.27	593.73	73.75	85.72	100.95	128.09
AB	Lake County Air Basin	Annual	2029	342.02	397.43	465.24	593.93	73.75	85.80	100.96	128.22
AB	Lake County Air Basin	Annual	2030	342.00	397.54	465.21	594.14	73.75	85.88	100.95	128.35
AB	Lake County Air Basin	Annual	2031	342.00	397.66	465.19	594.38	73.76	85.96	100.95	128.48
AB	Lake County Air Basin	Annual	2032	341.99	397.76	465.18	594.62	73.76	86.03	100.96	128.61
AB	Lake County Air Basin	Annual	2033	341.99	397.84	465.18	594.84	73.77	86.09	100.96	128.72
AB	Lake County Air Basin	Annual	2034	341.98	397.92	465.17	595.03	73.77	86.15	100.97	128.82
AB	Lake County Air Basin	Annual	2035	341.97	397.97	465.16	595.21	73.78	86.20	100.97	128.92
AB	Lake County Air Basin	Summer	2010	365.54	417.38	498.77	621.97	74.77	89.34	101.91	124.46
AB	Lake County Air Basin	Summer	2011	365.78	418.72	498.60	622.61	74.52	88.47	101.71	124.54
AB	Lake County Air Basin	Summer	2012	366.03	419.77	498.49	623.54	74.36	87.81	101.56	124.69
AB	Lake County Air Basin	Summer	2013	366.25	420.60	498.41	624.68	74.20	87.25	101.40	124.90

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	Lake County Air Basin	Summer	2014	366.39	421.26	498.37	625.78	73.98	86.77	101.22	125.12
AB	Lake County Air Basin	Summer	2015	366.55	421.85	498.36	627.02	73.90	86.33	101.09	125.37
AB	Lake County Air Basin	Summer	2016	366.69	422.33	498.33	628.23	73.88	85.99	101.00	125.66
AB	Lake County Air Basin	Summer	2017	366.75	422.72	498.28	629.33	73.79	85.60	100.88	125.95
AB	Lake County Air Basin	Summer	2018	366.77	423.03	498.21	630.31	73.73	85.27	100.83	126.22
AB	Lake County Air Basin	Summer	2019	366.79	423.31	498.14	631.16	73.69	85.13	100.79	126.48
AB	Lake County Air Basin	Summer	2020	366.81	423.55	498.08	631.89	73.77	85.14	100.79	126.73
AB	Lake County Air Basin	Summer	2021	366.76	423.74	498.00	632.43	73.79	85.21	100.84	126.90
AB	Lake County Air Basin	Summer	2022	366.67	423.91	497.93	632.88	73.78	85.27	100.85	127.07
AB	Lake County Air Basin	Summer	2023	366.57	424.04	497.87	633.19	73.76	85.32	100.87	127.26
AB	Lake County Air Basin	Summer	2024	366.46	424.16	497.81	633.47	73.71	85.36	100.88	127.45
AB	Lake County Air Basin	Summer	2025	366.41	424.28	497.76	633.69	73.71	85.45	100.91	127.61
AB	Lake County Air Basin	Summer	2026	366.43	424.42	497.70	633.89	73.73	85.55	100.93	127.78
AB	Lake County Air Basin	Summer	2027	366.46	424.56	497.65	634.10	73.74	85.64	100.94	127.94
AB	Lake County Air Basin	Summer	2028	366.47	424.70	497.62	634.32	73.75	85.72	100.95	128.09
AB	Lake County Air Basin	Summer	2029	366.48	424.86	497.59	634.55	73.75	85.80	100.96	128.22
AB	Lake County Air Basin	Summer	2030	366.48	425.00	497.56	634.80	73.75	85.88	100.95	128.35
AB	Lake County Air Basin	Summer	2031	366.48	425.18	497.58	635.06	73.76	85.96	100.95	128.48
AB	Lake County Air Basin	Summer	2032	366.47	425.33	497.59	635.34	73.76	86.03	100.96	128.61
AB	Lake County Air Basin	Summer	2033	366.46	425.44	497.60	635.60	73.77	86.09	100.96	128.72
AB	Lake County Air Basin	Summer	2034	366.45	425.54	497.60	635.84	73.77	86.15	100.97	128.82
AB	Lake County Air Basin	Summer	2035	366.44	425.60	497.60	636.06	73.78	86.20	100.97	128.92
AB	Lake County Air Basin	Winter	2010	355.28	406.94	485.21	605.47	74.77	89.34	101.91	124.46
AB	Lake County Air Basin	Winter	2011	355.39	407.93	484.91	606.07	74.52	88.47	101.71	124.54
AB	Lake County Air Basin	Winter	2012	355.55	408.73	484.69	606.93	74.36	87.81	101.56	124.69
AB	Lake County Air Basin	Winter	2013	355.70	409.36	484.52	607.95	74.20	87.25	101.40	124.90
AB	Lake County Air Basin	Winter	2014	355.79	409.87	484.39	608.93	73.98	86.77	101.22	125.12
AB	Lake County Air Basin	Winter	2015	355.91	410.33	484.31	610.03	73.90	86.33	101.09	125.37
AB	Lake County Air Basin	Winter	2016	356.04	410.72	484.24	611.10	73.88	85.99	101.00	125.66
AB	Lake County Air Basin	Winter	2017	356.08	411.04	484.15	612.08	73.79	85.60	100.88	125.95
AB	Lake County Air Basin	Winter	2018	356.11	411.29	484.07	612.96	73.73	85.27	100.83	126.22
AB	Lake County Air Basin	Winter	2019	356.13	411.52	484.00	613.71	73.69	85.13	100.79	126.48
AB	Lake County Air Basin	Winter	2020	356.15	411.73	483.93	614.36	73.77	85.14	100.79	126.73
AB	Lake County Air Basin	Winter	2021	356.11	411.89	483.85	614.84	73.79	85.21	100.84	126.90
AB	Lake County Air Basin	Winter	2022	356.02	412.03	483.78	615.25	73.78	85.27	100.85	127.07
AB	Lake County Air Basin	Winter	2023	355.91	412.15	483.72	615.52	73.76	85.32	100.87	127.26
AB	Lake County Air Basin	Winter	2024	355.79	412.24	483.66	615.76	73.71	85.36	100.88	127.45
AB	Lake County Air Basin	Winter	2025	355.74	412.35	483.61	615.96	73.71	85.45	100.91	127.61
AB	Lake County Air Basin	Winter	2026	355.76	412.47	483.56	616.15	73.73	85.55	100.93	127.78
AB	Lake County Air Basin	Winter	2027	355.78	412.60	483.51	616.36	73.74	85.64	100.94	127.94
AB	Lake County Air Basin	Winter	2028	355.78	412.73	483.47	616.58	73.75	85.72	100.95	128.09
AB	Lake County Air Basin	Winter	2029	355.78	412.87	483.44	616.79	73.75	85.80	100.96	128.22
AB	Lake County Air Basin	Winter	2030	355.78	412.99	483.41	617.02	73.75	85.88	100.95	128.35
AB	Lake County Air Basin	Winter	2031	355.77	413.15	483.42	617.27	73.76	85.96	100.95	128.48
AB	Lake County Air Basin	Winter	2032	355.77	413.27	483.42	617.53	73.76	86.03	100.96	128.61
AB	Lake County Air Basin	Winter	2033	355.76	413.37	483.42	617.77	73.77	86.09	100.96	128.72
AB	Lake County Air Basin	Winter	2034	355.75	413.46	483.42	618.00	73.77	86.15	100.97	128.82
AB	Lake County Air Basin	Winter	2035	355.74	413.52	483.42	618.20	73.78	86.20	100.97	128.92
AB	Lake Tahoe Air Basin	Annual	2010	356.47	412.59	488.71	604.93	74.34	87.24	99.87	123.01
AB	Lake Tahoe Air Basin	Annual	2011	356.51	412.59	488.19	605.81	74.16	86.67	99.91	123.23
AB	Lake Tahoe Air Basin	Annual	2012	356.56	412.72	487.78	606.86	73.99	86.30	99.99	123.52
AB	Lake Tahoe Air Basin	Annual	2013	356.68	412.85	487.47	608.00	73.92	86.00	100.07	123.86
AB	Lake Tahoe Air Basin	Annual	2014	356.72	412.95	487.22	609.08	73.71	85.68	100.13	124.20
AB	Lake Tahoe Air Basin	Annual	2015	356.81	413.11	487.02	610.25	73.64	85.47	100.21	124.57

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	Lake Tahoe Air Basin	Annual	2016	356.94	413.27	486.89	611.36	73.65	85.26	100.29	124.95
AB	Lake Tahoe Air Basin	Annual	2017	356.99	413.40	486.78	612.39	73.62	85.07	100.35	125.32
AB	Lake Tahoe Air Basin	Annual	2018	357.02	413.53	486.70	613.30	73.52	84.96	100.42	125.67
AB	Lake Tahoe Air Basin	Annual	2019	357.02	413.71	486.65	614.10	73.44	84.95	100.50	126.01
AB	Lake Tahoe Air Basin	Annual	2020	357.04	413.87	486.61	614.78	73.51	85.01	100.60	126.32
AB	Lake Tahoe Air Basin	Annual	2021	356.98	413.98	486.59	615.36	73.53	85.12	100.68	126.59
AB	Lake Tahoe Air Basin	Annual	2022	356.93	414.08	486.56	615.86	73.53	85.21	100.75	126.83
AB	Lake Tahoe Air Basin	Annual	2023	356.85	414.11	486.52	616.25	73.53	85.29	100.80	127.07
AB	Lake Tahoe Air Basin	Annual	2024	356.72	414.14	486.45	616.56	73.48	85.36	100.85	127.28
AB	Lake Tahoe Air Basin	Annual	2025	356.68	414.26	486.40	616.85	73.48	85.46	100.89	127.48
AB	Lake Tahoe Air Basin	Annual	2026	356.67	414.44	486.37	617.11	73.50	85.57	100.93	127.67
AB	Lake Tahoe Air Basin	Annual	2027	356.66	414.59	486.34	617.37	73.52	85.66	100.95	127.84
AB	Lake Tahoe Air Basin	Annual	2028	356.66	414.75	486.32	617.64	73.52	85.75	100.97	128.00
AB	Lake Tahoe Air Basin	Annual	2029	356.64	414.90	486.29	617.91	73.53	85.84	100.98	128.15
AB	Lake Tahoe Air Basin	Annual	2030	356.63	415.05	486.24	618.17	73.53	85.92	100.99	128.30
AB	Lake Tahoe Air Basin	Annual	2031	356.65	415.20	486.20	618.44	73.54	85.99	100.99	128.44
AB	Lake Tahoe Air Basin	Annual	2032	356.65	415.33	486.17	618.72	73.54	86.06	101.00	128.57
AB	Lake Tahoe Air Basin	Annual	2033	356.66	415.45	486.15	618.96	73.55	86.13	101.00	128.69
AB	Lake Tahoe Air Basin	Annual	2034	356.66	415.57	486.12	619.18	73.55	86.19	101.01	128.81
AB	Lake Tahoe Air Basin	Annual	2035	356.66	415.65	486.10	619.37	73.56	86.24	101.01	128.91
AB	Lake Tahoe Air Basin	Summer	2010	355.60	411.74	487.57	603.46	74.34	87.24	99.87	123.01
AB	Lake Tahoe Air Basin	Summer	2011	355.64	411.71	487.04	604.33	74.16	86.67	99.91	123.23
AB	Lake Tahoe Air Basin	Summer	2012	355.68	411.82	486.63	605.37	73.99	86.30	99.99	123.52
AB	Lake Tahoe Air Basin	Summer	2013	355.79	411.94	486.31	606.50	73.92	86.00	100.07	123.86
AB	Lake Tahoe Air Basin	Summer	2014	355.83	412.02	486.05	607.58	73.71	85.68	100.13	124.20
AB	Lake Tahoe Air Basin	Summer	2015	355.92	412.17	485.85	608.73	73.64	85.47	100.21	124.57
AB	Lake Tahoe Air Basin	Summer	2016	356.05	412.33	485.71	609.83	73.65	85.26	100.29	124.95
AB	Lake Tahoe Air Basin	Summer	2017	356.10	412.44	485.60	610.85	73.62	85.07	100.35	125.32
AB	Lake Tahoe Air Basin	Summer	2018	356.13	412.57	485.52	611.75	73.52	84.96	100.42	125.67
AB	Lake Tahoe Air Basin	Summer	2019	356.13	412.74	485.46	612.55	73.44	84.95	100.50	126.01
AB	Lake Tahoe Air Basin	Summer	2020	356.15	412.89	485.43	613.23	73.51	85.01	100.60	126.32
AB	Lake Tahoe Air Basin	Summer	2021	356.09	413.00	485.41	613.80	73.53	85.12	100.68	126.59
AB	Lake Tahoe Air Basin	Summer	2022	356.03	413.09	485.38	614.30	73.53	85.21	100.75	126.83
AB	Lake Tahoe Air Basin	Summer	2023	355.96	413.13	485.34	614.69	73.53	85.29	100.80	127.07
AB	Lake Tahoe Air Basin	Summer	2024	355.83	413.15	485.27	615.00	73.48	85.36	100.85	127.28
AB	Lake Tahoe Air Basin	Summer	2025	355.78	413.27	485.22	615.29	73.48	85.46	100.89	127.48
AB	Lake Tahoe Air Basin	Summer	2026	355.77	413.44	485.19	615.55	73.50	85.57	100.93	127.67
AB	Lake Tahoe Air Basin	Summer	2027	355.77	413.59	485.16	615.81	73.52	85.66	100.95	127.84
AB	Lake Tahoe Air Basin	Summer	2028	355.76	413.76	485.14	616.07	73.52	85.75	100.97	128.00
AB	Lake Tahoe Air Basin	Summer	2029	355.74	413.90	485.10	616.34	73.53	85.84	100.98	128.15
AB	Lake Tahoe Air Basin	Summer	2030	355.74	414.05	485.06	616.61	73.53	85.92	100.99	128.30
AB	Lake Tahoe Air Basin	Summer	2031	355.75	414.20	485.02	616.87	73.54	85.99	100.99	128.44
AB	Lake Tahoe Air Basin	Summer	2032	355.76	414.33	484.99	617.14	73.54	86.06	101.00	128.57
AB	Lake Tahoe Air Basin	Summer	2033	355.76	414.45	484.96	617.39	73.55	86.13	101.00	128.69
AB	Lake Tahoe Air Basin	Summer	2034	355.76	414.56	484.94	617.61	73.55	86.19	101.01	128.81
AB	Lake Tahoe Air Basin	Summer	2035	355.76	414.64	484.92	617.79	73.56	86.24	101.01	128.91
AB	Lake Tahoe Air Basin	Winter	2010	355.55	411.69	487.51	603.37	74.34	87.24	99.87	123.01
AB	Lake Tahoe Air Basin	Winter	2011	355.59	411.66	486.98	604.24	74.16	86.67	99.91	123.23
AB	Lake Tahoe Air Basin	Winter	2012	355.64	411.77	486.56	605.28	73.99	86.30	99.99	123.52
AB	Lake Tahoe Air Basin	Winter	2013	355.74	411.89	486.25	606.41	73.92	86.00	100.07	123.86
AB	Lake Tahoe Air Basin	Winter	2014	355.78	411.97	485.98	607.48	73.71	85.68	100.13	124.20
AB	Lake Tahoe Air Basin	Winter	2015	355.87	412.11	485.78	608.63	73.64	85.47	100.21	124.57
AB	Lake Tahoe Air Basin	Winter	2016	356.00	412.27	485.65	609.74	73.65	85.26	100.29	124.95
AB	Lake Tahoe Air Basin	Winter	2017	356.05	412.39	485.53	610.76	73.62	85.07	100.35	125.32

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	Lake Tahoe Air Basin	Winter	2018	356.08	412.52	485.45	611.66	73.52	84.96	100.42	125.67
AB	Lake Tahoe Air Basin	Winter	2019	356.08	412.69	485.40	612.46	73.44	84.95	100.50	126.01
AB	Lake Tahoe Air Basin	Winter	2020	356.10	412.84	485.37	613.13	73.51	85.01	100.60	126.32
AB	Lake Tahoe Air Basin	Winter	2021	356.04	412.95	485.35	613.70	73.53	85.12	100.68	126.59
AB	Lake Tahoe Air Basin	Winter	2022	355.98	413.04	485.31	614.20	73.53	85.21	100.75	126.83
AB	Lake Tahoe Air Basin	Winter	2023	355.91	413.07	485.28	614.59	73.53	85.29	100.80	127.07
AB	Lake Tahoe Air Basin	Winter	2024	355.78	413.10	485.21	614.90	73.48	85.36	100.85	127.28
AB	Lake Tahoe Air Basin	Winter	2025	355.73	413.22	485.16	615.19	73.48	85.46	100.89	127.48
AB	Lake Tahoe Air Basin	Winter	2026	355.72	413.39	485.13	615.45	73.50	85.57	100.93	127.67
AB	Lake Tahoe Air Basin	Winter	2027	355.72	413.54	485.10	615.71	73.52	85.66	100.95	127.84
AB	Lake Tahoe Air Basin	Winter	2028	355.71	413.70	485.07	615.98	73.52	85.75	100.97	128.00
AB	Lake Tahoe Air Basin	Winter	2029	355.70	413.85	485.04	616.24	73.53	85.84	100.98	128.15
AB	Lake Tahoe Air Basin	Winter	2030	355.69	414.00	484.99	616.51	73.53	85.92	100.99	128.30
AB	Lake Tahoe Air Basin	Winter	2031	355.70	414.15	484.96	616.78	73.54	85.99	100.99	128.44
AB	Lake Tahoe Air Basin	Winter	2032	355.71	414.28	484.93	617.05	73.54	86.06	101.00	128.57
AB	Lake Tahoe Air Basin	Winter	2033	355.71	414.39	484.90	617.29	73.55	86.13	101.00	128.69
AB	Lake Tahoe Air Basin	Winter	2034	355.71	414.51	484.88	617.51	73.55	86.19	101.01	128.81
AB	Lake Tahoe Air Basin	Winter	2035	355.71	414.59	484.85	617.70	73.56	86.24	101.01	128.91
AB	Mojave Desert Air Basin	Annual	2010	343.11	394.68	468.99	590.86	73.72	86.74	100.30	125.32
AB	Mojave Desert Air Basin	Annual	2011	343.64	395.54	469.03	592.03	73.66	86.21	100.29	125.53
AB	Mojave Desert Air Basin	Annual	2012	343.83	396.10	468.85	592.82	73.64	85.86	100.31	125.76
AB	Mojave Desert Air Basin	Annual	2013	343.61	395.96	468.10	592.75	73.63	85.55	100.34	126.01
AB	Mojave Desert Air Basin	Annual	2014	343.79	396.35	468.03	593.54	73.61	85.26	100.36	126.25
AB	Mojave Desert Air Basin	Annual	2015	343.46	395.74	466.94	593.04	73.61	85.08	100.41	126.51
AB	Mojave Desert Air Basin	Annual	2016	343.59	396.07	466.87	593.71	73.64	84.97	100.46	126.76
AB	Mojave Desert Air Basin	Annual	2017	343.70	396.36	466.83	594.35	73.64	84.82	100.48	127.01
AB	Mojave Desert Air Basin	Annual	2018	343.78	396.61	466.78	594.88	73.65	84.74	100.50	127.24
AB	Mojave Desert Air Basin	Annual	2019	343.84	396.80	466.60	595.24	73.67	84.82	100.55	127.46
AB	Mojave Desert Air Basin	Annual	2020	343.89	397.05	466.55	595.62	73.75	84.94	100.63	127.66
AB	Mojave Desert Air Basin	Annual	2021	344.44	397.74	467.03	596.67	73.81	85.09	100.70	127.82
AB	Mojave Desert Air Basin	Annual	2022	344.45	397.97	467.01	596.93	73.85	85.23	100.76	127.94
AB	Mojave Desert Air Basin	Annual	2023	344.44	398.17	466.98	597.13	73.88	85.35	100.81	128.10
AB	Mojave Desert Air Basin	Annual	2024	344.17	397.99	466.53	596.83	73.89	85.45	100.85	128.24
AB	Mojave Desert Air Basin	Annual	2025	344.18	398.15	466.52	597.01	73.91	85.55	100.89	128.37
AB	Mojave Desert Air Basin	Annual	2026	344.19	398.32	466.50	597.17	73.93	85.65	100.91	128.50
AB	Mojave Desert Air Basin	Annual	2027	344.20	398.48	466.48	597.33	73.94	85.73	100.93	128.62
AB	Mojave Desert Air Basin	Annual	2028	344.20	398.63	466.46	597.49	73.95	85.81	100.95	128.72
AB	Mojave Desert Air Basin	Annual	2029	344.20	398.78	466.44	597.64	73.96	85.88	100.96	128.81
AB	Mojave Desert Air Basin	Annual	2030	344.19	398.92	466.41	597.78	73.96	85.94	100.96	128.90
AB	Mojave Desert Air Basin	Annual	2031	345.29	400.17	467.56	599.64	73.96	86.01	100.97	128.98
AB	Mojave Desert Air Basin	Annual	2032	345.26	400.28	467.53	599.70	73.97	86.07	100.98	129.06
AB	Mojave Desert Air Basin	Annual	2033	345.23	400.38	467.50	599.76	73.97	86.12	100.98	129.12
AB	Mojave Desert Air Basin	Annual	2034	345.20	400.47	467.47	599.81	73.97	86.16	100.99	129.19
AB	Mojave Desert Air Basin	Annual	2035	345.17	400.54	467.45	599.85	73.98	86.20	100.99	129.24
AB	Mojave Desert Air Basin	Summer	2010	378.64	430.09	514.82	649.00	73.72	86.74	100.30	125.32
AB	Mojave Desert Air Basin	Summer	2011	379.34	431.77	515.20	650.27	73.66	86.21	100.29	125.53
AB	Mojave Desert Air Basin	Summer	2012	379.64	432.95	515.24	651.14	73.64	85.86	100.31	125.76
AB	Mojave Desert Air Basin	Summer	2013	379.46	433.16	514.62	651.13	73.63	85.55	100.34	126.01
AB	Mojave Desert Air Basin	Summer	2014	379.68	433.88	514.72	652.08	73.61	85.26	100.36	126.25
AB	Mojave Desert Air Basin	Summer	2015	379.34	433.42	513.70	651.66	73.61	85.08	100.41	126.51
AB	Mojave Desert Air Basin	Summer	2016	379.52	433.92	513.75	652.50	73.64	84.97	100.46	126.76
AB	Mojave Desert Air Basin	Summer	2017	379.64	434.35	513.78	653.28	73.64	84.82	100.48	127.01
AB	Mojave Desert Air Basin	Summer	2018	379.71	434.69	513.76	653.91	73.65	84.74	100.50	127.24
AB	Mojave Desert Air Basin	Summer	2019	379.77	434.97	513.59	654.37	73.67	84.82	100.55	127.46

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	Mojave Desert Air Basin	Summer	2020	379.81	435.29	513.53	654.85	73.75	84.94	100.63	127.66
AB	Mojave Desert Air Basin	Summer	2021	380.43	436.16	514.08	656.10	73.81	85.09	100.70	127.82
AB	Mojave Desert Air Basin	Summer	2022	380.46	436.52	514.06	656.46	73.85	85.23	100.76	127.94
AB	Mojave Desert Air Basin	Summer	2023	380.45	436.83	514.04	656.72	73.88	85.35	100.81	128.10
AB	Mojave Desert Air Basin	Summer	2024	380.12	436.68	513.52	656.37	73.89	85.45	100.85	128.24
AB	Mojave Desert Air Basin	Summer	2025	380.13	436.95	513.52	656.58	73.91	85.55	100.89	128.37
AB	Mojave Desert Air Basin	Summer	2026	380.14	437.20	513.50	656.78	73.93	85.65	100.91	128.50
AB	Mojave Desert Air Basin	Summer	2027	380.15	437.43	513.49	656.96	73.94	85.73	100.93	128.62
AB	Mojave Desert Air Basin	Summer	2028	380.15	437.66	513.48	657.14	73.95	85.81	100.95	128.72
AB	Mojave Desert Air Basin	Summer	2029	380.14	437.88	513.47	657.31	73.96	85.88	100.96	128.81
AB	Mojave Desert Air Basin	Summer	2030	380.14	438.08	513.46	657.48	73.96	85.94	100.96	128.90
AB	Mojave Desert Air Basin	Summer	2031	381.35	439.55	514.76	659.57	73.96	86.01	100.97	128.98
AB	Mojave Desert Air Basin	Summer	2032	381.29	439.73	514.74	659.65	73.97	86.07	100.98	129.06
AB	Mojave Desert Air Basin	Summer	2033	381.25	439.88	514.72	659.74	73.97	86.12	100.98	129.12
AB	Mojave Desert Air Basin	Summer	2034	381.20	440.01	514.71	659.82	73.97	86.16	100.99	129.19
AB	Mojave Desert Air Basin	Summer	2035	381.17	440.11	514.69	659.90	73.98	86.20	100.99	129.24
AB	Mojave Desert Air Basin	Winter	2010	332.64	384.30	455.49	573.78	73.72	86.74	100.30	125.32
AB	Mojave Desert Air Basin	Winter	2011	333.12	384.93	455.44	574.92	73.66	86.21	100.29	125.53
AB	Mojave Desert Air Basin	Winter	2012	333.27	385.32	455.20	575.69	73.64	85.86	100.31	125.76
AB	Mojave Desert Air Basin	Winter	2013	333.05	385.06	454.41	575.60	73.63	85.55	100.34	126.01
AB	Mojave Desert Air Basin	Winter	2014	333.21	385.37	454.28	576.35	73.61	85.26	100.36	126.25
AB	Mojave Desert Air Basin	Winter	2015	332.88	384.72	453.17	575.82	73.61	85.08	100.41	126.51
AB	Mojave Desert Air Basin	Winter	2016	333.01	385.01	453.07	576.45	73.64	84.97	100.46	126.76
AB	Mojave Desert Air Basin	Winter	2017	333.11	385.25	453.01	577.05	73.64	84.82	100.48	127.01
AB	Mojave Desert Air Basin	Winter	2018	333.19	385.48	452.95	577.56	73.65	84.74	100.50	127.24
AB	Mojave Desert Air Basin	Winter	2019	333.26	385.66	452.78	577.90	73.67	84.82	100.55	127.46
AB	Mojave Desert Air Basin	Winter	2020	333.31	385.88	452.72	578.26	73.75	84.94	100.63	127.66
AB	Mojave Desert Air Basin	Winter	2021	333.84	386.51	453.18	579.23	73.81	85.09	100.70	127.82
AB	Mojave Desert Air Basin	Winter	2022	333.85	386.71	453.16	579.47	73.85	85.23	100.76	127.94
AB	Mojave Desert Air Basin	Winter	2023	333.84	386.88	453.13	579.65	73.88	85.35	100.81	128.10
AB	Mojave Desert Air Basin	Winter	2024	333.58	386.69	452.71	579.37	73.89	85.45	100.85	128.24
AB	Mojave Desert Air Basin	Winter	2025	333.59	386.82	452.70	579.54	73.91	85.55	100.89	128.37
AB	Mojave Desert Air Basin	Winter	2026	333.61	386.97	452.67	579.69	73.93	85.65	100.91	128.50
AB	Mojave Desert Air Basin	Winter	2027	333.62	387.10	452.64	579.84	73.94	85.73	100.93	128.62
AB	Mojave Desert Air Basin	Winter	2028	333.62	387.24	452.62	579.99	73.95	85.81	100.95	128.72
AB	Mojave Desert Air Basin	Winter	2029	333.62	387.37	452.60	580.13	73.96	85.88	100.96	128.81
AB	Mojave Desert Air Basin	Winter	2030	333.61	387.49	452.57	580.27	73.96	85.94	100.96	128.90
AB	Mojave Desert Air Basin	Winter	2031	334.68	388.66	453.66	582.05	73.96	86.01	100.97	128.98
AB	Mojave Desert Air Basin	Winter	2032	334.65	388.75	453.62	582.10	73.97	86.07	100.98	129.06
AB	Mojave Desert Air Basin	Winter	2033	334.62	388.83	453.59	582.15	73.97	86.12	100.98	129.12
AB	Mojave Desert Air Basin	Winter	2034	334.59	388.91	453.56	582.18	73.97	86.16	100.99	129.19
AB	Mojave Desert Air Basin	Winter	2035	334.57	388.97	453.53	582.21	73.98	86.20	100.99	129.24
AB	Mountain Counties Air Basin	Annual	2010	337.73	394.74	462.55	581.26	74.08	90.29	100.75	125.10
AB	Mountain Counties Air Basin	Annual	2011	337.82	394.79	462.03	581.86	73.91	89.26	100.66	125.21
AB	Mountain Counties Air Basin	Annual	2012	337.95	394.82	461.63	582.55	73.76	88.44	100.64	125.36
AB	Mountain Counties Air Basin	Annual	2013	338.09	394.86	461.34	583.31	73.65	87.72	100.62	125.55
AB	Mountain Counties Air Basin	Annual	2014	338.21	394.89	461.12	584.05	73.52	87.09	100.58	125.75
AB	Mountain Counties Air Basin	Annual	2015	338.36	394.93	460.94	584.84	73.48	86.55	100.58	125.97
AB	Mountain Counties Air Basin	Annual	2016	338.51	394.99	460.82	585.57	73.47	86.12	100.59	126.21
AB	Mountain Counties Air Basin	Annual	2017	338.61	395.01	460.71	586.27	73.44	85.65	100.57	126.46
AB	Mountain Counties Air Basin	Annual	2018	338.67	395.04	460.64	586.87	73.40	85.31	100.58	126.69
AB	Mountain Counties Air Basin	Annual	2019	337.56	394.13	459.45	585.79	73.39	85.18	100.60	126.91
AB	Mountain Counties Air Basin	Annual	2020	337.62	394.23	459.40	586.24	73.48	85.19	100.67	127.12
AB	Mountain Counties Air Basin	Annual	2021	337.66	394.34	459.35	586.55	73.54	85.26	100.73	127.25

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	Mountain Counties Air Basin	Annual	2022	337.68	394.44	459.30	586.78	73.58	85.34	100.79	127.34
AB	Mountain Counties Air Basin	Annual	2023	337.66	394.51	459.24	586.97	73.60	85.39	100.83	127.51
AB	Mountain Counties Air Basin	Annual	2024	337.62	394.56	459.21	587.12	73.61	85.45	100.87	127.66
AB	Mountain Counties Air Basin	Annual	2025	337.61	394.61	459.18	587.29	73.62	85.53	100.90	127.82
AB	Mountain Counties Air Basin	Annual	2026	337.62	394.78	459.14	587.48	73.64	85.62	100.93	127.97
AB	Mountain Counties Air Basin	Annual	2027	337.63	394.92	459.10	587.67	73.66	85.70	100.95	128.11
AB	Mountain Counties Air Basin	Annual	2028	337.63	395.07	459.06	587.86	73.67	85.78	100.96	128.23
AB	Mountain Counties Air Basin	Annual	2029	337.63	395.23	459.02	588.06	73.67	85.85	100.96	128.35
AB	Mountain Counties Air Basin	Annual	2030	337.62	395.37	458.97	588.27	73.68	85.92	100.96	128.47
AB	Mountain Counties Air Basin	Annual	2031	337.63	395.50	458.95	588.48	73.68	85.98	100.97	128.58
AB	Mountain Counties Air Basin	Annual	2032	337.64	395.62	458.93	588.71	73.69	86.04	100.97	128.70
AB	Mountain Counties Air Basin	Annual	2033	337.64	395.72	458.92	588.91	73.69	86.10	100.98	128.80
AB	Mountain Counties Air Basin	Annual	2034	337.64	395.82	458.90	589.08	73.70	86.15	100.98	128.89
AB	Mountain Counties Air Basin	Annual	2035	337.64	395.90	458.89	589.24	73.70	86.20	100.98	128.98
AB	Mountain Counties Air Basin	Summer	2010	367.32	424.29	500.18	628.91	74.08	90.29	100.75	125.10
AB	Mountain Counties Air Basin	Summer	2011	367.66	425.17	499.91	629.58	73.91	89.26	100.66	125.21
AB	Mountain Counties Air Basin	Summer	2012	367.99	425.86	499.73	630.44	73.76	88.44	100.64	125.36
AB	Mountain Counties Air Basin	Summer	2013	368.29	426.43	499.63	631.41	73.65	87.72	100.62	125.55
AB	Mountain Counties Air Basin	Summer	2014	368.54	426.87	499.60	632.42	73.52	87.09	100.58	125.75
AB	Mountain Counties Air Basin	Summer	2015	368.78	427.27	499.58	633.49	73.48	86.55	100.58	125.97
AB	Mountain Counties Air Basin	Summer	2016	368.99	427.61	499.58	634.51	73.47	86.12	100.59	126.21
AB	Mountain Counties Air Basin	Summer	2017	369.12	427.89	499.57	635.47	73.44	85.65	100.57	126.46
AB	Mountain Counties Air Basin	Summer	2018	369.20	428.10	499.54	636.29	73.40	85.31	100.58	126.69
AB	Mountain Counties Air Basin	Summer	2019	367.97	427.24	498.26	635.21	73.39	85.18	100.60	126.91
AB	Mountain Counties Air Basin	Summer	2020	368.01	427.48	498.21	635.80	73.48	85.19	100.67	127.12
AB	Mountain Counties Air Basin	Summer	2021	368.06	427.68	498.13	636.19	73.54	85.26	100.73	127.25
AB	Mountain Counties Air Basin	Summer	2022	368.08	427.87	498.06	636.51	73.58	85.34	100.79	127.34
AB	Mountain Counties Air Basin	Summer	2023	368.06	428.03	497.99	636.75	73.60	85.39	100.83	127.51
AB	Mountain Counties Air Basin	Summer	2024	368.04	428.16	497.96	636.93	73.61	85.45	100.87	127.66
AB	Mountain Counties Air Basin	Summer	2025	368.03	428.28	497.93	637.11	73.62	85.53	100.90	127.82
AB	Mountain Counties Air Basin	Summer	2026	368.04	428.50	497.91	637.31	73.64	85.62	100.93	127.97
AB	Mountain Counties Air Basin	Summer	2027	368.05	428.70	497.89	637.51	73.66	85.70	100.95	128.11
AB	Mountain Counties Air Basin	Summer	2028	368.06	428.91	497.87	637.72	73.67	85.78	100.96	128.23
AB	Mountain Counties Air Basin	Summer	2029	368.07	429.12	497.85	637.95	73.67	85.85	100.96	128.35
AB	Mountain Counties Air Basin	Summer	2030	368.07	429.33	497.82	638.18	73.68	85.92	100.96	128.47
AB	Mountain Counties Air Basin	Summer	2031	368.08	429.52	497.80	638.46	73.68	85.98	100.97	128.58
AB	Mountain Counties Air Basin	Summer	2032	368.09	429.68	497.78	638.73	73.69	86.04	100.97	128.70
AB	Mountain Counties Air Basin	Summer	2033	368.10	429.81	497.77	638.99	73.69	86.10	100.98	128.80
AB	Mountain Counties Air Basin	Summer	2034	368.10	429.93	497.75	639.22	73.70	86.15	100.98	128.89
AB	Mountain Counties Air Basin	Summer	2035	368.10	430.02	497.74	639.43	73.70	86.20	100.98	128.98
AB	Mountain Counties Air Basin	Winter	2010	330.51	387.48	453.53	569.65	74.08	90.29	100.75	125.10
AB	Mountain Counties Air Basin	Winter	2011	330.54	387.32	452.95	570.23	73.91	89.26	100.66	125.21
AB	Mountain Counties Air Basin	Winter	2012	330.61	387.20	452.50	570.89	73.76	88.44	100.64	125.36
AB	Mountain Counties Air Basin	Winter	2013	330.72	387.10	452.16	571.58	73.65	87.72	100.62	125.55
AB	Mountain Counties Air Basin	Winter	2014	330.81	387.02	451.90	572.27	73.52	87.09	100.58	125.75
AB	Mountain Counties Air Basin	Winter	2015	330.94	386.98	451.69	572.98	73.48	86.55	100.58	125.97
AB	Mountain Counties Air Basin	Winter	2016	331.07	386.97	451.53	573.65	73.47	86.12	100.59	126.21
AB	Mountain Counties Air Basin	Winter	2017	331.16	386.93	451.40	574.28	73.44	85.65	100.57	126.46
AB	Mountain Counties Air Basin	Winter	2018	331.22	386.91	451.31	574.83	73.40	85.31	100.58	126.69
AB	Mountain Counties Air Basin	Winter	2019	330.14	385.98	450.15	573.74	73.39	85.18	100.60	126.91
AB	Mountain Counties Air Basin	Winter	2020	330.19	386.05	450.10	574.16	73.48	85.19	100.67	127.12
AB	Mountain Counties Air Basin	Winter	2021	330.24	386.14	450.05	574.44	73.54	85.26	100.73	127.25
AB	Mountain Counties Air Basin	Winter	2022	330.25	386.21	450.00	574.66	73.58	85.34	100.79	127.34
AB	Mountain Counties Air Basin	Winter	2023	330.22	386.26	449.94	574.82	73.60	85.39	100.83	127.51

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	Mountain Counties Air Basin	Winter	2024	330.18	386.28	449.90	574.97	73.61	85.45	100.87	127.66
AB	Mountain Counties Air Basin	Winter	2025	330.17	386.33	449.87	575.13	73.62	85.53	100.90	127.82
AB	Mountain Counties Air Basin	Winter	2026	330.18	386.48	449.82	575.31	73.64	85.62	100.93	127.97
AB	Mountain Counties Air Basin	Winter	2027	330.19	386.60	449.78	575.50	73.66	85.70	100.95	128.11
AB	Mountain Counties Air Basin	Winter	2028	330.19	386.74	449.74	575.69	73.67	85.78	100.96	128.23
AB	Mountain Counties Air Basin	Winter	2029	330.18	386.88	449.69	575.87	73.67	85.85	100.96	128.35
AB	Mountain Counties Air Basin	Winter	2030	330.17	387.00	449.63	576.07	73.68	85.92	100.96	128.47
AB	Mountain Counties Air Basin	Winter	2031	330.18	387.12	449.61	576.27	73.68	85.98	100.97	128.58
AB	Mountain Counties Air Basin	Winter	2032	330.18	387.23	449.59	576.48	73.69	86.04	100.97	128.70
AB	Mountain Counties Air Basin	Winter	2033	330.18	387.32	449.58	576.66	73.69	86.10	100.98	128.80
AB	Mountain Counties Air Basin	Winter	2034	330.18	387.41	449.56	576.82	73.70	86.15	100.98	128.89
AB	Mountain Counties Air Basin	Winter	2035	330.18	387.48	449.55	576.96	73.70	86.20	100.98	128.98
AB	North Central Coast Air Basin	Annual	2010	352.08	409.85	484.60	606.53	72.96	88.37	99.87	123.92
AB	North Central Coast Air Basin	Annual	2011	352.06	409.40	483.84	606.61	72.93	87.57	99.90	124.13
AB	North Central Coast Air Basin	Annual	2012	352.19	409.24	483.32	607.40	72.89	86.90	99.95	124.37
AB	North Central Coast Air Basin	Annual	2013	352.37	409.19	482.92	608.27	72.92	86.40	100.03	124.65
AB	North Central Coast Air Basin	Annual	2014	352.53	409.12	482.60	609.12	72.92	85.94	100.10	124.93
AB	North Central Coast Air Basin	Annual	2015	352.73	409.11	482.36	609.99	72.98	85.55	100.18	125.24
AB	North Central Coast Air Basin	Annual	2016	352.92	409.09	482.18	610.81	73.05	85.20	100.28	125.55
AB	North Central Coast Air Basin	Annual	2017	353.06	409.10	482.04	611.59	73.09	84.93	100.35	125.86
AB	North Central Coast Air Basin	Annual	2018	353.17	409.13	481.94	612.28	73.12	84.71	100.43	126.15
AB	North Central Coast Air Basin	Annual	2019	353.27	409.25	481.87	612.89	73.16	84.66	100.51	126.43
AB	North Central Coast Air Basin	Annual	2020	353.37	409.39	481.83	613.44	73.25	84.73	100.59	126.69
AB	North Central Coast Air Basin	Annual	2021	354.32	410.59	483.10	615.32	73.33	84.87	100.68	126.92
AB	North Central Coast Air Basin	Annual	2022	354.37	410.77	483.07	615.74	73.38	84.99	100.74	127.10
AB	North Central Coast Air Basin	Annual	2023	354.37	410.92	483.04	616.07	73.42	85.10	100.80	127.31
AB	North Central Coast Air Basin	Annual	2024	354.34	411.03	483.02	616.34	73.43	85.19	100.84	127.49
AB	North Central Coast Air Basin	Annual	2025	354.34	411.14	483.01	616.61	73.45	85.28	100.88	127.66
AB	North Central Coast Air Basin	Annual	2026	353.30	409.99	481.54	614.89	73.47	85.37	100.91	127.83
AB	North Central Coast Air Basin	Annual	2027	353.33	410.12	481.49	615.18	73.49	85.45	100.93	127.98
AB	North Central Coast Air Basin	Annual	2028	353.35	410.27	481.44	615.46	73.50	85.52	100.94	128.12
AB	North Central Coast Air Basin	Annual	2029	353.36	410.41	481.37	615.73	73.51	85.58	100.94	128.25
AB	North Central Coast Air Basin	Annual	2030	353.37	410.56	481.31	616.01	73.51	85.65	100.94	128.38
AB	North Central Coast Air Basin	Annual	2031	353.39	410.72	481.27	616.28	73.52	85.71	100.95	128.50
AB	North Central Coast Air Basin	Annual	2032	353.41	410.88	481.25	616.56	73.52	85.77	100.96	128.62
AB	North Central Coast Air Basin	Annual	2033	353.43	411.02	481.23	616.82	73.53	85.83	100.96	128.73
AB	North Central Coast Air Basin	Annual	2034	353.45	411.15	481.21	617.05	73.53	85.88	100.96	128.83
AB	North Central Coast Air Basin	Annual	2035	353.47	411.25	481.20	617.25	73.54	85.93	100.97	128.92
AB	North Central Coast Air Basin	Summer	2010	372.98	431.76	511.84	642.11	72.96	88.37	99.87	123.92
AB	North Central Coast Air Basin	Summer	2011	373.14	431.60	511.31	642.11	72.93	87.57	99.90	124.13
AB	North Central Coast Air Basin	Summer	2012	373.41	431.71	511.01	642.95	72.89	86.90	99.95	124.37
AB	North Central Coast Air Basin	Summer	2013	373.71	431.90	510.79	643.91	72.92	86.40	100.03	124.65
AB	North Central Coast Air Basin	Summer	2014	373.96	432.06	510.63	644.90	72.92	85.94	100.10	124.93
AB	North Central Coast Air Basin	Summer	2015	374.21	432.22	510.51	645.93	72.98	85.55	100.18	125.24
AB	North Central Coast Air Basin	Summer	2016	374.44	432.38	510.41	646.92	73.05	85.20	100.28	125.55
AB	North Central Coast Air Basin	Summer	2017	374.60	432.55	510.33	647.86	73.09	84.93	100.35	125.86
AB	North Central Coast Air Basin	Summer	2018	374.71	432.72	510.25	648.67	73.12	84.71	100.43	126.15
AB	North Central Coast Air Basin	Summer	2019	374.81	432.96	510.19	649.38	73.16	84.66	100.51	126.43
AB	North Central Coast Air Basin	Summer	2020	374.91	433.20	510.15	650.02	73.25	84.73	100.59	126.69
AB	North Central Coast Air Basin	Summer	2021	375.91	434.52	511.49	652.05	73.33	84.87	100.68	126.92
AB	North Central Coast Air Basin	Summer	2022	375.97	434.78	511.48	652.54	73.38	84.99	100.74	127.10
AB	North Central Coast Air Basin	Summer	2023	375.98	434.99	511.46	652.91	73.42	85.10	100.80	127.31
AB	North Central Coast Air Basin	Summer	2024	375.97	435.16	511.45	653.21	73.43	85.19	100.84	127.49
AB	North Central Coast Air Basin	Summer	2025	375.98	435.32	511.45	653.50	73.45	85.28	100.88	127.66

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	North Central Coast Air Basin	Summer	2026	374.88	434.13	509.90	651.66	73.47	85.37	100.91	127.83
AB	North Central Coast Air Basin	Summer	2027	374.91	434.30	509.87	651.96	73.49	85.45	100.93	127.98
AB	North Central Coast Air Basin	Summer	2028	374.94	434.48	509.85	652.26	73.50	85.52	100.94	128.12
AB	North Central Coast Air Basin	Summer	2029	374.97	434.67	509.80	652.55	73.51	85.58	100.94	128.25
AB	North Central Coast Air Basin	Summer	2030	374.99	434.87	509.76	652.86	73.51	85.65	100.94	128.38
AB	North Central Coast Air Basin	Summer	2031	375.02	435.07	509.74	653.15	73.52	85.71	100.95	128.50
AB	North Central Coast Air Basin	Summer	2032	375.05	435.26	509.73	653.46	73.52	85.77	100.96	128.62
AB	North Central Coast Air Basin	Summer	2033	375.08	435.43	509.73	653.75	73.53	85.83	100.96	128.73
AB	North Central Coast Air Basin	Summer	2034	375.11	435.58	509.72	654.02	73.53	85.88	100.96	128.83
AB	North Central Coast Air Basin	Summer	2035	375.13	435.71	509.72	654.27	73.54	85.93	100.97	128.92
AB	North Central Coast Air Basin	Winter	2010	350.54	408.22	482.61	603.75	72.96	88.37	99.87	123.92
AB	North Central Coast Air Basin	Winter	2011	350.51	407.75	481.84	603.84	72.93	87.57	99.90	124.13
AB	North Central Coast Air Basin	Winter	2012	350.63	407.55	481.30	604.63	72.89	86.90	99.95	124.37
AB	North Central Coast Air Basin	Winter	2013	350.80	407.48	480.89	605.48	72.92	86.40	100.03	124.65
AB	North Central Coast Air Basin	Winter	2014	350.96	407.39	480.56	606.32	72.92	85.94	100.10	124.93
AB	North Central Coast Air Basin	Winter	2015	351.15	407.36	480.31	607.18	72.98	85.55	100.18	125.24
AB	North Central Coast Air Basin	Winter	2016	351.33	407.32	480.12	607.99	73.05	85.20	100.28	125.55
AB	North Central Coast Air Basin	Winter	2017	351.48	407.33	479.98	608.75	73.09	84.93	100.35	125.86
AB	North Central Coast Air Basin	Winter	2018	351.58	407.34	479.88	609.43	73.12	84.71	100.43	126.15
AB	North Central Coast Air Basin	Winter	2019	351.68	407.44	479.81	610.03	73.16	84.66	100.51	126.43
AB	North Central Coast Air Basin	Winter	2020	351.78	407.58	479.76	610.57	73.25	84.73	100.59	126.69
AB	North Central Coast Air Basin	Winter	2021	352.73	408.76	481.03	612.44	73.33	84.87	100.68	126.92
AB	North Central Coast Air Basin	Winter	2022	352.78	408.94	481.00	612.85	73.38	84.99	100.74	127.10
AB	North Central Coast Air Basin	Winter	2023	352.78	409.08	480.97	613.18	73.42	85.10	100.80	127.31
AB	North Central Coast Air Basin	Winter	2024	352.74	409.19	480.94	613.44	73.43	85.19	100.84	127.49
AB	North Central Coast Air Basin	Winter	2025	352.74	409.30	480.93	613.72	73.45	85.28	100.88	127.66
AB	North Central Coast Air Basin	Winter	2026	351.70	408.15	479.46	612.01	73.47	85.37	100.91	127.83
AB	North Central Coast Air Basin	Winter	2027	351.73	408.27	479.41	612.29	73.49	85.45	100.93	127.98
AB	North Central Coast Air Basin	Winter	2028	351.74	408.41	479.36	612.56	73.50	85.52	100.94	128.12
AB	North Central Coast Air Basin	Winter	2029	351.75	408.56	479.28	612.84	73.51	85.58	100.94	128.25
AB	North Central Coast Air Basin	Winter	2030	351.76	408.70	479.22	613.11	73.51	85.65	100.94	128.38
AB	North Central Coast Air Basin	Winter	2031	351.78	408.85	479.18	613.38	73.52	85.71	100.95	128.50
AB	North Central Coast Air Basin	Winter	2032	351.80	409.00	479.15	613.65	73.52	85.77	100.96	128.62
AB	North Central Coast Air Basin	Winter	2033	351.82	409.14	479.13	613.90	73.53	85.83	100.96	128.73
AB	North Central Coast Air Basin	Winter	2034	351.84	409.26	479.11	614.13	73.53	85.88	100.96	128.83
AB	North Central Coast Air Basin	Winter	2035	351.85	409.37	479.10	614.33	73.54	85.93	100.97	128.92
AB	North Coast Air Basin	Annual	2010	346.03	400.52	475.28	596.35	73.12	86.55	100.74	124.00
AB	North Coast Air Basin	Annual	2011	345.93	400.69	474.62	597.04	73.06	86.04	100.65	124.19
AB	North Coast Air Basin	Annual	2012	345.88	400.89	474.07	597.81	73.00	85.72	100.63	124.43
AB	North Coast Air Basin	Annual	2013	345.91	401.05	473.63	598.65	72.98	85.44	100.63	124.70
AB	North Coast Air Basin	Annual	2014	345.92	401.20	473.28	599.46	72.94	85.23	100.60	124.98
AB	North Coast Air Basin	Annual	2015	345.95	401.33	472.95	600.24	72.94	85.05	100.58	125.28
AB	North Coast Air Basin	Annual	2016	345.81	401.21	472.40	600.55	72.98	84.93	100.60	125.59
AB	North Coast Air Basin	Annual	2017	345.82	401.32	472.15	601.21	72.98	84.80	100.61	125.90
AB	North Coast Air Basin	Annual	2018	345.82	401.41	471.93	601.76	72.98	84.71	100.61	126.20
AB	North Coast Air Basin	Annual	2019	345.82	401.53	471.77	602.23	72.99	84.74	100.64	126.48
AB	North Coast Air Basin	Annual	2020	345.82	401.63	471.60	602.62	73.08	84.82	100.70	126.74
AB	North Coast Air Basin	Annual	2021	345.79	401.71	471.46	602.93	73.14	84.94	100.77	126.95
AB	North Coast Air Basin	Annual	2022	345.72	401.75	471.32	603.19	73.17	85.04	100.81	127.14
AB	North Coast Air Basin	Annual	2023	345.59	401.76	471.18	603.35	73.18	85.12	100.85	127.34
AB	North Coast Air Basin	Annual	2024	345.43	401.81	471.02	603.47	73.17	85.21	100.88	127.52
AB	North Coast Air Basin	Annual	2025	345.31	401.90	470.89	603.58	73.18	85.30	100.91	127.68
AB	North Coast Air Basin	Annual	2026	345.13	401.82	470.57	603.35	73.20	85.41	100.93	127.84
AB	North Coast Air Basin	Annual	2027	345.10	401.94	470.44	603.43	73.21	85.52	100.95	127.99

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	North Coast Air Basin	Annual	2028	345.05	402.06	470.32	603.52	73.22	85.61	100.96	128.14
AB	North Coast Air Basin	Annual	2029	345.00	402.17	470.19	603.61	73.23	85.70	100.96	128.27
AB	North Coast Air Basin	Annual	2030	344.94	402.27	470.04	603.71	73.23	85.78	100.96	128.39
AB	North Coast Air Basin	Annual	2031	344.89	402.39	469.96	603.89	73.24	85.87	100.96	128.52
AB	North Coast Air Basin	Annual	2032	344.84	402.47	469.89	604.06	73.24	85.94	100.97	128.64
AB	North Coast Air Basin	Annual	2033	344.80	402.54	469.82	604.20	73.25	86.01	100.97	128.75
AB	North Coast Air Basin	Annual	2034	344.75	402.59	469.75	604.33	73.25	86.07	100.97	128.85
AB	North Coast Air Basin	Annual	2035	344.70	402.62	469.68	604.43	73.26	86.13	100.98	128.94
AB	North Coast Air Basin	Summer	2010	351.51	406.21	482.43	606.18	73.12	86.55	100.74	124.00
AB	North Coast Air Basin	Summer	2011	351.45	406.55	481.82	606.87	73.06	86.04	100.65	124.19
AB	North Coast Air Basin	Summer	2012	351.44	406.87	481.30	607.68	73.00	85.72	100.63	124.43
AB	North Coast Air Basin	Summer	2013	351.49	407.13	480.89	608.55	72.98	85.44	100.63	124.70
AB	North Coast Air Basin	Summer	2014	351.51	407.36	480.57	609.42	72.94	85.23	100.60	124.98
AB	North Coast Air Basin	Summer	2015	351.54	407.54	480.27	610.23	72.94	85.05	100.58	125.28
AB	North Coast Air Basin	Summer	2016	351.38	407.46	479.71	610.56	72.98	84.93	100.60	125.59
AB	North Coast Air Basin	Summer	2017	351.39	407.61	479.45	611.26	72.98	84.80	100.61	125.90
AB	North Coast Air Basin	Summer	2018	351.37	407.72	479.23	611.82	72.98	84.71	100.61	126.20
AB	North Coast Air Basin	Summer	2019	351.35	407.87	479.06	612.30	72.99	84.74	100.64	126.48
AB	North Coast Air Basin	Summer	2020	351.34	407.98	478.88	612.71	73.08	84.82	100.70	126.74
AB	North Coast Air Basin	Summer	2021	351.30	408.08	478.72	613.02	73.14	84.94	100.77	126.95
AB	North Coast Air Basin	Summer	2022	351.22	408.14	478.58	613.27	73.17	85.04	100.81	127.14
AB	North Coast Air Basin	Summer	2023	351.08	408.16	478.43	613.43	73.18	85.12	100.85	127.34
AB	North Coast Air Basin	Summer	2024	350.90	408.23	478.27	613.55	73.17	85.21	100.88	127.52
AB	North Coast Air Basin	Summer	2025	350.77	408.33	478.13	613.64	73.18	85.30	100.91	127.68
AB	North Coast Air Basin	Summer	2026	350.58	408.26	477.79	613.38	73.20	85.41	100.93	127.84
AB	North Coast Air Basin	Summer	2027	350.54	408.38	477.65	613.43	73.21	85.52	100.95	127.99
AB	North Coast Air Basin	Summer	2028	350.49	408.51	477.52	613.51	73.22	85.61	100.96	128.14
AB	North Coast Air Basin	Summer	2029	350.43	408.63	477.38	613.58	73.23	85.70	100.96	128.27
AB	North Coast Air Basin	Summer	2030	350.36	408.73	477.22	613.66	73.23	85.78	100.96	128.39
AB	North Coast Air Basin	Summer	2031	350.30	408.86	477.13	613.84	73.24	85.87	100.96	128.52
AB	North Coast Air Basin	Summer	2032	350.25	408.94	477.05	614.01	73.24	85.94	100.97	128.64
AB	North Coast Air Basin	Summer	2033	350.19	409.01	476.97	614.15	73.25	86.01	100.97	128.75
AB	North Coast Air Basin	Summer	2034	350.13	409.05	476.89	614.28	73.25	86.07	100.97	128.85
AB	North Coast Air Basin	Summer	2035	350.07	409.06	476.81	614.38	73.26	86.13	100.98	128.94
AB	North Coast Air Basin	Winter	2010	342.74	397.09	470.93	590.57	73.12	86.55	100.74	124.00
AB	North Coast Air Basin	Winter	2011	342.60	397.17	470.23	591.24	73.06	86.04	100.65	124.19
AB	North Coast Air Basin	Winter	2012	342.54	397.29	469.66	592.00	73.00	85.72	100.63	124.43
AB	North Coast Air Basin	Winter	2013	342.55	397.39	469.20	592.80	72.98	85.44	100.63	124.70
AB	North Coast Air Basin	Winter	2014	342.55	397.49	468.83	593.59	72.94	85.23	100.60	124.98
AB	North Coast Air Basin	Winter	2015	342.58	397.57	468.49	594.34	72.94	85.05	100.58	125.28
AB	North Coast Air Basin	Winter	2016	342.44	397.43	467.93	594.63	72.98	84.93	100.60	125.59
AB	North Coast Air Basin	Winter	2017	342.46	397.52	467.68	595.27	72.98	84.80	100.61	125.90
AB	North Coast Air Basin	Winter	2018	342.46	397.59	467.46	595.80	72.98	84.71	100.61	126.20
AB	North Coast Air Basin	Winter	2019	342.46	397.69	467.30	596.26	72.99	84.74	100.64	126.48
AB	North Coast Air Basin	Winter	2020	342.47	397.78	467.14	596.65	73.08	84.82	100.70	126.74
AB	North Coast Air Basin	Winter	2021	342.45	397.84	467.00	596.95	73.14	84.94	100.77	126.95
AB	North Coast Air Basin	Winter	2022	342.38	397.87	466.87	597.20	73.17	85.04	100.81	127.14
AB	North Coast Air Basin	Winter	2023	342.26	397.88	466.74	597.36	73.18	85.12	100.85	127.34
AB	North Coast Air Basin	Winter	2024	342.10	397.91	466.57	597.49	73.17	85.21	100.88	127.52
AB	North Coast Air Basin	Winter	2025	341.99	397.99	466.45	597.60	73.18	85.30	100.91	127.68
AB	North Coast Air Basin	Winter	2026	341.81	397.91	466.13	597.38	73.20	85.41	100.93	127.84
AB	North Coast Air Basin	Winter	2027	341.78	398.02	466.02	597.47	73.21	85.52	100.95	127.99
AB	North Coast Air Basin	Winter	2028	341.74	398.13	465.90	597.57	73.22	85.61	100.96	128.14
AB	North Coast Air Basin	Winter	2029	341.69	398.24	465.77	597.67	73.23	85.70	100.96	128.27

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	North Coast Air Basin	Winter	2030	341.63	398.33	465.62	597.77	73.23	85.78	100.96	128.39
AB	North Coast Air Basin	Winter	2031	341.59	398.44	465.55	597.95	73.24	85.87	100.96	128.52
AB	North Coast Air Basin	Winter	2032	341.55	398.52	465.48	598.12	73.24	85.94	100.97	128.64
AB	North Coast Air Basin	Winter	2033	341.50	398.60	465.41	598.26	73.25	86.01	100.97	128.75
AB	North Coast Air Basin	Winter	2034	341.46	398.65	465.35	598.38	73.25	86.07	100.97	128.85
AB	North Coast Air Basin	Winter	2035	341.41	398.68	465.29	598.48	73.26	86.13	100.98	128.94
AB	Northeast Plateau Air Basin	Annual	2010	377.75	443.26	517.72	646.50	74.51	94.16	102.11	125.01
AB	Northeast Plateau Air Basin	Annual	2011	377.64	442.37	517.03	647.16	74.33	92.57	101.85	125.11
AB	Northeast Plateau Air Basin	Annual	2012	377.60	441.62	516.49	647.98	74.16	91.28	101.68	125.24
AB	Northeast Plateau Air Basin	Annual	2013	377.56	441.00	516.04	648.87	73.94	90.24	101.46	125.42
AB	Northeast Plateau Air Basin	Annual	2014	377.59	440.43	515.70	649.73	73.82	89.19	101.27	125.61
AB	Northeast Plateau Air Basin	Annual	2015	377.66	439.94	515.40	650.62	73.75	88.24	101.11	125.83
AB	Northeast Plateau Air Basin	Annual	2016	377.76	439.50	515.18	651.48	73.75	87.42	101.02	126.07
AB	Northeast Plateau Air Basin	Annual	2017	377.77	439.13	514.99	652.27	73.65	86.65	100.88	126.32
AB	Northeast Plateau Air Basin	Annual	2018	377.76	438.85	514.83	652.95	73.55	86.12	100.80	126.56
AB	Northeast Plateau Air Basin	Annual	2019	377.78	438.67	514.70	653.55	73.52	85.77	100.76	126.78
AB	Northeast Plateau Air Basin	Annual	2020	377.81	438.53	514.58	654.05	73.60	85.62	100.80	127.00
AB	Northeast Plateau Air Basin	Annual	2021	377.76	438.41	514.47	654.40	73.63	85.60	100.85	127.16
AB	Northeast Plateau Air Basin	Annual	2022	377.67	438.26	514.35	654.67	73.63	85.57	100.87	127.26
AB	Northeast Plateau Air Basin	Annual	2023	377.54	438.15	514.25	654.84	73.62	85.55	100.90	127.43
AB	Northeast Plateau Air Basin	Annual	2024	377.40	438.07	514.15	654.98	73.59	85.56	100.92	127.59
AB	Northeast Plateau Air Basin	Annual	2025	377.34	438.12	514.08	655.10	73.60	85.62	100.94	127.74
AB	Northeast Plateau Air Basin	Annual	2026	377.35	438.23	513.97	655.34	73.62	85.71	100.97	127.89
AB	Northeast Plateau Air Basin	Annual	2027	377.35	438.35	513.87	655.58	73.63	85.79	100.98	128.04
AB	Northeast Plateau Air Basin	Annual	2028	377.34	438.46	513.78	655.82	73.64	85.87	100.99	128.18
AB	Northeast Plateau Air Basin	Annual	2029	377.32	438.58	513.68	656.05	73.64	85.94	100.99	128.31
AB	Northeast Plateau Air Basin	Annual	2030	377.31	438.68	513.58	656.29	73.65	86.00	100.99	128.43
AB	Northeast Plateau Air Basin	Annual	2031	377.30	438.81	513.55	656.54	73.65	86.06	100.99	128.55
AB	Northeast Plateau Air Basin	Annual	2032	377.30	438.90	513.52	656.81	73.66	86.12	100.99	128.68
AB	Northeast Plateau Air Basin	Annual	2033	377.29	438.99	513.49	657.04	73.66	86.18	101.00	128.78
AB	Northeast Plateau Air Basin	Annual	2034	377.28	439.07	513.47	657.24	73.67	86.22	101.00	128.89
AB	Northeast Plateau Air Basin	Annual	2035	377.27	439.12	513.45	657.42	73.67	86.26	101.00	128.98
AB	Northeast Plateau Air Basin	Summer	2010	394.23	458.88	539.40	673.34	74.51	94.16	102.11	125.01
AB	Northeast Plateau Air Basin	Summer	2011	394.34	458.69	538.93	674.13	74.33	92.57	101.85	125.11
AB	Northeast Plateau Air Basin	Summer	2012	394.46	458.48	538.57	675.13	74.16	91.28	101.68	125.24
AB	Northeast Plateau Air Basin	Summer	2013	394.54	458.28	538.29	676.23	73.94	90.24	101.46	125.42
AB	Northeast Plateau Air Basin	Summer	2014	394.66	458.04	538.09	677.30	73.82	89.19	101.27	125.61
AB	Northeast Plateau Air Basin	Summer	2015	394.79	457.86	537.92	678.42	73.75	88.24	101.11	125.83
AB	Northeast Plateau Air Basin	Summer	2016	394.92	457.67	537.80	679.49	73.75	87.42	101.02	126.07
AB	Northeast Plateau Air Basin	Summer	2017	394.95	457.50	537.69	680.48	73.65	86.65	100.88	126.32
AB	Northeast Plateau Air Basin	Summer	2018	394.94	457.37	537.57	681.33	73.55	86.12	100.80	126.56
AB	Northeast Plateau Air Basin	Summer	2019	394.96	457.30	537.48	682.08	73.52	85.77	100.76	126.78
AB	Northeast Plateau Air Basin	Summer	2020	394.99	457.28	537.38	682.70	73.60	85.62	100.80	127.00
AB	Northeast Plateau Air Basin	Summer	2021	394.94	457.25	537.27	683.15	73.63	85.60	100.85	127.16
AB	Northeast Plateau Air Basin	Summer	2022	394.85	457.20	537.18	683.51	73.63	85.57	100.87	127.26
AB	Northeast Plateau Air Basin	Summer	2023	394.73	457.17	537.08	683.76	73.62	85.55	100.90	127.43
AB	Northeast Plateau Air Basin	Summer	2024	394.60	457.16	537.01	683.96	73.59	85.56	100.92	127.59
AB	Northeast Plateau Air Basin	Summer	2025	394.55	457.25	536.94	684.14	73.60	85.62	100.94	127.74
AB	Northeast Plateau Air Basin	Summer	2026	394.57	457.40	536.85	684.40	73.62	85.71	100.97	127.89
AB	Northeast Plateau Air Basin	Summer	2027	394.58	457.55	536.76	684.67	73.63	85.79	100.98	128.04
AB	Northeast Plateau Air Basin	Summer	2028	394.60	457.70	536.68	684.95	73.64	85.87	100.99	128.18
AB	Northeast Plateau Air Basin	Summer	2029	394.59	457.87	536.60	685.23	73.64	85.94	100.99	128.31
AB	Northeast Plateau Air Basin	Summer	2030	394.59	458.00	536.52	685.51	73.65	86.00	100.99	128.43
AB	Northeast Plateau Air Basin	Summer	2031	394.59	458.17	536.50	685.81	73.65	86.06	100.99	128.55

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	Northeast Plateau Air Basin	Summer	2032	394.59	458.30	536.49	686.12	73.66	86.12	100.99	128.68
AB	Northeast Plateau Air Basin	Summer	2033	394.59	458.41	536.47	686.39	73.66	86.18	101.00	128.78
AB	Northeast Plateau Air Basin	Summer	2034	394.58	458.50	536.45	686.63	73.67	86.22	101.00	128.89
AB	Northeast Plateau Air Basin	Summer	2035	394.57	458.57	536.44	686.85	73.67	86.26	101.00	128.98
AB	Northeast Plateau Air Basin	Winter	2010	372.12	437.93	510.31	637.33	74.51	94.16	102.11	125.01
AB	Northeast Plateau Air Basin	Winter	2011	371.94	436.79	509.55	637.95	74.33	92.57	101.85	125.11
AB	Northeast Plateau Air Basin	Winter	2012	371.85	435.86	508.94	638.70	74.16	91.28	101.68	125.24
AB	Northeast Plateau Air Basin	Winter	2013	371.76	435.10	508.44	639.52	73.94	90.24	101.46	125.42
AB	Northeast Plateau Air Basin	Winter	2014	371.76	434.41	508.05	640.31	73.82	89.19	101.27	125.61
AB	Northeast Plateau Air Basin	Winter	2015	371.82	433.82	507.71	641.12	73.75	88.24	101.11	125.83
AB	Northeast Plateau Air Basin	Winter	2016	371.90	433.30	507.45	641.90	73.75	87.42	101.02	126.07
AB	Northeast Plateau Air Basin	Winter	2017	371.90	432.86	507.23	642.63	73.65	86.65	100.88	126.32
AB	Northeast Plateau Air Basin	Winter	2018	371.89	432.53	507.06	643.25	73.55	86.12	100.80	126.56
AB	Northeast Plateau Air Basin	Winter	2019	371.91	432.30	506.92	643.80	73.52	85.77	100.76	126.78
AB	Northeast Plateau Air Basin	Winter	2020	371.94	432.13	506.80	644.25	73.60	85.62	100.80	127.00
AB	Northeast Plateau Air Basin	Winter	2021	371.90	431.97	506.68	644.58	73.63	85.60	100.85	127.16
AB	Northeast Plateau Air Basin	Winter	2022	371.79	431.80	506.56	644.81	73.63	85.57	100.87	127.26
AB	Northeast Plateau Air Basin	Winter	2023	371.66	431.66	506.44	644.96	73.62	85.55	100.90	127.43
AB	Northeast Plateau Air Basin	Winter	2024	371.52	431.55	506.34	645.08	73.59	85.56	100.92	127.59
AB	Northeast Plateau Air Basin	Winter	2025	371.46	431.58	506.27	645.18	73.60	85.62	100.94	127.74
AB	Northeast Plateau Air Basin	Winter	2026	371.46	431.69	506.16	645.40	73.62	85.71	100.97	127.89
AB	Northeast Plateau Air Basin	Winter	2027	371.46	431.79	506.05	645.63	73.63	85.79	100.98	128.04
AB	Northeast Plateau Air Basin	Winter	2028	371.45	431.88	505.95	645.86	73.64	85.87	100.99	128.18
AB	Northeast Plateau Air Basin	Winter	2029	371.43	431.99	505.85	646.08	73.64	85.94	100.99	128.31
AB	Northeast Plateau Air Basin	Winter	2030	371.40	432.08	505.74	646.30	73.65	86.00	100.99	128.43
AB	Northeast Plateau Air Basin	Winter	2031	371.39	432.19	505.70	646.54	73.65	86.06	100.99	128.55
AB	Northeast Plateau Air Basin	Winter	2032	371.39	432.28	505.67	646.80	73.66	86.12	100.99	128.68
AB	Northeast Plateau Air Basin	Winter	2033	371.38	432.35	505.64	647.01	73.66	86.18	101.00	128.78
AB	Northeast Plateau Air Basin	Winter	2034	371.37	432.42	505.61	647.20	73.67	86.22	101.00	128.89
AB	Northeast Plateau Air Basin	Winter	2035	371.36	432.48	505.59	647.37	73.67	86.26	101.00	128.98
AB	Sacramento Valley Air Basin	Annual	2010	339.47	391.58	465.54	585.89	73.13	87.05	100.12	125.04
AB	Sacramento Valley Air Basin	Annual	2011	339.70	392.07	465.28	586.41	73.13	86.45	100.12	125.22
AB	Sacramento Valley Air Basin	Annual	2012	339.92	392.53	465.05	586.98	73.14	86.02	100.16	125.43
AB	Sacramento Valley Air Basin	Annual	2013	340.13	392.91	464.86	587.61	73.18	85.67	100.21	125.66
AB	Sacramento Valley Air Basin	Annual	2014	340.32	393.25	464.72	588.24	73.20	85.38	100.25	125.90
AB	Sacramento Valley Air Basin	Annual	2015	340.50	393.55	464.61	588.90	73.26	85.16	100.28	126.15
AB	Sacramento Valley Air Basin	Annual	2016	341.42	394.73	465.46	590.86	73.34	84.98	100.34	126.41
AB	Sacramento Valley Air Basin	Annual	2017	341.54	394.94	465.36	591.43	73.39	84.78	100.38	126.66
AB	Sacramento Valley Air Basin	Annual	2018	341.62	395.12	465.27	591.91	73.42	84.66	100.43	126.91
AB	Sacramento Valley Air Basin	Annual	2019	340.51	393.97	463.69	590.45	73.48	84.72	100.49	127.12
AB	Sacramento Valley Air Basin	Annual	2020	340.58	394.18	463.62	590.84	73.58	84.83	100.57	127.33
AB	Sacramento Valley Air Basin	Annual	2021	340.67	394.43	463.65	591.21	73.65	84.97	100.65	127.48
AB	Sacramento Valley Air Basin	Annual	2022	340.69	394.59	463.59	591.44	73.71	85.11	100.72	127.61
AB	Sacramento Valley Air Basin	Annual	2023	340.68	394.72	463.54	591.60	73.75	85.22	100.77	127.77
AB	Sacramento Valley Air Basin	Annual	2024	340.67	394.84	463.48	591.71	73.77	85.32	100.82	127.92
AB	Sacramento Valley Air Basin	Annual	2025	340.66	394.94	463.43	591.82	73.79	85.41	100.86	128.06
AB	Sacramento Valley Air Basin	Annual	2026	340.83	395.25	463.58	592.22	73.81	85.50	100.89	128.20
AB	Sacramento Valley Air Basin	Annual	2027	340.82	395.35	463.54	592.33	73.83	85.58	100.91	128.33
AB	Sacramento Valley Air Basin	Annual	2028	340.82	395.45	463.50	592.44	73.84	85.66	100.93	128.44
AB	Sacramento Valley Air Basin	Annual	2029	340.81	395.55	463.45	592.55	73.84	85.73	100.94	128.55
AB	Sacramento Valley Air Basin	Annual	2030	340.79	395.65	463.41	592.66	73.85	85.80	100.95	128.65
AB	Sacramento Valley Air Basin	Annual	2031	340.77	395.75	463.38	592.83	73.85	85.86	100.96	128.75
AB	Sacramento Valley Air Basin	Annual	2032	340.75	395.84	463.35	592.99	73.86	85.92	100.96	128.84
AB	Sacramento Valley Air Basin	Annual	2033	340.73	395.91	463.32	593.13	73.86	85.97	100.97	128.92

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	Sacramento Valley Air Basin	Annual	2034	340.71	395.98	463.29	593.27	73.87	86.02	100.97	129.00
AB	Sacramento Valley Air Basin	Annual	2035	340.69	396.02	463.26	593.38	73.87	86.07	100.98	129.07
AB	Sacramento Valley Air Basin	Summer	2010	376.00	429.82	513.57	646.23	73.13	87.05	100.12	125.04
AB	Sacramento Valley Air Basin	Summer	2011	376.48	431.05	513.58	646.73	73.13	86.45	100.12	125.22
AB	Sacramento Valley Air Basin	Summer	2012	376.91	432.08	513.58	647.38	73.14	86.02	100.16	125.43
AB	Sacramento Valley Air Basin	Summer	2013	377.28	432.92	513.60	648.19	73.18	85.67	100.21	125.66
AB	Sacramento Valley Air Basin	Summer	2014	377.59	433.62	513.66	649.04	73.20	85.38	100.25	125.90
AB	Sacramento Valley Air Basin	Summer	2015	377.87	434.22	513.73	649.95	73.26	85.16	100.28	126.15
AB	Sacramento Valley Air Basin	Summer	2016	378.93	435.71	514.80	652.32	73.34	84.98	100.34	126.41
AB	Sacramento Valley Air Basin	Summer	2017	379.08	436.13	514.80	653.13	73.39	84.78	100.38	126.66
AB	Sacramento Valley Air Basin	Summer	2018	379.17	436.45	514.75	653.82	73.42	84.66	100.43	126.91
AB	Sacramento Valley Air Basin	Summer	2019	377.91	435.23	513.00	652.30	73.48	84.72	100.49	127.12
AB	Sacramento Valley Air Basin	Summer	2020	377.97	435.53	512.92	652.83	73.58	84.83	100.57	127.33
AB	Sacramento Valley Air Basin	Summer	2021	378.06	435.87	512.93	653.31	73.65	84.97	100.65	127.48
AB	Sacramento Valley Air Basin	Summer	2022	378.08	436.12	512.86	653.62	73.71	85.11	100.72	127.61
AB	Sacramento Valley Air Basin	Summer	2023	378.08	436.32	512.79	653.85	73.75	85.22	100.77	127.77
AB	Sacramento Valley Air Basin	Summer	2024	378.07	436.51	512.72	653.98	73.77	85.32	100.82	127.92
AB	Sacramento Valley Air Basin	Summer	2025	378.07	436.68	512.67	654.11	73.79	85.41	100.86	128.06
AB	Sacramento Valley Air Basin	Summer	2026	378.25	437.06	512.85	654.54	73.81	85.50	100.89	128.20
AB	Sacramento Valley Air Basin	Summer	2027	378.25	437.21	512.82	654.66	73.83	85.58	100.91	128.33
AB	Sacramento Valley Air Basin	Summer	2028	378.26	437.36	512.81	654.79	73.84	85.66	100.93	128.44
AB	Sacramento Valley Air Basin	Summer	2029	378.26	437.53	512.79	654.92	73.84	85.73	100.94	128.55
AB	Sacramento Valley Air Basin	Summer	2030	378.25	437.69	512.77	655.06	73.85	85.80	100.95	128.65
AB	Sacramento Valley Air Basin	Summer	2031	378.24	437.85	512.75	655.24	73.85	85.86	100.96	128.75
AB	Sacramento Valley Air Basin	Summer	2032	378.23	437.99	512.73	655.43	73.86	85.92	100.96	128.84
AB	Sacramento Valley Air Basin	Summer	2033	378.22	438.09	512.71	655.61	73.86	85.97	100.97	128.92
AB	Sacramento Valley Air Basin	Summer	2034	378.21	438.19	512.69	655.79	73.87	86.02	100.97	129.00
AB	Sacramento Valley Air Basin	Summer	2035	378.19	438.26	512.67	655.95	73.87	86.07	100.98	129.07
AB	Sacramento Valley Air Basin	Winter	2010	329.45	381.14	452.22	569.20	73.13	87.05	100.12	125.04
AB	Sacramento Valley Air Basin	Winter	2011	329.60	381.43	451.86	569.72	73.13	86.45	100.12	125.22
AB	Sacramento Valley Air Basin	Winter	2012	329.76	381.73	451.56	570.27	73.14	86.02	100.16	125.43
AB	Sacramento Valley Air Basin	Winter	2013	329.93	381.98	451.31	570.86	73.18	85.67	100.21	125.66
AB	Sacramento Valley Air Basin	Winter	2014	330.08	382.22	451.11	571.43	73.20	85.38	100.25	125.90
AB	Sacramento Valley Air Basin	Winter	2015	330.24	382.45	450.95	572.00	73.26	85.16	100.28	126.15
AB	Sacramento Valley Air Basin	Winter	2016	331.12	383.54	451.74	573.86	73.34	84.98	100.34	126.41
AB	Sacramento Valley Air Basin	Winter	2017	331.23	383.69	451.61	574.36	73.39	84.78	100.38	126.66
AB	Sacramento Valley Air Basin	Winter	2018	331.30	383.82	451.51	574.78	73.42	84.66	100.43	126.91
AB	Sacramento Valley Air Basin	Winter	2019	330.23	382.69	449.98	573.34	73.48	84.72	100.49	127.12
AB	Sacramento Valley Air Basin	Winter	2020	330.31	382.88	449.92	573.69	73.58	84.83	100.57	127.33
AB	Sacramento Valley Air Basin	Winter	2021	330.40	383.10	449.95	574.02	73.65	84.97	100.65	127.48
AB	Sacramento Valley Air Basin	Winter	2022	330.42	383.25	449.90	574.22	73.71	85.11	100.72	127.61
AB	Sacramento Valley Air Basin	Winter	2023	330.41	383.35	449.84	574.36	73.75	85.22	100.77	127.77
AB	Sacramento Valley Air Basin	Winter	2024	330.40	383.45	449.79	574.46	73.77	85.32	100.82	127.92
AB	Sacramento Valley Air Basin	Winter	2025	330.38	383.54	449.74	574.57	73.79	85.41	100.86	128.06
AB	Sacramento Valley Air Basin	Winter	2026	330.55	383.83	449.88	574.96	73.81	85.50	100.89	128.20
AB	Sacramento Valley Air Basin	Winter	2027	330.54	383.91	449.84	575.06	73.83	85.58	100.91	128.33
AB	Sacramento Valley Air Basin	Winter	2028	330.53	383.99	449.79	575.17	73.84	85.66	100.93	128.44
AB	Sacramento Valley Air Basin	Winter	2029	330.52	384.08	449.74	575.27	73.84	85.73	100.94	128.55
AB	Sacramento Valley Air Basin	Winter	2030	330.50	384.16	449.69	575.37	73.85	85.80	100.95	128.65
AB	Sacramento Valley Air Basin	Winter	2031	330.48	384.24	449.65	575.53	73.85	85.86	100.96	128.75
AB	Sacramento Valley Air Basin	Winter	2032	330.45	384.32	449.62	575.68	73.86	85.92	100.96	128.84
AB	Sacramento Valley Air Basin	Winter	2033	330.43	384.39	449.58	575.82	73.86	85.97	100.97	128.92
AB	Sacramento Valley Air Basin	Winter	2034	330.41	384.44	449.55	575.94	73.87	86.02	100.97	129.00
AB	Sacramento Valley Air Basin	Winter	2035	330.39	384.48	449.51	576.04	73.87	86.07	100.98	129.07

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/MT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	Salton Sea Air Basin	Annual	2010	341.46	391.26	466.98	588.92	72.93	84.54	99.89	125.12
AB	Salton Sea Air Basin	Annual	2011	340.83	391.09	465.62	588.09	73.00	84.47	99.94	125.40
AB	Salton Sea Air Basin	Annual	2012	341.10	391.81	465.53	588.82	73.09	84.44	100.03	125.69
AB	Salton Sea Air Basin	Annual	2013	339.89	390.79	463.45	587.06	73.20	84.46	100.12	126.01
AB	Salton Sea Air Basin	Annual	2014	340.06	391.30	463.35	587.74	73.28	84.51	100.21	126.32
AB	Salton Sea Air Basin	Annual	2015	337.14	388.08	459.06	582.96	73.36	84.58	100.30	126.63
AB	Salton Sea Air Basin	Annual	2016	337.23	388.43	458.97	583.49	73.43	84.66	100.39	126.92
AB	Salton Sea Air Basin	Annual	2017	337.28	388.72	458.87	583.97	73.48	84.73	100.46	127.20
AB	Salton Sea Air Basin	Annual	2018	337.30	388.94	458.77	584.35	73.51	84.81	100.51	127.46
AB	Salton Sea Air Basin	Annual	2019	337.18	389.02	458.52	584.48	73.55	84.95	100.58	127.69
AB	Salton Sea Air Basin	Annual	2020	337.18	389.22	458.46	584.79	73.61	85.11	100.66	127.91
AB	Salton Sea Air Basin	Annual	2021	337.69	390.02	459.17	585.99	73.66	85.25	100.73	128.08
AB	Salton Sea Air Basin	Annual	2022	337.68	390.23	459.20	586.30	73.68	85.37	100.78	128.23
AB	Salton Sea Air Basin	Annual	2023	337.64	390.41	459.22	586.55	73.68	85.48	100.83	128.38
AB	Salton Sea Air Basin	Annual	2024	341.70	395.19	464.82	593.82	73.69	85.57	100.86	128.50
AB	Salton Sea Air Basin	Annual	2025	341.66	395.34	464.85	594.02	73.69	85.66	100.90	128.62
AB	Salton Sea Air Basin	Annual	2026	341.65	395.52	464.87	594.24	73.69	85.74	100.92	128.73
AB	Salton Sea Air Basin	Annual	2027	341.63	395.69	464.90	594.45	73.69	85.81	100.94	128.82
AB	Salton Sea Air Basin	Annual	2028	341.62	395.85	464.93	594.65	73.69	85.88	100.95	128.91
AB	Salton Sea Air Basin	Annual	2029	341.61	396.01	464.96	594.85	73.69	85.94	100.96	128.98
AB	Salton Sea Air Basin	Annual	2030	341.59	396.17	464.99	595.05	73.69	86.00	100.97	129.05
AB	Salton Sea Air Basin	Annual	2031	346.94	402.31	472.49	604.70	73.69	86.05	100.98	129.12
AB	Salton Sea Air Basin	Annual	2032	346.94	402.50	472.58	605.00	73.69	86.10	100.98	129.18
AB	Salton Sea Air Basin	Annual	2033	346.94	402.68	472.66	605.29	73.69	86.15	100.99	129.23
AB	Salton Sea Air Basin	Annual	2034	346.96	402.84	472.74	605.57	73.69	86.19	100.99	129.28
AB	Salton Sea Air Basin	Annual	2035	346.97	402.99	472.83	605.83	73.70	86.22	100.99	129.33
AB	Salton Sea Air Basin	Summer	2010	347.94	398.06	475.64	600.02	72.93	84.54	99.89	125.12
AB	Salton Sea Air Basin	Summer	2011	347.40	398.07	474.36	599.23	73.00	84.47	99.94	125.40
AB	Salton Sea Air Basin	Summer	2012	347.71	398.93	474.30	599.96	73.09	84.44	100.03	125.69
AB	Salton Sea Air Basin	Summer	2013	346.51	397.99	472.23	598.20	73.20	84.46	100.12	126.01
AB	Salton Sea Air Basin	Summer	2014	346.72	398.61	472.18	598.94	73.28	84.51	100.21	126.32
AB	Salton Sea Air Basin	Summer	2015	343.80	395.45	467.91	594.18	73.36	84.58	100.30	126.63
AB	Salton Sea Air Basin	Summer	2016	343.92	395.87	467.86	594.79	73.43	84.66	100.39	126.92
AB	Salton Sea Air Basin	Summer	2017	343.99	396.22	467.80	595.33	73.48	84.73	100.46	127.20
AB	Salton Sea Air Basin	Summer	2018	344.01	396.49	467.72	595.75	73.51	84.81	100.51	127.46
AB	Salton Sea Air Basin	Summer	2019	343.91	396.62	467.49	595.93	73.55	84.95	100.58	127.69
AB	Salton Sea Air Basin	Summer	2020	343.92	396.85	467.43	596.26	73.61	85.11	100.66	127.91
AB	Salton Sea Air Basin	Summer	2021	344.42	397.64	468.12	597.44	73.66	85.25	100.73	128.08
AB	Salton Sea Air Basin	Summer	2022	344.40	397.86	468.13	597.74	73.68	85.37	100.78	128.23
AB	Salton Sea Air Basin	Summer	2023	344.36	398.04	468.14	597.97	73.68	85.48	100.83	128.38
AB	Salton Sea Air Basin	Summer	2024	348.46	402.88	473.79	605.31	73.69	85.57	100.86	128.50
AB	Salton Sea Air Basin	Summer	2025	348.42	403.03	473.81	605.50	73.69	85.66	100.90	128.62
AB	Salton Sea Air Basin	Summer	2026	348.41	403.21	473.82	605.69	73.69	85.74	100.92	128.73
AB	Salton Sea Air Basin	Summer	2027	348.39	403.37	473.84	605.88	73.69	85.81	100.94	128.82
AB	Salton Sea Air Basin	Summer	2028	348.38	403.54	473.86	606.07	73.69	85.88	100.95	128.91
AB	Salton Sea Air Basin	Summer	2029	348.37	403.70	473.88	606.25	73.69	85.94	100.96	128.98
AB	Salton Sea Air Basin	Summer	2030	348.36	403.86	473.90	606.44	73.69	86.00	100.97	129.05
AB	Salton Sea Air Basin	Summer	2031	353.82	410.13	481.56	616.27	73.69	86.05	100.98	129.12
AB	Salton Sea Air Basin	Summer	2032	353.82	410.32	481.63	616.55	73.69	86.10	100.98	129.18
AB	Salton Sea Air Basin	Summer	2033	353.83	410.49	481.71	616.83	73.69	86.15	100.99	129.23
AB	Salton Sea Air Basin	Summer	2034	353.84	410.65	481.79	617.09	73.69	86.19	100.99	129.28
AB	Salton Sea Air Basin	Summer	2035	353.84	410.79	481.87	617.33	73.70	86.22	100.99	129.33
AB	Salton Sea Air Basin	Winter	2010	322.01	371.13	441.23	556.43	72.93	84.54	99.89	125.12
AB	Salton Sea Air Basin	Winter	2011	321.32	370.64	439.87	555.70	73.00	84.47	99.94	125.40

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	Salton Sea Air Basin	Winter	2012	321.51	371.06	439.70	556.40	73.09	84.44	100.03	125.69
AB	Salton Sea Air Basin	Winter	2013	320.31	369.85	437.64	554.68	73.20	84.46	100.12	126.01
AB	Salton Sea Air Basin	Winter	2014	320.43	370.15	437.46	555.24	73.28	84.51	100.21	126.32
AB	Salton Sea Air Basin	Winter	2015	317.65	366.97	433.34	550.64	73.36	84.58	100.30	126.63
AB	Salton Sea Air Basin	Winter	2016	317.72	367.19	433.19	551.06	73.43	84.66	100.39	126.92
AB	Salton Sea Air Basin	Winter	2017	317.76	367.38	433.05	551.44	73.48	84.73	100.46	127.20
AB	Salton Sea Air Basin	Winter	2018	317.77	367.53	432.94	551.76	73.51	84.81	100.51	127.46
AB	Salton Sea Air Basin	Winter	2019	317.66	367.56	432.69	551.84	73.55	84.95	100.58	127.69
AB	Salton Sea Air Basin	Winter	2020	317.66	367.71	432.63	552.09	73.61	85.11	100.66	127.91
AB	Salton Sea Air Basin	Winter	2021	318.16	368.43	433.31	553.22	73.66	85.25	100.73	128.08
AB	Salton Sea Air Basin	Winter	2022	318.16	368.61	433.35	553.51	73.68	85.37	100.78	128.23
AB	Salton Sea Air Basin	Winter	2023	318.13	368.75	433.38	553.75	73.68	85.48	100.83	128.38
AB	Salton Sea Air Basin	Winter	2024	321.95	373.25	438.66	560.61	73.69	85.57	100.86	128.50
AB	Salton Sea Air Basin	Winter	2025	321.92	373.37	438.70	560.81	73.69	85.66	100.90	128.62
AB	Salton Sea Air Basin	Winter	2026	321.91	373.53	438.74	561.04	73.69	85.74	100.92	128.73
AB	Salton Sea Air Basin	Winter	2027	321.90	373.68	438.78	561.26	73.69	85.81	100.94	128.82
AB	Salton Sea Air Basin	Winter	2028	321.88	373.82	438.82	561.46	73.69	85.88	100.95	128.91
AB	Salton Sea Air Basin	Winter	2029	321.86	373.96	438.84	561.66	73.69	85.94	100.96	128.98
AB	Salton Sea Air Basin	Winter	2030	321.84	374.09	438.87	561.85	73.69	86.00	100.97	129.05
AB	Salton Sea Air Basin	Winter	2031	326.88	379.86	445.94	570.95	73.69	86.05	100.98	129.12
AB	Salton Sea Air Basin	Winter	2032	326.88	380.03	446.02	571.24	73.69	86.10	100.98	129.18
AB	Salton Sea Air Basin	Winter	2033	326.89	380.18	446.09	571.52	73.69	86.15	100.99	129.23
AB	Salton Sea Air Basin	Winter	2034	326.90	380.33	446.17	571.77	73.69	86.19	100.99	129.28
AB	Salton Sea Air Basin	Winter	2035	326.91	380.46	446.25	572.01	73.70	86.22	100.99	129.33
AB	San Diego Air Basin	Annual	2010	352.52	405.15	482.46	610.22	72.99	83.92	99.34	125.27
AB	San Diego Air Basin	Annual	2011	353.81	407.05	483.85	612.57	73.01	83.88	99.44	125.44
AB	San Diego Air Basin	Annual	2012	354.03	407.67	483.80	613.09	73.05	83.89	99.57	125.64
AB	San Diego Air Basin	Annual	2013	354.28	408.23	483.77	613.65	73.12	83.94	99.70	125.85
AB	San Diego Air Basin	Annual	2014	354.50	408.76	483.75	614.21	73.17	83.99	99.82	126.06
AB	San Diego Air Basin	Annual	2015	354.72	409.25	483.74	614.79	73.24	84.07	99.93	126.29
AB	San Diego Air Basin	Annual	2016	354.92	409.69	483.74	615.32	73.32	84.16	100.05	126.52
AB	San Diego Air Basin	Annual	2017	355.08	410.10	483.73	615.84	73.37	84.25	100.15	126.74
AB	San Diego Air Basin	Annual	2018	355.21	410.47	483.74	616.29	73.41	84.35	100.25	126.96
AB	San Diego Air Basin	Annual	2019	355.33	410.82	483.74	616.69	73.46	84.52	100.35	127.15
AB	San Diego Air Basin	Annual	2020	355.43	411.15	483.75	617.07	73.55	84.69	100.45	127.34
AB	San Diego Air Basin	Annual	2021	356.07	412.11	484.56	618.41	73.62	84.87	100.55	127.52
AB	San Diego Air Basin	Annual	2022	356.11	412.36	484.56	618.69	73.67	85.02	100.63	127.67
AB	San Diego Air Basin	Annual	2023	356.12	412.55	484.56	618.89	73.71	85.15	100.70	127.83
AB	San Diego Air Basin	Annual	2024	356.12	412.71	484.55	619.06	73.72	85.27	100.76	127.98
AB	San Diego Air Basin	Annual	2025	356.11	412.86	484.55	619.23	73.74	85.38	100.81	128.12
AB	San Diego Air Basin	Annual	2026	356.13	413.01	484.54	619.39	73.76	85.48	100.85	128.26
AB	San Diego Air Basin	Annual	2027	356.14	413.16	484.53	619.54	73.77	85.57	100.88	128.38
AB	San Diego Air Basin	Annual	2028	356.15	413.30	484.51	619.69	73.78	85.66	100.90	128.48
AB	San Diego Air Basin	Annual	2029	356.15	413.45	484.50	619.84	73.79	85.74	100.92	128.58
AB	San Diego Air Basin	Annual	2030	356.14	413.59	484.49	619.98	73.79	85.81	100.93	128.68
AB	San Diego Air Basin	Annual	2031	356.14	413.74	484.48	620.13	73.80	85.89	100.94	128.77
AB	San Diego Air Basin	Annual	2032	356.14	413.87	484.48	620.29	73.80	85.96	100.95	128.86
AB	San Diego Air Basin	Annual	2033	356.14	414.00	484.47	620.43	73.80	86.02	100.96	128.93
AB	San Diego Air Basin	Annual	2034	356.13	414.10	484.46	620.55	73.80	86.08	100.97	129.01
AB	San Diego Air Basin	Annual	2035	356.13	414.20	484.46	620.67	73.81	86.13	100.97	129.08
AB	San Diego Air Basin	Summer	2010	372.46	426.19	509.00	643.64	72.99	83.92	99.34	125.27
AB	San Diego Air Basin	Summer	2011	373.89	428.41	510.48	645.96	73.01	83.88	99.44	125.44
AB	San Diego Air Basin	Summer	2012	374.19	429.26	510.46	646.43	73.05	83.89	99.57	125.64
AB	San Diego Air Basin	Summer	2013	374.48	430.00	510.47	646.99	73.12	83.94	99.70	125.85

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	San Diego Air Basin	Summer	2014	374.75	430.67	510.51	647.60	73.17	83.99	99.82	126.06
AB	San Diego Air Basin	Summer	2015	375.00	431.27	510.56	648.26	73.24	84.07	99.93	126.29
AB	San Diego Air Basin	Summer	2016	375.24	431.81	510.61	648.90	73.32	84.16	100.05	126.52
AB	San Diego Air Basin	Summer	2017	375.42	432.30	510.65	649.52	73.37	84.25	100.15	126.74
AB	San Diego Air Basin	Summer	2018	375.55	432.74	510.67	650.05	73.41	84.35	100.25	126.96
AB	San Diego Air Basin	Summer	2019	375.68	433.15	510.68	650.53	73.46	84.52	100.35	127.15
AB	San Diego Air Basin	Summer	2020	375.78	433.52	510.68	650.97	73.55	84.69	100.45	127.34
AB	San Diego Air Basin	Summer	2021	376.47	434.60	511.57	652.47	73.62	84.87	100.55	127.52
AB	San Diego Air Basin	Summer	2022	376.52	434.90	511.57	652.82	73.67	85.02	100.63	127.67
AB	San Diego Air Basin	Summer	2023	376.54	435.14	511.57	653.07	73.71	85.15	100.70	127.83
AB	San Diego Air Basin	Summer	2024	376.54	435.34	511.56	653.27	73.72	85.27	100.76	127.98
AB	San Diego Air Basin	Summer	2025	376.54	435.52	511.56	653.45	73.74	85.38	100.81	128.12
AB	San Diego Air Basin	Summer	2026	376.55	435.72	511.54	653.62	73.76	85.48	100.85	128.26
AB	San Diego Air Basin	Summer	2027	376.56	435.90	511.53	653.77	73.77	85.57	100.88	128.38
AB	San Diego Air Basin	Summer	2028	376.57	436.07	511.51	653.92	73.78	85.66	100.90	128.48
AB	San Diego Air Basin	Summer	2029	376.58	436.25	511.49	654.06	73.79	85.74	100.92	128.58
AB	San Diego Air Basin	Summer	2030	376.58	436.43	511.48	654.21	73.79	85.81	100.93	128.68
AB	San Diego Air Basin	Summer	2031	376.57	436.61	511.47	654.35	73.80	85.89	100.94	128.77
AB	San Diego Air Basin	Summer	2032	376.57	436.77	511.46	654.51	73.80	85.96	100.95	128.86
AB	San Diego Air Basin	Summer	2033	376.57	436.92	511.45	654.65	73.80	86.02	100.96	128.93
AB	San Diego Air Basin	Summer	2034	376.57	437.04	511.45	654.79	73.80	86.08	100.97	129.01
AB	San Diego Air Basin	Summer	2035	376.57	437.14	511.44	654.92	73.81	86.13	100.97	129.08
AB	San Diego Air Basin	Winter	2010	348.91	401.34	477.65	604.17	72.99	83.92	99.34	125.27
AB	San Diego Air Basin	Winter	2011	350.18	403.18	479.04	606.53	73.01	83.88	99.44	125.44
AB	San Diego Air Basin	Winter	2012	350.39	403.76	478.98	607.06	73.05	83.89	99.57	125.64
AB	San Diego Air Basin	Winter	2013	350.62	404.30	478.94	607.62	73.12	83.94	99.70	125.85
AB	San Diego Air Basin	Winter	2014	350.83	404.79	478.91	608.17	73.17	83.99	99.82	126.06
AB	San Diego Air Basin	Winter	2015	351.05	405.26	478.89	608.73	73.24	84.07	99.93	126.29
AB	San Diego Air Basin	Winter	2016	351.25	405.69	478.88	609.25	73.32	84.16	100.05	126.52
AB	San Diego Air Basin	Winter	2017	351.40	406.08	478.87	609.75	73.37	84.25	100.15	126.74
AB	San Diego Air Basin	Winter	2018	351.53	406.44	478.86	610.18	73.41	84.35	100.25	126.96
AB	San Diego Air Basin	Winter	2019	351.65	406.78	478.87	610.57	73.46	84.52	100.35	127.15
AB	San Diego Air Basin	Winter	2020	351.75	407.10	478.87	610.94	73.55	84.69	100.45	127.34
AB	San Diego Air Basin	Winter	2021	352.38	408.04	479.67	612.25	73.62	84.87	100.55	127.52
AB	San Diego Air Basin	Winter	2022	352.42	408.28	479.67	612.51	73.67	85.02	100.63	127.67
AB	San Diego Air Basin	Winter	2023	352.43	408.47	479.67	612.71	73.71	85.15	100.70	127.83
AB	San Diego Air Basin	Winter	2024	352.42	408.62	479.66	612.87	73.72	85.27	100.76	127.98
AB	San Diego Air Basin	Winter	2025	352.42	408.75	479.66	613.03	73.74	85.38	100.81	128.12
AB	San Diego Air Basin	Winter	2026	352.43	408.90	479.65	613.20	73.76	85.48	100.85	128.26
AB	San Diego Air Basin	Winter	2027	352.44	409.04	479.64	613.35	73.77	85.57	100.88	128.38
AB	San Diego Air Basin	Winter	2028	352.45	409.18	479.63	613.50	73.78	85.66	100.90	128.48
AB	San Diego Air Basin	Winter	2029	352.45	409.32	479.62	613.64	73.79	85.74	100.92	128.58
AB	San Diego Air Basin	Winter	2030	352.45	409.46	479.60	613.79	73.79	85.81	100.93	128.68
AB	San Diego Air Basin	Winter	2031	352.44	409.60	479.60	613.94	73.80	85.89	100.94	128.77
AB	San Diego Air Basin	Winter	2032	352.44	409.73	479.59	614.10	73.80	85.96	100.95	128.86
AB	San Diego Air Basin	Winter	2033	352.44	409.85	479.59	614.23	73.80	86.02	100.96	128.93
AB	San Diego Air Basin	Winter	2034	352.44	409.95	479.58	614.36	73.80	86.08	100.97	129.01
AB	San Diego Air Basin	Winter	2035	352.43	410.04	479.57	614.47	73.81	86.13	100.97	129.08
AB	San Francisco Air Basin	Annual	2010	338.39	388.50	461.86	581.62	72.94	84.37	99.40	124.69
AB	San Francisco Air Basin	Annual	2011	338.52	388.90	461.72	582.11	72.98	84.25	99.50	124.89
AB	San Francisco Air Basin	Annual	2012	338.67	389.32	461.62	582.66	73.02	84.19	99.62	125.11
AB	San Francisco Air Basin	Annual	2013	338.86	389.72	461.54	583.26	73.09	84.17	99.74	125.34
AB	San Francisco Air Basin	Annual	2014	339.03	390.09	461.49	583.86	73.15	84.17	99.85	125.59
AB	San Francisco Air Basin	Annual	2015	339.22	390.46	461.45	584.47	73.23	84.19	99.96	125.85

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	San Francisco Air Basin	Annual	2016	339.41	390.83	461.42	585.05	73.32	84.24	100.07	126.10
AB	San Francisco Air Basin	Annual	2017	339.54	391.17	461.39	585.61	73.38	84.29	100.17	126.36
AB	San Francisco Air Basin	Annual	2018	339.67	391.45	461.36	586.09	73.44	84.35	100.26	126.61
AB	San Francisco Air Basin	Annual	2019	339.78	391.75	461.34	586.50	73.50	84.48	100.35	126.84
AB	San Francisco Air Basin	Annual	2020	339.88	392.02	461.33	586.89	73.60	84.63	100.45	127.06
AB	San Francisco Air Basin	Annual	2021	339.96	392.27	461.33	587.20	73.68	84.79	100.54	127.24
AB	San Francisco Air Basin	Annual	2022	339.99	392.48	461.33	587.46	73.74	84.93	100.62	127.39
AB	San Francisco Air Basin	Annual	2023	339.99	392.64	461.32	587.66	73.78	85.06	100.69	127.56
AB	San Francisco Air Basin	Annual	2024	339.97	392.77	461.30	587.83	73.80	85.17	100.75	127.71
AB	San Francisco Air Basin	Annual	2025	339.96	392.89	461.29	588.00	73.82	85.27	100.80	127.87
AB	San Francisco Air Basin	Annual	2026	339.97	393.04	461.27	588.18	73.85	85.38	100.84	128.01
AB	San Francisco Air Basin	Annual	2027	339.98	393.18	461.25	588.35	73.86	85.47	100.87	128.15
AB	San Francisco Air Basin	Annual	2028	339.97	393.32	461.22	588.52	73.87	85.55	100.89	128.26
AB	San Francisco Air Basin	Annual	2029	339.96	393.47	461.20	588.68	73.88	85.63	100.91	128.38
AB	San Francisco Air Basin	Annual	2030	339.95	393.63	461.17	588.85	73.89	85.71	100.92	128.49
AB	San Francisco Air Basin	Annual	2031	339.94	393.79	461.16	589.02	73.89	85.79	100.93	128.59
AB	San Francisco Air Basin	Annual	2032	339.94	393.94	461.14	589.20	73.90	85.86	100.94	128.69
AB	San Francisco Air Basin	Annual	2033	339.93	394.08	461.13	589.36	73.90	85.92	100.95	128.79
AB	San Francisco Air Basin	Annual	2034	339.92	394.20	461.11	589.50	73.90	85.98	100.95	128.87
AB	San Francisco Air Basin	Annual	2035	339.91	394.31	461.10	589.63	73.91	86.04	100.96	128.96
AB	San Francisco Air Basin	Summer	2010	364.35	415.41	496.51	625.57	72.94	84.37	99.40	124.69
AB	San Francisco Air Basin	Summer	2011	364.64	416.20	496.43	625.96	72.98	84.25	99.50	124.89
AB	San Francisco Air Basin	Summer	2012	364.93	416.94	496.39	626.48	73.02	84.19	99.62	125.11
AB	San Francisco Air Basin	Summer	2013	365.22	417.62	496.38	627.12	73.09	84.17	99.74	125.34
AB	San Francisco Air Basin	Summer	2014	365.47	418.22	496.42	627.81	73.15	84.17	99.85	125.59
AB	San Francisco Air Basin	Summer	2015	365.72	418.79	496.47	628.57	73.23	84.19	99.96	125.85
AB	San Francisco Air Basin	Summer	2016	365.95	419.33	496.52	629.31	73.32	84.24	100.07	126.10
AB	San Francisco Air Basin	Summer	2017	366.11	419.82	496.57	630.02	73.38	84.29	100.17	126.36
AB	San Francisco Air Basin	Summer	2018	366.24	420.25	496.57	630.62	73.44	84.35	100.26	126.61
AB	San Francisco Air Basin	Summer	2019	366.36	420.66	496.58	631.14	73.50	84.48	100.35	126.84
AB	San Francisco Air Basin	Summer	2020	366.46	421.03	496.57	631.62	73.60	84.63	100.45	127.06
AB	San Francisco Air Basin	Summer	2021	366.53	421.37	496.57	632.00	73.68	84.79	100.54	127.24
AB	San Francisco Air Basin	Summer	2022	366.57	421.66	496.56	632.33	73.74	84.93	100.62	127.39
AB	San Francisco Air Basin	Summer	2023	366.57	421.90	496.54	632.57	73.78	85.06	100.69	127.56
AB	San Francisco Air Basin	Summer	2024	366.55	422.10	496.51	632.76	73.80	85.17	100.75	127.71
AB	San Francisco Air Basin	Summer	2025	366.54	422.28	496.49	632.95	73.82	85.27	100.80	127.87
AB	San Francisco Air Basin	Summer	2026	366.55	422.48	496.46	633.14	73.85	85.38	100.84	128.01
AB	San Francisco Air Basin	Summer	2027	366.56	422.68	496.44	633.31	73.86	85.47	100.87	128.15
AB	San Francisco Air Basin	Summer	2028	366.57	422.88	496.41	633.48	73.87	85.55	100.89	128.26
AB	San Francisco Air Basin	Summer	2029	366.56	423.10	496.39	633.66	73.88	85.63	100.91	128.38
AB	San Francisco Air Basin	Summer	2030	366.56	423.32	496.37	633.84	73.89	85.71	100.92	128.49
AB	San Francisco Air Basin	Summer	2031	366.56	423.55	496.35	634.03	73.89	85.79	100.93	128.59
AB	San Francisco Air Basin	Summer	2032	366.55	423.75	496.34	634.22	73.90	85.86	100.94	128.69
AB	San Francisco Air Basin	Summer	2033	366.55	423.93	496.32	634.41	73.90	85.92	100.95	128.79
AB	San Francisco Air Basin	Summer	2034	366.54	424.09	496.31	634.58	73.90	85.98	100.95	128.87
AB	San Francisco Air Basin	Summer	2035	366.54	424.21	496.30	634.74	73.91	86.04	100.96	128.96
AB	San Francisco Air Basin	Winter	2010	335.32	385.28	457.66	576.18	72.94	84.37	99.40	124.69
AB	San Francisco Air Basin	Winter	2011	335.43	385.63	457.52	576.68	72.98	84.25	99.50	124.89
AB	San Francisco Air Basin	Winter	2012	335.56	386.01	457.41	577.23	73.02	84.19	99.62	125.11
AB	San Francisco Air Basin	Winter	2013	335.74	386.37	457.32	577.82	73.09	84.17	99.74	125.34
AB	San Francisco Air Basin	Winter	2014	335.90	386.72	457.25	578.40	73.15	84.17	99.85	125.59
AB	San Francisco Air Basin	Winter	2015	336.08	387.07	457.20	579.00	73.23	84.19	99.96	125.85
AB	San Francisco Air Basin	Winter	2016	336.26	387.41	457.16	579.56	73.32	84.24	100.07	126.10
AB	San Francisco Air Basin	Winter	2017	336.39	387.73	457.12	580.10	73.38	84.29	100.17	126.36

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	San Francisco Air Basin	Winter	2018	336.52	388.00	457.08	580.55	73.44	84.35	100.26	126.61
AB	San Francisco Air Basin	Winter	2019	336.63	388.27	457.06	580.95	73.50	84.48	100.35	126.84
AB	San Francisco Air Basin	Winter	2020	336.73	388.53	457.05	581.32	73.60	84.63	100.45	127.06
AB	San Francisco Air Basin	Winter	2021	336.80	388.77	457.05	581.62	73.68	84.79	100.54	127.24
AB	San Francisco Air Basin	Winter	2022	336.84	388.97	457.05	581.88	73.74	84.93	100.62	127.39
AB	San Francisco Air Basin	Winter	2023	336.84	389.12	457.04	582.08	73.78	85.06	100.69	127.56
AB	San Francisco Air Basin	Winter	2024	336.82	389.24	457.02	582.24	73.80	85.17	100.75	127.71
AB	San Francisco Air Basin	Winter	2025	336.81	389.35	457.00	582.41	73.82	85.27	100.80	127.87
AB	San Francisco Air Basin	Winter	2026	336.82	389.49	456.98	582.60	73.85	85.38	100.84	128.01
AB	San Francisco Air Basin	Winter	2027	336.82	389.62	456.96	582.77	73.86	85.47	100.87	128.15
AB	San Francisco Air Basin	Winter	2028	336.82	389.76	456.94	582.93	73.87	85.55	100.89	128.26
AB	San Francisco Air Basin	Winter	2029	336.80	389.90	456.91	583.10	73.88	85.63	100.91	128.38
AB	San Francisco Air Basin	Winter	2030	336.79	390.05	456.89	583.27	73.89	85.71	100.92	128.49
AB	San Francisco Air Basin	Winter	2031	336.78	390.20	456.87	583.44	73.89	85.79	100.93	128.59
AB	San Francisco Air Basin	Winter	2032	336.77	390.35	456.86	583.61	73.90	85.86	100.94	128.69
AB	San Francisco Air Basin	Winter	2033	336.76	390.48	456.84	583.76	73.90	85.92	100.95	128.79
AB	San Francisco Air Basin	Winter	2034	336.76	390.60	456.82	583.90	73.90	85.98	100.95	128.87
AB	San Francisco Air Basin	Winter	2035	336.74	390.70	456.80	584.02	73.91	86.04	100.96	128.96
AB	San Joaquin Valley Air Basin	Annual	2010	344.53	395.23	472.07	594.91	73.37	85.32	100.36	124.58
AB	San Joaquin Valley Air Basin	Annual	2011	344.79	396.17	471.84	595.64	73.37	85.05	100.34	124.82
AB	San Joaquin Valley Air Basin	Annual	2012	344.82	396.68	471.40	596.04	73.39	84.87	100.35	125.07
AB	San Joaquin Valley Air Basin	Annual	2013	345.18	397.48	471.50	597.02	73.43	84.73	100.37	125.34
AB	San Joaquin Valley Air Basin	Annual	2014	345.41	398.05	471.41	597.81	73.45	84.65	100.38	125.62
AB	San Joaquin Valley Air Basin	Annual	2015	346.20	399.25	472.24	599.62	73.50	84.60	100.40	125.92
AB	San Joaquin Valley Air Basin	Annual	2016	346.40	399.70	472.19	600.39	73.57	84.57	100.44	126.22
AB	San Joaquin Valley Air Basin	Annual	2017	346.53	400.08	472.14	601.11	73.60	84.54	100.44	126.51
AB	San Joaquin Valley Air Basin	Annual	2018	347.36	401.34	473.27	602.98	73.63	84.56	100.47	126.79
AB	San Joaquin Valley Air Basin	Annual	2019	347.49	401.71	473.29	603.59	73.68	84.67	100.51	127.05
AB	San Joaquin Valley Air Basin	Annual	2020	347.59	402.04	473.30	604.13	73.77	84.83	100.58	127.28
AB	San Joaquin Valley Air Basin	Annual	2021	347.55	402.06	472.98	604.31	73.84	84.99	100.66	127.48
AB	San Joaquin Valley Air Basin	Annual	2022	347.60	402.27	472.95	604.67	73.89	85.13	100.73	127.64
AB	San Joaquin Valley Air Basin	Annual	2023	347.63	402.44	472.93	604.96	73.92	85.25	100.78	127.82
AB	San Joaquin Valley Air Basin	Annual	2024	347.85	403.02	473.49	605.81	73.94	85.37	100.83	127.98
AB	San Joaquin Valley Air Basin	Annual	2025	347.86	403.16	473.48	606.02	73.96	85.47	100.86	128.14
AB	San Joaquin Valley Air Basin	Annual	2026	348.71	404.36	474.80	607.63	73.98	85.57	100.89	128.28
AB	San Joaquin Valley Air Basin	Annual	2027	348.72	404.49	474.74	607.80	73.99	85.65	100.92	128.41
AB	San Joaquin Valley Air Basin	Annual	2028	348.73	404.62	474.69	607.97	74.00	85.74	100.93	128.53
AB	San Joaquin Valley Air Basin	Annual	2029	348.73	404.75	474.65	608.15	74.01	85.81	100.94	128.63
AB	San Joaquin Valley Air Basin	Annual	2030	348.73	404.88	474.61	608.33	74.01	85.88	100.95	128.74
AB	San Joaquin Valley Air Basin	Annual	2031	348.73	405.01	474.57	608.48	74.02	85.95	100.96	128.83
AB	San Joaquin Valley Air Basin	Annual	2032	348.73	405.13	474.53	608.63	74.02	86.02	100.96	128.92
AB	San Joaquin Valley Air Basin	Annual	2033	348.73	405.23	474.50	608.78	74.02	86.07	100.97	129.00
AB	San Joaquin Valley Air Basin	Annual	2034	348.73	405.32	474.47	608.91	74.03	86.12	100.97	129.08
AB	San Joaquin Valley Air Basin	Annual	2035	348.74	405.39	474.45	609.03	74.03	86.17	100.98	129.15
AB	San Joaquin Valley Air Basin	Summer	2010	378.79	430.24	517.12	652.23	73.37	85.32	100.36	124.58
AB	San Joaquin Valley Air Basin	Summer	2011	379.32	432.07	517.21	652.97	73.37	85.05	100.34	124.82
AB	San Joaquin Valley Air Basin	Summer	2012	379.51	433.17	516.96	653.39	73.39	84.87	100.35	125.07
AB	San Joaquin Valley Air Basin	Summer	2013	380.02	434.48	517.27	654.53	73.43	84.73	100.37	125.34
AB	San Joaquin Valley Air Basin	Summer	2014	380.35	435.44	517.38	655.51	73.45	84.65	100.38	125.62
AB	San Joaquin Valley Air Basin	Summer	2015	381.29	437.04	518.48	657.68	73.50	84.60	100.40	125.92
AB	San Joaquin Valley Air Basin	Summer	2016	381.55	437.73	518.55	658.71	73.57	84.57	100.44	126.22
AB	San Joaquin Valley Air Basin	Summer	2017	381.72	438.33	518.60	659.66	73.60	84.54	100.44	126.51
AB	San Joaquin Valley Air Basin	Summer	2018	382.62	439.83	519.89	661.84	73.63	84.56	100.47	126.79
AB	San Joaquin Valley Air Basin	Summer	2019	382.75	440.33	519.93	662.62	73.68	84.67	100.51	127.05

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	San Joaquin Valley Air Basin	Summer	2020	382.86	440.77	519.95	663.30	73.77	84.83	100.58	127.28
AB	San Joaquin Valley Air Basin	Summer	2021	382.80	440.85	519.59	663.56	73.84	84.99	100.66	127.48
AB	San Joaquin Valley Air Basin	Summer	2022	382.85	441.14	519.54	664.00	73.89	85.13	100.73	127.64
AB	San Joaquin Valley Air Basin	Summer	2023	382.88	441.39	519.49	664.34	73.92	85.25	100.78	127.82
AB	San Joaquin Valley Air Basin	Summer	2024	383.14	442.10	520.11	665.29	73.94	85.37	100.83	127.98
AB	San Joaquin Valley Air Basin	Summer	2025	383.16	442.31	520.10	665.52	73.96	85.47	100.86	128.14
AB	San Joaquin Valley Air Basin	Summer	2026	384.09	443.68	521.54	667.23	73.98	85.57	100.89	128.28
AB	San Joaquin Valley Air Basin	Summer	2027	384.11	443.88	521.48	667.40	73.99	85.65	100.92	128.41
AB	San Joaquin Valley Air Basin	Summer	2028	384.12	444.07	521.44	667.58	74.00	85.74	100.93	128.53
AB	San Joaquin Valley Air Basin	Summer	2029	384.14	444.28	521.41	667.76	74.01	85.81	100.94	128.63
AB	San Joaquin Valley Air Basin	Summer	2030	384.15	444.48	521.38	667.96	74.01	85.88	100.95	128.74
AB	San Joaquin Valley Air Basin	Summer	2031	384.15	444.67	521.34	668.13	74.02	85.95	100.96	128.83
AB	San Joaquin Valley Air Basin	Summer	2032	384.15	444.83	521.31	668.31	74.02	86.02	100.96	128.92
AB	San Joaquin Valley Air Basin	Summer	2033	384.15	444.97	521.29	668.48	74.02	86.07	100.97	129.00
AB	San Joaquin Valley Air Basin	Summer	2034	384.16	445.10	521.27	668.66	74.03	86.12	100.97	129.08
AB	San Joaquin Valley Air Basin	Summer	2035	384.17	445.18	521.25	668.82	74.03	86.17	100.98	129.15
AB	San Joaquin Valley Air Basin	Winter	2010	331.71	382.09	455.17	573.36	73.37	85.32	100.36	124.58
AB	San Joaquin Valley Air Basin	Winter	2011	331.86	382.70	454.81	574.06	73.37	85.05	100.34	124.82
AB	San Joaquin Valley Air Basin	Winter	2012	331.84	382.98	454.30	574.45	73.39	84.87	100.35	125.07
AB	San Joaquin Valley Air Basin	Winter	2013	332.15	383.59	454.32	575.38	73.43	84.73	100.37	125.34
AB	San Joaquin Valley Air Basin	Winter	2014	332.34	384.02	454.16	576.11	73.45	84.65	100.38	125.62
AB	San Joaquin Valley Air Basin	Winter	2015	333.08	385.08	454.89	577.78	73.50	84.60	100.40	125.92
AB	San Joaquin Valley Air Basin	Winter	2016	333.25	385.43	454.79	578.46	73.57	84.57	100.44	126.22
AB	San Joaquin Valley Air Basin	Winter	2017	333.38	385.74	454.71	579.09	73.60	84.54	100.44	126.51
AB	San Joaquin Valley Air Basin	Winter	2018	334.17	386.90	455.78	580.83	73.63	84.56	100.47	126.79
AB	San Joaquin Valley Air Basin	Winter	2019	334.29	387.21	455.78	581.37	73.68	84.67	100.51	127.05
AB	San Joaquin Valley Air Basin	Winter	2020	334.40	387.49	455.79	581.86	73.77	84.83	100.58	127.28
AB	San Joaquin Valley Air Basin	Winter	2021	334.35	387.50	455.49	582.01	73.84	84.99	100.66	127.48
AB	San Joaquin Valley Air Basin	Winter	2022	334.40	387.67	455.46	582.34	73.89	85.13	100.73	127.64
AB	San Joaquin Valley Air Basin	Winter	2023	334.42	387.81	455.44	582.61	73.92	85.25	100.78	127.82
AB	San Joaquin Valley Air Basin	Winter	2024	334.63	388.34	455.98	583.42	73.94	85.37	100.83	127.98
AB	San Joaquin Valley Air Basin	Winter	2025	334.64	388.44	455.97	583.62	73.96	85.47	100.86	128.14
AB	San Joaquin Valley Air Basin	Winter	2026	335.45	389.58	457.23	585.17	73.98	85.57	100.89	128.28
AB	San Joaquin Valley Air Basin	Winter	2027	335.46	389.68	457.17	585.33	73.99	85.65	100.92	128.41
AB	San Joaquin Valley Air Basin	Winter	2028	335.46	389.78	457.12	585.50	74.00	85.74	100.93	128.53
AB	San Joaquin Valley Air Basin	Winter	2029	335.46	389.88	457.06	585.66	74.01	85.81	100.94	128.63
AB	San Joaquin Valley Air Basin	Winter	2030	335.45	389.98	457.02	585.83	74.01	85.88	100.95	128.74
AB	San Joaquin Valley Air Basin	Winter	2031	335.45	390.08	456.97	585.97	74.02	85.95	100.96	128.83
AB	San Joaquin Valley Air Basin	Winter	2032	335.44	390.18	456.93	586.11	74.02	86.02	100.96	128.92
AB	San Joaquin Valley Air Basin	Winter	2033	335.44	390.27	456.89	586.24	74.02	86.07	100.97	129.00
AB	San Joaquin Valley Air Basin	Winter	2034	335.44	390.34	456.86	586.35	74.03	86.12	100.97	129.08
AB	San Joaquin Valley Air Basin	Winter	2035	335.44	390.41	456.83	586.45	74.03	86.17	100.98	129.15
AB	South Central Coast Air Basin	Annual	2010	324.53	377.77	444.25	560.00	73.41	85.83	99.73	124.93
AB	South Central Coast Air Basin	Annual	2011	324.89	378.44	444.27	561.13	73.37	85.48	99.79	125.12
AB	South Central Coast Air Basin	Annual	2012	324.92	378.63	443.93	561.68	73.33	85.24	99.87	125.34
AB	South Central Coast Air Basin	Annual	2013	325.01	378.79	443.66	562.26	73.34	85.04	99.96	125.57
AB	South Central Coast Air Basin	Annual	2014	325.07	378.92	443.44	562.79	73.32	84.87	100.05	125.81
AB	South Central Coast Air Basin	Annual	2015	326.78	381.05	445.42	566.18	73.34	84.73	100.13	126.06
AB	South Central Coast Air Basin	Annual	2016	326.90	381.17	445.27	566.68	73.38	84.63	100.22	126.32
AB	South Central Coast Air Basin	Annual	2017	326.98	381.27	445.14	567.15	73.40	84.54	100.30	126.57
AB	South Central Coast Air Basin	Annual	2018	327.04	381.38	445.03	567.56	73.42	84.52	100.38	126.81
AB	South Central Coast Air Basin	Annual	2019	327.63	382.30	445.61	568.85	73.45	84.60	100.46	127.04
AB	South Central Coast Air Basin	Annual	2020	327.67	382.43	445.52	569.15	73.55	84.73	100.55	127.25
AB	South Central Coast Air Basin	Annual	2021	328.64	383.97	446.70	571.13	73.62	84.87	100.64	127.42

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	South Central Coast Air Basin	Annual	2022	328.67	384.16	446.72	571.43	73.67	85.01	100.71	127.55
AB	South Central Coast Air Basin	Annual	2023	328.66	384.31	446.73	571.67	73.70	85.12	100.77	127.71
AB	South Central Coast Air Basin	Annual	2024	329.35	385.50	447.67	573.19	73.72	85.23	100.81	127.86
AB	South Central Coast Air Basin	Annual	2025	329.34	385.64	447.71	573.44	73.74	85.32	100.85	128.01
AB	South Central Coast Air Basin	Annual	2026	328.64	385.23	446.70	572.50	73.76	85.42	100.88	128.15
AB	South Central Coast Air Basin	Annual	2027	328.66	385.40	446.71	572.75	73.77	85.50	100.91	128.27
AB	South Central Coast Air Basin	Annual	2028	328.66	385.57	446.73	573.00	73.78	85.58	100.92	128.39
AB	South Central Coast Air Basin	Annual	2029	328.65	385.74	446.73	573.24	73.79	85.65	100.93	128.50
AB	South Central Coast Air Basin	Annual	2030	328.64	385.91	446.73	573.47	73.79	85.72	100.94	128.60
AB	South Central Coast Air Basin	Annual	2031	329.38	387.27	447.77	575.16	73.80	85.79	100.95	128.70
AB	South Central Coast Air Basin	Annual	2032	329.33	387.45	447.79	575.40	73.80	85.85	100.95	128.79
AB	South Central Coast Air Basin	Annual	2033	329.30	387.60	447.82	575.61	73.81	85.91	100.96	128.88
AB	South Central Coast Air Basin	Annual	2034	329.26	387.75	447.85	575.81	73.81	85.97	100.97	128.96
AB	South Central Coast Air Basin	Annual	2035	329.23	387.87	447.88	576.00	73.81	86.02	100.97	129.03
AB	South Central Coast Air Basin	Summer	2010	336.60	390.99	459.84	580.17	73.41	85.83	99.73	124.93
AB	South Central Coast Air Basin	Summer	2011	337.01	391.88	459.94	581.29	73.37	85.48	99.79	125.12
AB	South Central Coast Air Basin	Summer	2012	337.08	392.23	459.65	581.83	73.33	85.24	99.87	125.34
AB	South Central Coast Air Basin	Summer	2013	337.19	392.52	459.44	582.43	73.34	85.04	99.96	125.57
AB	South Central Coast Air Basin	Summer	2014	337.26	392.75	459.26	582.99	73.32	84.87	100.05	125.81
AB	South Central Coast Air Basin	Summer	2015	339.04	395.04	461.36	586.53	73.34	84.73	100.13	126.06
AB	South Central Coast Air Basin	Summer	2016	339.17	395.24	461.23	587.08	73.38	84.63	100.22	126.32
AB	South Central Coast Air Basin	Summer	2017	339.26	395.40	461.12	587.60	73.40	84.54	100.30	126.57
AB	South Central Coast Air Basin	Summer	2018	339.31	395.56	461.01	588.05	73.42	84.52	100.38	126.81
AB	South Central Coast Air Basin	Summer	2019	339.92	396.55	461.61	589.41	73.45	84.60	100.46	127.04
AB	South Central Coast Air Basin	Summer	2020	339.95	396.69	461.51	589.72	73.55	84.73	100.55	127.25
AB	South Central Coast Air Basin	Summer	2021	340.97	398.35	462.76	591.83	73.62	84.87	100.64	127.42
AB	South Central Coast Air Basin	Summer	2022	340.99	398.58	462.80	592.18	73.67	85.01	100.71	127.55
AB	South Central Coast Air Basin	Summer	2023	340.98	398.77	462.82	592.45	73.70	85.12	100.77	127.71
AB	South Central Coast Air Basin	Summer	2024	341.72	400.07	463.83	594.09	73.72	85.23	100.81	127.86
AB	South Central Coast Air Basin	Summer	2025	341.71	400.25	463.89	594.37	73.74	85.32	100.85	128.01
AB	South Central Coast Air Basin	Summer	2026	341.01	399.87	462.89	593.44	73.76	85.42	100.88	128.15
AB	South Central Coast Air Basin	Summer	2027	341.03	400.07	462.92	593.72	73.77	85.50	100.91	128.27
AB	South Central Coast Air Basin	Summer	2028	341.04	400.28	462.96	594.00	73.78	85.58	100.92	128.39
AB	South Central Coast Air Basin	Summer	2029	341.04	400.49	462.98	594.26	73.79	85.65	100.93	128.50
AB	South Central Coast Air Basin	Summer	2030	341.03	400.70	463.00	594.53	73.79	85.72	100.94	128.60
AB	South Central Coast Air Basin	Summer	2031	341.80	402.15	464.10	596.30	73.80	85.79	100.95	128.70
AB	South Central Coast Air Basin	Summer	2032	341.75	402.36	464.14	596.56	73.80	85.85	100.95	128.79
AB	South Central Coast Air Basin	Summer	2033	341.71	402.55	464.19	596.80	73.81	85.91	100.96	128.88
AB	South Central Coast Air Basin	Summer	2034	341.67	402.72	464.23	597.03	73.81	85.97	100.97	128.96
AB	South Central Coast Air Basin	Summer	2035	341.63	402.86	464.29	597.25	73.81	86.02	100.97	129.03
AB	South Central Coast Air Basin	Winter	2010	322.51	375.46	441.66	556.61	73.41	85.83	99.73	124.93
AB	South Central Coast Air Basin	Winter	2011	322.86	376.09	441.67	557.75	73.37	85.48	99.79	125.12
AB	South Central Coast Air Basin	Winter	2012	322.89	376.25	441.32	558.31	73.33	85.24	99.87	125.34
AB	South Central Coast Air Basin	Winter	2013	322.98	376.39	441.05	558.88	73.34	85.04	99.96	125.57
AB	South Central Coast Air Basin	Winter	2014	323.04	376.50	440.82	559.41	73.32	84.87	100.05	125.81
AB	South Central Coast Air Basin	Winter	2015	324.74	378.60	442.79	562.78	73.34	84.73	100.13	126.06
AB	South Central Coast Air Basin	Winter	2016	324.86	378.71	442.63	563.27	73.38	84.63	100.22	126.32
AB	South Central Coast Air Basin	Winter	2017	324.94	378.80	442.50	563.74	73.40	84.54	100.30	126.57
AB	South Central Coast Air Basin	Winter	2018	325.00	378.91	442.39	564.14	73.42	84.52	100.38	126.81
AB	South Central Coast Air Basin	Winter	2019	325.59	379.82	442.98	565.43	73.45	84.60	100.46	127.04
AB	South Central Coast Air Basin	Winter	2020	325.64	379.94	442.89	565.73	73.55	84.73	100.55	127.25
AB	South Central Coast Air Basin	Winter	2021	326.60	381.46	444.05	567.67	73.62	84.87	100.64	127.42
AB	South Central Coast Air Basin	Winter	2022	326.62	381.64	444.06	567.96	73.67	85.01	100.71	127.55
AB	South Central Coast Air Basin	Winter	2023	326.61	381.78	444.07	568.19	73.70	85.12	100.77	127.71

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	South Central Coast Air Basin	Winter	2024	327.29	382.96	444.99	569.69	73.72	85.23	100.81	127.86
AB	South Central Coast Air Basin	Winter	2025	327.28	383.09	445.02	569.93	73.74	85.32	100.85	128.01
AB	South Central Coast Air Basin	Winter	2026	326.58	382.67	444.01	568.98	73.76	85.42	100.88	128.15
AB	South Central Coast Air Basin	Winter	2027	326.60	382.83	444.02	569.23	73.77	85.50	100.91	128.27
AB	South Central Coast Air Basin	Winter	2028	326.60	382.99	444.03	569.47	73.78	85.58	100.92	128.39
AB	South Central Coast Air Basin	Winter	2029	326.59	383.15	444.03	569.70	73.79	85.65	100.93	128.50
AB	South Central Coast Air Basin	Winter	2030	326.57	383.32	444.02	569.92	73.79	85.72	100.94	128.60
AB	South Central Coast Air Basin	Winter	2031	327.31	384.66	445.05	571.59	73.80	85.79	100.95	128.70
AB	South Central Coast Air Basin	Winter	2032	327.27	384.82	445.06	571.82	73.80	85.85	100.95	128.79
AB	South Central Coast Air Basin	Winter	2033	327.23	384.97	445.09	572.03	73.81	85.91	100.96	128.88
AB	South Central Coast Air Basin	Winter	2034	327.19	385.12	445.11	572.22	73.81	85.97	100.97	128.96
AB	South Central Coast Air Basin	Winter	2035	327.16	385.23	445.14	572.40	73.81	86.02	100.97	129.03
AB	South Coast Air Basin	Annual	2010	358.01	409.57	488.94	615.29	73.21	84.03	99.45	125.25
AB	South Coast Air Basin	Annual	2011	358.53	410.51	489.32	616.38	73.23	83.98	99.55	125.45
AB	South Coast Air Basin	Annual	2012	358.66	410.89	489.10	616.67	73.27	83.98	99.67	125.65
AB	South Coast Air Basin	Annual	2013	358.86	411.36	488.94	617.04	73.33	83.99	99.79	125.87
AB	South Coast Air Basin	Annual	2014	359.00	411.69	488.76	617.38	73.38	84.02	99.90	126.09
AB	South Coast Air Basin	Annual	2015	359.50	412.41	489.04	618.24	73.44	84.07	100.01	126.32
AB	South Coast Air Basin	Annual	2016	359.61	412.71	488.91	618.65	73.51	84.14	100.12	126.56
AB	South Coast Air Basin	Annual	2017	359.68	413.00	488.78	619.05	73.56	84.22	100.22	126.80
AB	South Coast Air Basin	Annual	2018	359.73	413.24	488.67	619.35	73.60	84.30	100.30	127.02
AB	South Coast Air Basin	Annual	2019	359.08	412.70	487.70	618.60	73.64	84.46	100.39	127.22
AB	South Coast Air Basin	Annual	2020	359.10	412.90	487.57	618.80	73.73	84.62	100.49	127.42
AB	South Coast Air Basin	Annual	2021	359.91	414.09	488.60	620.48	73.80	84.79	100.58	127.58
AB	South Coast Air Basin	Annual	2022	359.87	414.26	488.52	620.66	73.85	84.93	100.66	127.72
AB	South Coast Air Basin	Annual	2023	359.81	414.38	488.43	620.76	73.88	85.06	100.72	127.88
AB	South Coast Air Basin	Annual	2024	361.76	416.80	491.03	624.19	73.90	85.17	100.77	128.02
AB	South Coast Air Basin	Annual	2025	361.68	416.85	490.94	624.25	73.92	85.28	100.82	128.15
AB	South Coast Air Basin	Annual	2026	361.64	416.95	490.83	624.31	73.94	85.38	100.85	128.29
AB	South Coast Air Basin	Annual	2027	361.59	417.03	490.72	624.36	73.95	85.47	100.88	128.40
AB	South Coast Air Basin	Annual	2028	361.53	417.11	490.61	624.40	73.96	85.56	100.90	128.50
AB	South Coast Air Basin	Annual	2029	361.47	417.20	490.50	624.44	73.97	85.64	100.92	128.60
AB	South Coast Air Basin	Annual	2030	361.40	417.29	490.39	624.48	73.97	85.72	100.93	128.70
AB	South Coast Air Basin	Annual	2031	361.77	417.91	490.85	625.21	73.98	85.79	100.94	128.79
AB	South Coast Air Basin	Annual	2032	361.71	418.00	490.76	625.26	73.98	85.87	100.95	128.87
AB	South Coast Air Basin	Annual	2033	361.64	418.06	490.66	625.29	73.99	85.93	100.96	128.95
AB	South Coast Air Basin	Annual	2034	361.58	418.11	490.56	625.31	73.99	85.99	100.96	129.02
AB	South Coast Air Basin	Annual	2035	361.51	418.13	490.47	625.31	73.99	86.05	100.97	129.09
AB	South Coast Air Basin	Summer	2010	376.35	428.81	513.13	646.60	73.21	84.03	99.45	125.25
AB	South Coast Air Basin	Summer	2011	376.98	430.14	513.64	647.75	73.23	83.98	99.55	125.45
AB	South Coast Air Basin	Summer	2012	377.17	430.80	513.51	648.09	73.27	83.98	99.67	125.65
AB	South Coast Air Basin	Summer	2013	377.43	431.52	513.45	648.57	73.33	83.99	99.79	125.87
AB	South Coast Air Basin	Summer	2014	377.60	432.03	513.36	649.01	73.38	84.02	99.90	126.09
AB	South Coast Air Basin	Summer	2015	378.16	432.94	513.77	650.06	73.44	84.07	100.01	126.32
AB	South Coast Air Basin	Summer	2016	378.32	433.38	513.73	650.64	73.51	84.14	100.12	126.56
AB	South Coast Air Basin	Summer	2017	378.43	433.80	513.68	651.19	73.56	84.22	100.22	126.80
AB	South Coast Air Basin	Summer	2018	378.50	434.15	513.63	651.64	73.60	84.30	100.30	127.02
AB	South Coast Air Basin	Summer	2019	377.87	433.68	512.68	651.00	73.64	84.46	100.39	127.22
AB	South Coast Air Basin	Summer	2020	377.93	434.00	512.61	651.36	73.73	84.62	100.49	127.42
AB	South Coast Air Basin	Summer	2021	378.82	435.34	513.74	653.23	73.80	84.79	100.58	127.58
AB	South Coast Air Basin	Summer	2022	378.81	435.60	513.67	653.48	73.85	84.93	100.66	127.72
AB	South Coast Air Basin	Summer	2023	378.77	435.80	513.60	653.65	73.88	85.06	100.72	127.88
AB	South Coast Air Basin	Summer	2024	380.89	438.46	516.40	657.36	73.90	85.17	100.77	128.02
AB	South Coast Air Basin	Summer	2025	380.84	438.60	516.33	657.46	73.92	85.28	100.82	128.15

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AB	South Coast Air Basin	Summer	2026	380.82	438.77	516.25	657.54	73.94	85.38	100.85	128.29
AB	South Coast Air Basin	Summer	2027	380.79	438.92	516.17	657.62	73.95	85.47	100.88	128.40
AB	South Coast Air Basin	Summer	2028	380.76	439.07	516.09	657.69	73.96	85.56	100.90	128.50
AB	South Coast Air Basin	Summer	2029	380.72	439.23	516.01	657.76	73.97	85.64	100.92	128.60
AB	South Coast Air Basin	Summer	2030	380.68	439.39	515.93	657.84	73.97	85.72	100.93	128.70
AB	South Coast Air Basin	Summer	2031	381.11	440.14	516.48	658.70	73.98	85.79	100.94	128.79
AB	South Coast Air Basin	Summer	2032	381.07	440.30	516.43	658.81	73.98	85.87	100.95	128.87
AB	South Coast Air Basin	Summer	2033	381.03	440.42	516.37	658.90	73.99	85.93	100.96	128.95
AB	South Coast Air Basin	Summer	2034	380.99	440.52	516.30	658.98	73.99	85.99	100.96	129.02
AB	South Coast Air Basin	Summer	2035	380.95	440.59	516.24	659.05	73.99	86.05	100.97	129.09
AB	South Coast Air Basin	Winter	2010	352.27	403.73	481.40	605.84	73.21	84.03	99.45	125.25
AB	South Coast Air Basin	Winter	2011	352.77	404.58	481.76	606.95	73.23	83.98	99.55	125.45
AB	South Coast Air Basin	Winter	2012	352.88	404.90	481.53	607.26	73.27	83.98	99.67	125.65
AB	South Coast Air Basin	Winter	2013	353.07	405.31	481.36	607.63	73.33	83.99	99.79	125.87
AB	South Coast Air Basin	Winter	2014	353.20	405.60	481.16	607.96	73.38	84.02	99.90	126.09
AB	South Coast Air Basin	Winter	2015	353.69	406.27	481.43	608.80	73.44	84.07	100.01	126.32
AB	South Coast Air Basin	Winter	2016	353.79	406.55	481.28	609.19	73.51	84.14	100.12	126.56
AB	South Coast Air Basin	Winter	2017	353.86	406.81	481.14	609.56	73.56	84.22	100.22	126.80
AB	South Coast Air Basin	Winter	2018	353.91	407.02	481.03	609.84	73.60	84.30	100.30	127.02
AB	South Coast Air Basin	Winter	2019	353.27	406.48	480.07	609.09	73.64	84.46	100.39	127.22
AB	South Coast Air Basin	Winter	2020	353.29	406.67	479.94	609.28	73.73	84.62	100.49	127.42
AB	South Coast Air Basin	Winter	2021	354.09	407.82	480.96	610.92	73.80	84.79	100.58	127.58
AB	South Coast Air Basin	Winter	2022	354.06	407.97	480.88	611.08	73.85	84.93	100.66	127.72
AB	South Coast Air Basin	Winter	2023	354.00	408.08	480.79	611.18	73.88	85.06	100.72	127.88
AB	South Coast Air Basin	Winter	2024	355.90	410.43	483.35	614.53	73.90	85.17	100.77	128.02
AB	South Coast Air Basin	Winter	2025	355.83	410.47	483.26	614.59	73.92	85.28	100.82	128.15
AB	South Coast Air Basin	Winter	2026	355.79	410.55	483.16	614.66	73.94	85.38	100.85	128.29
AB	South Coast Air Basin	Winter	2027	355.74	410.63	483.05	614.71	73.95	85.47	100.88	128.40
AB	South Coast Air Basin	Winter	2028	355.68	410.70	482.94	614.76	73.96	85.56	100.90	128.50
AB	South Coast Air Basin	Winter	2029	355.62	410.78	482.83	614.80	73.97	85.64	100.92	128.60
AB	South Coast Air Basin	Winter	2030	355.55	410.85	482.72	614.84	73.97	85.72	100.93	128.70
AB	South Coast Air Basin	Winter	2031	355.91	411.44	483.17	615.55	73.98	85.79	100.94	128.79
AB	South Coast Air Basin	Winter	2032	355.85	411.52	483.08	615.60	73.98	85.87	100.95	128.87
AB	South Coast Air Basin	Winter	2033	355.79	411.58	482.99	615.63	73.99	85.93	100.96	128.95
AB	South Coast Air Basin	Winter	2034	355.73	411.62	482.89	615.65	73.99	85.99	100.96	129.02
AB	South Coast Air Basin	Winter	2035	355.66	411.64	482.80	615.65	73.99	86.05	100.97	129.09
AD	Amador County APCD	Annual	2010	304.65	351.36	416.56	520.77	74.42	88.71	101.28	124.30
AD	Amador County APCD	Annual	2011	304.66	351.60	416.18	521.37	74.22	87.90	101.12	124.48
AD	Amador County APCD	Annual	2012	304.71	351.83	415.89	522.08	74.04	87.30	101.03	124.70
AD	Amador County APCD	Annual	2013	304.79	351.99	415.66	522.86	73.92	86.76	100.95	124.94
AD	Amador County APCD	Annual	2014	304.86	352.15	415.48	523.60	73.78	86.37	100.90	125.21
AD	Amador County APCD	Annual	2015	304.98	352.29	415.35	524.39	73.76	85.97	100.78	125.49
AD	Amador County APCD	Annual	2016	305.08	352.44	415.24	525.15	73.74	85.71	100.76	125.78
AD	Amador County APCD	Annual	2017	305.13	352.54	415.14	525.85	73.67	85.39	100.65	126.08
AD	Amador County APCD	Annual	2018	305.17	352.64	415.05	526.46	73.63	85.21	100.62	126.36
AD	Amador County APCD	Annual	2019	305.20	352.73	414.99	526.98	73.61	85.07	100.64	126.62
AD	Amador County APCD	Annual	2020	305.25	352.84	414.93	527.43	73.70	85.10	100.70	126.87
AD	Amador County APCD	Annual	2021	305.27	352.92	414.87	527.78	73.76	85.17	100.76	127.07
AD	Amador County APCD	Annual	2022	305.25	352.98	414.81	528.07	73.79	85.24	100.80	127.21
AD	Amador County APCD	Annual	2023	305.17	353.01	414.75	528.29	73.79	85.29	100.83	127.40
AD	Amador County APCD	Annual	2024	305.08	353.05	414.70	528.47	73.77	85.35	100.86	127.58
AD	Amador County APCD	Annual	2025	305.03	353.13	414.66	528.63	73.78	85.43	100.90	127.75
AD	Amador County APCD	Annual	2026	305.04	353.24	414.62	528.79	73.80	85.53	100.92	127.91
AD	Amador County APCD	Annual	2027	305.05	353.36	414.57	528.95	73.81	85.62	100.94	128.05

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Amador County APCD	Annual	2028	305.05	353.48	414.54	529.12	73.82	85.70	100.96	128.19
AD	Amador County APCD	Annual	2029	305.04	353.60	414.51	529.29	73.83	85.78	100.96	128.32
AD	Amador County APCD	Annual	2030	305.03	353.72	414.47	529.46	73.83	85.85	100.96	128.44
AD	Amador County APCD	Annual	2031	305.02	353.84	414.44	529.67	73.83	85.93	100.97	128.56
AD	Amador County APCD	Annual	2032	305.02	353.95	414.42	529.88	73.84	85.99	100.97	128.68
AD	Amador County APCD	Annual	2033	305.01	354.05	414.40	530.07	73.84	86.06	100.98	128.78
AD	Amador County APCD	Annual	2034	305.01	354.14	414.39	530.24	73.85	86.11	100.98	128.88
AD	Amador County APCD	Annual	2035	305.01	354.21	414.37	530.39	73.85	86.16	100.98	128.97
AD	Amador County APCD	Summer	2010	335.39	381.81	456.97	570.78	74.42	88.71	101.28	124.30
AD	Amador County APCD	Summer	2011	335.69	383.05	456.90	571.49	74.22	87.90	101.12	124.48
AD	Amador County APCD	Summer	2012	335.97	384.03	456.85	572.39	74.04	87.30	101.03	124.70
AD	Amador County APCD	Summer	2013	336.23	384.81	456.85	573.45	73.92	86.76	100.95	124.94
AD	Amador County APCD	Summer	2014	336.43	385.43	456.87	574.47	73.78	86.37	100.90	125.21
AD	Amador County APCD	Summer	2015	336.65	385.97	456.94	575.58	73.76	85.97	100.78	125.49
AD	Amador County APCD	Summer	2016	336.82	386.42	456.98	576.67	73.74	85.71	100.76	125.78
AD	Amador County APCD	Summer	2017	336.90	386.79	457.00	577.65	73.67	85.39	100.65	126.08
AD	Amador County APCD	Summer	2018	336.95	387.08	456.98	578.50	73.63	85.21	100.62	126.36
AD	Amador County APCD	Summer	2019	336.99	387.35	456.95	579.23	73.61	85.07	100.64	126.62
AD	Amador County APCD	Summer	2020	337.02	387.58	456.90	579.85	73.70	85.10	100.70	126.87
AD	Amador County APCD	Summer	2021	337.03	387.78	456.85	580.34	73.76	85.17	100.76	127.07
AD	Amador County APCD	Summer	2022	337.01	387.96	456.79	580.75	73.79	85.24	100.80	127.21
AD	Amador County APCD	Summer	2023	336.93	388.10	456.74	581.05	73.79	85.29	100.83	127.40
AD	Amador County APCD	Summer	2024	336.85	388.24	456.69	581.30	73.77	85.35	100.86	127.58
AD	Amador County APCD	Summer	2025	336.80	388.38	456.65	581.51	73.78	85.43	100.90	127.75
AD	Amador County APCD	Summer	2026	336.83	388.54	456.62	581.67	73.80	85.53	100.92	127.91
AD	Amador County APCD	Summer	2027	336.85	388.70	456.59	581.84	73.81	85.62	100.94	128.05
AD	Amador County APCD	Summer	2028	336.86	388.88	456.57	582.04	73.82	85.70	100.96	128.19
AD	Amador County APCD	Summer	2029	336.87	389.06	456.55	582.24	73.83	85.78	100.96	128.32
AD	Amador County APCD	Summer	2030	336.87	389.25	456.52	582.44	73.83	85.85	100.96	128.44
AD	Amador County APCD	Summer	2031	336.87	389.46	456.50	582.71	73.83	85.93	100.97	128.56
AD	Amador County APCD	Summer	2032	336.87	389.62	456.48	582.98	73.84	85.99	100.97	128.68
AD	Amador County APCD	Summer	2033	336.86	389.77	456.47	583.23	73.84	86.06	100.98	128.78
AD	Amador County APCD	Summer	2034	336.85	389.90	456.45	583.45	73.85	86.11	100.98	128.88
AD	Amador County APCD	Summer	2035	336.85	389.98	456.44	583.66	73.85	86.16	100.98	128.97
AD	Amador County APCD	Winter	2010	295.29	342.08	404.24	505.53	74.42	88.71	101.28	124.30
AD	Amador County APCD	Winter	2011	295.21	342.02	403.78	506.10	74.22	87.90	101.12	124.48
AD	Amador County APCD	Winter	2012	295.18	342.01	403.41	506.75	74.04	87.30	101.03	124.70
AD	Amador County APCD	Winter	2013	295.22	341.99	403.11	507.45	73.92	86.76	100.95	124.94
AD	Amador County APCD	Winter	2014	295.24	342.01	402.87	508.11	73.78	86.37	100.90	125.21
AD	Amador County APCD	Winter	2015	295.33	342.02	402.67	508.79	73.76	85.97	100.78	125.49
AD	Amador County APCD	Winter	2016	295.41	342.08	402.52	509.45	73.74	85.71	100.76	125.78
AD	Amador County APCD	Winter	2017	295.45	342.10	402.38	510.06	73.67	85.39	100.65	126.08
AD	Amador County APCD	Winter	2018	295.49	342.14	402.28	510.60	73.63	85.21	100.62	126.36
AD	Amador County APCD	Winter	2019	295.52	342.18	402.21	511.06	73.61	85.07	100.64	126.62
AD	Amador County APCD	Winter	2020	295.57	342.25	402.15	511.46	73.70	85.10	100.70	126.87
AD	Amador County APCD	Winter	2021	295.59	342.29	402.08	511.77	73.76	85.17	100.76	127.07
AD	Amador County APCD	Winter	2022	295.58	342.32	402.02	512.02	73.79	85.24	100.80	127.21
AD	Amador County APCD	Winter	2023	295.49	342.32	401.95	512.21	73.79	85.29	100.83	127.40
AD	Amador County APCD	Winter	2024	295.40	342.33	401.90	512.37	73.77	85.35	100.86	127.58
AD	Amador County APCD	Winter	2025	295.35	342.39	401.87	512.52	73.78	85.43	100.90	127.75
AD	Amador County APCD	Winter	2026	295.36	342.49	401.82	512.68	73.80	85.53	100.92	127.91
AD	Amador County APCD	Winter	2027	295.36	342.59	401.77	512.84	73.81	85.62	100.94	128.05
AD	Amador County APCD	Winter	2028	295.35	342.69	401.74	513.00	73.82	85.70	100.96	128.19
AD	Amador County APCD	Winter	2029	295.34	342.79	401.70	513.16	73.83	85.78	100.96	128.32

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Amador County APCD	Winter	2030	295.32	342.89	401.65	513.32	73.83	85.85	100.96	128.44
AD	Amador County APCD	Winter	2031	295.32	342.99	401.63	513.51	73.83	85.93	100.97	128.56
AD	Amador County APCD	Winter	2032	295.32	343.09	401.61	513.70	73.84	85.99	100.97	128.68
AD	Amador County APCD	Winter	2033	295.31	343.17	401.59	513.88	73.84	86.06	100.98	128.78
AD	Amador County APCD	Winter	2034	295.31	343.24	401.57	514.03	73.85	86.11	100.98	128.88
AD	Amador County APCD	Winter	2035	295.30	343.31	401.56	514.17	73.85	86.16	100.98	128.97
AD	Antelope Valley APCD	Annual	2010	345.89	395.46	472.51	595.78	73.36	84.38	99.72	125.11
AD	Antelope Valley APCD	Annual	2011	348.87	399.45	476.26	601.40	73.38	84.28	99.78	125.35
AD	Antelope Valley APCD	Annual	2012	349.04	400.17	476.18	602.17	73.40	84.27	99.87	125.60
AD	Antelope Valley APCD	Annual	2013	350.49	402.29	477.89	605.21	73.42	84.25	99.97	125.87
AD	Antelope Valley APCD	Annual	2014	350.66	402.85	477.86	605.99	73.46	84.24	100.05	126.14
AD	Antelope Valley APCD	Annual	2015	355.63	408.92	484.44	615.13	73.50	84.26	100.16	126.42
AD	Antelope Valley APCD	Annual	2016	355.79	409.41	484.43	615.82	73.56	84.33	100.25	126.69
AD	Antelope Valley APCD	Annual	2017	355.91	409.84	484.42	616.46	73.60	84.36	100.32	126.95
AD	Antelope Valley APCD	Annual	2018	356.00	410.20	484.40	617.00	73.63	84.42	100.38	127.20
AD	Antelope Valley APCD	Annual	2019	357.84	412.61	486.79	620.54	73.67	84.58	100.46	127.42
AD	Antelope Valley APCD	Annual	2020	357.92	412.97	486.78	620.97	73.75	84.76	100.55	127.62
AD	Antelope Valley APCD	Annual	2021	360.97	416.79	490.85	626.51	73.82	84.94	100.64	127.79
AD	Antelope Valley APCD	Annual	2022	361.00	417.09	490.84	626.80	73.87	85.10	100.71	127.92
AD	Antelope Valley APCD	Annual	2023	361.00	417.34	490.82	627.02	73.90	85.24	100.77	128.08
AD	Antelope Valley APCD	Annual	2024	361.28	417.87	491.15	627.65	73.91	85.37	100.81	128.23
AD	Antelope Valley APCD	Annual	2025	361.29	418.06	491.14	627.84	73.93	85.48	100.86	128.37
AD	Antelope Valley APCD	Annual	2026	361.30	418.26	491.12	628.01	73.95	85.58	100.89	128.50
AD	Antelope Valley APCD	Annual	2027	361.31	418.44	491.10	628.17	73.97	85.67	100.91	128.62
AD	Antelope Valley APCD	Annual	2028	361.32	418.63	491.09	628.32	73.97	85.76	100.93	128.72
AD	Antelope Valley APCD	Annual	2029	361.32	418.81	491.07	628.47	73.98	85.84	100.94	128.81
AD	Antelope Valley APCD	Annual	2030	361.31	418.99	491.06	628.62	73.98	85.91	100.95	128.90
AD	Antelope Valley APCD	Annual	2031	366.94	425.72	498.73	638.58	73.99	85.98	100.96	128.98
AD	Antelope Valley APCD	Annual	2032	366.93	425.88	498.72	638.71	73.99	86.05	100.97	129.05
AD	Antelope Valley APCD	Annual	2033	366.93	426.03	498.71	638.83	74.00	86.10	100.98	129.12
AD	Antelope Valley APCD	Annual	2034	366.92	426.15	498.70	638.94	74.00	86.15	100.98	129.18
AD	Antelope Valley APCD	Annual	2035	366.92	426.26	498.69	639.04	74.00	86.20	100.99	129.24
AD	Antelope Valley APCD	Summer	2010	381.87	431.89	519.76	655.58	73.36	84.38	99.72	125.11
AD	Antelope Valley APCD	Summer	2011	385.34	436.89	524.09	661.69	73.38	84.28	99.78	125.35
AD	Antelope Valley APCD	Summer	2012	385.66	438.19	524.18	662.56	73.40	84.27	99.87	125.60
AD	Antelope Valley APCD	Summer	2013	387.37	440.97	526.26	666.03	73.42	84.25	99.97	125.87
AD	Antelope Valley APCD	Summer	2014	387.63	441.94	526.42	667.04	73.46	84.24	100.05	126.14
AD	Antelope Valley APCD	Summer	2015	393.20	448.92	533.87	677.32	73.50	84.26	100.16	126.42
AD	Antelope Valley APCD	Summer	2016	393.41	449.67	534.00	678.24	73.56	84.33	100.25	126.69
AD	Antelope Valley APCD	Summer	2017	393.56	450.33	534.08	679.07	73.60	84.36	100.32	126.95
AD	Antelope Valley APCD	Summer	2018	393.65	450.86	534.11	679.75	73.63	84.42	100.38	127.20
AD	Antelope Valley APCD	Summer	2019	395.68	453.61	536.75	683.71	73.67	84.58	100.46	127.42
AD	Antelope Valley APCD	Summer	2020	395.75	454.07	536.73	684.25	73.75	84.76	100.55	127.62
AD	Antelope Valley APCD	Summer	2021	399.16	458.42	541.24	690.46	73.82	84.94	100.64	127.79
AD	Antelope Valley APCD	Summer	2022	399.20	458.86	541.22	690.83	73.87	85.10	100.71	127.92
AD	Antelope Valley APCD	Summer	2023	399.21	459.24	541.20	691.10	73.90	85.24	100.77	128.08
AD	Antelope Valley APCD	Summer	2024	399.46	459.85	541.48	691.72	73.91	85.37	100.81	128.23
AD	Antelope Valley APCD	Summer	2025	399.48	460.16	541.47	691.93	73.93	85.48	100.86	128.37
AD	Antelope Valley APCD	Summer	2026	399.50	460.45	541.44	692.11	73.95	85.58	100.89	128.50
AD	Antelope Valley APCD	Summer	2027	399.52	460.73	541.42	692.27	73.97	85.67	100.91	128.62
AD	Antelope Valley APCD	Summer	2028	399.53	461.00	541.41	692.44	73.97	85.76	100.93	128.72
AD	Antelope Valley APCD	Summer	2029	399.53	461.26	541.39	692.59	73.98	85.84	100.94	128.81
AD	Antelope Valley APCD	Summer	2030	399.53	461.50	541.38	692.75	73.98	85.91	100.95	128.90
AD	Antelope Valley APCD	Summer	2031	405.74	468.99	549.84	703.69	73.99	85.98	100.96	128.98

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Antelope Valley APCD	Summer	2032	405.72	469.23	549.82	703.80	73.99	86.05	100.97	129.05
AD	Antelope Valley APCD	Summer	2033	405.71	469.41	549.81	703.92	74.00	86.10	100.98	129.12
AD	Antelope Valley APCD	Summer	2034	405.70	469.58	549.80	704.05	74.00	86.15	100.98	129.18
AD	Antelope Valley APCD	Summer	2035	405.69	469.70	549.79	704.16	74.00	86.20	100.99	129.24
AD	Antelope Valley APCD	Winter	2010	335.14	384.58	458.40	577.92	73.36	84.38	99.72	125.11
AD	Antelope Valley APCD	Winter	2011	337.98	388.27	461.98	583.39	73.38	84.28	99.78	125.35
AD	Antelope Valley APCD	Winter	2012	338.10	388.82	461.84	584.13	73.40	84.27	99.87	125.60
AD	Antelope Valley APCD	Winter	2013	339.47	390.73	463.43	587.03	73.42	84.25	99.97	125.87
AD	Antelope Valley APCD	Winter	2014	339.61	391.17	463.35	587.75	73.46	84.24	100.05	126.14
AD	Antelope Valley APCD	Winter	2015	344.39	396.95	469.65	596.52	73.50	84.26	100.16	126.42
AD	Antelope Valley APCD	Winter	2016	344.53	397.37	469.60	597.15	73.56	84.33	100.25	126.69
AD	Antelope Valley APCD	Winter	2017	344.65	397.72	469.56	597.73	73.60	84.36	100.32	126.95
AD	Antelope Valley APCD	Winter	2018	344.74	398.03	469.53	598.23	73.63	84.42	100.38	127.20
AD	Antelope Valley APCD	Winter	2019	346.52	400.35	471.84	601.64	73.67	84.58	100.46	127.42
AD	Antelope Valley APCD	Winter	2020	346.60	400.67	471.84	602.04	73.75	84.76	100.55	127.62
AD	Antelope Valley APCD	Winter	2021	349.54	404.32	475.76	607.37	73.82	84.94	100.64	127.79
AD	Antelope Valley APCD	Winter	2022	349.57	404.59	475.75	607.63	73.87	85.10	100.71	127.92
AD	Antelope Valley APCD	Winter	2023	349.56	404.80	475.74	607.83	73.90	85.24	100.77	128.08
AD	Antelope Valley APCD	Winter	2024	349.86	405.31	476.10	608.49	73.91	85.37	100.81	128.23
AD	Antelope Valley APCD	Winter	2025	349.87	405.47	476.09	608.67	73.93	85.48	100.86	128.37
AD	Antelope Valley APCD	Winter	2026	349.88	405.64	476.07	608.84	73.95	85.58	100.89	128.50
AD	Antelope Valley APCD	Winter	2027	349.89	405.80	476.06	609.00	73.97	85.67	100.91	128.62
AD	Antelope Valley APCD	Winter	2028	349.89	405.96	476.04	609.15	73.97	85.76	100.93	128.72
AD	Antelope Valley APCD	Winter	2029	349.89	406.12	476.02	609.30	73.98	85.84	100.94	128.81
AD	Antelope Valley APCD	Winter	2030	349.88	406.27	476.01	609.44	73.98	85.91	100.95	128.90
AD	Antelope Valley APCD	Winter	2031	355.33	412.77	483.44	619.10	73.99	85.98	100.96	128.98
AD	Antelope Valley APCD	Winter	2032	355.33	412.92	483.43	619.24	73.99	86.05	100.97	129.05
AD	Antelope Valley APCD	Winter	2033	355.33	413.05	483.42	619.36	74.00	86.10	100.98	129.12
AD	Antelope Valley APCD	Winter	2034	355.32	413.16	483.41	619.46	74.00	86.15	100.98	129.18
AD	Antelope Valley APCD	Winter	2035	355.32	413.26	483.40	619.56	74.00	86.20	100.99	129.24
AD	Bay Area AQMD	Annual	2010	338.39	388.50	461.86	581.62	72.94	84.37	99.40	124.69
AD	Bay Area AQMD	Annual	2011	338.52	388.90	461.72	582.11	72.98	84.25	99.50	124.89
AD	Bay Area AQMD	Annual	2012	338.67	389.32	461.62	582.66	73.02	84.19	99.62	125.11
AD	Bay Area AQMD	Annual	2013	338.86	389.72	461.54	583.26	73.09	84.17	99.74	125.34
AD	Bay Area AQMD	Annual	2014	339.03	390.09	461.49	583.86	73.15	84.17	99.85	125.59
AD	Bay Area AQMD	Annual	2015	339.22	390.46	461.45	584.47	73.23	84.19	99.96	125.85
AD	Bay Area AQMD	Annual	2016	339.41	390.83	461.42	585.05	73.32	84.24	100.07	126.10
AD	Bay Area AQMD	Annual	2017	339.54	391.17	461.39	585.61	73.38	84.29	100.17	126.36
AD	Bay Area AQMD	Annual	2018	339.67	391.45	461.36	586.09	73.44	84.35	100.26	126.61
AD	Bay Area AQMD	Annual	2019	339.78	391.75	461.34	586.50	73.50	84.48	100.35	126.84
AD	Bay Area AQMD	Annual	2020	339.88	392.02	461.33	586.89	73.60	84.63	100.45	127.06
AD	Bay Area AQMD	Annual	2021	339.96	392.27	461.33	587.20	73.68	84.79	100.54	127.24
AD	Bay Area AQMD	Annual	2022	339.99	392.48	461.33	587.46	73.74	84.93	100.62	127.39
AD	Bay Area AQMD	Annual	2023	339.99	392.64	461.32	587.66	73.78	85.06	100.69	127.56
AD	Bay Area AQMD	Annual	2024	339.97	392.77	461.30	587.83	73.80	85.17	100.75	127.71
AD	Bay Area AQMD	Annual	2025	339.96	392.89	461.29	588.00	73.82	85.27	100.80	127.87
AD	Bay Area AQMD	Annual	2026	339.97	393.04	461.27	588.18	73.85	85.38	100.84	128.01
AD	Bay Area AQMD	Annual	2027	339.98	393.18	461.25	588.35	73.86	85.47	100.87	128.15
AD	Bay Area AQMD	Annual	2028	339.97	393.32	461.22	588.52	73.87	85.55	100.89	128.26
AD	Bay Area AQMD	Annual	2029	339.96	393.47	461.20	588.68	73.88	85.63	100.91	128.38
AD	Bay Area AQMD	Annual	2030	339.95	393.63	461.17	588.85	73.89	85.71	100.92	128.49
AD	Bay Area AQMD	Annual	2031	339.94	393.79	461.16	589.02	73.89	85.79	100.93	128.59
AD	Bay Area AQMD	Annual	2032	339.94	393.94	461.14	589.20	73.90	85.86	100.94	128.69
AD	Bay Area AQMD	Annual	2033	339.93	394.08	461.13	589.36	73.90	85.92	100.95	128.79

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Bay Area AQMD	Annual	2034	339.92	394.20	461.11	589.50	73.90	85.98	100.95	128.87
AD	Bay Area AQMD	Annual	2035	339.91	394.31	461.10	589.63	73.91	86.04	100.96	128.96
AD	Bay Area AQMD	Summer	2010	364.35	415.41	496.51	625.57	72.94	84.37	99.40	124.69
AD	Bay Area AQMD	Summer	2011	364.64	416.20	496.43	625.96	72.98	84.25	99.50	124.89
AD	Bay Area AQMD	Summer	2012	364.93	416.94	496.39	626.48	73.02	84.19	99.62	125.11
AD	Bay Area AQMD	Summer	2013	365.22	417.62	496.38	627.12	73.09	84.17	99.74	125.34
AD	Bay Area AQMD	Summer	2014	365.47	418.22	496.42	627.81	73.15	84.17	99.85	125.59
AD	Bay Area AQMD	Summer	2015	365.72	418.79	496.47	628.57	73.23	84.19	99.96	125.85
AD	Bay Area AQMD	Summer	2016	365.95	419.33	496.52	629.31	73.32	84.24	100.07	126.10
AD	Bay Area AQMD	Summer	2017	366.11	419.82	496.57	630.02	73.38	84.29	100.17	126.36
AD	Bay Area AQMD	Summer	2018	366.24	420.25	496.57	630.62	73.44	84.35	100.26	126.61
AD	Bay Area AQMD	Summer	2019	366.36	420.66	496.58	631.14	73.50	84.48	100.35	126.84
AD	Bay Area AQMD	Summer	2020	366.46	421.03	496.57	631.62	73.60	84.63	100.45	127.06
AD	Bay Area AQMD	Summer	2021	366.53	421.37	496.57	632.00	73.68	84.79	100.54	127.24
AD	Bay Area AQMD	Summer	2022	366.57	421.66	496.56	632.33	73.74	84.93	100.62	127.39
AD	Bay Area AQMD	Summer	2023	366.57	421.90	496.54	632.57	73.78	85.06	100.69	127.56
AD	Bay Area AQMD	Summer	2024	366.55	422.10	496.51	632.76	73.80	85.17	100.75	127.71
AD	Bay Area AQMD	Summer	2025	366.54	422.28	496.49	632.95	73.82	85.27	100.80	127.87
AD	Bay Area AQMD	Summer	2026	366.55	422.48	496.46	633.14	73.85	85.38	100.84	128.01
AD	Bay Area AQMD	Summer	2027	366.56	422.68	496.44	633.31	73.86	85.47	100.87	128.15
AD	Bay Area AQMD	Summer	2028	366.57	422.88	496.41	633.48	73.87	85.55	100.89	128.26
AD	Bay Area AQMD	Summer	2029	366.56	423.10	496.39	633.66	73.88	85.63	100.91	128.38
AD	Bay Area AQMD	Summer	2030	366.56	423.32	496.37	633.84	73.89	85.71	100.92	128.49
AD	Bay Area AQMD	Summer	2031	366.56	423.55	496.35	634.03	73.89	85.79	100.93	128.59
AD	Bay Area AQMD	Summer	2032	366.55	423.75	496.34	634.22	73.90	85.86	100.94	128.69
AD	Bay Area AQMD	Summer	2033	366.55	423.93	496.32	634.41	73.90	85.92	100.95	128.79
AD	Bay Area AQMD	Summer	2034	366.54	424.09	496.31	634.58	73.90	85.98	100.95	128.87
AD	Bay Area AQMD	Summer	2035	366.54	424.21	496.30	634.74	73.91	86.04	100.96	128.96
AD	Bay Area AQMD	Winter	2010	335.32	385.28	457.66	576.18	72.94	84.37	99.40	124.69
AD	Bay Area AQMD	Winter	2011	335.43	385.63	457.52	576.68	72.98	84.25	99.50	124.89
AD	Bay Area AQMD	Winter	2012	335.56	386.01	457.41	577.23	73.02	84.19	99.62	125.11
AD	Bay Area AQMD	Winter	2013	335.74	386.37	457.32	577.82	73.09	84.17	99.74	125.34
AD	Bay Area AQMD	Winter	2014	335.90	386.72	457.25	578.40	73.15	84.17	99.85	125.59
AD	Bay Area AQMD	Winter	2015	336.08	387.07	457.20	579.00	73.23	84.19	99.96	125.85
AD	Bay Area AQMD	Winter	2016	336.26	387.41	457.16	579.56	73.32	84.24	100.07	126.10
AD	Bay Area AQMD	Winter	2017	336.39	387.73	457.12	580.10	73.38	84.29	100.17	126.36
AD	Bay Area AQMD	Winter	2018	336.52	388.00	457.08	580.55	73.44	84.35	100.26	126.61
AD	Bay Area AQMD	Winter	2019	336.63	388.27	457.06	580.95	73.50	84.48	100.35	126.84
AD	Bay Area AQMD	Winter	2020	336.73	388.53	457.05	581.32	73.60	84.63	100.45	127.06
AD	Bay Area AQMD	Winter	2021	336.80	388.77	457.05	581.62	73.68	84.79	100.54	127.24
AD	Bay Area AQMD	Winter	2022	336.84	388.97	457.05	581.88	73.74	84.93	100.62	127.39
AD	Bay Area AQMD	Winter	2023	336.84	389.12	457.04	582.08	73.78	85.06	100.69	127.56
AD	Bay Area AQMD	Winter	2024	336.82	389.24	457.02	582.24	73.80	85.17	100.75	127.71
AD	Bay Area AQMD	Winter	2025	336.81	389.35	457.00	582.41	73.82	85.27	100.80	127.87
AD	Bay Area AQMD	Winter	2026	336.82	389.49	456.98	582.60	73.85	85.38	100.84	128.01
AD	Bay Area AQMD	Winter	2027	336.82	389.62	456.96	582.77	73.86	85.47	100.87	128.15
AD	Bay Area AQMD	Winter	2028	336.82	389.76	456.94	582.93	73.87	85.55	100.89	128.26
AD	Bay Area AQMD	Winter	2029	336.80	389.90	456.91	583.10	73.88	85.63	100.91	128.38
AD	Bay Area AQMD	Winter	2030	336.79	390.05	456.89	583.27	73.89	85.71	100.92	128.49
AD	Bay Area AQMD	Winter	2031	336.78	390.20	456.87	583.44	73.89	85.79	100.93	128.59
AD	Bay Area AQMD	Winter	2032	336.77	390.35	456.86	583.61	73.90	85.86	100.94	128.69
AD	Bay Area AQMD	Winter	2033	336.76	390.48	456.84	583.76	73.90	85.92	100.95	128.79
AD	Bay Area AQMD	Winter	2034	336.76	390.60	456.82	583.90	73.90	85.98	100.95	128.87
AD	Bay Area AQMD	Winter	2035	336.74	390.70	456.80	584.02	73.91	86.04	100.96	128.96

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Butte County APCD	Annual	2010	339.87	396.33	466.79	582.59	73.74	93.40	101.05	125.37
AD	Butte County APCD	Annual	2011	340.16	396.11	466.41	583.82	73.64	91.64	100.92	125.50
AD	Butte County APCD	Annual	2012	340.27	395.85	465.90	584.74	73.58	90.38	100.87	125.67
AD	Butte County APCD	Annual	2013	340.39	395.57	465.50	585.71	73.53	89.20	100.81	125.88
AD	Butte County APCD	Annual	2014	340.47	395.32	465.20	586.62	73.46	88.16	100.77	126.08
AD	Butte County APCD	Annual	2015	340.60	395.14	464.96	587.52	73.45	87.30	100.75	126.32
AD	Butte County APCD	Annual	2016	342.35	396.92	466.99	591.13	73.49	86.64	100.74	126.57
AD	Butte County APCD	Annual	2017	342.42	396.78	466.81	591.87	73.48	85.98	100.71	126.82
AD	Butte County APCD	Annual	2018	342.44	396.68	466.66	592.50	73.44	85.49	100.70	127.05
AD	Butte County APCD	Annual	2019	342.48	396.71	466.54	593.04	73.45	85.31	100.70	127.27
AD	Butte County APCD	Annual	2020	342.53	396.78	466.44	593.51	73.54	85.30	100.76	127.47
AD	Butte County APCD	Annual	2021	343.10	397.55	467.11	594.81	73.60	85.41	100.82	127.57
AD	Butte County APCD	Annual	2022	343.10	397.67	467.03	595.07	73.64	85.50	100.87	127.65
AD	Butte County APCD	Annual	2023	343.08	397.75	466.95	595.27	73.67	85.58	100.90	127.82
AD	Butte County APCD	Annual	2024	343.02	397.84	466.88	595.42	73.68	85.66	100.93	127.97
AD	Butte County APCD	Annual	2025	343.01	397.92	466.82	595.60	73.70	85.73	100.96	128.12
AD	Butte County APCD	Annual	2026	343.02	398.03	466.75	595.77	73.72	85.80	100.97	128.26
AD	Butte County APCD	Annual	2027	343.02	398.12	466.69	595.94	73.73	85.86	100.98	128.39
AD	Butte County APCD	Annual	2028	343.02	398.22	466.63	596.11	73.74	85.92	100.99	128.51
AD	Butte County APCD	Annual	2029	343.02	398.31	466.55	596.28	73.74	85.97	100.99	128.62
AD	Butte County APCD	Annual	2030	343.01	398.40	466.48	596.45	73.75	86.02	100.98	128.72
AD	Butte County APCD	Annual	2031	343.01	398.49	466.45	596.62	73.75	86.07	100.98	128.82
AD	Butte County APCD	Annual	2032	343.01	398.57	466.42	596.79	73.76	86.12	100.99	128.91
AD	Butte County APCD	Annual	2033	343.00	398.64	466.40	596.95	73.76	86.15	100.99	128.99
AD	Butte County APCD	Annual	2034	343.00	398.69	466.38	597.09	73.76	86.19	100.99	129.06
AD	Butte County APCD	Annual	2035	342.99	398.74	466.36	597.22	73.77	86.22	100.99	129.13
AD	Butte County APCD	Summer	2010	378.25	435.25	516.75	645.70	73.74	93.40	101.05	125.37
AD	Butte County APCD	Summer	2011	379.01	436.21	517.19	647.27	73.64	91.64	100.92	125.50
AD	Butte County APCD	Summer	2012	379.48	436.79	517.26	648.57	73.58	90.38	100.87	125.67
AD	Butte County APCD	Summer	2013	379.86	437.26	517.34	649.98	73.53	89.20	100.81	125.88
AD	Butte County APCD	Summer	2014	380.14	437.60	517.39	651.33	73.46	88.16	100.77	126.08
AD	Butte County APCD	Summer	2015	380.40	437.90	517.40	652.65	73.45	87.30	100.75	126.32
AD	Butte County APCD	Summer	2016	382.44	440.27	519.84	656.95	73.49	86.64	100.74	126.57
AD	Butte County APCD	Summer	2017	382.54	440.50	519.76	658.01	73.48	85.98	100.71	126.82
AD	Butte County APCD	Summer	2018	382.56	440.67	519.63	658.88	73.44	85.49	100.70	127.05
AD	Butte County APCD	Summer	2019	382.59	440.87	519.51	659.62	73.45	85.31	100.70	127.27
AD	Butte County APCD	Summer	2020	382.63	441.06	519.39	660.26	73.54	85.30	100.76	127.47
AD	Butte County APCD	Summer	2021	383.24	442.01	520.14	661.82	73.60	85.41	100.82	127.57
AD	Butte County APCD	Summer	2022	383.23	442.21	520.05	662.21	73.64	85.50	100.87	127.65
AD	Butte County APCD	Summer	2023	383.21	442.39	519.98	662.50	73.67	85.58	100.90	127.82
AD	Butte County APCD	Summer	2024	383.15	442.57	519.92	662.70	73.68	85.66	100.93	127.97
AD	Butte County APCD	Summer	2025	383.13	442.73	519.88	662.89	73.70	85.73	100.96	128.12
AD	Butte County APCD	Summer	2026	383.15	442.89	519.81	663.05	73.72	85.80	100.97	128.26
AD	Butte County APCD	Summer	2027	383.17	443.04	519.76	663.21	73.73	85.86	100.98	128.39
AD	Butte County APCD	Summer	2028	383.19	443.19	519.72	663.40	73.74	85.92	100.99	128.51
AD	Butte County APCD	Summer	2029	383.21	443.35	519.67	663.59	73.74	85.97	100.99	128.62
AD	Butte County APCD	Summer	2030	383.22	443.50	519.63	663.79	73.75	86.02	100.98	128.72
AD	Butte County APCD	Summer	2031	383.22	443.64	519.62	663.97	73.75	86.07	100.98	128.82
AD	Butte County APCD	Summer	2032	383.22	443.74	519.61	664.16	73.76	86.12	100.99	128.91
AD	Butte County APCD	Summer	2033	383.22	443.83	519.60	664.35	73.76	86.15	100.99	128.99
AD	Butte County APCD	Summer	2034	383.22	443.91	519.59	664.54	73.76	86.19	100.99	129.06
AD	Butte County APCD	Summer	2035	383.21	443.96	519.58	664.71	73.77	86.22	100.99	129.13
AD	Butte County APCD	Winter	2010	328.68	384.98	452.21	564.18	73.74	93.40	101.05	125.37
AD	Butte County APCD	Winter	2011	328.82	384.41	451.61	565.32	73.64	91.64	100.92	125.50

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Butte County APCD	Winter	2012	328.84	383.90	450.92	566.13	73.58	90.38	100.87	125.67
AD	Butte County APCD	Winter	2013	328.87	383.41	450.39	566.96	73.53	89.20	100.81	125.88
AD	Butte County APCD	Winter	2014	328.90	382.99	449.98	567.75	73.46	88.16	100.77	126.08
AD	Butte County APCD	Winter	2015	328.99	382.67	449.66	568.52	73.45	87.30	100.75	126.32
AD	Butte County APCD	Winter	2016	330.67	384.27	451.57	571.94	73.49	86.64	100.74	126.57
AD	Butte County APCD	Winter	2017	330.72	384.03	451.37	572.58	73.48	85.98	100.71	126.82
AD	Butte County APCD	Winter	2018	330.74	383.86	451.21	573.14	73.44	85.49	100.70	127.05
AD	Butte County APCD	Winter	2019	330.78	383.84	451.09	573.62	73.45	85.31	100.70	127.27
AD	Butte County APCD	Winter	2020	330.84	383.86	450.99	574.04	73.54	85.30	100.76	127.47
AD	Butte County APCD	Winter	2021	331.40	384.59	451.65	575.26	73.60	85.41	100.82	127.57
AD	Butte County APCD	Winter	2022	331.39	384.68	451.56	575.49	73.64	85.50	100.87	127.65
AD	Butte County APCD	Winter	2023	331.38	384.73	451.48	575.67	73.67	85.58	100.90	127.82
AD	Butte County APCD	Winter	2024	331.32	384.80	451.41	575.80	73.68	85.66	100.93	127.97
AD	Butte County APCD	Winter	2025	331.30	384.86	451.35	575.97	73.70	85.73	100.96	128.12
AD	Butte County APCD	Winter	2026	331.31	384.94	451.28	576.14	73.72	85.80	100.97	128.26
AD	Butte County APCD	Winter	2027	331.31	385.02	451.21	576.32	73.73	85.86	100.98	128.39
AD	Butte County APCD	Winter	2028	331.31	385.10	451.14	576.48	73.74	85.92	100.99	128.51
AD	Butte County APCD	Winter	2029	331.30	385.18	451.06	576.65	73.74	85.97	100.99	128.62
AD	Butte County APCD	Winter	2030	331.28	385.25	450.98	576.81	73.75	86.02	100.98	128.72
AD	Butte County APCD	Winter	2031	331.28	385.33	450.94	576.98	73.75	86.07	100.98	128.82
AD	Butte County APCD	Winter	2032	331.28	385.40	450.91	577.14	73.76	86.12	100.99	128.91
AD	Butte County APCD	Winter	2033	331.27	385.45	450.88	577.29	73.76	86.15	100.99	128.99
AD	Butte County APCD	Winter	2034	331.27	385.51	450.86	577.42	73.76	86.19	100.99	129.06
AD	Butte County APCD	Winter	2035	331.26	385.55	450.84	577.54	73.77	86.22	100.99	129.13
AD	Calaveras County APCD	Annual	2010	339.15	393.21	464.59	580.79	74.52	89.63	101.49	124.52
AD	Calaveras County APCD	Annual	2011	339.17	393.31	464.13	581.44	74.31	88.76	101.30	124.68
AD	Calaveras County APCD	Annual	2012	339.22	393.39	463.78	582.21	74.10	88.01	101.21	124.87
AD	Calaveras County APCD	Annual	2013	339.30	393.43	463.49	583.06	73.93	87.36	101.13	125.10
AD	Calaveras County APCD	Annual	2014	339.36	393.46	463.27	583.88	73.74	86.82	101.00	125.34
AD	Calaveras County APCD	Annual	2015	339.48	393.52	463.10	584.75	73.70	86.38	100.93	125.59
AD	Calaveras County APCD	Annual	2016	339.59	393.59	462.96	585.57	73.69	86.07	100.88	125.88
AD	Calaveras County APCD	Annual	2017	339.64	393.63	462.83	586.35	73.61	85.70	100.81	126.15
AD	Calaveras County APCD	Annual	2018	339.66	393.65	462.73	587.01	73.51	85.38	100.75	126.42
AD	Calaveras County APCD	Annual	2019	339.69	393.73	462.65	587.57	73.48	85.28	100.71	126.69
AD	Calaveras County APCD	Annual	2020	339.72	393.81	462.58	588.07	73.55	85.28	100.76	126.92
AD	Calaveras County APCD	Annual	2021	339.70	393.86	462.51	588.43	73.59	85.33	100.81	127.08
AD	Calaveras County APCD	Annual	2022	339.67	393.90	462.43	588.75	73.61	85.38	100.85	127.26
AD	Calaveras County APCD	Annual	2023	339.61	393.93	462.36	588.97	73.61	85.43	100.87	127.44
AD	Calaveras County APCD	Annual	2024	339.52	393.92	462.29	589.14	73.58	85.45	100.89	127.61
AD	Calaveras County APCD	Annual	2025	339.50	393.98	462.24	589.30	73.59	85.52	100.92	127.77
AD	Calaveras County APCD	Annual	2026	339.51	394.11	462.19	589.48	73.61	85.62	100.94	127.93
AD	Calaveras County APCD	Annual	2027	339.51	394.23	462.13	589.67	73.62	85.70	100.96	128.08
AD	Calaveras County APCD	Annual	2028	339.51	394.36	462.10	589.86	73.63	85.78	100.97	128.21
AD	Calaveras County APCD	Annual	2029	339.50	394.48	462.05	590.05	73.64	85.86	100.97	128.34
AD	Calaveras County APCD	Annual	2030	339.49	394.60	462.00	590.25	73.64	85.93	100.97	128.46
AD	Calaveras County APCD	Annual	2031	339.49	394.71	461.98	590.48	73.65	86.00	100.98	128.58
AD	Calaveras County APCD	Annual	2032	339.49	394.82	461.96	590.71	73.65	86.06	100.98	128.70
AD	Calaveras County APCD	Annual	2033	339.49	394.90	461.94	590.91	73.65	86.12	100.98	128.81
AD	Calaveras County APCD	Annual	2034	339.48	394.98	461.92	591.10	73.66	86.17	100.99	128.90
AD	Calaveras County APCD	Annual	2035	339.48	395.05	461.91	591.26	73.66	86.21	100.99	128.99
AD	Calaveras County APCD	Summer	2010	371.79	425.53	507.37	633.67	74.52	89.63	101.49	124.52
AD	Calaveras County APCD	Summer	2011	372.10	426.67	507.24	634.43	74.31	88.76	101.30	124.68
AD	Calaveras County APCD	Summer	2012	372.38	427.56	507.15	635.42	74.10	88.01	101.21	124.87
AD	Calaveras County APCD	Summer	2013	372.63	428.25	507.10	636.56	73.93	87.36	101.13	125.10

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Calaveras County APCD	Summer	2014	372.82	428.79	507.12	637.70	73.74	86.82	101.00	125.34
AD	Calaveras County APCD	Summer	2015	373.03	429.26	507.15	638.94	73.70	86.38	100.93	125.59
AD	Calaveras County APCD	Summer	2016	373.20	429.64	507.18	640.12	73.69	86.07	100.88	125.88
AD	Calaveras County APCD	Summer	2017	373.29	429.96	507.18	641.21	73.61	85.70	100.81	126.15
AD	Calaveras County APCD	Summer	2018	373.31	430.20	507.15	642.13	73.51	85.38	100.75	126.42
AD	Calaveras County APCD	Summer	2019	373.34	430.44	507.12	642.91	73.48	85.28	100.71	126.69
AD	Calaveras County APCD	Summer	2020	373.36	430.67	507.07	643.60	73.55	85.28	100.76	126.92
AD	Calaveras County APCD	Summer	2021	373.33	430.84	507.00	644.13	73.59	85.33	100.81	127.08
AD	Calaveras County APCD	Summer	2022	373.30	431.01	506.94	644.57	73.61	85.38	100.85	127.26
AD	Calaveras County APCD	Summer	2023	373.24	431.15	506.88	644.89	73.61	85.43	100.87	127.44
AD	Calaveras County APCD	Summer	2024	373.18	431.27	506.81	645.12	73.58	85.45	100.89	127.61
AD	Calaveras County APCD	Summer	2025	373.16	431.40	506.76	645.32	73.59	85.52	100.92	127.77
AD	Calaveras County APCD	Summer	2026	373.18	431.61	506.71	645.52	73.61	85.62	100.94	127.93
AD	Calaveras County APCD	Summer	2027	373.19	431.81	506.66	645.72	73.62	85.70	100.96	128.08
AD	Calaveras County APCD	Summer	2028	373.20	432.01	506.63	645.94	73.63	85.78	100.97	128.21
AD	Calaveras County APCD	Summer	2029	373.21	432.20	506.60	646.17	73.64	85.86	100.97	128.34
AD	Calaveras County APCD	Summer	2030	373.22	432.39	506.57	646.41	73.64	85.93	100.97	128.46
AD	Calaveras County APCD	Summer	2031	373.22	432.56	506.56	646.71	73.65	86.00	100.98	128.58
AD	Calaveras County APCD	Summer	2032	373.21	432.71	506.56	646.99	73.65	86.06	100.98	128.70
AD	Calaveras County APCD	Summer	2033	373.21	432.83	506.55	647.26	73.65	86.12	100.98	128.81
AD	Calaveras County APCD	Summer	2034	373.20	432.93	506.54	647.51	73.66	86.17	100.99	128.90
AD	Calaveras County APCD	Summer	2035	373.19	433.00	506.53	647.73	73.66	86.21	100.99	128.99
AD	Calaveras County APCD	Winter	2010	329.78	383.93	452.30	565.59	74.52	89.63	101.49	124.52
AD	Calaveras County APCD	Winter	2011	329.72	383.73	451.75	566.21	74.31	88.76	101.30	124.68
AD	Calaveras County APCD	Winter	2012	329.69	383.57	451.31	566.92	74.10	88.01	101.21	124.87
AD	Calaveras County APCD	Winter	2013	329.72	383.42	450.96	567.68	73.93	87.36	101.13	125.10
AD	Calaveras County APCD	Winter	2014	329.75	383.31	450.67	568.42	73.74	86.82	101.00	125.34
AD	Calaveras County APCD	Winter	2015	329.84	383.25	450.44	569.19	73.70	86.38	100.93	125.59
AD	Calaveras County APCD	Winter	2016	329.93	383.24	450.25	569.90	73.69	86.07	100.88	125.88
AD	Calaveras County APCD	Winter	2017	329.98	383.20	450.09	570.59	73.61	85.70	100.81	126.15
AD	Calaveras County APCD	Winter	2018	329.99	383.15	449.97	571.17	73.51	85.38	100.75	126.42
AD	Calaveras County APCD	Winter	2019	330.02	383.18	449.87	571.67	73.48	85.28	100.71	126.69
AD	Calaveras County APCD	Winter	2020	330.05	383.22	449.80	572.12	73.55	85.28	100.76	126.92
AD	Calaveras County APCD	Winter	2021	330.04	383.24	449.72	572.43	73.59	85.33	100.81	127.08
AD	Calaveras County APCD	Winter	2022	330.01	383.24	449.64	572.72	73.61	85.38	100.85	127.26
AD	Calaveras County APCD	Winter	2023	329.94	383.24	449.56	572.90	73.61	85.43	100.87	127.44
AD	Calaveras County APCD	Winter	2024	329.85	383.19	449.49	573.05	73.58	85.45	100.89	127.61
AD	Calaveras County APCD	Winter	2025	329.83	383.23	449.45	573.20	73.59	85.52	100.92	127.77
AD	Calaveras County APCD	Winter	2026	329.84	383.34	449.40	573.38	73.61	85.62	100.94	127.93
AD	Calaveras County APCD	Winter	2027	329.84	383.44	449.34	573.56	73.62	85.70	100.96	128.08
AD	Calaveras County APCD	Winter	2028	329.83	383.54	449.30	573.75	73.63	85.78	100.97	128.21
AD	Calaveras County APCD	Winter	2029	329.82	383.64	449.25	573.93	73.64	85.86	100.97	128.34
AD	Calaveras County APCD	Winter	2030	329.81	383.74	449.19	574.11	73.64	85.93	100.97	128.46
AD	Calaveras County APCD	Winter	2031	329.80	383.84	449.17	574.32	73.65	86.00	100.98	128.58
AD	Calaveras County APCD	Winter	2032	329.80	383.93	449.14	574.54	73.65	86.06	100.98	128.70
AD	Calaveras County APCD	Winter	2033	329.80	384.01	449.12	574.73	73.65	86.12	100.98	128.81
AD	Calaveras County APCD	Winter	2034	329.80	384.08	449.11	574.89	73.66	86.17	100.99	128.90
AD	Calaveras County APCD	Winter	2035	329.79	384.14	449.09	575.04	73.66	86.21	100.99	128.99
AD	Colusa County APCD	Annual	2010	336.15	393.71	462.59	577.05	73.02	94.44	100.85	124.61
AD	Colusa County APCD	Annual	2011	336.30	393.20	461.94	577.64	73.01	92.76	100.79	124.78
AD	Colusa County APCD	Annual	2012	336.46	392.86	461.43	578.32	73.01	91.49	100.76	124.99
AD	Colusa County APCD	Annual	2013	336.61	392.53	461.04	579.07	73.01	90.33	100.78	125.24
AD	Colusa County APCD	Annual	2014	336.76	392.14	460.74	579.85	73.01	89.10	100.78	125.48
AD	Colusa County APCD	Annual	2015	336.94	391.90	460.48	580.66	73.07	88.20	100.70	125.75

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Colusa County APCD	Annual	2016	337.08	391.55	460.28	581.44	73.11	87.13	100.69	126.03
AD	Colusa County APCD	Annual	2017	337.18	391.40	460.11	582.19	73.11	86.50	100.69	126.31
AD	Colusa County APCD	Annual	2018	337.27	391.20	459.97	582.84	73.14	85.83	100.67	126.58
AD	Colusa County APCD	Annual	2019	337.32	391.11	459.85	583.42	73.14	85.43	100.69	126.82
AD	Colusa County APCD	Annual	2020	337.37	391.06	459.75	583.92	73.23	85.29	100.77	127.05
AD	Colusa County APCD	Annual	2021	337.43	391.13	459.66	584.31	73.30	85.37	100.83	127.21
AD	Colusa County APCD	Annual	2022	337.40	391.19	459.57	584.63	73.33	85.43	100.88	127.34
AD	Colusa County APCD	Annual	2023	337.39	391.29	459.49	584.89	73.36	85.52	100.91	127.52
AD	Colusa County APCD	Annual	2024	337.37	391.34	459.41	585.10	73.37	85.59	100.94	127.69
AD	Colusa County APCD	Annual	2025	337.36	391.40	459.36	585.31	73.39	85.65	100.97	127.86
AD	Colusa County APCD	Annual	2026	337.37	391.51	459.27	585.53	73.41	85.73	100.99	128.02
AD	Colusa County APCD	Annual	2027	337.38	391.61	459.21	585.75	73.42	85.79	101.00	128.16
AD	Colusa County APCD	Annual	2028	337.39	391.73	459.15	585.97	73.43	85.86	101.01	128.30
AD	Colusa County APCD	Annual	2029	337.40	391.84	459.07	586.18	73.44	85.92	101.01	128.42
AD	Colusa County APCD	Annual	2030	337.38	391.95	458.99	586.40	73.44	85.97	101.00	128.54
AD	Colusa County APCD	Annual	2031	337.38	392.05	458.95	586.61	73.45	86.03	101.00	128.66
AD	Colusa County APCD	Annual	2032	337.38	392.15	458.92	586.83	73.45	86.08	101.00	128.77
AD	Colusa County APCD	Annual	2033	337.38	392.24	458.89	587.03	73.46	86.13	101.01	128.87
AD	Colusa County APCD	Annual	2034	337.37	392.31	458.85	587.21	73.46	86.17	101.01	128.96
AD	Colusa County APCD	Annual	2035	337.36	392.37	458.83	587.37	73.47	86.21	101.01	129.05
AD	Colusa County APCD	Summer	2010	369.11	427.03	505.43	632.25	73.02	94.44	100.85	124.61
AD	Colusa County APCD	Summer	2011	369.53	427.36	505.34	632.77	73.01	92.76	100.79	124.78
AD	Colusa County APCD	Summer	2012	369.90	427.67	505.27	633.46	73.01	91.49	100.76	124.99
AD	Colusa County APCD	Summer	2013	370.21	427.88	505.20	634.32	73.01	90.33	100.78	125.24
AD	Colusa County APCD	Summer	2014	370.47	427.99	505.17	635.26	73.01	89.10	100.78	125.48
AD	Colusa County APCD	Summer	2015	370.74	428.12	505.15	636.30	73.07	88.20	100.70	125.75
AD	Colusa County APCD	Summer	2016	370.94	428.19	505.10	637.33	73.11	87.13	100.69	126.03
AD	Colusa County APCD	Summer	2017	371.07	428.29	505.00	638.32	73.11	86.50	100.69	126.31
AD	Colusa County APCD	Summer	2018	371.17	428.34	504.89	639.18	73.14	85.83	100.67	126.58
AD	Colusa County APCD	Summer	2019	371.22	428.46	504.77	639.93	73.14	85.43	100.69	126.82
AD	Colusa County APCD	Summer	2020	371.26	428.58	504.65	640.57	73.23	85.29	100.77	127.05
AD	Colusa County APCD	Summer	2021	371.31	428.73	504.55	641.07	73.30	85.37	100.83	127.21
AD	Colusa County APCD	Summer	2022	371.28	428.87	504.46	641.49	73.33	85.43	100.88	127.34
AD	Colusa County APCD	Summer	2023	371.27	429.02	504.39	641.81	73.36	85.52	100.91	127.52
AD	Colusa County APCD	Summer	2024	371.27	429.15	504.32	642.06	73.37	85.59	100.94	127.69
AD	Colusa County APCD	Summer	2025	371.27	429.27	504.27	642.28	73.39	85.65	100.97	127.86
AD	Colusa County APCD	Summer	2026	371.29	429.45	504.21	642.53	73.41	85.73	100.99	128.02
AD	Colusa County APCD	Summer	2027	371.32	429.59	504.17	642.78	73.42	85.79	101.00	128.16
AD	Colusa County APCD	Summer	2028	371.34	429.79	504.14	643.02	73.43	85.86	101.01	128.30
AD	Colusa County APCD	Summer	2029	371.35	429.96	504.09	643.27	73.44	85.92	101.01	128.42
AD	Colusa County APCD	Summer	2030	371.36	430.13	504.04	643.51	73.44	85.97	101.00	128.54
AD	Colusa County APCD	Summer	2031	371.36	430.29	504.05	643.74	73.45	86.03	101.00	128.66
AD	Colusa County APCD	Summer	2032	371.36	430.43	504.04	643.98	73.45	86.08	101.00	128.77
AD	Colusa County APCD	Summer	2033	371.36	430.55	504.04	644.21	73.46	86.13	101.01	128.87
AD	Colusa County APCD	Summer	2034	371.36	430.64	504.02	644.42	73.46	86.17	101.01	128.96
AD	Colusa County APCD	Summer	2035	371.35	430.71	504.00	644.62	73.47	86.21	101.01	129.05
AD	Colusa County APCD	Winter	2010	325.06	382.50	448.17	558.47	73.02	94.44	100.85	124.61
AD	Colusa County APCD	Winter	2011	325.11	381.70	447.33	559.09	73.01	92.76	100.79	124.78
AD	Colusa County APCD	Winter	2012	325.20	381.15	446.68	559.76	73.01	91.49	100.76	124.99
AD	Colusa County APCD	Winter	2013	325.30	380.64	446.18	560.48	73.01	90.33	100.78	125.24
AD	Colusa County APCD	Winter	2014	325.41	380.08	445.78	561.20	73.01	89.10	100.78	125.48
AD	Colusa County APCD	Winter	2015	325.57	379.70	445.45	561.93	73.07	88.20	100.70	125.75
AD	Colusa County APCD	Winter	2016	325.69	379.22	445.20	562.63	73.11	87.13	100.69	126.03
AD	Colusa County APCD	Winter	2017	325.77	378.98	445.00	563.29	73.11	86.50	100.69	126.31

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Colusa County APCD	Winter	2018	325.86	378.69	444.85	563.88	73.14	85.83	100.67	126.58
AD	Colusa County APCD	Winter	2019	325.91	378.54	444.73	564.40	73.14	85.43	100.69	126.82
AD	Colusa County APCD	Winter	2020	325.96	378.43	444.64	564.86	73.23	85.29	100.77	127.05
AD	Colusa County APCD	Winter	2021	326.03	378.48	444.56	565.20	73.30	85.37	100.83	127.21
AD	Colusa County APCD	Winter	2022	326.00	378.50	444.46	565.49	73.33	85.43	100.88	127.34
AD	Colusa County APCD	Winter	2023	325.99	378.59	444.38	565.73	73.36	85.52	100.91	127.52
AD	Colusa County APCD	Winter	2024	325.96	378.62	444.30	565.93	73.37	85.59	100.94	127.69
AD	Colusa County APCD	Winter	2025	325.94	378.65	444.24	566.14	73.39	85.65	100.97	127.86
AD	Colusa County APCD	Winter	2026	325.95	378.74	444.15	566.35	73.41	85.73	100.99	128.02
AD	Colusa County APCD	Winter	2027	325.96	378.83	444.08	566.56	73.42	85.79	101.00	128.16
AD	Colusa County APCD	Winter	2028	325.96	378.92	444.01	566.77	73.43	85.86	101.01	128.30
AD	Colusa County APCD	Winter	2029	325.97	379.01	443.92	566.97	73.44	85.92	101.01	128.42
AD	Colusa County APCD	Winter	2030	325.95	379.10	443.83	567.18	73.44	85.97	101.00	128.54
AD	Colusa County APCD	Winter	2031	325.95	379.18	443.78	567.38	73.45	86.03	101.00	128.66
AD	Colusa County APCD	Winter	2032	325.95	379.27	443.73	567.59	73.45	86.08	101.00	128.77
AD	Colusa County APCD	Winter	2033	325.94	379.34	443.70	567.78	73.46	86.13	101.01	128.87
AD	Colusa County APCD	Winter	2034	325.93	379.41	443.65	567.95	73.46	86.17	101.01	128.96
AD	Colusa County APCD	Winter	2035	325.92	379.46	443.62	568.10	73.47	86.21	101.01	129.05
AD	El Dorado County APCD	Annual	2010	344.06	399.91	474.51	595.67	73.80	87.93	100.07	125.05
AD	El Dorado County APCD	Annual	2011	344.37	400.11	474.18	596.23	73.69	87.21	100.08	125.19
AD	El Dorado County APCD	Annual	2012	344.66	400.37	473.92	596.88	73.60	86.69	100.14	125.37
AD	El Dorado County APCD	Annual	2013	344.92	400.60	473.73	597.60	73.52	86.25	100.18	125.58
AD	El Dorado County APCD	Annual	2014	345.14	400.81	473.57	598.32	73.42	85.86	100.22	125.79
AD	El Dorado County APCD	Annual	2015	345.36	401.02	473.47	599.08	73.39	85.52	100.26	126.03
AD	El Dorado County APCD	Annual	2016	345.56	401.22	473.39	599.80	73.42	85.23	100.32	126.28
AD	El Dorado County APCD	Annual	2017	345.72	401.40	473.32	600.49	73.43	84.98	100.35	126.52
AD	El Dorado County APCD	Annual	2018	345.84	401.56	473.26	601.09	73.41	84.79	100.39	126.76
AD	El Dorado County APCD	Annual	2019	342.63	398.23	469.09	596.26	73.42	84.81	100.46	126.97
AD	El Dorado County APCD	Annual	2020	342.72	398.46	469.09	596.75	73.51	84.90	100.55	127.17
AD	El Dorado County APCD	Annual	2021	342.78	398.68	469.12	597.13	73.59	85.03	100.63	127.30
AD	El Dorado County APCD	Annual	2022	342.81	398.88	469.15	597.45	73.64	85.16	100.70	127.41
AD	El Dorado County APCD	Annual	2023	342.82	399.03	469.17	597.71	73.67	85.26	100.75	127.57
AD	El Dorado County APCD	Annual	2024	342.83	399.18	469.16	597.94	73.69	85.36	100.80	127.71
AD	El Dorado County APCD	Annual	2025	342.83	399.32	469.18	598.18	73.71	85.45	100.84	127.86
AD	El Dorado County APCD	Annual	2026	342.86	399.50	469.17	598.40	73.73	85.55	100.88	128.01
AD	El Dorado County APCD	Annual	2027	342.87	399.67	469.18	598.61	73.74	85.63	100.90	128.14
AD	El Dorado County APCD	Annual	2028	342.89	399.84	469.18	598.84	73.76	85.71	100.92	128.26
AD	El Dorado County APCD	Annual	2029	342.90	400.02	469.17	599.06	73.76	85.79	100.93	128.37
AD	El Dorado County APCD	Annual	2030	342.92	400.19	469.17	599.30	73.77	85.86	100.94	128.48
AD	El Dorado County APCD	Annual	2031	342.94	400.37	469.18	599.52	73.77	85.94	100.95	128.59
AD	El Dorado County APCD	Annual	2032	342.96	400.53	469.19	599.74	73.78	86.00	100.95	128.70
AD	El Dorado County APCD	Annual	2033	342.97	400.67	469.20	599.95	73.78	86.06	100.96	128.79
AD	El Dorado County APCD	Annual	2034	342.98	400.81	469.22	600.14	73.78	86.12	100.97	128.88
AD	El Dorado County APCD	Annual	2035	342.99	400.92	469.23	600.31	73.79	86.17	100.97	128.97
AD	El Dorado County APCD	Summer	2010	374.54	427.96	510.75	641.98	73.80	87.93	100.07	125.05
AD	El Dorado County APCD	Summer	2011	374.93	428.86	510.63	642.58	73.69	87.21	100.08	125.19
AD	El Dorado County APCD	Summer	2012	375.31	429.65	510.55	643.32	73.60	86.69	100.14	125.37
AD	El Dorado County APCD	Summer	2013	375.65	430.31	510.52	644.16	73.52	86.25	100.18	125.58
AD	El Dorado County APCD	Summer	2014	375.94	430.86	510.54	645.06	73.42	85.86	100.22	125.79
AD	El Dorado County APCD	Summer	2015	376.22	431.35	510.57	646.01	73.39	85.52	100.26	126.03
AD	El Dorado County APCD	Summer	2016	376.46	431.78	510.61	646.90	73.42	85.23	100.32	126.28
AD	El Dorado County APCD	Summer	2017	376.65	432.17	510.63	647.77	73.43	84.98	100.35	126.52
AD	El Dorado County APCD	Summer	2018	376.77	432.48	510.62	648.50	73.41	84.79	100.39	126.76
AD	El Dorado County APCD	Summer	2019	373.21	428.93	506.01	643.20	73.42	84.81	100.46	126.97

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	El Dorado County APCD	Summer	2020	373.27	429.23	505.95	643.70	73.51	84.90	100.55	127.17
AD	El Dorado County APCD	Summer	2021	373.33	429.49	505.85	644.00	73.59	85.03	100.63	127.30
AD	El Dorado County APCD	Summer	2022	373.37	429.73	505.76	644.26	73.64	85.16	100.70	127.41
AD	El Dorado County APCD	Summer	2023	373.40	429.92	505.67	644.45	73.67	85.26	100.75	127.57
AD	El Dorado County APCD	Summer	2024	373.39	430.06	505.63	644.57	73.69	85.36	100.80	127.71
AD	El Dorado County APCD	Summer	2025	373.41	430.22	505.59	644.69	73.71	85.45	100.84	127.86
AD	El Dorado County APCD	Summer	2026	373.41	430.40	505.56	644.85	73.73	85.55	100.88	128.01
AD	El Dorado County APCD	Summer	2027	373.41	430.57	505.53	645.01	73.74	85.63	100.90	128.14
AD	El Dorado County APCD	Summer	2028	373.41	430.76	505.51	645.18	73.76	85.71	100.92	128.26
AD	El Dorado County APCD	Summer	2029	373.41	430.95	505.48	645.36	73.76	85.79	100.93	128.37
AD	El Dorado County APCD	Summer	2030	373.42	431.14	505.45	645.55	73.77	85.86	100.94	128.48
AD	El Dorado County APCD	Summer	2031	373.41	431.34	505.42	645.79	73.77	85.94	100.95	128.59
AD	El Dorado County APCD	Summer	2032	373.40	431.50	505.39	646.04	73.78	86.00	100.95	128.70
AD	El Dorado County APCD	Summer	2033	373.40	431.64	505.36	646.26	73.78	86.06	100.96	128.79
AD	El Dorado County APCD	Summer	2034	373.40	431.76	505.33	646.48	73.78	86.12	100.97	128.88
AD	El Dorado County APCD	Summer	2035	373.39	431.86	505.30	646.67	73.79	86.17	100.97	128.97
AD	El Dorado County APCD	Winter	2010	336.47	392.87	465.40	584.06	73.80	87.93	100.07	125.05
AD	El Dorado County APCD	Winter	2011	336.76	392.90	465.02	584.60	73.69	87.21	100.08	125.19
AD	El Dorado County APCD	Winter	2012	337.03	393.02	464.72	585.24	73.60	86.69	100.14	125.37
AD	El Dorado County APCD	Winter	2013	337.27	393.15	464.49	585.93	73.52	86.25	100.18	125.58
AD	El Dorado County APCD	Winter	2014	337.47	393.27	464.28	586.60	73.42	85.86	100.22	125.79
AD	El Dorado County APCD	Winter	2015	337.68	393.40	464.14	587.31	73.39	85.52	100.26	126.03
AD	El Dorado County APCD	Winter	2016	337.87	393.55	464.04	587.99	73.42	85.23	100.32	126.28
AD	El Dorado County APCD	Winter	2017	338.02	393.68	463.94	588.63	73.43	84.98	100.35	126.52
AD	El Dorado County APCD	Winter	2018	338.13	393.80	463.87	589.19	73.41	84.79	100.39	126.76
AD	El Dorado County APCD	Winter	2019	335.01	390.52	459.80	584.48	73.42	84.81	100.46	126.97
AD	El Dorado County APCD	Winter	2020	335.11	390.72	459.82	584.96	73.51	84.90	100.55	127.17
AD	El Dorado County APCD	Winter	2021	335.16	390.94	459.88	585.35	73.59	85.03	100.63	127.30
AD	El Dorado County APCD	Winter	2022	335.19	391.13	459.93	585.69	73.64	85.16	100.70	127.41
AD	El Dorado County APCD	Winter	2023	335.21	391.27	459.97	585.96	73.67	85.26	100.75	127.57
AD	El Dorado County APCD	Winter	2024	335.21	391.42	459.98	586.21	73.69	85.36	100.80	127.71
AD	El Dorado County APCD	Winter	2025	335.22	391.55	460.00	586.49	73.71	85.45	100.84	127.86
AD	El Dorado County APCD	Winter	2026	335.25	391.72	460.01	586.71	73.73	85.55	100.88	128.01
AD	El Dorado County APCD	Winter	2027	335.27	391.89	460.02	586.94	73.74	85.63	100.90	128.14
AD	El Dorado County APCD	Winter	2028	335.28	392.06	460.03	587.17	73.76	85.71	100.92	128.26
AD	El Dorado County APCD	Winter	2029	335.30	392.23	460.02	587.41	73.76	85.79	100.93	128.37
AD	El Dorado County APCD	Winter	2030	335.32	392.40	460.03	587.66	73.77	85.86	100.94	128.48
AD	El Dorado County APCD	Winter	2031	335.34	392.57	460.04	587.87	73.77	85.94	100.95	128.59
AD	El Dorado County APCD	Winter	2032	335.37	392.73	460.07	588.09	73.78	86.00	100.95	128.70
AD	El Dorado County APCD	Winter	2033	335.39	392.87	460.09	588.29	73.78	86.06	100.96	128.79
AD	El Dorado County APCD	Winter	2034	335.40	393.01	460.11	588.48	73.78	86.12	100.97	128.88
AD	El Dorado County APCD	Winter	2035	335.42	393.13	460.13	588.64	73.79	86.17	100.97	128.97
AD	Feather River AQMD	Annual	2010	325.72	381.57	447.59	558.28	73.45	93.72	100.52	124.69
AD	Feather River AQMD	Annual	2011	325.89	381.23	447.09	559.03	73.45	92.05	100.47	124.90
AD	Feather River AQMD	Annual	2012	326.09	381.01	446.71	559.86	73.48	90.72	100.48	125.14
AD	Feather River AQMD	Annual	2013	326.28	380.77	446.42	560.75	73.50	89.47	100.49	125.41
AD	Feather River AQMD	Annual	2014	326.43	380.65	446.20	561.58	73.50	88.61	100.49	125.69
AD	Feather River AQMD	Annual	2015	326.61	380.45	446.03	562.43	73.55	87.57	100.52	125.97
AD	Feather River AQMD	Annual	2016	326.77	380.34	445.89	563.22	73.60	86.86	100.54	126.26
AD	Feather River AQMD	Annual	2017	326.89	380.23	445.76	563.96	73.64	86.15	100.56	126.55
AD	Feather River AQMD	Annual	2018	326.97	380.11	445.66	564.59	73.65	85.54	100.60	126.82
AD	Feather River AQMD	Annual	2019	325.22	377.77	443.02	562.17	73.67	85.33	100.64	127.05
AD	Feather River AQMD	Annual	2020	325.28	377.78	442.94	562.61	73.76	85.29	100.71	127.27
AD	Feather River AQMD	Annual	2021	325.33	377.89	442.88	562.95	73.83	85.40	100.78	127.43

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Feather River AQMD	Annual	2022	325.35	377.98	442.82	563.23	73.87	85.48	100.83	127.56
AD	Feather River AQMD	Annual	2023	325.35	378.04	442.76	563.45	73.90	85.56	100.87	127.73
AD	Feather River AQMD	Annual	2024	325.30	378.13	442.73	563.63	73.92	85.63	100.91	127.89
AD	Feather River AQMD	Annual	2025	325.29	378.23	442.70	563.82	73.94	85.70	100.93	128.04
AD	Feather River AQMD	Annual	2026	325.30	378.30	442.64	563.98	73.96	85.77	100.95	128.18
AD	Feather River AQMD	Annual	2027	325.32	378.37	442.59	564.14	73.97	85.82	100.97	128.30
AD	Feather River AQMD	Annual	2028	325.33	378.44	442.55	564.31	73.98	85.87	100.98	128.42
AD	Feather River AQMD	Annual	2029	325.33	378.52	442.50	564.48	73.99	85.92	100.98	128.53
AD	Feather River AQMD	Annual	2030	325.33	378.59	442.45	564.66	73.99	85.97	100.97	128.64
AD	Feather River AQMD	Annual	2031	325.34	378.67	442.43	564.81	73.99	86.01	100.98	128.74
AD	Feather River AQMD	Annual	2032	325.35	378.75	442.40	564.96	74.00	86.06	100.98	128.83
AD	Feather River AQMD	Annual	2033	325.36	378.81	442.38	565.10	74.00	86.09	100.99	128.92
AD	Feather River AQMD	Annual	2034	325.36	378.88	442.36	565.23	74.01	86.13	100.99	129.00
AD	Feather River AQMD	Annual	2035	325.37	378.92	442.34	565.35	74.01	86.16	100.99	129.08
AD	Feather River AQMD	Summer	2010	361.70	419.04	494.41	617.34	73.45	93.72	100.52	124.69
AD	Feather River AQMD	Summer	2011	362.18	419.54	494.52	618.21	73.45	92.05	100.47	124.90
AD	Feather River AQMD	Summer	2012	362.62	419.99	494.59	619.26	73.48	90.72	100.48	125.14
AD	Feather River AQMD	Summer	2013	363.00	420.31	494.65	620.44	73.50	89.47	100.49	125.41
AD	Feather River AQMD	Summer	2014	363.29	420.57	494.71	621.58	73.50	88.61	100.49	125.69
AD	Feather River AQMD	Summer	2015	363.57	420.79	494.73	622.75	73.55	87.57	100.52	125.97
AD	Feather River AQMD	Summer	2016	363.79	420.94	494.73	623.88	73.60	86.86	100.54	126.26
AD	Feather River AQMD	Summer	2017	363.94	421.09	494.67	624.89	73.64	86.15	100.56	126.55
AD	Feather River AQMD	Summer	2018	364.03	421.16	494.57	625.74	73.65	85.54	100.60	126.82
AD	Feather River AQMD	Summer	2019	362.06	418.63	491.62	623.14	73.67	85.33	100.64	127.05
AD	Feather River AQMD	Summer	2020	362.10	418.69	491.50	623.69	73.76	85.29	100.71	127.27
AD	Feather River AQMD	Summer	2021	362.12	418.84	491.40	624.12	73.83	85.40	100.78	127.43
AD	Feather River AQMD	Summer	2022	362.12	418.98	491.31	624.47	73.87	85.48	100.83	127.56
AD	Feather River AQMD	Summer	2023	362.11	419.10	491.25	624.74	73.90	85.56	100.87	127.73
AD	Feather River AQMD	Summer	2024	362.07	419.25	491.20	624.93	73.92	85.63	100.91	127.89
AD	Feather River AQMD	Summer	2025	362.06	419.39	491.18	625.12	73.94	85.70	100.93	128.04
AD	Feather River AQMD	Summer	2026	362.09	419.49	491.11	625.25	73.96	85.77	100.95	128.18
AD	Feather River AQMD	Summer	2027	362.12	419.57	491.08	625.41	73.97	85.82	100.97	128.30
AD	Feather River AQMD	Summer	2028	362.15	419.68	491.05	625.58	73.98	85.87	100.98	128.42
AD	Feather River AQMD	Summer	2029	362.17	419.79	491.02	625.77	73.99	85.92	100.98	128.53
AD	Feather River AQMD	Summer	2030	362.19	419.91	491.00	625.97	73.99	85.97	100.97	128.64
AD	Feather River AQMD	Summer	2031	362.20	420.01	491.01	626.14	73.99	86.01	100.98	128.74
AD	Feather River AQMD	Summer	2032	362.21	420.10	491.01	626.33	74.00	86.06	100.98	128.83
AD	Feather River AQMD	Summer	2033	362.22	420.19	491.01	626.51	74.00	86.09	100.99	128.92
AD	Feather River AQMD	Summer	2034	362.22	420.27	491.00	626.69	74.01	86.13	100.99	129.00
AD	Feather River AQMD	Summer	2035	362.23	420.33	490.99	626.85	74.01	86.16	100.99	129.08
AD	Feather River AQMD	Winter	2010	315.77	371.26	434.66	541.87	73.45	93.72	100.52	124.69
AD	Feather River AQMD	Winter	2011	315.85	370.69	433.99	542.58	73.45	92.05	100.47	124.90
AD	Feather River AQMD	Winter	2012	315.98	370.29	433.49	543.36	73.48	90.72	100.48	125.14
AD	Feather River AQMD	Winter	2013	316.12	369.90	433.11	544.17	73.50	89.47	100.49	125.41
AD	Feather River AQMD	Winter	2014	316.24	369.68	432.81	544.92	73.50	88.61	100.49	125.69
AD	Feather River AQMD	Winter	2015	316.38	369.37	432.59	545.67	73.55	87.57	100.52	125.97
AD	Feather River AQMD	Winter	2016	316.52	369.19	432.41	546.38	73.60	86.86	100.54	126.26
AD	Feather River AQMD	Winter	2017	316.64	369.01	432.27	547.04	73.64	86.15	100.56	126.55
AD	Feather River AQMD	Winter	2018	316.72	368.83	432.16	547.62	73.65	85.54	100.60	126.82
AD	Feather River AQMD	Winter	2019	315.03	366.54	429.60	545.24	73.67	85.33	100.64	127.05
AD	Feather River AQMD	Winter	2020	315.10	366.54	429.54	545.66	73.76	85.29	100.71	127.27
AD	Feather River AQMD	Winter	2021	315.16	366.64	429.48	545.97	73.83	85.40	100.78	127.43
AD	Feather River AQMD	Winter	2022	315.18	366.71	429.43	546.23	73.87	85.48	100.83	127.56
AD	Feather River AQMD	Winter	2023	315.18	366.76	429.38	546.44	73.90	85.56	100.87	127.73

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Feather River AQMD	Winter	2024	315.13	366.83	429.35	546.62	73.92	85.63	100.91	127.89
AD	Feather River AQMD	Winter	2025	315.11	366.92	429.32	546.81	73.94	85.70	100.93	128.04
AD	Feather River AQMD	Winter	2026	315.13	366.98	429.26	546.98	73.96	85.77	100.95	128.18
AD	Feather River AQMD	Winter	2027	315.14	367.04	429.21	547.14	73.97	85.82	100.97	128.30
AD	Feather River AQMD	Winter	2028	315.14	367.11	429.17	547.32	73.98	85.87	100.98	128.42
AD	Feather River AQMD	Winter	2029	315.14	367.17	429.11	547.49	73.99	85.92	100.98	128.53
AD	Feather River AQMD	Winter	2030	315.14	367.24	429.06	547.66	73.99	85.97	100.97	128.64
AD	Feather River AQMD	Winter	2031	315.15	367.31	429.02	547.79	73.99	86.01	100.98	128.74
AD	Feather River AQMD	Winter	2032	315.16	367.38	428.99	547.93	74.00	86.06	100.98	128.83
AD	Feather River AQMD	Winter	2033	315.16	367.45	428.96	548.06	74.00	86.09	100.99	128.92
AD	Feather River AQMD	Winter	2034	315.17	367.50	428.94	548.17	74.01	86.13	100.99	129.00
AD	Feather River AQMD	Winter	2035	315.18	367.55	428.92	548.27	74.01	86.16	100.99	129.08
AD	Glenn County APCD	Annual	2010	347.61	407.24	479.18	597.47	73.80	101.05	102.36	125.05
AD	Glenn County APCD	Annual	2011	347.94	406.83	478.46	597.84	73.70	98.07	102.06	125.06
AD	Glenn County APCD	Annual	2012	348.25	406.57	477.93	598.43	73.59	95.83	101.82	125.13
AD	Glenn County APCD	Annual	2013	348.56	406.34	477.52	599.20	73.54	93.69	101.62	125.27
AD	Glenn County APCD	Annual	2014	348.81	406.16	477.20	600.00	73.43	91.83	101.37	125.43
AD	Glenn County APCD	Annual	2015	349.05	406.03	476.95	600.89	73.38	90.19	101.22	125.64
AD	Glenn County APCD	Annual	2016	349.27	405.92	476.74	601.81	73.41	88.68	101.09	125.88
AD	Glenn County APCD	Annual	2017	349.44	405.85	476.57	602.68	73.41	87.43	101.01	126.13
AD	Glenn County APCD	Annual	2018	349.58	405.77	476.41	603.43	73.43	86.26	100.91	126.38
AD	Glenn County APCD	Annual	2019	349.68	405.76	476.29	604.10	73.46	85.63	100.80	126.62
AD	Glenn County APCD	Annual	2020	349.77	405.79	476.19	604.70	73.56	85.43	100.85	126.85
AD	Glenn County APCD	Annual	2021	349.82	405.88	476.10	605.14	73.62	85.50	100.90	126.97
AD	Glenn County APCD	Annual	2022	349.86	405.97	476.01	605.47	73.68	85.55	100.94	127.04
AD	Glenn County APCD	Annual	2023	349.88	406.04	475.94	605.72	73.71	85.61	100.98	127.23
AD	Glenn County APCD	Annual	2024	349.89	406.11	475.87	605.91	73.71	85.66	101.00	127.41
AD	Glenn County APCD	Annual	2025	349.89	406.19	475.82	606.12	73.72	85.74	101.02	127.59
AD	Glenn County APCD	Annual	2026	349.91	406.27	475.76	606.32	73.75	85.81	101.03	127.77
AD	Glenn County APCD	Annual	2027	349.93	406.34	475.71	606.53	73.76	85.87	101.03	127.93
AD	Glenn County APCD	Annual	2028	349.94	406.42	475.66	606.74	73.77	85.93	101.03	128.07
AD	Glenn County APCD	Annual	2029	349.94	406.49	475.61	606.94	73.78	85.99	101.02	128.21
AD	Glenn County APCD	Annual	2030	349.94	406.57	475.56	607.16	73.78	86.04	101.01	128.34
AD	Glenn County APCD	Annual	2031	349.94	406.64	475.55	607.42	73.79	86.10	101.01	128.47
AD	Glenn County APCD	Annual	2032	349.94	406.69	475.53	607.68	73.79	86.15	101.01	128.60
AD	Glenn County APCD	Annual	2033	349.94	406.75	475.52	607.92	73.80	86.19	101.01	128.71
AD	Glenn County APCD	Annual	2034	349.94	406.79	475.50	608.14	73.80	86.23	101.01	128.82
AD	Glenn County APCD	Annual	2035	349.93	406.82	475.49	608.33	73.81	86.26	101.01	128.92
AD	Glenn County APCD	Summer	2010	384.83	445.81	527.20	657.56	73.80	101.05	102.36	125.05
AD	Glenn County APCD	Summer	2011	385.51	446.50	527.25	657.84	73.70	98.07	102.06	125.06
AD	Glenn County APCD	Summer	2012	386.08	446.98	527.28	658.52	73.59	95.83	101.82	125.13
AD	Glenn County APCD	Summer	2013	386.56	447.34	527.28	659.58	73.54	93.69	101.62	125.27
AD	Glenn County APCD	Summer	2014	386.94	447.60	527.29	660.69	73.43	91.83	101.37	125.43
AD	Glenn County APCD	Summer	2015	387.27	447.83	527.25	661.99	73.38	90.19	101.22	125.64
AD	Glenn County APCD	Summer	2016	387.55	448.01	527.19	663.37	73.41	88.68	101.09	125.88
AD	Glenn County APCD	Summer	2017	387.74	448.13	527.06	664.65	73.41	87.43	101.01	126.13
AD	Glenn County APCD	Summer	2018	387.86	448.22	526.91	665.76	73.43	86.26	100.91	126.38
AD	Glenn County APCD	Summer	2019	387.96	448.30	526.79	666.74	73.46	85.63	100.80	126.62
AD	Glenn County APCD	Summer	2020	388.02	448.37	526.65	667.59	73.56	85.43	100.85	126.85
AD	Glenn County APCD	Summer	2021	388.06	448.51	526.53	668.25	73.62	85.50	100.90	126.97
AD	Glenn County APCD	Summer	2022	388.09	448.64	526.43	668.76	73.68	85.55	100.94	127.04
AD	Glenn County APCD	Summer	2023	388.10	448.75	526.35	669.12	73.71	85.61	100.98	127.23
AD	Glenn County APCD	Summer	2024	388.12	448.88	526.29	669.37	73.71	85.66	101.00	127.41
AD	Glenn County APCD	Summer	2025	388.13	449.00	526.24	669.61	73.72	85.74	101.02	127.59

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMt)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Glenn County APCD	Summer	2026	388.17	449.13	526.19	669.78	73.75	85.81	101.03	127.77
AD	Glenn County APCD	Summer	2027	388.21	449.21	526.15	669.97	73.76	85.87	101.03	127.93
AD	Glenn County APCD	Summer	2028	388.24	449.33	526.12	670.17	73.77	85.93	101.03	128.07
AD	Glenn County APCD	Summer	2029	388.26	449.45	526.10	670.39	73.78	85.99	101.02	128.21
AD	Glenn County APCD	Summer	2030	388.28	449.57	526.08	670.64	73.78	86.04	101.01	128.34
AD	Glenn County APCD	Summer	2031	388.27	449.67	526.12	670.94	73.79	86.10	101.01	128.47
AD	Glenn County APCD	Summer	2032	388.27	449.74	526.13	671.26	73.79	86.15	101.01	128.60
AD	Glenn County APCD	Summer	2033	388.26	449.81	526.14	671.55	73.80	86.19	101.01	128.71
AD	Glenn County APCD	Summer	2034	388.25	449.85	526.14	671.85	73.80	86.23	101.01	128.82
AD	Glenn County APCD	Summer	2035	388.24	449.87	526.13	672.11	73.81	86.26	101.01	128.92
AD	Glenn County APCD	Winter	2010	335.44	394.64	463.49	577.83	73.80	101.05	102.36	125.05
AD	Glenn County APCD	Winter	2011	335.66	393.87	462.51	578.23	73.70	98.07	102.06	125.06
AD	Glenn County APCD	Winter	2012	335.89	393.37	461.80	578.79	73.59	95.83	101.82	125.13
AD	Glenn County APCD	Winter	2013	336.14	392.94	461.25	579.47	73.54	93.69	101.62	125.27
AD	Glenn County APCD	Winter	2014	336.35	392.62	460.83	580.17	73.43	91.83	101.37	125.43
AD	Glenn County APCD	Winter	2015	336.56	392.37	460.51	580.92	73.38	90.19	101.22	125.64
AD	Glenn County APCD	Winter	2016	336.76	392.17	460.25	581.69	73.41	88.68	101.09	125.88
AD	Glenn County APCD	Winter	2017	336.93	392.03	460.06	582.43	73.41	87.43	101.01	126.13
AD	Glenn County APCD	Winter	2018	337.06	391.89	459.91	583.06	73.43	86.26	100.91	126.38
AD	Glenn County APCD	Winter	2019	337.18	391.86	459.79	583.63	73.46	85.63	100.80	126.62
AD	Glenn County APCD	Winter	2020	337.27	391.87	459.70	584.15	73.56	85.43	100.85	126.85
AD	Glenn County APCD	Winter	2021	337.33	391.95	459.61	584.51	73.62	85.50	100.90	126.97
AD	Glenn County APCD	Winter	2022	337.37	392.02	459.54	584.78	73.68	85.55	100.94	127.04
AD	Glenn County APCD	Winter	2023	337.39	392.08	459.47	585.00	73.71	85.61	100.98	127.23
AD	Glenn County APCD	Winter	2024	337.39	392.13	459.40	585.17	73.71	85.66	101.00	127.41
AD	Glenn County APCD	Winter	2025	337.39	392.20	459.34	585.37	73.72	85.74	101.02	127.59
AD	Glenn County APCD	Winter	2026	337.41	392.27	459.27	585.58	73.75	85.81	101.03	127.77
AD	Glenn County APCD	Winter	2027	337.42	392.32	459.22	585.80	73.76	85.87	101.03	127.93
AD	Glenn County APCD	Winter	2028	337.42	392.39	459.16	586.00	73.77	85.93	101.03	128.07
AD	Glenn County APCD	Winter	2029	337.42	392.46	459.10	586.21	73.78	85.99	101.02	128.21
AD	Glenn County APCD	Winter	2030	337.42	392.52	459.05	586.42	73.78	86.04	101.01	128.34
AD	Glenn County APCD	Winter	2031	337.42	392.58	459.02	586.66	73.79	86.10	101.01	128.47
AD	Glenn County APCD	Winter	2032	337.42	392.63	459.00	586.91	73.79	86.15	101.01	128.60
AD	Glenn County APCD	Winter	2033	337.41	392.67	458.97	587.13	73.80	86.19	101.01	128.71
AD	Glenn County APCD	Winter	2034	337.41	392.71	458.95	587.32	73.80	86.23	101.01	128.82
AD	Glenn County APCD	Winter	2035	337.41	392.75	458.94	587.49	73.81	86.26	101.01	128.92
AD	Great Basin UAPCD	Annual	2010	351.71	410.12	479.62	598.88	74.54	91.99	101.41	124.88
AD	Great Basin UAPCD	Annual	2011	351.58	409.65	479.10	599.56	74.30	90.81	101.24	125.01
AD	Great Basin UAPCD	Annual	2012	351.55	409.23	478.69	600.33	74.12	89.78	101.13	125.19
AD	Great Basin UAPCD	Annual	2013	351.50	408.84	478.36	601.12	73.86	88.90	101.03	125.40
AD	Great Basin UAPCD	Annual	2014	351.45	408.49	478.12	601.90	73.59	88.09	100.88	125.62
AD	Great Basin UAPCD	Annual	2015	351.50	408.21	477.92	602.74	73.49	87.37	100.88	125.86
AD	Great Basin UAPCD	Annual	2016	351.62	407.99	477.76	603.56	73.49	86.82	100.85	126.11
AD	Great Basin UAPCD	Annual	2017	351.64	407.78	477.63	604.31	73.40	86.29	100.83	126.37
AD	Great Basin UAPCD	Annual	2018	351.66	407.60	477.52	604.96	73.33	85.85	100.80	126.61
AD	Great Basin UAPCD	Annual	2019	351.69	407.52	477.42	605.53	73.29	85.59	100.75	126.84
AD	Great Basin UAPCD	Annual	2020	351.72	407.45	477.34	606.03	73.36	85.50	100.79	127.06
AD	Great Basin UAPCD	Annual	2021	351.66	407.35	477.26	606.36	73.36	85.50	100.84	127.21
AD	Great Basin UAPCD	Annual	2022	351.57	407.28	477.17	606.67	73.35	85.52	100.88	127.36
AD	Great Basin UAPCD	Annual	2023	351.48	407.18	477.10	606.89	73.33	85.53	100.90	127.53
AD	Great Basin UAPCD	Annual	2024	351.41	407.09	477.03	607.04	73.32	85.55	100.92	127.69
AD	Great Basin UAPCD	Annual	2025	351.37	407.16	477.00	607.21	73.31	85.62	100.95	127.84
AD	Great Basin UAPCD	Annual	2026	351.39	407.29	476.94	607.42	73.33	85.71	100.97	127.99
AD	Great Basin UAPCD	Annual	2027	351.40	407.43	476.89	607.63	73.34	85.79	100.99	128.14

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Great Basin UAPCD	Annual	2028	351.40	407.56	476.84	607.84	73.35	85.87	101.00	128.27
AD	Great Basin UAPCD	Annual	2029	351.39	407.69	476.77	608.06	73.36	85.94	101.00	128.39
AD	Great Basin UAPCD	Annual	2030	351.38	407.82	476.71	608.27	73.36	86.00	101.00	128.51
AD	Great Basin UAPCD	Annual	2031	351.38	407.96	476.68	608.50	73.36	86.07	101.01	128.63
AD	Great Basin UAPCD	Annual	2032	351.38	408.09	476.65	608.73	73.37	86.13	101.01	128.74
AD	Great Basin UAPCD	Annual	2033	351.38	408.21	476.62	608.94	73.37	86.18	101.01	128.84
AD	Great Basin UAPCD	Annual	2034	351.37	408.32	476.60	609.12	73.38	86.23	101.02	128.94
AD	Great Basin UAPCD	Annual	2035	351.37	408.41	476.58	609.28	73.38	86.28	101.02	129.02
AD	Great Basin UAPCD	Summer	2010	368.80	426.31	499.33	622.32	74.54	91.99	101.41	124.88
AD	Great Basin UAPCD	Summer	2011	368.81	426.47	498.98	623.07	74.30	90.81	101.24	125.01
AD	Great Basin UAPCD	Summer	2012	368.86	426.56	498.74	623.95	74.12	89.78	101.13	125.19
AD	Great Basin UAPCD	Summer	2013	368.89	426.59	498.57	624.87	73.86	88.90	101.03	125.40
AD	Great Basin UAPCD	Summer	2014	368.92	426.59	498.50	625.78	73.59	88.09	100.88	125.62
AD	Great Basin UAPCD	Summer	2015	369.01	426.63	498.39	626.79	73.49	87.37	100.88	125.86
AD	Great Basin UAPCD	Summer	2016	369.15	426.65	498.34	627.79	73.49	86.82	100.85	126.11
AD	Great Basin UAPCD	Summer	2017	369.19	426.65	498.29	628.71	73.40	86.29	100.83	126.37
AD	Great Basin UAPCD	Summer	2018	369.21	426.63	498.22	629.47	73.33	85.85	100.80	126.61
AD	Great Basin UAPCD	Summer	2019	369.25	426.71	498.16	630.15	73.29	85.59	100.75	126.84
AD	Great Basin UAPCD	Summer	2020	369.30	426.76	498.11	630.75	73.36	85.50	100.79	127.06
AD	Great Basin UAPCD	Summer	2021	369.22	426.73	498.07	631.17	73.36	85.50	100.84	127.21
AD	Great Basin UAPCD	Summer	2022	369.14	426.72	498.03	631.56	73.35	85.52	100.88	127.36
AD	Great Basin UAPCD	Summer	2023	369.04	426.67	498.01	631.85	73.33	85.53	100.90	127.53
AD	Great Basin UAPCD	Summer	2024	368.98	426.64	498.01	632.03	73.32	85.55	100.92	127.69
AD	Great Basin UAPCD	Summer	2025	368.96	426.73	498.02	632.24	73.31	85.62	100.95	127.84
AD	Great Basin UAPCD	Summer	2026	368.99	426.89	497.97	632.46	73.33	85.71	100.97	127.99
AD	Great Basin UAPCD	Summer	2027	369.03	427.08	497.94	632.69	73.34	85.79	100.99	128.14
AD	Great Basin UAPCD	Summer	2028	369.05	427.25	497.90	632.94	73.35	85.87	101.00	128.27
AD	Great Basin UAPCD	Summer	2029	369.06	427.42	497.85	633.19	73.36	85.94	101.00	128.39
AD	Great Basin UAPCD	Summer	2030	369.07	427.57	497.80	633.43	73.36	86.00	101.00	128.51
AD	Great Basin UAPCD	Summer	2031	369.06	427.77	497.77	633.69	73.36	86.07	101.01	128.63
AD	Great Basin UAPCD	Summer	2032	369.06	427.93	497.74	633.93	73.37	86.13	101.01	128.74
AD	Great Basin UAPCD	Summer	2033	369.06	428.08	497.72	634.18	73.37	86.18	101.01	128.84
AD	Great Basin UAPCD	Summer	2034	369.05	428.21	497.70	634.38	73.38	86.23	101.02	128.94
AD	Great Basin UAPCD	Summer	2035	369.04	428.32	497.68	634.56	73.38	86.28	101.02	129.02
AD	Great Basin UAPCD	Winter	2010	367.72	425.30	498.12	620.89	74.54	91.99	101.41	124.88
AD	Great Basin UAPCD	Winter	2011	367.73	425.41	497.76	621.64	74.30	90.81	101.24	125.01
AD	Great Basin UAPCD	Winter	2012	367.77	425.48	497.51	622.51	74.12	89.78	101.13	125.19
AD	Great Basin UAPCD	Winter	2013	367.80	425.47	497.33	623.43	73.86	88.90	101.03	125.40
AD	Great Basin UAPCD	Winter	2014	367.82	425.45	497.25	624.33	73.59	88.09	100.88	125.62
AD	Great Basin UAPCD	Winter	2015	367.92	425.48	497.13	625.32	73.49	87.37	100.88	125.86
AD	Great Basin UAPCD	Winter	2016	368.05	425.48	497.08	626.32	73.49	86.82	100.85	126.11
AD	Great Basin UAPCD	Winter	2017	368.09	425.46	497.03	627.23	73.40	86.29	100.83	126.37
AD	Great Basin UAPCD	Winter	2018	368.11	425.44	496.95	627.98	73.33	85.85	100.80	126.61
AD	Great Basin UAPCD	Winter	2019	368.14	425.50	496.89	628.66	73.29	85.59	100.75	126.84
AD	Great Basin UAPCD	Winter	2020	368.19	425.55	496.84	629.25	73.36	85.50	100.79	127.06
AD	Great Basin UAPCD	Winter	2021	368.12	425.51	496.80	629.66	73.36	85.50	100.84	127.21
AD	Great Basin UAPCD	Winter	2022	368.04	425.50	496.75	630.05	73.35	85.52	100.88	127.36
AD	Great Basin UAPCD	Winter	2023	367.94	425.45	496.73	630.33	73.33	85.53	100.90	127.53
AD	Great Basin UAPCD	Winter	2024	367.88	425.41	496.72	630.51	73.32	85.55	100.92	127.69
AD	Great Basin UAPCD	Winter	2025	367.85	425.50	496.73	630.71	73.31	85.62	100.95	127.84
AD	Great Basin UAPCD	Winter	2026	367.89	425.66	496.68	630.94	73.33	85.71	100.97	127.99
AD	Great Basin UAPCD	Winter	2027	367.93	425.85	496.65	631.16	73.34	85.79	100.99	128.14
AD	Great Basin UAPCD	Winter	2028	367.95	426.02	496.61	631.41	73.35	85.87	101.00	128.27
AD	Great Basin UAPCD	Winter	2029	367.95	426.19	496.56	631.66	73.36	85.94	101.00	128.39

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Great Basin UAPCD	Winter	2030	367.96	426.33	496.51	631.90	73.36	86.00	101.00	128.51
AD	Great Basin UAPCD	Winter	2031	367.95	426.53	496.47	632.15	73.36	86.07	101.01	128.63
AD	Great Basin UAPCD	Winter	2032	367.95	426.69	496.45	632.40	73.37	86.13	101.01	128.74
AD	Great Basin UAPCD	Winter	2033	367.95	426.84	496.42	632.64	73.37	86.18	101.01	128.84
AD	Great Basin UAPCD	Winter	2034	367.94	426.96	496.41	632.84	73.38	86.23	101.02	128.94
AD	Great Basin UAPCD	Winter	2035	367.94	427.07	496.38	633.02	73.38	86.28	101.02	129.02
AD	Imperial County APCD	Annual	2010	333.06	382.51	456.21	575.78	72.99	86.06	100.65	125.48
AD	Imperial County APCD	Annual	2011	332.74	382.65	455.12	575.21	73.04	85.73	100.60	125.71
AD	Imperial County APCD	Annual	2012	333.03	383.36	454.93	575.79	73.14	85.50	100.60	125.97
AD	Imperial County APCD	Annual	2013	331.75	382.30	452.68	573.90	73.23	85.37	100.58	126.29
AD	Imperial County APCD	Annual	2014	331.98	382.91	452.61	574.66	73.31	85.29	100.59	126.61
AD	Imperial County APCD	Annual	2015	327.26	377.77	445.90	566.93	73.39	85.24	100.62	126.91
AD	Imperial County APCD	Annual	2016	327.36	378.16	445.86	567.56	73.41	85.18	100.65	127.20
AD	Imperial County APCD	Annual	2017	327.39	378.50	445.81	568.11	73.41	85.15	100.65	127.47
AD	Imperial County APCD	Annual	2018	327.40	378.76	445.76	568.55	73.39	85.16	100.65	127.71
AD	Imperial County APCD	Annual	2019	327.23	378.80	445.47	568.62	73.39	85.24	100.69	127.93
AD	Imperial County APCD	Annual	2020	327.21	379.01	445.41	568.92	73.41	85.34	100.76	128.13
AD	Imperial County APCD	Annual	2021	327.15	379.11	445.34	569.08	73.42	85.44	100.80	128.28
AD	Imperial County APCD	Annual	2022	327.03	379.19	445.26	569.20	73.39	85.52	100.84	128.40
AD	Imperial County APCD	Annual	2023	326.91	379.26	445.18	569.30	73.35	85.60	100.87	128.53
AD	Imperial County APCD	Annual	2024	329.56	382.51	448.87	574.16	73.32	85.66	100.89	128.63
AD	Imperial County APCD	Annual	2025	329.46	382.58	448.83	574.22	73.28	85.73	100.92	128.73
AD	Imperial County APCD	Annual	2026	329.42	382.67	448.77	574.27	73.26	85.80	100.94	128.82
AD	Imperial County APCD	Annual	2027	329.39	382.76	448.73	574.32	73.24	85.86	100.95	128.90
AD	Imperial County APCD	Annual	2028	329.37	382.86	448.71	574.39	73.23	85.92	100.96	128.97
AD	Imperial County APCD	Annual	2029	329.36	382.96	448.68	574.47	73.21	85.97	100.96	129.04
AD	Imperial County APCD	Annual	2030	329.34	383.07	448.66	574.55	73.20	86.02	100.97	129.10
AD	Imperial County APCD	Annual	2031	329.66	383.57	449.13	575.24	73.19	86.07	100.97	129.15
AD	Imperial County APCD	Annual	2032	329.64	383.67	449.12	575.31	73.18	86.11	100.97	129.21
AD	Imperial County APCD	Annual	2033	329.63	383.75	449.11	575.38	73.18	86.15	100.98	129.26
AD	Imperial County APCD	Annual	2034	329.63	383.82	449.11	575.45	73.18	86.19	100.98	129.30
AD	Imperial County APCD	Annual	2035	329.62	383.88	449.10	575.52	73.18	86.22	100.98	129.34
AD	Imperial County APCD	Summer	2010	341.49	391.06	467.38	590.08	72.99	86.06	100.65	125.48
AD	Imperial County APCD	Summer	2011	341.29	391.47	466.40	589.55	73.04	85.73	100.60	125.71
AD	Imperial County APCD	Summer	2012	341.64	392.37	466.28	590.14	73.14	85.50	100.60	125.97
AD	Imperial County APCD	Summer	2013	340.37	391.46	464.05	588.24	73.23	85.37	100.58	126.29
AD	Imperial County APCD	Summer	2014	340.64	392.20	464.05	589.07	73.31	85.29	100.59	126.61
AD	Imperial County APCD	Summer	2015	335.82	387.05	457.23	581.20	73.39	85.24	100.62	126.91
AD	Imperial County APCD	Summer	2016	335.93	387.53	457.23	581.90	73.41	85.18	100.65	127.20
AD	Imperial County APCD	Summer	2017	335.98	387.93	457.21	582.52	73.41	85.15	100.65	127.47
AD	Imperial County APCD	Summer	2018	335.99	388.23	457.17	583.00	73.39	85.16	100.65	127.71
AD	Imperial County APCD	Summer	2019	335.83	388.32	456.89	583.10	73.39	85.24	100.69	127.93
AD	Imperial County APCD	Summer	2020	335.80	388.55	456.83	583.42	73.41	85.34	100.76	128.13
AD	Imperial County APCD	Summer	2021	335.69	388.62	456.70	583.51	73.42	85.44	100.80	128.28
AD	Imperial County APCD	Summer	2022	335.56	388.70	456.60	583.62	73.39	85.52	100.84	128.40
AD	Imperial County APCD	Summer	2023	335.42	388.78	456.51	583.70	73.35	85.60	100.87	128.53
AD	Imperial County APCD	Summer	2024	338.10	392.07	460.23	588.61	73.32	85.66	100.89	128.63
AD	Imperial County APCD	Summer	2025	338.00	392.15	460.18	588.66	73.28	85.73	100.92	128.73
AD	Imperial County APCD	Summer	2026	337.95	392.24	460.11	588.69	73.26	85.80	100.94	128.82
AD	Imperial County APCD	Summer	2027	337.92	392.33	460.07	588.73	73.24	85.86	100.95	128.90
AD	Imperial County APCD	Summer	2028	337.91	392.44	460.04	588.80	73.23	85.92	100.96	128.97
AD	Imperial County APCD	Summer	2029	337.90	392.56	460.02	588.88	73.21	85.97	100.96	129.04
AD	Imperial County APCD	Summer	2030	337.89	392.68	460.00	588.96	73.20	86.02	100.97	129.10
AD	Imperial County APCD	Summer	2031	338.20	393.18	460.46	589.62	73.19	86.07	100.97	129.15

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Imperial County APCD	Summer	2032	338.17	393.28	460.45	589.69	73.18	86.11	100.97	129.21
AD	Imperial County APCD	Summer	2033	338.16	393.37	460.44	589.76	73.18	86.15	100.98	129.26
AD	Imperial County APCD	Summer	2034	338.16	393.45	460.44	589.84	73.18	86.19	100.98	129.30
AD	Imperial County APCD	Summer	2035	338.15	393.51	460.44	589.91	73.18	86.22	100.98	129.34
AD	Imperial County APCD	Winter	2010	314.45	363.62	431.53	544.19	72.99	86.06	100.65	125.48
AD	Imperial County APCD	Winter	2011	313.97	363.27	430.33	543.72	73.04	85.73	100.60	125.71
AD	Imperial County APCD	Winter	2012	314.13	363.55	430.01	544.27	73.14	85.50	100.60	125.97
AD	Imperial County APCD	Winter	2013	312.79	362.16	427.68	542.37	73.23	85.37	100.58	126.29
AD	Imperial County APCD	Winter	2014	312.93	362.45	427.46	542.97	73.31	85.29	100.59	126.61
AD	Imperial County APCD	Winter	2015	308.44	357.38	421.00	535.54	73.39	85.24	100.62	126.91
AD	Imperial County APCD	Winter	2016	308.50	357.58	420.87	536.02	73.41	85.18	100.65	127.20
AD	Imperial County APCD	Winter	2017	308.52	357.77	420.75	536.45	73.41	85.15	100.65	127.47
AD	Imperial County APCD	Winter	2018	308.53	357.93	420.67	536.81	73.39	85.16	100.65	127.71
AD	Imperial County APCD	Winter	2019	308.38	357.91	420.39	536.83	73.39	85.24	100.69	127.93
AD	Imperial County APCD	Winter	2020	308.36	358.06	420.34	537.09	73.41	85.34	100.76	128.13
AD	Imperial County APCD	Winter	2021	308.33	358.16	420.31	537.29	73.42	85.44	100.80	128.28
AD	Imperial County APCD	Winter	2022	308.24	358.22	420.27	537.43	73.39	85.52	100.84	128.40
AD	Imperial County APCD	Winter	2023	308.13	358.28	420.22	537.54	73.35	85.60	100.87	128.53
AD	Imperial County APCD	Winter	2024	310.65	361.33	423.72	542.17	73.32	85.66	100.89	128.63
AD	Imperial County APCD	Winter	2025	310.55	361.39	423.70	542.25	73.28	85.73	100.92	128.73
AD	Imperial County APCD	Winter	2026	310.52	361.47	423.66	542.33	73.26	85.80	100.94	128.82
AD	Imperial County APCD	Winter	2027	310.48	361.55	423.63	542.41	73.24	85.86	100.95	128.90
AD	Imperial County APCD	Winter	2028	310.46	361.64	423.61	542.49	73.23	85.92	100.96	128.97
AD	Imperial County APCD	Winter	2029	310.44	361.71	423.57	542.57	73.21	85.97	100.96	129.04
AD	Imperial County APCD	Winter	2030	310.42	361.79	423.54	542.64	73.20	86.02	100.97	129.10
AD	Imperial County APCD	Winter	2031	310.73	362.26	423.98	543.31	73.19	86.07	100.97	129.15
AD	Imperial County APCD	Winter	2032	310.71	362.33	423.97	543.39	73.18	86.11	100.97	129.21
AD	Imperial County APCD	Winter	2033	310.71	362.40	423.97	543.46	73.18	86.15	100.98	129.26
AD	Imperial County APCD	Winter	2034	310.70	362.46	423.96	543.52	73.18	86.19	100.98	129.30
AD	Imperial County APCD	Winter	2035	310.70	362.51	423.95	543.58	73.18	86.22	100.98	129.34
AD	Kern County APCD	Annual	2010	336.08	392.10	460.74	577.53	74.06	93.66	100.99	125.79
AD	Kern County APCD	Annual	2011	336.60	392.15	460.74	578.88	73.94	91.90	100.87	125.91
AD	Kern County APCD	Annual	2012	336.72	391.78	460.32	579.53	73.83	90.38	100.77	126.04
AD	Kern County APCD	Annual	2013	336.85	391.46	460.00	580.23	73.76	89.06	100.75	126.20
AD	Kern County APCD	Annual	2014	336.97	391.23	459.75	580.93	73.68	88.03	100.72	126.38
AD	Kern County APCD	Annual	2015	337.07	391.05	459.55	581.63	73.61	87.19	100.70	126.58
AD	Kern County APCD	Annual	2016	337.08	390.85	459.24	582.18	73.59	86.61	100.72	126.80
AD	Kern County APCD	Annual	2017	337.18	390.73	459.10	582.87	73.57	85.95	100.70	127.03
AD	Kern County APCD	Annual	2018	337.24	390.67	458.98	583.45	73.54	85.51	100.67	127.24
AD	Kern County APCD	Annual	2019	337.31	390.73	458.89	583.95	73.55	85.38	100.69	127.44
AD	Kern County APCD	Annual	2020	337.37	390.79	458.81	584.40	73.62	85.36	100.74	127.63
AD	Kern County APCD	Annual	2021	338.50	392.19	460.25	586.62	73.68	85.47	100.80	127.74
AD	Kern County APCD	Annual	2022	338.52	392.29	460.18	586.87	73.72	85.56	100.85	127.82
AD	Kern County APCD	Annual	2023	338.51	392.38	460.12	587.07	73.75	85.64	100.89	127.98
AD	Kern County APCD	Annual	2024	338.48	392.46	460.06	587.20	73.76	85.71	100.92	128.12
AD	Kern County APCD	Annual	2025	338.48	392.53	460.01	587.35	73.78	85.78	100.95	128.26
AD	Kern County APCD	Annual	2026	338.50	392.63	459.97	587.56	73.79	85.84	100.97	128.40
AD	Kern County APCD	Annual	2027	338.52	392.72	459.92	587.75	73.81	85.90	100.98	128.53
AD	Kern County APCD	Annual	2028	338.53	392.80	459.88	587.93	73.82	85.95	100.99	128.65
AD	Kern County APCD	Annual	2029	338.53	392.88	459.83	588.10	73.82	86.00	100.99	128.75
AD	Kern County APCD	Annual	2030	338.52	392.95	459.78	588.27	73.82	86.04	100.98	128.85
AD	Kern County APCD	Annual	2031	338.52	393.02	459.75	588.42	73.83	86.08	100.99	128.94
AD	Kern County APCD	Annual	2032	338.52	393.08	459.73	588.57	73.83	86.12	100.99	129.02
AD	Kern County APCD	Annual	2033	338.52	393.13	459.71	588.70	73.84	86.16	100.99	129.09

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Kern County APCD	Annual	2034	338.52	393.17	459.69	588.81	73.84	86.19	101.00	129.16
AD	Kern County APCD	Annual	2035	338.52	393.20	459.67	588.91	73.84	86.21	101.00	129.22
AD	Kern County APCD	Summer	2010	370.45	428.06	505.41	634.10	74.06	93.66	100.99	125.79
AD	Kern County APCD	Summer	2011	371.25	428.88	505.98	635.59	73.94	91.90	100.87	125.91
AD	Kern County APCD	Summer	2012	371.53	429.08	505.93	636.35	73.83	90.38	100.77	126.04
AD	Kern County APCD	Summer	2013	371.80	429.22	505.88	637.24	73.76	89.06	100.75	126.20
AD	Kern County APCD	Summer	2014	372.02	429.32	505.86	638.18	73.68	88.03	100.72	126.38
AD	Kern County APCD	Summer	2015	372.21	429.42	505.83	639.13	73.61	87.19	100.70	126.58
AD	Kern County APCD	Summer	2016	372.30	429.42	505.66	640.02	73.59	86.61	100.72	126.80
AD	Kern County APCD	Summer	2017	372.46	429.55	505.63	641.01	73.57	85.95	100.70	127.03
AD	Kern County APCD	Summer	2018	372.55	429.66	505.57	641.83	73.54	85.51	100.67	127.24
AD	Kern County APCD	Summer	2019	372.63	429.83	505.50	642.53	73.55	85.38	100.69	127.44
AD	Kern County APCD	Summer	2020	372.70	430.00	505.43	643.14	73.62	85.36	100.74	127.63
AD	Kern County APCD	Summer	2021	373.95	431.58	507.02	645.71	73.68	85.47	100.80	127.74
AD	Kern County APCD	Summer	2022	373.96	431.73	506.96	646.06	73.72	85.56	100.85	127.82
AD	Kern County APCD	Summer	2023	373.95	431.88	506.89	646.33	73.75	85.64	100.89	127.98
AD	Kern County APCD	Summer	2024	373.93	431.99	506.83	646.50	73.76	85.71	100.92	128.12
AD	Kern County APCD	Summer	2025	373.93	432.11	506.78	646.66	73.78	85.78	100.95	128.26
AD	Kern County APCD	Summer	2026	373.97	432.28	506.79	646.94	73.79	85.84	100.97	128.40
AD	Kern County APCD	Summer	2027	374.00	432.43	506.79	647.19	73.81	85.90	100.98	128.53
AD	Kern County APCD	Summer	2028	374.02	432.56	506.79	647.41	73.82	85.95	100.99	128.65
AD	Kern County APCD	Summer	2029	374.04	432.69	506.77	647.62	73.82	86.00	100.99	128.75
AD	Kern County APCD	Summer	2030	374.04	432.80	506.75	647.82	73.82	86.04	100.98	128.85
AD	Kern County APCD	Summer	2031	374.04	432.90	506.73	647.98	73.83	86.08	100.99	128.94
AD	Kern County APCD	Summer	2032	374.04	432.98	506.71	648.14	73.83	86.12	100.99	129.02
AD	Kern County APCD	Summer	2033	374.04	433.05	506.68	648.28	73.84	86.16	100.99	129.09
AD	Kern County APCD	Summer	2034	374.04	433.09	506.66	648.41	73.84	86.19	101.00	129.16
AD	Kern County APCD	Summer	2035	374.03	433.12	506.63	648.53	73.84	86.21	101.00	129.22
AD	Kern County APCD	Winter	2010	325.30	380.82	446.72	559.78	74.06	93.66	100.99	125.79
AD	Kern County APCD	Winter	2011	325.73	380.63	446.54	561.09	73.94	91.90	100.87	125.91
AD	Kern County APCD	Winter	2012	325.80	380.08	446.01	561.70	73.83	90.38	100.77	126.04
AD	Kern County APCD	Winter	2013	325.89	379.61	445.61	562.35	73.76	89.06	100.75	126.20
AD	Kern County APCD	Winter	2014	325.97	379.28	445.29	562.97	73.68	88.03	100.72	126.38
AD	Kern County APCD	Winter	2015	326.05	379.02	445.03	563.59	73.61	87.19	100.70	126.58
AD	Kern County APCD	Winter	2016	326.03	378.75	444.68	564.04	73.59	86.61	100.72	126.80
AD	Kern County APCD	Winter	2017	326.12	378.55	444.51	564.64	73.57	85.95	100.70	127.03
AD	Kern County APCD	Winter	2018	326.17	378.44	444.37	565.14	73.54	85.51	100.67	127.24
AD	Kern County APCD	Winter	2019	326.23	378.47	444.27	565.58	73.55	85.38	100.69	127.44
AD	Kern County APCD	Winter	2020	326.29	378.49	444.19	565.97	73.62	85.36	100.74	127.63
AD	Kern County APCD	Winter	2021	327.38	379.84	445.58	568.09	73.68	85.47	100.80	127.74
AD	Kern County APCD	Winter	2022	327.40	379.92	445.51	568.30	73.72	85.56	100.85	127.82
AD	Kern County APCD	Winter	2023	327.39	379.99	445.45	568.48	73.75	85.64	100.89	127.98
AD	Kern County APCD	Winter	2024	327.36	380.05	445.39	568.60	73.76	85.71	100.92	128.12
AD	Kern County APCD	Winter	2025	327.36	380.12	445.34	568.75	73.78	85.78	100.95	128.26
AD	Kern County APCD	Winter	2026	327.38	380.19	445.29	568.94	73.79	85.84	100.97	128.40
AD	Kern County APCD	Winter	2027	327.39	380.27	445.22	569.11	73.81	85.90	100.98	128.53
AD	Kern County APCD	Winter	2028	327.39	380.33	445.17	569.28	73.82	85.95	100.99	128.65
AD	Kern County APCD	Winter	2029	327.39	380.39	445.11	569.43	73.82	86.00	100.99	128.75
AD	Kern County APCD	Winter	2030	327.38	380.45	445.05	569.59	73.82	86.04	100.98	128.85
AD	Kern County APCD	Winter	2031	327.38	380.51	445.02	569.73	73.83	86.08	100.99	128.94
AD	Kern County APCD	Winter	2032	327.38	380.56	445.00	569.88	73.83	86.12	100.99	129.02
AD	Kern County APCD	Winter	2033	327.38	380.61	444.98	570.01	73.84	86.16	100.99	129.09
AD	Kern County APCD	Winter	2034	327.38	380.65	444.96	570.12	73.84	86.19	101.00	129.16
AD	Kern County APCD	Winter	2035	327.38	380.68	444.94	570.22	73.84	86.21	101.00	129.22

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Lake County APCD	Annual	2010	342.07	393.50	467.77	584.22	74.77	89.34	101.91	124.46
AD	Lake County APCD	Annual	2011	342.02	394.05	467.30	584.79	74.52	88.47	101.71	124.54
AD	Lake County APCD	Annual	2012	342.06	394.51	466.93	585.54	74.36	87.81	101.56	124.69
AD	Lake County APCD	Annual	2013	342.12	394.89	466.63	586.41	74.20	87.25	101.40	124.90
AD	Lake County APCD	Annual	2014	342.14	395.21	466.41	587.25	73.98	86.77	101.22	125.12
AD	Lake County APCD	Annual	2015	342.23	395.51	466.24	588.17	73.90	86.33	101.09	125.37
AD	Lake County APCD	Annual	2016	342.33	395.78	466.10	589.06	73.88	85.99	101.00	125.66
AD	Lake County APCD	Annual	2017	342.36	396.00	465.97	589.89	73.79	85.60	100.88	125.95
AD	Lake County APCD	Annual	2018	342.39	396.17	465.87	590.62	73.73	85.27	100.83	126.22
AD	Lake County APCD	Annual	2019	342.41	396.35	465.79	591.26	73.69	85.13	100.79	126.48
AD	Lake County APCD	Annual	2020	342.44	396.52	465.72	591.82	73.77	85.14	100.79	126.73
AD	Lake County APCD	Annual	2021	342.39	396.64	465.65	592.21	73.79	85.21	100.84	126.90
AD	Lake County APCD	Annual	2022	342.31	396.75	465.57	592.55	73.78	85.27	100.85	127.07
AD	Lake County APCD	Annual	2023	342.19	396.83	465.51	592.77	73.76	85.32	100.87	127.26
AD	Lake County APCD	Annual	2024	342.07	396.89	465.44	592.97	73.71	85.36	100.88	127.45
AD	Lake County APCD	Annual	2025	342.01	396.99	465.40	593.14	73.71	85.45	100.91	127.61
AD	Lake County APCD	Annual	2026	342.02	397.10	465.36	593.32	73.73	85.55	100.93	127.78
AD	Lake County APCD	Annual	2027	342.03	397.21	465.31	593.53	73.74	85.64	100.94	127.94
AD	Lake County APCD	Annual	2028	342.03	397.32	465.27	593.73	73.75	85.72	100.95	128.09
AD	Lake County APCD	Annual	2029	342.02	397.43	465.24	593.93	73.75	85.80	100.96	128.22
AD	Lake County APCD	Annual	2030	342.00	397.54	465.21	594.14	73.75	85.88	100.95	128.35
AD	Lake County APCD	Annual	2031	342.00	397.66	465.19	594.38	73.76	85.96	100.95	128.48
AD	Lake County APCD	Annual	2032	341.99	397.76	465.18	594.62	73.76	86.03	100.96	128.61
AD	Lake County APCD	Annual	2033	341.99	397.84	465.18	594.84	73.77	86.09	100.96	128.72
AD	Lake County APCD	Annual	2034	341.98	397.92	465.17	595.03	73.77	86.15	100.97	128.82
AD	Lake County APCD	Annual	2035	341.97	397.97	465.16	595.21	73.78	86.20	100.97	128.92
AD	Lake County APCD	Summer	2010	365.54	417.38	498.77	621.97	74.77	89.34	101.91	124.46
AD	Lake County APCD	Summer	2011	365.78	418.72	498.60	622.61	74.52	88.47	101.71	124.54
AD	Lake County APCD	Summer	2012	366.03	419.77	498.49	623.54	74.36	87.81	101.56	124.69
AD	Lake County APCD	Summer	2013	366.25	420.60	498.41	624.68	74.20	87.25	101.40	124.90
AD	Lake County APCD	Summer	2014	366.39	421.26	498.37	625.78	73.98	86.77	101.22	125.12
AD	Lake County APCD	Summer	2015	366.55	421.85	498.36	627.02	73.90	86.33	101.09	125.37
AD	Lake County APCD	Summer	2016	366.69	422.33	498.33	628.23	73.88	85.99	101.00	125.66
AD	Lake County APCD	Summer	2017	366.75	422.72	498.28	629.33	73.79	85.60	100.88	125.95
AD	Lake County APCD	Summer	2018	366.77	423.03	498.21	630.31	73.73	85.27	100.83	126.22
AD	Lake County APCD	Summer	2019	366.79	423.31	498.14	631.16	73.69	85.13	100.79	126.48
AD	Lake County APCD	Summer	2020	366.81	423.55	498.08	631.89	73.77	85.14	100.79	126.73
AD	Lake County APCD	Summer	2021	366.76	423.74	498.00	632.43	73.79	85.21	100.84	126.90
AD	Lake County APCD	Summer	2022	366.67	423.91	497.93	632.88	73.78	85.27	100.85	127.07
AD	Lake County APCD	Summer	2023	366.57	424.04	497.87	633.19	73.76	85.32	100.87	127.26
AD	Lake County APCD	Summer	2024	366.46	424.16	497.81	633.47	73.71	85.36	100.88	127.45
AD	Lake County APCD	Summer	2025	366.41	424.28	497.76	633.69	73.71	85.45	100.91	127.61
AD	Lake County APCD	Summer	2026	366.43	424.42	497.70	633.89	73.73	85.55	100.93	127.78
AD	Lake County APCD	Summer	2027	366.46	424.56	497.65	634.10	73.74	85.64	100.94	127.94
AD	Lake County APCD	Summer	2028	366.47	424.70	497.62	634.32	73.75	85.72	100.95	128.09
AD	Lake County APCD	Summer	2029	366.48	424.86	497.59	634.55	73.75	85.80	100.96	128.22
AD	Lake County APCD	Summer	2030	366.48	425.00	497.56	634.80	73.75	85.88	100.95	128.35
AD	Lake County APCD	Summer	2031	366.48	425.18	497.58	635.06	73.76	85.96	100.95	128.48
AD	Lake County APCD	Summer	2032	366.47	425.33	497.59	635.34	73.76	86.03	100.96	128.61
AD	Lake County APCD	Summer	2033	366.46	425.44	497.60	635.60	73.77	86.09	100.96	128.72
AD	Lake County APCD	Summer	2034	366.45	425.54	497.60	635.84	73.77	86.15	100.97	128.82
AD	Lake County APCD	Summer	2035	366.44	425.60	497.60	636.06	73.78	86.20	100.97	128.92
AD	Lake County APCD	Winter	2010	355.28	406.94	485.21	605.47	74.77	89.34	101.91	124.46
AD	Lake County APCD	Winter	2011	355.39	407.93	484.91	606.07	74.52	88.47	101.71	124.54

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Lake County APCD	Winter	2012	355.55	408.73	484.69	606.93	74.36	87.81	101.56	124.69
AD	Lake County APCD	Winter	2013	355.70	409.36	484.52	607.95	74.20	87.25	101.40	124.90
AD	Lake County APCD	Winter	2014	355.79	409.87	484.39	608.93	73.98	86.77	101.22	125.12
AD	Lake County APCD	Winter	2015	355.91	410.33	484.31	610.03	73.90	86.33	101.09	125.37
AD	Lake County APCD	Winter	2016	356.04	410.72	484.24	611.10	73.88	85.99	101.00	125.66
AD	Lake County APCD	Winter	2017	356.08	411.04	484.15	612.08	73.79	85.60	100.88	125.95
AD	Lake County APCD	Winter	2018	356.11	411.29	484.07	612.96	73.73	85.27	100.83	126.22
AD	Lake County APCD	Winter	2019	356.13	411.52	484.00	613.71	73.69	85.13	100.79	126.48
AD	Lake County APCD	Winter	2020	356.15	411.73	483.93	614.36	73.77	85.14	100.79	126.73
AD	Lake County APCD	Winter	2021	356.11	411.89	483.85	614.84	73.79	85.21	100.84	126.90
AD	Lake County APCD	Winter	2022	356.02	412.03	483.78	615.25	73.78	85.27	100.85	127.07
AD	Lake County APCD	Winter	2023	355.91	412.15	483.72	615.52	73.76	85.32	100.87	127.26
AD	Lake County APCD	Winter	2024	355.79	412.24	483.66	615.76	73.71	85.36	100.88	127.45
AD	Lake County APCD	Winter	2025	355.74	412.35	483.61	615.96	73.71	85.45	100.91	127.61
AD	Lake County APCD	Winter	2026	355.76	412.47	483.56	616.15	73.73	85.55	100.93	127.78
AD	Lake County APCD	Winter	2027	355.78	412.60	483.51	616.36	73.74	85.64	100.94	127.94
AD	Lake County APCD	Winter	2028	355.78	412.73	483.47	616.58	73.75	85.72	100.95	128.09
AD	Lake County APCD	Winter	2029	355.78	412.87	483.44	616.79	73.75	85.80	100.96	128.22
AD	Lake County APCD	Winter	2030	355.78	412.99	483.41	617.02	73.75	85.88	100.95	128.35
AD	Lake County APCD	Winter	2031	355.77	413.15	483.42	617.27	73.76	85.96	100.95	128.48
AD	Lake County APCD	Winter	2032	355.77	413.27	483.42	617.53	73.76	86.03	100.96	128.61
AD	Lake County APCD	Winter	2033	355.76	413.37	483.42	617.77	73.77	86.09	100.96	128.72
AD	Lake County APCD	Winter	2034	355.75	413.46	483.42	618.00	73.77	86.15	100.97	128.82
AD	Lake County APCD	Winter	2035	355.74	413.52	483.42	618.20	73.78	86.20	100.97	128.92
AD	Lassen County APCD	Annual	2010	366.63	428.55	501.21	626.78	75.03	93.49	101.72	124.85
AD	Lassen County APCD	Annual	2011	366.52	427.89	500.66	627.52	74.78	92.04	101.44	124.99
AD	Lassen County APCD	Annual	2012	366.51	427.37	500.23	628.37	74.62	90.87	101.30	125.17
AD	Lassen County APCD	Annual	2013	366.45	426.93	499.88	629.27	74.35	89.90	101.18	125.38
AD	Lassen County APCD	Annual	2014	366.47	426.50	499.61	630.13	74.18	88.91	101.02	125.60
AD	Lassen County APCD	Annual	2015	366.54	426.15	499.39	631.03	74.11	88.06	100.90	125.84
AD	Lassen County APCD	Annual	2016	366.63	425.82	499.23	631.85	74.09	87.24	100.87	126.11
AD	Lassen County APCD	Annual	2017	366.62	425.58	499.09	632.62	73.95	86.60	100.80	126.37
AD	Lassen County APCD	Annual	2018	366.60	425.38	498.97	633.29	73.84	86.10	100.79	126.62
AD	Lassen County APCD	Annual	2019	366.62	425.22	498.88	633.88	73.81	85.71	100.76	126.84
AD	Lassen County APCD	Annual	2020	366.64	425.15	498.80	634.35	73.88	85.60	100.80	127.07
AD	Lassen County APCD	Annual	2021	366.58	425.05	498.73	634.71	73.90	85.58	100.85	127.25
AD	Lassen County APCD	Annual	2022	366.46	424.97	498.64	635.00	73.88	85.58	100.88	127.38
AD	Lassen County APCD	Annual	2023	366.37	424.91	498.56	635.19	73.88	85.59	100.91	127.55
AD	Lassen County APCD	Annual	2024	366.23	424.85	498.49	635.34	73.85	85.60	100.93	127.70
AD	Lassen County APCD	Annual	2025	366.17	424.91	498.44	635.47	73.85	85.67	100.96	127.84
AD	Lassen County APCD	Annual	2026	366.19	425.03	498.40	635.65	73.87	85.75	100.99	127.99
AD	Lassen County APCD	Annual	2027	366.19	425.15	498.34	635.84	73.88	85.83	101.00	128.13
AD	Lassen County APCD	Annual	2028	366.19	425.28	498.29	636.04	73.89	85.91	101.01	128.26
AD	Lassen County APCD	Annual	2029	366.17	425.41	498.23	636.23	73.89	85.98	101.01	128.38
AD	Lassen County APCD	Annual	2030	366.16	425.52	498.17	636.41	73.89	86.04	101.01	128.49
AD	Lassen County APCD	Annual	2031	366.15	425.65	498.14	636.65	73.90	86.10	101.01	128.61
AD	Lassen County APCD	Annual	2032	366.15	425.76	498.12	636.90	73.90	86.16	101.01	128.73
AD	Lassen County APCD	Annual	2033	366.15	425.86	498.09	637.12	73.91	86.22	101.02	128.83
AD	Lassen County APCD	Annual	2034	366.14	425.94	498.07	637.31	73.91	86.26	101.02	128.92
AD	Lassen County APCD	Annual	2035	366.13	426.00	498.05	637.48	73.92	86.30	101.02	129.01
AD	Lassen County APCD	Summer	2010	385.95	446.82	526.65	657.83	75.03	93.49	101.72	124.85
AD	Lassen County APCD	Summer	2011	386.07	446.99	526.29	658.69	74.78	92.04	101.44	124.99
AD	Lassen County APCD	Summer	2012	386.23	447.10	526.01	659.72	74.62	90.87	101.30	125.17
AD	Lassen County APCD	Summer	2013	386.31	447.13	525.80	660.84	74.35	89.90	101.18	125.38

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Lassen County APCD	Summer	2014	386.41	447.10	525.66	661.92	74.18	88.91	101.02	125.60
AD	Lassen County APCD	Summer	2015	386.54	447.07	525.57	663.05	74.11	88.06	100.90	125.84
AD	Lassen County APCD	Summer	2016	386.67	447.02	525.50	664.09	74.09	87.24	100.87	126.11
AD	Lassen County APCD	Summer	2017	386.67	446.98	525.44	665.06	73.95	86.60	100.80	126.37
AD	Lassen County APCD	Summer	2018	386.66	446.94	525.37	665.90	73.84	86.10	100.79	126.62
AD	Lassen County APCD	Summer	2019	386.67	446.92	525.31	666.64	73.81	85.71	100.76	126.84
AD	Lassen County APCD	Summer	2020	386.68	446.95	525.25	667.23	73.88	85.60	100.80	127.07
AD	Lassen County APCD	Summer	2021	386.62	446.96	525.18	667.70	73.90	85.58	100.85	127.25
AD	Lassen County APCD	Summer	2022	386.49	446.97	525.10	668.07	73.88	85.58	100.88	127.38
AD	Lassen County APCD	Summer	2023	386.41	446.99	525.03	668.33	73.88	85.59	100.91	127.55
AD	Lassen County APCD	Summer	2024	386.28	447.01	524.97	668.54	73.85	85.60	100.93	127.70
AD	Lassen County APCD	Summer	2025	386.22	447.11	524.92	668.73	73.85	85.67	100.96	127.84
AD	Lassen County APCD	Summer	2026	386.24	447.28	524.88	668.93	73.87	85.75	100.99	127.99
AD	Lassen County APCD	Summer	2027	386.26	447.44	524.83	669.14	73.88	85.83	101.00	128.13
AD	Lassen County APCD	Summer	2028	386.27	447.61	524.79	669.37	73.89	85.91	101.01	128.26
AD	Lassen County APCD	Summer	2029	386.27	447.79	524.74	669.59	73.89	85.98	101.01	128.38
AD	Lassen County APCD	Summer	2030	386.26	447.96	524.69	669.81	73.89	86.04	101.01	128.49
AD	Lassen County APCD	Summer	2031	386.26	448.12	524.66	670.10	73.90	86.10	101.01	128.61
AD	Lassen County APCD	Summer	2032	386.26	448.27	524.64	670.38	73.90	86.16	101.01	128.73
AD	Lassen County APCD	Summer	2033	386.25	448.40	524.62	670.64	73.91	86.22	101.02	128.83
AD	Lassen County APCD	Summer	2034	386.25	448.50	524.60	670.87	73.91	86.26	101.02	128.92
AD	Lassen County APCD	Summer	2035	386.24	448.57	524.58	671.07	73.92	86.30	101.02	129.01
AD	Lassen County APCD	Winter	2010	359.88	422.17	492.33	615.94	75.03	93.49	101.72	124.85
AD	Lassen County APCD	Winter	2011	359.69	421.22	491.71	616.64	74.78	92.04	101.44	124.99
AD	Lassen County APCD	Winter	2012	359.63	420.48	491.23	617.43	74.62	90.87	101.30	125.17
AD	Lassen County APCD	Winter	2013	359.52	419.89	490.84	618.25	74.35	89.90	101.18	125.38
AD	Lassen County APCD	Winter	2014	359.51	419.32	490.52	619.04	74.18	88.91	101.02	125.60
AD	Lassen County APCD	Winter	2015	359.57	418.85	490.26	619.85	74.11	88.06	100.90	125.84
AD	Lassen County APCD	Winter	2016	359.64	418.43	490.06	620.60	74.09	87.24	100.87	126.11
AD	Lassen County APCD	Winter	2017	359.62	418.11	489.89	621.30	73.95	86.60	100.80	126.37
AD	Lassen County APCD	Winter	2018	359.60	417.85	489.77	621.91	73.84	86.10	100.79	126.62
AD	Lassen County APCD	Winter	2019	359.62	417.65	489.66	622.44	73.81	85.71	100.76	126.84
AD	Lassen County APCD	Winter	2020	359.65	417.54	489.58	622.88	73.88	85.60	100.80	127.07
AD	Lassen County APCD	Winter	2021	359.59	417.41	489.50	623.21	73.90	85.58	100.85	127.25
AD	Lassen County APCD	Winter	2022	359.47	417.29	489.40	623.46	73.88	85.58	100.88	127.38
AD	Lassen County APCD	Winter	2023	359.38	417.21	489.33	623.63	73.88	85.59	100.91	127.55
AD	Lassen County APCD	Winter	2024	359.24	417.11	489.25	623.75	73.85	85.60	100.93	127.70
AD	Lassen County APCD	Winter	2025	359.18	417.16	489.20	623.86	73.85	85.67	100.96	127.84
AD	Lassen County APCD	Winter	2026	359.19	417.27	489.16	624.04	73.87	85.75	100.99	127.99
AD	Lassen County APCD	Winter	2027	359.18	417.38	489.10	624.22	73.88	85.83	101.00	128.13
AD	Lassen County APCD	Winter	2028	359.18	417.49	489.05	624.41	73.89	85.91	101.01	128.26
AD	Lassen County APCD	Winter	2029	359.16	417.59	488.98	624.59	73.89	85.98	101.01	128.38
AD	Lassen County APCD	Winter	2030	359.14	417.70	488.92	624.75	73.89	86.04	101.01	128.49
AD	Lassen County APCD	Winter	2031	359.14	417.80	488.89	624.98	73.90	86.10	101.01	128.61
AD	Lassen County APCD	Winter	2032	359.14	417.90	488.86	625.22	73.90	86.16	101.01	128.73
AD	Lassen County APCD	Winter	2033	359.13	417.99	488.84	625.43	73.91	86.22	101.02	128.83
AD	Lassen County APCD	Winter	2034	359.13	418.06	488.82	625.61	73.91	86.26	101.02	128.92
AD	Lassen County APCD	Winter	2035	359.12	418.13	488.80	625.76	73.92	86.30	101.02	129.01
AD	Mariposa County APCD	Annual	2010	354.50	410.51	485.83	607.63	74.37	89.51	102.09	125.68
AD	Mariposa County APCD	Annual	2011	354.40	410.55	485.11	608.19	74.22	88.77	101.86	125.71
AD	Mariposa County APCD	Annual	2012	354.31	410.56	484.54	608.86	74.03	88.15	101.71	125.79
AD	Mariposa County APCD	Annual	2013	354.36	410.52	484.09	609.60	73.97	87.50	101.57	125.92
AD	Mariposa County APCD	Annual	2014	354.33	410.46	483.72	610.33	73.82	86.87	101.30	126.07
AD	Mariposa County APCD	Annual	2015	354.43	410.47	483.42	611.09	73.83	86.45	101.16	126.26

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Mariposa County APCD	Annual	2016	354.48	410.49	483.19	611.81	73.80	86.11	101.08	126.48
AD	Mariposa County APCD	Annual	2017	354.51	410.47	483.00	612.49	73.77	85.68	101.00	126.70
AD	Mariposa County APCD	Annual	2018	354.51	410.48	482.83	613.06	73.71	85.43	100.90	126.90
AD	Mariposa County APCD	Annual	2019	354.47	410.55	482.70	613.53	73.61	85.35	100.87	127.11
AD	Mariposa County APCD	Annual	2020	354.41	410.60	482.59	613.96	73.65	85.32	100.89	127.30
AD	Mariposa County APCD	Annual	2021	354.35	410.60	482.48	614.20	73.67	85.35	100.93	127.34
AD	Mariposa County APCD	Annual	2022	354.26	410.63	482.35	614.40	73.67	85.40	100.94	127.39
AD	Mariposa County APCD	Annual	2023	354.08	410.62	482.24	614.56	73.64	85.42	100.94	127.56
AD	Mariposa County APCD	Annual	2024	353.92	410.60	482.16	614.67	73.60	85.46	100.96	127.71
AD	Mariposa County APCD	Annual	2025	353.86	410.66	482.10	614.79	73.60	85.52	100.99	127.87
AD	Mariposa County APCD	Annual	2026	353.86	410.81	482.03	614.95	73.62	85.62	101.00	128.02
AD	Mariposa County APCD	Annual	2027	353.86	410.93	481.97	615.12	73.63	85.71	101.01	128.16
AD	Mariposa County APCD	Annual	2028	353.85	411.06	481.91	615.29	73.64	85.79	101.02	128.29
AD	Mariposa County APCD	Annual	2029	353.83	411.19	481.84	615.47	73.64	85.87	101.02	128.41
AD	Mariposa County APCD	Annual	2030	353.81	411.31	481.77	615.62	73.64	85.94	101.01	128.52
AD	Mariposa County APCD	Annual	2031	353.81	411.44	481.74	615.85	73.65	86.01	101.01	128.65
AD	Mariposa County APCD	Annual	2032	353.80	411.54	481.71	616.07	73.65	86.08	101.02	128.76
AD	Mariposa County APCD	Annual	2033	353.80	411.63	481.68	616.27	73.66	86.13	101.02	128.86
AD	Mariposa County APCD	Annual	2034	353.79	411.70	481.65	616.45	73.66	86.19	101.02	128.96
AD	Mariposa County APCD	Annual	2035	353.78	411.77	481.63	616.61	73.67	86.23	101.02	129.05
AD	Mariposa County APCD	Summer	2010	383.75	439.08	524.10	654.73	74.37	89.51	102.09	125.68
AD	Mariposa County APCD	Summer	2011	383.98	440.10	523.79	655.48	74.22	88.77	101.86	125.71
AD	Mariposa County APCD	Summer	2012	384.14	440.90	523.54	656.41	74.03	88.15	101.71	125.79
AD	Mariposa County APCD	Summer	2013	384.37	441.53	523.38	657.50	73.97	87.50	101.57	125.92
AD	Mariposa County APCD	Summer	2014	384.48	442.00	523.29	658.57	73.82	86.87	101.30	126.07
AD	Mariposa County APCD	Summer	2015	384.66	442.44	523.21	659.71	73.83	86.45	101.16	126.26
AD	Mariposa County APCD	Summer	2016	384.77	442.80	523.13	660.80	73.80	86.11	101.08	126.48
AD	Mariposa County APCD	Summer	2017	384.83	443.08	523.05	661.80	73.77	85.68	101.00	126.70
AD	Mariposa County APCD	Summer	2018	384.83	443.32	522.95	662.65	73.71	85.43	100.90	126.90
AD	Mariposa County APCD	Summer	2019	384.80	443.56	522.85	663.34	73.61	85.35	100.87	127.11
AD	Mariposa County APCD	Summer	2020	384.74	443.78	522.76	663.97	73.65	85.32	100.89	127.30
AD	Mariposa County APCD	Summer	2021	384.68	443.93	522.65	664.40	73.67	85.35	100.93	127.34
AD	Mariposa County APCD	Summer	2022	384.58	444.09	522.56	664.75	73.67	85.40	100.94	127.39
AD	Mariposa County APCD	Summer	2023	384.42	444.21	522.47	665.02	73.64	85.42	100.94	127.56
AD	Mariposa County APCD	Summer	2024	384.29	444.31	522.40	665.20	73.60	85.46	100.96	127.71
AD	Mariposa County APCD	Summer	2025	384.24	444.44	522.34	665.37	73.60	85.52	100.99	127.87
AD	Mariposa County APCD	Summer	2026	384.25	444.68	522.29	665.56	73.62	85.62	101.00	128.02
AD	Mariposa County APCD	Summer	2027	384.26	444.88	522.24	665.76	73.63	85.71	101.01	128.16
AD	Mariposa County APCD	Summer	2028	384.26	445.08	522.20	665.98	73.64	85.79	101.02	128.29
AD	Mariposa County APCD	Summer	2029	384.26	445.29	522.15	666.20	73.64	85.87	101.02	128.41
AD	Mariposa County APCD	Summer	2030	384.25	445.48	522.11	666.42	73.64	85.94	101.01	128.52
AD	Mariposa County APCD	Summer	2031	384.25	445.67	522.08	666.71	73.65	86.01	101.01	128.65
AD	Mariposa County APCD	Summer	2032	384.25	445.81	522.06	667.00	73.65	86.08	101.02	128.76
AD	Mariposa County APCD	Summer	2033	384.25	445.93	522.04	667.26	73.66	86.13	101.02	128.86
AD	Mariposa County APCD	Summer	2034	384.24	446.03	522.02	667.49	73.66	86.19	101.02	128.96
AD	Mariposa County APCD	Summer	2035	384.23	446.10	521.99	667.70	73.67	86.23	101.02	129.05
AD	Mariposa County APCD	Winter	2010	347.30	403.48	476.41	596.03	74.37	89.51	102.09	125.68
AD	Mariposa County APCD	Winter	2011	347.12	403.27	475.59	596.55	74.22	88.77	101.86	125.71
AD	Mariposa County APCD	Winter	2012	346.97	403.10	474.94	597.15	74.03	88.15	101.71	125.79
AD	Mariposa County APCD	Winter	2013	346.97	402.89	474.42	597.81	73.97	87.50	101.57	125.92
AD	Mariposa County APCD	Winter	2014	346.91	402.69	473.97	598.45	73.82	86.87	101.30	126.07
AD	Mariposa County APCD	Winter	2015	346.99	402.60	473.63	599.12	73.83	86.45	101.16	126.26
AD	Mariposa County APCD	Winter	2016	347.02	402.54	473.35	599.75	73.80	86.11	101.08	126.48
AD	Mariposa County APCD	Winter	2017	347.05	402.44	473.14	600.35	73.77	85.68	101.00	126.70

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Mariposa County APCD	Winter	2018	347.05	402.40	472.95	600.86	73.71	85.43	100.90	126.90
AD	Mariposa County APCD	Winter	2019	347.00	402.43	472.82	601.27	73.61	85.35	100.87	127.11
AD	Mariposa County APCD	Winter	2020	346.95	402.43	472.71	601.65	73.65	85.32	100.89	127.30
AD	Mariposa County APCD	Winter	2021	346.89	402.39	472.58	601.84	73.67	85.35	100.93	127.34
AD	Mariposa County APCD	Winter	2022	346.79	402.39	472.45	602.00	73.67	85.40	100.94	127.39
AD	Mariposa County APCD	Winter	2023	346.62	402.35	472.34	602.13	73.64	85.42	100.94	127.56
AD	Mariposa County APCD	Winter	2024	346.44	402.31	472.26	602.23	73.60	85.46	100.96	127.71
AD	Mariposa County APCD	Winter	2025	346.39	402.35	472.20	602.34	73.60	85.52	100.99	127.87
AD	Mariposa County APCD	Winter	2026	346.39	402.47	472.12	602.49	73.62	85.62	101.00	128.02
AD	Mariposa County APCD	Winter	2027	346.37	402.58	472.05	602.65	73.63	85.71	101.01	128.16
AD	Mariposa County APCD	Winter	2028	346.37	402.69	472.00	602.81	73.64	85.79	101.02	128.29
AD	Mariposa County APCD	Winter	2029	346.35	402.80	471.92	602.98	73.64	85.87	101.02	128.41
AD	Mariposa County APCD	Winter	2030	346.32	402.90	471.85	603.12	73.64	85.94	101.01	128.52
AD	Mariposa County APCD	Winter	2031	346.31	403.01	471.81	603.33	73.65	86.01	101.01	128.65
AD	Mariposa County APCD	Winter	2032	346.31	403.10	471.78	603.54	73.65	86.08	101.02	128.76
AD	Mariposa County APCD	Winter	2033	346.30	403.18	471.75	603.72	73.66	86.13	101.02	128.86
AD	Mariposa County APCD	Winter	2034	346.29	403.25	471.72	603.89	73.66	86.19	101.02	128.96
AD	Mariposa County APCD	Winter	2035	346.28	403.31	471.70	604.03	73.67	86.23	101.02	129.05
AD	Mendocino County APCD	Annual	2010	328.61	379.07	451.10	562.37	72.79	86.74	100.94	123.79
AD	Mendocino County APCD	Annual	2011	328.64	379.33	450.55	563.04	72.74	86.20	100.83	123.99
AD	Mendocino County APCD	Annual	2012	328.71	379.62	450.13	563.82	72.71	85.88	100.79	124.25
AD	Mendocino County APCD	Annual	2013	328.81	379.86	449.78	564.69	72.69	85.57	100.77	124.53
AD	Mendocino County APCD	Annual	2014	328.91	380.10	449.50	565.53	72.66	85.38	100.70	124.83
AD	Mendocino County APCD	Annual	2015	329.05	380.33	449.28	566.42	72.71	85.22	100.68	125.15
AD	Mendocino County APCD	Annual	2016	329.20	380.54	449.10	567.26	72.78	85.05	100.67	125.47
AD	Mendocino County APCD	Annual	2017	329.29	380.71	448.96	568.05	72.79	84.90	100.65	125.80
AD	Mendocino County APCD	Annual	2018	329.36	380.86	448.84	568.75	72.80	84.79	100.64	126.10
AD	Mendocino County APCD	Annual	2019	329.41	381.04	448.75	569.35	72.81	84.81	100.66	126.39
AD	Mendocino County APCD	Annual	2020	329.46	381.20	448.68	569.87	72.90	84.89	100.71	126.66
AD	Mendocino County APCD	Annual	2021	329.47	381.32	448.60	570.28	72.95	85.00	100.77	126.88
AD	Mendocino County APCD	Annual	2022	329.44	381.41	448.52	570.63	72.98	85.10	100.81	127.08
AD	Mendocino County APCD	Annual	2023	329.37	381.48	448.45	570.90	72.99	85.18	100.85	127.29
AD	Mendocino County APCD	Annual	2024	329.30	381.52	448.37	571.09	72.98	85.26	100.87	127.48
AD	Mendocino County APCD	Annual	2025	329.26	381.61	448.33	571.27	72.99	85.36	100.90	127.65
AD	Mendocino County APCD	Annual	2026	329.27	381.77	448.27	571.47	73.01	85.47	100.93	127.81
AD	Mendocino County APCD	Annual	2027	329.27	381.91	448.22	571.68	73.03	85.57	100.94	127.97
AD	Mendocino County APCD	Annual	2028	329.27	382.05	448.17	571.89	73.03	85.66	100.96	128.11
AD	Mendocino County APCD	Annual	2029	329.25	382.19	448.10	572.09	73.04	85.75	100.95	128.24
AD	Mendocino County APCD	Annual	2030	329.24	382.33	448.03	572.30	73.04	85.83	100.95	128.37
AD	Mendocino County APCD	Annual	2031	329.23	382.47	448.00	572.53	73.05	85.91	100.96	128.50
AD	Mendocino County APCD	Annual	2032	329.23	382.60	447.97	572.77	73.06	85.98	100.96	128.62
AD	Mendocino County APCD	Annual	2033	329.22	382.71	447.95	572.98	73.06	86.05	100.96	128.73
AD	Mendocino County APCD	Annual	2034	329.22	382.81	447.93	573.17	73.07	86.11	100.97	128.83
AD	Mendocino County APCD	Annual	2035	329.21	382.89	447.91	573.33	73.07	86.16	100.97	128.93
AD	Mendocino County APCD	Summer	2010	335.50	385.93	460.22	573.75	72.79	86.74	100.94	123.79
AD	Mendocino County APCD	Summer	2011	335.60	386.40	459.76	574.44	72.74	86.20	100.83	123.99
AD	Mendocino County APCD	Summer	2012	335.73	386.85	459.39	575.26	72.71	85.88	100.79	124.25
AD	Mendocino County APCD	Summer	2013	335.88	387.22	459.11	576.18	72.69	85.57	100.77	124.53
AD	Mendocino County APCD	Summer	2014	336.01	387.57	458.87	577.08	72.66	85.38	100.70	124.83
AD	Mendocino County APCD	Summer	2015	336.17	387.90	458.70	578.04	72.71	85.22	100.68	125.15
AD	Mendocino County APCD	Summer	2016	336.34	388.18	458.56	578.96	72.78	85.05	100.67	125.47
AD	Mendocino County APCD	Summer	2017	336.43	388.42	458.43	579.82	72.79	84.90	100.65	125.80
AD	Mendocino County APCD	Summer	2018	336.49	388.62	458.33	580.57	72.80	84.79	100.64	126.10
AD	Mendocino County APCD	Summer	2019	336.54	388.83	458.25	581.22	72.81	84.81	100.66	126.39

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Mendocino County APCD	Summer	2020	336.59	389.03	458.18	581.78	72.90	84.89	100.71	126.66
AD	Mendocino County APCD	Summer	2021	336.60	389.18	458.11	582.21	72.95	85.00	100.77	126.88
AD	Mendocino County APCD	Summer	2022	336.57	389.31	458.03	582.59	72.98	85.10	100.81	127.08
AD	Mendocino County APCD	Summer	2023	336.50	389.40	457.96	582.88	72.99	85.18	100.85	127.29
AD	Mendocino County APCD	Summer	2024	336.43	389.46	457.89	583.08	72.98	85.26	100.87	127.48
AD	Mendocino County APCD	Summer	2025	336.39	389.57	457.85	583.26	72.99	85.36	100.90	127.65
AD	Mendocino County APCD	Summer	2026	336.40	389.75	457.79	583.47	73.01	85.47	100.93	127.81
AD	Mendocino County APCD	Summer	2027	336.41	389.91	457.74	583.68	73.03	85.57	100.94	127.97
AD	Mendocino County APCD	Summer	2028	336.41	390.07	457.70	583.89	73.03	85.66	100.96	128.11
AD	Mendocino County APCD	Summer	2029	336.40	390.24	457.63	584.11	73.04	85.75	100.95	128.24
AD	Mendocino County APCD	Summer	2030	336.39	390.39	457.57	584.32	73.04	85.83	100.95	128.37
AD	Mendocino County APCD	Summer	2031	336.39	390.55	457.53	584.57	73.05	85.91	100.96	128.50
AD	Mendocino County APCD	Summer	2032	336.38	390.69	457.51	584.82	73.06	85.98	100.96	128.62
AD	Mendocino County APCD	Summer	2033	336.38	390.81	457.48	585.05	73.06	86.05	100.96	128.73
AD	Mendocino County APCD	Summer	2034	336.37	390.92	457.46	585.25	73.07	86.11	100.97	128.83
AD	Mendocino County APCD	Summer	2035	336.36	391.01	457.44	585.42	73.07	86.16	100.97	128.93
AD	Mendocino County APCD	Winter	2010	325.36	375.84	446.80	556.99	72.79	86.74	100.94	123.79
AD	Mendocino County APCD	Winter	2011	325.35	375.99	446.21	557.66	72.74	86.20	100.83	123.99
AD	Mendocino County APCD	Winter	2012	325.39	376.21	445.75	558.43	72.71	85.88	100.79	124.25
AD	Mendocino County APCD	Winter	2013	325.47	376.38	445.38	559.27	72.69	85.57	100.77	124.53
AD	Mendocino County APCD	Winter	2014	325.56	376.57	445.08	560.08	72.66	85.38	100.70	124.83
AD	Mendocino County APCD	Winter	2015	325.69	376.77	444.84	560.93	72.71	85.22	100.68	125.15
AD	Mendocino County APCD	Winter	2016	325.84	376.93	444.64	561.74	72.78	85.05	100.67	125.47
AD	Mendocino County APCD	Winter	2017	325.92	377.08	444.49	562.50	72.79	84.90	100.65	125.80
AD	Mendocino County APCD	Winter	2018	325.99	377.20	444.36	563.17	72.80	84.79	100.64	126.10
AD	Mendocino County APCD	Winter	2019	326.04	377.36	444.27	563.75	72.81	84.81	100.66	126.39
AD	Mendocino County APCD	Winter	2020	326.10	377.51	444.20	564.26	72.90	84.89	100.71	126.66
AD	Mendocino County APCD	Winter	2021	326.10	377.61	444.12	564.65	72.95	85.00	100.77	126.88
AD	Mendocino County APCD	Winter	2022	326.08	377.69	444.04	564.99	72.98	85.10	100.81	127.08
AD	Mendocino County APCD	Winter	2023	326.01	377.75	443.96	565.25	72.99	85.18	100.85	127.29
AD	Mendocino County APCD	Winter	2024	325.93	377.77	443.88	565.44	72.98	85.26	100.87	127.48
AD	Mendocino County APCD	Winter	2025	325.89	377.86	443.83	565.61	72.99	85.36	100.90	127.65
AD	Mendocino County APCD	Winter	2026	325.90	378.00	443.78	565.81	73.01	85.47	100.93	127.81
AD	Mendocino County APCD	Winter	2027	325.90	378.13	443.72	566.01	73.03	85.57	100.94	127.97
AD	Mendocino County APCD	Winter	2028	325.90	378.27	443.68	566.22	73.03	85.66	100.96	128.11
AD	Mendocino County APCD	Winter	2029	325.88	378.40	443.60	566.42	73.04	85.75	100.95	128.24
AD	Mendocino County APCD	Winter	2030	325.86	378.53	443.54	566.62	73.04	85.83	100.95	128.37
AD	Mendocino County APCD	Winter	2031	325.86	378.66	443.50	566.86	73.05	85.91	100.96	128.50
AD	Mendocino County APCD	Winter	2032	325.85	378.78	443.47	567.09	73.06	85.98	100.96	128.62
AD	Mendocino County APCD	Winter	2033	325.85	378.89	443.45	567.29	73.06	86.05	100.96	128.73
AD	Mendocino County APCD	Winter	2034	325.84	378.99	443.43	567.47	73.07	86.11	100.97	128.83
AD	Mendocino County APCD	Winter	2035	325.83	379.07	443.41	567.63	73.07	86.16	100.97	128.93
AD	Modoc County APCD	Annual	2010	408.79	488.59	560.53	697.57	74.87	100.48	102.62	125.01
AD	Modoc County APCD	Annual	2011	408.63	485.64	559.72	698.46	74.72	97.48	102.30	125.08
AD	Modoc County APCD	Annual	2012	408.43	483.59	559.09	699.50	74.39	95.30	102.13	125.22
AD	Modoc County APCD	Annual	2013	408.39	482.13	558.57	700.69	74.23	93.74	101.93	125.38
AD	Modoc County APCD	Annual	2014	408.30	480.62	558.13	701.74	73.97	91.96	101.58	125.59
AD	Modoc County APCD	Annual	2015	408.25	479.23	557.81	702.85	73.76	90.19	101.45	125.82
AD	Modoc County APCD	Annual	2016	408.36	478.26	557.54	703.92	73.79	88.96	101.31	126.08
AD	Modoc County APCD	Annual	2017	408.32	477.36	557.31	704.96	73.64	87.77	101.05	126.34
AD	Modoc County APCD	Annual	2018	408.22	476.76	557.13	705.82	73.43	87.03	100.91	126.59
AD	Modoc County APCD	Annual	2019	408.20	476.34	556.98	706.60	73.35	86.56	100.78	126.79
AD	Modoc County APCD	Annual	2020	408.15	475.96	556.87	707.25	73.39	86.27	100.81	127.00
AD	Modoc County APCD	Annual	2021	408.10	475.54	556.77	707.69	73.42	86.13	100.87	127.13

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Modoc County APCD	Annual	2022	408.00	475.17	556.62	708.03	73.42	86.00	100.88	127.20
AD	Modoc County APCD	Annual	2023	407.93	474.79	556.52	708.27	73.44	85.87	100.91	127.38
AD	Modoc County APCD	Annual	2024	407.79	474.58	556.39	708.49	73.41	85.82	100.92	127.55
AD	Modoc County APCD	Annual	2025	407.72	474.59	556.34	708.71	73.41	85.87	100.96	127.72
AD	Modoc County APCD	Annual	2026	407.73	474.69	556.26	709.00	73.43	85.94	100.98	127.90
AD	Modoc County APCD	Annual	2027	407.73	474.80	556.20	709.30	73.44	86.00	100.99	128.07
AD	Modoc County APCD	Annual	2028	407.71	474.90	556.15	709.60	73.44	86.06	101.01	128.22
AD	Modoc County APCD	Annual	2029	407.70	475.01	556.08	709.88	73.45	86.12	101.01	128.36
AD	Modoc County APCD	Annual	2030	407.68	475.10	556.00	710.15	73.45	86.17	101.01	128.50
AD	Modoc County APCD	Annual	2031	407.69	475.22	555.95	710.46	73.45	86.22	101.01	128.63
AD	Modoc County APCD	Annual	2032	407.68	475.32	555.91	710.77	73.46	86.27	101.01	128.76
AD	Modoc County APCD	Annual	2033	407.68	475.40	555.88	711.04	73.47	86.31	101.01	128.87
AD	Modoc County APCD	Annual	2034	407.67	475.47	555.85	711.29	73.47	86.35	101.01	128.97
AD	Modoc County APCD	Annual	2035	407.66	475.53	555.81	711.49	73.48	86.38	101.02	129.07
AD	Modoc County APCD	Summer	2010	425.39	503.36	582.23	724.10	74.87	100.48	102.62	125.01
AD	Modoc County APCD	Summer	2011	425.44	501.48	581.68	725.15	74.72	97.48	102.30	125.08
AD	Modoc County APCD	Summer	2012	425.41	500.15	581.24	726.37	74.39	95.30	102.13	125.22
AD	Modoc County APCD	Summer	2013	425.50	499.17	580.90	727.80	74.23	93.74	101.93	125.38
AD	Modoc County APCD	Summer	2014	425.50	498.13	580.66	729.05	73.97	91.96	101.58	125.59
AD	Modoc County APCD	Summer	2015	425.50	497.14	580.45	730.41	73.76	90.19	101.45	125.82
AD	Modoc County APCD	Summer	2016	425.64	496.45	580.30	731.70	73.79	88.96	101.31	126.08
AD	Modoc County APCD	Summer	2017	425.62	495.80	580.16	732.94	73.64	87.77	101.05	126.34
AD	Modoc County APCD	Summer	2018	425.52	495.35	580.02	733.96	73.43	87.03	100.91	126.59
AD	Modoc County APCD	Summer	2019	425.50	495.06	579.91	734.91	73.35	86.56	100.78	126.79
AD	Modoc County APCD	Summer	2020	425.44	494.80	579.80	735.68	73.39	86.27	100.81	127.00
AD	Modoc County APCD	Summer	2021	425.39	494.51	579.70	736.23	73.42	86.13	100.87	127.13
AD	Modoc County APCD	Summer	2022	425.28	494.26	579.57	736.66	73.42	86.00	100.88	127.20
AD	Modoc County APCD	Summer	2023	425.21	493.99	579.47	736.98	73.44	85.87	100.91	127.38
AD	Modoc County APCD	Summer	2024	425.08	493.85	579.37	737.26	73.41	85.82	100.92	127.55
AD	Modoc County APCD	Summer	2025	425.02	493.90	579.31	737.53	73.41	85.87	100.96	127.72
AD	Modoc County APCD	Summer	2026	425.03	494.03	579.22	737.87	73.43	85.94	100.98	127.90
AD	Modoc County APCD	Summer	2027	425.04	494.17	579.16	738.21	73.44	86.00	100.99	128.07
AD	Modoc County APCD	Summer	2028	425.05	494.30	579.11	738.56	73.44	86.06	101.01	128.22
AD	Modoc County APCD	Summer	2029	425.05	494.46	579.05	738.88	73.45	86.12	101.01	128.36
AD	Modoc County APCD	Summer	2030	425.04	494.57	578.98	739.20	73.45	86.17	101.01	128.50
AD	Modoc County APCD	Summer	2031	425.05	494.75	578.95	739.54	73.45	86.22	101.01	128.63
AD	Modoc County APCD	Summer	2032	425.05	494.88	578.93	739.88	73.46	86.27	101.01	128.76
AD	Modoc County APCD	Summer	2033	425.05	494.99	578.91	740.18	73.47	86.31	101.01	128.87
AD	Modoc County APCD	Summer	2034	425.04	495.08	578.89	740.44	73.47	86.35	101.01	128.97
AD	Modoc County APCD	Summer	2035	425.03	495.14	578.86	740.68	73.48	86.38	101.02	129.07
AD	Modoc County APCD	Winter	2010	403.43	483.82	553.52	689.00	74.87	100.48	102.62	125.01
AD	Modoc County APCD	Winter	2011	403.20	480.53	552.63	689.84	74.72	97.48	102.30	125.08
AD	Modoc County APCD	Winter	2012	402.94	478.25	551.93	690.82	74.39	95.30	102.13	125.22
AD	Modoc County APCD	Winter	2013	402.86	476.62	551.35	691.93	74.23	93.74	101.93	125.38
AD	Modoc County APCD	Winter	2014	402.75	474.97	550.86	692.91	73.97	91.96	101.58	125.59
AD	Modoc County APCD	Winter	2015	402.67	473.44	550.49	693.96	73.76	90.19	101.45	125.82
AD	Modoc County APCD	Winter	2016	402.78	472.38	550.19	694.95	73.79	88.96	101.31	126.08
AD	Modoc County APCD	Winter	2017	402.74	471.40	549.93	695.92	73.64	87.77	101.05	126.34
AD	Modoc County APCD	Winter	2018	402.64	470.75	549.73	696.72	73.43	87.03	100.91	126.59
AD	Modoc County APCD	Winter	2019	402.61	470.29	549.57	697.46	73.35	86.56	100.78	126.79
AD	Modoc County APCD	Winter	2020	402.56	469.87	549.46	698.07	73.39	86.27	100.81	127.00
AD	Modoc County APCD	Winter	2021	402.52	469.41	549.36	698.48	73.42	86.13	100.87	127.13
AD	Modoc County APCD	Winter	2022	402.41	469.01	549.21	698.78	73.42	86.00	100.88	127.20
AD	Modoc County APCD	Winter	2023	402.35	468.59	549.10	699.00	73.44	85.87	100.91	127.38

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/MT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Modoc County APCD	Winter	2024	402.21	468.35	548.97	699.20	73.41	85.82	100.92	127.55
AD	Modoc County APCD	Winter	2025	402.14	468.36	548.91	699.40	73.41	85.87	100.96	127.72
AD	Modoc County APCD	Winter	2026	402.14	468.45	548.84	699.67	73.43	85.94	100.98	127.90
AD	Modoc County APCD	Winter	2027	402.13	468.54	548.78	699.96	73.44	86.00	100.99	128.07
AD	Modoc County APCD	Winter	2028	402.11	468.63	548.73	700.25	73.44	86.06	101.01	128.22
AD	Modoc County APCD	Winter	2029	402.10	468.72	548.66	700.50	73.45	86.12	101.01	128.36
AD	Modoc County APCD	Winter	2030	402.08	468.81	548.57	700.77	73.45	86.17	101.01	128.50
AD	Modoc County APCD	Winter	2031	402.08	468.91	548.52	701.07	73.45	86.22	101.01	128.63
AD	Modoc County APCD	Winter	2032	402.08	469.00	548.47	701.37	73.46	86.27	101.01	128.76
AD	Modoc County APCD	Winter	2033	402.07	469.08	548.44	701.63	73.47	86.31	101.01	128.87
AD	Modoc County APCD	Winter	2034	402.06	469.14	548.40	701.87	73.47	86.35	101.01	128.97
AD	Modoc County APCD	Winter	2035	402.05	469.20	548.37	702.06	73.48	86.38	101.02	129.07
AD	Mojave Desert AQMD	Annual	2010	343.05	394.06	468.76	591.38	73.41	85.48	100.04	125.17
AD	Mojave Desert AQMD	Annual	2011	342.29	393.63	467.24	590.34	73.41	85.20	100.07	125.44
AD	Mojave Desert AQMD	Annual	2012	342.53	394.30	467.14	591.14	73.44	85.03	100.14	125.71
AD	Mojave Desert AQMD	Annual	2013	341.38	393.17	465.19	589.42	73.47	84.92	100.21	125.99
AD	Mojave Desert AQMD	Annual	2014	341.59	393.65	465.17	590.21	73.49	84.81	100.26	126.27
AD	Mojave Desert AQMD	Annual	2015	338.75	390.36	460.98	585.50	73.53	84.76	100.32	126.55
AD	Mojave Desert AQMD	Annual	2016	338.93	390.74	460.98	586.19	73.58	84.74	100.39	126.82
AD	Mojave Desert AQMD	Annual	2017	339.08	391.08	460.98	586.83	73.61	84.71	100.44	127.08
AD	Mojave Desert AQMD	Annual	2018	339.19	391.37	460.98	587.37	73.63	84.72	100.49	127.32
AD	Mojave Desert AQMD	Annual	2019	338.63	390.87	460.03	586.67	73.67	84.83	100.55	127.55
AD	Mojave Desert AQMD	Annual	2020	338.73	391.16	460.03	587.11	73.75	84.98	100.63	127.76
AD	Mojave Desert AQMD	Annual	2021	338.49	390.98	459.55	586.82	73.81	85.14	100.70	127.93
AD	Mojave Desert AQMD	Annual	2022	338.53	391.22	459.56	587.12	73.85	85.27	100.76	128.07
AD	Mojave Desert AQMD	Annual	2023	338.54	391.42	459.56	587.36	73.88	85.39	100.81	128.23
AD	Mojave Desert AQMD	Annual	2024	340.10	393.08	461.41	589.95	73.90	85.50	100.85	128.37
AD	Mojave Desert AQMD	Annual	2025	340.11	393.24	461.42	590.15	73.91	85.59	100.89	128.50
AD	Mojave Desert AQMD	Annual	2026	340.14	393.40	461.41	590.33	73.93	85.68	100.92	128.62
AD	Mojave Desert AQMD	Annual	2027	340.16	393.55	461.40	590.50	73.94	85.76	100.94	128.72
AD	Mojave Desert AQMD	Annual	2028	340.18	393.70	461.40	590.67	73.95	85.84	100.95	128.82
AD	Mojave Desert AQMD	Annual	2029	340.20	393.85	461.40	590.84	73.96	85.91	100.96	128.90
AD	Mojave Desert AQMD	Annual	2030	340.22	393.99	461.40	591.00	73.96	85.97	100.97	128.98
AD	Mojave Desert AQMD	Annual	2031	342.78	396.53	464.37	595.11	73.96	86.03	100.98	129.06
AD	Mojave Desert AQMD	Annual	2032	342.80	396.66	464.38	595.29	73.97	86.09	100.98	129.13
AD	Mojave Desert AQMD	Annual	2033	342.81	396.77	464.39	595.46	73.97	86.13	100.99	129.19
AD	Mojave Desert AQMD	Annual	2034	342.83	396.88	464.41	595.62	73.97	86.18	100.99	129.24
AD	Mojave Desert AQMD	Annual	2035	342.85	396.97	464.43	595.76	73.98	86.22	101.00	129.29
AD	Mojave Desert AQMD	Summer	2010	368.41	420.54	502.82	633.92	73.41	85.48	100.04	125.17
AD	Mojave Desert AQMD	Summer	2011	367.55	420.78	501.45	632.76	73.41	85.20	100.07	125.44
AD	Mojave Desert AQMD	Summer	2012	367.74	422.01	501.49	633.58	73.44	85.03	100.14	125.71
AD	Mojave Desert AQMD	Summer	2013	366.36	420.99	499.44	631.63	73.47	84.92	100.21	125.99
AD	Mojave Desert AQMD	Summer	2014	366.44	421.63	499.44	632.39	73.49	84.81	100.26	126.27
AD	Mojave Desert AQMD	Summer	2015	363.25	418.10	494.94	627.28	73.53	84.76	100.32	126.55
AD	Mojave Desert AQMD	Summer	2016	363.37	418.49	494.93	627.96	73.58	84.74	100.39	126.82
AD	Mojave Desert AQMD	Summer	2017	363.42	418.82	494.89	628.59	73.61	84.71	100.44	127.08
AD	Mojave Desert AQMD	Summer	2018	363.43	419.07	494.81	629.09	73.63	84.72	100.49	127.32
AD	Mojave Desert AQMD	Summer	2019	362.72	418.47	493.69	628.25	73.67	84.83	100.55	127.55
AD	Mojave Desert AQMD	Summer	2020	362.73	418.73	493.60	628.67	73.75	84.98	100.63	127.76
AD	Mojave Desert AQMD	Summer	2021	362.41	418.50	492.93	628.23	73.81	85.14	100.70	127.93
AD	Mojave Desert AQMD	Summer	2022	362.41	418.75	492.84	628.48	73.85	85.27	100.76	128.07
AD	Mojave Desert AQMD	Summer	2023	362.38	418.95	492.74	628.63	73.88	85.39	100.81	128.23
AD	Mojave Desert AQMD	Summer	2024	363.89	420.61	494.47	631.12	73.90	85.50	100.85	128.37
AD	Mojave Desert AQMD	Summer	2025	363.86	420.78	494.42	631.25	73.91	85.59	100.89	128.50

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Mojave Desert AQMD	Summer	2026	363.86	420.97	494.37	631.36	73.93	85.68	100.92	128.62
AD	Mojave Desert AQMD	Summer	2027	363.84	421.14	494.32	631.45	73.94	85.76	100.94	128.72
AD	Mojave Desert AQMD	Summer	2028	363.82	421.29	494.28	631.55	73.95	85.84	100.95	128.82
AD	Mojave Desert AQMD	Summer	2029	363.80	421.45	494.24	631.64	73.96	85.91	100.96	128.90
AD	Mojave Desert AQMD	Summer	2030	363.78	421.60	494.20	631.73	73.96	85.97	100.97	128.98
AD	Mojave Desert AQMD	Summer	2031	366.32	424.18	497.16	635.80	73.96	86.03	100.98	129.06
AD	Mojave Desert AQMD	Summer	2032	366.30	424.34	497.16	635.94	73.97	86.09	100.98	129.13
AD	Mojave Desert AQMD	Summer	2033	366.29	424.48	497.16	636.07	73.97	86.13	100.99	129.19
AD	Mojave Desert AQMD	Summer	2034	366.28	424.59	497.16	636.19	73.97	86.18	100.99	129.24
AD	Mojave Desert AQMD	Summer	2035	366.27	424.67	497.16	636.30	73.98	86.22	101.00	129.29
AD	Mojave Desert AQMD	Winter	2010	329.23	380.23	450.90	569.02	73.41	85.48	100.04	125.17
AD	Mojave Desert AQMD	Winter	2011	328.43	379.61	449.39	568.04	73.41	85.20	100.07	125.44
AD	Mojave Desert AQMD	Winter	2012	328.62	380.12	449.23	568.81	73.44	85.03	100.14	125.71
AD	Mojave Desert AQMD	Winter	2013	327.45	378.91	447.29	567.12	73.47	84.92	100.21	125.99
AD	Mojave Desert AQMD	Winter	2014	327.61	379.28	447.21	567.85	73.49	84.81	100.26	126.27
AD	Mojave Desert AQMD	Winter	2015	324.84	376.02	443.12	563.25	73.53	84.76	100.32	126.55
AD	Mojave Desert AQMD	Winter	2016	324.99	376.34	443.08	563.87	73.58	84.74	100.39	126.82
AD	Mojave Desert AQMD	Winter	2017	325.11	376.62	443.04	564.46	73.61	84.71	100.44	127.08
AD	Mojave Desert AQMD	Winter	2018	325.20	376.87	443.02	564.96	73.63	84.72	100.49	127.32
AD	Mojave Desert AQMD	Winter	2019	324.64	376.36	442.08	564.24	73.67	84.83	100.55	127.55
AD	Mojave Desert AQMD	Winter	2020	324.71	376.61	442.06	564.63	73.75	84.98	100.63	127.76
AD	Mojave Desert AQMD	Winter	2021	324.46	376.36	441.55	564.27	73.81	85.14	100.70	127.93
AD	Mojave Desert AQMD	Winter	2022	324.48	376.54	441.52	564.49	73.85	85.27	100.76	128.07
AD	Mojave Desert AQMD	Winter	2023	324.48	376.68	441.50	564.66	73.88	85.39	100.81	128.23
AD	Mojave Desert AQMD	Winter	2024	325.93	378.21	443.20	567.06	73.90	85.50	100.85	128.37
AD	Mojave Desert AQMD	Winter	2025	325.94	378.32	443.20	567.22	73.91	85.59	100.89	128.50
AD	Mojave Desert AQMD	Winter	2026	325.96	378.44	443.18	567.37	73.93	85.68	100.92	128.62
AD	Mojave Desert AQMD	Winter	2027	325.97	378.56	443.16	567.51	73.94	85.76	100.94	128.72
AD	Mojave Desert AQMD	Winter	2028	325.99	378.68	443.15	567.64	73.95	85.84	100.95	128.82
AD	Mojave Desert AQMD	Winter	2029	325.99	378.79	443.13	567.78	73.96	85.91	100.96	128.90
AD	Mojave Desert AQMD	Winter	2030	326.00	378.91	443.12	567.91	73.96	85.97	100.97	128.98
AD	Mojave Desert AQMD	Winter	2031	328.38	381.24	445.87	571.70	73.96	86.03	100.98	129.06
AD	Mojave Desert AQMD	Winter	2032	328.39	381.34	445.87	571.84	73.97	86.09	100.98	129.13
AD	Mojave Desert AQMD	Winter	2033	328.40	381.43	445.87	571.96	73.97	86.13	100.99	129.19
AD	Mojave Desert AQMD	Winter	2034	328.42	381.50	445.87	572.08	73.97	86.18	100.99	129.24
AD	Mojave Desert AQMD	Winter	2035	328.43	381.57	445.87	572.18	73.98	86.22	101.00	129.29
AD	Monterey Bay Unified APCD	Annual	2010	352.08	409.85	484.60	606.53	72.96	88.37	99.87	123.92
AD	Monterey Bay Unified APCD	Annual	2011	352.06	409.40	483.84	606.61	72.93	87.57	99.90	124.13
AD	Monterey Bay Unified APCD	Annual	2012	352.19	409.24	483.32	607.40	72.89	86.90	99.95	124.37
AD	Monterey Bay Unified APCD	Annual	2013	352.37	409.19	482.92	608.27	72.92	86.40	100.03	124.65
AD	Monterey Bay Unified APCD	Annual	2014	352.53	409.12	482.60	609.12	72.92	85.94	100.10	124.93
AD	Monterey Bay Unified APCD	Annual	2015	352.73	409.11	482.36	609.99	72.98	85.55	100.18	125.24
AD	Monterey Bay Unified APCD	Annual	2016	352.92	409.09	482.18	610.81	73.05	85.20	100.28	125.55
AD	Monterey Bay Unified APCD	Annual	2017	353.06	409.10	482.04	611.59	73.09	84.93	100.35	125.86
AD	Monterey Bay Unified APCD	Annual	2018	353.17	409.13	481.94	612.28	73.12	84.71	100.43	126.15
AD	Monterey Bay Unified APCD	Annual	2019	353.27	409.25	481.87	612.89	73.16	84.66	100.51	126.43
AD	Monterey Bay Unified APCD	Annual	2020	353.37	409.39	481.83	613.44	73.25	84.73	100.59	126.69
AD	Monterey Bay Unified APCD	Annual	2021	354.32	410.59	483.10	615.32	73.33	84.87	100.68	126.92
AD	Monterey Bay Unified APCD	Annual	2022	354.37	410.77	483.07	615.74	73.38	84.99	100.74	127.10
AD	Monterey Bay Unified APCD	Annual	2023	354.37	410.92	483.04	616.07	73.42	85.10	100.80	127.31
AD	Monterey Bay Unified APCD	Annual	2024	354.34	411.03	483.02	616.34	73.43	85.19	100.84	127.49
AD	Monterey Bay Unified APCD	Annual	2025	354.34	411.14	483.01	616.61	73.45	85.28	100.88	127.66
AD	Monterey Bay Unified APCD	Annual	2026	353.30	409.99	481.54	614.89	73.47	85.37	100.91	127.83
AD	Monterey Bay Unified APCD	Annual	2027	353.33	410.12	481.49	615.18	73.49	85.45	100.93	127.98

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Monterey Bay Unified APCD	Annual	2028	353.35	410.27	481.44	615.46	73.50	85.52	100.94	128.12
AD	Monterey Bay Unified APCD	Annual	2029	353.36	410.41	481.37	615.73	73.51	85.58	100.94	128.25
AD	Monterey Bay Unified APCD	Annual	2030	353.37	410.56	481.31	616.01	73.51	85.65	100.94	128.38
AD	Monterey Bay Unified APCD	Annual	2031	353.39	410.72	481.27	616.28	73.52	85.71	100.95	128.50
AD	Monterey Bay Unified APCD	Annual	2032	353.41	410.88	481.25	616.56	73.52	85.77	100.96	128.62
AD	Monterey Bay Unified APCD	Annual	2033	353.43	411.02	481.23	616.82	73.53	85.83	100.96	128.73
AD	Monterey Bay Unified APCD	Annual	2034	353.45	411.15	481.21	617.05	73.53	85.88	100.96	128.83
AD	Monterey Bay Unified APCD	Annual	2035	353.47	411.25	481.20	617.25	73.54	85.93	100.97	128.92
AD	Monterey Bay Unified APCD	Summer	2010	372.98	431.76	511.84	642.11	72.96	88.37	99.87	123.92
AD	Monterey Bay Unified APCD	Summer	2011	373.14	431.60	511.31	642.11	72.93	87.57	99.90	124.13
AD	Monterey Bay Unified APCD	Summer	2012	373.41	431.71	511.01	642.95	72.89	86.90	99.95	124.37
AD	Monterey Bay Unified APCD	Summer	2013	373.71	431.90	510.79	643.91	72.92	86.40	100.03	124.65
AD	Monterey Bay Unified APCD	Summer	2014	373.96	432.06	510.63	644.90	72.92	85.94	100.10	124.93
AD	Monterey Bay Unified APCD	Summer	2015	374.21	432.22	510.51	645.93	72.98	85.55	100.18	125.24
AD	Monterey Bay Unified APCD	Summer	2016	374.44	432.38	510.41	646.92	73.05	85.20	100.28	125.55
AD	Monterey Bay Unified APCD	Summer	2017	374.60	432.55	510.33	647.86	73.09	84.93	100.35	125.86
AD	Monterey Bay Unified APCD	Summer	2018	374.71	432.72	510.25	648.67	73.12	84.71	100.43	126.15
AD	Monterey Bay Unified APCD	Summer	2019	374.81	432.96	510.19	649.38	73.16	84.66	100.51	126.43
AD	Monterey Bay Unified APCD	Summer	2020	374.91	433.20	510.15	650.02	73.25	84.73	100.59	126.69
AD	Monterey Bay Unified APCD	Summer	2021	375.91	434.52	511.49	652.05	73.33	84.87	100.68	126.92
AD	Monterey Bay Unified APCD	Summer	2022	375.97	434.78	511.48	652.54	73.38	84.99	100.74	127.10
AD	Monterey Bay Unified APCD	Summer	2023	375.98	434.99	511.46	652.91	73.42	85.10	100.80	127.31
AD	Monterey Bay Unified APCD	Summer	2024	375.97	435.16	511.45	653.21	73.43	85.19	100.84	127.49
AD	Monterey Bay Unified APCD	Summer	2025	375.98	435.32	511.45	653.50	73.45	85.28	100.88	127.66
AD	Monterey Bay Unified APCD	Summer	2026	374.88	434.13	509.90	651.66	73.47	85.37	100.91	127.83
AD	Monterey Bay Unified APCD	Summer	2027	374.91	434.30	509.87	651.96	73.49	85.45	100.93	127.98
AD	Monterey Bay Unified APCD	Summer	2028	374.94	434.48	509.85	652.26	73.50	85.52	100.94	128.12
AD	Monterey Bay Unified APCD	Summer	2029	374.97	434.67	509.80	652.55	73.51	85.58	100.94	128.25
AD	Monterey Bay Unified APCD	Summer	2030	374.99	434.87	509.76	652.86	73.51	85.65	100.94	128.38
AD	Monterey Bay Unified APCD	Summer	2031	375.02	435.07	509.74	653.15	73.52	85.71	100.95	128.50
AD	Monterey Bay Unified APCD	Summer	2032	375.05	435.26	509.73	653.46	73.52	85.77	100.96	128.62
AD	Monterey Bay Unified APCD	Summer	2033	375.08	435.43	509.73	653.75	73.53	85.83	100.96	128.73
AD	Monterey Bay Unified APCD	Summer	2034	375.11	435.58	509.72	654.02	73.53	85.88	100.96	128.83
AD	Monterey Bay Unified APCD	Summer	2035	375.13	435.71	509.72	654.27	73.54	85.93	100.97	128.92
AD	Monterey Bay Unified APCD	Winter	2010	350.54	408.22	482.61	603.75	72.96	88.37	99.87	123.92
AD	Monterey Bay Unified APCD	Winter	2011	350.51	407.75	481.84	603.84	72.93	87.57	99.90	124.13
AD	Monterey Bay Unified APCD	Winter	2012	350.63	407.55	481.30	604.63	72.89	86.90	99.95	124.37
AD	Monterey Bay Unified APCD	Winter	2013	350.80	407.48	480.89	605.48	72.92	86.40	100.03	124.65
AD	Monterey Bay Unified APCD	Winter	2014	350.96	407.39	480.56	606.32	72.92	85.94	100.10	124.93
AD	Monterey Bay Unified APCD	Winter	2015	351.15	407.36	480.31	607.18	72.98	85.55	100.18	125.24
AD	Monterey Bay Unified APCD	Winter	2016	351.33	407.32	480.12	607.99	73.05	85.20	100.28	125.55
AD	Monterey Bay Unified APCD	Winter	2017	351.48	407.33	479.98	608.75	73.09	84.93	100.35	125.86
AD	Monterey Bay Unified APCD	Winter	2018	351.58	407.34	479.88	609.43	73.12	84.71	100.43	126.15
AD	Monterey Bay Unified APCD	Winter	2019	351.68	407.44	479.81	610.03	73.16	84.66	100.51	126.43
AD	Monterey Bay Unified APCD	Winter	2020	351.78	407.58	479.76	610.57	73.25	84.73	100.59	126.69
AD	Monterey Bay Unified APCD	Winter	2021	352.73	408.76	481.03	612.44	73.33	84.87	100.68	126.92
AD	Monterey Bay Unified APCD	Winter	2022	352.78	408.94	481.00	612.85	73.38	84.99	100.74	127.10
AD	Monterey Bay Unified APCD	Winter	2023	352.78	409.08	480.97	613.18	73.42	85.10	100.80	127.31
AD	Monterey Bay Unified APCD	Winter	2024	352.74	409.19	480.94	613.44	73.43	85.19	100.84	127.49
AD	Monterey Bay Unified APCD	Winter	2025	352.74	409.30	480.93	613.72	73.45	85.28	100.88	127.66
AD	Monterey Bay Unified APCD	Winter	2026	351.70	408.15	479.46	612.01	73.47	85.37	100.91	127.83
AD	Monterey Bay Unified APCD	Winter	2027	351.73	408.27	479.41	612.29	73.49	85.45	100.93	127.98
AD	Monterey Bay Unified APCD	Winter	2028	351.74	408.41	479.36	612.56	73.50	85.52	100.94	128.12
AD	Monterey Bay Unified APCD	Winter	2029	351.75	408.56	479.28	612.84	73.51	85.58	100.94	128.25

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Monterey Bay Unified APCD	Winter	2030	351.76	408.70	479.22	613.11	73.51	85.65	100.94	128.38
AD	Monterey Bay Unified APCD	Winter	2031	351.78	408.85	479.18	613.38	73.52	85.71	100.95	128.50
AD	Monterey Bay Unified APCD	Winter	2032	351.80	409.00	479.15	613.65	73.52	85.77	100.96	128.62
AD	Monterey Bay Unified APCD	Winter	2033	351.82	409.14	479.13	613.90	73.53	85.83	100.96	128.73
AD	Monterey Bay Unified APCD	Winter	2034	351.84	409.26	479.11	614.13	73.53	85.88	100.96	128.83
AD	Monterey Bay Unified APCD	Winter	2035	351.85	409.37	479.10	614.33	73.54	85.93	100.97	128.92
AD	North Coast Unified APCD	Annual	2010	338.11	392.75	467.85	585.18	73.17	86.39	100.59	124.05
AD	North Coast Unified APCD	Annual	2011	338.10	393.14	467.19	585.81	73.12	85.93	100.52	124.23
AD	North Coast Unified APCD	Annual	2012	338.14	393.49	466.64	586.54	73.06	85.62	100.52	124.47
AD	North Coast Unified APCD	Annual	2013	338.24	393.78	466.22	587.38	73.05	85.35	100.53	124.74
AD	North Coast Unified APCD	Annual	2014	338.28	394.01	465.87	588.19	73.01	85.13	100.52	125.01
AD	North Coast Unified APCD	Annual	2015	338.37	394.26	465.57	589.00	72.98	84.96	100.52	125.31
AD	North Coast Unified APCD	Annual	2016	338.50	394.52	465.35	589.80	73.04	84.88	100.56	125.63
AD	North Coast Unified APCD	Annual	2017	338.57	394.73	465.13	590.53	73.04	84.75	100.59	125.94
AD	North Coast Unified APCD	Annual	2018	338.64	394.93	464.97	591.16	73.06	84.68	100.60	126.24
AD	North Coast Unified APCD	Annual	2019	338.69	395.13	464.85	591.71	73.08	84.72	100.65	126.52
AD	North Coast Unified APCD	Annual	2020	338.73	395.31	464.72	592.18	73.17	84.80	100.71	126.78
AD	North Coast Unified APCD	Annual	2021	338.75	395.45	464.60	592.55	73.23	84.92	100.77	126.99
AD	North Coast Unified APCD	Annual	2022	338.73	395.55	464.48	592.85	73.27	85.02	100.82	127.17
AD	North Coast Unified APCD	Annual	2023	338.66	395.62	464.39	593.07	73.28	85.12	100.86	127.37
AD	North Coast Unified APCD	Annual	2024	338.54	395.69	464.32	593.28	73.28	85.20	100.89	127.56
AD	North Coast Unified APCD	Annual	2025	338.47	395.79	464.26	593.47	73.29	85.30	100.92	127.72
AD	North Coast Unified APCD	Annual	2026	338.49	395.93	464.14	593.62	73.31	85.41	100.94	127.88
AD	North Coast Unified APCD	Annual	2027	338.50	396.07	464.04	593.77	73.32	85.51	100.96	128.03
AD	North Coast Unified APCD	Annual	2028	338.50	396.22	463.93	593.95	73.33	85.61	100.97	128.17
AD	North Coast Unified APCD	Annual	2029	338.50	396.36	463.83	594.12	73.33	85.70	100.97	128.30
AD	North Coast Unified APCD	Annual	2030	338.48	396.49	463.70	594.29	73.34	85.78	100.96	128.43
AD	North Coast Unified APCD	Annual	2031	338.48	396.63	463.68	594.46	73.34	85.86	100.97	128.55
AD	North Coast Unified APCD	Annual	2032	338.47	396.74	463.65	594.63	73.35	85.94	100.97	128.67
AD	North Coast Unified APCD	Annual	2033	338.46	396.83	463.63	594.77	73.35	86.01	100.97	128.77
AD	North Coast Unified APCD	Annual	2034	338.45	396.90	463.60	594.89	73.36	86.07	100.98	128.87
AD	North Coast Unified APCD	Annual	2035	338.44	396.95	463.58	594.99	73.36	86.12	100.98	128.96
AD	North Coast Unified APCD	Summer	2010	339.07	393.94	469.47	587.35	73.17	86.39	100.59	124.05
AD	North Coast Unified APCD	Summer	2011	339.07	394.39	468.84	587.99	73.12	85.93	100.52	124.23
AD	North Coast Unified APCD	Summer	2012	339.11	394.78	468.30	588.72	73.06	85.62	100.52	124.47
AD	North Coast Unified APCD	Summer	2013	339.22	395.11	467.90	589.58	73.05	85.35	100.53	124.74
AD	North Coast Unified APCD	Summer	2014	339.27	395.37	467.56	590.40	73.01	85.13	100.52	125.01
AD	North Coast Unified APCD	Summer	2015	339.36	395.64	467.27	591.23	72.98	84.96	100.52	125.31
AD	North Coast Unified APCD	Summer	2016	339.49	395.92	467.05	592.05	73.04	84.88	100.56	125.63
AD	North Coast Unified APCD	Summer	2017	339.56	396.15	466.84	592.80	73.04	84.75	100.59	125.94
AD	North Coast Unified APCD	Summer	2018	339.62	396.36	466.67	593.44	73.06	84.68	100.60	126.24
AD	North Coast Unified APCD	Summer	2019	339.68	396.58	466.56	594.00	73.08	84.72	100.65	126.52
AD	North Coast Unified APCD	Summer	2020	339.72	396.76	466.42	594.47	73.17	84.80	100.71	126.78
AD	North Coast Unified APCD	Summer	2021	339.73	396.92	466.29	594.85	73.23	84.92	100.77	126.99
AD	North Coast Unified APCD	Summer	2022	339.71	397.02	466.18	595.16	73.27	85.02	100.82	127.17
AD	North Coast Unified APCD	Summer	2023	339.64	397.10	466.08	595.38	73.28	85.12	100.86	127.37
AD	North Coast Unified APCD	Summer	2024	339.52	397.18	466.01	595.60	73.28	85.20	100.89	127.56
AD	North Coast Unified APCD	Summer	2025	339.44	397.28	465.96	595.80	73.29	85.30	100.92	127.72
AD	North Coast Unified APCD	Summer	2026	339.46	397.42	465.83	595.95	73.31	85.41	100.94	127.88
AD	North Coast Unified APCD	Summer	2027	339.47	397.56	465.72	596.10	73.32	85.51	100.96	128.03
AD	North Coast Unified APCD	Summer	2028	339.48	397.72	465.61	596.27	73.33	85.61	100.97	128.17
AD	North Coast Unified APCD	Summer	2029	339.48	397.86	465.51	596.44	73.33	85.70	100.97	128.30
AD	North Coast Unified APCD	Summer	2030	339.46	397.99	465.38	596.62	73.34	85.78	100.96	128.43
AD	North Coast Unified APCD	Summer	2031	339.46	398.14	465.36	596.78	73.34	85.86	100.97	128.55

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	North Coast Unified APCD	Summer	2032	339.46	398.25	465.34	596.94	73.35	85.94	100.97	128.67
AD	North Coast Unified APCD	Summer	2033	339.45	398.34	465.31	597.08	73.35	86.01	100.97	128.77
AD	North Coast Unified APCD	Summer	2034	339.43	398.40	465.29	597.20	73.36	86.07	100.98	128.87
AD	North Coast Unified APCD	Summer	2035	339.42	398.44	465.27	597.30	73.36	86.12	100.98	128.96
AD	North Coast Unified APCD	Winter	2010	336.39	390.83	465.37	582.01	73.17	86.39	100.59	124.05
AD	North Coast Unified APCD	Winter	2011	336.36	391.14	464.68	582.63	73.12	85.93	100.52	124.23
AD	North Coast Unified APCD	Winter	2012	336.38	391.43	464.11	583.35	73.06	85.62	100.52	124.47
AD	North Coast Unified APCD	Winter	2013	336.47	391.68	463.67	584.16	73.05	85.35	100.53	124.74
AD	North Coast Unified APCD	Winter	2014	336.51	391.88	463.31	584.95	73.01	85.13	100.52	125.01
AD	North Coast Unified APCD	Winter	2015	336.59	392.10	463.00	585.74	72.98	84.96	100.52	125.31
AD	North Coast Unified APCD	Winter	2016	336.72	392.33	462.77	586.52	73.04	84.88	100.56	125.63
AD	North Coast Unified APCD	Winter	2017	336.79	392.52	462.55	587.24	73.04	84.75	100.59	125.94
AD	North Coast Unified APCD	Winter	2018	336.86	392.70	462.38	587.85	73.06	84.68	100.60	126.24
AD	North Coast Unified APCD	Winter	2019	336.92	392.89	462.26	588.38	73.08	84.72	100.65	126.52
AD	North Coast Unified APCD	Winter	2020	336.96	393.05	462.13	588.84	73.17	84.80	100.71	126.78
AD	North Coast Unified APCD	Winter	2021	336.98	393.18	462.02	589.20	73.23	84.92	100.77	126.99
AD	North Coast Unified APCD	Winter	2022	336.96	393.27	461.90	589.49	73.27	85.02	100.82	127.17
AD	North Coast Unified APCD	Winter	2023	336.89	393.33	461.80	589.70	73.28	85.12	100.86	127.37
AD	North Coast Unified APCD	Winter	2024	336.78	393.40	461.73	589.91	73.28	85.20	100.89	127.56
AD	North Coast Unified APCD	Winter	2025	336.70	393.50	461.68	590.09	73.29	85.30	100.92	127.72
AD	North Coast Unified APCD	Winter	2026	336.72	393.63	461.56	590.25	73.31	85.41	100.94	127.88
AD	North Coast Unified APCD	Winter	2027	336.73	393.76	461.46	590.40	73.32	85.51	100.96	128.03
AD	North Coast Unified APCD	Winter	2028	336.73	393.91	461.35	590.57	73.33	85.61	100.97	128.17
AD	North Coast Unified APCD	Winter	2029	336.72	394.04	461.25	590.75	73.33	85.70	100.97	128.30
AD	North Coast Unified APCD	Winter	2030	336.71	394.16	461.12	590.92	73.34	85.78	100.96	128.43
AD	North Coast Unified APCD	Winter	2031	336.71	394.30	461.10	591.08	73.34	85.86	100.97	128.55
AD	North Coast Unified APCD	Winter	2032	336.70	394.41	461.07	591.25	73.35	85.94	100.97	128.67
AD	North Coast Unified APCD	Winter	2033	336.69	394.50	461.05	591.39	73.35	86.01	100.97	128.77
AD	North Coast Unified APCD	Winter	2034	336.68	394.57	461.02	591.51	73.36	86.07	100.98	128.87
AD	North Coast Unified APCD	Winter	2035	336.67	394.61	461.00	591.61	73.36	86.12	100.98	128.96
AD	Northern Sierra AQMD	Annual	2010	335.85	403.50	460.60	582.46	73.83	93.66	100.49	125.24
AD	Northern Sierra AQMD	Annual	2011	335.79	403.58	459.90	583.10	73.66	92.12	100.45	125.33
AD	Northern Sierra AQMD	Annual	2012	335.78	403.52	459.38	583.85	73.51	90.81	100.45	125.45
AD	Northern Sierra AQMD	Annual	2013	335.79	403.50	459.02	584.66	73.39	89.69	100.44	125.61
AD	Northern Sierra AQMD	Annual	2014	335.77	403.42	458.71	585.44	73.23	88.70	100.46	125.78
AD	Northern Sierra AQMD	Annual	2015	335.82	403.39	458.48	586.29	73.16	87.84	100.50	125.98
AD	Northern Sierra AQMD	Annual	2016	335.92	403.32	458.32	587.09	73.17	87.09	100.56	126.21
AD	Northern Sierra AQMD	Annual	2017	335.94	403.29	458.20	587.82	73.12	86.34	100.55	126.44
AD	Northern Sierra AQMD	Annual	2018	335.96	403.18	458.11	588.47	73.08	85.76	100.59	126.67
AD	Northern Sierra AQMD	Annual	2019	335.99	403.23	458.04	589.02	73.07	85.48	100.62	126.89
AD	Northern Sierra AQMD	Annual	2020	336.03	403.26	457.98	589.50	73.16	85.41	100.69	127.10
AD	Northern Sierra AQMD	Annual	2021	336.06	403.35	457.94	589.83	73.23	85.46	100.76	127.22
AD	Northern Sierra AQMD	Annual	2022	336.04	403.43	457.90	590.06	73.28	85.51	100.82	127.27
AD	Northern Sierra AQMD	Annual	2023	336.00	403.49	457.85	590.24	73.30	85.55	100.87	127.44
AD	Northern Sierra AQMD	Annual	2024	335.93	403.48	457.82	590.43	73.31	85.58	100.90	127.60
AD	Northern Sierra AQMD	Annual	2025	335.92	403.43	457.78	590.66	73.33	85.65	100.93	127.77
AD	Northern Sierra AQMD	Annual	2026	335.94	403.53	457.74	590.88	73.35	85.73	100.96	127.93
AD	Northern Sierra AQMD	Annual	2027	335.96	403.60	457.69	591.11	73.37	85.80	100.97	128.07
AD	Northern Sierra AQMD	Annual	2028	335.97	403.70	457.66	591.34	73.38	85.86	100.98	128.21
AD	Northern Sierra AQMD	Annual	2029	335.98	403.82	457.62	591.59	73.38	85.92	100.98	128.33
AD	Northern Sierra AQMD	Annual	2030	335.97	403.91	457.56	591.83	73.39	85.98	100.97	128.46
AD	Northern Sierra AQMD	Annual	2031	335.99	404.07	457.55	592.03	73.40	86.03	100.98	128.58
AD	Northern Sierra AQMD	Annual	2032	336.00	404.19	457.53	592.24	73.40	86.08	100.98	128.69
AD	Northern Sierra AQMD	Annual	2033	336.01	404.33	457.52	592.41	73.41	86.13	100.98	128.80

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Northern Sierra AQMD	Annual	2034	336.01	404.45	457.50	592.56	73.41	86.17	100.99	128.89
AD	Northern Sierra AQMD	Annual	2035	336.01	404.53	457.50	592.68	73.42	86.21	100.99	128.98
AD	Northern Sierra AQMD	Summer	2010	359.56	428.44	492.24	621.66	73.83	93.66	100.49	125.24
AD	Northern Sierra AQMD	Summer	2011	359.74	429.15	491.87	622.40	73.66	92.12	100.45	125.33
AD	Northern Sierra AQMD	Summer	2012	359.93	429.60	491.60	623.31	73.51	90.81	100.45	125.45
AD	Northern Sierra AQMD	Summer	2013	360.10	429.97	491.44	624.34	73.39	89.69	100.44	125.61
AD	Northern Sierra AQMD	Summer	2014	360.21	430.21	491.29	625.36	73.23	88.70	100.46	125.78
AD	Northern Sierra AQMD	Summer	2015	360.36	430.46	491.19	626.49	73.16	87.84	100.50	125.98
AD	Northern Sierra AQMD	Summer	2016	360.51	430.61	491.11	627.56	73.17	87.09	100.56	126.21
AD	Northern Sierra AQMD	Summer	2017	360.57	430.78	491.05	628.52	73.12	86.34	100.55	126.44
AD	Northern Sierra AQMD	Summer	2018	360.60	430.82	490.96	629.37	73.08	85.76	100.59	126.67
AD	Northern Sierra AQMD	Summer	2019	360.63	430.98	490.90	630.09	73.07	85.48	100.62	126.89
AD	Northern Sierra AQMD	Summer	2020	360.67	431.10	490.84	630.70	73.16	85.41	100.69	127.10
AD	Northern Sierra AQMD	Summer	2021	360.69	431.25	490.78	631.15	73.23	85.46	100.76	127.22
AD	Northern Sierra AQMD	Summer	2022	360.67	431.39	490.74	631.50	73.28	85.51	100.82	127.27
AD	Northern Sierra AQMD	Summer	2023	360.63	431.52	490.69	631.75	73.30	85.55	100.87	127.44
AD	Northern Sierra AQMD	Summer	2024	360.56	431.57	490.66	632.00	73.31	85.58	100.90	127.60
AD	Northern Sierra AQMD	Summer	2025	360.55	431.55	490.62	632.26	73.33	85.65	100.93	127.77
AD	Northern Sierra AQMD	Summer	2026	360.58	431.69	490.59	632.48	73.35	85.73	100.96	127.93
AD	Northern Sierra AQMD	Summer	2027	360.60	431.79	490.57	632.71	73.37	85.80	100.97	128.07
AD	Northern Sierra AQMD	Summer	2028	360.63	431.93	490.55	632.96	73.38	85.86	100.98	128.21
AD	Northern Sierra AQMD	Summer	2029	360.65	432.08	490.53	633.23	73.38	85.92	100.98	128.33
AD	Northern Sierra AQMD	Summer	2030	360.66	432.21	490.50	633.50	73.39	85.98	100.97	128.46
AD	Northern Sierra AQMD	Summer	2031	360.68	432.40	490.49	633.75	73.40	86.03	100.98	128.58
AD	Northern Sierra AQMD	Summer	2032	360.69	432.54	490.48	633.99	73.40	86.08	100.98	128.69
AD	Northern Sierra AQMD	Summer	2033	360.71	432.70	490.47	634.21	73.41	86.13	100.98	128.80
AD	Northern Sierra AQMD	Summer	2034	360.72	432.84	490.46	634.40	73.41	86.17	100.99	128.89
AD	Northern Sierra AQMD	Summer	2035	360.71	432.93	490.45	634.56	73.42	86.21	100.99	128.98
AD	Northern Sierra AQMD	Winter	2010	330.67	398.10	453.69	573.92	73.83	93.66	100.49	125.24
AD	Northern Sierra AQMD	Winter	2011	330.56	398.05	452.91	574.54	73.66	92.12	100.45	125.33
AD	Northern Sierra AQMD	Winter	2012	330.50	397.88	452.34	575.25	73.51	90.81	100.45	125.45
AD	Northern Sierra AQMD	Winter	2013	330.48	397.78	451.93	576.01	73.39	89.69	100.44	125.61
AD	Northern Sierra AQMD	Winter	2014	330.43	397.63	451.58	576.74	73.23	88.70	100.46	125.78
AD	Northern Sierra AQMD	Winter	2015	330.46	397.55	451.33	577.53	73.16	87.84	100.50	125.98
AD	Northern Sierra AQMD	Winter	2016	330.54	397.43	451.14	578.28	73.17	87.09	100.56	126.21
AD	Northern Sierra AQMD	Winter	2017	330.55	397.35	451.02	578.95	73.12	86.34	100.55	126.44
AD	Northern Sierra AQMD	Winter	2018	330.57	397.21	450.92	579.56	73.08	85.76	100.59	126.67
AD	Northern Sierra AQMD	Winter	2019	330.60	397.23	450.85	580.08	73.07	85.48	100.62	126.89
AD	Northern Sierra AQMD	Winter	2020	330.64	397.25	450.80	580.53	73.16	85.41	100.69	127.10
AD	Northern Sierra AQMD	Winter	2021	330.68	397.32	450.76	580.82	73.23	85.46	100.76	127.22
AD	Northern Sierra AQMD	Winter	2022	330.66	397.39	450.72	581.03	73.28	85.51	100.82	127.27
AD	Northern Sierra AQMD	Winter	2023	330.62	397.44	450.67	581.20	73.30	85.55	100.87	127.44
AD	Northern Sierra AQMD	Winter	2024	330.55	397.42	450.64	581.38	73.31	85.58	100.90	127.60
AD	Northern Sierra AQMD	Winter	2025	330.53	397.35	450.60	581.60	73.33	85.65	100.93	127.77
AD	Northern Sierra AQMD	Winter	2026	330.56	397.45	450.55	581.82	73.35	85.73	100.96	127.93
AD	Northern Sierra AQMD	Winter	2027	330.57	397.51	450.50	582.04	73.37	85.80	100.97	128.07
AD	Northern Sierra AQMD	Winter	2028	330.58	397.61	450.46	582.28	73.38	85.86	100.98	128.21
AD	Northern Sierra AQMD	Winter	2029	330.58	397.72	450.42	582.52	73.38	85.92	100.98	128.33
AD	Northern Sierra AQMD	Winter	2030	330.58	397.80	450.36	582.75	73.39	85.98	100.97	128.46
AD	Northern Sierra AQMD	Winter	2031	330.60	397.96	450.34	582.95	73.40	86.03	100.98	128.58
AD	Northern Sierra AQMD	Winter	2032	330.60	398.07	450.32	583.15	73.40	86.08	100.98	128.69
AD	Northern Sierra AQMD	Winter	2033	330.61	398.20	450.31	583.31	73.41	86.13	100.98	128.80
AD	Northern Sierra AQMD	Winter	2034	330.62	398.33	450.30	583.45	73.41	86.17	100.99	128.89
AD	Northern Sierra AQMD	Winter	2035	330.61	398.41	450.29	583.56	73.42	86.21	100.99	128.98

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Northern Sonoma County APCD	Annual	2010	390.51	449.32	534.32	668.22	73.44	86.67	100.89	124.24
AD	Northern Sonoma County APCD	Annual	2011	390.41	449.46	533.78	668.92	73.35	86.07	100.76	124.42
AD	Northern Sonoma County APCD	Annual	2012	390.39	449.72	533.36	669.75	73.28	85.75	100.71	124.64
AD	Northern Sonoma County APCD	Annual	2013	390.45	449.93	533.03	670.64	73.24	85.48	100.70	124.89
AD	Northern Sonoma County APCD	Annual	2014	390.51	450.12	532.77	671.53	73.21	85.23	100.66	125.14
AD	Northern Sonoma County APCD	Annual	2015	390.56	450.29	532.56	672.43	73.15	84.99	100.59	125.42
AD	Northern Sonoma County APCD	Annual	2016	389.58	449.24	530.90	671.41	73.14	84.86	100.60	125.69
AD	Northern Sonoma County APCD	Annual	2017	389.62	449.43	530.76	672.22	73.11	84.74	100.59	125.97
AD	Northern Sonoma County APCD	Annual	2018	389.63	449.60	530.64	672.91	73.05	84.67	100.59	126.25
AD	Northern Sonoma County APCD	Annual	2019	389.66	449.79	530.55	673.52	73.04	84.68	100.60	126.51
AD	Northern Sonoma County APCD	Annual	2020	389.72	449.99	530.48	674.07	73.12	84.77	100.66	126.75
AD	Northern Sonoma County APCD	Annual	2021	389.70	450.13	530.40	674.51	73.17	84.88	100.73	126.95
AD	Northern Sonoma County APCD	Annual	2022	389.64	450.20	530.29	674.87	73.19	84.96	100.77	127.13
AD	Northern Sonoma County APCD	Annual	2023	389.45	450.24	530.20	675.12	73.19	85.04	100.81	127.31
AD	Northern Sonoma County APCD	Annual	2024	389.28	450.28	530.12	675.30	73.17	85.12	100.85	127.48
AD	Northern Sonoma County APCD	Annual	2025	389.20	450.39	530.07	675.47	73.17	85.21	100.89	127.63
AD	Northern Sonoma County APCD	Annual	2026	388.38	449.63	528.86	674.20	73.19	85.33	100.92	127.79
AD	Northern Sonoma County APCD	Annual	2027	388.39	449.84	528.80	674.40	73.21	85.43	100.94	127.93
AD	Northern Sonoma County APCD	Annual	2028	388.39	450.05	528.74	674.61	73.21	85.53	100.95	128.07
AD	Northern Sonoma County APCD	Annual	2029	388.37	450.26	528.66	674.83	73.22	85.63	100.96	128.20
AD	Northern Sonoma County APCD	Annual	2030	388.34	450.46	528.57	675.05	73.22	85.71	100.96	128.32
AD	Northern Sonoma County APCD	Annual	2031	388.34	450.68	528.53	675.33	73.23	85.80	100.96	128.45
AD	Northern Sonoma County APCD	Annual	2032	388.33	450.87	528.49	675.61	73.23	85.88	100.97	128.57
AD	Northern Sonoma County APCD	Annual	2033	388.32	451.04	528.45	675.87	73.24	85.96	100.97	128.69
AD	Northern Sonoma County APCD	Annual	2034	388.31	451.20	528.43	676.10	73.25	86.03	100.98	128.79
AD	Northern Sonoma County APCD	Annual	2035	388.30	451.32	528.40	676.31	73.25	86.08	100.98	128.89
AD	Northern Sonoma County APCD	Summer	2010	405.40	463.97	554.11	693.02	73.44	86.67	100.89	124.24
AD	Northern Sonoma County APCD	Summer	2011	405.46	464.55	553.73	693.76	73.35	86.07	100.76	124.42
AD	Northern Sonoma County APCD	Summer	2012	405.58	465.14	553.43	694.67	73.28	85.75	100.71	124.64
AD	Northern Sonoma County APCD	Summer	2013	405.73	465.65	553.21	695.68	73.24	85.48	100.70	124.89
AD	Northern Sonoma County APCD	Summer	2014	405.87	466.08	553.06	696.69	73.21	85.23	100.66	125.14
AD	Northern Sonoma County APCD	Summer	2015	405.97	466.45	552.95	697.74	73.15	84.99	100.59	125.42
AD	Northern Sonoma County APCD	Summer	2016	404.98	465.53	551.32	696.79	73.14	84.86	100.60	125.69
AD	Northern Sonoma County APCD	Summer	2017	405.05	465.86	551.23	697.73	73.11	84.74	100.59	125.97
AD	Northern Sonoma County APCD	Summer	2018	405.05	466.14	551.15	698.52	73.05	84.67	100.59	126.25
AD	Northern Sonoma County APCD	Summer	2019	405.08	466.43	551.09	699.22	73.04	84.68	100.60	126.51
AD	Northern Sonoma County APCD	Summer	2020	405.14	466.72	551.02	699.85	73.12	84.77	100.66	126.75
AD	Northern Sonoma County APCD	Summer	2021	405.12	466.94	550.95	700.35	73.17	84.88	100.73	126.95
AD	Northern Sonoma County APCD	Summer	2022	405.06	467.10	550.86	700.77	73.19	84.96	100.77	127.13
AD	Northern Sonoma County APCD	Summer	2023	404.88	467.22	550.78	701.06	73.19	85.04	100.81	127.31
AD	Northern Sonoma County APCD	Summer	2024	404.72	467.34	550.70	701.27	73.17	85.12	100.85	127.48
AD	Northern Sonoma County APCD	Summer	2025	404.64	467.50	550.65	701.46	73.17	85.21	100.89	127.63
AD	Northern Sonoma County APCD	Summer	2026	403.80	466.76	549.40	700.14	73.19	85.33	100.92	127.79
AD	Northern Sonoma County APCD	Summer	2027	403.82	467.03	549.34	700.34	73.21	85.43	100.94	127.93
AD	Northern Sonoma County APCD	Summer	2028	403.82	467.29	549.29	700.56	73.21	85.53	100.95	128.07
AD	Northern Sonoma County APCD	Summer	2029	403.81	467.55	549.22	700.79	73.22	85.63	100.96	128.20
AD	Northern Sonoma County APCD	Summer	2030	403.80	467.80	549.13	701.03	73.22	85.71	100.96	128.32
AD	Northern Sonoma County APCD	Summer	2031	403.80	468.07	549.10	701.35	73.23	85.80	100.96	128.45
AD	Northern Sonoma County APCD	Summer	2032	403.79	468.29	549.07	701.67	73.23	85.88	100.97	128.57
AD	Northern Sonoma County APCD	Summer	2033	403.79	468.49	549.04	701.96	73.24	85.96	100.97	128.69
AD	Northern Sonoma County APCD	Summer	2034	403.78	468.67	549.01	702.23	73.25	86.03	100.98	128.79
AD	Northern Sonoma County APCD	Summer	2035	403.77	468.80	548.99	702.46	73.25	86.08	100.98	128.89
AD	Northern Sonoma County APCD	Winter	2010	383.18	442.11	524.58	656.01	73.44	86.67	100.89	124.24
AD	Northern Sonoma County APCD	Winter	2011	383.00	442.03	523.97	656.70	73.35	86.07	100.76	124.42

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Northern Sonoma County APCD	Winter	2012	382.92	442.12	523.49	657.49	73.28	85.75	100.71	124.64
AD	Northern Sonoma County APCD	Winter	2013	382.92	442.20	523.10	658.32	73.24	85.48	100.70	124.89
AD	Northern Sonoma County APCD	Winter	2014	382.95	442.27	522.78	659.14	73.21	85.23	100.66	125.14
AD	Northern Sonoma County APCD	Winter	2015	382.97	442.33	522.52	659.97	73.15	84.99	100.59	125.42
AD	Northern Sonoma County APCD	Winter	2016	382.00	441.23	520.85	658.92	73.14	84.86	100.60	125.69
AD	Northern Sonoma County APCD	Winter	2017	382.03	441.35	520.68	659.67	73.11	84.74	100.59	125.97
AD	Northern Sonoma County APCD	Winter	2018	382.04	441.46	520.55	660.31	73.05	84.67	100.59	126.25
AD	Northern Sonoma County APCD	Winter	2019	382.06	441.60	520.45	660.88	73.04	84.68	100.60	126.51
AD	Northern Sonoma County APCD	Winter	2020	382.13	441.75	520.37	661.39	73.12	84.77	100.66	126.75
AD	Northern Sonoma County APCD	Winter	2021	382.11	441.85	520.28	661.79	73.17	84.88	100.73	126.95
AD	Northern Sonoma County APCD	Winter	2022	382.05	441.88	520.16	662.13	73.19	84.96	100.77	127.13
AD	Northern Sonoma County APCD	Winter	2023	381.86	441.88	520.07	662.35	73.19	85.04	100.81	127.31
AD	Northern Sonoma County APCD	Winter	2024	381.68	441.89	519.99	662.52	73.17	85.12	100.85	127.48
AD	Northern Sonoma County APCD	Winter	2025	381.60	441.97	519.94	662.68	73.17	85.21	100.89	127.63
AD	Northern Sonoma County APCD	Winter	2026	380.80	441.20	518.76	661.43	73.19	85.33	100.92	127.79
AD	Northern Sonoma County APCD	Winter	2027	380.81	441.38	518.69	661.63	73.21	85.43	100.94	127.93
AD	Northern Sonoma County APCD	Winter	2028	380.79	441.56	518.63	661.84	73.21	85.53	100.95	128.07
AD	Northern Sonoma County APCD	Winter	2029	380.77	441.75	518.54	662.05	73.22	85.63	100.96	128.20
AD	Northern Sonoma County APCD	Winter	2030	380.74	441.93	518.44	662.26	73.22	85.71	100.96	128.32
AD	Northern Sonoma County APCD	Winter	2031	380.73	442.12	518.40	662.52	73.23	85.80	100.96	128.45
AD	Northern Sonoma County APCD	Winter	2032	380.72	442.30	518.36	662.79	73.23	85.88	100.97	128.57
AD	Northern Sonoma County APCD	Winter	2033	380.71	442.46	518.33	663.03	73.24	85.96	100.97	128.69
AD	Northern Sonoma County APCD	Winter	2034	380.70	442.60	518.30	663.25	73.25	86.03	100.98	128.79
AD	Northern Sonoma County APCD	Winter	2035	380.69	442.72	518.27	663.43	73.25	86.08	100.98	128.89
AD	Placer County APCD	Annual	2010	330.80	382.95	453.87	573.60	73.15	86.40	99.87	125.61
AD	Placer County APCD	Annual	2011	330.96	383.35	453.67	574.14	73.10	85.94	99.92	125.82
AD	Placer County APCD	Annual	2012	331.12	383.73	453.52	574.71	73.06	85.63	100.00	126.05
AD	Placer County APCD	Annual	2013	331.32	384.06	453.41	575.29	73.08	85.40	100.09	126.27
AD	Placer County APCD	Annual	2014	331.48	384.35	453.34	575.86	73.07	85.22	100.16	126.50
AD	Placer County APCD	Annual	2015	331.65	384.62	453.29	576.42	73.11	85.08	100.23	126.73
AD	Placer County APCD	Annual	2016	331.81	384.88	453.26	576.96	73.18	85.00	100.31	126.96
AD	Placer County APCD	Annual	2017	331.93	385.06	453.23	577.48	73.23	84.86	100.37	127.19
AD	Placer County APCD	Annual	2018	332.03	385.26	453.21	577.92	73.27	84.81	100.44	127.41
AD	Placer County APCD	Annual	2019	331.81	385.22	453.03	577.86	73.33	84.90	100.51	127.59
AD	Placer County APCD	Annual	2020	331.89	385.39	453.01	578.18	73.41	85.01	100.59	127.77
AD	Placer County APCD	Annual	2021	331.94	385.58	452.99	578.41	73.48	85.15	100.67	127.91
AD	Placer County APCD	Annual	2022	331.98	385.74	452.97	578.60	73.53	85.27	100.73	128.02
AD	Placer County APCD	Annual	2023	332.00	385.86	452.94	578.76	73.57	85.37	100.79	128.16
AD	Placer County APCD	Annual	2024	332.00	385.96	452.93	578.88	73.59	85.46	100.83	128.28
AD	Placer County APCD	Annual	2025	332.00	386.05	452.91	579.01	73.61	85.54	100.87	128.41
AD	Placer County APCD	Annual	2026	332.02	386.16	452.89	579.13	73.63	85.62	100.90	128.52
AD	Placer County APCD	Annual	2027	332.04	386.27	452.88	579.25	73.64	85.70	100.92	128.62
AD	Placer County APCD	Annual	2028	332.05	386.37	452.86	579.37	73.65	85.76	100.94	128.71
AD	Placer County APCD	Annual	2029	332.05	386.48	452.84	579.49	73.66	85.83	100.95	128.80
AD	Placer County APCD	Annual	2030	332.06	386.59	452.82	579.61	73.67	85.89	100.96	128.88
AD	Placer County APCD	Annual	2031	332.06	386.69	452.81	579.74	73.67	85.94	100.97	128.95
AD	Placer County APCD	Annual	2032	332.06	386.79	452.80	579.86	73.68	86.00	100.98	129.02
AD	Placer County APCD	Annual	2033	332.06	386.87	452.79	579.98	73.68	86.05	100.98	129.09
AD	Placer County APCD	Annual	2034	332.06	386.95	452.79	580.09	73.68	86.09	100.99	129.15
AD	Placer County APCD	Annual	2035	332.06	387.01	452.78	580.18	73.68	86.13	100.99	129.20
AD	Placer County APCD	Summer	2010	366.87	419.79	499.91	632.16	73.15	86.40	99.87	125.61
AD	Placer County APCD	Summer	2011	367.20	420.83	499.86	632.72	73.10	85.94	99.92	125.82
AD	Placer County APCD	Summer	2012	367.51	421.72	499.86	633.38	73.06	85.63	100.00	126.05
AD	Placer County APCD	Summer	2013	367.83	422.43	499.88	634.06	73.08	85.40	100.09	126.27

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Placer County APCD	Summer	2014	368.11	423.03	499.98	634.82	73.07	85.22	100.16	126.50
AD	Placer County APCD	Summer	2015	368.37	423.53	500.06	635.56	73.11	85.08	100.23	126.73
AD	Placer County APCD	Summer	2016	368.59	423.99	500.19	636.33	73.18	85.00	100.31	126.96
AD	Placer County APCD	Summer	2017	368.75	424.37	500.30	637.08	73.23	84.86	100.37	127.19
AD	Placer County APCD	Summer	2018	368.87	424.73	500.37	637.69	73.27	84.81	100.44	127.41
AD	Placer County APCD	Summer	2019	368.64	424.75	500.19	637.68	73.33	84.90	100.51	127.59
AD	Placer County APCD	Summer	2020	368.73	425.03	500.21	638.11	73.41	85.01	100.59	127.77
AD	Placer County APCD	Summer	2021	368.79	425.26	500.22	638.45	73.48	85.15	100.67	127.91
AD	Placer County APCD	Summer	2022	368.85	425.49	500.23	638.74	73.53	85.27	100.73	128.02
AD	Placer County APCD	Summer	2023	368.90	425.67	500.25	638.98	73.57	85.37	100.79	128.16
AD	Placer County APCD	Summer	2024	368.92	425.83	500.26	639.17	73.59	85.46	100.83	128.28
AD	Placer County APCD	Summer	2025	368.94	425.99	500.29	639.37	73.61	85.54	100.87	128.41
AD	Placer County APCD	Summer	2026	368.98	426.17	500.30	639.54	73.63	85.62	100.90	128.52
AD	Placer County APCD	Summer	2027	369.02	426.34	500.32	639.72	73.64	85.70	100.92	128.62
AD	Placer County APCD	Summer	2028	369.05	426.52	500.35	639.90	73.65	85.76	100.94	128.71
AD	Placer County APCD	Summer	2029	369.08	426.71	500.38	640.08	73.66	85.83	100.95	128.80
AD	Placer County APCD	Summer	2030	369.11	426.89	500.40	640.26	73.67	85.89	100.96	128.88
AD	Placer County APCD	Summer	2031	369.14	427.07	500.42	640.42	73.67	85.94	100.97	128.95
AD	Placer County APCD	Summer	2032	369.16	427.23	500.45	640.59	73.68	86.00	100.98	129.02
AD	Placer County APCD	Summer	2033	369.19	427.37	500.48	640.76	73.68	86.05	100.98	129.09
AD	Placer County APCD	Summer	2034	369.21	427.50	500.51	640.92	73.68	86.09	100.99	129.15
AD	Placer County APCD	Summer	2035	369.22	427.60	500.54	641.08	73.68	86.13	100.99	129.20
AD	Placer County APCD	Winter	2010	321.28	373.22	441.80	558.12	73.15	86.40	99.87	125.61
AD	Placer County APCD	Winter	2011	321.39	373.46	441.55	558.65	73.10	85.94	99.92	125.82
AD	Placer County APCD	Winter	2012	321.51	373.70	441.37	559.19	73.06	85.63	100.00	126.05
AD	Placer County APCD	Winter	2013	321.67	373.92	441.22	559.73	73.08	85.40	100.09	126.27
AD	Placer County APCD	Winter	2014	321.80	374.13	441.10	560.26	73.07	85.22	100.16	126.50
AD	Placer County APCD	Winter	2015	321.94	374.34	441.02	560.77	73.11	85.08	100.23	126.73
AD	Placer County APCD	Winter	2016	322.09	374.54	440.94	561.25	73.18	85.00	100.31	126.96
AD	Placer County APCD	Winter	2017	322.20	374.67	440.87	561.70	73.23	84.86	100.37	127.19
AD	Placer County APCD	Winter	2018	322.28	374.82	440.83	562.09	73.27	84.81	100.44	127.41
AD	Placer County APCD	Winter	2019	322.07	374.75	440.63	562.01	73.33	84.90	100.51	127.59
AD	Placer County APCD	Winter	2020	322.14	374.90	440.60	562.29	73.41	85.01	100.59	127.77
AD	Placer County APCD	Winter	2021	322.19	375.07	440.56	562.49	73.48	85.15	100.67	127.91
AD	Placer County APCD	Winter	2022	322.22	375.21	440.52	562.65	73.53	85.27	100.73	128.02
AD	Placer County APCD	Winter	2023	322.22	375.31	440.49	562.78	73.57	85.37	100.79	128.16
AD	Placer County APCD	Winter	2024	322.22	375.39	440.45	562.88	73.59	85.46	100.83	128.28
AD	Placer County APCD	Winter	2025	322.22	375.47	440.42	562.98	73.61	85.54	100.87	128.41
AD	Placer County APCD	Winter	2026	322.23	375.55	440.39	563.08	73.63	85.62	100.90	128.52
AD	Placer County APCD	Winter	2027	322.23	375.64	440.36	563.18	73.64	85.70	100.92	128.62
AD	Placer County APCD	Winter	2028	322.24	375.72	440.33	563.28	73.65	85.76	100.94	128.71
AD	Placer County APCD	Winter	2029	322.23	375.80	440.29	563.38	73.66	85.83	100.95	128.80
AD	Placer County APCD	Winter	2030	322.23	375.89	440.25	563.48	73.67	85.89	100.96	128.88
AD	Placer County APCD	Winter	2031	322.22	375.97	440.23	563.59	73.67	85.94	100.97	128.95
AD	Placer County APCD	Winter	2032	322.22	376.04	440.21	563.70	73.68	86.00	100.98	129.02
AD	Placer County APCD	Winter	2033	322.21	376.11	440.19	563.80	73.68	86.05	100.98	129.09
AD	Placer County APCD	Winter	2034	322.20	376.17	440.17	563.89	73.68	86.09	100.99	129.15
AD	Placer County APCD	Winter	2035	322.19	376.21	440.15	563.96	73.68	86.13	100.99	129.20
AD	Sacramento Metropolitan AQMD	Annual	2010	338.27	388.45	463.58	584.38	72.89	84.85	99.62	124.76
AD	Sacramento Metropolitan AQMD	Annual	2011	338.59	389.26	463.49	584.93	72.94	84.61	99.69	124.96
AD	Sacramento Metropolitan AQMD	Annual	2012	338.89	389.98	463.44	585.56	73.00	84.46	99.78	125.19
AD	Sacramento Metropolitan AQMD	Annual	2013	339.19	390.61	463.40	586.25	73.08	84.39	99.88	125.44
AD	Sacramento Metropolitan AQMD	Annual	2014	339.46	391.17	463.38	586.94	73.15	84.34	99.96	125.69
AD	Sacramento Metropolitan AQMD	Annual	2015	339.72	391.68	463.38	587.65	73.24	84.33	100.03	125.96

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Sacramento Metropolitan AQMD	Annual	2016	339.95	392.11	463.38	588.32	73.35	84.32	100.13	126.23
AD	Sacramento Metropolitan AQMD	Annual	2017	340.12	392.49	463.38	588.95	73.41	84.30	100.21	126.50
AD	Sacramento Metropolitan AQMD	Annual	2018	340.26	392.81	463.37	589.51	73.47	84.32	100.29	126.76
AD	Sacramento Metropolitan AQMD	Annual	2019	338.61	391.09	460.99	586.96	73.53	84.47	100.38	126.99
AD	Sacramento Metropolitan AQMD	Annual	2020	338.72	391.37	460.98	587.40	73.64	84.63	100.47	127.20
AD	Sacramento Metropolitan AQMD	Annual	2021	338.80	391.64	460.97	587.73	73.72	84.80	100.57	127.38
AD	Sacramento Metropolitan AQMD	Annual	2022	338.84	391.86	460.96	588.00	73.78	84.95	100.64	127.54
AD	Sacramento Metropolitan AQMD	Annual	2023	338.86	392.04	460.94	588.22	73.82	85.07	100.71	127.71
AD	Sacramento Metropolitan AQMD	Annual	2024	338.87	392.19	460.92	588.37	73.85	85.19	100.76	127.86
AD	Sacramento Metropolitan AQMD	Annual	2025	338.88	392.32	460.91	588.52	73.87	85.29	100.81	128.00
AD	Sacramento Metropolitan AQMD	Annual	2026	338.89	392.46	460.90	588.69	73.89	85.39	100.85	128.15
AD	Sacramento Metropolitan AQMD	Annual	2027	338.90	392.59	460.89	588.86	73.91	85.48	100.88	128.28
AD	Sacramento Metropolitan AQMD	Annual	2028	338.91	392.72	460.89	589.02	73.92	85.56	100.90	128.39
AD	Sacramento Metropolitan AQMD	Annual	2029	338.91	392.85	460.87	589.18	73.93	85.64	100.92	128.50
AD	Sacramento Metropolitan AQMD	Annual	2030	338.91	392.98	460.87	589.35	73.93	85.71	100.93	128.60
AD	Sacramento Metropolitan AQMD	Annual	2031	338.92	393.12	460.86	589.51	73.94	85.79	100.94	128.70
AD	Sacramento Metropolitan AQMD	Annual	2032	338.92	393.24	460.86	589.69	73.94	85.85	100.95	128.80
AD	Sacramento Metropolitan AQMD	Annual	2033	338.92	393.34	460.85	589.84	73.95	85.91	100.96	128.88
AD	Sacramento Metropolitan AQMD	Annual	2034	338.92	393.44	460.84	589.99	73.95	85.97	100.96	128.96
AD	Sacramento Metropolitan AQMD	Annual	2035	338.92	393.51	460.84	590.12	73.95	86.02	100.97	129.04
AD	Sacramento Metropolitan AQMD	Summer	2010	375.62	427.51	513.20	646.48	72.89	84.85	99.62	124.76
AD	Sacramento Metropolitan AQMD	Summer	2011	376.19	429.01	513.26	646.92	72.94	84.61	99.69	124.96
AD	Sacramento Metropolitan AQMD	Summer	2012	376.70	430.30	513.35	647.57	73.00	84.46	99.78	125.19
AD	Sacramento Metropolitan AQMD	Summer	2013	377.16	431.37	513.46	648.38	73.08	84.39	99.88	125.44
AD	Sacramento Metropolitan AQMD	Summer	2014	377.55	432.28	513.62	649.25	73.15	84.34	99.96	125.69
AD	Sacramento Metropolitan AQMD	Summer	2015	377.89	433.05	513.77	650.20	73.24	84.33	100.03	125.96
AD	Sacramento Metropolitan AQMD	Summer	2016	378.19	433.69	513.89	651.12	73.35	84.32	100.13	126.23
AD	Sacramento Metropolitan AQMD	Summer	2017	378.39	434.26	513.97	651.99	73.41	84.30	100.21	126.50
AD	Sacramento Metropolitan AQMD	Summer	2018	378.53	434.71	513.99	652.74	73.47	84.32	100.29	126.76
AD	Sacramento Metropolitan AQMD	Summer	2019	376.67	432.84	511.33	650.00	73.53	84.47	100.38	126.99
AD	Sacramento Metropolitan AQMD	Summer	2020	376.76	433.18	511.31	650.57	73.64	84.63	100.47	127.20
AD	Sacramento Metropolitan AQMD	Summer	2021	376.83	433.55	511.26	650.99	73.72	84.80	100.57	127.38
AD	Sacramento Metropolitan AQMD	Summer	2022	376.86	433.86	511.21	651.34	73.78	84.95	100.64	127.54
AD	Sacramento Metropolitan AQMD	Summer	2023	376.88	434.12	511.16	651.60	73.82	85.07	100.71	127.71
AD	Sacramento Metropolitan AQMD	Summer	2024	376.89	434.33	511.11	651.76	73.85	85.19	100.76	127.86
AD	Sacramento Metropolitan AQMD	Summer	2025	376.91	434.52	511.07	651.91	73.87	85.29	100.81	128.00
AD	Sacramento Metropolitan AQMD	Summer	2026	376.91	434.70	511.07	652.09	73.89	85.39	100.85	128.15
AD	Sacramento Metropolitan AQMD	Summer	2027	376.93	434.88	511.07	652.26	73.91	85.48	100.88	128.28
AD	Sacramento Metropolitan AQMD	Summer	2028	376.94	435.06	511.07	652.43	73.92	85.56	100.90	128.39
AD	Sacramento Metropolitan AQMD	Summer	2029	376.95	435.25	511.08	652.61	73.93	85.64	100.92	128.50
AD	Sacramento Metropolitan AQMD	Summer	2030	376.96	435.44	511.08	652.80	73.93	85.71	100.93	128.60
AD	Sacramento Metropolitan AQMD	Summer	2031	376.96	435.63	511.08	652.97	73.94	85.79	100.94	128.70
AD	Sacramento Metropolitan AQMD	Summer	2032	376.97	435.80	511.07	653.16	73.94	85.85	100.95	128.80
AD	Sacramento Metropolitan AQMD	Summer	2033	376.98	435.94	511.07	653.35	73.95	85.91	100.96	128.88
AD	Sacramento Metropolitan AQMD	Summer	2034	376.98	436.06	511.06	653.53	73.95	85.97	100.96	128.96
AD	Sacramento Metropolitan AQMD	Summer	2035	376.98	436.16	511.05	653.69	73.95	86.02	100.97	129.04
AD	Sacramento Metropolitan AQMD	Winter	2010	328.26	377.97	450.28	567.73	72.89	84.85	99.62	124.76
AD	Sacramento Metropolitan AQMD	Winter	2011	328.50	378.59	450.15	568.31	72.94	84.61	99.69	124.96
AD	Sacramento Metropolitan AQMD	Winter	2012	328.76	379.17	450.05	568.93	73.00	84.46	99.78	125.19
AD	Sacramento Metropolitan AQMD	Winter	2013	329.01	379.69	449.97	569.59	73.08	84.39	99.88	125.44
AD	Sacramento Metropolitan AQMD	Winter	2014	329.25	380.15	449.91	570.23	73.15	84.34	99.96	125.69
AD	Sacramento Metropolitan AQMD	Winter	2015	329.48	380.58	449.87	570.88	73.24	84.33	100.03	125.96
AD	Sacramento Metropolitan AQMD	Winter	2016	329.69	380.95	449.84	571.48	73.35	84.32	100.13	126.23
AD	Sacramento Metropolitan AQMD	Winter	2017	329.86	381.29	449.81	572.05	73.41	84.30	100.21	126.50

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Sacramento Metropolitan AQMD	Winter	2018	329.99	381.58	449.80	572.55	73.47	84.32	100.29	126.76
AD	Sacramento Metropolitan AQMD	Winter	2019	328.41	379.90	447.49	570.06	73.53	84.47	100.38	126.99
AD	Sacramento Metropolitan AQMD	Winter	2020	328.52	380.16	447.49	570.46	73.64	84.63	100.47	127.20
AD	Sacramento Metropolitan AQMD	Winter	2021	328.60	380.41	447.49	570.77	73.72	84.80	100.57	127.38
AD	Sacramento Metropolitan AQMD	Winter	2022	328.65	380.61	447.49	571.03	73.78	84.95	100.64	127.54
AD	Sacramento Metropolitan AQMD	Winter	2023	328.67	380.77	447.48	571.23	73.82	85.07	100.71	127.71
AD	Sacramento Metropolitan AQMD	Winter	2024	328.67	380.89	447.47	571.38	73.85	85.19	100.76	127.86
AD	Sacramento Metropolitan AQMD	Winter	2025	328.68	381.01	447.47	571.53	73.87	85.29	100.81	128.00
AD	Sacramento Metropolitan AQMD	Winter	2026	328.70	381.14	447.46	571.70	73.89	85.39	100.85	128.15
AD	Sacramento Metropolitan AQMD	Winter	2027	328.71	381.25	447.45	571.86	73.91	85.48	100.88	128.28
AD	Sacramento Metropolitan AQMD	Winter	2028	328.72	381.37	447.43	572.02	73.92	85.56	100.90	128.39
AD	Sacramento Metropolitan AQMD	Winter	2029	328.72	381.49	447.42	572.18	73.93	85.64	100.92	128.50
AD	Sacramento Metropolitan AQMD	Winter	2030	328.72	381.60	447.41	572.34	73.93	85.71	100.93	128.60
AD	Sacramento Metropolitan AQMD	Winter	2031	328.72	381.72	447.40	572.50	73.94	85.79	100.94	128.70
AD	Sacramento Metropolitan AQMD	Winter	2032	328.72	381.83	447.39	572.67	73.94	85.85	100.95	128.80
AD	Sacramento Metropolitan AQMD	Winter	2033	328.72	381.92	447.39	572.82	73.95	85.91	100.96	128.88
AD	Sacramento Metropolitan AQMD	Winter	2034	328.72	382.01	447.38	572.96	73.95	85.97	100.96	128.96
AD	Sacramento Metropolitan AQMD	Winter	2035	328.71	382.08	447.37	573.07	73.95	86.02	100.97	129.04
AD	San Diego County APCD	Annual	2010	352.52	405.15	482.46	610.22	72.99	83.92	99.34	125.27
AD	San Diego County APCD	Annual	2011	353.81	407.05	483.85	612.57	73.01	83.88	99.44	125.44
AD	San Diego County APCD	Annual	2012	354.03	407.67	483.80	613.09	73.05	83.89	99.57	125.64
AD	San Diego County APCD	Annual	2013	354.28	408.23	483.77	613.65	73.12	83.94	99.70	125.85
AD	San Diego County APCD	Annual	2014	354.50	408.76	483.75	614.21	73.17	83.99	99.82	126.06
AD	San Diego County APCD	Annual	2015	354.72	409.25	483.74	614.79	73.24	84.07	99.93	126.29
AD	San Diego County APCD	Annual	2016	354.92	409.69	483.74	615.32	73.32	84.16	100.05	126.52
AD	San Diego County APCD	Annual	2017	355.08	410.10	483.73	615.84	73.37	84.25	100.15	126.74
AD	San Diego County APCD	Annual	2018	355.21	410.47	483.74	616.29	73.41	84.35	100.25	126.96
AD	San Diego County APCD	Annual	2019	355.33	410.82	483.74	616.69	73.46	84.52	100.35	127.15
AD	San Diego County APCD	Annual	2020	355.43	411.15	483.75	617.07	73.55	84.69	100.45	127.34
AD	San Diego County APCD	Annual	2021	356.07	412.11	484.56	618.41	73.62	84.87	100.55	127.52
AD	San Diego County APCD	Annual	2022	356.11	412.36	484.56	618.69	73.67	85.02	100.63	127.67
AD	San Diego County APCD	Annual	2023	356.12	412.55	484.56	618.89	73.71	85.15	100.70	127.83
AD	San Diego County APCD	Annual	2024	356.12	412.71	484.55	619.06	73.72	85.27	100.76	127.98
AD	San Diego County APCD	Annual	2025	356.11	412.86	484.55	619.23	73.74	85.38	100.81	128.12
AD	San Diego County APCD	Annual	2026	356.13	413.01	484.54	619.39	73.76	85.48	100.85	128.26
AD	San Diego County APCD	Annual	2027	356.14	413.16	484.53	619.54	73.77	85.57	100.88	128.38
AD	San Diego County APCD	Annual	2028	356.15	413.30	484.51	619.69	73.78	85.66	100.90	128.48
AD	San Diego County APCD	Annual	2029	356.15	413.45	484.50	619.84	73.79	85.74	100.92	128.58
AD	San Diego County APCD	Annual	2030	356.14	413.59	484.49	619.98	73.79	85.81	100.93	128.68
AD	San Diego County APCD	Annual	2031	356.14	413.74	484.48	620.13	73.80	85.89	100.94	128.77
AD	San Diego County APCD	Annual	2032	356.14	413.87	484.48	620.29	73.80	85.96	100.95	128.86
AD	San Diego County APCD	Annual	2033	356.14	414.00	484.47	620.43	73.80	86.02	100.96	128.93
AD	San Diego County APCD	Annual	2034	356.13	414.10	484.46	620.55	73.80	86.08	100.97	129.01
AD	San Diego County APCD	Annual	2035	356.13	414.20	484.46	620.67	73.81	86.13	100.97	129.08
AD	San Diego County APCD	Summer	2010	372.46	426.19	509.00	643.64	72.99	83.92	99.34	125.27
AD	San Diego County APCD	Summer	2011	373.89	428.41	510.48	645.96	73.01	83.88	99.44	125.44
AD	San Diego County APCD	Summer	2012	374.19	429.26	510.46	646.43	73.05	83.89	99.57	125.64
AD	San Diego County APCD	Summer	2013	374.48	430.00	510.47	646.99	73.12	83.94	99.70	125.85
AD	San Diego County APCD	Summer	2014	374.75	430.67	510.51	647.60	73.17	83.99	99.82	126.06
AD	San Diego County APCD	Summer	2015	375.00	431.27	510.56	648.26	73.24	84.07	99.93	126.29
AD	San Diego County APCD	Summer	2016	375.24	431.81	510.61	648.90	73.32	84.16	100.05	126.52
AD	San Diego County APCD	Summer	2017	375.42	432.30	510.65	649.52	73.37	84.25	100.15	126.74
AD	San Diego County APCD	Summer	2018	375.55	432.74	510.67	650.05	73.41	84.35	100.25	126.96
AD	San Diego County APCD	Summer	2019	375.68	433.15	510.68	650.53	73.46	84.52	100.35	127.15

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	San Diego County APCD	Summer	2020	375.78	433.52	510.68	650.97	73.55	84.69	100.45	127.34
AD	San Diego County APCD	Summer	2021	376.47	434.60	511.57	652.47	73.62	84.87	100.55	127.52
AD	San Diego County APCD	Summer	2022	376.52	434.90	511.57	652.82	73.67	85.02	100.63	127.67
AD	San Diego County APCD	Summer	2023	376.54	435.14	511.57	653.07	73.71	85.15	100.70	127.83
AD	San Diego County APCD	Summer	2024	376.54	435.34	511.56	653.27	73.72	85.27	100.76	127.98
AD	San Diego County APCD	Summer	2025	376.54	435.52	511.56	653.45	73.74	85.38	100.81	128.12
AD	San Diego County APCD	Summer	2026	376.55	435.72	511.54	653.62	73.76	85.48	100.85	128.26
AD	San Diego County APCD	Summer	2027	376.56	435.90	511.53	653.77	73.77	85.57	100.88	128.38
AD	San Diego County APCD	Summer	2028	376.57	436.07	511.51	653.92	73.78	85.66	100.90	128.48
AD	San Diego County APCD	Summer	2029	376.58	436.25	511.49	654.06	73.79	85.74	100.92	128.58
AD	San Diego County APCD	Summer	2030	376.58	436.43	511.48	654.21	73.79	85.81	100.93	128.68
AD	San Diego County APCD	Summer	2031	376.57	436.61	511.47	654.35	73.80	85.89	100.94	128.77
AD	San Diego County APCD	Summer	2032	376.57	436.77	511.46	654.51	73.80	85.96	100.95	128.86
AD	San Diego County APCD	Summer	2033	376.57	436.92	511.45	654.65	73.80	86.02	100.96	128.93
AD	San Diego County APCD	Summer	2034	376.57	437.04	511.45	654.79	73.80	86.08	100.97	129.01
AD	San Diego County APCD	Summer	2035	376.57	437.14	511.44	654.92	73.81	86.13	100.97	129.08
AD	San Diego County APCD	Winter	2010	348.91	401.34	477.65	604.17	72.99	83.92	99.34	125.27
AD	San Diego County APCD	Winter	2011	350.18	403.18	479.04	606.53	73.01	83.88	99.44	125.44
AD	San Diego County APCD	Winter	2012	350.39	403.76	478.98	607.06	73.05	83.89	99.57	125.64
AD	San Diego County APCD	Winter	2013	350.62	404.30	478.94	607.62	73.12	83.94	99.70	125.85
AD	San Diego County APCD	Winter	2014	350.83	404.79	478.91	608.17	73.17	83.99	99.82	126.06
AD	San Diego County APCD	Winter	2015	351.05	405.26	478.89	608.73	73.24	84.07	99.93	126.29
AD	San Diego County APCD	Winter	2016	351.25	405.69	478.88	609.25	73.32	84.16	100.05	126.52
AD	San Diego County APCD	Winter	2017	351.40	406.08	478.87	609.75	73.37	84.25	100.15	126.74
AD	San Diego County APCD	Winter	2018	351.53	406.44	478.86	610.18	73.41	84.35	100.25	126.96
AD	San Diego County APCD	Winter	2019	351.65	406.78	478.87	610.57	73.46	84.52	100.35	127.15
AD	San Diego County APCD	Winter	2020	351.75	407.10	478.87	610.94	73.55	84.69	100.45	127.34
AD	San Diego County APCD	Winter	2021	352.38	408.04	479.67	612.25	73.62	84.87	100.55	127.52
AD	San Diego County APCD	Winter	2022	352.42	408.28	479.67	612.51	73.67	85.02	100.63	127.67
AD	San Diego County APCD	Winter	2023	352.43	408.47	479.67	612.71	73.71	85.15	100.70	127.83
AD	San Diego County APCD	Winter	2024	352.42	408.62	479.66	612.87	73.72	85.27	100.76	127.98
AD	San Diego County APCD	Winter	2025	352.42	408.75	479.66	613.03	73.74	85.38	100.81	128.12
AD	San Diego County APCD	Winter	2026	352.43	408.90	479.65	613.20	73.76	85.48	100.85	128.26
AD	San Diego County APCD	Winter	2027	352.44	409.04	479.64	613.35	73.77	85.57	100.88	128.38
AD	San Diego County APCD	Winter	2028	352.45	409.18	479.63	613.50	73.78	85.66	100.90	128.48
AD	San Diego County APCD	Winter	2029	352.45	409.32	479.62	613.64	73.79	85.74	100.92	128.58
AD	San Diego County APCD	Winter	2030	352.45	409.46	479.60	613.79	73.79	85.81	100.93	128.68
AD	San Diego County APCD	Winter	2031	352.44	409.60	479.60	613.94	73.80	85.89	100.94	128.77
AD	San Diego County APCD	Winter	2032	352.44	409.73	479.59	614.10	73.80	85.96	100.95	128.86
AD	San Diego County APCD	Winter	2033	352.44	409.85	479.59	614.23	73.80	86.02	100.96	128.93
AD	San Diego County APCD	Winter	2034	352.44	409.95	479.58	614.36	73.80	86.08	100.97	129.01
AD	San Diego County APCD	Winter	2035	352.43	410.04	479.57	614.47	73.81	86.13	100.97	129.08
AD	San Joaquin Valley Unified APCD	Annual	2010	344.53	395.23	472.07	594.91	73.37	85.32	100.36	124.58
AD	San Joaquin Valley Unified APCD	Annual	2011	344.79	396.17	471.84	595.64	73.37	85.05	100.34	124.82
AD	San Joaquin Valley Unified APCD	Annual	2012	344.82	396.68	471.40	596.04	73.39	84.87	100.35	125.07
AD	San Joaquin Valley Unified APCD	Annual	2013	345.18	397.48	471.50	597.02	73.43	84.73	100.37	125.34
AD	San Joaquin Valley Unified APCD	Annual	2014	345.41	398.05	471.41	597.81	73.45	84.65	100.38	125.62
AD	San Joaquin Valley Unified APCD	Annual	2015	346.20	399.25	472.24	599.62	73.50	84.60	100.40	125.92
AD	San Joaquin Valley Unified APCD	Annual	2016	346.40	399.70	472.19	600.39	73.57	84.57	100.44	126.22
AD	San Joaquin Valley Unified APCD	Annual	2017	346.53	400.08	472.14	601.11	73.60	84.54	100.44	126.51
AD	San Joaquin Valley Unified APCD	Annual	2018	347.36	401.34	473.27	602.98	73.63	84.56	100.47	126.79
AD	San Joaquin Valley Unified APCD	Annual	2019	347.49	401.71	473.29	603.59	73.68	84.67	100.51	127.05
AD	San Joaquin Valley Unified APCD	Annual	2020	347.59	402.04	473.30	604.13	73.77	84.83	100.58	127.28
AD	San Joaquin Valley Unified APCD	Annual	2021	347.55	402.06	472.98	604.31	73.84	84.99	100.66	127.48

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	San Joaquin Valley Unified APCD	Annual	2022	347.60	402.27	472.95	604.67	73.89	85.13	100.73	127.64
AD	San Joaquin Valley Unified APCD	Annual	2023	347.63	402.44	472.93	604.96	73.92	85.25	100.78	127.82
AD	San Joaquin Valley Unified APCD	Annual	2024	347.85	403.02	473.49	605.81	73.94	85.37	100.83	127.98
AD	San Joaquin Valley Unified APCD	Annual	2025	347.86	403.16	473.48	606.02	73.96	85.47	100.86	128.14
AD	San Joaquin Valley Unified APCD	Annual	2026	348.71	404.36	474.80	607.63	73.98	85.57	100.89	128.28
AD	San Joaquin Valley Unified APCD	Annual	2027	348.72	404.49	474.74	607.80	73.99	85.65	100.92	128.41
AD	San Joaquin Valley Unified APCD	Annual	2028	348.73	404.62	474.69	607.97	74.00	85.74	100.93	128.53
AD	San Joaquin Valley Unified APCD	Annual	2029	348.73	404.75	474.65	608.15	74.01	85.81	100.94	128.63
AD	San Joaquin Valley Unified APCD	Annual	2030	348.73	404.88	474.61	608.33	74.01	85.88	100.95	128.74
AD	San Joaquin Valley Unified APCD	Annual	2031	348.73	405.01	474.57	608.48	74.02	85.95	100.96	128.83
AD	San Joaquin Valley Unified APCD	Annual	2032	348.73	405.13	474.53	608.63	74.02	86.02	100.96	128.92
AD	San Joaquin Valley Unified APCD	Annual	2033	348.73	405.23	474.50	608.78	74.02	86.07	100.97	129.00
AD	San Joaquin Valley Unified APCD	Annual	2034	348.73	405.32	474.47	608.91	74.03	86.12	100.97	129.08
AD	San Joaquin Valley Unified APCD	Annual	2035	348.74	405.39	474.45	609.03	74.03	86.17	100.98	129.15
AD	San Joaquin Valley Unified APCD	Summer	2010	378.79	430.24	517.12	652.23	73.37	85.32	100.36	124.58
AD	San Joaquin Valley Unified APCD	Summer	2011	379.32	432.07	517.21	652.97	73.37	85.05	100.34	124.82
AD	San Joaquin Valley Unified APCD	Summer	2012	379.51	433.17	516.96	653.39	73.39	84.87	100.35	125.07
AD	San Joaquin Valley Unified APCD	Summer	2013	380.02	434.48	517.27	654.53	73.43	84.73	100.37	125.34
AD	San Joaquin Valley Unified APCD	Summer	2014	380.35	435.44	517.38	655.51	73.45	84.65	100.38	125.62
AD	San Joaquin Valley Unified APCD	Summer	2015	381.29	437.04	518.48	657.68	73.50	84.60	100.40	125.92
AD	San Joaquin Valley Unified APCD	Summer	2016	381.55	437.73	518.55	658.71	73.57	84.57	100.44	126.22
AD	San Joaquin Valley Unified APCD	Summer	2017	381.72	438.33	518.60	659.66	73.60	84.54	100.44	126.51
AD	San Joaquin Valley Unified APCD	Summer	2018	382.62	439.83	519.89	661.84	73.63	84.56	100.47	126.79
AD	San Joaquin Valley Unified APCD	Summer	2019	382.75	440.33	519.93	662.62	73.68	84.67	100.51	127.05
AD	San Joaquin Valley Unified APCD	Summer	2020	382.86	440.77	519.95	663.30	73.77	84.83	100.58	127.28
AD	San Joaquin Valley Unified APCD	Summer	2021	382.80	440.85	519.59	663.56	73.84	84.99	100.66	127.48
AD	San Joaquin Valley Unified APCD	Summer	2022	382.85	441.14	519.54	664.00	73.89	85.13	100.73	127.64
AD	San Joaquin Valley Unified APCD	Summer	2023	382.88	441.39	519.49	664.34	73.92	85.25	100.78	127.82
AD	San Joaquin Valley Unified APCD	Summer	2024	383.14	442.10	520.11	665.29	73.94	85.37	100.83	127.98
AD	San Joaquin Valley Unified APCD	Summer	2025	383.16	442.31	520.10	665.52	73.96	85.47	100.86	128.14
AD	San Joaquin Valley Unified APCD	Summer	2026	384.09	443.68	521.54	667.23	73.98	85.57	100.89	128.28
AD	San Joaquin Valley Unified APCD	Summer	2027	384.11	443.88	521.48	667.40	73.99	85.65	100.92	128.41
AD	San Joaquin Valley Unified APCD	Summer	2028	384.12	444.07	521.44	667.58	74.00	85.74	100.93	128.53
AD	San Joaquin Valley Unified APCD	Summer	2029	384.14	444.28	521.41	667.76	74.01	85.81	100.94	128.63
AD	San Joaquin Valley Unified APCD	Summer	2030	384.15	444.48	521.38	667.96	74.01	85.88	100.95	128.74
AD	San Joaquin Valley Unified APCD	Summer	2031	384.15	444.67	521.34	668.13	74.02	85.95	100.96	128.83
AD	San Joaquin Valley Unified APCD	Summer	2032	384.15	444.83	521.31	668.31	74.02	86.02	100.96	128.92
AD	San Joaquin Valley Unified APCD	Summer	2033	384.15	444.97	521.29	668.48	74.02	86.07	100.97	129.00
AD	San Joaquin Valley Unified APCD	Summer	2034	384.16	445.10	521.27	668.66	74.03	86.12	100.97	129.08
AD	San Joaquin Valley Unified APCD	Summer	2035	384.17	445.18	521.25	668.82	74.03	86.17	100.98	129.15
AD	San Joaquin Valley Unified APCD	Winter	2010	331.71	382.09	455.17	573.36	73.37	85.32	100.36	124.58
AD	San Joaquin Valley Unified APCD	Winter	2011	331.86	382.70	454.81	574.06	73.37	85.05	100.34	124.82
AD	San Joaquin Valley Unified APCD	Winter	2012	331.84	382.98	454.30	574.45	73.39	84.87	100.35	125.07
AD	San Joaquin Valley Unified APCD	Winter	2013	332.15	383.59	454.32	575.38	73.43	84.73	100.37	125.34
AD	San Joaquin Valley Unified APCD	Winter	2014	332.34	384.02	454.16	576.11	73.45	84.65	100.38	125.62
AD	San Joaquin Valley Unified APCD	Winter	2015	333.08	385.08	454.89	577.78	73.50	84.60	100.40	125.92
AD	San Joaquin Valley Unified APCD	Winter	2016	333.25	385.43	454.79	578.46	73.57	84.57	100.44	126.22
AD	San Joaquin Valley Unified APCD	Winter	2017	333.38	385.74	454.71	579.09	73.60	84.54	100.44	126.51
AD	San Joaquin Valley Unified APCD	Winter	2018	334.17	386.90	455.78	580.83	73.63	84.56	100.47	126.79
AD	San Joaquin Valley Unified APCD	Winter	2019	334.29	387.21	455.78	581.37	73.68	84.67	100.51	127.05
AD	San Joaquin Valley Unified APCD	Winter	2020	334.40	387.49	455.79	581.86	73.77	84.83	100.58	127.28
AD	San Joaquin Valley Unified APCD	Winter	2021	334.35	387.50	455.49	582.01	73.84	84.99	100.66	127.48
AD	San Joaquin Valley Unified APCD	Winter	2022	334.40	387.67	455.46	582.34	73.89	85.13	100.73	127.64
AD	San Joaquin Valley Unified APCD	Winter	2023	334.42	387.81	455.44	582.61	73.92	85.25	100.78	127.82

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	San Joaquin Valley Unified APCD	Winter	2024	334.63	388.34	455.98	583.42	73.94	85.37	100.83	127.98
AD	San Joaquin Valley Unified APCD	Winter	2025	334.64	388.44	455.97	583.62	73.96	85.47	100.86	128.14
AD	San Joaquin Valley Unified APCD	Winter	2026	335.45	389.58	457.23	585.17	73.98	85.57	100.89	128.28
AD	San Joaquin Valley Unified APCD	Winter	2027	335.46	389.68	457.17	585.33	73.99	85.65	100.92	128.41
AD	San Joaquin Valley Unified APCD	Winter	2028	335.46	389.78	457.12	585.50	74.00	85.74	100.93	128.53
AD	San Joaquin Valley Unified APCD	Winter	2029	335.46	389.88	457.06	585.66	74.01	85.81	100.94	128.63
AD	San Joaquin Valley Unified APCD	Winter	2030	335.45	389.98	457.02	585.83	74.01	85.88	100.95	128.74
AD	San Joaquin Valley Unified APCD	Winter	2031	335.45	390.08	456.97	585.97	74.02	85.95	100.96	128.83
AD	San Joaquin Valley Unified APCD	Winter	2032	335.44	390.18	456.93	586.11	74.02	86.02	100.96	128.92
AD	San Joaquin Valley Unified APCD	Winter	2033	335.44	390.27	456.89	586.24	74.02	86.07	100.97	129.00
AD	San Joaquin Valley Unified APCD	Winter	2034	335.44	390.34	456.86	586.35	74.03	86.12	100.97	129.08
AD	San Joaquin Valley Unified APCD	Winter	2035	335.44	390.41	456.83	586.45	74.03	86.17	100.98	129.15
AD	San Luis Obispo County APCD	Annual	2010	323.71	378.06	444.34	556.25	73.66	90.73	100.02	124.73
AD	San Luis Obispo County APCD	Annual	2011	323.66	377.48	443.78	556.86	73.53	89.58	100.04	124.90
AD	San Luis Obispo County APCD	Annual	2012	323.65	377.05	443.34	557.51	73.41	88.66	100.08	125.11
AD	San Luis Obispo County APCD	Annual	2013	323.72	376.63	442.99	558.19	73.36	87.82	100.14	125.34
AD	San Luis Obispo County APCD	Annual	2014	323.79	376.32	442.72	558.85	73.31	87.15	100.20	125.58
AD	San Luis Obispo County APCD	Annual	2015	323.89	376.00	442.50	559.54	73.31	86.48	100.25	125.85
AD	San Luis Obispo County APCD	Annual	2016	323.99	375.75	442.33	560.18	73.31	85.95	100.33	126.11
AD	San Luis Obispo County APCD	Annual	2017	324.07	375.53	442.19	560.79	73.31	85.47	100.39	126.38
AD	San Luis Obispo County APCD	Annual	2018	324.12	375.39	442.08	561.33	73.30	85.15	100.47	126.64
AD	San Luis Obispo County APCD	Annual	2019	324.17	375.38	441.99	561.79	73.31	85.03	100.54	126.87
AD	San Luis Obispo County APCD	Annual	2020	324.24	375.40	441.92	562.20	73.40	85.04	100.62	127.10
AD	San Luis Obispo County APCD	Annual	2021	324.29	375.51	441.85	562.51	73.47	85.15	100.70	127.27
AD	San Luis Obispo County APCD	Annual	2022	324.32	375.62	441.79	562.77	73.52	85.25	100.76	127.41
AD	San Luis Obispo County APCD	Annual	2023	324.30	375.69	441.73	562.97	73.56	85.34	100.82	127.59
AD	San Luis Obispo County APCD	Annual	2024	324.27	375.76	441.66	563.12	73.57	85.42	100.86	127.74
AD	San Luis Obispo County APCD	Annual	2025	324.25	375.82	441.61	563.29	73.59	85.49	100.89	127.90
AD	San Luis Obispo County APCD	Annual	2026	324.27	375.91	441.54	563.46	73.61	85.57	100.92	128.06
AD	San Luis Obispo County APCD	Annual	2027	324.28	375.99	441.47	563.63	73.63	85.63	100.94	128.19
AD	San Luis Obispo County APCD	Annual	2028	324.28	376.07	441.40	563.80	73.64	85.68	100.95	128.31
AD	San Luis Obispo County APCD	Annual	2029	324.27	376.16	441.32	563.96	73.64	85.74	100.95	128.43
AD	San Luis Obispo County APCD	Annual	2030	324.26	376.24	441.24	564.13	73.65	85.79	100.95	128.54
AD	San Luis Obispo County APCD	Annual	2031	324.26	376.33	441.20	564.31	73.65	85.84	100.96	128.65
AD	San Luis Obispo County APCD	Annual	2032	324.26	376.41	441.16	564.49	73.66	85.88	100.96	128.75
AD	San Luis Obispo County APCD	Annual	2033	324.25	376.48	441.13	564.65	73.66	85.92	100.97	128.84
AD	San Luis Obispo County APCD	Annual	2034	324.25	376.54	441.10	564.79	73.67	85.96	100.97	128.93
AD	San Luis Obispo County APCD	Annual	2035	324.24	376.60	441.08	564.92	73.67	86.00	100.97	129.01
AD	San Luis Obispo County APCD	Summer	2010	337.08	392.11	461.85	578.62	73.66	90.73	100.02	124.73
AD	San Luis Obispo County APCD	Summer	2011	337.15	391.73	461.44	579.22	73.53	89.58	100.04	124.90
AD	San Luis Obispo County APCD	Summer	2012	337.23	391.46	461.13	579.91	73.41	88.66	100.08	125.11
AD	San Luis Obispo County APCD	Summer	2013	337.36	391.21	460.89	580.65	73.36	87.82	100.14	125.34
AD	San Luis Obispo County APCD	Summer	2014	337.49	391.02	460.71	581.40	73.31	87.15	100.20	125.58
AD	San Luis Obispo County APCD	Summer	2015	337.63	390.82	460.57	582.19	73.31	86.48	100.25	125.85
AD	San Luis Obispo County APCD	Summer	2016	337.76	390.68	460.46	582.94	73.31	85.95	100.33	126.11
AD	San Luis Obispo County APCD	Summer	2017	337.85	390.56	460.36	583.64	73.31	85.47	100.39	126.38
AD	San Luis Obispo County APCD	Summer	2018	337.91	390.51	460.26	584.25	73.30	85.15	100.47	126.64
AD	San Luis Obispo County APCD	Summer	2019	337.96	390.55	460.18	584.77	73.31	85.03	100.54	126.87
AD	San Luis Obispo County APCD	Summer	2020	338.03	390.62	460.11	585.24	73.40	85.04	100.62	127.10
AD	San Luis Obispo County APCD	Summer	2021	338.07	390.76	460.04	585.58	73.47	85.15	100.70	127.27
AD	San Luis Obispo County APCD	Summer	2022	338.10	390.89	459.97	585.87	73.52	85.25	100.76	127.41
AD	San Luis Obispo County APCD	Summer	2023	338.08	390.99	459.91	586.10	73.56	85.34	100.82	127.59
AD	San Luis Obispo County APCD	Summer	2024	338.05	391.07	459.85	586.26	73.57	85.42	100.86	127.74
AD	San Luis Obispo County APCD	Summer	2025	338.04	391.16	459.80	586.42	73.59	85.49	100.89	127.90

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	San Luis Obispo County APCD	Summer	2026	338.05	391.26	459.73	586.60	73.61	85.57	100.92	128.06
AD	San Luis Obispo County APCD	Summer	2027	338.07	391.36	459.67	586.77	73.63	85.63	100.94	128.19
AD	San Luis Obispo County APCD	Summer	2028	338.07	391.45	459.61	586.94	73.64	85.68	100.95	128.31
AD	San Luis Obispo County APCD	Summer	2029	338.07	391.55	459.54	587.11	73.64	85.74	100.95	128.43
AD	San Luis Obispo County APCD	Summer	2030	338.06	391.65	459.47	587.29	73.65	85.79	100.95	128.54
AD	San Luis Obispo County APCD	Summer	2031	338.06	391.75	459.44	587.47	73.65	85.84	100.96	128.65
AD	San Luis Obispo County APCD	Summer	2032	338.06	391.85	459.41	587.66	73.66	85.88	100.96	128.75
AD	San Luis Obispo County APCD	Summer	2033	338.06	391.93	459.38	587.84	73.66	85.92	100.97	128.84
AD	San Luis Obispo County APCD	Summer	2034	338.06	391.99	459.35	588.00	73.67	85.96	100.97	128.93
AD	San Luis Obispo County APCD	Summer	2035	338.05	392.05	459.33	588.14	73.67	86.00	100.97	129.01
AD	San Luis Obispo County APCD	Winter	2010	321.04	375.26	440.86	551.80	73.66	90.73	100.02	124.73
AD	San Luis Obispo County APCD	Winter	2011	320.97	374.65	440.26	552.41	73.53	89.58	100.04	124.90
AD	San Luis Obispo County APCD	Winter	2012	320.95	374.18	439.80	553.05	73.41	88.66	100.08	125.11
AD	San Luis Obispo County APCD	Winter	2013	321.01	373.73	439.43	553.72	73.36	87.82	100.14	125.34
AD	San Luis Obispo County APCD	Winter	2014	321.07	373.40	439.14	554.36	73.31	87.15	100.20	125.58
AD	San Luis Obispo County APCD	Winter	2015	321.16	373.05	438.90	555.03	73.31	86.48	100.25	125.85
AD	San Luis Obispo County APCD	Winter	2016	321.25	372.78	438.72	555.65	73.31	85.95	100.33	126.11
AD	San Luis Obispo County APCD	Winter	2017	321.32	372.53	438.57	556.25	73.31	85.47	100.39	126.38
AD	San Luis Obispo County APCD	Winter	2018	321.37	372.38	438.46	556.77	73.30	85.15	100.47	126.64
AD	San Luis Obispo County APCD	Winter	2019	321.42	372.35	438.37	557.21	73.31	85.03	100.54	126.87
AD	San Luis Obispo County APCD	Winter	2020	321.50	372.37	438.30	557.61	73.40	85.04	100.62	127.10
AD	San Luis Obispo County APCD	Winter	2021	321.55	372.47	438.23	557.91	73.47	85.15	100.70	127.27
AD	San Luis Obispo County APCD	Winter	2022	321.57	372.57	438.17	558.16	73.52	85.25	100.76	127.41
AD	San Luis Obispo County APCD	Winter	2023	321.56	372.64	438.10	558.37	73.56	85.34	100.82	127.59
AD	San Luis Obispo County APCD	Winter	2024	321.53	372.71	438.04	558.51	73.57	85.42	100.86	127.74
AD	San Luis Obispo County APCD	Winter	2025	321.51	372.77	437.99	558.68	73.59	85.49	100.89	127.90
AD	San Luis Obispo County APCD	Winter	2026	321.52	372.85	437.92	558.85	73.61	85.57	100.92	128.06
AD	San Luis Obispo County APCD	Winter	2027	321.53	372.93	437.84	559.02	73.63	85.63	100.94	128.19
AD	San Luis Obispo County APCD	Winter	2028	321.53	373.01	437.77	559.19	73.64	85.68	100.95	128.31
AD	San Luis Obispo County APCD	Winter	2029	321.52	373.09	437.69	559.35	73.64	85.74	100.95	128.43
AD	San Luis Obispo County APCD	Winter	2030	321.51	373.17	437.61	559.52	73.65	85.79	100.95	128.54
AD	San Luis Obispo County APCD	Winter	2031	321.51	373.25	437.57	559.69	73.65	85.84	100.96	128.65
AD	San Luis Obispo County APCD	Winter	2032	321.51	373.33	437.53	559.87	73.66	85.88	100.96	128.75
AD	San Luis Obispo County APCD	Winter	2033	321.50	373.40	437.50	560.03	73.66	85.92	100.97	128.84
AD	San Luis Obispo County APCD	Winter	2034	321.50	373.46	437.47	560.17	73.67	85.96	100.97	128.93
AD	San Luis Obispo County APCD	Winter	2035	321.49	373.52	437.45	560.29	73.67	86.00	100.97	129.01
AD	Santa Barbara County APCD	Annual	2010	310.84	363.09	427.75	535.11	73.30	88.99	99.96	124.67
AD	Santa Barbara County APCD	Annual	2011	310.88	362.63	427.11	535.68	73.27	88.16	99.98	124.88
AD	Santa Barbara County APCD	Annual	2012	310.95	362.25	426.61	536.31	73.24	87.48	100.03	125.11
AD	Santa Barbara County APCD	Annual	2013	311.07	361.91	426.21	536.98	73.26	86.88	100.11	125.37
AD	Santa Barbara County APCD	Annual	2014	311.18	361.62	425.89	537.62	73.27	86.37	100.18	125.64
AD	Santa Barbara County APCD	Annual	2015	313.00	363.39	428.01	541.26	73.31	85.95	100.25	125.92
AD	Santa Barbara County APCD	Annual	2016	313.13	363.16	427.81	541.86	73.36	85.55	100.33	126.20
AD	Santa Barbara County APCD	Annual	2017	313.22	362.94	427.65	542.43	73.38	85.18	100.40	126.48
AD	Santa Barbara County APCD	Annual	2018	313.28	362.85	427.53	542.93	73.40	85.00	100.47	126.74
AD	Santa Barbara County APCD	Annual	2019	313.35	362.86	427.43	543.35	73.43	84.95	100.55	126.99
AD	Santa Barbara County APCD	Annual	2020	313.43	362.88	427.35	543.74	73.53	84.99	100.64	127.22
AD	Santa Barbara County APCD	Annual	2021	313.48	362.96	427.30	543.99	73.59	85.09	100.71	127.38
AD	Santa Barbara County APCD	Annual	2022	313.49	363.03	427.24	544.20	73.64	85.18	100.77	127.51
AD	Santa Barbara County APCD	Annual	2023	313.48	363.09	427.17	544.37	73.67	85.26	100.82	127.66
AD	Santa Barbara County APCD	Annual	2024	313.44	363.12	427.11	544.49	73.68	85.33	100.86	127.80
AD	Santa Barbara County APCD	Annual	2025	313.43	363.17	427.06	544.63	73.70	85.40	100.90	127.95
AD	Santa Barbara County APCD	Annual	2026	311.28	360.68	423.96	540.92	73.71	85.47	100.92	128.08
AD	Santa Barbara County APCD	Annual	2027	311.28	360.75	423.88	541.07	73.73	85.52	100.94	128.21

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Santa Barbara County APCD	Annual	2028	311.28	360.82	423.82	541.22	73.74	85.58	100.95	128.32
AD	Santa Barbara County APCD	Annual	2029	311.28	360.90	423.73	541.36	73.74	85.63	100.95	128.43
AD	Santa Barbara County APCD	Annual	2030	311.26	360.97	423.64	541.52	73.75	85.67	100.95	128.53
AD	Santa Barbara County APCD	Annual	2031	311.26	361.06	423.58	541.68	73.75	85.72	100.96	128.63
AD	Santa Barbara County APCD	Annual	2032	311.25	361.13	423.54	541.85	73.76	85.77	100.96	128.73
AD	Santa Barbara County APCD	Annual	2033	311.25	361.21	423.50	542.00	73.76	85.81	100.96	128.82
AD	Santa Barbara County APCD	Annual	2034	311.24	361.27	423.46	542.14	73.76	85.85	100.97	128.90
AD	Santa Barbara County APCD	Annual	2035	311.24	361.32	423.43	542.26	73.77	85.88	100.97	128.98
AD	Santa Barbara County APCD	Summer	2010	318.00	370.60	437.04	547.10	73.30	88.99	99.96	124.67
AD	Santa Barbara County APCD	Summer	2011	318.11	370.21	436.50	547.67	73.27	88.16	99.98	124.88
AD	Santa Barbara County APCD	Summer	2012	318.23	369.92	436.07	548.31	73.24	87.48	100.03	125.11
AD	Santa Barbara County APCD	Summer	2013	318.39	369.65	435.73	549.01	73.26	86.88	100.11	125.37
AD	Santa Barbara County APCD	Summer	2014	318.53	369.43	435.47	549.69	73.27	86.37	100.18	125.64
AD	Santa Barbara County APCD	Summer	2015	320.38	371.28	437.66	553.41	73.31	85.95	100.25	125.92
AD	Santa Barbara County APCD	Summer	2016	320.52	371.11	437.49	554.06	73.36	85.55	100.33	126.20
AD	Santa Barbara County APCD	Summer	2017	320.61	370.94	437.35	554.68	73.38	85.18	100.40	126.48
AD	Santa Barbara County APCD	Summer	2018	320.68	370.90	437.24	555.21	73.40	85.00	100.47	126.74
AD	Santa Barbara County APCD	Summer	2019	320.75	370.93	437.14	555.67	73.43	84.95	100.55	126.99
AD	Santa Barbara County APCD	Summer	2020	320.82	370.99	437.07	556.08	73.53	84.99	100.64	127.22
AD	Santa Barbara County APCD	Summer	2021	320.86	371.07	437.00	556.34	73.59	85.09	100.71	127.38
AD	Santa Barbara County APCD	Summer	2022	320.87	371.15	436.93	556.55	73.64	85.18	100.77	127.51
AD	Santa Barbara County APCD	Summer	2023	320.85	371.21	436.86	556.71	73.67	85.26	100.82	127.66
AD	Santa Barbara County APCD	Summer	2024	320.82	371.26	436.79	556.83	73.68	85.33	100.86	127.80
AD	Santa Barbara County APCD	Summer	2025	320.80	371.31	436.74	556.96	73.70	85.40	100.90	127.95
AD	Santa Barbara County APCD	Summer	2026	318.61	368.79	433.59	553.19	73.71	85.47	100.92	128.08
AD	Santa Barbara County APCD	Summer	2027	318.61	368.86	433.51	553.33	73.73	85.52	100.94	128.21
AD	Santa Barbara County APCD	Summer	2028	318.62	368.94	433.45	553.48	73.74	85.58	100.95	128.32
AD	Santa Barbara County APCD	Summer	2029	318.61	369.02	433.37	553.64	73.74	85.63	100.95	128.43
AD	Santa Barbara County APCD	Summer	2030	318.60	369.11	433.28	553.80	73.75	85.67	100.95	128.53
AD	Santa Barbara County APCD	Summer	2031	318.60	369.20	433.24	553.96	73.75	85.72	100.96	128.63
AD	Santa Barbara County APCD	Summer	2032	318.60	369.29	433.20	554.14	73.76	85.77	100.96	128.73
AD	Santa Barbara County APCD	Summer	2033	318.60	369.37	433.17	554.30	73.76	85.81	100.96	128.82
AD	Santa Barbara County APCD	Summer	2034	318.59	369.44	433.13	554.45	73.76	85.85	100.97	128.90
AD	Santa Barbara County APCD	Summer	2035	318.59	369.50	433.10	554.58	73.77	85.88	100.97	128.98
AD	Santa Barbara County APCD	Winter	2010	310.39	362.63	427.17	534.37	73.30	88.99	99.96	124.67
AD	Santa Barbara County APCD	Winter	2011	310.43	362.16	426.53	534.94	73.27	88.16	99.98	124.88
AD	Santa Barbara County APCD	Winter	2012	310.50	361.77	426.02	535.57	73.24	87.48	100.03	125.11
AD	Santa Barbara County APCD	Winter	2013	310.62	361.43	425.62	536.23	73.26	86.88	100.11	125.37
AD	Santa Barbara County APCD	Winter	2014	310.73	361.13	425.30	536.87	73.27	86.37	100.18	125.64
AD	Santa Barbara County APCD	Winter	2015	312.55	362.90	427.42	540.51	73.31	85.95	100.25	125.92
AD	Santa Barbara County APCD	Winter	2016	312.67	362.67	427.21	541.11	73.36	85.55	100.33	126.20
AD	Santa Barbara County APCD	Winter	2017	312.76	362.45	427.05	541.68	73.38	85.18	100.40	126.48
AD	Santa Barbara County APCD	Winter	2018	312.83	362.36	426.93	542.17	73.40	85.00	100.47	126.74
AD	Santa Barbara County APCD	Winter	2019	312.90	362.36	426.83	542.59	73.43	84.95	100.55	126.99
AD	Santa Barbara County APCD	Winter	2020	312.97	362.38	426.75	542.98	73.53	84.99	100.64	127.22
AD	Santa Barbara County APCD	Winter	2021	313.02	362.45	426.70	543.23	73.59	85.09	100.71	127.38
AD	Santa Barbara County APCD	Winter	2022	313.04	362.53	426.64	543.44	73.64	85.18	100.77	127.51
AD	Santa Barbara County APCD	Winter	2023	313.02	362.58	426.57	543.61	73.67	85.26	100.82	127.66
AD	Santa Barbara County APCD	Winter	2024	312.99	362.62	426.51	543.73	73.68	85.33	100.86	127.80
AD	Santa Barbara County APCD	Winter	2025	312.98	362.66	426.46	543.87	73.70	85.40	100.90	127.95
AD	Santa Barbara County APCD	Winter	2026	310.82	360.18	423.37	540.16	73.71	85.47	100.92	128.08
AD	Santa Barbara County APCD	Winter	2027	310.83	360.25	423.29	540.31	73.73	85.52	100.94	128.21
AD	Santa Barbara County APCD	Winter	2028	310.83	360.32	423.22	540.46	73.74	85.58	100.95	128.32
AD	Santa Barbara County APCD	Winter	2029	310.82	360.40	423.14	540.60	73.74	85.63	100.95	128.43

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Santa Barbara County APCD	Winter	2030	310.81	360.47	423.04	540.76	73.75	85.67	100.95	128.53
AD	Santa Barbara County APCD	Winter	2031	310.80	360.55	422.99	540.92	73.75	85.72	100.96	128.63
AD	Santa Barbara County APCD	Winter	2032	310.80	360.63	422.94	541.09	73.76	85.77	100.96	128.73
AD	Santa Barbara County APCD	Winter	2033	310.80	360.70	422.90	541.24	73.76	85.81	100.96	128.82
AD	Santa Barbara County APCD	Winter	2034	310.79	360.76	422.87	541.38	73.76	85.85	100.97	128.90
AD	Santa Barbara County APCD	Winter	2035	310.78	360.82	422.83	541.50	73.77	85.88	100.97	128.98
AD	Shasta County AQMD	Annual	2010	350.80	413.29	482.10	601.62	74.15	98.71	101.24	125.46
AD	Shasta County AQMD	Annual	2011	350.90	412.33	481.45	602.23	73.97	96.26	101.09	125.49
AD	Shasta County AQMD	Annual	2012	351.01	411.55	480.95	602.95	73.79	94.20	101.00	125.59
AD	Shasta County AQMD	Annual	2013	351.16	410.88	480.56	603.76	73.67	92.45	100.93	125.73
AD	Shasta County AQMD	Annual	2014	351.28	410.22	480.26	604.58	73.54	90.71	100.85	125.88
AD	Shasta County AQMD	Annual	2015	351.43	409.72	480.02	605.45	73.48	89.34	100.76	126.07
AD	Shasta County AQMD	Annual	2016	351.59	409.32	479.82	606.30	73.48	88.23	100.75	126.28
AD	Shasta County AQMD	Annual	2017	351.70	408.85	479.65	607.09	73.46	86.94	100.68	126.51
AD	Shasta County AQMD	Annual	2018	351.78	408.50	479.51	607.77	73.42	85.93	100.65	126.73
AD	Shasta County AQMD	Annual	2019	351.86	408.40	479.39	608.38	73.43	85.58	100.66	126.93
AD	Shasta County AQMD	Annual	2020	351.92	408.34	479.30	608.94	73.52	85.46	100.71	127.12
AD	Shasta County AQMD	Annual	2021	351.97	408.41	479.21	609.29	73.59	85.54	100.78	127.19
AD	Shasta County AQMD	Annual	2022	352.00	408.47	479.13	609.57	73.64	85.60	100.83	127.24
AD	Shasta County AQMD	Annual	2023	351.99	408.52	479.04	609.77	73.67	85.66	100.87	127.40
AD	Shasta County AQMD	Annual	2024	351.96	408.57	478.97	609.93	73.69	85.71	100.90	127.56
AD	Shasta County AQMD	Annual	2025	351.96	408.62	478.91	610.13	73.71	85.77	100.93	127.72
AD	Shasta County AQMD	Annual	2026	351.98	408.69	478.84	610.34	73.73	85.83	100.95	127.89
AD	Shasta County AQMD	Annual	2027	351.99	408.74	478.77	610.55	73.74	85.87	100.96	128.04
AD	Shasta County AQMD	Annual	2028	352.00	408.80	478.71	610.77	73.75	85.92	100.97	128.18
AD	Shasta County AQMD	Annual	2029	352.00	408.87	478.63	610.99	73.76	85.96	100.97	128.31
AD	Shasta County AQMD	Annual	2030	351.99	408.94	478.56	611.21	73.76	86.00	100.96	128.43
AD	Shasta County AQMD	Annual	2031	351.99	409.00	478.53	611.45	73.77	86.04	100.96	128.55
AD	Shasta County AQMD	Annual	2032	351.99	409.07	478.50	611.69	73.78	86.08	100.96	128.67
AD	Shasta County AQMD	Annual	2033	351.98	409.12	478.47	611.91	73.78	86.11	100.97	128.77
AD	Shasta County AQMD	Annual	2034	351.98	409.16	478.44	612.11	73.78	86.14	100.97	128.87
AD	Shasta County AQMD	Annual	2035	351.97	409.20	478.42	612.29	73.79	86.17	100.97	128.96
AD	Shasta County AQMD	Summer	2010	377.12	440.81	516.16	644.42	74.15	98.71	101.24	125.46
AD	Shasta County AQMD	Summer	2011	377.45	440.35	515.97	645.10	73.97	96.26	101.09	125.49
AD	Shasta County AQMD	Summer	2012	377.75	439.98	515.82	645.96	73.79	94.20	101.00	125.59
AD	Shasta County AQMD	Summer	2013	378.03	439.65	515.70	646.99	73.67	92.45	100.93	125.73
AD	Shasta County AQMD	Summer	2014	378.26	439.31	515.62	648.05	73.54	90.71	100.85	125.88
AD	Shasta County AQMD	Summer	2015	378.49	439.05	515.56	649.19	73.48	89.34	100.76	126.07
AD	Shasta County AQMD	Summer	2016	378.71	438.86	515.49	650.32	73.48	88.23	100.75	126.28
AD	Shasta County AQMD	Summer	2017	378.85	438.66	515.40	651.36	73.46	86.94	100.68	126.51
AD	Shasta County AQMD	Summer	2018	378.93	438.50	515.27	652.24	73.42	85.93	100.65	126.73
AD	Shasta County AQMD	Summer	2019	379.01	438.48	515.17	653.03	73.43	85.58	100.66	126.93
AD	Shasta County AQMD	Summer	2020	379.07	438.49	515.07	653.75	73.52	85.46	100.71	127.12
AD	Shasta County AQMD	Summer	2021	379.11	438.58	514.97	654.24	73.59	85.54	100.78	127.19
AD	Shasta County AQMD	Summer	2022	379.12	438.68	514.88	654.63	73.64	85.60	100.83	127.24
AD	Shasta County AQMD	Summer	2023	379.11	438.76	514.80	654.91	73.67	85.66	100.87	127.40
AD	Shasta County AQMD	Summer	2024	379.10	438.85	514.73	655.11	73.69	85.71	100.90	127.56
AD	Shasta County AQMD	Summer	2025	379.11	438.93	514.68	655.32	73.71	85.77	100.93	127.72
AD	Shasta County AQMD	Summer	2026	379.13	439.02	514.61	655.54	73.73	85.83	100.95	127.89
AD	Shasta County AQMD	Summer	2027	379.15	439.10	514.56	655.77	73.74	85.87	100.96	128.04
AD	Shasta County AQMD	Summer	2028	379.16	439.18	514.51	656.00	73.75	85.92	100.97	128.18
AD	Shasta County AQMD	Summer	2029	379.17	439.28	514.46	656.24	73.76	85.96	100.97	128.31
AD	Shasta County AQMD	Summer	2030	379.18	439.37	514.41	656.49	73.76	86.00	100.96	128.43
AD	Shasta County AQMD	Summer	2031	379.17	439.46	514.40	656.77	73.77	86.04	100.96	128.55

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Shasta County AQMD	Summer	2032	379.17	439.53	514.40	657.05	73.78	86.08	100.96	128.67
AD	Shasta County AQMD	Summer	2033	379.17	439.59	514.38	657.31	73.78	86.11	100.97	128.77
AD	Shasta County AQMD	Summer	2034	379.16	439.64	514.37	657.55	73.78	86.14	100.97	128.87
AD	Shasta County AQMD	Summer	2035	379.16	439.67	514.35	657.77	73.79	86.17	100.97	128.96
AD	Shasta County AQMD	Winter	2010	339.28	401.24	467.18	582.88	74.15	98.71	101.24	125.46
AD	Shasta County AQMD	Winter	2011	339.28	400.06	466.34	583.46	73.97	96.26	101.09	125.49
AD	Shasta County AQMD	Winter	2012	339.31	399.10	465.69	584.12	73.79	94.20	101.00	125.59
AD	Shasta County AQMD	Winter	2013	339.39	398.29	465.18	584.84	73.67	92.45	100.93	125.73
AD	Shasta County AQMD	Winter	2014	339.47	397.49	464.78	585.56	73.54	90.71	100.85	125.88
AD	Shasta County AQMD	Winter	2015	339.58	396.87	464.45	586.30	73.48	89.34	100.76	126.07
AD	Shasta County AQMD	Winter	2016	339.72	396.38	464.21	587.03	73.48	88.23	100.75	126.28
AD	Shasta County AQMD	Winter	2017	339.82	395.81	464.01	587.71	73.46	86.94	100.68	126.51
AD	Shasta County AQMD	Winter	2018	339.89	395.36	463.85	588.30	73.42	85.93	100.65	126.73
AD	Shasta County AQMD	Winter	2019	339.97	395.23	463.73	588.83	73.43	85.58	100.66	126.93
AD	Shasta County AQMD	Winter	2020	340.04	395.15	463.64	589.32	73.52	85.46	100.71	127.12
AD	Shasta County AQMD	Winter	2021	340.09	395.20	463.55	589.61	73.59	85.54	100.78	127.19
AD	Shasta County AQMD	Winter	2022	340.12	395.24	463.47	589.84	73.64	85.60	100.83	127.24
AD	Shasta County AQMD	Winter	2023	340.11	395.29	463.39	590.01	73.67	85.66	100.87	127.40
AD	Shasta County AQMD	Winter	2024	340.09	395.32	463.31	590.15	73.69	85.71	100.90	127.56
AD	Shasta County AQMD	Winter	2025	340.08	395.35	463.25	590.34	73.71	85.77	100.93	127.72
AD	Shasta County AQMD	Winter	2026	340.10	395.41	463.18	590.55	73.73	85.83	100.95	127.89
AD	Shasta County AQMD	Winter	2027	340.11	395.45	463.10	590.76	73.74	85.87	100.96	128.04
AD	Shasta County AQMD	Winter	2028	340.11	395.50	463.03	590.97	73.75	85.92	100.97	128.18
AD	Shasta County AQMD	Winter	2029	340.10	395.56	462.95	591.18	73.76	85.96	100.97	128.31
AD	Shasta County AQMD	Winter	2030	340.09	395.62	462.87	591.39	73.76	86.00	100.96	128.43
AD	Shasta County AQMD	Winter	2031	340.09	395.67	462.82	591.61	73.77	86.04	100.96	128.55
AD	Shasta County AQMD	Winter	2032	340.09	395.73	462.78	591.84	73.78	86.08	100.96	128.67
AD	Shasta County AQMD	Winter	2033	340.08	395.78	462.74	592.04	73.78	86.11	100.97	128.77
AD	Shasta County AQMD	Winter	2034	340.08	395.82	462.71	592.22	73.78	86.14	100.97	128.87
AD	Shasta County AQMD	Winter	2035	340.07	395.85	462.69	592.38	73.79	86.17	100.97	128.96
AD	Siskiyou County APCD	Annual	2010	378.80	444.35	519.95	649.03	74.19	93.56	102.24	125.12
AD	Siskiyou County APCD	Annual	2011	378.73	443.52	519.19	649.67	74.04	92.11	102.01	125.20
AD	Siskiyou County APCD	Annual	2012	378.70	442.82	518.58	650.49	73.88	90.89	101.82	125.30
AD	Siskiyou County APCD	Annual	2013	378.69	442.25	518.06	651.35	73.68	89.89	101.54	125.46
AD	Siskiyou County APCD	Annual	2014	378.76	441.72	517.67	652.21	73.60	88.92	101.36	125.61
AD	Siskiyou County APCD	Annual	2015	378.86	441.26	517.36	653.09	73.55	88.04	101.18	125.82
AD	Siskiyou County APCD	Annual	2016	378.97	440.88	517.10	653.95	73.55	87.27	101.06	126.05
AD	Siskiyou County APCD	Annual	2017	379.02	440.51	516.88	654.72	73.49	86.50	100.90	126.29
AD	Siskiyou County APCD	Annual	2018	379.03	440.25	516.71	655.39	73.41	85.98	100.79	126.52
AD	Siskiyou County APCD	Annual	2019	379.07	440.11	516.58	655.97	73.39	85.68	100.76	126.74
AD	Siskiyou County APCD	Annual	2020	379.14	439.98	516.47	656.46	73.48	85.54	100.80	126.95
AD	Siskiyou County APCD	Annual	2021	379.12	439.88	516.35	656.80	73.52	85.53	100.84	127.11
AD	Siskiyou County APCD	Annual	2022	379.05	439.72	516.23	657.04	73.53	85.50	100.87	127.20
AD	Siskiyou County APCD	Annual	2023	378.90	439.60	516.12	657.19	73.51	85.48	100.89	127.36
AD	Siskiyou County APCD	Annual	2024	378.77	439.53	516.02	657.33	73.48	85.50	100.91	127.52
AD	Siskiyou County APCD	Annual	2025	378.71	439.58	515.95	657.44	73.49	85.56	100.93	127.67
AD	Siskiyou County APCD	Annual	2026	378.72	439.71	515.87	657.62	73.51	85.65	100.95	127.82
AD	Siskiyou County APCD	Annual	2027	378.72	439.84	515.80	657.81	73.52	85.73	100.97	127.97
AD	Siskiyou County APCD	Annual	2028	378.72	439.97	515.74	658.01	73.53	85.81	100.98	128.11
AD	Siskiyou County APCD	Annual	2029	378.70	440.10	515.67	658.20	73.53	85.88	100.98	128.23
AD	Siskiyou County APCD	Annual	2030	378.68	440.21	515.58	658.40	73.54	85.95	100.97	128.36
AD	Siskiyou County APCD	Annual	2031	378.67	440.34	515.53	658.68	73.54	86.01	100.97	128.49
AD	Siskiyou County APCD	Annual	2032	378.67	440.44	515.49	658.96	73.55	86.07	100.98	128.62
AD	Siskiyou County APCD	Annual	2033	378.66	440.54	515.46	659.20	73.55	86.13	100.98	128.73

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Siskiyou County APCD	Annual	2034	378.65	440.63	515.42	659.41	73.56	86.18	100.98	128.83
AD	Siskiyou County APCD	Annual	2035	378.64	440.70	515.40	659.60	73.56	86.22	100.99	128.93
AD	Siskiyou County APCD	Summer	2010	393.78	458.70	539.46	673.02	74.19	93.56	102.24	125.12
AD	Siskiyou County APCD	Summer	2011	393.90	458.44	538.93	673.75	74.04	92.11	102.01	125.20
AD	Siskiyou County APCD	Summer	2012	394.02	458.19	538.51	674.72	73.88	90.89	101.82	125.30
AD	Siskiyou County APCD	Summer	2013	394.12	457.97	538.18	675.77	73.68	89.89	101.54	125.46
AD	Siskiyou County APCD	Summer	2014	394.26	457.73	537.93	676.82	73.60	88.92	101.36	125.61
AD	Siskiyou County APCD	Summer	2015	394.41	457.52	537.74	677.91	73.55	88.04	101.18	125.82
AD	Siskiyou County APCD	Summer	2016	394.55	457.35	537.58	678.96	73.55	87.27	101.06	126.05
AD	Siskiyou County APCD	Summer	2017	394.62	457.17	537.43	679.91	73.49	86.50	100.90	126.29
AD	Siskiyou County APCD	Summer	2018	394.63	457.04	537.29	680.74	73.41	85.98	100.79	126.52
AD	Siskiyou County APCD	Summer	2019	394.66	457.01	537.18	681.46	73.39	85.68	100.76	126.74
AD	Siskiyou County APCD	Summer	2020	394.72	456.98	537.09	682.06	73.48	85.54	100.80	126.95
AD	Siskiyou County APCD	Summer	2021	394.69	456.95	536.97	682.49	73.52	85.53	100.84	127.11
AD	Siskiyou County APCD	Summer	2022	394.62	456.88	536.86	682.82	73.53	85.50	100.87	127.20
AD	Siskiyou County APCD	Summer	2023	394.48	456.83	536.76	683.03	73.51	85.48	100.89	127.36
AD	Siskiyou County APCD	Summer	2024	394.35	456.84	536.67	683.22	73.48	85.50	100.91	127.52
AD	Siskiyou County APCD	Summer	2025	394.30	456.94	536.61	683.38	73.49	85.56	100.93	127.67
AD	Siskiyou County APCD	Summer	2026	394.32	457.11	536.53	683.57	73.51	85.65	100.95	127.82
AD	Siskiyou County APCD	Summer	2027	394.33	457.28	536.46	683.78	73.52	85.73	100.97	127.97
AD	Siskiyou County APCD	Summer	2028	394.34	457.44	536.40	684.00	73.53	85.81	100.98	128.11
AD	Siskiyou County APCD	Summer	2029	394.33	457.61	536.34	684.23	73.53	85.88	100.98	128.23
AD	Siskiyou County APCD	Summer	2030	394.32	457.77	536.26	684.47	73.54	85.95	100.97	128.36
AD	Siskiyou County APCD	Summer	2031	394.32	457.91	536.23	684.79	73.54	86.01	100.97	128.49
AD	Siskiyou County APCD	Summer	2032	394.32	458.04	536.21	685.10	73.55	86.07	100.98	128.62
AD	Siskiyou County APCD	Summer	2033	394.31	458.15	536.18	685.38	73.55	86.13	100.98	128.73
AD	Siskiyou County APCD	Summer	2034	394.30	458.25	536.16	685.63	73.56	86.18	100.98	128.83
AD	Siskiyou County APCD	Summer	2035	394.29	458.31	536.14	685.85	73.56	86.22	100.99	128.93
AD	Siskiyou County APCD	Winter	2010	373.71	439.47	513.32	640.88	74.19	93.56	102.24	125.12
AD	Siskiyou County APCD	Winter	2011	373.57	438.45	512.48	641.49	74.04	92.11	102.01	125.20
AD	Siskiyou County APCD	Winter	2012	373.50	437.60	511.81	642.25	73.88	90.89	101.82	125.30
AD	Siskiyou County APCD	Winter	2013	373.45	436.91	511.23	643.06	73.68	89.89	101.54	125.46
AD	Siskiyou County APCD	Winter	2014	373.49	436.28	510.79	643.86	73.60	88.92	101.36	125.61
AD	Siskiyou County APCD	Winter	2015	373.58	435.74	510.43	644.66	73.55	88.04	101.18	125.82
AD	Siskiyou County APCD	Winter	2016	373.68	435.28	510.15	645.45	73.55	87.27	101.06	126.05
AD	Siskiyou County APCD	Winter	2017	373.73	434.85	509.90	646.16	73.49	86.50	100.90	126.29
AD	Siskiyou County APCD	Winter	2018	373.74	434.55	509.71	646.78	73.41	85.98	100.79	126.52
AD	Siskiyou County APCD	Winter	2019	373.78	434.37	509.58	647.31	73.39	85.68	100.76	126.74
AD	Siskiyou County APCD	Winter	2020	373.85	434.21	509.47	647.77	73.48	85.54	100.80	126.95
AD	Siskiyou County APCD	Winter	2021	373.83	434.08	509.34	648.08	73.52	85.53	100.84	127.11
AD	Siskiyou County APCD	Winter	2022	373.76	433.89	509.22	648.29	73.53	85.50	100.87	127.20
AD	Siskiyou County APCD	Winter	2023	373.61	433.74	509.10	648.41	73.51	85.48	100.89	127.36
AD	Siskiyou County APCD	Winter	2024	373.47	433.65	509.00	648.53	73.48	85.50	100.91	127.52
AD	Siskiyou County APCD	Winter	2025	373.42	433.68	508.93	648.63	73.49	85.56	100.93	127.67
AD	Siskiyou County APCD	Winter	2026	373.42	433.81	508.85	648.81	73.51	85.65	100.95	127.82
AD	Siskiyou County APCD	Winter	2027	373.42	433.92	508.79	648.99	73.52	85.73	100.97	127.97
AD	Siskiyou County APCD	Winter	2028	373.41	434.03	508.72	649.17	73.53	85.81	100.98	128.11
AD	Siskiyou County APCD	Winter	2029	373.39	434.14	508.65	649.35	73.53	85.88	100.98	128.23
AD	Siskiyou County APCD	Winter	2030	373.36	434.25	508.56	649.55	73.54	85.95	100.97	128.36
AD	Siskiyou County APCD	Winter	2031	373.36	434.37	508.50	649.81	73.54	86.01	100.97	128.49
AD	Siskiyou County APCD	Winter	2032	373.35	434.47	508.45	650.08	73.55	86.07	100.98	128.62
AD	Siskiyou County APCD	Winter	2033	373.34	434.56	508.42	650.30	73.55	86.13	100.98	128.73
AD	Siskiyou County APCD	Winter	2034	373.34	434.64	508.38	650.51	73.56	86.18	100.98	128.83
AD	Siskiyou County APCD	Winter	2035	373.33	434.71	508.36	650.69	73.56	86.22	100.99	128.93

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	South Coast AQMD	Annual	2010	358.02	409.62	488.99	615.32	73.21	84.05	99.45	125.25
AD	South Coast AQMD	Annual	2011	358.54	410.54	489.35	616.40	73.23	84.00	99.55	125.44
AD	South Coast AQMD	Annual	2012	358.67	410.92	489.13	616.69	73.27	83.99	99.67	125.65
AD	South Coast AQMD	Annual	2013	358.87	411.39	488.96	617.06	73.33	84.01	99.79	125.87
AD	South Coast AQMD	Annual	2014	359.01	411.72	488.78	617.39	73.38	84.02	99.90	126.09
AD	South Coast AQMD	Annual	2015	359.50	412.41	489.04	618.24	73.44	84.08	100.01	126.32
AD	South Coast AQMD	Annual	2016	359.61	412.72	488.91	618.65	73.51	84.14	100.13	126.56
AD	South Coast AQMD	Annual	2017	359.68	413.00	488.78	619.05	73.56	84.22	100.22	126.80
AD	South Coast AQMD	Annual	2018	359.73	413.24	488.67	619.36	73.60	84.30	100.30	127.02
AD	South Coast AQMD	Annual	2019	359.09	412.70	487.70	618.61	73.64	84.46	100.39	127.22
AD	South Coast AQMD	Annual	2020	359.10	412.90	487.57	618.81	73.73	84.62	100.49	127.42
AD	South Coast AQMD	Annual	2021	359.90	414.07	488.59	620.47	73.80	84.79	100.58	127.58
AD	South Coast AQMD	Annual	2022	359.87	414.24	488.50	620.64	73.85	84.93	100.66	127.72
AD	South Coast AQMD	Annual	2023	359.81	414.36	488.41	620.74	73.88	85.06	100.72	127.88
AD	South Coast AQMD	Annual	2024	361.75	416.75	490.99	624.15	73.90	85.17	100.77	128.02
AD	South Coast AQMD	Annual	2025	361.67	416.81	490.90	624.21	73.92	85.28	100.82	128.15
AD	South Coast AQMD	Annual	2026	361.63	416.90	490.79	624.27	73.94	85.38	100.85	128.28
AD	South Coast AQMD	Annual	2027	361.58	416.99	490.68	624.32	73.95	85.47	100.88	128.40
AD	South Coast AQMD	Annual	2028	361.52	417.07	490.57	624.36	73.96	85.56	100.90	128.50
AD	South Coast AQMD	Annual	2029	361.45	417.16	490.46	624.40	73.97	85.64	100.92	128.60
AD	South Coast AQMD	Annual	2030	361.38	417.24	490.34	624.44	73.97	85.72	100.93	128.69
AD	South Coast AQMD	Annual	2031	361.74	417.83	490.77	625.15	73.98	85.80	100.94	128.78
AD	South Coast AQMD	Annual	2032	361.68	417.92	490.68	625.19	73.98	85.87	100.95	128.87
AD	South Coast AQMD	Annual	2033	361.62	417.98	490.58	625.22	73.99	85.93	100.96	128.95
AD	South Coast AQMD	Annual	2034	361.55	418.03	490.49	625.24	73.99	85.99	100.96	129.02
AD	South Coast AQMD	Annual	2035	361.48	418.05	490.39	625.25	73.99	86.05	100.97	129.09
AD	South Coast AQMD	Summer	2010	376.35	428.81	513.13	646.58	73.21	84.05	99.45	125.25
AD	South Coast AQMD	Summer	2011	376.97	430.12	513.62	647.72	73.23	84.00	99.55	125.44
AD	South Coast AQMD	Summer	2012	377.16	430.78	513.49	648.06	73.27	83.99	99.67	125.65
AD	South Coast AQMD	Summer	2013	377.42	431.49	513.42	648.53	73.33	84.01	99.79	125.87
AD	South Coast AQMD	Summer	2014	377.59	432.01	513.33	648.98	73.38	84.02	99.90	126.09
AD	South Coast AQMD	Summer	2015	378.15	432.89	513.72	650.01	73.44	84.08	100.01	126.32
AD	South Coast AQMD	Summer	2016	378.30	433.33	513.68	650.59	73.51	84.14	100.13	126.56
AD	South Coast AQMD	Summer	2017	378.41	433.75	513.63	651.14	73.56	84.22	100.22	126.80
AD	South Coast AQMD	Summer	2018	378.49	434.09	513.58	651.59	73.60	84.30	100.30	127.02
AD	South Coast AQMD	Summer	2019	377.86	433.63	512.63	650.96	73.64	84.46	100.39	127.22
AD	South Coast AQMD	Summer	2020	377.91	433.94	512.56	651.31	73.73	84.62	100.49	127.42
AD	South Coast AQMD	Summer	2021	378.79	435.26	513.67	653.16	73.80	84.79	100.58	127.58
AD	South Coast AQMD	Summer	2022	378.78	435.52	513.61	653.41	73.85	84.93	100.66	127.72
AD	South Coast AQMD	Summer	2023	378.75	435.72	513.53	653.58	73.88	85.06	100.72	127.88
AD	South Coast AQMD	Summer	2024	380.85	438.35	516.31	657.27	73.90	85.17	100.77	128.02
AD	South Coast AQMD	Summer	2025	380.80	438.49	516.23	657.36	73.92	85.28	100.82	128.15
AD	South Coast AQMD	Summer	2026	380.78	438.66	516.15	657.45	73.94	85.38	100.85	128.28
AD	South Coast AQMD	Summer	2027	380.75	438.81	516.07	657.53	73.95	85.47	100.88	128.40
AD	South Coast AQMD	Summer	2028	380.72	438.96	515.99	657.60	73.96	85.56	100.90	128.50
AD	South Coast AQMD	Summer	2029	380.68	439.12	515.91	657.67	73.97	85.64	100.92	128.60
AD	South Coast AQMD	Summer	2030	380.64	439.28	515.83	657.75	73.97	85.72	100.93	128.69
AD	South Coast AQMD	Summer	2031	381.06	439.99	516.35	658.58	73.98	85.80	100.94	128.78
AD	South Coast AQMD	Summer	2032	381.02	440.15	516.29	658.68	73.98	85.87	100.95	128.87
AD	South Coast AQMD	Summer	2033	380.98	440.27	516.23	658.77	73.99	85.93	100.96	128.95
AD	South Coast AQMD	Summer	2034	380.94	440.37	516.16	658.85	73.99	85.99	100.96	129.02
AD	South Coast AQMD	Summer	2035	380.89	440.43	516.10	658.92	73.99	86.05	100.97	129.09
AD	South Coast AQMD	Winter	2010	352.29	403.80	481.47	605.90	73.21	84.05	99.45	125.25
AD	South Coast AQMD	Winter	2011	352.78	404.63	481.81	606.99	73.23	84.00	99.55	125.44

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	South Coast AQMD	Winter	2012	352.90	404.95	481.58	607.30	73.27	83.99	99.67	125.65
AD	South Coast AQMD	Winter	2013	353.09	405.36	481.40	607.67	73.33	84.01	99.79	125.87
AD	South Coast AQMD	Winter	2014	353.22	405.65	481.21	608.00	73.38	84.02	99.90	126.09
AD	South Coast AQMD	Winter	2015	353.70	406.30	481.45	608.82	73.44	84.08	100.01	126.32
AD	South Coast AQMD	Winter	2016	353.80	406.58	481.31	609.21	73.51	84.14	100.13	126.56
AD	South Coast AQMD	Winter	2017	353.87	406.84	481.17	609.58	73.56	84.22	100.22	126.80
AD	South Coast AQMD	Winter	2018	353.92	407.05	481.05	609.87	73.60	84.30	100.30	127.02
AD	South Coast AQMD	Winter	2019	353.29	406.51	480.09	609.12	73.64	84.46	100.39	127.22
AD	South Coast AQMD	Winter	2020	353.30	406.69	479.97	609.30	73.73	84.62	100.49	127.42
AD	South Coast AQMD	Winter	2021	354.09	407.83	480.97	610.93	73.80	84.79	100.58	127.58
AD	South Coast AQMD	Winter	2022	354.06	407.98	480.89	611.09	73.85	84.93	100.66	127.72
AD	South Coast AQMD	Winter	2023	354.00	408.09	480.80	611.19	73.88	85.06	100.72	127.88
AD	South Coast AQMD	Winter	2024	355.90	410.41	483.33	614.52	73.90	85.17	100.77	128.02
AD	South Coast AQMD	Winter	2025	355.82	410.46	483.24	614.58	73.92	85.28	100.82	128.15
AD	South Coast AQMD	Winter	2026	355.78	410.54	483.14	614.65	73.94	85.38	100.85	128.28
AD	South Coast AQMD	Winter	2027	355.73	410.61	483.03	614.70	73.95	85.47	100.88	128.40
AD	South Coast AQMD	Winter	2028	355.68	410.69	482.93	614.74	73.96	85.56	100.90	128.50
AD	South Coast AQMD	Winter	2029	355.61	410.76	482.82	614.79	73.97	85.64	100.92	128.60
AD	South Coast AQMD	Winter	2030	355.54	410.84	482.71	614.83	73.97	85.72	100.93	128.69
AD	South Coast AQMD	Winter	2031	355.89	411.39	483.12	615.52	73.98	85.80	100.94	128.78
AD	South Coast AQMD	Winter	2032	355.83	411.47	483.03	615.56	73.98	85.87	100.95	128.87
AD	South Coast AQMD	Winter	2033	355.77	411.53	482.94	615.59	73.99	85.93	100.96	128.95
AD	South Coast AQMD	Winter	2034	355.71	411.57	482.84	615.61	73.99	85.99	100.96	129.02
AD	South Coast AQMD	Winter	2035	355.64	411.60	482.75	615.61	73.99	86.05	100.97	129.09
AD	Tehama County APCD	Annual	2010	347.71	408.08	478.44	596.20	73.92	97.65	101.75	125.26
AD	Tehama County APCD	Annual	2011	347.75	407.21	477.63	596.79	73.75	95.12	101.53	125.31
AD	Tehama County APCD	Annual	2012	347.86	406.66	477.01	597.48	73.65	93.32	101.40	125.42
AD	Tehama County APCD	Annual	2013	347.97	406.10	476.53	598.29	73.54	91.52	101.28	125.55
AD	Tehama County APCD	Annual	2014	348.09	405.68	476.15	599.09	73.46	90.11	101.17	125.71
AD	Tehama County APCD	Annual	2015	348.24	405.38	475.85	599.96	73.44	88.97	101.03	125.89
AD	Tehama County APCD	Annual	2016	348.39	405.05	475.61	600.78	73.43	87.78	100.95	126.12
AD	Tehama County APCD	Annual	2017	348.50	404.72	475.41	601.55	73.42	86.61	100.84	126.35
AD	Tehama County APCD	Annual	2018	348.57	404.51	475.24	602.23	73.38	85.79	100.77	126.58
AD	Tehama County APCD	Annual	2019	348.67	404.46	475.11	602.83	73.42	85.46	100.74	126.78
AD	Tehama County APCD	Annual	2020	348.75	404.42	475.00	603.36	73.52	85.32	100.77	126.99
AD	Tehama County APCD	Annual	2021	348.82	404.51	474.91	603.73	73.60	85.40	100.84	127.12
AD	Tehama County APCD	Annual	2022	348.84	404.58	474.81	603.99	73.65	85.48	100.88	127.15
AD	Tehama County APCD	Annual	2023	348.83	404.65	474.72	604.17	73.68	85.54	100.91	127.32
AD	Tehama County APCD	Annual	2024	348.79	404.72	474.64	604.33	73.69	85.61	100.94	127.48
AD	Tehama County APCD	Annual	2025	348.78	404.78	474.58	604.54	73.71	85.67	100.96	127.66
AD	Tehama County APCD	Annual	2026	348.80	404.87	474.51	604.75	73.74	85.74	100.98	127.82
AD	Tehama County APCD	Annual	2027	348.82	404.95	474.43	604.97	73.75	85.80	100.99	127.98
AD	Tehama County APCD	Annual	2028	348.82	405.02	474.36	605.19	73.76	85.86	100.99	128.12
AD	Tehama County APCD	Annual	2029	348.82	405.11	474.28	605.40	73.77	85.91	100.98	128.26
AD	Tehama County APCD	Annual	2030	348.81	405.19	474.20	605.62	73.77	85.96	100.97	128.38
AD	Tehama County APCD	Annual	2031	348.81	405.27	474.16	605.87	73.78	86.01	100.97	128.51
AD	Tehama County APCD	Annual	2032	348.81	405.34	474.13	606.13	73.78	86.06	100.97	128.63
AD	Tehama County APCD	Annual	2033	348.80	405.40	474.10	606.35	73.79	86.10	100.97	128.74
AD	Tehama County APCD	Annual	2034	348.80	405.45	474.07	606.55	73.79	86.14	100.97	128.85
AD	Tehama County APCD	Annual	2035	348.79	405.50	474.05	606.73	73.80	86.17	100.98	128.94
AD	Tehama County APCD	Summer	2010	383.41	444.94	524.62	654.31	73.92	97.65	101.75	125.26
AD	Tehama County APCD	Summer	2011	383.77	445.00	524.52	654.97	73.75	95.12	101.53	125.31
AD	Tehama County APCD	Summer	2012	384.14	445.10	524.43	655.86	73.65	93.32	101.40	125.42
AD	Tehama County APCD	Summer	2013	384.45	445.13	524.35	656.99	73.54	91.52	101.28	125.55

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Tehama County APCD	Summer	2014	384.73	445.13	524.29	658.11	73.46	90.11	101.17	125.71
AD	Tehama County APCD	Summer	2015	385.00	445.18	524.25	659.39	73.44	88.97	101.03	125.89
AD	Tehama County APCD	Summer	2016	385.23	445.19	524.18	660.60	73.43	87.78	100.95	126.12
AD	Tehama County APCD	Summer	2017	385.39	445.19	524.07	661.71	73.42	86.61	100.84	126.35
AD	Tehama County APCD	Summer	2018	385.47	445.18	523.93	662.69	73.38	85.79	100.77	126.58
AD	Tehama County APCD	Summer	2019	385.58	445.24	523.81	663.55	73.42	85.46	100.74	126.78
AD	Tehama County APCD	Summer	2020	385.65	445.32	523.70	664.29	73.52	85.32	100.77	126.99
AD	Tehama County APCD	Summer	2021	385.70	445.43	523.58	664.83	73.60	85.40	100.84	127.12
AD	Tehama County APCD	Summer	2022	385.72	445.55	523.48	665.26	73.65	85.48	100.88	127.15
AD	Tehama County APCD	Summer	2023	385.71	445.67	523.40	665.55	73.68	85.54	100.91	127.32
AD	Tehama County APCD	Summer	2024	385.66	445.84	523.33	665.79	73.69	85.61	100.94	127.48
AD	Tehama County APCD	Summer	2025	385.66	445.99	523.29	666.03	73.71	85.67	100.96	127.66
AD	Tehama County APCD	Summer	2026	385.69	446.14	523.22	666.24	73.74	85.74	100.98	127.82
AD	Tehama County APCD	Summer	2027	385.72	446.27	523.16	666.46	73.75	85.80	100.99	127.98
AD	Tehama County APCD	Summer	2028	385.74	446.39	523.12	666.69	73.76	85.86	100.99	128.12
AD	Tehama County APCD	Summer	2029	385.76	446.52	523.06	666.94	73.77	85.91	100.98	128.26
AD	Tehama County APCD	Summer	2030	385.77	446.65	523.02	667.20	73.77	85.96	100.97	128.38
AD	Tehama County APCD	Summer	2031	385.77	446.77	523.01	667.51	73.78	86.01	100.97	128.51
AD	Tehama County APCD	Summer	2032	385.77	446.86	523.00	667.82	73.78	86.06	100.97	128.63
AD	Tehama County APCD	Summer	2033	385.77	446.94	522.99	668.11	73.79	86.10	100.97	128.74
AD	Tehama County APCD	Summer	2034	385.77	447.00	522.97	668.39	73.79	86.14	100.97	128.85
AD	Tehama County APCD	Summer	2035	385.76	447.05	522.96	668.63	73.80	86.17	100.98	128.94
AD	Tehama County APCD	Winter	2010	339.88	399.98	468.30	583.44	73.92	97.65	101.75	125.26
AD	Tehama County APCD	Winter	2011	339.84	398.91	467.33	584.01	73.75	95.12	101.53	125.31
AD	Tehama County APCD	Winter	2012	339.89	398.22	466.60	584.66	73.65	93.32	101.40	125.42
AD	Tehama County APCD	Winter	2013	339.96	397.53	466.03	585.41	73.54	91.52	101.28	125.55
AD	Tehama County APCD	Winter	2014	340.05	397.02	465.58	586.13	73.46	90.11	101.17	125.71
AD	Tehama County APCD	Winter	2015	340.18	396.64	465.23	586.91	73.44	88.97	101.03	125.89
AD	Tehama County APCD	Winter	2016	340.30	396.23	464.95	587.65	73.43	87.78	100.95	126.12
AD	Tehama County APCD	Winter	2017	340.40	395.84	464.72	588.34	73.42	86.61	100.84	126.35
AD	Tehama County APCD	Winter	2018	340.46	395.57	464.55	588.96	73.38	85.79	100.77	126.58
AD	Tehama County APCD	Winter	2019	340.57	395.50	464.42	589.50	73.42	85.46	100.74	126.78
AD	Tehama County APCD	Winter	2020	340.65	395.45	464.31	589.99	73.52	85.32	100.77	126.99
AD	Tehama County APCD	Winter	2021	340.72	395.53	464.22	590.32	73.60	85.40	100.84	127.12
AD	Tehama County APCD	Winter	2022	340.75	395.59	464.13	590.54	73.65	85.48	100.88	127.15
AD	Tehama County APCD	Winter	2023	340.74	395.64	464.04	590.70	73.68	85.54	100.91	127.32
AD	Tehama County APCD	Winter	2024	340.69	395.69	463.95	590.84	73.69	85.61	100.94	127.48
AD	Tehama County APCD	Winter	2025	340.69	395.73	463.89	591.04	73.71	85.67	100.96	127.66
AD	Tehama County APCD	Winter	2026	340.71	395.81	463.81	591.25	73.74	85.74	100.98	127.82
AD	Tehama County APCD	Winter	2027	340.72	395.87	463.73	591.47	73.75	85.80	100.99	127.98
AD	Tehama County APCD	Winter	2028	340.72	395.94	463.66	591.68	73.76	85.86	100.99	128.12
AD	Tehama County APCD	Winter	2029	340.71	396.01	463.57	591.89	73.77	85.91	100.98	128.26
AD	Tehama County APCD	Winter	2030	340.70	396.08	463.49	592.11	73.77	85.96	100.97	128.38
AD	Tehama County APCD	Winter	2031	340.69	396.15	463.44	592.34	73.78	86.01	100.97	128.51
AD	Tehama County APCD	Winter	2032	340.69	396.22	463.40	592.58	73.78	86.06	100.97	128.63
AD	Tehama County APCD	Winter	2033	340.69	396.28	463.36	592.79	73.79	86.10	100.97	128.74
AD	Tehama County APCD	Winter	2034	340.68	396.33	463.33	592.98	73.79	86.14	100.97	128.85
AD	Tehama County APCD	Winter	2035	340.68	396.38	463.31	593.14	73.80	86.17	100.98	128.94
AD	Tuolumne County APCD	Annual	2010	351.80	409.05	482.29	602.53	74.53	90.23	101.65	124.41
AD	Tuolumne County APCD	Annual	2011	351.82	408.95	481.75	603.20	74.32	89.28	101.47	124.55
AD	Tuolumne County APCD	Annual	2012	351.88	408.91	481.33	604.01	74.15	88.59	101.37	124.74
AD	Tuolumne County APCD	Annual	2013	351.99	408.83	480.99	604.89	74.02	87.89	101.25	124.97
AD	Tuolumne County APCD	Annual	2014	352.09	408.75	480.72	605.77	73.90	87.27	101.07	125.20
AD	Tuolumne County APCD	Annual	2015	352.23	408.71	480.51	606.66	73.86	86.74	100.95	125.47

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Tuolomne County APCD	Annual	2016	352.33	408.71	480.34	607.53	73.81	86.35	100.89	125.75
AD	Tuolomne County APCD	Annual	2017	352.40	408.66	480.19	608.32	73.73	85.87	100.79	126.04
AD	Tuolomne County APCD	Annual	2018	352.44	408.65	480.07	609.00	73.66	85.55	100.74	126.32
AD	Tuolomne County APCD	Annual	2019	352.50	408.66	479.98	609.60	73.64	85.35	100.71	126.58
AD	Tuolomne County APCD	Annual	2020	352.53	408.71	479.91	610.12	73.71	85.33	100.75	126.82
AD	Tuolomne County APCD	Annual	2021	352.52	408.72	479.81	610.51	73.75	85.36	100.79	127.02
AD	Tuolomne County APCD	Annual	2022	352.49	408.72	479.74	610.83	73.77	85.39	100.83	127.18
AD	Tuolomne County APCD	Annual	2023	352.42	408.71	479.67	611.05	73.77	85.42	100.87	127.37
AD	Tuolomne County APCD	Annual	2024	352.35	408.71	479.60	611.23	73.76	85.46	100.89	127.55
AD	Tuolomne County APCD	Annual	2025	352.30	408.78	479.56	611.41	73.76	85.53	100.93	127.72
AD	Tuolomne County APCD	Annual	2026	352.31	408.91	479.51	611.58	73.78	85.63	100.95	127.88
AD	Tuolomne County APCD	Annual	2027	352.31	409.03	479.46	611.78	73.79	85.72	100.97	128.03
AD	Tuolomne County APCD	Annual	2028	352.31	409.16	479.41	611.96	73.80	85.80	100.98	128.17
AD	Tuolomne County APCD	Annual	2029	352.30	409.28	479.35	612.15	73.80	85.87	100.98	128.30
AD	Tuolomne County APCD	Annual	2030	352.29	409.39	479.30	612.34	73.81	85.94	100.98	128.42
AD	Tuolomne County APCD	Annual	2031	352.28	409.51	479.27	612.58	73.81	86.01	100.98	128.55
AD	Tuolomne County APCD	Annual	2032	352.28	409.62	479.24	612.83	73.82	86.08	100.98	128.67
AD	Tuolomne County APCD	Annual	2033	352.28	409.71	479.22	613.04	73.82	86.13	100.99	128.78
AD	Tuolomne County APCD	Annual	2034	352.28	409.79	479.20	613.24	73.83	86.19	100.99	128.88
AD	Tuolomne County APCD	Annual	2035	352.27	409.86	479.19	613.41	73.83	86.23	101.00	128.97
AD	Tuolomne County APCD	Summer	2010	379.58	436.17	518.68	647.34	74.53	90.23	101.65	124.41
AD	Tuolomne County APCD	Summer	2011	379.89	437.05	518.44	648.13	74.32	89.28	101.47	124.55
AD	Tuolomne County APCD	Summer	2012	380.18	437.74	518.26	649.15	74.15	88.59	101.37	124.74
AD	Tuolomne County APCD	Summer	2013	380.45	438.26	518.15	650.32	74.02	87.89	101.25	124.97
AD	Tuolomne County APCD	Summer	2014	380.68	438.66	518.10	651.50	73.90	87.27	101.07	125.20
AD	Tuolomne County APCD	Summer	2015	380.90	439.01	518.08	652.73	73.86	86.74	100.95	125.47
AD	Tuolomne County APCD	Summer	2016	381.07	439.30	518.06	653.92	73.81	86.35	100.89	125.75
AD	Tuolomne County APCD	Summer	2017	381.16	439.53	518.01	654.99	73.73	85.87	100.79	126.04
AD	Tuolomne County APCD	Summer	2018	381.20	439.71	517.96	655.91	73.66	85.55	100.74	126.32
AD	Tuolomne County APCD	Summer	2019	381.25	439.89	517.91	656.72	73.64	85.35	100.71	126.58
AD	Tuolomne County APCD	Summer	2020	381.27	440.08	517.84	657.42	73.71	85.33	100.75	126.82
AD	Tuolomne County APCD	Summer	2021	381.25	440.21	517.77	657.94	73.75	85.36	100.79	127.02
AD	Tuolomne County APCD	Summer	2022	381.21	440.34	517.69	658.37	73.77	85.39	100.83	127.18
AD	Tuolomne County APCD	Summer	2023	381.14	440.44	517.62	658.69	73.77	85.42	100.87	127.37
AD	Tuolomne County APCD	Summer	2024	381.08	440.54	517.57	658.94	73.76	85.46	100.89	127.55
AD	Tuolomne County APCD	Summer	2025	381.03	440.66	517.52	659.17	73.76	85.53	100.93	127.72
AD	Tuolomne County APCD	Summer	2026	381.05	440.87	517.48	659.35	73.78	85.63	100.95	127.88
AD	Tuolomne County APCD	Summer	2027	381.07	441.05	517.44	659.54	73.79	85.72	100.97	128.03
AD	Tuolomne County APCD	Summer	2028	381.08	441.24	517.40	659.75	73.80	85.80	100.98	128.17
AD	Tuolomne County APCD	Summer	2029	381.09	441.43	517.36	659.96	73.80	85.87	100.98	128.30
AD	Tuolomne County APCD	Summer	2030	381.09	441.61	517.32	660.19	73.81	85.94	100.98	128.42
AD	Tuolomne County APCD	Summer	2031	381.10	441.78	517.30	660.50	73.81	86.01	100.98	128.55
AD	Tuolomne County APCD	Summer	2032	381.10	441.93	517.28	660.80	73.82	86.08	100.98	128.67
AD	Tuolomne County APCD	Summer	2033	381.09	442.04	517.26	661.07	73.82	86.13	100.99	128.78
AD	Tuolomne County APCD	Summer	2034	381.09	442.15	517.24	661.33	73.83	86.19	100.99	128.88
AD	Tuolomne County APCD	Summer	2035	381.08	442.22	517.22	661.55	73.83	86.23	101.00	128.97
AD	Tuolomne County APCD	Winter	2010	345.75	403.14	474.37	592.78	74.53	90.23	101.65	124.41
AD	Tuolomne County APCD	Winter	2011	345.71	402.84	473.77	593.43	74.32	89.28	101.47	124.55
AD	Tuolomne County APCD	Winter	2012	345.72	402.64	473.30	594.19	74.15	88.59	101.37	124.74
AD	Tuolomne County APCD	Winter	2013	345.79	402.42	472.91	595.00	74.02	87.89	101.25	124.97
AD	Tuolomne County APCD	Winter	2014	345.87	402.24	472.59	595.82	73.90	87.27	101.07	125.20
AD	Tuolomne County APCD	Winter	2015	345.99	402.12	472.33	596.64	73.86	86.74	100.95	125.47
AD	Tuolomne County APCD	Winter	2016	346.08	402.05	472.13	597.43	73.81	86.35	100.89	125.75
AD	Tuolomne County APCD	Winter	2017	346.14	401.95	471.96	598.16	73.73	85.87	100.79	126.04

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Tuolomne County APCD	Winter	2018	346.19	401.89	471.83	598.79	73.66	85.55	100.74	126.32
AD	Tuolomne County APCD	Winter	2019	346.24	401.87	471.73	599.34	73.64	85.35	100.71	126.58
AD	Tuolomne County APCD	Winter	2020	346.28	401.88	471.65	599.83	73.71	85.33	100.75	126.82
AD	Tuolomne County APCD	Winter	2021	346.27	401.86	471.55	600.19	73.75	85.36	100.79	127.02
AD	Tuolomne County APCD	Winter	2022	346.24	401.84	471.48	600.48	73.77	85.39	100.83	127.18
AD	Tuolomne County APCD	Winter	2023	346.16	401.81	471.41	600.69	73.77	85.42	100.87	127.37
AD	Tuolomne County APCD	Winter	2024	346.10	401.78	471.34	600.85	73.76	85.46	100.89	127.55
AD	Tuolomne County APCD	Winter	2025	346.04	401.84	471.30	601.01	73.76	85.53	100.93	127.72
AD	Tuolomne County APCD	Winter	2026	346.05	401.96	471.25	601.19	73.78	85.63	100.95	127.88
AD	Tuolomne County APCD	Winter	2027	346.05	402.06	471.20	601.38	73.79	85.72	100.97	128.03
AD	Tuolomne County APCD	Winter	2028	346.04	402.17	471.14	601.56	73.80	85.80	100.98	128.17
AD	Tuolomne County APCD	Winter	2029	346.03	402.28	471.08	601.74	73.80	85.87	100.98	128.30
AD	Tuolomne County APCD	Winter	2030	346.02	402.38	471.02	601.93	73.81	85.94	100.98	128.42
AD	Tuolomne County APCD	Winter	2031	346.01	402.49	470.99	602.16	73.81	86.01	100.98	128.55
AD	Tuolomne County APCD	Winter	2032	346.01	402.59	470.97	602.39	73.82	86.08	100.98	128.67
AD	Tuolomne County APCD	Winter	2033	346.01	402.67	470.95	602.59	73.82	86.13	100.99	128.78
AD	Tuolomne County APCD	Winter	2034	346.01	402.75	470.93	602.77	73.83	86.19	100.99	128.88
AD	Tuolomne County APCD	Winter	2035	346.00	402.81	470.91	602.93	73.83	86.23	101.00	128.97
AD	Ventura County APCD	Annual	2010	333.21	383.06	456.23	576.41	73.39	83.96	99.49	125.11
AD	Ventura County APCD	Annual	2011	334.06	384.40	457.06	578.10	73.37	83.90	99.58	125.31
AD	Ventura County APCD	Annual	2012	334.23	384.93	456.97	578.64	73.35	83.91	99.69	125.52
AD	Ventura County APCD	Annual	2013	334.46	385.44	456.97	579.27	73.37	83.94	99.80	125.74
AD	Ventura County APCD	Annual	2014	334.61	385.87	456.92	579.81	73.35	83.96	99.91	125.96
AD	Ventura County APCD	Annual	2015	336.96	388.79	459.88	584.16	73.37	84.01	100.00	126.20
AD	Ventura County APCD	Annual	2016	337.13	389.18	459.85	584.69	73.42	84.08	100.11	126.44
AD	Ventura County APCD	Annual	2017	337.26	389.54	459.83	585.20	73.44	84.15	100.20	126.68
AD	Ventura County APCD	Annual	2018	337.37	389.86	459.82	585.65	73.47	84.25	100.29	126.90
AD	Ventura County APCD	Annual	2019	338.59	391.47	461.34	587.98	73.51	84.41	100.38	127.11
AD	Ventura County APCD	Annual	2020	338.68	391.75	461.34	588.35	73.61	84.58	100.48	127.31
AD	Ventura County APCD	Annual	2021	340.62	394.18	463.90	591.89	73.68	84.75	100.57	127.48
AD	Ventura County APCD	Annual	2022	340.66	394.41	463.89	592.14	73.73	84.90	100.65	127.62
AD	Ventura County APCD	Annual	2023	340.67	394.58	463.88	592.33	73.77	85.03	100.71	127.78
AD	Ventura County APCD	Annual	2024	342.13	396.43	465.87	595.04	73.79	85.15	100.77	127.93
AD	Ventura County APCD	Annual	2025	342.13	396.57	465.87	595.19	73.81	85.26	100.81	128.07
AD	Ventura County APCD	Annual	2026	342.15	396.72	465.85	595.36	73.83	85.37	100.85	128.21
AD	Ventura County APCD	Annual	2027	342.16	396.87	465.84	595.51	73.84	85.46	100.88	128.33
AD	Ventura County APCD	Annual	2028	342.17	397.01	465.82	595.67	73.85	85.55	100.90	128.45
AD	Ventura County APCD	Annual	2029	342.17	397.16	465.80	595.81	73.86	85.64	100.92	128.55
AD	Ventura County APCD	Annual	2030	342.17	397.31	465.79	595.97	73.86	85.72	100.93	128.65
AD	Ventura County APCD	Annual	2031	343.80	399.36	468.01	598.97	73.87	85.80	100.94	128.74
AD	Ventura County APCD	Annual	2032	343.79	399.50	468.00	599.13	73.88	85.87	100.95	128.83
AD	Ventura County APCD	Annual	2033	343.79	399.63	467.99	599.27	73.88	85.94	100.96	128.92
AD	Ventura County APCD	Annual	2034	343.79	399.74	467.98	599.40	73.88	86.00	100.96	128.99
AD	Ventura County APCD	Annual	2035	343.79	399.84	467.97	599.52	73.89	86.06	100.97	129.06
AD	Ventura County APCD	Summer	2010	347.83	398.15	475.58	600.79	73.39	83.96	99.49	125.11
AD	Ventura County APCD	Summer	2011	348.77	399.76	476.48	602.48	73.37	83.90	99.58	125.31
AD	Ventura County APCD	Summer	2012	348.98	400.46	476.42	602.99	73.35	83.91	99.69	125.52
AD	Ventura County APCD	Summer	2013	349.27	401.14	476.48	603.66	73.37	83.94	99.80	125.74
AD	Ventura County APCD	Summer	2014	349.45	401.68	476.48	604.24	73.35	83.96	99.91	125.96
AD	Ventura County APCD	Summer	2015	351.94	404.82	479.63	608.85	73.37	84.01	100.00	126.20
AD	Ventura County APCD	Summer	2016	352.14	405.30	479.65	609.45	73.42	84.08	100.11	126.44
AD	Ventura County APCD	Summer	2017	352.28	405.73	479.66	610.04	73.44	84.15	100.20	126.68
AD	Ventura County APCD	Summer	2018	352.41	406.11	479.66	610.55	73.47	84.25	100.29	126.90
AD	Ventura County APCD	Summer	2019	353.67	407.82	481.25	613.02	73.51	84.41	100.38	127.11

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Ventura County APCD	Summer	2020	353.77	408.15	481.25	613.43	73.61	84.58	100.48	127.31
AD	Ventura County APCD	Summer	2021	355.80	410.74	483.94	617.18	73.68	84.75	100.57	127.48
AD	Ventura County APCD	Summer	2022	355.84	411.01	483.93	617.47	73.73	84.90	100.65	127.62
AD	Ventura County APCD	Summer	2023	355.85	411.23	483.92	617.68	73.77	85.03	100.71	127.78
AD	Ventura County APCD	Summer	2024	357.40	413.22	486.02	620.55	73.79	85.15	100.77	127.93
AD	Ventura County APCD	Summer	2025	357.40	413.40	486.01	620.72	73.81	85.26	100.81	128.07
AD	Ventura County APCD	Summer	2026	357.42	413.59	486.00	620.90	73.83	85.37	100.85	128.21
AD	Ventura County APCD	Summer	2027	357.43	413.77	485.98	621.06	73.84	85.46	100.88	128.33
AD	Ventura County APCD	Summer	2028	357.44	413.94	485.96	621.21	73.85	85.55	100.90	128.45
AD	Ventura County APCD	Summer	2029	357.45	414.12	485.94	621.36	73.86	85.64	100.92	128.55
AD	Ventura County APCD	Summer	2030	357.45	414.30	485.93	621.52	73.86	85.72	100.93	128.65
AD	Ventura County APCD	Summer	2031	359.14	416.47	488.25	624.65	73.87	85.80	100.94	128.74
AD	Ventura County APCD	Summer	2032	359.14	416.64	488.24	624.81	73.88	85.87	100.95	128.83
AD	Ventura County APCD	Summer	2033	359.14	416.79	488.23	624.96	73.88	85.94	100.96	128.92
AD	Ventura County APCD	Summer	2034	359.13	416.92	488.22	625.10	73.88	86.00	100.96	128.99
AD	Ventura County APCD	Summer	2035	359.13	417.02	488.21	625.23	73.89	86.06	100.97	129.06
AD	Ventura County APCD	Winter	2010	330.44	380.19	452.56	571.78	73.39	83.96	99.49	125.11
AD	Ventura County APCD	Winter	2011	331.27	381.49	453.38	573.48	73.37	83.90	99.58	125.31
AD	Ventura County APCD	Winter	2012	331.43	381.98	453.29	574.02	73.35	83.91	99.69	125.52
AD	Ventura County APCD	Winter	2013	331.65	382.46	453.27	574.64	73.37	83.94	99.80	125.74
AD	Ventura County APCD	Winter	2014	331.80	382.87	453.21	575.18	73.35	83.96	99.91	125.96
AD	Ventura County APCD	Winter	2015	334.12	385.75	456.13	579.48	73.37	84.01	100.00	126.20
AD	Ventura County APCD	Winter	2016	334.29	386.12	456.10	579.99	73.42	84.08	100.11	126.44
AD	Ventura County APCD	Winter	2017	334.41	386.47	456.07	580.49	73.44	84.15	100.20	126.68
AD	Ventura County APCD	Winter	2018	334.52	386.78	456.06	580.93	73.47	84.25	100.29	126.90
AD	Ventura County APCD	Winter	2019	335.73	388.37	457.57	583.24	73.51	84.41	100.38	127.11
AD	Ventura County APCD	Winter	2020	335.82	388.65	457.57	583.59	73.61	84.58	100.48	127.31
AD	Ventura County APCD	Winter	2021	337.74	391.05	460.10	587.10	73.68	84.75	100.57	127.48
AD	Ventura County APCD	Winter	2022	337.78	391.26	460.10	587.34	73.73	84.90	100.65	127.62
AD	Ventura County APCD	Winter	2023	337.80	391.43	460.09	587.53	73.77	85.03	100.71	127.78
AD	Ventura County APCD	Winter	2024	339.24	393.25	462.06	590.20	73.79	85.15	100.77	127.93
AD	Ventura County APCD	Winter	2025	339.24	393.38	462.05	590.36	73.81	85.26	100.81	128.07
AD	Ventura County APCD	Winter	2026	339.26	393.53	462.04	590.52	73.83	85.37	100.85	128.21
AD	Ventura County APCD	Winter	2027	339.27	393.67	462.02	590.68	73.84	85.46	100.88	128.33
AD	Ventura County APCD	Winter	2028	339.28	393.81	462.01	590.83	73.85	85.55	100.90	128.45
AD	Ventura County APCD	Winter	2029	339.28	393.95	461.99	590.98	73.86	85.64	100.92	128.55
AD	Ventura County APCD	Winter	2030	339.28	394.09	461.98	591.13	73.86	85.72	100.93	128.65
AD	Ventura County APCD	Winter	2031	340.89	396.12	464.18	594.11	73.87	85.80	100.94	128.74
AD	Ventura County APCD	Winter	2032	340.89	396.26	464.17	594.27	73.88	85.87	100.95	128.83
AD	Ventura County APCD	Winter	2033	340.89	396.38	464.16	594.41	73.88	85.94	100.96	128.92
AD	Ventura County APCD	Winter	2034	340.89	396.49	464.15	594.54	73.88	86.00	100.96	128.99
AD	Ventura County APCD	Winter	2035	340.88	396.58	464.14	594.65	73.89	86.06	100.97	129.06
AD	Yolo/Solano AQMD	Annual	2010	348.81	400.50	478.26	603.67	73.04	85.15	99.95	124.98
AD	Yolo/Solano AQMD	Annual	2011	348.99	401.18	477.99	604.06	73.05	84.88	99.97	125.17
AD	Yolo/Solano AQMD	Annual	2012	349.17	401.79	477.76	604.52	73.06	84.74	100.04	125.39
AD	Yolo/Solano AQMD	Annual	2013	349.34	402.29	477.57	605.02	73.08	84.59	100.09	125.62
AD	Yolo/Solano AQMD	Annual	2014	349.51	402.73	477.42	605.55	73.11	84.49	100.15	125.86
AD	Yolo/Solano AQMD	Annual	2015	349.67	403.13	477.29	606.07	73.16	84.45	100.19	126.11
AD	Yolo/Solano AQMD	Annual	2016	353.97	408.29	483.02	614.15	73.24	84.45	100.26	126.36
AD	Yolo/Solano AQMD	Annual	2017	354.05	408.52	482.92	614.62	73.29	84.39	100.28	126.61
AD	Yolo/Solano AQMD	Annual	2018	354.10	408.72	482.83	615.03	73.36	84.42	100.33	126.85
AD	Yolo/Solano AQMD	Annual	2019	353.42	408.16	481.76	614.16	73.42	84.51	100.39	127.06
AD	Yolo/Solano AQMD	Annual	2020	353.47	408.43	481.69	614.50	73.52	84.64	100.48	127.26
AD	Yolo/Solano AQMD	Annual	2021	353.51	408.63	481.65	614.75	73.60	84.80	100.57	127.42

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Yolo/Solano AQMD	Annual	2022	353.51	408.79	481.60	614.94	73.65	84.93	100.65	127.57
AD	Yolo/Solano AQMD	Annual	2023	353.48	408.91	481.54	615.07	73.69	85.05	100.71	127.73
AD	Yolo/Solano AQMD	Annual	2024	353.46	409.04	481.46	615.10	73.72	85.17	100.76	127.87
AD	Yolo/Solano AQMD	Annual	2025	353.44	409.16	481.39	615.14	73.74	85.26	100.81	128.01
AD	Yolo/Solano AQMD	Annual	2026	354.57	410.57	482.91	617.16	73.77	85.36	100.84	128.15
AD	Yolo/Solano AQMD	Annual	2027	354.57	410.67	482.84	617.13	73.78	85.45	100.87	128.27
AD	Yolo/Solano AQMD	Annual	2028	354.56	410.76	482.78	617.10	73.79	85.53	100.90	128.39
AD	Yolo/Solano AQMD	Annual	2029	354.54	410.86	482.71	617.07	73.80	85.61	100.91	128.49
AD	Yolo/Solano AQMD	Annual	2030	354.51	410.96	482.64	617.06	73.80	85.69	100.92	128.59
AD	Yolo/Solano AQMD	Annual	2031	354.46	411.07	482.56	617.24	73.81	85.76	100.94	128.69
AD	Yolo/Solano AQMD	Annual	2032	354.41	411.16	482.49	617.41	73.81	85.83	100.94	128.79
AD	Yolo/Solano AQMD	Annual	2033	354.36	411.24	482.41	617.56	73.82	85.89	100.95	128.88
AD	Yolo/Solano AQMD	Annual	2034	354.31	411.30	482.34	617.69	73.82	85.95	100.96	128.96
AD	Yolo/Solano AQMD	Annual	2035	354.26	411.34	482.27	617.80	73.82	86.00	100.96	129.03
AD	Yolo/Solano AQMD	Summer	2010	384.05	437.08	524.93	662.32	73.04	85.15	99.95	124.98
AD	Yolo/Solano AQMD	Summer	2011	384.41	438.40	524.78	662.58	73.05	84.88	99.97	125.17
AD	Yolo/Solano AQMD	Summer	2012	384.74	439.53	524.67	663.02	73.06	84.74	100.04	125.39
AD	Yolo/Solano AQMD	Summer	2013	385.03	440.45	524.60	663.61	73.08	84.59	100.09	125.62
AD	Yolo/Solano AQMD	Summer	2014	385.29	441.23	524.61	664.29	73.11	84.49	100.15	125.86
AD	Yolo/Solano AQMD	Summer	2015	385.53	441.88	524.63	665.02	73.16	84.45	100.19	126.11
AD	Yolo/Solano AQMD	Summer	2016	390.28	447.65	531.00	673.98	73.24	84.45	100.26	126.36
AD	Yolo/Solano AQMD	Summer	2017	390.39	448.07	531.01	674.67	73.29	84.39	100.28	126.61
AD	Yolo/Solano AQMD	Summer	2018	390.46	448.37	530.97	675.24	73.36	84.42	100.33	126.85
AD	Yolo/Solano AQMD	Summer	2019	389.67	447.80	529.75	674.33	73.42	84.51	100.39	127.06
AD	Yolo/Solano AQMD	Summer	2020	389.71	448.17	529.67	674.78	73.52	84.64	100.48	127.26
AD	Yolo/Solano AQMD	Summer	2021	389.75	448.46	529.61	675.11	73.60	84.80	100.57	127.42
AD	Yolo/Solano AQMD	Summer	2022	389.75	448.70	529.53	675.38	73.65	84.93	100.65	127.57
AD	Yolo/Solano AQMD	Summer	2023	389.71	448.91	529.44	675.56	73.69	85.05	100.71	127.73
AD	Yolo/Solano AQMD	Summer	2024	389.70	449.12	529.33	675.60	73.72	85.17	100.76	127.87
AD	Yolo/Solano AQMD	Summer	2025	389.68	449.31	529.24	675.64	73.74	85.26	100.81	128.01
AD	Yolo/Solano AQMD	Summer	2026	390.91	450.90	530.91	677.83	73.77	85.36	100.84	128.15
AD	Yolo/Solano AQMD	Summer	2027	390.91	451.05	530.86	677.80	73.78	85.45	100.87	128.27
AD	Yolo/Solano AQMD	Summer	2028	390.90	451.20	530.81	677.78	73.79	85.53	100.90	128.39
AD	Yolo/Solano AQMD	Summer	2029	390.89	451.36	530.75	677.76	73.80	85.61	100.91	128.49
AD	Yolo/Solano AQMD	Summer	2030	390.87	451.53	530.69	677.75	73.80	85.69	100.92	128.59
AD	Yolo/Solano AQMD	Summer	2031	390.81	451.70	530.61	677.97	73.81	85.76	100.94	128.69
AD	Yolo/Solano AQMD	Summer	2032	390.76	451.83	530.54	678.19	73.81	85.83	100.94	128.79
AD	Yolo/Solano AQMD	Summer	2033	390.71	451.94	530.46	678.37	73.82	85.89	100.95	128.88
AD	Yolo/Solano AQMD	Summer	2034	390.67	452.04	530.39	678.55	73.82	85.95	100.96	128.96
AD	Yolo/Solano AQMD	Summer	2035	390.62	452.10	530.31	678.71	73.82	86.00	100.96	129.03
AD	Yolo/Solano AQMD	Winter	2010	339.81	391.18	466.38	588.76	73.04	85.15	99.95	124.98
AD	Yolo/Solano AQMD	Winter	2011	339.95	391.68	466.07	589.17	73.05	84.88	99.97	125.17
AD	Yolo/Solano AQMD	Winter	2012	340.09	392.16	465.81	589.62	73.06	84.74	100.04	125.39
AD	Yolo/Solano AQMD	Winter	2013	340.23	392.54	465.57	590.10	73.08	84.59	100.09	125.62
AD	Yolo/Solano AQMD	Winter	2014	340.36	392.90	465.38	590.58	73.11	84.49	100.15	125.86
AD	Yolo/Solano AQMD	Winter	2015	340.50	393.23	465.21	591.05	73.16	84.45	100.19	126.11
AD	Yolo/Solano AQMD	Winter	2016	344.68	398.23	470.76	598.89	73.24	84.45	100.26	126.36
AD	Yolo/Solano AQMD	Winter	2017	344.76	398.41	470.64	599.30	73.29	84.39	100.28	126.61
AD	Yolo/Solano AQMD	Winter	2018	344.80	398.57	470.54	599.66	73.36	84.42	100.33	126.85
AD	Yolo/Solano AQMD	Winter	2019	344.16	398.04	469.52	598.83	73.42	84.51	100.39	127.06
AD	Yolo/Solano AQMD	Winter	2020	344.20	398.28	469.45	599.14	73.52	84.64	100.48	127.26
AD	Yolo/Solano AQMD	Winter	2021	344.25	398.45	469.41	599.36	73.60	84.80	100.57	127.42
AD	Yolo/Solano AQMD	Winter	2022	344.25	398.59	469.37	599.54	73.65	84.93	100.65	127.57
AD	Yolo/Solano AQMD	Winter	2023	344.21	398.69	469.31	599.65	73.69	85.05	100.71	127.73

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
AD	Yolo/Solano AQMD	Winter	2024	344.19	398.80	469.24	599.67	73.72	85.17	100.76	127.87
AD	Yolo/Solano AQMD	Winter	2025	344.17	398.89	469.17	599.71	73.74	85.26	100.81	128.01
AD	Yolo/Solano AQMD	Winter	2026	345.28	400.27	470.65	601.67	73.77	85.36	100.84	128.15
AD	Yolo/Solano AQMD	Winter	2027	345.27	400.35	470.58	601.64	73.78	85.45	100.87	128.27
AD	Yolo/Solano AQMD	Winter	2028	345.26	400.42	470.51	601.60	73.79	85.53	100.90	128.39
AD	Yolo/Solano AQMD	Winter	2029	345.24	400.50	470.43	601.57	73.80	85.61	100.91	128.49
AD	Yolo/Solano AQMD	Winter	2030	345.21	400.59	470.36	601.54	73.80	85.69	100.92	128.59
AD	Yolo/Solano AQMD	Winter	2031	345.15	400.68	470.28	601.72	73.81	85.76	100.94	128.69
AD	Yolo/Solano AQMD	Winter	2032	345.10	400.75	470.21	601.88	73.81	85.83	100.94	128.79
AD	Yolo/Solano AQMD	Winter	2033	345.05	400.82	470.13	602.01	73.82	85.89	100.95	128.88
AD	Yolo/Solano AQMD	Winter	2034	345.00	400.87	470.05	602.13	73.82	85.95	100.96	128.96
AD	Yolo/Solano AQMD	Winter	2035	344.95	400.90	469.98	602.23	73.82	86.00	100.96	129.03
C	Alameda (SF)	Annual	2010	339.24	389.56	464.06	585.20	72.90	84.16	99.41	124.70
C	Alameda (SF)	Annual	2011	339.37	390.02	463.94	585.71	72.95	84.06	99.50	124.89
C	Alameda (SF)	Annual	2012	339.53	390.50	463.85	586.29	73.01	84.04	99.62	125.11
C	Alameda (SF)	Annual	2013	339.73	390.93	463.79	586.90	73.09	84.03	99.75	125.34
C	Alameda (SF)	Annual	2014	339.91	391.34	463.74	587.52	73.16	84.04	99.85	125.58
C	Alameda (SF)	Annual	2015	340.11	391.74	463.71	588.15	73.24	84.08	99.96	125.84
C	Alameda (SF)	Annual	2016	340.29	392.13	463.69	588.75	73.33	84.14	100.07	126.09
C	Alameda (SF)	Annual	2017	340.43	392.49	463.67	589.32	73.39	84.20	100.16	126.35
C	Alameda (SF)	Annual	2018	340.55	392.81	463.66	589.82	73.43	84.28	100.25	126.59
C	Alameda (SF)	Annual	2019	340.66	393.13	463.66	590.26	73.49	84.42	100.34	126.81
C	Alameda (SF)	Annual	2020	340.77	393.43	463.66	590.66	73.60	84.58	100.44	127.03
C	Alameda (SF)	Annual	2021	340.84	393.69	463.67	590.99	73.67	84.75	100.53	127.21
C	Alameda (SF)	Annual	2022	340.88	393.91	463.66	591.27	73.73	84.89	100.62	127.35
C	Alameda (SF)	Annual	2023	340.88	394.08	463.65	591.48	73.77	85.02	100.68	127.52
C	Alameda (SF)	Annual	2024	340.86	394.22	463.64	591.66	73.79	85.14	100.74	127.68
C	Alameda (SF)	Annual	2025	340.85	394.35	463.64	591.84	73.81	85.24	100.79	127.84
C	Alameda (SF)	Annual	2026	340.87	394.50	463.62	592.03	73.83	85.34	100.83	127.99
C	Alameda (SF)	Annual	2027	340.88	394.65	463.61	592.20	73.85	85.44	100.86	128.12
C	Alameda (SF)	Annual	2028	340.88	394.80	463.59	592.38	73.86	85.52	100.89	128.25
C	Alameda (SF)	Annual	2029	340.88	394.96	463.57	592.55	73.87	85.61	100.90	128.36
C	Alameda (SF)	Annual	2030	340.87	395.12	463.56	592.72	73.87	85.69	100.92	128.47
C	Alameda (SF)	Annual	2031	340.87	395.28	463.55	592.91	73.88	85.76	100.93	128.58
C	Alameda (SF)	Annual	2032	340.87	395.44	463.54	593.10	73.88	85.84	100.94	128.68
C	Alameda (SF)	Annual	2033	340.86	395.58	463.53	593.27	73.89	85.90	100.95	128.77
C	Alameda (SF)	Annual	2034	340.86	395.71	463.52	593.42	73.89	85.97	100.95	128.86
C	Alameda (SF)	Annual	2035	340.85	395.82	463.51	593.56	73.89	86.02	100.96	128.94
C	Alameda (SF)	Summer	2010	366.44	417.66	500.31	630.82	72.90	84.16	99.41	124.70
C	Alameda (SF)	Summer	2011	366.76	418.54	500.25	631.22	72.95	84.06	99.50	124.89
C	Alameda (SF)	Summer	2012	367.07	419.37	500.24	631.77	73.01	84.04	99.62	125.11
C	Alameda (SF)	Summer	2013	367.38	420.09	500.26	632.43	73.09	84.03	99.75	125.34
C	Alameda (SF)	Summer	2014	367.65	420.75	500.31	633.13	73.16	84.04	99.85	125.58
C	Alameda (SF)	Summer	2015	367.91	421.35	500.37	633.90	73.24	84.08	99.96	125.84
C	Alameda (SF)	Summer	2016	368.14	421.93	500.44	634.66	73.33	84.14	100.07	126.09
C	Alameda (SF)	Summer	2017	368.30	422.46	500.49	635.39	73.39	84.20	100.16	126.35
C	Alameda (SF)	Summer	2018	368.43	422.93	500.51	636.01	73.43	84.28	100.25	126.59
C	Alameda (SF)	Summer	2019	368.55	423.36	500.53	636.55	73.49	84.42	100.34	126.81
C	Alameda (SF)	Summer	2020	368.65	423.76	500.53	637.05	73.60	84.58	100.44	127.03
C	Alameda (SF)	Summer	2021	368.73	424.11	500.53	637.46	73.67	84.75	100.53	127.21
C	Alameda (SF)	Summer	2022	368.76	424.41	500.53	637.82	73.73	84.89	100.62	127.35
C	Alameda (SF)	Summer	2023	368.76	424.66	500.51	638.09	73.77	85.02	100.68	127.52
C	Alameda (SF)	Summer	2024	368.74	424.87	500.49	638.33	73.79	85.14	100.74	127.68
C	Alameda (SF)	Summer	2025	368.73	425.06	500.48	638.54	73.81	85.24	100.79	127.84

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/MT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Alameda (SF)	Summer	2026	368.75	425.27	500.46	638.75	73.83	85.34	100.83	127.99
C	Alameda (SF)	Summer	2027	368.77	425.48	500.44	638.94	73.85	85.44	100.86	128.12
C	Alameda (SF)	Summer	2028	368.78	425.70	500.42	639.12	73.86	85.52	100.89	128.25
C	Alameda (SF)	Summer	2029	368.78	425.92	500.39	639.31	73.87	85.61	100.90	128.36
C	Alameda (SF)	Summer	2030	368.78	426.15	500.38	639.50	73.87	85.69	100.92	128.47
C	Alameda (SF)	Summer	2031	368.79	426.39	500.37	639.69	73.88	85.76	100.93	128.58
C	Alameda (SF)	Summer	2032	368.79	426.60	500.36	639.89	73.88	85.84	100.94	128.68
C	Alameda (SF)	Summer	2033	368.80	426.78	500.35	640.08	73.89	85.90	100.95	128.77
C	Alameda (SF)	Summer	2034	368.80	426.95	500.35	640.26	73.89	85.97	100.95	128.86
C	Alameda (SF)	Summer	2035	368.79	427.08	500.34	640.42	73.89	86.02	100.96	128.94
C	Alameda (SF)	Winter	2010	336.52	386.75	460.43	580.64	72.90	84.16	99.41	124.70
C	Alameda (SF)	Winter	2011	336.63	387.17	460.31	581.17	72.95	84.06	99.50	124.89
C	Alameda (SF)	Winter	2012	336.78	387.61	460.22	581.74	73.01	84.04	99.62	125.11
C	Alameda (SF)	Winter	2013	336.96	388.01	460.15	582.35	73.09	84.03	99.75	125.34
C	Alameda (SF)	Winter	2014	337.14	388.40	460.09	582.96	73.16	84.04	99.85	125.58
C	Alameda (SF)	Winter	2015	337.33	388.78	460.05	583.58	73.24	84.08	99.96	125.84
C	Alameda (SF)	Winter	2016	337.51	389.15	460.02	584.16	73.33	84.14	100.07	126.09
C	Alameda (SF)	Winter	2017	337.65	389.50	459.99	584.72	73.39	84.20	100.16	126.35
C	Alameda (SF)	Winter	2018	337.76	389.80	459.98	585.20	73.43	84.28	100.25	126.59
C	Alameda (SF)	Winter	2019	337.87	390.11	459.98	585.63	73.49	84.42	100.34	126.81
C	Alameda (SF)	Winter	2020	337.98	390.40	459.98	586.02	73.60	84.58	100.44	127.03
C	Alameda (SF)	Winter	2021	338.06	390.65	459.98	586.34	73.67	84.75	100.53	127.21
C	Alameda (SF)	Winter	2022	338.09	390.86	459.98	586.61	73.73	84.89	100.62	127.35
C	Alameda (SF)	Winter	2023	338.09	391.02	459.97	586.82	73.77	85.02	100.68	127.52
C	Alameda (SF)	Winter	2024	338.07	391.15	459.96	586.99	73.79	85.14	100.74	127.68
C	Alameda (SF)	Winter	2025	338.07	391.28	459.95	587.17	73.81	85.24	100.79	127.84
C	Alameda (SF)	Winter	2026	338.08	391.42	459.94	587.36	73.83	85.34	100.83	127.99
C	Alameda (SF)	Winter	2027	338.09	391.57	459.93	587.53	73.85	85.44	100.86	128.12
C	Alameda (SF)	Winter	2028	338.10	391.72	459.91	587.71	73.86	85.52	100.89	128.25
C	Alameda (SF)	Winter	2029	338.09	391.87	459.89	587.88	73.87	85.61	100.90	128.36
C	Alameda (SF)	Winter	2030	338.08	392.02	459.87	588.05	73.87	85.69	100.92	128.47
C	Alameda (SF)	Winter	2031	338.08	392.17	459.87	588.23	73.88	85.76	100.93	128.58
C	Alameda (SF)	Winter	2032	338.07	392.33	459.86	588.42	73.88	85.84	100.94	128.68
C	Alameda (SF)	Winter	2033	338.07	392.47	459.85	588.59	73.89	85.90	100.95	128.77
C	Alameda (SF)	Winter	2034	338.07	392.59	459.84	588.74	73.89	85.97	100.95	128.86
C	Alameda (SF)	Winter	2035	338.06	392.70	459.83	588.87	73.89	86.02	100.96	128.94
C	Alpine (GBV)	Annual	2010	319.94	373.91	436.04	546.24	77.24	91.37	100.57	125.68
C	Alpine (GBV)	Annual	2011	319.54	373.51	435.72	546.98	76.26	90.65	100.32	125.51
C	Alpine (GBV)	Annual	2012	319.25	372.89	435.50	547.57	75.15	89.58	100.40	125.56
C	Alpine (GBV)	Annual	2013	319.18	372.57	435.22	548.28	74.57	89.04	99.96	125.68
C	Alpine (GBV)	Annual	2014	319.32	372.32	435.07	548.95	74.52	88.58	100.09	125.82
C	Alpine (GBV)	Annual	2015	319.45	372.11	434.95	549.66	74.47	88.18	100.23	126.00
C	Alpine (GBV)	Annual	2016	319.56	371.52	434.86	550.33	74.44	87.12	100.36	126.21
C	Alpine (GBV)	Annual	2017	319.49	371.33	434.79	550.99	73.94	86.73	100.49	126.44
C	Alpine (GBV)	Annual	2018	319.46	370.85	434.73	551.66	73.66	85.86	100.61	126.58
C	Alpine (GBV)	Annual	2019	319.51	370.58	434.66	552.11	73.60	85.37	100.54	126.79
C	Alpine (GBV)	Annual	2020	319.52	370.53	434.63	552.59	73.65	85.36	100.64	126.94
C	Alpine (GBV)	Annual	2021	319.35	370.39	434.54	552.76	73.53	85.37	100.70	126.88
C	Alpine (GBV)	Annual	2022	319.41	370.29	434.41	553.01	73.61	85.39	100.71	126.98
C	Alpine (GBV)	Annual	2023	319.45	370.13	434.39	553.18	73.67	85.39	100.78	127.17
C	Alpine (GBV)	Annual	2024	319.20	370.08	434.37	553.31	73.50	85.44	100.83	127.34
C	Alpine (GBV)	Annual	2025	319.16	370.11	434.34	553.52	73.49	85.51	100.88	127.53
C	Alpine (GBV)	Annual	2026	319.16	370.24	434.32	553.65	73.52	85.61	100.91	127.67
C	Alpine (GBV)	Annual	2027	319.16	370.37	434.30	553.84	73.53	85.71	100.94	127.83

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Alpine (GBV)	Annual	2028	319.14	370.50	434.23	554.01	73.53	85.80	100.95	127.98
C	Alpine (GBV)	Annual	2029	319.14	370.62	434.21	554.25	73.54	85.89	100.97	128.13
C	Alpine (GBV)	Annual	2030	319.14	370.74	434.16	554.47	73.55	85.96	100.97	128.27
C	Alpine (GBV)	Annual	2031	319.13	370.85	434.14	554.72	73.56	86.04	100.98	128.41
C	Alpine (GBV)	Annual	2032	319.13	370.96	434.12	554.98	73.56	86.10	100.99	128.55
C	Alpine (GBV)	Annual	2033	319.13	371.06	434.10	555.21	73.57	86.17	100.99	128.68
C	Alpine (GBV)	Annual	2034	319.13	371.14	434.09	555.41	73.57	86.23	101.00	128.80
C	Alpine (GBV)	Annual	2035	319.12	371.21	434.06	555.61	73.58	86.27	101.00	128.90
C	Alpine (GBV)	Summer	2010	322.05	375.88	438.84	549.63	77.24	91.37	100.57	125.68
C	Alpine (GBV)	Summer	2011	321.67	375.54	438.54	550.39	76.26	90.65	100.32	125.51
C	Alpine (GBV)	Summer	2012	321.42	374.98	438.32	550.99	75.15	89.58	100.40	125.56
C	Alpine (GBV)	Summer	2013	321.36	374.72	438.06	551.73	74.57	89.04	99.96	125.68
C	Alpine (GBV)	Summer	2014	321.50	374.50	437.93	552.42	74.52	88.58	100.09	125.82
C	Alpine (GBV)	Summer	2015	321.64	374.32	437.81	553.16	74.47	88.18	100.23	126.00
C	Alpine (GBV)	Summer	2016	321.76	373.78	437.73	553.86	74.44	87.12	100.36	126.21
C	Alpine (GBV)	Summer	2017	321.69	373.61	437.66	554.54	73.94	86.73	100.49	126.44
C	Alpine (GBV)	Summer	2018	321.65	373.16	437.61	555.23	73.66	85.86	100.61	126.58
C	Alpine (GBV)	Summer	2019	321.70	372.92	437.55	555.70	73.60	85.37	100.54	126.79
C	Alpine (GBV)	Summer	2020	321.71	372.88	437.52	556.20	73.65	85.36	100.64	126.94
C	Alpine (GBV)	Summer	2021	321.54	372.76	437.44	556.38	73.53	85.37	100.70	126.88
C	Alpine (GBV)	Summer	2022	321.60	372.67	437.31	556.63	73.61	85.39	100.71	126.98
C	Alpine (GBV)	Summer	2023	321.64	372.52	437.29	556.81	73.67	85.39	100.78	127.17
C	Alpine (GBV)	Summer	2024	321.39	372.48	437.27	556.95	73.50	85.44	100.83	127.34
C	Alpine (GBV)	Summer	2025	321.35	372.52	437.24	557.16	73.49	85.51	100.88	127.53
C	Alpine (GBV)	Summer	2026	321.36	372.65	437.22	557.29	73.52	85.61	100.91	127.67
C	Alpine (GBV)	Summer	2027	321.36	372.79	437.20	557.48	73.53	85.71	100.94	127.83
C	Alpine (GBV)	Summer	2028	321.34	372.93	437.12	557.66	73.53	85.80	100.95	127.98
C	Alpine (GBV)	Summer	2029	321.34	373.07	437.11	557.90	73.54	85.89	100.97	128.13
C	Alpine (GBV)	Summer	2030	321.34	373.19	437.06	558.13	73.55	85.96	100.97	128.27
C	Alpine (GBV)	Summer	2031	321.34	373.31	437.04	558.38	73.56	86.04	100.98	128.41
C	Alpine (GBV)	Summer	2032	321.33	373.42	437.02	558.64	73.56	86.10	100.99	128.55
C	Alpine (GBV)	Summer	2033	321.33	373.52	437.00	558.87	73.57	86.17	100.99	128.68
C	Alpine (GBV)	Summer	2034	321.33	373.61	436.99	559.09	73.57	86.23	101.00	128.80
C	Alpine (GBV)	Summer	2035	321.32	373.68	436.96	559.29	73.58	86.27	101.00	128.90
C	Alpine (GBV)	Winter	2010	321.45	375.32	438.05	548.67	77.24	91.37	100.57	125.68
C	Alpine (GBV)	Winter	2011	321.07	374.96	437.74	549.42	76.26	90.65	100.32	125.51
C	Alpine (GBV)	Winter	2012	320.80	374.39	437.52	550.02	75.15	89.58	100.40	125.56
C	Alpine (GBV)	Winter	2013	320.74	374.11	437.26	550.75	74.57	89.04	99.96	125.68
C	Alpine (GBV)	Winter	2014	320.88	373.88	437.12	551.43	74.52	88.58	100.09	125.82
C	Alpine (GBV)	Winter	2015	321.02	373.69	437.00	552.16	74.47	88.18	100.23	126.00
C	Alpine (GBV)	Winter	2016	321.14	373.14	436.91	552.86	74.44	87.12	100.36	126.21
C	Alpine (GBV)	Winter	2017	321.06	372.96	436.85	553.53	73.94	86.73	100.49	126.44
C	Alpine (GBV)	Winter	2018	321.03	372.51	436.79	554.22	73.66	85.86	100.61	126.58
C	Alpine (GBV)	Winter	2019	321.08	372.25	436.73	554.68	73.60	85.37	100.54	126.79
C	Alpine (GBV)	Winter	2020	321.09	372.21	436.70	555.17	73.65	85.36	100.64	126.94
C	Alpine (GBV)	Winter	2021	320.92	372.08	436.62	555.35	73.53	85.37	100.70	126.88
C	Alpine (GBV)	Winter	2022	320.98	371.99	436.49	555.60	73.61	85.39	100.71	126.98
C	Alpine (GBV)	Winter	2023	321.02	371.84	436.47	555.78	73.67	85.39	100.78	127.17
C	Alpine (GBV)	Winter	2024	320.77	371.80	436.44	555.92	73.50	85.44	100.83	127.34
C	Alpine (GBV)	Winter	2025	320.73	371.84	436.42	556.12	73.49	85.51	100.88	127.53
C	Alpine (GBV)	Winter	2026	320.74	371.97	436.40	556.26	73.52	85.61	100.91	127.67
C	Alpine (GBV)	Winter	2027	320.74	372.11	436.38	556.45	73.53	85.71	100.94	127.83
C	Alpine (GBV)	Winter	2028	320.71	372.24	436.30	556.62	73.53	85.80	100.95	127.98
C	Alpine (GBV)	Winter	2029	320.71	372.37	436.29	556.87	73.54	85.89	100.97	128.13

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Alpine (GBV)	Winter	2030	320.71	372.49	436.23	557.09	73.55	85.96	100.97	128.27
C	Alpine (GBV)	Winter	2031	320.71	372.61	436.21	557.34	73.56	86.04	100.98	128.41
C	Alpine (GBV)	Winter	2032	320.71	372.72	436.20	557.60	73.56	86.10	100.99	128.55
C	Alpine (GBV)	Winter	2033	320.71	372.82	436.18	557.83	73.57	86.17	100.99	128.68
C	Alpine (GBV)	Winter	2034	320.70	372.91	436.17	558.05	73.57	86.23	101.00	128.80
C	Alpine (GBV)	Winter	2035	320.70	372.98	436.14	558.25	73.58	86.27	101.00	128.90
C	Amador (MC)	Annual	2010	304.65	351.36	416.56	520.77	74.42	88.71	101.28	124.30
C	Amador (MC)	Annual	2011	304.66	351.60	416.18	521.37	74.22	87.90	101.12	124.48
C	Amador (MC)	Annual	2012	304.71	351.83	415.89	522.08	74.04	87.30	101.03	124.70
C	Amador (MC)	Annual	2013	304.79	351.99	415.66	522.86	73.92	86.76	100.95	124.94
C	Amador (MC)	Annual	2014	304.86	352.15	415.48	523.60	73.78	86.37	100.90	125.21
C	Amador (MC)	Annual	2015	304.98	352.29	415.35	524.39	73.76	85.97	100.78	125.49
C	Amador (MC)	Annual	2016	305.08	352.44	415.24	525.15	73.74	85.71	100.76	125.78
C	Amador (MC)	Annual	2017	305.13	352.54	415.14	525.85	73.67	85.39	100.65	126.08
C	Amador (MC)	Annual	2018	305.17	352.64	415.05	526.46	73.63	85.21	100.62	126.36
C	Amador (MC)	Annual	2019	305.20	352.73	414.99	526.98	73.61	85.07	100.64	126.62
C	Amador (MC)	Annual	2020	305.25	352.84	414.93	527.43	73.70	85.10	100.70	126.87
C	Amador (MC)	Annual	2021	305.27	352.92	414.87	527.78	73.76	85.17	100.76	127.07
C	Amador (MC)	Annual	2022	305.25	352.98	414.81	528.07	73.79	85.24	100.80	127.21
C	Amador (MC)	Annual	2023	305.17	353.01	414.75	528.29	73.79	85.29	100.83	127.40
C	Amador (MC)	Annual	2024	305.08	353.05	414.70	528.47	73.77	85.35	100.86	127.58
C	Amador (MC)	Annual	2025	305.03	353.13	414.66	528.63	73.78	85.43	100.90	127.75
C	Amador (MC)	Annual	2026	305.04	353.24	414.62	528.79	73.80	85.53	100.92	127.91
C	Amador (MC)	Annual	2027	305.05	353.36	414.57	528.95	73.81	85.62	100.94	128.05
C	Amador (MC)	Annual	2028	305.05	353.48	414.54	529.12	73.82	85.70	100.96	128.19
C	Amador (MC)	Annual	2029	305.04	353.60	414.51	529.29	73.83	85.78	100.96	128.32
C	Amador (MC)	Annual	2030	305.03	353.72	414.47	529.46	73.83	85.85	100.96	128.44
C	Amador (MC)	Annual	2031	305.02	353.84	414.44	529.67	73.83	85.93	100.97	128.56
C	Amador (MC)	Annual	2032	305.02	353.95	414.42	529.88	73.84	85.99	100.97	128.68
C	Amador (MC)	Annual	2033	305.01	354.05	414.40	530.07	73.84	86.06	100.98	128.78
C	Amador (MC)	Annual	2034	305.01	354.14	414.39	530.24	73.85	86.11	100.98	128.88
C	Amador (MC)	Annual	2035	305.01	354.21	414.37	530.39	73.85	86.16	100.98	128.97
C	Amador (MC)	Summer	2010	335.39	381.81	456.97	570.78	74.42	88.71	101.28	124.30
C	Amador (MC)	Summer	2011	335.69	383.05	456.90	571.49	74.22	87.90	101.12	124.48
C	Amador (MC)	Summer	2012	335.97	384.03	456.85	572.39	74.04	87.30	101.03	124.70
C	Amador (MC)	Summer	2013	336.23	384.81	456.85	573.45	73.92	86.76	100.95	124.94
C	Amador (MC)	Summer	2014	336.43	385.43	456.87	574.47	73.78	86.37	100.90	125.21
C	Amador (MC)	Summer	2015	336.65	385.97	456.94	575.58	73.76	85.97	100.78	125.49
C	Amador (MC)	Summer	2016	336.82	386.42	456.98	576.67	73.74	85.71	100.76	125.78
C	Amador (MC)	Summer	2017	336.90	386.79	457.00	577.65	73.67	85.39	100.65	126.08
C	Amador (MC)	Summer	2018	336.95	387.08	456.98	578.50	73.63	85.21	100.62	126.36
C	Amador (MC)	Summer	2019	336.99	387.35	456.95	579.23	73.61	85.07	100.64	126.62
C	Amador (MC)	Summer	2020	337.02	387.58	456.90	579.85	73.70	85.10	100.70	126.87
C	Amador (MC)	Summer	2021	337.03	387.78	456.85	580.34	73.76	85.17	100.76	127.07
C	Amador (MC)	Summer	2022	337.01	387.96	456.79	580.75	73.79	85.24	100.80	127.21
C	Amador (MC)	Summer	2023	336.93	388.10	456.74	581.05	73.79	85.29	100.83	127.40
C	Amador (MC)	Summer	2024	336.85	388.24	456.69	581.30	73.77	85.35	100.86	127.58
C	Amador (MC)	Summer	2025	336.80	388.38	456.65	581.51	73.78	85.43	100.90	127.75
C	Amador (MC)	Summer	2026	336.83	388.54	456.62	581.67	73.80	85.53	100.92	127.91
C	Amador (MC)	Summer	2027	336.85	388.70	456.59	581.84	73.81	85.62	100.94	128.05
C	Amador (MC)	Summer	2028	336.86	388.88	456.57	582.04	73.82	85.70	100.96	128.19
C	Amador (MC)	Summer	2029	336.87	389.06	456.55	582.24	73.83	85.78	100.96	128.32
C	Amador (MC)	Summer	2030	336.87	389.25	456.52	582.44	73.83	85.85	100.96	128.44
C	Amador (MC)	Summer	2031	336.87	389.46	456.50	582.71	73.83	85.93	100.97	128.56

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Amador (MC)	Summer	2032	336.87	389.62	456.48	582.98	73.84	85.99	100.97	128.68
C	Amador (MC)	Summer	2033	336.86	389.77	456.47	583.23	73.84	86.06	100.98	128.78
C	Amador (MC)	Summer	2034	336.85	389.90	456.45	583.45	73.85	86.11	100.98	128.88
C	Amador (MC)	Summer	2035	336.85	389.98	456.44	583.66	73.85	86.16	100.98	128.97
C	Amador (MC)	Winter	2010	295.29	342.08	404.24	505.53	74.42	88.71	101.28	124.30
C	Amador (MC)	Winter	2011	295.21	342.02	403.78	506.10	74.22	87.90	101.12	124.48
C	Amador (MC)	Winter	2012	295.18	342.01	403.41	506.75	74.04	87.30	101.03	124.70
C	Amador (MC)	Winter	2013	295.22	341.99	403.11	507.45	73.92	86.76	100.95	124.94
C	Amador (MC)	Winter	2014	295.24	342.01	402.87	508.11	73.78	86.37	100.90	125.21
C	Amador (MC)	Winter	2015	295.33	342.02	402.67	508.79	73.76	85.97	100.78	125.49
C	Amador (MC)	Winter	2016	295.41	342.08	402.52	509.45	73.74	85.71	100.76	125.78
C	Amador (MC)	Winter	2017	295.45	342.10	402.38	510.06	73.67	85.39	100.65	126.08
C	Amador (MC)	Winter	2018	295.49	342.14	402.28	510.60	73.63	85.21	100.62	126.36
C	Amador (MC)	Winter	2019	295.52	342.18	402.21	511.06	73.61	85.07	100.64	126.62
C	Amador (MC)	Winter	2020	295.57	342.25	402.15	511.46	73.70	85.10	100.70	126.87
C	Amador (MC)	Winter	2021	295.59	342.29	402.08	511.77	73.76	85.17	100.76	127.07
C	Amador (MC)	Winter	2022	295.58	342.32	402.02	512.02	73.79	85.24	100.80	127.21
C	Amador (MC)	Winter	2023	295.49	342.32	401.95	512.21	73.79	85.29	100.83	127.40
C	Amador (MC)	Winter	2024	295.40	342.33	401.90	512.37	73.77	85.35	100.86	127.58
C	Amador (MC)	Winter	2025	295.35	342.39	401.87	512.52	73.78	85.43	100.90	127.75
C	Amador (MC)	Winter	2026	295.36	342.49	401.82	512.68	73.80	85.53	100.92	127.91
C	Amador (MC)	Winter	2027	295.36	342.59	401.77	512.84	73.81	85.62	100.94	128.05
C	Amador (MC)	Winter	2028	295.35	342.69	401.74	513.00	73.82	85.70	100.96	128.19
C	Amador (MC)	Winter	2029	295.34	342.79	401.70	513.16	73.83	85.78	100.96	128.32
C	Amador (MC)	Winter	2030	295.32	342.89	401.65	513.32	73.83	85.85	100.96	128.44
C	Amador (MC)	Winter	2031	295.32	342.99	401.63	513.51	73.83	85.93	100.97	128.56
C	Amador (MC)	Winter	2032	295.32	343.09	401.61	513.70	73.84	85.99	100.97	128.68
C	Amador (MC)	Winter	2033	295.31	343.17	401.59	513.88	73.84	86.06	100.98	128.78
C	Amador (MC)	Winter	2034	295.31	343.24	401.57	514.03	73.85	86.11	100.98	128.88
C	Amador (MC)	Winter	2035	295.30	343.31	401.56	514.17	73.85	86.16	100.98	128.97
C	Butte (SV)	Annual	2010	339.87	396.33	466.79	582.59	73.74	93.40	101.05	125.37
C	Butte (SV)	Annual	2011	340.16	396.11	466.41	583.82	73.64	91.64	100.92	125.50
C	Butte (SV)	Annual	2012	340.27	395.85	465.90	584.74	73.58	90.38	100.87	125.67
C	Butte (SV)	Annual	2013	340.39	395.57	465.50	585.71	73.53	89.20	100.81	125.88
C	Butte (SV)	Annual	2014	340.47	395.32	465.20	586.62	73.46	88.16	100.77	126.08
C	Butte (SV)	Annual	2015	340.60	395.14	464.96	587.52	73.45	87.30	100.75	126.32
C	Butte (SV)	Annual	2016	342.35	396.92	466.99	591.13	73.49	86.64	100.74	126.57
C	Butte (SV)	Annual	2017	342.42	396.78	466.81	591.87	73.48	85.98	100.71	126.82
C	Butte (SV)	Annual	2018	342.44	396.68	466.66	592.50	73.44	85.49	100.70	127.05
C	Butte (SV)	Annual	2019	342.48	396.71	466.54	593.04	73.45	85.31	100.70	127.27
C	Butte (SV)	Annual	2020	342.53	396.78	466.44	593.51	73.54	85.30	100.76	127.47
C	Butte (SV)	Annual	2021	343.10	397.55	467.11	594.81	73.60	85.41	100.82	127.57
C	Butte (SV)	Annual	2022	343.10	397.67	467.03	595.07	73.64	85.50	100.87	127.65
C	Butte (SV)	Annual	2023	343.08	397.75	466.95	595.27	73.67	85.58	100.90	127.82
C	Butte (SV)	Annual	2024	343.02	397.84	466.88	595.42	73.68	85.66	100.93	127.97
C	Butte (SV)	Annual	2025	343.01	397.92	466.82	595.60	73.70	85.73	100.96	128.12
C	Butte (SV)	Annual	2026	343.02	398.03	466.75	595.77	73.72	85.80	100.97	128.26
C	Butte (SV)	Annual	2027	343.02	398.12	466.69	595.94	73.73	85.86	100.98	128.39
C	Butte (SV)	Annual	2028	343.02	398.22	466.63	596.11	73.74	85.92	100.99	128.51
C	Butte (SV)	Annual	2029	343.02	398.31	466.55	596.28	73.74	85.97	100.99	128.62
C	Butte (SV)	Annual	2030	343.01	398.40	466.48	596.45	73.75	86.02	100.98	128.72
C	Butte (SV)	Annual	2031	343.01	398.49	466.45	596.62	73.75	86.07	100.98	128.82
C	Butte (SV)	Annual	2032	343.01	398.57	466.42	596.79	73.76	86.12	100.99	128.91
C	Butte (SV)	Annual	2033	343.00	398.64	466.40	596.95	73.76	86.15	100.99	128.99

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Butte (SV)	Annual	2034	343.00	398.69	466.38	597.09	73.76	86.19	100.99	129.06
C	Butte (SV)	Annual	2035	342.99	398.74	466.36	597.22	73.77	86.22	100.99	129.13
C	Butte (SV)	Summer	2010	378.25	435.25	516.75	645.70	73.74	93.40	101.05	125.37
C	Butte (SV)	Summer	2011	379.01	436.21	517.19	647.27	73.64	91.64	100.92	125.50
C	Butte (SV)	Summer	2012	379.48	436.79	517.26	648.57	73.58	90.38	100.87	125.67
C	Butte (SV)	Summer	2013	379.86	437.26	517.34	649.98	73.53	89.20	100.81	125.88
C	Butte (SV)	Summer	2014	380.14	437.60	517.39	651.33	73.46	88.16	100.77	126.08
C	Butte (SV)	Summer	2015	380.40	437.90	517.40	652.65	73.45	87.30	100.75	126.32
C	Butte (SV)	Summer	2016	382.44	440.27	519.84	656.95	73.49	86.64	100.74	126.57
C	Butte (SV)	Summer	2017	382.54	440.50	519.76	658.01	73.48	85.98	100.71	126.82
C	Butte (SV)	Summer	2018	382.56	440.67	519.63	658.88	73.44	85.49	100.70	127.05
C	Butte (SV)	Summer	2019	382.59	440.87	519.51	659.62	73.45	85.31	100.70	127.27
C	Butte (SV)	Summer	2020	382.63	441.06	519.39	660.26	73.54	85.30	100.76	127.47
C	Butte (SV)	Summer	2021	383.24	442.01	520.14	661.82	73.60	85.41	100.82	127.57
C	Butte (SV)	Summer	2022	383.23	442.21	520.05	662.21	73.64	85.50	100.87	127.65
C	Butte (SV)	Summer	2023	383.21	442.39	519.98	662.50	73.67	85.58	100.90	127.82
C	Butte (SV)	Summer	2024	383.15	442.57	519.92	662.70	73.68	85.66	100.93	127.97
C	Butte (SV)	Summer	2025	383.13	442.73	519.88	662.89	73.70	85.73	100.96	128.12
C	Butte (SV)	Summer	2026	383.15	442.89	519.81	663.05	73.72	85.80	100.97	128.26
C	Butte (SV)	Summer	2027	383.17	443.04	519.76	663.21	73.73	85.86	100.98	128.39
C	Butte (SV)	Summer	2028	383.19	443.19	519.72	663.40	73.74	85.92	100.99	128.51
C	Butte (SV)	Summer	2029	383.21	443.35	519.67	663.59	73.74	85.97	100.99	128.62
C	Butte (SV)	Summer	2030	383.22	443.50	519.63	663.79	73.75	86.02	100.98	128.72
C	Butte (SV)	Summer	2031	383.22	443.64	519.62	663.97	73.75	86.07	100.98	128.82
C	Butte (SV)	Summer	2032	383.22	443.74	519.61	664.16	73.76	86.12	100.99	128.91
C	Butte (SV)	Summer	2033	383.22	443.83	519.60	664.35	73.76	86.15	100.99	128.99
C	Butte (SV)	Summer	2034	383.22	443.91	519.59	664.54	73.76	86.19	100.99	129.06
C	Butte (SV)	Summer	2035	383.21	443.96	519.58	664.71	73.77	86.22	100.99	129.13
C	Butte (SV)	Winter	2010	328.68	384.98	452.21	564.18	73.74	93.40	101.05	125.37
C	Butte (SV)	Winter	2011	328.82	384.41	451.61	565.32	73.64	91.64	100.92	125.50
C	Butte (SV)	Winter	2012	328.84	383.90	450.92	566.13	73.58	90.38	100.87	125.67
C	Butte (SV)	Winter	2013	328.87	383.41	450.39	566.96	73.53	89.20	100.81	125.88
C	Butte (SV)	Winter	2014	328.90	382.99	449.98	567.75	73.46	88.16	100.77	126.08
C	Butte (SV)	Winter	2015	328.99	382.67	449.66	568.52	73.45	87.30	100.75	126.32
C	Butte (SV)	Winter	2016	330.67	384.27	451.57	571.94	73.49	86.64	100.74	126.57
C	Butte (SV)	Winter	2017	330.72	384.03	451.37	572.58	73.48	85.98	100.71	126.82
C	Butte (SV)	Winter	2018	330.74	383.86	451.21	573.14	73.44	85.49	100.70	127.05
C	Butte (SV)	Winter	2019	330.78	383.84	451.09	573.62	73.45	85.31	100.70	127.27
C	Butte (SV)	Winter	2020	330.84	383.86	450.99	574.04	73.54	85.30	100.76	127.47
C	Butte (SV)	Winter	2021	331.40	384.59	451.65	575.26	73.60	85.41	100.82	127.57
C	Butte (SV)	Winter	2022	331.39	384.68	451.56	575.49	73.64	85.50	100.87	127.65
C	Butte (SV)	Winter	2023	331.38	384.73	451.48	575.67	73.67	85.58	100.90	127.82
C	Butte (SV)	Winter	2024	331.32	384.80	451.41	575.80	73.68	85.66	100.93	127.97
C	Butte (SV)	Winter	2025	331.30	384.86	451.35	575.97	73.70	85.73	100.96	128.12
C	Butte (SV)	Winter	2026	331.31	384.94	451.28	576.14	73.72	85.80	100.97	128.26
C	Butte (SV)	Winter	2027	331.31	385.02	451.21	576.32	73.73	85.86	100.98	128.39
C	Butte (SV)	Winter	2028	331.31	385.10	451.14	576.48	73.74	85.92	100.99	128.51
C	Butte (SV)	Winter	2029	331.30	385.18	451.06	576.65	73.74	85.97	100.99	128.62
C	Butte (SV)	Winter	2030	331.28	385.25	450.98	576.81	73.75	86.02	100.98	128.72
C	Butte (SV)	Winter	2031	331.28	385.33	450.94	576.98	73.75	86.07	100.98	128.82
C	Butte (SV)	Winter	2032	331.28	385.40	450.91	577.14	73.76	86.12	100.99	128.91
C	Butte (SV)	Winter	2033	331.27	385.45	450.88	577.29	73.76	86.15	100.99	128.99
C	Butte (SV)	Winter	2034	331.27	385.51	450.86	577.42	73.76	86.19	100.99	129.06
C	Butte (SV)	Winter	2035	331.26	385.55	450.84	577.54	73.77	86.22	100.99	129.13

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Calaveras (MC)	Annual	2010	339.15	393.21	464.59	580.79	74.52	89.63	101.49	124.52
C	Calaveras (MC)	Annual	2011	339.17	393.31	464.13	581.44	74.31	88.76	101.30	124.68
C	Calaveras (MC)	Annual	2012	339.22	393.39	463.78	582.21	74.10	88.01	101.21	124.87
C	Calaveras (MC)	Annual	2013	339.30	393.43	463.49	583.06	73.93	87.36	101.13	125.10
C	Calaveras (MC)	Annual	2014	339.36	393.46	463.27	583.88	73.74	86.82	101.00	125.34
C	Calaveras (MC)	Annual	2015	339.48	393.52	463.10	584.75	73.70	86.38	100.93	125.59
C	Calaveras (MC)	Annual	2016	339.59	393.59	462.96	585.57	73.69	86.07	100.88	125.88
C	Calaveras (MC)	Annual	2017	339.64	393.63	462.83	586.35	73.61	85.70	100.81	126.15
C	Calaveras (MC)	Annual	2018	339.66	393.65	462.73	587.01	73.51	85.38	100.75	126.42
C	Calaveras (MC)	Annual	2019	339.69	393.73	462.65	587.57	73.48	85.28	100.71	126.69
C	Calaveras (MC)	Annual	2020	339.72	393.81	462.58	588.07	73.55	85.28	100.76	126.92
C	Calaveras (MC)	Annual	2021	339.70	393.86	462.51	588.43	73.59	85.33	100.81	127.08
C	Calaveras (MC)	Annual	2022	339.67	393.90	462.43	588.75	73.61	85.38	100.85	127.26
C	Calaveras (MC)	Annual	2023	339.61	393.93	462.36	588.97	73.61	85.43	100.87	127.44
C	Calaveras (MC)	Annual	2024	339.52	393.92	462.29	589.14	73.58	85.45	100.89	127.61
C	Calaveras (MC)	Annual	2025	339.50	393.98	462.24	589.30	73.59	85.52	100.92	127.77
C	Calaveras (MC)	Annual	2026	339.51	394.11	462.19	589.48	73.61	85.62	100.94	127.93
C	Calaveras (MC)	Annual	2027	339.51	394.23	462.13	589.67	73.62	85.70	100.96	128.08
C	Calaveras (MC)	Annual	2028	339.51	394.36	462.10	589.86	73.63	85.78	100.97	128.21
C	Calaveras (MC)	Annual	2029	339.50	394.48	462.05	590.05	73.64	85.86	100.97	128.34
C	Calaveras (MC)	Annual	2030	339.49	394.60	462.00	590.25	73.64	85.93	100.97	128.46
C	Calaveras (MC)	Annual	2031	339.49	394.71	461.98	590.48	73.65	86.00	100.98	128.58
C	Calaveras (MC)	Annual	2032	339.49	394.82	461.96	590.71	73.65	86.06	100.98	128.70
C	Calaveras (MC)	Annual	2033	339.49	394.90	461.94	590.91	73.65	86.12	100.98	128.81
C	Calaveras (MC)	Annual	2034	339.48	394.98	461.92	591.10	73.66	86.17	100.99	128.90
C	Calaveras (MC)	Annual	2035	339.48	395.05	461.91	591.26	73.66	86.21	100.99	128.99
C	Calaveras (MC)	Summer	2010	371.79	425.53	507.37	633.67	74.52	89.63	101.49	124.52
C	Calaveras (MC)	Summer	2011	372.10	426.67	507.24	634.43	74.31	88.76	101.30	124.68
C	Calaveras (MC)	Summer	2012	372.38	427.56	507.15	635.42	74.10	88.01	101.21	124.87
C	Calaveras (MC)	Summer	2013	372.63	428.25	507.10	636.56	73.93	87.36	101.13	125.10
C	Calaveras (MC)	Summer	2014	372.82	428.79	507.12	637.70	73.74	86.82	101.00	125.34
C	Calaveras (MC)	Summer	2015	373.03	429.26	507.15	638.94	73.70	86.38	100.93	125.59
C	Calaveras (MC)	Summer	2016	373.20	429.64	507.18	640.12	73.69	86.07	100.88	125.88
C	Calaveras (MC)	Summer	2017	373.29	429.96	507.18	641.21	73.61	85.70	100.81	126.15
C	Calaveras (MC)	Summer	2018	373.31	430.20	507.15	642.13	73.51	85.38	100.75	126.42
C	Calaveras (MC)	Summer	2019	373.34	430.44	507.12	642.91	73.48	85.28	100.71	126.69
C	Calaveras (MC)	Summer	2020	373.36	430.67	507.07	643.60	73.55	85.28	100.76	126.92
C	Calaveras (MC)	Summer	2021	373.33	430.84	507.00	644.13	73.59	85.33	100.81	127.08
C	Calaveras (MC)	Summer	2022	373.30	431.01	506.94	644.57	73.61	85.38	100.85	127.26
C	Calaveras (MC)	Summer	2023	373.24	431.15	506.88	644.89	73.61	85.43	100.87	127.44
C	Calaveras (MC)	Summer	2024	373.18	431.27	506.81	645.12	73.58	85.45	100.89	127.61
C	Calaveras (MC)	Summer	2025	373.16	431.40	506.76	645.32	73.59	85.52	100.92	127.77
C	Calaveras (MC)	Summer	2026	373.18	431.61	506.71	645.52	73.61	85.62	100.94	127.93
C	Calaveras (MC)	Summer	2027	373.19	431.81	506.66	645.72	73.62	85.70	100.96	128.08
C	Calaveras (MC)	Summer	2028	373.20	432.01	506.63	645.94	73.63	85.78	100.97	128.21
C	Calaveras (MC)	Summer	2029	373.21	432.20	506.60	646.17	73.64	85.86	100.97	128.34
C	Calaveras (MC)	Summer	2030	373.22	432.39	506.57	646.41	73.64	85.93	100.97	128.46
C	Calaveras (MC)	Summer	2031	373.22	432.56	506.56	646.71	73.65	86.00	100.98	128.58
C	Calaveras (MC)	Summer	2032	373.21	432.71	506.56	646.99	73.65	86.06	100.98	128.70
C	Calaveras (MC)	Summer	2033	373.21	432.83	506.55	647.26	73.65	86.12	100.98	128.81
C	Calaveras (MC)	Summer	2034	373.20	432.93	506.54	647.51	73.66	86.17	100.99	128.90
C	Calaveras (MC)	Summer	2035	373.19	433.00	506.53	647.73	73.66	86.21	100.99	128.99
C	Calaveras (MC)	Winter	2010	329.78	383.93	452.30	565.59	74.52	89.63	101.49	124.52
C	Calaveras (MC)	Winter	2011	329.72	383.73	451.75	566.21	74.31	88.76	101.30	124.68

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Calaveras (MC)	Winter	2012	329.69	383.57	451.31	566.92	74.10	88.01	101.21	124.87
C	Calaveras (MC)	Winter	2013	329.72	383.42	450.96	567.68	73.93	87.36	101.13	125.10
C	Calaveras (MC)	Winter	2014	329.75	383.31	450.67	568.42	73.74	86.82	101.00	125.34
C	Calaveras (MC)	Winter	2015	329.84	383.25	450.44	569.19	73.70	86.38	100.93	125.59
C	Calaveras (MC)	Winter	2016	329.93	383.24	450.25	569.90	73.69	86.07	100.88	125.88
C	Calaveras (MC)	Winter	2017	329.98	383.20	450.09	570.59	73.61	85.70	100.81	126.15
C	Calaveras (MC)	Winter	2018	329.99	383.15	449.97	571.17	73.51	85.38	100.75	126.42
C	Calaveras (MC)	Winter	2019	330.02	383.18	449.87	571.67	73.48	85.28	100.71	126.69
C	Calaveras (MC)	Winter	2020	330.05	383.22	449.80	572.12	73.55	85.28	100.76	126.92
C	Calaveras (MC)	Winter	2021	330.04	383.24	449.72	572.43	73.59	85.33	100.81	127.08
C	Calaveras (MC)	Winter	2022	330.01	383.24	449.64	572.72	73.61	85.38	100.85	127.26
C	Calaveras (MC)	Winter	2023	329.94	383.24	449.56	572.90	73.61	85.43	100.87	127.44
C	Calaveras (MC)	Winter	2024	329.85	383.19	449.49	573.05	73.58	85.45	100.89	127.61
C	Calaveras (MC)	Winter	2025	329.83	383.23	449.45	573.20	73.59	85.52	100.92	127.77
C	Calaveras (MC)	Winter	2026	329.84	383.34	449.40	573.38	73.61	85.62	100.94	127.93
C	Calaveras (MC)	Winter	2027	329.84	383.44	449.34	573.56	73.62	85.70	100.96	128.08
C	Calaveras (MC)	Winter	2028	329.83	383.54	449.30	573.75	73.63	85.78	100.97	128.21
C	Calaveras (MC)	Winter	2029	329.82	383.64	449.25	573.93	73.64	85.86	100.97	128.34
C	Calaveras (MC)	Winter	2030	329.81	383.74	449.19	574.11	73.64	85.93	100.97	128.46
C	Calaveras (MC)	Winter	2031	329.80	383.84	449.17	574.32	73.65	86.00	100.98	128.58
C	Calaveras (MC)	Winter	2032	329.80	383.93	449.14	574.54	73.65	86.06	100.98	128.70
C	Calaveras (MC)	Winter	2033	329.80	384.01	449.12	574.73	73.65	86.12	100.98	128.81
C	Calaveras (MC)	Winter	2034	329.80	384.08	449.11	574.89	73.66	86.17	100.99	128.90
C	Calaveras (MC)	Winter	2035	329.79	384.14	449.09	575.04	73.66	86.21	100.99	128.99
C	Colusa (SV)	Annual	2010	336.15	393.71	462.59	577.05	73.02	94.44	100.85	124.61
C	Colusa (SV)	Annual	2011	336.30	393.20	461.94	577.64	73.01	92.76	100.79	124.78
C	Colusa (SV)	Annual	2012	336.46	392.86	461.43	578.32	73.01	91.49	100.76	124.99
C	Colusa (SV)	Annual	2013	336.61	392.53	461.04	579.07	73.01	90.33	100.78	125.24
C	Colusa (SV)	Annual	2014	336.76	392.14	460.74	579.85	73.01	89.10	100.78	125.48
C	Colusa (SV)	Annual	2015	336.94	391.90	460.48	580.66	73.07	88.20	100.70	125.75
C	Colusa (SV)	Annual	2016	337.08	391.55	460.28	581.44	73.11	87.13	100.69	126.03
C	Colusa (SV)	Annual	2017	337.18	391.40	460.11	582.19	73.11	86.50	100.69	126.31
C	Colusa (SV)	Annual	2018	337.27	391.20	459.97	582.84	73.14	85.83	100.67	126.58
C	Colusa (SV)	Annual	2019	337.32	391.11	459.85	583.42	73.14	85.43	100.69	126.82
C	Colusa (SV)	Annual	2020	337.37	391.06	459.75	583.92	73.23	85.29	100.77	127.05
C	Colusa (SV)	Annual	2021	337.43	391.13	459.66	584.31	73.30	85.37	100.83	127.21
C	Colusa (SV)	Annual	2022	337.40	391.19	459.57	584.63	73.33	85.43	100.88	127.34
C	Colusa (SV)	Annual	2023	337.39	391.29	459.49	584.89	73.36	85.52	100.91	127.52
C	Colusa (SV)	Annual	2024	337.37	391.34	459.41	585.10	73.37	85.59	100.94	127.69
C	Colusa (SV)	Annual	2025	337.36	391.40	459.36	585.31	73.39	85.65	100.97	127.86
C	Colusa (SV)	Annual	2026	337.37	391.51	459.27	585.53	73.41	85.73	100.99	128.02
C	Colusa (SV)	Annual	2027	337.38	391.61	459.21	585.75	73.42	85.79	101.00	128.16
C	Colusa (SV)	Annual	2028	337.39	391.73	459.15	585.97	73.43	85.86	101.01	128.30
C	Colusa (SV)	Annual	2029	337.40	391.84	459.07	586.18	73.44	85.92	101.01	128.42
C	Colusa (SV)	Annual	2030	337.38	391.95	458.99	586.40	73.44	85.97	101.00	128.54
C	Colusa (SV)	Annual	2031	337.38	392.05	458.95	586.61	73.45	86.03	101.00	128.66
C	Colusa (SV)	Annual	2032	337.38	392.15	458.92	586.83	73.45	86.08	101.00	128.77
C	Colusa (SV)	Annual	2033	337.38	392.24	458.89	587.03	73.46	86.13	101.01	128.87
C	Colusa (SV)	Annual	2034	337.37	392.31	458.85	587.21	73.46	86.17	101.01	128.96
C	Colusa (SV)	Annual	2035	337.36	392.37	458.83	587.37	73.47	86.21	101.01	129.05
C	Colusa (SV)	Summer	2010	369.11	427.03	505.43	632.25	73.02	94.44	100.85	124.61
C	Colusa (SV)	Summer	2011	369.53	427.36	505.34	632.77	73.01	92.76	100.79	124.78
C	Colusa (SV)	Summer	2012	369.90	427.67	505.27	633.46	73.01	91.49	100.76	124.99
C	Colusa (SV)	Summer	2013	370.21	427.88	505.20	634.32	73.01	90.33	100.78	125.24

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Colusa (SV)	Summer	2014	370.47	427.99	505.17	635.26	73.01	89.10	100.78	125.48
C	Colusa (SV)	Summer	2015	370.74	428.12	505.15	636.30	73.07	88.20	100.70	125.75
C	Colusa (SV)	Summer	2016	370.94	428.19	505.10	637.33	73.11	87.13	100.69	126.03
C	Colusa (SV)	Summer	2017	371.07	428.29	505.00	638.32	73.11	86.50	100.69	126.31
C	Colusa (SV)	Summer	2018	371.17	428.34	504.89	639.18	73.14	85.83	100.67	126.58
C	Colusa (SV)	Summer	2019	371.22	428.46	504.77	639.93	73.14	85.43	100.69	126.82
C	Colusa (SV)	Summer	2020	371.26	428.58	504.65	640.57	73.23	85.29	100.77	127.05
C	Colusa (SV)	Summer	2021	371.31	428.73	504.55	641.07	73.30	85.37	100.83	127.21
C	Colusa (SV)	Summer	2022	371.28	428.87	504.46	641.49	73.33	85.43	100.88	127.34
C	Colusa (SV)	Summer	2023	371.27	429.02	504.39	641.81	73.36	85.52	100.91	127.52
C	Colusa (SV)	Summer	2024	371.27	429.15	504.32	642.06	73.37	85.59	100.94	127.69
C	Colusa (SV)	Summer	2025	371.27	429.27	504.27	642.28	73.39	85.65	100.97	127.86
C	Colusa (SV)	Summer	2026	371.29	429.45	504.21	642.53	73.41	85.73	100.99	128.02
C	Colusa (SV)	Summer	2027	371.32	429.59	504.17	642.78	73.42	85.79	101.00	128.16
C	Colusa (SV)	Summer	2028	371.34	429.79	504.14	643.02	73.43	85.86	101.01	128.30
C	Colusa (SV)	Summer	2029	371.35	429.96	504.09	643.27	73.44	85.92	101.01	128.42
C	Colusa (SV)	Summer	2030	371.36	430.13	504.04	643.51	73.44	85.97	101.00	128.54
C	Colusa (SV)	Summer	2031	371.36	430.29	504.05	643.74	73.45	86.03	101.00	128.66
C	Colusa (SV)	Summer	2032	371.36	430.43	504.04	643.98	73.45	86.08	101.00	128.77
C	Colusa (SV)	Summer	2033	371.36	430.55	504.04	644.21	73.46	86.13	101.01	128.87
C	Colusa (SV)	Summer	2034	371.36	430.64	504.02	644.42	73.46	86.17	101.01	128.96
C	Colusa (SV)	Summer	2035	371.35	430.71	504.00	644.62	73.47	86.21	101.01	129.05
C	Colusa (SV)	Winter	2010	325.06	382.50	448.17	558.47	73.02	94.44	100.85	124.61
C	Colusa (SV)	Winter	2011	325.11	381.70	447.33	559.09	73.01	92.76	100.79	124.78
C	Colusa (SV)	Winter	2012	325.20	381.15	446.68	559.76	73.01	91.49	100.76	124.99
C	Colusa (SV)	Winter	2013	325.30	380.64	446.18	560.48	73.01	90.33	100.78	125.24
C	Colusa (SV)	Winter	2014	325.41	380.08	445.78	561.20	73.01	89.10	100.78	125.48
C	Colusa (SV)	Winter	2015	325.57	379.70	445.45	561.93	73.07	88.20	100.70	125.75
C	Colusa (SV)	Winter	2016	325.69	379.22	445.20	562.63	73.11	87.13	100.69	126.03
C	Colusa (SV)	Winter	2017	325.77	378.98	445.00	563.29	73.11	86.50	100.69	126.31
C	Colusa (SV)	Winter	2018	325.86	378.69	444.85	563.88	73.14	85.83	100.67	126.58
C	Colusa (SV)	Winter	2019	325.91	378.54	444.73	564.40	73.14	85.43	100.69	126.82
C	Colusa (SV)	Winter	2020	325.96	378.43	444.64	564.86	73.23	85.29	100.77	127.05
C	Colusa (SV)	Winter	2021	326.03	378.48	444.56	565.20	73.30	85.37	100.83	127.21
C	Colusa (SV)	Winter	2022	326.00	378.50	444.46	565.49	73.33	85.43	100.88	127.34
C	Colusa (SV)	Winter	2023	325.99	378.59	444.38	565.73	73.36	85.52	100.91	127.52
C	Colusa (SV)	Winter	2024	325.96	378.62	444.30	565.93	73.37	85.59	100.94	127.69
C	Colusa (SV)	Winter	2025	325.94	378.65	444.24	566.14	73.39	85.65	100.97	127.86
C	Colusa (SV)	Winter	2026	325.95	378.74	444.15	566.35	73.41	85.73	100.99	128.02
C	Colusa (SV)	Winter	2027	325.96	378.83	444.08	566.56	73.42	85.79	101.00	128.16
C	Colusa (SV)	Winter	2028	325.96	378.92	444.01	566.77	73.43	85.86	101.01	128.30
C	Colusa (SV)	Winter	2029	325.97	379.01	443.92	566.97	73.44	85.92	101.01	128.42
C	Colusa (SV)	Winter	2030	325.95	379.10	443.83	567.18	73.44	85.97	101.00	128.54
C	Colusa (SV)	Winter	2031	325.95	379.18	443.78	567.38	73.45	86.03	101.00	128.66
C	Colusa (SV)	Winter	2032	325.95	379.27	443.73	567.59	73.45	86.08	101.00	128.77
C	Colusa (SV)	Winter	2033	325.94	379.34	443.70	567.78	73.46	86.13	101.01	128.87
C	Colusa (SV)	Winter	2034	325.93	379.41	443.65	567.95	73.46	86.17	101.01	128.96
C	Colusa (SV)	Winter	2035	325.92	379.46	443.62	568.10	73.47	86.21	101.01	129.05
C	Contra Costa (SF)	Annual	2010	337.72	388.00	461.97	582.83	73.09	84.25	99.46	124.66
C	Contra Costa (SF)	Annual	2011	337.88	388.46	461.87	583.33	73.11	84.14	99.56	124.86
C	Contra Costa (SF)	Annual	2012	338.04	388.95	461.80	583.91	73.13	84.12	99.66	125.09
C	Contra Costa (SF)	Annual	2013	338.24	389.39	461.74	584.52	73.18	84.12	99.78	125.33
C	Contra Costa (SF)	Annual	2014	338.41	389.81	461.71	585.13	73.21	84.13	99.88	125.58
C	Contra Costa (SF)	Annual	2015	338.60	390.21	461.69	585.76	73.27	84.16	99.98	125.84

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Contra Costa (SF)	Annual	2016	338.79	390.60	461.68	586.37	73.35	84.23	100.09	126.11
C	Contra Costa (SF)	Annual	2017	338.93	390.94	461.67	586.95	73.40	84.27	100.17	126.37
C	Contra Costa (SF)	Annual	2018	339.06	391.27	461.66	587.46	73.45	84.35	100.26	126.62
C	Contra Costa (SF)	Annual	2019	339.18	391.60	461.67	587.90	73.51	84.48	100.35	126.86
C	Contra Costa (SF)	Annual	2020	339.28	391.89	461.67	588.30	73.61	84.63	100.45	127.08
C	Contra Costa (SF)	Annual	2021	339.36	392.15	461.67	588.63	73.69	84.80	100.54	127.27
C	Contra Costa (SF)	Annual	2022	339.41	392.38	461.67	588.91	73.75	84.95	100.62	127.42
C	Contra Costa (SF)	Annual	2023	339.42	392.56	461.66	589.13	73.79	85.08	100.69	127.59
C	Contra Costa (SF)	Annual	2024	339.40	392.71	461.65	589.30	73.81	85.19	100.75	127.75
C	Contra Costa (SF)	Annual	2025	339.41	392.84	461.65	589.47	73.84	85.30	100.80	127.91
C	Contra Costa (SF)	Annual	2026	339.43	393.00	461.64	589.64	73.86	85.40	100.84	128.05
C	Contra Costa (SF)	Annual	2027	339.44	393.15	461.62	589.81	73.88	85.49	100.87	128.18
C	Contra Costa (SF)	Annual	2028	339.44	393.31	461.61	589.98	73.89	85.58	100.89	128.30
C	Contra Costa (SF)	Annual	2029	339.44	393.47	461.59	590.14	73.90	85.66	100.91	128.41
C	Contra Costa (SF)	Annual	2030	339.44	393.63	461.58	590.31	73.90	85.74	100.92	128.52
C	Contra Costa (SF)	Annual	2031	339.44	393.80	461.57	590.49	73.91	85.82	100.93	128.62
C	Contra Costa (SF)	Annual	2032	339.44	393.97	461.56	590.67	73.91	85.89	100.94	128.72
C	Contra Costa (SF)	Annual	2033	339.44	394.11	461.55	590.84	73.92	85.96	100.95	128.82
C	Contra Costa (SF)	Annual	2034	339.43	394.24	461.54	590.99	73.92	86.02	100.96	128.90
C	Contra Costa (SF)	Annual	2035	339.43	394.36	461.53	591.12	73.92	86.08	100.96	128.98
C	Contra Costa (SF)	Summer	2010	368.96	420.20	503.53	635.26	73.09	84.25	99.46	124.66
C	Contra Costa (SF)	Summer	2011	369.30	421.14	503.46	635.62	73.11	84.14	99.56	124.86
C	Contra Costa (SF)	Summer	2012	369.63	422.03	503.44	636.15	73.13	84.12	99.66	125.09
C	Contra Costa (SF)	Summer	2013	369.95	422.81	503.47	636.80	73.18	84.12	99.78	125.33
C	Contra Costa (SF)	Summer	2014	370.23	423.51	503.55	637.51	73.21	84.13	99.88	125.58
C	Contra Costa (SF)	Summer	2015	370.49	424.14	503.64	638.30	73.27	84.16	99.98	125.84
C	Contra Costa (SF)	Summer	2016	370.73	424.73	503.73	639.09	73.35	84.23	100.09	126.11
C	Contra Costa (SF)	Summer	2017	370.91	425.27	503.81	639.85	73.40	84.27	100.17	126.37
C	Contra Costa (SF)	Summer	2018	371.04	425.77	503.86	640.51	73.45	84.35	100.26	126.62
C	Contra Costa (SF)	Summer	2019	371.16	426.23	503.89	641.07	73.51	84.48	100.35	126.86
C	Contra Costa (SF)	Summer	2020	371.26	426.65	503.90	641.58	73.61	84.63	100.45	127.08
C	Contra Costa (SF)	Summer	2021	371.34	427.00	503.90	641.99	73.69	84.80	100.54	127.27
C	Contra Costa (SF)	Summer	2022	371.39	427.32	503.89	642.34	73.75	84.95	100.62	127.42
C	Contra Costa (SF)	Summer	2023	371.40	427.58	503.87	642.59	73.79	85.08	100.69	127.59
C	Contra Costa (SF)	Summer	2024	371.39	427.81	503.84	642.79	73.81	85.19	100.75	127.75
C	Contra Costa (SF)	Summer	2025	371.39	428.02	503.82	642.98	73.84	85.30	100.80	127.91
C	Contra Costa (SF)	Summer	2026	371.41	428.24	503.80	643.16	73.86	85.40	100.84	128.05
C	Contra Costa (SF)	Summer	2027	371.43	428.46	503.77	643.33	73.88	85.49	100.87	128.18
C	Contra Costa (SF)	Summer	2028	371.44	428.69	503.76	643.49	73.89	85.58	100.89	128.30
C	Contra Costa (SF)	Summer	2029	371.45	428.93	503.74	643.66	73.90	85.66	100.91	128.41
C	Contra Costa (SF)	Summer	2030	371.45	429.16	503.72	643.84	73.90	85.74	100.92	128.52
C	Contra Costa (SF)	Summer	2031	371.45	429.42	503.71	644.04	73.91	85.82	100.93	128.62
C	Contra Costa (SF)	Summer	2032	371.46	429.64	503.71	644.25	73.91	85.89	100.94	128.72
C	Contra Costa (SF)	Summer	2033	371.46	429.83	503.70	644.45	73.92	85.96	100.95	128.82
C	Contra Costa (SF)	Summer	2034	371.46	430.01	503.69	644.64	73.92	86.02	100.96	128.90
C	Contra Costa (SF)	Summer	2035	371.46	430.14	503.69	644.81	73.92	86.08	100.96	128.98
C	Contra Costa (SF)	Winter	2010	333.44	383.59	456.28	575.64	73.09	84.25	99.46	124.66
C	Contra Costa (SF)	Winter	2011	333.57	383.99	456.17	576.17	73.11	84.14	99.56	124.86
C	Contra Costa (SF)	Winter	2012	333.71	384.41	456.09	576.75	73.13	84.12	99.66	125.09
C	Contra Costa (SF)	Winter	2013	333.89	384.81	456.03	577.35	73.18	84.12	99.78	125.33
C	Contra Costa (SF)	Winter	2014	334.06	385.19	455.97	577.95	73.21	84.13	99.88	125.58
C	Contra Costa (SF)	Winter	2015	334.23	385.56	455.94	578.56	73.27	84.16	99.98	125.84
C	Contra Costa (SF)	Winter	2016	334.42	385.92	455.91	579.14	73.35	84.23	100.09	126.11
C	Contra Costa (SF)	Winter	2017	334.55	386.24	455.89	579.70	73.40	84.27	100.17	126.37

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Contra Costa (SF)	Winter	2018	334.68	386.55	455.88	580.19	73.45	84.35	100.26	126.62
C	Contra Costa (SF)	Winter	2019	334.80	386.85	455.88	580.61	73.51	84.48	100.35	126.86
C	Contra Costa (SF)	Winter	2020	334.90	387.12	455.88	581.00	73.61	84.63	100.45	127.08
C	Contra Costa (SF)	Winter	2021	334.98	387.38	455.89	581.32	73.69	84.80	100.54	127.27
C	Contra Costa (SF)	Winter	2022	335.03	387.59	455.89	581.59	73.75	84.95	100.62	127.42
C	Contra Costa (SF)	Winter	2023	335.04	387.76	455.88	581.80	73.79	85.08	100.69	127.59
C	Contra Costa (SF)	Winter	2024	335.02	387.90	455.87	581.97	73.81	85.19	100.75	127.75
C	Contra Costa (SF)	Winter	2025	335.02	388.02	455.87	582.14	73.84	85.30	100.80	127.91
C	Contra Costa (SF)	Winter	2026	335.04	388.17	455.86	582.31	73.86	85.40	100.84	128.05
C	Contra Costa (SF)	Winter	2027	335.06	388.31	455.85	582.48	73.88	85.49	100.87	128.18
C	Contra Costa (SF)	Winter	2028	335.06	388.46	455.84	582.64	73.89	85.58	100.89	128.30
C	Contra Costa (SF)	Winter	2029	335.06	388.61	455.82	582.81	73.90	85.66	100.91	128.41
C	Contra Costa (SF)	Winter	2030	335.05	388.77	455.80	582.97	73.90	85.74	100.92	128.52
C	Contra Costa (SF)	Winter	2031	335.05	388.93	455.80	583.15	73.91	85.82	100.93	128.62
C	Contra Costa (SF)	Winter	2032	335.05	389.08	455.79	583.33	73.91	85.89	100.94	128.72
C	Contra Costa (SF)	Winter	2033	335.05	389.22	455.78	583.49	73.92	85.96	100.95	128.82
C	Contra Costa (SF)	Winter	2034	335.04	389.34	455.77	583.64	73.92	86.02	100.96	128.90
C	Contra Costa (SF)	Winter	2035	335.04	389.45	455.76	583.77	73.92	86.08	100.96	128.98
C	Del Norte (NC)	Annual	2010	353.30	405.98	485.33	605.59	73.80	85.57	100.54	124.43
C	Del Norte (NC)	Annual	2011	353.26	406.47	484.59	606.29	73.68	85.27	100.49	124.61
C	Del Norte (NC)	Annual	2012	353.28	406.97	484.01	607.12	73.58	85.14	100.48	124.82
C	Del Norte (NC)	Annual	2013	353.37	407.31	483.54	607.97	73.54	84.86	100.50	125.08
C	Del Norte (NC)	Annual	2014	353.52	407.69	483.17	608.82	73.58	84.78	100.50	125.32
C	Del Norte (NC)	Annual	2015	353.58	408.04	482.87	609.68	73.49	84.68	100.48	125.58
C	Del Norte (NC)	Annual	2016	353.72	408.34	482.64	610.47	73.52	84.60	100.54	125.88
C	Del Norte (NC)	Annual	2017	353.79	408.62	482.46	611.23	73.50	84.54	100.61	126.18
C	Del Norte (NC)	Annual	2018	353.86	408.91	482.31	611.89	73.48	84.59	100.64	126.45
C	Del Norte (NC)	Annual	2019	353.93	409.17	482.19	612.44	73.50	84.69	100.67	126.70
C	Del Norte (NC)	Annual	2020	354.00	409.40	482.10	612.93	73.59	84.81	100.74	126.94
C	Del Norte (NC)	Annual	2021	354.01	409.58	482.02	613.29	73.64	84.94	100.81	127.14
C	Del Norte (NC)	Annual	2022	353.98	409.71	481.94	613.59	73.67	85.06	100.86	127.30
C	Del Norte (NC)	Annual	2023	353.92	409.83	481.85	613.81	73.68	85.17	100.89	127.49
C	Del Norte (NC)	Annual	2024	353.85	409.93	481.77	613.99	73.68	85.27	100.92	127.66
C	Del Norte (NC)	Annual	2025	353.80	410.06	481.71	614.17	73.69	85.38	100.96	127.83
C	Del Norte (NC)	Annual	2026	353.81	410.21	481.63	614.35	73.71	85.49	100.97	127.98
C	Del Norte (NC)	Annual	2027	353.82	410.35	481.57	614.55	73.72	85.59	100.99	128.13
C	Del Norte (NC)	Annual	2028	353.82	410.50	481.51	614.76	73.73	85.68	101.00	128.27
C	Del Norte (NC)	Annual	2029	353.81	410.65	481.44	614.96	73.74	85.77	101.00	128.39
C	Del Norte (NC)	Annual	2030	353.79	410.80	481.36	615.16	73.74	85.86	101.00	128.51
C	Del Norte (NC)	Annual	2031	353.79	410.94	481.32	615.37	73.75	85.94	101.00	128.63
C	Del Norte (NC)	Annual	2032	353.79	411.09	481.28	615.58	73.75	86.02	101.01	128.74
C	Del Norte (NC)	Annual	2033	353.78	411.21	481.24	615.77	73.76	86.09	101.01	128.84
C	Del Norte (NC)	Annual	2034	353.78	411.32	481.21	615.94	73.76	86.15	101.01	128.93
C	Del Norte (NC)	Annual	2035	353.77	411.41	481.19	616.08	73.77	86.20	101.02	129.01
C	Del Norte (NC)	Summer	2010	356.62	409.26	489.68	611.00	73.80	85.57	100.54	124.43
C	Del Norte (NC)	Summer	2011	356.62	409.85	488.99	611.70	73.68	85.27	100.49	124.61
C	Del Norte (NC)	Summer	2012	356.66	410.43	488.44	612.56	73.58	85.14	100.48	124.82
C	Del Norte (NC)	Summer	2013	356.78	410.84	488.01	613.44	73.54	84.86	100.50	125.08
C	Del Norte (NC)	Summer	2014	356.95	411.27	487.66	614.32	73.58	84.78	100.50	125.32
C	Del Norte (NC)	Summer	2015	357.01	411.66	487.38	615.22	73.49	84.68	100.48	125.58
C	Del Norte (NC)	Summer	2016	357.16	412.00	487.17	616.05	73.52	84.60	100.54	125.88
C	Del Norte (NC)	Summer	2017	357.24	412.31	487.00	616.84	73.50	84.54	100.61	126.18
C	Del Norte (NC)	Summer	2018	357.30	412.61	486.86	617.53	73.48	84.59	100.64	126.45
C	Del Norte (NC)	Summer	2019	357.37	412.90	486.74	618.11	73.50	84.69	100.67	126.70

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Del Norte (NC)	Summer	2020	357.44	413.14	486.65	618.61	73.59	84.81	100.74	126.94
C	Del Norte (NC)	Summer	2021	357.45	413.33	486.57	618.99	73.64	84.94	100.81	127.14
C	Del Norte (NC)	Summer	2022	357.42	413.48	486.48	619.30	73.67	85.06	100.86	127.30
C	Del Norte (NC)	Summer	2023	357.36	413.62	486.39	619.53	73.68	85.17	100.89	127.49
C	Del Norte (NC)	Summer	2024	357.29	413.72	486.32	619.72	73.68	85.27	100.92	127.66
C	Del Norte (NC)	Summer	2025	357.24	413.86	486.26	619.90	73.69	85.38	100.96	127.83
C	Del Norte (NC)	Summer	2026	357.26	414.02	486.18	620.09	73.71	85.49	100.97	127.98
C	Del Norte (NC)	Summer	2027	357.26	414.18	486.12	620.29	73.72	85.59	100.99	128.13
C	Del Norte (NC)	Summer	2028	357.27	414.33	486.06	620.50	73.73	85.68	101.00	128.27
C	Del Norte (NC)	Summer	2029	357.26	414.49	485.99	620.71	73.74	85.77	101.00	128.39
C	Del Norte (NC)	Summer	2030	357.24	414.65	485.91	620.91	73.74	85.86	101.00	128.51
C	Del Norte (NC)	Summer	2031	357.24	414.80	485.87	621.13	73.75	85.94	101.00	128.63
C	Del Norte (NC)	Summer	2032	357.24	414.95	485.84	621.34	73.75	86.02	101.01	128.74
C	Del Norte (NC)	Summer	2033	357.23	415.08	485.80	621.53	73.76	86.09	101.01	128.84
C	Del Norte (NC)	Summer	2034	357.23	415.20	485.78	621.71	73.76	86.15	101.01	128.93
C	Del Norte (NC)	Summer	2035	357.22	415.29	485.75	621.85	73.77	86.20	101.02	129.01
C	Del Norte (NC)	Winter	2010	351.96	404.67	483.59	603.42	73.80	85.57	100.54	124.43
C	Del Norte (NC)	Winter	2011	351.91	405.12	482.83	604.11	73.68	85.27	100.49	124.61
C	Del Norte (NC)	Winter	2012	351.92	405.58	482.23	604.93	73.58	85.14	100.48	124.82
C	Del Norte (NC)	Winter	2013	352.00	405.90	481.75	605.77	73.54	84.86	100.50	125.08
C	Del Norte (NC)	Winter	2014	352.15	406.26	481.37	606.61	73.58	84.78	100.50	125.32
C	Del Norte (NC)	Winter	2015	352.20	406.58	481.06	607.45	73.49	84.68	100.48	125.58
C	Del Norte (NC)	Winter	2016	352.34	406.87	480.82	608.23	73.52	84.60	100.54	125.88
C	Del Norte (NC)	Winter	2017	352.41	407.14	480.64	608.97	73.50	84.54	100.61	126.18
C	Del Norte (NC)	Winter	2018	352.47	407.42	480.49	609.63	73.48	84.59	100.64	126.45
C	Del Norte (NC)	Winter	2019	352.55	407.68	480.37	610.17	73.50	84.69	100.67	126.70
C	Del Norte (NC)	Winter	2020	352.62	407.90	480.28	610.65	73.59	84.81	100.74	126.94
C	Del Norte (NC)	Winter	2021	352.63	408.07	480.20	611.00	73.64	84.94	100.81	127.14
C	Del Norte (NC)	Winter	2022	352.60	408.20	480.11	611.29	73.67	85.06	100.86	127.30
C	Del Norte (NC)	Winter	2023	352.53	408.31	480.02	611.52	73.68	85.17	100.89	127.49
C	Del Norte (NC)	Winter	2024	352.46	408.40	479.94	611.69	73.68	85.27	100.92	127.66
C	Del Norte (NC)	Winter	2025	352.42	408.53	479.89	611.86	73.69	85.38	100.96	127.83
C	Del Norte (NC)	Winter	2026	352.43	408.68	479.81	612.05	73.71	85.49	100.97	127.98
C	Del Norte (NC)	Winter	2027	352.43	408.82	479.75	612.25	73.72	85.59	100.99	128.13
C	Del Norte (NC)	Winter	2028	352.44	408.96	479.68	612.45	73.73	85.68	101.00	128.27
C	Del Norte (NC)	Winter	2029	352.43	409.11	479.61	612.65	73.74	85.77	101.00	128.39
C	Del Norte (NC)	Winter	2030	352.41	409.25	479.53	612.85	73.74	85.86	101.00	128.51
C	Del Norte (NC)	Winter	2031	352.41	409.39	479.49	613.06	73.75	85.94	101.00	128.63
C	Del Norte (NC)	Winter	2032	352.40	409.53	479.45	613.27	73.75	86.02	101.01	128.74
C	Del Norte (NC)	Winter	2033	352.40	409.66	479.41	613.45	73.76	86.09	101.01	128.84
C	Del Norte (NC)	Winter	2034	352.39	409.77	479.38	613.62	73.76	86.15	101.01	128.93
C	Del Norte (NC)	Winter	2035	352.38	409.86	479.36	613.76	73.77	86.20	101.02	129.01
C	El Dorado (LT)	Annual	2010	363.47	420.59	499.06	619.88	74.08	86.91	99.84	122.94
C	El Dorado (LT)	Annual	2011	363.51	420.75	498.59	620.83	73.91	86.42	99.87	123.15
C	El Dorado (LT)	Annual	2012	363.61	420.94	498.22	621.97	73.79	86.06	99.97	123.43
C	El Dorado (LT)	Annual	2013	363.76	421.15	497.91	623.17	73.76	85.79	100.05	123.76
C	El Dorado (LT)	Annual	2014	363.85	421.29	497.66	624.33	73.56	85.48	100.11	124.10
C	El Dorado (LT)	Annual	2015	363.99	421.51	497.47	625.56	73.53	85.30	100.19	124.47
C	El Dorado (LT)	Annual	2016	364.13	421.67	497.31	626.72	73.54	85.07	100.27	124.86
C	El Dorado (LT)	Annual	2017	364.23	421.87	497.19	627.80	73.55	84.93	100.33	125.23
C	El Dorado (LT)	Annual	2018	364.27	422.03	497.10	628.75	73.43	84.84	100.40	125.59
C	El Dorado (LT)	Annual	2019	364.31	422.23	497.04	629.59	73.36	84.85	100.48	125.93
C	El Dorado (LT)	Annual	2020	364.34	422.39	496.99	630.30	73.43	84.91	100.58	126.25
C	El Dorado (LT)	Annual	2021	364.31	422.53	496.95	630.87	73.45	85.03	100.67	126.51

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	El Dorado (LT)	Annual	2022	364.27	422.64	496.89	631.38	73.45	85.13	100.74	126.75
C	El Dorado (LT)	Annual	2023	364.23	422.72	496.84	631.78	73.45	85.22	100.79	127.00
C	El Dorado (LT)	Annual	2024	364.12	422.76	496.80	632.08	73.39	85.30	100.84	127.22
C	El Dorado (LT)	Annual	2025	364.10	422.89	496.76	632.37	73.40	85.40	100.89	127.42
C	El Dorado (LT)	Annual	2026	364.10	423.07	496.72	632.65	73.42	85.51	100.92	127.61
C	El Dorado (LT)	Annual	2027	364.11	423.22	496.68	632.93	73.43	85.61	100.94	127.79
C	El Dorado (LT)	Annual	2028	364.11	423.39	496.64	633.22	73.44	85.71	100.96	127.95
C	El Dorado (LT)	Annual	2029	364.10	423.55	496.60	633.51	73.44	85.80	100.98	128.11
C	El Dorado (LT)	Annual	2030	364.09	423.70	496.55	633.80	73.44	85.88	100.98	128.26
C	El Dorado (LT)	Annual	2031	364.10	423.86	496.51	634.10	73.45	85.96	100.99	128.40
C	El Dorado (LT)	Annual	2032	364.10	424.01	496.48	634.41	73.45	86.03	101.00	128.54
C	El Dorado (LT)	Annual	2033	364.10	424.14	496.46	634.69	73.46	86.10	101.00	128.66
C	El Dorado (LT)	Annual	2034	364.10	424.26	496.43	634.93	73.46	86.16	101.01	128.78
C	El Dorado (LT)	Annual	2035	364.09	424.36	496.41	635.15	73.47	86.21	101.01	128.88
C	El Dorado (LT)	Summer	2010	362.83	419.96	498.22	618.85	74.08	86.91	99.84	122.94
C	El Dorado (LT)	Summer	2011	362.86	420.10	497.75	619.79	73.91	86.42	99.87	123.15
C	El Dorado (LT)	Summer	2012	362.96	420.28	497.37	620.93	73.79	86.06	99.97	123.43
C	El Dorado (LT)	Summer	2013	363.10	420.47	497.05	622.12	73.76	85.79	100.05	123.76
C	El Dorado (LT)	Summer	2014	363.19	420.61	496.80	623.28	73.56	85.48	100.11	124.10
C	El Dorado (LT)	Summer	2015	363.33	420.82	496.60	624.50	73.53	85.30	100.19	124.47
C	El Dorado (LT)	Summer	2016	363.47	420.97	496.44	625.65	73.54	85.07	100.27	124.86
C	El Dorado (LT)	Summer	2017	363.57	421.16	496.32	626.72	73.55	84.93	100.33	125.23
C	El Dorado (LT)	Summer	2018	363.61	421.32	496.23	627.67	73.43	84.84	100.40	125.59
C	El Dorado (LT)	Summer	2019	363.65	421.51	496.16	628.50	73.36	84.85	100.48	125.93
C	El Dorado (LT)	Summer	2020	363.67	421.67	496.12	629.21	73.43	84.91	100.58	126.25
C	El Dorado (LT)	Summer	2021	363.65	421.81	496.07	629.78	73.45	85.03	100.67	126.51
C	El Dorado (LT)	Summer	2022	363.61	421.92	496.02	630.28	73.45	85.13	100.74	126.75
C	El Dorado (LT)	Summer	2023	363.57	421.99	495.97	630.68	73.45	85.22	100.79	127.00
C	El Dorado (LT)	Summer	2024	363.46	422.03	495.92	630.99	73.39	85.30	100.84	127.22
C	El Dorado (LT)	Summer	2025	363.44	422.16	495.89	631.27	73.40	85.40	100.89	127.42
C	El Dorado (LT)	Summer	2026	363.44	422.33	495.85	631.55	73.42	85.51	100.92	127.61
C	El Dorado (LT)	Summer	2027	363.45	422.49	495.80	631.83	73.43	85.61	100.94	127.79
C	El Dorado (LT)	Summer	2028	363.44	422.65	495.77	632.12	73.44	85.71	100.96	127.95
C	El Dorado (LT)	Summer	2029	363.44	422.81	495.73	632.41	73.44	85.80	100.98	128.11
C	El Dorado (LT)	Summer	2030	363.43	422.96	495.68	632.70	73.44	85.88	100.98	128.26
C	El Dorado (LT)	Summer	2031	363.43	423.12	495.64	633.00	73.45	85.96	100.99	128.40
C	El Dorado (LT)	Summer	2032	363.43	423.26	495.61	633.31	73.45	86.03	101.00	128.54
C	El Dorado (LT)	Summer	2033	363.43	423.40	495.58	633.58	73.46	86.10	101.00	128.66
C	El Dorado (LT)	Summer	2034	363.43	423.51	495.56	633.82	73.46	86.16	101.01	128.78
C	El Dorado (LT)	Summer	2035	363.43	423.62	495.53	634.04	73.47	86.21	101.01	128.88
C	El Dorado (LT)	Winter	2010	362.83	419.96	498.22	618.85	74.08	86.91	99.84	122.94
C	El Dorado (LT)	Winter	2011	362.86	420.10	497.75	619.79	73.91	86.42	99.87	123.15
C	El Dorado (LT)	Winter	2012	362.96	420.28	497.37	620.93	73.79	86.06	99.97	123.43
C	El Dorado (LT)	Winter	2013	363.10	420.47	497.05	622.12	73.76	85.79	100.05	123.76
C	El Dorado (LT)	Winter	2014	363.19	420.61	496.80	623.28	73.56	85.48	100.11	124.10
C	El Dorado (LT)	Winter	2015	363.33	420.82	496.60	624.50	73.53	85.30	100.19	124.47
C	El Dorado (LT)	Winter	2016	363.47	420.97	496.44	625.65	73.54	85.07	100.27	124.86
C	El Dorado (LT)	Winter	2017	363.57	421.16	496.32	626.72	73.55	84.93	100.33	125.23
C	El Dorado (LT)	Winter	2018	363.61	421.32	496.23	627.67	73.43	84.84	100.40	125.59
C	El Dorado (LT)	Winter	2019	363.65	421.51	496.16	628.50	73.36	84.85	100.48	125.93
C	El Dorado (LT)	Winter	2020	363.67	421.67	496.12	629.21	73.43	84.91	100.58	126.25
C	El Dorado (LT)	Winter	2021	363.65	421.81	496.07	629.78	73.45	85.03	100.67	126.51
C	El Dorado (LT)	Winter	2022	363.61	421.92	496.02	630.28	73.45	85.13	100.74	126.75
C	El Dorado (LT)	Winter	2023	363.57	421.99	495.97	630.68	73.45	85.22	100.79	127.00

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	El Dorado (LT)	Winter	2024	363.46	422.03	495.92	630.99	73.39	85.30	100.84	127.22
C	El Dorado (LT)	Winter	2025	363.44	422.16	495.89	631.27	73.40	85.40	100.89	127.42
C	El Dorado (LT)	Winter	2026	363.44	422.33	495.85	631.55	73.42	85.51	100.92	127.61
C	El Dorado (LT)	Winter	2027	363.45	422.49	495.80	631.83	73.43	85.61	100.94	127.79
C	El Dorado (LT)	Winter	2028	363.44	422.65	495.77	632.12	73.44	85.71	100.96	127.95
C	El Dorado (LT)	Winter	2029	363.44	422.81	495.73	632.41	73.44	85.80	100.98	128.11
C	El Dorado (LT)	Winter	2030	363.43	422.96	495.68	632.70	73.44	85.88	100.98	128.26
C	El Dorado (LT)	Winter	2031	363.43	423.12	495.64	633.00	73.45	85.96	100.99	128.40
C	El Dorado (LT)	Winter	2032	363.43	423.26	495.61	633.31	73.45	86.03	101.00	128.54
C	El Dorado (LT)	Winter	2033	363.43	423.40	495.58	633.58	73.46	86.10	101.00	128.66
C	El Dorado (LT)	Winter	2034	363.43	423.51	495.56	633.82	73.46	86.16	101.01	128.78
C	El Dorado (LT)	Winter	2035	363.43	423.62	495.53	634.04	73.47	86.21	101.01	128.88
C	El Dorado (MC)	Annual	2010	341.76	395.46	468.95	590.66	73.77	88.15	100.13	125.49
C	El Dorado (MC)	Annual	2011	342.05	395.72	468.70	591.19	73.66	87.38	100.12	125.61
C	El Dorado (MC)	Annual	2012	342.34	396.02	468.51	591.78	73.58	86.83	100.17	125.76
C	El Dorado (MC)	Annual	2013	342.60	396.27	468.36	592.41	73.49	86.35	100.21	125.94
C	El Dorado (MC)	Annual	2014	342.84	396.49	468.26	593.06	73.40	85.94	100.24	126.13
C	El Dorado (MC)	Annual	2015	343.06	396.70	468.18	593.72	73.38	85.57	100.28	126.34
C	El Dorado (MC)	Annual	2016	343.27	396.90	468.13	594.34	73.40	85.26	100.33	126.56
C	El Dorado (MC)	Annual	2017	343.44	397.07	468.08	594.94	73.42	84.99	100.35	126.78
C	El Dorado (MC)	Annual	2018	343.57	397.22	468.03	595.46	73.41	84.78	100.39	126.99
C	El Dorado (MC)	Annual	2019	339.95	393.13	462.91	589.40	73.43	84.80	100.45	127.18
C	El Dorado (MC)	Annual	2020	340.04	393.35	462.88	589.78	73.52	84.89	100.54	127.35
C	El Dorado (MC)	Annual	2021	340.11	393.57	462.85	590.02	73.60	85.04	100.62	127.46
C	El Dorado (MC)	Annual	2022	340.16	393.76	462.81	590.22	73.66	85.17	100.69	127.54
C	El Dorado (MC)	Annual	2023	340.19	393.90	462.78	590.36	73.70	85.27	100.74	127.69
C	El Dorado (MC)	Annual	2024	340.20	394.02	462.75	590.47	73.72	85.37	100.79	127.82
C	El Dorado (MC)	Annual	2025	340.22	394.12	462.73	590.61	73.75	85.46	100.83	127.96
C	El Dorado (MC)	Annual	2026	340.23	394.26	462.70	590.76	73.77	85.55	100.87	128.09
C	El Dorado (MC)	Annual	2027	340.24	394.39	462.67	590.90	73.78	85.64	100.89	128.21
C	El Dorado (MC)	Annual	2028	340.25	394.53	462.65	591.06	73.79	85.72	100.91	128.32
C	El Dorado (MC)	Annual	2029	340.25	394.66	462.61	591.21	73.80	85.79	100.92	128.43
C	El Dorado (MC)	Annual	2030	340.25	394.80	462.58	591.37	73.81	85.86	100.93	128.53
C	El Dorado (MC)	Annual	2031	340.26	394.95	462.56	591.56	73.81	85.93	100.94	128.63
C	El Dorado (MC)	Annual	2032	340.26	395.08	462.54	591.75	73.82	86.00	100.94	128.73
C	El Dorado (MC)	Annual	2033	340.26	395.20	462.53	591.93	73.82	86.06	100.95	128.82
C	El Dorado (MC)	Annual	2034	340.26	395.30	462.51	592.08	73.82	86.11	100.96	128.91
C	El Dorado (MC)	Annual	2035	340.26	395.39	462.50	592.22	73.83	86.16	100.96	128.99
C	El Dorado (MC)	Summer	2010	375.93	429.67	513.60	646.77	73.77	88.15	100.13	125.49
C	El Dorado (MC)	Summer	2011	376.40	430.73	513.53	647.24	73.66	87.38	100.12	125.61
C	El Dorado (MC)	Summer	2012	376.82	431.64	513.49	647.88	73.58	86.83	100.17	125.76
C	El Dorado (MC)	Summer	2013	377.19	432.39	513.51	648.63	73.49	86.35	100.21	125.94
C	El Dorado (MC)	Summer	2014	377.52	433.03	513.58	649.46	73.40	85.94	100.24	126.13
C	El Dorado (MC)	Summer	2015	377.80	433.58	513.65	650.36	73.38	85.57	100.28	126.34
C	El Dorado (MC)	Summer	2016	378.06	434.07	513.72	651.21	73.40	85.26	100.33	126.56
C	El Dorado (MC)	Summer	2017	378.25	434.50	513.77	652.04	73.42	84.99	100.35	126.78
C	El Dorado (MC)	Summer	2018	378.38	434.84	513.78	652.74	73.41	84.78	100.39	126.99
C	El Dorado (MC)	Summer	2019	374.39	430.51	508.19	646.23	73.43	84.80	100.45	127.18
C	El Dorado (MC)	Summer	2020	374.46	430.84	508.14	646.71	73.52	84.89	100.54	127.35
C	El Dorado (MC)	Summer	2021	374.53	431.14	508.05	646.99	73.60	85.04	100.62	127.46
C	El Dorado (MC)	Summer	2022	374.58	431.41	507.98	647.24	73.66	85.17	100.69	127.54
C	El Dorado (MC)	Summer	2023	374.61	431.64	507.91	647.42	73.70	85.27	100.74	127.69
C	El Dorado (MC)	Summer	2024	374.62	431.82	507.88	647.54	73.72	85.37	100.79	127.82
C	El Dorado (MC)	Summer	2025	374.63	432.00	507.85	647.66	73.75	85.46	100.83	127.96

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	El Dorado (MC)	Summer	2026	374.64	432.19	507.84	647.82	73.77	85.55	100.87	128.09
C	El Dorado (MC)	Summer	2027	374.65	432.39	507.84	647.97	73.78	85.64	100.89	128.21
C	El Dorado (MC)	Summer	2028	374.65	432.59	507.83	648.14	73.79	85.72	100.91	128.32
C	El Dorado (MC)	Summer	2029	374.66	432.80	507.82	648.31	73.80	85.79	100.92	128.43
C	El Dorado (MC)	Summer	2030	374.67	433.02	507.80	648.50	73.81	85.86	100.93	128.53
C	El Dorado (MC)	Summer	2031	374.67	433.23	507.79	648.74	73.81	85.93	100.94	128.63
C	El Dorado (MC)	Summer	2032	374.68	433.42	507.77	648.97	73.82	86.00	100.94	128.73
C	El Dorado (MC)	Summer	2033	374.68	433.57	507.76	649.20	73.82	86.06	100.95	128.82
C	El Dorado (MC)	Summer	2034	374.68	433.70	507.74	649.41	73.82	86.11	100.96	128.91
C	El Dorado (MC)	Summer	2035	374.68	433.81	507.72	649.60	73.83	86.16	100.96	128.99
C	El Dorado (MC)	Winter	2010	333.35	387.05	457.96	576.85	73.77	88.15	100.13	125.49
C	El Dorado (MC)	Winter	2011	333.60	387.11	457.67	577.39	73.66	87.38	100.12	125.61
C	El Dorado (MC)	Winter	2012	333.85	387.25	457.44	577.98	73.58	86.83	100.17	125.76
C	El Dorado (MC)	Winter	2013	334.09	387.38	457.26	578.58	73.49	86.35	100.21	125.94
C	El Dorado (MC)	Winter	2014	334.30	387.50	457.11	579.18	73.40	85.94	100.24	126.13
C	El Dorado (MC)	Winter	2015	334.51	387.62	457.00	579.79	73.38	85.57	100.28	126.34
C	El Dorado (MC)	Winter	2016	334.71	387.75	456.91	580.35	73.40	85.26	100.33	126.56
C	El Dorado (MC)	Winter	2017	334.88	387.86	456.83	580.89	73.42	84.99	100.35	126.78
C	El Dorado (MC)	Winter	2018	335.00	387.97	456.78	581.36	73.41	84.78	100.39	126.99
C	El Dorado (MC)	Winter	2019	331.47	383.93	451.76	575.41	73.43	84.80	100.45	127.18
C	El Dorado (MC)	Winter	2020	331.56	384.12	451.74	575.77	73.52	84.89	100.54	127.35
C	El Dorado (MC)	Winter	2021	331.64	384.32	451.72	575.99	73.60	85.04	100.62	127.46
C	El Dorado (MC)	Winter	2022	331.69	384.49	451.69	576.18	73.66	85.17	100.69	127.54
C	El Dorado (MC)	Winter	2023	331.72	384.61	451.67	576.32	73.70	85.27	100.74	127.69
C	El Dorado (MC)	Winter	2024	331.73	384.71	451.64	576.42	73.72	85.37	100.79	127.82
C	El Dorado (MC)	Winter	2025	331.74	384.80	451.62	576.56	73.75	85.46	100.83	127.96
C	El Dorado (MC)	Winter	2026	331.76	384.92	451.58	576.71	73.77	85.55	100.87	128.09
C	El Dorado (MC)	Winter	2027	331.77	385.03	451.55	576.86	73.78	85.64	100.89	128.21
C	El Dorado (MC)	Winter	2028	331.78	385.15	451.52	577.01	73.79	85.72	100.91	128.32
C	El Dorado (MC)	Winter	2029	331.78	385.27	451.48	577.15	73.80	85.79	100.92	128.43
C	El Dorado (MC)	Winter	2030	331.78	385.40	451.44	577.31	73.81	85.86	100.93	128.53
C	El Dorado (MC)	Winter	2031	331.78	385.52	451.42	577.49	73.81	85.93	100.94	128.63
C	El Dorado (MC)	Winter	2032	331.78	385.64	451.41	577.67	73.82	86.00	100.94	128.73
C	El Dorado (MC)	Winter	2033	331.78	385.75	451.39	577.83	73.82	86.06	100.95	128.82
C	El Dorado (MC)	Winter	2034	331.79	385.85	451.38	577.97	73.82	86.11	100.96	128.91
C	El Dorado (MC)	Winter	2035	331.78	385.93	451.36	578.10	73.83	86.16	100.96	128.99
C	Fresno (SJV)	Annual	2010	332.59	381.43	455.63	572.39	73.33	85.16	100.40	124.69
C	Fresno (SJV)	Annual	2011	332.92	382.33	455.40	573.13	73.36	84.93	100.38	124.93
C	Fresno (SJV)	Annual	2012	333.28	383.14	455.34	574.01	73.39	84.78	100.39	125.18
C	Fresno (SJV)	Annual	2013	333.73	383.96	455.45	575.09	73.44	84.70	100.41	125.46
C	Fresno (SJV)	Annual	2014	333.96	384.49	455.36	575.85	73.49	84.64	100.42	125.73
C	Fresno (SJV)	Annual	2015	334.75	385.63	456.06	577.60	73.55	84.63	100.44	126.02
C	Fresno (SJV)	Annual	2016	334.94	386.04	456.00	578.34	73.62	84.61	100.47	126.31
C	Fresno (SJV)	Annual	2017	335.07	386.40	455.95	579.02	73.64	84.59	100.48	126.59
C	Fresno (SJV)	Annual	2018	336.24	387.94	457.37	581.46	73.67	84.60	100.50	126.85
C	Fresno (SJV)	Annual	2019	336.33	388.23	457.33	581.97	73.72	84.71	100.53	127.09
C	Fresno (SJV)	Annual	2020	336.41	388.50	457.29	582.43	73.81	84.86	100.60	127.31
C	Fresno (SJV)	Annual	2021	336.48	388.79	457.28	582.85	73.87	85.02	100.68	127.50
C	Fresno (SJV)	Annual	2022	336.50	389.03	457.25	583.19	73.92	85.17	100.74	127.66
C	Fresno (SJV)	Annual	2023	336.51	389.23	457.23	583.46	73.95	85.29	100.80	127.85
C	Fresno (SJV)	Annual	2024	336.38	389.25	457.03	583.43	73.97	85.40	100.84	128.01
C	Fresno (SJV)	Annual	2025	336.38	389.39	457.00	583.60	73.99	85.50	100.87	128.16
C	Fresno (SJV)	Annual	2026	338.35	391.81	459.63	587.16	74.01	85.60	100.90	128.30
C	Fresno (SJV)	Annual	2027	338.36	391.96	459.61	587.32	74.02	85.68	100.92	128.43

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Fresno (SJV)	Annual	2028	338.36	392.10	459.58	587.48	74.03	85.76	100.94	128.54
C	Fresno (SJV)	Annual	2029	338.36	392.24	459.56	587.63	74.04	85.84	100.95	128.65
C	Fresno (SJV)	Annual	2030	338.36	392.37	459.53	587.79	74.04	85.91	100.96	128.75
C	Fresno (SJV)	Annual	2031	338.36	392.50	459.52	587.96	74.05	85.98	100.96	128.84
C	Fresno (SJV)	Annual	2032	338.36	392.62	459.51	588.13	74.05	86.04	100.97	128.93
C	Fresno (SJV)	Annual	2033	338.36	392.72	459.49	588.28	74.05	86.09	100.97	129.01
C	Fresno (SJV)	Annual	2034	338.36	392.81	459.48	588.42	74.06	86.14	100.98	129.09
C	Fresno (SJV)	Annual	2035	338.35	392.88	459.47	588.54	74.06	86.18	100.98	129.16
C	Fresno (SJV)	Summer	2010	365.89	415.42	499.30	627.61	73.33	85.16	100.40	124.69
C	Fresno (SJV)	Summer	2011	366.50	417.15	499.37	628.38	73.36	84.93	100.38	124.93
C	Fresno (SJV)	Summer	2012	367.06	418.57	499.55	629.35	73.39	84.78	100.39	125.18
C	Fresno (SJV)	Summer	2013	367.66	419.86	499.87	630.59	73.44	84.70	100.41	125.46
C	Fresno (SJV)	Summer	2014	368.00	420.76	499.96	631.54	73.49	84.64	100.42	125.73
C	Fresno (SJV)	Summer	2015	368.92	422.24	500.90	633.61	73.55	84.63	100.44	126.02
C	Fresno (SJV)	Summer	2016	369.16	422.88	500.97	634.57	73.62	84.61	100.47	126.31
C	Fresno (SJV)	Summer	2017	369.31	423.43	501.00	635.46	73.64	84.59	100.48	126.59
C	Fresno (SJV)	Summer	2018	370.58	425.21	502.58	638.22	73.67	84.60	100.50	126.85
C	Fresno (SJV)	Summer	2019	370.66	425.60	502.55	638.86	73.72	84.71	100.53	127.09
C	Fresno (SJV)	Summer	2020	370.71	425.96	502.50	639.43	73.81	84.86	100.60	127.31
C	Fresno (SJV)	Summer	2021	370.80	426.40	502.51	640.00	73.87	85.02	100.68	127.50
C	Fresno (SJV)	Summer	2022	370.85	426.76	502.50	640.46	73.92	85.17	100.74	127.66
C	Fresno (SJV)	Summer	2023	370.87	427.06	502.48	640.80	73.95	85.29	100.80	127.85
C	Fresno (SJV)	Summer	2024	370.73	427.16	502.25	640.76	73.97	85.40	100.84	128.01
C	Fresno (SJV)	Summer	2025	370.73	427.39	502.21	640.93	73.99	85.50	100.87	128.16
C	Fresno (SJV)	Summer	2026	372.91	430.11	505.12	644.84	74.01	85.60	100.90	128.30
C	Fresno (SJV)	Summer	2027	372.92	430.32	505.10	644.98	74.02	85.68	100.92	128.43
C	Fresno (SJV)	Summer	2028	372.93	430.52	505.08	645.13	74.03	85.76	100.94	128.54
C	Fresno (SJV)	Summer	2029	372.94	430.72	505.05	645.28	74.04	85.84	100.95	128.65
C	Fresno (SJV)	Summer	2030	372.94	430.92	505.03	645.45	74.04	85.91	100.96	128.75
C	Fresno (SJV)	Summer	2031	372.93	431.10	505.02	645.63	74.05	85.98	100.96	128.84
C	Fresno (SJV)	Summer	2032	372.93	431.26	505.01	645.82	74.05	86.04	100.97	128.93
C	Fresno (SJV)	Summer	2033	372.93	431.39	505.00	646.00	74.05	86.09	100.97	129.01
C	Fresno (SJV)	Summer	2034	372.93	431.50	504.99	646.18	74.06	86.14	100.98	129.09
C	Fresno (SJV)	Summer	2035	372.92	431.58	504.98	646.33	74.06	86.18	100.98	129.16
C	Fresno (SJV)	Winter	2010	319.21	367.78	438.09	550.22	73.33	85.16	100.40	124.69
C	Fresno (SJV)	Winter	2011	319.43	368.35	437.74	550.95	73.36	84.93	100.38	124.93
C	Fresno (SJV)	Winter	2012	319.71	368.92	437.59	551.79	73.39	84.78	100.39	125.18
C	Fresno (SJV)	Winter	2013	320.09	369.54	437.61	552.79	73.44	84.70	100.41	125.46
C	Fresno (SJV)	Winter	2014	320.29	369.93	437.44	553.49	73.49	84.64	100.42	125.73
C	Fresno (SJV)	Winter	2015	321.02	370.92	438.04	555.11	73.55	84.63	100.44	126.02
C	Fresno (SJV)	Winter	2016	321.20	371.25	437.94	555.75	73.62	84.61	100.47	126.31
C	Fresno (SJV)	Winter	2017	321.32	371.53	437.86	556.36	73.64	84.59	100.48	126.59
C	Fresno (SJV)	Winter	2018	322.45	372.96	439.21	558.66	73.67	84.60	100.50	126.85
C	Fresno (SJV)	Winter	2019	322.55	373.22	439.16	559.12	73.72	84.71	100.53	127.09
C	Fresno (SJV)	Winter	2020	322.63	373.45	439.13	559.54	73.81	84.86	100.60	127.31
C	Fresno (SJV)	Winter	2021	322.69	373.69	439.11	559.90	73.87	85.02	100.68	127.50
C	Fresno (SJV)	Winter	2022	322.71	373.88	439.08	560.19	73.92	85.17	100.74	127.66
C	Fresno (SJV)	Winter	2023	322.72	374.03	439.05	560.43	73.95	85.29	100.80	127.85
C	Fresno (SJV)	Winter	2024	322.58	374.02	438.86	560.40	73.97	85.40	100.84	128.01
C	Fresno (SJV)	Winter	2025	322.58	374.13	438.84	560.57	73.99	85.50	100.87	128.16
C	Fresno (SJV)	Winter	2026	324.46	376.42	441.35	563.99	74.01	85.60	100.90	128.30
C	Fresno (SJV)	Winter	2027	324.47	376.54	441.33	564.15	74.02	85.68	100.92	128.43
C	Fresno (SJV)	Winter	2028	324.47	376.66	441.30	564.31	74.03	85.76	100.94	128.54
C	Fresno (SJV)	Winter	2029	324.47	376.77	441.27	564.47	74.04	85.84	100.95	128.65

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Fresno (SJV)	Winter	2030	324.46	376.88	441.25	564.63	74.04	85.91	100.96	128.75
C	Fresno (SJV)	Winter	2031	324.47	376.99	441.24	564.79	74.05	85.98	100.96	128.84
C	Fresno (SJV)	Winter	2032	324.46	377.09	441.22	564.95	74.05	86.04	100.97	128.93
C	Fresno (SJV)	Winter	2033	324.46	377.18	441.21	565.09	74.05	86.09	100.97	129.01
C	Fresno (SJV)	Winter	2034	324.46	377.26	441.20	565.21	74.06	86.14	100.98	129.09
C	Fresno (SJV)	Winter	2035	324.46	377.33	441.18	565.32	74.06	86.18	100.98	129.16
C	Glenn (SV)	Annual	2010	347.61	407.24	479.18	597.47	73.80	101.05	102.36	125.05
C	Glenn (SV)	Annual	2011	347.94	406.83	478.46	597.84	73.70	98.07	102.06	125.06
C	Glenn (SV)	Annual	2012	348.25	406.57	477.93	598.43	73.59	95.83	101.82	125.13
C	Glenn (SV)	Annual	2013	348.56	406.34	477.52	599.20	73.54	93.69	101.62	125.27
C	Glenn (SV)	Annual	2014	348.81	406.16	477.20	600.00	73.43	91.83	101.37	125.43
C	Glenn (SV)	Annual	2015	349.05	406.03	476.95	600.89	73.38	90.19	101.22	125.64
C	Glenn (SV)	Annual	2016	349.27	405.92	476.74	601.81	73.41	88.68	101.09	125.88
C	Glenn (SV)	Annual	2017	349.44	405.85	476.57	602.68	73.41	87.43	101.01	126.13
C	Glenn (SV)	Annual	2018	349.58	405.77	476.41	603.43	73.43	86.26	100.91	126.38
C	Glenn (SV)	Annual	2019	349.68	405.76	476.29	604.10	73.46	85.63	100.80	126.62
C	Glenn (SV)	Annual	2020	349.77	405.79	476.19	604.70	73.56	85.43	100.85	126.85
C	Glenn (SV)	Annual	2021	349.82	405.88	476.10	605.14	73.62	85.50	100.90	126.97
C	Glenn (SV)	Annual	2022	349.86	405.97	476.01	605.47	73.68	85.55	100.94	127.04
C	Glenn (SV)	Annual	2023	349.88	406.04	475.94	605.72	73.71	85.61	100.98	127.23
C	Glenn (SV)	Annual	2024	349.89	406.11	475.87	605.91	73.71	85.66	101.00	127.41
C	Glenn (SV)	Annual	2025	349.89	406.19	475.82	606.12	73.72	85.74	101.02	127.59
C	Glenn (SV)	Annual	2026	349.91	406.27	475.76	606.32	73.75	85.81	101.03	127.77
C	Glenn (SV)	Annual	2027	349.93	406.34	475.71	606.53	73.76	85.87	101.03	127.93
C	Glenn (SV)	Annual	2028	349.94	406.42	475.66	606.74	73.77	85.93	101.03	128.07
C	Glenn (SV)	Annual	2029	349.94	406.49	475.61	606.94	73.78	85.99	101.02	128.21
C	Glenn (SV)	Annual	2030	349.94	406.57	475.56	607.16	73.78	86.04	101.01	128.34
C	Glenn (SV)	Annual	2031	349.94	406.64	475.55	607.42	73.79	86.10	101.01	128.47
C	Glenn (SV)	Annual	2032	349.94	406.69	475.53	607.68	73.79	86.15	101.01	128.60
C	Glenn (SV)	Annual	2033	349.94	406.75	475.52	607.92	73.80	86.19	101.01	128.71
C	Glenn (SV)	Annual	2034	349.94	406.79	475.50	608.14	73.80	86.23	101.01	128.82
C	Glenn (SV)	Annual	2035	349.93	406.82	475.49	608.33	73.81	86.26	101.01	128.92
C	Glenn (SV)	Summer	2010	384.83	445.81	527.20	657.56	73.80	101.05	102.36	125.05
C	Glenn (SV)	Summer	2011	385.51	446.50	527.25	657.84	73.70	98.07	102.06	125.06
C	Glenn (SV)	Summer	2012	386.08	446.98	527.28	658.52	73.59	95.83	101.82	125.13
C	Glenn (SV)	Summer	2013	386.56	447.34	527.28	659.58	73.54	93.69	101.62	125.27
C	Glenn (SV)	Summer	2014	386.94	447.60	527.29	660.69	73.43	91.83	101.37	125.43
C	Glenn (SV)	Summer	2015	387.27	447.83	527.25	661.99	73.38	90.19	101.22	125.64
C	Glenn (SV)	Summer	2016	387.55	448.01	527.19	663.37	73.41	88.68	101.09	125.88
C	Glenn (SV)	Summer	2017	387.74	448.13	527.06	664.65	73.41	87.43	101.01	126.13
C	Glenn (SV)	Summer	2018	387.86	448.22	526.91	665.76	73.43	86.26	100.91	126.38
C	Glenn (SV)	Summer	2019	387.96	448.30	526.79	666.74	73.46	85.63	100.80	126.62
C	Glenn (SV)	Summer	2020	388.02	448.37	526.65	667.59	73.56	85.43	100.85	126.85
C	Glenn (SV)	Summer	2021	388.06	448.51	526.53	668.25	73.62	85.50	100.90	126.97
C	Glenn (SV)	Summer	2022	388.09	448.64	526.43	668.76	73.68	85.55	100.94	127.04
C	Glenn (SV)	Summer	2023	388.10	448.75	526.35	669.12	73.71	85.61	100.98	127.23
C	Glenn (SV)	Summer	2024	388.12	448.88	526.29	669.37	73.71	85.66	101.00	127.41
C	Glenn (SV)	Summer	2025	388.13	449.00	526.24	669.61	73.72	85.74	101.02	127.59
C	Glenn (SV)	Summer	2026	388.17	449.13	526.19	669.78	73.75	85.81	101.03	127.77
C	Glenn (SV)	Summer	2027	388.21	449.21	526.15	669.97	73.76	85.87	101.03	127.93
C	Glenn (SV)	Summer	2028	388.24	449.33	526.12	670.17	73.77	85.93	101.03	128.07
C	Glenn (SV)	Summer	2029	388.26	449.45	526.10	670.39	73.78	85.99	101.02	128.21
C	Glenn (SV)	Summer	2030	388.28	449.57	526.08	670.64	73.78	86.04	101.01	128.34
C	Glenn (SV)	Summer	2031	388.27	449.67	526.12	670.94	73.79	86.10	101.01	128.47

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/MT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Glenn (SV)	Summer	2032	388.27	449.74	526.13	671.26	73.79	86.15	101.01	128.60
C	Glenn (SV)	Summer	2033	388.26	449.81	526.14	671.55	73.80	86.19	101.01	128.71
C	Glenn (SV)	Summer	2034	388.25	449.85	526.14	671.85	73.80	86.23	101.01	128.82
C	Glenn (SV)	Summer	2035	388.24	449.87	526.13	672.11	73.81	86.26	101.01	128.92
C	Glenn (SV)	Winter	2010	335.44	394.64	463.49	577.83	73.80	101.05	102.36	125.05
C	Glenn (SV)	Winter	2011	335.66	393.87	462.51	578.23	73.70	98.07	102.06	125.06
C	Glenn (SV)	Winter	2012	335.89	393.37	461.80	578.79	73.59	95.83	101.82	125.13
C	Glenn (SV)	Winter	2013	336.14	392.94	461.25	579.47	73.54	93.69	101.62	125.27
C	Glenn (SV)	Winter	2014	336.35	392.62	460.83	580.17	73.43	91.83	101.37	125.43
C	Glenn (SV)	Winter	2015	336.56	392.37	460.51	580.92	73.38	90.19	101.22	125.64
C	Glenn (SV)	Winter	2016	336.76	392.17	460.25	581.69	73.41	88.68	101.09	125.88
C	Glenn (SV)	Winter	2017	336.93	392.03	460.06	582.43	73.41	87.43	101.01	126.13
C	Glenn (SV)	Winter	2018	337.06	391.89	459.91	583.06	73.43	86.26	100.91	126.38
C	Glenn (SV)	Winter	2019	337.18	391.86	459.79	583.63	73.46	85.63	100.80	126.62
C	Glenn (SV)	Winter	2020	337.27	391.87	459.70	584.15	73.56	85.43	100.85	126.85
C	Glenn (SV)	Winter	2021	337.33	391.95	459.61	584.51	73.62	85.50	100.90	126.97
C	Glenn (SV)	Winter	2022	337.37	392.02	459.54	584.78	73.68	85.55	100.94	127.04
C	Glenn (SV)	Winter	2023	337.39	392.08	459.47	585.00	73.71	85.61	100.98	127.23
C	Glenn (SV)	Winter	2024	337.39	392.13	459.40	585.17	73.71	85.66	101.00	127.41
C	Glenn (SV)	Winter	2025	337.39	392.20	459.34	585.37	73.72	85.74	101.02	127.59
C	Glenn (SV)	Winter	2026	337.41	392.27	459.27	585.58	73.75	85.81	101.03	127.77
C	Glenn (SV)	Winter	2027	337.42	392.32	459.22	585.80	73.76	85.87	101.03	127.93
C	Glenn (SV)	Winter	2028	337.42	392.39	459.16	586.00	73.77	85.93	101.03	128.07
C	Glenn (SV)	Winter	2029	337.42	392.46	459.10	586.21	73.78	85.99	101.02	128.21
C	Glenn (SV)	Winter	2030	337.42	392.52	459.05	586.42	73.78	86.04	101.01	128.34
C	Glenn (SV)	Winter	2031	337.42	392.58	459.02	586.66	73.79	86.10	101.01	128.47
C	Glenn (SV)	Winter	2032	337.42	392.63	459.00	586.91	73.79	86.15	101.01	128.60
C	Glenn (SV)	Winter	2033	337.41	392.67	458.97	587.13	73.80	86.19	101.01	128.71
C	Glenn (SV)	Winter	2034	337.41	392.71	458.95	587.32	73.80	86.23	101.01	128.82
C	Glenn (SV)	Winter	2035	337.41	392.75	458.94	587.49	73.81	86.26	101.01	128.92
C	Humboldt (NC)	Annual	2010	328.57	377.52	451.16	562.78	72.92	85.59	100.40	123.74
C	Humboldt (NC)	Annual	2011	328.60	377.95	450.57	563.46	72.88	85.26	100.35	123.95
C	Humboldt (NC)	Annual	2012	328.67	378.37	450.10	564.24	72.86	85.04	100.37	124.22
C	Humboldt (NC)	Annual	2013	328.79	378.74	449.73	565.09	72.87	84.87	100.40	124.52
C	Humboldt (NC)	Annual	2014	328.88	379.06	449.44	565.92	72.82	84.72	100.41	124.81
C	Humboldt (NC)	Annual	2015	329.00	379.39	449.21	566.76	72.83	84.63	100.44	125.14
C	Humboldt (NC)	Annual	2016	329.16	379.71	449.03	567.57	72.89	84.61	100.49	125.48
C	Humboldt (NC)	Annual	2017	329.26	379.97	448.88	568.32	72.91	84.54	100.52	125.81
C	Humboldt (NC)	Annual	2018	329.35	380.20	448.76	568.98	72.94	84.52	100.55	126.12
C	Humboldt (NC)	Annual	2019	329.43	380.44	448.67	569.54	72.98	84.60	100.61	126.42
C	Humboldt (NC)	Annual	2020	329.49	380.65	448.59	570.03	73.07	84.71	100.67	126.69
C	Humboldt (NC)	Annual	2021	329.54	380.81	448.52	570.42	73.13	84.84	100.74	126.93
C	Humboldt (NC)	Annual	2022	329.54	380.94	448.44	570.75	73.18	84.95	100.79	127.13
C	Humboldt (NC)	Annual	2023	329.49	381.04	448.37	571.00	73.20	85.06	100.83	127.34
C	Humboldt (NC)	Annual	2024	329.42	381.10	448.30	571.20	73.19	85.15	100.87	127.53
C	Humboldt (NC)	Annual	2025	329.38	381.21	448.25	571.38	73.20	85.25	100.90	127.70
C	Humboldt (NC)	Annual	2026	329.39	381.36	448.19	571.56	73.22	85.36	100.92	127.86
C	Humboldt (NC)	Annual	2027	329.39	381.51	448.13	571.75	73.24	85.47	100.94	128.01
C	Humboldt (NC)	Annual	2028	329.39	381.66	448.08	571.95	73.25	85.56	100.95	128.15
C	Humboldt (NC)	Annual	2029	329.38	381.80	448.02	572.14	73.25	85.65	100.96	128.28
C	Humboldt (NC)	Annual	2030	329.36	381.95	447.93	572.34	73.25	85.74	100.95	128.41
C	Humboldt (NC)	Annual	2031	329.35	382.09	447.90	572.56	73.26	85.82	100.95	128.53
C	Humboldt (NC)	Annual	2032	329.34	382.22	447.86	572.78	73.27	85.90	100.96	128.65
C	Humboldt (NC)	Annual	2033	329.34	382.34	447.84	572.97	73.27	85.97	100.96	128.76

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/MT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Humboldt (NC)	Annual	2034	329.33	382.45	447.82	573.15	73.28	86.03	100.97	128.86
C	Humboldt (NC)	Annual	2035	329.32	382.53	447.80	573.30	73.28	86.09	100.97	128.95
C	Humboldt (NC)	Summer	2010	328.37	377.33	450.90	562.46	72.92	85.59	100.40	123.74
C	Humboldt (NC)	Summer	2011	328.40	377.76	450.31	563.15	72.88	85.26	100.35	123.95
C	Humboldt (NC)	Summer	2012	328.47	378.17	449.85	563.92	72.86	85.04	100.37	124.22
C	Humboldt (NC)	Summer	2013	328.60	378.54	449.48	564.78	72.87	84.87	100.40	124.52
C	Humboldt (NC)	Summer	2014	328.68	378.86	449.18	565.60	72.82	84.72	100.41	124.81
C	Humboldt (NC)	Summer	2015	328.81	379.18	448.95	566.44	72.83	84.63	100.44	125.14
C	Humboldt (NC)	Summer	2016	328.96	379.50	448.77	567.25	72.89	84.61	100.49	125.48
C	Humboldt (NC)	Summer	2017	329.06	379.76	448.61	568.00	72.91	84.54	100.52	125.81
C	Humboldt (NC)	Summer	2018	329.15	379.99	448.50	568.65	72.94	84.52	100.55	126.12
C	Humboldt (NC)	Summer	2019	329.23	380.22	448.41	569.21	72.98	84.60	100.61	126.42
C	Humboldt (NC)	Summer	2020	329.30	380.43	448.33	569.70	73.07	84.71	100.67	126.69
C	Humboldt (NC)	Summer	2021	329.34	380.59	448.26	570.09	73.13	84.84	100.74	126.93
C	Humboldt (NC)	Summer	2022	329.34	380.72	448.18	570.42	73.18	84.95	100.79	127.13
C	Humboldt (NC)	Summer	2023	329.30	380.82	448.11	570.67	73.20	85.06	100.83	127.34
C	Humboldt (NC)	Summer	2024	329.22	380.89	448.04	570.87	73.19	85.15	100.87	127.53
C	Humboldt (NC)	Summer	2025	329.18	380.99	447.99	571.05	73.20	85.25	100.90	127.70
C	Humboldt (NC)	Summer	2026	329.19	381.14	447.93	571.23	73.22	85.36	100.92	127.86
C	Humboldt (NC)	Summer	2027	329.20	381.29	447.87	571.42	73.24	85.47	100.94	128.01
C	Humboldt (NC)	Summer	2028	329.19	381.43	447.82	571.62	73.25	85.56	100.95	128.15
C	Humboldt (NC)	Summer	2029	329.18	381.58	447.75	571.81	73.25	85.65	100.96	128.28
C	Humboldt (NC)	Summer	2030	329.16	381.72	447.67	572.00	73.25	85.74	100.95	128.41
C	Humboldt (NC)	Summer	2031	329.15	381.87	447.63	572.23	73.26	85.82	100.95	128.53
C	Humboldt (NC)	Summer	2032	329.15	382.00	447.60	572.45	73.27	85.90	100.96	128.65
C	Humboldt (NC)	Summer	2033	329.14	382.12	447.58	572.64	73.27	85.97	100.96	128.76
C	Humboldt (NC)	Summer	2034	329.13	382.22	447.55	572.81	73.28	86.03	100.97	128.86
C	Humboldt (NC)	Summer	2035	329.13	382.31	447.53	572.97	73.28	86.09	100.97	128.95
C	Humboldt (NC)	Winter	2010	327.32	376.27	449.51	560.73	72.92	85.59	100.40	123.74
C	Humboldt (NC)	Winter	2011	327.34	376.67	448.90	561.41	72.88	85.26	100.35	123.95
C	Humboldt (NC)	Winter	2012	327.40	377.05	448.43	562.18	72.86	85.04	100.37	124.22
C	Humboldt (NC)	Winter	2013	327.52	377.40	448.05	563.02	72.87	84.87	100.40	124.52
C	Humboldt (NC)	Winter	2014	327.59	377.71	447.75	563.84	72.82	84.72	100.41	124.81
C	Humboldt (NC)	Winter	2015	327.71	378.02	447.51	564.67	72.83	84.63	100.44	125.14
C	Humboldt (NC)	Winter	2016	327.86	378.33	447.32	565.46	72.89	84.61	100.49	125.48
C	Humboldt (NC)	Winter	2017	327.97	378.58	447.16	566.20	72.91	84.54	100.52	125.81
C	Humboldt (NC)	Winter	2018	328.06	378.80	447.04	566.84	72.94	84.52	100.55	126.12
C	Humboldt (NC)	Winter	2019	328.14	379.03	446.95	567.40	72.98	84.60	100.61	126.42
C	Humboldt (NC)	Winter	2020	328.20	379.23	446.88	567.88	73.07	84.71	100.67	126.69
C	Humboldt (NC)	Winter	2021	328.25	379.39	446.80	568.27	73.13	84.84	100.74	126.93
C	Humboldt (NC)	Winter	2022	328.25	379.51	446.73	568.60	73.18	84.95	100.79	127.13
C	Humboldt (NC)	Winter	2023	328.20	379.61	446.65	568.84	73.20	85.06	100.83	127.34
C	Humboldt (NC)	Winter	2024	328.13	379.67	446.58	569.04	73.19	85.15	100.87	127.53
C	Humboldt (NC)	Winter	2025	328.09	379.77	446.53	569.21	73.20	85.25	100.90	127.70
C	Humboldt (NC)	Winter	2026	328.10	379.92	446.47	569.40	73.22	85.36	100.92	127.86
C	Humboldt (NC)	Winter	2027	328.10	380.06	446.42	569.59	73.24	85.47	100.94	128.01
C	Humboldt (NC)	Winter	2028	328.10	380.21	446.36	569.78	73.25	85.56	100.95	128.15
C	Humboldt (NC)	Winter	2029	328.08	380.35	446.30	569.97	73.25	85.65	100.96	128.28
C	Humboldt (NC)	Winter	2030	328.06	380.49	446.22	570.17	73.25	85.74	100.95	128.41
C	Humboldt (NC)	Winter	2031	328.06	380.63	446.18	570.39	73.26	85.82	100.95	128.53
C	Humboldt (NC)	Winter	2032	328.05	380.76	446.14	570.61	73.27	85.90	100.96	128.65
C	Humboldt (NC)	Winter	2033	328.04	380.88	446.12	570.80	73.27	85.97	100.96	128.76
C	Humboldt (NC)	Winter	2034	328.04	380.98	446.10	570.97	73.28	86.03	100.97	128.86
C	Humboldt (NC)	Winter	2035	328.03	381.07	446.08	571.12	73.28	86.09	100.97	128.95

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location			CO2 Running (g/VMt)				CO2 Starting (g/trip)			
		Season	Year	LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Imperial (SS)	Annual	2010	333.06	382.51	456.21	575.78	72.99	86.06	100.65	125.48
C	Imperial (SS)	Annual	2011	332.74	382.65	455.12	575.21	73.04	85.73	100.60	125.71
C	Imperial (SS)	Annual	2012	333.03	383.36	454.93	575.79	73.14	85.50	100.60	125.97
C	Imperial (SS)	Annual	2013	331.75	382.30	452.68	573.90	73.23	85.37	100.58	126.29
C	Imperial (SS)	Annual	2014	331.98	382.91	452.61	574.66	73.31	85.29	100.59	126.61
C	Imperial (SS)	Annual	2015	327.26	377.77	445.90	566.93	73.39	85.24	100.62	126.91
C	Imperial (SS)	Annual	2016	327.36	378.16	445.86	567.56	73.41	85.18	100.65	127.20
C	Imperial (SS)	Annual	2017	327.39	378.50	445.81	568.11	73.41	85.15	100.65	127.47
C	Imperial (SS)	Annual	2018	327.40	378.76	445.76	568.55	73.39	85.16	100.65	127.71
C	Imperial (SS)	Annual	2019	327.23	378.80	445.47	568.62	73.39	85.24	100.69	127.93
C	Imperial (SS)	Annual	2020	327.21	379.01	445.41	568.92	73.41	85.34	100.76	128.13
C	Imperial (SS)	Annual	2021	327.15	379.11	445.34	569.08	73.42	85.44	100.80	128.28
C	Imperial (SS)	Annual	2022	327.03	379.19	445.26	569.20	73.39	85.52	100.84	128.40
C	Imperial (SS)	Annual	2023	326.91	379.26	445.18	569.30	73.35	85.60	100.87	128.53
C	Imperial (SS)	Annual	2024	329.56	382.51	448.87	574.16	73.32	85.66	100.89	128.63
C	Imperial (SS)	Annual	2025	329.46	382.58	448.83	574.22	73.28	85.73	100.92	128.73
C	Imperial (SS)	Annual	2026	329.42	382.67	448.77	574.27	73.26	85.80	100.94	128.82
C	Imperial (SS)	Annual	2027	329.39	382.76	448.73	574.32	73.24	85.86	100.95	128.90
C	Imperial (SS)	Annual	2028	329.37	382.86	448.71	574.39	73.23	85.92	100.96	128.97
C	Imperial (SS)	Annual	2029	329.36	382.96	448.68	574.47	73.21	85.97	100.96	129.04
C	Imperial (SS)	Annual	2030	329.34	383.07	448.66	574.55	73.20	86.02	100.97	129.10
C	Imperial (SS)	Annual	2031	329.66	383.57	449.13	575.24	73.19	86.07	100.97	129.15
C	Imperial (SS)	Annual	2032	329.64	383.67	449.12	575.31	73.18	86.11	100.97	129.21
C	Imperial (SS)	Annual	2033	329.63	383.75	449.11	575.38	73.18	86.15	100.98	129.26
C	Imperial (SS)	Annual	2034	329.63	383.82	449.11	575.45	73.18	86.19	100.98	129.30
C	Imperial (SS)	Annual	2035	329.62	383.88	449.10	575.52	73.18	86.22	100.98	129.34
C	Imperial (SS)	Summer	2010	341.49	391.06	467.38	590.08	72.99	86.06	100.65	125.48
C	Imperial (SS)	Summer	2011	341.29	391.47	466.40	589.55	73.04	85.73	100.60	125.71
C	Imperial (SS)	Summer	2012	341.64	392.37	466.28	590.14	73.14	85.50	100.60	125.97
C	Imperial (SS)	Summer	2013	340.37	391.46	464.05	588.24	73.23	85.37	100.58	126.29
C	Imperial (SS)	Summer	2014	340.64	392.20	464.05	589.07	73.31	85.29	100.59	126.61
C	Imperial (SS)	Summer	2015	335.82	387.05	457.23	581.20	73.39	85.24	100.62	126.91
C	Imperial (SS)	Summer	2016	335.93	387.53	457.23	581.90	73.41	85.18	100.65	127.20
C	Imperial (SS)	Summer	2017	335.98	387.93	457.21	582.52	73.41	85.15	100.65	127.47
C	Imperial (SS)	Summer	2018	335.99	388.23	457.17	583.00	73.39	85.16	100.65	127.71
C	Imperial (SS)	Summer	2019	335.83	388.32	456.89	583.10	73.39	85.24	100.69	127.93
C	Imperial (SS)	Summer	2020	335.80	388.55	456.83	583.42	73.41	85.34	100.76	128.13
C	Imperial (SS)	Summer	2021	335.69	388.62	456.70	583.51	73.42	85.44	100.80	128.28
C	Imperial (SS)	Summer	2022	335.56	388.70	456.60	583.62	73.39	85.52	100.84	128.40
C	Imperial (SS)	Summer	2023	335.42	388.78	456.51	583.70	73.35	85.60	100.87	128.53
C	Imperial (SS)	Summer	2024	338.10	392.07	460.23	588.61	73.32	85.66	100.89	128.63
C	Imperial (SS)	Summer	2025	338.00	392.15	460.18	588.66	73.28	85.73	100.92	128.73
C	Imperial (SS)	Summer	2026	337.95	392.24	460.11	588.69	73.26	85.80	100.94	128.82
C	Imperial (SS)	Summer	2027	337.92	392.33	460.07	588.73	73.24	85.86	100.95	128.90
C	Imperial (SS)	Summer	2028	337.91	392.44	460.04	588.80	73.23	85.92	100.96	128.97
C	Imperial (SS)	Summer	2029	337.90	392.56	460.02	588.88	73.21	85.97	100.96	129.04
C	Imperial (SS)	Summer	2030	337.89	392.68	460.00	588.96	73.20	86.02	100.97	129.10
C	Imperial (SS)	Summer	2031	338.20	393.18	460.46	589.62	73.19	86.07	100.97	129.15
C	Imperial (SS)	Summer	2032	338.17	393.28	460.45	589.69	73.18	86.11	100.97	129.21
C	Imperial (SS)	Summer	2033	338.16	393.37	460.44	589.76	73.18	86.15	100.98	129.26
C	Imperial (SS)	Summer	2034	338.16	393.45	460.44	589.84	73.18	86.19	100.98	129.30
C	Imperial (SS)	Summer	2035	338.15	393.51	460.44	589.91	73.18	86.22	100.98	129.34
C	Imperial (SS)	Winter	2010	314.45	363.62	431.53	544.19	72.99	86.06	100.65	125.48
C	Imperial (SS)	Winter	2011	313.97	363.27	430.33	543.72	73.04	85.73	100.60	125.71

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Imperial (SS)	Winter	2012	314.13	363.55	430.01	544.27	73.14	85.50	100.60	125.97
C	Imperial (SS)	Winter	2013	312.79	362.16	427.68	542.37	73.23	85.37	100.58	126.29
C	Imperial (SS)	Winter	2014	312.93	362.45	427.46	542.97	73.31	85.29	100.59	126.61
C	Imperial (SS)	Winter	2015	308.44	357.38	421.00	535.54	73.39	85.24	100.62	126.91
C	Imperial (SS)	Winter	2016	308.50	357.58	420.87	536.02	73.41	85.18	100.65	127.20
C	Imperial (SS)	Winter	2017	308.52	357.77	420.75	536.45	73.41	85.15	100.65	127.47
C	Imperial (SS)	Winter	2018	308.53	357.93	420.67	536.81	73.39	85.16	100.65	127.71
C	Imperial (SS)	Winter	2019	308.38	357.91	420.39	536.83	73.39	85.24	100.69	127.93
C	Imperial (SS)	Winter	2020	308.36	358.06	420.34	537.09	73.41	85.34	100.76	128.13
C	Imperial (SS)	Winter	2021	308.33	358.16	420.31	537.29	73.42	85.44	100.80	128.28
C	Imperial (SS)	Winter	2022	308.24	358.22	420.27	537.43	73.39	85.52	100.84	128.40
C	Imperial (SS)	Winter	2023	308.13	358.28	420.22	537.54	73.35	85.60	100.87	128.53
C	Imperial (SS)	Winter	2024	310.65	361.33	423.72	542.17	73.32	85.66	100.89	128.63
C	Imperial (SS)	Winter	2025	310.55	361.39	423.70	542.25	73.28	85.73	100.92	128.73
C	Imperial (SS)	Winter	2026	310.52	361.47	423.66	542.33	73.26	85.80	100.94	128.82
C	Imperial (SS)	Winter	2027	310.48	361.55	423.63	542.41	73.24	85.86	100.95	128.90
C	Imperial (SS)	Winter	2028	310.46	361.64	423.61	542.49	73.23	85.92	100.96	128.97
C	Imperial (SS)	Winter	2029	310.44	361.71	423.57	542.57	73.21	85.97	100.96	129.04
C	Imperial (SS)	Winter	2030	310.42	361.79	423.54	542.64	73.20	86.02	100.97	129.10
C	Imperial (SS)	Winter	2031	310.73	362.26	423.98	543.31	73.19	86.07	100.97	129.15
C	Imperial (SS)	Winter	2032	310.71	362.33	423.97	543.39	73.18	86.11	100.97	129.21
C	Imperial (SS)	Winter	2033	310.71	362.40	423.97	543.46	73.18	86.15	100.98	129.26
C	Imperial (SS)	Winter	2034	310.70	362.46	423.96	543.52	73.18	86.19	100.98	129.30
C	Imperial (SS)	Winter	2035	310.70	362.51	423.95	543.58	73.18	86.22	100.98	129.34
C	Inyo (GBV)	Annual	2010	356.66	415.27	486.92	609.08	74.86	92.72	102.09	125.24
C	Inyo (GBV)	Annual	2011	356.50	414.78	486.39	609.72	74.57	91.41	101.86	125.33
C	Inyo (GBV)	Annual	2012	356.50	414.32	485.97	610.47	74.43	90.24	101.67	125.47
C	Inyo (GBV)	Annual	2013	356.41	413.93	485.65	611.26	74.15	89.28	101.48	125.65
C	Inyo (GBV)	Annual	2014	356.31	413.56	485.39	612.03	73.85	88.38	101.20	125.84
C	Inyo (GBV)	Annual	2015	356.32	413.22	485.18	612.87	73.72	87.54	101.16	126.06
C	Inyo (GBV)	Annual	2016	356.43	413.02	485.02	613.71	73.74	86.96	101.06	126.28
C	Inyo (GBV)	Annual	2017	356.44	412.83	484.88	614.47	73.66	86.43	100.99	126.51
C	Inyo (GBV)	Annual	2018	356.41	412.64	484.77	615.10	73.56	85.95	100.90	126.74
C	Inyo (GBV)	Annual	2019	356.43	412.52	484.66	615.66	73.55	85.62	100.82	126.95
C	Inyo (GBV)	Annual	2020	356.41	412.45	484.57	616.15	73.60	85.52	100.83	127.15
C	Inyo (GBV)	Annual	2021	356.36	412.35	484.47	616.45	73.62	85.52	100.87	127.29
C	Inyo (GBV)	Annual	2022	356.25	412.28	484.37	616.71	73.62	85.52	100.90	127.41
C	Inyo (GBV)	Annual	2023	356.15	412.19	484.26	616.90	73.62	85.53	100.92	127.57
C	Inyo (GBV)	Annual	2024	356.06	412.13	484.17	617.04	73.61	85.55	100.93	127.72
C	Inyo (GBV)	Annual	2025	355.99	412.20	484.11	617.17	73.61	85.62	100.96	127.86
C	Inyo (GBV)	Annual	2026	356.00	412.34	484.04	617.36	73.63	85.70	100.98	128.02
C	Inyo (GBV)	Annual	2027	356.00	412.49	483.97	617.56	73.64	85.78	101.00	128.16
C	Inyo (GBV)	Annual	2028	355.99	412.64	483.91	617.74	73.64	85.86	101.00	128.29
C	Inyo (GBV)	Annual	2029	355.98	412.78	483.84	617.93	73.65	85.93	101.01	128.40
C	Inyo (GBV)	Annual	2030	355.96	412.92	483.77	618.12	73.65	85.99	101.00	128.52
C	Inyo (GBV)	Annual	2031	355.95	413.07	483.74	618.34	73.65	86.06	101.01	128.63
C	Inyo (GBV)	Annual	2032	355.94	413.20	483.70	618.56	73.66	86.12	101.01	128.75
C	Inyo (GBV)	Annual	2033	355.94	413.32	483.67	618.76	73.66	86.17	101.01	128.85
C	Inyo (GBV)	Annual	2034	355.93	413.42	483.64	618.94	73.67	86.22	101.02	128.94
C	Inyo (GBV)	Annual	2035	355.93	413.51	483.62	619.10	73.67	86.27	101.02	129.02
C	Inyo (GBV)	Summer	2010	381.10	438.56	518.79	649.11	74.86	92.72	102.09	125.24
C	Inyo (GBV)	Summer	2011	381.22	438.92	518.54	649.84	74.57	91.41	101.86	125.33
C	Inyo (GBV)	Summer	2012	381.40	439.18	518.36	650.75	74.43	90.24	101.67	125.47
C	Inyo (GBV)	Summer	2013	381.47	439.37	518.27	651.73	74.15	89.28	101.48	125.65

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Inyo (GBV)	Summer	2014	381.49	439.47	518.25	652.71	73.85	88.38	101.20	125.84
C	Inyo (GBV)	Summer	2015	381.58	439.58	518.19	653.82	73.72	87.54	101.16	126.06
C	Inyo (GBV)	Summer	2016	381.72	439.71	518.18	654.92	73.74	86.96	101.06	126.28
C	Inyo (GBV)	Summer	2017	381.76	439.81	518.15	655.93	73.66	86.43	100.99	126.51
C	Inyo (GBV)	Summer	2018	381.73	439.85	518.11	656.75	73.56	85.95	100.90	126.74
C	Inyo (GBV)	Summer	2019	381.76	439.93	518.07	657.48	73.55	85.62	100.82	126.95
C	Inyo (GBV)	Summer	2020	381.74	440.02	518.02	658.12	73.60	85.52	100.83	127.15
C	Inyo (GBV)	Summer	2021	381.69	440.06	517.94	658.52	73.62	85.52	100.87	127.29
C	Inyo (GBV)	Summer	2022	381.59	440.10	517.85	658.87	73.62	85.52	100.90	127.41
C	Inyo (GBV)	Summer	2023	381.50	440.13	517.78	659.12	73.62	85.53	100.92	127.57
C	Inyo (GBV)	Summer	2024	381.41	440.18	517.72	659.32	73.61	85.55	100.93	127.72
C	Inyo (GBV)	Summer	2025	381.36	440.29	517.67	659.49	73.61	85.62	100.96	127.86
C	Inyo (GBV)	Summer	2026	381.37	440.49	517.60	659.72	73.63	85.70	100.98	128.02
C	Inyo (GBV)	Summer	2027	381.38	440.72	517.54	659.94	73.64	85.78	101.00	128.16
C	Inyo (GBV)	Summer	2028	381.39	440.92	517.49	660.17	73.64	85.86	101.00	128.29
C	Inyo (GBV)	Summer	2029	381.39	441.13	517.43	660.40	73.65	85.93	101.01	128.40
C	Inyo (GBV)	Summer	2030	381.38	441.32	517.38	660.64	73.65	85.99	101.00	128.52
C	Inyo (GBV)	Summer	2031	381.38	441.54	517.35	660.90	73.65	86.06	101.01	128.63
C	Inyo (GBV)	Summer	2032	381.38	441.71	517.32	661.15	73.66	86.12	101.01	128.75
C	Inyo (GBV)	Summer	2033	381.37	441.88	517.29	661.39	73.66	86.17	101.01	128.85
C	Inyo (GBV)	Summer	2034	381.37	442.01	517.27	661.61	73.67	86.22	101.02	128.94
C	Inyo (GBV)	Summer	2035	381.36	442.11	517.25	661.80	73.67	86.27	101.02	129.02
C	Inyo (GBV)	Winter	2010	379.51	437.04	516.71	646.50	74.86	92.72	102.09	125.24
C	Inyo (GBV)	Winter	2011	379.61	437.35	516.44	647.23	74.57	91.41	101.86	125.33
C	Inyo (GBV)	Winter	2012	379.78	437.56	516.26	648.13	74.43	90.24	101.67	125.47
C	Inyo (GBV)	Winter	2013	379.84	437.71	516.14	649.10	74.15	89.28	101.48	125.65
C	Inyo (GBV)	Winter	2014	379.85	437.79	516.11	650.06	73.85	88.38	101.20	125.84
C	Inyo (GBV)	Winter	2015	379.93	437.87	516.04	651.15	73.72	87.54	101.16	126.06
C	Inyo (GBV)	Winter	2016	380.08	437.97	516.02	652.24	73.74	86.96	101.06	126.28
C	Inyo (GBV)	Winter	2017	380.11	438.05	515.98	653.23	73.66	86.43	100.99	126.51
C	Inyo (GBV)	Winter	2018	380.09	438.08	515.94	654.04	73.56	85.95	100.90	126.74
C	Inyo (GBV)	Winter	2019	380.11	438.15	515.90	654.76	73.55	85.62	100.82	126.95
C	Inyo (GBV)	Winter	2020	380.09	438.23	515.84	655.39	73.60	85.52	100.83	127.15
C	Inyo (GBV)	Winter	2021	380.04	438.26	515.76	655.79	73.62	85.52	100.87	127.29
C	Inyo (GBV)	Winter	2022	379.94	438.29	515.68	656.13	73.62	85.52	100.90	127.41
C	Inyo (GBV)	Winter	2023	379.85	438.32	515.60	656.37	73.62	85.53	100.92	127.57
C	Inyo (GBV)	Winter	2024	379.76	438.35	515.54	656.57	73.61	85.55	100.93	127.72
C	Inyo (GBV)	Winter	2025	379.71	438.46	515.49	656.74	73.61	85.62	100.96	127.86
C	Inyo (GBV)	Winter	2026	379.72	438.66	515.42	656.96	73.63	85.70	100.98	128.02
C	Inyo (GBV)	Winter	2027	379.73	438.88	515.36	657.18	73.64	85.78	101.00	128.16
C	Inyo (GBV)	Winter	2028	379.73	439.08	515.30	657.41	73.64	85.86	101.00	128.29
C	Inyo (GBV)	Winter	2029	379.73	439.29	515.25	657.64	73.65	85.93	101.01	128.40
C	Inyo (GBV)	Winter	2030	379.72	439.47	515.19	657.87	73.65	85.99	101.00	128.52
C	Inyo (GBV)	Winter	2031	379.72	439.68	515.16	658.13	73.65	86.06	101.01	128.63
C	Inyo (GBV)	Winter	2032	379.72	439.86	515.13	658.38	73.66	86.12	101.01	128.75
C	Inyo (GBV)	Winter	2033	379.72	440.02	515.11	658.62	73.66	86.17	101.01	128.85
C	Inyo (GBV)	Winter	2034	379.71	440.15	515.08	658.83	73.67	86.22	101.02	128.94
C	Inyo (GBV)	Winter	2035	379.71	440.25	515.06	659.02	73.67	86.27	101.02	129.02
C	Kern (MD)	Annual	2010	336.08	392.10	460.74	577.53	74.06	93.66	100.99	125.79
C	Kern (MD)	Annual	2011	336.60	392.15	460.74	578.88	73.94	91.90	100.87	125.91
C	Kern (MD)	Annual	2012	336.72	391.78	460.32	579.53	73.83	90.38	100.77	126.04
C	Kern (MD)	Annual	2013	336.85	391.46	460.00	580.23	73.76	89.06	100.75	126.20
C	Kern (MD)	Annual	2014	336.97	391.23	459.75	580.93	73.68	88.03	100.72	126.38
C	Kern (MD)	Annual	2015	337.07	391.05	459.55	581.63	73.61	87.19	100.70	126.58

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Kern (MD)	Annual	2016	337.08	390.85	459.24	582.18	73.59	86.61	100.72	126.80
C	Kern (MD)	Annual	2017	337.18	390.73	459.10	582.87	73.57	85.95	100.70	127.03
C	Kern (MD)	Annual	2018	337.24	390.67	458.98	583.45	73.54	85.51	100.67	127.24
C	Kern (MD)	Annual	2019	337.31	390.73	458.89	583.95	73.55	85.38	100.69	127.44
C	Kern (MD)	Annual	2020	337.37	390.79	458.81	584.40	73.62	85.36	100.74	127.63
C	Kern (MD)	Annual	2021	338.50	392.19	460.25	586.62	73.68	85.47	100.80	127.74
C	Kern (MD)	Annual	2022	338.52	392.29	460.18	586.87	73.72	85.56	100.85	127.82
C	Kern (MD)	Annual	2023	338.51	392.38	460.12	587.07	73.75	85.64	100.89	127.98
C	Kern (MD)	Annual	2024	338.48	392.46	460.06	587.20	73.76	85.71	100.92	128.12
C	Kern (MD)	Annual	2025	338.48	392.53	460.01	587.35	73.78	85.78	100.95	128.26
C	Kern (MD)	Annual	2026	338.50	392.63	459.97	587.56	73.79	85.84	100.97	128.40
C	Kern (MD)	Annual	2027	338.52	392.72	459.92	587.75	73.81	85.90	100.98	128.53
C	Kern (MD)	Annual	2028	338.53	392.80	459.88	587.93	73.82	85.95	100.99	128.65
C	Kern (MD)	Annual	2029	338.53	392.88	459.83	588.10	73.82	86.00	100.99	128.75
C	Kern (MD)	Annual	2030	338.52	392.95	459.78	588.27	73.82	86.04	100.98	128.85
C	Kern (MD)	Annual	2031	338.52	393.02	459.75	588.42	73.83	86.08	100.99	128.94
C	Kern (MD)	Annual	2032	338.52	393.08	459.73	588.57	73.83	86.12	100.99	129.02
C	Kern (MD)	Annual	2033	338.52	393.13	459.71	588.70	73.84	86.16	100.99	129.09
C	Kern (MD)	Annual	2034	338.52	393.17	459.69	588.81	73.84	86.19	101.00	129.16
C	Kern (MD)	Annual	2035	338.52	393.20	459.67	588.91	73.84	86.21	101.00	129.22
C	Kern (MD)	Summer	2010	370.45	428.06	505.41	634.10	74.06	93.66	100.99	125.79
C	Kern (MD)	Summer	2011	371.25	428.88	505.98	635.59	73.94	91.90	100.87	125.91
C	Kern (MD)	Summer	2012	371.53	429.08	505.93	636.35	73.83	90.38	100.77	126.04
C	Kern (MD)	Summer	2013	371.80	429.22	505.88	637.24	73.76	89.06	100.75	126.20
C	Kern (MD)	Summer	2014	372.02	429.32	505.86	638.18	73.68	88.03	100.72	126.38
C	Kern (MD)	Summer	2015	372.21	429.42	505.83	639.13	73.61	87.19	100.70	126.58
C	Kern (MD)	Summer	2016	372.30	429.42	505.66	640.02	73.59	86.61	100.72	126.80
C	Kern (MD)	Summer	2017	372.46	429.55	505.63	641.01	73.57	85.95	100.70	127.03
C	Kern (MD)	Summer	2018	372.55	429.66	505.57	641.83	73.54	85.51	100.67	127.24
C	Kern (MD)	Summer	2019	372.63	429.83	505.50	642.53	73.55	85.38	100.69	127.44
C	Kern (MD)	Summer	2020	372.70	430.00	505.43	643.14	73.62	85.36	100.74	127.63
C	Kern (MD)	Summer	2021	373.95	431.58	507.02	645.71	73.68	85.47	100.80	127.74
C	Kern (MD)	Summer	2022	373.96	431.73	506.96	646.06	73.72	85.56	100.85	127.82
C	Kern (MD)	Summer	2023	373.95	431.88	506.89	646.33	73.75	85.64	100.89	127.98
C	Kern (MD)	Summer	2024	373.93	431.99	506.83	646.50	73.76	85.71	100.92	128.12
C	Kern (MD)	Summer	2025	373.93	432.11	506.78	646.66	73.78	85.78	100.95	128.26
C	Kern (MD)	Summer	2026	373.97	432.28	506.79	646.94	73.79	85.84	100.97	128.40
C	Kern (MD)	Summer	2027	374.00	432.43	506.79	647.19	73.81	85.90	100.98	128.53
C	Kern (MD)	Summer	2028	374.02	432.56	506.79	647.41	73.82	85.95	100.99	128.65
C	Kern (MD)	Summer	2029	374.04	432.69	506.77	647.62	73.82	86.00	100.99	128.75
C	Kern (MD)	Summer	2030	374.04	432.80	506.75	647.82	73.82	86.04	100.98	128.85
C	Kern (MD)	Summer	2031	374.04	432.90	506.73	647.98	73.83	86.08	100.99	128.94
C	Kern (MD)	Summer	2032	374.04	432.98	506.71	648.14	73.83	86.12	100.99	129.02
C	Kern (MD)	Summer	2033	374.04	433.05	506.68	648.28	73.84	86.16	100.99	129.09
C	Kern (MD)	Summer	2034	374.04	433.09	506.66	648.41	73.84	86.19	101.00	129.16
C	Kern (MD)	Summer	2035	374.03	433.12	506.63	648.53	73.84	86.21	101.00	129.22
C	Kern (MD)	Winter	2010	325.30	380.82	446.72	559.78	74.06	93.66	100.99	125.79
C	Kern (MD)	Winter	2011	325.73	380.63	446.54	561.09	73.94	91.90	100.87	125.91
C	Kern (MD)	Winter	2012	325.80	380.08	446.01	561.70	73.83	90.38	100.77	126.04
C	Kern (MD)	Winter	2013	325.89	379.61	445.61	562.35	73.76	89.06	100.75	126.20
C	Kern (MD)	Winter	2014	325.97	379.28	445.29	562.97	73.68	88.03	100.72	126.38
C	Kern (MD)	Winter	2015	326.05	379.02	445.03	563.59	73.61	87.19	100.70	126.58
C	Kern (MD)	Winter	2016	326.03	378.75	444.68	564.04	73.59	86.61	100.72	126.80
C	Kern (MD)	Winter	2017	326.12	378.55	444.51	564.64	73.57	85.95	100.70	127.03

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/MT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Kern (MD)	Winter	2018	326.17	378.44	444.37	565.14	73.54	85.51	100.67	127.24
C	Kern (MD)	Winter	2019	326.23	378.47	444.27	565.58	73.55	85.38	100.69	127.44
C	Kern (MD)	Winter	2020	326.29	378.49	444.19	565.97	73.62	85.36	100.74	127.63
C	Kern (MD)	Winter	2021	327.38	379.84	445.58	568.09	73.68	85.47	100.80	127.74
C	Kern (MD)	Winter	2022	327.40	379.92	445.51	568.30	73.72	85.56	100.85	127.82
C	Kern (MD)	Winter	2023	327.39	379.99	445.45	568.48	73.75	85.64	100.89	127.98
C	Kern (MD)	Winter	2024	327.36	380.05	445.39	568.60	73.76	85.71	100.92	128.12
C	Kern (MD)	Winter	2025	327.36	380.12	445.34	568.75	73.78	85.78	100.95	128.26
C	Kern (MD)	Winter	2026	327.38	380.19	445.29	568.94	73.79	85.84	100.97	128.40
C	Kern (MD)	Winter	2027	327.39	380.27	445.22	569.11	73.81	85.90	100.98	128.53
C	Kern (MD)	Winter	2028	327.39	380.33	445.17	569.28	73.82	85.95	100.99	128.65
C	Kern (MD)	Winter	2029	327.39	380.39	445.11	569.43	73.82	86.00	100.99	128.75
C	Kern (MD)	Winter	2030	327.38	380.45	445.05	569.59	73.82	86.04	100.98	128.85
C	Kern (MD)	Winter	2031	327.38	380.51	445.02	569.73	73.83	86.08	100.99	128.94
C	Kern (MD)	Winter	2032	327.38	380.56	445.00	569.88	73.83	86.12	100.99	129.02
C	Kern (MD)	Winter	2033	327.38	380.61	444.98	570.01	73.84	86.16	100.99	129.09
C	Kern (MD)	Winter	2034	327.38	380.65	444.96	570.12	73.84	86.19	101.00	129.16
C	Kern (MD)	Winter	2035	327.38	380.68	444.94	570.22	73.84	86.21	101.00	129.22
C	Kern (SJV)	Annual	2010	372.18	426.19	509.12	641.67	73.42	84.89	100.24	125.09
C	Kern (SJV)	Annual	2011	372.44	427.30	508.94	642.35	73.43	84.72	100.24	125.33
C	Kern (SJV)	Annual	2012	372.69	428.18	508.79	643.02	73.45	84.62	100.27	125.57
C	Kern (SJV)	Annual	2013	372.35	428.23	507.88	642.72	73.49	84.53	100.30	125.82
C	Kern (SJV)	Annual	2014	372.56	428.86	507.81	643.44	73.51	84.49	100.33	126.07
C	Kern (SJV)	Annual	2015	373.51	430.29	508.76	645.47	73.56	84.48	100.37	126.34
C	Kern (SJV)	Annual	2016	373.71	430.80	508.73	646.20	73.62	84.50	100.43	126.61
C	Kern (SJV)	Annual	2017	373.86	431.24	508.70	646.89	73.66	84.50	100.45	126.87
C	Kern (SJV)	Annual	2018	373.04	430.53	507.39	645.86	73.69	84.54	100.48	127.12
C	Kern (SJV)	Annual	2019	373.15	430.90	507.37	646.40	73.74	84.68	100.53	127.34
C	Kern (SJV)	Annual	2020	373.24	431.23	507.35	646.87	73.83	84.85	100.60	127.55
C	Kern (SJV)	Annual	2021	373.14	431.29	507.08	646.94	73.89	85.01	100.67	127.72
C	Kern (SJV)	Annual	2022	373.18	431.51	507.05	647.25	73.94	85.15	100.74	127.87
C	Kern (SJV)	Annual	2023	373.19	431.70	507.02	647.49	73.97	85.27	100.79	128.04
C	Kern (SJV)	Annual	2024	373.41	432.15	507.32	648.08	73.99	85.38	100.83	128.18
C	Kern (SJV)	Annual	2025	373.41	432.31	507.30	648.26	74.01	85.48	100.87	128.32
C	Kern (SJV)	Annual	2026	371.83	430.65	505.11	645.67	74.03	85.58	100.89	128.45
C	Kern (SJV)	Annual	2027	371.84	430.82	505.09	645.83	74.04	85.67	100.92	128.57
C	Kern (SJV)	Annual	2028	371.85	430.99	505.08	645.99	74.05	85.75	100.93	128.67
C	Kern (SJV)	Annual	2029	371.85	431.15	505.06	646.15	74.05	85.83	100.94	128.77
C	Kern (SJV)	Annual	2030	371.85	431.30	505.04	646.31	74.06	85.90	100.95	128.86
C	Kern (SJV)	Annual	2031	371.85	431.44	505.03	646.46	74.06	85.96	100.96	128.95
C	Kern (SJV)	Annual	2032	371.85	431.57	505.02	646.61	74.07	86.03	100.96	129.03
C	Kern (SJV)	Annual	2033	371.85	431.68	505.01	646.74	74.07	86.08	100.97	129.10
C	Kern (SJV)	Annual	2034	371.85	431.78	505.00	646.87	74.07	86.13	100.97	129.16
C	Kern (SJV)	Annual	2035	371.84	431.85	504.99	646.98	74.07	86.18	100.98	129.22
C	Kern (SJV)	Summer	2010	412.69	467.79	562.40	709.14	73.42	84.89	100.24	125.09
C	Kern (SJV)	Summer	2011	413.18	469.85	562.48	709.74	73.43	84.72	100.24	125.33
C	Kern (SJV)	Summer	2012	413.59	471.41	562.52	710.40	73.45	84.62	100.27	125.57
C	Kern (SJV)	Summer	2013	413.29	471.91	561.69	710.05	73.49	84.53	100.30	125.82
C	Kern (SJV)	Summer	2014	413.60	472.94	561.79	710.92	73.51	84.49	100.33	126.07
C	Kern (SJV)	Summer	2015	414.72	474.79	563.00	713.30	73.56	84.48	100.37	126.34
C	Kern (SJV)	Summer	2016	414.99	475.56	563.10	714.28	73.62	84.50	100.43	126.61
C	Kern (SJV)	Summer	2017	415.18	476.21	563.17	715.20	73.66	84.50	100.45	126.87
C	Kern (SJV)	Summer	2018	414.27	475.56	561.78	714.21	73.69	84.54	100.48	127.12
C	Kern (SJV)	Summer	2019	414.39	476.05	561.78	714.92	73.74	84.68	100.53	127.34

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/MT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Kern (SJV)	Summer	2020	414.49	476.49	561.77	715.54	73.83	84.85	100.60	127.55
C	Kern (SJV)	Summer	2021	414.38	476.59	561.45	715.68	73.89	85.01	100.67	127.72
C	Kern (SJV)	Summer	2022	414.42	476.88	561.40	716.07	73.94	85.15	100.74	127.87
C	Kern (SJV)	Summer	2023	414.43	477.14	561.35	716.37	73.97	85.27	100.79	128.04
C	Kern (SJV)	Summer	2024	414.68	477.72	561.68	717.04	73.99	85.38	100.83	128.18
C	Kern (SJV)	Summer	2025	414.69	477.97	561.66	717.23	74.01	85.48	100.87	128.32
C	Kern (SJV)	Summer	2026	412.93	476.21	559.25	714.34	74.03	85.58	100.89	128.45
C	Kern (SJV)	Summer	2027	412.94	476.48	559.24	714.51	74.04	85.67	100.92	128.57
C	Kern (SJV)	Summer	2028	412.95	476.73	559.24	714.67	74.05	85.75	100.93	128.67
C	Kern (SJV)	Summer	2029	412.96	476.98	559.23	714.83	74.05	85.83	100.94	128.77
C	Kern (SJV)	Summer	2030	412.96	477.21	559.23	715.00	74.06	85.90	100.95	128.86
C	Kern (SJV)	Summer	2031	412.96	477.42	559.21	715.15	74.06	85.96	100.96	128.95
C	Kern (SJV)	Summer	2032	412.95	477.60	559.19	715.31	74.07	86.03	100.96	129.03
C	Kern (SJV)	Summer	2033	412.95	477.75	559.18	715.46	74.07	86.08	100.97	129.10
C	Kern (SJV)	Summer	2034	412.95	477.86	559.17	715.61	74.07	86.13	100.97	129.16
C	Kern (SJV)	Summer	2035	412.95	477.95	559.16	715.75	74.07	86.18	100.98	129.22
C	Kern (SJV)	Winter	2010	356.46	410.05	488.44	615.49	73.42	84.89	100.24	125.09
C	Kern (SJV)	Winter	2011	356.63	410.79	488.16	616.20	73.43	84.72	100.24	125.33
C	Kern (SJV)	Winter	2012	356.82	411.41	487.95	616.88	73.45	84.62	100.27	125.57
C	Kern (SJV)	Winter	2013	356.46	411.28	487.00	616.59	73.49	84.53	100.30	125.82
C	Kern (SJV)	Winter	2014	356.64	411.75	486.87	617.26	73.51	84.49	100.33	126.07
C	Kern (SJV)	Winter	2015	357.52	413.02	487.71	619.15	73.56	84.48	100.37	126.34
C	Kern (SJV)	Winter	2016	357.70	413.43	487.64	619.79	73.62	84.50	100.43	126.61
C	Kern (SJV)	Winter	2017	357.83	413.79	487.57	620.38	73.66	84.50	100.45	126.87
C	Kern (SJV)	Winter	2018	357.04	413.06	486.29	619.34	73.69	84.54	100.48	127.12
C	Kern (SJV)	Winter	2019	357.14	413.38	486.26	619.81	73.74	84.68	100.53	127.34
C	Kern (SJV)	Winter	2020	357.23	413.67	486.23	620.23	73.83	84.85	100.60	127.55
C	Kern (SJV)	Winter	2021	357.14	413.71	485.99	620.27	73.89	85.01	100.67	127.72
C	Kern (SJV)	Winter	2022	357.17	413.91	485.97	620.54	73.94	85.15	100.74	127.87
C	Kern (SJV)	Winter	2023	357.18	414.07	485.95	620.76	73.97	85.27	100.79	128.04
C	Kern (SJV)	Winter	2024	357.39	414.47	486.23	621.33	73.99	85.38	100.83	128.18
C	Kern (SJV)	Winter	2025	357.39	414.59	486.21	621.50	74.01	85.48	100.87	128.32
C	Kern (SJV)	Winter	2026	355.88	412.97	484.11	619.02	74.03	85.58	100.89	128.45
C	Kern (SJV)	Winter	2027	355.89	413.11	484.08	619.19	74.04	85.67	100.92	128.57
C	Kern (SJV)	Winter	2028	355.90	413.24	484.06	619.35	74.05	85.75	100.93	128.67
C	Kern (SJV)	Winter	2029	355.90	413.37	484.04	619.50	74.05	85.83	100.94	128.77
C	Kern (SJV)	Winter	2030	355.90	413.49	484.02	619.65	74.06	85.90	100.95	128.86
C	Kern (SJV)	Winter	2031	355.90	413.60	484.01	619.80	74.06	85.96	100.96	128.95
C	Kern (SJV)	Winter	2032	355.90	413.71	484.00	619.95	74.07	86.03	100.96	129.03
C	Kern (SJV)	Winter	2033	355.90	413.81	483.99	620.08	74.07	86.08	100.97	129.10
C	Kern (SJV)	Winter	2034	355.90	413.89	483.98	620.20	74.07	86.13	100.97	129.16
C	Kern (SJV)	Winter	2035	355.89	413.96	483.97	620.30	74.07	86.18	100.98	129.22
C	Kings (SJV)	Annual	2010	334.26	384.18	458.54	576.15	73.37	85.91	100.56	124.91
C	Kings (SJV)	Annual	2011	334.55	384.83	458.24	576.82	73.38	85.51	100.52	125.14
C	Kings (SJV)	Annual	2012	335.48	386.17	458.92	578.63	73.41	85.28	100.50	125.38
C	Kings (SJV)	Annual	2013	335.97	386.90	459.08	579.74	73.44	85.03	100.49	125.62
C	Kings (SJV)	Annual	2014	336.19	387.33	458.94	580.41	73.47	84.93	100.47	125.88
C	Kings (SJV)	Annual	2015	335.98	387.22	458.26	580.38	73.53	84.82	100.48	126.14
C	Kings (SJV)	Annual	2016	336.16	387.56	458.18	581.05	73.58	84.77	100.51	126.40
C	Kings (SJV)	Annual	2017	336.30	387.85	458.10	581.67	73.62	84.69	100.52	126.66
C	Kings (SJV)	Annual	2018	332.59	383.72	452.87	575.68	73.63	84.63	100.54	126.91
C	Kings (SJV)	Annual	2019	332.68	384.00	452.82	576.19	73.68	84.71	100.55	127.14
C	Kings (SJV)	Annual	2020	332.75	384.27	452.78	576.64	73.76	84.84	100.62	127.35
C	Kings (SJV)	Annual	2021	334.26	386.18	454.72	579.52	73.83	84.98	100.69	127.52

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Kings (SJV)	Annual	2022	334.29	386.41	454.68	579.81	73.88	85.12	100.75	127.67
C	Kings (SJV)	Annual	2023	334.30	386.59	454.64	580.04	73.91	85.24	100.80	127.84
C	Kings (SJV)	Annual	2024	334.92	387.49	455.46	581.31	73.93	85.35	100.84	127.99
C	Kings (SJV)	Annual	2025	334.93	387.63	455.43	581.48	73.95	85.45	100.87	128.14
C	Kings (SJV)	Annual	2026	337.32	390.57	458.64	585.81	73.97	85.55	100.90	128.28
C	Kings (SJV)	Annual	2027	337.33	390.73	458.61	585.98	73.98	85.64	100.92	128.41
C	Kings (SJV)	Annual	2028	337.33	390.90	458.57	586.15	73.99	85.73	100.94	128.53
C	Kings (SJV)	Annual	2029	337.33	391.07	458.54	586.31	74.00	85.80	100.95	128.63
C	Kings (SJV)	Annual	2030	337.33	391.23	458.51	586.48	74.01	85.88	100.95	128.74
C	Kings (SJV)	Annual	2031	337.33	391.39	458.49	586.65	74.01	85.95	100.96	128.83
C	Kings (SJV)	Annual	2032	337.33	391.54	458.47	586.81	74.01	86.02	100.97	128.92
C	Kings (SJV)	Annual	2033	337.33	391.67	458.45	586.96	74.02	86.08	100.97	129.01
C	Kings (SJV)	Annual	2034	337.33	391.78	458.43	587.10	74.02	86.13	100.98	129.08
C	Kings (SJV)	Annual	2035	337.33	391.87	458.41	587.22	74.02	86.17	100.98	129.15
C	Kings (SJV)	Summer	2010	367.72	417.56	501.93	631.65	73.37	85.91	100.56	124.91
C	Kings (SJV)	Summer	2011	368.24	419.09	501.96	632.31	73.38	85.51	100.52	125.14
C	Kings (SJV)	Summer	2012	369.40	421.14	502.98	634.26	73.41	85.28	100.50	125.38
C	Kings (SJV)	Summer	2013	370.02	422.41	503.38	635.49	73.44	85.03	100.49	125.62
C	Kings (SJV)	Summer	2014	370.32	423.21	503.44	636.29	73.47	84.93	100.47	125.88
C	Kings (SJV)	Summer	2015	370.13	423.37	502.86	636.36	73.53	84.82	100.48	126.14
C	Kings (SJV)	Summer	2016	370.35	423.95	502.90	637.22	73.58	84.77	100.51	126.40
C	Kings (SJV)	Summer	2017	370.51	424.45	502.92	638.03	73.62	84.69	100.52	126.66
C	Kings (SJV)	Summer	2018	366.42	420.10	497.24	631.57	73.63	84.63	100.54	126.91
C	Kings (SJV)	Summer	2019	366.52	420.52	497.24	632.24	73.68	84.71	100.55	127.14
C	Kings (SJV)	Summer	2020	366.59	420.92	497.21	632.82	73.76	84.84	100.62	127.35
C	Kings (SJV)	Summer	2021	368.26	423.12	499.35	636.05	73.83	84.98	100.69	127.52
C	Kings (SJV)	Summer	2022	368.30	423.46	499.31	636.43	73.88	85.12	100.75	127.67
C	Kings (SJV)	Summer	2023	368.32	423.74	499.27	636.71	73.91	85.24	100.80	127.84
C	Kings (SJV)	Summer	2024	369.01	424.82	500.17	638.12	73.93	85.35	100.84	127.99
C	Kings (SJV)	Summer	2025	369.02	425.07	500.14	638.31	73.95	85.45	100.87	128.14
C	Kings (SJV)	Summer	2026	371.65	428.36	503.68	643.07	73.97	85.55	100.90	128.28
C	Kings (SJV)	Summer	2027	371.66	428.60	503.66	643.25	73.98	85.64	100.92	128.41
C	Kings (SJV)	Summer	2028	371.66	428.85	503.63	643.43	73.99	85.73	100.94	128.53
C	Kings (SJV)	Summer	2029	371.66	429.09	503.61	643.61	74.00	85.80	100.95	128.63
C	Kings (SJV)	Summer	2030	371.67	429.33	503.59	643.80	74.01	85.88	100.95	128.74
C	Kings (SJV)	Summer	2031	371.67	429.58	503.58	643.97	74.01	85.95	100.96	128.83
C	Kings (SJV)	Summer	2032	371.67	429.79	503.57	644.15	74.01	86.02	100.97	128.92
C	Kings (SJV)	Summer	2033	371.67	429.97	503.55	644.32	74.02	86.08	100.97	129.01
C	Kings (SJV)	Summer	2034	371.67	430.11	503.54	644.49	74.02	86.13	100.98	129.08
C	Kings (SJV)	Summer	2035	371.67	430.22	503.52	644.64	74.02	86.17	100.98	129.15
C	Kings (SJV)	Winter	2010	320.60	370.56	440.84	553.50	73.37	85.91	100.56	124.91
C	Kings (SJV)	Winter	2011	320.80	370.85	440.40	554.17	73.38	85.51	100.52	125.14
C	Kings (SJV)	Winter	2012	321.64	371.90	440.94	555.92	73.41	85.28	100.50	125.38
C	Kings (SJV)	Winter	2013	322.08	372.41	441.00	556.98	73.44	85.03	100.49	125.62
C	Kings (SJV)	Winter	2014	322.26	372.69	440.78	557.60	73.47	84.93	100.47	125.88
C	Kings (SJV)	Winter	2015	322.05	372.46	440.06	557.54	73.53	84.82	100.48	126.14
C	Kings (SJV)	Winter	2016	322.20	372.71	439.92	558.12	73.58	84.77	100.51	126.40
C	Kings (SJV)	Winter	2017	322.34	372.91	439.81	558.67	73.62	84.69	100.52	126.66
C	Kings (SJV)	Winter	2018	318.78	368.87	434.77	552.87	73.63	84.63	100.54	126.91
C	Kings (SJV)	Winter	2019	318.87	369.09	434.70	553.31	73.68	84.71	100.55	127.14
C	Kings (SJV)	Winter	2020	318.94	369.31	434.65	553.71	73.76	84.84	100.62	127.35
C	Kings (SJV)	Winter	2021	320.39	371.11	436.51	556.44	73.83	84.98	100.69	127.52
C	Kings (SJV)	Winter	2022	320.42	371.30	436.47	556.70	73.88	85.12	100.75	127.67
C	Kings (SJV)	Winter	2023	320.42	371.43	436.43	556.91	73.91	85.24	100.80	127.84

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/MT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Kings (SJV)	Winter	2024	321.01	372.25	437.21	558.12	73.93	85.35	100.84	127.99
C	Kings (SJV)	Winter	2025	321.02	372.35	437.18	558.28	73.95	85.45	100.87	128.14
C	Kings (SJV)	Winter	2026	323.31	375.15	440.26	562.45	73.97	85.55	100.90	128.28
C	Kings (SJV)	Winter	2027	323.32	375.28	440.22	562.61	73.98	85.64	100.92	128.41
C	Kings (SJV)	Winter	2028	323.32	375.41	440.18	562.78	73.99	85.73	100.94	128.53
C	Kings (SJV)	Winter	2029	323.32	375.55	440.15	562.93	74.00	85.80	100.95	128.63
C	Kings (SJV)	Winter	2030	323.32	375.68	440.11	563.09	74.01	85.88	100.95	128.74
C	Kings (SJV)	Winter	2031	323.32	375.81	440.09	563.25	74.01	85.95	100.96	128.83
C	Kings (SJV)	Winter	2032	323.32	375.94	440.07	563.41	74.01	86.02	100.97	128.92
C	Kings (SJV)	Winter	2033	323.32	376.05	440.04	563.56	74.02	86.08	100.97	129.01
C	Kings (SJV)	Winter	2034	323.32	376.14	440.02	563.68	74.02	86.13	100.98	129.08
C	Kings (SJV)	Winter	2035	323.32	376.23	440.00	563.79	74.02	86.17	100.98	129.15
C	Lake (LC)	Annual	2010	342.07	393.50	467.77	584.22	74.77	89.34	101.91	124.46
C	Lake (LC)	Annual	2011	342.02	394.05	467.30	584.79	74.52	88.47	101.71	124.54
C	Lake (LC)	Annual	2012	342.06	394.51	466.93	585.54	74.36	87.81	101.56	124.69
C	Lake (LC)	Annual	2013	342.12	394.89	466.63	586.41	74.20	87.25	101.40	124.90
C	Lake (LC)	Annual	2014	342.14	395.21	466.41	587.25	73.98	86.77	101.22	125.12
C	Lake (LC)	Annual	2015	342.23	395.51	466.24	588.17	73.90	86.33	101.09	125.37
C	Lake (LC)	Annual	2016	342.33	395.78	466.10	589.06	73.88	85.99	101.00	125.66
C	Lake (LC)	Annual	2017	342.36	396.00	465.97	589.89	73.79	85.60	100.88	125.95
C	Lake (LC)	Annual	2018	342.39	396.17	465.87	590.62	73.73	85.27	100.83	126.22
C	Lake (LC)	Annual	2019	342.41	396.35	465.79	591.26	73.69	85.13	100.79	126.48
C	Lake (LC)	Annual	2020	342.44	396.52	465.72	591.82	73.77	85.14	100.79	126.73
C	Lake (LC)	Annual	2021	342.39	396.64	465.65	592.21	73.79	85.21	100.84	126.90
C	Lake (LC)	Annual	2022	342.31	396.75	465.57	592.55	73.78	85.27	100.85	127.07
C	Lake (LC)	Annual	2023	342.19	396.83	465.51	592.77	73.76	85.32	100.87	127.26
C	Lake (LC)	Annual	2024	342.07	396.89	465.44	592.97	73.71	85.36	100.88	127.45
C	Lake (LC)	Annual	2025	342.01	396.99	465.40	593.14	73.71	85.45	100.91	127.61
C	Lake (LC)	Annual	2026	342.02	397.10	465.36	593.32	73.73	85.55	100.93	127.78
C	Lake (LC)	Annual	2027	342.03	397.21	465.31	593.53	73.74	85.64	100.94	127.94
C	Lake (LC)	Annual	2028	342.03	397.32	465.27	593.73	73.75	85.72	100.95	128.09
C	Lake (LC)	Annual	2029	342.02	397.43	465.24	593.93	73.75	85.80	100.96	128.22
C	Lake (LC)	Annual	2030	342.00	397.54	465.21	594.14	73.75	85.88	100.95	128.35
C	Lake (LC)	Annual	2031	342.00	397.66	465.19	594.38	73.76	85.96	100.95	128.48
C	Lake (LC)	Annual	2032	341.99	397.76	465.18	594.62	73.76	86.03	100.96	128.61
C	Lake (LC)	Annual	2033	341.99	397.84	465.18	594.84	73.77	86.09	100.96	128.72
C	Lake (LC)	Annual	2034	341.98	397.92	465.17	595.03	73.77	86.15	100.97	128.82
C	Lake (LC)	Annual	2035	341.97	397.97	465.16	595.21	73.78	86.20	100.97	128.92
C	Lake (LC)	Summer	2010	365.54	417.38	498.77	621.97	74.77	89.34	101.91	124.46
C	Lake (LC)	Summer	2011	365.78	418.72	498.60	622.61	74.52	88.47	101.71	124.54
C	Lake (LC)	Summer	2012	366.03	419.77	498.49	623.54	74.36	87.81	101.56	124.69
C	Lake (LC)	Summer	2013	366.25	420.60	498.41	624.68	74.20	87.25	101.40	124.90
C	Lake (LC)	Summer	2014	366.39	421.26	498.37	625.78	73.98	86.77	101.22	125.12
C	Lake (LC)	Summer	2015	366.55	421.85	498.36	627.02	73.90	86.33	101.09	125.37
C	Lake (LC)	Summer	2016	366.69	422.33	498.33	628.23	73.88	85.99	101.00	125.66
C	Lake (LC)	Summer	2017	366.75	422.72	498.28	629.33	73.79	85.60	100.88	125.95
C	Lake (LC)	Summer	2018	366.77	423.03	498.21	630.31	73.73	85.27	100.83	126.22
C	Lake (LC)	Summer	2019	366.79	423.31	498.14	631.16	73.69	85.13	100.79	126.48
C	Lake (LC)	Summer	2020	366.81	423.55	498.08	631.89	73.77	85.14	100.79	126.73
C	Lake (LC)	Summer	2021	366.76	423.74	498.00	632.43	73.79	85.21	100.84	126.90
C	Lake (LC)	Summer	2022	366.67	423.91	497.93	632.88	73.78	85.27	100.85	127.07
C	Lake (LC)	Summer	2023	366.57	424.04	497.87	633.19	73.76	85.32	100.87	127.26
C	Lake (LC)	Summer	2024	366.46	424.16	497.81	633.47	73.71	85.36	100.88	127.45
C	Lake (LC)	Summer	2025	366.41	424.28	497.76	633.69	73.71	85.45	100.91	127.61

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Lake (LC)	Summer	2026	366.43	424.42	497.70	633.89	73.73	85.55	100.93	127.78
C	Lake (LC)	Summer	2027	366.46	424.56	497.65	634.10	73.74	85.64	100.94	127.94
C	Lake (LC)	Summer	2028	366.47	424.70	497.62	634.32	73.75	85.72	100.95	128.09
C	Lake (LC)	Summer	2029	366.48	424.86	497.59	634.55	73.75	85.80	100.96	128.22
C	Lake (LC)	Summer	2030	366.48	425.00	497.56	634.80	73.75	85.88	100.95	128.35
C	Lake (LC)	Summer	2031	366.48	425.18	497.58	635.06	73.76	85.96	100.95	128.48
C	Lake (LC)	Summer	2032	366.47	425.33	497.59	635.34	73.76	86.03	100.96	128.61
C	Lake (LC)	Summer	2033	366.46	425.44	497.60	635.60	73.77	86.09	100.96	128.72
C	Lake (LC)	Summer	2034	366.45	425.54	497.60	635.84	73.77	86.15	100.97	128.82
C	Lake (LC)	Summer	2035	366.44	425.60	497.60	636.06	73.78	86.20	100.97	128.92
C	Lake (LC)	Winter	2010	355.28	406.94	485.21	605.47	74.77	89.34	101.91	124.46
C	Lake (LC)	Winter	2011	355.39	407.93	484.91	606.07	74.52	88.47	101.71	124.54
C	Lake (LC)	Winter	2012	355.55	408.73	484.69	606.93	74.36	87.81	101.56	124.69
C	Lake (LC)	Winter	2013	355.70	409.36	484.52	607.95	74.20	87.25	101.40	124.90
C	Lake (LC)	Winter	2014	355.79	409.87	484.39	608.93	73.98	86.77	101.22	125.12
C	Lake (LC)	Winter	2015	355.91	410.33	484.31	610.03	73.90	86.33	101.09	125.37
C	Lake (LC)	Winter	2016	356.04	410.72	484.24	611.10	73.88	85.99	101.00	125.66
C	Lake (LC)	Winter	2017	356.08	411.04	484.15	612.08	73.79	85.60	100.88	125.95
C	Lake (LC)	Winter	2018	356.11	411.29	484.07	612.96	73.73	85.27	100.83	126.22
C	Lake (LC)	Winter	2019	356.13	411.52	484.00	613.71	73.69	85.13	100.79	126.48
C	Lake (LC)	Winter	2020	356.15	411.73	483.93	614.36	73.77	85.14	100.79	126.73
C	Lake (LC)	Winter	2021	356.11	411.89	483.85	614.84	73.79	85.21	100.84	126.90
C	Lake (LC)	Winter	2022	356.02	412.03	483.78	615.25	73.78	85.27	100.85	127.07
C	Lake (LC)	Winter	2023	355.91	412.15	483.72	615.52	73.76	85.32	100.87	127.26
C	Lake (LC)	Winter	2024	355.79	412.24	483.66	615.76	73.71	85.36	100.88	127.45
C	Lake (LC)	Winter	2025	355.74	412.35	483.61	615.96	73.71	85.45	100.91	127.61
C	Lake (LC)	Winter	2026	355.76	412.47	483.56	616.15	73.73	85.55	100.93	127.78
C	Lake (LC)	Winter	2027	355.78	412.60	483.51	616.36	73.74	85.64	100.94	127.94
C	Lake (LC)	Winter	2028	355.78	412.73	483.47	616.58	73.75	85.72	100.95	128.09
C	Lake (LC)	Winter	2029	355.78	412.87	483.44	616.79	73.75	85.80	100.96	128.22
C	Lake (LC)	Winter	2030	355.78	412.99	483.41	617.02	73.75	85.88	100.95	128.35
C	Lake (LC)	Winter	2031	355.77	413.15	483.42	617.27	73.76	85.96	100.95	128.48
C	Lake (LC)	Winter	2032	355.77	413.27	483.42	617.53	73.76	86.03	100.96	128.61
C	Lake (LC)	Winter	2033	355.76	413.37	483.42	617.77	73.77	86.09	100.96	128.72
C	Lake (LC)	Winter	2034	355.75	413.46	483.42	618.00	73.77	86.15	100.97	128.82
C	Lake (LC)	Winter	2035	355.74	413.52	483.42	618.20	73.78	86.20	100.97	128.92
C	Lassen (NEP)	Annual	2010	366.63	428.55	501.21	626.78	75.03	93.49	101.72	124.85
C	Lassen (NEP)	Annual	2011	366.52	427.89	500.66	627.52	74.78	92.04	101.44	124.99
C	Lassen (NEP)	Annual	2012	366.51	427.37	500.23	628.37	74.62	90.87	101.30	125.17
C	Lassen (NEP)	Annual	2013	366.45	426.93	499.88	629.27	74.35	89.90	101.18	125.38
C	Lassen (NEP)	Annual	2014	366.47	426.50	499.61	630.13	74.18	88.91	101.02	125.60
C	Lassen (NEP)	Annual	2015	366.54	426.15	499.39	631.03	74.11	88.06	100.90	125.84
C	Lassen (NEP)	Annual	2016	366.63	425.82	499.23	631.85	74.09	87.24	100.87	126.11
C	Lassen (NEP)	Annual	2017	366.62	425.58	499.09	632.62	73.95	86.60	100.80	126.37
C	Lassen (NEP)	Annual	2018	366.60	425.38	498.97	633.29	73.84	86.10	100.79	126.62
C	Lassen (NEP)	Annual	2019	366.62	425.22	498.88	633.88	73.81	85.71	100.76	126.84
C	Lassen (NEP)	Annual	2020	366.64	425.15	498.80	634.35	73.88	85.60	100.80	127.07
C	Lassen (NEP)	Annual	2021	366.58	425.05	498.73	634.71	73.90	85.58	100.85	127.25
C	Lassen (NEP)	Annual	2022	366.46	424.97	498.64	635.00	73.88	85.58	100.88	127.38
C	Lassen (NEP)	Annual	2023	366.37	424.91	498.56	635.19	73.88	85.59	100.91	127.55
C	Lassen (NEP)	Annual	2024	366.23	424.85	498.49	635.34	73.85	85.60	100.93	127.70
C	Lassen (NEP)	Annual	2025	366.17	424.91	498.44	635.47	73.85	85.67	100.96	127.84
C	Lassen (NEP)	Annual	2026	366.19	425.03	498.40	635.65	73.87	85.75	100.99	127.99
C	Lassen (NEP)	Annual	2027	366.19	425.15	498.34	635.84	73.88	85.83	101.00	128.13

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/MT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Lassen (NEP)	Annual	2028	366.19	425.28	498.29	636.04	73.89	85.91	101.01	128.26
C	Lassen (NEP)	Annual	2029	366.17	425.41	498.23	636.23	73.89	85.98	101.01	128.38
C	Lassen (NEP)	Annual	2030	366.16	425.52	498.17	636.41	73.89	86.04	101.01	128.49
C	Lassen (NEP)	Annual	2031	366.15	425.65	498.14	636.65	73.90	86.10	101.01	128.61
C	Lassen (NEP)	Annual	2032	366.15	425.76	498.12	636.90	73.90	86.16	101.01	128.73
C	Lassen (NEP)	Annual	2033	366.15	425.86	498.09	637.12	73.91	86.22	101.02	128.83
C	Lassen (NEP)	Annual	2034	366.14	425.94	498.07	637.31	73.91	86.26	101.02	128.92
C	Lassen (NEP)	Annual	2035	366.13	426.00	498.05	637.48	73.92	86.30	101.02	129.01
C	Lassen (NEP)	Summer	2010	385.95	446.82	526.65	657.83	75.03	93.49	101.72	124.85
C	Lassen (NEP)	Summer	2011	386.07	446.99	526.29	658.69	74.78	92.04	101.44	124.99
C	Lassen (NEP)	Summer	2012	386.23	447.10	526.01	659.72	74.62	90.87	101.30	125.17
C	Lassen (NEP)	Summer	2013	386.31	447.13	525.80	660.84	74.35	89.90	101.18	125.38
C	Lassen (NEP)	Summer	2014	386.41	447.10	525.66	661.92	74.18	88.91	101.02	125.60
C	Lassen (NEP)	Summer	2015	386.54	447.07	525.57	663.05	74.11	88.06	100.90	125.84
C	Lassen (NEP)	Summer	2016	386.67	447.02	525.50	664.09	74.09	87.24	100.87	126.11
C	Lassen (NEP)	Summer	2017	386.67	446.98	525.44	665.06	73.95	86.60	100.80	126.37
C	Lassen (NEP)	Summer	2018	386.66	446.94	525.37	665.90	73.84	86.10	100.79	126.62
C	Lassen (NEP)	Summer	2019	386.67	446.92	525.31	666.64	73.81	85.71	100.76	126.84
C	Lassen (NEP)	Summer	2020	386.68	446.95	525.25	667.23	73.88	85.60	100.80	127.07
C	Lassen (NEP)	Summer	2021	386.62	446.96	525.18	667.70	73.90	85.58	100.85	127.25
C	Lassen (NEP)	Summer	2022	386.49	446.97	525.10	668.07	73.88	85.58	100.88	127.38
C	Lassen (NEP)	Summer	2023	386.41	446.99	525.03	668.33	73.88	85.59	100.91	127.55
C	Lassen (NEP)	Summer	2024	386.28	447.01	524.97	668.54	73.85	85.60	100.93	127.70
C	Lassen (NEP)	Summer	2025	386.22	447.11	524.92	668.73	73.85	85.67	100.96	127.84
C	Lassen (NEP)	Summer	2026	386.24	447.28	524.88	668.93	73.87	85.75	100.99	127.99
C	Lassen (NEP)	Summer	2027	386.26	447.44	524.83	669.14	73.88	85.83	101.00	128.13
C	Lassen (NEP)	Summer	2028	386.27	447.61	524.79	669.37	73.89	85.91	101.01	128.26
C	Lassen (NEP)	Summer	2029	386.27	447.79	524.74	669.59	73.89	85.98	101.01	128.38
C	Lassen (NEP)	Summer	2030	386.26	447.96	524.69	669.81	73.89	86.04	101.01	128.49
C	Lassen (NEP)	Summer	2031	386.26	448.12	524.66	670.10	73.90	86.10	101.01	128.61
C	Lassen (NEP)	Summer	2032	386.26	448.27	524.64	670.38	73.90	86.16	101.01	128.73
C	Lassen (NEP)	Summer	2033	386.25	448.40	524.62	670.64	73.91	86.22	101.02	128.83
C	Lassen (NEP)	Summer	2034	386.25	448.50	524.60	670.87	73.91	86.26	101.02	128.92
C	Lassen (NEP)	Summer	2035	386.24	448.57	524.58	671.07	73.92	86.30	101.02	129.01
C	Lassen (NEP)	Winter	2010	359.88	422.17	492.33	615.94	75.03	93.49	101.72	124.85
C	Lassen (NEP)	Winter	2011	359.69	421.22	491.71	616.64	74.78	92.04	101.44	124.99
C	Lassen (NEP)	Winter	2012	359.63	420.48	491.23	617.43	74.62	90.87	101.30	125.17
C	Lassen (NEP)	Winter	2013	359.52	419.89	490.84	618.25	74.35	89.90	101.18	125.38
C	Lassen (NEP)	Winter	2014	359.51	419.32	490.52	619.04	74.18	88.91	101.02	125.60
C	Lassen (NEP)	Winter	2015	359.57	418.85	490.26	619.85	74.11	88.06	100.90	125.84
C	Lassen (NEP)	Winter	2016	359.64	418.43	490.06	620.60	74.09	87.24	100.87	126.11
C	Lassen (NEP)	Winter	2017	359.62	418.11	489.89	621.30	73.95	86.60	100.80	126.37
C	Lassen (NEP)	Winter	2018	359.60	417.85	489.77	621.91	73.84	86.10	100.79	126.62
C	Lassen (NEP)	Winter	2019	359.62	417.65	489.66	622.44	73.81	85.71	100.76	126.84
C	Lassen (NEP)	Winter	2020	359.65	417.54	489.58	622.88	73.88	85.60	100.80	127.07
C	Lassen (NEP)	Winter	2021	359.59	417.41	489.50	623.21	73.90	85.58	100.85	127.25
C	Lassen (NEP)	Winter	2022	359.47	417.29	489.40	623.46	73.88	85.58	100.88	127.38
C	Lassen (NEP)	Winter	2023	359.38	417.21	489.33	623.63	73.88	85.59	100.91	127.55
C	Lassen (NEP)	Winter	2024	359.24	417.11	489.25	623.75	73.85	85.60	100.93	127.70
C	Lassen (NEP)	Winter	2025	359.18	417.16	489.20	623.86	73.85	85.67	100.96	127.84
C	Lassen (NEP)	Winter	2026	359.19	417.27	489.16	624.04	73.87	85.75	100.99	127.99
C	Lassen (NEP)	Winter	2027	359.18	417.38	489.10	624.22	73.88	85.83	101.00	128.13
C	Lassen (NEP)	Winter	2028	359.18	417.49	489.05	624.41	73.89	85.91	101.01	128.26
C	Lassen (NEP)	Winter	2029	359.16	417.59	488.98	624.59	73.89	85.98	101.01	128.38

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Lassen (NEP)	Winter	2030	359.14	417.70	488.92	624.75	73.89	86.04	101.01	128.49
C	Lassen (NEP)	Winter	2031	359.14	417.80	488.89	624.98	73.90	86.10	101.01	128.61
C	Lassen (NEP)	Winter	2032	359.14	417.90	488.86	625.22	73.90	86.16	101.01	128.73
C	Lassen (NEP)	Winter	2033	359.13	417.99	488.84	625.43	73.91	86.22	101.02	128.83
C	Lassen (NEP)	Winter	2034	359.13	418.06	488.82	625.61	73.91	86.26	101.02	128.92
C	Lassen (NEP)	Winter	2035	359.12	418.13	488.80	625.76	73.92	86.30	101.02	129.01
C	Los Angeles (MD)	Annual	2010	345.89	395.46	472.51	595.78	73.36	84.38	99.72	125.11
C	Los Angeles (MD)	Annual	2011	348.87	399.45	476.26	601.40	73.38	84.28	99.78	125.35
C	Los Angeles (MD)	Annual	2012	349.04	400.17	476.18	602.17	73.40	84.27	99.87	125.60
C	Los Angeles (MD)	Annual	2013	350.49	402.29	477.89	605.21	73.42	84.25	99.97	125.87
C	Los Angeles (MD)	Annual	2014	350.66	402.85	477.86	605.99	73.46	84.24	100.05	126.14
C	Los Angeles (MD)	Annual	2015	355.63	408.92	484.44	615.13	73.50	84.26	100.16	126.42
C	Los Angeles (MD)	Annual	2016	355.79	409.41	484.43	615.82	73.56	84.33	100.25	126.69
C	Los Angeles (MD)	Annual	2017	355.91	409.84	484.42	616.46	73.60	84.36	100.32	126.95
C	Los Angeles (MD)	Annual	2018	356.00	410.20	484.40	617.00	73.63	84.42	100.38	127.20
C	Los Angeles (MD)	Annual	2019	357.84	412.61	486.79	620.54	73.67	84.58	100.46	127.42
C	Los Angeles (MD)	Annual	2020	357.92	412.97	486.78	620.97	73.75	84.76	100.55	127.62
C	Los Angeles (MD)	Annual	2021	360.97	416.79	490.85	626.51	73.82	84.94	100.64	127.79
C	Los Angeles (MD)	Annual	2022	361.00	417.09	490.84	626.80	73.87	85.10	100.71	127.92
C	Los Angeles (MD)	Annual	2023	361.00	417.34	490.82	627.02	73.90	85.24	100.77	128.08
C	Los Angeles (MD)	Annual	2024	361.28	417.87	491.15	627.65	73.91	85.37	100.81	128.23
C	Los Angeles (MD)	Annual	2025	361.29	418.06	491.14	627.84	73.93	85.48	100.86	128.37
C	Los Angeles (MD)	Annual	2026	361.30	418.26	491.12	628.01	73.95	85.58	100.89	128.50
C	Los Angeles (MD)	Annual	2027	361.31	418.44	491.10	628.17	73.97	85.67	100.91	128.62
C	Los Angeles (MD)	Annual	2028	361.32	418.63	491.09	628.32	73.97	85.76	100.93	128.72
C	Los Angeles (MD)	Annual	2029	361.32	418.81	491.07	628.47	73.98	85.84	100.94	128.81
C	Los Angeles (MD)	Annual	2030	361.31	418.99	491.06	628.62	73.98	85.91	100.95	128.90
C	Los Angeles (MD)	Annual	2031	366.94	425.72	498.73	638.58	73.99	85.98	100.96	128.98
C	Los Angeles (MD)	Annual	2032	366.93	425.88	498.72	638.71	73.99	86.05	100.97	129.05
C	Los Angeles (MD)	Annual	2033	366.93	426.03	498.71	638.83	74.00	86.10	100.98	129.12
C	Los Angeles (MD)	Annual	2034	366.92	426.15	498.70	638.94	74.00	86.15	100.98	129.18
C	Los Angeles (MD)	Annual	2035	366.92	426.26	498.69	639.04	74.00	86.20	100.99	129.24
C	Los Angeles (MD)	Summer	2010	381.87	431.89	519.76	655.58	73.36	84.38	99.72	125.11
C	Los Angeles (MD)	Summer	2011	385.34	436.89	524.09	661.69	73.38	84.28	99.78	125.35
C	Los Angeles (MD)	Summer	2012	385.66	438.19	524.18	662.56	73.40	84.27	99.87	125.60
C	Los Angeles (MD)	Summer	2013	387.37	440.97	526.26	666.03	73.42	84.25	99.97	125.87
C	Los Angeles (MD)	Summer	2014	387.63	441.94	526.42	667.04	73.46	84.24	100.05	126.14
C	Los Angeles (MD)	Summer	2015	393.20	448.92	533.87	677.32	73.50	84.26	100.16	126.42
C	Los Angeles (MD)	Summer	2016	393.41	449.67	534.00	678.24	73.56	84.33	100.25	126.69
C	Los Angeles (MD)	Summer	2017	393.56	450.33	534.08	679.07	73.60	84.36	100.32	126.95
C	Los Angeles (MD)	Summer	2018	393.65	450.86	534.11	679.75	73.63	84.42	100.38	127.20
C	Los Angeles (MD)	Summer	2019	395.68	453.61	536.75	683.71	73.67	84.58	100.46	127.42
C	Los Angeles (MD)	Summer	2020	395.75	454.07	536.73	684.25	73.75	84.76	100.55	127.62
C	Los Angeles (MD)	Summer	2021	399.16	458.42	541.24	690.46	73.82	84.94	100.64	127.79
C	Los Angeles (MD)	Summer	2022	399.20	458.86	541.22	690.83	73.87	85.10	100.71	127.92
C	Los Angeles (MD)	Summer	2023	399.21	459.24	541.20	691.10	73.90	85.24	100.77	128.08
C	Los Angeles (MD)	Summer	2024	399.46	459.85	541.48	691.72	73.91	85.37	100.81	128.23
C	Los Angeles (MD)	Summer	2025	399.48	460.16	541.47	691.93	73.93	85.48	100.86	128.37
C	Los Angeles (MD)	Summer	2026	399.50	460.45	541.44	692.11	73.95	85.58	100.89	128.50
C	Los Angeles (MD)	Summer	2027	399.52	460.73	541.42	692.27	73.97	85.67	100.91	128.62
C	Los Angeles (MD)	Summer	2028	399.53	461.00	541.41	692.44	73.97	85.76	100.93	128.72
C	Los Angeles (MD)	Summer	2029	399.53	461.26	541.39	692.59	73.98	85.84	100.94	128.81
C	Los Angeles (MD)	Summer	2030	399.53	461.50	541.38	692.75	73.98	85.91	100.95	128.90
C	Los Angeles (MD)	Summer	2031	405.74	468.99	549.84	703.69	73.99	85.98	100.96	128.98

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Los Angeles (MD)	Summer	2032	405.72	469.23	549.82	703.80	73.99	86.05	100.97	129.05
C	Los Angeles (MD)	Summer	2033	405.71	469.41	549.81	703.92	74.00	86.10	100.98	129.12
C	Los Angeles (MD)	Summer	2034	405.70	469.58	549.80	704.05	74.00	86.15	100.98	129.18
C	Los Angeles (MD)	Summer	2035	405.69	469.70	549.79	704.16	74.00	86.20	100.99	129.24
C	Los Angeles (MD)	Winter	2010	335.14	384.58	458.40	577.92	73.36	84.38	99.72	125.11
C	Los Angeles (MD)	Winter	2011	337.98	388.27	461.98	583.39	73.38	84.28	99.78	125.35
C	Los Angeles (MD)	Winter	2012	338.10	388.82	461.84	584.13	73.40	84.27	99.87	125.60
C	Los Angeles (MD)	Winter	2013	339.47	390.73	463.43	587.03	73.42	84.25	99.97	125.87
C	Los Angeles (MD)	Winter	2014	339.61	391.17	463.35	587.75	73.46	84.24	100.05	126.14
C	Los Angeles (MD)	Winter	2015	344.39	396.95	469.65	596.52	73.50	84.26	100.16	126.42
C	Los Angeles (MD)	Winter	2016	344.53	397.37	469.60	597.15	73.56	84.33	100.25	126.69
C	Los Angeles (MD)	Winter	2017	344.65	397.72	469.56	597.73	73.60	84.36	100.32	126.95
C	Los Angeles (MD)	Winter	2018	344.74	398.03	469.53	598.23	73.63	84.42	100.38	127.20
C	Los Angeles (MD)	Winter	2019	346.52	400.35	471.84	601.64	73.67	84.58	100.46	127.42
C	Los Angeles (MD)	Winter	2020	346.60	400.67	471.84	602.04	73.75	84.76	100.55	127.62
C	Los Angeles (MD)	Winter	2021	349.54	404.32	475.76	607.37	73.82	84.94	100.64	127.79
C	Los Angeles (MD)	Winter	2022	349.57	404.59	475.75	607.63	73.87	85.10	100.71	127.92
C	Los Angeles (MD)	Winter	2023	349.56	404.80	475.74	607.83	73.90	85.24	100.77	128.08
C	Los Angeles (MD)	Winter	2024	349.86	405.31	476.10	608.49	73.91	85.37	100.81	128.23
C	Los Angeles (MD)	Winter	2025	349.87	405.47	476.09	608.67	73.93	85.48	100.86	128.37
C	Los Angeles (MD)	Winter	2026	349.88	405.64	476.07	608.84	73.95	85.58	100.89	128.50
C	Los Angeles (MD)	Winter	2027	349.89	405.80	476.06	609.00	73.97	85.67	100.91	128.62
C	Los Angeles (MD)	Winter	2028	349.89	405.96	476.04	609.15	73.97	85.76	100.93	128.72
C	Los Angeles (MD)	Winter	2029	349.89	406.12	476.02	609.30	73.98	85.84	100.94	128.81
C	Los Angeles (MD)	Winter	2030	349.88	406.27	476.01	609.44	73.98	85.91	100.95	128.90
C	Los Angeles (MD)	Winter	2031	355.33	412.77	483.44	619.10	73.99	85.98	100.96	128.98
C	Los Angeles (MD)	Winter	2032	355.33	412.92	483.43	619.24	73.99	86.05	100.97	129.05
C	Los Angeles (MD)	Winter	2033	355.33	413.05	483.42	619.36	74.00	86.10	100.98	129.12
C	Los Angeles (MD)	Winter	2034	355.32	413.16	483.41	619.46	74.00	86.15	100.98	129.18
C	Los Angeles (MD)	Winter	2035	355.32	413.26	483.40	619.56	74.00	86.20	100.99	129.24
C	Los Angeles (SC)	Annual	2010	368.81	423.35	504.31	636.79	73.23	84.17	99.44	125.24
C	Los Angeles (SC)	Annual	2011	369.19	424.14	504.55	637.78	73.25	84.09	99.54	125.41
C	Los Angeles (SC)	Annual	2012	369.32	424.57	504.44	638.29	73.29	84.06	99.65	125.59
C	Los Angeles (SC)	Annual	2013	369.90	425.46	504.92	639.56	73.35	84.06	99.77	125.78
C	Los Angeles (SC)	Annual	2014	370.06	425.83	504.86	640.12	73.40	84.06	99.88	125.98
C	Los Angeles (SC)	Annual	2015	371.03	427.14	505.91	642.13	73.46	84.09	99.99	126.20
C	Los Angeles (SC)	Annual	2016	371.20	427.50	505.88	642.73	73.53	84.14	100.10	126.42
C	Los Angeles (SC)	Annual	2017	371.33	427.85	505.86	643.32	73.57	84.19	100.20	126.66
C	Los Angeles (SC)	Annual	2018	371.43	428.15	505.85	643.83	73.60	84.26	100.28	126.87
C	Los Angeles (SC)	Annual	2019	370.16	426.91	503.97	641.92	73.64	84.41	100.37	127.07
C	Los Angeles (SC)	Annual	2020	370.25	427.21	503.98	642.35	73.73	84.57	100.47	127.26
C	Los Angeles (SC)	Annual	2021	371.05	428.35	504.98	643.97	73.79	84.73	100.56	127.42
C	Los Angeles (SC)	Annual	2022	371.07	428.59	504.97	644.26	73.84	84.87	100.64	127.56
C	Los Angeles (SC)	Annual	2023	371.07	428.78	504.96	644.47	73.87	84.99	100.70	127.72
C	Los Angeles (SC)	Annual	2024	373.71	432.03	508.59	649.29	73.88	85.10	100.76	127.86
C	Los Angeles (SC)	Annual	2025	373.69	432.17	508.58	649.46	73.90	85.21	100.80	128.00
C	Los Angeles (SC)	Annual	2026	373.71	432.36	508.56	649.64	73.92	85.31	100.84	128.14
C	Los Angeles (SC)	Annual	2027	373.72	432.53	508.54	649.80	73.93	85.40	100.87	128.26
C	Los Angeles (SC)	Annual	2028	373.72	432.70	508.51	649.97	73.94	85.49	100.89	128.37
C	Los Angeles (SC)	Annual	2029	373.72	432.89	508.49	650.13	73.95	85.57	100.91	128.48
C	Los Angeles (SC)	Annual	2030	373.71	433.07	508.47	650.30	73.95	85.65	100.92	128.58
C	Los Angeles (SC)	Annual	2031	374.43	434.12	509.44	651.74	73.96	85.73	100.93	128.68
C	Los Angeles (SC)	Annual	2032	374.42	434.31	509.43	651.93	73.96	85.81	100.94	128.77
C	Los Angeles (SC)	Annual	2033	374.42	434.47	509.42	652.10	73.97	85.88	100.95	128.86

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Los Angeles (SC)	Annual	2034	374.42	434.62	509.41	652.26	73.97	85.94	100.96	128.94
C	Los Angeles (SC)	Annual	2035	374.41	434.74	509.40	652.40	73.97	85.99	100.96	129.01
C	Los Angeles (SC)	Summer	2010	385.28	440.09	525.98	664.19	73.23	84.17	99.44	125.24
C	Los Angeles (SC)	Summer	2011	385.73	441.13	526.29	665.13	73.25	84.09	99.54	125.41
C	Los Angeles (SC)	Summer	2012	385.91	441.75	526.21	665.60	73.29	84.06	99.65	125.59
C	Los Angeles (SC)	Summer	2013	386.55	442.81	526.76	666.89	73.35	84.06	99.77	125.78
C	Los Angeles (SC)	Summer	2014	386.73	443.32	526.74	667.48	73.40	84.06	99.88	125.98
C	Los Angeles (SC)	Summer	2015	387.76	444.78	527.89	669.62	73.46	84.09	99.99	126.20
C	Los Angeles (SC)	Summer	2016	387.94	445.24	527.91	670.32	73.53	84.14	100.10	126.42
C	Los Angeles (SC)	Summer	2017	388.08	445.68	527.93	671.01	73.57	84.19	100.20	126.66
C	Los Angeles (SC)	Summer	2018	388.19	446.07	527.94	671.60	73.60	84.26	100.28	126.87
C	Los Angeles (SC)	Summer	2019	386.86	444.82	526.01	669.67	73.64	84.41	100.37	127.07
C	Los Angeles (SC)	Summer	2020	386.96	445.19	526.01	670.16	73.73	84.57	100.47	127.26
C	Los Angeles (SC)	Summer	2021	387.79	446.44	527.07	671.91	73.79	84.73	100.56	127.42
C	Los Angeles (SC)	Summer	2022	387.82	446.75	527.06	672.25	73.84	84.87	100.64	127.56
C	Los Angeles (SC)	Summer	2023	387.81	447.00	527.05	672.49	73.87	84.99	100.70	127.72
C	Los Angeles (SC)	Summer	2024	390.60	450.47	530.86	677.57	73.88	85.10	100.76	127.86
C	Los Angeles (SC)	Summer	2025	390.59	450.66	530.84	677.76	73.90	85.21	100.80	128.00
C	Los Angeles (SC)	Summer	2026	390.61	450.90	530.82	677.94	73.92	85.31	100.84	128.14
C	Los Angeles (SC)	Summer	2027	390.62	451.11	530.79	678.11	73.93	85.40	100.87	128.26
C	Los Angeles (SC)	Summer	2028	390.63	451.34	530.77	678.27	73.94	85.49	100.89	128.37
C	Los Angeles (SC)	Summer	2029	390.63	451.57	530.74	678.44	73.95	85.57	100.91	128.48
C	Los Angeles (SC)	Summer	2030	390.62	451.80	530.72	678.61	73.95	85.65	100.92	128.58
C	Los Angeles (SC)	Summer	2031	391.38	452.94	531.76	680.13	73.96	85.73	100.93	128.68
C	Los Angeles (SC)	Summer	2032	391.37	453.18	531.75	680.32	73.96	85.81	100.94	128.77
C	Los Angeles (SC)	Summer	2033	391.37	453.37	531.74	680.50	73.97	85.88	100.95	128.86
C	Los Angeles (SC)	Summer	2034	391.37	453.55	531.73	680.67	73.97	85.94	100.96	128.94
C	Los Angeles (SC)	Summer	2035	391.36	453.68	531.72	680.83	73.97	85.99	100.96	129.01
C	Los Angeles (SC)	Winter	2010	362.71	417.15	496.28	626.64	73.23	84.17	99.44	125.24
C	Los Angeles (SC)	Winter	2011	363.06	417.84	496.50	627.65	73.25	84.09	99.54	125.41
C	Los Angeles (SC)	Winter	2012	363.18	418.21	496.38	628.18	73.29	84.06	99.65	125.59
C	Los Angeles (SC)	Winter	2013	363.74	419.03	496.84	629.44	73.35	84.06	99.77	125.78
C	Los Angeles (SC)	Winter	2014	363.89	419.36	496.75	629.99	73.40	84.06	99.88	125.98
C	Los Angeles (SC)	Winter	2015	364.84	420.60	497.77	631.94	73.46	84.09	99.99	126.20
C	Los Angeles (SC)	Winter	2016	365.00	420.93	497.72	632.51	73.53	84.14	100.10	126.42
C	Los Angeles (SC)	Winter	2017	365.12	421.25	497.69	633.06	73.57	84.19	100.20	126.66
C	Los Angeles (SC)	Winter	2018	365.22	421.52	497.66	633.55	73.60	84.26	100.28	126.87
C	Los Angeles (SC)	Winter	2019	363.97	420.27	495.81	631.65	73.64	84.41	100.37	127.07
C	Los Angeles (SC)	Winter	2020	364.06	420.56	495.81	632.05	73.73	84.57	100.47	127.26
C	Los Angeles (SC)	Winter	2021	364.85	421.65	496.80	633.62	73.79	84.73	100.56	127.42
C	Los Angeles (SC)	Winter	2022	364.87	421.87	496.79	633.89	73.84	84.87	100.64	127.56
C	Los Angeles (SC)	Winter	2023	364.86	422.03	496.78	634.09	73.87	84.99	100.70	127.72
C	Los Angeles (SC)	Winter	2024	367.45	425.20	500.34	638.81	73.88	85.10	100.76	127.86
C	Los Angeles (SC)	Winter	2025	367.44	425.32	500.33	638.98	73.90	85.21	100.80	128.00
C	Los Angeles (SC)	Winter	2026	367.45	425.49	500.31	639.15	73.92	85.31	100.84	128.14
C	Los Angeles (SC)	Winter	2027	367.46	425.64	500.29	639.32	73.93	85.40	100.87	128.26
C	Los Angeles (SC)	Winter	2028	367.46	425.80	500.27	639.48	73.94	85.49	100.89	128.37
C	Los Angeles (SC)	Winter	2029	367.45	425.97	500.24	639.64	73.95	85.57	100.91	128.48
C	Los Angeles (SC)	Winter	2030	367.44	426.13	500.22	639.81	73.95	85.65	100.92	128.58
C	Los Angeles (SC)	Winter	2031	368.15	427.14	501.18	641.22	73.96	85.73	100.93	128.68
C	Los Angeles (SC)	Winter	2032	368.14	427.31	501.17	641.41	73.96	85.81	100.94	128.77
C	Los Angeles (SC)	Winter	2033	368.14	427.47	501.15	641.57	73.97	85.88	100.95	128.86
C	Los Angeles (SC)	Winter	2034	368.14	427.61	501.14	641.73	73.97	85.94	100.96	128.94
C	Los Angeles (SC)	Winter	2035	368.13	427.73	501.13	641.86	73.97	85.99	100.96	129.01

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Madera (SJV)	Annual	2010	344.30	396.00	471.44	591.13	73.51	87.22	100.74	124.58
C	Madera (SJV)	Annual	2011	344.51	396.95	471.16	592.07	73.49	86.59	100.69	124.83
C	Madera (SJV)	Annual	2012	344.50	397.37	470.74	592.52	73.45	86.21	100.68	125.06
C	Madera (SJV)	Annual	2013	348.08	401.83	475.18	599.25	73.49	85.88	100.68	125.34
C	Madera (SJV)	Annual	2014	348.25	402.31	475.06	600.13	73.49	85.60	100.63	125.63
C	Madera (SJV)	Annual	2015	354.35	409.56	483.11	611.24	73.50	85.34	100.61	125.91
C	Madera (SJV)	Annual	2016	354.51	409.87	483.03	612.02	73.54	85.14	100.62	126.19
C	Madera (SJV)	Annual	2017	354.59	410.14	482.95	612.76	73.53	84.97	100.56	126.47
C	Madera (SJV)	Annual	2018	362.06	419.14	493.00	626.51	73.54	84.94	100.58	126.81
C	Madera (SJV)	Annual	2019	362.17	419.50	492.97	627.30	73.58	84.99	100.61	127.12
C	Madera (SJV)	Annual	2020	362.26	419.80	492.94	627.97	73.67	85.10	100.68	127.40
C	Madera (SJV)	Annual	2021	357.55	414.48	486.41	620.11	73.74	85.25	100.75	127.59
C	Madera (SJV)	Annual	2022	357.57	414.65	486.37	620.44	73.79	85.37	100.81	127.75
C	Madera (SJV)	Annual	2023	357.55	414.78	486.33	620.71	73.81	85.48	100.86	127.94
C	Madera (SJV)	Annual	2024	364.97	423.58	496.48	633.93	73.82	85.58	100.89	128.11
C	Madera (SJV)	Annual	2025	364.97	423.69	496.44	634.14	73.84	85.67	100.92	128.28
C	Madera (SJV)	Annual	2026	374.82	435.22	509.83	651.42	73.86	85.75	100.94	128.40
C	Madera (SJV)	Annual	2027	374.81	435.26	509.77	651.51	73.87	85.81	100.96	128.52
C	Madera (SJV)	Annual	2028	374.80	435.33	509.72	651.63	73.88	85.88	100.97	128.62
C	Madera (SJV)	Annual	2029	374.79	435.42	509.68	651.76	73.89	85.94	100.97	128.71
C	Madera (SJV)	Annual	2030	374.78	435.50	509.65	651.90	73.89	85.99	100.98	128.81
C	Madera (SJV)	Annual	2031	374.77	435.59	509.63	652.06	73.89	86.05	100.98	128.89
C	Madera (SJV)	Annual	2032	374.77	435.67	509.62	652.22	73.90	86.10	100.99	128.97
C	Madera (SJV)	Annual	2033	374.77	435.74	509.61	652.38	73.90	86.14	100.99	129.05
C	Madera (SJV)	Annual	2034	374.77	435.81	509.62	652.54	73.90	86.18	100.99	129.12
C	Madera (SJV)	Annual	2035	374.77	435.86	509.62	652.67	73.91	86.22	101.00	129.18
C	Madera (SJV)	Summer	2010	377.25	430.41	514.94	645.71	73.51	87.22	100.74	124.58
C	Madera (SJV)	Summer	2011	377.78	432.35	515.17	646.80	73.49	86.59	100.69	124.83
C	Madera (SJV)	Summer	2012	377.94	433.28	514.98	647.29	73.45	86.21	100.68	125.06
C	Madera (SJV)	Summer	2013	382.01	438.58	520.11	654.78	73.49	85.88	100.68	125.34
C	Madera (SJV)	Summer	2014	382.31	439.41	520.20	655.90	73.49	85.60	100.63	125.63
C	Madera (SJV)	Summer	2015	389.06	447.53	529.15	668.18	73.50	85.34	100.61	125.91
C	Madera (SJV)	Summer	2016	389.25	447.99	529.13	669.19	73.54	85.14	100.62	126.19
C	Madera (SJV)	Summer	2017	389.36	448.39	529.09	670.12	73.53	84.97	100.56	126.47
C	Madera (SJV)	Summer	2018	397.65	458.50	540.25	685.49	73.54	84.94	100.58	126.81
C	Madera (SJV)	Summer	2019	397.83	459.10	540.32	686.62	73.58	84.99	100.61	127.12
C	Madera (SJV)	Summer	2020	397.96	459.58	540.34	687.54	73.67	85.10	100.68	127.40
C	Madera (SJV)	Summer	2021	392.77	453.78	533.14	678.99	73.74	85.25	100.75	127.59
C	Madera (SJV)	Summer	2022	392.78	454.00	533.07	679.41	73.79	85.37	100.81	127.75
C	Madera (SJV)	Summer	2023	392.75	454.19	533.01	679.71	73.81	85.48	100.86	127.94
C	Madera (SJV)	Summer	2024	400.91	463.86	544.13	694.20	73.82	85.58	100.89	128.11
C	Madera (SJV)	Summer	2025	400.90	464.00	544.08	694.41	73.84	85.67	100.92	128.28
C	Madera (SJV)	Summer	2026	411.64	476.53	558.60	713.13	73.86	85.75	100.94	128.40
C	Madera (SJV)	Summer	2027	411.58	476.53	558.44	713.08	73.87	85.81	100.96	128.52
C	Madera (SJV)	Summer	2028	411.54	476.57	558.32	713.10	73.88	85.88	100.97	128.62
C	Madera (SJV)	Summer	2029	411.52	476.66	558.26	713.17	73.89	85.94	100.97	128.71
C	Madera (SJV)	Summer	2030	411.52	476.77	558.22	713.28	73.89	85.99	100.98	128.81
C	Madera (SJV)	Summer	2031	411.48	476.87	558.17	713.41	73.89	86.05	100.98	128.89
C	Madera (SJV)	Summer	2032	411.47	476.97	558.15	713.58	73.90	86.10	100.99	128.97
C	Madera (SJV)	Summer	2033	411.47	477.07	558.17	713.77	73.90	86.14	100.99	129.05
C	Madera (SJV)	Summer	2034	411.48	477.17	558.20	713.98	73.90	86.18	100.99	129.12
C	Madera (SJV)	Summer	2035	411.50	477.24	558.23	714.17	73.91	86.22	101.00	129.18
C	Madera (SJV)	Winter	2010	331.74	382.88	454.86	570.33	73.51	87.22	100.74	124.58
C	Madera (SJV)	Winter	2011	331.82	383.46	454.38	571.21	73.49	86.59	100.69	124.83

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Madera (SJV)	Winter	2012	331.75	383.68	453.87	571.65	73.45	86.21	100.68	125.06
C	Madera (SJV)	Winter	2013	335.14	387.83	458.06	578.08	73.49	85.88	100.68	125.34
C	Madera (SJV)	Winter	2014	335.27	388.17	457.85	578.87	73.49	85.60	100.63	125.63
C	Madera (SJV)	Winter	2015	341.12	395.09	465.56	589.53	73.50	85.34	100.61	125.91
C	Madera (SJV)	Winter	2016	341.26	395.33	465.45	590.23	73.54	85.14	100.62	126.19
C	Madera (SJV)	Winter	2017	341.34	395.55	465.36	590.89	73.53	84.97	100.56	126.47
C	Madera (SJV)	Winter	2018	348.50	404.13	474.98	604.03	73.54	84.94	100.58	126.81
C	Madera (SJV)	Winter	2019	348.58	404.41	474.92	604.69	73.58	84.99	100.61	127.12
C	Madera (SJV)	Winter	2020	348.65	404.64	474.88	605.26	73.67	85.10	100.68	127.40
C	Madera (SJV)	Winter	2021	344.13	399.50	468.60	597.66	73.74	85.25	100.75	127.59
C	Madera (SJV)	Winter	2022	344.15	399.65	468.56	597.97	73.79	85.37	100.81	127.75
C	Madera (SJV)	Winter	2023	344.14	399.77	468.53	598.22	73.81	85.48	100.86	127.94
C	Madera (SJV)	Winter	2024	351.28	408.23	478.31	610.95	73.82	85.58	100.89	128.11
C	Madera (SJV)	Winter	2025	351.28	408.32	478.29	611.17	73.84	85.67	100.92	128.28
C	Madera (SJV)	Winter	2026	360.78	419.47	491.24	627.89	73.86	85.75	100.94	128.40
C	Madera (SJV)	Winter	2027	360.79	419.54	491.22	628.04	73.87	85.81	100.96	128.52
C	Madera (SJV)	Winter	2028	360.79	419.61	491.19	628.20	73.88	85.88	100.97	128.62
C	Madera (SJV)	Winter	2029	360.79	419.69	491.17	628.35	73.89	85.94	100.97	128.71
C	Madera (SJV)	Winter	2030	360.78	419.77	491.14	628.51	73.89	85.99	100.98	128.81
C	Madera (SJV)	Winter	2031	360.78	419.85	491.13	628.67	73.89	86.05	100.98	128.89
C	Madera (SJV)	Winter	2032	360.78	419.92	491.12	628.84	73.90	86.10	100.99	128.97
C	Madera (SJV)	Winter	2033	360.78	419.98	491.11	628.98	73.90	86.14	100.99	129.05
C	Madera (SJV)	Winter	2034	360.77	420.04	491.10	629.12	73.90	86.18	100.99	129.12
C	Madera (SJV)	Winter	2035	360.77	420.08	491.09	629.23	73.91	86.22	101.00	129.18
C	Marin (SF)	Annual	2010	342.06	393.30	467.93	590.43	73.01	84.53	99.43	125.07
C	Marin (SF)	Annual	2011	342.19	393.69	467.77	590.87	73.00	84.35	99.51	125.23
C	Marin (SF)	Annual	2012	342.32	394.10	467.65	591.38	72.98	84.26	99.63	125.42
C	Marin (SF)	Annual	2013	342.52	394.50	467.56	591.92	73.04	84.24	99.74	125.62
C	Marin (SF)	Annual	2014	342.70	394.88	467.49	592.49	73.06	84.22	99.85	125.83
C	Marin (SF)	Annual	2015	342.90	395.23	467.44	593.06	73.12	84.21	99.96	126.06
C	Marin (SF)	Annual	2016	343.09	395.61	467.41	593.61	73.20	84.24	100.07	126.29
C	Marin (SF)	Annual	2017	343.23	395.96	467.38	594.14	73.23	84.30	100.16	126.53
C	Marin (SF)	Annual	2018	343.35	396.28	467.37	594.61	73.26	84.37	100.27	126.75
C	Marin (SF)	Annual	2019	343.45	396.57	467.36	595.01	73.29	84.48	100.36	126.95
C	Marin (SF)	Annual	2020	343.56	396.84	467.35	595.38	73.40	84.63	100.46	127.14
C	Marin (SF)	Annual	2021	343.62	397.07	467.35	595.68	73.47	84.79	100.55	127.29
C	Marin (SF)	Annual	2022	343.67	397.28	467.34	595.93	73.53	84.93	100.63	127.41
C	Marin (SF)	Annual	2023	343.68	397.44	467.33	596.13	73.56	85.05	100.70	127.57
C	Marin (SF)	Annual	2024	343.65	397.57	467.32	596.28	73.58	85.16	100.76	127.71
C	Marin (SF)	Annual	2025	343.63	397.68	467.31	596.44	73.60	85.26	100.80	127.85
C	Marin (SF)	Annual	2026	343.66	397.83	467.29	596.62	73.62	85.36	100.84	127.99
C	Marin (SF)	Annual	2027	343.67	397.97	467.27	596.79	73.64	85.45	100.87	128.12
C	Marin (SF)	Annual	2028	343.67	398.11	467.25	596.97	73.65	85.53	100.89	128.24
C	Marin (SF)	Annual	2029	343.67	398.26	467.22	597.14	73.66	85.62	100.91	128.35
C	Marin (SF)	Annual	2030	343.66	398.41	467.19	597.32	73.66	85.69	100.92	128.46
C	Marin (SF)	Annual	2031	343.65	398.57	467.18	597.51	73.67	85.77	100.93	128.56
C	Marin (SF)	Annual	2032	343.65	398.71	467.17	597.70	73.67	85.85	100.94	128.66
C	Marin (SF)	Annual	2033	343.65	398.85	467.16	597.87	73.68	85.91	100.95	128.75
C	Marin (SF)	Annual	2034	343.65	398.97	467.15	598.03	73.68	85.98	100.95	128.84
C	Marin (SF)	Annual	2035	343.64	399.07	467.13	598.17	73.69	86.03	100.96	128.92
C	Marin (SF)	Summer	2010	368.58	421.04	503.41	635.07	73.01	84.53	99.43	125.07
C	Marin (SF)	Summer	2011	368.87	421.79	503.29	635.34	73.00	84.35	99.51	125.23
C	Marin (SF)	Summer	2012	369.13	422.49	503.22	635.76	72.98	84.26	99.63	125.42
C	Marin (SF)	Summer	2013	369.44	423.14	503.19	636.29	73.04	84.24	99.74	125.62

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/MT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Marin (SF)	Summer	2014	369.69	423.73	503.20	636.91	73.06	84.22	99.85	125.83
C	Marin (SF)	Summer	2015	369.95	424.26	503.22	637.60	73.12	84.21	99.96	126.06
C	Marin (SF)	Summer	2016	370.19	424.82	503.26	638.30	73.20	84.24	100.07	126.29
C	Marin (SF)	Summer	2017	370.35	425.34	503.30	638.99	73.23	84.30	100.16	126.53
C	Marin (SF)	Summer	2018	370.48	425.80	503.31	639.59	73.26	84.37	100.27	126.75
C	Marin (SF)	Summer	2019	370.59	426.19	503.33	640.09	73.29	84.48	100.36	126.95
C	Marin (SF)	Summer	2020	370.71	426.55	503.34	640.55	73.40	84.63	100.46	127.14
C	Marin (SF)	Summer	2021	370.77	426.87	503.34	640.93	73.47	84.79	100.55	127.29
C	Marin (SF)	Summer	2022	370.82	427.15	503.33	641.26	73.53	84.93	100.63	127.41
C	Marin (SF)	Summer	2023	370.83	427.37	503.31	641.51	73.56	85.05	100.70	127.57
C	Marin (SF)	Summer	2024	370.80	427.56	503.29	641.70	73.58	85.16	100.76	127.71
C	Marin (SF)	Summer	2025	370.79	427.73	503.27	641.88	73.60	85.26	100.80	127.85
C	Marin (SF)	Summer	2026	370.81	427.93	503.25	642.10	73.62	85.36	100.84	127.99
C	Marin (SF)	Summer	2027	370.83	428.12	503.22	642.29	73.64	85.45	100.87	128.12
C	Marin (SF)	Summer	2028	370.84	428.32	503.19	642.48	73.65	85.53	100.89	128.24
C	Marin (SF)	Summer	2029	370.84	428.53	503.16	642.68	73.66	85.62	100.91	128.35
C	Marin (SF)	Summer	2030	370.84	428.74	503.14	642.87	73.66	85.69	100.92	128.46
C	Marin (SF)	Summer	2031	370.84	428.96	503.13	643.08	73.67	85.77	100.93	128.56
C	Marin (SF)	Summer	2032	370.84	429.15	503.12	643.29	73.67	85.85	100.94	128.66
C	Marin (SF)	Summer	2033	370.85	429.32	503.11	643.48	73.68	85.91	100.95	128.75
C	Marin (SF)	Summer	2034	370.85	429.47	503.10	643.67	73.68	85.98	100.95	128.84
C	Marin (SF)	Summer	2035	370.85	429.59	503.09	643.84	73.69	86.03	100.96	128.92
C	Marin (SF)	Winter	2010	340.33	391.50	465.62	587.52	73.01	84.53	99.43	125.07
C	Marin (SF)	Winter	2011	340.45	391.86	465.46	587.97	73.00	84.35	99.51	125.23
C	Marin (SF)	Winter	2012	340.57	392.25	465.34	588.49	72.98	84.26	99.63	125.42
C	Marin (SF)	Winter	2013	340.77	392.64	465.24	589.03	73.04	84.24	99.74	125.62
C	Marin (SF)	Winter	2014	340.94	393.00	465.17	589.60	73.06	84.22	99.85	125.83
C	Marin (SF)	Winter	2015	341.14	393.34	465.11	590.16	73.12	84.21	99.96	126.06
C	Marin (SF)	Winter	2016	341.33	393.70	465.07	590.70	73.20	84.24	100.07	126.29
C	Marin (SF)	Winter	2017	341.47	394.05	465.04	591.22	73.23	84.30	100.16	126.53
C	Marin (SF)	Winter	2018	341.58	394.36	465.03	591.68	73.26	84.37	100.27	126.75
C	Marin (SF)	Winter	2019	341.68	394.64	465.02	592.08	73.29	84.48	100.36	126.95
C	Marin (SF)	Winter	2020	341.80	394.90	465.01	592.44	73.40	84.63	100.46	127.14
C	Marin (SF)	Winter	2021	341.86	395.13	465.01	592.73	73.47	84.79	100.55	127.29
C	Marin (SF)	Winter	2022	341.91	395.34	465.00	592.98	73.53	84.93	100.63	127.41
C	Marin (SF)	Winter	2023	341.91	395.49	464.99	593.17	73.56	85.05	100.70	127.57
C	Marin (SF)	Winter	2024	341.88	395.61	464.98	593.32	73.58	85.16	100.76	127.71
C	Marin (SF)	Winter	2025	341.87	395.73	464.97	593.48	73.60	85.26	100.80	127.85
C	Marin (SF)	Winter	2026	341.89	395.87	464.95	593.66	73.62	85.36	100.84	127.99
C	Marin (SF)	Winter	2027	341.90	396.01	464.93	593.83	73.64	85.45	100.87	128.12
C	Marin (SF)	Winter	2028	341.90	396.15	464.91	594.00	73.65	85.53	100.89	128.24
C	Marin (SF)	Winter	2029	341.90	396.29	464.88	594.18	73.66	85.62	100.91	128.35
C	Marin (SF)	Winter	2030	341.89	396.44	464.85	594.35	73.66	85.69	100.92	128.46
C	Marin (SF)	Winter	2031	341.88	396.59	464.84	594.54	73.67	85.77	100.93	128.56
C	Marin (SF)	Winter	2032	341.88	396.73	464.83	594.73	73.67	85.85	100.94	128.66
C	Marin (SF)	Winter	2033	341.88	396.86	464.82	594.90	73.68	85.91	100.95	128.75
C	Marin (SF)	Winter	2034	341.88	396.98	464.80	595.06	73.68	85.98	100.95	128.84
C	Marin (SF)	Winter	2035	341.87	397.09	464.79	595.20	73.69	86.03	100.96	128.92
C	Mariposa (MC)	Annual	2010	354.50	410.51	485.83	607.63	74.37	89.51	102.09	125.68
C	Mariposa (MC)	Annual	2011	354.40	410.55	485.11	608.19	74.22	88.77	101.86	125.71
C	Mariposa (MC)	Annual	2012	354.31	410.56	484.54	608.86	74.03	88.15	101.71	125.79
C	Mariposa (MC)	Annual	2013	354.36	410.52	484.09	609.60	73.97	87.50	101.57	125.92
C	Mariposa (MC)	Annual	2014	354.33	410.46	483.72	610.33	73.82	86.87	101.30	126.07
C	Mariposa (MC)	Annual	2015	354.43	410.47	483.42	611.09	73.83	86.45	101.16	126.26

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Mariposa (MC)	Annual	2016	354.48	410.49	483.19	611.81	73.80	86.11	101.08	126.48
C	Mariposa (MC)	Annual	2017	354.51	410.47	483.00	612.49	73.77	85.68	101.00	126.70
C	Mariposa (MC)	Annual	2018	354.51	410.48	482.83	613.06	73.71	85.43	100.90	126.90
C	Mariposa (MC)	Annual	2019	354.47	410.55	482.70	613.53	73.61	85.35	100.87	127.11
C	Mariposa (MC)	Annual	2020	354.41	410.60	482.59	613.96	73.65	85.32	100.89	127.30
C	Mariposa (MC)	Annual	2021	354.35	410.60	482.48	614.20	73.67	85.35	100.93	127.34
C	Mariposa (MC)	Annual	2022	354.26	410.63	482.35	614.40	73.67	85.40	100.94	127.39
C	Mariposa (MC)	Annual	2023	354.08	410.62	482.24	614.56	73.64	85.42	100.94	127.56
C	Mariposa (MC)	Annual	2024	353.92	410.60	482.16	614.67	73.60	85.46	100.96	127.71
C	Mariposa (MC)	Annual	2025	353.86	410.66	482.10	614.79	73.60	85.52	100.99	127.87
C	Mariposa (MC)	Annual	2026	353.86	410.81	482.03	614.95	73.62	85.62	101.00	128.02
C	Mariposa (MC)	Annual	2027	353.86	410.93	481.97	615.12	73.63	85.71	101.01	128.16
C	Mariposa (MC)	Annual	2028	353.85	411.06	481.91	615.29	73.64	85.79	101.02	128.29
C	Mariposa (MC)	Annual	2029	353.83	411.19	481.84	615.47	73.64	85.87	101.02	128.41
C	Mariposa (MC)	Annual	2030	353.81	411.31	481.77	615.62	73.64	85.94	101.01	128.52
C	Mariposa (MC)	Annual	2031	353.81	411.44	481.74	615.85	73.65	86.01	101.01	128.65
C	Mariposa (MC)	Annual	2032	353.80	411.54	481.71	616.07	73.65	86.08	101.02	128.76
C	Mariposa (MC)	Annual	2033	353.80	411.63	481.68	616.27	73.66	86.13	101.02	128.86
C	Mariposa (MC)	Annual	2034	353.79	411.70	481.65	616.45	73.66	86.19	101.02	128.96
C	Mariposa (MC)	Annual	2035	353.78	411.77	481.63	616.61	73.67	86.23	101.02	129.05
C	Mariposa (MC)	Summer	2010	383.75	439.08	524.10	654.73	74.37	89.51	102.09	125.68
C	Mariposa (MC)	Summer	2011	383.98	440.10	523.79	655.48	74.22	88.77	101.86	125.71
C	Mariposa (MC)	Summer	2012	384.14	440.90	523.54	656.41	74.03	88.15	101.71	125.79
C	Mariposa (MC)	Summer	2013	384.37	441.53	523.38	657.50	73.97	87.50	101.57	125.92
C	Mariposa (MC)	Summer	2014	384.48	442.00	523.29	658.57	73.82	86.87	101.30	126.07
C	Mariposa (MC)	Summer	2015	384.66	442.44	523.21	659.71	73.83	86.45	101.16	126.26
C	Mariposa (MC)	Summer	2016	384.77	442.80	523.13	660.80	73.80	86.11	101.08	126.48
C	Mariposa (MC)	Summer	2017	384.83	443.08	523.05	661.80	73.77	85.68	101.00	126.70
C	Mariposa (MC)	Summer	2018	384.83	443.32	522.95	662.65	73.71	85.43	100.90	126.90
C	Mariposa (MC)	Summer	2019	384.80	443.56	522.85	663.34	73.61	85.35	100.87	127.11
C	Mariposa (MC)	Summer	2020	384.74	443.78	522.76	663.97	73.65	85.32	100.89	127.30
C	Mariposa (MC)	Summer	2021	384.68	443.93	522.65	664.40	73.67	85.35	100.93	127.34
C	Mariposa (MC)	Summer	2022	384.58	444.09	522.56	664.75	73.67	85.40	100.94	127.39
C	Mariposa (MC)	Summer	2023	384.42	444.21	522.47	665.02	73.64	85.42	100.94	127.56
C	Mariposa (MC)	Summer	2024	384.29	444.31	522.40	665.20	73.60	85.46	100.96	127.71
C	Mariposa (MC)	Summer	2025	384.24	444.44	522.34	665.37	73.60	85.52	100.99	127.87
C	Mariposa (MC)	Summer	2026	384.25	444.68	522.29	665.56	73.62	85.62	101.00	128.02
C	Mariposa (MC)	Summer	2027	384.26	444.88	522.24	665.76	73.63	85.71	101.01	128.16
C	Mariposa (MC)	Summer	2028	384.26	445.08	522.20	665.98	73.64	85.79	101.02	128.29
C	Mariposa (MC)	Summer	2029	384.26	445.29	522.15	666.20	73.64	85.87	101.02	128.41
C	Mariposa (MC)	Summer	2030	384.25	445.48	522.11	666.42	73.64	85.94	101.01	128.52
C	Mariposa (MC)	Summer	2031	384.25	445.67	522.08	666.71	73.65	86.01	101.01	128.65
C	Mariposa (MC)	Summer	2032	384.25	445.81	522.06	667.00	73.65	86.08	101.02	128.76
C	Mariposa (MC)	Summer	2033	384.25	445.93	522.04	667.26	73.66	86.13	101.02	128.86
C	Mariposa (MC)	Summer	2034	384.24	446.03	522.02	667.49	73.66	86.19	101.02	128.96
C	Mariposa (MC)	Summer	2035	384.23	446.10	521.99	667.70	73.67	86.23	101.02	129.05
C	Mariposa (MC)	Winter	2010	347.30	403.48	476.41	596.03	74.37	89.51	102.09	125.68
C	Mariposa (MC)	Winter	2011	347.12	403.27	475.59	596.55	74.22	88.77	101.86	125.71
C	Mariposa (MC)	Winter	2012	346.97	403.10	474.94	597.15	74.03	88.15	101.71	125.79
C	Mariposa (MC)	Winter	2013	346.97	402.89	474.42	597.81	73.97	87.50	101.57	125.92
C	Mariposa (MC)	Winter	2014	346.91	402.69	473.97	598.45	73.82	86.87	101.30	126.07
C	Mariposa (MC)	Winter	2015	346.99	402.60	473.63	599.12	73.83	86.45	101.16	126.26
C	Mariposa (MC)	Winter	2016	347.02	402.54	473.35	599.75	73.80	86.11	101.08	126.48
C	Mariposa (MC)	Winter	2017	347.05	402.44	473.14	600.35	73.77	85.68	101.00	126.70

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Mariposa (MC)	Winter	2018	347.05	402.40	472.95	600.86	73.71	85.43	100.90	126.90
C	Mariposa (MC)	Winter	2019	347.00	402.43	472.82	601.27	73.61	85.35	100.87	127.11
C	Mariposa (MC)	Winter	2020	346.95	402.43	472.71	601.65	73.65	85.32	100.89	127.30
C	Mariposa (MC)	Winter	2021	346.89	402.39	472.58	601.84	73.67	85.35	100.93	127.34
C	Mariposa (MC)	Winter	2022	346.79	402.39	472.45	602.00	73.67	85.40	100.94	127.39
C	Mariposa (MC)	Winter	2023	346.62	402.35	472.34	602.13	73.64	85.42	100.94	127.56
C	Mariposa (MC)	Winter	2024	346.44	402.31	472.26	602.23	73.60	85.46	100.96	127.71
C	Mariposa (MC)	Winter	2025	346.39	402.35	472.20	602.34	73.60	85.52	100.99	127.87
C	Mariposa (MC)	Winter	2026	346.39	402.47	472.12	602.49	73.62	85.62	101.00	128.02
C	Mariposa (MC)	Winter	2027	346.37	402.58	472.05	602.65	73.63	85.71	101.01	128.16
C	Mariposa (MC)	Winter	2028	346.37	402.69	472.00	602.81	73.64	85.79	101.02	128.29
C	Mariposa (MC)	Winter	2029	346.35	402.80	471.92	602.98	73.64	85.87	101.02	128.41
C	Mariposa (MC)	Winter	2030	346.32	402.90	471.85	603.12	73.64	85.94	101.01	128.52
C	Mariposa (MC)	Winter	2031	346.31	403.01	471.81	603.33	73.65	86.01	101.01	128.65
C	Mariposa (MC)	Winter	2032	346.31	403.10	471.78	603.54	73.65	86.08	101.02	128.76
C	Mariposa (MC)	Winter	2033	346.30	403.18	471.75	603.72	73.66	86.13	101.02	128.86
C	Mariposa (MC)	Winter	2034	346.29	403.25	471.72	603.89	73.66	86.19	101.02	128.96
C	Mariposa (MC)	Winter	2035	346.28	403.31	471.70	604.03	73.67	86.23	101.02	129.05
C	Mendocino-Coastal	Annual	2010	328.61	379.07	451.10	562.37	72.79	86.74	100.94	123.79
C	Mendocino-Coastal	Annual	2011	328.64	379.33	450.55	563.04	72.74	86.20	100.83	123.99
C	Mendocino-Coastal	Annual	2012	328.71	379.62	450.13	563.82	72.71	85.88	100.79	124.25
C	Mendocino-Coastal	Annual	2013	328.81	379.86	449.78	564.69	72.69	85.57	100.77	124.53
C	Mendocino-Coastal	Annual	2014	328.91	380.10	449.50	565.53	72.66	85.38	100.70	124.83
C	Mendocino-Coastal	Annual	2015	329.05	380.33	449.28	566.42	72.71	85.22	100.68	125.15
C	Mendocino-Coastal	Annual	2016	329.20	380.54	449.10	567.26	72.78	85.05	100.67	125.47
C	Mendocino-Coastal	Annual	2017	329.29	380.71	448.96	568.05	72.79	84.90	100.65	125.80
C	Mendocino-Coastal	Annual	2018	329.36	380.86	448.84	568.75	72.80	84.79	100.64	126.10
C	Mendocino-Coastal	Annual	2019	329.41	381.04	448.75	569.35	72.81	84.81	100.66	126.39
C	Mendocino-Coastal	Annual	2020	329.46	381.20	448.68	569.87	72.90	84.89	100.71	126.66
C	Mendocino-Coastal	Annual	2021	329.47	381.32	448.60	570.28	72.95	85.00	100.77	126.88
C	Mendocino-Coastal	Annual	2022	329.44	381.41	448.52	570.63	72.98	85.10	100.81	127.08
C	Mendocino-Coastal	Annual	2023	329.37	381.48	448.45	570.90	72.99	85.18	100.85	127.29
C	Mendocino-Coastal	Annual	2024	329.30	381.52	448.37	571.09	72.98	85.26	100.87	127.48
C	Mendocino-Coastal	Annual	2025	329.26	381.61	448.33	571.27	72.99	85.36	100.90	127.65
C	Mendocino-Coastal	Annual	2026	329.27	381.77	448.27	571.47	73.01	85.47	100.93	127.81
C	Mendocino-Coastal	Annual	2027	329.27	381.91	448.22	571.68	73.03	85.57	100.94	127.97
C	Mendocino-Coastal	Annual	2028	329.27	382.05	448.17	571.89	73.03	85.66	100.96	128.11
C	Mendocino-Coastal	Annual	2029	329.25	382.19	448.10	572.09	73.04	85.75	100.95	128.24
C	Mendocino-Coastal	Annual	2030	329.24	382.33	448.03	572.30	73.04	85.83	100.95	128.37
C	Mendocino-Coastal	Annual	2031	329.23	382.47	448.00	572.53	73.05	85.91	100.96	128.50
C	Mendocino-Coastal	Annual	2032	329.23	382.60	447.97	572.77	73.06	85.98	100.96	128.62
C	Mendocino-Coastal	Annual	2033	329.22	382.71	447.95	572.98	73.06	86.05	100.96	128.73
C	Mendocino-Coastal	Annual	2034	329.22	382.81	447.93	573.17	73.07	86.11	100.97	128.83
C	Mendocino-Coastal	Annual	2035	329.21	382.89	447.91	573.33	73.07	86.16	100.97	128.93
C	Mendocino-Coastal	Summer	2010	335.50	385.93	460.22	573.75	72.79	86.74	100.94	123.79
C	Mendocino-Coastal	Summer	2011	335.60	386.40	459.76	574.44	72.74	86.20	100.83	123.99
C	Mendocino-Coastal	Summer	2012	335.73	386.85	459.39	575.26	72.71	85.88	100.79	124.25
C	Mendocino-Coastal	Summer	2013	335.88	387.22	459.11	576.18	72.69	85.57	100.77	124.53
C	Mendocino-Coastal	Summer	2014	336.01	387.57	458.87	577.08	72.66	85.38	100.70	124.83
C	Mendocino-Coastal	Summer	2015	336.17	387.90	458.70	578.04	72.71	85.22	100.68	125.15
C	Mendocino-Coastal	Summer	2016	336.34	388.18	458.56	578.96	72.78	85.05	100.67	125.47
C	Mendocino-Coastal	Summer	2017	336.43	388.42	458.43	579.82	72.79	84.90	100.65	125.80
C	Mendocino-Coastal	Summer	2018	336.49	388.62	458.33	580.57	72.80	84.79	100.64	126.10
C	Mendocino-Coastal	Summer	2019	336.54	388.83	458.25	581.22	72.81	84.81	100.66	126.39

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/MT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Mendocino-Coastal	Summer	2020	336.59	389.03	458.18	581.78	72.90	84.89	100.71	126.66
C	Mendocino-Coastal	Summer	2021	336.60	389.18	458.11	582.21	72.95	85.00	100.77	126.88
C	Mendocino-Coastal	Summer	2022	336.57	389.31	458.03	582.59	72.98	85.10	100.81	127.08
C	Mendocino-Coastal	Summer	2023	336.50	389.40	457.96	582.88	72.99	85.18	100.85	127.29
C	Mendocino-Coastal	Summer	2024	336.43	389.46	457.89	583.08	72.98	85.26	100.87	127.48
C	Mendocino-Coastal	Summer	2025	336.39	389.57	457.85	583.26	72.99	85.36	100.90	127.65
C	Mendocino-Coastal	Summer	2026	336.40	389.75	457.79	583.47	73.01	85.47	100.93	127.81
C	Mendocino-Coastal	Summer	2027	336.41	389.91	457.74	583.68	73.03	85.57	100.94	127.97
C	Mendocino-Coastal	Summer	2028	336.41	390.07	457.70	583.89	73.03	85.66	100.96	128.11
C	Mendocino-Coastal	Summer	2029	336.40	390.24	457.63	584.11	73.04	85.75	100.95	128.24
C	Mendocino-Coastal	Summer	2030	336.39	390.39	457.57	584.32	73.04	85.83	100.95	128.37
C	Mendocino-Coastal	Summer	2031	336.39	390.55	457.53	584.57	73.05	85.91	100.96	128.50
C	Mendocino-Coastal	Summer	2032	336.38	390.69	457.51	584.82	73.06	85.98	100.96	128.62
C	Mendocino-Coastal	Summer	2033	336.38	390.81	457.48	585.05	73.06	86.05	100.96	128.73
C	Mendocino-Coastal	Summer	2034	336.37	390.92	457.46	585.25	73.07	86.11	100.97	128.83
C	Mendocino-Coastal	Summer	2035	336.36	391.01	457.44	585.42	73.07	86.16	100.97	128.93
C	Mendocino-Coastal	Winter	2010	325.36	375.84	446.80	556.99	72.79	86.74	100.94	123.79
C	Mendocino-Coastal	Winter	2011	325.35	375.99	446.21	557.66	72.74	86.20	100.83	123.99
C	Mendocino-Coastal	Winter	2012	325.39	376.21	445.75	558.43	72.71	85.88	100.79	124.25
C	Mendocino-Coastal	Winter	2013	325.47	376.38	445.38	559.27	72.69	85.57	100.77	124.53
C	Mendocino-Coastal	Winter	2014	325.56	376.57	445.08	560.08	72.66	85.38	100.70	124.83
C	Mendocino-Coastal	Winter	2015	325.69	376.77	444.84	560.93	72.71	85.22	100.68	125.15
C	Mendocino-Coastal	Winter	2016	325.84	376.93	444.64	561.74	72.78	85.05	100.67	125.47
C	Mendocino-Coastal	Winter	2017	325.92	377.08	444.49	562.50	72.79	84.90	100.65	125.80
C	Mendocino-Coastal	Winter	2018	325.99	377.20	444.36	563.17	72.80	84.79	100.64	126.10
C	Mendocino-Coastal	Winter	2019	326.04	377.36	444.27	563.75	72.81	84.81	100.66	126.39
C	Mendocino-Coastal	Winter	2020	326.10	377.51	444.20	564.26	72.90	84.89	100.71	126.66
C	Mendocino-Coastal	Winter	2021	326.10	377.61	444.12	564.65	72.95	85.00	100.77	126.88
C	Mendocino-Coastal	Winter	2022	326.08	377.69	444.04	564.99	72.98	85.10	100.81	127.08
C	Mendocino-Coastal	Winter	2023	326.01	377.75	443.96	565.25	72.99	85.18	100.85	127.29
C	Mendocino-Coastal	Winter	2024	325.93	377.77	443.88	565.44	72.98	85.26	100.87	127.48
C	Mendocino-Coastal	Winter	2025	325.89	377.86	443.83	565.61	72.99	85.36	100.90	127.65
C	Mendocino-Coastal	Winter	2026	325.90	378.00	443.78	565.81	73.01	85.47	100.93	127.81
C	Mendocino-Coastal	Winter	2027	325.90	378.13	443.72	566.01	73.03	85.57	100.94	127.97
C	Mendocino-Coastal	Winter	2028	325.90	378.27	443.68	566.22	73.03	85.66	100.96	128.11
C	Mendocino-Coastal	Winter	2029	325.88	378.40	443.60	566.42	73.04	85.75	100.95	128.24
C	Mendocino-Coastal	Winter	2030	325.86	378.53	443.54	566.62	73.04	85.83	100.95	128.37
C	Mendocino-Coastal	Winter	2031	325.86	378.66	443.50	566.86	73.05	85.91	100.96	128.50
C	Mendocino-Coastal	Winter	2032	325.85	378.78	443.47	567.09	73.06	85.98	100.96	128.62
C	Mendocino-Coastal	Winter	2033	325.85	378.89	443.45	567.29	73.06	86.05	100.96	128.73
C	Mendocino-Coastal	Winter	2034	325.84	378.99	443.43	567.47	73.07	86.11	100.97	128.83
C	Mendocino-Coastal	Winter	2035	325.83	379.07	443.41	567.63	73.07	86.16	100.97	128.93
C	Mendocino-Inland	Annual	2010	328.61	379.07	451.10	562.37	72.79	86.74	100.94	123.79
C	Mendocino-Inland	Annual	2011	328.64	379.33	450.55	563.04	72.74	86.20	100.83	123.99
C	Mendocino-Inland	Annual	2012	328.71	379.62	450.13	563.82	72.71	85.88	100.79	124.25
C	Mendocino-Inland	Annual	2013	328.81	379.86	449.78	564.69	72.69	85.57	100.77	124.53
C	Mendocino-Inland	Annual	2014	328.91	380.10	449.50	565.53	72.66	85.38	100.70	124.83
C	Mendocino-Inland	Annual	2015	329.05	380.33	449.28	566.42	72.71	85.22	100.68	125.15
C	Mendocino-Inland	Annual	2016	329.20	380.54	449.10	567.26	72.78	85.05	100.67	125.47
C	Mendocino-Inland	Annual	2017	329.29	380.71	448.96	568.05	72.79	84.90	100.65	125.80
C	Mendocino-Inland	Annual	2018	329.36	380.86	448.84	568.75	72.80	84.79	100.64	126.10
C	Mendocino-Inland	Annual	2019	329.41	381.04	448.75	569.35	72.81	84.81	100.66	126.39
C	Mendocino-Inland	Annual	2020	329.46	381.20	448.68	569.87	72.90	84.89	100.71	126.66
C	Mendocino-Inland	Annual	2021	329.47	381.32	448.60	570.28	72.95	85.00	100.77	126.88

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Mendocino-Inland	Annual	2022	329.44	381.41	448.52	570.63	72.98	85.10	100.81	127.08
C	Mendocino-Inland	Annual	2023	329.37	381.48	448.45	570.90	72.99	85.18	100.85	127.29
C	Mendocino-Inland	Annual	2024	329.30	381.52	448.37	571.09	72.98	85.26	100.87	127.48
C	Mendocino-Inland	Annual	2025	329.26	381.61	448.33	571.27	72.99	85.36	100.90	127.65
C	Mendocino-Inland	Annual	2026	329.27	381.77	448.27	571.47	73.01	85.47	100.93	127.81
C	Mendocino-Inland	Annual	2027	329.27	381.91	448.22	571.68	73.03	85.57	100.94	127.97
C	Mendocino-Inland	Annual	2028	329.27	382.05	448.17	571.89	73.03	85.66	100.96	128.11
C	Mendocino-Inland	Annual	2029	329.25	382.19	448.10	572.09	73.04	85.75	100.95	128.24
C	Mendocino-Inland	Annual	2030	329.24	382.33	448.03	572.30	73.04	85.83	100.95	128.37
C	Mendocino-Inland	Annual	2031	329.23	382.47	448.00	572.53	73.05	85.91	100.96	128.50
C	Mendocino-Inland	Annual	2032	329.23	382.60	447.97	572.77	73.06	85.98	100.96	128.62
C	Mendocino-Inland	Annual	2033	329.22	382.71	447.95	572.98	73.06	86.05	100.96	128.73
C	Mendocino-Inland	Annual	2034	329.22	382.81	447.93	573.17	73.07	86.11	100.97	128.83
C	Mendocino-Inland	Annual	2035	329.21	382.89	447.91	573.33	73.07	86.16	100.97	128.93
C	Mendocino-Inland	Summer	2010	335.50	385.93	460.22	573.75	72.79	86.74	100.94	123.79
C	Mendocino-Inland	Summer	2011	335.60	386.40	459.76	574.44	72.74	86.20	100.83	123.99
C	Mendocino-Inland	Summer	2012	335.73	386.85	459.39	575.26	72.71	85.88	100.79	124.25
C	Mendocino-Inland	Summer	2013	335.88	387.22	459.11	576.18	72.69	85.57	100.77	124.53
C	Mendocino-Inland	Summer	2014	336.01	387.57	458.87	577.08	72.66	85.38	100.70	124.83
C	Mendocino-Inland	Summer	2015	336.17	387.90	458.70	578.04	72.71	85.22	100.68	125.15
C	Mendocino-Inland	Summer	2016	336.34	388.18	458.56	578.96	72.78	85.05	100.67	125.47
C	Mendocino-Inland	Summer	2017	336.43	388.42	458.43	579.82	72.79	84.90	100.65	125.80
C	Mendocino-Inland	Summer	2018	336.49	388.62	458.33	580.57	72.80	84.79	100.64	126.10
C	Mendocino-Inland	Summer	2019	336.54	388.83	458.25	581.22	72.81	84.81	100.66	126.39
C	Mendocino-Inland	Summer	2020	336.59	389.03	458.18	581.78	72.90	84.89	100.71	126.66
C	Mendocino-Inland	Summer	2021	336.60	389.18	458.11	582.21	72.95	85.00	100.77	126.88
C	Mendocino-Inland	Summer	2022	336.57	389.31	458.03	582.59	72.98	85.10	100.81	127.08
C	Mendocino-Inland	Summer	2023	336.50	389.40	457.96	582.88	72.99	85.18	100.85	127.29
C	Mendocino-Inland	Summer	2024	336.43	389.46	457.89	583.08	72.98	85.26	100.87	127.48
C	Mendocino-Inland	Summer	2025	336.39	389.57	457.85	583.26	72.99	85.36	100.90	127.65
C	Mendocino-Inland	Summer	2026	336.40	389.75	457.79	583.47	73.01	85.47	100.93	127.81
C	Mendocino-Inland	Summer	2027	336.41	389.91	457.74	583.68	73.03	85.57	100.94	127.97
C	Mendocino-Inland	Summer	2028	336.41	390.07	457.70	583.89	73.03	85.66	100.96	128.11
C	Mendocino-Inland	Summer	2029	336.40	390.24	457.63	584.11	73.04	85.75	100.95	128.24
C	Mendocino-Inland	Summer	2030	336.39	390.39	457.57	584.32	73.04	85.83	100.95	128.37
C	Mendocino-Inland	Summer	2031	336.39	390.55	457.53	584.57	73.05	85.91	100.96	128.50
C	Mendocino-Inland	Summer	2032	336.38	390.69	457.51	584.82	73.06	85.98	100.96	128.62
C	Mendocino-Inland	Summer	2033	336.38	390.81	457.48	585.05	73.06	86.05	100.96	128.73
C	Mendocino-Inland	Summer	2034	336.37	390.92	457.46	585.25	73.07	86.11	100.97	128.83
C	Mendocino-Inland	Summer	2035	336.36	391.01	457.44	585.42	73.07	86.16	100.97	128.93
C	Mendocino-Inland	Winter	2010	325.36	375.84	446.80	556.99	72.79	86.74	100.94	123.79
C	Mendocino-Inland	Winter	2011	325.35	375.99	446.21	557.66	72.74	86.20	100.83	123.99
C	Mendocino-Inland	Winter	2012	325.39	376.21	445.75	558.43	72.71	85.88	100.79	124.25
C	Mendocino-Inland	Winter	2013	325.47	376.38	445.38	559.27	72.69	85.57	100.77	124.53
C	Mendocino-Inland	Winter	2014	325.56	376.57	445.08	560.08	72.66	85.38	100.70	124.83
C	Mendocino-Inland	Winter	2015	325.69	376.77	444.84	560.93	72.71	85.22	100.68	125.15
C	Mendocino-Inland	Winter	2016	325.84	376.93	444.64	561.74	72.78	85.05	100.67	125.47
C	Mendocino-Inland	Winter	2017	325.92	377.08	444.49	562.50	72.79	84.90	100.65	125.80
C	Mendocino-Inland	Winter	2018	325.99	377.20	444.36	563.17	72.80	84.79	100.64	126.10
C	Mendocino-Inland	Winter	2019	326.04	377.36	444.27	563.75	72.81	84.81	100.66	126.39
C	Mendocino-Inland	Winter	2020	326.10	377.51	444.20	564.26	72.90	84.89	100.71	126.66
C	Mendocino-Inland	Winter	2021	326.10	377.61	444.12	564.65	72.95	85.00	100.77	126.88
C	Mendocino-Inland	Winter	2022	326.08	377.69	444.04	564.99	72.98	85.10	100.81	127.08
C	Mendocino-Inland	Winter	2023	326.01	377.75	443.96	565.25	72.99	85.18	100.85	127.29

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Mendocino-Inland	Winter	2024	325.93	377.77	443.88	565.44	72.98	85.26	100.87	127.48
C	Mendocino-Inland	Winter	2025	325.89	377.86	443.83	565.61	72.99	85.36	100.90	127.65
C	Mendocino-Inland	Winter	2026	325.90	378.00	443.78	565.81	73.01	85.47	100.93	127.81
C	Mendocino-Inland	Winter	2027	325.90	378.13	443.72	566.01	73.03	85.57	100.94	127.97
C	Mendocino-Inland	Winter	2028	325.90	378.27	443.68	566.22	73.03	85.66	100.96	128.11
C	Mendocino-Inland	Winter	2029	325.88	378.40	443.60	566.42	73.04	85.75	100.95	128.24
C	Mendocino-Inland	Winter	2030	325.86	378.53	443.54	566.62	73.04	85.83	100.95	128.37
C	Mendocino-Inland	Winter	2031	325.86	378.66	443.50	566.86	73.05	85.91	100.96	128.50
C	Mendocino-Inland	Winter	2032	325.85	378.78	443.47	567.09	73.06	85.98	100.96	128.62
C	Mendocino-Inland	Winter	2033	325.85	378.89	443.45	567.29	73.06	86.05	100.96	128.73
C	Mendocino-Inland	Winter	2034	325.84	378.99	443.43	567.47	73.07	86.11	100.97	128.83
C	Mendocino-Inland	Winter	2035	325.83	379.07	443.41	567.63	73.07	86.16	100.97	128.93
C	Mendocino-Rural Inland North	Annual	2010	328.61	379.07	451.10	562.37	72.79	86.74	100.94	123.79
C	Mendocino-Rural Inland North	Annual	2011	328.64	379.33	450.55	563.04	72.74	86.20	100.83	123.99
C	Mendocino-Rural Inland North	Annual	2012	328.71	379.62	450.13	563.82	72.71	85.88	100.79	124.25
C	Mendocino-Rural Inland North	Annual	2013	328.81	379.86	449.78	564.69	72.69	85.57	100.77	124.53
C	Mendocino-Rural Inland North	Annual	2014	328.91	380.10	449.50	565.53	72.66	85.38	100.70	124.83
C	Mendocino-Rural Inland North	Annual	2015	329.05	380.33	449.28	566.42	72.71	85.22	100.68	125.15
C	Mendocino-Rural Inland North	Annual	2016	329.20	380.54	449.10	567.26	72.78	85.05	100.67	125.47
C	Mendocino-Rural Inland North	Annual	2017	329.29	380.71	448.96	568.05	72.79	84.90	100.65	125.80
C	Mendocino-Rural Inland North	Annual	2018	329.36	380.86	448.84	568.75	72.80	84.79	100.64	126.10
C	Mendocino-Rural Inland North	Annual	2019	329.41	381.04	448.75	569.35	72.81	84.81	100.66	126.39
C	Mendocino-Rural Inland North	Annual	2020	329.46	381.20	448.68	569.87	72.90	84.89	100.71	126.66
C	Mendocino-Rural Inland North	Annual	2021	329.47	381.32	448.60	570.28	72.95	85.00	100.77	126.88
C	Mendocino-Rural Inland North	Annual	2022	329.44	381.41	448.52	570.63	72.98	85.10	100.81	127.08
C	Mendocino-Rural Inland North	Annual	2023	329.37	381.48	448.45	570.90	72.99	85.18	100.85	127.29
C	Mendocino-Rural Inland North	Annual	2024	329.30	381.52	448.37	571.09	72.98	85.26	100.87	127.48
C	Mendocino-Rural Inland North	Annual	2025	329.26	381.61	448.33	571.27	72.99	85.36	100.90	127.65
C	Mendocino-Rural Inland North	Annual	2026	329.27	381.77	448.27	571.47	73.01	85.47	100.93	127.81
C	Mendocino-Rural Inland North	Annual	2027	329.27	381.91	448.22	571.68	73.03	85.57	100.94	127.97
C	Mendocino-Rural Inland North	Annual	2028	329.27	382.05	448.17	571.89	73.03	85.66	100.96	128.11
C	Mendocino-Rural Inland North	Annual	2029	329.25	382.19	448.10	572.09	73.04	85.75	100.95	128.24
C	Mendocino-Rural Inland North	Annual	2030	329.24	382.33	448.03	572.30	73.04	85.83	100.95	128.37
C	Mendocino-Rural Inland North	Annual	2031	329.23	382.47	448.00	572.53	73.05	85.91	100.96	128.50
C	Mendocino-Rural Inland North	Annual	2032	329.23	382.60	447.97	572.77	73.06	85.98	100.96	128.62
C	Mendocino-Rural Inland North	Annual	2033	329.22	382.71	447.95	572.98	73.06	86.05	100.96	128.73
C	Mendocino-Rural Inland North	Annual	2034	329.22	382.81	447.93	573.17	73.07	86.11	100.97	128.83
C	Mendocino-Rural Inland North	Annual	2035	329.21	382.89	447.91	573.33	73.07	86.16	100.97	128.93
C	Mendocino-Rural Inland North	Summer	2010	335.50	385.93	460.22	573.75	72.79	86.74	100.94	123.79
C	Mendocino-Rural Inland North	Summer	2011	335.60	386.40	459.76	574.44	72.74	86.20	100.83	123.99
C	Mendocino-Rural Inland North	Summer	2012	335.73	386.85	459.39	575.26	72.71	85.88	100.79	124.25
C	Mendocino-Rural Inland North	Summer	2013	335.88	387.22	459.11	576.18	72.69	85.57	100.77	124.53
C	Mendocino-Rural Inland North	Summer	2014	336.01	387.57	458.87	577.08	72.66	85.38	100.70	124.83
C	Mendocino-Rural Inland North	Summer	2015	336.17	387.90	458.70	578.04	72.71	85.22	100.68	125.15
C	Mendocino-Rural Inland North	Summer	2016	336.34	388.18	458.56	578.96	72.78	85.05	100.67	125.47
C	Mendocino-Rural Inland North	Summer	2017	336.43	388.42	458.43	579.82	72.79	84.90	100.65	125.80
C	Mendocino-Rural Inland North	Summer	2018	336.49	388.62	458.33	580.57	72.80	84.79	100.64	126.10
C	Mendocino-Rural Inland North	Summer	2019	336.54	388.83	458.25	581.22	72.81	84.81	100.66	126.39
C	Mendocino-Rural Inland North	Summer	2020	336.59	389.03	458.18	581.78	72.90	84.89	100.71	126.66
C	Mendocino-Rural Inland North	Summer	2021	336.60	389.18	458.11	582.21	72.95	85.00	100.77	126.88
C	Mendocino-Rural Inland North	Summer	2022	336.57	389.31	458.03	582.59	72.98	85.10	100.81	127.08
C	Mendocino-Rural Inland North	Summer	2023	336.50	389.40	457.96	582.88	72.99	85.18	100.85	127.29
C	Mendocino-Rural Inland North	Summer	2024	336.43	389.46	457.89	583.08	72.98	85.26	100.87	127.48
C	Mendocino-Rural Inland North	Summer	2025	336.39	389.57	457.85	583.26	72.99	85.36	100.90	127.65

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Mendocino-Rural Inland North	Summer	2026	336.40	389.75	457.79	583.47	73.01	85.47	100.93	127.81
C	Mendocino-Rural Inland North	Summer	2027	336.41	389.91	457.74	583.68	73.03	85.57	100.94	127.97
C	Mendocino-Rural Inland North	Summer	2028	336.41	390.07	457.70	583.89	73.03	85.66	100.96	128.11
C	Mendocino-Rural Inland North	Summer	2029	336.40	390.24	457.63	584.11	73.04	85.75	100.95	128.24
C	Mendocino-Rural Inland North	Summer	2030	336.39	390.39	457.57	584.32	73.04	85.83	100.95	128.37
C	Mendocino-Rural Inland North	Summer	2031	336.39	390.55	457.53	584.57	73.05	85.91	100.96	128.50
C	Mendocino-Rural Inland North	Summer	2032	336.38	390.69	457.51	584.82	73.06	85.98	100.96	128.62
C	Mendocino-Rural Inland North	Summer	2033	336.38	390.81	457.48	585.05	73.06	86.05	100.96	128.73
C	Mendocino-Rural Inland North	Summer	2034	336.37	390.92	457.46	585.25	73.07	86.11	100.97	128.83
C	Mendocino-Rural Inland North	Summer	2035	336.36	391.01	457.44	585.42	73.07	86.16	100.97	128.93
C	Mendocino-Rural Inland North	Winter	2010	325.36	375.84	446.80	556.99	72.79	86.74	100.94	123.79
C	Mendocino-Rural Inland North	Winter	2011	325.35	375.99	446.21	557.66	72.74	86.20	100.83	123.99
C	Mendocino-Rural Inland North	Winter	2012	325.39	376.21	445.75	558.43	72.71	85.88	100.79	124.25
C	Mendocino-Rural Inland North	Winter	2013	325.47	376.38	445.38	559.27	72.69	85.57	100.77	124.53
C	Mendocino-Rural Inland North	Winter	2014	325.56	376.57	445.08	560.08	72.66	85.38	100.70	124.83
C	Mendocino-Rural Inland North	Winter	2015	325.69	376.77	444.84	560.93	72.71	85.22	100.68	125.15
C	Mendocino-Rural Inland North	Winter	2016	325.84	376.93	444.64	561.74	72.78	85.05	100.67	125.47
C	Mendocino-Rural Inland North	Winter	2017	325.92	377.08	444.49	562.50	72.79	84.90	100.65	125.80
C	Mendocino-Rural Inland North	Winter	2018	325.99	377.20	444.36	563.17	72.80	84.79	100.64	126.10
C	Mendocino-Rural Inland North	Winter	2019	326.04	377.36	444.27	563.75	72.81	84.81	100.66	126.39
C	Mendocino-Rural Inland North	Winter	2020	326.10	377.51	444.20	564.26	72.90	84.89	100.71	126.66
C	Mendocino-Rural Inland North	Winter	2021	326.10	377.61	444.12	564.65	72.95	85.00	100.77	126.88
C	Mendocino-Rural Inland North	Winter	2022	326.08	377.69	444.04	564.99	72.98	85.10	100.81	127.08
C	Mendocino-Rural Inland North	Winter	2023	326.01	377.75	443.96	565.25	72.99	85.18	100.85	127.29
C	Mendocino-Rural Inland North	Winter	2024	325.93	377.77	443.88	565.44	72.98	85.26	100.87	127.48
C	Mendocino-Rural Inland North	Winter	2025	325.89	377.86	443.83	565.61	72.99	85.36	100.90	127.65
C	Mendocino-Rural Inland North	Winter	2026	325.90	378.00	443.78	565.81	73.01	85.47	100.93	127.81
C	Mendocino-Rural Inland North	Winter	2027	325.90	378.13	443.72	566.01	73.03	85.57	100.94	127.97
C	Mendocino-Rural Inland North	Winter	2028	325.90	378.27	443.68	566.22	73.03	85.66	100.96	128.11
C	Mendocino-Rural Inland North	Winter	2029	325.88	378.40	443.60	566.42	73.04	85.75	100.95	128.24
C	Mendocino-Rural Inland North	Winter	2030	325.86	378.53	443.54	566.62	73.04	85.83	100.95	128.37
C	Mendocino-Rural Inland North	Winter	2031	325.86	378.66	443.50	566.86	73.05	85.91	100.96	128.50
C	Mendocino-Rural Inland North	Winter	2032	325.85	378.78	443.47	567.09	73.06	85.98	100.96	128.62
C	Mendocino-Rural Inland North	Winter	2033	325.85	378.89	443.45	567.29	73.06	86.05	100.96	128.73
C	Mendocino-Rural Inland North	Winter	2034	325.84	378.99	443.43	567.47	73.07	86.11	100.97	128.83
C	Mendocino-Rural Inland North	Winter	2035	325.83	379.07	443.41	567.63	73.07	86.16	100.97	128.93
C	Mendocino-Rural Inland South	Annual	2010	328.61	379.07	451.10	562.37	72.79	86.74	100.94	123.79
C	Mendocino-Rural Inland South	Annual	2011	328.64	379.33	450.55	563.04	72.74	86.20	100.83	123.99
C	Mendocino-Rural Inland South	Annual	2012	328.71	379.62	450.13	563.82	72.71	85.88	100.79	124.25
C	Mendocino-Rural Inland South	Annual	2013	328.81	379.86	449.78	564.69	72.69	85.57	100.77	124.53
C	Mendocino-Rural Inland South	Annual	2014	328.91	380.10	449.50	565.53	72.66	85.38	100.70	124.83
C	Mendocino-Rural Inland South	Annual	2015	329.05	380.33	449.28	566.42	72.71	85.22	100.68	125.15
C	Mendocino-Rural Inland South	Annual	2016	329.20	380.54	449.10	567.26	72.78	85.05	100.67	125.47
C	Mendocino-Rural Inland South	Annual	2017	329.29	380.71	448.96	568.05	72.79	84.90	100.65	125.80
C	Mendocino-Rural Inland South	Annual	2018	329.36	380.86	448.84	568.75	72.80	84.79	100.64	126.10
C	Mendocino-Rural Inland South	Annual	2019	329.41	381.04	448.75	569.35	72.81	84.81	100.66	126.39
C	Mendocino-Rural Inland South	Annual	2020	329.46	381.20	448.68	569.87	72.90	84.89	100.71	126.66
C	Mendocino-Rural Inland South	Annual	2021	329.47	381.32	448.60	570.28	72.95	85.00	100.77	126.88
C	Mendocino-Rural Inland South	Annual	2022	329.44	381.41	448.52	570.63	72.98	85.10	100.81	127.08
C	Mendocino-Rural Inland South	Annual	2023	329.37	381.48	448.45	570.90	72.99	85.18	100.85	127.29
C	Mendocino-Rural Inland South	Annual	2024	329.30	381.52	448.37	571.09	72.98	85.26	100.87	127.48
C	Mendocino-Rural Inland South	Annual	2025	329.26	381.61	448.33	571.27	72.99	85.36	100.90	127.65
C	Mendocino-Rural Inland South	Annual	2026	329.27	381.77	448.27	571.47	73.01	85.47	100.93	127.81
C	Mendocino-Rural Inland South	Annual	2027	329.27	381.91	448.22	571.68	73.03	85.57	100.94	127.97

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Mendocino-Rural Inland South	Annual	2028	329.27	382.05	448.17	571.89	73.03	85.66	100.96	128.11
C	Mendocino-Rural Inland South	Annual	2029	329.25	382.19	448.10	572.09	73.04	85.75	100.95	128.24
C	Mendocino-Rural Inland South	Annual	2030	329.24	382.33	448.03	572.30	73.04	85.83	100.95	128.37
C	Mendocino-Rural Inland South	Annual	2031	329.23	382.47	448.00	572.53	73.05	85.91	100.96	128.50
C	Mendocino-Rural Inland South	Annual	2032	329.23	382.60	447.97	572.77	73.06	85.98	100.96	128.62
C	Mendocino-Rural Inland South	Annual	2033	329.22	382.71	447.95	572.98	73.06	86.05	100.96	128.73
C	Mendocino-Rural Inland South	Annual	2034	329.22	382.81	447.93	573.17	73.07	86.11	100.97	128.83
C	Mendocino-Rural Inland South	Annual	2035	329.21	382.89	447.91	573.33	73.07	86.16	100.97	128.93
C	Mendocino-Rural Inland South	Summer	2010	335.50	385.93	460.22	573.75	72.79	86.74	100.94	123.79
C	Mendocino-Rural Inland South	Summer	2011	335.60	386.40	459.76	574.44	72.74	86.20	100.83	123.99
C	Mendocino-Rural Inland South	Summer	2012	335.73	386.85	459.39	575.26	72.71	85.88	100.79	124.25
C	Mendocino-Rural Inland South	Summer	2013	335.88	387.22	459.11	576.18	72.69	85.57	100.77	124.53
C	Mendocino-Rural Inland South	Summer	2014	336.01	387.57	458.87	577.08	72.66	85.38	100.70	124.83
C	Mendocino-Rural Inland South	Summer	2015	336.17	387.90	458.70	578.04	72.71	85.22	100.68	125.15
C	Mendocino-Rural Inland South	Summer	2016	336.34	388.18	458.56	578.96	72.78	85.05	100.67	125.47
C	Mendocino-Rural Inland South	Summer	2017	336.43	388.42	458.43	579.82	72.79	84.90	100.65	125.80
C	Mendocino-Rural Inland South	Summer	2018	336.49	388.62	458.33	580.57	72.80	84.79	100.64	126.10
C	Mendocino-Rural Inland South	Summer	2019	336.54	388.83	458.25	581.22	72.81	84.81	100.66	126.39
C	Mendocino-Rural Inland South	Summer	2020	336.59	389.03	458.18	581.78	72.90	84.89	100.71	126.66
C	Mendocino-Rural Inland South	Summer	2021	336.60	389.18	458.11	582.21	72.95	85.00	100.77	126.88
C	Mendocino-Rural Inland South	Summer	2022	336.57	389.31	458.03	582.59	72.98	85.10	100.81	127.08
C	Mendocino-Rural Inland South	Summer	2023	336.50	389.40	457.96	582.88	72.99	85.18	100.85	127.29
C	Mendocino-Rural Inland South	Summer	2024	336.43	389.46	457.89	583.08	72.98	85.26	100.87	127.48
C	Mendocino-Rural Inland South	Summer	2025	336.39	389.57	457.85	583.26	72.99	85.36	100.90	127.65
C	Mendocino-Rural Inland South	Summer	2026	336.40	389.75	457.79	583.47	73.01	85.47	100.93	127.81
C	Mendocino-Rural Inland South	Summer	2027	336.41	389.91	457.74	583.68	73.03	85.57	100.94	127.97
C	Mendocino-Rural Inland South	Summer	2028	336.41	390.07	457.70	583.89	73.03	85.66	100.96	128.11
C	Mendocino-Rural Inland South	Summer	2029	336.40	390.24	457.63	584.11	73.04	85.75	100.95	128.24
C	Mendocino-Rural Inland South	Summer	2030	336.39	390.39	457.57	584.32	73.04	85.83	100.95	128.37
C	Mendocino-Rural Inland South	Summer	2031	336.39	390.55	457.53	584.57	73.05	85.91	100.96	128.50
C	Mendocino-Rural Inland South	Summer	2032	336.38	390.69	457.51	584.82	73.06	85.98	100.96	128.62
C	Mendocino-Rural Inland South	Summer	2033	336.38	390.81	457.48	585.05	73.06	86.05	100.96	128.73
C	Mendocino-Rural Inland South	Summer	2034	336.37	390.92	457.46	585.25	73.07	86.11	100.97	128.83
C	Mendocino-Rural Inland South	Summer	2035	336.36	391.01	457.44	585.42	73.07	86.16	100.97	128.93
C	Mendocino-Rural Inland South	Winter	2010	325.36	375.84	446.80	556.99	72.79	86.74	100.94	123.79
C	Mendocino-Rural Inland South	Winter	2011	325.35	375.99	446.21	557.66	72.74	86.20	100.83	123.99
C	Mendocino-Rural Inland South	Winter	2012	325.39	376.21	445.75	558.43	72.71	85.88	100.79	124.25
C	Mendocino-Rural Inland South	Winter	2013	325.47	376.38	445.38	559.27	72.69	85.57	100.77	124.53
C	Mendocino-Rural Inland South	Winter	2014	325.56	376.57	445.08	560.08	72.66	85.38	100.70	124.83
C	Mendocino-Rural Inland South	Winter	2015	325.69	376.77	444.84	560.93	72.71	85.22	100.68	125.15
C	Mendocino-Rural Inland South	Winter	2016	325.84	376.93	444.64	561.74	72.78	85.05	100.67	125.47
C	Mendocino-Rural Inland South	Winter	2017	325.92	377.08	444.49	562.50	72.79	84.90	100.65	125.80
C	Mendocino-Rural Inland South	Winter	2018	325.99	377.20	444.36	563.17	72.80	84.79	100.64	126.10
C	Mendocino-Rural Inland South	Winter	2019	326.04	377.36	444.27	563.75	72.81	84.81	100.66	126.39
C	Mendocino-Rural Inland South	Winter	2020	326.10	377.51	444.20	564.26	72.90	84.89	100.71	126.66
C	Mendocino-Rural Inland South	Winter	2021	326.10	377.61	444.12	564.65	72.95	85.00	100.77	126.88
C	Mendocino-Rural Inland South	Winter	2022	326.08	377.69	444.04	564.99	72.98	85.10	100.81	127.08
C	Mendocino-Rural Inland South	Winter	2023	326.01	377.75	443.96	565.25	72.99	85.18	100.85	127.29
C	Mendocino-Rural Inland South	Winter	2024	325.93	377.77	443.88	565.44	72.98	85.26	100.87	127.48
C	Mendocino-Rural Inland South	Winter	2025	325.89	377.86	443.83	565.61	72.99	85.36	100.90	127.65
C	Mendocino-Rural Inland South	Winter	2026	325.90	378.00	443.78	565.81	73.01	85.47	100.93	127.81
C	Mendocino-Rural Inland South	Winter	2027	325.90	378.13	443.72	566.01	73.03	85.57	100.94	127.97
C	Mendocino-Rural Inland South	Winter	2028	325.90	378.27	443.68	566.22	73.03	85.66	100.96	128.11
C	Mendocino-Rural Inland South	Winter	2029	325.88	378.40	443.60	566.42	73.04	85.75	100.95	128.24

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Mendocino-Rural Inland South	Winter	2030	325.86	378.53	443.54	566.62	73.04	85.83	100.95	128.37
C	Mendocino-Rural Inland South	Winter	2031	325.86	378.66	443.50	566.86	73.05	85.91	100.96	128.50
C	Mendocino-Rural Inland South	Winter	2032	325.85	378.78	443.47	567.09	73.06	85.98	100.96	128.62
C	Mendocino-Rural Inland South	Winter	2033	325.85	378.89	443.45	567.29	73.06	86.05	100.96	128.73
C	Mendocino-Rural Inland South	Winter	2034	325.84	378.99	443.43	567.47	73.07	86.11	100.97	128.83
C	Mendocino-Rural Inland South	Winter	2035	325.83	379.07	443.41	567.63	73.07	86.16	100.97	128.93
C	Merced (SJV)	Annual	2010	340.87	390.90	467.36	584.95	73.16	85.59	100.55	123.92
C	Merced (SJV)	Annual	2011	341.18	391.95	467.11	585.80	73.17	85.25	100.50	124.18
C	Merced (SJV)	Annual	2012	342.08	393.49	467.75	587.72	73.22	85.08	100.47	124.45
C	Merced (SJV)	Annual	2013	343.97	396.08	469.80	591.52	73.28	84.93	100.46	124.78
C	Merced (SJV)	Annual	2014	344.21	396.70	469.70	592.50	73.32	84.82	100.47	125.10
C	Merced (SJV)	Annual	2015	346.14	399.22	471.93	596.45	73.40	84.76	100.47	125.45
C	Merced (SJV)	Annual	2016	346.35	399.69	471.87	597.40	73.48	84.69	100.48	125.80
C	Merced (SJV)	Annual	2017	346.49	400.09	471.80	598.27	73.51	84.64	100.48	126.15
C	Merced (SJV)	Annual	2018	349.13	403.34	475.20	603.39	73.57	84.61	100.50	126.47
C	Merced (SJV)	Annual	2019	349.23	403.65	475.15	604.02	73.62	84.72	100.53	126.76
C	Merced (SJV)	Annual	2020	349.30	403.93	475.11	604.59	73.71	84.85	100.61	127.03
C	Merced (SJV)	Annual	2021	351.18	406.32	477.56	608.27	73.78	85.02	100.69	127.27
C	Merced (SJV)	Annual	2022	351.21	406.57	477.54	608.69	73.83	85.17	100.76	127.46
C	Merced (SJV)	Annual	2023	351.21	406.77	477.51	609.02	73.86	85.30	100.81	127.68
C	Merced (SJV)	Annual	2024	352.65	408.63	479.46	611.80	73.88	85.42	100.85	127.88
C	Merced (SJV)	Annual	2025	352.66	408.77	479.44	612.05	73.90	85.52	100.89	128.06
C	Merced (SJV)	Annual	2026	355.16	411.82	482.81	616.64	73.92	85.62	100.91	128.23
C	Merced (SJV)	Annual	2027	355.17	411.96	482.79	616.85	73.93	85.71	100.93	128.38
C	Merced (SJV)	Annual	2028	355.18	412.10	482.76	617.06	73.94	85.80	100.95	128.51
C	Merced (SJV)	Annual	2029	355.18	412.22	482.73	617.26	73.95	85.87	100.95	128.63
C	Merced (SJV)	Annual	2030	355.17	412.35	482.71	617.45	73.95	85.94	100.96	128.75
C	Merced (SJV)	Annual	2031	355.17	412.47	482.69	617.62	73.96	86.01	100.97	128.85
C	Merced (SJV)	Annual	2032	355.17	412.57	482.67	617.79	73.96	86.07	100.97	128.94
C	Merced (SJV)	Annual	2033	355.17	412.66	482.65	617.95	73.97	86.12	100.98	129.03
C	Merced (SJV)	Annual	2034	355.17	412.73	482.64	618.09	73.97	86.17	100.98	129.10
C	Merced (SJV)	Annual	2035	355.17	412.79	482.63	618.21	73.97	86.21	100.99	129.17
C	Merced (SJV)	Summer	2010	373.91	424.50	510.75	639.39	73.16	85.59	100.55	123.92
C	Merced (SJV)	Summer	2011	374.54	426.53	510.92	640.32	73.17	85.25	100.50	124.18
C	Merced (SJV)	Summer	2012	375.72	428.80	511.95	642.49	73.22	85.08	100.47	124.45
C	Merced (SJV)	Summer	2013	377.96	432.14	514.48	646.83	73.28	84.93	100.46	124.78
C	Merced (SJV)	Summer	2014	378.33	433.19	514.60	648.11	73.32	84.82	100.47	125.10
C	Merced (SJV)	Summer	2015	380.53	436.25	517.25	652.67	73.40	84.76	100.47	125.45
C	Merced (SJV)	Summer	2016	380.80	437.00	517.32	653.93	73.48	84.69	100.48	125.80
C	Merced (SJV)	Summer	2017	380.97	437.61	517.33	655.06	73.51	84.64	100.48	126.15
C	Merced (SJV)	Summer	2018	383.85	441.28	521.08	660.79	73.57	84.61	100.50	126.47
C	Merced (SJV)	Summer	2019	383.93	441.70	521.02	661.58	73.62	84.72	100.53	126.76
C	Merced (SJV)	Summer	2020	383.99	442.07	520.96	662.27	73.71	84.85	100.61	127.03
C	Merced (SJV)	Summer	2021	386.07	444.82	523.67	666.43	73.78	85.02	100.69	127.27
C	Merced (SJV)	Summer	2022	386.11	445.19	523.65	666.97	73.83	85.17	100.76	127.46
C	Merced (SJV)	Summer	2023	386.12	445.49	523.63	667.38	73.86	85.30	100.81	127.68
C	Merced (SJV)	Summer	2024	387.72	447.60	525.78	670.47	73.88	85.42	100.85	127.88
C	Merced (SJV)	Summer	2025	387.74	447.82	525.78	670.75	73.90	85.52	100.89	128.06
C	Merced (SJV)	Summer	2026	390.50	451.22	529.48	675.75	73.92	85.62	100.91	128.23
C	Merced (SJV)	Summer	2027	390.51	451.41	529.46	675.97	73.93	85.71	100.93	128.38
C	Merced (SJV)	Summer	2028	390.52	451.60	529.44	676.18	73.94	85.80	100.95	128.51
C	Merced (SJV)	Summer	2029	390.53	451.78	529.41	676.38	73.95	85.87	100.95	128.63
C	Merced (SJV)	Summer	2030	390.53	451.95	529.39	676.58	73.95	85.94	100.96	128.75
C	Merced (SJV)	Summer	2031	390.53	452.12	529.34	676.72	73.96	86.01	100.97	128.85

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Merced (SJV)	Summer	2032	390.53	452.26	529.30	676.87	73.96	86.07	100.97	128.94
C	Merced (SJV)	Summer	2033	390.53	452.37	529.27	677.03	73.97	86.12	100.98	129.03
C	Merced (SJV)	Summer	2034	390.53	452.46	529.26	677.19	73.97	86.17	100.98	129.10
C	Merced (SJV)	Summer	2035	390.53	452.53	529.24	677.34	73.97	86.21	100.99	129.17
C	Merced (SJV)	Winter	2010	329.03	378.86	451.81	565.43	73.16	85.59	100.55	123.92
C	Merced (SJV)	Winter	2011	329.22	379.55	451.41	566.25	73.17	85.25	100.50	124.18
C	Merced (SJV)	Winter	2012	330.02	380.82	451.91	568.09	73.22	85.08	100.47	124.45
C	Merced (SJV)	Winter	2013	331.78	383.15	453.79	571.69	73.28	84.93	100.46	124.78
C	Merced (SJV)	Winter	2014	331.98	383.62	453.60	572.57	73.32	84.82	100.47	125.10
C	Merced (SJV)	Winter	2015	333.81	385.94	455.69	576.30	73.40	84.76	100.47	125.45
C	Merced (SJV)	Winter	2016	334.00	386.31	455.57	577.14	73.48	84.69	100.48	125.80
C	Merced (SJV)	Winter	2017	334.13	386.64	455.48	577.91	73.51	84.64	100.48	126.15
C	Merced (SJV)	Winter	2018	336.69	389.74	458.76	582.81	73.57	84.61	100.50	126.47
C	Merced (SJV)	Winter	2019	336.79	390.02	458.71	583.39	73.62	84.72	100.53	126.76
C	Merced (SJV)	Winter	2020	336.87	390.25	458.68	583.91	73.71	84.85	100.61	127.03
C	Merced (SJV)	Winter	2021	338.67	392.52	461.04	587.42	73.78	85.02	100.69	127.27
C	Merced (SJV)	Winter	2022	338.70	392.73	461.01	587.80	73.83	85.17	100.76	127.46
C	Merced (SJV)	Winter	2023	338.70	392.89	460.97	588.09	73.86	85.30	100.81	127.68
C	Merced (SJV)	Winter	2024	340.08	394.65	462.85	590.78	73.88	85.42	100.85	127.88
C	Merced (SJV)	Winter	2025	340.08	394.77	462.82	591.01	73.90	85.52	100.89	128.06
C	Merced (SJV)	Winter	2026	342.49	397.70	466.08	595.45	73.92	85.62	100.91	128.23
C	Merced (SJV)	Winter	2027	342.50	397.82	466.06	595.66	73.93	85.71	100.93	128.38
C	Merced (SJV)	Winter	2028	342.50	397.93	466.03	595.87	73.94	85.80	100.95	128.51
C	Merced (SJV)	Winter	2029	342.50	398.05	466.00	596.07	73.95	85.87	100.95	128.63
C	Merced (SJV)	Winter	2030	342.50	398.15	465.98	596.26	73.95	85.94	100.96	128.75
C	Merced (SJV)	Winter	2031	342.50	398.25	465.97	596.43	73.96	86.01	100.97	128.85
C	Merced (SJV)	Winter	2032	342.50	398.34	465.96	596.61	73.96	86.07	100.97	128.94
C	Merced (SJV)	Winter	2033	342.50	398.42	465.94	596.76	73.97	86.12	100.98	129.03
C	Merced (SJV)	Winter	2034	342.49	398.49	465.93	596.90	73.97	86.17	100.98	129.10
C	Merced (SJV)	Winter	2035	342.49	398.55	465.92	597.02	73.97	86.21	100.99	129.17
C	Modoc (NEP)	Annual	2010	408.79	488.59	560.53	697.57	74.87	100.48	102.62	125.01
C	Modoc (NEP)	Annual	2011	408.63	485.64	559.72	698.46	74.72	97.48	102.30	125.08
C	Modoc (NEP)	Annual	2012	408.43	483.59	559.09	699.50	74.39	95.30	102.13	125.22
C	Modoc (NEP)	Annual	2013	408.39	482.13	558.57	700.69	74.23	93.74	101.93	125.38
C	Modoc (NEP)	Annual	2014	408.30	480.62	558.13	701.74	73.97	91.96	101.58	125.59
C	Modoc (NEP)	Annual	2015	408.25	479.23	557.81	702.85	73.76	90.19	101.45	125.82
C	Modoc (NEP)	Annual	2016	408.36	478.26	557.54	703.92	73.79	88.96	101.31	126.08
C	Modoc (NEP)	Annual	2017	408.32	477.36	557.31	704.96	73.64	87.77	101.05	126.34
C	Modoc (NEP)	Annual	2018	408.22	476.76	557.13	705.82	73.43	87.03	100.91	126.59
C	Modoc (NEP)	Annual	2019	408.20	476.34	556.98	706.60	73.35	86.56	100.78	126.79
C	Modoc (NEP)	Annual	2020	408.15	475.96	556.87	707.25	73.39	86.27	100.81	127.00
C	Modoc (NEP)	Annual	2021	408.10	475.54	556.77	707.69	73.42	86.13	100.87	127.13
C	Modoc (NEP)	Annual	2022	408.00	475.17	556.62	708.03	73.42	86.00	100.88	127.20
C	Modoc (NEP)	Annual	2023	407.93	474.79	556.52	708.27	73.44	85.87	100.91	127.38
C	Modoc (NEP)	Annual	2024	407.79	474.58	556.39	708.49	73.41	85.82	100.92	127.55
C	Modoc (NEP)	Annual	2025	407.72	474.59	556.34	708.71	73.41	85.87	100.96	127.72
C	Modoc (NEP)	Annual	2026	407.73	474.69	556.26	709.00	73.43	85.94	100.98	127.90
C	Modoc (NEP)	Annual	2027	407.73	474.80	556.20	709.30	73.44	86.00	100.99	128.07
C	Modoc (NEP)	Annual	2028	407.71	474.90	556.15	709.60	73.44	86.06	101.01	128.22
C	Modoc (NEP)	Annual	2029	407.70	475.01	556.08	709.88	73.45	86.12	101.01	128.36
C	Modoc (NEP)	Annual	2030	407.68	475.10	556.00	710.15	73.45	86.17	101.01	128.50
C	Modoc (NEP)	Annual	2031	407.69	475.22	555.95	710.46	73.45	86.22	101.01	128.63
C	Modoc (NEP)	Annual	2032	407.68	475.32	555.91	710.77	73.46	86.27	101.01	128.76
C	Modoc (NEP)	Annual	2033	407.68	475.40	555.88	711.04	73.47	86.31	101.01	128.87

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Modoc (NEP)	Annual	2034	407.67	475.47	555.85	711.29	73.47	86.35	101.01	128.97
C	Modoc (NEP)	Annual	2035	407.66	475.53	555.81	711.49	73.48	86.38	101.02	129.07
C	Modoc (NEP)	Summer	2010	425.39	503.36	582.23	724.10	74.87	100.48	102.62	125.01
C	Modoc (NEP)	Summer	2011	425.44	501.48	581.68	725.15	74.72	97.48	102.30	125.08
C	Modoc (NEP)	Summer	2012	425.41	500.15	581.24	726.37	74.39	95.30	102.13	125.22
C	Modoc (NEP)	Summer	2013	425.50	499.17	580.90	727.80	74.23	93.74	101.93	125.38
C	Modoc (NEP)	Summer	2014	425.50	498.13	580.66	729.05	73.97	91.96	101.58	125.59
C	Modoc (NEP)	Summer	2015	425.50	497.14	580.45	730.41	73.76	90.19	101.45	125.82
C	Modoc (NEP)	Summer	2016	425.64	496.45	580.30	731.70	73.79	88.96	101.31	126.08
C	Modoc (NEP)	Summer	2017	425.62	495.80	580.16	732.94	73.64	87.77	101.05	126.34
C	Modoc (NEP)	Summer	2018	425.52	495.35	580.02	733.96	73.43	87.03	100.91	126.59
C	Modoc (NEP)	Summer	2019	425.50	495.06	579.91	734.91	73.35	86.56	100.78	126.79
C	Modoc (NEP)	Summer	2020	425.44	494.80	579.80	735.68	73.39	86.27	100.81	127.00
C	Modoc (NEP)	Summer	2021	425.39	494.51	579.70	736.23	73.42	86.13	100.87	127.13
C	Modoc (NEP)	Summer	2022	425.28	494.26	579.57	736.66	73.42	86.00	100.88	127.20
C	Modoc (NEP)	Summer	2023	425.21	493.99	579.47	736.98	73.44	85.87	100.91	127.38
C	Modoc (NEP)	Summer	2024	425.08	493.85	579.37	737.26	73.41	85.82	100.92	127.55
C	Modoc (NEP)	Summer	2025	425.02	493.90	579.31	737.53	73.41	85.87	100.96	127.72
C	Modoc (NEP)	Summer	2026	425.03	494.03	579.22	737.87	73.43	85.94	100.98	127.90
C	Modoc (NEP)	Summer	2027	425.04	494.17	579.16	738.21	73.44	86.00	100.99	128.07
C	Modoc (NEP)	Summer	2028	425.05	494.30	579.11	738.56	73.44	86.06	101.01	128.22
C	Modoc (NEP)	Summer	2029	425.05	494.46	579.05	738.88	73.45	86.12	101.01	128.36
C	Modoc (NEP)	Summer	2030	425.04	494.57	578.98	739.20	73.45	86.17	101.01	128.50
C	Modoc (NEP)	Summer	2031	425.05	494.75	578.95	739.54	73.45	86.22	101.01	128.63
C	Modoc (NEP)	Summer	2032	425.05	494.88	578.93	739.88	73.46	86.27	101.01	128.76
C	Modoc (NEP)	Summer	2033	425.05	494.99	578.91	740.18	73.47	86.31	101.01	128.87
C	Modoc (NEP)	Summer	2034	425.04	495.08	578.89	740.44	73.47	86.35	101.01	128.97
C	Modoc (NEP)	Summer	2035	425.03	495.14	578.86	740.68	73.48	86.38	101.02	129.07
C	Modoc (NEP)	Winter	2010	403.43	483.82	553.52	689.00	74.87	100.48	102.62	125.01
C	Modoc (NEP)	Winter	2011	403.20	480.53	552.63	689.84	74.72	97.48	102.30	125.08
C	Modoc (NEP)	Winter	2012	402.94	478.25	551.93	690.82	74.39	95.30	102.13	125.22
C	Modoc (NEP)	Winter	2013	402.86	476.62	551.35	691.93	74.23	93.74	101.93	125.38
C	Modoc (NEP)	Winter	2014	402.75	474.97	550.86	692.91	73.97	91.96	101.58	125.59
C	Modoc (NEP)	Winter	2015	402.67	473.44	550.49	693.96	73.76	90.19	101.45	125.82
C	Modoc (NEP)	Winter	2016	402.78	472.38	550.19	694.95	73.79	88.96	101.31	126.08
C	Modoc (NEP)	Winter	2017	402.74	471.40	549.93	695.92	73.64	87.77	101.05	126.34
C	Modoc (NEP)	Winter	2018	402.64	470.75	549.73	696.72	73.43	87.03	100.91	126.59
C	Modoc (NEP)	Winter	2019	402.61	470.29	549.57	697.46	73.35	86.56	100.78	126.79
C	Modoc (NEP)	Winter	2020	402.56	469.87	549.46	698.07	73.39	86.27	100.81	127.00
C	Modoc (NEP)	Winter	2021	402.52	469.41	549.36	698.48	73.42	86.13	100.87	127.13
C	Modoc (NEP)	Winter	2022	402.41	469.01	549.21	698.78	73.42	86.00	100.88	127.20
C	Modoc (NEP)	Winter	2023	402.35	468.59	549.10	699.00	73.44	85.87	100.91	127.38
C	Modoc (NEP)	Winter	2024	402.21	468.35	548.97	699.20	73.41	85.82	100.92	127.55
C	Modoc (NEP)	Winter	2025	402.14	468.36	548.91	699.40	73.41	85.87	100.96	127.72
C	Modoc (NEP)	Winter	2026	402.14	468.45	548.84	699.67	73.43	85.94	100.98	127.90
C	Modoc (NEP)	Winter	2027	402.13	468.54	548.78	699.96	73.44	86.00	100.99	128.07
C	Modoc (NEP)	Winter	2028	402.11	468.63	548.73	700.25	73.44	86.06	101.01	128.22
C	Modoc (NEP)	Winter	2029	402.10	468.72	548.66	700.50	73.45	86.12	101.01	128.36
C	Modoc (NEP)	Winter	2030	402.08	468.81	548.57	700.77	73.45	86.17	101.01	128.50
C	Modoc (NEP)	Winter	2031	402.08	468.91	548.52	701.07	73.45	86.22	101.01	128.63
C	Modoc (NEP)	Winter	2032	402.08	469.00	548.47	701.37	73.46	86.27	101.01	128.76
C	Modoc (NEP)	Winter	2033	402.07	469.08	548.44	701.63	73.47	86.31	101.01	128.87
C	Modoc (NEP)	Winter	2034	402.06	469.14	548.40	701.87	73.47	86.35	101.01	128.97
C	Modoc (NEP)	Winter	2035	402.05	469.20	548.37	702.06	73.48	86.38	101.02	129.07

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Mono (GBV)	Annual	2010	343.29	401.90	471.21	588.85	73.49	90.48	100.46	124.33
C	Mono (GBV)	Annual	2011	343.38	401.41	470.63	589.51	73.45	89.54	100.40	124.54
C	Mono (GBV)	Annual	2012	343.46	401.01	470.17	590.24	73.30	88.81	100.41	124.77
C	Mono (GBV)	Annual	2013	343.56	400.60	469.80	591.01	73.12	88.06	100.44	125.04
C	Mono (GBV)	Annual	2014	343.63	400.25	469.51	591.80	72.91	87.42	100.46	125.29
C	Mono (GBV)	Annual	2015	343.76	400.00	469.27	592.59	72.85	86.92	100.51	125.58
C	Mono (GBV)	Annual	2016	343.89	399.78	469.09	593.36	72.82	86.46	100.57	125.87
C	Mono (GBV)	Annual	2017	343.97	399.52	468.93	594.07	72.77	85.93	100.62	126.17
C	Mono (GBV)	Annual	2018	344.06	399.38	468.81	594.73	72.79	85.63	100.65	126.43
C	Mono (GBV)	Annual	2019	344.09	399.35	468.71	595.27	72.69	85.53	100.67	126.69
C	Mono (GBV)	Annual	2020	344.16	399.27	468.63	595.75	72.78	85.46	100.75	126.94
C	Mono (GBV)	Annual	2021	344.10	399.20	468.56	596.09	72.76	85.49	100.81	127.11
C	Mono (GBV)	Annual	2022	344.02	399.16	468.47	596.42	72.72	85.53	100.85	127.32
C	Mono (GBV)	Annual	2023	343.91	399.06	468.40	596.65	72.65	85.55	100.89	127.50
C	Mono (GBV)	Annual	2024	343.88	398.93	468.31	596.81	72.64	85.56	100.91	127.66
C	Mono (GBV)	Annual	2025	343.85	399.01	468.26	597.00	72.64	85.64	100.94	127.83
C	Mono (GBV)	Annual	2026	343.87	399.12	468.20	597.21	72.66	85.73	100.97	127.98
C	Mono (GBV)	Annual	2027	343.88	399.24	468.15	597.42	72.67	85.81	100.99	128.13
C	Mono (GBV)	Annual	2028	343.89	399.35	468.10	597.63	72.68	85.89	101.00	128.27
C	Mono (GBV)	Annual	2029	343.88	399.47	468.01	597.85	72.68	85.96	101.00	128.40
C	Mono (GBV)	Annual	2030	343.87	399.58	467.93	598.05	72.68	86.03	101.00	128.52
C	Mono (GBV)	Annual	2031	343.87	399.69	467.90	598.28	72.69	86.09	101.00	128.64
C	Mono (GBV)	Annual	2032	343.87	399.80	467.87	598.50	72.69	86.15	101.01	128.75
C	Mono (GBV)	Annual	2033	343.87	399.90	467.84	598.69	72.70	86.20	101.01	128.85
C	Mono (GBV)	Annual	2034	343.87	399.99	467.82	598.87	72.70	86.25	101.01	128.95
C	Mono (GBV)	Annual	2035	343.86	400.07	467.79	599.02	72.70	86.30	101.02	129.03
C	Mono (GBV)	Summer	2010	344.62	403.20	472.98	591.06	73.49	90.48	100.46	124.33
C	Mono (GBV)	Summer	2011	344.72	402.75	472.40	591.72	73.45	89.54	100.40	124.54
C	Mono (GBV)	Summer	2012	344.82	402.39	471.95	592.45	73.30	88.81	100.41	124.77
C	Mono (GBV)	Summer	2013	344.91	402.00	471.59	593.23	73.12	88.06	100.44	125.04
C	Mono (GBV)	Summer	2014	345.00	401.67	471.31	594.02	72.91	87.42	100.46	125.29
C	Mono (GBV)	Summer	2015	345.13	401.44	471.08	594.83	72.85	86.92	100.51	125.58
C	Mono (GBV)	Summer	2016	345.25	401.24	470.89	595.61	72.82	86.46	100.57	125.87
C	Mono (GBV)	Summer	2017	345.34	400.99	470.75	596.33	72.77	85.93	100.62	126.17
C	Mono (GBV)	Summer	2018	345.43	400.86	470.62	597.00	72.79	85.63	100.65	126.43
C	Mono (GBV)	Summer	2019	345.45	400.84	470.53	597.55	72.69	85.53	100.67	126.69
C	Mono (GBV)	Summer	2020	345.53	400.77	470.45	598.03	72.78	85.46	100.75	126.94
C	Mono (GBV)	Summer	2021	345.47	400.71	470.37	598.38	72.76	85.49	100.81	127.11
C	Mono (GBV)	Summer	2022	345.39	400.67	470.29	598.71	72.72	85.53	100.85	127.32
C	Mono (GBV)	Summer	2023	345.28	400.59	470.22	598.94	72.65	85.55	100.89	127.50
C	Mono (GBV)	Summer	2024	345.25	400.46	470.13	599.11	72.64	85.56	100.91	127.66
C	Mono (GBV)	Summer	2025	345.22	400.54	470.08	599.30	72.64	85.64	100.94	127.83
C	Mono (GBV)	Summer	2026	345.23	400.65	470.02	599.51	72.66	85.73	100.97	127.98
C	Mono (GBV)	Summer	2027	345.25	400.77	469.98	599.72	72.67	85.81	100.99	128.13
C	Mono (GBV)	Summer	2028	345.26	400.89	469.92	599.94	72.68	85.89	101.00	128.27
C	Mono (GBV)	Summer	2029	345.25	401.01	469.84	600.15	72.68	85.96	101.00	128.40
C	Mono (GBV)	Summer	2030	345.24	401.12	469.76	600.36	72.68	86.03	101.00	128.52
C	Mono (GBV)	Summer	2031	345.24	401.24	469.72	600.58	72.69	86.09	101.00	128.64
C	Mono (GBV)	Summer	2032	345.24	401.35	469.69	600.81	72.69	86.15	101.01	128.75
C	Mono (GBV)	Summer	2033	345.24	401.45	469.67	601.01	72.70	86.20	101.01	128.85
C	Mono (GBV)	Summer	2034	345.24	401.54	469.64	601.18	72.70	86.25	101.01	128.95
C	Mono (GBV)	Summer	2035	345.23	401.62	469.62	601.34	72.70	86.30	101.02	129.03
C	Mono (GBV)	Winter	2010	344.72	403.30	473.10	591.22	73.49	90.48	100.46	124.33
C	Mono (GBV)	Winter	2011	344.82	402.85	472.53	591.88	73.45	89.54	100.40	124.54

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Mono (GBV)	Winter	2012	344.91	402.49	472.08	592.61	73.30	88.81	100.41	124.77
C	Mono (GBV)	Winter	2013	345.01	402.10	471.72	593.39	73.12	88.06	100.44	125.04
C	Mono (GBV)	Winter	2014	345.10	401.78	471.44	594.19	72.91	87.42	100.46	125.29
C	Mono (GBV)	Winter	2015	345.23	401.55	471.21	594.99	72.85	86.92	100.51	125.58
C	Mono (GBV)	Winter	2016	345.35	401.35	471.03	595.77	72.82	86.46	100.57	125.87
C	Mono (GBV)	Winter	2017	345.44	401.10	470.88	596.50	72.77	85.93	100.62	126.17
C	Mono (GBV)	Winter	2018	345.53	400.97	470.76	597.17	72.79	85.63	100.65	126.43
C	Mono (GBV)	Winter	2019	345.55	400.95	470.66	597.72	72.69	85.53	100.67	126.69
C	Mono (GBV)	Winter	2020	345.63	400.88	470.59	598.20	72.78	85.46	100.75	126.94
C	Mono (GBV)	Winter	2021	345.57	400.82	470.51	598.55	72.76	85.49	100.81	127.11
C	Mono (GBV)	Winter	2022	345.49	400.78	470.42	598.88	72.72	85.53	100.85	127.32
C	Mono (GBV)	Winter	2023	345.38	400.70	470.35	599.11	72.65	85.55	100.89	127.50
C	Mono (GBV)	Winter	2024	345.35	400.57	470.26	599.28	72.64	85.56	100.91	127.66
C	Mono (GBV)	Winter	2025	345.32	400.65	470.21	599.47	72.64	85.64	100.94	127.83
C	Mono (GBV)	Winter	2026	345.33	400.77	470.16	599.68	72.66	85.73	100.97	127.98
C	Mono (GBV)	Winter	2027	345.35	400.89	470.11	599.89	72.67	85.81	100.99	128.13
C	Mono (GBV)	Winter	2028	345.35	401.00	470.06	600.11	72.68	85.89	101.00	128.27
C	Mono (GBV)	Winter	2029	345.35	401.12	469.97	600.32	72.68	85.96	101.00	128.40
C	Mono (GBV)	Winter	2030	345.34	401.24	469.89	600.53	72.68	86.03	101.00	128.52
C	Mono (GBV)	Winter	2031	345.34	401.35	469.86	600.75	72.69	86.09	101.00	128.64
C	Mono (GBV)	Winter	2032	345.34	401.47	469.83	600.98	72.69	86.15	101.01	128.75
C	Mono (GBV)	Winter	2033	345.34	401.57	469.80	601.18	72.70	86.20	101.01	128.85
C	Mono (GBV)	Winter	2034	345.34	401.66	469.77	601.35	72.70	86.25	101.01	128.95
C	Mono (GBV)	Winter	2035	345.33	401.73	469.75	601.50	72.70	86.30	101.02	129.03
C	Monterey (NCC)	Annual	2010	361.69	420.90	498.72	622.94	72.97	87.15	99.70	123.80
C	Monterey (NCC)	Annual	2011	360.10	418.76	495.80	620.71	72.95	86.58	99.75	124.04
C	Monterey (NCC)	Annual	2012	360.24	418.68	495.36	621.52	72.94	86.11	99.83	124.31
C	Monterey (NCC)	Annual	2013	360.44	418.67	495.00	622.39	72.98	85.75	99.92	124.61
C	Monterey (NCC)	Annual	2014	360.60	418.67	494.72	623.24	73.00	85.44	100.02	124.91
C	Monterey (NCC)	Annual	2015	360.80	418.74	494.50	624.11	73.07	85.23	100.12	125.24
C	Monterey (NCC)	Annual	2016	360.99	418.78	494.33	624.94	73.15	85.01	100.23	125.56
C	Monterey (NCC)	Annual	2017	361.13	418.83	494.19	625.72	73.19	84.83	100.31	125.87
C	Monterey (NCC)	Annual	2018	361.23	418.90	494.08	626.40	73.21	84.71	100.39	126.18
C	Monterey (NCC)	Annual	2019	361.32	419.04	494.00	627.00	73.25	84.71	100.47	126.46
C	Monterey (NCC)	Annual	2020	361.40	419.20	493.94	627.55	73.34	84.80	100.56	126.73
C	Monterey (NCC)	Annual	2021	361.41	419.37	493.82	627.95	73.42	84.94	100.65	126.97
C	Monterey (NCC)	Annual	2022	361.43	419.55	493.76	628.35	73.47	85.07	100.72	127.17
C	Monterey (NCC)	Annual	2023	361.40	419.69	493.69	628.65	73.50	85.18	100.78	127.38
C	Monterey (NCC)	Annual	2024	361.35	419.79	493.63	628.89	73.51	85.28	100.83	127.56
C	Monterey (NCC)	Annual	2025	361.32	419.90	493.58	629.12	73.53	85.37	100.87	127.74
C	Monterey (NCC)	Annual	2026	359.63	418.04	491.16	626.37	73.55	85.47	100.90	127.91
C	Monterey (NCC)	Annual	2027	359.64	418.17	491.09	626.59	73.57	85.55	100.92	128.06
C	Monterey (NCC)	Annual	2028	359.64	418.30	491.03	626.81	73.58	85.62	100.93	128.19
C	Monterey (NCC)	Annual	2029	359.64	418.44	490.95	627.03	73.58	85.69	100.94	128.32
C	Monterey (NCC)	Annual	2030	359.63	418.59	490.87	627.25	73.59	85.76	100.94	128.45
C	Monterey (NCC)	Annual	2031	359.63	418.74	490.82	627.49	73.59	85.83	100.95	128.56
C	Monterey (NCC)	Annual	2032	359.64	418.88	490.78	627.72	73.60	85.89	100.96	128.68
C	Monterey (NCC)	Annual	2033	359.64	419.01	490.75	627.94	73.60	85.95	100.96	128.78
C	Monterey (NCC)	Annual	2034	359.64	419.12	490.71	628.13	73.61	86.00	100.97	128.88
C	Monterey (NCC)	Annual	2035	359.64	419.22	490.68	628.30	73.61	86.04	100.97	128.97
C	Monterey (NCC)	Summer	2010	384.62	444.54	528.69	661.39	72.97	87.15	99.70	123.80
C	Monterey (NCC)	Summer	2011	383.13	442.63	525.88	658.94	72.95	86.58	99.75	124.04
C	Monterey (NCC)	Summer	2012	383.43	442.87	525.66	659.77	72.94	86.11	99.83	124.31
C	Monterey (NCC)	Summer	2013	383.74	443.13	525.49	660.73	72.98	85.75	99.92	124.61

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Monterey (NCC)	Summer	2014	384.00	443.36	525.37	661.71	73.00	85.44	100.02	124.91
C	Monterey (NCC)	Summer	2015	384.25	443.63	525.27	662.75	73.07	85.23	100.12	125.24
C	Monterey (NCC)	Summer	2016	384.48	443.85	525.19	663.74	73.15	85.01	100.23	125.56
C	Monterey (NCC)	Summer	2017	384.63	444.07	525.11	664.67	73.19	84.83	100.31	125.87
C	Monterey (NCC)	Summer	2018	384.73	444.29	525.03	665.48	73.21	84.71	100.39	126.18
C	Monterey (NCC)	Summer	2019	384.81	444.55	524.96	666.19	73.25	84.71	100.47	126.46
C	Monterey (NCC)	Summer	2020	384.89	444.81	524.90	666.82	73.34	84.80	100.56	126.73
C	Monterey (NCC)	Summer	2021	384.89	445.06	524.78	667.28	73.42	84.94	100.65	126.97
C	Monterey (NCC)	Summer	2022	384.92	445.33	524.72	667.75	73.47	85.07	100.72	127.17
C	Monterey (NCC)	Summer	2023	384.89	445.54	524.67	668.09	73.50	85.18	100.78	127.38
C	Monterey (NCC)	Summer	2024	384.85	445.71	524.61	668.34	73.51	85.28	100.83	127.56
C	Monterey (NCC)	Summer	2025	384.84	445.87	524.56	668.58	73.53	85.37	100.87	127.74
C	Monterey (NCC)	Summer	2026	383.04	443.94	522.01	665.65	73.55	85.47	100.90	127.91
C	Monterey (NCC)	Summer	2027	383.05	444.11	521.95	665.88	73.57	85.55	100.92	128.06
C	Monterey (NCC)	Summer	2028	383.06	444.28	521.90	666.11	73.58	85.62	100.93	128.19
C	Monterey (NCC)	Summer	2029	383.07	444.47	521.83	666.33	73.58	85.69	100.94	128.32
C	Monterey (NCC)	Summer	2030	383.07	444.66	521.77	666.57	73.59	85.76	100.94	128.45
C	Monterey (NCC)	Summer	2031	383.07	444.86	521.73	666.82	73.59	85.83	100.95	128.56
C	Monterey (NCC)	Summer	2032	383.08	445.04	521.70	667.08	73.60	85.89	100.96	128.68
C	Monterey (NCC)	Summer	2033	383.09	445.20	521.67	667.32	73.60	85.95	100.96	128.78
C	Monterey (NCC)	Summer	2034	383.09	445.34	521.64	667.54	73.61	86.00	100.97	128.88
C	Monterey (NCC)	Summer	2035	383.09	445.45	521.62	667.73	73.61	86.04	100.97	128.97
C	Monterey (NCC)	Winter	2010	359.53	418.68	495.91	619.33	72.97	87.15	99.70	123.80
C	Monterey (NCC)	Winter	2011	357.94	416.52	492.98	617.12	72.95	86.58	99.75	124.04
C	Monterey (NCC)	Winter	2012	358.06	416.41	492.51	617.92	72.94	86.11	99.83	124.31
C	Monterey (NCC)	Winter	2013	358.25	416.38	492.14	618.78	72.98	85.75	99.92	124.61
C	Monterey (NCC)	Winter	2014	358.40	416.35	491.84	619.62	73.00	85.44	100.02	124.91
C	Monterey (NCC)	Winter	2015	358.60	416.40	491.61	620.48	73.07	85.23	100.12	125.24
C	Monterey (NCC)	Winter	2016	358.78	416.42	491.43	621.29	73.15	85.01	100.23	125.56
C	Monterey (NCC)	Winter	2017	358.92	416.46	491.28	622.06	73.19	84.83	100.31	125.87
C	Monterey (NCC)	Winter	2018	359.02	416.51	491.17	622.73	73.21	84.71	100.39	126.18
C	Monterey (NCC)	Winter	2019	359.11	416.65	491.09	623.32	73.25	84.71	100.47	126.46
C	Monterey (NCC)	Winter	2020	359.20	416.80	491.03	623.86	73.34	84.80	100.56	126.73
C	Monterey (NCC)	Winter	2021	359.20	416.95	490.91	624.25	73.42	84.94	100.65	126.97
C	Monterey (NCC)	Winter	2022	359.22	417.13	490.85	624.65	73.47	85.07	100.72	127.17
C	Monterey (NCC)	Winter	2023	359.19	417.26	490.78	624.95	73.50	85.18	100.78	127.38
C	Monterey (NCC)	Winter	2024	359.14	417.36	490.72	625.18	73.51	85.28	100.83	127.56
C	Monterey (NCC)	Winter	2025	359.11	417.45	490.67	625.41	73.53	85.37	100.87	127.74
C	Monterey (NCC)	Winter	2026	357.43	415.61	488.26	622.68	73.55	85.47	100.90	127.91
C	Monterey (NCC)	Winter	2027	357.44	415.73	488.19	622.90	73.57	85.55	100.92	128.06
C	Monterey (NCC)	Winter	2028	357.44	415.86	488.13	623.12	73.58	85.62	100.93	128.19
C	Monterey (NCC)	Winter	2029	357.44	416.00	488.04	623.34	73.58	85.69	100.94	128.32
C	Monterey (NCC)	Winter	2030	357.43	416.14	487.97	623.56	73.59	85.76	100.94	128.45
C	Monterey (NCC)	Winter	2031	357.43	416.28	487.92	623.79	73.59	85.83	100.95	128.56
C	Monterey (NCC)	Winter	2032	357.43	416.42	487.88	624.03	73.60	85.89	100.96	128.68
C	Monterey (NCC)	Winter	2033	357.44	416.54	487.84	624.24	73.60	85.95	100.96	128.78
C	Monterey (NCC)	Winter	2034	357.44	416.66	487.80	624.43	73.61	86.00	100.97	128.88
C	Monterey (NCC)	Winter	2035	357.43	416.75	487.77	624.59	73.61	86.04	100.97	128.97
C	Napa (SF)	Annual	2010	329.10	378.96	450.01	565.84	73.43	86.05	99.91	124.74
C	Napa (SF)	Annual	2011	329.06	378.97	449.74	566.36	73.36	85.65	99.95	124.92
C	Napa (SF)	Annual	2012	329.05	379.03	449.53	566.94	73.30	85.32	99.99	125.12
C	Napa (SF)	Annual	2013	329.13	379.15	449.36	567.56	73.30	85.09	100.06	125.34
C	Napa (SF)	Annual	2014	329.21	379.25	449.22	568.19	73.28	84.89	100.11	125.57
C	Napa (SF)	Annual	2015	329.32	379.37	449.11	568.83	73.31	84.71	100.14	125.82

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Napa (SF)	Annual	2016	329.46	379.53	449.03	569.44	73.38	84.61	100.21	126.08
C	Napa (SF)	Annual	2017	329.52	379.63	448.96	570.02	73.36	84.47	100.26	126.33
C	Napa (SF)	Annual	2018	329.58	379.77	448.91	570.54	73.37	84.41	100.30	126.57
C	Napa (SF)	Annual	2019	329.63	379.97	448.87	570.99	73.38	84.45	100.37	126.80
C	Napa (SF)	Annual	2020	329.69	380.19	448.85	571.40	73.47	84.58	100.46	127.02
C	Napa (SF)	Annual	2021	329.76	380.44	448.83	571.71	73.55	84.74	100.55	127.19
C	Napa (SF)	Annual	2022	329.80	380.64	448.80	571.97	73.61	84.89	100.63	127.33
C	Napa (SF)	Annual	2023	329.77	380.79	448.77	572.17	73.64	85.01	100.69	127.50
C	Napa (SF)	Annual	2024	329.73	380.92	448.74	572.31	73.66	85.13	100.75	127.65
C	Napa (SF)	Annual	2025	329.72	381.02	448.71	572.48	73.68	85.23	100.80	127.80
C	Napa (SF)	Annual	2026	329.74	381.19	448.67	572.65	73.70	85.33	100.83	127.95
C	Napa (SF)	Annual	2027	329.75	381.36	448.64	572.81	73.72	85.43	100.86	128.09
C	Napa (SF)	Annual	2028	329.75	381.54	448.61	572.98	73.73	85.52	100.89	128.21
C	Napa (SF)	Annual	2029	329.74	381.72	448.56	573.14	73.74	85.61	100.90	128.33
C	Napa (SF)	Annual	2030	329.73	381.90	448.51	573.32	73.74	85.69	100.91	128.44
C	Napa (SF)	Annual	2031	329.73	382.10	448.49	573.52	73.75	85.77	100.92	128.55
C	Napa (SF)	Annual	2032	329.72	382.29	448.47	573.73	73.75	85.85	100.93	128.66
C	Napa (SF)	Annual	2033	329.72	382.46	448.45	573.91	73.76	85.92	100.94	128.76
C	Napa (SF)	Annual	2034	329.71	382.61	448.42	574.08	73.76	85.98	100.94	128.86
C	Napa (SF)	Annual	2035	329.70	382.75	448.40	574.22	73.77	86.04	100.95	128.94
C	Napa (SF)	Summer	2010	352.37	401.97	480.67	604.93	73.43	86.05	99.91	124.74
C	Napa (SF)	Summer	2011	352.52	402.44	480.51	605.37	73.36	85.65	99.95	124.92
C	Napa (SF)	Summer	2012	352.67	402.91	480.41	605.97	73.30	85.32	99.99	125.12
C	Napa (SF)	Summer	2013	352.86	403.37	480.36	606.65	73.30	85.09	100.06	125.34
C	Napa (SF)	Summer	2014	353.02	403.79	480.35	607.39	73.28	84.89	100.11	125.57
C	Napa (SF)	Summer	2015	353.20	404.17	480.37	608.18	73.31	84.71	100.14	125.82
C	Napa (SF)	Summer	2016	353.38	404.56	480.39	608.94	73.38	84.61	100.21	126.08
C	Napa (SF)	Summer	2017	353.47	404.88	480.42	609.68	73.36	84.47	100.26	126.33
C	Napa (SF)	Summer	2018	353.53	405.19	480.43	610.32	73.37	84.41	100.30	126.57
C	Napa (SF)	Summer	2019	353.59	405.53	480.43	610.87	73.38	84.45	100.37	126.80
C	Napa (SF)	Summer	2020	353.65	405.87	480.42	611.37	73.47	84.58	100.46	127.02
C	Napa (SF)	Summer	2021	353.72	406.21	480.39	611.75	73.55	84.74	100.55	127.19
C	Napa (SF)	Summer	2022	353.75	406.51	480.36	612.08	73.61	84.89	100.63	127.33
C	Napa (SF)	Summer	2023	353.73	406.75	480.32	612.31	73.64	85.01	100.69	127.50
C	Napa (SF)	Summer	2024	353.70	406.96	480.28	612.48	73.66	85.13	100.75	127.65
C	Napa (SF)	Summer	2025	353.69	407.15	480.25	612.65	73.68	85.23	100.80	127.80
C	Napa (SF)	Summer	2026	353.71	407.39	480.21	612.82	73.70	85.33	100.83	127.95
C	Napa (SF)	Summer	2027	353.72	407.64	480.17	612.99	73.72	85.43	100.86	128.09
C	Napa (SF)	Summer	2028	353.73	407.89	480.14	613.16	73.73	85.52	100.89	128.21
C	Napa (SF)	Summer	2029	353.74	408.15	480.10	613.34	73.74	85.61	100.90	128.33
C	Napa (SF)	Summer	2030	353.73	408.41	480.06	613.52	73.74	85.69	100.91	128.44
C	Napa (SF)	Summer	2031	353.73	408.69	480.04	613.77	73.75	85.77	100.92	128.55
C	Napa (SF)	Summer	2032	353.73	408.94	480.03	614.01	73.75	85.85	100.93	128.66
C	Napa (SF)	Summer	2033	353.73	409.15	480.01	614.23	73.76	85.92	100.94	128.76
C	Napa (SF)	Summer	2034	353.73	409.35	479.99	614.43	73.76	85.98	100.94	128.86
C	Napa (SF)	Summer	2035	353.72	409.51	479.97	614.62	73.77	86.04	100.95	128.94
C	Napa (SF)	Winter	2010	325.46	375.37	445.22	559.74	73.43	86.05	99.91	124.74
C	Napa (SF)	Winter	2011	325.40	375.31	444.93	560.26	73.36	85.65	99.95	124.92
C	Napa (SF)	Winter	2012	325.37	375.30	444.70	560.85	73.30	85.32	99.99	125.12
C	Napa (SF)	Winter	2013	325.43	375.36	444.52	561.45	73.30	85.09	100.06	125.34
C	Napa (SF)	Winter	2014	325.49	375.42	444.36	562.07	73.28	84.89	100.11	125.57
C	Napa (SF)	Winter	2015	325.59	375.49	444.23	562.69	73.31	84.71	100.14	125.82
C	Napa (SF)	Winter	2016	325.73	375.62	444.13	563.27	73.38	84.61	100.21	126.08
C	Napa (SF)	Winter	2017	325.78	375.69	444.05	563.83	73.36	84.47	100.26	126.33

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Napa (SF)	Winter	2018	325.84	375.80	443.99	564.33	73.37	84.41	100.30	126.57
C	Napa (SF)	Winter	2019	325.89	375.97	443.95	564.76	73.38	84.45	100.37	126.80
C	Napa (SF)	Winter	2020	325.95	376.18	443.92	565.16	73.47	84.58	100.46	127.02
C	Napa (SF)	Winter	2021	326.02	376.41	443.90	565.46	73.55	84.74	100.55	127.19
C	Napa (SF)	Winter	2022	326.06	376.60	443.87	565.71	73.61	84.89	100.63	127.33
C	Napa (SF)	Winter	2023	326.03	376.74	443.84	565.90	73.64	85.01	100.69	127.50
C	Napa (SF)	Winter	2024	325.99	376.85	443.81	566.04	73.66	85.13	100.75	127.65
C	Napa (SF)	Winter	2025	325.98	376.94	443.79	566.20	73.68	85.23	100.80	127.80
C	Napa (SF)	Winter	2026	325.99	377.10	443.75	566.37	73.70	85.33	100.83	127.95
C	Napa (SF)	Winter	2027	326.00	377.26	443.72	566.54	73.72	85.43	100.86	128.09
C	Napa (SF)	Winter	2028	326.00	377.42	443.68	566.71	73.73	85.52	100.89	128.21
C	Napa (SF)	Winter	2029	325.99	377.59	443.63	566.87	73.74	85.61	100.90	128.33
C	Napa (SF)	Winter	2030	325.98	377.76	443.59	567.04	73.74	85.69	100.91	128.44
C	Napa (SF)	Winter	2031	325.98	377.95	443.57	567.24	73.75	85.77	100.92	128.55
C	Napa (SF)	Winter	2032	325.97	378.13	443.55	567.44	73.75	85.85	100.93	128.66
C	Napa (SF)	Winter	2033	325.97	378.29	443.52	567.61	73.76	85.92	100.94	128.76
C	Napa (SF)	Winter	2034	325.96	378.44	443.49	567.77	73.76	85.98	100.94	128.86
C	Napa (SF)	Winter	2035	325.95	378.57	443.47	567.91	73.77	86.04	100.95	128.94
C	Nevada (MC)	Annual	2010	326.07	380.22	447.10	559.78	73.67	93.42	100.30	125.42
C	Nevada (MC)	Annual	2011	326.05	379.91	446.56	560.31	73.51	91.91	100.28	125.49
C	Nevada (MC)	Annual	2012	326.08	379.65	446.15	560.94	73.39	90.54	100.30	125.59
C	Nevada (MC)	Annual	2013	326.14	379.46	445.84	561.62	73.28	89.44	100.33	125.74
C	Nevada (MC)	Annual	2014	326.17	379.29	445.60	562.31	73.14	88.45	100.37	125.90
C	Nevada (MC)	Annual	2015	326.25	379.17	445.41	563.05	73.08	87.59	100.41	126.09
C	Nevada (MC)	Annual	2016	326.37	379.06	445.26	563.75	73.08	86.81	100.48	126.31
C	Nevada (MC)	Annual	2017	326.42	378.96	445.14	564.41	73.04	86.10	100.50	126.53
C	Nevada (MC)	Annual	2018	326.47	378.87	445.04	564.98	73.01	85.49	100.54	126.75
C	Nevada (MC)	Annual	2019	326.52	378.90	444.96	565.48	73.00	85.26	100.59	126.96
C	Nevada (MC)	Annual	2020	326.58	378.94	444.89	565.93	73.10	85.21	100.66	127.16
C	Nevada (MC)	Annual	2021	326.64	379.04	444.84	566.23	73.18	85.31	100.74	127.27
C	Nevada (MC)	Annual	2022	326.65	379.14	444.78	566.45	73.23	85.40	100.80	127.30
C	Nevada (MC)	Annual	2023	326.63	379.22	444.73	566.61	73.26	85.48	100.85	127.47
C	Nevada (MC)	Annual	2024	326.58	379.28	444.68	566.75	73.28	85.56	100.89	127.62
C	Nevada (MC)	Annual	2025	326.58	379.35	444.63	566.93	73.30	85.63	100.92	127.79
C	Nevada (MC)	Annual	2026	326.59	379.43	444.58	567.11	73.32	85.70	100.95	127.95
C	Nevada (MC)	Annual	2027	326.60	379.49	444.53	567.28	73.34	85.77	100.96	128.09
C	Nevada (MC)	Annual	2028	326.60	379.56	444.49	567.46	73.35	85.83	100.97	128.22
C	Nevada (MC)	Annual	2029	326.60	379.64	444.43	567.65	73.36	85.88	100.97	128.35
C	Nevada (MC)	Annual	2030	326.59	379.71	444.37	567.83	73.36	85.93	100.97	128.47
C	Nevada (MC)	Annual	2031	326.58	379.78	444.34	568.04	73.37	85.99	100.97	128.58
C	Nevada (MC)	Annual	2032	326.58	379.84	444.32	568.25	73.37	86.03	100.97	128.70
C	Nevada (MC)	Annual	2033	326.58	379.90	444.30	568.44	73.38	86.08	100.98	128.80
C	Nevada (MC)	Annual	2034	326.57	379.95	444.28	568.61	73.38	86.12	100.98	128.89
C	Nevada (MC)	Annual	2035	326.57	379.99	444.26	568.76	73.39	86.15	100.98	128.98
C	Nevada (MC)	Summer	2010	349.54	405.49	478.37	598.65	73.67	93.42	100.30	125.42
C	Nevada (MC)	Summer	2011	349.74	405.57	478.16	599.23	73.51	91.91	100.28	125.49
C	Nevada (MC)	Summer	2012	349.96	405.65	478.01	599.97	73.39	90.54	100.30	125.59
C	Nevada (MC)	Summer	2013	350.16	405.73	477.90	600.85	73.28	89.44	100.33	125.74
C	Nevada (MC)	Summer	2014	350.32	405.78	477.81	601.73	73.14	88.45	100.37	125.90
C	Nevada (MC)	Summer	2015	350.49	405.86	477.75	602.72	73.08	87.59	100.41	126.09
C	Nevada (MC)	Summer	2016	350.67	405.92	477.68	603.66	73.08	86.81	100.48	126.31
C	Nevada (MC)	Summer	2017	350.76	405.97	477.60	604.55	73.04	86.10	100.50	126.53
C	Nevada (MC)	Summer	2018	350.82	406.02	477.50	605.29	73.01	85.49	100.54	126.75
C	Nevada (MC)	Summer	2019	350.87	406.12	477.42	605.95	73.00	85.26	100.59	126.96

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/MT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Nevada (MC)	Summer	2020	350.93	406.22	477.35	606.52	73.10	85.21	100.66	127.16
C	Nevada (MC)	Summer	2021	350.98	406.36	477.27	606.93	73.18	85.31	100.74	127.27
C	Nevada (MC)	Summer	2022	350.98	406.49	477.21	607.24	73.23	85.40	100.80	127.30
C	Nevada (MC)	Summer	2023	350.96	406.60	477.15	607.48	73.26	85.48	100.85	127.47
C	Nevada (MC)	Summer	2024	350.91	406.70	477.10	607.66	73.28	85.56	100.89	127.62
C	Nevada (MC)	Summer	2025	350.91	406.81	477.06	607.85	73.30	85.63	100.92	127.79
C	Nevada (MC)	Summer	2026	350.93	406.90	477.02	608.02	73.32	85.70	100.95	127.95
C	Nevada (MC)	Summer	2027	350.95	406.99	476.99	608.19	73.34	85.77	100.96	128.09
C	Nevada (MC)	Summer	2028	350.96	407.08	476.96	608.37	73.35	85.83	100.97	128.22
C	Nevada (MC)	Summer	2029	350.96	407.18	476.92	608.57	73.36	85.88	100.97	128.35
C	Nevada (MC)	Summer	2030	350.96	407.28	476.88	608.77	73.36	85.93	100.97	128.47
C	Nevada (MC)	Summer	2031	350.97	407.37	476.86	609.02	73.37	85.99	100.97	128.58
C	Nevada (MC)	Summer	2032	350.97	407.44	476.85	609.26	73.37	86.03	100.97	128.70
C	Nevada (MC)	Summer	2033	350.97	407.51	476.83	609.49	73.38	86.08	100.98	128.80
C	Nevada (MC)	Summer	2034	350.97	407.57	476.81	609.70	73.38	86.12	100.98	128.89
C	Nevada (MC)	Summer	2035	350.96	407.62	476.80	609.90	73.39	86.15	100.98	128.98
C	Nevada (MC)	Winter	2010	320.89	374.64	440.20	551.20	73.67	93.42	100.30	125.42
C	Nevada (MC)	Winter	2011	320.82	374.25	439.58	551.72	73.51	91.91	100.28	125.49
C	Nevada (MC)	Winter	2012	320.81	373.90	439.12	552.32	73.39	90.54	100.30	125.59
C	Nevada (MC)	Winter	2013	320.83	373.65	438.76	552.96	73.28	89.44	100.33	125.74
C	Nevada (MC)	Winter	2014	320.84	373.44	438.48	553.60	73.14	88.45	100.37	125.90
C	Nevada (MC)	Winter	2015	320.90	373.27	438.27	554.29	73.08	87.59	100.41	126.09
C	Nevada (MC)	Winter	2016	321.00	373.13	438.10	554.93	73.08	86.81	100.48	126.31
C	Nevada (MC)	Winter	2017	321.05	372.99	437.97	555.55	73.04	86.10	100.50	126.53
C	Nevada (MC)	Winter	2018	321.09	372.88	437.87	556.08	73.01	85.49	100.54	126.75
C	Nevada (MC)	Winter	2019	321.14	372.89	437.79	556.55	73.00	85.26	100.59	126.96
C	Nevada (MC)	Winter	2020	321.21	372.92	437.73	556.97	73.10	85.21	100.66	127.16
C	Nevada (MC)	Winter	2021	321.26	373.01	437.67	557.24	73.18	85.31	100.74	127.27
C	Nevada (MC)	Winter	2022	321.28	373.10	437.62	557.44	73.23	85.40	100.80	127.30
C	Nevada (MC)	Winter	2023	321.26	373.17	437.57	557.59	73.26	85.48	100.85	127.47
C	Nevada (MC)	Winter	2024	321.21	373.23	437.52	557.72	73.28	85.56	100.89	127.62
C	Nevada (MC)	Winter	2025	321.21	373.29	437.48	557.90	73.30	85.63	100.92	127.79
C	Nevada (MC)	Winter	2026	321.22	373.36	437.42	558.07	73.32	85.70	100.95	127.95
C	Nevada (MC)	Winter	2027	321.23	373.42	437.37	558.25	73.34	85.77	100.96	128.09
C	Nevada (MC)	Winter	2028	321.23	373.49	437.32	558.43	73.35	85.83	100.97	128.22
C	Nevada (MC)	Winter	2029	321.22	373.56	437.26	558.61	73.36	85.88	100.97	128.35
C	Nevada (MC)	Winter	2030	321.20	373.62	437.19	558.79	73.36	85.93	100.97	128.47
C	Nevada (MC)	Winter	2031	321.20	373.69	437.16	558.99	73.37	85.99	100.97	128.58
C	Nevada (MC)	Winter	2032	321.20	373.75	437.14	559.20	73.37	86.03	100.97	128.70
C	Nevada (MC)	Winter	2033	321.19	373.80	437.12	559.38	73.38	86.08	100.98	128.80
C	Nevada (MC)	Winter	2034	321.19	373.85	437.10	559.54	73.38	86.12	100.98	128.89
C	Nevada (MC)	Winter	2035	321.18	373.89	437.08	559.68	73.39	86.15	100.98	128.98
C	Orange (SC)	Annual	2010	347.87	400.01	475.99	602.85	73.07	83.78	99.29	125.36
C	Orange (SC)	Annual	2011	348.42	401.06	476.42	603.92	73.09	83.78	99.41	125.57
C	Orange (SC)	Annual	2012	348.63	401.63	476.37	604.39	73.13	83.82	99.55	125.78
C	Orange (SC)	Annual	2013	347.19	400.22	474.06	601.99	73.21	83.88	99.69	126.00
C	Orange (SC)	Annual	2014	347.40	400.69	474.04	602.49	73.26	83.95	99.83	126.23
C	Orange (SC)	Annual	2015	346.99	400.42	473.19	601.91	73.34	84.04	99.96	126.46
C	Orange (SC)	Annual	2016	347.18	400.82	473.19	602.39	73.43	84.13	100.08	126.69
C	Orange (SC)	Annual	2017	347.34	401.21	473.19	602.86	73.49	84.25	100.19	126.92
C	Orange (SC)	Annual	2018	347.48	401.54	473.20	603.27	73.54	84.36	100.29	127.13
C	Orange (SC)	Annual	2019	349.20	403.69	475.40	606.40	73.60	84.51	100.39	127.32
C	Orange (SC)	Annual	2020	349.30	403.97	475.41	606.72	73.70	84.67	100.49	127.50
C	Orange (SC)	Annual	2021	349.75	404.66	475.92	607.64	73.77	84.83	100.58	127.66

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Orange (SC)	Annual	2022	349.80	404.88	475.93	607.87	73.82	84.97	100.65	127.80
C	Orange (SC)	Annual	2023	349.82	405.05	475.92	608.05	73.86	85.10	100.72	127.95
C	Orange (SC)	Annual	2024	349.76	405.12	475.84	608.09	73.88	85.21	100.77	128.09
C	Orange (SC)	Annual	2025	349.77	405.26	475.83	608.24	73.90	85.31	100.82	128.22
C	Orange (SC)	Annual	2026	349.79	405.40	475.82	608.38	73.92	85.41	100.85	128.34
C	Orange (SC)	Annual	2027	349.80	405.53	475.81	608.51	73.94	85.50	100.88	128.45
C	Orange (SC)	Annual	2028	349.81	405.67	475.80	608.64	73.95	85.58	100.90	128.55
C	Orange (SC)	Annual	2029	349.81	405.80	475.79	608.77	73.96	85.66	100.92	128.64
C	Orange (SC)	Annual	2030	349.81	405.94	475.78	608.90	73.96	85.73	100.93	128.73
C	Orange (SC)	Annual	2031	348.96	405.11	474.63	607.56	73.97	85.80	100.95	128.81
C	Orange (SC)	Annual	2032	348.96	405.24	474.63	607.70	73.97	85.87	100.95	128.89
C	Orange (SC)	Annual	2033	348.96	405.36	474.62	607.83	73.97	85.94	100.96	128.97
C	Orange (SC)	Annual	2034	348.95	405.47	474.62	607.95	73.98	86.00	100.97	129.04
C	Orange (SC)	Annual	2035	348.95	405.55	474.61	608.05	73.98	86.05	100.97	129.10
C	Orange (SC)	Summer	2010	362.44	415.36	495.33	627.26	73.07	83.78	99.29	125.36
C	Orange (SC)	Summer	2011	363.04	416.58	495.78	628.25	73.09	83.78	99.41	125.57
C	Orange (SC)	Summer	2012	363.28	417.29	495.73	628.67	73.13	83.82	99.55	125.78
C	Orange (SC)	Summer	2013	361.81	415.93	493.36	626.17	73.21	83.88	99.69	126.00
C	Orange (SC)	Summer	2014	362.04	416.49	493.37	626.68	73.26	83.95	99.83	126.23
C	Orange (SC)	Summer	2015	361.62	416.27	492.50	626.09	73.34	84.04	99.96	126.46
C	Orange (SC)	Summer	2016	361.83	416.72	492.53	626.63	73.43	84.13	100.08	126.69
C	Orange (SC)	Summer	2017	362.01	417.16	492.56	627.16	73.49	84.25	100.19	126.92
C	Orange (SC)	Summer	2018	362.15	417.54	492.59	627.63	73.54	84.36	100.29	127.13
C	Orange (SC)	Summer	2019	363.96	419.82	494.91	630.94	73.60	84.51	100.39	127.32
C	Orange (SC)	Summer	2020	364.07	420.12	494.92	631.29	73.70	84.67	100.49	127.50
C	Orange (SC)	Summer	2021	364.53	420.87	495.46	632.27	73.77	84.83	100.58	127.66
C	Orange (SC)	Summer	2022	364.57	421.13	495.46	632.54	73.82	84.97	100.65	127.80
C	Orange (SC)	Summer	2023	364.59	421.33	495.45	632.74	73.86	85.10	100.72	127.95
C	Orange (SC)	Summer	2024	364.55	421.45	495.37	632.81	73.88	85.21	100.77	128.09
C	Orange (SC)	Summer	2025	364.56	421.62	495.36	632.96	73.90	85.31	100.82	128.22
C	Orange (SC)	Summer	2026	364.58	421.79	495.35	633.12	73.92	85.41	100.85	128.34
C	Orange (SC)	Summer	2027	364.59	421.94	495.34	633.26	73.94	85.50	100.88	128.45
C	Orange (SC)	Summer	2028	364.60	422.10	495.33	633.39	73.95	85.58	100.90	128.55
C	Orange (SC)	Summer	2029	364.60	422.27	495.31	633.51	73.96	85.66	100.92	128.64
C	Orange (SC)	Summer	2030	364.60	422.43	495.31	633.65	73.96	85.73	100.93	128.73
C	Orange (SC)	Summer	2031	363.73	421.60	494.12	632.27	73.97	85.80	100.95	128.81
C	Orange (SC)	Summer	2032	363.72	421.76	494.11	632.41	73.97	85.87	100.95	128.89
C	Orange (SC)	Summer	2033	363.72	421.90	494.11	632.54	73.97	85.94	100.96	128.97
C	Orange (SC)	Summer	2034	363.72	422.02	494.10	632.66	73.98	86.00	100.97	129.04
C	Orange (SC)	Summer	2035	363.71	422.11	494.10	632.78	73.98	86.05	100.97	129.10
C	Orange (SC)	Winter	2010	342.49	394.35	468.85	593.85	73.07	83.78	99.29	125.36
C	Orange (SC)	Winter	2011	343.03	395.32	469.28	594.94	73.09	83.78	99.41	125.57
C	Orange (SC)	Winter	2012	343.22	395.85	469.23	595.43	73.13	83.82	99.55	125.78
C	Orange (SC)	Winter	2013	341.80	394.42	466.94	593.07	73.21	83.88	99.69	126.00
C	Orange (SC)	Winter	2014	341.99	394.86	466.91	593.56	73.26	83.95	99.83	126.23
C	Orange (SC)	Winter	2015	341.59	394.58	466.06	592.99	73.34	84.04	99.96	126.46
C	Orange (SC)	Winter	2016	341.78	394.95	466.05	593.44	73.43	84.13	100.08	126.69
C	Orange (SC)	Winter	2017	341.93	395.32	466.04	593.89	73.49	84.25	100.19	126.92
C	Orange (SC)	Winter	2018	342.06	395.63	466.04	594.28	73.54	84.36	100.29	127.13
C	Orange (SC)	Winter	2019	343.75	397.74	468.20	597.34	73.60	84.51	100.39	127.32
C	Orange (SC)	Winter	2020	343.85	398.00	468.21	597.65	73.70	84.67	100.49	127.50
C	Orange (SC)	Winter	2021	344.29	398.67	468.71	598.54	73.77	84.83	100.58	127.66
C	Orange (SC)	Winter	2022	344.34	398.88	468.72	598.77	73.82	84.97	100.65	127.80
C	Orange (SC)	Winter	2023	344.36	399.04	468.72	598.94	73.86	85.10	100.72	127.95

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Orange (SC)	Winter	2024	344.30	399.10	468.63	598.97	73.88	85.21	100.77	128.09
C	Orange (SC)	Winter	2025	344.31	399.22	468.62	599.11	73.90	85.31	100.82	128.22
C	Orange (SC)	Winter	2026	344.33	399.35	468.62	599.25	73.92	85.41	100.85	128.34
C	Orange (SC)	Winter	2027	344.34	399.47	468.61	599.38	73.94	85.50	100.88	128.45
C	Orange (SC)	Winter	2028	344.35	399.60	468.60	599.51	73.95	85.58	100.90	128.55
C	Orange (SC)	Winter	2029	344.35	399.72	468.59	599.64	73.96	85.66	100.92	128.64
C	Orange (SC)	Winter	2030	344.34	399.85	468.58	599.77	73.96	85.73	100.93	128.73
C	Orange (SC)	Winter	2031	343.51	399.02	467.44	598.45	73.97	85.80	100.95	128.81
C	Orange (SC)	Winter	2032	343.51	399.15	467.43	598.59	73.97	85.87	100.95	128.89
C	Orange (SC)	Winter	2033	343.51	399.26	467.43	598.71	73.97	85.94	100.96	128.97
C	Orange (SC)	Winter	2034	343.50	399.36	467.42	598.82	73.98	86.00	100.97	129.04
C	Orange (SC)	Winter	2035	343.50	399.44	467.42	598.92	73.98	86.05	100.97	129.10
C	Placer (LT)	Annual	2010	340.23	392.41	463.45	577.11	74.90	88.03	99.95	123.15
C	Placer (LT)	Annual	2011	339.97	392.42	463.05	578.12	74.69	87.25	99.98	123.39
C	Placer (LT)	Annual	2012	339.74	392.55	462.73	579.12	74.40	86.88	100.02	123.70
C	Placer (LT)	Annual	2013	339.68	392.64	462.48	580.23	74.28	86.50	100.11	124.04
C	Placer (LT)	Annual	2014	339.55	392.72	462.29	581.26	74.02	86.17	100.18	124.39
C	Placer (LT)	Annual	2015	339.51	392.81	462.13	582.31	73.88	85.86	100.25	124.76
C	Placer (LT)	Annual	2016	339.57	392.94	462.02	583.33	73.88	85.70	100.34	125.12
C	Placer (LT)	Annual	2017	339.55	392.98	461.93	584.26	73.79	85.38	100.40	125.48
C	Placer (LT)	Annual	2018	339.54	393.05	461.86	585.08	73.72	85.22	100.48	125.82
C	Placer (LT)	Annual	2019	339.49	393.16	461.81	585.79	73.61	85.17	100.54	126.14
C	Placer (LT)	Annual	2020	339.51	393.28	461.78	586.39	73.69	85.23	100.64	126.46
C	Placer (LT)	Annual	2021	339.39	393.37	461.75	586.89	73.69	85.32	100.72	126.73
C	Placer (LT)	Annual	2022	339.32	393.46	461.71	587.33	73.71	85.41	100.78	126.98
C	Placer (LT)	Annual	2023	339.19	393.47	461.67	587.65	73.70	85.46	100.83	127.20
C	Placer (LT)	Annual	2024	338.99	393.46	461.63	587.89	73.66	85.51	100.87	127.40
C	Placer (LT)	Annual	2025	338.92	393.53	461.61	588.13	73.66	85.59	100.91	127.59
C	Placer (LT)	Annual	2026	338.92	393.66	461.58	588.38	73.68	85.69	100.94	127.78
C	Placer (LT)	Annual	2027	338.92	393.78	461.56	588.62	73.70	85.78	100.96	127.94
C	Placer (LT)	Annual	2028	338.91	393.89	461.53	588.87	73.71	85.86	100.98	128.10
C	Placer (LT)	Annual	2029	338.88	394.01	461.50	589.12	73.71	85.93	100.99	128.24
C	Placer (LT)	Annual	2030	338.87	394.12	461.45	589.36	73.71	86.00	100.99	128.38
C	Placer (LT)	Annual	2031	338.87	394.23	461.43	589.62	73.72	86.07	101.00	128.51
C	Placer (LT)	Annual	2032	338.86	394.34	461.40	589.88	73.73	86.13	101.01	128.64
C	Placer (LT)	Annual	2033	338.86	394.44	461.38	590.11	73.73	86.19	101.01	128.75
C	Placer (LT)	Annual	2034	338.85	394.52	461.36	590.32	73.74	86.25	101.01	128.86
C	Placer (LT)	Annual	2035	338.84	394.59	461.34	590.51	73.74	86.29	101.02	128.96
C	Placer (LT)	Summer	2010	338.84	391.00	461.59	574.82	74.90	88.03	99.95	123.15
C	Placer (LT)	Summer	2011	338.57	390.97	461.17	575.82	74.69	87.25	99.98	123.39
C	Placer (LT)	Summer	2012	338.32	391.08	460.84	576.82	74.40	86.88	100.02	123.70
C	Placer (LT)	Summer	2013	338.25	391.14	460.59	577.91	74.28	86.50	100.11	124.04
C	Placer (LT)	Summer	2014	338.11	391.20	460.39	578.92	74.02	86.17	100.18	124.39
C	Placer (LT)	Summer	2015	338.07	391.27	460.22	579.97	73.88	85.86	100.25	124.76
C	Placer (LT)	Summer	2016	338.13	391.39	460.11	580.97	73.88	85.70	100.34	125.12
C	Placer (LT)	Summer	2017	338.10	391.41	460.01	581.88	73.79	85.38	100.40	125.48
C	Placer (LT)	Summer	2018	338.10	391.48	459.94	582.69	73.72	85.22	100.48	125.82
C	Placer (LT)	Summer	2019	338.04	391.58	459.89	583.40	73.61	85.17	100.54	126.14
C	Placer (LT)	Summer	2020	338.06	391.69	459.86	583.98	73.69	85.23	100.64	126.46
C	Placer (LT)	Summer	2021	337.95	391.78	459.84	584.48	73.69	85.32	100.72	126.73
C	Placer (LT)	Summer	2022	337.87	391.86	459.79	584.92	73.71	85.41	100.78	126.98
C	Placer (LT)	Summer	2023	337.74	391.87	459.76	585.24	73.70	85.46	100.83	127.20
C	Placer (LT)	Summer	2024	337.54	391.85	459.72	585.48	73.66	85.51	100.87	127.40
C	Placer (LT)	Summer	2025	337.47	391.92	459.69	585.72	73.66	85.59	100.91	127.59

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Placer (LT)	Summer	2026	337.47	392.04	459.66	585.97	73.68	85.69	100.94	127.78
C	Placer (LT)	Summer	2027	337.47	392.16	459.64	586.21	73.70	85.78	100.96	127.94
C	Placer (LT)	Summer	2028	337.46	392.27	459.61	586.46	73.71	85.86	100.98	128.10
C	Placer (LT)	Summer	2029	337.44	392.39	459.58	586.70	73.71	85.93	100.99	128.24
C	Placer (LT)	Summer	2030	337.42	392.50	459.53	586.94	73.71	86.00	100.99	128.38
C	Placer (LT)	Summer	2031	337.42	392.60	459.50	587.19	73.72	86.07	101.00	128.51
C	Placer (LT)	Summer	2032	337.41	392.71	459.48	587.45	73.73	86.13	101.01	128.64
C	Placer (LT)	Summer	2033	337.40	392.80	459.46	587.68	73.73	86.19	101.01	128.75
C	Placer (LT)	Summer	2034	337.40	392.88	459.44	587.89	73.74	86.25	101.01	128.86
C	Placer (LT)	Summer	2035	337.39	392.96	459.42	588.07	73.74	86.29	101.02	128.96
C	Placer (LT)	Winter	2010	338.69	390.84	461.38	574.56	74.90	88.03	99.95	123.15
C	Placer (LT)	Winter	2011	338.41	390.80	460.96	575.56	74.69	87.25	99.98	123.39
C	Placer (LT)	Winter	2012	338.16	390.91	460.63	576.55	74.40	86.88	100.02	123.70
C	Placer (LT)	Winter	2013	338.09	390.97	460.37	577.65	74.28	86.50	100.11	124.04
C	Placer (LT)	Winter	2014	337.95	391.03	460.17	578.66	74.02	86.17	100.18	124.39
C	Placer (LT)	Winter	2015	337.90	391.10	460.01	579.70	73.88	85.86	100.25	124.76
C	Placer (LT)	Winter	2016	337.96	391.21	459.89	580.70	73.88	85.70	100.34	125.12
C	Placer (LT)	Winter	2017	337.94	391.23	459.79	581.61	73.79	85.38	100.40	125.48
C	Placer (LT)	Winter	2018	337.93	391.30	459.73	582.42	73.72	85.22	100.48	125.82
C	Placer (LT)	Winter	2019	337.88	391.40	459.67	583.12	73.61	85.17	100.54	126.14
C	Placer (LT)	Winter	2020	337.90	391.51	459.64	583.71	73.69	85.23	100.64	126.46
C	Placer (LT)	Winter	2021	337.78	391.60	459.62	584.21	73.69	85.32	100.72	126.73
C	Placer (LT)	Winter	2022	337.71	391.68	459.57	584.64	73.71	85.41	100.78	126.98
C	Placer (LT)	Winter	2023	337.58	391.69	459.54	584.96	73.70	85.46	100.83	127.20
C	Placer (LT)	Winter	2024	337.38	391.66	459.50	585.21	73.66	85.51	100.87	127.40
C	Placer (LT)	Winter	2025	337.31	391.74	459.47	585.44	73.66	85.59	100.91	127.59
C	Placer (LT)	Winter	2026	337.31	391.86	459.44	585.69	73.68	85.69	100.94	127.78
C	Placer (LT)	Winter	2027	337.31	391.98	459.42	585.93	73.70	85.78	100.96	127.94
C	Placer (LT)	Winter	2028	337.30	392.09	459.39	586.18	73.71	85.86	100.98	128.10
C	Placer (LT)	Winter	2029	337.27	392.20	459.36	586.42	73.71	85.93	100.99	128.24
C	Placer (LT)	Winter	2030	337.25	392.31	459.31	586.66	73.71	86.00	100.99	128.38
C	Placer (LT)	Winter	2031	337.25	392.42	459.29	586.92	73.72	86.07	101.00	128.51
C	Placer (LT)	Winter	2032	337.24	392.52	459.26	587.18	73.73	86.13	101.01	128.64
C	Placer (LT)	Winter	2033	337.24	392.62	459.24	587.41	73.73	86.19	101.01	128.75
C	Placer (LT)	Winter	2034	337.23	392.70	459.22	587.62	73.74	86.25	101.01	128.86
C	Placer (LT)	Winter	2035	337.23	392.77	459.20	587.80	73.74	86.29	101.02	128.96
C	Placer (MC)	Annual	2010	329.36	386.40	451.66	564.92	74.80	97.65	101.10	126.15
C	Placer (MC)	Annual	2011	329.15	385.52	450.95	565.40	74.33	95.41	100.91	126.13
C	Placer (MC)	Annual	2012	329.07	384.69	450.42	566.02	74.02	93.26	100.87	126.12
C	Placer (MC)	Annual	2013	329.11	384.15	450.00	566.65	73.83	91.74	100.80	126.20
C	Placer (MC)	Annual	2014	329.16	383.61	449.69	567.30	73.68	90.22	100.75	126.29
C	Placer (MC)	Annual	2015	329.24	383.22	449.43	567.96	73.57	89.07	100.72	126.43
C	Placer (MC)	Annual	2016	329.36	382.88	449.24	568.58	73.54	88.05	100.72	126.60
C	Placer (MC)	Annual	2017	329.40	382.34	449.07	569.24	73.43	86.60	100.66	126.74
C	Placer (MC)	Annual	2018	329.36	382.09	448.94	569.80	73.26	85.85	100.69	126.90
C	Placer (MC)	Annual	2019	332.02	385.00	452.39	574.73	73.29	85.50	100.67	127.04
C	Placer (MC)	Annual	2020	332.07	384.86	452.31	575.12	73.38	85.28	100.73	127.19
C	Placer (MC)	Annual	2021	332.12	384.99	452.23	575.34	73.44	85.38	100.80	127.25
C	Placer (MC)	Annual	2022	332.17	385.09	452.15	575.43	73.51	85.47	100.85	127.16
C	Placer (MC)	Annual	2023	332.19	385.15	452.08	575.52	73.55	85.54	100.90	127.30
C	Placer (MC)	Annual	2024	332.17	385.17	452.02	575.58	73.57	85.59	100.94	127.43
C	Placer (MC)	Annual	2025	332.15	385.21	451.97	575.68	73.59	85.65	100.97	127.57
C	Placer (MC)	Annual	2026	332.17	385.30	451.90	575.81	73.61	85.72	100.99	127.72
C	Placer (MC)	Annual	2027	332.18	385.38	451.84	575.95	73.62	85.78	101.01	127.85

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Placer (MC)	Annual	2028	332.18	385.47	451.76	576.09	73.63	85.85	101.01	127.97
C	Placer (MC)	Annual	2029	332.18	385.56	451.67	576.26	73.64	85.91	101.01	128.09
C	Placer (MC)	Annual	2030	332.17	385.66	451.55	576.44	73.64	85.96	100.98	128.21
C	Placer (MC)	Annual	2031	332.17	385.75	451.50	576.67	73.65	86.02	100.99	128.33
C	Placer (MC)	Annual	2032	332.16	385.83	451.46	576.90	73.66	86.07	100.99	128.45
C	Placer (MC)	Annual	2033	332.16	385.91	451.43	577.12	73.66	86.12	100.99	128.57
C	Placer (MC)	Annual	2034	332.16	385.97	451.40	577.32	73.67	86.17	100.99	128.67
C	Placer (MC)	Annual	2035	332.15	386.03	451.37	577.50	73.67	86.20	101.00	128.78
C	Placer (MC)	Summer	2010	352.60	410.10	482.16	602.93	74.80	97.65	101.10	126.15
C	Placer (MC)	Summer	2011	352.62	409.82	481.81	603.49	74.33	95.41	100.91	126.13
C	Placer (MC)	Summer	2012	352.73	409.55	481.54	604.28	74.02	93.26	100.87	126.12
C	Placer (MC)	Summer	2013	352.90	409.38	481.34	605.11	73.83	91.74	100.80	126.20
C	Placer (MC)	Summer	2014	353.06	409.18	481.21	605.99	73.68	90.22	100.75	126.29
C	Placer (MC)	Summer	2015	353.22	409.05	481.09	606.90	73.57	89.07	100.72	126.43
C	Placer (MC)	Summer	2016	353.39	408.90	480.99	607.75	73.54	88.05	100.72	126.60
C	Placer (MC)	Summer	2017	353.47	408.64	480.89	608.64	73.43	86.60	100.66	126.74
C	Placer (MC)	Summer	2018	353.45	408.51	480.77	609.39	73.26	85.85	100.69	126.90
C	Placer (MC)	Summer	2019	356.31	411.72	484.51	614.80	73.29	85.50	100.67	127.04
C	Placer (MC)	Summer	2020	356.34	411.66	484.39	615.29	73.38	85.28	100.73	127.19
C	Placer (MC)	Summer	2021	356.36	411.82	484.28	615.58	73.44	85.38	100.80	127.25
C	Placer (MC)	Summer	2022	356.40	411.97	484.18	615.77	73.51	85.47	100.85	127.16
C	Placer (MC)	Summer	2023	356.40	412.10	484.10	615.91	73.55	85.54	100.90	127.30
C	Placer (MC)	Summer	2024	356.40	412.17	484.02	615.97	73.57	85.59	100.94	127.43
C	Placer (MC)	Summer	2025	356.38	412.27	483.96	616.07	73.59	85.65	100.97	127.57
C	Placer (MC)	Summer	2026	356.41	412.39	483.91	616.17	73.61	85.72	100.99	127.72
C	Placer (MC)	Summer	2027	356.43	412.50	483.87	616.28	73.62	85.78	101.01	127.85
C	Placer (MC)	Summer	2028	356.44	412.63	483.82	616.43	73.63	85.85	101.01	127.97
C	Placer (MC)	Summer	2029	356.46	412.75	483.76	616.60	73.64	85.91	101.01	128.09
C	Placer (MC)	Summer	2030	356.46	412.90	483.67	616.81	73.64	85.96	100.98	128.21
C	Placer (MC)	Summer	2031	356.46	413.02	483.66	617.09	73.65	86.02	100.99	128.33
C	Placer (MC)	Summer	2032	356.46	413.12	483.65	617.39	73.66	86.07	100.99	128.45
C	Placer (MC)	Summer	2033	356.45	413.21	483.63	617.66	73.66	86.12	100.99	128.57
C	Placer (MC)	Summer	2034	356.45	413.29	483.61	617.93	73.67	86.17	100.99	128.67
C	Placer (MC)	Summer	2035	356.44	413.35	483.58	618.17	73.67	86.20	101.00	128.78
C	Placer (MC)	Winter	2010	324.91	381.86	445.82	557.64	74.80	97.65	101.10	126.15
C	Placer (MC)	Winter	2011	324.66	380.86	445.04	558.11	74.33	95.41	100.91	126.13
C	Placer (MC)	Winter	2012	324.54	379.93	444.46	558.70	74.02	93.26	100.87	126.12
C	Placer (MC)	Winter	2013	324.55	379.32	444.00	559.29	73.83	91.74	100.80	126.20
C	Placer (MC)	Winter	2014	324.58	378.71	443.65	559.89	73.68	90.22	100.75	126.29
C	Placer (MC)	Winter	2015	324.65	378.28	443.37	560.51	73.57	89.07	100.72	126.43
C	Placer (MC)	Winter	2016	324.76	377.90	443.16	561.08	73.54	88.05	100.72	126.60
C	Placer (MC)	Winter	2017	324.79	377.30	442.98	561.69	73.43	86.60	100.66	126.74
C	Placer (MC)	Winter	2018	324.75	377.03	442.84	562.22	73.26	85.85	100.69	126.90
C	Placer (MC)	Winter	2019	327.37	379.88	446.24	567.05	73.29	85.50	100.67	127.04
C	Placer (MC)	Winter	2020	327.42	379.73	446.16	567.42	73.38	85.28	100.73	127.19
C	Placer (MC)	Winter	2021	327.47	379.84	446.08	567.62	73.44	85.38	100.80	127.25
C	Placer (MC)	Winter	2022	327.53	379.93	446.02	567.70	73.51	85.47	100.85	127.16
C	Placer (MC)	Winter	2023	327.55	379.99	445.95	567.78	73.55	85.54	100.90	127.30
C	Placer (MC)	Winter	2024	327.53	379.99	445.89	567.83	73.57	85.59	100.94	127.43
C	Placer (MC)	Winter	2025	327.51	380.02	445.84	567.94	73.59	85.65	100.97	127.57
C	Placer (MC)	Winter	2026	327.52	380.10	445.77	568.08	73.61	85.72	100.99	127.72
C	Placer (MC)	Winter	2027	327.53	380.18	445.70	568.22	73.62	85.78	101.01	127.85
C	Placer (MC)	Winter	2028	327.53	380.27	445.62	568.36	73.63	85.85	101.01	127.97
C	Placer (MC)	Winter	2029	327.53	380.35	445.52	568.53	73.64	85.91	101.01	128.09

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Placer (MC)	Winter	2030	327.52	380.43	445.39	568.71	73.64	85.96	100.98	128.21
C	Placer (MC)	Winter	2031	327.52	380.52	445.34	568.92	73.65	86.02	100.99	128.33
C	Placer (MC)	Winter	2032	327.51	380.60	445.29	569.15	73.66	86.07	100.99	128.45
C	Placer (MC)	Winter	2033	327.51	380.67	445.26	569.35	73.66	86.12	100.99	128.57
C	Placer (MC)	Winter	2034	327.50	380.74	445.22	569.54	73.67	86.17	100.99	128.67
C	Placer (MC)	Winter	2035	327.50	380.79	445.19	569.71	73.67	86.20	101.00	128.78
C	Placer (SV)	Annual	2010	330.73	381.91	453.82	574.66	73.02	85.63	99.77	125.72
C	Placer (SV)	Annual	2011	330.94	382.54	453.73	575.15	73.00	85.31	99.84	125.93
C	Placer (SV)	Annual	2012	331.14	383.12	453.66	575.67	72.98	85.12	99.94	126.16
C	Placer (SV)	Annual	2013	331.36	383.59	453.61	576.19	73.02	84.98	100.04	126.39
C	Placer (SV)	Annual	2014	331.54	384.02	453.59	576.71	73.02	84.89	100.12	126.62
C	Placer (SV)	Annual	2015	331.72	384.39	453.58	577.22	73.07	84.82	100.20	126.84
C	Placer (SV)	Annual	2016	331.89	384.74	453.58	577.72	73.15	84.80	100.28	127.07
C	Placer (SV)	Annual	2017	332.02	385.03	453.57	578.18	73.21	84.75	100.34	127.30
C	Placer (SV)	Annual	2018	332.13	385.29	453.57	578.57	73.26	84.74	100.42	127.51
C	Placer (SV)	Annual	2019	331.61	384.84	452.75	577.85	73.32	84.86	100.50	127.69
C	Placer (SV)	Annual	2020	331.69	385.06	452.74	578.14	73.41	84.99	100.58	127.86
C	Placer (SV)	Annual	2021	331.75	385.26	452.73	578.36	73.48	85.13	100.66	127.99
C	Placer (SV)	Annual	2022	331.79	385.43	452.72	578.54	73.53	85.25	100.72	128.10
C	Placer (SV)	Annual	2023	331.81	385.56	452.70	578.69	73.57	85.36	100.78	128.24
C	Placer (SV)	Annual	2024	331.82	385.67	452.69	578.81	73.59	85.45	100.82	128.36
C	Placer (SV)	Annual	2025	331.83	385.78	452.68	578.93	73.61	85.53	100.86	128.48
C	Placer (SV)	Annual	2026	331.85	385.89	452.67	579.04	73.63	85.62	100.89	128.59
C	Placer (SV)	Annual	2027	331.87	385.99	452.65	579.14	73.64	85.69	100.92	128.68
C	Placer (SV)	Annual	2028	331.88	386.10	452.64	579.25	73.65	85.75	100.94	128.77
C	Placer (SV)	Annual	2029	331.89	386.21	452.63	579.35	73.66	85.82	100.95	128.85
C	Placer (SV)	Annual	2030	331.89	386.32	452.63	579.46	73.67	85.88	100.96	128.92
C	Placer (SV)	Annual	2031	331.90	386.42	452.62	579.56	73.67	85.94	100.97	128.99
C	Placer (SV)	Annual	2032	331.90	386.52	452.61	579.67	73.67	85.99	100.97	129.06
C	Placer (SV)	Annual	2033	331.90	386.60	452.61	579.77	73.68	86.04	100.98	129.12
C	Placer (SV)	Annual	2034	331.90	386.68	452.60	579.86	73.68	86.08	100.99	129.18
C	Placer (SV)	Annual	2035	331.90	386.73	452.60	579.94	73.68	86.12	100.99	129.23
C	Placer (SV)	Summer	2010	369.31	422.83	505.21	639.49	73.02	85.63	99.77	125.72
C	Placer (SV)	Summer	2011	369.67	424.09	505.18	639.85	73.00	85.31	99.84	125.93
C	Placer (SV)	Summer	2012	369.99	425.15	505.19	640.33	72.98	85.12	99.94	126.16
C	Placer (SV)	Summer	2013	370.30	425.98	505.22	640.88	73.02	84.98	100.04	126.39
C	Placer (SV)	Summer	2014	370.56	426.69	505.30	641.49	73.02	84.89	100.12	126.62
C	Placer (SV)	Summer	2015	370.79	427.26	505.37	642.12	73.07	84.82	100.20	126.84
C	Placer (SV)	Summer	2016	370.99	427.77	505.47	642.78	73.15	84.80	100.28	127.07
C	Placer (SV)	Summer	2017	371.13	428.22	505.53	643.41	73.21	84.75	100.34	127.30
C	Placer (SV)	Summer	2018	371.24	428.59	505.55	643.93	73.26	84.74	100.42	127.51
C	Placer (SV)	Summer	2019	370.64	428.12	504.63	643.16	73.32	84.86	100.50	127.69
C	Placer (SV)	Summer	2020	370.71	428.40	504.60	643.51	73.41	84.99	100.58	127.86
C	Placer (SV)	Summer	2021	370.75	428.64	504.55	643.79	73.48	85.13	100.66	127.99
C	Placer (SV)	Summer	2022	370.78	428.85	504.51	644.02	73.53	85.25	100.72	128.10
C	Placer (SV)	Summer	2023	370.81	429.03	504.48	644.20	73.57	85.36	100.78	128.24
C	Placer (SV)	Summer	2024	370.81	429.19	504.44	644.33	73.59	85.45	100.82	128.36
C	Placer (SV)	Summer	2025	370.82	429.33	504.41	644.45	73.61	85.53	100.86	128.48
C	Placer (SV)	Summer	2026	370.84	429.49	504.38	644.55	73.63	85.62	100.89	128.59
C	Placer (SV)	Summer	2027	370.86	429.64	504.37	644.64	73.64	85.69	100.92	128.68
C	Placer (SV)	Summer	2028	370.88	429.80	504.36	644.75	73.65	85.75	100.94	128.77
C	Placer (SV)	Summer	2029	370.90	429.96	504.35	644.85	73.66	85.82	100.95	128.85
C	Placer (SV)	Summer	2030	370.91	430.12	504.35	644.96	73.67	85.88	100.96	128.92
C	Placer (SV)	Summer	2031	370.92	430.27	504.34	645.06	73.67	85.94	100.97	128.99

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/MT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Placer (SV)	Summer	2032	370.92	430.41	504.33	645.17	73.67	85.99	100.97	129.06
C	Placer (SV)	Summer	2033	370.93	430.52	504.33	645.28	73.68	86.04	100.98	129.12
C	Placer (SV)	Summer	2034	370.93	430.61	504.33	645.39	73.68	86.08	100.99	129.18
C	Placer (SV)	Summer	2035	370.92	430.68	504.32	645.50	73.68	86.12	100.99	129.23
C	Placer (SV)	Winter	2010	320.40	370.94	440.06	557.29	73.02	85.63	99.77	125.72
C	Placer (SV)	Winter	2011	320.57	371.41	439.94	557.81	73.00	85.31	99.84	125.93
C	Placer (SV)	Winter	2012	320.73	371.86	439.86	558.35	72.98	85.12	99.94	126.16
C	Placer (SV)	Winter	2013	320.93	372.24	439.79	558.86	73.02	84.98	100.04	126.39
C	Placer (SV)	Winter	2014	321.08	372.59	439.74	559.36	73.02	84.89	100.12	126.62
C	Placer (SV)	Winter	2015	321.25	372.91	439.70	559.84	73.07	84.82	100.20	126.84
C	Placer (SV)	Winter	2016	321.42	373.21	439.68	560.29	73.15	84.80	100.28	127.07
C	Placer (SV)	Winter	2017	321.54	373.46	439.65	560.71	73.21	84.75	100.34	127.30
C	Placer (SV)	Winter	2018	321.65	373.69	439.64	561.06	73.26	84.74	100.42	127.51
C	Placer (SV)	Winter	2019	321.15	373.25	438.84	560.35	73.32	84.86	100.50	127.69
C	Placer (SV)	Winter	2020	321.23	373.45	438.84	560.62	73.41	84.99	100.58	127.86
C	Placer (SV)	Winter	2021	321.29	373.63	438.84	560.82	73.48	85.13	100.66	127.99
C	Placer (SV)	Winter	2022	321.34	373.79	438.83	561.00	73.53	85.25	100.72	128.10
C	Placer (SV)	Winter	2023	321.36	373.92	438.83	561.14	73.57	85.36	100.78	128.24
C	Placer (SV)	Winter	2024	321.37	374.01	438.82	561.25	73.59	85.45	100.82	128.36
C	Placer (SV)	Winter	2025	321.38	374.10	438.82	561.37	73.61	85.53	100.86	128.48
C	Placer (SV)	Winter	2026	321.40	374.20	438.81	561.48	73.63	85.62	100.89	128.59
C	Placer (SV)	Winter	2027	321.42	374.30	438.80	561.59	73.64	85.69	100.92	128.68
C	Placer (SV)	Winter	2028	321.43	374.39	438.79	561.70	73.65	85.75	100.94	128.77
C	Placer (SV)	Winter	2029	321.43	374.48	438.78	561.80	73.66	85.82	100.95	128.85
C	Placer (SV)	Winter	2030	321.44	374.58	438.77	561.91	73.67	85.88	100.96	128.92
C	Placer (SV)	Winter	2031	321.44	374.67	438.76	562.01	73.67	85.94	100.97	128.99
C	Placer (SV)	Winter	2032	321.44	374.76	438.76	562.12	73.67	85.99	100.97	129.06
C	Placer (SV)	Winter	2033	321.45	374.83	438.75	562.21	73.68	86.04	100.98	129.12
C	Placer (SV)	Winter	2034	321.45	374.90	438.74	562.30	73.68	86.08	100.99	129.18
C	Placer (SV)	Winter	2035	321.44	374.96	438.74	562.37	73.68	86.12	100.99	129.23
C	Plumas (MC)	Annual	2010	383.48	448.24	524.45	653.78	74.50	93.88	101.47	124.70
C	Plumas (MC)	Annual	2011	383.12	447.42	523.71	654.62	74.27	92.26	101.32	124.82
C	Plumas (MC)	Annual	2012	382.79	446.84	523.14	655.56	73.97	91.08	101.21	124.99
C	Plumas (MC)	Annual	2013	382.71	446.31	522.67	656.57	73.86	90.01	101.00	125.19
C	Plumas (MC)	Annual	2014	382.50	445.90	522.32	657.55	73.59	89.13	100.92	125.40
C	Plumas (MC)	Annual	2015	382.45	445.52	522.05	658.55	73.48	88.27	100.95	125.66
C	Plumas (MC)	Annual	2016	382.50	445.23	521.82	659.51	73.48	87.57	100.95	125.92
C	Plumas (MC)	Annual	2017	382.49	444.92	521.63	660.38	73.43	86.78	100.84	126.20
C	Plumas (MC)	Annual	2018	382.47	444.69	521.48	661.15	73.38	86.22	100.83	126.45
C	Plumas (MC)	Annual	2019	382.41	444.56	521.35	661.77	73.32	85.87	100.81	126.70
C	Plumas (MC)	Annual	2020	382.39	444.47	521.25	662.32	73.39	85.75	100.84	126.93
C	Plumas (MC)	Annual	2021	382.31	444.37	521.14	662.71	73.42	85.71	100.88	127.10
C	Plumas (MC)	Annual	2022	382.11	444.28	521.03	663.00	73.41	85.69	100.91	127.19
C	Plumas (MC)	Annual	2023	381.98	444.15	520.94	663.22	73.42	85.64	100.93	127.37
C	Plumas (MC)	Annual	2024	381.82	444.05	520.85	663.39	73.40	85.62	100.95	127.54
C	Plumas (MC)	Annual	2025	381.72	444.07	520.79	663.57	73.41	85.67	100.98	127.71
C	Plumas (MC)	Annual	2026	381.70	444.20	520.72	663.78	73.43	85.76	101.00	127.87
C	Plumas (MC)	Annual	2027	381.70	444.30	520.66	664.00	73.44	85.84	101.01	128.03
C	Plumas (MC)	Annual	2028	381.68	444.43	520.60	664.24	73.45	85.91	101.02	128.17
C	Plumas (MC)	Annual	2029	381.63	444.54	520.52	664.46	73.45	85.98	101.01	128.30
C	Plumas (MC)	Annual	2030	381.60	444.65	520.45	664.68	73.45	86.04	101.01	128.43
C	Plumas (MC)	Annual	2031	381.59	444.76	520.41	664.95	73.46	86.10	101.01	128.56
C	Plumas (MC)	Annual	2032	381.58	444.86	520.38	665.22	73.46	86.16	101.01	128.68
C	Plumas (MC)	Annual	2033	381.57	444.95	520.36	665.45	73.47	86.21	101.01	128.79

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Plumas (MC)	Annual	2034	381.56	445.03	520.33	665.67	73.47	86.26	101.02	128.89
C	Plumas (MC)	Annual	2035	381.55	445.09	520.31	665.86	73.47	86.30	101.02	128.98
C	Plumas (MC)	Summer	2010	408.76	472.90	558.33	694.63	74.50	93.88	101.47	124.70
C	Plumas (MC)	Summer	2011	408.75	473.23	557.90	695.71	74.27	92.26	101.32	124.82
C	Plumas (MC)	Summer	2012	408.69	473.46	557.59	696.96	73.97	91.08	101.21	124.99
C	Plumas (MC)	Summer	2013	408.80	473.57	557.38	698.32	73.86	90.01	101.00	125.19
C	Plumas (MC)	Summer	2014	408.76	473.64	557.21	699.63	73.59	89.13	100.92	125.40
C	Plumas (MC)	Summer	2015	408.82	473.68	557.08	701.00	73.48	88.27	100.95	125.66
C	Plumas (MC)	Summer	2016	408.94	473.71	556.97	702.30	73.48	87.57	100.95	125.92
C	Plumas (MC)	Summer	2017	408.96	473.70	556.88	703.46	73.43	86.78	100.84	126.20
C	Plumas (MC)	Summer	2018	408.94	473.67	556.77	704.48	73.38	86.22	100.83	126.45
C	Plumas (MC)	Summer	2019	408.89	473.69	556.67	705.32	73.32	85.87	100.81	126.70
C	Plumas (MC)	Summer	2020	408.86	473.73	556.58	706.05	73.39	85.75	100.84	126.93
C	Plumas (MC)	Summer	2021	408.78	473.74	556.48	706.60	73.42	85.71	100.88	127.10
C	Plumas (MC)	Summer	2022	408.58	473.77	556.38	707.04	73.41	85.69	100.91	127.19
C	Plumas (MC)	Summer	2023	408.46	473.75	556.30	707.36	73.42	85.64	100.93	127.37
C	Plumas (MC)	Summer	2024	408.30	473.76	556.22	707.63	73.40	85.62	100.95	127.54
C	Plumas (MC)	Summer	2025	408.21	473.84	556.16	707.88	73.41	85.67	100.98	127.71
C	Plumas (MC)	Summer	2026	408.22	474.03	556.10	708.13	73.43	85.76	101.00	127.87
C	Plumas (MC)	Summer	2027	408.23	474.17	556.06	708.38	73.44	85.84	101.01	128.03
C	Plumas (MC)	Summer	2028	408.23	474.35	556.02	708.66	73.45	85.91	101.02	128.17
C	Plumas (MC)	Summer	2029	408.21	474.53	555.96	708.94	73.45	85.98	101.01	128.30
C	Plumas (MC)	Summer	2030	408.20	474.69	555.90	709.22	73.45	86.04	101.01	128.43
C	Plumas (MC)	Summer	2031	408.20	474.85	555.87	709.55	73.46	86.10	101.01	128.56
C	Plumas (MC)	Summer	2032	408.20	474.98	555.85	709.87	73.46	86.16	101.01	128.68
C	Plumas (MC)	Summer	2033	408.19	475.10	555.83	710.16	73.47	86.21	101.01	128.79
C	Plumas (MC)	Summer	2034	408.18	475.21	555.80	710.43	73.47	86.26	101.02	128.89
C	Plumas (MC)	Summer	2035	408.16	475.28	555.78	710.66	73.47	86.30	101.02	128.98
C	Plumas (MC)	Winter	2010	378.05	442.95	517.17	645.01	74.50	93.88	101.47	124.70
C	Plumas (MC)	Winter	2011	377.62	441.88	516.37	645.79	74.27	92.26	101.32	124.82
C	Plumas (MC)	Winter	2012	377.22	441.12	515.74	646.67	73.97	91.08	101.21	124.99
C	Plumas (MC)	Winter	2013	377.10	440.45	515.22	647.61	73.86	90.01	101.00	125.19
C	Plumas (MC)	Winter	2014	376.86	439.94	514.83	648.51	73.59	89.13	100.92	125.40
C	Plumas (MC)	Winter	2015	376.79	439.47	514.52	649.44	73.48	88.27	100.95	125.66
C	Plumas (MC)	Winter	2016	376.82	439.11	514.28	650.32	73.48	87.57	100.95	125.92
C	Plumas (MC)	Winter	2017	376.81	438.74	514.06	651.13	73.43	86.78	100.84	126.20
C	Plumas (MC)	Winter	2018	376.78	438.47	513.90	651.84	73.38	86.22	100.83	126.45
C	Plumas (MC)	Winter	2019	376.73	438.30	513.77	652.42	73.32	85.87	100.81	126.70
C	Plumas (MC)	Winter	2020	376.70	438.19	513.66	652.93	73.39	85.75	100.84	126.93
C	Plumas (MC)	Winter	2021	376.63	438.06	513.55	653.29	73.42	85.71	100.88	127.10
C	Plumas (MC)	Winter	2022	376.42	437.94	513.44	653.55	73.41	85.69	100.91	127.19
C	Plumas (MC)	Winter	2023	376.29	437.79	513.34	653.74	73.42	85.64	100.93	127.37
C	Plumas (MC)	Winter	2024	376.13	437.66	513.26	653.89	73.40	85.62	100.95	127.54
C	Plumas (MC)	Winter	2025	376.03	437.68	513.20	654.05	73.41	85.67	100.98	127.71
C	Plumas (MC)	Winter	2026	376.01	437.79	513.12	654.25	73.43	85.76	101.00	127.87
C	Plumas (MC)	Winter	2027	376.00	437.89	513.06	654.47	73.44	85.84	101.01	128.03
C	Plumas (MC)	Winter	2028	375.97	438.00	513.00	654.70	73.45	85.91	101.02	128.17
C	Plumas (MC)	Winter	2029	375.92	438.10	512.91	654.91	73.45	85.98	101.01	128.30
C	Plumas (MC)	Winter	2030	375.89	438.20	512.83	655.12	73.45	86.04	101.01	128.43
C	Plumas (MC)	Winter	2031	375.88	438.30	512.79	655.37	73.46	86.10	101.01	128.56
C	Plumas (MC)	Winter	2032	375.87	438.39	512.76	655.62	73.46	86.16	101.01	128.68
C	Plumas (MC)	Winter	2033	375.86	438.47	512.74	655.85	73.47	86.21	101.01	128.79
C	Plumas (MC)	Winter	2034	375.85	438.54	512.72	656.06	73.47	86.26	101.02	128.89
C	Plumas (MC)	Winter	2035	375.84	438.60	512.70	656.24	73.47	86.30	101.02	128.98

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Riverside (MD/MDAQMD)	Annual	2010	369.67	426.53	505.92	638.18	73.80	88.32	101.83	126.09
C	Riverside (MD/MDAQMD)	Annual	2011	363.13	419.45	496.23	627.22	73.74	87.52	101.71	126.32
C	Riverside (MD/MDAQMD)	Annual	2012	363.45	420.07	495.98	628.06	73.81	87.02	101.53	126.58
C	Riverside (MD/MDAQMD)	Annual	2013	355.83	411.52	485.10	615.48	73.74	86.56	101.33	126.89
C	Riverside (MD/MDAQMD)	Annual	2014	356.04	411.97	484.98	616.31	73.77	86.37	101.22	127.18
C	Riverside (MD/MDAQMD)	Annual	2015	343.49	397.67	467.64	595.16	73.80	86.23	101.12	127.47
C	Riverside (MD/MDAQMD)	Annual	2016	343.62	397.92	467.57	595.81	73.85	86.05	100.99	127.72
C	Riverside (MD/MDAQMD)	Annual	2017	343.68	398.10	467.49	596.37	73.82	85.88	100.89	127.96
C	Riverside (MD/MDAQMD)	Annual	2018	343.71	398.23	467.40	596.79	73.83	85.77	100.94	128.17
C	Riverside (MD/MDAQMD)	Annual	2019	342.93	397.41	466.27	595.71	73.85	85.71	100.91	128.35
C	Riverside (MD/MDAQMD)	Annual	2020	342.93	397.49	466.18	595.93	73.90	85.74	100.94	128.50
C	Riverside (MD/MDAQMD)	Annual	2021	341.38	395.73	464.03	593.37	73.93	85.79	100.97	128.60
C	Riverside (MD/MDAQMD)	Annual	2022	341.32	395.69	463.91	593.40	73.94	85.82	100.98	128.68
C	Riverside (MD/MDAQMD)	Annual	2023	341.26	395.69	463.82	593.44	73.95	85.86	100.99	128.77
C	Riverside (MD/MDAQMD)	Annual	2024	341.57	396.13	464.28	594.16	73.95	85.89	101.00	128.86
C	Riverside (MD/MDAQMD)	Annual	2025	341.55	396.17	464.23	594.18	73.95	85.94	101.02	128.94
C	Riverside (MD/MDAQMD)	Annual	2026	341.54	396.24	464.17	594.20	73.96	86.00	101.02	129.01
C	Riverside (MD/MDAQMD)	Annual	2027	341.55	396.33	464.13	594.25	73.97	86.05	101.03	129.07
C	Riverside (MD/MDAQMD)	Annual	2028	341.55	396.42	464.10	594.31	73.97	86.10	101.03	129.13
C	Riverside (MD/MDAQMD)	Annual	2029	341.56	396.52	464.08	594.39	73.97	86.15	101.04	129.19
C	Riverside (MD/MDAQMD)	Annual	2030	341.57	396.62	464.07	594.47	73.98	86.19	101.04	129.24
C	Riverside (MD/MDAQMD)	Annual	2031	341.64	396.78	464.16	594.65	73.98	86.23	101.04	129.28
C	Riverside (MD/MDAQMD)	Annual	2032	341.65	396.86	464.15	594.71	73.98	86.26	101.04	129.33
C	Riverside (MD/MDAQMD)	Annual	2033	341.65	396.92	464.14	594.77	73.98	86.29	101.05	129.37
C	Riverside (MD/MDAQMD)	Annual	2034	341.65	396.98	464.13	594.83	73.99	86.32	101.05	129.40
C	Riverside (MD/MDAQMD)	Annual	2035	341.65	397.03	464.13	594.88	73.99	86.34	101.05	129.43
C	Riverside (MD/MDAQMD)	Summer	2010	377.81	434.15	516.42	651.64	73.80	88.32	101.83	126.09
C	Riverside (MD/MDAQMD)	Summer	2011	371.35	427.52	506.84	640.74	73.74	87.52	101.71	126.32
C	Riverside (MD/MDAQMD)	Summer	2012	371.72	428.43	506.69	641.64	73.81	87.02	101.53	126.58
C	Riverside (MD/MDAQMD)	Summer	2013	364.01	420.00	495.73	628.91	73.74	86.56	101.33	126.89
C	Riverside (MD/MDAQMD)	Summer	2014	364.25	420.62	495.68	629.84	73.77	86.37	101.22	127.18
C	Riverside (MD/MDAQMD)	Summer	2015	351.17	405.87	477.68	607.85	73.80	86.23	101.12	127.47
C	Riverside (MD/MDAQMD)	Summer	2016	351.32	406.21	477.66	608.58	73.85	86.05	100.99	127.72
C	Riverside (MD/MDAQMD)	Summer	2017	351.38	406.47	477.62	609.19	73.82	85.88	100.89	127.96
C	Riverside (MD/MDAQMD)	Summer	2018	351.42	406.65	477.53	609.64	73.83	85.77	100.94	128.17
C	Riverside (MD/MDAQMD)	Summer	2019	350.38	405.58	476.07	608.16	73.85	85.71	100.91	128.35
C	Riverside (MD/MDAQMD)	Summer	2020	350.37	405.69	475.97	608.38	73.90	85.74	100.94	128.50
C	Riverside (MD/MDAQMD)	Summer	2021	348.75	403.88	473.74	605.72	73.93	85.79	100.97	128.60
C	Riverside (MD/MDAQMD)	Summer	2022	348.67	403.84	473.61	605.74	73.94	85.82	100.98	128.68
C	Riverside (MD/MDAQMD)	Summer	2023	348.60	403.83	473.50	605.75	73.95	85.86	100.99	128.77
C	Riverside (MD/MDAQMD)	Summer	2024	348.76	404.12	473.75	606.20	73.95	85.89	101.00	128.86
C	Riverside (MD/MDAQMD)	Summer	2025	348.73	404.15	473.70	606.22	73.95	85.94	101.02	128.94
C	Riverside (MD/MDAQMD)	Summer	2026	348.72	404.23	473.62	606.22	73.96	86.00	101.02	129.01
C	Riverside (MD/MDAQMD)	Summer	2027	348.73	404.32	473.59	606.26	73.97	86.05	101.03	129.07
C	Riverside (MD/MDAQMD)	Summer	2028	348.74	404.42	473.56	606.32	73.97	86.10	101.03	129.13
C	Riverside (MD/MDAQMD)	Summer	2029	348.75	404.53	473.55	606.40	73.97	86.15	101.04	129.19
C	Riverside (MD/MDAQMD)	Summer	2030	348.77	404.64	473.54	606.49	73.98	86.19	101.04	129.24
C	Riverside (MD/MDAQMD)	Summer	2031	348.83	404.79	473.62	606.65	73.98	86.23	101.04	129.28
C	Riverside (MD/MDAQMD)	Summer	2032	348.84	404.88	473.60	606.70	73.98	86.26	101.04	129.33
C	Riverside (MD/MDAQMD)	Summer	2033	348.84	404.95	473.59	606.76	73.98	86.29	101.05	129.37
C	Riverside (MD/MDAQMD)	Summer	2034	348.84	405.01	473.58	606.82	73.99	86.32	101.05	129.40
C	Riverside (MD/MDAQMD)	Summer	2035	348.84	405.06	473.57	606.88	73.99	86.34	101.05	129.43
C	Riverside (MD/MDAQMD)	Winter	2010	370.14	426.97	506.53	638.95	73.80	88.32	101.83	126.09
C	Riverside (MD/MDAQMD)	Winter	2011	363.52	419.84	496.74	627.87	73.74	87.52	101.71	126.32

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Riverside (MD/MDAQMD)	Winter	2012	363.85	420.46	496.49	628.71	73.81	87.02	101.53	126.58
C	Riverside (MD/MDAQMD)	Winter	2013	356.20	411.90	485.58	616.08	73.74	86.56	101.33	126.89
C	Riverside (MD/MDAQMD)	Winter	2014	356.41	412.36	485.46	616.93	73.77	86.37	101.22	127.18
C	Riverside (MD/MDAQMD)	Winter	2015	343.96	398.17	468.25	595.93	73.80	86.23	101.12	127.47
C	Riverside (MD/MDAQMD)	Winter	2016	344.09	398.43	468.18	596.59	73.85	86.05	100.99	127.72
C	Riverside (MD/MDAQMD)	Winter	2017	344.14	398.61	468.11	597.15	73.82	85.88	100.89	127.96
C	Riverside (MD/MDAQMD)	Winter	2018	344.18	398.74	468.02	597.57	73.83	85.77	100.94	128.17
C	Riverside (MD/MDAQMD)	Winter	2019	343.49	398.02	467.00	596.64	73.85	85.71	100.91	128.35
C	Riverside (MD/MDAQMD)	Winter	2020	343.49	398.11	466.91	596.86	73.90	85.74	100.94	128.50
C	Riverside (MD/MDAQMD)	Winter	2021	341.93	396.34	464.75	594.29	73.93	85.79	100.97	128.60
C	Riverside (MD/MDAQMD)	Winter	2022	341.87	396.30	464.64	594.33	73.94	85.82	100.98	128.68
C	Riverside (MD/MDAQMD)	Winter	2023	341.81	396.29	464.54	594.36	73.95	85.86	100.99	128.77
C	Riverside (MD/MDAQMD)	Winter	2024	342.18	396.81	465.08	595.17	73.95	85.89	101.00	128.86
C	Riverside (MD/MDAQMD)	Winter	2025	342.15	396.84	465.03	595.20	73.95	85.94	101.02	128.94
C	Riverside (MD/MDAQMD)	Winter	2026	342.15	396.91	464.96	595.22	73.96	86.00	101.02	129.01
C	Riverside (MD/MDAQMD)	Winter	2027	342.15	397.00	464.93	595.26	73.97	86.05	101.03	129.07
C	Riverside (MD/MDAQMD)	Winter	2028	342.16	397.09	464.90	595.32	73.97	86.10	101.03	129.13
C	Riverside (MD/MDAQMD)	Winter	2029	342.17	397.19	464.88	595.40	73.97	86.15	101.04	129.19
C	Riverside (MD/MDAQMD)	Winter	2030	342.18	397.30	464.87	595.48	73.98	86.19	101.04	129.24
C	Riverside (MD/MDAQMD)	Winter	2031	342.26	397.46	464.97	595.67	73.98	86.23	101.04	129.28
C	Riverside (MD/MDAQMD)	Winter	2032	342.26	397.54	464.96	595.73	73.98	86.26	101.04	129.33
C	Riverside (MD/MDAQMD)	Winter	2033	342.26	397.61	464.95	595.79	73.98	86.29	101.05	129.37
C	Riverside (MD/MDAQMD)	Winter	2034	342.26	397.67	464.94	595.85	73.99	86.32	101.05	129.40
C	Riverside (MD/MDAQMD)	Winter	2035	342.26	397.71	464.93	595.90	73.99	86.34	101.05	129.43
C	Riverside (MD/SCAQMD)	Annual	2010	368.30	421.09	501.55	627.35	74.21	89.30	100.37	124.62
C	Riverside (MD/SCAQMD)	Annual	2011	364.70	417.57	496.50	622.41	73.31	88.07	100.40	124.81
C	Riverside (MD/SCAQMD)	Annual	2012	365.13	418.21	496.21	623.50	73.47	87.63	100.46	125.06
C	Riverside (MD/SCAQMD)	Annual	2013	364.41	417.34	494.60	622.65	73.63	86.84	100.29	125.29
C	Riverside (MD/SCAQMD)	Annual	2014	364.62	417.45	494.44	623.55	73.54	85.83	100.38	125.53
C	Riverside (MD/SCAQMD)	Annual	2015	360.62	413.24	488.80	617.43	73.46	85.76	100.49	125.76
C	Riverside (MD/SCAQMD)	Annual	2016	360.86	413.52	488.70	618.47	73.61	85.42	100.59	125.87
C	Riverside (MD/SCAQMD)	Annual	2017	360.81	413.70	488.63	619.42	73.30	84.92	100.34	126.01
C	Riverside (MD/SCAQMD)	Annual	2018	361.00	413.85	488.56	620.00	73.42	84.56	100.45	126.29
C	Riverside (MD/SCAQMD)	Annual	2019	360.39	413.29	487.47	619.19	73.52	84.71	100.55	126.54
C	Riverside (MD/SCAQMD)	Annual	2020	360.36	413.49	487.42	619.63	73.53	84.74	100.63	126.78
C	Riverside (MD/SCAQMD)	Annual	2021	357.25	410.70	483.71	615.42	73.38	84.91	100.71	127.03
C	Riverside (MD/SCAQMD)	Annual	2022	357.24	411.02	483.66	615.84	73.37	85.06	100.75	127.25
C	Riverside (MD/SCAQMD)	Annual	2023	357.29	411.28	483.62	616.06	73.42	85.19	100.79	127.40
C	Riverside (MD/SCAQMD)	Annual	2024	353.97	407.66	479.14	610.61	73.45	85.28	100.82	127.55
C	Riverside (MD/SCAQMD)	Annual	2025	354.02	407.88	479.11	610.79	73.47	85.39	100.84	127.70
C	Riverside (MD/SCAQMD)	Annual	2026	354.03	408.12	479.09	611.05	73.49	85.50	100.88	127.88
C	Riverside (MD/SCAQMD)	Annual	2027	354.04	408.39	479.07	611.31	73.50	85.60	100.90	128.04
C	Riverside (MD/SCAQMD)	Annual	2028	354.03	408.61	479.05	611.54	73.51	85.69	100.92	128.18
C	Riverside (MD/SCAQMD)	Annual	2029	354.00	408.81	478.99	611.77	73.51	85.77	100.93	128.31
C	Riverside (MD/SCAQMD)	Annual	2030	353.99	408.95	478.97	612.01	73.51	85.84	100.94	128.44
C	Riverside (MD/SCAQMD)	Annual	2031	348.76	403.17	472.01	603.39	73.52	85.91	100.94	128.56
C	Riverside (MD/SCAQMD)	Annual	2032	348.75	403.31	471.99	603.62	73.52	85.98	100.95	128.67
C	Riverside (MD/SCAQMD)	Annual	2033	348.75	403.45	471.97	603.82	73.53	86.04	100.95	128.77
C	Riverside (MD/SCAQMD)	Annual	2034	348.75	403.54	471.94	604.00	73.53	86.09	100.95	128.86
C	Riverside (MD/SCAQMD)	Annual	2035	348.75	403.63	471.92	604.15	73.54	86.13	100.96	128.94
C	Riverside (MD/SCAQMD)	Summer	2010	375.92	428.57	511.53	639.58	74.21	89.30	100.37	124.62
C	Riverside (MD/SCAQMD)	Summer	2011	372.44	425.34	506.60	634.78	73.31	88.07	100.40	124.81
C	Riverside (MD/SCAQMD)	Summer	2012	372.90	426.14	506.36	635.94	73.47	87.63	100.46	125.06
C	Riverside (MD/SCAQMD)	Summer	2013	372.17	425.39	504.79	635.14	73.63	86.84	100.29	125.29

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Riverside (MD/SCAQMD)	Summer	2014	372.39	425.65	504.66	636.10	73.54	85.83	100.38	125.53
C	Riverside (MD/SCAQMD)	Summer	2015	368.38	421.47	499.01	630.01	73.46	85.76	100.49	125.76
C	Riverside (MD/SCAQMD)	Summer	2016	368.61	421.83	498.93	631.14	73.61	85.42	100.59	125.87
C	Riverside (MD/SCAQMD)	Summer	2017	368.58	422.08	498.91	632.16	73.30	84.92	100.34	126.01
C	Riverside (MD/SCAQMD)	Summer	2018	368.76	422.29	498.84	632.79	73.42	84.56	100.45	126.29
C	Riverside (MD/SCAQMD)	Summer	2019	368.21	421.80	497.81	632.10	73.52	84.71	100.55	126.54
C	Riverside (MD/SCAQMD)	Summer	2020	368.19	422.05	497.77	632.57	73.53	84.74	100.63	126.78
C	Riverside (MD/SCAQMD)	Summer	2021	365.00	419.18	493.93	628.25	73.38	84.91	100.71	127.03
C	Riverside (MD/SCAQMD)	Summer	2022	365.00	419.52	493.91	628.71	73.37	85.06	100.75	127.25
C	Riverside (MD/SCAQMD)	Summer	2023	365.06	419.82	493.88	628.97	73.42	85.19	100.79	127.40
C	Riverside (MD/SCAQMD)	Summer	2024	361.68	416.17	489.34	623.45	73.45	85.28	100.82	127.55
C	Riverside (MD/SCAQMD)	Summer	2025	361.74	416.41	489.31	623.66	73.47	85.39	100.84	127.70
C	Riverside (MD/SCAQMD)	Summer	2026	361.74	416.69	489.30	623.93	73.49	85.50	100.88	127.88
C	Riverside (MD/SCAQMD)	Summer	2027	361.75	416.99	489.28	624.20	73.50	85.60	100.90	128.04
C	Riverside (MD/SCAQMD)	Summer	2028	361.74	417.23	489.25	624.45	73.51	85.69	100.92	128.18
C	Riverside (MD/SCAQMD)	Summer	2029	361.71	417.46	489.20	624.68	73.51	85.77	100.93	128.31
C	Riverside (MD/SCAQMD)	Summer	2030	361.70	417.60	489.17	624.93	73.51	85.84	100.94	128.44
C	Riverside (MD/SCAQMD)	Summer	2031	356.48	411.83	482.22	616.32	73.52	85.91	100.94	128.56
C	Riverside (MD/SCAQMD)	Summer	2032	356.47	411.98	482.20	616.56	73.52	85.98	100.95	128.67
C	Riverside (MD/SCAQMD)	Summer	2033	356.47	412.12	482.18	616.78	73.53	86.04	100.95	128.77
C	Riverside (MD/SCAQMD)	Summer	2034	356.47	412.23	482.15	616.96	73.53	86.09	100.95	128.86
C	Riverside (MD/SCAQMD)	Summer	2035	356.47	412.31	482.14	617.12	73.54	86.13	100.96	128.94
C	Riverside (MD/SCAQMD)	Winter	2010	367.80	420.60	500.90	626.55	74.21	89.30	100.37	124.62
C	Riverside (MD/SCAQMD)	Winter	2011	364.17	417.04	495.80	621.56	73.31	88.07	100.40	124.81
C	Riverside (MD/SCAQMD)	Winter	2012	364.60	417.67	495.51	622.64	73.47	87.63	100.46	125.06
C	Riverside (MD/SCAQMD)	Winter	2013	363.88	416.78	493.90	621.79	73.63	86.84	100.29	125.29
C	Riverside (MD/SCAQMD)	Winter	2014	364.09	416.89	493.73	622.68	73.54	85.83	100.38	125.53
C	Riverside (MD/SCAQMD)	Winter	2015	360.08	412.67	488.09	616.56	73.46	85.76	100.49	125.76
C	Riverside (MD/SCAQMD)	Winter	2016	360.32	412.95	487.99	617.59	73.61	85.42	100.59	125.87
C	Riverside (MD/SCAQMD)	Winter	2017	360.27	413.11	487.92	618.53	73.30	84.92	100.34	126.01
C	Riverside (MD/SCAQMD)	Winter	2018	360.46	413.26	487.85	619.11	73.42	84.56	100.45	126.29
C	Riverside (MD/SCAQMD)	Winter	2019	359.82	412.66	486.71	618.24	73.52	84.71	100.55	126.54
C	Riverside (MD/SCAQMD)	Winter	2020	359.79	412.87	486.67	618.68	73.53	84.74	100.63	126.78
C	Riverside (MD/SCAQMD)	Winter	2021	356.70	410.11	482.99	614.53	73.38	84.91	100.71	127.03
C	Riverside (MD/SCAQMD)	Winter	2022	356.70	410.42	482.95	614.94	73.37	85.06	100.75	127.25
C	Riverside (MD/SCAQMD)	Winter	2023	356.75	410.69	482.90	615.16	73.42	85.19	100.79	127.40
C	Riverside (MD/SCAQMD)	Winter	2024	353.42	407.06	478.42	609.70	73.45	85.28	100.82	127.55
C	Riverside (MD/SCAQMD)	Winter	2025	353.47	407.28	478.39	609.88	73.47	85.39	100.84	127.70
C	Riverside (MD/SCAQMD)	Winter	2026	353.48	407.52	478.37	610.14	73.49	85.50	100.88	127.88
C	Riverside (MD/SCAQMD)	Winter	2027	353.49	407.78	478.35	610.40	73.50	85.60	100.90	128.04
C	Riverside (MD/SCAQMD)	Winter	2028	353.49	408.00	478.32	610.63	73.51	85.69	100.92	128.18
C	Riverside (MD/SCAQMD)	Winter	2029	353.45	408.20	478.26	610.85	73.51	85.77	100.93	128.31
C	Riverside (MD/SCAQMD)	Winter	2030	353.44	408.34	478.24	611.09	73.51	85.84	100.94	128.44
C	Riverside (MD/SCAQMD)	Winter	2031	348.17	402.51	471.23	602.40	73.52	85.91	100.94	128.56
C	Riverside (MD/SCAQMD)	Winter	2032	348.17	402.65	471.21	602.63	73.52	85.98	100.95	128.67
C	Riverside (MD/SCAQMD)	Winter	2033	348.17	402.78	471.19	602.83	73.53	86.04	100.95	128.77
C	Riverside (MD/SCAQMD)	Winter	2034	348.16	402.88	471.16	603.01	73.53	86.09	100.95	128.86
C	Riverside (MD/SCAQMD)	Winter	2035	348.16	402.97	471.14	603.16	73.54	86.13	100.96	128.94
C	Riverside (SC)	Annual	2010	330.61	378.40	452.04	571.52	73.26	83.74	99.63	125.20
C	Riverside (SC)	Annual	2011	330.55	378.98	451.62	571.70	73.27	83.73	99.72	125.46
C	Riverside (SC)	Annual	2012	330.76	379.75	451.57	572.32	73.30	83.78	99.83	125.73
C	Riverside (SC)	Annual	2013	331.56	381.10	452.35	573.99	73.35	83.84	99.94	126.00
C	Riverside (SC)	Annual	2014	331.76	381.69	452.34	574.61	73.39	83.91	100.04	126.27
C	Riverside (SC)	Annual	2015	330.28	380.32	450.07	572.35	73.45	84.02	100.14	126.55

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Riverside (SC)	Annual	2016	330.47	380.81	450.07	572.90	73.52	84.14	100.24	126.81
C	Riverside (SC)	Annual	2017	330.61	381.25	450.08	573.42	73.57	84.25	100.32	127.07
C	Riverside (SC)	Annual	2018	330.73	381.62	450.08	573.86	73.62	84.36	100.39	127.30
C	Riverside (SC)	Annual	2019	330.84	382.00	450.08	574.28	73.67	84.54	100.48	127.53
C	Riverside (SC)	Annual	2020	330.93	382.33	450.08	574.64	73.76	84.73	100.56	127.74
C	Riverside (SC)	Annual	2021	331.65	383.36	450.95	576.02	73.83	84.91	100.65	127.90
C	Riverside (SC)	Annual	2022	331.69	383.60	450.94	576.24	73.88	85.06	100.71	128.05
C	Riverside (SC)	Annual	2023	331.71	383.78	450.92	576.41	73.92	85.20	100.77	128.20
C	Riverside (SC)	Annual	2024	332.10	384.41	451.45	577.22	73.94	85.32	100.81	128.33
C	Riverside (SC)	Annual	2025	332.10	384.56	451.44	577.35	73.96	85.43	100.85	128.45
C	Riverside (SC)	Annual	2026	332.12	384.71	451.42	577.47	73.98	85.53	100.89	128.57
C	Riverside (SC)	Annual	2027	332.13	384.85	451.41	577.58	73.99	85.62	100.91	128.67
C	Riverside (SC)	Annual	2028	332.13	385.00	451.40	577.69	74.00	85.70	100.93	128.76
C	Riverside (SC)	Annual	2029	332.13	385.14	451.39	577.80	74.01	85.78	100.94	128.85
C	Riverside (SC)	Annual	2030	332.13	385.28	451.38	577.91	74.01	85.85	100.95	128.92
C	Riverside (SC)	Annual	2031	332.06	385.34	451.29	577.92	74.02	85.92	100.96	129.00
C	Riverside (SC)	Annual	2032	332.06	385.47	451.29	578.03	74.02	85.99	100.97	129.07
C	Riverside (SC)	Annual	2033	332.06	385.59	451.29	578.14	74.02	86.05	100.97	129.13
C	Riverside (SC)	Annual	2034	332.05	385.69	451.28	578.24	74.03	86.10	100.98	129.19
C	Riverside (SC)	Annual	2035	332.05	385.77	451.28	578.33	74.03	86.15	100.98	129.25
C	Riverside (SC)	Summer	2010	357.99	406.64	488.13	617.11	73.26	83.74	99.63	125.20
C	Riverside (SC)	Summer	2011	358.00	407.69	487.77	617.21	73.27	83.73	99.72	125.46
C	Riverside (SC)	Summer	2012	358.27	408.86	487.80	617.86	73.30	83.78	99.83	125.73
C	Riverside (SC)	Summer	2013	359.18	410.58	488.73	619.69	73.35	83.84	99.94	126.00
C	Riverside (SC)	Summer	2014	359.43	411.42	488.83	620.44	73.39	83.91	100.04	126.27
C	Riverside (SC)	Summer	2015	357.84	410.09	486.45	618.08	73.45	84.02	100.14	126.55
C	Riverside (SC)	Summer	2016	358.07	410.74	486.54	618.78	73.52	84.14	100.24	126.81
C	Riverside (SC)	Summer	2017	358.25	411.31	486.60	619.42	73.57	84.25	100.32	127.07
C	Riverside (SC)	Summer	2018	358.38	411.77	486.62	619.96	73.62	84.36	100.39	127.30
C	Riverside (SC)	Summer	2019	358.52	412.25	486.65	620.48	73.67	84.54	100.48	127.53
C	Riverside (SC)	Summer	2020	358.63	412.66	486.66	620.93	73.76	84.73	100.56	127.74
C	Riverside (SC)	Summer	2021	359.40	413.82	487.58	622.43	73.83	84.91	100.65	127.90
C	Riverside (SC)	Summer	2022	359.44	414.11	487.54	622.67	73.88	85.06	100.71	128.05
C	Riverside (SC)	Summer	2023	359.45	414.35	487.50	622.84	73.92	85.20	100.77	128.20
C	Riverside (SC)	Summer	2024	359.88	415.08	488.05	623.73	73.94	85.32	100.81	128.33
C	Riverside (SC)	Summer	2025	359.88	415.29	488.02	623.84	73.96	85.43	100.85	128.45
C	Riverside (SC)	Summer	2026	359.88	415.48	488.00	623.94	73.98	85.53	100.89	128.57
C	Riverside (SC)	Summer	2027	359.89	415.67	487.98	624.04	73.99	85.62	100.91	128.67
C	Riverside (SC)	Summer	2028	359.90	415.85	487.97	624.14	74.00	85.70	100.93	128.76
C	Riverside (SC)	Summer	2029	359.90	416.04	487.97	624.25	74.01	85.78	100.94	128.85
C	Riverside (SC)	Summer	2030	359.90	416.22	487.97	624.36	74.01	85.85	100.95	128.92
C	Riverside (SC)	Summer	2031	359.83	416.35	487.90	624.40	74.02	85.92	100.96	129.00
C	Riverside (SC)	Summer	2032	359.82	416.52	487.90	624.53	74.02	85.99	100.97	129.07
C	Riverside (SC)	Summer	2033	359.82	416.67	487.90	624.65	74.02	86.05	100.97	129.13
C	Riverside (SC)	Summer	2034	359.82	416.80	487.89	624.78	74.03	86.10	100.98	129.19
C	Riverside (SC)	Summer	2035	359.82	416.89	487.89	624.88	74.03	86.15	100.98	129.25
C	Riverside (SC)	Winter	2010	325.98	373.62	445.94	563.82	73.26	83.74	99.63	125.20
C	Riverside (SC)	Winter	2011	325.92	374.13	445.52	564.01	73.27	83.73	99.72	125.46
C	Riverside (SC)	Winter	2012	326.12	374.83	445.45	564.63	73.30	83.78	99.83	125.73
C	Riverside (SC)	Winter	2013	326.90	376.11	446.20	566.26	73.35	83.84	99.94	126.00
C	Riverside (SC)	Winter	2014	327.08	376.67	446.18	566.87	73.39	83.91	100.04	126.27
C	Riverside (SC)	Winter	2015	325.62	375.29	443.92	564.62	73.45	84.02	100.14	126.55
C	Riverside (SC)	Winter	2016	325.80	375.75	443.91	565.15	73.52	84.14	100.24	126.81
C	Riverside (SC)	Winter	2017	325.94	376.17	443.90	565.64	73.57	84.25	100.32	127.07

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Riverside (SC)	Winter	2018	326.05	376.52	443.90	566.07	73.62	84.36	100.39	127.30
C	Riverside (SC)	Winter	2019	326.16	376.88	443.90	566.47	73.67	84.54	100.48	127.53
C	Riverside (SC)	Winter	2020	326.25	377.20	443.90	566.82	73.76	84.73	100.56	127.74
C	Riverside (SC)	Winter	2021	326.96	378.22	444.77	568.19	73.83	84.91	100.65	127.90
C	Riverside (SC)	Winter	2022	327.00	378.44	444.76	568.40	73.88	85.06	100.71	128.05
C	Riverside (SC)	Winter	2023	327.02	378.62	444.75	568.56	73.92	85.20	100.77	128.20
C	Riverside (SC)	Winter	2024	327.40	379.22	445.26	569.36	73.94	85.32	100.81	128.33
C	Riverside (SC)	Winter	2025	327.41	379.36	445.25	569.49	73.96	85.43	100.85	128.45
C	Riverside (SC)	Winter	2026	327.42	379.51	445.24	569.61	73.98	85.53	100.89	128.57
C	Riverside (SC)	Winter	2027	327.43	379.64	445.23	569.72	73.99	85.62	100.91	128.67
C	Riverside (SC)	Winter	2028	327.44	379.78	445.22	569.84	74.00	85.70	100.93	128.76
C	Riverside (SC)	Winter	2029	327.44	379.91	445.21	569.95	74.01	85.78	100.94	128.85
C	Riverside (SC)	Winter	2030	327.44	380.04	445.20	570.06	74.01	85.85	100.95	128.92
C	Riverside (SC)	Winter	2031	327.36	380.09	445.10	570.05	74.02	85.92	100.96	129.00
C	Riverside (SC)	Winter	2032	327.36	380.22	445.09	570.16	74.02	85.99	100.97	129.07
C	Riverside (SC)	Winter	2033	327.36	380.33	445.09	570.27	74.02	86.05	100.97	129.13
C	Riverside (SC)	Winter	2034	327.35	380.42	445.09	570.36	74.03	86.10	100.98	129.19
C	Riverside (SC)	Winter	2035	327.35	380.50	445.08	570.45	74.03	86.15	100.98	129.25
C	Riverside (SS)	Annual	2010	345.46	396.10	472.54	596.54	72.91	83.80	99.54	124.93
C	Riverside (SS)	Annual	2011	344.74	395.84	471.06	595.48	72.99	83.84	99.65	125.24
C	Riverside (SS)	Annual	2012	345.04	396.66	471.03	596.25	73.08	83.91	99.78	125.55
C	Riverside (SS)	Annual	2013	343.99	395.85	469.20	594.73	73.18	84.00	99.91	125.87
C	Riverside (SS)	Annual	2014	344.25	396.49	469.22	595.50	73.27	84.11	100.03	126.18
C	Riverside (SS)	Annual	2015	342.36	394.67	466.40	592.65	73.35	84.23	100.15	126.49
C	Riverside (SS)	Annual	2016	342.56	395.18	466.43	593.33	73.44	84.37	100.27	126.78
C	Riverside (SS)	Annual	2017	342.72	395.62	466.45	593.94	73.51	84.48	100.36	127.06
C	Riverside (SS)	Annual	2018	342.82	395.99	466.46	594.46	73.56	84.61	100.44	127.32
C	Riverside (SS)	Annual	2019	342.80	396.23	466.32	594.75	73.63	84.79	100.52	127.56
C	Riverside (SS)	Annual	2020	342.88	396.55	466.32	595.17	73.71	84.97	100.61	127.78
C	Riverside (SS)	Annual	2021	343.69	397.75	467.39	596.87	73.77	85.14	100.69	127.97
C	Riverside (SS)	Annual	2022	343.72	397.99	467.38	597.16	73.81	85.28	100.75	128.14
C	Riverside (SS)	Annual	2023	343.72	398.19	467.37	597.38	73.84	85.41	100.81	128.29
C	Riverside (SS)	Annual	2024	348.57	403.98	473.99	606.03	73.86	85.52	100.85	128.43
C	Riverside (SS)	Annual	2025	348.57	404.13	473.98	606.18	73.88	85.62	100.88	128.56
C	Riverside (SS)	Annual	2026	348.58	404.26	473.95	606.32	73.89	85.71	100.91	128.68
C	Riverside (SS)	Annual	2027	348.58	404.39	473.93	606.44	73.91	85.79	100.93	128.78
C	Riverside (SS)	Annual	2028	348.59	404.52	473.91	606.56	73.91	85.86	100.95	128.87
C	Riverside (SS)	Annual	2029	348.59	404.64	473.90	606.67	73.92	85.92	100.96	128.95
C	Riverside (SS)	Annual	2030	348.60	404.76	473.89	606.79	73.92	85.99	100.97	129.03
C	Riverside (SS)	Annual	2031	356.78	414.43	485.07	621.23	73.93	86.04	100.98	129.10
C	Riverside (SS)	Annual	2032	356.78	414.55	485.07	621.35	73.93	86.10	100.99	129.16
C	Riverside (SS)	Annual	2033	356.78	414.65	485.06	621.45	73.93	86.14	100.99	129.22
C	Riverside (SS)	Annual	2034	356.78	414.73	485.06	621.55	73.94	86.19	100.99	129.27
C	Riverside (SS)	Annual	2035	356.78	414.80	485.06	621.64	73.94	86.22	101.00	129.32
C	Riverside (SS)	Summer	2010	351.02	401.92	479.90	605.78	72.91	83.80	99.54	124.93
C	Riverside (SS)	Summer	2011	350.36	401.79	478.48	604.78	72.99	83.84	99.65	125.24
C	Riverside (SS)	Summer	2012	350.68	402.68	478.47	605.56	73.08	83.91	99.78	125.55
C	Riverside (SS)	Summer	2013	349.60	401.89	476.60	604.00	73.18	84.00	99.91	125.87
C	Riverside (SS)	Summer	2014	349.87	402.57	476.63	604.79	73.27	84.11	100.03	126.18
C	Riverside (SS)	Summer	2015	348.02	400.82	473.87	602.03	73.35	84.23	100.15	126.49
C	Riverside (SS)	Summer	2016	348.23	401.36	473.91	602.73	73.44	84.37	100.27	126.78
C	Riverside (SS)	Summer	2017	348.39	401.83	473.94	603.38	73.51	84.48	100.36	127.06
C	Riverside (SS)	Summer	2018	348.50	402.21	473.95	603.92	73.56	84.61	100.44	127.32
C	Riverside (SS)	Summer	2019	348.48	402.47	473.82	604.23	73.63	84.79	100.52	127.56

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Riverside (SS)	Summer	2020	348.57	402.81	473.83	604.66	73.71	84.97	100.61	127.78
C	Riverside (SS)	Summer	2021	349.38	404.03	474.91	606.40	73.77	85.14	100.69	127.97
C	Riverside (SS)	Summer	2022	349.41	404.29	474.90	606.70	73.81	85.28	100.75	128.14
C	Riverside (SS)	Summer	2023	349.41	404.50	474.89	606.93	73.84	85.41	100.81	128.29
C	Riverside (SS)	Summer	2024	354.32	410.38	481.59	615.69	73.86	85.52	100.85	128.43
C	Riverside (SS)	Summer	2025	354.32	410.53	481.58	615.85	73.88	85.62	100.88	128.56
C	Riverside (SS)	Summer	2026	354.33	410.67	481.55	615.98	73.89	85.71	100.91	128.68
C	Riverside (SS)	Summer	2027	354.33	410.80	481.52	616.10	73.91	85.79	100.93	128.78
C	Riverside (SS)	Summer	2028	354.34	410.94	481.50	616.22	73.91	85.86	100.95	128.87
C	Riverside (SS)	Summer	2029	354.35	411.07	481.49	616.33	73.92	85.92	100.96	128.95
C	Riverside (SS)	Summer	2030	354.35	411.20	481.48	616.45	73.92	85.99	100.97	129.03
C	Riverside (SS)	Summer	2031	362.73	421.10	492.92	631.22	73.93	86.04	100.98	129.10
C	Riverside (SS)	Summer	2032	362.73	421.22	492.92	631.34	73.93	86.10	100.99	129.16
C	Riverside (SS)	Summer	2033	362.73	421.32	492.91	631.45	73.93	86.14	100.99	129.22
C	Riverside (SS)	Summer	2034	362.73	421.41	492.91	631.55	73.94	86.19	100.99	129.27
C	Riverside (SS)	Summer	2035	362.72	421.48	492.91	631.64	73.94	86.22	101.00	129.32
C	Riverside (SS)	Winter	2010	325.60	375.29	446.23	563.52	72.91	83.80	99.54	124.93
C	Riverside (SS)	Winter	2011	324.87	374.79	444.80	562.57	72.99	83.84	99.65	125.24
C	Riverside (SS)	Winter	2012	325.11	375.37	444.73	563.31	73.08	83.91	99.78	125.55
C	Riverside (SS)	Winter	2013	324.10	374.44	442.96	561.85	73.18	84.00	99.91	125.87
C	Riverside (SS)	Winter	2014	324.31	374.92	442.92	562.52	73.27	84.11	100.03	126.18
C	Riverside (SS)	Winter	2015	322.52	373.10	440.22	559.77	73.35	84.23	100.15	126.49
C	Riverside (SS)	Winter	2016	322.69	373.51	440.21	560.35	73.44	84.37	100.27	126.78
C	Riverside (SS)	Winter	2017	322.83	373.87	440.19	560.87	73.51	84.48	100.36	127.06
C	Riverside (SS)	Winter	2018	322.93	374.18	440.18	561.32	73.56	84.61	100.44	127.32
C	Riverside (SS)	Winter	2019	322.91	374.36	440.04	561.55	73.63	84.79	100.52	127.56
C	Riverside (SS)	Winter	2020	322.98	374.63	440.03	561.91	73.71	84.97	100.61	127.78
C	Riverside (SS)	Winter	2021	323.74	375.72	441.03	563.48	73.77	85.14	100.69	127.97
C	Riverside (SS)	Winter	2022	323.78	375.91	441.03	563.73	73.81	85.28	100.75	128.14
C	Riverside (SS)	Winter	2023	323.79	376.06	441.02	563.92	73.84	85.41	100.81	128.29
C	Riverside (SS)	Winter	2024	328.34	381.51	447.26	572.06	73.86	85.52	100.85	128.43
C	Riverside (SS)	Winter	2025	328.35	381.62	447.25	572.22	73.88	85.62	100.88	128.56
C	Riverside (SS)	Winter	2026	328.36	381.74	447.25	572.36	73.89	85.71	100.91	128.68
C	Riverside (SS)	Winter	2027	328.37	381.84	447.24	572.49	73.91	85.79	100.93	128.78
C	Riverside (SS)	Winter	2028	328.38	381.95	447.23	572.61	73.91	85.86	100.95	128.87
C	Riverside (SS)	Winter	2029	328.38	382.05	447.22	572.73	73.92	85.92	100.96	128.95
C	Riverside (SS)	Winter	2030	328.38	382.15	447.22	572.85	73.92	85.99	100.97	129.03
C	Riverside (SS)	Winter	2031	336.08	391.25	457.76	586.47	73.93	86.04	100.98	129.10
C	Riverside (SS)	Winter	2032	336.08	391.34	457.75	586.58	73.93	86.10	100.99	129.16
C	Riverside (SS)	Winter	2033	336.08	391.43	457.75	586.68	73.93	86.14	100.99	129.22
C	Riverside (SS)	Winter	2034	336.08	391.50	457.75	586.76	73.94	86.19	100.99	129.27
C	Riverside (SS)	Winter	2035	336.08	391.56	457.74	586.84	73.94	86.22	101.00	129.32
C	Sacramento (SV)	Annual	2010	338.27	388.45	463.58	584.38	72.89	84.85	99.62	124.76
C	Sacramento (SV)	Annual	2011	338.59	389.26	463.49	584.93	72.94	84.61	99.69	124.96
C	Sacramento (SV)	Annual	2012	338.89	389.98	463.44	585.56	73.00	84.46	99.78	125.19
C	Sacramento (SV)	Annual	2013	339.19	390.61	463.40	586.25	73.08	84.39	99.88	125.44
C	Sacramento (SV)	Annual	2014	339.46	391.17	463.38	586.94	73.15	84.34	99.96	125.69
C	Sacramento (SV)	Annual	2015	339.72	391.68	463.38	587.65	73.24	84.33	100.03	125.96
C	Sacramento (SV)	Annual	2016	339.95	392.11	463.38	588.32	73.35	84.32	100.13	126.23
C	Sacramento (SV)	Annual	2017	340.12	392.49	463.38	588.95	73.41	84.30	100.21	126.50
C	Sacramento (SV)	Annual	2018	340.26	392.81	463.37	589.51	73.47	84.32	100.29	126.76
C	Sacramento (SV)	Annual	2019	338.61	391.09	460.99	586.96	73.53	84.47	100.38	126.99
C	Sacramento (SV)	Annual	2020	338.72	391.37	460.98	587.40	73.64	84.63	100.47	127.20
C	Sacramento (SV)	Annual	2021	338.80	391.64	460.97	587.73	73.72	84.80	100.57	127.38

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Sacramento (SV)	Annual	2022	338.84	391.86	460.96	588.00	73.78	84.95	100.64	127.54
C	Sacramento (SV)	Annual	2023	338.86	392.04	460.94	588.22	73.82	85.07	100.71	127.71
C	Sacramento (SV)	Annual	2024	338.87	392.19	460.92	588.37	73.85	85.19	100.76	127.86
C	Sacramento (SV)	Annual	2025	338.88	392.32	460.91	588.52	73.87	85.29	100.81	128.00
C	Sacramento (SV)	Annual	2026	338.89	392.46	460.90	588.69	73.89	85.39	100.85	128.15
C	Sacramento (SV)	Annual	2027	338.90	392.59	460.89	588.86	73.91	85.48	100.88	128.28
C	Sacramento (SV)	Annual	2028	338.91	392.72	460.89	589.02	73.92	85.56	100.90	128.39
C	Sacramento (SV)	Annual	2029	338.91	392.85	460.87	589.18	73.93	85.64	100.92	128.50
C	Sacramento (SV)	Annual	2030	338.91	392.98	460.87	589.35	73.93	85.71	100.93	128.60
C	Sacramento (SV)	Annual	2031	338.92	393.12	460.86	589.51	73.94	85.79	100.94	128.70
C	Sacramento (SV)	Annual	2032	338.92	393.24	460.86	589.69	73.94	85.85	100.95	128.80
C	Sacramento (SV)	Annual	2033	338.92	393.34	460.85	589.84	73.95	85.91	100.96	128.88
C	Sacramento (SV)	Annual	2034	338.92	393.44	460.84	589.99	73.95	85.97	100.96	128.96
C	Sacramento (SV)	Annual	2035	338.92	393.51	460.84	590.12	73.95	86.02	100.97	129.04
C	Sacramento (SV)	Summer	2010	375.62	427.51	513.20	646.48	72.89	84.85	99.62	124.76
C	Sacramento (SV)	Summer	2011	376.19	429.01	513.26	646.92	72.94	84.61	99.69	124.96
C	Sacramento (SV)	Summer	2012	376.70	430.30	513.35	647.57	73.00	84.46	99.78	125.19
C	Sacramento (SV)	Summer	2013	377.16	431.37	513.46	648.38	73.08	84.39	99.88	125.44
C	Sacramento (SV)	Summer	2014	377.55	432.28	513.62	649.25	73.15	84.34	99.96	125.69
C	Sacramento (SV)	Summer	2015	377.89	433.05	513.77	650.20	73.24	84.33	100.03	125.96
C	Sacramento (SV)	Summer	2016	378.19	433.69	513.89	651.12	73.35	84.32	100.13	126.23
C	Sacramento (SV)	Summer	2017	378.39	434.26	513.97	651.99	73.41	84.30	100.21	126.50
C	Sacramento (SV)	Summer	2018	378.53	434.71	513.99	652.74	73.47	84.32	100.29	126.76
C	Sacramento (SV)	Summer	2019	376.67	432.84	511.33	650.00	73.53	84.47	100.38	126.99
C	Sacramento (SV)	Summer	2020	376.76	433.18	511.31	650.57	73.64	84.63	100.47	127.20
C	Sacramento (SV)	Summer	2021	376.83	433.55	511.26	650.99	73.72	84.80	100.57	127.38
C	Sacramento (SV)	Summer	2022	376.86	433.86	511.21	651.34	73.78	84.95	100.64	127.54
C	Sacramento (SV)	Summer	2023	376.88	434.12	511.16	651.60	73.82	85.07	100.71	127.71
C	Sacramento (SV)	Summer	2024	376.89	434.33	511.11	651.76	73.85	85.19	100.76	127.86
C	Sacramento (SV)	Summer	2025	376.91	434.52	511.07	651.91	73.87	85.29	100.81	128.00
C	Sacramento (SV)	Summer	2026	376.91	434.70	511.07	652.09	73.89	85.39	100.85	128.15
C	Sacramento (SV)	Summer	2027	376.93	434.88	511.07	652.26	73.91	85.48	100.88	128.28
C	Sacramento (SV)	Summer	2028	376.94	435.06	511.07	652.43	73.92	85.56	100.90	128.39
C	Sacramento (SV)	Summer	2029	376.95	435.25	511.08	652.61	73.93	85.64	100.92	128.50
C	Sacramento (SV)	Summer	2030	376.96	435.44	511.08	652.80	73.93	85.71	100.93	128.60
C	Sacramento (SV)	Summer	2031	376.96	435.63	511.08	652.97	73.94	85.79	100.94	128.70
C	Sacramento (SV)	Summer	2032	376.97	435.80	511.07	653.16	73.94	85.85	100.95	128.80
C	Sacramento (SV)	Summer	2033	376.98	435.94	511.07	653.35	73.95	85.91	100.96	128.88
C	Sacramento (SV)	Summer	2034	376.98	436.06	511.06	653.53	73.95	85.97	100.96	128.96
C	Sacramento (SV)	Summer	2035	376.98	436.16	511.05	653.69	73.95	86.02	100.97	129.04
C	Sacramento (SV)	Winter	2010	328.26	377.97	450.28	567.73	72.89	84.85	99.62	124.76
C	Sacramento (SV)	Winter	2011	328.50	378.59	450.15	568.31	72.94	84.61	99.69	124.96
C	Sacramento (SV)	Winter	2012	328.76	379.17	450.05	568.93	73.00	84.46	99.78	125.19
C	Sacramento (SV)	Winter	2013	329.01	379.69	449.97	569.59	73.08	84.39	99.88	125.44
C	Sacramento (SV)	Winter	2014	329.25	380.15	449.91	570.23	73.15	84.34	99.96	125.69
C	Sacramento (SV)	Winter	2015	329.48	380.58	449.87	570.88	73.24	84.33	100.03	125.96
C	Sacramento (SV)	Winter	2016	329.69	380.95	449.84	571.48	73.35	84.32	100.13	126.23
C	Sacramento (SV)	Winter	2017	329.86	381.29	449.81	572.05	73.41	84.30	100.21	126.50
C	Sacramento (SV)	Winter	2018	329.99	381.58	449.80	572.55	73.47	84.32	100.29	126.76
C	Sacramento (SV)	Winter	2019	328.41	379.90	447.49	570.06	73.53	84.47	100.38	126.99
C	Sacramento (SV)	Winter	2020	328.52	380.16	447.49	570.46	73.64	84.63	100.47	127.20
C	Sacramento (SV)	Winter	2021	328.60	380.41	447.49	570.77	73.72	84.80	100.57	127.38
C	Sacramento (SV)	Winter	2022	328.65	380.61	447.49	571.03	73.78	84.95	100.64	127.54
C	Sacramento (SV)	Winter	2023	328.67	380.77	447.48	571.23	73.82	85.07	100.71	127.71

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Sacramento (SV)	Winter	2024	328.67	380.89	447.47	571.38	73.85	85.19	100.76	127.86
C	Sacramento (SV)	Winter	2025	328.68	381.01	447.47	571.53	73.87	85.29	100.81	128.00
C	Sacramento (SV)	Winter	2026	328.70	381.14	447.46	571.70	73.89	85.39	100.85	128.15
C	Sacramento (SV)	Winter	2027	328.71	381.25	447.45	571.86	73.91	85.48	100.88	128.28
C	Sacramento (SV)	Winter	2028	328.72	381.37	447.43	572.02	73.92	85.56	100.90	128.39
C	Sacramento (SV)	Winter	2029	328.72	381.49	447.42	572.18	73.93	85.64	100.92	128.50
C	Sacramento (SV)	Winter	2030	328.72	381.60	447.41	572.34	73.93	85.71	100.93	128.60
C	Sacramento (SV)	Winter	2031	328.72	381.72	447.40	572.50	73.94	85.79	100.94	128.70
C	Sacramento (SV)	Winter	2032	328.72	381.83	447.39	572.67	73.94	85.85	100.95	128.80
C	Sacramento (SV)	Winter	2033	328.72	381.92	447.39	572.82	73.95	85.91	100.96	128.88
C	Sacramento (SV)	Winter	2034	328.72	382.01	447.38	572.96	73.95	85.97	100.96	128.96
C	Sacramento (SV)	Winter	2035	328.71	382.08	447.37	573.07	73.95	86.02	100.97	129.04
C	San Benito (NCC)	Annual	2010	325.03	378.79	446.10	558.62	73.58	90.26	100.51	124.39
C	San Benito (NCC)	Annual	2011	324.49	377.95	444.83	558.19	73.44	89.27	100.47	124.58
C	San Benito (NCC)	Annual	2012	324.56	377.80	444.45	558.83	73.36	88.39	100.46	124.79
C	San Benito (NCC)	Annual	2013	324.65	377.73	444.16	559.51	73.29	87.78	100.47	125.03
C	San Benito (NCC)	Annual	2014	324.77	377.62	443.93	560.19	73.27	87.07	100.45	125.29
C	San Benito (NCC)	Annual	2015	324.91	377.55	443.75	560.89	73.27	86.50	100.41	125.55
C	San Benito (NCC)	Annual	2016	325.03	377.52	443.61	561.56	73.28	86.06	100.42	125.83
C	San Benito (NCC)	Annual	2017	325.14	377.48	443.50	562.21	73.30	85.60	100.47	126.11
C	San Benito (NCC)	Annual	2018	325.25	377.47	443.42	562.78	73.34	85.28	100.54	126.37
C	San Benito (NCC)	Annual	2019	325.34	377.52	443.35	563.28	73.38	85.14	100.57	126.63
C	San Benito (NCC)	Annual	2020	325.44	377.57	443.30	563.72	73.48	85.11	100.63	126.87
C	San Benito (NCC)	Annual	2021	327.69	380.23	446.27	567.90	73.56	85.21	100.71	127.04
C	San Benito (NCC)	Annual	2022	327.72	380.33	446.23	568.20	73.62	85.30	100.77	127.19
C	San Benito (NCC)	Annual	2023	327.73	380.40	446.18	568.43	73.65	85.38	100.82	127.38
C	San Benito (NCC)	Annual	2024	327.70	380.45	446.14	568.59	73.67	85.46	100.87	127.55
C	San Benito (NCC)	Annual	2025	327.68	380.50	446.10	568.77	73.69	85.53	100.90	127.71
C	San Benito (NCC)	Annual	2026	326.83	379.57	444.86	567.43	73.71	85.60	100.93	127.87
C	San Benito (NCC)	Annual	2027	326.84	379.64	444.80	567.61	73.73	85.66	100.94	128.01
C	San Benito (NCC)	Annual	2028	326.84	379.71	444.76	567.79	73.74	85.72	100.96	128.14
C	San Benito (NCC)	Annual	2029	326.84	379.78	444.71	567.97	73.75	85.78	100.96	128.26
C	San Benito (NCC)	Annual	2030	326.83	379.86	444.66	568.16	73.75	85.83	100.96	128.38
C	San Benito (NCC)	Annual	2031	326.83	379.95	444.63	568.37	73.76	85.89	100.97	128.50
C	San Benito (NCC)	Annual	2032	326.83	380.02	444.61	568.59	73.76	85.94	100.97	128.62
C	San Benito (NCC)	Annual	2033	326.83	380.08	444.59	568.79	73.77	85.98	100.97	128.73
C	San Benito (NCC)	Annual	2034	326.82	380.15	444.56	568.97	73.77	86.03	100.98	128.83
C	San Benito (NCC)	Annual	2035	326.82	380.20	444.55	569.13	73.77	86.07	100.98	128.92
C	San Benito (NCC)	Summer	2010	348.46	403.82	476.85	597.56	73.58	90.26	100.51	124.39
C	San Benito (NCC)	Summer	2011	348.02	403.22	475.82	597.01	73.44	89.27	100.47	124.58
C	San Benito (NCC)	Summer	2012	348.22	403.33	475.66	597.67	73.36	88.39	100.46	124.79
C	San Benito (NCC)	Summer	2013	348.41	403.45	475.54	598.44	73.29	87.78	100.47	125.03
C	San Benito (NCC)	Summer	2014	348.61	403.53	475.46	599.25	73.27	87.07	100.45	125.29
C	San Benito (NCC)	Summer	2015	348.80	403.62	475.40	600.11	73.27	86.50	100.41	125.55
C	San Benito (NCC)	Summer	2016	348.97	403.71	475.33	600.96	73.28	86.06	100.42	125.83
C	San Benito (NCC)	Summer	2017	349.11	403.80	475.24	601.77	73.30	85.60	100.47	126.11
C	San Benito (NCC)	Summer	2018	349.22	403.90	475.15	602.48	73.34	85.28	100.54	126.37
C	San Benito (NCC)	Summer	2019	349.32	404.05	475.09	603.09	73.38	85.14	100.57	126.63
C	San Benito (NCC)	Summer	2020	349.41	404.18	475.03	603.62	73.48	85.11	100.63	126.87
C	San Benito (NCC)	Summer	2021	351.80	407.05	478.18	608.12	73.56	85.21	100.71	127.04
C	San Benito (NCC)	Summer	2022	351.84	407.19	478.12	608.48	73.62	85.30	100.77	127.19
C	San Benito (NCC)	Summer	2023	351.84	407.30	478.07	608.74	73.65	85.38	100.82	127.38
C	San Benito (NCC)	Summer	2024	351.83	407.39	478.02	608.91	73.67	85.46	100.87	127.55
C	San Benito (NCC)	Summer	2025	351.81	407.48	477.98	609.08	73.69	85.53	100.90	127.71

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	San Benito (NCC)	Summer	2026	350.90	406.50	476.68	607.62	73.71	85.60	100.93	127.87
C	San Benito (NCC)	Summer	2027	350.91	406.57	476.64	607.79	73.73	85.66	100.94	128.01
C	San Benito (NCC)	Summer	2028	350.91	406.66	476.62	607.96	73.74	85.72	100.96	128.14
C	San Benito (NCC)	Summer	2029	350.92	406.76	476.59	608.15	73.75	85.78	100.96	128.26
C	San Benito (NCC)	Summer	2030	350.91	406.88	476.56	608.35	73.75	85.83	100.96	128.38
C	San Benito (NCC)	Summer	2031	350.91	406.98	476.54	608.60	73.76	85.89	100.97	128.50
C	San Benito (NCC)	Summer	2032	350.91	407.07	476.53	608.85	73.76	85.94	100.97	128.62
C	San Benito (NCC)	Summer	2033	350.91	407.14	476.52	609.09	73.77	85.98	100.97	128.73
C	San Benito (NCC)	Summer	2034	350.91	407.22	476.50	609.32	73.77	86.03	100.98	128.83
C	San Benito (NCC)	Summer	2035	350.90	407.28	476.48	609.52	73.77	86.07	100.98	128.92
C	San Benito (NCC)	Winter	2010	322.42	376.00	442.67	554.28	73.58	90.26	100.51	124.39
C	San Benito (NCC)	Winter	2011	321.86	375.13	441.38	553.87	73.44	89.27	100.47	124.58
C	San Benito (NCC)	Winter	2012	321.93	374.95	440.98	554.50	73.36	88.39	100.46	124.79
C	San Benito (NCC)	Winter	2013	322.00	374.87	440.67	555.17	73.29	87.78	100.47	125.03
C	San Benito (NCC)	Winter	2014	322.12	374.73	440.42	555.83	73.27	87.07	100.45	125.29
C	San Benito (NCC)	Winter	2015	322.25	374.65	440.23	556.52	73.27	86.50	100.41	125.55
C	San Benito (NCC)	Winter	2016	322.36	374.60	440.08	557.17	73.28	86.06	100.42	125.83
C	San Benito (NCC)	Winter	2017	322.47	374.54	439.96	557.80	73.30	85.60	100.47	126.11
C	San Benito (NCC)	Winter	2018	322.58	374.52	439.88	558.36	73.34	85.28	100.54	126.37
C	San Benito (NCC)	Winter	2019	322.67	374.56	439.82	558.85	73.38	85.14	100.57	126.63
C	San Benito (NCC)	Winter	2020	322.76	374.60	439.77	559.28	73.48	85.11	100.63	126.87
C	San Benito (NCC)	Winter	2021	325.00	377.24	442.71	563.42	73.56	85.21	100.71	127.04
C	San Benito (NCC)	Winter	2022	325.04	377.33	442.67	563.71	73.62	85.30	100.77	127.19
C	San Benito (NCC)	Winter	2023	325.04	377.40	442.63	563.94	73.65	85.38	100.82	127.38
C	San Benito (NCC)	Winter	2024	325.01	377.45	442.59	564.10	73.67	85.46	100.87	127.55
C	San Benito (NCC)	Winter	2025	324.99	377.50	442.55	564.28	73.69	85.53	100.90	127.71
C	San Benito (NCC)	Winter	2026	324.15	376.57	441.32	562.96	73.71	85.60	100.93	127.87
C	San Benito (NCC)	Winter	2027	324.16	376.63	441.26	563.14	73.73	85.66	100.94	128.01
C	San Benito (NCC)	Winter	2028	324.16	376.70	441.21	563.31	73.74	85.72	100.96	128.14
C	San Benito (NCC)	Winter	2029	324.15	376.78	441.16	563.50	73.75	85.78	100.96	128.26
C	San Benito (NCC)	Winter	2030	324.15	376.85	441.11	563.68	73.75	85.83	100.96	128.38
C	San Benito (NCC)	Winter	2031	324.15	376.93	441.08	563.89	73.76	85.89	100.97	128.50
C	San Benito (NCC)	Winter	2032	324.14	377.01	441.05	564.10	73.76	85.94	100.97	128.62
C	San Benito (NCC)	Winter	2033	324.14	377.07	441.03	564.30	73.77	85.98	100.97	128.73
C	San Benito (NCC)	Winter	2034	324.14	377.13	441.00	564.48	73.77	86.03	100.98	128.83
C	San Benito (NCC)	Winter	2035	324.13	377.18	440.99	564.63	73.77	86.07	100.98	128.92
C	San Bernardino (MD)	Annual	2010	340.99	391.67	465.83	586.60	73.90	86.73	100.39	125.34
C	San Bernardino (MD)	Annual	2011	340.30	391.38	464.50	585.97	73.82	86.20	100.37	125.56
C	San Bernardino (MD)	Annual	2012	340.45	391.95	464.33	586.73	73.80	85.85	100.40	125.81
C	San Bernardino (MD)	Annual	2013	339.36	390.94	462.54	585.33	73.76	85.58	100.42	126.05
C	San Bernardino (MD)	Annual	2014	339.48	391.26	462.45	586.03	73.71	85.30	100.42	126.29
C	San Bernardino (MD)	Annual	2015	336.34	387.79	457.95	581.12	73.70	85.10	100.45	126.55
C	San Bernardino (MD)	Annual	2016	336.48	388.06	457.90	581.76	73.72	84.97	100.48	126.80
C	San Bernardino (MD)	Annual	2017	336.59	388.29	457.86	582.35	73.71	84.82	100.50	127.04
C	San Bernardino (MD)	Annual	2018	336.66	388.49	457.82	582.86	73.70	84.74	100.51	127.27
C	San Bernardino (MD)	Annual	2019	335.72	387.59	456.41	581.59	73.71	84.81	100.56	127.49
C	San Bernardino (MD)	Annual	2020	335.80	387.84	456.38	582.01	73.79	84.93	100.63	127.69
C	San Bernardino (MD)	Annual	2021	334.92	387.02	455.09	580.70	73.85	85.08	100.70	127.85
C	San Bernardino (MD)	Annual	2022	334.94	387.24	455.05	580.96	73.89	85.22	100.76	127.97
C	San Bernardino (MD)	Annual	2023	334.94	387.42	455.02	581.16	73.92	85.34	100.81	128.13
C	San Bernardino (MD)	Annual	2024	334.33	386.89	454.20	580.31	73.93	85.44	100.85	128.27
C	San Bernardino (MD)	Annual	2025	334.33	387.03	454.18	580.47	73.95	85.54	100.89	128.40
C	San Bernardino (MD)	Annual	2026	334.34	387.19	454.15	580.62	73.97	85.64	100.91	128.53
C	San Bernardino (MD)	Annual	2027	334.35	387.33	454.12	580.76	73.98	85.72	100.93	128.64

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	San Bernardino (MD)	Annual	2028	334.35	387.47	454.10	580.90	73.99	85.80	100.95	128.74
C	San Bernardino (MD)	Annual	2029	334.35	387.61	454.07	581.04	74.00	85.87	100.96	128.83
C	San Bernardino (MD)	Annual	2030	334.34	387.74	454.05	581.17	74.00	85.93	100.96	128.92
C	San Bernardino (MD)	Annual	2031	333.08	386.42	452.34	579.13	74.01	86.00	100.97	129.00
C	San Bernardino (MD)	Annual	2032	333.08	386.54	452.33	579.26	74.01	86.06	100.98	129.07
C	San Bernardino (MD)	Annual	2033	333.08	386.65	452.32	579.38	74.01	86.11	100.98	129.14
C	San Bernardino (MD)	Annual	2034	333.07	386.73	452.31	579.49	74.02	86.16	100.99	129.20
C	San Bernardino (MD)	Annual	2035	333.07	386.80	452.30	579.59	74.02	86.20	100.99	129.25
C	San Bernardino (MD)	Summer	2010	377.87	429.15	513.95	647.62	73.90	86.73	100.39	125.34
C	San Bernardino (MD)	Summer	2011	377.22	429.71	512.80	646.86	73.82	86.20	100.37	125.56
C	San Bernardino (MD)	Summer	2012	377.49	430.99	512.88	647.75	73.80	85.85	100.40	125.81
C	San Bernardino (MD)	Summer	2013	376.35	430.29	511.11	646.28	73.76	85.58	100.42	126.05
C	San Bernardino (MD)	Summer	2014	376.53	431.00	511.22	647.17	73.71	85.30	100.42	126.29
C	San Bernardino (MD)	Summer	2015	373.08	427.39	506.40	641.89	73.70	85.10	100.45	126.55
C	San Bernardino (MD)	Summer	2016	373.30	427.88	506.49	642.74	73.72	84.97	100.48	126.80
C	San Bernardino (MD)	Summer	2017	373.45	428.30	506.54	643.55	73.71	84.82	100.50	127.04
C	San Bernardino (MD)	Summer	2018	373.54	428.65	506.55	644.21	73.70	84.74	100.51	127.27
C	San Bernardino (MD)	Summer	2019	372.54	427.76	505.03	642.91	73.71	84.81	100.56	127.49
C	San Bernardino (MD)	Summer	2020	372.64	428.12	505.01	643.47	73.79	84.93	100.63	127.69
C	San Bernardino (MD)	Summer	2021	371.67	427.32	503.58	642.10	73.85	85.08	100.70	127.85
C	San Bernardino (MD)	Summer	2022	371.71	427.66	503.54	642.44	73.89	85.22	100.76	127.97
C	San Bernardino (MD)	Summer	2023	371.71	427.95	503.51	642.70	73.92	85.34	100.81	128.13
C	San Bernardino (MD)	Summer	2024	371.03	427.44	502.59	641.76	73.93	85.44	100.85	128.27
C	San Bernardino (MD)	Summer	2025	371.03	427.68	502.57	641.95	73.95	85.54	100.89	128.40
C	San Bernardino (MD)	Summer	2026	371.04	427.91	502.53	642.10	73.97	85.64	100.91	128.53
C	San Bernardino (MD)	Summer	2027	371.04	428.12	502.50	642.24	73.98	85.72	100.93	128.64
C	San Bernardino (MD)	Summer	2028	371.04	428.32	502.48	642.38	73.99	85.80	100.95	128.74
C	San Bernardino (MD)	Summer	2029	371.04	428.52	502.46	642.52	74.00	85.87	100.96	128.83
C	San Bernardino (MD)	Summer	2030	371.04	428.71	502.44	642.66	74.00	85.93	100.96	128.92
C	San Bernardino (MD)	Summer	2031	369.65	427.34	500.58	640.44	74.01	86.00	100.97	129.00
C	San Bernardino (MD)	Summer	2032	369.64	427.51	500.58	640.59	74.01	86.06	100.98	129.07
C	San Bernardino (MD)	Summer	2033	369.64	427.65	500.58	640.73	74.01	86.11	100.98	129.14
C	San Bernardino (MD)	Summer	2034	369.64	427.77	500.57	640.87	74.02	86.16	100.99	129.20
C	San Bernardino (MD)	Summer	2035	369.64	427.86	500.57	640.99	74.02	86.20	100.99	129.25
C	San Bernardino (MD)	Winter	2010	330.16	380.67	451.70	568.69	73.90	86.73	100.39	125.34
C	San Bernardino (MD)	Winter	2011	329.46	380.14	450.33	568.10	73.82	86.20	100.37	125.56
C	San Bernardino (MD)	Winter	2012	329.59	380.50	450.09	568.82	73.80	85.85	100.40	125.81
C	San Bernardino (MD)	Winter	2013	328.50	379.38	448.27	567.43	73.76	85.58	100.42	126.05
C	San Bernardino (MD)	Winter	2014	328.60	379.59	448.13	568.07	73.71	85.30	100.42	126.29
C	San Bernardino (MD)	Winter	2015	325.56	376.16	443.73	563.29	73.70	85.10	100.45	126.55
C	San Bernardino (MD)	Winter	2016	325.68	376.37	443.64	563.85	73.72	84.97	100.48	126.80
C	San Bernardino (MD)	Winter	2017	325.76	376.54	443.57	564.39	73.71	84.82	100.50	127.04
C	San Bernardino (MD)	Winter	2018	325.83	376.71	443.51	564.85	73.70	84.74	100.51	127.27
C	San Bernardino (MD)	Winter	2019	324.92	375.81	442.14	563.59	73.71	84.81	100.56	127.49
C	San Bernardino (MD)	Winter	2020	324.99	376.02	442.11	563.97	73.79	84.93	100.63	127.69
C	San Bernardino (MD)	Winter	2021	324.14	375.20	440.86	562.69	73.85	85.08	100.70	127.85
C	San Bernardino (MD)	Winter	2022	324.16	375.38	440.83	562.93	73.89	85.22	100.76	127.97
C	San Bernardino (MD)	Winter	2023	324.15	375.53	440.80	563.11	73.92	85.34	100.81	128.13
C	San Bernardino (MD)	Winter	2024	323.56	375.00	440.01	562.29	73.93	85.44	100.85	128.27
C	San Bernardino (MD)	Winter	2025	323.56	375.11	439.99	562.44	73.95	85.54	100.89	128.40
C	San Bernardino (MD)	Winter	2026	323.57	375.24	439.95	562.59	73.97	85.64	100.91	128.53
C	San Bernardino (MD)	Winter	2027	323.58	375.37	439.93	562.73	73.98	85.72	100.93	128.64
C	San Bernardino (MD)	Winter	2028	323.58	375.49	439.91	562.87	73.99	85.80	100.95	128.74
C	San Bernardino (MD)	Winter	2029	323.58	375.60	439.88	563.00	74.00	85.87	100.96	128.83

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	San Bernardino (MD)	Winter	2030	323.58	375.72	439.85	563.13	74.00	85.93	100.96	128.92
C	San Bernardino (MD)	Winter	2031	322.35	374.41	438.18	561.14	74.01	86.00	100.97	129.00
C	San Bernardino (MD)	Winter	2032	322.35	374.52	438.17	561.27	74.01	86.06	100.98	129.07
C	San Bernardino (MD)	Winter	2033	322.35	374.61	438.16	561.38	74.01	86.11	100.98	129.14
C	San Bernardino (MD)	Winter	2034	322.34	374.69	438.15	561.48	74.02	86.16	100.99	129.20
C	San Bernardino (MD)	Winter	2035	322.34	374.76	438.14	561.57	74.02	86.20	100.99	129.25
C	San Bernardino (SC)	Annual	2010	339.66	388.73	464.33	586.23	73.39	84.10	99.67	125.16
C	San Bernardino (SC)	Annual	2011	341.99	392.10	467.19	590.60	73.38	84.04	99.75	125.39
C	San Bernardino (SC)	Annual	2012	342.17	392.88	467.10	591.25	73.40	84.04	99.85	125.63
C	San Bernardino (SC)	Annual	2013	343.26	394.52	468.27	593.42	73.45	84.04	99.95	125.87
C	San Bernardino (SC)	Annual	2014	343.43	395.06	468.23	594.04	73.48	84.04	100.03	126.12
C	San Bernardino (SC)	Annual	2015	345.48	397.75	470.76	597.94	73.53	84.10	100.12	126.38
C	San Bernardino (SC)	Annual	2016	345.67	398.22	470.75	598.55	73.60	84.17	100.22	126.63
C	San Bernardino (SC)	Annual	2017	345.81	398.64	470.74	599.13	73.64	84.24	100.30	126.88
C	San Bernardino (SC)	Annual	2018	345.92	399.00	470.73	599.62	73.67	84.33	100.37	127.12
C	San Bernardino (SC)	Annual	2019	344.25	397.30	468.27	596.96	73.72	84.50	100.45	127.34
C	San Bernardino (SC)	Annual	2020	344.34	397.63	468.27	597.37	73.81	84.69	100.54	127.55
C	San Bernardino (SC)	Annual	2021	346.63	400.48	471.28	601.51	73.89	84.86	100.63	127.71
C	San Bernardino (SC)	Annual	2022	346.66	400.72	471.26	601.76	73.94	85.01	100.70	127.85
C	San Bernardino (SC)	Annual	2023	346.67	400.92	471.24	601.94	73.97	85.15	100.75	128.01
C	San Bernardino (SC)	Annual	2024	350.85	405.93	476.91	609.35	73.99	85.27	100.80	128.14
C	San Bernardino (SC)	Annual	2025	350.85	406.09	476.89	609.49	74.01	85.37	100.84	128.28
C	San Bernardino (SC)	Annual	2026	350.86	406.25	476.88	609.62	74.03	85.48	100.87	128.40
C	San Bernardino (SC)	Annual	2027	350.87	406.40	476.86	609.75	74.05	85.57	100.90	128.51
C	San Bernardino (SC)	Annual	2028	350.87	406.55	476.84	609.88	74.06	85.66	100.92	128.61
C	San Bernardino (SC)	Annual	2029	350.87	406.71	476.83	610.02	74.06	85.74	100.93	128.70
C	San Bernardino (SC)	Annual	2030	350.87	406.87	476.82	610.15	74.07	85.81	100.94	128.79
C	San Bernardino (SC)	Annual	2031	352.60	409.05	479.18	613.34	74.07	85.89	100.95	128.88
C	San Bernardino (SC)	Annual	2032	352.60	409.21	479.18	613.50	74.08	85.96	100.96	128.96
C	San Bernardino (SC)	Annual	2033	352.60	409.34	479.17	613.65	74.08	86.02	100.97	129.03
C	San Bernardino (SC)	Annual	2034	352.60	409.46	479.17	613.78	74.08	86.08	100.97	129.10
C	San Bernardino (SC)	Annual	2035	352.59	409.55	479.16	613.89	74.09	86.13	100.98	129.17
C	San Bernardino (SC)	Summer	2010	368.22	417.94	501.93	633.75	73.39	84.10	99.67	125.16
C	San Bernardino (SC)	Summer	2011	370.87	422.11	505.20	638.44	73.38	84.04	99.75	125.39
C	San Bernardino (SC)	Summer	2012	371.15	423.36	505.23	639.12	73.40	84.04	99.85	125.63
C	San Bernardino (SC)	Summer	2013	372.38	425.43	506.60	641.49	73.45	84.04	99.95	125.87
C	San Bernardino (SC)	Summer	2014	372.60	426.25	506.67	642.21	73.48	84.04	100.03	126.12
C	San Bernardino (SC)	Summer	2015	374.88	429.36	509.55	646.57	73.53	84.10	100.12	126.38
C	San Bernardino (SC)	Summer	2016	375.13	430.02	509.63	647.35	73.60	84.17	100.22	126.63
C	San Bernardino (SC)	Summer	2017	375.32	430.61	509.69	648.09	73.64	84.24	100.30	126.88
C	San Bernardino (SC)	Summer	2018	375.45	431.08	509.71	648.71	73.67	84.33	100.37	127.12
C	San Bernardino (SC)	Summer	2019	373.62	429.29	507.04	645.87	73.72	84.50	100.45	127.34
C	San Bernardino (SC)	Summer	2020	373.74	429.71	507.04	646.38	73.81	84.69	100.54	127.55
C	San Bernardino (SC)	Summer	2021	376.24	432.88	510.33	650.95	73.89	84.86	100.63	127.71
C	San Bernardino (SC)	Summer	2022	376.28	433.20	510.29	651.23	73.94	85.01	100.70	127.85
C	San Bernardino (SC)	Summer	2023	376.28	433.46	510.25	651.43	73.97	85.15	100.75	128.01
C	San Bernardino (SC)	Summer	2024	380.91	439.05	516.50	659.60	73.99	85.27	100.80	128.14
C	San Bernardino (SC)	Summer	2025	380.90	439.27	516.47	659.73	74.01	85.37	100.84	128.28
C	San Bernardino (SC)	Summer	2026	380.91	439.49	516.44	659.84	74.03	85.48	100.87	128.40
C	San Bernardino (SC)	Summer	2027	380.91	439.69	516.43	659.96	74.05	85.57	100.90	128.51
C	San Bernardino (SC)	Summer	2028	380.91	439.90	516.42	660.08	74.06	85.66	100.92	128.61
C	San Bernardino (SC)	Summer	2029	380.91	440.11	516.41	660.21	74.06	85.74	100.93	128.70
C	San Bernardino (SC)	Summer	2030	380.92	440.32	516.41	660.35	74.07	85.81	100.94	128.79
C	San Bernardino (SC)	Summer	2031	382.84	442.80	519.04	663.90	74.07	85.89	100.95	128.88

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMt)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	San Bernardino (SC)	Summer	2032	382.83	443.01	519.04	664.10	74.08	85.96	100.96	128.96
C	San Bernardino (SC)	Summer	2033	382.83	443.18	519.04	664.28	74.08	86.02	100.97	129.03
C	San Bernardino (SC)	Summer	2034	382.83	443.34	519.04	664.45	74.08	86.08	100.97	129.10
C	San Bernardino (SC)	Summer	2035	382.83	443.45	519.03	664.60	74.09	86.13	100.98	129.17
C	San Bernardino (SC)	Winter	2010	334.32	383.27	457.30	577.34	73.39	84.10	99.67	125.16
C	San Bernardino (SC)	Winter	2011	336.58	386.48	460.07	581.64	73.38	84.04	99.75	125.39
C	San Bernardino (SC)	Winter	2012	336.74	387.17	459.96	582.29	73.40	84.04	99.85	125.63
C	San Bernardino (SC)	Winter	2013	337.81	388.73	461.09	584.42	73.45	84.04	99.95	125.87
C	San Bernardino (SC)	Winter	2014	337.97	389.22	461.03	585.02	73.48	84.04	100.03	126.12
C	San Bernardino (SC)	Winter	2015	339.97	391.82	463.49	588.82	73.53	84.10	100.12	126.38
C	San Bernardino (SC)	Winter	2016	340.15	392.25	463.46	589.40	73.60	84.17	100.22	126.63
C	San Bernardino (SC)	Winter	2017	340.28	392.65	463.44	589.94	73.64	84.24	100.30	126.88
C	San Bernardino (SC)	Winter	2018	340.39	392.99	463.42	590.42	73.67	84.33	100.37	127.12
C	San Bernardino (SC)	Winter	2019	338.74	391.31	461.01	587.80	73.72	84.50	100.45	127.34
C	San Bernardino (SC)	Winter	2020	338.84	391.63	461.00	588.19	73.81	84.69	100.54	127.55
C	San Bernardino (SC)	Winter	2021	341.07	394.40	463.95	592.23	73.89	84.86	100.63	127.71
C	San Bernardino (SC)	Winter	2022	341.11	394.63	463.94	592.47	73.94	85.01	100.70	127.85
C	San Bernardino (SC)	Winter	2023	341.12	394.81	463.92	592.65	73.97	85.15	100.75	128.01
C	San Bernardino (SC)	Winter	2024	345.19	399.71	469.47	599.90	73.99	85.27	100.80	128.14
C	San Bernardino (SC)	Winter	2025	345.19	399.85	469.45	600.04	74.01	85.37	100.84	128.28
C	San Bernardino (SC)	Winter	2026	345.21	400.00	469.43	600.18	74.03	85.48	100.87	128.40
C	San Bernardino (SC)	Winter	2027	345.22	400.14	469.42	600.31	74.05	85.57	100.90	128.51
C	San Bernardino (SC)	Winter	2028	345.22	400.28	469.40	600.45	74.06	85.66	100.92	128.61
C	San Bernardino (SC)	Winter	2029	345.22	400.43	469.39	600.58	74.06	85.74	100.93	128.70
C	San Bernardino (SC)	Winter	2030	345.22	400.57	469.37	600.71	74.07	85.81	100.94	128.79
C	San Bernardino (SC)	Winter	2031	346.90	402.69	471.67	603.81	74.07	85.89	100.95	128.88
C	San Bernardino (SC)	Winter	2032	346.90	402.83	471.66	603.96	74.08	85.96	100.96	128.96
C	San Bernardino (SC)	Winter	2033	346.90	402.96	471.65	604.10	74.08	86.02	100.97	129.03
C	San Bernardino (SC)	Winter	2034	346.90	403.07	471.65	604.22	74.08	86.08	100.97	129.10
C	San Bernardino (SC)	Winter	2035	346.89	403.16	471.64	604.33	74.09	86.13	100.98	129.17
C	San Diego (SD)	Annual	2010	352.52	405.15	482.46	610.22	72.99	83.92	99.34	125.27
C	San Diego (SD)	Annual	2011	353.81	407.05	483.85	612.57	73.01	83.88	99.44	125.44
C	San Diego (SD)	Annual	2012	354.03	407.67	483.80	613.09	73.05	83.89	99.57	125.64
C	San Diego (SD)	Annual	2013	354.28	408.23	483.77	613.65	73.12	83.94	99.70	125.85
C	San Diego (SD)	Annual	2014	354.50	408.76	483.75	614.21	73.17	83.99	99.82	126.06
C	San Diego (SD)	Annual	2015	354.72	409.25	483.74	614.79	73.24	84.07	99.93	126.29
C	San Diego (SD)	Annual	2016	354.92	409.69	483.74	615.32	73.32	84.16	100.05	126.52
C	San Diego (SD)	Annual	2017	355.08	410.10	483.73	615.84	73.37	84.25	100.15	126.74
C	San Diego (SD)	Annual	2018	355.21	410.47	483.74	616.29	73.41	84.35	100.25	126.96
C	San Diego (SD)	Annual	2019	355.33	410.82	483.74	616.69	73.46	84.52	100.35	127.15
C	San Diego (SD)	Annual	2020	355.43	411.15	483.75	617.07	73.55	84.69	100.45	127.34
C	San Diego (SD)	Annual	2021	356.07	412.11	484.56	618.41	73.62	84.87	100.55	127.52
C	San Diego (SD)	Annual	2022	356.11	412.36	484.56	618.69	73.67	85.02	100.63	127.67
C	San Diego (SD)	Annual	2023	356.12	412.55	484.56	618.89	73.71	85.15	100.70	127.83
C	San Diego (SD)	Annual	2024	356.12	412.71	484.55	619.06	73.72	85.27	100.76	127.98
C	San Diego (SD)	Annual	2025	356.11	412.86	484.55	619.23	73.74	85.38	100.81	128.12
C	San Diego (SD)	Annual	2026	356.13	413.01	484.54	619.39	73.76	85.48	100.85	128.26
C	San Diego (SD)	Annual	2027	356.14	413.16	484.53	619.54	73.77	85.57	100.88	128.38
C	San Diego (SD)	Annual	2028	356.15	413.30	484.51	619.69	73.78	85.66	100.90	128.48
C	San Diego (SD)	Annual	2029	356.15	413.45	484.50	619.84	73.79	85.74	100.92	128.58
C	San Diego (SD)	Annual	2030	356.14	413.59	484.49	619.98	73.79	85.81	100.93	128.68
C	San Diego (SD)	Annual	2031	356.14	413.74	484.48	620.13	73.80	85.89	100.94	128.77
C	San Diego (SD)	Annual	2032	356.14	413.87	484.48	620.29	73.80	85.96	100.95	128.86
C	San Diego (SD)	Annual	2033	356.14	414.00	484.47	620.43	73.80	86.02	100.96	128.93

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	San Diego (SD)	Annual	2034	356.13	414.10	484.46	620.55	73.80	86.08	100.97	129.01
C	San Diego (SD)	Annual	2035	356.13	414.20	484.46	620.67	73.81	86.13	100.97	129.08
C	San Diego (SD)	Summer	2010	372.46	426.19	509.00	643.64	72.99	83.92	99.34	125.27
C	San Diego (SD)	Summer	2011	373.89	428.41	510.48	645.96	73.01	83.88	99.44	125.44
C	San Diego (SD)	Summer	2012	374.19	429.26	510.46	646.43	73.05	83.89	99.57	125.64
C	San Diego (SD)	Summer	2013	374.48	430.00	510.47	646.99	73.12	83.94	99.70	125.85
C	San Diego (SD)	Summer	2014	374.75	430.67	510.51	647.60	73.17	83.99	99.82	126.06
C	San Diego (SD)	Summer	2015	375.00	431.27	510.56	648.26	73.24	84.07	99.93	126.29
C	San Diego (SD)	Summer	2016	375.24	431.81	510.61	648.90	73.32	84.16	100.05	126.52
C	San Diego (SD)	Summer	2017	375.42	432.30	510.65	649.52	73.37	84.25	100.15	126.74
C	San Diego (SD)	Summer	2018	375.55	432.74	510.67	650.05	73.41	84.35	100.25	126.96
C	San Diego (SD)	Summer	2019	375.68	433.15	510.68	650.53	73.46	84.52	100.35	127.15
C	San Diego (SD)	Summer	2020	375.78	433.52	510.68	650.97	73.55	84.69	100.45	127.34
C	San Diego (SD)	Summer	2021	376.47	434.60	511.57	652.47	73.62	84.87	100.55	127.52
C	San Diego (SD)	Summer	2022	376.52	434.90	511.57	652.82	73.67	85.02	100.63	127.67
C	San Diego (SD)	Summer	2023	376.54	435.14	511.57	653.07	73.71	85.15	100.70	127.83
C	San Diego (SD)	Summer	2024	376.54	435.34	511.56	653.27	73.72	85.27	100.76	127.98
C	San Diego (SD)	Summer	2025	376.54	435.52	511.56	653.45	73.74	85.38	100.81	128.12
C	San Diego (SD)	Summer	2026	376.55	435.72	511.54	653.62	73.76	85.48	100.85	128.26
C	San Diego (SD)	Summer	2027	376.56	435.90	511.53	653.77	73.77	85.57	100.88	128.38
C	San Diego (SD)	Summer	2028	376.57	436.07	511.51	653.92	73.78	85.66	100.90	128.48
C	San Diego (SD)	Summer	2029	376.58	436.25	511.49	654.06	73.79	85.74	100.92	128.58
C	San Diego (SD)	Summer	2030	376.58	436.43	511.48	654.21	73.79	85.81	100.93	128.68
C	San Diego (SD)	Summer	2031	376.57	436.61	511.47	654.35	73.80	85.89	100.94	128.77
C	San Diego (SD)	Summer	2032	376.57	436.77	511.46	654.51	73.80	85.96	100.95	128.86
C	San Diego (SD)	Summer	2033	376.57	436.92	511.45	654.65	73.80	86.02	100.96	128.93
C	San Diego (SD)	Summer	2034	376.57	437.04	511.45	654.79	73.80	86.08	100.97	129.01
C	San Diego (SD)	Summer	2035	376.57	437.14	511.44	654.92	73.81	86.13	100.97	129.08
C	San Diego (SD)	Winter	2010	348.91	401.34	477.65	604.17	72.99	83.92	99.34	125.27
C	San Diego (SD)	Winter	2011	350.18	403.18	479.04	606.53	73.01	83.88	99.44	125.44
C	San Diego (SD)	Winter	2012	350.39	403.76	478.98	607.06	73.05	83.89	99.57	125.64
C	San Diego (SD)	Winter	2013	350.62	404.30	478.94	607.62	73.12	83.94	99.70	125.85
C	San Diego (SD)	Winter	2014	350.83	404.79	478.91	608.17	73.17	83.99	99.82	126.06
C	San Diego (SD)	Winter	2015	351.05	405.26	478.89	608.73	73.24	84.07	99.93	126.29
C	San Diego (SD)	Winter	2016	351.25	405.69	478.88	609.25	73.32	84.16	100.05	126.52
C	San Diego (SD)	Winter	2017	351.40	406.08	478.87	609.75	73.37	84.25	100.15	126.74
C	San Diego (SD)	Winter	2018	351.53	406.44	478.86	610.18	73.41	84.35	100.25	126.96
C	San Diego (SD)	Winter	2019	351.65	406.78	478.87	610.57	73.46	84.52	100.35	127.15
C	San Diego (SD)	Winter	2020	351.75	407.10	478.87	610.94	73.55	84.69	100.45	127.34
C	San Diego (SD)	Winter	2021	352.38	408.04	479.67	612.25	73.62	84.87	100.55	127.52
C	San Diego (SD)	Winter	2022	352.42	408.28	479.67	612.51	73.67	85.02	100.63	127.67
C	San Diego (SD)	Winter	2023	352.43	408.47	479.67	612.71	73.71	85.15	100.70	127.83
C	San Diego (SD)	Winter	2024	352.42	408.62	479.66	612.87	73.72	85.27	100.76	127.98
C	San Diego (SD)	Winter	2025	352.42	408.75	479.66	613.03	73.74	85.38	100.81	128.12
C	San Diego (SD)	Winter	2026	352.43	408.90	479.65	613.20	73.76	85.48	100.85	128.26
C	San Diego (SD)	Winter	2027	352.44	409.04	479.64	613.35	73.77	85.57	100.88	128.38
C	San Diego (SD)	Winter	2028	352.45	409.18	479.63	613.50	73.78	85.66	100.90	128.48
C	San Diego (SD)	Winter	2029	352.45	409.32	479.62	613.64	73.79	85.74	100.92	128.58
C	San Diego (SD)	Winter	2030	352.45	409.46	479.60	613.79	73.79	85.81	100.93	128.68
C	San Diego (SD)	Winter	2031	352.44	409.60	479.60	613.94	73.80	85.89	100.94	128.77
C	San Diego (SD)	Winter	2032	352.44	409.73	479.59	614.10	73.80	85.96	100.95	128.86
C	San Diego (SD)	Winter	2033	352.44	409.85	479.59	614.23	73.80	86.02	100.96	128.93
C	San Diego (SD)	Winter	2034	352.44	409.95	479.58	614.36	73.80	86.08	100.97	129.01
C	San Diego (SD)	Winter	2035	352.43	410.04	479.57	614.47	73.81	86.13	100.97	129.08

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	San Francisco (SF)	Annual	2010	371.60	426.62	509.35	643.69	72.64	83.27	99.11	125.09
C	San Francisco (SF)	Annual	2011	371.82	427.18	509.24	644.17	72.74	83.30	99.23	125.27
C	San Francisco (SF)	Annual	2012	372.04	427.76	509.17	644.70	72.83	83.38	99.38	125.47
C	San Francisco (SF)	Annual	2013	372.29	428.30	509.11	645.27	72.93	83.46	99.53	125.68
C	San Francisco (SF)	Annual	2014	372.52	428.84	509.06	645.84	73.02	83.59	99.67	125.91
C	San Francisco (SF)	Annual	2015	372.76	429.37	509.04	646.43	73.13	83.72	99.83	126.14
C	San Francisco (SF)	Annual	2016	372.99	429.87	509.03	646.98	73.24	83.88	99.96	126.36
C	San Francisco (SF)	Annual	2017	373.17	430.33	509.01	647.52	73.31	84.02	100.10	126.59
C	San Francisco (SF)	Annual	2018	373.32	430.73	509.01	647.97	73.38	84.17	100.21	126.81
C	San Francisco (SF)	Annual	2019	373.44	431.08	509.02	648.39	73.44	84.32	100.32	127.01
C	San Francisco (SF)	Annual	2020	373.57	431.40	509.03	648.77	73.54	84.48	100.42	127.20
C	San Francisco (SF)	Annual	2021	373.65	431.70	509.03	649.09	73.62	84.65	100.52	127.37
C	San Francisco (SF)	Annual	2022	373.71	431.95	509.04	649.36	73.68	84.79	100.60	127.51
C	San Francisco (SF)	Annual	2023	373.73	432.14	509.03	649.57	73.72	84.92	100.67	127.66
C	San Francisco (SF)	Annual	2024	373.72	432.29	509.03	649.73	73.74	85.03	100.73	127.80
C	San Francisco (SF)	Annual	2025	373.72	432.42	509.02	649.90	73.77	85.13	100.78	127.94
C	San Francisco (SF)	Annual	2026	373.74	432.57	509.01	650.08	73.79	85.23	100.82	128.07
C	San Francisco (SF)	Annual	2027	373.76	432.71	509.00	650.24	73.81	85.31	100.85	128.19
C	San Francisco (SF)	Annual	2028	373.76	432.86	508.98	650.41	73.82	85.39	100.88	128.29
C	San Francisco (SF)	Annual	2029	373.76	433.01	508.96	650.58	73.83	85.47	100.89	128.39
C	San Francisco (SF)	Annual	2030	373.75	433.17	508.95	650.75	73.83	85.54	100.91	128.49
C	San Francisco (SF)	Annual	2031	373.75	433.33	508.94	650.93	73.84	85.62	100.92	128.59
C	San Francisco (SF)	Annual	2032	373.75	433.50	508.93	651.11	73.84	85.69	100.93	128.68
C	San Francisco (SF)	Annual	2033	373.75	433.64	508.92	651.27	73.85	85.75	100.94	128.76
C	San Francisco (SF)	Annual	2034	373.74	433.77	508.91	651.42	73.85	85.81	100.94	128.84
C	San Francisco (SF)	Annual	2035	373.74	433.88	508.90	651.56	73.85	85.87	100.95	128.91
C	San Francisco (SF)	Summer	2010	395.05	451.58	540.63	683.09	72.64	83.27	99.11	125.09
C	San Francisco (SF)	Summer	2011	395.38	452.34	540.53	683.40	72.74	83.30	99.23	125.27
C	San Francisco (SF)	Summer	2012	395.71	453.09	540.48	683.83	72.83	83.38	99.38	125.47
C	San Francisco (SF)	Summer	2013	396.03	453.80	540.46	684.36	72.93	83.46	99.53	125.68
C	San Francisco (SF)	Summer	2014	396.33	454.46	540.48	684.94	73.02	83.59	99.67	125.91
C	San Francisco (SF)	Summer	2015	396.62	455.11	540.51	685.61	73.13	83.72	99.83	126.14
C	San Francisco (SF)	Summer	2016	396.88	455.72	540.56	686.28	73.24	83.88	99.96	126.36
C	San Francisco (SF)	Summer	2017	397.07	456.29	540.60	686.95	73.31	84.02	100.10	126.59
C	San Francisco (SF)	Summer	2018	397.24	456.76	540.61	687.49	73.38	84.17	100.21	126.81
C	San Francisco (SF)	Summer	2019	397.37	457.20	540.63	688.00	73.44	84.32	100.32	127.01
C	San Francisco (SF)	Summer	2020	397.50	457.58	540.65	688.47	73.54	84.48	100.42	127.20
C	San Francisco (SF)	Summer	2021	397.58	457.93	540.66	688.86	73.62	84.65	100.52	127.37
C	San Francisco (SF)	Summer	2022	397.64	458.23	540.66	689.20	73.68	84.79	100.60	127.51
C	San Francisco (SF)	Summer	2023	397.66	458.47	540.66	689.46	73.72	84.92	100.67	127.66
C	San Francisco (SF)	Summer	2024	397.65	458.66	540.64	689.67	73.74	85.03	100.73	127.80
C	San Francisco (SF)	Summer	2025	397.65	458.84	540.63	689.88	73.77	85.13	100.78	127.94
C	San Francisco (SF)	Summer	2026	397.67	459.02	540.61	690.09	73.79	85.23	100.82	128.07
C	San Francisco (SF)	Summer	2027	397.69	459.20	540.59	690.26	73.81	85.31	100.85	128.19
C	San Francisco (SF)	Summer	2028	397.70	459.38	540.57	690.44	73.82	85.39	100.88	128.29
C	San Francisco (SF)	Summer	2029	397.70	459.57	540.54	690.62	73.83	85.47	100.89	128.39
C	San Francisco (SF)	Summer	2030	397.70	459.77	540.53	690.81	73.83	85.54	100.91	128.49
C	San Francisco (SF)	Summer	2031	397.70	459.99	540.52	690.99	73.84	85.62	100.92	128.59
C	San Francisco (SF)	Summer	2032	397.71	460.19	540.51	691.17	73.84	85.69	100.93	128.68
C	San Francisco (SF)	Summer	2033	397.71	460.36	540.50	691.35	73.85	85.75	100.94	128.76
C	San Francisco (SF)	Summer	2034	397.71	460.52	540.50	691.51	73.85	85.81	100.94	128.84
C	San Francisco (SF)	Summer	2035	397.70	460.65	540.49	691.66	73.85	85.87	100.95	128.91
C	San Francisco (SF)	Winter	2010	370.78	425.74	508.25	642.31	72.64	83.27	99.11	125.09
C	San Francisco (SF)	Winter	2011	370.99	426.30	508.14	642.79	72.74	83.30	99.23	125.27

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	San Francisco (SF)	Winter	2012	371.21	426.87	508.07	643.32	72.83	83.38	99.38	125.47
C	San Francisco (SF)	Winter	2013	371.46	427.41	508.01	643.90	72.93	83.46	99.53	125.68
C	San Francisco (SF)	Winter	2014	371.69	427.94	507.96	644.46	73.02	83.59	99.67	125.91
C	San Francisco (SF)	Winter	2015	371.93	428.46	507.94	645.05	73.13	83.72	99.83	126.14
C	San Francisco (SF)	Winter	2016	372.16	428.96	507.92	645.60	73.24	83.88	99.96	126.36
C	San Francisco (SF)	Winter	2017	372.33	429.42	507.91	646.13	73.31	84.02	100.10	126.59
C	San Francisco (SF)	Winter	2018	372.48	429.81	507.90	646.58	73.38	84.17	100.21	126.81
C	San Francisco (SF)	Winter	2019	372.60	430.17	507.91	647.00	73.44	84.32	100.32	127.01
C	San Francisco (SF)	Winter	2020	372.73	430.49	507.92	647.38	73.54	84.48	100.42	127.20
C	San Francisco (SF)	Winter	2021	372.81	430.78	507.92	647.69	73.62	84.65	100.52	127.37
C	San Francisco (SF)	Winter	2022	372.87	431.02	507.93	647.96	73.68	84.79	100.60	127.51
C	San Francisco (SF)	Winter	2023	372.89	431.21	507.92	648.17	73.72	84.92	100.67	127.66
C	San Francisco (SF)	Winter	2024	372.88	431.36	507.92	648.33	73.74	85.03	100.73	127.80
C	San Francisco (SF)	Winter	2025	372.88	431.50	507.91	648.50	73.77	85.13	100.78	127.94
C	San Francisco (SF)	Winter	2026	372.90	431.64	507.90	648.67	73.79	85.23	100.82	128.07
C	San Francisco (SF)	Winter	2027	372.92	431.78	507.89	648.84	73.81	85.31	100.85	128.19
C	San Francisco (SF)	Winter	2028	372.92	431.93	507.87	649.00	73.82	85.39	100.88	128.29
C	San Francisco (SF)	Winter	2029	372.92	432.08	507.85	649.17	73.83	85.47	100.89	128.39
C	San Francisco (SF)	Winter	2030	372.91	432.23	507.84	649.34	73.83	85.54	100.91	128.49
C	San Francisco (SF)	Winter	2031	372.91	432.40	507.83	649.52	73.84	85.62	100.92	128.59
C	San Francisco (SF)	Winter	2032	372.91	432.56	507.82	649.71	73.84	85.69	100.93	128.68
C	San Francisco (SF)	Winter	2033	372.91	432.70	507.81	649.87	73.85	85.75	100.94	128.76
C	San Francisco (SF)	Winter	2034	372.90	432.83	507.81	650.02	73.85	85.81	100.94	128.84
C	San Francisco (SF)	Winter	2035	372.90	432.95	507.80	650.15	73.85	85.87	100.95	128.91
C	San Joaquin (SJV)	Annual	2010	341.15	391.09	467.02	587.28	73.38	84.95	100.04	124.39
C	San Joaquin (SJV)	Annual	2011	341.42	391.91	466.87	587.92	73.37	84.69	100.05	124.61
C	San Joaquin (SJV)	Annual	2012	340.62	391.44	465.29	586.82	73.40	84.55	100.10	124.86
C	San Joaquin (SJV)	Annual	2013	340.63	391.84	464.86	587.24	73.41	84.46	100.15	125.16
C	San Joaquin (SJV)	Annual	2014	340.87	392.44	464.82	588.06	73.44	84.41	100.20	125.45
C	San Joaquin (SJV)	Annual	2015	342.48	394.54	466.66	591.27	73.49	84.37	100.25	125.76
C	San Joaquin (SJV)	Annual	2016	342.68	395.00	466.64	592.05	73.55	84.37	100.31	126.07
C	San Joaquin (SJV)	Annual	2017	342.83	395.40	466.61	592.77	73.57	84.38	100.33	126.38
C	San Joaquin (SJV)	Annual	2018	341.73	394.34	464.95	591.28	73.61	84.41	100.38	126.66
C	San Joaquin (SJV)	Annual	2019	341.83	394.66	464.93	591.82	73.66	84.55	100.43	126.92
C	San Joaquin (SJV)	Annual	2020	341.92	394.95	464.91	592.29	73.75	84.71	100.52	127.16
C	San Joaquin (SJV)	Annual	2021	340.58	393.59	462.99	590.24	73.83	84.88	100.61	127.36
C	San Joaquin (SJV)	Annual	2022	340.62	393.80	462.97	590.55	73.88	85.03	100.68	127.52
C	San Joaquin (SJV)	Annual	2023	340.62	393.98	462.95	590.80	73.91	85.16	100.74	127.71
C	San Joaquin (SJV)	Annual	2024	338.98	392.24	460.72	588.16	73.93	85.27	100.79	127.88
C	San Joaquin (SJV)	Annual	2025	338.99	392.38	460.71	588.34	73.95	85.37	100.83	128.04
C	San Joaquin (SJV)	Annual	2026	338.96	392.48	460.64	588.42	73.97	85.47	100.87	128.18
C	San Joaquin (SJV)	Annual	2027	338.97	392.63	460.62	588.56	73.99	85.56	100.89	128.30
C	San Joaquin (SJV)	Annual	2028	338.98	392.77	460.61	588.70	74.00	85.65	100.91	128.42
C	San Joaquin (SJV)	Annual	2029	338.98	392.91	460.59	588.85	74.00	85.73	100.93	128.53
C	San Joaquin (SJV)	Annual	2030	338.98	393.05	460.58	589.01	74.01	85.80	100.94	128.63
C	San Joaquin (SJV)	Annual	2031	338.98	393.19	460.57	589.19	74.01	85.88	100.95	128.73
C	San Joaquin (SJV)	Annual	2032	338.98	393.31	460.56	589.38	74.02	85.94	100.95	128.83
C	San Joaquin (SJV)	Annual	2033	338.98	393.42	460.55	589.55	74.02	86.00	100.96	128.92
C	San Joaquin (SJV)	Annual	2034	338.98	393.52	460.54	589.70	74.03	86.06	100.97	129.00
C	San Joaquin (SJV)	Annual	2035	338.97	393.60	460.53	589.84	74.03	86.10	100.97	129.07
C	San Joaquin (SJV)	Summer	2010	372.14	422.80	507.85	638.60	73.38	84.95	100.04	124.39
C	San Joaquin (SJV)	Summer	2011	372.63	424.33	507.90	639.20	73.37	84.69	100.05	124.61
C	San Joaquin (SJV)	Summer	2012	371.92	424.32	506.38	638.02	73.40	84.55	100.10	124.86
C	San Joaquin (SJV)	Summer	2013	372.06	425.18	506.12	638.59	73.41	84.46	100.15	125.16

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	San Joaquin (SJV)	Summer	2014	372.42	426.15	506.26	639.64	73.44	84.41	100.20	125.45
C	San Joaquin (SJV)	Summer	2015	374.24	428.69	508.43	643.31	73.49	84.37	100.25	125.76
C	San Joaquin (SJV)	Summer	2016	374.50	429.38	508.53	644.34	73.55	84.37	100.31	126.07
C	San Joaquin (SJV)	Summer	2017	374.68	429.96	508.59	645.29	73.57	84.38	100.33	126.38
C	San Joaquin (SJV)	Summer	2018	373.47	428.89	506.81	643.78	73.61	84.41	100.38	126.66
C	San Joaquin (SJV)	Summer	2019	373.56	429.29	506.79	644.44	73.66	84.55	100.43	126.92
C	San Joaquin (SJV)	Summer	2020	373.63	429.66	506.76	645.01	73.75	84.71	100.52	127.16
C	San Joaquin (SJV)	Summer	2021	372.14	428.21	504.64	642.81	73.83	84.88	100.61	127.36
C	San Joaquin (SJV)	Summer	2022	372.16	428.49	504.59	643.19	73.88	85.03	100.68	127.52
C	San Joaquin (SJV)	Summer	2023	372.17	428.73	504.55	643.46	73.91	85.16	100.74	127.71
C	San Joaquin (SJV)	Summer	2024	370.38	426.89	502.11	640.59	73.93	85.27	100.79	127.88
C	San Joaquin (SJV)	Summer	2025	370.39	427.09	502.08	640.78	73.95	85.37	100.83	128.04
C	San Joaquin (SJV)	Summer	2026	370.34	427.23	501.98	640.76	73.97	85.47	100.87	128.18
C	San Joaquin (SJV)	Summer	2027	370.36	427.43	501.95	640.85	73.99	85.56	100.89	128.30
C	San Joaquin (SJV)	Summer	2028	370.37	427.63	501.94	640.96	74.00	85.65	100.91	128.42
C	San Joaquin (SJV)	Summer	2029	370.39	427.83	501.92	641.09	74.00	85.73	100.93	128.53
C	San Joaquin (SJV)	Summer	2030	370.40	428.04	501.92	641.25	74.01	85.80	100.94	128.63
C	San Joaquin (SJV)	Summer	2031	370.39	428.23	501.91	641.47	74.01	85.88	100.95	128.73
C	San Joaquin (SJV)	Summer	2032	370.39	428.39	501.90	641.69	74.02	85.94	100.95	128.83
C	San Joaquin (SJV)	Summer	2033	370.39	428.53	501.89	641.91	74.02	86.00	100.96	128.92
C	San Joaquin (SJV)	Summer	2034	370.38	428.65	501.89	642.11	74.03	86.06	100.97	129.00
C	San Joaquin (SJV)	Summer	2035	370.38	428.74	501.89	642.30	74.03	86.10	100.97	129.07
C	San Joaquin (SJV)	Winter	2010	331.39	381.10	454.15	571.11	73.38	84.95	100.04	124.39
C	San Joaquin (SJV)	Winter	2011	331.58	381.70	453.94	571.76	73.37	84.69	100.05	124.61
C	San Joaquin (SJV)	Winter	2012	330.76	381.08	452.34	570.69	73.40	84.55	100.10	124.86
C	San Joaquin (SJV)	Winter	2013	330.73	381.33	451.86	571.05	73.41	84.46	100.15	125.16
C	San Joaquin (SJV)	Winter	2014	330.93	381.81	451.76	571.81	73.44	84.41	100.20	125.45
C	San Joaquin (SJV)	Winter	2015	332.47	383.78	453.50	574.87	73.49	84.37	100.25	125.76
C	San Joaquin (SJV)	Winter	2016	332.66	384.17	453.44	575.57	73.55	84.37	100.31	126.07
C	San Joaquin (SJV)	Winter	2017	332.79	384.52	453.39	576.22	73.57	84.38	100.33	126.38
C	San Joaquin (SJV)	Winter	2018	331.73	383.45	451.75	574.74	73.61	84.41	100.38	126.66
C	San Joaquin (SJV)	Winter	2019	331.83	383.74	451.73	575.23	73.66	84.55	100.43	126.92
C	San Joaquin (SJV)	Winter	2020	331.93	384.01	451.72	575.67	73.75	84.71	100.52	127.16
C	San Joaquin (SJV)	Winter	2021	330.64	382.68	449.87	573.67	73.83	84.88	100.61	127.36
C	San Joaquin (SJV)	Winter	2022	330.67	382.87	449.86	573.97	73.88	85.03	100.68	127.52
C	San Joaquin (SJV)	Winter	2023	330.68	383.03	449.84	574.20	73.91	85.16	100.74	127.71
C	San Joaquin (SJV)	Winter	2024	329.09	381.32	447.68	571.64	73.93	85.27	100.79	127.88
C	San Joaquin (SJV)	Winter	2025	329.10	381.44	447.67	571.82	73.95	85.37	100.83	128.04
C	San Joaquin (SJV)	Winter	2026	329.07	381.53	447.62	571.92	73.97	85.47	100.87	128.18
C	San Joaquin (SJV)	Winter	2027	329.08	381.66	447.60	572.08	73.99	85.56	100.89	128.30
C	San Joaquin (SJV)	Winter	2028	329.09	381.79	447.58	572.23	74.00	85.65	100.91	128.42
C	San Joaquin (SJV)	Winter	2029	329.09	381.91	447.56	572.39	74.00	85.73	100.93	128.53
C	San Joaquin (SJV)	Winter	2030	329.08	382.03	447.55	572.55	74.01	85.80	100.94	128.63
C	San Joaquin (SJV)	Winter	2031	329.08	382.15	447.54	572.72	74.01	85.88	100.95	128.73
C	San Joaquin (SJV)	Winter	2032	329.08	382.26	447.53	572.89	74.02	85.94	100.95	128.83
C	San Joaquin (SJV)	Winter	2033	329.08	382.36	447.52	573.05	74.02	86.00	100.96	128.92
C	San Joaquin (SJV)	Winter	2034	329.08	382.45	447.51	573.19	74.03	86.06	100.97	129.00
C	San Joaquin (SJV)	Winter	2035	329.08	382.52	447.50	573.31	74.03	86.10	100.97	129.07
C	San Luis Obispo (SCC)	Annual	2010	323.71	378.06	444.34	556.25	73.66	90.73	100.02	124.73
C	San Luis Obispo (SCC)	Annual	2011	323.66	377.48	443.78	556.86	73.53	89.58	100.04	124.90
C	San Luis Obispo (SCC)	Annual	2012	323.65	377.05	443.34	557.51	73.41	88.66	100.08	125.11
C	San Luis Obispo (SCC)	Annual	2013	323.72	376.63	442.99	558.19	73.36	87.82	100.14	125.34
C	San Luis Obispo (SCC)	Annual	2014	323.79	376.32	442.72	558.85	73.31	87.15	100.20	125.58
C	San Luis Obispo (SCC)	Annual	2015	323.89	376.00	442.50	559.54	73.31	86.48	100.25	125.85

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	San Luis Obispo (SCC)	Annual	2016	323.99	375.75	442.33	560.18	73.31	85.95	100.33	126.11
C	San Luis Obispo (SCC)	Annual	2017	324.07	375.53	442.19	560.79	73.31	85.47	100.39	126.38
C	San Luis Obispo (SCC)	Annual	2018	324.12	375.39	442.08	561.33	73.30	85.15	100.47	126.64
C	San Luis Obispo (SCC)	Annual	2019	324.17	375.38	441.99	561.79	73.31	85.03	100.54	126.87
C	San Luis Obispo (SCC)	Annual	2020	324.24	375.40	441.92	562.20	73.40	85.04	100.62	127.10
C	San Luis Obispo (SCC)	Annual	2021	324.29	375.51	441.85	562.51	73.47	85.15	100.70	127.27
C	San Luis Obispo (SCC)	Annual	2022	324.32	375.62	441.79	562.77	73.52	85.25	100.76	127.41
C	San Luis Obispo (SCC)	Annual	2023	324.30	375.69	441.73	562.97	73.56	85.34	100.82	127.59
C	San Luis Obispo (SCC)	Annual	2024	324.27	375.76	441.66	563.12	73.57	85.42	100.86	127.74
C	San Luis Obispo (SCC)	Annual	2025	324.25	375.82	441.61	563.29	73.59	85.49	100.89	127.90
C	San Luis Obispo (SCC)	Annual	2026	324.27	375.91	441.54	563.46	73.61	85.57	100.92	128.06
C	San Luis Obispo (SCC)	Annual	2027	324.28	375.99	441.47	563.63	73.63	85.63	100.94	128.19
C	San Luis Obispo (SCC)	Annual	2028	324.28	376.07	441.40	563.80	73.64	85.68	100.95	128.31
C	San Luis Obispo (SCC)	Annual	2029	324.27	376.16	441.32	563.96	73.64	85.74	100.95	128.43
C	San Luis Obispo (SCC)	Annual	2030	324.26	376.24	441.24	564.13	73.65	85.79	100.95	128.54
C	San Luis Obispo (SCC)	Annual	2031	324.26	376.33	441.20	564.31	73.65	85.84	100.96	128.65
C	San Luis Obispo (SCC)	Annual	2032	324.26	376.41	441.16	564.49	73.66	85.88	100.96	128.75
C	San Luis Obispo (SCC)	Annual	2033	324.25	376.48	441.13	564.65	73.66	85.92	100.97	128.84
C	San Luis Obispo (SCC)	Annual	2034	324.25	376.54	441.10	564.79	73.67	85.96	100.97	128.93
C	San Luis Obispo (SCC)	Annual	2035	324.24	376.60	441.08	564.92	73.67	86.00	100.97	129.01
C	San Luis Obispo (SCC)	Summer	2010	337.08	392.11	461.85	578.62	73.66	90.73	100.02	124.73
C	San Luis Obispo (SCC)	Summer	2011	337.15	391.73	461.44	579.22	73.53	89.58	100.04	124.90
C	San Luis Obispo (SCC)	Summer	2012	337.23	391.46	461.13	579.91	73.41	88.66	100.08	125.11
C	San Luis Obispo (SCC)	Summer	2013	337.36	391.21	460.89	580.65	73.36	87.82	100.14	125.34
C	San Luis Obispo (SCC)	Summer	2014	337.49	391.02	460.71	581.40	73.31	87.15	100.20	125.58
C	San Luis Obispo (SCC)	Summer	2015	337.63	390.82	460.57	582.19	73.31	86.48	100.25	125.85
C	San Luis Obispo (SCC)	Summer	2016	337.76	390.68	460.46	582.94	73.31	85.95	100.33	126.11
C	San Luis Obispo (SCC)	Summer	2017	337.85	390.56	460.36	583.64	73.31	85.47	100.39	126.38
C	San Luis Obispo (SCC)	Summer	2018	337.91	390.51	460.26	584.25	73.30	85.15	100.47	126.64
C	San Luis Obispo (SCC)	Summer	2019	337.96	390.55	460.18	584.77	73.31	85.03	100.54	126.87
C	San Luis Obispo (SCC)	Summer	2020	338.03	390.62	460.11	585.24	73.40	85.04	100.62	127.10
C	San Luis Obispo (SCC)	Summer	2021	338.07	390.76	460.04	585.58	73.47	85.15	100.70	127.27
C	San Luis Obispo (SCC)	Summer	2022	338.10	390.89	459.97	585.87	73.52	85.25	100.76	127.41
C	San Luis Obispo (SCC)	Summer	2023	338.08	390.99	459.91	586.10	73.56	85.34	100.82	127.59
C	San Luis Obispo (SCC)	Summer	2024	338.05	391.07	459.85	586.26	73.57	85.42	100.86	127.74
C	San Luis Obispo (SCC)	Summer	2025	338.04	391.16	459.80	586.42	73.59	85.49	100.89	127.90
C	San Luis Obispo (SCC)	Summer	2026	338.05	391.26	459.73	586.60	73.61	85.57	100.92	128.06
C	San Luis Obispo (SCC)	Summer	2027	338.07	391.36	459.67	586.77	73.63	85.63	100.94	128.19
C	San Luis Obispo (SCC)	Summer	2028	338.07	391.45	459.61	586.94	73.64	85.68	100.95	128.31
C	San Luis Obispo (SCC)	Summer	2029	338.07	391.55	459.54	587.11	73.64	85.74	100.95	128.43
C	San Luis Obispo (SCC)	Summer	2030	338.06	391.65	459.47	587.29	73.65	85.79	100.95	128.54
C	San Luis Obispo (SCC)	Summer	2031	338.06	391.75	459.44	587.47	73.65	85.84	100.96	128.65
C	San Luis Obispo (SCC)	Summer	2032	338.06	391.85	459.41	587.66	73.66	85.88	100.96	128.75
C	San Luis Obispo (SCC)	Summer	2033	338.06	391.93	459.38	587.84	73.66	85.92	100.97	128.84
C	San Luis Obispo (SCC)	Summer	2034	338.06	391.99	459.35	588.00	73.67	85.96	100.97	128.93
C	San Luis Obispo (SCC)	Summer	2035	338.05	392.05	459.33	588.14	73.67	86.00	100.97	129.01
C	San Luis Obispo (SCC)	Winter	2010	321.04	375.26	440.86	551.80	73.66	90.73	100.02	124.73
C	San Luis Obispo (SCC)	Winter	2011	320.97	374.65	440.26	552.41	73.53	89.58	100.04	124.90
C	San Luis Obispo (SCC)	Winter	2012	320.95	374.18	439.80	553.05	73.41	88.66	100.08	125.11
C	San Luis Obispo (SCC)	Winter	2013	321.01	373.73	439.43	553.72	73.36	87.82	100.14	125.34
C	San Luis Obispo (SCC)	Winter	2014	321.07	373.40	439.14	554.36	73.31	87.15	100.20	125.58
C	San Luis Obispo (SCC)	Winter	2015	321.16	373.05	438.90	555.03	73.31	86.48	100.25	125.85
C	San Luis Obispo (SCC)	Winter	2016	321.25	372.78	438.72	555.65	73.31	85.95	100.33	126.11
C	San Luis Obispo (SCC)	Winter	2017	321.32	372.53	438.57	556.25	73.31	85.47	100.39	126.38

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	San Luis Obispo (SCC)	Winter	2018	321.37	372.38	438.46	556.77	73.30	85.15	100.47	126.64
C	San Luis Obispo (SCC)	Winter	2019	321.42	372.35	438.37	557.21	73.31	85.03	100.54	126.87
C	San Luis Obispo (SCC)	Winter	2020	321.50	372.37	438.30	557.61	73.40	85.04	100.62	127.10
C	San Luis Obispo (SCC)	Winter	2021	321.55	372.47	438.23	557.91	73.47	85.15	100.70	127.27
C	San Luis Obispo (SCC)	Winter	2022	321.57	372.57	438.17	558.16	73.52	85.25	100.76	127.41
C	San Luis Obispo (SCC)	Winter	2023	321.56	372.64	438.10	558.37	73.56	85.34	100.82	127.59
C	San Luis Obispo (SCC)	Winter	2024	321.53	372.71	438.04	558.51	73.57	85.42	100.86	127.74
C	San Luis Obispo (SCC)	Winter	2025	321.51	372.77	437.99	558.68	73.59	85.49	100.89	127.90
C	San Luis Obispo (SCC)	Winter	2026	321.52	372.85	437.92	558.85	73.61	85.57	100.92	128.06
C	San Luis Obispo (SCC)	Winter	2027	321.53	372.93	437.84	559.02	73.63	85.63	100.94	128.19
C	San Luis Obispo (SCC)	Winter	2028	321.53	373.01	437.77	559.19	73.64	85.68	100.95	128.31
C	San Luis Obispo (SCC)	Winter	2029	321.52	373.09	437.69	559.35	73.64	85.74	100.95	128.43
C	San Luis Obispo (SCC)	Winter	2030	321.51	373.17	437.61	559.52	73.65	85.79	100.95	128.54
C	San Luis Obispo (SCC)	Winter	2031	321.51	373.25	437.57	559.69	73.65	85.84	100.96	128.65
C	San Luis Obispo (SCC)	Winter	2032	321.51	373.33	437.53	559.87	73.66	85.88	100.96	128.75
C	San Luis Obispo (SCC)	Winter	2033	321.50	373.40	437.50	560.03	73.66	85.92	100.97	128.84
C	San Luis Obispo (SCC)	Winter	2034	321.50	373.46	437.47	560.17	73.67	85.96	100.97	128.93
C	San Luis Obispo (SCC)	Winter	2035	321.49	373.52	437.45	560.29	73.67	86.00	100.97	129.01
C	San Mateo (SF)	Annual	2010	331.46	381.30	453.00	571.70	73.17	84.42	99.27	124.79
C	San Mateo (SF)	Annual	2011	331.52	381.54	452.87	572.19	73.20	84.32	99.39	124.99
C	San Mateo (SF)	Annual	2012	331.59	381.82	452.77	572.72	73.21	84.27	99.52	125.21
C	San Mateo (SF)	Annual	2013	331.72	382.13	452.69	573.27	73.27	84.28	99.65	125.45
C	San Mateo (SF)	Annual	2014	331.82	382.41	452.63	573.84	73.28	84.28	99.79	125.69
C	San Mateo (SF)	Annual	2015	331.97	382.71	452.60	574.41	73.35	84.33	99.92	125.94
C	San Mateo (SF)	Annual	2016	332.12	383.02	452.57	574.97	73.43	84.40	100.06	126.20
C	San Mateo (SF)	Annual	2017	332.23	383.29	452.55	575.50	73.47	84.45	100.17	126.46
C	San Mateo (SF)	Annual	2018	332.33	383.54	452.54	575.97	73.52	84.52	100.27	126.70
C	San Mateo (SF)	Annual	2019	332.44	383.81	452.54	576.38	73.58	84.64	100.37	126.93
C	San Mateo (SF)	Annual	2020	332.53	384.05	452.54	576.75	73.67	84.78	100.47	127.15
C	San Mateo (SF)	Annual	2021	332.60	384.28	452.54	577.07	73.74	84.93	100.56	127.33
C	San Mateo (SF)	Annual	2022	332.63	384.48	452.54	577.34	73.79	85.06	100.64	127.49
C	San Mateo (SF)	Annual	2023	332.64	384.63	452.53	577.54	73.83	85.17	100.70	127.66
C	San Mateo (SF)	Annual	2024	332.61	384.75	452.52	577.70	73.85	85.27	100.76	127.81
C	San Mateo (SF)	Annual	2025	332.60	384.86	452.51	577.87	73.87	85.37	100.81	127.96
C	San Mateo (SF)	Annual	2026	332.62	385.00	452.50	578.03	73.89	85.46	100.84	128.10
C	San Mateo (SF)	Annual	2027	332.63	385.15	452.48	578.19	73.90	85.54	100.87	128.23
C	San Mateo (SF)	Annual	2028	332.63	385.29	452.46	578.34	73.91	85.61	100.89	128.34
C	San Mateo (SF)	Annual	2029	332.63	385.44	452.44	578.49	73.92	85.69	100.91	128.45
C	San Mateo (SF)	Annual	2030	332.62	385.59	452.42	578.65	73.92	85.76	100.92	128.55
C	San Mateo (SF)	Annual	2031	332.61	385.75	452.41	578.81	73.93	85.83	100.93	128.65
C	San Mateo (SF)	Annual	2032	332.61	385.91	452.40	578.98	73.93	85.89	100.94	128.74
C	San Mateo (SF)	Annual	2033	332.61	386.05	452.38	579.13	73.93	85.95	100.95	128.83
C	San Mateo (SF)	Annual	2034	332.60	386.18	452.37	579.27	73.94	86.01	100.96	128.91
C	San Mateo (SF)	Annual	2035	332.60	386.30	452.36	579.39	73.94	86.06	100.96	128.99
C	San Mateo (SF)	Summer	2010	352.26	402.67	480.50	606.46	73.17	84.42	99.27	124.79
C	San Mateo (SF)	Summer	2011	352.41	403.17	480.38	606.84	73.20	84.32	99.39	124.99
C	San Mateo (SF)	Summer	2012	352.55	403.67	480.30	607.32	73.21	84.27	99.52	125.21
C	San Mateo (SF)	Summer	2013	352.74	404.17	480.27	607.88	73.27	84.28	99.65	125.45
C	San Mateo (SF)	Summer	2014	352.88	404.61	480.26	608.49	73.28	84.28	99.79	125.69
C	San Mateo (SF)	Summer	2015	353.05	405.04	480.27	609.14	73.35	84.33	99.92	125.94
C	San Mateo (SF)	Summer	2016	353.22	405.45	480.29	609.82	73.43	84.40	100.06	126.20
C	San Mateo (SF)	Summer	2017	353.34	405.84	480.32	610.47	73.47	84.45	100.17	126.46
C	San Mateo (SF)	Summer	2018	353.44	406.19	480.34	611.04	73.52	84.52	100.27	126.70
C	San Mateo (SF)	Summer	2019	353.55	406.55	480.36	611.53	73.58	84.64	100.37	126.93

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	San Mateo (SF)	Summer	2020	353.65	406.87	480.38	611.98	73.67	84.78	100.47	127.15
C	San Mateo (SF)	Summer	2021	353.72	407.17	480.38	612.36	73.74	84.93	100.56	127.33
C	San Mateo (SF)	Summer	2022	353.76	407.44	480.37	612.69	73.79	85.06	100.64	127.49
C	San Mateo (SF)	Summer	2023	353.77	407.65	480.36	612.93	73.83	85.17	100.70	127.66
C	San Mateo (SF)	Summer	2024	353.75	407.83	480.34	613.13	73.85	85.27	100.76	127.81
C	San Mateo (SF)	Summer	2025	353.74	408.00	480.32	613.31	73.87	85.37	100.81	127.96
C	San Mateo (SF)	Summer	2026	353.77	408.19	480.30	613.48	73.89	85.46	100.84	128.10
C	San Mateo (SF)	Summer	2027	353.78	408.39	480.28	613.64	73.90	85.54	100.87	128.23
C	San Mateo (SF)	Summer	2028	353.79	408.58	480.25	613.80	73.91	85.61	100.89	128.34
C	San Mateo (SF)	Summer	2029	353.79	408.79	480.23	613.96	73.92	85.69	100.91	128.45
C	San Mateo (SF)	Summer	2030	353.78	408.99	480.21	614.12	73.92	85.76	100.92	128.55
C	San Mateo (SF)	Summer	2031	353.78	409.21	480.20	614.29	73.93	85.83	100.93	128.65
C	San Mateo (SF)	Summer	2032	353.78	409.41	480.19	614.46	73.93	85.89	100.94	128.74
C	San Mateo (SF)	Summer	2033	353.78	409.59	480.19	614.63	73.93	85.95	100.95	128.83
C	San Mateo (SF)	Summer	2034	353.78	409.75	480.18	614.78	73.94	86.01	100.96	128.91
C	San Mateo (SF)	Summer	2035	353.77	409.88	480.17	614.93	73.94	86.06	100.96	128.99
C	San Mateo (SF)	Winter	2010	330.18	379.99	451.31	569.56	73.17	84.42	99.27	124.79
C	San Mateo (SF)	Winter	2011	330.23	380.21	451.18	570.06	73.20	84.32	99.39	124.99
C	San Mateo (SF)	Winter	2012	330.30	380.48	451.08	570.59	73.21	84.27	99.52	125.21
C	San Mateo (SF)	Winter	2013	330.43	380.78	451.00	571.15	73.27	84.28	99.65	125.45
C	San Mateo (SF)	Winter	2014	330.52	381.04	450.94	571.71	73.28	84.28	99.79	125.69
C	San Mateo (SF)	Winter	2015	330.67	381.34	450.90	572.28	73.35	84.33	99.92	125.94
C	San Mateo (SF)	Winter	2016	330.82	381.64	450.87	572.83	73.43	84.40	100.06	126.20
C	San Mateo (SF)	Winter	2017	330.94	381.91	450.84	573.35	73.47	84.45	100.17	126.46
C	San Mateo (SF)	Winter	2018	331.03	382.14	450.83	573.82	73.52	84.52	100.27	126.70
C	San Mateo (SF)	Winter	2019	331.14	382.41	450.83	574.22	73.58	84.64	100.37	126.93
C	San Mateo (SF)	Winter	2020	331.23	382.65	450.83	574.59	73.67	84.78	100.47	127.15
C	San Mateo (SF)	Winter	2021	331.30	382.88	450.83	574.90	73.74	84.93	100.56	127.33
C	San Mateo (SF)	Winter	2022	331.34	383.07	450.83	575.17	73.79	85.06	100.64	127.49
C	San Mateo (SF)	Winter	2023	331.34	383.21	450.82	575.36	73.83	85.17	100.70	127.66
C	San Mateo (SF)	Winter	2024	331.31	383.33	450.81	575.53	73.85	85.27	100.76	127.81
C	San Mateo (SF)	Winter	2025	331.30	383.44	450.81	575.69	73.87	85.37	100.81	127.96
C	San Mateo (SF)	Winter	2026	331.32	383.58	450.79	575.85	73.89	85.46	100.84	128.10
C	San Mateo (SF)	Winter	2027	331.33	383.72	450.77	576.01	73.90	85.54	100.87	128.23
C	San Mateo (SF)	Winter	2028	331.33	383.86	450.75	576.16	73.91	85.61	100.89	128.34
C	San Mateo (SF)	Winter	2029	331.33	384.00	450.73	576.31	73.92	85.69	100.91	128.45
C	San Mateo (SF)	Winter	2030	331.31	384.15	450.71	576.47	73.92	85.76	100.92	128.55
C	San Mateo (SF)	Winter	2031	331.31	384.31	450.70	576.63	73.93	85.83	100.93	128.65
C	San Mateo (SF)	Winter	2032	331.31	384.47	450.69	576.80	73.93	85.89	100.94	128.74
C	San Mateo (SF)	Winter	2033	331.31	384.61	450.67	576.95	73.93	85.95	100.95	128.83
C	San Mateo (SF)	Winter	2034	331.30	384.74	450.66	577.09	73.94	86.01	100.96	128.91
C	San Mateo (SF)	Winter	2035	331.30	384.85	450.65	577.21	73.94	86.06	100.96	128.99
C	Santa Barbara-North of Santa Ynez	Annual	2010	310.84	363.09	427.75	535.11	73.30	88.99	99.96	124.67
C	Santa Barbara-North of Santa Ynez	Annual	2011	310.88	362.63	427.11	535.68	73.27	88.16	99.98	124.88
C	Santa Barbara-North of Santa Ynez	Annual	2012	310.95	362.25	426.61	536.31	73.24	87.48	100.03	125.11
C	Santa Barbara-North of Santa Ynez	Annual	2013	311.07	361.91	426.21	536.98	73.26	86.88	100.11	125.37
C	Santa Barbara-North of Santa Ynez	Annual	2014	311.18	361.62	425.89	537.62	73.27	86.37	100.18	125.64
C	Santa Barbara-North of Santa Ynez	Annual	2015	313.00	363.39	428.01	541.26	73.31	85.95	100.25	125.92
C	Santa Barbara-North of Santa Ynez	Annual	2016	313.13	363.16	427.81	541.86	73.36	85.55	100.33	126.20
C	Santa Barbara-North of Santa Ynez	Annual	2017	313.22	362.94	427.65	542.43	73.38	85.18	100.40	126.48
C	Santa Barbara-North of Santa Ynez	Annual	2018	313.28	362.85	427.53	542.93	73.40	85.00	100.47	126.74
C	Santa Barbara-North of Santa Ynez	Annual	2019	313.35	362.86	427.43	543.35	73.43	84.95	100.55	126.99
C	Santa Barbara-North of Santa Ynez	Annual	2020	313.43	362.88	427.35	543.74	73.53	84.99	100.64	127.22
C	Santa Barbara-North of Santa Ynez	Annual	2021	313.48	362.96	427.30	543.99	73.59	85.09	100.71	127.38

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Santa Barbara-North of Santa Ynez	Annual	2022	313.49	363.03	427.24	544.20	73.64	85.18	100.77	127.51
C	Santa Barbara-North of Santa Ynez	Annual	2023	313.48	363.09	427.17	544.37	73.67	85.26	100.82	127.66
C	Santa Barbara-North of Santa Ynez	Annual	2024	313.44	363.12	427.11	544.49	73.68	85.33	100.86	127.80
C	Santa Barbara-North of Santa Ynez	Annual	2025	313.43	363.17	427.06	544.63	73.70	85.40	100.90	127.95
C	Santa Barbara-North of Santa Ynez	Annual	2026	311.28	360.68	423.96	540.92	73.71	85.47	100.92	128.08
C	Santa Barbara-North of Santa Ynez	Annual	2027	311.28	360.75	423.88	541.07	73.73	85.52	100.94	128.21
C	Santa Barbara-North of Santa Ynez	Annual	2028	311.28	360.82	423.82	541.22	73.74	85.58	100.95	128.32
C	Santa Barbara-North of Santa Ynez	Annual	2029	311.28	360.90	423.73	541.36	73.74	85.63	100.95	128.43
C	Santa Barbara-North of Santa Ynez	Annual	2030	311.26	360.97	423.64	541.52	73.75	85.67	100.95	128.53
C	Santa Barbara-North of Santa Ynez	Annual	2031	311.26	361.06	423.58	541.68	73.75	85.72	100.96	128.63
C	Santa Barbara-North of Santa Ynez	Annual	2032	311.25	361.13	423.54	541.85	73.76	85.77	100.96	128.73
C	Santa Barbara-North of Santa Ynez	Annual	2033	311.25	361.21	423.50	542.00	73.76	85.81	100.96	128.82
C	Santa Barbara-North of Santa Ynez	Annual	2034	311.24	361.27	423.46	542.14	73.76	85.85	100.97	128.90
C	Santa Barbara-North of Santa Ynez	Annual	2035	311.24	361.32	423.43	542.26	73.77	85.88	100.97	128.98
C	Santa Barbara-North of Santa Ynez	Summer	2010	318.00	370.60	437.04	547.10	73.30	88.99	99.96	124.67
C	Santa Barbara-North of Santa Ynez	Summer	2011	318.11	370.21	436.50	547.67	73.27	88.16	99.98	124.88
C	Santa Barbara-North of Santa Ynez	Summer	2012	318.23	369.92	436.07	548.31	73.24	87.48	100.03	125.11
C	Santa Barbara-North of Santa Ynez	Summer	2013	318.39	369.65	435.73	549.01	73.26	86.88	100.11	125.37
C	Santa Barbara-North of Santa Ynez	Summer	2014	318.53	369.43	435.47	549.69	73.27	86.37	100.18	125.64
C	Santa Barbara-North of Santa Ynez	Summer	2015	320.38	371.28	437.66	553.41	73.31	85.95	100.25	125.92
C	Santa Barbara-North of Santa Ynez	Summer	2016	320.52	371.11	437.49	554.06	73.36	85.55	100.33	126.20
C	Santa Barbara-North of Santa Ynez	Summer	2017	320.61	370.94	437.35	554.68	73.38	85.18	100.40	126.48
C	Santa Barbara-North of Santa Ynez	Summer	2018	320.68	370.90	437.24	555.21	73.40	85.00	100.47	126.74
C	Santa Barbara-North of Santa Ynez	Summer	2019	320.75	370.93	437.14	555.67	73.43	84.95	100.55	126.99
C	Santa Barbara-North of Santa Ynez	Summer	2020	320.82	370.99	437.07	556.08	73.53	84.99	100.64	127.22
C	Santa Barbara-North of Santa Ynez	Summer	2021	320.86	371.07	437.00	556.34	73.59	85.09	100.71	127.38
C	Santa Barbara-North of Santa Ynez	Summer	2022	320.87	371.15	436.93	556.55	73.64	85.18	100.77	127.51
C	Santa Barbara-North of Santa Ynez	Summer	2023	320.85	371.21	436.86	556.71	73.67	85.26	100.82	127.66
C	Santa Barbara-North of Santa Ynez	Summer	2024	320.82	371.26	436.79	556.83	73.68	85.33	100.86	127.80
C	Santa Barbara-North of Santa Ynez	Summer	2025	320.80	371.31	436.74	556.96	73.70	85.40	100.90	127.95
C	Santa Barbara-North of Santa Ynez	Summer	2026	318.61	368.79	433.59	553.19	73.71	85.47	100.92	128.08
C	Santa Barbara-North of Santa Ynez	Summer	2027	318.61	368.86	433.51	553.33	73.73	85.52	100.94	128.21
C	Santa Barbara-North of Santa Ynez	Summer	2028	318.62	368.94	433.45	553.48	73.74	85.58	100.95	128.32
C	Santa Barbara-North of Santa Ynez	Summer	2029	318.61	369.02	433.37	553.64	73.74	85.63	100.95	128.43
C	Santa Barbara-North of Santa Ynez	Summer	2030	318.60	369.11	433.28	553.80	73.75	85.67	100.95	128.53
C	Santa Barbara-North of Santa Ynez	Summer	2031	318.60	369.20	433.24	553.96	73.75	85.72	100.96	128.63
C	Santa Barbara-North of Santa Ynez	Summer	2032	318.60	369.29	433.20	554.14	73.76	85.77	100.96	128.73
C	Santa Barbara-North of Santa Ynez	Summer	2033	318.60	369.37	433.17	554.30	73.76	85.81	100.96	128.82
C	Santa Barbara-North of Santa Ynez	Summer	2034	318.59	369.44	433.13	554.45	73.76	85.85	100.97	128.90
C	Santa Barbara-North of Santa Ynez	Summer	2035	318.59	369.50	433.10	554.58	73.77	85.88	100.97	128.98
C	Santa Barbara-North of Santa Ynez	Winter	2010	310.39	362.63	427.17	534.37	73.30	88.99	99.96	124.67
C	Santa Barbara-North of Santa Ynez	Winter	2011	310.43	362.16	426.53	534.94	73.27	88.16	99.98	124.88
C	Santa Barbara-North of Santa Ynez	Winter	2012	310.50	361.77	426.02	535.57	73.24	87.48	100.03	125.11
C	Santa Barbara-North of Santa Ynez	Winter	2013	310.62	361.43	425.62	536.23	73.26	86.88	100.11	125.37
C	Santa Barbara-North of Santa Ynez	Winter	2014	310.73	361.13	425.30	536.87	73.27	86.37	100.18	125.64
C	Santa Barbara-North of Santa Ynez	Winter	2015	312.55	362.90	427.42	540.51	73.31	85.95	100.25	125.92
C	Santa Barbara-North of Santa Ynez	Winter	2016	312.67	362.67	427.21	541.11	73.36	85.55	100.33	126.20
C	Santa Barbara-North of Santa Ynez	Winter	2017	312.76	362.45	427.05	541.68	73.38	85.18	100.40	126.48
C	Santa Barbara-North of Santa Ynez	Winter	2018	312.83	362.36	426.93	542.17	73.40	85.00	100.47	126.74
C	Santa Barbara-North of Santa Ynez	Winter	2019	312.90	362.36	426.83	542.59	73.43	84.95	100.55	126.99
C	Santa Barbara-North of Santa Ynez	Winter	2020	312.97	362.38	426.75	542.98	73.53	84.99	100.64	127.22
C	Santa Barbara-North of Santa Ynez	Winter	2021	313.02	362.45	426.70	543.23	73.59	85.09	100.71	127.38
C	Santa Barbara-North of Santa Ynez	Winter	2022	313.04	362.53	426.64	543.44	73.64	85.18	100.77	127.51
C	Santa Barbara-North of Santa Ynez	Winter	2023	313.02	362.58	426.57	543.61	73.67	85.26	100.82	127.66

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Santa Barbara-North of Santa Ynez	Winter	2024	312.99	362.62	426.51	543.73	73.68	85.33	100.86	127.80
C	Santa Barbara-North of Santa Ynez	Winter	2025	312.98	362.66	426.46	543.87	73.70	85.40	100.90	127.95
C	Santa Barbara-North of Santa Ynez	Winter	2026	310.82	360.18	423.37	540.16	73.71	85.47	100.92	128.08
C	Santa Barbara-North of Santa Ynez	Winter	2027	310.83	360.25	423.29	540.31	73.73	85.52	100.94	128.21
C	Santa Barbara-North of Santa Ynez	Winter	2028	310.83	360.32	423.22	540.46	73.74	85.58	100.95	128.32
C	Santa Barbara-North of Santa Ynez	Winter	2029	310.82	360.40	423.14	540.60	73.74	85.63	100.95	128.43
C	Santa Barbara-North of Santa Ynez	Winter	2030	310.81	360.47	423.04	540.76	73.75	85.67	100.95	128.53
C	Santa Barbara-North of Santa Ynez	Winter	2031	310.80	360.55	422.99	540.92	73.75	85.72	100.96	128.63
C	Santa Barbara-North of Santa Ynez	Winter	2032	310.80	360.63	422.94	541.09	73.76	85.77	100.96	128.73
C	Santa Barbara-North of Santa Ynez	Winter	2033	310.80	360.70	422.90	541.24	73.76	85.81	100.96	128.82
C	Santa Barbara-North of Santa Ynez	Winter	2034	310.79	360.76	422.87	541.38	73.76	85.85	100.97	128.90
C	Santa Barbara-North of Santa Ynez	Winter	2035	310.78	360.82	422.83	541.50	73.77	85.88	100.97	128.98
C	Santa Barbara-South of Santa Ynez Ran	Annual	2010	310.84	363.09	427.75	535.11	73.30	88.99	99.96	124.67
C	Santa Barbara-South of Santa Ynez Ran	Annual	2011	310.88	362.63	427.11	535.68	73.27	88.16	99.98	124.88
C	Santa Barbara-South of Santa Ynez Ran	Annual	2012	310.95	362.25	426.61	536.31	73.24	87.48	100.03	125.11
C	Santa Barbara-South of Santa Ynez Ran	Annual	2013	311.07	361.91	426.21	536.98	73.26	86.88	100.11	125.37
C	Santa Barbara-South of Santa Ynez Ran	Annual	2014	311.18	361.62	425.89	537.62	73.27	86.37	100.18	125.64
C	Santa Barbara-South of Santa Ynez Ran	Annual	2015	313.00	363.39	428.01	541.26	73.31	85.95	100.25	125.92
C	Santa Barbara-South of Santa Ynez Ran	Annual	2016	313.13	363.16	427.81	541.86	73.36	85.55	100.33	126.20
C	Santa Barbara-South of Santa Ynez Ran	Annual	2017	313.22	362.94	427.65	542.43	73.38	85.18	100.40	126.48
C	Santa Barbara-South of Santa Ynez Ran	Annual	2018	313.28	362.85	427.53	542.93	73.40	85.00	100.47	126.74
C	Santa Barbara-South of Santa Ynez Ran	Annual	2019	313.35	362.86	427.43	543.35	73.43	84.95	100.55	126.99
C	Santa Barbara-South of Santa Ynez Ran	Annual	2020	313.43	362.88	427.35	543.74	73.53	84.99	100.64	127.22
C	Santa Barbara-South of Santa Ynez Ran	Annual	2021	313.48	362.96	427.30	543.99	73.59	85.09	100.71	127.38
C	Santa Barbara-South of Santa Ynez Ran	Annual	2022	313.49	363.03	427.24	544.20	73.64	85.18	100.77	127.51
C	Santa Barbara-South of Santa Ynez Ran	Annual	2023	313.48	363.09	427.17	544.37	73.67	85.26	100.82	127.66
C	Santa Barbara-South of Santa Ynez Ran	Annual	2024	313.44	363.12	427.11	544.49	73.68	85.33	100.86	127.80
C	Santa Barbara-South of Santa Ynez Ran	Annual	2025	313.43	363.17	427.06	544.63	73.70	85.40	100.90	127.95
C	Santa Barbara-South of Santa Ynez Ran	Annual	2026	311.28	360.68	423.96	540.92	73.71	85.47	100.92	128.08
C	Santa Barbara-South of Santa Ynez Ran	Annual	2027	311.28	360.75	423.88	541.07	73.73	85.52	100.94	128.21
C	Santa Barbara-South of Santa Ynez Ran	Annual	2028	311.28	360.82	423.82	541.22	73.74	85.58	100.95	128.32
C	Santa Barbara-South of Santa Ynez Ran	Annual	2029	311.28	360.90	423.73	541.36	73.74	85.63	100.95	128.43
C	Santa Barbara-South of Santa Ynez Ran	Annual	2030	311.26	360.97	423.64	541.52	73.75	85.67	100.95	128.53
C	Santa Barbara-South of Santa Ynez Ran	Annual	2031	311.26	361.06	423.58	541.68	73.75	85.72	100.96	128.63
C	Santa Barbara-South of Santa Ynez Ran	Annual	2032	311.25	361.13	423.54	541.85	73.76	85.77	100.96	128.73
C	Santa Barbara-South of Santa Ynez Ran	Annual	2033	311.25	361.21	423.50	542.00	73.76	85.81	100.96	128.82
C	Santa Barbara-South of Santa Ynez Ran	Annual	2034	311.24	361.27	423.46	542.14	73.76	85.85	100.97	128.90
C	Santa Barbara-South of Santa Ynez Ran	Annual	2035	311.24	361.32	423.43	542.26	73.77	85.88	100.97	128.98
C	Santa Barbara-South of Santa Ynez Ran	Summer	2010	318.00	370.60	437.04	547.10	73.30	88.99	99.96	124.67
C	Santa Barbara-South of Santa Ynez Ran	Summer	2011	318.11	370.21	436.50	547.67	73.27	88.16	99.98	124.88
C	Santa Barbara-South of Santa Ynez Ran	Summer	2012	318.23	369.92	436.07	548.31	73.24	87.48	100.03	125.11
C	Santa Barbara-South of Santa Ynez Ran	Summer	2013	318.39	369.65	435.73	549.01	73.26	86.88	100.11	125.37
C	Santa Barbara-South of Santa Ynez Ran	Summer	2014	318.53	369.43	435.47	549.69	73.27	86.37	100.18	125.64
C	Santa Barbara-South of Santa Ynez Ran	Summer	2015	320.38	371.28	437.66	553.41	73.31	85.95	100.25	125.92
C	Santa Barbara-South of Santa Ynez Ran	Summer	2016	320.52	371.11	437.49	554.06	73.36	85.55	100.33	126.20
C	Santa Barbara-South of Santa Ynez Ran	Summer	2017	320.61	370.94	437.35	554.68	73.38	85.18	100.40	126.48
C	Santa Barbara-South of Santa Ynez Ran	Summer	2018	320.68	370.90	437.24	555.21	73.40	85.00	100.47	126.74
C	Santa Barbara-South of Santa Ynez Ran	Summer	2019	320.75	370.93	437.14	555.67	73.43	84.95	100.55	126.99
C	Santa Barbara-South of Santa Ynez Ran	Summer	2020	320.82	370.99	437.07	556.08	73.53	84.99	100.64	127.22
C	Santa Barbara-South of Santa Ynez Ran	Summer	2021	320.86	371.07	437.00	556.34	73.59	85.09	100.71	127.38
C	Santa Barbara-South of Santa Ynez Ran	Summer	2022	320.87	371.15	436.93	556.55	73.64	85.18	100.77	127.51
C	Santa Barbara-South of Santa Ynez Ran	Summer	2023	320.85	371.21	436.86	556.71	73.67	85.26	100.82	127.66
C	Santa Barbara-South of Santa Ynez Ran	Summer	2024	320.82	371.26	436.79	556.83	73.68	85.33	100.86	127.80
C	Santa Barbara-South of Santa Ynez Ran	Summer	2025	320.80	371.31	436.74	556.96	73.70	85.40	100.90	127.95

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Santa Barbara-South of Santa Ynez Ran	Summer	2026	318.61	368.79	433.59	553.19	73.71	85.47	100.92	128.08
C	Santa Barbara-South of Santa Ynez Ran	Summer	2027	318.61	368.86	433.51	553.33	73.73	85.52	100.94	128.21
C	Santa Barbara-South of Santa Ynez Ran	Summer	2028	318.62	368.94	433.45	553.48	73.74	85.58	100.95	128.32
C	Santa Barbara-South of Santa Ynez Ran	Summer	2029	318.61	369.02	433.37	553.64	73.74	85.63	100.95	128.43
C	Santa Barbara-South of Santa Ynez Ran	Summer	2030	318.60	369.11	433.28	553.80	73.75	85.67	100.95	128.53
C	Santa Barbara-South of Santa Ynez Ran	Summer	2031	318.60	369.20	433.24	553.96	73.75	85.72	100.96	128.63
C	Santa Barbara-South of Santa Ynez Ran	Summer	2032	318.60	369.29	433.20	554.14	73.76	85.77	100.96	128.73
C	Santa Barbara-South of Santa Ynez Ran	Summer	2033	318.60	369.37	433.17	554.30	73.76	85.81	100.96	128.82
C	Santa Barbara-South of Santa Ynez Ran	Summer	2034	318.59	369.44	433.13	554.45	73.76	85.85	100.97	128.90
C	Santa Barbara-South of Santa Ynez Ran	Summer	2035	318.59	369.50	433.10	554.58	73.77	85.88	100.97	128.98
C	Santa Barbara-South of Santa Ynez Ran	Winter	2010	310.39	362.63	427.17	534.37	73.30	88.99	99.96	124.67
C	Santa Barbara-South of Santa Ynez Ran	Winter	2011	310.43	362.16	426.53	534.94	73.27	88.16	99.98	124.88
C	Santa Barbara-South of Santa Ynez Ran	Winter	2012	310.50	361.77	426.02	535.57	73.24	87.48	100.03	125.11
C	Santa Barbara-South of Santa Ynez Ran	Winter	2013	310.62	361.43	425.62	536.23	73.26	86.88	100.11	125.37
C	Santa Barbara-South of Santa Ynez Ran	Winter	2014	310.73	361.13	425.30	536.87	73.27	86.37	100.18	125.64
C	Santa Barbara-South of Santa Ynez Ran	Winter	2015	312.55	362.90	427.42	540.51	73.31	85.95	100.25	125.92
C	Santa Barbara-South of Santa Ynez Ran	Winter	2016	312.67	362.67	427.21	541.11	73.36	85.55	100.33	126.20
C	Santa Barbara-South of Santa Ynez Ran	Winter	2017	312.76	362.45	427.05	541.68	73.38	85.18	100.40	126.48
C	Santa Barbara-South of Santa Ynez Ran	Winter	2018	312.83	362.36	426.93	542.17	73.40	85.00	100.47	126.74
C	Santa Barbara-South of Santa Ynez Ran	Winter	2019	312.90	362.36	426.83	542.59	73.43	84.95	100.55	126.99
C	Santa Barbara-South of Santa Ynez Ran	Winter	2020	312.97	362.38	426.75	542.98	73.53	84.99	100.64	127.22
C	Santa Barbara-South of Santa Ynez Ran	Winter	2021	313.02	362.45	426.70	543.23	73.59	85.09	100.71	127.38
C	Santa Barbara-South of Santa Ynez Ran	Winter	2022	313.04	362.53	426.64	543.44	73.64	85.18	100.77	127.51
C	Santa Barbara-South of Santa Ynez Ran	Winter	2023	313.02	362.58	426.57	543.61	73.67	85.26	100.82	127.66
C	Santa Barbara-South of Santa Ynez Ran	Winter	2024	312.99	362.62	426.51	543.73	73.68	85.33	100.86	127.80
C	Santa Barbara-South of Santa Ynez Ran	Winter	2025	312.98	362.66	426.46	543.87	73.70	85.40	100.90	127.95
C	Santa Barbara-South of Santa Ynez Ran	Winter	2026	310.82	360.18	423.37	540.16	73.71	85.47	100.92	128.08
C	Santa Barbara-South of Santa Ynez Ran	Winter	2027	310.83	360.25	423.29	540.31	73.73	85.52	100.94	128.21
C	Santa Barbara-South of Santa Ynez Ran	Winter	2028	310.83	360.32	423.22	540.46	73.74	85.58	100.95	128.32
C	Santa Barbara-South of Santa Ynez Ran	Winter	2029	310.82	360.40	423.14	540.60	73.74	85.63	100.95	128.43
C	Santa Barbara-South of Santa Ynez Ran	Winter	2030	310.81	360.47	423.04	540.76	73.75	85.67	100.95	128.53
C	Santa Barbara-South of Santa Ynez Ran	Winter	2031	310.80	360.55	422.99	540.92	73.75	85.72	100.96	128.63
C	Santa Barbara-South of Santa Ynez Ran	Winter	2032	310.80	360.63	422.94	541.09	73.76	85.77	100.96	128.73
C	Santa Barbara-South of Santa Ynez Ran	Winter	2033	310.80	360.70	422.90	541.24	73.76	85.81	100.96	128.82
C	Santa Barbara-South of Santa Ynez Ran	Winter	2034	310.79	360.76	422.87	541.38	73.76	85.85	100.97	128.90
C	Santa Barbara-South of Santa Ynez Ran	Winter	2035	310.78	360.82	422.83	541.50	73.77	85.88	100.97	128.98
C	Santa Clara (SF)	Annual	2010	329.54	379.42	451.34	568.91	72.72	84.35	99.27	124.50
C	Santa Clara (SF)	Annual	2011	329.74	379.85	451.25	569.47	72.79	84.25	99.38	124.72
C	Santa Clara (SF)	Annual	2012	329.96	380.27	451.20	570.08	72.88	84.20	99.53	124.96
C	Santa Clara (SF)	Annual	2013	330.20	380.67	451.15	570.74	72.98	84.20	99.67	125.22
C	Santa Clara (SF)	Annual	2014	330.42	381.04	451.13	571.39	73.07	84.19	99.80	125.48
C	Santa Clara (SF)	Annual	2015	330.66	381.39	451.11	572.06	73.19	84.22	99.92	125.76
C	Santa Clara (SF)	Annual	2016	330.88	381.76	451.11	572.69	73.31	84.28	100.05	126.03
C	Santa Clara (SF)	Annual	2017	331.05	382.11	451.10	573.29	73.40	84.35	100.15	126.31
C	Santa Clara (SF)	Annual	2018	331.20	382.41	451.10	573.81	73.48	84.42	100.25	126.57
C	Santa Clara (SF)	Annual	2019	331.33	382.70	451.11	574.27	73.56	84.54	100.35	126.81
C	Santa Clara (SF)	Annual	2020	331.44	382.97	451.11	574.68	73.67	84.69	100.45	127.04
C	Santa Clara (SF)	Annual	2021	331.53	383.22	451.12	575.01	73.75	84.85	100.55	127.23
C	Santa Clara (SF)	Annual	2022	331.58	383.42	451.12	575.30	73.81	84.99	100.63	127.38
C	Santa Clara (SF)	Annual	2023	331.60	383.59	451.11	575.52	73.85	85.11	100.70	127.56
C	Santa Clara (SF)	Annual	2024	331.59	383.72	451.11	575.69	73.88	85.22	100.75	127.72
C	Santa Clara (SF)	Annual	2025	331.60	383.84	451.10	575.86	73.91	85.32	100.80	127.87
C	Santa Clara (SF)	Annual	2026	331.62	383.98	451.09	576.04	73.93	85.42	100.84	128.02
C	Santa Clara (SF)	Annual	2027	331.63	384.13	451.08	576.20	73.94	85.51	100.87	128.15

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Santa Clara (SF)	Annual	2028	331.63	384.27	451.07	576.37	73.95	85.59	100.89	128.27
C	Santa Clara (SF)	Annual	2029	331.63	384.42	451.05	576.54	73.96	85.67	100.91	128.38
C	Santa Clara (SF)	Annual	2030	331.63	384.57	451.04	576.71	73.97	85.74	100.93	128.49
C	Santa Clara (SF)	Annual	2031	331.63	384.73	451.03	576.89	73.97	85.82	100.94	128.60
C	Santa Clara (SF)	Annual	2032	331.62	384.87	451.03	577.08	73.98	85.89	100.95	128.70
C	Santa Clara (SF)	Annual	2033	331.62	385.01	451.02	577.25	73.98	85.95	100.95	128.80
C	Santa Clara (SF)	Annual	2034	331.62	385.12	451.01	577.41	73.99	86.01	100.96	128.88
C	Santa Clara (SF)	Annual	2035	331.62	385.22	451.00	577.55	73.99	86.06	100.97	128.96
C	Santa Clara (SF)	Summer	2010	355.01	405.62	485.21	611.43	72.72	84.35	99.27	124.50
C	Santa Clara (SF)	Summer	2011	355.38	406.43	485.18	611.92	72.79	84.25	99.38	124.72
C	Santa Clara (SF)	Summer	2012	355.73	407.17	485.18	612.54	72.88	84.20	99.53	124.96
C	Santa Clara (SF)	Summer	2013	356.08	407.85	485.21	613.25	72.98	84.20	99.67	125.22
C	Santa Clara (SF)	Summer	2014	356.38	408.44	485.27	614.00	73.07	84.19	99.80	125.48
C	Santa Clara (SF)	Summer	2015	356.67	408.98	485.34	614.82	73.19	84.22	99.92	125.76
C	Santa Clara (SF)	Summer	2016	356.93	409.53	485.41	615.61	73.31	84.28	100.05	126.03
C	Santa Clara (SF)	Summer	2017	357.13	410.03	485.47	616.36	73.40	84.35	100.15	126.31
C	Santa Clara (SF)	Summer	2018	357.28	410.48	485.51	617.01	73.48	84.42	100.25	126.57
C	Santa Clara (SF)	Summer	2019	357.41	410.89	485.53	617.56	73.56	84.54	100.35	126.81
C	Santa Clara (SF)	Summer	2020	357.52	411.27	485.53	618.06	73.67	84.69	100.45	127.04
C	Santa Clara (SF)	Summer	2021	357.60	411.59	485.53	618.46	73.75	84.85	100.55	127.23
C	Santa Clara (SF)	Summer	2022	357.65	411.88	485.52	618.80	73.81	84.99	100.63	127.38
C	Santa Clara (SF)	Summer	2023	357.67	412.12	485.51	619.06	73.85	85.11	100.70	127.56
C	Santa Clara (SF)	Summer	2024	357.67	412.32	485.49	619.25	73.88	85.22	100.75	127.72
C	Santa Clara (SF)	Summer	2025	357.67	412.50	485.48	619.43	73.91	85.32	100.80	127.87
C	Santa Clara (SF)	Summer	2026	357.69	412.71	485.46	619.61	73.93	85.42	100.84	128.02
C	Santa Clara (SF)	Summer	2027	357.71	412.91	485.44	619.78	73.94	85.51	100.87	128.15
C	Santa Clara (SF)	Summer	2028	357.72	413.11	485.42	619.95	73.95	85.59	100.89	128.27
C	Santa Clara (SF)	Summer	2029	357.73	413.32	485.41	620.13	73.96	85.67	100.91	128.38
C	Santa Clara (SF)	Summer	2030	357.73	413.53	485.40	620.32	73.97	85.74	100.93	128.49
C	Santa Clara (SF)	Summer	2031	357.73	413.75	485.39	620.53	73.97	85.82	100.94	128.60
C	Santa Clara (SF)	Summer	2032	357.74	413.95	485.38	620.74	73.98	85.89	100.95	128.70
C	Santa Clara (SF)	Summer	2033	357.74	414.12	485.38	620.94	73.98	85.95	100.95	128.80
C	Santa Clara (SF)	Summer	2034	357.74	414.27	485.37	621.13	73.99	86.01	100.96	128.88
C	Santa Clara (SF)	Summer	2035	357.73	414.39	485.37	621.30	73.99	86.06	100.97	128.96
C	Santa Clara (SF)	Winter	2010	325.35	375.11	445.76	561.90	72.72	84.35	99.27	124.50
C	Santa Clara (SF)	Winter	2011	325.51	375.47	445.67	562.47	72.79	84.25	99.38	124.72
C	Santa Clara (SF)	Winter	2012	325.71	375.83	445.60	563.09	72.88	84.20	99.53	124.96
C	Santa Clara (SF)	Winter	2013	325.93	376.19	445.54	563.73	72.98	84.20	99.67	125.22
C	Santa Clara (SF)	Winter	2014	326.15	376.52	445.50	564.37	73.07	84.19	99.80	125.48
C	Santa Clara (SF)	Winter	2015	326.37	376.85	445.47	565.01	73.19	84.22	99.92	125.76
C	Santa Clara (SF)	Winter	2016	326.59	377.19	445.45	565.62	73.31	84.28	100.05	126.03
C	Santa Clara (SF)	Winter	2017	326.76	377.50	445.44	566.19	73.40	84.35	100.15	126.31
C	Santa Clara (SF)	Winter	2018	326.90	377.78	445.43	566.70	73.48	84.42	100.25	126.57
C	Santa Clara (SF)	Winter	2019	327.03	378.05	445.44	567.14	73.56	84.54	100.35	126.81
C	Santa Clara (SF)	Winter	2020	327.15	378.31	445.44	567.53	73.67	84.69	100.45	127.04
C	Santa Clara (SF)	Winter	2021	327.23	378.54	445.45	567.85	73.75	84.85	100.55	127.23
C	Santa Clara (SF)	Winter	2022	327.28	378.74	445.45	568.13	73.81	84.99	100.63	127.38
C	Santa Clara (SF)	Winter	2023	327.30	378.89	445.45	568.35	73.85	85.11	100.70	127.56
C	Santa Clara (SF)	Winter	2024	327.30	379.01	445.44	568.51	73.88	85.22	100.75	127.72
C	Santa Clara (SF)	Winter	2025	327.30	379.11	445.44	568.68	73.91	85.32	100.80	127.87
C	Santa Clara (SF)	Winter	2026	327.32	379.25	445.43	568.86	73.93	85.42	100.84	128.02
C	Santa Clara (SF)	Winter	2027	327.33	379.38	445.42	569.02	73.94	85.51	100.87	128.15
C	Santa Clara (SF)	Winter	2028	327.33	379.52	445.41	569.19	73.95	85.59	100.89	128.27
C	Santa Clara (SF)	Winter	2029	327.33	379.66	445.39	569.35	73.96	85.67	100.91	128.38

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Santa Clara (SF)	Winter	2030	327.33	379.80	445.38	569.52	73.97	85.74	100.93	128.49
C	Santa Clara (SF)	Winter	2031	327.32	379.94	445.37	569.70	73.97	85.82	100.94	128.60
C	Santa Clara (SF)	Winter	2032	327.32	380.08	445.37	569.89	73.98	85.89	100.95	128.70
C	Santa Clara (SF)	Winter	2033	327.32	380.21	445.36	570.06	73.98	85.95	100.95	128.80
C	Santa Clara (SF)	Winter	2034	327.32	380.32	445.35	570.21	73.99	86.01	100.96	128.88
C	Santa Clara (SF)	Winter	2035	327.31	380.42	445.34	570.34	73.99	86.06	100.97	128.96
C	Santa Cruz (NCC)	Annual	2010	342.18	398.70	471.90	588.13	72.83	89.70	99.97	123.98
C	Santa Cruz (NCC)	Annual	2011	344.76	401.21	474.70	593.14	72.81	88.62	99.97	124.15
C	Santa Cruz (NCC)	Annual	2012	344.81	400.83	474.13	593.83	72.75	87.71	100.01	124.36
C	Santa Cruz (NCC)	Annual	2013	344.95	400.57	473.67	594.62	72.78	87.04	100.08	124.60
C	Santa Cruz (NCC)	Annual	2014	345.06	400.34	473.31	595.40	72.76	86.42	100.14	124.86
C	Santa Cruz (NCC)	Annual	2015	345.22	400.10	473.04	596.22	72.81	85.81	100.22	125.15
C	Santa Cruz (NCC)	Annual	2016	345.38	399.90	472.82	597.00	72.88	85.29	100.31	125.44
C	Santa Cruz (NCC)	Annual	2017	345.51	399.79	472.64	597.74	72.93	84.93	100.39	125.75
C	Santa Cruz (NCC)	Annual	2018	345.60	399.69	472.51	598.40	72.95	84.60	100.46	126.03
C	Santa Cruz (NCC)	Annual	2019	345.68	399.71	472.40	598.98	72.99	84.49	100.53	126.31
C	Santa Cruz (NCC)	Annual	2020	345.78	399.78	472.32	599.51	73.09	84.55	100.62	126.57
C	Santa Cruz (NCC)	Annual	2021	347.98	402.45	475.22	603.70	73.17	84.68	100.70	126.78
C	Santa Cruz (NCC)	Annual	2022	348.01	402.58	475.14	604.04	73.23	84.80	100.77	126.94
C	Santa Cruz (NCC)	Annual	2023	347.99	402.69	475.06	604.31	73.26	84.91	100.82	127.15
C	Santa Cruz (NCC)	Annual	2024	347.94	402.76	474.98	604.50	73.27	85.00	100.86	127.33
C	Santa Cruz (NCC)	Annual	2025	347.93	402.83	474.91	604.71	73.30	85.09	100.90	127.51
C	Santa Cruz (NCC)	Annual	2026	347.93	402.92	474.83	604.93	73.32	85.18	100.92	127.68
C	Santa Cruz (NCC)	Annual	2027	347.94	403.00	474.74	605.14	73.33	85.25	100.94	127.83
C	Santa Cruz (NCC)	Annual	2028	347.93	403.10	474.65	605.36	73.34	85.31	100.95	127.98
C	Santa Cruz (NCC)	Annual	2029	347.92	403.20	474.53	605.57	73.35	85.38	100.95	128.11
C	Santa Cruz (NCC)	Annual	2030	347.91	403.30	474.43	605.80	73.35	85.44	100.94	128.24
C	Santa Cruz (NCC)	Annual	2031	347.90	403.41	474.37	606.04	73.36	85.50	100.95	128.37
C	Santa Cruz (NCC)	Annual	2032	347.90	403.52	474.32	606.30	73.37	85.56	100.95	128.50
C	Santa Cruz (NCC)	Annual	2033	347.90	403.62	474.28	606.52	73.37	85.61	100.96	128.62
C	Santa Cruz (NCC)	Annual	2034	347.89	403.71	474.24	606.73	73.38	85.66	100.96	128.72
C	Santa Cruz (NCC)	Annual	2035	347.88	403.77	474.20	606.91	73.38	85.70	100.96	128.83
C	Santa Cruz (NCC)	Summer	2010	359.20	416.81	494.15	616.49	72.83	89.70	99.97	123.98
C	Santa Cruz (NCC)	Summer	2011	362.08	419.64	497.38	621.70	72.81	88.62	99.97	124.15
C	Santa Cruz (NCC)	Summer	2012	362.25	419.43	497.01	622.43	72.75	87.71	100.01	124.36
C	Santa Cruz (NCC)	Summer	2013	362.49	419.31	496.73	623.32	72.78	87.04	100.08	124.60
C	Santa Cruz (NCC)	Summer	2014	362.67	419.21	496.51	624.22	72.76	86.42	100.14	124.86
C	Santa Cruz (NCC)	Summer	2015	362.88	419.11	496.33	625.19	72.81	85.81	100.22	125.15
C	Santa Cruz (NCC)	Summer	2016	363.08	419.04	496.18	626.11	72.88	85.29	100.31	125.44
C	Santa Cruz (NCC)	Summer	2017	363.22	419.05	496.05	626.99	72.93	84.93	100.39	125.75
C	Santa Cruz (NCC)	Summer	2018	363.31	419.05	495.92	627.77	72.95	84.60	100.46	126.03
C	Santa Cruz (NCC)	Summer	2019	363.39	419.15	495.82	628.45	72.99	84.49	100.53	126.31
C	Santa Cruz (NCC)	Summer	2020	363.48	419.29	495.74	629.06	73.09	84.55	100.62	126.57
C	Santa Cruz (NCC)	Summer	2021	365.79	422.13	498.77	633.49	73.17	84.68	100.70	126.78
C	Santa Cruz (NCC)	Summer	2022	365.81	422.31	498.69	633.89	73.23	84.80	100.77	126.94
C	Santa Cruz (NCC)	Summer	2023	365.79	422.46	498.61	634.19	73.26	84.91	100.82	127.15
C	Santa Cruz (NCC)	Summer	2024	365.75	422.57	498.54	634.39	73.27	85.00	100.86	127.33
C	Santa Cruz (NCC)	Summer	2025	365.74	422.66	498.48	634.61	73.30	85.09	100.90	127.51
C	Santa Cruz (NCC)	Summer	2026	365.75	422.78	498.40	634.82	73.32	85.18	100.92	127.68
C	Santa Cruz (NCC)	Summer	2027	365.76	422.88	498.33	635.04	73.33	85.25	100.94	127.83
C	Santa Cruz (NCC)	Summer	2028	365.76	422.99	498.25	635.25	73.34	85.31	100.95	127.98
C	Santa Cruz (NCC)	Summer	2029	365.75	423.11	498.15	635.48	73.35	85.38	100.95	128.11
C	Santa Cruz (NCC)	Summer	2030	365.75	423.23	498.06	635.71	73.35	85.44	100.94	128.24
C	Santa Cruz (NCC)	Summer	2031	365.75	423.36	498.02	635.98	73.36	85.50	100.95	128.37

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Santa Cruz (NCC)	Summer	2032	365.75	423.49	497.98	636.26	73.37	85.56	100.95	128.50
C	Santa Cruz (NCC)	Summer	2033	365.75	423.60	497.95	636.52	73.37	85.61	100.96	128.62
C	Santa Cruz (NCC)	Summer	2034	365.75	423.70	497.91	636.76	73.38	85.66	100.96	128.72
C	Santa Cruz (NCC)	Summer	2035	365.74	423.77	497.88	636.97	73.38	85.70	100.96	128.83
C	Santa Cruz (NCC)	Winter	2010	341.89	398.39	471.51	587.64	72.83	89.70	99.97	123.98
C	Santa Cruz (NCC)	Winter	2011	344.46	400.89	474.31	592.65	72.81	88.62	99.97	124.15
C	Santa Cruz (NCC)	Winter	2012	344.51	400.51	473.73	593.34	72.75	87.71	100.01	124.36
C	Santa Cruz (NCC)	Winter	2013	344.64	400.25	473.27	594.13	72.78	87.04	100.08	124.60
C	Santa Cruz (NCC)	Winter	2014	344.75	400.01	472.91	594.90	72.76	86.42	100.14	124.86
C	Santa Cruz (NCC)	Winter	2015	344.91	399.77	472.63	595.72	72.81	85.81	100.22	125.15
C	Santa Cruz (NCC)	Winter	2016	345.08	399.57	472.41	596.49	72.88	85.29	100.31	125.44
C	Santa Cruz (NCC)	Winter	2017	345.20	399.46	472.24	597.23	72.93	84.93	100.39	125.75
C	Santa Cruz (NCC)	Winter	2018	345.29	399.35	472.10	597.89	72.95	84.60	100.46	126.03
C	Santa Cruz (NCC)	Winter	2019	345.38	399.37	472.00	598.47	72.99	84.49	100.53	126.31
C	Santa Cruz (NCC)	Winter	2020	345.47	399.45	471.92	598.99	73.09	84.55	100.62	126.57
C	Santa Cruz (NCC)	Winter	2021	347.68	402.11	474.81	603.18	73.17	84.68	100.70	126.78
C	Santa Cruz (NCC)	Winter	2022	347.70	402.24	474.73	603.53	73.23	84.80	100.77	126.94
C	Santa Cruz (NCC)	Winter	2023	347.69	402.34	474.65	603.79	73.26	84.91	100.82	127.15
C	Santa Cruz (NCC)	Winter	2024	347.64	402.42	474.57	603.98	73.27	85.00	100.86	127.33
C	Santa Cruz (NCC)	Winter	2025	347.62	402.49	474.51	604.19	73.30	85.09	100.90	127.51
C	Santa Cruz (NCC)	Winter	2026	347.63	402.58	474.42	604.41	73.32	85.18	100.92	127.68
C	Santa Cruz (NCC)	Winter	2027	347.63	402.66	474.33	604.63	73.33	85.25	100.94	127.83
C	Santa Cruz (NCC)	Winter	2028	347.63	402.75	474.24	604.84	73.34	85.31	100.95	127.98
C	Santa Cruz (NCC)	Winter	2029	347.61	402.85	474.12	605.05	73.35	85.38	100.95	128.11
C	Santa Cruz (NCC)	Winter	2030	347.60	402.96	474.02	605.28	73.35	85.44	100.94	128.24
C	Santa Cruz (NCC)	Winter	2031	347.60	403.07	473.96	605.52	73.36	85.50	100.95	128.37
C	Santa Cruz (NCC)	Winter	2032	347.59	403.18	473.91	605.78	73.37	85.56	100.95	128.50
C	Santa Cruz (NCC)	Winter	2033	347.59	403.27	473.87	606.01	73.37	85.61	100.96	128.62
C	Santa Cruz (NCC)	Winter	2034	347.58	403.36	473.83	606.21	73.38	85.66	100.96	128.72
C	Santa Cruz (NCC)	Winter	2035	347.58	403.43	473.79	606.39	73.38	85.70	100.96	128.83
C	Shasta (SV)	Annual	2010	350.80	413.29	482.10	601.62	74.15	98.71	101.24	125.46
C	Shasta (SV)	Annual	2011	350.90	412.33	481.45	602.23	73.97	96.26	101.09	125.49
C	Shasta (SV)	Annual	2012	351.01	411.55	480.95	602.95	73.79	94.20	101.00	125.59
C	Shasta (SV)	Annual	2013	351.16	410.88	480.56	603.76	73.67	92.45	100.93	125.73
C	Shasta (SV)	Annual	2014	351.28	410.22	480.26	604.58	73.54	90.71	100.85	125.88
C	Shasta (SV)	Annual	2015	351.43	409.72	480.02	605.45	73.48	89.34	100.76	126.07
C	Shasta (SV)	Annual	2016	351.59	409.32	479.82	606.30	73.48	88.23	100.75	126.28
C	Shasta (SV)	Annual	2017	351.70	408.85	479.65	607.09	73.46	86.94	100.68	126.51
C	Shasta (SV)	Annual	2018	351.78	408.50	479.51	607.77	73.42	85.93	100.65	126.73
C	Shasta (SV)	Annual	2019	351.86	408.40	479.39	608.38	73.43	85.58	100.66	126.93
C	Shasta (SV)	Annual	2020	351.92	408.34	479.30	608.94	73.52	85.46	100.71	127.12
C	Shasta (SV)	Annual	2021	351.97	408.41	479.21	609.29	73.59	85.54	100.78	127.19
C	Shasta (SV)	Annual	2022	352.00	408.47	479.13	609.57	73.64	85.60	100.83	127.24
C	Shasta (SV)	Annual	2023	351.99	408.52	479.04	609.77	73.67	85.66	100.87	127.40
C	Shasta (SV)	Annual	2024	351.96	408.57	478.97	609.93	73.69	85.71	100.90	127.56
C	Shasta (SV)	Annual	2025	351.96	408.62	478.91	610.13	73.71	85.77	100.93	127.72
C	Shasta (SV)	Annual	2026	351.98	408.69	478.84	610.34	73.73	85.83	100.95	127.89
C	Shasta (SV)	Annual	2027	351.99	408.74	478.77	610.55	73.74	85.87	100.96	128.04
C	Shasta (SV)	Annual	2028	352.00	408.80	478.71	610.77	73.75	85.92	100.97	128.18
C	Shasta (SV)	Annual	2029	352.00	408.87	478.63	610.99	73.76	85.96	100.97	128.31
C	Shasta (SV)	Annual	2030	351.99	408.94	478.56	611.21	73.76	86.00	100.96	128.43
C	Shasta (SV)	Annual	2031	351.99	409.00	478.53	611.45	73.77	86.04	100.96	128.55
C	Shasta (SV)	Annual	2032	351.99	409.07	478.50	611.69	73.78	86.08	100.96	128.67
C	Shasta (SV)	Annual	2033	351.98	409.12	478.47	611.91	73.78	86.11	100.97	128.77

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Shasta (SV)	Annual	2034	351.98	409.16	478.44	612.11	73.78	86.14	100.97	128.87
C	Shasta (SV)	Annual	2035	351.97	409.20	478.42	612.29	73.79	86.17	100.97	128.96
C	Shasta (SV)	Summer	2010	377.12	440.81	516.16	644.42	74.15	98.71	101.24	125.46
C	Shasta (SV)	Summer	2011	377.45	440.35	515.97	645.10	73.97	96.26	101.09	125.49
C	Shasta (SV)	Summer	2012	377.75	439.98	515.82	645.96	73.79	94.20	101.00	125.59
C	Shasta (SV)	Summer	2013	378.03	439.65	515.70	646.99	73.67	92.45	100.93	125.73
C	Shasta (SV)	Summer	2014	378.26	439.31	515.62	648.05	73.54	90.71	100.85	125.88
C	Shasta (SV)	Summer	2015	378.49	439.05	515.56	649.19	73.48	89.34	100.76	126.07
C	Shasta (SV)	Summer	2016	378.71	438.86	515.49	650.32	73.48	88.23	100.75	126.28
C	Shasta (SV)	Summer	2017	378.85	438.66	515.40	651.36	73.46	86.94	100.68	126.51
C	Shasta (SV)	Summer	2018	378.93	438.50	515.27	652.24	73.42	85.93	100.65	126.73
C	Shasta (SV)	Summer	2019	379.01	438.48	515.17	653.03	73.43	85.58	100.66	126.93
C	Shasta (SV)	Summer	2020	379.07	438.49	515.07	653.75	73.52	85.46	100.71	127.12
C	Shasta (SV)	Summer	2021	379.11	438.58	514.97	654.24	73.59	85.54	100.78	127.19
C	Shasta (SV)	Summer	2022	379.12	438.68	514.88	654.63	73.64	85.60	100.83	127.24
C	Shasta (SV)	Summer	2023	379.11	438.76	514.80	654.91	73.67	85.66	100.87	127.40
C	Shasta (SV)	Summer	2024	379.10	438.85	514.73	655.11	73.69	85.71	100.90	127.56
C	Shasta (SV)	Summer	2025	379.11	438.93	514.68	655.32	73.71	85.77	100.93	127.72
C	Shasta (SV)	Summer	2026	379.13	439.02	514.61	655.54	73.73	85.83	100.95	127.89
C	Shasta (SV)	Summer	2027	379.15	439.10	514.56	655.77	73.74	85.87	100.96	128.04
C	Shasta (SV)	Summer	2028	379.16	439.18	514.51	656.00	73.75	85.92	100.97	128.18
C	Shasta (SV)	Summer	2029	379.17	439.28	514.46	656.24	73.76	85.96	100.97	128.31
C	Shasta (SV)	Summer	2030	379.18	439.37	514.41	656.49	73.76	86.00	100.96	128.43
C	Shasta (SV)	Summer	2031	379.17	439.46	514.40	656.77	73.77	86.04	100.96	128.55
C	Shasta (SV)	Summer	2032	379.17	439.53	514.40	657.05	73.78	86.08	100.96	128.67
C	Shasta (SV)	Summer	2033	379.17	439.59	514.38	657.31	73.78	86.11	100.97	128.77
C	Shasta (SV)	Summer	2034	379.16	439.64	514.37	657.55	73.78	86.14	100.97	128.87
C	Shasta (SV)	Summer	2035	379.16	439.67	514.35	657.77	73.79	86.17	100.97	128.96
C	Shasta (SV)	Winter	2010	339.28	401.24	467.18	582.88	74.15	98.71	101.24	125.46
C	Shasta (SV)	Winter	2011	339.28	400.06	466.34	583.46	73.97	96.26	101.09	125.49
C	Shasta (SV)	Winter	2012	339.31	399.10	465.69	584.12	73.79	94.20	101.00	125.59
C	Shasta (SV)	Winter	2013	339.39	398.29	465.18	584.84	73.67	92.45	100.93	125.73
C	Shasta (SV)	Winter	2014	339.47	397.49	464.78	585.56	73.54	90.71	100.85	125.88
C	Shasta (SV)	Winter	2015	339.58	396.87	464.45	586.30	73.48	89.34	100.76	126.07
C	Shasta (SV)	Winter	2016	339.72	396.38	464.21	587.03	73.48	88.23	100.75	126.28
C	Shasta (SV)	Winter	2017	339.82	395.81	464.01	587.71	73.46	86.94	100.68	126.51
C	Shasta (SV)	Winter	2018	339.89	395.36	463.85	588.30	73.42	85.93	100.65	126.73
C	Shasta (SV)	Winter	2019	339.97	395.23	463.73	588.83	73.43	85.58	100.66	126.93
C	Shasta (SV)	Winter	2020	340.04	395.15	463.64	589.32	73.52	85.46	100.71	127.12
C	Shasta (SV)	Winter	2021	340.09	395.20	463.55	589.61	73.59	85.54	100.78	127.19
C	Shasta (SV)	Winter	2022	340.12	395.24	463.47	589.84	73.64	85.60	100.83	127.24
C	Shasta (SV)	Winter	2023	340.11	395.29	463.39	590.01	73.67	85.66	100.87	127.40
C	Shasta (SV)	Winter	2024	340.09	395.32	463.31	590.15	73.69	85.71	100.90	127.56
C	Shasta (SV)	Winter	2025	340.08	395.35	463.25	590.34	73.71	85.77	100.93	127.72
C	Shasta (SV)	Winter	2026	340.10	395.41	463.18	590.55	73.73	85.83	100.95	127.89
C	Shasta (SV)	Winter	2027	340.11	395.45	463.10	590.76	73.74	85.87	100.96	128.04
C	Shasta (SV)	Winter	2028	340.11	395.50	463.03	590.97	73.75	85.92	100.97	128.18
C	Shasta (SV)	Winter	2029	340.10	395.56	462.95	591.18	73.76	85.96	100.97	128.31
C	Shasta (SV)	Winter	2030	340.09	395.62	462.87	591.39	73.76	86.00	100.96	128.43
C	Shasta (SV)	Winter	2031	340.09	395.67	462.82	591.61	73.77	86.04	100.96	128.55
C	Shasta (SV)	Winter	2032	340.09	395.73	462.78	591.84	73.78	86.08	100.96	128.67
C	Shasta (SV)	Winter	2033	340.08	395.78	462.74	592.04	73.78	86.11	100.97	128.77
C	Shasta (SV)	Winter	2034	340.08	395.82	462.71	592.22	73.78	86.14	100.97	128.87
C	Shasta (SV)	Winter	2035	340.07	395.85	462.69	592.38	73.79	86.17	100.97	128.96

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Sierra (MC)	Annual	2010	394.31	460.95	537.66	667.48	75.24	95.17	101.22	124.75
C	Sierra (MC)	Annual	2011	393.91	460.02	536.89	668.54	74.99	93.66	101.08	124.84
C	Sierra (MC)	Annual	2012	393.71	459.20	536.28	669.74	74.85	92.36	100.98	124.99
C	Sierra (MC)	Annual	2013	393.19	458.30	535.81	670.93	74.35	90.80	100.93	125.18
C	Sierra (MC)	Annual	2014	393.12	457.50	535.44	672.21	74.25	89.29	100.90	125.31
C	Sierra (MC)	Annual	2015	393.22	457.02	535.14	673.47	74.30	88.37	100.90	125.53
C	Sierra (MC)	Annual	2016	393.24	456.69	534.90	674.71	74.27	87.71	100.92	125.76
C	Sierra (MC)	Annual	2017	393.16	456.21	534.68	675.79	74.16	86.66	100.76	126.04
C	Sierra (MC)	Annual	2018	393.07	456.05	534.52	676.75	74.05	86.33	100.74	126.28
C	Sierra (MC)	Annual	2019	393.02	455.89	534.40	677.53	73.99	85.96	100.82	126.51
C	Sierra (MC)	Annual	2020	392.91	455.79	534.29	678.12	74.03	85.85	100.87	126.76
C	Sierra (MC)	Annual	2021	392.57	455.71	534.18	678.52	73.98	85.83	100.91	126.84
C	Sierra (MC)	Annual	2022	392.58	455.55	534.05	678.95	74.03	85.77	100.92	127.02
C	Sierra (MC)	Annual	2023	392.31	455.42	533.96	679.25	74.00	85.73	100.95	127.23
C	Sierra (MC)	Annual	2024	392.00	455.21	533.85	679.49	73.94	85.67	100.96	127.42
C	Sierra (MC)	Annual	2025	391.81	455.26	533.79	679.66	73.93	85.73	100.98	127.58
C	Sierra (MC)	Annual	2026	391.81	455.38	533.71	679.96	73.95	85.81	101.00	127.77
C	Sierra (MC)	Annual	2027	391.82	455.49	533.63	680.24	73.96	85.89	101.01	127.94
C	Sierra (MC)	Annual	2028	391.79	455.60	533.57	680.51	73.97	85.96	101.02	128.10
C	Sierra (MC)	Annual	2029	391.77	455.71	533.49	680.80	73.97	86.02	101.01	128.25
C	Sierra (MC)	Annual	2030	391.72	455.81	533.43	681.08	73.97	86.09	101.01	128.39
C	Sierra (MC)	Annual	2031	391.70	455.92	533.38	681.39	73.98	86.15	101.01	128.53
C	Sierra (MC)	Annual	2032	391.69	456.01	533.35	681.70	73.98	86.20	101.01	128.66
C	Sierra (MC)	Annual	2033	391.68	456.10	533.32	681.99	73.99	86.25	101.01	128.78
C	Sierra (MC)	Annual	2034	391.67	456.18	533.30	682.24	73.99	86.30	101.02	128.89
C	Sierra (MC)	Annual	2035	391.66	456.24	533.28	682.46	73.99	86.34	101.02	129.00
C	Sierra (MC)	Summer	2010	417.17	483.16	568.10	703.78	75.24	95.17	101.22	124.75
C	Sierra (MC)	Summer	2011	417.07	483.15	567.61	705.13	74.99	93.66	101.08	124.84
C	Sierra (MC)	Summer	2012	417.11	483.07	567.23	706.66	74.85	92.36	100.98	124.99
C	Sierra (MC)	Summer	2013	416.81	482.81	566.93	708.19	74.35	90.80	100.93	125.18
C	Sierra (MC)	Summer	2014	416.85	482.52	566.72	709.83	74.25	89.29	100.90	125.31
C	Sierra (MC)	Summer	2015	417.03	482.41	566.56	711.46	74.30	88.37	100.90	125.53
C	Sierra (MC)	Summer	2016	417.11	482.32	566.42	713.05	74.27	87.71	100.92	125.76
C	Sierra (MC)	Summer	2017	417.07	482.13	566.32	714.42	74.16	86.66	100.76	126.04
C	Sierra (MC)	Summer	2018	416.99	482.09	566.20	715.64	74.05	86.33	100.74	126.28
C	Sierra (MC)	Summer	2019	416.95	482.09	566.09	716.63	73.99	85.96	100.82	126.51
C	Sierra (MC)	Summer	2020	416.84	482.12	565.99	717.36	74.03	85.85	100.87	126.76
C	Sierra (MC)	Summer	2021	416.51	482.14	565.90	717.92	73.98	85.83	100.91	126.84
C	Sierra (MC)	Summer	2022	416.51	482.11	565.79	718.46	74.03	85.77	100.92	127.02
C	Sierra (MC)	Summer	2023	416.26	482.09	565.70	718.85	74.00	85.73	100.95	127.23
C	Sierra (MC)	Summer	2024	415.97	482.00	565.61	719.16	73.94	85.67	100.96	127.42
C	Sierra (MC)	Summer	2025	415.79	482.07	565.55	719.41	73.93	85.73	100.98	127.58
C	Sierra (MC)	Summer	2026	415.80	482.23	565.48	719.74	73.95	85.81	101.00	127.77
C	Sierra (MC)	Summer	2027	415.82	482.38	565.42	720.07	73.96	85.89	101.01	127.94
C	Sierra (MC)	Summer	2028	415.81	482.52	565.37	720.41	73.97	85.96	101.02	128.10
C	Sierra (MC)	Summer	2029	415.80	482.68	565.30	720.76	73.97	86.02	101.01	128.25
C	Sierra (MC)	Summer	2030	415.77	482.82	565.25	721.10	73.97	86.09	101.01	128.39
C	Sierra (MC)	Summer	2031	415.77	482.97	565.22	721.46	73.98	86.15	101.01	128.53
C	Sierra (MC)	Summer	2032	415.76	483.08	565.20	721.82	73.98	86.20	101.01	128.66
C	Sierra (MC)	Summer	2033	415.75	483.19	565.18	722.16	73.99	86.25	101.01	128.78
C	Sierra (MC)	Summer	2034	415.74	483.29	565.16	722.46	73.99	86.30	101.02	128.89
C	Sierra (MC)	Summer	2035	415.73	483.36	565.14	722.72	73.99	86.34	101.02	129.00
C	Sierra (MC)	Winter	2010	390.52	457.27	532.61	661.46	75.24	95.17	101.22	124.75
C	Sierra (MC)	Winter	2011	390.06	456.18	531.79	662.48	74.99	93.66	101.08	124.84

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Sierra (MC)	Winter	2012	389.83	455.24	531.15	663.62	74.85	92.36	100.98	124.99
C	Sierra (MC)	Winter	2013	389.27	454.24	530.65	664.75	74.35	90.80	100.93	125.18
C	Sierra (MC)	Winter	2014	389.18	453.35	530.26	665.97	74.25	89.29	100.90	125.31
C	Sierra (MC)	Winter	2015	389.27	452.81	529.93	667.17	74.30	88.37	100.90	125.53
C	Sierra (MC)	Winter	2016	389.28	452.44	529.67	668.35	74.27	87.71	100.92	125.76
C	Sierra (MC)	Winter	2017	389.20	451.91	529.44	669.38	74.16	86.66	100.76	126.04
C	Sierra (MC)	Winter	2018	389.10	451.73	529.27	670.31	74.05	86.33	100.74	126.28
C	Sierra (MC)	Winter	2019	389.05	451.54	529.14	671.05	73.99	85.96	100.82	126.51
C	Sierra (MC)	Winter	2020	388.94	451.43	529.03	671.61	74.03	85.85	100.87	126.76
C	Sierra (MC)	Winter	2021	388.60	451.33	528.92	671.99	73.98	85.83	100.91	126.84
C	Sierra (MC)	Winter	2022	388.61	451.15	528.78	672.40	74.03	85.77	100.92	127.02
C	Sierra (MC)	Winter	2023	388.34	451.00	528.70	672.69	74.00	85.73	100.95	127.23
C	Sierra (MC)	Winter	2024	388.02	450.77	528.58	672.91	73.94	85.67	100.96	127.42
C	Sierra (MC)	Winter	2025	387.84	450.82	528.52	673.07	73.93	85.73	100.98	127.58
C	Sierra (MC)	Winter	2026	387.83	450.93	528.44	673.36	73.95	85.81	101.00	127.77
C	Sierra (MC)	Winter	2027	387.85	451.03	528.36	673.63	73.96	85.89	101.01	127.94
C	Sierra (MC)	Winter	2028	387.81	451.14	528.30	673.89	73.97	85.96	101.02	128.10
C	Sierra (MC)	Winter	2029	387.79	451.24	528.22	674.17	73.97	86.02	101.01	128.25
C	Sierra (MC)	Winter	2030	387.74	451.33	528.15	674.45	73.97	86.09	101.01	128.39
C	Sierra (MC)	Winter	2031	387.71	451.44	528.10	674.74	73.98	86.15	101.01	128.53
C	Sierra (MC)	Winter	2032	387.70	451.52	528.07	675.05	73.98	86.20	101.01	128.66
C	Sierra (MC)	Winter	2033	387.69	451.61	528.04	675.33	73.99	86.25	101.01	128.78
C	Sierra (MC)	Winter	2034	387.68	451.68	528.01	675.57	73.99	86.30	101.02	128.89
C	Sierra (MC)	Winter	2035	387.67	451.74	527.99	675.79	73.99	86.34	101.02	129.00
C	Siskiyou (NEP)	Annual	2010	378.80	444.35	519.95	649.03	74.19	93.56	102.24	125.12
C	Siskiyou (NEP)	Annual	2011	378.73	443.52	519.19	649.67	74.04	92.11	102.01	125.20
C	Siskiyou (NEP)	Annual	2012	378.70	442.82	518.58	650.49	73.88	90.89	101.82	125.30
C	Siskiyou (NEP)	Annual	2013	378.69	442.25	518.06	651.35	73.68	89.89	101.54	125.46
C	Siskiyou (NEP)	Annual	2014	378.76	441.72	517.67	652.21	73.60	88.92	101.36	125.61
C	Siskiyou (NEP)	Annual	2015	378.86	441.26	517.36	653.09	73.55	88.04	101.18	125.82
C	Siskiyou (NEP)	Annual	2016	378.97	440.88	517.10	653.95	73.55	87.27	101.06	126.05
C	Siskiyou (NEP)	Annual	2017	379.02	440.51	516.88	654.72	73.49	86.50	100.90	126.29
C	Siskiyou (NEP)	Annual	2018	379.03	440.25	516.71	655.39	73.41	85.98	100.79	126.52
C	Siskiyou (NEP)	Annual	2019	379.07	440.11	516.58	655.97	73.39	85.68	100.76	126.74
C	Siskiyou (NEP)	Annual	2020	379.14	439.98	516.47	656.46	73.48	85.54	100.80	126.95
C	Siskiyou (NEP)	Annual	2021	379.12	439.88	516.35	656.80	73.52	85.53	100.84	127.11
C	Siskiyou (NEP)	Annual	2022	379.05	439.72	516.23	657.04	73.53	85.50	100.87	127.20
C	Siskiyou (NEP)	Annual	2023	378.90	439.60	516.12	657.19	73.51	85.48	100.89	127.36
C	Siskiyou (NEP)	Annual	2024	378.77	439.53	516.02	657.33	73.48	85.50	100.91	127.52
C	Siskiyou (NEP)	Annual	2025	378.71	439.58	515.95	657.44	73.49	85.56	100.93	127.67
C	Siskiyou (NEP)	Annual	2026	378.72	439.71	515.87	657.62	73.51	85.65	100.95	127.82
C	Siskiyou (NEP)	Annual	2027	378.72	439.84	515.80	657.81	73.52	85.73	100.97	127.97
C	Siskiyou (NEP)	Annual	2028	378.72	439.97	515.74	658.01	73.53	85.81	100.98	128.11
C	Siskiyou (NEP)	Annual	2029	378.70	440.10	515.67	658.20	73.53	85.88	100.98	128.23
C	Siskiyou (NEP)	Annual	2030	378.68	440.21	515.58	658.40	73.54	85.95	100.97	128.36
C	Siskiyou (NEP)	Annual	2031	378.67	440.34	515.53	658.68	73.54	86.01	100.97	128.49
C	Siskiyou (NEP)	Annual	2032	378.67	440.44	515.49	658.96	73.55	86.07	100.98	128.62
C	Siskiyou (NEP)	Annual	2033	378.66	440.54	515.46	659.20	73.55	86.13	100.98	128.73
C	Siskiyou (NEP)	Annual	2034	378.65	440.63	515.42	659.41	73.56	86.18	100.98	128.83
C	Siskiyou (NEP)	Annual	2035	378.64	440.70	515.40	659.60	73.56	86.22	100.99	128.93
C	Siskiyou (NEP)	Summer	2010	393.78	458.70	539.46	673.02	74.19	93.56	102.24	125.12
C	Siskiyou (NEP)	Summer	2011	393.90	458.44	538.93	673.75	74.04	92.11	102.01	125.20
C	Siskiyou (NEP)	Summer	2012	394.02	458.19	538.51	674.72	73.88	90.89	101.82	125.30
C	Siskiyou (NEP)	Summer	2013	394.12	457.97	538.18	675.77	73.68	89.89	101.54	125.46

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Siskiyou (NEP)	Summer	2014	394.26	457.73	537.93	676.82	73.60	88.92	101.36	125.61
C	Siskiyou (NEP)	Summer	2015	394.41	457.52	537.74	677.91	73.55	88.04	101.18	125.82
C	Siskiyou (NEP)	Summer	2016	394.55	457.35	537.58	678.96	73.55	87.27	101.06	126.05
C	Siskiyou (NEP)	Summer	2017	394.62	457.17	537.43	679.91	73.49	86.50	100.90	126.29
C	Siskiyou (NEP)	Summer	2018	394.63	457.04	537.29	680.74	73.41	85.98	100.79	126.52
C	Siskiyou (NEP)	Summer	2019	394.66	457.01	537.18	681.46	73.39	85.68	100.76	126.74
C	Siskiyou (NEP)	Summer	2020	394.72	456.98	537.09	682.06	73.48	85.54	100.80	126.95
C	Siskiyou (NEP)	Summer	2021	394.69	456.95	536.97	682.49	73.52	85.53	100.84	127.11
C	Siskiyou (NEP)	Summer	2022	394.62	456.88	536.86	682.82	73.53	85.50	100.87	127.20
C	Siskiyou (NEP)	Summer	2023	394.48	456.83	536.76	683.03	73.51	85.48	100.89	127.36
C	Siskiyou (NEP)	Summer	2024	394.35	456.84	536.67	683.22	73.48	85.50	100.91	127.52
C	Siskiyou (NEP)	Summer	2025	394.30	456.94	536.61	683.38	73.49	85.56	100.93	127.67
C	Siskiyou (NEP)	Summer	2026	394.32	457.11	536.53	683.57	73.51	85.65	100.95	127.82
C	Siskiyou (NEP)	Summer	2027	394.33	457.28	536.46	683.78	73.52	85.73	100.97	127.97
C	Siskiyou (NEP)	Summer	2028	394.34	457.44	536.40	684.00	73.53	85.81	100.98	128.11
C	Siskiyou (NEP)	Summer	2029	394.33	457.61	536.34	684.23	73.53	85.88	100.98	128.23
C	Siskiyou (NEP)	Summer	2030	394.32	457.77	536.26	684.47	73.54	85.95	100.97	128.36
C	Siskiyou (NEP)	Summer	2031	394.32	457.91	536.23	684.79	73.54	86.01	100.97	128.49
C	Siskiyou (NEP)	Summer	2032	394.32	458.04	536.21	685.10	73.55	86.07	100.98	128.62
C	Siskiyou (NEP)	Summer	2033	394.31	458.15	536.18	685.38	73.55	86.13	100.98	128.73
C	Siskiyou (NEP)	Summer	2034	394.30	458.25	536.16	685.63	73.56	86.18	100.98	128.83
C	Siskiyou (NEP)	Summer	2035	394.29	458.31	536.14	685.85	73.56	86.22	100.99	128.93
C	Siskiyou (NEP)	Winter	2010	373.71	439.47	513.32	640.88	74.19	93.56	102.24	125.12
C	Siskiyou (NEP)	Winter	2011	373.57	438.45	512.48	641.49	74.04	92.11	102.01	125.20
C	Siskiyou (NEP)	Winter	2012	373.50	437.60	511.81	642.25	73.88	90.89	101.82	125.30
C	Siskiyou (NEP)	Winter	2013	373.45	436.91	511.23	643.06	73.68	89.89	101.54	125.46
C	Siskiyou (NEP)	Winter	2014	373.49	436.28	510.79	643.86	73.60	88.92	101.36	125.61
C	Siskiyou (NEP)	Winter	2015	373.58	435.74	510.43	644.66	73.55	88.04	101.18	125.82
C	Siskiyou (NEP)	Winter	2016	373.68	435.28	510.15	645.45	73.55	87.27	101.06	126.05
C	Siskiyou (NEP)	Winter	2017	373.73	434.85	509.90	646.16	73.49	86.50	100.90	126.29
C	Siskiyou (NEP)	Winter	2018	373.74	434.55	509.71	646.78	73.41	85.98	100.79	126.52
C	Siskiyou (NEP)	Winter	2019	373.78	434.37	509.58	647.31	73.39	85.68	100.76	126.74
C	Siskiyou (NEP)	Winter	2020	373.85	434.21	509.47	647.77	73.48	85.54	100.80	126.95
C	Siskiyou (NEP)	Winter	2021	373.83	434.08	509.34	648.08	73.52	85.53	100.84	127.11
C	Siskiyou (NEP)	Winter	2022	373.76	433.89	509.22	648.29	73.53	85.50	100.87	127.20
C	Siskiyou (NEP)	Winter	2023	373.61	433.74	509.10	648.41	73.51	85.48	100.89	127.36
C	Siskiyou (NEP)	Winter	2024	373.47	433.65	509.00	648.53	73.48	85.50	100.91	127.52
C	Siskiyou (NEP)	Winter	2025	373.42	433.68	508.93	648.63	73.49	85.56	100.93	127.67
C	Siskiyou (NEP)	Winter	2026	373.42	433.81	508.85	648.81	73.51	85.65	100.95	127.82
C	Siskiyou (NEP)	Winter	2027	373.42	433.92	508.79	648.99	73.52	85.73	100.97	127.97
C	Siskiyou (NEP)	Winter	2028	373.41	434.03	508.72	649.17	73.53	85.81	100.98	128.11
C	Siskiyou (NEP)	Winter	2029	373.39	434.14	508.65	649.35	73.53	85.88	100.98	128.23
C	Siskiyou (NEP)	Winter	2030	373.36	434.25	508.56	649.55	73.54	85.95	100.97	128.36
C	Siskiyou (NEP)	Winter	2031	373.36	434.37	508.50	649.81	73.54	86.01	100.97	128.49
C	Siskiyou (NEP)	Winter	2032	373.35	434.47	508.45	650.08	73.55	86.07	100.98	128.62
C	Siskiyou (NEP)	Winter	2033	373.34	434.56	508.42	650.30	73.55	86.13	100.98	128.73
C	Siskiyou (NEP)	Winter	2034	373.34	434.64	508.38	650.51	73.56	86.18	100.98	128.83
C	Siskiyou (NEP)	Winter	2035	373.33	434.71	508.36	650.69	73.56	86.22	100.99	128.93
C	Solano (SF)	Annual	2010	341.84	392.72	467.77	590.01	73.22	84.56	99.66	124.82
C	Solano (SF)	Annual	2011	342.07	393.39	467.67	590.47	73.26	84.38	99.73	124.98
C	Solano (SF)	Annual	2012	342.31	394.02	467.59	591.01	73.28	84.33	99.81	125.17
C	Solano (SF)	Annual	2013	342.55	394.58	467.54	591.61	73.32	84.30	99.90	125.38
C	Solano (SF)	Annual	2014	342.76	395.08	467.51	592.23	73.35	84.27	99.99	125.61
C	Solano (SF)	Annual	2015	342.97	395.55	467.49	592.87	73.38	84.28	100.07	125.85

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Solano (SF)	Annual	2016	343.17	395.96	467.48	593.49	73.44	84.27	100.15	126.09
C	Solano (SF)	Annual	2017	343.32	396.33	467.47	594.08	73.48	84.28	100.20	126.34
C	Solano (SF)	Annual	2018	343.45	396.64	467.47	594.62	73.51	84.28	100.28	126.59
C	Solano (SF)	Annual	2019	343.58	396.96	467.47	595.08	73.57	84.39	100.35	126.82
C	Solano (SF)	Annual	2020	343.67	397.24	467.47	595.50	73.66	84.54	100.44	127.04
C	Solano (SF)	Annual	2021	343.75	397.51	467.47	595.82	73.74	84.71	100.53	127.19
C	Solano (SF)	Annual	2022	343.79	397.75	467.46	596.09	73.80	84.87	100.61	127.33
C	Solano (SF)	Annual	2023	343.81	397.93	467.45	596.30	73.84	85.01	100.68	127.49
C	Solano (SF)	Annual	2024	343.81	398.09	467.44	596.45	73.86	85.13	100.74	127.65
C	Solano (SF)	Annual	2025	343.82	398.22	467.44	596.62	73.88	85.24	100.79	127.80
C	Solano (SF)	Annual	2026	343.84	398.37	467.43	596.79	73.91	85.35	100.83	127.95
C	Solano (SF)	Annual	2027	343.85	398.52	467.42	596.95	73.92	85.44	100.86	128.08
C	Solano (SF)	Annual	2028	343.86	398.66	467.41	597.12	73.93	85.53	100.88	128.20
C	Solano (SF)	Annual	2029	343.86	398.80	467.39	597.29	73.94	85.62	100.90	128.31
C	Solano (SF)	Annual	2030	343.86	398.94	467.38	597.46	73.95	85.70	100.91	128.42
C	Solano (SF)	Annual	2031	343.86	399.08	467.38	597.67	73.95	85.78	100.93	128.53
C	Solano (SF)	Annual	2032	343.86	399.22	467.37	597.88	73.96	85.86	100.93	128.64
C	Solano (SF)	Annual	2033	343.86	399.33	467.36	598.08	73.96	85.93	100.94	128.74
C	Solano (SF)	Annual	2034	343.86	399.44	467.35	598.25	73.97	86.00	100.95	128.83
C	Solano (SF)	Annual	2035	343.85	399.53	467.34	598.40	73.97	86.05	100.95	128.92
C	Solano (SF)	Summer	2010	368.80	420.88	503.66	634.87	73.22	84.56	99.66	124.82
C	Solano (SF)	Summer	2011	369.20	422.00	503.59	635.19	73.26	84.38	99.73	124.98
C	Solano (SF)	Summer	2012	369.56	422.99	503.57	635.69	73.28	84.33	99.81	125.17
C	Solano (SF)	Summer	2013	369.90	423.83	503.59	636.34	73.32	84.30	99.90	125.38
C	Solano (SF)	Summer	2014	370.19	424.57	503.65	637.06	73.35	84.27	99.99	125.61
C	Solano (SF)	Summer	2015	370.46	425.22	503.73	637.86	73.38	84.28	100.07	125.85
C	Solano (SF)	Summer	2016	370.71	425.78	503.82	638.66	73.44	84.27	100.15	126.09
C	Solano (SF)	Summer	2017	370.89	426.29	503.89	639.43	73.48	84.28	100.20	126.34
C	Solano (SF)	Summer	2018	371.03	426.70	503.92	640.11	73.51	84.28	100.28	126.59
C	Solano (SF)	Summer	2019	371.15	427.11	503.94	640.69	73.57	84.39	100.35	126.82
C	Solano (SF)	Summer	2020	371.25	427.47	503.95	641.22	73.66	84.54	100.44	127.04
C	Solano (SF)	Summer	2021	371.33	427.82	503.93	641.62	73.74	84.71	100.53	127.19
C	Solano (SF)	Summer	2022	371.37	428.13	503.90	641.96	73.80	84.87	100.61	127.33
C	Solano (SF)	Summer	2023	371.39	428.38	503.88	642.20	73.84	85.01	100.68	127.49
C	Solano (SF)	Summer	2024	371.40	428.59	503.87	642.36	73.86	85.13	100.74	127.65
C	Solano (SF)	Summer	2025	371.41	428.78	503.86	642.52	73.88	85.24	100.79	127.80
C	Solano (SF)	Summer	2026	371.43	428.97	503.85	642.69	73.91	85.35	100.83	127.95
C	Solano (SF)	Summer	2027	371.44	429.16	503.84	642.85	73.92	85.44	100.86	128.08
C	Solano (SF)	Summer	2028	371.46	429.35	503.83	643.02	73.93	85.53	100.88	128.20
C	Solano (SF)	Summer	2029	371.46	429.54	503.82	643.19	73.94	85.62	100.90	128.31
C	Solano (SF)	Summer	2030	371.47	429.73	503.81	643.37	73.95	85.70	100.91	128.42
C	Solano (SF)	Summer	2031	371.47	429.92	503.80	643.63	73.95	85.78	100.93	128.53
C	Solano (SF)	Summer	2032	371.47	430.10	503.78	643.88	73.96	85.86	100.93	128.64
C	Solano (SF)	Summer	2033	371.47	430.24	503.77	644.12	73.96	85.93	100.94	128.74
C	Solano (SF)	Summer	2034	371.47	430.38	503.77	644.34	73.97	86.00	100.95	128.83
C	Solano (SF)	Summer	2035	371.47	430.48	503.76	644.54	73.97	86.05	100.95	128.92
C	Solano (SF)	Winter	2010	336.93	387.60	461.24	581.85	73.22	84.56	99.66	124.82
C	Solano (SF)	Winter	2011	337.14	388.18	461.13	582.33	73.26	84.38	99.73	124.98
C	Solano (SF)	Winter	2012	337.35	388.75	461.05	582.88	73.28	84.33	99.81	125.17
C	Solano (SF)	Winter	2013	337.57	389.26	460.99	583.48	73.32	84.30	99.90	125.38
C	Solano (SF)	Winter	2014	337.77	389.72	460.94	584.07	73.35	84.27	99.99	125.61
C	Solano (SF)	Winter	2015	337.97	390.15	460.90	584.69	73.38	84.28	100.07	125.85
C	Solano (SF)	Winter	2016	338.16	390.53	460.87	585.28	73.44	84.27	100.15	126.09
C	Solano (SF)	Winter	2017	338.31	390.89	460.85	585.84	73.48	84.28	100.20	126.34

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Solano (SF)	Winter	2018	338.44	391.17	460.84	586.34	73.51	84.28	100.28	126.59
C	Solano (SF)	Winter	2019	338.56	391.48	460.84	586.78	73.57	84.39	100.35	126.82
C	Solano (SF)	Winter	2020	338.66	391.75	460.83	587.18	73.66	84.54	100.44	127.04
C	Solano (SF)	Winter	2021	338.74	392.00	460.84	587.49	73.74	84.71	100.53	127.19
C	Solano (SF)	Winter	2022	338.78	392.22	460.83	587.75	73.80	84.87	100.61	127.33
C	Solano (SF)	Winter	2023	338.79	392.40	460.83	587.95	73.84	85.01	100.68	127.49
C	Solano (SF)	Winter	2024	338.79	392.54	460.82	588.10	73.86	85.13	100.74	127.65
C	Solano (SF)	Winter	2025	338.80	392.67	460.81	588.27	73.88	85.24	100.79	127.80
C	Solano (SF)	Winter	2026	338.82	392.81	460.80	588.44	73.91	85.35	100.83	127.95
C	Solano (SF)	Winter	2027	338.84	392.94	460.79	588.61	73.92	85.44	100.86	128.08
C	Solano (SF)	Winter	2028	338.84	393.08	460.78	588.77	73.93	85.53	100.88	128.20
C	Solano (SF)	Winter	2029	338.84	393.21	460.77	588.94	73.94	85.62	100.90	128.31
C	Solano (SF)	Winter	2030	338.84	393.34	460.76	589.11	73.95	85.70	100.91	128.42
C	Solano (SF)	Winter	2031	338.84	393.47	460.75	589.31	73.95	85.78	100.93	128.53
C	Solano (SF)	Winter	2032	338.84	393.60	460.74	589.52	73.96	85.86	100.93	128.64
C	Solano (SF)	Winter	2033	338.84	393.71	460.74	589.70	73.96	85.93	100.94	128.74
C	Solano (SF)	Winter	2034	338.83	393.81	460.73	589.87	73.97	86.00	100.95	128.83
C	Solano (SF)	Winter	2035	338.83	393.90	460.72	590.01	73.97	86.05	100.95	128.92
C	Solano (SV)	Annual	2010	361.72	414.56	494.70	624.60	73.68	84.80	100.13	125.07
C	Solano (SV)	Annual	2011	361.94	415.33	494.60	625.06	73.63	84.64	100.12	125.23
C	Solano (SV)	Annual	2012	362.12	416.01	494.53	625.61	73.53	84.49	100.15	125.40
C	Solano (SV)	Annual	2013	362.32	416.57	494.48	626.21	73.46	84.35	100.21	125.60
C	Solano (SV)	Annual	2014	362.52	417.08	494.45	626.83	73.42	84.23	100.22	125.81
C	Solano (SV)	Annual	2015	362.70	417.55	494.44	627.46	73.39	84.20	100.24	126.04
C	Solano (SV)	Annual	2016	371.75	428.17	506.54	643.44	73.44	84.21	100.30	126.28
C	Solano (SV)	Annual	2017	371.90	428.52	506.54	644.06	73.44	84.13	100.29	126.51
C	Solano (SV)	Annual	2018	372.04	428.84	506.54	644.61	73.47	84.18	100.31	126.74
C	Solano (SV)	Annual	2019	372.18	429.19	506.54	645.09	73.51	84.31	100.36	126.94
C	Solano (SV)	Annual	2020	372.30	429.49	506.54	645.54	73.61	84.45	100.45	127.14
C	Solano (SV)	Annual	2021	372.41	429.77	506.54	645.87	73.70	84.61	100.54	127.29
C	Solano (SV)	Annual	2022	372.46	430.00	506.53	646.17	73.76	84.76	100.62	127.44
C	Solano (SV)	Annual	2023	372.49	430.19	506.52	646.37	73.80	84.88	100.69	127.60
C	Solano (SV)	Annual	2024	372.51	430.37	506.51	646.51	73.83	85.01	100.74	127.74
C	Solano (SV)	Annual	2025	372.53	430.53	506.49	646.67	73.86	85.11	100.79	127.89
C	Solano (SV)	Annual	2026	375.02	433.55	509.84	651.12	73.88	85.22	100.83	128.03
C	Solano (SV)	Annual	2027	375.04	433.71	509.83	651.28	73.90	85.31	100.86	128.15
C	Solano (SV)	Annual	2028	375.06	433.87	509.82	651.44	73.91	85.40	100.88	128.26
C	Solano (SV)	Annual	2029	375.06	434.03	509.81	651.60	73.92	85.48	100.90	128.37
C	Solano (SV)	Annual	2030	375.06	434.19	509.80	651.77	73.92	85.56	100.92	128.47
C	Solano (SV)	Annual	2031	375.06	434.35	509.79	651.99	73.93	85.64	100.93	128.58
C	Solano (SV)	Annual	2032	375.06	434.50	509.79	652.21	73.93	85.71	100.94	128.68
C	Solano (SV)	Annual	2033	375.06	434.63	509.78	652.41	73.94	85.78	100.94	128.78
C	Solano (SV)	Annual	2034	375.06	434.74	509.77	652.59	73.94	85.84	100.95	128.87
C	Solano (SV)	Annual	2035	375.06	434.82	509.76	652.75	73.94	85.90	100.96	128.95
C	Solano (SV)	Summer	2010	396.63	451.00	541.05	682.70	73.68	84.80	100.13	125.07
C	Solano (SV)	Summer	2011	397.01	452.35	540.98	682.98	73.63	84.64	100.12	125.23
C	Solano (SV)	Summer	2012	397.34	453.51	540.96	683.47	73.53	84.49	100.15	125.40
C	Solano (SV)	Summer	2013	397.66	454.46	540.99	684.11	73.46	84.35	100.21	125.60
C	Solano (SV)	Summer	2014	397.96	455.28	541.09	684.86	73.42	84.23	100.22	125.81
C	Solano (SV)	Summer	2015	398.22	455.97	541.22	685.68	73.39	84.20	100.24	126.04
C	Solano (SV)	Summer	2016	408.16	467.64	554.55	703.24	73.44	84.21	100.30	126.28
C	Solano (SV)	Summer	2017	408.35	468.15	554.68	704.08	73.44	84.13	100.29	126.51
C	Solano (SV)	Summer	2018	408.51	468.56	554.75	704.81	73.47	84.18	100.31	126.74
C	Solano (SV)	Summer	2019	408.65	469.03	554.77	705.45	73.51	84.31	100.36	126.94

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Solano (SV)	Summer	2020	408.77	469.44	554.78	706.04	73.61	84.45	100.45	127.14
C	Solano (SV)	Summer	2021	408.88	469.80	554.77	706.47	73.70	84.61	100.54	127.29
C	Solano (SV)	Summer	2022	408.94	470.12	554.74	706.85	73.76	84.76	100.62	127.44
C	Solano (SV)	Summer	2023	408.97	470.39	554.71	707.11	73.80	84.88	100.69	127.60
C	Solano (SV)	Summer	2024	409.00	470.66	554.66	707.27	73.83	85.01	100.74	127.74
C	Solano (SV)	Summer	2025	409.02	470.89	554.62	707.42	73.86	85.11	100.79	127.89
C	Solano (SV)	Summer	2026	411.74	474.21	558.28	712.22	73.88	85.22	100.83	128.03
C	Solano (SV)	Summer	2027	411.77	474.42	558.28	712.36	73.90	85.31	100.86	128.15
C	Solano (SV)	Summer	2028	411.78	474.63	558.28	712.51	73.91	85.40	100.88	128.26
C	Solano (SV)	Summer	2029	411.79	474.86	558.27	712.66	73.92	85.48	100.90	128.37
C	Solano (SV)	Summer	2030	411.80	475.08	558.27	712.84	73.92	85.56	100.92	128.47
C	Solano (SV)	Summer	2031	411.79	475.31	558.26	713.12	73.93	85.64	100.93	128.58
C	Solano (SV)	Summer	2032	411.79	475.50	558.25	713.41	73.93	85.71	100.94	128.68
C	Solano (SV)	Summer	2033	411.79	475.67	558.24	713.67	73.94	85.78	100.94	128.78
C	Solano (SV)	Summer	2034	411.79	475.81	558.23	713.92	73.94	85.84	100.95	128.87
C	Solano (SV)	Summer	2035	411.78	475.92	558.22	714.15	73.94	85.90	100.96	128.95
C	Solano (SV)	Winter	2010	353.45	405.93	483.73	610.84	73.68	84.80	100.13	125.07
C	Solano (SV)	Winter	2011	353.63	406.57	483.61	611.35	73.63	84.64	100.12	125.23
C	Solano (SV)	Winter	2012	353.78	407.13	483.53	611.91	73.53	84.49	100.15	125.40
C	Solano (SV)	Winter	2013	353.95	407.60	483.47	612.50	73.46	84.35	100.21	125.60
C	Solano (SV)	Winter	2014	354.13	408.03	483.41	613.09	73.42	84.23	100.22	125.81
C	Solano (SV)	Winter	2015	354.29	408.45	483.37	613.68	73.39	84.20	100.24	126.04
C	Solano (SV)	Winter	2016	363.12	418.81	495.16	629.27	73.44	84.21	100.30	126.28
C	Solano (SV)	Winter	2017	363.26	419.12	495.13	629.83	73.44	84.13	100.29	126.51
C	Solano (SV)	Winter	2018	363.40	419.42	495.11	630.33	73.47	84.18	100.31	126.74
C	Solano (SV)	Winter	2019	363.53	419.75	495.10	630.78	73.51	84.31	100.36	126.94
C	Solano (SV)	Winter	2020	363.65	420.02	495.10	631.20	73.61	84.45	100.45	127.14
C	Solano (SV)	Winter	2021	363.76	420.27	495.11	631.50	73.70	84.61	100.54	127.29
C	Solano (SV)	Winter	2022	363.81	420.49	495.10	631.78	73.76	84.76	100.62	127.44
C	Solano (SV)	Winter	2023	363.84	420.66	495.10	631.97	73.80	84.88	100.69	127.60
C	Solano (SV)	Winter	2024	363.86	420.82	495.09	632.10	73.83	85.01	100.74	127.74
C	Solano (SV)	Winter	2025	363.88	420.96	495.08	632.26	73.86	85.11	100.79	127.89
C	Solano (SV)	Winter	2026	366.31	423.90	498.35	636.62	73.88	85.22	100.83	128.03
C	Solano (SV)	Winter	2027	366.33	424.05	498.34	636.78	73.90	85.31	100.86	128.15
C	Solano (SV)	Winter	2028	366.34	424.20	498.33	636.95	73.91	85.40	100.88	128.26
C	Solano (SV)	Winter	2029	366.34	424.35	498.31	637.11	73.92	85.48	100.90	128.37
C	Solano (SV)	Winter	2030	366.34	424.49	498.30	637.28	73.92	85.56	100.92	128.47
C	Solano (SV)	Winter	2031	366.35	424.64	498.30	637.49	73.93	85.64	100.93	128.58
C	Solano (SV)	Winter	2032	366.35	424.77	498.29	637.69	73.93	85.71	100.94	128.68
C	Solano (SV)	Winter	2033	366.35	424.89	498.28	637.88	73.94	85.78	100.94	128.78
C	Solano (SV)	Winter	2034	366.35	424.99	498.28	638.04	73.94	85.84	100.95	128.87
C	Solano (SV)	Winter	2035	366.34	425.08	498.27	638.19	73.94	85.90	100.96	128.95
C	Sonoma (NC)	Annual	2010	390.51	449.32	534.32	668.22	73.44	86.67	100.89	124.24
C	Sonoma (NC)	Annual	2011	390.41	449.46	533.78	668.92	73.35	86.07	100.76	124.42
C	Sonoma (NC)	Annual	2012	390.39	449.72	533.36	669.75	73.28	85.75	100.71	124.64
C	Sonoma (NC)	Annual	2013	390.45	449.93	533.03	670.64	73.24	85.48	100.70	124.89
C	Sonoma (NC)	Annual	2014	390.51	450.12	532.77	671.53	73.21	85.23	100.66	125.14
C	Sonoma (NC)	Annual	2015	390.56	450.29	532.56	672.43	73.15	84.99	100.59	125.42
C	Sonoma (NC)	Annual	2016	389.58	449.24	530.90	671.41	73.14	84.86	100.60	125.69
C	Sonoma (NC)	Annual	2017	389.62	449.43	530.76	672.22	73.11	84.74	100.59	125.97
C	Sonoma (NC)	Annual	2018	389.63	449.60	530.64	672.91	73.05	84.67	100.59	126.25
C	Sonoma (NC)	Annual	2019	389.66	449.79	530.55	673.52	73.04	84.68	100.60	126.51
C	Sonoma (NC)	Annual	2020	389.72	449.99	530.48	674.07	73.12	84.77	100.66	126.75
C	Sonoma (NC)	Annual	2021	389.70	450.13	530.40	674.51	73.17	84.88	100.73	126.95

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Sonoma (NC)	Annual	2022	389.64	450.20	530.29	674.87	73.19	84.96	100.77	127.13
C	Sonoma (NC)	Annual	2023	389.45	450.24	530.20	675.12	73.19	85.04	100.81	127.31
C	Sonoma (NC)	Annual	2024	389.28	450.28	530.12	675.30	73.17	85.12	100.85	127.48
C	Sonoma (NC)	Annual	2025	389.20	450.39	530.07	675.47	73.17	85.21	100.89	127.63
C	Sonoma (NC)	Annual	2026	388.38	449.63	528.86	674.20	73.19	85.33	100.92	127.79
C	Sonoma (NC)	Annual	2027	388.39	449.84	528.80	674.40	73.21	85.43	100.94	127.93
C	Sonoma (NC)	Annual	2028	388.39	450.05	528.74	674.61	73.21	85.53	100.95	128.07
C	Sonoma (NC)	Annual	2029	388.37	450.26	528.66	674.83	73.22	85.63	100.96	128.20
C	Sonoma (NC)	Annual	2030	388.34	450.46	528.57	675.05	73.22	85.71	100.96	128.32
C	Sonoma (NC)	Annual	2031	388.34	450.68	528.53	675.33	73.23	85.80	100.96	128.45
C	Sonoma (NC)	Annual	2032	388.33	450.87	528.49	675.61	73.23	85.88	100.97	128.57
C	Sonoma (NC)	Annual	2033	388.32	451.04	528.45	675.87	73.24	85.96	100.97	128.69
C	Sonoma (NC)	Annual	2034	388.31	451.20	528.43	676.10	73.25	86.03	100.98	128.79
C	Sonoma (NC)	Annual	2035	388.30	451.32	528.40	676.31	73.25	86.08	100.98	128.89
C	Sonoma (NC)	Summer	2010	405.40	463.97	554.11	693.02	73.44	86.67	100.89	124.24
C	Sonoma (NC)	Summer	2011	405.46	464.55	553.73	693.76	73.35	86.07	100.76	124.42
C	Sonoma (NC)	Summer	2012	405.58	465.14	553.43	694.67	73.28	85.75	100.71	124.64
C	Sonoma (NC)	Summer	2013	405.73	465.65	553.21	695.68	73.24	85.48	100.70	124.89
C	Sonoma (NC)	Summer	2014	405.87	466.08	553.06	696.69	73.21	85.23	100.66	125.14
C	Sonoma (NC)	Summer	2015	405.97	466.45	552.95	697.74	73.15	84.99	100.59	125.42
C	Sonoma (NC)	Summer	2016	404.98	465.53	551.32	696.79	73.14	84.86	100.60	125.69
C	Sonoma (NC)	Summer	2017	405.05	465.86	551.23	697.73	73.11	84.74	100.59	125.97
C	Sonoma (NC)	Summer	2018	405.05	466.14	551.15	698.52	73.05	84.67	100.59	126.25
C	Sonoma (NC)	Summer	2019	405.08	466.43	551.09	699.22	73.04	84.68	100.60	126.51
C	Sonoma (NC)	Summer	2020	405.14	466.72	551.02	699.85	73.12	84.77	100.66	126.75
C	Sonoma (NC)	Summer	2021	405.12	466.94	550.95	700.35	73.17	84.88	100.73	126.95
C	Sonoma (NC)	Summer	2022	405.06	467.10	550.86	700.77	73.19	84.96	100.77	127.13
C	Sonoma (NC)	Summer	2023	404.88	467.22	550.78	701.06	73.19	85.04	100.81	127.31
C	Sonoma (NC)	Summer	2024	404.72	467.34	550.70	701.27	73.17	85.12	100.85	127.48
C	Sonoma (NC)	Summer	2025	404.64	467.50	550.65	701.46	73.17	85.21	100.89	127.63
C	Sonoma (NC)	Summer	2026	403.80	466.76	549.40	700.14	73.19	85.33	100.92	127.79
C	Sonoma (NC)	Summer	2027	403.82	467.03	549.34	700.34	73.21	85.43	100.94	127.93
C	Sonoma (NC)	Summer	2028	403.82	467.29	549.29	700.56	73.21	85.53	100.95	128.07
C	Sonoma (NC)	Summer	2029	403.81	467.55	549.22	700.79	73.22	85.63	100.96	128.20
C	Sonoma (NC)	Summer	2030	403.80	467.80	549.13	701.03	73.22	85.71	100.96	128.32
C	Sonoma (NC)	Summer	2031	403.80	468.07	549.10	701.35	73.23	85.80	100.96	128.45
C	Sonoma (NC)	Summer	2032	403.79	468.29	549.07	701.67	73.23	85.88	100.97	128.57
C	Sonoma (NC)	Summer	2033	403.79	468.49	549.04	701.96	73.24	85.96	100.97	128.69
C	Sonoma (NC)	Summer	2034	403.78	468.67	549.01	702.23	73.25	86.03	100.98	128.79
C	Sonoma (NC)	Summer	2035	403.77	468.80	548.99	702.46	73.25	86.08	100.98	128.89
C	Sonoma (NC)	Winter	2010	383.18	442.11	524.58	656.01	73.44	86.67	100.89	124.24
C	Sonoma (NC)	Winter	2011	383.00	442.03	523.97	656.70	73.35	86.07	100.76	124.42
C	Sonoma (NC)	Winter	2012	382.92	442.12	523.49	657.49	73.28	85.75	100.71	124.64
C	Sonoma (NC)	Winter	2013	382.92	442.20	523.10	658.32	73.24	85.48	100.70	124.89
C	Sonoma (NC)	Winter	2014	382.95	442.27	522.78	659.14	73.21	85.23	100.66	125.14
C	Sonoma (NC)	Winter	2015	382.97	442.33	522.52	659.97	73.15	84.99	100.59	125.42
C	Sonoma (NC)	Winter	2016	382.00	441.23	520.85	658.92	73.14	84.86	100.60	125.69
C	Sonoma (NC)	Winter	2017	382.03	441.35	520.68	659.67	73.11	84.74	100.59	125.97
C	Sonoma (NC)	Winter	2018	382.04	441.46	520.55	660.31	73.05	84.67	100.59	126.25
C	Sonoma (NC)	Winter	2019	382.06	441.60	520.45	660.88	73.04	84.68	100.60	126.51
C	Sonoma (NC)	Winter	2020	382.13	441.75	520.37	661.39	73.12	84.77	100.66	126.75
C	Sonoma (NC)	Winter	2021	382.11	441.85	520.28	661.79	73.17	84.88	100.73	126.95
C	Sonoma (NC)	Winter	2022	382.05	441.88	520.16	662.13	73.19	84.96	100.77	127.13
C	Sonoma (NC)	Winter	2023	381.86	441.88	520.07	662.35	73.19	85.04	100.81	127.31

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Sonoma (NC)	Winter	2024	381.68	441.89	519.99	662.52	73.17	85.12	100.85	127.48
C	Sonoma (NC)	Winter	2025	381.60	441.97	519.94	662.68	73.17	85.21	100.89	127.63
C	Sonoma (NC)	Winter	2026	380.80	441.20	518.76	661.43	73.19	85.33	100.92	127.79
C	Sonoma (NC)	Winter	2027	380.81	441.38	518.69	661.63	73.21	85.43	100.94	127.93
C	Sonoma (NC)	Winter	2028	380.79	441.56	518.63	661.84	73.21	85.53	100.95	128.07
C	Sonoma (NC)	Winter	2029	380.77	441.75	518.54	662.05	73.22	85.63	100.96	128.20
C	Sonoma (NC)	Winter	2030	380.74	441.93	518.44	662.26	73.22	85.71	100.96	128.32
C	Sonoma (NC)	Winter	2031	380.73	442.12	518.40	662.52	73.23	85.80	100.96	128.45
C	Sonoma (NC)	Winter	2032	380.72	442.30	518.36	662.79	73.23	85.88	100.97	128.57
C	Sonoma (NC)	Winter	2033	380.71	442.46	518.33	663.03	73.24	85.96	100.97	128.69
C	Sonoma (NC)	Winter	2034	380.70	442.60	518.30	663.25	73.25	86.03	100.98	128.79
C	Sonoma (NC)	Winter	2035	380.69	442.72	518.27	663.43	73.25	86.08	100.98	128.89
C	Sonoma (SF)	Annual	2010	337.75	387.87	461.89	580.89	73.29	85.42	99.94	124.71
C	Sonoma (SF)	Annual	2011	337.74	388.23	461.68	581.45	73.21	85.10	99.96	124.87
C	Sonoma (SF)	Annual	2012	337.78	388.61	461.51	582.06	73.15	84.87	100.01	125.06
C	Sonoma (SF)	Annual	2013	337.89	388.97	461.38	582.74	73.14	84.69	100.06	125.28
C	Sonoma (SF)	Annual	2014	337.98	389.31	461.27	583.41	73.12	84.55	100.09	125.51
C	Sonoma (SF)	Annual	2015	338.11	389.63	461.19	584.10	73.14	84.44	100.14	125.76
C	Sonoma (SF)	Annual	2016	338.27	389.97	461.13	584.74	73.20	84.38	100.20	126.01
C	Sonoma (SF)	Annual	2017	338.37	390.26	461.08	585.37	73.22	84.32	100.23	126.26
C	Sonoma (SF)	Annual	2018	338.47	390.53	461.05	585.92	73.25	84.30	100.30	126.51
C	Sonoma (SF)	Annual	2019	338.56	390.82	461.02	586.41	73.29	84.40	100.37	126.74
C	Sonoma (SF)	Annual	2020	338.66	391.09	461.01	586.85	73.39	84.53	100.46	126.96
C	Sonoma (SF)	Annual	2021	338.74	391.37	461.00	587.19	73.47	84.71	100.55	127.13
C	Sonoma (SF)	Annual	2022	338.77	391.60	460.98	587.46	73.53	84.86	100.63	127.25
C	Sonoma (SF)	Annual	2023	338.78	391.79	460.96	587.68	73.57	85.00	100.70	127.43
C	Sonoma (SF)	Annual	2024	338.76	391.93	460.93	587.83	73.60	85.12	100.75	127.59
C	Sonoma (SF)	Annual	2025	338.75	392.07	460.92	588.01	73.62	85.23	100.80	127.74
C	Sonoma (SF)	Annual	2026	338.77	392.22	460.89	588.19	73.64	85.34	100.84	127.90
C	Sonoma (SF)	Annual	2027	338.78	392.38	460.87	588.37	73.66	85.43	100.87	128.03
C	Sonoma (SF)	Annual	2028	338.78	392.54	460.84	588.55	73.67	85.53	100.89	128.16
C	Sonoma (SF)	Annual	2029	338.78	392.70	460.81	588.73	73.68	85.62	100.90	128.28
C	Sonoma (SF)	Annual	2030	338.76	392.87	460.79	588.92	73.68	85.70	100.92	128.40
C	Sonoma (SF)	Annual	2031	338.76	393.04	460.77	589.13	73.69	85.78	100.93	128.51
C	Sonoma (SF)	Annual	2032	338.76	393.20	460.76	589.35	73.69	85.86	100.94	128.62
C	Sonoma (SF)	Annual	2033	338.75	393.34	460.74	589.54	73.70	85.93	100.94	128.73
C	Sonoma (SF)	Annual	2034	338.75	393.47	460.73	589.72	73.70	86.00	100.95	128.82
C	Sonoma (SF)	Annual	2035	338.74	393.58	460.71	589.88	73.71	86.06	100.95	128.91
C	Sonoma (SF)	Summer	2010	362.22	413.09	494.52	621.95	73.29	85.42	99.94	124.71
C	Sonoma (SF)	Summer	2011	362.43	413.89	494.43	622.45	73.21	85.10	99.96	124.87
C	Sonoma (SF)	Summer	2012	362.64	414.65	494.39	623.09	73.15	84.87	100.01	125.06
C	Sonoma (SF)	Summer	2013	362.88	415.33	494.38	623.85	73.14	84.69	100.06	125.28
C	Sonoma (SF)	Summer	2014	363.07	415.93	494.41	624.65	73.12	84.55	100.09	125.51
C	Sonoma (SF)	Summer	2015	363.28	416.48	494.45	625.51	73.14	84.44	100.14	125.76
C	Sonoma (SF)	Summer	2016	363.48	417.01	494.48	626.33	73.20	84.38	100.20	126.01
C	Sonoma (SF)	Summer	2017	363.61	417.48	494.51	627.12	73.22	84.32	100.23	126.26
C	Sonoma (SF)	Summer	2018	363.71	417.89	494.51	627.81	73.25	84.30	100.30	126.51
C	Sonoma (SF)	Summer	2019	363.81	418.29	494.51	628.42	73.29	84.40	100.37	126.74
C	Sonoma (SF)	Summer	2020	363.90	418.65	494.49	628.96	73.39	84.53	100.46	126.96
C	Sonoma (SF)	Summer	2021	363.97	419.02	494.47	629.37	73.47	84.71	100.55	127.13
C	Sonoma (SF)	Summer	2022	364.00	419.34	494.43	629.72	73.53	84.86	100.63	127.25
C	Sonoma (SF)	Summer	2023	364.01	419.60	494.40	629.97	73.57	85.00	100.70	127.43
C	Sonoma (SF)	Summer	2024	364.00	419.81	494.37	630.15	73.60	85.12	100.75	127.59
C	Sonoma (SF)	Summer	2025	364.00	420.01	494.34	630.33	73.62	85.23	100.80	127.74

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Sonoma (SF)	Summer	2026	364.02	420.22	494.32	630.51	73.64	85.34	100.84	127.90
C	Sonoma (SF)	Summer	2027	364.03	420.43	494.30	630.69	73.66	85.43	100.87	128.03
C	Sonoma (SF)	Summer	2028	364.04	420.64	494.29	630.87	73.67	85.53	100.89	128.16
C	Sonoma (SF)	Summer	2029	364.04	420.87	494.27	631.06	73.68	85.62	100.90	128.28
C	Sonoma (SF)	Summer	2030	364.04	421.09	494.25	631.26	73.68	85.70	100.92	128.40
C	Sonoma (SF)	Summer	2031	364.04	421.32	494.23	631.51	73.69	85.78	100.93	128.51
C	Sonoma (SF)	Summer	2032	364.05	421.53	494.22	631.77	73.69	85.86	100.94	128.62
C	Sonoma (SF)	Summer	2033	364.05	421.71	494.21	632.00	73.70	85.93	100.94	128.73
C	Sonoma (SF)	Summer	2034	364.04	421.87	494.20	632.22	73.70	86.00	100.95	128.82
C	Sonoma (SF)	Summer	2035	364.04	421.99	494.18	632.42	73.71	86.06	100.95	128.91
C	Sonoma (SF)	Winter	2010	334.63	384.66	457.75	575.67	73.29	85.42	99.94	124.71
C	Sonoma (SF)	Winter	2011	334.60	384.97	457.51	576.23	73.21	85.10	99.96	124.87
C	Sonoma (SF)	Winter	2012	334.62	385.30	457.33	576.85	73.15	84.87	100.01	125.06
C	Sonoma (SF)	Winter	2013	334.71	385.62	457.18	577.51	73.14	84.69	100.06	125.28
C	Sonoma (SF)	Winter	2014	334.78	385.92	457.05	578.16	73.12	84.55	100.09	125.51
C	Sonoma (SF)	Winter	2015	334.91	386.21	456.96	578.83	73.14	84.44	100.14	125.76
C	Sonoma (SF)	Winter	2016	335.06	386.53	456.89	579.45	73.20	84.38	100.20	126.01
C	Sonoma (SF)	Winter	2017	335.16	386.80	456.83	580.06	73.22	84.32	100.23	126.26
C	Sonoma (SF)	Winter	2018	335.26	387.05	456.79	580.59	73.25	84.30	100.30	126.51
C	Sonoma (SF)	Winter	2019	335.35	387.33	456.77	581.07	73.29	84.40	100.37	126.74
C	Sonoma (SF)	Winter	2020	335.45	387.59	456.75	581.50	73.39	84.53	100.46	126.96
C	Sonoma (SF)	Winter	2021	335.53	387.85	456.74	581.82	73.47	84.71	100.55	127.13
C	Sonoma (SF)	Winter	2022	335.56	388.08	456.72	582.09	73.53	84.86	100.63	127.25
C	Sonoma (SF)	Winter	2023	335.57	388.25	456.70	582.30	73.57	85.00	100.70	127.43
C	Sonoma (SF)	Winter	2024	335.55	388.39	456.68	582.45	73.60	85.12	100.75	127.59
C	Sonoma (SF)	Winter	2025	335.54	388.51	456.67	582.62	73.62	85.23	100.80	127.74
C	Sonoma (SF)	Winter	2026	335.56	388.66	456.64	582.81	73.64	85.34	100.84	127.90
C	Sonoma (SF)	Winter	2027	335.57	388.81	456.62	582.99	73.66	85.43	100.87	128.03
C	Sonoma (SF)	Winter	2028	335.57	388.97	456.59	583.17	73.67	85.53	100.89	128.16
C	Sonoma (SF)	Winter	2029	335.56	389.12	456.56	583.35	73.68	85.62	100.90	128.28
C	Sonoma (SF)	Winter	2030	335.55	389.28	456.53	583.54	73.68	85.70	100.92	128.40
C	Sonoma (SF)	Winter	2031	335.55	389.44	456.52	583.74	73.69	85.78	100.93	128.51
C	Sonoma (SF)	Winter	2032	335.54	389.59	456.50	583.96	73.69	85.86	100.94	128.62
C	Sonoma (SF)	Winter	2033	335.54	389.73	456.49	584.15	73.70	85.93	100.94	128.73
C	Sonoma (SF)	Winter	2034	335.53	389.86	456.47	584.32	73.70	86.00	100.95	128.82
C	Sonoma (SF)	Winter	2035	335.52	389.97	456.45	584.47	73.71	86.06	100.95	128.91
C	Stanislaus (SJV)	Annual	2010	347.54	398.75	476.31	598.46	73.30	85.31	100.21	124.28
C	Stanislaus (SJV)	Annual	2011	347.92	399.76	476.16	599.10	73.30	85.02	100.19	124.50
C	Stanislaus (SJV)	Annual	2012	347.75	399.91	475.41	598.84	73.30	84.79	100.22	124.69
C	Stanislaus (SJV)	Annual	2013	348.56	401.20	475.99	600.52	73.33	84.63	100.26	124.96
C	Stanislaus (SJV)	Annual	2014	348.84	401.83	475.95	601.34	73.34	84.51	100.27	125.24
C	Stanislaus (SJV)	Annual	2015	348.56	401.83	475.18	601.35	73.39	84.46	100.29	125.56
C	Stanislaus (SJV)	Annual	2016	348.81	402.38	475.17	602.26	73.47	84.42	100.33	125.89
C	Stanislaus (SJV)	Annual	2017	348.99	402.83	475.15	603.08	73.51	84.39	100.35	126.22
C	Stanislaus (SJV)	Annual	2018	353.62	408.37	481.26	611.54	73.55	84.40	100.38	126.51
C	Stanislaus (SJV)	Annual	2019	353.73	408.70	481.23	612.13	73.61	84.54	100.42	126.77
C	Stanislaus (SJV)	Annual	2020	353.83	408.99	481.21	612.65	73.71	84.70	100.51	127.02
C	Stanislaus (SJV)	Annual	2021	354.71	410.20	482.31	614.49	73.79	84.86	100.60	127.22
C	Stanislaus (SJV)	Annual	2022	354.74	410.42	482.28	614.83	73.84	85.01	100.68	127.40
C	Stanislaus (SJV)	Annual	2023	354.75	410.60	482.25	615.09	73.88	85.14	100.74	127.59
C	Stanislaus (SJV)	Annual	2024	354.87	410.88	482.39	615.50	73.90	85.25	100.79	127.76
C	Stanislaus (SJV)	Annual	2025	354.87	411.01	482.37	615.70	73.92	85.35	100.83	127.93
C	Stanislaus (SJV)	Annual	2026	355.36	411.70	482.95	616.63	73.94	85.46	100.86	128.08
C	Stanislaus (SJV)	Annual	2027	355.37	411.85	482.93	616.79	73.96	85.55	100.89	128.21

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Stanislaus (SJV)	Annual	2028	355.39	412.00	482.91	616.96	73.97	85.64	100.91	128.34
C	Stanislaus (SJV)	Annual	2029	355.40	412.15	482.89	617.13	73.98	85.72	100.92	128.45
C	Stanislaus (SJV)	Annual	2030	355.40	412.30	482.87	617.31	73.98	85.80	100.93	128.56
C	Stanislaus (SJV)	Annual	2031	355.40	412.44	482.87	617.52	73.99	85.88	100.94	128.67
C	Stanislaus (SJV)	Annual	2032	355.40	412.57	482.87	617.73	73.99	85.95	100.95	128.77
C	Stanislaus (SJV)	Annual	2033	355.40	412.68	482.86	617.92	74.00	86.01	100.95	128.87
C	Stanislaus (SJV)	Annual	2034	355.39	412.77	482.86	618.10	74.00	86.07	100.96	128.95
C	Stanislaus (SJV)	Annual	2035	355.39	412.85	482.85	618.26	74.00	86.12	100.96	129.03
C	Stanislaus (SJV)	Summer	2010	381.95	434.06	521.66	655.34	73.30	85.31	100.21	124.28
C	Stanislaus (SJV)	Summer	2011	382.62	435.93	521.78	655.94	73.30	85.02	100.19	124.50
C	Stanislaus (SJV)	Summer	2012	382.57	436.54	521.11	655.56	73.30	84.79	100.22	124.69
C	Stanislaus (SJV)	Summer	2013	383.60	438.42	521.96	657.48	73.33	84.63	100.26	124.96
C	Stanislaus (SJV)	Summer	2014	384.01	439.46	522.13	658.52	73.34	84.51	100.27	125.24
C	Stanislaus (SJV)	Summer	2015	383.81	439.80	521.54	658.80	73.39	84.46	100.29	125.56
C	Stanislaus (SJV)	Summer	2016	384.15	440.64	521.70	660.06	73.47	84.42	100.33	125.89
C	Stanislaus (SJV)	Summer	2017	384.37	441.33	521.79	661.18	73.51	84.39	100.35	126.22
C	Stanislaus (SJV)	Summer	2018	389.43	447.47	528.51	670.57	73.55	84.40	100.38	126.51
C	Stanislaus (SJV)	Summer	2019	389.52	447.88	528.49	671.33	73.61	84.54	100.42	126.77
C	Stanislaus (SJV)	Summer	2020	389.59	448.25	528.44	671.98	73.71	84.70	100.51	127.02
C	Stanislaus (SJV)	Summer	2021	390.52	449.59	529.58	674.02	73.79	84.86	100.60	127.22
C	Stanislaus (SJV)	Summer	2022	390.53	449.87	529.51	674.42	73.84	85.01	100.68	127.40
C	Stanislaus (SJV)	Summer	2023	390.52	450.11	529.44	674.71	73.88	85.14	100.74	127.59
C	Stanislaus (SJV)	Summer	2024	390.61	450.43	529.53	675.12	73.90	85.25	100.79	127.76
C	Stanislaus (SJV)	Summer	2025	390.61	450.61	529.49	675.31	73.92	85.35	100.83	127.93
C	Stanislaus (SJV)	Summer	2026	391.12	451.38	530.07	676.21	73.94	85.46	100.86	128.08
C	Stanislaus (SJV)	Summer	2027	391.16	451.60	530.04	676.32	73.96	85.55	100.89	128.21
C	Stanislaus (SJV)	Summer	2028	391.19	451.82	530.03	676.46	73.97	85.64	100.91	128.34
C	Stanislaus (SJV)	Summer	2029	391.22	452.04	530.02	676.62	73.98	85.72	100.92	128.45
C	Stanislaus (SJV)	Summer	2030	391.24	452.26	530.01	676.80	73.98	85.80	100.93	128.56
C	Stanislaus (SJV)	Summer	2031	391.23	452.46	530.03	677.05	73.99	85.88	100.94	128.67
C	Stanislaus (SJV)	Summer	2032	391.23	452.64	530.04	677.30	73.99	85.95	100.95	128.77
C	Stanislaus (SJV)	Summer	2033	391.23	452.78	530.05	677.55	74.00	86.01	100.95	128.87
C	Stanislaus (SJV)	Summer	2034	391.23	452.91	530.06	677.79	74.00	86.07	100.96	128.95
C	Stanislaus (SJV)	Summer	2035	391.22	453.00	530.06	678.01	74.00	86.12	100.96	129.03
C	Stanislaus (SJV)	Winter	2010	335.59	386.49	460.56	578.69	73.30	85.31	100.21	124.28
C	Stanislaus (SJV)	Winter	2011	335.86	387.20	460.31	579.35	73.30	85.02	100.19	124.50
C	Stanislaus (SJV)	Winter	2012	335.65	387.18	459.53	579.14	73.30	84.79	100.22	124.69
C	Stanislaus (SJV)	Winter	2013	336.39	388.28	460.03	580.73	73.33	84.63	100.26	124.96
C	Stanislaus (SJV)	Winter	2014	336.63	388.77	459.91	581.48	73.34	84.51	100.27	125.24
C	Stanislaus (SJV)	Winter	2015	336.31	388.64	459.08	581.38	73.39	84.46	100.29	125.56
C	Stanislaus (SJV)	Winter	2016	336.53	389.08	459.00	582.17	73.47	84.42	100.33	125.89
C	Stanislaus (SJV)	Winter	2017	336.70	389.46	458.95	582.89	73.51	84.39	100.35	126.22
C	Stanislaus (SJV)	Winter	2018	341.17	394.78	464.84	591.02	73.55	84.40	100.38	126.51
C	Stanislaus (SJV)	Winter	2019	341.29	395.08	464.81	591.56	73.61	84.54	100.42	126.77
C	Stanislaus (SJV)	Winter	2020	341.40	395.35	464.80	592.04	73.71	84.70	100.51	127.02
C	Stanislaus (SJV)	Winter	2021	342.27	396.52	465.89	593.81	73.79	84.86	100.60	127.22
C	Stanislaus (SJV)	Winter	2022	342.31	396.72	465.88	594.13	73.84	85.01	100.68	127.40
C	Stanislaus (SJV)	Winter	2023	342.33	396.88	465.86	594.38	73.88	85.14	100.74	127.59
C	Stanislaus (SJV)	Winter	2024	342.46	397.16	466.03	594.81	73.90	85.25	100.79	127.76
C	Stanislaus (SJV)	Winter	2025	342.47	397.27	466.01	595.01	73.92	85.35	100.83	127.93
C	Stanislaus (SJV)	Winter	2026	342.95	397.93	466.61	595.97	73.94	85.46	100.86	128.08
C	Stanislaus (SJV)	Winter	2027	342.97	398.06	466.59	596.15	73.96	85.55	100.89	128.21
C	Stanislaus (SJV)	Winter	2028	342.97	398.19	466.57	596.32	73.97	85.64	100.91	128.34
C	Stanislaus (SJV)	Winter	2029	342.97	398.32	466.55	596.50	73.98	85.72	100.92	128.45

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Stanislaus (SVJ)	Winter	2030	342.97	398.44	466.53	596.68	73.98	85.80	100.93	128.56
C	Stanislaus (SVJ)	Winter	2031	342.97	398.56	466.52	596.87	73.99	85.88	100.94	128.67
C	Stanislaus (SVJ)	Winter	2032	342.97	398.67	466.51	597.07	73.99	85.95	100.95	128.77
C	Stanislaus (SVJ)	Winter	2033	342.97	398.77	466.50	597.24	74.00	86.01	100.95	128.87
C	Stanislaus (SVJ)	Winter	2034	342.97	398.86	466.49	597.40	74.00	86.07	100.96	128.95
C	Stanislaus (SVJ)	Winter	2035	342.97	398.93	466.48	597.54	74.00	86.12	100.96	129.03
C	Sutter (SV)	Annual	2010	318.92	373.37	437.75	547.81	73.35	93.29	100.32	124.62
C	Sutter (SV)	Annual	2011	319.09	372.86	437.29	548.53	73.38	91.65	100.31	124.85
C	Sutter (SV)	Annual	2012	319.27	372.51	436.94	549.31	73.42	90.37	100.33	125.11
C	Sutter (SV)	Annual	2013	319.44	372.11	436.67	550.12	73.45	89.10	100.35	125.39
C	Sutter (SV)	Annual	2014	319.59	371.91	436.46	550.89	73.47	88.28	100.38	125.67
C	Sutter (SV)	Annual	2015	319.76	371.61	436.29	551.68	73.54	87.32	100.43	125.96
C	Sutter (SV)	Annual	2016	319.90	371.42	436.15	552.41	73.59	86.63	100.48	126.25
C	Sutter (SV)	Annual	2017	320.00	371.27	436.03	553.09	73.62	86.04	100.51	126.55
C	Sutter (SV)	Annual	2018	320.08	371.06	435.93	553.68	73.65	85.42	100.55	126.82
C	Sutter (SV)	Annual	2019	319.95	370.85	435.58	553.80	73.68	85.29	100.60	127.06
C	Sutter (SV)	Annual	2020	320.03	370.87	435.52	554.22	73.77	85.28	100.67	127.27
C	Sutter (SV)	Annual	2021	320.09	371.00	435.45	554.53	73.84	85.39	100.74	127.43
C	Sutter (SV)	Annual	2022	320.10	371.10	435.39	554.80	73.89	85.49	100.80	127.58
C	Sutter (SV)	Annual	2023	320.09	371.18	435.33	555.01	73.92	85.56	100.84	127.75
C	Sutter (SV)	Annual	2024	320.06	371.22	435.28	555.15	73.94	85.63	100.88	127.90
C	Sutter (SV)	Annual	2025	320.07	371.28	435.23	555.29	73.96	85.70	100.91	128.05
C	Sutter (SV)	Annual	2026	320.08	371.36	435.18	555.44	73.98	85.76	100.93	128.18
C	Sutter (SV)	Annual	2027	320.09	371.42	435.13	555.59	73.99	85.82	100.95	128.31
C	Sutter (SV)	Annual	2028	320.10	371.49	435.09	555.75	74.00	85.87	100.96	128.42
C	Sutter (SV)	Annual	2029	320.10	371.57	435.03	555.90	74.01	85.91	100.96	128.53
C	Sutter (SV)	Annual	2030	320.10	371.64	434.98	556.07	74.01	85.96	100.96	128.63
C	Sutter (SV)	Annual	2031	320.09	371.71	434.96	556.25	74.02	86.00	100.97	128.73
C	Sutter (SV)	Annual	2032	320.09	371.77	434.94	556.44	74.02	86.04	100.97	128.83
C	Sutter (SV)	Annual	2033	320.08	371.83	434.92	556.61	74.03	86.08	100.97	128.92
C	Sutter (SV)	Annual	2034	320.08	371.88	434.90	556.76	74.03	86.11	100.98	129.00
C	Sutter (SV)	Annual	2035	320.07	371.92	434.88	556.90	74.03	86.14	100.98	129.08
C	Sutter (SV)	Summer	2010	354.18	409.96	483.57	606.30	73.35	93.29	100.32	124.62
C	Sutter (SV)	Summer	2011	354.64	410.22	483.65	607.07	73.38	91.65	100.31	124.85
C	Sutter (SV)	Summer	2012	355.05	410.47	483.72	608.00	73.42	90.37	100.33	125.11
C	Sutter (SV)	Summer	2013	355.40	410.65	483.78	609.02	73.45	89.10	100.35	125.39
C	Sutter (SV)	Summer	2014	355.68	410.81	483.83	610.04	73.47	88.28	100.38	125.67
C	Sutter (SV)	Summer	2015	355.95	410.91	483.85	611.10	73.54	87.32	100.43	125.96
C	Sutter (SV)	Summer	2016	356.16	411.00	483.85	612.11	73.59	86.63	100.48	126.25
C	Sutter (SV)	Summer	2017	356.29	411.07	483.81	613.03	73.62	86.04	100.51	126.55
C	Sutter (SV)	Summer	2018	356.37	411.10	483.72	613.81	73.65	85.42	100.55	126.82
C	Sutter (SV)	Summer	2019	356.22	410.93	483.33	614.02	73.68	85.29	100.60	127.06
C	Sutter (SV)	Summer	2020	356.26	410.99	483.23	614.53	73.77	85.28	100.67	127.27
C	Sutter (SV)	Summer	2021	356.29	411.17	483.13	614.91	73.84	85.39	100.74	127.43
C	Sutter (SV)	Summer	2022	356.29	411.33	483.05	615.24	73.89	85.49	100.80	127.58
C	Sutter (SV)	Summer	2023	356.27	411.46	482.98	615.49	73.92	85.56	100.84	127.75
C	Sutter (SV)	Summer	2024	356.26	411.55	482.91	615.61	73.94	85.63	100.88	127.90
C	Sutter (SV)	Summer	2025	356.28	411.64	482.86	615.74	73.96	85.70	100.91	128.05
C	Sutter (SV)	Summer	2026	356.31	411.75	482.80	615.87	73.98	85.76	100.93	128.18
C	Sutter (SV)	Summer	2027	356.33	411.83	482.77	616.01	73.99	85.82	100.95	128.31
C	Sutter (SV)	Summer	2028	356.36	411.94	482.75	616.16	74.00	85.87	100.96	128.42
C	Sutter (SV)	Summer	2029	356.37	412.05	482.71	616.33	74.01	85.91	100.96	128.53
C	Sutter (SV)	Summer	2030	356.38	412.16	482.69	616.52	74.01	85.96	100.96	128.63
C	Sutter (SV)	Summer	2031	356.37	412.24	482.71	616.77	74.02	86.00	100.97	128.73

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Sutter (SV)	Summer	2032	356.36	412.32	482.72	617.01	74.02	86.04	100.97	128.83
C	Sutter (SV)	Summer	2033	356.35	412.39	482.72	617.23	74.03	86.08	100.97	128.92
C	Sutter (SV)	Summer	2034	356.34	412.46	482.72	617.45	74.03	86.11	100.98	129.00
C	Sutter (SV)	Summer	2035	356.34	412.51	482.71	617.63	74.03	86.14	100.98	129.08
C	Sutter (SV)	Winter	2010	308.69	362.76	424.46	530.84	73.35	93.29	100.32	124.62
C	Sutter (SV)	Winter	2011	308.77	362.02	423.84	531.54	73.38	91.65	100.31	124.85
C	Sutter (SV)	Winter	2012	308.88	361.49	423.37	532.28	73.42	90.37	100.33	125.11
C	Sutter (SV)	Winter	2013	309.01	360.92	423.00	533.03	73.45	89.10	100.35	125.39
C	Sutter (SV)	Winter	2014	309.11	360.62	422.71	533.73	73.47	88.28	100.38	125.67
C	Sutter (SV)	Winter	2015	309.25	360.21	422.48	534.44	73.54	87.32	100.43	125.96
C	Sutter (SV)	Winter	2016	309.38	359.94	422.31	535.09	73.59	86.63	100.48	126.25
C	Sutter (SV)	Winter	2017	309.47	359.72	422.17	535.69	73.62	86.04	100.51	126.55
C	Sutter (SV)	Winter	2018	309.55	359.44	422.06	536.23	73.65	85.42	100.55	126.82
C	Sutter (SV)	Winter	2019	309.43	359.22	421.72	536.32	73.68	85.29	100.60	127.06
C	Sutter (SV)	Winter	2020	309.51	359.22	421.66	536.71	73.77	85.28	100.67	127.27
C	Sutter (SV)	Winter	2021	309.58	359.34	421.61	537.00	73.84	85.39	100.74	127.43
C	Sutter (SV)	Winter	2022	309.60	359.42	421.56	537.26	73.89	85.49	100.80	127.58
C	Sutter (SV)	Winter	2023	309.59	359.48	421.50	537.45	73.92	85.56	100.84	127.75
C	Sutter (SV)	Winter	2024	309.55	359.52	421.45	537.60	73.94	85.63	100.88	127.90
C	Sutter (SV)	Winter	2025	309.55	359.57	421.41	537.75	73.96	85.70	100.91	128.05
C	Sutter (SV)	Winter	2026	309.57	359.64	421.35	537.90	73.98	85.76	100.93	128.18
C	Sutter (SV)	Winter	2027	309.57	359.69	421.30	538.05	73.99	85.82	100.95	128.31
C	Sutter (SV)	Winter	2028	309.58	359.75	421.25	538.21	74.00	85.87	100.96	128.42
C	Sutter (SV)	Winter	2029	309.57	359.81	421.19	538.36	74.01	85.91	100.96	128.53
C	Sutter (SV)	Winter	2030	309.56	359.88	421.13	538.52	74.01	85.96	100.96	128.63
C	Sutter (SV)	Winter	2031	309.56	359.94	421.10	538.69	74.02	86.00	100.97	128.73
C	Sutter (SV)	Winter	2032	309.56	360.00	421.07	538.86	74.02	86.04	100.97	128.83
C	Sutter (SV)	Winter	2033	309.56	360.05	421.04	539.01	74.03	86.08	100.97	128.92
C	Sutter (SV)	Winter	2034	309.55	360.10	421.02	539.15	74.03	86.11	100.98	129.00
C	Sutter (SV)	Winter	2035	309.55	360.14	421.00	539.27	74.03	86.14	100.98	129.08
C	Tehama (SV)	Annual	2010	347.71	408.08	478.44	596.20	73.92	97.65	101.75	125.26
C	Tehama (SV)	Annual	2011	347.75	407.21	477.63	596.79	73.75	95.12	101.53	125.31
C	Tehama (SV)	Annual	2012	347.86	406.66	477.01	597.48	73.65	93.32	101.40	125.42
C	Tehama (SV)	Annual	2013	347.97	406.10	476.53	598.29	73.54	91.52	101.28	125.55
C	Tehama (SV)	Annual	2014	348.09	405.68	476.15	599.09	73.46	90.11	101.17	125.71
C	Tehama (SV)	Annual	2015	348.24	405.38	475.85	599.96	73.44	88.97	101.03	125.89
C	Tehama (SV)	Annual	2016	348.39	405.05	475.61	600.78	73.43	87.78	100.95	126.12
C	Tehama (SV)	Annual	2017	348.50	404.72	475.41	601.55	73.42	86.61	100.84	126.35
C	Tehama (SV)	Annual	2018	348.57	404.51	475.24	602.23	73.38	85.79	100.77	126.58
C	Tehama (SV)	Annual	2019	348.67	404.46	475.11	602.83	73.42	85.46	100.74	126.78
C	Tehama (SV)	Annual	2020	348.75	404.42	475.00	603.36	73.52	85.32	100.77	126.99
C	Tehama (SV)	Annual	2021	348.82	404.51	474.91	603.73	73.60	85.40	100.84	127.12
C	Tehama (SV)	Annual	2022	348.84	404.58	474.81	603.99	73.65	85.48	100.88	127.15
C	Tehama (SV)	Annual	2023	348.83	404.65	474.72	604.17	73.68	85.54	100.91	127.32
C	Tehama (SV)	Annual	2024	348.79	404.72	474.64	604.33	73.69	85.61	100.94	127.48
C	Tehama (SV)	Annual	2025	348.78	404.78	474.58	604.54	73.71	85.67	100.96	127.66
C	Tehama (SV)	Annual	2026	348.80	404.87	474.51	604.75	73.74	85.74	100.98	127.82
C	Tehama (SV)	Annual	2027	348.82	404.95	474.43	604.97	73.75	85.80	100.99	127.98
C	Tehama (SV)	Annual	2028	348.82	405.02	474.36	605.19	73.76	85.86	100.99	128.12
C	Tehama (SV)	Annual	2029	348.82	405.11	474.28	605.40	73.77	85.91	100.98	128.26
C	Tehama (SV)	Annual	2030	348.81	405.19	474.20	605.62	73.77	85.96	100.97	128.38
C	Tehama (SV)	Annual	2031	348.81	405.27	474.16	605.87	73.78	86.01	100.97	128.51
C	Tehama (SV)	Annual	2032	348.81	405.34	474.13	606.13	73.78	86.06	100.97	128.63
C	Tehama (SV)	Annual	2033	348.80	405.40	474.10	606.35	73.79	86.10	100.97	128.74

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Tehama (SV)	Annual	2034	348.80	405.45	474.07	606.55	73.79	86.14	100.97	128.85
C	Tehama (SV)	Annual	2035	348.79	405.50	474.05	606.73	73.80	86.17	100.98	128.94
C	Tehama (SV)	Summer	2010	383.41	444.94	524.62	654.31	73.92	97.65	101.75	125.26
C	Tehama (SV)	Summer	2011	383.77	445.00	524.52	654.97	73.75	95.12	101.53	125.31
C	Tehama (SV)	Summer	2012	384.14	445.10	524.43	655.86	73.65	93.32	101.40	125.42
C	Tehama (SV)	Summer	2013	384.45	445.13	524.35	656.99	73.54	91.52	101.28	125.55
C	Tehama (SV)	Summer	2014	384.73	445.13	524.29	658.11	73.46	90.11	101.17	125.71
C	Tehama (SV)	Summer	2015	385.00	445.18	524.25	659.39	73.44	88.97	101.03	125.89
C	Tehama (SV)	Summer	2016	385.23	445.19	524.18	660.60	73.43	87.78	100.95	126.12
C	Tehama (SV)	Summer	2017	385.39	445.19	524.07	661.71	73.42	86.61	100.84	126.35
C	Tehama (SV)	Summer	2018	385.47	445.18	523.93	662.69	73.38	85.79	100.77	126.58
C	Tehama (SV)	Summer	2019	385.58	445.24	523.81	663.55	73.42	85.46	100.74	126.78
C	Tehama (SV)	Summer	2020	385.65	445.32	523.70	664.29	73.52	85.32	100.77	126.99
C	Tehama (SV)	Summer	2021	385.70	445.43	523.58	664.83	73.60	85.40	100.84	127.12
C	Tehama (SV)	Summer	2022	385.72	445.55	523.48	665.26	73.65	85.48	100.88	127.15
C	Tehama (SV)	Summer	2023	385.71	445.67	523.40	665.55	73.68	85.54	100.91	127.32
C	Tehama (SV)	Summer	2024	385.66	445.84	523.33	665.79	73.69	85.61	100.94	127.48
C	Tehama (SV)	Summer	2025	385.66	445.99	523.29	666.03	73.71	85.67	100.96	127.66
C	Tehama (SV)	Summer	2026	385.69	446.14	523.22	666.24	73.74	85.74	100.98	127.82
C	Tehama (SV)	Summer	2027	385.72	446.27	523.16	666.46	73.75	85.80	100.99	127.98
C	Tehama (SV)	Summer	2028	385.74	446.39	523.12	666.69	73.76	85.86	100.99	128.12
C	Tehama (SV)	Summer	2029	385.76	446.52	523.06	666.94	73.77	85.91	100.98	128.26
C	Tehama (SV)	Summer	2030	385.77	446.65	523.02	667.20	73.77	85.96	100.97	128.38
C	Tehama (SV)	Summer	2031	385.77	446.77	523.01	667.51	73.78	86.01	100.97	128.51
C	Tehama (SV)	Summer	2032	385.77	446.86	523.00	667.82	73.78	86.06	100.97	128.63
C	Tehama (SV)	Summer	2033	385.77	446.94	522.99	668.11	73.79	86.10	100.97	128.74
C	Tehama (SV)	Summer	2034	385.77	447.00	522.97	668.39	73.79	86.14	100.97	128.85
C	Tehama (SV)	Summer	2035	385.76	447.05	522.96	668.63	73.80	86.17	100.98	128.94
C	Tehama (SV)	Winter	2010	339.88	399.98	468.30	583.44	73.92	97.65	101.75	125.26
C	Tehama (SV)	Winter	2011	339.84	398.91	467.33	584.01	73.75	95.12	101.53	125.31
C	Tehama (SV)	Winter	2012	339.89	398.22	466.60	584.66	73.65	93.32	101.40	125.42
C	Tehama (SV)	Winter	2013	339.96	397.53	466.03	585.41	73.54	91.52	101.28	125.55
C	Tehama (SV)	Winter	2014	340.05	397.02	465.58	586.13	73.46	90.11	101.17	125.71
C	Tehama (SV)	Winter	2015	340.18	396.64	465.23	586.91	73.44	88.97	101.03	125.89
C	Tehama (SV)	Winter	2016	340.30	396.23	464.95	587.65	73.43	87.78	100.95	126.12
C	Tehama (SV)	Winter	2017	340.40	395.84	464.72	588.34	73.42	86.61	100.84	126.35
C	Tehama (SV)	Winter	2018	340.46	395.57	464.55	588.96	73.38	85.79	100.77	126.58
C	Tehama (SV)	Winter	2019	340.57	395.50	464.42	589.50	73.42	85.46	100.74	126.78
C	Tehama (SV)	Winter	2020	340.65	395.45	464.31	589.99	73.52	85.32	100.77	126.99
C	Tehama (SV)	Winter	2021	340.72	395.53	464.22	590.32	73.60	85.40	100.84	127.12
C	Tehama (SV)	Winter	2022	340.75	395.59	464.13	590.54	73.65	85.48	100.88	127.15
C	Tehama (SV)	Winter	2023	340.74	395.64	464.04	590.70	73.68	85.54	100.91	127.32
C	Tehama (SV)	Winter	2024	340.69	395.69	463.95	590.84	73.69	85.61	100.94	127.48
C	Tehama (SV)	Winter	2025	340.69	395.73	463.89	591.04	73.71	85.67	100.96	127.66
C	Tehama (SV)	Winter	2026	340.71	395.81	463.81	591.25	73.74	85.74	100.98	127.82
C	Tehama (SV)	Winter	2027	340.72	395.87	463.73	591.47	73.75	85.80	100.99	127.98
C	Tehama (SV)	Winter	2028	340.72	395.94	463.66	591.68	73.76	85.86	100.99	128.12
C	Tehama (SV)	Winter	2029	340.71	396.01	463.57	591.89	73.77	85.91	100.98	128.26
C	Tehama (SV)	Winter	2030	340.70	396.08	463.49	592.11	73.77	85.96	100.97	128.38
C	Tehama (SV)	Winter	2031	340.69	396.15	463.44	592.34	73.78	86.01	100.97	128.51
C	Tehama (SV)	Winter	2032	340.69	396.22	463.40	592.58	73.78	86.06	100.97	128.63
C	Tehama (SV)	Winter	2033	340.69	396.28	463.36	592.79	73.79	86.10	100.97	128.74
C	Tehama (SV)	Winter	2034	340.68	396.33	463.33	592.98	73.79	86.14	100.97	128.85
C	Tehama (SV)	Winter	2035	340.68	396.38	463.31	593.14	73.80	86.17	100.98	128.94

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Trinity (NC)	Annual	2010	418.09	487.84	574.09	715.19	74.90	92.99	102.21	125.69
C	Trinity (NC)	Annual	2011	417.85	486.98	572.91	715.90	74.77	91.52	101.90	125.69
C	Trinity (NC)	Annual	2012	417.49	486.30	572.01	716.66	74.38	90.31	101.80	125.77
C	Trinity (NC)	Annual	2013	417.29	485.72	571.27	717.54	74.11	89.30	101.63	125.88
C	Trinity (NC)	Annual	2014	417.30	485.26	570.68	718.45	74.02	88.48	101.43	125.98
C	Trinity (NC)	Annual	2015	417.20	484.84	570.20	719.31	73.81	87.68	101.29	126.15
C	Trinity (NC)	Annual	2016	417.21	484.59	569.80	720.22	73.74	87.14	101.13	126.34
C	Trinity (NC)	Annual	2017	417.18	484.28	569.49	721.03	73.63	86.51	101.07	126.56
C	Trinity (NC)	Annual	2018	417.15	483.99	569.22	721.67	73.54	85.93	100.99	126.78
C	Trinity (NC)	Annual	2019	417.05	483.85	568.99	722.23	73.40	85.63	100.89	126.97
C	Trinity (NC)	Annual	2020	417.08	483.72	568.81	722.69	73.47	85.48	100.93	127.16
C	Trinity (NC)	Annual	2021	417.02	483.56	568.64	722.95	73.51	85.45	100.98	127.20
C	Trinity (NC)	Annual	2022	416.96	483.49	568.47	723.19	73.53	85.47	101.00	127.30
C	Trinity (NC)	Annual	2023	416.81	483.40	568.28	723.33	73.52	85.47	101.00	127.46
C	Trinity (NC)	Annual	2024	416.55	483.36	568.13	723.43	73.46	85.51	101.02	127.61
C	Trinity (NC)	Annual	2025	416.37	483.39	568.02	723.46	73.44	85.56	101.04	127.73
C	Trinity (NC)	Annual	2026	416.37	483.57	567.87	723.62	73.46	85.66	101.04	127.88
C	Trinity (NC)	Annual	2027	416.36	483.73	567.74	723.82	73.47	85.75	101.05	128.02
C	Trinity (NC)	Annual	2028	416.34	483.90	567.63	724.04	73.47	85.83	101.05	128.17
C	Trinity (NC)	Annual	2029	416.30	484.08	567.45	724.24	73.47	85.91	101.03	128.29
C	Trinity (NC)	Annual	2030	416.26	484.24	567.32	724.45	73.47	85.98	101.01	128.41
C	Trinity (NC)	Annual	2031	416.26	484.41	567.24	724.73	73.48	86.05	101.01	128.54
C	Trinity (NC)	Annual	2032	416.25	484.55	567.18	725.01	73.48	86.12	101.01	128.66
C	Trinity (NC)	Annual	2033	416.24	484.67	567.13	725.26	73.49	86.17	101.01	128.78
C	Trinity (NC)	Annual	2034	416.24	484.78	567.09	725.48	73.49	86.23	101.01	128.88
C	Trinity (NC)	Annual	2035	416.23	484.86	567.05	725.68	73.50	86.27	101.01	128.97
C	Trinity (NC)	Summer	2010	427.59	496.70	586.45	730.35	74.90	92.99	102.21	125.69
C	Trinity (NC)	Summer	2011	427.49	496.26	585.45	731.14	74.77	91.52	101.90	125.69
C	Trinity (NC)	Summer	2012	427.24	495.90	584.69	732.01	74.38	90.31	101.80	125.77
C	Trinity (NC)	Summer	2013	427.13	495.58	584.07	733.04	74.11	89.30	101.63	125.88
C	Trinity (NC)	Summer	2014	427.18	495.32	583.59	734.09	74.02	88.48	101.43	125.98
C	Trinity (NC)	Summer	2015	427.12	495.08	583.19	735.09	73.81	87.68	101.29	126.15
C	Trinity (NC)	Summer	2016	427.16	494.97	582.86	736.16	73.74	87.14	101.13	126.34
C	Trinity (NC)	Summer	2017	427.13	494.79	582.58	737.09	73.63	86.51	101.07	126.56
C	Trinity (NC)	Summer	2018	427.09	494.61	582.34	737.83	73.54	85.93	100.99	126.78
C	Trinity (NC)	Summer	2019	426.99	494.56	582.13	738.48	73.40	85.63	100.89	126.97
C	Trinity (NC)	Summer	2020	427.02	494.51	581.96	739.02	73.47	85.48	100.93	127.16
C	Trinity (NC)	Summer	2021	426.96	494.42	581.80	739.36	73.51	85.45	100.98	127.20
C	Trinity (NC)	Summer	2022	426.90	494.41	581.63	739.65	73.53	85.47	101.00	127.30
C	Trinity (NC)	Summer	2023	426.75	494.37	581.45	739.84	73.52	85.47	101.00	127.46
C	Trinity (NC)	Summer	2024	426.50	494.37	581.32	739.98	73.46	85.51	101.02	127.61
C	Trinity (NC)	Summer	2025	426.32	494.44	581.21	740.06	73.44	85.56	101.04	127.73
C	Trinity (NC)	Summer	2026	426.33	494.65	581.06	740.22	73.46	85.66	101.04	127.88
C	Trinity (NC)	Summer	2027	426.33	494.84	580.95	740.44	73.47	85.75	101.05	128.02
C	Trinity (NC)	Summer	2028	426.32	495.05	580.84	740.67	73.47	85.83	101.05	128.17
C	Trinity (NC)	Summer	2029	426.29	495.26	580.68	740.90	73.47	85.91	101.03	128.29
C	Trinity (NC)	Summer	2030	426.26	495.45	580.55	741.12	73.47	85.98	101.01	128.41
C	Trinity (NC)	Summer	2031	426.26	495.65	580.49	741.43	73.48	86.05	101.01	128.54
C	Trinity (NC)	Summer	2032	426.25	495.81	580.43	741.74	73.48	86.12	101.01	128.66
C	Trinity (NC)	Summer	2033	426.25	495.94	580.39	742.01	73.49	86.17	101.01	128.78
C	Trinity (NC)	Summer	2034	426.24	496.05	580.35	742.25	73.49	86.23	101.01	128.88
C	Trinity (NC)	Summer	2035	426.23	496.13	580.31	742.47	73.50	86.27	101.01	128.97
C	Trinity (NC)	Winter	2010	410.15	480.44	563.75	702.52	74.90	92.99	102.21	125.69
C	Trinity (NC)	Winter	2011	409.80	479.23	562.42	703.15	74.77	91.52	101.90	125.69

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Trinity (NC)	Winter	2012	409.34	478.27	561.40	703.82	74.38	90.31	101.80	125.77
C	Trinity (NC)	Winter	2013	409.07	477.47	560.57	704.58	74.11	89.30	101.63	125.88
C	Trinity (NC)	Winter	2014	409.04	476.85	559.89	705.37	74.02	88.48	101.43	125.98
C	Trinity (NC)	Winter	2015	408.90	476.28	559.34	706.11	73.81	87.68	101.29	126.15
C	Trinity (NC)	Winter	2016	408.90	475.91	558.88	706.90	73.74	87.14	101.13	126.34
C	Trinity (NC)	Winter	2017	408.86	475.49	558.54	707.60	73.63	86.51	101.07	126.56
C	Trinity (NC)	Winter	2018	408.83	475.10	558.24	708.16	73.54	85.93	100.99	126.78
C	Trinity (NC)	Winter	2019	408.73	474.90	557.99	708.64	73.40	85.63	100.89	126.97
C	Trinity (NC)	Winter	2020	408.76	474.70	557.81	709.04	73.47	85.48	100.93	127.16
C	Trinity (NC)	Winter	2021	408.71	474.47	557.65	709.23	73.51	85.45	100.98	127.20
C	Trinity (NC)	Winter	2022	408.65	474.36	557.46	709.42	73.53	85.47	101.00	127.30
C	Trinity (NC)	Winter	2023	408.50	474.23	557.26	709.52	73.52	85.47	101.00	127.46
C	Trinity (NC)	Winter	2024	408.24	474.14	557.10	709.59	73.46	85.51	101.02	127.61
C	Trinity (NC)	Winter	2025	408.05	474.15	556.99	709.59	73.44	85.56	101.04	127.73
C	Trinity (NC)	Winter	2026	408.04	474.30	556.83	709.73	73.46	85.66	101.04	127.88
C	Trinity (NC)	Winter	2027	408.03	474.43	556.70	709.93	73.47	85.75	101.05	128.02
C	Trinity (NC)	Winter	2028	407.99	474.58	556.58	710.14	73.47	85.83	101.05	128.17
C	Trinity (NC)	Winter	2029	407.95	474.73	556.39	710.32	73.47	85.91	101.03	128.29
C	Trinity (NC)	Winter	2030	407.90	474.86	556.25	710.50	73.47	85.98	101.01	128.41
C	Trinity (NC)	Winter	2031	407.89	475.01	556.16	710.77	73.48	86.05	101.01	128.54
C	Trinity (NC)	Winter	2032	407.89	475.14	556.09	711.03	73.48	86.12	101.01	128.66
C	Trinity (NC)	Winter	2033	407.88	475.25	556.04	711.25	73.49	86.17	101.01	128.78
C	Trinity (NC)	Winter	2034	407.87	475.35	555.99	711.45	73.49	86.23	101.01	128.88
C	Trinity (NC)	Winter	2035	407.86	475.43	555.96	711.63	73.50	86.27	101.01	128.97
C	Tulare (SJV)	Annual	2010	336.36	385.47	460.79	577.56	73.50	85.81	100.77	124.48
C	Tulare (SJV)	Annual	2011	336.57	386.30	460.48	578.46	73.48	85.49	100.70	124.76
C	Tulare (SJV)	Annual	2012	336.33	386.39	459.69	578.44	73.48	85.24	100.68	125.00
C	Tulare (SJV)	Annual	2013	335.07	385.21	457.53	576.70	73.50	85.03	100.65	125.26
C	Tulare (SJV)	Annual	2014	335.24	385.64	457.39	577.46	73.52	84.88	100.59	125.53
C	Tulare (SJV)	Annual	2015	332.48	382.78	453.30	573.37	73.54	84.80	100.57	125.86
C	Tulare (SJV)	Annual	2016	332.66	383.22	453.22	574.24	73.60	84.76	100.58	126.18
C	Tulare (SJV)	Annual	2017	332.78	383.58	453.15	575.03	73.62	84.70	100.55	126.50
C	Tulare (SJV)	Annual	2018	330.99	381.76	450.54	572.51	73.64	84.68	100.55	126.81
C	Tulare (SJV)	Annual	2019	331.07	382.11	450.49	573.12	73.68	84.78	100.57	127.09
C	Tulare (SJV)	Annual	2020	331.14	382.41	450.44	573.65	73.77	84.92	100.64	127.34
C	Tulare (SJV)	Annual	2021	332.08	383.64	451.61	575.50	73.83	85.06	100.71	127.52
C	Tulare (SJV)	Annual	2022	332.08	383.82	451.55	575.74	73.88	85.19	100.77	127.66
C	Tulare (SJV)	Annual	2023	332.06	383.97	451.49	575.93	73.91	85.30	100.82	127.83
C	Tulare (SJV)	Annual	2024	331.57	383.61	450.80	575.35	73.92	85.42	100.86	128.00
C	Tulare (SJV)	Annual	2025	331.58	383.79	450.78	575.58	73.94	85.52	100.89	128.17
C	Tulare (SJV)	Annual	2026	328.97	380.93	447.18	571.21	73.96	85.62	100.91	128.32
C	Tulare (SJV)	Annual	2027	328.98	381.09	447.14	571.39	73.98	85.71	100.93	128.45
C	Tulare (SJV)	Annual	2028	328.99	381.26	447.12	571.56	73.99	85.79	100.95	128.57
C	Tulare (SJV)	Annual	2029	328.99	381.42	447.08	571.73	73.99	85.87	100.95	128.68
C	Tulare (SJV)	Annual	2030	328.99	381.57	447.05	571.90	73.99	85.94	100.96	128.78
C	Tulare (SJV)	Annual	2031	328.99	381.72	447.04	572.06	74.00	86.01	100.97	128.88
C	Tulare (SJV)	Annual	2032	328.98	381.84	447.02	572.22	74.00	86.07	100.97	128.97
C	Tulare (SJV)	Annual	2033	328.98	381.96	447.00	572.37	74.01	86.12	100.98	129.05
C	Tulare (SJV)	Annual	2034	328.98	382.05	446.99	572.50	74.01	86.17	100.98	129.12
C	Tulare (SJV)	Annual	2035	328.97	382.13	446.97	572.62	74.01	86.21	100.99	129.19
C	Tulare (SJV)	Summer	2010	370.07	419.00	504.64	633.62	73.50	85.81	100.77	124.48
C	Tulare (SJV)	Summer	2011	370.60	420.85	504.80	634.63	73.48	85.49	100.70	124.76
C	Tulare (SJV)	Summer	2012	370.51	421.55	504.22	634.57	73.48	85.24	100.68	125.00
C	Tulare (SJV)	Summer	2013	369.24	420.74	502.10	632.71	73.50	85.03	100.65	125.26

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Tulare (SJV)	Summer	2014	369.50	421.59	502.20	633.64	73.52	84.88	100.59	125.53
C	Tulare (SJV)	Summer	2015	366.59	418.86	497.98	629.41	73.54	84.80	100.57	125.86
C	Tulare (SJV)	Summer	2016	366.85	419.64	498.09	630.59	73.60	84.76	100.58	126.18
C	Tulare (SJV)	Summer	2017	367.01	420.29	498.14	631.63	73.62	84.70	100.55	126.50
C	Tulare (SJV)	Summer	2018	365.07	418.53	495.39	629.07	73.64	84.68	100.55	126.81
C	Tulare (SJV)	Summer	2019	365.18	419.08	495.40	629.88	73.68	84.78	100.57	127.09
C	Tulare (SJV)	Summer	2020	365.26	419.55	495.38	630.57	73.77	84.92	100.64	127.34
C	Tulare (SJV)	Summer	2021	366.23	420.93	496.59	632.55	73.83	85.06	100.71	127.52
C	Tulare (SJV)	Summer	2022	366.18	421.15	496.47	632.78	73.88	85.19	100.77	127.66
C	Tulare (SJV)	Summer	2023	366.13	421.35	496.36	632.94	73.91	85.30	100.82	127.83
C	Tulare (SJV)	Summer	2024	365.61	421.09	495.65	632.36	73.92	85.42	100.86	128.00
C	Tulare (SJV)	Summer	2025	365.65	421.39	495.65	632.65	73.94	85.52	100.89	128.17
C	Tulare (SJV)	Summer	2026	362.79	418.33	491.72	627.85	73.96	85.62	100.91	128.32
C	Tulare (SJV)	Summer	2027	362.81	418.59	491.69	628.03	73.98	85.71	100.93	128.45
C	Tulare (SJV)	Summer	2028	362.84	418.83	491.68	628.22	73.99	85.79	100.95	128.57
C	Tulare (SJV)	Summer	2029	362.86	419.09	491.67	628.41	73.99	85.87	100.95	128.68
C	Tulare (SJV)	Summer	2030	362.87	419.31	491.65	628.60	73.99	85.94	100.96	128.78
C	Tulare (SJV)	Summer	2031	362.87	419.53	491.64	628.76	74.00	86.01	100.97	128.88
C	Tulare (SJV)	Summer	2032	362.86	419.70	491.62	628.93	74.00	86.07	100.97	128.97
C	Tulare (SJV)	Summer	2033	362.85	419.85	491.61	629.09	74.01	86.12	100.98	129.05
C	Tulare (SJV)	Summer	2034	362.85	419.98	491.60	629.26	74.01	86.17	100.98	129.12
C	Tulare (SJV)	Summer	2035	362.84	420.07	491.58	629.40	74.01	86.21	100.99	129.19
C	Tulare (SJV)	Winter	2010	322.59	371.77	442.88	554.67	73.50	85.81	100.77	124.48
C	Tulare (SJV)	Winter	2011	322.67	372.19	442.39	555.52	73.48	85.49	100.70	124.76
C	Tulare (SJV)	Winter	2012	322.38	372.04	441.51	555.52	73.48	85.24	100.68	125.00
C	Tulare (SJV)	Winter	2013	321.12	370.70	439.32	553.83	73.50	85.03	100.65	125.26
C	Tulare (SJV)	Winter	2014	321.25	370.96	439.09	554.52	73.52	84.88	100.59	125.53
C	Tulare (SJV)	Winter	2015	318.55	368.04	435.04	550.47	73.54	84.80	100.57	125.86
C	Tulare (SJV)	Winter	2016	318.70	368.34	434.89	551.22	73.60	84.76	100.58	126.18
C	Tulare (SJV)	Winter	2017	318.79	368.59	434.76	551.90	73.62	84.70	100.55	126.50
C	Tulare (SJV)	Winter	2018	317.06	366.73	432.20	549.39	73.64	84.68	100.55	126.81
C	Tulare (SJV)	Winter	2019	317.13	366.99	432.13	549.92	73.68	84.78	100.57	127.09
C	Tulare (SJV)	Winter	2020	317.20	367.23	432.08	550.39	73.77	84.92	100.64	127.34
C	Tulare (SJV)	Winter	2021	318.13	368.41	433.22	552.19	73.83	85.06	100.71	127.52
C	Tulare (SJV)	Winter	2022	318.15	368.57	433.19	552.43	73.88	85.19	100.77	127.66
C	Tulare (SJV)	Winter	2023	318.14	368.69	433.15	552.63	73.91	85.30	100.82	127.83
C	Tulare (SJV)	Winter	2024	317.65	368.30	432.48	552.05	73.92	85.42	100.86	128.00
C	Tulare (SJV)	Winter	2025	317.66	368.42	432.44	552.26	73.94	85.52	100.89	128.17
C	Tulare (SJV)	Winter	2026	315.14	365.64	428.97	548.06	73.96	85.62	100.91	128.32
C	Tulare (SJV)	Winter	2027	315.15	365.77	428.93	548.23	73.98	85.71	100.93	128.45
C	Tulare (SJV)	Winter	2028	315.15	365.90	428.90	548.40	73.99	85.79	100.95	128.57
C	Tulare (SJV)	Winter	2029	315.14	366.02	428.86	548.56	73.99	85.87	100.95	128.68
C	Tulare (SJV)	Winter	2030	315.14	366.14	428.82	548.72	73.99	85.94	100.96	128.78
C	Tulare (SJV)	Winter	2031	315.14	366.26	428.80	548.88	74.00	86.01	100.97	128.88
C	Tulare (SJV)	Winter	2032	315.14	366.37	428.79	549.04	74.00	86.07	100.97	128.97
C	Tulare (SJV)	Winter	2033	315.13	366.46	428.77	549.17	74.01	86.12	100.98	129.05
C	Tulare (SJV)	Winter	2034	315.13	366.55	428.75	549.30	74.01	86.17	100.98	129.12
C	Tulare (SJV)	Winter	2035	315.13	366.62	428.73	549.40	74.01	86.21	100.99	129.19
C	Tuolumne (MC)	Annual	2010	351.80	409.05	482.29	602.53	74.53	90.23	101.65	124.41
C	Tuolumne (MC)	Annual	2011	351.82	408.95	481.75	603.20	74.32	89.28	101.47	124.55
C	Tuolumne (MC)	Annual	2012	351.88	408.91	481.33	604.01	74.15	88.59	101.37	124.74
C	Tuolumne (MC)	Annual	2013	351.99	408.83	480.99	604.89	74.02	87.89	101.25	124.97
C	Tuolumne (MC)	Annual	2014	352.09	408.75	480.72	605.77	73.90	87.27	101.07	125.20
C	Tuolumne (MC)	Annual	2015	352.23	408.71	480.51	606.66	73.86	86.74	100.95	125.47

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Tuolumne (MC)	Annual	2016	352.33	408.71	480.34	607.53	73.81	86.35	100.89	125.75
C	Tuolumne (MC)	Annual	2017	352.40	408.66	480.19	608.32	73.73	85.87	100.79	126.04
C	Tuolumne (MC)	Annual	2018	352.44	408.65	480.07	609.00	73.66	85.55	100.74	126.32
C	Tuolumne (MC)	Annual	2019	352.50	408.66	479.98	609.60	73.64	85.35	100.71	126.58
C	Tuolumne (MC)	Annual	2020	352.53	408.71	479.91	610.12	73.71	85.33	100.75	126.82
C	Tuolumne (MC)	Annual	2021	352.52	408.72	479.81	610.51	73.75	85.36	100.79	127.02
C	Tuolumne (MC)	Annual	2022	352.49	408.72	479.74	610.83	73.77	85.39	100.83	127.18
C	Tuolumne (MC)	Annual	2023	352.42	408.71	479.67	611.05	73.77	85.42	100.87	127.37
C	Tuolumne (MC)	Annual	2024	352.35	408.71	479.60	611.23	73.76	85.46	100.89	127.55
C	Tuolumne (MC)	Annual	2025	352.30	408.78	479.56	611.41	73.76	85.53	100.93	127.72
C	Tuolumne (MC)	Annual	2026	352.31	408.91	479.51	611.58	73.78	85.63	100.95	127.88
C	Tuolumne (MC)	Annual	2027	352.31	409.03	479.46	611.78	73.79	85.72	100.97	128.03
C	Tuolumne (MC)	Annual	2028	352.31	409.16	479.41	611.96	73.80	85.80	100.98	128.17
C	Tuolumne (MC)	Annual	2029	352.30	409.28	479.35	612.15	73.80	85.87	100.98	128.30
C	Tuolumne (MC)	Annual	2030	352.29	409.39	479.30	612.34	73.81	85.94	100.98	128.42
C	Tuolumne (MC)	Annual	2031	352.28	409.51	479.27	612.58	73.81	86.01	100.98	128.55
C	Tuolumne (MC)	Annual	2032	352.28	409.62	479.24	612.83	73.82	86.08	100.98	128.67
C	Tuolumne (MC)	Annual	2033	352.28	409.71	479.22	613.04	73.82	86.13	100.99	128.78
C	Tuolumne (MC)	Annual	2034	352.28	409.79	479.20	613.24	73.83	86.19	100.99	128.88
C	Tuolumne (MC)	Annual	2035	352.27	409.86	479.19	613.41	73.83	86.23	101.00	128.97
C	Tuolumne (MC)	Summer	2010	379.58	436.17	518.68	647.34	74.53	90.23	101.65	124.41
C	Tuolumne (MC)	Summer	2011	379.89	437.05	518.44	648.13	74.32	89.28	101.47	124.55
C	Tuolumne (MC)	Summer	2012	380.18	437.74	518.26	649.15	74.15	88.59	101.37	124.74
C	Tuolumne (MC)	Summer	2013	380.45	438.26	518.15	650.32	74.02	87.89	101.25	124.97
C	Tuolumne (MC)	Summer	2014	380.68	438.66	518.10	651.50	73.90	87.27	101.07	125.20
C	Tuolumne (MC)	Summer	2015	380.90	439.01	518.08	652.73	73.86	86.74	100.95	125.47
C	Tuolumne (MC)	Summer	2016	381.07	439.30	518.06	653.92	73.81	86.35	100.89	125.75
C	Tuolumne (MC)	Summer	2017	381.16	439.53	518.01	654.99	73.73	85.87	100.79	126.04
C	Tuolumne (MC)	Summer	2018	381.20	439.71	517.96	655.91	73.66	85.55	100.74	126.32
C	Tuolumne (MC)	Summer	2019	381.25	439.89	517.91	656.72	73.64	85.35	100.71	126.58
C	Tuolumne (MC)	Summer	2020	381.27	440.08	517.84	657.42	73.71	85.33	100.75	126.82
C	Tuolumne (MC)	Summer	2021	381.25	440.21	517.77	657.94	73.75	85.36	100.79	127.02
C	Tuolumne (MC)	Summer	2022	381.21	440.34	517.69	658.37	73.77	85.39	100.83	127.18
C	Tuolumne (MC)	Summer	2023	381.14	440.44	517.62	658.69	73.77	85.42	100.87	127.37
C	Tuolumne (MC)	Summer	2024	381.08	440.54	517.57	658.94	73.76	85.46	100.89	127.55
C	Tuolumne (MC)	Summer	2025	381.03	440.66	517.52	659.17	73.76	85.53	100.93	127.72
C	Tuolumne (MC)	Summer	2026	381.05	440.87	517.48	659.35	73.78	85.63	100.95	127.88
C	Tuolumne (MC)	Summer	2027	381.07	441.05	517.44	659.54	73.79	85.72	100.97	128.03
C	Tuolumne (MC)	Summer	2028	381.08	441.24	517.40	659.75	73.80	85.80	100.98	128.17
C	Tuolumne (MC)	Summer	2029	381.09	441.43	517.36	659.96	73.80	85.87	100.98	128.30
C	Tuolumne (MC)	Summer	2030	381.09	441.61	517.32	660.19	73.81	85.94	100.98	128.42
C	Tuolumne (MC)	Summer	2031	381.10	441.78	517.30	660.50	73.81	86.01	100.98	128.55
C	Tuolumne (MC)	Summer	2032	381.10	441.93	517.28	660.80	73.82	86.08	100.98	128.67
C	Tuolumne (MC)	Summer	2033	381.09	442.04	517.26	661.07	73.82	86.13	100.99	128.78
C	Tuolumne (MC)	Summer	2034	381.09	442.15	517.24	661.33	73.83	86.19	100.99	128.88
C	Tuolumne (MC)	Summer	2035	381.08	442.22	517.22	661.55	73.83	86.23	101.00	128.97
C	Tuolumne (MC)	Winter	2010	345.75	403.14	474.37	592.78	74.53	90.23	101.65	124.41
C	Tuolumne (MC)	Winter	2011	345.71	402.84	473.77	593.43	74.32	89.28	101.47	124.55
C	Tuolumne (MC)	Winter	2012	345.72	402.64	473.30	594.19	74.15	88.59	101.37	124.74
C	Tuolumne (MC)	Winter	2013	345.79	402.42	472.91	595.00	74.02	87.89	101.25	124.97
C	Tuolumne (MC)	Winter	2014	345.87	402.24	472.59	595.82	73.90	87.27	101.07	125.20
C	Tuolumne (MC)	Winter	2015	345.99	402.12	472.33	596.64	73.86	86.74	100.95	125.47
C	Tuolumne (MC)	Winter	2016	346.08	402.05	472.13	597.43	73.81	86.35	100.89	125.75
C	Tuolumne (MC)	Winter	2017	346.14	401.95	471.96	598.16	73.73	85.87	100.79	126.04

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Tuolumne (MC)	Winter	2018	346.19	401.89	471.83	598.79	73.66	85.55	100.74	126.32
C	Tuolumne (MC)	Winter	2019	346.24	401.87	471.73	599.34	73.64	85.35	100.71	126.58
C	Tuolumne (MC)	Winter	2020	346.28	401.88	471.65	599.83	73.71	85.33	100.75	126.82
C	Tuolumne (MC)	Winter	2021	346.27	401.86	471.55	600.19	73.75	85.36	100.79	127.02
C	Tuolumne (MC)	Winter	2022	346.24	401.84	471.48	600.48	73.77	85.39	100.83	127.18
C	Tuolumne (MC)	Winter	2023	346.16	401.81	471.41	600.69	73.77	85.42	100.87	127.37
C	Tuolumne (MC)	Winter	2024	346.10	401.78	471.34	600.85	73.76	85.46	100.89	127.55
C	Tuolumne (MC)	Winter	2025	346.04	401.84	471.30	601.01	73.76	85.53	100.93	127.72
C	Tuolumne (MC)	Winter	2026	346.05	401.96	471.25	601.19	73.78	85.63	100.95	127.88
C	Tuolumne (MC)	Winter	2027	346.05	402.06	471.20	601.38	73.79	85.72	100.97	128.03
C	Tuolumne (MC)	Winter	2028	346.04	402.17	471.14	601.56	73.80	85.80	100.98	128.17
C	Tuolumne (MC)	Winter	2029	346.03	402.28	471.08	601.74	73.80	85.87	100.98	128.30
C	Tuolumne (MC)	Winter	2030	346.02	402.38	471.02	601.93	73.81	85.94	100.98	128.42
C	Tuolumne (MC)	Winter	2031	346.01	402.49	470.99	602.16	73.81	86.01	100.98	128.55
C	Tuolumne (MC)	Winter	2032	346.01	402.59	470.97	602.39	73.82	86.08	100.98	128.67
C	Tuolumne (MC)	Winter	2033	346.01	402.67	470.95	602.59	73.82	86.13	100.99	128.78
C	Tuolumne (MC)	Winter	2034	346.01	402.75	470.93	602.77	73.83	86.19	100.99	128.88
C	Tuolumne (MC)	Winter	2035	346.00	402.81	470.91	602.93	73.83	86.23	101.00	128.97
C	Ventura (SCC)	Annual	2010	333.21	383.06	456.23	576.41	73.39	83.96	99.49	125.11
C	Ventura (SCC)	Annual	2011	334.06	384.40	457.06	578.10	73.37	83.90	99.58	125.31
C	Ventura (SCC)	Annual	2012	334.23	384.93	456.97	578.64	73.35	83.91	99.69	125.52
C	Ventura (SCC)	Annual	2013	334.46	385.44	456.97	579.27	73.37	83.94	99.80	125.74
C	Ventura (SCC)	Annual	2014	334.61	385.87	456.92	579.81	73.35	83.96	99.91	125.96
C	Ventura (SCC)	Annual	2015	336.96	388.79	459.88	584.16	73.37	84.01	100.00	126.20
C	Ventura (SCC)	Annual	2016	337.13	389.18	459.85	584.69	73.42	84.08	100.11	126.44
C	Ventura (SCC)	Annual	2017	337.26	389.54	459.83	585.20	73.44	84.15	100.20	126.68
C	Ventura (SCC)	Annual	2018	337.37	389.86	459.82	585.65	73.47	84.25	100.29	126.90
C	Ventura (SCC)	Annual	2019	338.59	391.47	461.34	587.98	73.51	84.41	100.38	127.11
C	Ventura (SCC)	Annual	2020	338.68	391.75	461.34	588.35	73.61	84.58	100.48	127.31
C	Ventura (SCC)	Annual	2021	340.62	394.18	463.90	591.89	73.68	84.75	100.57	127.48
C	Ventura (SCC)	Annual	2022	340.66	394.41	463.89	592.14	73.73	84.90	100.65	127.62
C	Ventura (SCC)	Annual	2023	340.67	394.58	463.88	592.33	73.77	85.03	100.71	127.78
C	Ventura (SCC)	Annual	2024	342.13	396.43	465.87	595.04	73.79	85.15	100.77	127.93
C	Ventura (SCC)	Annual	2025	342.13	396.57	465.87	595.19	73.81	85.26	100.81	128.07
C	Ventura (SCC)	Annual	2026	342.15	396.72	465.85	595.36	73.83	85.37	100.85	128.21
C	Ventura (SCC)	Annual	2027	342.16	396.87	465.84	595.51	73.84	85.46	100.88	128.33
C	Ventura (SCC)	Annual	2028	342.17	397.01	465.82	595.67	73.85	85.55	100.90	128.45
C	Ventura (SCC)	Annual	2029	342.17	397.16	465.80	595.81	73.86	85.64	100.92	128.55
C	Ventura (SCC)	Annual	2030	342.17	397.31	465.79	595.97	73.86	85.72	100.93	128.65
C	Ventura (SCC)	Annual	2031	343.80	399.36	468.01	598.97	73.87	85.80	100.94	128.74
C	Ventura (SCC)	Annual	2032	343.79	399.50	468.00	599.13	73.88	85.87	100.95	128.83
C	Ventura (SCC)	Annual	2033	343.79	399.63	467.99	599.27	73.88	85.94	100.96	128.92
C	Ventura (SCC)	Annual	2034	343.79	399.74	467.98	599.40	73.88	86.00	100.96	128.99
C	Ventura (SCC)	Annual	2035	343.79	399.84	467.97	599.52	73.89	86.06	100.97	129.06
C	Ventura (SCC)	Summer	2010	347.83	398.15	475.58	600.79	73.39	83.96	99.49	125.11
C	Ventura (SCC)	Summer	2011	348.77	399.76	476.48	602.48	73.37	83.90	99.58	125.31
C	Ventura (SCC)	Summer	2012	348.98	400.46	476.42	602.99	73.35	83.91	99.69	125.52
C	Ventura (SCC)	Summer	2013	349.27	401.14	476.48	603.66	73.37	83.94	99.80	125.74
C	Ventura (SCC)	Summer	2014	349.45	401.68	476.48	604.24	73.35	83.96	99.91	125.96
C	Ventura (SCC)	Summer	2015	351.94	404.82	479.63	608.85	73.37	84.01	100.00	126.20
C	Ventura (SCC)	Summer	2016	352.14	405.30	479.65	609.45	73.42	84.08	100.11	126.44
C	Ventura (SCC)	Summer	2017	352.28	405.73	479.66	610.04	73.44	84.15	100.20	126.68
C	Ventura (SCC)	Summer	2018	352.41	406.11	479.66	610.55	73.47	84.25	100.29	126.90
C	Ventura (SCC)	Summer	2019	353.67	407.82	481.25	613.02	73.51	84.41	100.38	127.11

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Ventura (SCC)	Summer	2020	353.77	408.15	481.25	613.43	73.61	84.58	100.48	127.31
C	Ventura (SCC)	Summer	2021	355.80	410.74	483.94	617.18	73.68	84.75	100.57	127.48
C	Ventura (SCC)	Summer	2022	355.84	411.01	483.93	617.47	73.73	84.90	100.65	127.62
C	Ventura (SCC)	Summer	2023	355.85	411.23	483.92	617.68	73.77	85.03	100.71	127.78
C	Ventura (SCC)	Summer	2024	357.40	413.22	486.02	620.55	73.79	85.15	100.77	127.93
C	Ventura (SCC)	Summer	2025	357.40	413.40	486.01	620.72	73.81	85.26	100.81	128.07
C	Ventura (SCC)	Summer	2026	357.42	413.59	486.00	620.90	73.83	85.37	100.85	128.21
C	Ventura (SCC)	Summer	2027	357.43	413.77	485.98	621.06	73.84	85.46	100.88	128.33
C	Ventura (SCC)	Summer	2028	357.44	413.94	485.96	621.21	73.85	85.55	100.90	128.45
C	Ventura (SCC)	Summer	2029	357.45	414.12	485.94	621.36	73.86	85.64	100.92	128.55
C	Ventura (SCC)	Summer	2030	357.45	414.30	485.93	621.52	73.86	85.72	100.93	128.65
C	Ventura (SCC)	Summer	2031	359.14	416.47	488.25	624.65	73.87	85.80	100.94	128.74
C	Ventura (SCC)	Summer	2032	359.14	416.64	488.24	624.81	73.88	85.87	100.95	128.83
C	Ventura (SCC)	Summer	2033	359.14	416.79	488.23	624.96	73.88	85.94	100.96	128.92
C	Ventura (SCC)	Summer	2034	359.13	416.92	488.22	625.10	73.88	86.00	100.96	128.99
C	Ventura (SCC)	Summer	2035	359.13	417.02	488.21	625.23	73.89	86.06	100.97	129.06
C	Ventura (SCC)	Winter	2010	330.44	380.19	452.56	571.78	73.39	83.96	99.49	125.11
C	Ventura (SCC)	Winter	2011	331.27	381.49	453.38	573.48	73.37	83.90	99.58	125.31
C	Ventura (SCC)	Winter	2012	331.43	381.98	453.29	574.02	73.35	83.91	99.69	125.52
C	Ventura (SCC)	Winter	2013	331.65	382.46	453.27	574.64	73.37	83.94	99.80	125.74
C	Ventura (SCC)	Winter	2014	331.80	382.87	453.21	575.18	73.35	83.96	99.91	125.96
C	Ventura (SCC)	Winter	2015	334.12	385.75	456.13	579.48	73.37	84.01	100.00	126.20
C	Ventura (SCC)	Winter	2016	334.29	386.12	456.10	579.99	73.42	84.08	100.11	126.44
C	Ventura (SCC)	Winter	2017	334.41	386.47	456.07	580.49	73.44	84.15	100.20	126.68
C	Ventura (SCC)	Winter	2018	334.52	386.78	456.06	580.93	73.47	84.25	100.29	126.90
C	Ventura (SCC)	Winter	2019	335.73	388.37	457.57	583.24	73.51	84.41	100.38	127.11
C	Ventura (SCC)	Winter	2020	335.82	388.65	457.57	583.59	73.61	84.58	100.48	127.31
C	Ventura (SCC)	Winter	2021	337.74	391.05	460.10	587.10	73.68	84.75	100.57	127.48
C	Ventura (SCC)	Winter	2022	337.78	391.26	460.10	587.34	73.73	84.90	100.65	127.62
C	Ventura (SCC)	Winter	2023	337.80	391.43	460.09	587.53	73.77	85.03	100.71	127.78
C	Ventura (SCC)	Winter	2024	339.24	393.25	462.06	590.20	73.79	85.15	100.77	127.93
C	Ventura (SCC)	Winter	2025	339.24	393.38	462.05	590.36	73.81	85.26	100.81	128.07
C	Ventura (SCC)	Winter	2026	339.26	393.53	462.04	590.52	73.83	85.37	100.85	128.21
C	Ventura (SCC)	Winter	2027	339.27	393.67	462.02	590.68	73.84	85.46	100.88	128.33
C	Ventura (SCC)	Winter	2028	339.28	393.81	462.01	590.83	73.85	85.55	100.90	128.45
C	Ventura (SCC)	Winter	2029	339.28	393.95	461.99	590.98	73.86	85.64	100.92	128.55
C	Ventura (SCC)	Winter	2030	339.28	394.09	461.98	591.13	73.86	85.72	100.93	128.65
C	Ventura (SCC)	Winter	2031	340.89	396.12	464.18	594.11	73.87	85.80	100.94	128.74
C	Ventura (SCC)	Winter	2032	340.89	396.26	464.17	594.27	73.88	85.87	100.95	128.83
C	Ventura (SCC)	Winter	2033	340.89	396.38	464.16	594.41	73.88	85.94	100.96	128.92
C	Ventura (SCC)	Winter	2034	340.89	396.49	464.15	594.54	73.88	86.00	100.96	128.99
C	Ventura (SCC)	Winter	2035	340.88	396.58	464.14	594.65	73.89	86.06	100.97	129.06
C	Yolo (SV)	Annual	2010	336.72	387.12	461.65	581.89	72.73	85.31	99.86	124.93
C	Yolo (SV)	Annual	2011	336.97	387.81	461.52	582.48	72.77	85.00	99.91	125.14
C	Yolo (SV)	Annual	2012	337.24	388.46	461.43	583.14	72.83	84.86	99.98	125.38
C	Yolo (SV)	Annual	2013	337.49	389.01	461.37	583.82	72.90	84.70	100.04	125.63
C	Yolo (SV)	Annual	2014	337.72	389.50	461.33	584.51	72.96	84.61	100.12	125.89
C	Yolo (SV)	Annual	2015	337.96	389.95	461.30	585.20	73.06	84.57	100.16	126.15
C	Yolo (SV)	Annual	2016	338.17	390.35	461.29	585.85	73.15	84.56	100.24	126.41
C	Yolo (SV)	Annual	2017	338.34	390.69	461.27	586.46	73.23	84.51	100.28	126.67
C	Yolo (SV)	Annual	2018	338.49	390.99	461.25	586.98	73.31	84.52	100.34	126.91
C	Yolo (SV)	Annual	2019	337.20	389.64	459.31	584.97	73.38	84.60	100.41	127.12
C	Yolo (SV)	Annual	2020	337.30	389.89	459.30	585.36	73.47	84.72	100.49	127.33
C	Yolo (SV)	Annual	2021	337.38	390.13	459.28	585.66	73.55	84.88	100.58	127.49

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Yolo (SV)	Annual	2022	337.43	390.34	459.26	585.92	73.61	85.01	100.66	127.63
C	Yolo (SV)	Annual	2023	337.45	390.51	459.24	586.13	73.65	85.13	100.72	127.79
C	Yolo (SV)	Annual	2024	337.46	390.65	459.23	586.27	73.67	85.24	100.77	127.93
C	Yolo (SV)	Annual	2025	337.46	390.78	459.21	586.42	73.70	85.33	100.81	128.07
C	Yolo (SV)	Annual	2026	337.48	390.92	459.20	586.59	73.72	85.43	100.85	128.21
C	Yolo (SV)	Annual	2027	337.50	391.06	459.19	586.76	73.73	85.51	100.88	128.33
C	Yolo (SV)	Annual	2028	337.51	391.21	459.18	586.92	73.74	85.59	100.90	128.44
C	Yolo (SV)	Annual	2029	337.51	391.35	459.16	587.08	73.75	85.67	100.92	128.55
C	Yolo (SV)	Annual	2030	337.52	391.49	459.15	587.25	73.75	85.74	100.93	128.65
C	Yolo (SV)	Annual	2031	337.52	391.63	459.14	587.41	73.76	85.81	100.94	128.74
C	Yolo (SV)	Annual	2032	337.52	391.76	459.13	587.58	73.77	85.88	100.95	128.83
C	Yolo (SV)	Annual	2033	337.52	391.88	459.12	587.73	73.77	85.94	100.95	128.92
C	Yolo (SV)	Annual	2034	337.52	391.98	459.11	587.88	73.77	85.99	100.96	129.00
C	Yolo (SV)	Annual	2035	337.52	392.07	459.10	588.00	73.78	86.04	100.96	129.07
C	Yolo (SV)	Summer	2010	372.26	423.83	508.64	641.11	72.73	85.31	99.86	124.93
C	Yolo (SV)	Summer	2011	372.71	425.23	508.71	641.62	72.77	85.00	99.91	125.14
C	Yolo (SV)	Summer	2012	373.13	426.43	508.79	642.30	72.83	84.86	99.98	125.38
C	Yolo (SV)	Summer	2013	373.50	427.43	508.90	643.09	72.90	84.70	100.04	125.63
C	Yolo (SV)	Summer	2014	373.83	428.27	509.03	643.94	72.96	84.61	100.12	125.89
C	Yolo (SV)	Summer	2015	374.13	429.00	509.16	644.86	73.06	84.57	100.16	126.15
C	Yolo (SV)	Summer	2016	374.39	429.62	509.25	645.72	73.15	84.56	100.24	126.41
C	Yolo (SV)	Summer	2017	374.59	430.15	509.32	646.54	73.23	84.51	100.28	126.67
C	Yolo (SV)	Summer	2018	374.75	430.58	509.32	647.21	73.31	84.52	100.34	126.91
C	Yolo (SV)	Summer	2019	373.25	429.11	507.09	644.96	73.38	84.60	100.41	127.12
C	Yolo (SV)	Summer	2020	373.34	429.45	507.05	645.44	73.47	84.72	100.49	127.33
C	Yolo (SV)	Summer	2021	373.41	429.79	506.99	645.81	73.55	84.88	100.58	127.49
C	Yolo (SV)	Summer	2022	373.45	430.08	506.94	646.13	73.61	85.01	100.66	127.63
C	Yolo (SV)	Summer	2023	373.47	430.33	506.89	646.38	73.65	85.13	100.72	127.79
C	Yolo (SV)	Summer	2024	373.48	430.55	506.85	646.54	73.67	85.24	100.77	127.93
C	Yolo (SV)	Summer	2025	373.49	430.75	506.82	646.69	73.70	85.33	100.81	128.07
C	Yolo (SV)	Summer	2026	373.51	430.95	506.82	646.89	73.72	85.43	100.85	128.21
C	Yolo (SV)	Summer	2027	373.52	431.16	506.83	647.07	73.73	85.51	100.88	128.33
C	Yolo (SV)	Summer	2028	373.54	431.36	506.84	647.25	73.74	85.59	100.90	128.44
C	Yolo (SV)	Summer	2029	373.55	431.57	506.84	647.44	73.75	85.67	100.92	128.55
C	Yolo (SV)	Summer	2030	373.55	431.77	506.84	647.62	73.75	85.74	100.93	128.65
C	Yolo (SV)	Summer	2031	373.56	431.98	506.84	647.80	73.76	85.81	100.94	128.74
C	Yolo (SV)	Summer	2032	373.57	432.16	506.83	647.98	73.77	85.88	100.95	128.83
C	Yolo (SV)	Summer	2033	373.58	432.31	506.82	648.16	73.77	85.94	100.95	128.92
C	Yolo (SV)	Summer	2034	373.58	432.44	506.81	648.34	73.77	85.99	100.96	129.00
C	Yolo (SV)	Summer	2035	373.58	432.55	506.80	648.50	73.78	86.04	100.96	129.07
C	Yolo (SV)	Winter	2010	327.05	377.13	448.86	565.78	72.73	85.31	99.86	124.93
C	Yolo (SV)	Winter	2011	327.25	377.62	448.68	566.39	72.77	85.00	99.91	125.14
C	Yolo (SV)	Winter	2012	327.47	378.13	448.54	567.03	72.83	84.86	99.98	125.38
C	Yolo (SV)	Winter	2013	327.69	378.55	448.43	567.69	72.90	84.70	100.04	125.63
C	Yolo (SV)	Winter	2014	327.89	378.94	448.35	568.33	72.96	84.61	100.12	125.89
C	Yolo (SV)	Winter	2015	328.11	379.32	448.28	568.96	73.06	84.57	100.16	126.15
C	Yolo (SV)	Winter	2016	328.31	379.66	448.23	569.55	73.15	84.56	100.24	126.41
C	Yolo (SV)	Winter	2017	328.47	379.95	448.19	570.10	73.23	84.51	100.28	126.67
C	Yolo (SV)	Winter	2018	328.62	380.21	448.17	570.58	73.31	84.52	100.34	126.91
C	Yolo (SV)	Winter	2019	327.41	378.92	446.34	568.68	73.38	84.60	100.41	127.12
C	Yolo (SV)	Winter	2020	327.51	379.14	446.33	569.04	73.47	84.72	100.49	127.33
C	Yolo (SV)	Winter	2021	327.59	379.37	446.32	569.33	73.55	84.88	100.58	127.49
C	Yolo (SV)	Winter	2022	327.64	379.55	446.32	569.57	73.61	85.01	100.66	127.63
C	Yolo (SV)	Winter	2023	327.66	379.69	446.30	569.76	73.65	85.13	100.72	127.79

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Yolo (SV)	Winter	2024	327.67	379.81	446.29	569.90	73.67	85.24	100.77	127.93
C	Yolo (SV)	Winter	2025	327.68	379.92	446.28	570.05	73.70	85.33	100.81	128.07
C	Yolo (SV)	Winter	2026	327.70	380.05	446.27	570.22	73.72	85.43	100.85	128.21
C	Yolo (SV)	Winter	2027	327.72	380.18	446.25	570.38	73.73	85.51	100.88	128.33
C	Yolo (SV)	Winter	2028	327.73	380.30	446.23	570.54	73.74	85.59	100.90	128.44
C	Yolo (SV)	Winter	2029	327.73	380.42	446.21	570.69	73.75	85.67	100.92	128.55
C	Yolo (SV)	Winter	2030	327.73	380.55	446.20	570.85	73.75	85.74	100.93	128.65
C	Yolo (SV)	Winter	2031	327.73	380.67	446.19	571.01	73.76	85.81	100.94	128.74
C	Yolo (SV)	Winter	2032	327.73	380.79	446.18	571.17	73.77	85.88	100.95	128.83
C	Yolo (SV)	Winter	2033	327.73	380.89	446.17	571.32	73.77	85.94	100.95	128.92
C	Yolo (SV)	Winter	2034	327.73	380.99	446.16	571.45	73.77	85.99	100.96	129.00
C	Yolo (SV)	Winter	2035	327.72	381.07	446.15	571.57	73.78	86.04	100.96	129.07
C	Yuba (SV)	Annual	2010	331.71	387.20	455.73	569.14	73.59	94.17	100.78	124.81
C	Yuba (SV)	Annual	2011	331.88	386.92	455.13	569.94	73.55	92.48	100.68	124.98
C	Yuba (SV)	Annual	2012	332.08	386.74	454.68	570.82	73.57	91.09	100.67	125.20
C	Yuba (SV)	Annual	2013	332.28	386.58	454.33	571.76	73.58	89.86	100.67	125.45
C	Yuba (SV)	Annual	2014	332.43	386.50	454.06	572.63	73.55	88.96	100.63	125.71
C	Yuba (SV)	Annual	2015	332.60	386.32	453.85	573.51	73.58	87.83	100.63	125.99
C	Yuba (SV)	Annual	2016	332.76	386.25	453.68	574.33	73.63	87.10	100.62	126.28
C	Yuba (SV)	Annual	2017	332.89	386.13	453.53	575.09	73.67	86.26	100.64	126.56
C	Yuba (SV)	Annual	2018	332.95	386.05	453.40	575.74	73.66	85.67	100.67	126.82
C	Yuba (SV)	Annual	2019	329.78	382.30	448.92	570.68	73.66	85.36	100.69	127.05
C	Yuba (SV)	Annual	2020	329.83	382.32	448.84	571.12	73.74	85.30	100.76	127.28
C	Yuba (SV)	Annual	2021	329.87	382.43	448.77	571.46	73.80	85.40	100.82	127.44
C	Yuba (SV)	Annual	2022	329.88	382.52	448.70	571.71	73.85	85.48	100.87	127.53
C	Yuba (SV)	Annual	2023	329.88	382.59	448.64	571.92	73.88	85.55	100.91	127.71
C	Yuba (SV)	Annual	2024	329.85	382.67	448.59	572.07	73.89	85.63	100.94	127.87
C	Yuba (SV)	Annual	2025	329.83	382.75	448.55	572.24	73.90	85.70	100.96	128.02
C	Yuba (SV)	Annual	2026	329.85	382.83	448.50	572.40	73.92	85.77	100.98	128.17
C	Yuba (SV)	Annual	2027	329.86	382.89	448.45	572.55	73.94	85.83	100.99	128.30
C	Yuba (SV)	Annual	2028	329.87	382.96	448.40	572.72	73.95	85.88	101.00	128.42
C	Yuba (SV)	Annual	2029	329.87	383.04	448.35	572.89	73.95	85.93	101.00	128.53
C	Yuba (SV)	Annual	2030	329.86	383.11	448.30	573.07	73.96	85.98	100.99	128.64
C	Yuba (SV)	Annual	2031	329.86	383.18	448.28	573.23	73.96	86.03	100.99	128.74
C	Yuba (SV)	Annual	2032	329.86	383.24	448.26	573.41	73.96	86.07	101.00	128.84
C	Yuba (SV)	Annual	2033	329.86	383.30	448.24	573.57	73.97	86.11	101.00	128.93
C	Yuba (SV)	Annual	2034	329.86	383.35	448.22	573.72	73.97	86.15	101.00	129.01
C	Yuba (SV)	Annual	2035	329.85	383.39	448.21	573.85	73.98	86.18	101.00	129.08
C	Yuba (SV)	Summer	2010	368.33	425.28	503.39	628.81	73.59	94.17	100.78	124.81
C	Yuba (SV)	Summer	2011	368.82	425.88	503.44	629.79	73.55	92.48	100.68	124.98
C	Yuba (SV)	Summer	2012	369.28	426.40	503.45	630.96	73.57	91.09	100.67	125.20
C	Yuba (SV)	Summer	2013	369.67	426.80	503.45	632.27	73.58	89.86	100.67	125.45
C	Yuba (SV)	Summer	2014	369.96	427.10	503.47	633.51	73.55	88.96	100.63	125.71
C	Yuba (SV)	Summer	2015	370.23	427.34	503.46	634.77	73.58	87.83	100.63	125.99
C	Yuba (SV)	Summer	2016	370.46	427.52	503.42	635.97	73.63	87.10	100.62	126.28
C	Yuba (SV)	Summer	2017	370.61	427.67	503.33	637.05	73.67	86.26	100.64	126.56
C	Yuba (SV)	Summer	2018	370.68	427.77	503.20	637.94	73.66	85.67	100.67	126.82
C	Yuba (SV)	Summer	2019	367.12	423.68	498.20	632.43	73.66	85.36	100.69	127.05
C	Yuba (SV)	Summer	2020	367.15	423.74	498.07	632.99	73.74	85.30	100.76	127.28
C	Yuba (SV)	Summer	2021	367.16	423.89	497.95	633.41	73.80	85.40	100.82	127.44
C	Yuba (SV)	Summer	2022	367.15	424.03	497.86	633.76	73.85	85.48	100.87	127.53
C	Yuba (SV)	Summer	2023	367.14	424.15	497.79	634.02	73.88	85.55	100.91	127.71
C	Yuba (SV)	Summer	2024	367.11	424.30	497.73	634.20	73.89	85.63	100.94	127.87
C	Yuba (SV)	Summer	2025	367.09	424.44	497.70	634.39	73.90	85.70	100.96	128.02

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
C	Yuba (SV)	Summer	2026	367.12	424.53	497.64	634.51	73.92	85.77	100.98	128.17
C	Yuba (SV)	Summer	2027	367.15	424.62	497.59	634.66	73.94	85.83	100.99	128.30
C	Yuba (SV)	Summer	2028	367.18	424.72	497.56	634.82	73.95	85.88	101.00	128.42
C	Yuba (SV)	Summer	2029	367.20	424.83	497.53	635.01	73.95	85.93	101.00	128.53
C	Yuba (SV)	Summer	2030	367.22	424.95	497.51	635.21	73.96	85.98	100.99	128.64
C	Yuba (SV)	Summer	2031	367.22	425.04	497.51	635.38	73.96	86.03	100.99	128.74
C	Yuba (SV)	Summer	2032	367.23	425.12	497.51	635.56	73.96	86.07	101.00	128.84
C	Yuba (SV)	Summer	2033	367.23	425.19	497.51	635.76	73.97	86.11	101.00	128.93
C	Yuba (SV)	Summer	2034	367.23	425.26	497.50	635.95	73.97	86.15	101.00	129.01
C	Yuba (SV)	Summer	2035	367.22	425.31	497.50	636.13	73.98	86.18	101.00	129.08
C	Yuba (SV)	Winter	2010	322.00	377.10	443.10	553.32	73.59	94.17	100.78	124.81
C	Yuba (SV)	Winter	2011	322.08	376.59	442.32	554.07	73.55	92.48	100.68	124.98
C	Yuba (SV)	Winter	2012	322.22	376.23	441.75	554.87	73.57	91.09	100.67	125.20
C	Yuba (SV)	Winter	2013	322.37	375.91	441.30	555.71	73.58	89.86	100.67	125.45
C	Yuba (SV)	Winter	2014	322.48	375.73	440.96	556.49	73.55	88.96	100.63	125.71
C	Yuba (SV)	Winter	2015	322.62	375.45	440.69	557.26	73.58	87.83	100.63	125.99
C	Yuba (SV)	Winter	2016	322.77	375.30	440.49	557.99	73.63	87.10	100.62	126.28
C	Yuba (SV)	Winter	2017	322.88	375.11	440.32	558.67	73.67	86.26	100.64	126.56
C	Yuba (SV)	Winter	2018	322.95	374.99	440.20	559.25	73.66	85.67	100.67	126.82
C	Yuba (SV)	Winter	2019	319.88	371.33	435.86	554.31	73.66	85.36	100.69	127.05
C	Yuba (SV)	Winter	2020	319.94	371.34	435.79	554.72	73.74	85.30	100.76	127.28
C	Yuba (SV)	Winter	2021	319.98	371.44	435.73	555.03	73.80	85.40	100.82	127.44
C	Yuba (SV)	Winter	2022	320.00	371.52	435.67	555.26	73.85	85.48	100.87	127.53
C	Yuba (SV)	Winter	2023	320.00	371.57	435.61	555.46	73.88	85.55	100.91	127.71
C	Yuba (SV)	Winter	2024	319.98	371.63	435.57	555.60	73.89	85.63	100.94	127.87
C	Yuba (SV)	Winter	2025	319.96	371.70	435.52	555.77	73.90	85.70	100.96	128.02
C	Yuba (SV)	Winter	2026	319.97	371.77	435.47	555.93	73.92	85.77	100.98	128.17
C	Yuba (SV)	Winter	2027	319.97	371.83	435.42	556.09	73.94	85.83	100.99	128.30
C	Yuba (SV)	Winter	2028	319.97	371.89	435.37	556.26	73.95	85.88	101.00	128.42
C	Yuba (SV)	Winter	2029	319.97	371.96	435.31	556.42	73.95	85.93	101.00	128.53
C	Yuba (SV)	Winter	2030	319.96	372.02	435.26	556.59	73.96	85.98	100.99	128.64
C	Yuba (SV)	Winter	2031	319.96	372.08	435.22	556.76	73.96	86.03	100.99	128.74
C	Yuba (SV)	Winter	2032	319.96	372.14	435.20	556.93	73.96	86.07	101.00	128.84
C	Yuba (SV)	Winter	2033	319.95	372.19	435.18	557.08	73.97	86.11	101.00	128.93
C	Yuba (SV)	Winter	2034	319.95	372.24	435.15	557.22	73.97	86.15	101.00	129.01
C	Yuba (SV)	Winter	2035	319.95	372.27	435.14	557.34	73.98	86.18	101.00	129.08
S	State	Annual	2010	348.30	399.84	476.00	599.04	73.17	84.92	99.67	124.99
S	State	Annual	2011	348.67	400.62	476.13	599.97	73.18	84.72	99.73	125.19
S	State	Annual	2012	348.78	401.01	475.89	600.42	73.21	84.60	99.83	125.41
S	State	Annual	2013	348.91	401.36	475.66	600.88	73.26	84.51	99.92	125.64
S	State	Annual	2014	349.03	401.70	475.49	601.40	73.30	84.45	100.01	125.88
S	State	Annual	2015	349.34	402.17	475.56	602.18	73.36	84.42	100.10	126.13
S	State	Annual	2016	349.52	402.53	475.51	602.82	73.43	84.42	100.19	126.39
S	State	Annual	2017	349.60	402.79	475.40	603.33	73.48	84.43	100.27	126.64
S	State	Annual	2018	349.73	403.11	475.42	603.91	73.51	84.45	100.34	126.88
S	State	Annual	2019	349.43	402.96	474.90	603.76	73.56	84.57	100.42	127.10
S	State	Annual	2020	349.47	403.17	474.82	604.08	73.66	84.72	100.51	127.31
S	State	Annual	2021	349.92	403.86	475.37	605.14	73.73	84.88	100.60	127.48
S	State	Annual	2022	349.89	404.04	475.31	605.39	73.78	85.02	100.68	127.63
S	State	Annual	2023	349.84	404.17	475.26	605.57	73.81	85.14	100.74	127.79
S	State	Annual	2024	350.69	405.29	476.43	607.26	73.83	85.25	100.79	127.94
S	State	Annual	2025	350.63	405.38	476.38	607.40	73.85	85.35	100.83	128.09
S	State	Annual	2026	350.65	405.61	476.40	607.67	73.86	85.45	100.87	128.23
S	State	Annual	2027	350.61	405.72	476.34	607.80	73.88	85.54	100.89	128.35

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
S	State	Annual	2028	350.56	405.84	476.28	607.92	73.89	85.62	100.91	128.46
S	State	Annual	2029	350.51	405.95	476.21	608.04	73.90	85.70	100.93	128.57
S	State	Annual	2030	350.45	406.07	476.14	608.17	73.90	85.77	100.94	128.66
S	State	Annual	2031	350.80	406.69	476.65	609.06	73.90	85.85	100.95	128.76
S	State	Annual	2032	350.74	406.81	476.61	609.20	73.91	85.92	100.95	128.85
S	State	Annual	2033	350.68	406.91	476.58	609.32	73.91	85.98	100.96	128.93
S	State	Annual	2034	350.62	407.00	476.54	609.43	73.92	86.04	100.97	129.01
S	State	Annual	2035	350.56	407.07	476.50	609.52	73.92	86.09	100.97	129.08
S	State	Summer	2010	371.32	424.00	506.45	638.85	73.17	84.92	99.67	124.99
S	State	Summer	2011	371.88	425.31	506.78	639.81	73.18	84.72	99.73	125.19
S	State	Summer	2012	372.11	426.09	506.67	640.31	73.21	84.60	99.83	125.41
S	State	Summer	2013	372.33	426.77	506.57	640.88	73.26	84.51	99.92	125.64
S	State	Summer	2014	372.54	427.37	506.54	641.54	73.30	84.45	100.01	125.88
S	State	Summer	2015	372.93	428.07	506.76	642.54	73.36	84.42	100.10	126.13
S	State	Summer	2016	373.17	428.62	506.84	643.39	73.43	84.42	100.19	126.39
S	State	Summer	2017	373.29	429.04	506.82	644.08	73.48	84.43	100.27	126.64
S	State	Summer	2018	373.45	429.51	506.92	644.85	73.51	84.45	100.34	126.88
S	State	Summer	2019	373.16	429.45	506.41	644.82	73.56	84.57	100.42	127.10
S	State	Summer	2020	373.22	429.77	506.36	645.28	73.66	84.72	100.51	127.31
S	State	Summer	2021	373.74	430.59	506.97	646.50	73.73	84.88	100.60	127.48
S	State	Summer	2022	373.76	430.86	506.93	646.85	73.78	85.02	100.68	127.63
S	State	Summer	2023	373.74	431.08	506.89	647.10	73.81	85.14	100.74	127.79
S	State	Summer	2024	374.69	432.36	508.16	648.94	73.83	85.25	100.79	127.94
S	State	Summer	2025	374.66	432.54	508.13	649.13	73.85	85.35	100.83	128.09
S	State	Summer	2026	374.72	432.85	508.19	649.44	73.87	85.45	100.87	128.23
S	State	Summer	2027	374.71	433.04	508.16	649.59	73.88	85.54	100.89	128.35
S	State	Summer	2028	374.70	433.23	508.13	649.75	73.89	85.62	100.91	128.46
S	State	Summer	2029	374.69	433.42	508.10	649.90	73.90	85.70	100.93	128.57
S	State	Summer	2030	374.67	433.61	508.07	650.06	73.90	85.77	100.94	128.66
S	State	Summer	2031	375.08	434.34	508.64	651.05	73.90	85.85	100.95	128.76
S	State	Summer	2032	375.06	434.52	508.63	651.23	73.91	85.92	100.95	128.85
S	State	Summer	2033	375.04	434.68	508.63	651.41	73.91	85.98	100.96	128.93
S	State	Summer	2034	375.02	434.82	508.62	651.57	73.92	86.04	100.97	129.01
S	State	Summer	2035	375.00	434.92	508.61	651.72	73.92	86.09	100.97	129.08
S	State	Winter	2010	342.17	393.38	467.85	587.98	73.17	84.92	99.67	124.99
S	State	Winter	2011	342.48	393.99	467.91	588.87	73.18	84.72	99.73	125.19
S	State	Winter	2012	342.55	394.26	467.62	589.31	73.21	84.60	99.83	125.41
S	State	Winter	2013	342.64	394.51	467.33	589.70	73.26	84.51	99.92	125.64
S	State	Winter	2014	342.74	394.76	467.11	590.16	73.30	84.45	100.01	125.88
S	State	Winter	2015	343.01	395.15	467.12	590.86	73.36	84.42	100.10	126.13
S	State	Winter	2016	343.16	395.44	467.02	591.41	73.43	84.42	100.19	126.39
S	State	Winter	2017	343.21	395.64	466.87	591.83	73.48	84.43	100.27	126.64
S	State	Winter	2018	343.32	395.91	466.84	592.33	73.51	84.45	100.34	126.88
S	State	Winter	2019	343.00	395.72	466.30	592.12	73.56	84.57	100.42	127.10
S	State	Winter	2020	343.02	395.88	466.18	592.37	73.66	84.72	100.51	127.31
S	State	Winter	2021	343.45	396.53	466.70	593.35	73.73	84.88	100.60	127.48
S	State	Winter	2022	343.41	396.67	466.63	593.54	73.78	85.02	100.68	127.63
S	State	Winter	2023	343.34	396.76	466.55	593.67	73.81	85.14	100.74	127.79
S	State	Winter	2024	344.14	397.81	467.67	595.27	73.83	85.25	100.79	127.94
S	State	Winter	2025	344.06	397.86	467.59	595.37	73.85	85.35	100.83	128.09
S	State	Winter	2026	344.06	398.05	467.58	595.60	73.87	85.45	100.87	128.23
S	State	Winter	2027	344.00	398.13	467.50	595.70	73.88	85.54	100.89	128.35
S	State	Winter	2028	343.93	398.21	467.41	595.79	73.89	85.62	100.91	128.46
S	State	Winter	2029	343.86	398.30	467.32	595.88	73.90	85.70	100.93	128.57

Table 4.4 Alternative CO2 Emission Factors (Non-Pavley)

	Location	Season	Year	CO2 Running (g/VMT)				CO2 Starting (g/trip)			
				LDA	LDT1	LDT2	MDV	LDA	LDT1	LDT2	MDV
S	State	Winter	2030	343.78	398.37	467.23	595.97	73.90	85.77	100.94	128.66
S	State	Winter	2031	344.10	398.94	467.69	596.80	73.90	85.85	100.95	128.76
S	State	Winter	2032	344.02	399.03	467.63	596.90	73.91	85.92	100.95	128.85
S	State	Winter	2033	343.95	399.11	467.57	596.99	73.91	85.98	100.96	128.93
S	State	Winter	2034	343.87	399.17	467.51	597.06	73.92	86.04	100.97	129.01
S	State	Winter	2035	343.80	399.21	467.44	597.12	73.92	86.09	100.97	129.08

Table 5.1 Hearth Usage

Name	Multi or Single Family Home	Wood Hearth %	Natural Gas %	Propane %	No Hearth %	Wood Mass Fireplace	Hours/day Fireplace	Day/year Fireplace	Wood Stove Conventional %	Wood Stove Catalytic %	WoodStove NonCatalytic %	Wood Stove Pellet %	Wood mass Stove	Hours/day Stove	Hours/year Stove	Days/Year Stove
Amador County APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Alameda	MFH	17	15	0	4	228.8	3.5	11.1	0	2	2	0	582.4	8.5		14
Alpine	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Amador	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Antelope Valley APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Bay Area AQMD	MFH	17	15	0	4	228.8	3.5	11.1	0	2	2	0	582.4	8.5		14
Butte County AQMD	MFH	39	43	0	18	5158.4	3.7	150.0	0	9	9	0	3019.2	7.3		150
Butte	MFH	39	43	0	18	5158.4	3.7	150.0	0	9	9	0	3019.2	7.3		150
Calaveras	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Contra Costa	MFH	17	15	0	4	228.8	3.5	11.1	0	2	2	0	582.4	8.5		14
Colusa County APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Calaveras County AQMD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Colusa	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Del Norte	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
El Dorado County AQMD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
El Dorado-Lake Tahoe	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
El Dorado-Mountain County	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Feather River AQMD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Fresno	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Great Basin UAPCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Great Basin Valleys	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Glenn County APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Glenn	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Humboldt	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Imperial County APCD	MFH	0	55	0	0	2080	2.8	4.3	0	0	0	0	0.0	0.0		0
Imperial	MFH	0	55	0	0	2080	2.8	4.3	0	0	0	0	0.0	0.0		0
Inyo	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Kern County APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Kern-Mojave Desert	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Kern-San Joaquin	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Kings	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Lake	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Los Angeles-Mojave Desert	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Los Angeles-South Coast	MFH	5	85	0	10	1019.2	3.0	25.0	0	5	5	0	999.6	3.0		25
Lassen	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Lake County	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Lassen County APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Lake County AQMD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Lake Tahoe	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Madera	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Mariposa County APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Marin	MFH	17	15	0	4	228.8	3.5	11.1	0	2	2	0	582.4	8.5		14
Mariposa	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Monterey Bay Unified APCD	MFH	0	100	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0		0
Mountain Counties	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Mendocino County AQMD	MFH	5	5	0	90	4992	3.0	116.7	0	20	20	0	4896.0	3.0		117
Mojave Desert	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Mojave Desert AQMD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82

Table 5.1 Hearth Usage

Name	Multi or Single Family Home	Wood Hearth %	Natural Gas %	Propane %	No Hearth %	Wood Mass Fireplace	Hours/day Fireplace	Day/year Fireplace	Wood Stove Conventional %	Wood Stove Catalytic %	WoodStove NonCatalytic %	Wood Stove Pellet %	Wood mass Stove	Hours/day Stove	Hours/year Stove	Days/Year Stove
Mendocino-Coastal	MFH	5	5	0	90	4992	3.0	116.7	0	20	20	0	4896.0	3.0		117
Mendocino-Inland	MFH	5	5	0	90	4992	3.0	116.7	0	20	20	0	4896.0	3.0		117
Mendocino-Rural Inland North	MFH	5	5	0	90	4992	3.0	116.7	0	20	20	0	4896.0	3.0		117
Mendocino-Rural Inland South	MFH	5	5	0	90	4992	3.0	116.7	0	20	20	0	4896.0	3.0		117
Merced	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Modoc	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Modoc County APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Mono	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Monterey	MFH	0	100	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0		0
Napa	MFH	17	15	0	4	228.8	3.5	11.1	0	2	2	0	582.4	8.5		14
North Coast	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
North Coast Unified APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
North Central Coast	MFH	0	100	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0		0
Nevada	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Northeast Plateau	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Northern Sierra AQMD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Northern Sonoma County APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Orange	MFH	5	85	0	10	1019.2	3.0	25.0	0	5	5	0	999.6	3.0		25
Placer County APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Placer-Lake Tahoe	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Placer-Mountain Counties	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Placer-Sacramento	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Plumas	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Riverside-Mojave Desert MDAQMD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Riverside-South Coast	MFH	5	85	0	10	1019.2	3.0	25.0	0	5	5	0	999.6	3.0		25
Riverside-Mojave Desert SCAQMD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Riverside-Salton Sea	MFH	10	80	0	10	457.6	3.0	82.0	0	5	5	0	999.6	3.0		82
Sacramento	MFH	0	0	0	100	0	0.0	0.0	0	0	0	0	0.0	0.0		0
Santa Barbara County APCD	MFH	0	0	0	0	0	3.0	82.0	0	0	0	0	0.0	3.0		82
San Benito	MFH	0	100	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0		0
San Bernardino-Mojave Desert	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Bernardino-South Coast	MFH	5	85	0	10	1019.2	3.0	25.0	0	5	5	0	999.6	3.0		25
Santa Barbara-North of Santa Ynez	MFH	0	0	0	0	0	3.0	82.0	0	0	0	0	0.0	3.0		82
Santa Barbara-South of Santa Ynez Range	MFH	0	0	0	0	0	3.0	82.0	0	0	0	0	0.0	3.0		82
South Coast	MFH	5	85	0	10	1019.2	3.0	25.0	0	5	5	0	999.6	3.0		25
Siskiyou County APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
South Coast AQMD	MFH	5	85	0	10	1019.2	3.0	25.0	0	5	5	0	999.6	3.0		25
South Central Coast	MFH	0	0	0	0	3078.4	3.0	82.0	0	0	0	0	3019.2	3.0		82
Santa Clara	MFH	17	15	0	4	228.8	3.5	11.1	0	2	2	0	582.4	8.5		14
Santa Cruz	MFH	0	100	0	0	0	0.0	0.0	0	0	0	0	0.0	0.0		0
San Diego	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Diego	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Diego County APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Francisco	MFH	17	15	0	4	228.8	3.5	11.1	0	2	2	0	582.4	8.5		14
San Francisco Bay Area	MFH	17	15	0	4	228.8	3.5	11.1	0	2	2	0	582.4	8.5		14
Shasta	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Shasta County AQMD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Sierra	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82

Table 5.1 Hearth Usage

Name	Multi or Single Family Home	Wood Hearth %	Natural Gas %	Propane %	No Hearth %	Wood Mass Fireplace	Hours/day Fireplace	Day/year Fireplace	Wood Stove Conventional %	Wood Stove Catalytic %	WoodStove NonCatalytic %	Wood Stove Pellet %	Wood mass Stove	Hours/day Stove	Hours/year Stove	Days/Year Stove
Siskiyou	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Joaquin	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Joaquin Valley	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Joaquin Valley Unified APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Luis Obispo	MFH	0	0	0	0	0	0.0	0.0	0	0	0	0	2016.0	8.0		60
San Luis Obispo County APCD	MFH	0	0	0	0	0	0.0	0.0	0	0	0	0	2016.0	8.0		60
San Mateo	MFH	17	15	0	4	228.8	3.5	11.1	0	2	2	0	582.4	8.5		14
Sacramento Metropolitan AQMD	MFH	0	0	0	100	0	0.0	0.0	0	0	0	0	0.0	0.0		0
Solano-San Francisco	MFH	17	15	0	4	228.8	3.5	11.1	0	2	2	0	582.4	8.5		14
Solano-Sacramento	MFH	35	55	0	10	4558.4	3.0	82.0	0	5	5	0	4558.4	3.0		82
Sonoma-North Coast	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Sonoma-San Francisco	MFH	17	15	0	4	228.8	3.5	11.1	0	2	2	0	582.4	8.5		14
Salton Sea	MFH	0	55	0	0	2080	2.8	4.3	0	0	0	0	0.0	0.0		0
Stanislaus	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Statewide	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Sutter	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Sacramento Valley	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Tehama	MFH	20	20	0	60	4558.4	3.0	82.0	0	30	30	0	4558.4	3.0		82
Tehama County APCD	MFH	20	20	0	60	4558.4	3.0	82.0	0	30	30	0	4558.4	3.0		82
Trinity	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Tulare	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Tuolumne County APCD	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Tuolumne	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Ventura County APCD	MFH	0	0	0	100	0	0.0	0.0	0	0	0	0	0.0	0.0		0
Ventura	MFH	0	0	0	100	0	0.0	0.0	0	0	0	0	0.0	0.0		0
Yolo	MFH	35	55	0	10	4558.4	3.0	82.0	0	5	5	0	4558.4	3.0		82
Yolo/Solano AQMD	MFH	35	55	0	10	4558.4	3.0	82.0	0	5	5	0	4558.4	3.0		82
Yuba	MFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Amador County APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Alameda	SFH	43	25	0	8	228.8	3.5	11.1	0	4	4	0	956.8	8.5		21
Alpine	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Amador	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Antelope Valley APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Bay Area AQMD	SFH	43	25	0	8	228.8	3.5	11.1	0	4	4	0	956.8	8.5		21
Butte County AQMD	SFH	39	43	0	18	5158.4	3.7	150.0	0	9	9	0	3019.2	7.3		150
Butte	SFH	39	43	0	18	5158.4	3.7	150.0	0	9	9	0	3019.2	7.3		150
Calaveras	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Contra Costa	SFH	43	25	0	8	228.8	3.5	11.1	0	4	4	0	956.8	8.5		21
Colusa County APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Calaveras County AQMD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Colusa	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Del Norte	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
El Dorado County AQMD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
El Dorado-Lake Tahoe	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
El Dorado-Mountain County	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Feather River AQMD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Fresno	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Great Basin UAPCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Great Basin Valleys	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Glenn County APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Glenn	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82

Table 5.1 Hearth Usage

Name	Multi or Single Family Home	Wood Hearth %	Natural Gas %	Propane %	No Hearth %	Wood Mass Fireplace	Hours/day Fireplace	Day/year Fireplace	Wood Stove Conventional %	Wood Stove Catalytic %	WoodStove NonCatalytic %	Wood Stove Pellet %	Wood mass Stove	Hours/day Stove	Hours/year Stove	Days/Year Stove
Humboldt	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Imperial County APCD	SFH	0	55	0	0	2080	2.8	4.3	0	0	0	0	0.0	0.0		0
Imperial	SFH	0	55	0	0	2080	2.8	4.3	0	0	0	0	0.0	0.0		0
Inyo	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Kern County APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Kern-Mojave Desert	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Kern-San Joaquin	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Kings	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Lake	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Los Angeles-Mojave Desert	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Los Angeles-South Coast	SFH	5	85	0	10	1019.2	3.0	25.0	0	5	5	0	999.6	3.0		25
Lassen	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Lake County	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Lassen County APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Lake County AQMD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Lake Tahoe	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Madera	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Mariposa County APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Marin	SFH	43	25	0	8	228.8	3.5	11.1	0	4	4	0	956.8	8.5		21
Mariposa	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Monterey Bay Unified APCD	SFH	35	55	0	10	1508	3.0	82.0	0	5	5	0	3120.0	3.0		82
Mountain Counties	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Mendocino County AQMD	SFH	35	30	0	35	4992	3.0	116.7	0	40	40	0	4896.0	3.0		117
Mojave Desert	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Mojave Desert AQMD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Mendocino-Coastal	SFH	35	30	0	35	4992	3.0	116.7	0	40	40	0	4896.0	3.0		117
Mendocino-Inland	SFH	35	30	0	35	4992	3.0	116.7	0	40	40	0	4896.0	3.0		117
Mendocino-Rural Inland North	SFH	35	30	0	35	4992	3.0	116.7	0	40	40	0	4896.0	3.0		117
Mendocino-Rural Inland South	SFH	35	30	0	35	4992	3.0	116.7	0	40	40	0	4896.0	3.0		117
Merced	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Modoc	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Modoc County APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Mono	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Monterey	SFH	31	63	0	6	1508	3.0	82.0	0	3	3	0	3120.0	3.0		82
Napa	SFH	43	25	0	8	228.8	3.5	11.1	0	4	4	0	956.8	8.5		21
North Coast	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
North Coast Unified APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
North Central Coast	SFH	35	55	0	10	1508	3.0	82.0	0	5	5	0	3120.0	3.0		82
Nevada	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Northeast Plateau	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Northern Sierra AQMD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Northern Sonoma County APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Orange	SFH	5	85	0	10	1019.2	3.0	25.0	0	5	5	0	999.6	3.0		25
Placer County APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Placer-Lake Tahoe	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Placer-Mountain Counties	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Placer-Sacramento	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Plumas	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Riverside-Mojave Desert MDAQMD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Riverside-South Coast	SFH	5	85	0	10	1019.2	3.0	25.0	0	5	5	0	999.6	3.0		25
Riverside-Mojave Desert SCAQMD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Riverside-Salton Sea	SFH	10	80	0	10	457.6	3.0	82.0	0	5	5	0	999.6	3.0		82
Sacramento	SFH	0	0	0	100	0	0.0	0.0	0	0	0	0	0.0	0.0		0
Santa Barbara County APCD	SFH	0	0	0	0	0	3.0	82.0	0	0	0	0	0.0	3.0		82
San Benito	SFH	32	60	0	8	1508	3.0	82.0	0	4	4	0	3120.0	3.0		82

Table 5.1 Hearth Usage

Name	Multi or Single Family Home	Wood Hearth %	Natural Gas %	Propane %	No Hearth %	Wood Mass Fireplace	Hours/day Fireplace	Day/year Fireplace	Wood Stove Conventional %	Wood Stove Catalytic %	WoodStove NonCatalytic %	Wood Stove Pellet %	Wood mass Stove	Hours/day Stove	Hours/year Stove	Days/Year Stove
San Bernardino-Mojave Desert	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Bernardino-South Coast	SFH	5	85	0	10	1019.2	3.0	25.0	0	5	5	0	999.6	3.0		25
Santa Barbara-North of Santa Ynez	SFH	0	0	0	0	0	3.0	82.0	0	0	0	0	0.0	3.0		82
Santa Barbara-South of Santa Ynez Range	SFH	0	0	0	0	0	3.0	82.0	0	0	0	0	0.0	3.0		82
South Coast	SFH	5	85	0	10	1019.2	3.0	25.0	0	5	5	0	999.6	3.0		25
Siskiyou County APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
South Coast AQMD	SFH	5	85	0	10	1019.2	3.0	25.0	0	5	5	0	999.6	3.0		25
South Central Coast	SFH	0	0	0	0	3078.4	3.0	82.0	0	0	0	0	3019.2	3.0		82
Santa Clara	SFH	43	25	0	8	228.8	3.5	11.1	0	4	4	0	956.8	8.5		21
Santa Cruz	SFH	43	46	0	11	1508	3.0	82.0	0	5.5	5.5	0	3120.0	3.0		82
San Diego	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Diego	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Diego County APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Francisco	SFH	43	25	0	8	228.8	3.5	11.1	0	4	4	0	956.8	8.5		21
San Francisco Bay Area	SFH	43	25	0	8	228.8	3.5	11.1	0	4	4	0	956.8	8.5		21
Shasta	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Shasta County AQMD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Sierra	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Siskiyou	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Joaquin	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Joaquin Valley	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Joaquin Valley Unified APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
San Luis Obispo	SFH	0	0	0	0	0	0.0	0.0	0	0	0	0	2016.0	8.0		60
San Luis Obispo County APCD	SFH	0	0	0	0	0	0.0	0.0	0	0	0	0	2016.0	8.0		60
San Mateo	SFH	43	25	0	8	228.8	3.5	11.1	0	4	4	0	956.8	8.5		21
Sacramento Metropolitan AQMD	SFH	0	0	0	100	0	0.0	0.0	0	0	0	0	0.0	0.0		0
Solano-San Francisco	SFH	43	25	0	8	228.8	3.5	11.1	0	4	4	0	956.8	8.5		21
Solano-Sacramento	SFH	31	NULL	0	69	520	3.0	82.0	0	2.5	2.5	0	3120.0	3.0		82
Sonoma-North Coast	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Sonoma-San Francisco	SFH	43	25	0	8	228.8	3.5	11.1	0	4	4	0	956.8	8.5		21
Salton Sea	SFH	0	55	0	0	2080	2.8	4.3	0	0	0	0	0.0	0.0		0
Stanislaus	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Statewide	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Sutter	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Sacramento Valley	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Tehama	SFH	20	20	0	60	4558.4	3.0	82.0	0	30	30	0	4558.4	3.0		82
Tehama County APCD	SFH	20	20	0	60	4558.4	3.0	82.0	0	30	30	0	4558.4	3.0		82
Trinity	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Tulare	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Tuolumne County APCD	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Tuolumne	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82
Ventura County APCD	SFH	0	0	0	100	0	0.0	0.0	0	0	0	0	0.0	0.0		0
Ventura	SFH	0	0	0	100	0	0.0	0.0	0	0	0	0	0.0	0.0		0
Yolo	SFH	31	NULL	0	69	520	3.0	82.0	0	2.5	2.5	0	3120.0	3.0		82
Yolo/Solano AQMD	SFH	31	NULL	0	69	520	3.0	82.0	0	2.5	2.5	0	3120.0	3.0		82
Yuba	SFH	35	55	0	10	3078.4	3.0	82.0	0	5	5	0	3019.2	3.0		82

Table 5.2 Hearth Emission Factors

Hearth Type	TOG, lb/ton of dry wood burned	ROG, lb/ton of dry wood burned	CO, lb/ton of dry wood burned	SO ₂ , lb/ton of dry wood burned	NO _X , lb/ton of dry wood burned	PM ₁₀ , lb/ton of dry wood burned	PM _{2.5} , lb/ton of dry wood burned	PB, lb/ton of dry wood burned	CO ₂ _BIO, lb/ton of dry wood burned	CO ₂ _NBIO, lb/ton of dry wood burned	CH ₄ , lb/ton of dry wood burned	N ₂ O, lb/ton of dry wood burned
Woodstoves Conventional	83	53	230.8	0.4	2.8	30.6	30.6	0	2952	0	30	0
Woodstoves Catalytic	26.6	15	104.4	0.4	2	20.4	20.4	0	2952	0	11.6	0
Woodstoves Noncatalytic	28	12	140.8	0.4	2	19.6	19.6	0	2952	0	16	0
Woodstoves Pellet	28	15	39.4	0.4	13.8	4.2	4.2	0	2952	0	16	0
Wood Fireplace	229	229	252.6	0.4	2.6	34.6	34.6	0	3400	0	0	0.3
Natural Gas	0.01078431	0.01078431	0.03921569	0.00058824	0.09215686	0.00745098	0.00745098	4.90E-07	0	117.647059	0.0022549	0.00215686
Propane	0.01092896	0.01092896	0.08196721	0	0.1420765	0.00765027	0.00765027	0	0	136.612022	0.00218579	0.00983607
No Fireplace	0	0	0	0	0	0	0	0	0	0	0	0

Notes:

1. Values are based on AP-42 emission factors.

Table 6.1 Architectural Coating Emission Factors

Name	EMFAC_ID	CoatingType	Start Date	End Date	ROG, g/L	Rule Name	Amended Date
Amador County APCD	ACAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	ACAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	ACAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	ACAPCD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Alameda	ALA	Nonresidential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	ALA	Nonresidential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	ALA	Nonresidential Interior	1/1/1900	12/31/2011	250	Default	NULL
	ALA	Nonresidential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	ALA	Parking	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	ALA	Residential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	ALA	Residential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	ALA	Residential Interior	1/1/1900	12/31/2011	250	Default	NULL
	ALA	Residential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	Alpine	ALP	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default
ALP		Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
ALP		Parking	1/1/1900	12/31/3000	250	Default	NULL
ALP		Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Amador	AMA	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	AMA	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	AMA	Parking	1/1/1900	12/31/3000	250	Default	NULL
	AMA	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Antelope Valley APCD	AVAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	AVAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	AVAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	AVAPCD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Bay Area AQMD	BAAQMD	Nonresidential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	BAAQMD	Nonresidential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	BAAQMD	Nonresidential Interior	1/1/1900	12/31/2011	250	Default	NULL
	BAAQMD	Nonresidential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	BAAQMD	Parking	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	BAAQMD	Residential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	BAAQMD	Residential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	BAAQMD	Residential Interior	1/1/1900	12/31/2011	250	Default	NULL
	BAAQMD	Residential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	Butte County AQMD	BCAQMD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default
BCAQMD		Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
BCAQMD		Parking	1/1/1900	12/31/3000	250	Default	NULL
BCAQMD		Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Butte	BUT	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	BUT	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	BUT	Parking	1/1/1900	12/31/3000	250	Default	NULL
	BUT	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Calaveras	CAL	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	CAL	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	CAL	Parking	1/1/1900	12/31/3000	250	Default	NULL
	CAL	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Contra Costa	CC	Nonresidential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	CC	Nonresidential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	CC	Nonresidential Interior	1/1/1900	12/31/2011	250	Default	NULL
	CC	Nonresidential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	CC	Parking	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	CC	Residential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	CC	Residential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	CC	Residential Interior	1/1/1900	12/31/2011	250	Default	NULL
Colusa County APCD	CCAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	CCAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	CCAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	CCAPCD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Calaveras County AQMD	CCAQMD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	CCAQMD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	CCAQMD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	CCAQMD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Colusa	COL	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	COL	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	COL	Parking	1/1/1900	12/31/3000	250	Default	NULL
	COL	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Del Norte	DN	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	DN	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	DN	Parking	1/1/1900	12/31/3000	250	Default	NULL
	DN	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
El Dorado County AQMD	EDCAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	EDCAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	EDCAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	EDCAPCD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
El Dorado-Lake Tahoe	ELDORLT	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	ELDORLT	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	ELDORLT	Parking	1/1/1900	12/31/3000	250	Default	NULL
	ELDORLT	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
El Dorado-Mountain County	ELDORMC	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	ELDORMC	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	ELDORMC	Parking	1/1/1900	12/31/3000	250	Default	NULL
	ELDORMC	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Feather River AQMD	FRAQMD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	FRAQMD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	FRAQMD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	FRAQMD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Fresno	FRES	Nonresidential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	FRES	Nonresidential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	FRES	Nonresidential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	FRES	Nonresidential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	FRES	Parking	1/1/2011	12/31/3000	150	R4601	12/17/2009
	FRES	Residential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	FRES	Residential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	FRES	Residential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
FRES	Residential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009	

Table 6.1 Architectural Coating Emission Factors

Name	EMFAC_ID	CoatingType	Start Date	End Date	ROG, g/L	Rule Name	Amended Date
Great Basin UAPCD	GBUAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	GBUAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	GBUAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	GBUAPCD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Great Basin Valleys	GBV	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	GBV	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	GBV	Parking	1/1/1900	12/31/3000	250	Default	NULL
	GBV	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Glenn County APCD	GCAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	GCAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	GCAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	GCAPCD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Glenn	GLENN	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	GLENN	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	GLENN	Parking	1/1/1900	12/31/3000	250	Default	NULL
	GLENN	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Humboldt	HUM	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	HUM	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	HUM	Parking	1/1/1900	12/31/3000	250	Default	NULL
	HUM	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Imperial County APCD	ICAPCD	Nonresidential Exterior	1/1/2011	12/31/2040	150	Default	2/23/2010
	ICAPCD	Nonresidential Exterior	1/1/2011	12/31/2040	150	R424	2/23/2010
	ICAPCD	Nonresidential Interior	1/1/2011	12/31/2040	150	Default	2/23/2010
	ICAPCD	Nonresidential Interior	1/1/2011	12/31/2040	150	R424	2/23/2010
	ICAPCD	Parking	1/1/2011	12/31/2040	150	Default	2/23/2010
	ICAPCD	Residential Exterior	1/1/2011	12/31/2040	100	Default	2/23/2010
	ICAPCD	Residential Exterior	1/1/2011	12/31/2040	100	R424	2/23/2010
	ICAPCD	Residential Interior	1/1/2011	12/31/2040	100	Default	2/23/2010
Imperial	IMP	Nonresidential Exterior	1/1/2011	12/31/2040	150	Default	2/23/2010
	IMP	Nonresidential Exterior	1/1/2011	12/31/2040	150	R424	2/23/2010
	IMP	Nonresidential Interior	1/1/2011	12/31/2040	150	Default	2/23/2010
	IMP	Nonresidential Interior	1/1/2011	12/31/2040	150	R424	2/23/2010
	IMP	Parking	1/1/2011	12/31/2040	150	Default	2/23/2010
	IMP	Residential Exterior	1/1/2011	12/31/2040	100	Default	2/23/2010
	IMP	Residential Exterior	1/1/2011	12/31/2040	100	R424	2/23/2010
	IMP	Residential Interior	1/1/2011	12/31/2040	100	Default	2/23/2010
Inyo	INY	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	INY	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	INY	Parking	1/1/1900	12/31/3000	250	Default	NULL
	INY	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Kern County APCD	KCAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	KCAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	KCAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	KCAPCD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Kern-Mojave Desert	KERNMD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	KERNMD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	KERNMD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	KERNMD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Kern-San Joaquin	KERNMD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	KERNSJ	Nonresidential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	KERNSJ	Nonresidential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	KERNSJ	Nonresidential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	KERNSJ	Nonresidential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	KERNSJ	Parking	1/1/2011	12/31/3000	150	R4601	12/17/2009
	KERNSJ	Residential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	KERNSJ	Residential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
Kings	KERNSJ	Residential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	KERNSJ	Residential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	KING	Nonresidential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	KING	Nonresidential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	KING	Nonresidential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	KING	Nonresidential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	KING	Parking	1/1/2011	12/31/3000	150	R4601	12/17/2009
	KING	Residential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
Lake	KING	Residential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	KING	Residential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	KING	Residential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	KING	Residential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
Los Angeles-Mojave Desert	LAKE	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	LAKE	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	LAKE	Parking	1/1/1900	12/31/3000	250	Default	NULL
	LAKE	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Los Angeles-South Coast	LAKE	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	LAMD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	LAMD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	LAMD	Parking	1/1/1900	12/31/3000	250	Default	NULL
Lassen	LAMD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	LAMD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	LASC	Nonresidential Exterior	1/1/1900	12/31/3000	250		NULL
	LASC	Nonresidential Interior	1/1/1900	12/31/3000	250		NULL
	LASC	Parking	1/1/1900	12/31/3000	100		NULL
	LASC	Residential Exterior	1/1/1900	6/30/2008	250		NULL
	LASC	Residential Exterior	7/1/2008	12/31/3000	100		NULL
	LASC	Residential Interior	1/1/1900	6/30/2008	100		NULL
Lassen County APCD	LASC	Residential Interior	7/1/2008	12/31/3000	50		NULL
	LASS	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	LASS	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	LASS	Parking	1/1/1900	12/31/3000	250	Default	NULL
Lake County	LASS	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	LASS	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	LC	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	LC	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
Lake County AQMD	LC	Parking	1/1/1900	12/31/3000	250	Default	NULL
	LC	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	LC	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	LC	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Lake County AQMD	LCAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	LCAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	LCAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	LCAPCD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Lake County AQMD	LCAPCD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	LCAQMD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	LCAQMD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
Lake County AQMD	LCAQMD	Parking	1/1/1900	12/31/3000	250	Default	NULL

Table 6.1 Architectural Coating Emission Factors

Name	EMFAC_ID	CoatingType	Start Date	End Date	ROG, g/L	Rule Name	Amended Date
	LCAQMD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	LCAQMD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Lake Tahoe	LT	Nonresidential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
	LT	Nonresidential Interior	7/1/2011	12/31/3000	100	R218	10/14/2010
	LT	Parking	7/1/2011	12/31/3000	100	R218	10/14/2010
	LT	Residential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
	LT	Residential Interior	7/1/2011	12/31/3000	100	R218	10/14/2010
Madera	MAD	Nonresidential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	MAD	Nonresidential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	MAD	Nonresidential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	MAD	Nonresidential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	MAD	Parking	1/1/2011	12/31/3000	150	R4601	12/17/2009
	MAD	Residential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	MAD	Residential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	MAD	Residential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
Mariposa County APCD	MARCAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MARCAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	MARCAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	MARCAPCD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MARCAPCD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Marin	MARIN	Nonresidential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	MARIN	Nonresidential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	MARIN	Nonresidential Interior	1/1/1900	12/31/2011	250	Default	NULL
	MARIN	Nonresidential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	MARIN	Parking	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	MARIN	Residential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	MARIN	Residential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	MARIN	Residential Interior	1/1/1900	12/31/2011	250	Default	NULL
Mariposa	MARIP	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MARIP	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	MARIP	Parking	1/1/1900	12/31/3000	250	Default	NULL
	MARIP	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Monterey Bay Unified APCD	MBUAPCD	Nonresidential Exterior	1/1/2013	12/31/3000	150	R426	8/15/2012
	MBUAPCD	Nonresidential Interior	1/1/2013	12/31/3000	150	R426	8/15/2012
	MBUAPCD	Parking	1/1/2013	12/31/3000	150	R426	8/15/2012
	MBUAPCD	Residential Exterior	1/1/2013	12/31/3000	100	R426	8/15/2012
	MBUAPCD	Residential Interior	1/1/2013	12/31/3000	100	R426	8/15/2012
Mountain Counties	MC	Nonresidential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
	MC	Nonresidential Interior	7/1/2011	12/31/3000	100	R218	10/14/2010
	MC	Parking	7/1/2011	12/31/3000	100	R218	10/14/2010
	MC	Residential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
Mendocino County AQMD	MCAQMD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MCAQMD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	MCAQMD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	MCAQMD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MCAQMD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Mojave Desert	MD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	MD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	MD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Mojave Desert AQMD	MDAQMD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MDAQMD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	MDAQMD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	MDAQMD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MDAQMD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Mendocino-Coastal	MENC	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MENC	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	MENC	Parking	1/1/1900	12/31/3000	250	Default	NULL
	MENC	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MENC	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Mendocino-Inland	MENI	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MENI	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	MENI	Parking	1/1/1900	12/31/3000	250	Default	NULL
	MENI	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MENI	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Mendocino-Rural Inland North	MENRN	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MENRN	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	MENRN	Parking	1/1/1900	12/31/3000	250	Default	NULL
	MENRN	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MENRN	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Mendocino-Rural Inland South	MENRS	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MENRS	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	MENRS	Parking	1/1/1900	12/31/3000	250	Default	NULL
	MENRS	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MENRS	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Merced	MER	Nonresidential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	MER	Nonresidential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	MER	Nonresidential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	MER	Nonresidential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	MER	Parking	1/1/2011	12/31/3000	150	R4601	12/17/2009
	MER	Residential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	MER	Residential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	MER	Residential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
Modoc	MOD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MOD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	MOD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	MOD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Modoc County APCD	MODCAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MODCAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	MODCAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	MODCAPCD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MODCAPCD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Mono	MONO	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	MONO	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	MONO	Parking	1/1/1900	12/31/3000	250	Default	NULL
	MONO	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Monterey	MONT	Nonresidential Exterior	1/1/2013	12/31/3000	150	R426	8/15/2012
	MONT	Nonresidential Interior	1/1/2013	12/31/3000	150	R426	8/15/2012
	MONT	Parking	1/1/2013	12/31/3000	150	R426	8/15/2012
	MONT	Residential Exterior	1/1/2013	12/31/3000	100	R426	8/15/2012
	MONT	Residential Interior	1/1/2013	12/31/3000	100	R426	8/15/2012
NAPA	NAPA	Nonresidential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	NAPA	Nonresidential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009

Table 6.1 Architectural Coating Emission Factors

Name	EMFAC_ID	CoatingType	Start Date	End Date	ROG, g/L	Rule Name	Amended Date
Napa	NAPA	Nonresidential Interior	1/1/1900	12/31/2011	250	Default	NULL
	NAPA	Nonresidential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	NAPA	Parking	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	NAPA	Residential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	NAPA	Residential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	NAPA	Residential Interior	1/1/1900	12/31/2011	250	Default	NULL
North Coast	NAPA	Residential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	NC	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	NC	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	NC	Parking	1/1/1900	12/31/3000	250	Default	NULL
North Coast Unified APCD	NC	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	NC	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	NCAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	NCAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
North Central Coast	NCAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	NCAPCD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	NCAPCD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	NCC	Nonresidential Exterior	1/1/2013	12/31/3000	150	R426	8/15/2012
Nevada	NCC	Nonresidential Interior	1/1/2013	12/31/3000	150	R426	8/15/2012
	NCC	Parking	1/1/2013	12/31/3000	150	R426	8/15/2012
	NCC	Residential Exterior	1/1/2013	12/31/3000	100	R426	8/15/2012
	NCC	Residential Interior	1/1/2013	12/31/3000	100	R426	8/15/2012
Northeast Plateau	NEV	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	NEV	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	NEV	Parking	1/1/1900	12/31/3000	250	Default	NULL
	NEV	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Northern Sierra AQMD	NEV	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	NP	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	NP	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	NP	Parking	1/1/1900	12/31/3000	250	Default	NULL
Northern Sonoma County APCD	NP	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	NP	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	NSAQMD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	NSAQMD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
Orange	NSAQMD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	NSAQMD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	NSAQMD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	NSCAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Placer County APCD	NSCAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	NSCAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	NSCAPCD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	NSCAPCD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Placer-Lake Tahoe	ORA	Nonresidential Exterior	1/1/1900	12/31/3000	250		NULL
	ORA	Nonresidential Interior	1/1/1900	12/31/3000	250		NULL
	ORA	Parking	1/1/1900	12/31/3000	100		NULL
	ORA	Residential Exterior	1/1/1900	6/30/2008	250		NULL
Placer-Mountain Counties	ORA	Residential Exterior	7/1/2008	12/31/3000	100		NULL
	ORA	Residential Interior	1/1/1900	6/30/2008	100		NULL
	ORA	Residential Interior	7/1/2008	12/31/3000	50		NULL
	PCAPCD	Nonresidential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
Placer-Sacramento	PCAPCD	Nonresidential Interior	7/1/2011	12/31/3000	100	R218	10/14/2010
	PCAPCD	Parking	7/1/2011	12/31/3000	100	R218	10/14/2010
	PCAPCD	Residential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
	PCAPCD	Residential Interior	7/1/2011	12/31/3000	100	R218	10/14/2010
Plumas	PLACERLT	Nonresidential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
	PLACERLT	Nonresidential Interior	7/1/2011	12/31/3000	100	R218	10/14/2010
	PLACERLT	Parking	7/1/2011	12/31/3000	100	R218	10/14/2010
	PLACERLT	Residential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
Riverside-Mojave Desert MDAQMD	PLACERLT	Residential Interior	7/1/2011	12/31/3000	100	R218	10/14/2010
	PLACERMC	Nonresidential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
	PLACERMC	Nonresidential Interior	7/1/2011	12/31/3000	100	R218	10/14/2010
	PLACERMC	Parking	7/1/2011	12/31/3000	100	R218	10/14/2010
Riverside-Mojave Desert SCAQMD	PLACERMC	Residential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
	PLACERMC	Residential Interior	7/1/2011	12/31/3000	100	R218	10/14/2010
	PLACERSJ	Nonresidential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
	PLACERSJ	Nonresidential Interior	7/1/2011	12/31/3000	100	R218	10/14/2010
Riverside-South Coast	PLACERSJ	Parking	7/1/2011	12/31/3000	100	R218	10/14/2010
	PLACERSJ	Residential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
	PLACERSJ	Residential Interior	7/1/2011	12/31/3000	100	R218	10/14/2010
	PLU	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Riverside-Salton Sea	PLU	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	PLU	Parking	1/1/1900	12/31/3000	250	Default	NULL
	PLU	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	PLU	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Sacramento	RIVMDAQMD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	RIVMDAQMD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	RIVMDAQMD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	RIVMDAQMD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Santa Barbara County APCD	RIVMDAQMD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	RIVSC	Nonresidential Exterior	1/1/1900	12/31/3000	250		NULL
	RIVSC	Nonresidential Interior	1/1/1900	12/31/3000	250		NULL
	RIVSC	Parking	1/1/1900	12/31/3000	100		NULL
Santa Clara County APCD	RIVSC	Residential Exterior	1/1/1900	6/30/2008	250		NULL
	RIVSC	Residential Exterior	7/1/2008	12/31/3000	100		NULL
	RIVSC	Residential Interior	1/1/1900	6/30/2008	100		NULL
	RIVSC	Residential Interior	7/1/2008	12/31/3000	50		NULL
Santa Cruz County APCD	RIVSCAQMD	Nonresidential Exterior	1/1/1900	12/31/3000	250		NULL
	RIVSCAQMD	Nonresidential Interior	1/1/1900	12/31/3000	250		NULL
	RIVSCAQMD	Parking	1/1/1900	12/31/3000	100		NULL
	RIVSCAQMD	Residential Exterior	1/1/1900	6/30/2008	250		NULL
Santa Ines County APCD	RIVSCAQMD	Residential Exterior	7/1/2008	12/31/3000	100		NULL
	RIVSCAQMD	Residential Interior	1/1/1900	6/30/2008	100		NULL
	RIVSCAQMD	Residential Interior	7/1/2008	12/31/3000	50		NULL
	RIVSS	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Santa Luis Obispo County APCD	RIVSS	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	RIVSS	Parking	1/1/1900	12/31/3000	250	Default	NULL
	RIVSS	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	RIVSS	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Santa Monica County APCD	SAC	Nonresidential Exterior	1/1/1900	12/31/2002	100	Default	10/22/2015
	SAC	Nonresidential Exterior	1/1/2003	12/31/2040	100	R442	10/22/2015
	SAC	Nonresidential Interior	1/1/1900	12/31/2002	100	Default	10/22/2015
	SAC	Nonresidential Interior	1/1/2003	12/31/2040	100	R442	10/22/2015
Santa Ventura County APCD	SAC	Parking	1/1/2003	12/31/2040	100	R442	10/22/2015
	SAC	Residential Exterior	1/1/1900	12/31/2002	100	Default	10/22/2015
	SAC	Residential Exterior	1/1/2003	12/31/2040	100	R442	10/22/2015
	SAC	Residential Interior	1/1/1900	12/31/2002	100	Default	10/22/2015
Santa Ynez County APCD	SAC	Residential Interior	1/1/2003	12/31/2040	100	R442	10/22/2015
	SBCAPCD	Nonresidential Exterior	1/1/2015	12/31/3000	250	Rule 323.1	6/19/2014
	SBCAPCD	Nonresidential Interior	1/1/2015	12/31/3000	250	Rule 323.1	6/19/2014
	SBCAPCD	Parking	1/1/2015	12/31/3000	250	Rule 323.1	6/19/2014
Santa Ynez County APCD	SBCAPCD	Residential Exterior	1/1/2015	12/31/3000	100	Rule 323.1	6/19/2014

Table 6.1 Architectural Coating Emission Factors

Name	EMFAC_ID	CoatingType	Start Date	End Date	ROG, g/L	Rule Name	Amended Date
San Benito	SBCAPCD	Residential Interior	1/1/2015	12/31/3000	50	Rule 323.1	6/19/2014
	SBEN	Nonresidential Exterior	1/1/2013	12/31/3000	150	R426	8/15/2012
	SBEN	Nonresidential Interior	1/1/2013	12/31/3000	150	R426	8/15/2012
	SBEN	Parking	1/1/2013	12/31/3000	150	R426	8/15/2012
	SBEN	Residential Exterior	1/1/2013	12/31/3000	100	R426	8/15/2012
San Bernardino-Mojave Desert	SBEN	Residential Interior	1/1/2013	12/31/3000	100	R426	8/15/2012
	SBERNMD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SBERNMD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SBERNMD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	SBERNMD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
San Bernardino-South Coast	SBERNMD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SBERNSC	Nonresidential Exterior	1/1/1900	12/31/3000	250		NULL
	SBERNSC	Nonresidential Interior	1/1/1900	12/31/3000	250		NULL
	SBERNSC	Parking	1/1/1900	12/31/3000	100		NULL
	SBERNSC	Residential Exterior	1/1/1900	6/30/2008	250		NULL
	SBERNSC	Residential Exterior	7/1/2008	12/31/3000	100		NULL
	SBERNSC	Residential Interior	1/1/1900	6/30/2008	100		NULL
Santa Barbara-North of Santa Ynez	SBERNSC	Residential Interior	7/1/2008	12/31/3000	50		NULL
	SBN	Nonresidential Exterior	1/1/2015	12/31/3000	250	Rule 323.1	6/19/2014
	SBN	Nonresidential Interior	1/1/2015	12/31/3000	250	Rule 323.1	6/19/2014
	SBN	Parking	1/1/2015	12/31/3000	250	Rule 323.1	6/19/2014
	SBN	Residential Exterior	1/1/2015	12/31/3000	100	Rule 323.1	6/19/2014
Santa Barbara-South of Santa Ynez Range	SBN	Residential Interior	1/1/2015	12/31/3000	50	Rule 323.1	6/19/2014
	SBS	Nonresidential Exterior	1/1/2015	12/31/3000	250	Rule 323.1	6/19/2014
	SBS	Nonresidential Interior	1/1/2015	12/31/3000	250	Rule 323.1	6/19/2014
	SBS	Parking	1/1/2015	12/31/3000	250	Rule 323.1	6/19/2014
South Coast	SBS	Residential Exterior	1/1/2015	12/31/3000	100	Rule 323.1	6/19/2014
	SBS	Residential Interior	1/1/2015	12/31/3000	50	Rule 323.1	6/19/2014
	SC	Nonresidential Exterior	1/1/1900	12/31/3000	250		NULL
	SC	Nonresidential Interior	1/1/1900	12/31/3000	250		NULL
	SC	Parking	1/1/1900	12/31/3000	100		NULL
	SC	Residential Exterior	1/1/1900	6/30/2008	250		NULL
	SC	Residential Exterior	7/1/2008	12/31/3000	100		NULL
Siskiyou County APCD	SC	Residential Interior	1/1/1900	6/30/2008	100		NULL
	SC	Residential Interior	7/1/2008	12/31/3000	50		NULL
	SCAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SCAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SCAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
South Coast AQMD	SCAPCD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SCAPCD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SCAQMD	Nonresidential Exterior	1/1/1900	12/31/3000	250		NULL
	SCAQMD	Nonresidential Interior	1/1/1900	12/31/3000	250		NULL
	SCAQMD	Parking	1/1/1900	12/31/3000	100		NULL
	SCAQMD	Residential Exterior	1/1/1900	6/30/2008	250		NULL
South Central Coast	SCAQMD	Residential Exterior	7/1/2008	12/31/3000	100		NULL
	SCAQMD	Residential Interior	1/1/1900	6/30/2008	100		NULL
	SCAQMD	Residential Interior	7/1/2008	12/31/3000	50		NULL
	SCC	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SCC	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
Santa Clara	SCC	Parking	1/1/1900	12/31/3000	250	Default	NULL
	SCC	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SCC	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SCLARA	Nonresidential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	SCLARA	Nonresidential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SCLARA	Nonresidential Interior	1/1/1900	12/31/2011	250	Default	NULL
	SCLARA	Nonresidential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	SCLARA	Parking	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SCLARA	Residential Exterior	1/1/1900	12/31/2011	250	Default	NULL
Santa Cruz	SCLARA	Residential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SCLARA	Residential Interior	1/1/1900	12/31/2011	250	Default	NULL
	SCLARA	Residential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	SCRUZ	Nonresidential Exterior	1/1/2013	12/31/3000	150	R426	8/15/2012
	SCRUZ	Nonresidential Interior	1/1/2013	12/31/3000	150	R426	8/15/2012
San Diego	SCRUZ	Parking	1/1/2013	12/31/3000	150	R426	8/15/2012
	SCRUZ	Residential Exterior	1/1/2013	12/31/3000	100	R426	8/15/2012
	SCRUZ	Residential Interior	1/1/2013	12/31/3000	100	R426	8/15/2012
	SD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
San Diego	SD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	SD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SDAB	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SDAB	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
San Diego County APCD	SDAB	Parking	1/1/1900	12/31/3000	250	Default	NULL
	SDAB	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SDAB	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SDAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SDAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
San Francisco	SDAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	SDAPCD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SDAPCD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SF	Nonresidential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	SF	Nonresidential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SF	Nonresidential Interior	1/1/1900	12/31/2011	250	Default	NULL
	SF	Nonresidential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
San Francisco Bay Area	SF	Parking	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SF	Residential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	SF	Residential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SF	Residential Interior	1/1/1900	12/31/2011	250	Default	NULL
	SF	Residential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
Shasta	SFBA	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SFBA	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SFBA	Parking	1/1/1900	12/31/3000	250	Default	NULL
	SFBA	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SFBA	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Shasta County AQMD	SHASTA	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SHASTA	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SHASTA	Parking	1/1/1900	12/31/3000	250	Default	NULL
	SHASTA	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SHASTA	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Sierra	SHASTAAQMD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SHASTAAQMD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SHASTAAQMD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	SHASTAAQMD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SHASTAAQMD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
Sierra	SIERRA	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SIERRA	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SIERRA	Parking	1/1/1900	12/31/3000	250	Default	NULL
	SIERRA	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SIERRA	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
SISK	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL	

Table 6.1 Architectural Coating Emission Factors

Name	EMFAC_ID	CoatingType	Start Date	End Date	ROG, g/L	Rule Name	Amended Date
Siskiyou	SISK	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SISK	Parking	1/1/1900	12/31/3000	250	Default	NULL
	SISK	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
San Joaquin	SJ	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SJ	Nonresidential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	SJ	Nonresidential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJ	Nonresidential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	SJ	Nonresidential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJ	Parking	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJ	Residential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	SJ	Residential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJ	Residential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
San Joaquin Valley	SJ	Residential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJV	Nonresidential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	SJV	Nonresidential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJV	Nonresidential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	SJV	Nonresidential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJV	Parking	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJV	Residential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	SJV	Residential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJV	Residential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
San Joaquin Valley Unified APCD	SJV	Residential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJVUAPCD	Nonresidential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	SJVUAPCD	Nonresidential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJVUAPCD	Nonresidential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	SJVUAPCD	Nonresidential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJVUAPCD	Parking	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJVUAPCD	Residential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	SJVUAPCD	Residential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SJVUAPCD	Residential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
San Luis Obispo	SLO	Residential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	SLO	Nonresidential Exterior	1/1/1900	12/31/2040	250	R433	3/26/2002
	SLO	Nonresidential Interior	1/1/1900	12/31/2040	250	R433	3/26/2002
	SLO	Parking	1/1/1900	12/31/2040	150	R433	3/26/2002
	SLO	Residential Exterior	1/1/1900	12/31/2040	250	R433	3/26/2002
San Luis Obispo County APCD	SLO	Residential Exterior	1/1/2011	12/31/3000	150	R433	3/26/2002
	SLOCAPCD	Nonresidential Exterior	1/1/1900	12/31/2040	250	R433	3/26/2002
	SLOCAPCD	Nonresidential Interior	1/1/1900	12/31/2040	250	R433	3/26/2002
	SLOCAPCD	Parking	1/1/1900	12/31/2040	150	R433	3/26/2002
	SLOCAPCD	Residential Exterior	1/1/1900	12/31/2040	250	R433	3/26/2002
San Mateo	SLO	Residential Interior	1/1/1900	12/31/2040	250	R433	3/26/2002
	SM	Nonresidential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	SM	Nonresidential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SM	Nonresidential Interior	1/1/1900	12/31/2011	250	Default	NULL
	SM	Nonresidential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	SM	Parking	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SM	Residential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	SM	Residential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SM	Residential Interior	1/1/1900	12/31/2011	250	Default	NULL
Sacramento Metropolitan AQMD	SM	Residential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	SMAQMD	Nonresidential Exterior	1/1/1900	12/31/2002	100	Default	10/22/2015
	SMAQMD	Nonresidential Exterior	1/1/2003	12/31/2040	100	R442	10/22/2015
	SMAQMD	Nonresidential Interior	1/1/1900	12/31/2002	100	Default	10/22/2015
	SMAQMD	Nonresidential Interior	1/1/2003	12/31/2040	100	R442	10/22/2015
	SMAQMD	Parking	1/1/2003	12/31/2040	100	R442	10/22/2015
	SMAQMD	Residential Exterior	1/1/1900	12/31/2002	100	Default	10/22/2015
	SMAQMD	Residential Exterior	1/1/2003	12/31/2040	100	R442	10/22/2015
	SMAQMD	Residential Interior	1/1/1900	12/31/2002	100	Default	10/22/2015
Solano-San Francisco	SMAQMD	Residential Interior	1/1/2003	12/31/2040	100	R442	10/22/2015
	SOLSF	Nonresidential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	SOLSF	Nonresidential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SOLSF	Nonresidential Interior	1/1/1900	12/31/2011	250	Default	NULL
	SOLSF	Nonresidential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	SOLSF	Parking	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SOLSF	Residential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	SOLSF	Residential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SOLSF	Residential Interior	1/1/1900	12/31/2011	250	Default	NULL
Solano-Sacramento	SOLSF	Residential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	SOLSJ	Nonresidential Exterior	1/1/1900	12/31/3000	150	Default	11/14/2001
	SOLSJ	Nonresidential Exterior	1/1/2003	12/31/2040	150	R2-14	11/14/2001
	SOLSJ	Nonresidential Interior	1/1/1900	12/31/3000	150	Default	11/14/2001
	SOLSJ	Nonresidential Interior	1/1/2003	12/31/2040	150	R2-14	11/14/2001
	SOLSJ	Parking	1/1/2003	12/31/2040	150	R2-14	11/14/2001
	SOLSJ	Residential Exterior	1/1/1900	12/31/3000	100	Default	11/14/2001
	SOLSJ	Residential Exterior	1/1/2003	12/31/2040	100	R2-14	11/14/2001
	SOLSJ	Residential Interior	1/1/1900	12/31/3000	100	Default	11/14/2001
Sonoma-North Coast	SOLSJ	Residential Interior	1/1/2003	12/31/2040	100	R2-14	11/14/2001
	SONNC	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	SONNC	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SONNC	Parking	1/1/1900	12/31/3000	250	Default	NULL
	SONNC	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Sonoma-San Francisco	SONNC	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SONSF	Nonresidential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	SONSF	Nonresidential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SONSF	Nonresidential Interior	1/1/1900	12/31/2011	250	Default	NULL
	SONSF	Nonresidential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	SONSF	Parking	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SONSF	Residential Exterior	1/1/1900	12/31/2011	250	Default	NULL
	SONSF	Residential Exterior	1/1/2012	12/31/2040	150	REG8.3	7/1/2009
	SONSF	Residential Interior	1/1/1900	12/31/2011	250	Default	NULL
Salton Sea	SONSF	Residential Interior	1/1/2012	12/31/2040	100	REG8.3	7/1/2009
	SS	Nonresidential Exterior	1/1/2011	12/31/2040	150	R424	2/23/2010
	SS	Nonresidential Interior	1/1/2011	12/31/2040	150	R424	2/23/2010
	SS	Parking	1/1/2011	12/31/2040	150	R424	2/23/2010
	SS	Residential Exterior	1/1/2011	12/31/2040	100	R424	2/23/2010
Stanislaus	SS	Residential Interior	1/1/2011	12/31/2040	100	R424	2/23/2010
	STAN	Nonresidential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	STAN	Nonresidential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	STAN	Nonresidential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	STAN	Nonresidential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	STAN	Parking	1/1/2011	12/31/3000	150	R4601	12/17/2009
	STAN	Residential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	STAN	Residential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	STAN	Residential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
Statewide	STAN	Residential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	State	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	State	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	State	Parking	1/1/1900	12/31/3000	250	Default	NULL
	State	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
SUT	State	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SUT	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL

Table 6.1 Architectural Coating Emission Factors

Name	EMFAC_ID	CoatingType	Start Date	End Date	ROG, g/L	Rule Name	Amended Date
Sutter	SUT	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SUT	Parking	1/1/1900	12/31/3000	250	Default	NULL
	SUT	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
Sacramento Valley	SUT	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	SV	Nonresidential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
	SV	Nonresidential Interior	7/1/2011	12/31/3000	100	R218	10/14/2010
	SV	Parking	7/1/2011	12/31/3000	100	R218	10/14/2010
Tehama County APCD	SV	Residential Exterior	7/1/2011	12/31/3000	100	R218	10/14/2010
	SV	Residential Interior	7/1/2011	12/31/3000	100	R218	10/14/2010
	TEHAPCD	Nonresidential Exterior	1/1/1900	12/31/2002	250	Default	NULL
	TEHAPCD	Nonresidential Exterior	1/1/2003	12/31/2040	150	R4.39	8/20/2002
	TEHAPCD	Nonresidential Interior	1/1/1900	12/31/2002	250	Default	NULL
	TEHAPCD	Nonresidential Interior	1/1/2003	12/31/2040	150	R4.39	8/20/2002
	TEHAPCD	Parking	1/1/2003	12/31/2040	150	R4.39	8/20/2002
Tehama	TEHAPCD	Residential Exterior	1/1/1900	12/31/2002	250	Default	NULL
	TEHAPCD	Residential Exterior	1/1/2003	12/31/2040	100	R4.39	8/20/2002
	TEHAPCD	Residential Interior	1/1/1900	12/31/2002	250	Default	NULL
	TEHAPCD	Residential Interior	1/1/2003	12/31/2040	100	R4.39	8/20/2002
	THE	Nonresidential Exterior	1/1/1900	12/31/2002	250	Default	NULL
	THE	Nonresidential Exterior	1/1/2003	12/31/2040	150	R4.39	8/20/2002
	THE	Nonresidential Interior	1/1/1900	12/31/2002	250	Default	NULL
	THE	Nonresidential Interior	1/1/2003	12/31/2040	150	R4.39	8/20/2002
Trinity	THE	Parking	1/1/2003	12/31/2040	150	R4.39	8/20/2002
	THE	Residential Exterior	1/1/1900	12/31/2002	250	Default	NULL
	THE	Residential Exterior	1/1/2003	12/31/2040	100	R4.39	8/20/2002
	THE	Residential Interior	1/1/1900	12/31/2002	250	Default	NULL
Tulare	THE	Residential Interior	1/1/2003	12/31/2040	100	R4.39	8/20/2002
	TRI	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	TRI	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
	TRI	Parking	1/1/1900	12/31/3000	250	Default	NULL
Tulare	TRI	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	TRI	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	TUL	Nonresidential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	TUL	Nonresidential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	TUL	Nonresidential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	TUL	Nonresidential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	TUL	Parking	1/1/2011	12/31/3000	150	R4601	12/17/2009
	TUL	Residential Exterior	1/1/1900	12/31/2010	250	R4601	12/17/2009
Tuolumne County APCD	TUL	Residential Exterior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	TUL	Residential Interior	1/1/1900	12/31/2010	250	R4601	12/17/2009
	TUL	Residential Interior	1/1/2011	12/31/3000	150	R4601	12/17/2009
	TULAPCD	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	TULAPCD	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
Tuolumne	TULAPCD	Parking	1/1/1900	12/31/3000	250	Default	NULL
	TULAPCD	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	TULAPCD	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	TUO	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	TUO	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
Ventura County APCD	TUO	Parking	1/1/1900	12/31/3000	250	Default	NULL
	TUO	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	TUO	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	VCAPCD	Nonresidential Exterior	1/1/1900	12/31/2003	250	Default	NULL
	VCAPCD	Nonresidential Exterior	1/1/2004	1/11/2010	150	R74.2	1/12/2010
	VCAPCD	Nonresidential Exterior	1/12/2010	12/31/3000	250	R74.2	1/12/2010
	VCAPCD	Nonresidential Interior	1/1/1900	12/31/2003	250	Default	NULL
	VCAPCD	Nonresidential Interior	1/1/2004	1/11/2010	150	R74.2	1/12/2010
	VCAPCD	Nonresidential Interior	1/12/2010	12/31/3000	250	R74.2	1/12/2010
	VCAPCD	Parking	1/12/2010	12/31/3000	250	R74.2	1/12/2010
	VCAPCD	Residential Exterior	1/1/1900	12/31/2003	250	Default	NULL
	VCAPCD	Residential Exterior	1/1/2004	1/11/2010	100	R74.2	1/12/2010
	VCAPCD	Residential Exterior	1/12/2010	12/31/3000	100	R74.2	1/12/2010
	VCAPCD	Residential Interior	1/1/1900	12/31/2003	250	Default	NULL
Ventura	VCAPCD	Residential Interior	1/1/2004	1/11/2010	100	R74.2	1/12/2010
	VCAPCD	Residential Interior	1/12/2010	12/31/3000	75	R74.2	1/12/2010
	VENT	Nonresidential Exterior	1/1/1900	12/31/2003	250	Default	NULL
	VENT	Nonresidential Exterior	1/1/2004	1/11/2010	150	R74.2	1/12/2010
	VENT	Nonresidential Exterior	1/12/2010	12/31/3000	250	R74.2	1/12/2010
	VENT	Nonresidential Interior	1/1/1900	12/31/2003	250	Default	NULL
	VENT	Nonresidential Interior	1/1/2004	1/11/2010	150	R74.2	1/12/2010
	VENT	Nonresidential Interior	1/12/2010	12/31/3000	250	R74.2	1/12/2010
	VENT	Parking	1/1/1900	12/31/2003	250	Default	NULL
	VENT	Residential Exterior	1/1/1900	12/31/2003	250	Default	NULL
	VENT	Residential Exterior	1/1/2004	1/11/2010	100	R74.2	1/12/2010
	VENT	Residential Exterior	1/12/2010	12/31/3000	100	R74.2	1/12/2010
	VENT	Residential Interior	1/1/1900	12/31/2003	250	Default	NULL
	VENT	Residential Interior	1/1/2004	1/11/2010	100	R74.2	1/12/2010
VENT	Residential Interior	1/12/2010	12/31/3000	75	R74.2	1/12/2010	
Yolo	YOLO	Nonresidential Exterior	1/1/1900	12/31/3000	150	Default	11/14/2001
	YOLO	Nonresidential Exterior	1/1/2003	12/31/3000	150	R2-14	11/14/2001
	YOLO	Nonresidential Interior	1/1/1900	12/31/3000	150	Default	11/14/2001
	YOLO	Nonresidential Interior	1/1/2003	12/31/3000	150	R2-14	11/14/2001
	YOLO	Parking	1/1/2003	12/31/3000	150	R2-14	11/14/2001
	YOLO	Residential Exterior	1/1/1900	12/31/3000	100	Default	11/14/2001
	YOLO	Residential Exterior	1/1/2003	12/31/3000	100	R2-14	11/14/2001
Yolo/Solano AQMD	YOLO	Residential Interior	1/1/1900	12/31/3000	100	Default	11/14/2001
	YOLO	Residential Interior	1/1/2003	12/31/3000	100	R2-14	11/14/2001
	YSAQMD	Nonresidential Exterior	1/1/1900	12/31/3000	150	Default	11/14/2001
	YSAQMD	Nonresidential Exterior	1/1/2003	12/31/3000	150	R2-14	11/14/2001
	YSAQMD	Nonresidential Interior	1/1/1900	12/31/3000	150	Default	11/14/2001
	YSAQMD	Nonresidential Interior	1/1/2003	12/31/3000	150	R2-14	11/14/2001
	YSAQMD	Parking	1/1/2003	12/31/3000	150	R2-14	11/14/2001
	YSAQMD	Residential Exterior	1/1/1900	12/31/3000	100	Default	11/14/2001
Yuba	YSAQMD	Residential Exterior	1/1/2003	12/31/3000	100	R2-14	11/14/2001
	YSAQMD	Residential Interior	1/1/1900	12/31/3000	100	Default	11/14/2001
	YSAQMD	Residential Interior	1/1/2003	12/31/3000	100	R2-14	11/14/2001
	YUBA	Nonresidential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	YUBA	Nonresidential Interior	1/1/1900	12/31/3000	250	Default	NULL
Yuba	YUBA	Parking	1/1/1900	12/31/3000	250	Default	NULL
	YUBA	Residential Exterior	1/1/1900	12/31/3000	250	Default	NULL
	YUBA	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL
	YUBA	Residential Interior	1/1/1900	12/31/3000	250	Default	NULL

Table 7.1 Number of Snow and Summer Days
 Default: 0 Snow Days and 180 Summer Days

Location Type	Name	Number Snow Days	Number Summer Days
Air Basin	Great Basin Valleys	0	180
	Lake County	0	180
	Lake Tahoe	0	180
	Mountain Counties	0	180
	Mojave Desert	0	180
	North Coast	0	180
	North Central Coast	0	180
	Northeast Plateau	0	180
	South Coast	0	250
	South Central Coast	0	180
	San Diego	0	180
	San Francisco Bay Area	0	180
	San Joaquin Valley	0	180
	Salton Sea	0	180
	Sacramento Valley	0	180
Air District	Amador County APCD	0	180
	Antelope Valley APCD	0	180
	Bay Area AQMD	0	180
	Butte County AQMD	0	180
	Colusa County APCD	0	180
	Calaveras County AQMD	0	180
	El Dorado County AQMD	0	180
	Feather River AQMD	0	180
	Great Basin UAPCD	0	180
	Glenn County APCD	0	180
	Imperial County APCD	0	180
	Kern County APCD	0	180
	Lassen County APCD	0	180
	Lake County AQMD	0	180
	Mariposa County APCD	0	180
	Monterey Bay Unified APCD	0	250
	Mendocino County AQMD	0	180
	Mojave Desert AQMD	0	180
	Modoc County APCD	0	180
	North Coast Unified APCD	0	180
	Northern Sierra AQMD	0	180
	Northern Sonoma County APCD	0	180
	Placer County APCD	0	180
	Santa Barbara County APCD	0	180
	Siskiyou County APCD	0	180
	South Coast AQMD	0	250
	San Diego County APCD	0	180
	Shasta County AQMD	0	180
	San Joaquin Valley Unified APCD	0	180
	San Luis Obispo County APCD	0	330
Sacramento Metropolitan AQMD	0	250	
Tehama County APCD	0	180	
Tuolumne County APCD	0	180	
Ventura County APCD	0	180	
Yolo/Solano AQMD	0	180	
	Alameda	0	180
	Alpine	0	180
	Amador	0	180
	Butte	0	180
	Calaveras	0	180
	Contra Costa	0	180
	Colusa	0	180
	Del Norte	0	180
	El Dorado-Lake Tahoe	0	180
	El Dorado-Mountain County	0	180
	Fresno	0	180
	Glenn	0	180
	Humboldt	0	180
	Imperial	0	180
	Inyo	0	180

Table 7.1 Number of Snow and Summer Days
 Default: 0 Snow Days and 180 Summer Days

Location Type	Name	Number Snow Days	Number Summer Days
Counties	Kern-Mojave Desert	0	180
	Kern-San Joaquin	0	180
	Kings	0	180
	Lake	0	180
	Los Angeles-Mojave Desert	0	180
	Los Angeles-South Coast	0	250
	Lassen	0	180
	Madera	0	180
	Marin	0	180
	Mariposa	0	180
	Mendocino-Coastal	0	180
	Mendocino-Inland	0	180
	Mendocino-Rural Inland North	0	180
	Mendocino-Rural Inland South	0	180
	Merced	0	180
	Modoc	0	180
	Mono	0	180
	Monterey	0	250
	Napa	0	180
	Nevada	0	180
	Orange	0	250
	Placer-Lake Tahoe	0	180
	Placer-Mountain Counties	0	180
	Placer-Sacramento	0	180
	Plumas	0	180
	Riverside-Mojave Desert MDAQMD	0	180
	Riverside-South Coast	0	250
	Riverside-Mojave Desert SCAQMD	0	250
	Riverside-Salton Sea	0	180
	Sacramento	0	250
	San Benito	0	250
	San Bernardino-Mojave Desert	0	180
	San Bernardino-South Coast	0	250
	Santa Barbara-North of Santa Ynez	0	180
	Santa Barbara-South of Santa Ynez Range	0	180
	Santa Clara	0	180
	Santa Cruz	0	250
	San Diego	0	180
	San Francisco	0	180
	Shasta	0	180
	Sierra	0	180
	Siskiyou	0	180
	San Joaquin	0	180
	San Luis Obispo	0	330
	San Mateo	0	180
	Solano-San Francisco	0	180
	Solano-Sacramento	0	180
	Sonoma-North Coast	0	180
	Sonoma-San Francisco	0	180
	Stanislaus	0	180
	Sutter	0	180
	Tehama	0	180
Trinity	0	180	
Tulare	0	180	
Tuolumne	0	180	
Ventura	0	180	
Yolo	0	180	
Yuba	0	180	
Statewide	Statewide	0	180

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Chainsaws	1990	G2	C	0	2	430.1	1525.141	2.131	0.534	7.415	7.415	884.646	36.68
Chainsaws	1990	G2	C	6	15	1449.037	5141.698	9.226	2.555	35.657	35.657	4229.983	123.578
Chainsaws	1990	G2	R	0	2	430.1	1525.141	2.131	0.534	7.415	7.415	884.646	36.68
Chainsaws	1990	G2	R	6	15	1449.037	5141.698	9.226	2.555	35.657	35.657	4229.983	123.578
Chainsaws	2000	G2	C	0	2	270.428	649.378	3.049	0.051	4.093	4.093	884.645	16.368
Chainsaws	2000	G2	C	6	15	1266.497	2726.472	9.823	0.252	7.183	7.183	4229.982	76.657
Chainsaws	2000	G2	R	0	2	270.428	649.378	3.049	0.051	4.093	4.093	884.645	16.368
Chainsaws	2000	G2	R	6	15	1266.497	2726.472	9.823	0.252	7.183	7.183	4229.982	76.657
Chainsaws	2005	G2	C	0	2	207.911	510.872	2.825	0.036	2.641	2.641	884.646	12.922
Chainsaws	2005	G2	C	6	15	848.205	2184.762	13.204	0.174	5.288	5.288	4229.983	52.72
Chainsaws	2005	G2	R	0	2	207.911	510.872	2.825	0.036	2.641	2.641	884.646	12.922
Chainsaws	2005	G2	R	6	15	848.205	2184.762	13.204	0.174	5.288	5.288	4229.983	52.72
Chainsaws	2010	G2	C	0	2	162.731	408.317	2.858	0.036	1.705	1.705	884.645	10.114
Chainsaws	2010	G2	C	6	15	766.506	1633.987	13.859	0.174	4.103	4.103	4229.983	47.642
Chainsaws	2010	G2	R	0	2	162.731	408.317	2.858	0.036	1.705	1.705	884.645	10.114
Chainsaws	2010	G2	R	6	15	766.506	1633.987	13.859	0.174	4.103	4.103	4229.983	47.642
Chainsaws	2011	G2	C	0	2	155.394	394.431	2.878	0.036	1.522	1.522	884.646	9.658
Chainsaws	2011	G2	C	6	15	759.657	1622.962	13.892	0.174	3.856	3.856	4229.983	47.216
Chainsaws	2011	G2	R	0	2	155.394	394.431	2.878	0.036	1.522	1.522	884.646	9.658
Chainsaws	2011	G2	R	6	15	759.657	1622.962	13.892	0.174	3.856	3.856	4229.983	47.216
Chainsaws	2012	G2	C	0	2	149.004	383.549	2.895	0.036	1.353	1.353	884.646	9.261
Chainsaws	2012	G2	C	6	15	753.368	1613.589	13.92	0.174	3.622	3.622	4229.982	46.825
Chainsaws	2012	G2	R	0	2	149.004	383.549	2.895	0.036	1.353	1.353	884.646	9.261
Chainsaws	2012	G2	R	6	15	753.368	1613.589	13.92	0.174	3.622	3.622	4229.982	46.825
Chainsaws	2013	G2	C	0	2	142.978	373.417	2.911	0.036	1.193	1.193	884.646	8.886
Chainsaws	2013	G2	C	6	15	747.326	1604.617	13.946	0.174	3.399	3.399	4229.981	46.449
Chainsaws	2013	G2	R	0	2	142.978	373.417	2.911	0.036	1.193	1.193	884.646	8.886
Chainsaws	2013	G2	R	6	15	747.326	1604.617	13.946	0.174	3.399	3.399	4229.981	46.449
Chainsaws	2014	G2	C	0	2	137.47	364.196	2.923	0.036	1.045	1.045	884.646	8.544
Chainsaws	2014	G2	C	6	15	741.798	1596.381	13.968	0.174	3.192	3.192	4229.983	46.106
Chainsaws	2014	G2	R	0	2	137.47	364.196	2.923	0.036	1.045	1.045	884.646	8.544
Chainsaws	2014	G2	R	6	15	741.798	1596.381	13.968	0.174	3.192	3.192	4229.983	46.106
Chainsaws	2015	G2	C	0	2	132.537	355.824	2.932	0.036	0.913	0.913	884.646	8.237
Chainsaws	2015	G2	C	6	15	736.856	1588.938	13.984	0.174	3.007	3.007	4229.983	45.799
Chainsaws	2015	G2	R	0	2	132.537	355.824	2.932	0.036	0.913	0.913	884.646	8.237
Chainsaws	2015	G2	R	6	15	736.856	1588.938	13.984	0.174	3.007	3.007	4229.983	45.799
Chainsaws	2016	G2	C	0	2	129.473	350.338	2.924	0.036	0.836	0.836	884.646	8.047
Chainsaws	2016	G2	C	6	15	733.89	1584.315	13.978	0.174	2.902	2.902	4229.984	45.614
Chainsaws	2016	G2	R	0	2	129.473	350.338	2.924	0.036	0.836	0.836	884.646	8.047
Chainsaws	2016	G2	R	6	15	733.89	1584.315	13.978	0.174	2.902	2.902	4229.984	45.614
Chainsaws	2017	G2	C	0	2	127.281	346.187	2.909	0.036	0.785	0.785	884.646	7.911
Chainsaws	2017	G2	C	6	15	731.828	1580.963	13.963	0.174	2.834	2.834	4229.982	45.486
Chainsaws	2017	G2	R	0	2	127.281	346.187	2.909	0.036	0.785	0.785	884.646	7.911
Chainsaws	2017	G2	R	6	15	731.828	1580.963	13.963	0.174	2.834	2.834	4229.982	45.486
Chainsaws	2018	G2	C	0	2	125.383	342.558	2.894	0.036	0.741	0.741	884.646	7.793
Chainsaws	2018	G2	C	6	15	730.055	1578.05	13.946	0.174	2.775	2.775	4229.982	45.376
Chainsaws	2018	G2	R	0	2	125.383	342.558	2.894	0.036	0.741	0.741	884.646	7.793
Chainsaws	2018	G2	R	6	15	730.055	1578.05	13.946	0.174	2.775	2.775	4229.982	45.376
Chainsaws	2019	G2	C	0	2	123.704	339.377	2.879	0.036	0.702	0.702	884.646	7.688
Chainsaws	2019	G2	C	6	15	728.478	1575.487	13.93	0.174	2.723	2.723	4229.983	45.278
Chainsaws	2019	G2	R	0	2	123.704	339.377	2.879	0.036	0.702	0.702	884.646	7.688
Chainsaws	2019	G2	R	6	15	728.478	1575.487	13.93	0.174	2.723	2.723	4229.983	45.278
Chainsaws	2020	G2	C	0	2	122.245	336.69	2.866	0.036	0.667	0.667	884.645	7.598
Chainsaws	2020	G2	C	6	15	727.09	1573.283	13.915	0.174	2.675	2.675	4229.983	45.192
Chainsaws	2020	G2	R	0	2	122.245	336.69	2.866	0.036	0.667	0.667	884.645	7.598
Chainsaws	2020	G2	R	6	15	727.09	1573.283	13.915	0.174	2.675	2.675	4229.983	45.192
Chainsaws	2021	G2	C	0	2	121.003	334.39	2.861	0.036	0.636	0.636	884.646	7.52
Chainsaws	2021	G2	C	6	15	725.905	1571.385	13.911	0.174	2.633	2.633	4229.982	45.118
Chainsaws	2021	G2	R	0	2	121.003	334.39	2.861	0.036	0.636	0.636	884.646	7.52
Chainsaws	2021	G2	R	6	15	725.905	1571.385	13.911	0.174	2.633	2.633	4229.982	45.118
Chainsaws	2022	G2	C	0	2	120.084	332.625	2.86	0.036	0.61	0.61	884.646	7.463
Chainsaws	2022	G2	C	6	15	725.029	1569.887	13.911	0.174	2.597	2.597	4229.982	45.064
Chainsaws	2022	G2	R	0	2	120.084	332.625	2.86	0.036	0.61	0.61	884.646	7.463
Chainsaws	2022	G2	R	6	15	725.029	1569.887	13.911	0.174	2.597	2.597	4229.982	45.064
Chainsaws	2023	G2	C	0	2	119.275	331.06	2.859	0.036	0.587	0.587	884.645	7.413
Chainsaws	2023	G2	C	6	15	724.255	1568.544	13.911	0.174	2.566	2.566	4229.982	45.015
Chainsaws	2023	G2	R	0	2	119.275	331.06	2.859	0.036	0.587	0.587	884.645	7.413
Chainsaws	2023	G2	R	6	15	724.255	1568.544	13.911	0.174	2.566	2.566	4229.982	45.015
Chainsaws	2024	G2	C	0	2	118.594	329.785	2.858	0.036	0.567	0.567	884.646	7.371
Chainsaws	2024	G2	C	6	15	723.595	1567.432	13.91	0.174	2.538	2.538	4229.983	44.974
Chainsaws	2024	G2	R	0	2	118.594	329.785	2.858	0.036	0.567	0.567	884.646	7.371
Chainsaws	2024	G2	R	6	15	723.595	1567.432	13.91	0.174	2.538	2.538	4229.983	44.974
Chainsaws	2025	G2	C	0	2	118.058	328.877	2.857	0.036	0.551	0.551	884.646	7.337
Chainsaws	2025	G2	C	6	15	723.056	1566.61	13.909	0.174	2.515	2.515	4229.983	44.941
Chainsaws	2025	G2	R	0	2	118.058	328.877	2.857	0.036	0.551	0.551	884.646	7.337
Chainsaws	2025	G2	R	6	15	723.056	1566.61	13.909	0.174	2.515	2.515	4229.983	44.941

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Chainsaws	2030	G2	C	0	2	116.821	327.327	2.847	0.036	0.515	0.515	884.646	7.261
Chainsaws	2030	G2	C	6	15	721.699	1565.005	13.9	0.174	2.463	2.463	4229.983	44.857
Chainsaws	2030	G2	R	0	2	116.821	327.327	2.847	0.036	0.515	0.515	884.646	7.261
Chainsaws	2030	G2	R	6	15	721.699	1565.005	13.9	0.174	2.463	2.463	4229.983	44.857
Chainsaws	2035	G2	C	0	2	116.745	327.292	2.841	0.036	0.514	0.514	884.646	7.256
Chainsaws	2035	G2	C	6	15	721.61	1564.967	13.892	0.174	2.462	2.462	4229.983	44.851
Chainsaws	2035	G2	R	0	2	116.745	327.292	2.841	0.036	0.514	0.514	884.646	7.256
Chainsaws	2035	G2	R	6	15	721.61	1564.967	13.892	0.174	2.462	2.462	4229.983	44.851
Chainsaws	2040	G2	C	0	2	116.734	327.292	2.841	0.036	0.514	0.514	884.646	7.255
Chainsaws	2040	G2	C	6	15	721.596	1564.968	13.892	0.174	2.462	2.462	4229.983	44.85
Chainsaws	2040	G2	R	0	2	116.734	327.292	2.841	0.036	0.514	0.514	884.646	7.255
Chainsaws	2040	G2	R	6	15	721.596	1564.968	13.892	0.174	2.462	2.462	4229.983	44.85
Chainsaws Preempt	1990	G2	C	6	15	366.304	1299.779	2.281	0.645	9.013	9.013	1069.305	31.239
Chainsaws Preempt	1990	G2	R	6	15	366.304	1299.779	2.281	0.645	9.013	9.013	1069.305	31.239
Chainsaws Preempt	2000	G2	C	6	15	338.395	831.071	2.059	0.061	3.653	3.653	1069.305	20.482
Chainsaws Preempt	2000	G2	R	6	15	338.395	831.071	2.059	0.061	3.653	3.653	1069.305	20.482
Chainsaws Preempt	2005	G2	C	6	15	254.318	635.617	2.838	0.044	2.464	2.464	1069.305	15.807
Chainsaws Preempt	2005	G2	R	6	15	254.318	635.617	2.838	0.044	2.464	2.464	1069.305	15.807
Chainsaws Preempt	2010	G2	C	6	15	209.644	529.056	3.069	0.044	1.449	1.449	1069.305	13.03
Chainsaws Preempt	2010	G2	R	6	15	209.644	529.056	3.069	0.044	1.449	1.449	1069.305	13.03
Chainsaws Preempt	2011	G2	C	6	15	201.143	511.177	3.112	0.044	1.257	1.257	1069.305	12.502
Chainsaws Preempt	2011	G2	R	6	15	201.143	511.177	3.112	0.044	1.257	1.257	1069.305	12.502
Chainsaws Preempt	2012	G2	C	6	15	193.093	493.759	3.149	0.044	1.096	1.096	1069.305	12.001
Chainsaws Preempt	2012	G2	R	6	15	193.093	493.759	3.149	0.044	1.096	1.096	1069.305	12.001
Chainsaws Preempt	2013	G2	C	6	15	185.768	480.558	3.186	0.044	1.004	1.004	1069.305	11.546
Chainsaws Preempt	2013	G2	R	6	15	185.768	480.558	3.186	0.044	1.004	1.004	1069.305	11.546
Chainsaws Preempt	2014	G2	C	6	15	178.982	469.597	3.222	0.044	0.944	0.944	1069.305	11.124
Chainsaws Preempt	2014	G2	R	6	15	178.982	469.597	3.222	0.044	0.944	0.944	1069.305	11.124
Chainsaws Preempt	2015	G2	C	6	15	172.536	459.286	3.257	0.044	0.892	0.892	1069.305	10.723
Chainsaws Preempt	2015	G2	R	6	15	172.536	459.286	3.257	0.044	0.892	0.892	1069.305	10.723
Chainsaws Preempt	2016	G2	C	6	15	166.528	449.661	3.289	0.044	0.846	0.846	1069.305	10.35
Chainsaws Preempt	2016	G2	R	6	15	166.528	449.661	3.289	0.044	0.846	0.846	1069.305	10.35
Chainsaws Preempt	2017	G2	C	6	15	161.095	440.508	3.319	0.044	0.805	0.805	1069.305	10.012
Chainsaws Preempt	2017	G2	R	6	15	161.095	440.508	3.319	0.044	0.805	0.805	1069.305	10.012
Chainsaws Preempt	2018	G2	C	6	15	156.8	432.052	3.343	0.044	0.77	0.77	1069.305	9.745
Chainsaws Preempt	2018	G2	R	6	15	156.8	432.052	3.343	0.044	0.77	0.77	1069.305	9.745
Chainsaws Preempt	2019	G2	C	6	15	153.482	424.251	3.361	0.044	0.739	0.739	1069.305	9.539
Chainsaws Preempt	2019	G2	R	6	15	153.482	424.251	3.361	0.044	0.739	0.739	1069.305	9.539
Chainsaws Preempt	2020	G2	C	6	15	150.987	417.321	3.376	0.044	0.711	0.711	1069.305	9.384
Chainsaws Preempt	2020	G2	R	6	15	150.987	417.321	3.376	0.044	0.711	0.711	1069.305	9.384
Chainsaws Preempt	2021	G2	C	6	15	149.069	412.763	3.386	0.044	0.687	0.687	1069.305	9.265
Chainsaws Preempt	2021	G2	R	6	15	149.069	412.763	3.386	0.044	0.687	0.687	1069.305	9.265
Chainsaws Preempt	2022	G2	C	6	15	147.64	409.646	3.395	0.044	0.669	0.669	1069.305	9.176
Chainsaws Preempt	2022	G2	R	6	15	147.64	409.646	3.395	0.044	0.669	0.669	1069.305	9.176
Chainsaws Preempt	2023	G2	C	6	15	146.402	406.95	3.402	0.044	0.654	0.654	1069.305	9.099
Chainsaws Preempt	2023	G2	R	6	15	146.402	406.95	3.402	0.044	0.654	0.654	1069.305	9.099
Chainsaws Preempt	2024	G2	C	6	15	145.326	404.662	3.408	0.044	0.642	0.642	1069.305	9.032
Chainsaws Preempt	2024	G2	R	6	15	145.326	404.662	3.408	0.044	0.642	0.642	1069.305	9.032
Chainsaws Preempt	2025	G2	C	6	15	144.382	402.632	3.414	0.044	0.633	0.633	1069.305	8.974
Chainsaws Preempt	2025	G2	R	6	15	144.382	402.632	3.414	0.044	0.633	0.633	1069.305	8.974
Chainsaws Preempt	2030	G2	C	6	15	141.634	397.139	3.43	0.044	0.622	0.622	1069.305	8.803
Chainsaws Preempt	2030	G2	R	6	15	141.634	397.139	3.43	0.044	0.622	0.622	1069.305	8.803
Chainsaws Preempt	2035	G2	C	6	15	141.117	395.646	3.434	0.044	0.622	0.622	1069.305	8.771
Chainsaws Preempt	2035	G2	R	6	15	141.117	395.646	3.434	0.044	0.622	0.622	1069.305	8.771
Chainsaws Preempt	2040	G2	C	6	15	141.101	395.611	3.434	0.044	0.622	0.622	1069.305	8.77
Chainsaws Preempt	2040	G2	R	6	15	141.101	395.611	3.434	0.044	0.622	0.622	1069.305	8.77
Chippers/Stump Grinders	1990	G4	C	6	15	26.78	933.58	8.955	0.359	0.28	0.28	858.879	3.132
Chippers/Stump Grinders	1990	G4	C	16	25	24.322	928.906	8.774	0.319	0.279	0.279	858.879	2.845
Chippers/Stump Grinders	1990	G4	R	6	15	26.78	933.58	8.955	0.359	0.28	0.28	858.879	3.132
Chippers/Stump Grinders	1990	G4	R	16	25	24.322	928.906	8.774	0.319	0.279	0.279	858.879	2.845
Chippers/Stump Grinders	2000	G4	C	6	15	26.135	723.135	6.901	0.034	4.7	4.7	858.879	1.413
Chippers/Stump Grinders	2000	G4	C	16	25	23.07	704.371	6.107	0.03	4.7	4.7	858.879	1.248
Chippers/Stump Grinders	2000	G4	R	6	15	26.135	723.135	6.901	0.034	4.7	4.7	858.879	1.413
Chippers/Stump Grinders	2000	G4	R	16	25	23.07	704.371	6.107	0.03	4.7	4.7	858.879	1.248
Chippers/Stump Grinders	2005	G4	C	6	15	15.976	594.637	8.627	0.024	5.68	5.68	858.879	0.89
Chippers/Stump Grinders	2005	G4	C	16	25	15.751	614.099	7.946	0.021	5.68	5.68	858.879	0.877
Chippers/Stump Grinders	2005	G4	R	6	15	15.976	594.637	8.627	0.024	5.68	5.68	858.879	0.89
Chippers/Stump Grinders	2005	G4	R	16	25	15.751	614.099	7.946	0.021	5.68	5.68	858.879	0.877
Chippers/Stump Grinders	2010	G4	C	6	15	14.871	564.601	8.667	0.024	6.518	6.518	858.879	0.829
Chippers/Stump Grinders	2010	G4	C	16	25	14.869	587.924	7.952	0.021	6.518	6.518	858.879	0.828
Chippers/Stump Grinders	2010	G4	R	6	15	14.871	564.601	8.667	0.024	6.518	6.518	858.879	0.829
Chippers/Stump Grinders	2010	G4	R	16	25	14.869	587.924	7.952	0.021	6.518	6.518	858.879	0.828
Chippers/Stump Grinders	2011	G4	C	6	15	14.631	558.807	8.673	0.024	6.676	6.676	858.879	0.815
Chippers/Stump Grinders	2011	G4	C	16	25	14.678	582.832	7.951	0.021	6.676	6.676	858.879	0.817
Chippers/Stump Grinders	2011	G4	R	6	15	14.631	558.807	8.673	0.024	6.676	6.676	858.879	0.815
Chippers/Stump Grinders	2011	G4	R	16	25	14.678	582.832	7.951	0.021	6.676	6.676	858.879	0.817

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Chippers/Stump Grinders	2012	G4	C	6	15	14.382	552.474	8.678	0.024	6.808	6.808	858.879	0.801
Chippers/Stump Grinders	2012	G4	C	16	25	14.48	577.17	7.952	0.021	6.808	6.808	858.879	0.806
Chippers/Stump Grinders	2012	G4	R	6	15	14.382	552.474	8.678	0.024	6.808	6.808	858.879	0.801
Chippers/Stump Grinders	2012	G4	R	16	25	14.48	577.17	7.952	0.021	6.808	6.808	858.879	0.806
Chippers/Stump Grinders	2013	G4	C	6	15	14.151	547.979	8.7	0.024	6.884	6.884	858.879	0.788
Chippers/Stump Grinders	2013	G4	C	16	25	14.308	573.422	7.978	0.021	6.884	6.884	858.879	0.797
Chippers/Stump Grinders	2013	G4	R	6	15	14.151	547.979	8.7	0.024	6.884	6.884	858.879	0.788
Chippers/Stump Grinders	2013	G4	R	16	25	14.308	573.422	7.978	0.021	6.884	6.884	858.879	0.797
Chippers/Stump Grinders	2014	G4	C	6	15	13.931	543.899	8.73	0.024	6.934	6.934	858.879	0.776
Chippers/Stump Grinders	2014	G4	C	16	25	14.149	570.105	8.014	0.021	6.934	6.934	858.879	0.788
Chippers/Stump Grinders	2014	G4	R	6	15	13.931	543.899	8.73	0.024	6.934	6.934	858.879	0.776
Chippers/Stump Grinders	2014	G4	R	16	25	14.149	570.105	8.014	0.021	6.934	6.934	858.879	0.788
Chippers/Stump Grinders	2015	G4	C	6	15	13.705	539.742	8.763	0.024	6.977	6.977	858.879	0.763
Chippers/Stump Grinders	2015	G4	C	16	25	13.986	566.728	8.054	0.021	6.977	6.977	858.879	0.779
Chippers/Stump Grinders	2015	G4	R	6	15	13.705	539.742	8.763	0.024	6.977	6.977	858.879	0.763
Chippers/Stump Grinders	2015	G4	R	16	25	13.986	566.728	8.054	0.021	6.977	6.977	858.879	0.779
Chippers/Stump Grinders	2016	G4	C	6	15	13.477	535.731	8.798	0.024	7.015	7.015	858.879	0.751
Chippers/Stump Grinders	2016	G4	C	16	25	13.824	563.501	8.096	0.021	7.015	7.015	858.879	0.77
Chippers/Stump Grinders	2016	G4	R	6	15	13.477	535.731	8.798	0.024	7.015	7.015	858.879	0.751
Chippers/Stump Grinders	2016	G4	R	16	25	13.824	563.501	8.096	0.021	7.015	7.015	858.879	0.77
Chippers/Stump Grinders	2017	G4	C	6	15	13.257	531.934	8.832	0.024	7.049	7.049	858.88	0.738
Chippers/Stump Grinders	2017	G4	C	16	25	13.666	560.455	8.137	0.021	7.049	7.049	858.879	0.761
Chippers/Stump Grinders	2017	G4	R	6	15	13.257	531.934	8.832	0.024	7.049	7.049	858.88	0.738
Chippers/Stump Grinders	2017	G4	R	16	25	13.666	560.455	8.137	0.021	7.049	7.049	858.879	0.761
Chippers/Stump Grinders	2018	G4	C	6	15	13.054	528.594	8.866	0.024	7.078	7.078	858.879	0.727
Chippers/Stump Grinders	2018	G4	C	16	25	13.521	557.812	8.176	0.021	7.078	7.078	858.879	0.753
Chippers/Stump Grinders	2018	G4	R	6	15	13.054	528.594	8.866	0.024	7.078	7.078	858.879	0.727
Chippers/Stump Grinders	2018	G4	R	16	25	13.521	557.812	8.176	0.021	7.078	7.078	858.879	0.753
Chippers/Stump Grinders	2019	G4	C	6	15	12.927	526.488	8.885	0.024	7.103	7.103	858.879	0.72
Chippers/Stump Grinders	2019	G4	C	16	25	13.43	556.111	8.197	0.021	7.103	7.103	858.879	0.748
Chippers/Stump Grinders	2019	G4	R	6	15	12.927	526.488	8.885	0.024	7.103	7.103	858.879	0.72
Chippers/Stump Grinders	2019	G4	R	16	25	13.43	556.111	8.197	0.021	7.103	7.103	858.879	0.748
Chippers/Stump Grinders	2020	G4	C	6	15	12.837	524.97	8.898	0.024	7.126	7.126	858.879	0.715
Chippers/Stump Grinders	2020	G4	C	16	25	13.364	554.86	8.21	0.021	7.126	7.126	858.879	0.744
Chippers/Stump Grinders	2020	G4	R	6	15	12.837	524.97	8.898	0.024	7.126	7.126	858.879	0.715
Chippers/Stump Grinders	2020	G4	R	16	25	13.364	554.86	8.21	0.021	7.126	7.126	858.879	0.744
Chippers/Stump Grinders	2021	G4	C	6	15	12.749	523.609	8.907	0.024	7.146	7.146	858.879	0.71
Chippers/Stump Grinders	2021	G4	C	16	25	13.299	553.749	8.22	0.021	7.146	7.146	858.879	0.741
Chippers/Stump Grinders	2021	G4	R	6	15	12.749	523.609	8.907	0.024	7.146	7.146	858.879	0.71
Chippers/Stump Grinders	2021	G4	R	16	25	13.299	553.749	8.22	0.021	7.146	7.146	858.879	0.741
Chippers/Stump Grinders	2022	G4	C	6	15	12.676	522.437	8.918	0.024	7.161	7.161	858.879	0.706
Chippers/Stump Grinders	2022	G4	C	16	25	13.245	552.799	8.232	0.021	7.161	7.161	858.88	0.738
Chippers/Stump Grinders	2022	G4	R	6	15	12.676	522.437	8.918	0.024	7.161	7.161	858.879	0.706
Chippers/Stump Grinders	2022	G4	R	16	25	13.245	552.799	8.232	0.021	7.161	7.161	858.88	0.738
Chippers/Stump Grinders	2023	G4	C	6	15	12.604	521.328	8.93	0.024	7.173	7.173	858.879	0.702
Chippers/Stump Grinders	2023	G4	C	16	25	13.193	551.905	8.244	0.021	7.173	7.173	858.879	0.735
Chippers/Stump Grinders	2023	G4	R	6	15	12.604	521.328	8.93	0.024	7.173	7.173	858.879	0.702
Chippers/Stump Grinders	2023	G4	R	16	25	13.193	551.905	8.244	0.021	7.173	7.173	858.879	0.735
Chippers/Stump Grinders	2024	G4	C	6	15	12.541	520.397	8.94	0.024	7.183	7.183	858.879	0.699
Chippers/Stump Grinders	2024	G4	C	16	25	13.147	551.168	8.255	0.021	7.183	7.183	858.879	0.733
Chippers/Stump Grinders	2024	G4	R	6	15	12.541	520.397	8.94	0.024	7.183	7.183	858.879	0.699
Chippers/Stump Grinders	2024	G4	R	16	25	13.147	551.168	8.255	0.021	7.183	7.183	858.879	0.733
Chippers/Stump Grinders	2025	G4	C	6	15	12.482	519.536	8.949	0.024	7.191	7.191	858.879	0.696
Chippers/Stump Grinders	2025	G4	C	16	25	13.104	550.485	8.265	0.021	7.191	7.191	858.879	0.73
Chippers/Stump Grinders	2025	G4	R	6	15	12.482	519.536	8.949	0.024	7.191	7.191	858.879	0.696
Chippers/Stump Grinders	2025	G4	R	16	25	13.104	550.485	8.265	0.021	7.191	7.191	858.879	0.73
Chippers/Stump Grinders	2030	G4	C	6	15	12.282	516.861	8.977	0.024	7.199	7.199	858.879	0.685
Chippers/Stump Grinders	2030	G4	C	16	25	12.957	548.436	8.297	0.021	7.199	7.199	858.879	0.722
Chippers/Stump Grinders	2030	G4	R	6	15	12.282	516.861	8.977	0.024	7.199	7.199	858.879	0.685
Chippers/Stump Grinders	2030	G4	R	16	25	12.957	548.436	8.297	0.021	7.199	7.199	858.879	0.722
Chippers/Stump Grinders	2035	G4	C	6	15	12.235	516.011	8.982	0.024	7.199	7.199	858.879	0.683
Chippers/Stump Grinders	2035	G4	C	16	25	12.921	547.707	8.303	0.021	7.199	7.199	858.879	0.721
Chippers/Stump Grinders	2035	G4	R	6	15	12.235	516.011	8.982	0.024	7.199	7.199	858.879	0.683
Chippers/Stump Grinders	2035	G4	R	16	25	12.921	547.707	8.303	0.021	7.199	7.199	858.879	0.721
Chippers/Stump Grinders	2040	G4	C	6	15	12.225	515.57	8.979	0.024	7.199	7.199	858.879	0.682
Chippers/Stump Grinders	2040	G4	C	16	25	12.912	547.24	8.3	0.021	7.199	7.199	858.879	0.721
Chippers/Stump Grinders	2040	G4	R	6	15	12.225	515.57	8.979	0.024	7.199	7.199	858.879	0.682
Chippers/Stump Grinders	2040	G4	R	16	25	12.912	547.24	8.3	0.021	7.199	7.199	858.879	0.721
Commercial Turf Equipment	1990	G2	C	6	15	191.758	485.999	0.312	0.259	7.699	7.699	429.44	16.353
Commercial Turf Equipment	1990	G2	C	16	25	191.758	485.999	0.312	0.259	7.699	7.699	429.439	16.353
Commercial Turf Equipment	1990	G4	C	6	15	16.379	472.617	4.731	0.179	0.239	0.239	429.439	1.921
Commercial Turf Equipment	1990	G4	C	16	25	14.527	469.101	4.594	0.159	0.24	0.24	429.439	1.704
Commercial Turf Equipment	2000	G2	C	6	15	14.782	299.417	2.985	0.024	0.377	0.377	429.439	0.894
Commercial Turf Equipment	2000	G2	C	16	25	13.439	293.136	2.439	0.024	0.377	0.377	429.44	0.813
Commercial Turf Equipment	2000	G4	C	6	15	16.668	363.292	3.251	0.017	0.239	0.239	429.439	0.904
Commercial Turf Equipment	2000	G4	C	16	25	14.233	343.703	2.671	0.015	0.239	0.239	429.439	0.772

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Commercial Turf Equipment	2005	G2	C	6	15	6.003	233.321	4.02	0.017	0.199	0.199	429.439	0.373
Commercial Turf Equipment	2005	G2	C	16	25	6.112	244.809	3.679	0.017	0.199	0.199	429.439	0.379
Commercial Turf Equipment	2005	G4	C	6	15	8.16	270.992	4.937	0.012	0.239	0.239	429.439	0.455
Commercial Turf Equipment	2005	G4	C	16	25	8.228	282.77	4.525	0.01	0.239	0.239	429.439	0.458
Commercial Turf Equipment	2010	G2	C	6	15	4.216	224.659	3.203	0.017	0.2	0.2	429.439	0.262
Commercial Turf Equipment	2010	G2	C	16	25	4.288	238.459	3.13	0.017	0.199	0.199	429.439	0.266
Commercial Turf Equipment	2010	G4	C	6	15	5.626	258.52	4.031	0.012	0.239	0.239	429.439	0.313
Commercial Turf Equipment	2010	G4	C	16	25	5.642	274.4	4.03	0.01	0.239	0.239	429.439	0.314
Commercial Turf Equipment	2011	G2	C	6	15	3.91	224.659	2.951	0.017	0.199	0.199	429.439	0.243
Commercial Turf Equipment	2011	G2	C	16	25	3.921	238.46	2.943	0.017	0.2	0.2	429.44	0.243
Commercial Turf Equipment	2011	G4	C	6	15	5.25	258.5	3.73	0.012	0.24	0.24	429.439	0.293
Commercial Turf Equipment	2011	G4	C	16	25	5.166	274.379	3.833	0.01	0.239	0.239	429.439	0.288
Commercial Turf Equipment	2012	G2	C	6	15	3.813	224.659	2.872	0.017	0.199	0.199	429.439	0.237
Commercial Turf Equipment	2012	G2	C	16	25	3.806	238.459	2.884	0.017	0.199	0.199	429.439	0.236
Commercial Turf Equipment	2012	G4	C	6	15	5.132	258.463	3.636	0.012	0.239	0.239	429.439	0.286
Commercial Turf Equipment	2012	G4	C	16	25	5.016	274.34	3.771	0.01	0.24	0.24	429.439	0.279
Commercial Turf Equipment	2013	G2	C	6	15	3.755	224.659	2.824	0.017	0.199	0.199	429.439	0.233
Commercial Turf Equipment	2013	G2	C	16	25	3.736	238.459	2.848	0.017	0.199	0.199	429.439	0.232
Commercial Turf Equipment	2013	G4	C	6	15	5.06	258.427	3.579	0.012	0.239	0.239	429.439	0.282
Commercial Turf Equipment	2013	G4	C	16	25	4.926	274.302	3.733	0.01	0.239	0.239	429.439	0.274
Commercial Turf Equipment	2014	G2	C	6	15	3.726	224.659	2.8	0.017	0.199	0.199	429.439	0.231
Commercial Turf Equipment	2014	G2	C	16	25	3.701	238.46	2.83	0.017	0.199	0.199	429.439	0.23
Commercial Turf Equipment	2014	G4	C	6	15	5.024	258.392	3.55	0.012	0.239	0.239	429.439	0.28
Commercial Turf Equipment	2014	G4	C	16	25	4.88	274.264	3.714	0.01	0.24	0.24	429.439	0.272
Commercial Turf Equipment	2015	G2	C	6	15	3.718	224.659	2.794	0.017	0.199	0.199	429.439	0.231
Commercial Turf Equipment	2015	G2	C	16	25	3.692	238.459	2.825	0.017	0.199	0.199	429.439	0.229
Commercial Turf Equipment	2015	G4	C	6	15	5.014	258.358	3.542	0.012	0.239	0.239	429.439	0.279
Commercial Turf Equipment	2015	G4	C	16	25	4.867	274.228	3.709	0.01	0.239	0.239	429.439	0.271
Commercial Turf Equipment	2016	G2	C	6	15	3.718	224.659	2.794	0.017	0.2	0.2	429.439	0.231
Commercial Turf Equipment	2016	G2	C	16	25	3.692	238.459	2.825	0.017	0.199	0.199	429.439	0.229
Commercial Turf Equipment	2016	G4	C	6	15	5.013	258.32	3.542	0.012	0.239	0.239	429.439	0.279
Commercial Turf Equipment	2016	G4	C	16	25	4.867	274.187	3.709	0.01	0.239	0.239	429.439	0.271
Commercial Turf Equipment	2017	G2	C	6	15	3.718	224.659	2.794	0.017	0.199	0.199	429.439	0.231
Commercial Turf Equipment	2017	G2	C	16	25	3.692	238.459	2.825	0.017	0.199	0.199	429.439	0.229
Commercial Turf Equipment	2017	G4	C	6	15	5.013	258.283	3.541	0.012	0.239	0.239	429.439	0.279
Commercial Turf Equipment	2017	G4	C	16	25	4.866	274.148	3.709	0.01	0.239	0.239	429.439	0.271
Commercial Turf Equipment	2018	G2	C	6	15	3.718	224.659	2.794	0.017	0.199	0.199	429.439	0.231
Commercial Turf Equipment	2018	G2	C	16	25	3.692	238.459	2.825	0.017	0.199	0.199	429.439	0.229
Commercial Turf Equipment	2018	G4	C	6	15	5.012	258.247	3.541	0.012	0.239	0.239	429.439	0.279
Commercial Turf Equipment	2018	G4	C	16	25	4.866	274.11	3.708	0.01	0.24	0.24	429.439	0.271
Commercial Turf Equipment	2019	G2	C	6	15	3.718	224.659	2.794	0.017	0.2	0.2	429.439	0.231
Commercial Turf Equipment	2019	G2	C	16	25	3.692	238.46	2.825	0.017	0.2	0.2	429.44	0.229
Commercial Turf Equipment	2019	G4	C	6	15	5.012	258.211	3.541	0.012	0.239	0.239	429.439	0.279
Commercial Turf Equipment	2019	G4	C	16	25	4.865	274.072	3.708	0.01	0.24	0.24	429.44	0.271
Commercial Turf Equipment	2020	G2	C	6	15	3.718	224.659	2.794	0.017	0.199	0.199	429.439	0.231
Commercial Turf Equipment	2020	G2	C	16	25	3.692	238.459	2.825	0.017	0.199	0.199	429.439	0.229
Commercial Turf Equipment	2020	G4	C	6	15	5.011	258.176	3.541	0.012	0.24	0.24	429.44	0.279
Commercial Turf Equipment	2020	G4	C	16	25	4.865	274.034	3.708	0.01	0.239	0.239	429.439	0.271
Commercial Turf Equipment	2021	G2	C	6	15	3.718	224.659	2.794	0.017	0.199	0.199	429.439	0.231
Commercial Turf Equipment	2021	G2	C	16	25	3.692	238.46	2.825	0.017	0.199	0.199	429.439	0.229
Commercial Turf Equipment	2021	G4	C	6	15	5.011	258.15	3.541	0.012	0.24	0.24	429.439	0.279
Commercial Turf Equipment	2021	G4	C	16	25	4.864	274.007	3.708	0.01	0.24	0.24	429.44	0.271
Commercial Turf Equipment	2022	G2	C	6	15	3.718	224.659	2.794	0.017	0.2	0.2	429.439	0.231
Commercial Turf Equipment	2022	G2	C	16	25	3.692	238.46	2.825	0.017	0.199	0.199	429.439	0.229
Commercial Turf Equipment	2022	G4	C	6	15	5.01	258.115	3.54	0.012	0.239	0.239	429.439	0.279
Commercial Turf Equipment	2022	G4	C	16	25	4.864	273.97	3.707	0.01	0.239	0.239	429.439	0.271
Commercial Turf Equipment	2023	G2	C	6	15	3.718	224.659	2.794	0.017	0.199	0.199	429.439	0.231
Commercial Turf Equipment	2023	G2	C	16	25	3.692	238.46	2.825	0.017	0.199	0.199	429.44	0.229
Commercial Turf Equipment	2023	G4	C	6	15	5.01	258.08	3.54	0.012	0.239	0.239	429.439	0.279
Commercial Turf Equipment	2023	G4	C	16	25	4.863	273.933	3.707	0.01	0.239	0.239	429.44	0.271
Commercial Turf Equipment	2024	G2	C	6	15	3.718	224.659	2.794	0.017	0.199	0.199	429.439	0.231
Commercial Turf Equipment	2024	G2	C	16	25	3.692	238.46	2.825	0.017	0.2	0.2	429.439	0.229
Commercial Turf Equipment	2024	G4	C	6	15	5.009	258.043	3.54	0.012	0.239	0.239	429.439	0.279
Commercial Turf Equipment	2024	G4	C	16	25	4.863	273.893	3.707	0.01	0.239	0.239	429.439	0.271
Commercial Turf Equipment	2025	G2	C	6	15	3.718	224.659	2.794	0.017	0.199	0.199	429.439	0.231
Commercial Turf Equipment	2025	G2	C	16	25	3.692	238.459	2.825	0.017	0.2	0.2	429.439	0.229
Commercial Turf Equipment	2025	G4	C	6	15	5.008	258.005	3.54	0.012	0.239	0.239	429.439	0.279
Commercial Turf Equipment	2025	G4	C	16	25	4.862	273.854	3.707	0.01	0.239	0.239	429.439	0.271
Commercial Turf Equipment	2030	G2	C	6	15	3.718	224.659	2.794	0.017	0.199	0.199	429.439	0.231
Commercial Turf Equipment	2030	G2	C	16	25	3.692	238.459	2.825	0.017	0.199	0.199	429.439	0.229
Commercial Turf Equipment	2030	G4	C	6	15	5.005	257.808	3.539	0.012	0.239	0.239	429.439	0.279
Commercial Turf Equipment	2030	G4	C	16	25	4.859	273.644	3.706	0.01	0.239	0.239	429.439	0.271
Commercial Turf Equipment	2035	G2	C	6	15	3.718	224.659	2.794	0.017	0.199	0.199	429.439	0.231
Commercial Turf Equipment	2035	G2	C	16	25	3.692	238.459	2.826	0.017	0.199	0.199	429.439	0.229
Commercial Turf Equipment	2035	G4	C	6	15	5.002	257.605	3.537	0.012	0.239	0.239	429.439	0.279
Commercial Turf Equipment	2035	G4	C	16	25	4.856	273.429	3.704	0.01	0.24	0.24	429.44	0.271

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Commercial Turf Equipment	2040	G2	C	6	15	3.718	224.659	2.794	0.017	0.199	0.199	429.439	0.231
Commercial Turf Equipment	2040	G2	C	16	25	3.692	238.459	2.826	0.017	0.199	0.199	429.439	0.229
Commercial Turf Equipment	2040	G4	C	6	15	4.999	257.385	3.536	0.012	0.239	0.239	429.439	0.279
Commercial Turf Equipment	2040	G4	C	16	25	4.853	273.195	3.703	0.01	0.239	0.239	429.439	0.271
Front Mowers	1990	G4	C	6	15	22.909	915.938	8.6	0.359	0.371	0.371	858.879	2.705
Front Mowers	1990	G4	C	16	25	21.231	912.759	8.476	0.319	0.371	0.371	858.879	2.507
Front Mowers	1990	G4	R	6	15	22.909	915.938	8.6	0.359	0.371	0.371	858.879	2.705
Front Mowers	1990	G4	R	16	25	21.231	912.759	8.476	0.319	0.371	0.371	858.879	2.507
Front Mowers	2000	G4	C	6	15	20.645	670.814	6.649	0.034	0.37	0.37	858.879	1.128
Front Mowers	2000	G4	C	16	25	18.437	666.497	5.668	0.03	0.37	0.37	858.879	1.007
Front Mowers	2000	G4	R	6	15	20.645	670.814	6.649	0.034	0.37	0.37	858.879	1.128
Front Mowers	2000	G4	R	16	25	18.437	666.497	5.668	0.03	0.37	0.37	858.879	1.007
Front Mowers	2005	G4	C	6	15	13.656	554.614	7.702	0.024	0.37	0.37	858.879	0.766
Front Mowers	2005	G4	C	16	25	13.498	576.678	6.968	0.021	0.37	0.37	858.879	0.758
Front Mowers	2005	G4	R	6	15	13.656	554.614	7.702	0.024	0.37	0.37	858.879	0.766
Front Mowers	2005	G4	R	16	25	13.498	576.678	6.968	0.021	0.37	0.37	858.879	0.758
Front Mowers	2010	G4	C	6	15	9.521	522.282	6.198	0.024	0.37	0.37	858.879	0.534
Front Mowers	2010	G4	C	16	25	9.505	550.919	5.959	0.021	0.37	0.37	858.879	0.534
Front Mowers	2010	G4	R	6	15	9.521	522.282	6.198	0.024	0.37	0.37	858.879	0.534
Front Mowers	2010	G4	R	16	25	9.505	550.919	5.959	0.021	0.37	0.37	858.879	0.534
Front Mowers	2011	G4	C	6	15	9.168	519.756	6.099	0.024	0.37	0.37	858.879	0.515
Front Mowers	2011	G4	C	16	25	9.185	549.03	5.885	0.021	0.37	0.37	858.879	0.516
Front Mowers	2011	G4	R	6	15	9.168	519.756	6.099	0.024	0.37	0.37	858.879	0.515
Front Mowers	2011	G4	R	16	25	9.185	549.03	5.885	0.021	0.37	0.37	858.879	0.516
Front Mowers	2012	G4	C	6	15	8.85	517.872	5.992	0.024	0.37	0.37	858.879	0.497
Front Mowers	2012	G4	C	16	25	8.887	547.664	5.805	0.021	0.37	0.37	858.879	0.499
Front Mowers	2012	G4	R	6	15	8.85	517.872	5.992	0.024	0.37	0.37	858.879	0.497
Front Mowers	2012	G4	R	16	25	8.887	547.664	5.805	0.021	0.37	0.37	858.879	0.499
Front Mowers	2013	G4	C	6	15	8.562	516.232	5.892	0.024	0.37	0.37	858.879	0.481
Front Mowers	2013	G4	C	16	25	8.612	546.487	5.732	0.021	0.37	0.37	858.879	0.484
Front Mowers	2013	G4	R	6	15	8.562	516.232	5.892	0.024	0.37	0.37	858.879	0.481
Front Mowers	2013	G4	R	16	25	8.612	546.487	5.732	0.021	0.37	0.37	858.879	0.484
Front Mowers	2014	G4	C	6	15	8.303	514.847	5.793	0.024	0.37	0.37	858.879	0.466
Front Mowers	2014	G4	C	16	25	8.36	545.482	5.66	0.021	0.37	0.37	858.879	0.469
Front Mowers	2014	G4	R	6	15	8.303	514.847	5.793	0.024	0.37	0.37	858.879	0.466
Front Mowers	2014	G4	R	16	25	8.36	545.482	5.66	0.021	0.37	0.37	858.879	0.469
Front Mowers	2015	G4	C	6	15	8.07	513.744	5.696	0.024	0.37	0.37	858.879	0.453
Front Mowers	2015	G4	C	16	25	8.128	544.687	5.589	0.021	0.37	0.37	858.879	0.456
Front Mowers	2015	G4	R	6	15	8.07	513.744	5.696	0.024	0.37	0.37	858.879	0.453
Front Mowers	2015	G4	R	16	25	8.128	544.687	5.589	0.021	0.37	0.37	858.879	0.456
Front Mowers	2016	G4	C	6	15	7.873	512.921	5.604	0.024	0.37	0.37	858.879	0.442
Front Mowers	2016	G4	C	16	25	7.924	544.091	5.523	0.021	0.37	0.37	858.879	0.445
Front Mowers	2016	G4	R	6	15	7.873	512.921	5.604	0.024	0.37	0.37	858.879	0.442
Front Mowers	2016	G4	R	16	25	7.924	544.091	5.523	0.021	0.37	0.37	858.879	0.445
Front Mowers	2017	G4	C	6	15	7.773	512.361	5.568	0.024	0.37	0.37	858.879	0.437
Front Mowers	2017	G4	C	16	25	7.826	543.68	5.499	0.021	0.37	0.37	858.879	0.44
Front Mowers	2017	G4	R	6	15	7.773	512.361	5.568	0.024	0.37	0.37	858.879	0.437
Front Mowers	2017	G4	R	16	25	7.826	543.68	5.499	0.021	0.37	0.37	858.879	0.44
Front Mowers	2018	G4	C	6	15	7.704	511.993	5.54	0.024	0.37	0.37	858.879	0.433
Front Mowers	2018	G4	C	16	25	7.756	543.404	5.48	0.021	0.37	0.37	858.88	0.436
Front Mowers	2018	G4	R	6	15	7.704	511.993	5.54	0.024	0.37	0.37	858.879	0.433
Front Mowers	2018	G4	R	16	25	7.756	543.404	5.48	0.021	0.37	0.37	858.88	0.436
Front Mowers	2019	G4	C	6	15	7.66	511.821	5.514	0.024	0.37	0.37	858.879	0.43
Front Mowers	2019	G4	C	16	25	7.707	543.26	5.463	0.021	0.37	0.37	858.879	0.433
Front Mowers	2019	G4	R	6	15	7.66	511.821	5.514	0.024	0.37	0.37	858.879	0.43
Front Mowers	2019	G4	R	16	25	7.707	543.26	5.463	0.021	0.37	0.37	858.879	0.433
Front Mowers	2020	G4	C	6	15	7.631	511.749	5.492	0.024	0.37	0.37	858.88	0.429
Front Mowers	2020	G4	C	16	25	7.672	543.183	5.446	0.021	0.37	0.37	858.879	0.431
Front Mowers	2020	G4	R	6	15	7.631	511.749	5.492	0.024	0.37	0.37	858.88	0.429
Front Mowers	2020	G4	R	16	25	7.672	543.183	5.446	0.021	0.37	0.37	858.879	0.431
Front Mowers	2021	G4	C	6	15	7.604	511.699	5.471	0.024	0.37	0.37	858.879	0.427
Front Mowers	2021	G4	C	16	25	7.641	543.13	5.43	0.021	0.37	0.37	858.879	0.429
Front Mowers	2021	G4	R	6	15	7.604	511.699	5.471	0.024	0.37	0.37	858.879	0.427
Front Mowers	2021	G4	R	16	25	7.641	543.13	5.43	0.021	0.37	0.37	858.879	0.429
Front Mowers	2022	G4	C	6	15	7.589	511.628	5.459	0.024	0.37	0.37	858.879	0.426
Front Mowers	2022	G4	C	16	25	7.622	543.055	5.422	0.021	0.37	0.37	858.879	0.428
Front Mowers	2022	G4	R	6	15	7.589	511.628	5.459	0.024	0.37	0.37	858.879	0.426
Front Mowers	2022	G4	R	16	25	7.622	543.055	5.422	0.021	0.37	0.37	858.879	0.428
Front Mowers	2023	G4	C	6	15	7.579	511.555	5.452	0.024	0.37	0.37	858.879	0.426
Front Mowers	2023	G4	C	16	25	7.609	542.977	5.417	0.021	0.37	0.37	858.879	0.428
Front Mowers	2023	G4	R	6	15	7.579	511.555	5.452	0.024	0.37	0.37	858.879	0.426
Front Mowers	2023	G4	R	16	25	7.609	542.977	5.417	0.021	0.37	0.37	858.879	0.428
Front Mowers	2024	G4	C	6	15	7.573	511.479	5.447	0.024	0.37	0.37	858.879	0.426
Front Mowers	2024	G4	C	16	25	7.602	542.897	5.414	0.021	0.37	0.37	858.879	0.427
Front Mowers	2024	G4	R	6	15	7.573	511.479	5.447	0.024	0.37	0.37	858.879	0.426
Front Mowers	2024	G4	R	16	25	7.602	542.897	5.414	0.021	0.37	0.37	858.879	0.427

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Front Mowers	2025	G4	C	6	15	7.571	511.402	5.445	0.024	0.37	0.37	858.879	0.426
Front Mowers	2025	G4	C	16	25	7.599	542.815	5.413	0.021	0.37	0.37	858.879	0.427
Front Mowers	2025	G4	R	6	15	7.571	511.402	5.445	0.024	0.37	0.37	858.879	0.426
Front Mowers	2025	G4	R	16	25	7.599	542.815	5.413	0.021	0.37	0.37	858.879	0.427
Front Mowers	2030	G4	C	6	15	7.565	510.995	5.443	0.024	0.37	0.37	858.879	0.426
Front Mowers	2030	G4	C	16	25	7.593	542.383	5.411	0.021	0.37	0.37	858.879	0.427
Front Mowers	2030	G4	R	6	15	7.565	510.995	5.443	0.024	0.37	0.37	858.879	0.426
Front Mowers	2030	G4	R	16	25	7.593	542.383	5.411	0.021	0.37	0.37	858.879	0.427
Front Mowers	2035	G4	C	6	15	7.56	510.58	5.441	0.024	0.37	0.37	858.879	0.426
Front Mowers	2035	G4	C	16	25	7.588	541.943	5.409	0.021	0.37	0.37	858.879	0.427
Front Mowers	2035	G4	R	6	15	7.56	510.58	5.441	0.024	0.37	0.37	858.879	0.426
Front Mowers	2035	G4	R	16	25	7.588	541.943	5.409	0.021	0.37	0.37	858.879	0.427
Front Mowers	2040	G4	C	6	15	7.554	510.128	5.438	0.024	0.37	0.37	858.879	0.425
Front Mowers	2040	G4	C	16	25	7.582	541.463	5.406	0.021	0.37	0.37	858.879	0.427
Front Mowers	2040	G4	R	6	15	7.554	510.128	5.438	0.024	0.37	0.37	858.879	0.425
Front Mowers	2040	G4	R	16	25	7.582	541.463	5.406	0.021	0.37	0.37	858.879	0.427
Lawn & Garden Tractors	1990	G4	C	6	15	18.822	906.929	8.251	0.359	0.325	0.325	858.879	2.223
Lawn & Garden Tractors	1990	G4	C	16	25	17.993	905.359	8.189	0.319	0.325	0.325	858.88	2.125
Lawn & Garden Tractors	1990	G4	R	6	15	18.822	906.929	8.251	0.359	0.325	0.325	858.879	2.223
Lawn & Garden Tractors	1990	G4	R	16	25	17.993	905.359	8.189	0.319	0.325	0.325	858.88	2.125
Lawn & Garden Tractors	2000	G4	C	6	15	15.672	650.815	6.587	0.034	0.324	0.324	858.879	0.856
Lawn & Garden Tractors	2000	G4	C	16	25	14.456	658.129	5.618	0.03	0.324	0.324	858.879	0.79
Lawn & Garden Tractors	2000	G4	R	6	15	15.672	650.815	6.587	0.034	0.324	0.324	858.879	0.856
Lawn & Garden Tractors	2000	G4	R	16	25	14.456	658.129	5.618	0.03	0.324	0.324	858.879	0.79
Lawn & Garden Tractors	2005	G4	C	6	15	11.473	549.36	7.036	0.024	0.324	0.324	858.879	0.644
Lawn & Garden Tractors	2005	G4	C	16	25	11.524	574.455	6.354	0.021	0.324	0.324	858.879	0.647
Lawn & Garden Tractors	2005	G4	R	6	15	11.473	549.36	7.036	0.024	0.324	0.324	858.879	0.644
Lawn & Garden Tractors	2005	G4	R	16	25	11.524	574.455	6.354	0.021	0.324	0.324	858.879	0.647
Lawn & Garden Tractors	2010	G4	C	6	15	8.137	520.395	5.536	0.024	0.324	0.324	858.879	0.457
Lawn & Garden Tractors	2010	G4	C	16	25	8.287	550.131	5.203	0.021	0.324	0.324	858.879	0.465
Lawn & Garden Tractors	2010	G4	R	6	15	8.137	520.395	5.536	0.024	0.324	0.324	858.879	0.457
Lawn & Garden Tractors	2010	G4	R	16	25	8.287	550.131	5.203	0.021	0.324	0.324	858.879	0.465
Lawn & Garden Tractors	2011	G4	C	6	15	7.862	518.247	5.427	0.024	0.324	0.324	858.879	0.441
Lawn & Garden Tractors	2011	G4	C	16	25	8.029	548.398	5.114	0.021	0.324	0.324	858.879	0.451
Lawn & Garden Tractors	2011	G4	R	6	15	7.862	518.247	5.427	0.024	0.324	0.324	858.879	0.441
Lawn & Garden Tractors	2011	G4	R	16	25	8.029	548.398	5.114	0.021	0.324	0.324	858.879	0.451
Lawn & Garden Tractors	2012	G4	C	6	15	7.611	516.686	5.314	0.024	0.324	0.324	858.879	0.427
Lawn & Garden Tractors	2012	G4	C	16	25	7.787	547.16	5.023	0.021	0.324	0.324	858.879	0.437
Lawn & Garden Tractors	2012	G4	R	6	15	7.611	516.686	5.314	0.024	0.324	0.324	858.879	0.427
Lawn & Garden Tractors	2012	G4	R	16	25	7.787	547.16	5.023	0.021	0.324	0.324	858.879	0.437
Lawn & Garden Tractors	2013	G4	C	6	15	7.383	515.349	5.21	0.024	0.324	0.324	858.879	0.414
Lawn & Garden Tractors	2013	G4	C	16	25	7.566	546.1	4.939	0.021	0.324	0.324	858.879	0.425
Lawn & Garden Tractors	2013	G4	R	6	15	7.383	515.349	5.21	0.024	0.324	0.324	858.879	0.414
Lawn & Garden Tractors	2013	G4	R	16	25	7.566	546.1	4.939	0.021	0.324	0.324	858.879	0.425
Lawn & Garden Tractors	2014	G4	C	6	15	7.177	514.218	5.11	0.024	0.324	0.324	858.879	0.403
Lawn & Garden Tractors	2014	G4	C	16	25	7.361	545.193	4.858	0.021	0.324	0.324	858.879	0.413
Lawn & Garden Tractors	2014	G4	R	6	15	7.177	514.218	5.11	0.024	0.324	0.324	858.879	0.403
Lawn & Garden Tractors	2014	G4	R	16	25	7.361	545.193	4.858	0.021	0.324	0.324	858.879	0.413
Lawn & Garden Tractors	2015	G4	C	6	15	6.989	513.324	5.013	0.024	0.324	0.324	858.879	0.392
Lawn & Garden Tractors	2015	G4	C	16	25	7.172	544.478	4.78	0.021	0.324	0.324	858.879	0.403
Lawn & Garden Tractors	2015	G4	R	6	15	6.989	513.324	5.013	0.024	0.324	0.324	858.879	0.392
Lawn & Garden Tractors	2015	G4	R	16	25	7.172	544.478	4.78	0.021	0.324	0.324	858.879	0.403
Lawn & Garden Tractors	2016	G4	C	6	15	6.827	512.658	4.923	0.024	0.324	0.324	858.88	0.383
Lawn & Garden Tractors	2016	G4	C	16	25	7.005	543.942	4.708	0.021	0.324	0.324	858.879	0.393
Lawn & Garden Tractors	2016	G4	R	6	15	6.827	512.658	4.923	0.024	0.324	0.324	858.88	0.383
Lawn & Garden Tractors	2016	G4	R	16	25	7.005	543.942	4.708	0.021	0.324	0.324	858.879	0.393
Lawn & Garden Tractors	2017	G4	C	6	15	6.75	512.203	4.887	0.024	0.324	0.324	858.879	0.379
Lawn & Garden Tractors	2017	G4	C	16	25	6.928	543.572	4.68	0.021	0.324	0.324	858.879	0.389
Lawn & Garden Tractors	2017	G4	R	6	15	6.75	512.203	4.887	0.024	0.324	0.324	858.879	0.379
Lawn & Garden Tractors	2017	G4	R	16	25	6.928	543.572	4.68	0.021	0.324	0.324	858.879	0.389
Lawn & Garden Tractors	2018	G4	C	6	15	6.696	511.901	4.86	0.024	0.324	0.324	858.879	0.376
Lawn & Garden Tractors	2018	G4	C	16	25	6.872	543.321	4.659	0.021	0.324	0.324	858.879	0.386
Lawn & Garden Tractors	2018	G4	R	6	15	6.696	511.901	4.86	0.024	0.324	0.324	858.879	0.376
Lawn & Garden Tractors	2018	G4	R	16	25	6.872	543.321	4.659	0.021	0.324	0.324	858.879	0.386
Lawn & Garden Tractors	2019	G4	C	6	15	6.658	511.751	4.836	0.024	0.324	0.324	858.88	0.374
Lawn & Garden Tractors	2019	G4	C	16	25	6.831	543.186	4.64	0.021	0.324	0.324	858.879	0.384
Lawn & Garden Tractors	2019	G4	R	6	15	6.658	511.751	4.836	0.024	0.324	0.324	858.88	0.374
Lawn & Garden Tractors	2019	G4	R	16	25	6.831	543.186	4.64	0.021	0.324	0.324	858.879	0.384
Lawn & Garden Tractors	2020	G4	C	6	15	6.632	511.679	4.816	0.024	0.324	0.324	858.879	0.373
Lawn & Garden Tractors	2020	G4	C	16	25	6.801	543.109	4.624	0.021	0.324	0.324	858.88	0.382
Lawn & Garden Tractors	2020	G4	R	6	15	6.632	511.679	4.816	0.024	0.324	0.324	858.879	0.373
Lawn & Garden Tractors	2020	G4	R	16	25	6.801	543.109	4.624	0.021	0.324	0.324	858.88	0.382
Lawn & Garden Tractors	2021	G4	C	6	15	6.609	511.629	4.799	0.024	0.324	0.324	858.879	0.371
Lawn & Garden Tractors	2021	G4	C	16	25	6.775	543.056	4.609	0.021	0.324	0.324	858.879	0.381
Lawn & Garden Tractors	2021	G4	R	6	15	6.609	511.629	4.799	0.024	0.324	0.324	858.879	0.371
Lawn & Garden Tractors	2021	G4	R	16	25	6.775	543.056	4.609	0.021	0.324	0.324	858.879	0.381

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Lawn & Garden Tractors	2022	G4	C	6	15	6.595	511.558	4.788	0.024	0.324	0.324	858.88	0.371
Lawn & Garden Tractors	2022	G4	C	16	25	6.759	542.981	4.601	0.021	0.324	0.324	858.879	0.38
Lawn & Garden Tractors	2022	G4	R	6	15	6.595	511.558	4.788	0.024	0.324	0.324	858.88	0.371
Lawn & Garden Tractors	2022	G4	R	16	25	6.759	542.981	4.601	0.021	0.324	0.324	858.879	0.38
Lawn & Garden Tractors	2023	G4	C	6	15	6.586	511.485	4.781	0.024	0.324	0.324	858.879	0.37
Lawn & Garden Tractors	2023	G4	C	16	25	6.748	542.904	4.596	0.021	0.324	0.324	858.879	0.379
Lawn & Garden Tractors	2023	G4	R	6	15	6.586	511.485	4.781	0.024	0.324	0.324	858.879	0.37
Lawn & Garden Tractors	2023	G4	R	16	25	6.748	542.904	4.596	0.021	0.324	0.324	858.879	0.379
Lawn & Garden Tractors	2024	G4	C	6	15	6.58	511.409	4.777	0.024	0.324	0.324	858.879	0.37
Lawn & Garden Tractors	2024	G4	C	16	25	6.742	542.823	4.593	0.021	0.324	0.324	858.879	0.379
Lawn & Garden Tractors	2024	G4	R	6	15	6.58	511.409	4.777	0.024	0.324	0.324	858.879	0.37
Lawn & Garden Tractors	2024	G4	R	16	25	6.742	542.823	4.593	0.021	0.324	0.324	858.879	0.379
Lawn & Garden Tractors	2025	G4	C	6	15	6.578	511.332	4.776	0.024	0.324	0.324	858.879	0.37
Lawn & Garden Tractors	2025	G4	C	16	25	6.739	542.741	4.592	0.021	0.324	0.324	858.879	0.379
Lawn & Garden Tractors	2025	G4	R	6	15	6.578	511.332	4.776	0.024	0.324	0.324	858.879	0.37
Lawn & Garden Tractors	2025	G4	R	16	25	6.739	542.741	4.592	0.021	0.324	0.324	858.879	0.379
Lawn & Garden Tractors	2030	G4	C	6	15	6.573	510.925	4.774	0.024	0.324	0.324	858.879	0.37
Lawn & Garden Tractors	2030	G4	C	16	25	6.734	542.309	4.59	0.021	0.324	0.324	858.879	0.379
Lawn & Garden Tractors	2030	G4	R	6	15	6.573	510.925	4.774	0.024	0.324	0.324	858.879	0.37
Lawn & Garden Tractors	2030	G4	R	16	25	6.734	542.309	4.59	0.021	0.324	0.324	858.879	0.379
Lawn & Garden Tractors	2035	G4	C	6	15	6.569	510.509	4.772	0.024	0.324	0.324	858.879	0.37
Lawn & Garden Tractors	2035	G4	C	16	25	6.73	541.868	4.588	0.021	0.324	0.324	858.879	0.379
Lawn & Garden Tractors	2035	G4	R	6	15	6.569	510.509	4.772	0.024	0.324	0.324	858.879	0.37
Lawn & Garden Tractors	2035	G4	R	16	25	6.73	541.868	4.588	0.021	0.324	0.324	858.879	0.379
Lawn & Garden Tractors	2040	G4	C	6	15	6.564	510.057	4.77	0.024	0.324	0.324	858.879	0.37
Lawn & Garden Tractors	2040	G4	C	16	25	6.725	541.388	4.586	0.021	0.324	0.324	858.879	0.379
Lawn & Garden Tractors	2040	G4	R	6	15	6.564	510.057	4.77	0.024	0.324	0.324	858.879	0.37
Lawn & Garden Tractors	2040	G4	R	16	25	6.725	541.388	4.586	0.021	0.324	0.324	858.879	0.379
Lawn Mowers	1990	G2	C	6	15	383.517	971.999	0.625	0.518	15.399	15.399	858.879	32.707
Lawn Mowers	1990	G2	R	6	15	383.517	971.999	0.625	0.518	15.399	15.399	858.879	32.707
Lawn Mowers	1990	G4	C	3	5	86.165	1366.863	4.921	0.434	2.4	2.4	858.879	10.153
Lawn Mowers	1990	G4	R	3	5	86.165	1366.863	4.921	0.434	2.4	2.4	858.879	10.153
Lawn Mowers	2000	G2	C	6	15	130.787	652.886	4.523	0.049	6.279	6.279	858.879	7.916
Lawn Mowers	2000	G2	R	6	15	130.787	652.886	4.523	0.049	6.279	6.279	858.879	7.916
Lawn Mowers	2000	G4	C	3	5	48.547	784.748	5.953	0.041	2.374	2.374	858.879	2.647
Lawn Mowers	2000	G4	R	3	5	48.547	784.748	5.953	0.041	2.374	2.374	858.879	2.647
Lawn Mowers	2005	G2	C	6	15	75.706	444.858	6.544	0.035	4.545	4.545	858.879	4.705
Lawn Mowers	2005	G2	R	6	15	75.706	444.858	6.544	0.035	4.545	4.545	858.879	4.705
Lawn Mowers	2005	G4	C	3	5	28.282	507.847	7.674	0.029	2.383	2.383	858.879	1.584
Lawn Mowers	2005	G4	R	3	5	28.282	507.847	7.674	0.029	2.383	2.383	858.879	1.584
Lawn Mowers	2010	G2	C	6	15	37.533	394.484	4.563	0.035	3.166	3.166	858.879	2.332
Lawn Mowers	2010	G2	R	6	15	37.533	394.484	4.563	0.035	3.166	3.166	858.879	2.332
Lawn Mowers	2010	G4	C	3	5	20.231	435.249	4.987	0.029	2.381	2.381	858.879	1.133
Lawn Mowers	2010	G4	R	3	5	20.231	435.249	4.987	0.029	2.381	2.381	858.879	1.133
Lawn Mowers	2011	G2	C	6	15	33.131	386.729	4.556	0.035	3.01	3.01	858.879	2.059
Lawn Mowers	2011	G2	R	6	15	33.131	386.729	4.556	0.035	3.01	3.01	858.879	2.059
Lawn Mowers	2011	G4	C	3	5	19.247	423.873	4.891	0.029	2.38	2.38	858.879	1.078
Lawn Mowers	2011	G4	R	3	5	19.247	423.873	4.891	0.029	2.38	2.38	858.879	1.078
Lawn Mowers	2012	G2	C	6	15	30.298	379.152	4.527	0.035	2.919	2.919	858.879	1.883
Lawn Mowers	2012	G2	R	6	15	30.298	379.152	4.527	0.035	2.919	2.919	858.879	1.883
Lawn Mowers	2012	G4	C	3	5	18.305	412.931	4.798	0.029	2.381	2.381	858.879	1.025
Lawn Mowers	2012	G4	R	3	5	18.305	412.931	4.798	0.029	2.381	2.381	858.879	1.025
Lawn Mowers	2013	G2	C	6	15	27.835	371.274	4.494	0.035	2.844	2.844	858.88	1.73
Lawn Mowers	2013	G2	R	6	15	27.835	371.274	4.494	0.035	2.844	2.844	858.88	1.73
Lawn Mowers	2013	G4	C	3	5	17.668	406.495	4.682	0.029	2.381	2.381	858.879	0.99
Lawn Mowers	2013	G4	R	3	5	17.668	406.495	4.682	0.029	2.381	2.381	858.879	0.99
Lawn Mowers	2014	G2	C	6	15	25.61	363.536	4.459	0.035	2.778	2.778	858.88	1.591
Lawn Mowers	2014	G2	R	6	15	25.61	363.536	4.459	0.035	2.778	2.778	858.88	1.591
Lawn Mowers	2014	G4	C	3	5	17.182	401.969	4.559	0.029	2.382	2.382	858.879	0.963
Lawn Mowers	2014	G4	R	3	5	17.182	401.969	4.559	0.029	2.382	2.382	858.879	0.963
Lawn Mowers	2015	G2	C	6	15	23.509	356.086	4.423	0.035	2.717	2.717	858.879	1.461
Lawn Mowers	2015	G2	R	6	15	23.509	356.086	4.423	0.035	2.717	2.717	858.879	1.461
Lawn Mowers	2015	G4	C	3	5	16.757	398.042	4.439	0.029	2.382	2.382	858.879	0.939
Lawn Mowers	2015	G4	R	3	5	16.757	398.042	4.439	0.029	2.382	2.382	858.879	0.939
Lawn Mowers	2016	G2	C	6	15	21.721	349.443	4.379	0.035	2.667	2.667	858.88	1.35
Lawn Mowers	2016	G2	R	6	15	21.721	349.443	4.379	0.035	2.667	2.667	858.88	1.35
Lawn Mowers	2016	G4	C	3	5	16.373	394.716	4.316	0.029	2.382	2.382	858.879	0.918
Lawn Mowers	2016	G4	R	3	5	16.373	394.716	4.316	0.029	2.382	2.382	858.879	0.918
Lawn Mowers	2017	G2	C	6	15	20.274	345.234	4.317	0.035	2.623	2.623	858.879	1.26
Lawn Mowers	2017	G2	R	6	15	20.274	345.234	4.317	0.035	2.623	2.623	858.879	1.26
Lawn Mowers	2017	G4	C	3	5	16.064	392.295	4.195	0.029	2.382	2.382	858.879	0.9
Lawn Mowers	2017	G4	R	3	5	16.064	392.295	4.195	0.029	2.382	2.382	858.879	0.9
Lawn Mowers	2018	G2	C	6	15	19.036	342.185	4.25	0.035	2.585	2.585	858.879	1.183
Lawn Mowers	2018	G2	R	6	15	19.036	342.185	4.25	0.035	2.585	2.585	858.879	1.183
Lawn Mowers	2018	G4	C	3	5	15.797	390.553	4.072	0.029	2.381	2.381	858.879	0.886
Lawn Mowers	2018	G4	R	3	5	15.797	390.553	4.072	0.029	2.381	2.381	858.879	0.886

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Lawn Mowers	2019	G2	C	6	15	17.952	339.506	4.179	0.035	2.552	2.552	858.879	1.115
Lawn Mowers	2019	G2	R	6	15	17.952	339.506	4.179	0.035	2.552	2.552	858.879	1.115
Lawn Mowers	2019	G4	C	3	5	15.63	389.143	4.016	0.029	2.38	2.38	858.879	0.876
Lawn Mowers	2019	G4	R	3	5	15.63	389.143	4.016	0.029	2.38	2.38	858.879	0.876
Lawn Mowers	2020	G2	C	6	15	17.063	337.156	4.108	0.035	2.525	2.525	858.88	1.06
Lawn Mowers	2020	G2	R	6	15	17.063	337.156	4.108	0.035	2.525	2.525	858.88	1.06
Lawn Mowers	2020	G4	C	3	5	15.516	387.971	3.981	0.029	2.381	2.381	858.879	0.87
Lawn Mowers	2020	G4	R	3	5	15.516	387.971	3.981	0.029	2.381	2.381	858.879	0.87
Lawn Mowers	2021	G2	C	6	15	16.284	335.258	4.034	0.035	2.501	2.501	858.879	1.012
Lawn Mowers	2021	G2	R	6	15	16.284	335.258	4.034	0.035	2.501	2.501	858.879	1.012
Lawn Mowers	2021	G4	C	3	5	15.42	387.332	3.946	0.029	2.379	2.379	858.879	0.865
Lawn Mowers	2021	G4	R	3	5	15.42	387.332	3.946	0.029	2.379	2.379	858.879	0.865
Lawn Mowers	2022	G2	C	6	15	15.732	333.499	3.97	0.035	2.487	2.487	858.879	0.977
Lawn Mowers	2022	G2	R	6	15	15.732	333.499	3.97	0.035	2.487	2.487	858.879	0.977
Lawn Mowers	2022	G4	C	3	5	15.359	386.662	3.917	0.029	2.38	2.38	858.879	0.861
Lawn Mowers	2022	G4	R	3	5	15.359	386.662	3.917	0.029	2.38	2.38	858.879	0.861
Lawn Mowers	2023	G2	C	6	15	15.272	331.902	3.938	0.035	2.474	2.474	858.879	0.949
Lawn Mowers	2023	G2	R	6	15	15.272	331.902	3.938	0.035	2.474	2.474	858.879	0.949
Lawn Mowers	2023	G4	C	3	5	15.32	386.308	3.893	0.029	2.38	2.38	858.879	0.859
Lawn Mowers	2023	G4	R	3	5	15.32	386.308	3.893	0.029	2.38	2.38	858.879	0.859
Lawn Mowers	2024	G2	C	6	15	14.912	330.523	3.919	0.035	2.465	2.465	858.879	0.926
Lawn Mowers	2024	G2	R	6	15	14.912	330.523	3.919	0.035	2.465	2.465	858.879	0.926
Lawn Mowers	2024	G4	C	3	5	15.299	386.129	3.871	0.029	2.38	2.38	858.879	0.858
Lawn Mowers	2024	G4	R	3	5	15.299	386.129	3.871	0.029	2.38	2.38	858.879	0.858
Lawn Mowers	2025	G2	C	6	15	14.672	329.458	3.9	0.035	2.459	2.459	858.879	0.911
Lawn Mowers	2025	G2	R	6	15	14.672	329.458	3.9	0.035	2.459	2.459	858.879	0.911
Lawn Mowers	2025	G4	C	3	5	15.289	386.029	3.852	0.029	2.38	2.38	858.879	0.858
Lawn Mowers	2025	G4	R	3	5	15.289	386.029	3.852	0.029	2.38	2.38	858.879	0.858
Lawn Mowers	2030	G2	C	6	15	14.354	327.334	3.814	0.035	2.455	2.455	858.879	0.892
Lawn Mowers	2030	G2	R	6	15	14.354	327.334	3.814	0.035	2.455	2.455	858.879	0.892
Lawn Mowers	2030	G4	C	3	5	15.26	385.707	3.815	0.029	2.38	2.38	858.879	0.857
Lawn Mowers	2030	G4	R	3	5	15.26	385.707	3.815	0.029	2.38	2.38	858.879	0.857
Lawn Mowers	2035	G2	C	6	15	14.32	327.145	3.775	0.035	2.455	2.455	858.879	0.89
Lawn Mowers	2035	G2	R	6	15	14.32	327.145	3.775	0.035	2.455	2.455	858.879	0.89
Lawn Mowers	2035	G4	C	3	5	15.244	385.494	3.812	0.029	2.38	2.38	858.879	0.856
Lawn Mowers	2035	G4	R	3	5	15.244	385.494	3.812	0.029	2.38	2.38	858.879	0.856
Lawn Mowers	2040	G2	C	6	15	14.316	327.185	3.769	0.035	2.454	2.454	858.879	0.889
Lawn Mowers	2040	G2	R	6	15	14.316	327.185	3.769	0.035	2.454	2.454	858.879	0.889
Lawn Mowers	2040	G4	C	3	5	15.234	385.112	3.811	0.029	2.38	2.38	858.879	0.857
Lawn Mowers	2040	G4	R	3	5	15.234	385.112	3.811	0.029	2.38	2.38	858.879	0.857
Leaf Blowers/Vacuums	1990	G2	C	0	2	417.573	1480.719	2.069	0.518	7.199	7.199	858.879	35.612
Leaf Blowers/Vacuums	1990	G2	R	0	2	417.573	1480.719	2.069	0.518	7.199	7.199	858.879	35.612
Leaf Blowers/Vacuums	1990	G4	C	3	5	66.617	1240.719	4.859	0.434	1.867	1.867	858.879	7.869
Leaf Blowers/Vacuums	1990	G4	R	3	5	66.617	1240.719	4.859	0.434	1.867	1.867	858.879	7.869
Leaf Blowers/Vacuums	2000	G2	C	0	2	241.563	630.464	2.96	0.049	3.973	3.973	858.879	14.621
Leaf Blowers/Vacuums	2000	G2	R	0	2	241.563	630.464	2.96	0.049	3.973	3.973	858.879	14.621
Leaf Blowers/Vacuums	2000	G4	C	3	5	36.418	783.667	5.349	0.041	1.858	1.858	858.879	1.99
Leaf Blowers/Vacuums	2000	G4	R	3	5	36.418	783.667	5.349	0.041	1.858	1.858	858.879	1.99
Leaf Blowers/Vacuums	2005	G2	C	0	2	180.783	495.991	2.743	0.035	2.565	2.565	858.879	11.236
Leaf Blowers/Vacuums	2005	G2	R	0	2	180.783	495.991	2.743	0.035	2.565	2.565	858.879	11.236
Leaf Blowers/Vacuums	2005	G4	C	3	5	24.991	596.754	6.325	0.029	1.861	1.861	858.879	1.403
Leaf Blowers/Vacuums	2005	G4	R	3	5	24.991	596.754	6.325	0.029	1.861	1.861	858.879	1.403
Leaf Blowers/Vacuums	2010	G2	C	0	2	136.866	396.425	2.775	0.035	1.656	1.656	858.879	8.506
Leaf Blowers/Vacuums	2010	G2	R	0	2	136.866	396.425	2.775	0.035	1.656	1.656	858.879	8.506
Leaf Blowers/Vacuums	2010	G4	C	3	5	17.271	539.377	3.881	0.029	1.863	1.863	858.879	0.97
Leaf Blowers/Vacuums	2010	G4	R	3	5	17.271	539.377	3.881	0.029	1.863	1.863	858.879	0.97
Leaf Blowers/Vacuums	2011	G2	C	0	2	129.72	382.943	2.794	0.035	1.478	1.478	858.879	8.062
Leaf Blowers/Vacuums	2011	G2	R	0	2	129.72	382.943	2.794	0.035	1.478	1.478	858.879	8.062
Leaf Blowers/Vacuums	2011	G4	C	3	5	16.444	531.587	3.798	0.029	1.862	1.862	858.879	0.923
Leaf Blowers/Vacuums	2011	G4	R	3	5	16.444	531.587	3.798	0.029	1.862	1.862	858.879	0.923
Leaf Blowers/Vacuums	2012	G2	C	0	2	123.505	372.378	2.811	0.035	1.314	1.314	858.88	7.676
Leaf Blowers/Vacuums	2012	G2	R	0	2	123.505	372.378	2.811	0.035	1.314	1.314	858.88	7.676
Leaf Blowers/Vacuums	2012	G4	C	3	5	15.817	524.344	3.715	0.029	1.862	1.862	858.879	0.888
Leaf Blowers/Vacuums	2012	G4	R	3	5	15.817	524.344	3.715	0.029	1.862	1.862	858.879	0.888
Leaf Blowers/Vacuums	2013	G2	C	0	2	117.639	362.541	2.826	0.035	1.158	1.158	858.879	7.311
Leaf Blowers/Vacuums	2013	G2	R	0	2	117.639	362.541	2.826	0.035	1.158	1.158	858.879	7.311
Leaf Blowers/Vacuums	2013	G4	C	3	5	15.23	517.066	3.632	0.029	1.862	1.862	858.879	0.855
Leaf Blowers/Vacuums	2013	G4	R	3	5	15.23	517.066	3.632	0.029	1.862	1.862	858.879	0.855
Leaf Blowers/Vacuums	2014	G2	C	0	2	112.276	353.588	2.838	0.035	1.015	1.015	858.879	6.978
Leaf Blowers/Vacuums	2014	G2	R	0	2	112.276	353.588	2.838	0.035	1.015	1.015	858.879	6.978
Leaf Blowers/Vacuums	2014	G4	C	3	5	14.675	509.992	3.552	0.029	1.862	1.862	858.879	0.824
Leaf Blowers/Vacuums	2014	G4	R	3	5	14.675	509.992	3.552	0.029	1.862	1.862	858.879	0.824
Leaf Blowers/Vacuums	2015	G2	C	0	2	107.472	345.461	2.846	0.035	0.886	0.886	858.879	6.679
Leaf Blowers/Vacuums	2015	G2	R	0	2	107.472	345.461	2.846	0.035	0.886	0.886	858.879	6.679
Leaf Blowers/Vacuums	2015	G4	C	3	5	14.134	503.126	3.474	0.029	1.862	1.862	858.879	0.794
Leaf Blowers/Vacuums	2015	G4	R	3	5	14.134	503.126	3.474	0.029	1.862	1.862	858.879	0.794

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Leaf Blowers/Vacuums	2016	G2	C	0	2	104.485	340.134	2.839	0.035	0.812	0.812	858.879	6.494
Leaf Blowers/Vacuums	2016	G2	R	0	2	104.485	340.134	2.839	0.035	0.812	0.812	858.879	6.494
Leaf Blowers/Vacuums	2016	G4	C	3	5	13.639	496.909	3.395	0.029	1.862	1.862	858.879	0.766
Leaf Blowers/Vacuums	2016	G4	R	3	5	13.639	496.909	3.395	0.029	1.862	1.862	858.879	0.766
Leaf Blowers/Vacuums	2017	G2	C	0	2	102.351	336.104	2.824	0.035	0.762	0.762	858.879	6.361
Leaf Blowers/Vacuums	2017	G2	R	0	2	102.351	336.104	2.824	0.035	0.762	0.762	858.879	6.361
Leaf Blowers/Vacuums	2017	G4	C	3	5	13.189	491.294	3.319	0.029	1.862	1.862	858.879	0.741
Leaf Blowers/Vacuums	2017	G4	R	3	5	13.189	491.294	3.319	0.029	1.862	1.862	858.879	0.741
Leaf Blowers/Vacuums	2018	G2	C	0	2	100.502	332.58	2.809	0.035	0.72	0.72	858.879	6.246
Leaf Blowers/Vacuums	2018	G2	R	0	2	100.502	332.58	2.809	0.035	0.72	0.72	858.879	6.246
Leaf Blowers/Vacuums	2018	G4	C	3	5	12.834	487.616	3.236	0.029	1.862	1.862	858.879	0.721
Leaf Blowers/Vacuums	2018	G4	R	3	5	12.834	487.616	3.236	0.029	1.862	1.862	858.879	0.721
Leaf Blowers/Vacuums	2019	G2	C	0	2	98.866	329.492	2.795	0.035	0.682	0.682	858.879	6.145
Leaf Blowers/Vacuums	2019	G2	R	0	2	98.866	329.492	2.795	0.035	0.682	0.682	858.879	6.145
Leaf Blowers/Vacuums	2019	G4	C	3	5	12.534	484.905	3.151	0.029	1.862	1.862	858.879	0.704
Leaf Blowers/Vacuums	2019	G4	R	3	5	12.534	484.905	3.151	0.029	1.862	1.862	858.879	0.704
Leaf Blowers/Vacuums	2020	G2	C	0	2	97.445	326.883	2.783	0.035	0.647	0.647	858.879	6.056
Leaf Blowers/Vacuums	2020	G2	R	0	2	97.445	326.883	2.783	0.035	0.647	0.647	858.879	6.056
Leaf Blowers/Vacuums	2020	G4	C	3	5	12.271	482.619	3.068	0.029	1.862	1.862	858.879	0.69
Leaf Blowers/Vacuums	2020	G4	R	3	5	12.271	482.619	3.068	0.029	1.862	1.862	858.879	0.69
Leaf Blowers/Vacuums	2021	G2	C	0	2	96.221	324.651	2.778	0.035	0.618	0.618	858.879	5.98
Leaf Blowers/Vacuums	2021	G2	R	0	2	96.221	324.651	2.778	0.035	0.618	0.618	858.879	5.98
Leaf Blowers/Vacuums	2021	G4	C	3	5	12.022	480.736	2.987	0.029	1.861	1.861	858.88	0.676
Leaf Blowers/Vacuums	2021	G4	R	3	5	12.022	480.736	2.987	0.029	1.861	1.861	858.88	0.676
Leaf Blowers/Vacuums	2022	G2	C	0	2	95.338	322.937	2.777	0.035	0.593	0.593	858.879	5.925
Leaf Blowers/Vacuums	2022	G2	R	0	2	95.338	322.937	2.777	0.035	0.593	0.593	858.879	5.925
Leaf Blowers/Vacuums	2022	G4	C	3	5	11.831	478.893	2.919	0.029	1.862	1.862	858.879	0.665
Leaf Blowers/Vacuums	2022	G4	R	3	5	11.831	478.893	2.919	0.029	1.862	1.862	858.879	0.665
Leaf Blowers/Vacuums	2023	G2	C	0	2	94.546	321.418	2.776	0.035	0.57	0.57	858.879	5.876
Leaf Blowers/Vacuums	2023	G2	R	0	2	94.546	321.418	2.776	0.035	0.57	0.57	858.879	5.876
Leaf Blowers/Vacuums	2023	G4	C	3	5	11.68	477.385	2.88	0.029	1.862	1.862	858.879	0.657
Leaf Blowers/Vacuums	2023	G4	R	3	5	11.68	477.385	2.88	0.029	1.862	1.862	858.879	0.657
Leaf Blowers/Vacuums	2024	G2	C	0	2	93.882	320.179	2.775	0.035	0.551	0.551	858.879	5.835
Leaf Blowers/Vacuums	2024	G2	R	0	2	93.882	320.179	2.775	0.035	0.551	0.551	858.879	5.835
Leaf Blowers/Vacuums	2024	G4	C	3	5	11.564	476.014	2.857	0.029	1.862	1.862	858.879	0.65
Leaf Blowers/Vacuums	2024	G4	R	3	5	11.564	476.014	2.857	0.029	1.862	1.862	858.879	0.65
Leaf Blowers/Vacuums	2025	G2	C	0	2	93.358	319.298	2.773	0.035	0.535	0.535	858.879	5.802
Leaf Blowers/Vacuums	2025	G2	R	0	2	93.358	319.298	2.773	0.035	0.535	0.535	858.879	5.802
Leaf Blowers/Vacuums	2025	G4	C	3	5	11.468	474.959	2.835	0.029	1.862	1.862	858.879	0.645
Leaf Blowers/Vacuums	2025	G4	R	3	5	11.468	474.959	2.835	0.029	1.862	1.862	858.879	0.645
Leaf Blowers/Vacuums	2030	G2	C	0	2	92.149	317.793	2.764	0.035	0.5	0.5	858.879	5.727
Leaf Blowers/Vacuums	2030	G2	R	0	2	92.149	317.793	2.764	0.035	0.5	0.5	858.879	5.727
Leaf Blowers/Vacuums	2030	G4	C	3	5	11.222	472.216	2.754	0.029	1.861	1.861	858.879	0.632
Leaf Blowers/Vacuums	2030	G4	R	3	5	11.222	472.216	2.754	0.029	1.861	1.861	858.879	0.632
Leaf Blowers/Vacuums	2035	G2	C	0	2	92.074	317.76	2.758	0.035	0.499	0.499	858.879	5.722
Leaf Blowers/Vacuums	2035	G2	R	0	2	92.074	317.76	2.758	0.035	0.499	0.499	858.879	5.722
Leaf Blowers/Vacuums	2035	G4	C	3	5	11.16	471.482	2.717	0.029	1.861	1.861	858.879	0.628
Leaf Blowers/Vacuums	2035	G4	R	3	5	11.16	471.482	2.717	0.029	1.861	1.861	858.879	0.628
Leaf Blowers/Vacuums	2040	G2	C	0	2	92.063	317.759	2.758	0.035	0.499	0.499	858.879	5.722
Leaf Blowers/Vacuums	2040	G2	R	0	2	92.063	317.759	2.758	0.035	0.499	0.499	858.879	5.722
Leaf Blowers/Vacuums	2040	G4	C	3	5	11.147	471.083	2.711	0.029	1.861	1.861	858.879	0.628
Leaf Blowers/Vacuums	2040	G4	R	3	5	11.147	471.083	2.711	0.029	1.861	1.861	858.879	0.628
Other Lawn & Garden Equipment	1990	G2	C	0	2	417.573	1480.719	2.069	0.518	7.199	7.199	858.879	35.612
Other Lawn & Garden Equipment	1990	G2	C	6	15	294.22	1043.999	1.832	0.518	7.239	7.239	858.879	25.092
Other Lawn & Garden Equipment	1990	G2	R	0	2	417.573	1480.719	2.069	0.518	7.199	7.199	858.879	35.612
Other Lawn & Garden Equipment	1990	G2	R	6	15	294.22	1043.999	1.832	0.518	7.239	7.239	858.879	25.092
Other Lawn & Garden Equipment	1990	G4	C	3	5	70.524	1265.341	4.87	0.434	1.974	1.974	858.879	8.331
Other Lawn & Garden Equipment	1990	G4	C	6	15	18.248	905.68	8.202	0.359	0.318	0.318	858.879	2.155
Other Lawn & Garden Equipment	1990	G4	C	16	25	17.539	904.336	8.149	0.319	0.318	0.318	858.879	2.071
Other Lawn & Garden Equipment	1990	G4	R	3	5	70.524	1265.341	4.87	0.434	1.974	1.974	858.879	8.331
Other Lawn & Garden Equipment	1990	G4	R	6	15	18.248	905.68	8.202	0.359	0.318	0.318	858.879	2.155
Other Lawn & Garden Equipment	1990	G4	R	16	25	17.539	904.336	8.149	0.319	0.318	0.318	858.879	2.071
Other Lawn & Garden Equipment	2000	G2	C	0	2	255.682	687.225	2.511	0.049	5.341	5.341	858.879	15.475
Other Lawn & Garden Equipment	2000	G2	C	6	15	213.998	571.185	2.331	0.049	5.941	5.941	858.879	12.952
Other Lawn & Garden Equipment	2000	G2	R	0	2	255.682	687.225	2.511	0.049	5.341	5.341	858.879	15.475
Other Lawn & Garden Equipment	2000	G2	R	6	15	213.998	571.185	2.331	0.049	5.941	5.941	858.879	12.952
Other Lawn & Garden Equipment	2000	G4	C	3	5	38.922	777.377	5.505	0.041	1.967	1.967	858.879	2.127
Other Lawn & Garden Equipment	2000	G4	C	6	15	15.49	660.87	6.637	0.034	0.317	0.317	858.88	0.846
Other Lawn & Garden Equipment	2000	G4	C	16	25	14.439	666.768	5.802	0.03	0.317	0.317	858.879	0.789
Other Lawn & Garden Equipment	2000	G4	R	3	5	38.922	777.377	5.505	0.041	1.967	1.967	858.879	2.127
Other Lawn & Garden Equipment	2000	G4	R	6	15	15.49	660.87	6.637	0.034	0.317	0.317	858.88	0.846
Other Lawn & Garden Equipment	2000	G4	R	16	25	14.439	666.768	5.802	0.03	0.317	0.317	858.879	0.789
Other Lawn & Garden Equipment	2005	G2	C	0	2	159.33	495.992	3.006	0.035	2.565	2.565	858.879	9.903
Other Lawn & Garden Equipment	2005	G2	C	6	15	137.825	434.477	2.933	0.035	2.769	2.769	858.879	8.566
Other Lawn & Garden Equipment	2005	G2	R	0	2	159.33	495.992	3.006	0.035	2.565	2.565	858.879	9.903
Other Lawn & Garden Equipment	2005	G2	R	6	15	137.825	434.477	2.933	0.035	2.769	2.769	858.879	8.566

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Other Lawn & Garden Equipment	2005	G4	C	3	5	26.099	584.277	6.584	0.029	1.97	1.97	858.879	1.465
Other Lawn & Garden Equipment	2005	G4	C	6	15	11.731	569.53	7.02	0.024	0.318	0.318	858.879	0.658
Other Lawn & Garden Equipment	2005	G4	C	16	25	11.785	591.718	6.419	0.021	0.318	0.318	858.879	0.661
Other Lawn & Garden Equipment	2005	G4	R	3	5	26.099	584.277	6.584	0.029	1.97	1.97	858.879	1.465
Other Lawn & Garden Equipment	2005	G4	R	6	15	11.731	569.53	7.02	0.024	0.318	0.318	858.879	0.658
Other Lawn & Garden Equipment	2005	G4	R	16	25	11.785	591.718	6.419	0.021	0.318	0.318	858.879	0.661
Other Lawn & Garden Equipment	2010	G2	C	0	2	112.488	396.425	2.775	0.035	1.656	1.656	858.879	6.991
Other Lawn & Garden Equipment	2010	G2	C	6	15	103.891	373.197	2.732	0.035	1.818	1.818	858.879	6.457
Other Lawn & Garden Equipment	2010	G2	R	0	2	112.488	396.425	2.775	0.035	1.656	1.656	858.879	6.991
Other Lawn & Garden Equipment	2010	G2	R	6	15	103.891	373.197	2.732	0.035	1.818	1.818	858.879	6.457
Other Lawn & Garden Equipment	2010	G4	C	3	5	18.025	518.999	4.238	0.029	1.972	1.972	858.879	1.012
Other Lawn & Garden Equipment	2010	G4	C	6	15	8.92	540.914	5.705	0.024	0.318	0.318	858.879	0.501
Other Lawn & Garden Equipment	2010	G4	C	16	25	8.966	567.825	5.282	0.021	0.318	0.318	858.879	0.503
Other Lawn & Garden Equipment	2010	G4	R	3	5	18.025	518.999	4.238	0.029	1.972	1.972	858.879	1.012
Other Lawn & Garden Equipment	2010	G4	R	6	15	8.92	540.914	5.705	0.024	0.318	0.318	858.879	0.501
Other Lawn & Garden Equipment	2010	G4	R	16	25	8.966	567.825	5.282	0.021	0.318	0.318	858.879	0.503
Other Lawn & Garden Equipment	2011	G2	C	0	2	105.244	382.943	2.794	0.035	1.478	1.478	858.879	6.541
Other Lawn & Garden Equipment	2011	G2	C	6	15	98.289	364.342	2.758	0.035	1.619	1.619	858.879	6.109
Other Lawn & Garden Equipment	2011	G2	R	0	2	105.244	382.943	2.794	0.035	1.478	1.478	858.879	6.541
Other Lawn & Garden Equipment	2011	G2	R	6	15	98.289	364.342	2.758	0.035	1.619	1.619	858.879	6.109
Other Lawn & Garden Equipment	2011	G4	C	3	5	17.166	511.452	4.062	0.029	1.971	1.971	858.879	0.964
Other Lawn & Garden Equipment	2011	G4	C	6	15	8.57	538.09	5.532	0.024	0.318	0.318	858.879	0.481
Other Lawn & Garden Equipment	2011	G4	C	16	25	8.612	565.627	5.144	0.021	0.318	0.318	858.879	0.483
Other Lawn & Garden Equipment	2011	G4	R	3	5	17.166	511.452	4.062	0.029	1.971	1.971	858.879	0.964
Other Lawn & Garden Equipment	2011	G4	R	6	15	8.57	538.09	5.532	0.024	0.318	0.318	858.879	0.481
Other Lawn & Garden Equipment	2011	G4	R	16	25	8.612	565.627	5.144	0.021	0.318	0.318	858.879	0.483
Other Lawn & Garden Equipment	2012	G2	C	0	2	98.97	372.378	2.811	0.035	1.314	1.314	858.879	6.151
Other Lawn & Garden Equipment	2012	G2	C	6	15	93.154	356.813	2.781	0.035	1.431	1.431	858.879	5.79
Other Lawn & Garden Equipment	2012	G2	R	0	2	98.97	372.378	2.811	0.035	1.314	1.314	858.879	6.151
Other Lawn & Garden Equipment	2012	G2	R	6	15	93.154	356.813	2.781	0.035	1.431	1.431	858.879	5.79
Other Lawn & Garden Equipment	2012	G4	C	3	5	16.541	504.415	3.953	0.029	1.971	1.971	858.879	0.929
Other Lawn & Garden Equipment	2012	G4	C	6	15	8.305	534.997	5.415	0.024	0.318	0.318	858.879	0.466
Other Lawn & Garden Equipment	2012	G4	C	16	25	8.354	563.036	5.056	0.021	0.318	0.318	858.879	0.469
Other Lawn & Garden Equipment	2012	G4	R	3	5	16.541	504.415	3.953	0.029	1.971	1.971	858.879	0.929
Other Lawn & Garden Equipment	2012	G4	R	6	15	8.305	534.997	5.415	0.024	0.318	0.318	858.879	0.466
Other Lawn & Garden Equipment	2012	G4	R	16	25	8.354	563.036	5.056	0.021	0.318	0.318	858.879	0.469
Other Lawn & Garden Equipment	2013	G2	C	0	2	93.015	362.541	2.826	0.035	1.158	1.158	858.879	5.781
Other Lawn & Garden Equipment	2013	G2	C	6	15	88.205	349.607	2.801	0.035	1.252	1.252	858.879	5.482
Other Lawn & Garden Equipment	2013	G2	R	0	2	93.015	362.541	2.826	0.035	1.158	1.158	858.879	5.781
Other Lawn & Garden Equipment	2013	G2	R	6	15	88.205	349.607	2.801	0.035	1.252	1.252	858.879	5.482
Other Lawn & Garden Equipment	2013	G4	C	3	5	15.973	497.231	3.87	0.029	1.972	1.972	858.879	0.897
Other Lawn & Garden Equipment	2013	G4	C	6	15	8.091	531.613	5.338	0.024	0.318	0.318	858.879	0.454
Other Lawn & Garden Equipment	2013	G4	C	16	25	8.158	560.112	4.999	0.021	0.318	0.318	858.879	0.458
Other Lawn & Garden Equipment	2013	G4	R	3	5	15.973	497.231	3.87	0.029	1.972	1.972	858.879	0.897
Other Lawn & Garden Equipment	2013	G4	R	6	15	8.091	531.613	5.338	0.024	0.318	0.318	858.879	0.454
Other Lawn & Garden Equipment	2013	G4	R	16	25	8.158	560.112	4.999	0.021	0.318	0.318	858.879	0.458
Other Lawn & Garden Equipment	2014	G2	C	0	2	87.581	353.588	2.838	0.035	1.015	1.015	858.879	5.443
Other Lawn & Garden Equipment	2014	G2	C	6	15	83.672	342.992	2.819	0.035	1.086	1.086	858.879	5.2
Other Lawn & Garden Equipment	2014	G2	R	0	2	87.581	353.588	2.838	0.035	1.015	1.015	858.879	5.443
Other Lawn & Garden Equipment	2014	G2	R	6	15	83.672	342.992	2.819	0.035	1.086	1.086	858.879	5.2
Other Lawn & Garden Equipment	2014	G4	C	3	5	15.432	490.368	3.788	0.029	1.971	1.971	858.879	0.867
Other Lawn & Garden Equipment	2014	G4	C	6	15	7.898	528.312	5.278	0.024	0.318	0.318	858.879	0.443
Other Lawn & Garden Equipment	2014	G4	C	16	25	7.988	557.256	4.954	0.021	0.318	0.318	858.879	0.449
Other Lawn & Garden Equipment	2014	G4	R	3	5	15.432	490.368	3.788	0.029	1.971	1.971	858.879	0.867
Other Lawn & Garden Equipment	2014	G4	R	6	15	7.898	528.312	5.278	0.024	0.318	0.318	858.879	0.443
Other Lawn & Garden Equipment	2014	G4	R	16	25	7.988	557.256	4.954	0.021	0.318	0.318	858.879	0.449
Other Lawn & Garden Equipment	2015	G2	C	0	2	82.696	345.46	2.846	0.035	0.886	0.886	858.879	5.139
Other Lawn & Garden Equipment	2015	G2	C	6	15	79.612	337.013	2.832	0.035	0.937	0.937	858.879	4.948
Other Lawn & Garden Equipment	2015	G2	R	0	2	82.696	345.46	2.846	0.035	0.886	0.886	858.879	5.139
Other Lawn & Garden Equipment	2015	G2	R	6	15	79.612	337.013	2.832	0.035	0.937	0.937	858.879	4.948
Other Lawn & Garden Equipment	2015	G4	C	3	5	14.909	483.663	3.709	0.029	1.971	1.971	858.879	0.838
Other Lawn & Garden Equipment	2015	G4	C	6	15	7.71	525.103	5.22	0.024	0.318	0.318	858.879	0.433
Other Lawn & Garden Equipment	2015	G4	C	16	25	7.821	554.482	4.912	0.021	0.318	0.318	858.879	0.439
Other Lawn & Garden Equipment	2015	G4	R	3	5	14.909	483.663	3.709	0.029	1.971	1.971	858.879	0.838
Other Lawn & Garden Equipment	2015	G4	R	6	15	7.71	525.103	5.22	0.024	0.318	0.318	858.879	0.433
Other Lawn & Garden Equipment	2015	G4	R	16	25	7.821	554.482	4.912	0.021	0.318	0.318	858.879	0.439
Other Lawn & Garden Equipment	2016	G2	C	0	2	79.657	340.134	2.839	0.035	0.812	0.812	858.879	4.951
Other Lawn & Garden Equipment	2016	G2	C	6	15	77.163	333.3	2.827	0.035	0.853	0.853	858.879	4.796
Other Lawn & Garden Equipment	2016	G2	R	0	2	79.657	340.134	2.839	0.035	0.812	0.812	858.879	4.951
Other Lawn & Garden Equipment	2016	G2	R	6	15	77.163	333.3	2.827	0.035	0.853	0.853	858.879	4.796
Other Lawn & Garden Equipment	2016	G4	C	3	5	14.43	477.614	3.63	0.029	1.971	1.971	858.879	0.811
Other Lawn & Garden Equipment	2016	G4	C	6	15	7.53	522.211	5.164	0.024	0.318	0.318	858.88	0.423
Other Lawn & Garden Equipment	2016	G4	C	16	25	7.662	551.995	4.871	0.021	0.318	0.318	858.879	0.43
Other Lawn & Garden Equipment	2016	G4	R	3	5	14.43	477.614	3.63	0.029	1.971	1.971	858.879	0.811
Other Lawn & Garden Equipment	2016	G4	R	6	15	7.53	522.211	5.164	0.024	0.318	0.318	858.88	0.423
Other Lawn & Garden Equipment	2016	G4	R	16	25	7.662	551.995	4.871	0.021	0.318	0.318	858.879	0.43

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Other Lawn & Garden Equipment	2017	G2	C	0	2	77.493	336.104	2.824	0.035	0.762	0.762	858.879	4.816
Other Lawn & Garden Equipment	2017	G2	C	6	15	75.472	330.608	2.815	0.035	0.798	0.798	858.879	4.69
Other Lawn & Garden Equipment	2017	G2	R	0	2	77.493	336.104	2.824	0.035	0.762	0.762	858.879	4.816
Other Lawn & Garden Equipment	2017	G2	R	6	15	75.472	330.608	2.815	0.035	0.798	0.798	858.879	4.69
Other Lawn & Garden Equipment	2017	G4	C	3	5	13.993	472.178	3.552	0.029	1.971	1.971	858.879	0.786
Other Lawn & Garden Equipment	2017	G4	C	6	15	7.362	519.618	5.111	0.024	0.318	0.318	858.879	0.413
Other Lawn & Garden Equipment	2017	G4	C	16	25	7.513	549.763	4.832	0.021	0.318	0.318	858.879	0.422
Other Lawn & Garden Equipment	2017	G4	R	3	5	13.993	472.178	3.552	0.029	1.971	1.971	858.879	0.786
Other Lawn & Garden Equipment	2017	G4	R	6	15	7.362	519.618	5.111	0.024	0.318	0.318	858.879	0.413
Other Lawn & Garden Equipment	2017	G4	R	16	25	7.513	549.763	4.832	0.021	0.318	0.318	858.879	0.422
Other Lawn & Garden Equipment	2018	G2	C	0	2	75.613	332.581	2.809	0.035	0.72	0.72	858.879	4.699
Other Lawn & Garden Equipment	2018	G2	C	6	15	74.009	328.268	2.801	0.035	0.751	0.751	858.879	4.6
Other Lawn & Garden Equipment	2018	G2	R	0	2	75.613	332.581	2.809	0.035	0.72	0.72	858.879	4.699
Other Lawn & Garden Equipment	2018	G2	R	6	15	74.009	328.268	2.801	0.035	0.751	0.751	858.879	4.6
Other Lawn & Garden Equipment	2018	G4	C	3	5	13.649	468.588	3.469	0.029	1.972	1.972	858.879	0.767
Other Lawn & Garden Equipment	2018	G4	C	6	15	7.227	518.013	5.055	0.024	0.318	0.318	858.879	0.406
Other Lawn & Garden Equipment	2018	G4	C	16	25	7.386	548.386	4.786	0.021	0.318	0.318	858.879	0.415
Other Lawn & Garden Equipment	2018	G4	R	3	5	13.649	468.588	3.469	0.029	1.972	1.972	858.879	0.767
Other Lawn & Garden Equipment	2018	G4	R	6	15	7.227	518.013	5.055	0.024	0.318	0.318	858.879	0.406
Other Lawn & Garden Equipment	2018	G4	R	16	25	7.386	548.386	4.786	0.021	0.318	0.318	858.879	0.415
Other Lawn & Garden Equipment	2019	G2	C	0	2	73.95	329.492	2.795	0.035	0.682	0.682	858.879	4.596
Other Lawn & Garden Equipment	2019	G2	C	6	15	72.71	326.209	2.788	0.035	0.709	0.709	858.879	4.519
Other Lawn & Garden Equipment	2019	G2	R	0	2	73.95	329.492	2.795	0.035	0.682	0.682	858.879	4.596
Other Lawn & Garden Equipment	2019	G2	R	6	15	72.71	326.209	2.788	0.035	0.709	0.709	858.879	4.519
Other Lawn & Garden Equipment	2019	G4	C	3	5	13.355	465.968	3.384	0.029	1.972	1.972	858.879	0.751
Other Lawn & Garden Equipment	2019	G4	C	6	15	7.111	516.889	5	0.024	0.318	0.318	858.879	0.399
Other Lawn & Garden Equipment	2019	G4	C	16	25	7.273	547.426	4.738	0.021	0.318	0.318	858.879	0.409
Other Lawn & Garden Equipment	2019	G4	R	3	5	13.355	465.968	3.384	0.029	1.972	1.972	858.879	0.751
Other Lawn & Garden Equipment	2019	G4	R	6	15	7.111	516.889	5	0.024	0.318	0.318	858.879	0.399
Other Lawn & Garden Equipment	2019	G4	R	16	25	7.273	547.426	4.738	0.021	0.318	0.318	858.879	0.409
Other Lawn & Garden Equipment	2020	G2	C	0	2	72.499	326.883	2.783	0.035	0.647	0.647	858.88	4.506
Other Lawn & Garden Equipment	2020	G2	C	6	15	71.561	324.439	2.777	0.035	0.67	0.67	858.879	4.447
Other Lawn & Garden Equipment	2020	G2	R	0	2	72.499	326.883	2.783	0.035	0.647	0.647	858.88	4.506
Other Lawn & Garden Equipment	2020	G2	R	6	15	71.561	324.439	2.777	0.035	0.67	0.67	858.879	4.447
Other Lawn & Garden Equipment	2020	G4	C	3	5	13.097	463.764	3.301	0.029	1.972	1.972	858.879	0.736
Other Lawn & Garden Equipment	2020	G4	C	6	15	7.003	515.951	4.947	0.024	0.318	0.318	858.879	0.393
Other Lawn & Garden Equipment	2020	G4	C	16	25	7.166	546.629	4.693	0.021	0.318	0.318	858.879	0.403
Other Lawn & Garden Equipment	2020	G4	R	3	5	13.097	463.764	3.301	0.029	1.972	1.972	858.879	0.736
Other Lawn & Garden Equipment	2020	G4	R	6	15	7.003	515.951	4.947	0.024	0.318	0.318	858.879	0.393
Other Lawn & Garden Equipment	2020	G4	R	16	25	7.166	546.629	4.693	0.021	0.318	0.318	858.879	0.403
Other Lawn & Garden Equipment	2021	G2	C	0	2	71.211	324.651	2.778	0.035	0.618	0.618	858.879	4.426
Other Lawn & Garden Equipment	2021	G2	C	6	15	70.528	322.915	2.773	0.035	0.637	0.637	858.879	4.383
Other Lawn & Garden Equipment	2021	G2	R	0	2	71.211	324.651	2.778	0.035	0.618	0.618	858.879	4.426
Other Lawn & Garden Equipment	2021	G2	R	6	15	70.528	322.915	2.773	0.035	0.637	0.637	858.879	4.383
Other Lawn & Garden Equipment	2021	G4	C	3	5	12.85	462.031	3.218	0.029	1.97	1.97	858.879	0.722
Other Lawn & Garden Equipment	2021	G4	C	6	15	6.895	515.104	4.893	0.024	0.318	0.318	858.879	0.387
Other Lawn & Garden Equipment	2021	G4	C	16	25	7.061	545.911	4.646	0.021	0.318	0.318	858.879	0.397
Other Lawn & Garden Equipment	2021	G4	R	3	5	12.85	462.031	3.218	0.029	1.97	1.97	858.879	0.722
Other Lawn & Garden Equipment	2021	G4	R	6	15	6.895	515.104	4.893	0.024	0.318	0.318	858.879	0.387
Other Lawn & Garden Equipment	2021	G4	R	16	25	7.061	545.911	4.646	0.021	0.318	0.318	858.879	0.397
Other Lawn & Garden Equipment	2022	G2	C	0	2	70.359	322.937	2.777	0.035	0.593	0.593	858.879	4.373
Other Lawn & Garden Equipment	2022	G2	C	6	15	69.865	321.711	2.773	0.035	0.608	0.608	858.879	4.342
Other Lawn & Garden Equipment	2022	G2	R	0	2	70.359	322.937	2.777	0.035	0.593	0.593	858.879	4.373
Other Lawn & Garden Equipment	2022	G2	R	6	15	69.865	321.711	2.773	0.035	0.608	0.608	858.879	4.342
Other Lawn & Garden Equipment	2022	G4	C	3	5	12.663	460.239	3.15	0.029	1.971	1.971	858.879	0.712
Other Lawn & Garden Equipment	2022	G4	C	6	15	6.803	514.379	4.847	0.024	0.318	0.318	858.879	0.382
Other Lawn & Garden Equipment	2022	G4	C	16	25	6.97	545.298	4.608	0.021	0.318	0.318	858.879	0.392
Other Lawn & Garden Equipment	2022	G4	R	3	5	12.663	460.239	3.15	0.029	1.971	1.971	858.879	0.712
Other Lawn & Garden Equipment	2022	G4	R	6	15	6.803	514.379	4.847	0.024	0.318	0.318	858.879	0.382
Other Lawn & Garden Equipment	2022	G4	R	16	25	6.97	545.298	4.608	0.021	0.318	0.318	858.879	0.392
Other Lawn & Garden Equipment	2023	G2	C	0	2	69.52	321.418	2.776	0.035	0.57	0.57	858.879	4.321
Other Lawn & Garden Equipment	2023	G2	C	6	15	69.189	320.632	2.773	0.035	0.583	0.583	858.879	4.3
Other Lawn & Garden Equipment	2023	G2	R	0	2	69.52	321.418	2.776	0.035	0.57	0.57	858.879	4.321
Other Lawn & Garden Equipment	2023	G2	R	6	15	69.189	320.632	2.773	0.035	0.583	0.583	858.879	4.3
Other Lawn & Garden Equipment	2023	G4	C	3	5	12.525	458.636	3.114	0.029	1.972	1.972	858.879	0.704
Other Lawn & Garden Equipment	2023	G4	C	6	15	6.722	513.716	4.806	0.024	0.318	0.318	858.879	0.378
Other Lawn & Garden Equipment	2023	G4	C	16	25	6.889	544.729	4.574	0.021	0.318	0.318	858.879	0.387
Other Lawn & Garden Equipment	2023	G4	R	3	5	12.525	458.636	3.114	0.029	1.972	1.972	858.879	0.704
Other Lawn & Garden Equipment	2023	G4	R	6	15	6.722	513.716	4.806	0.024	0.318	0.318	858.879	0.378
Other Lawn & Garden Equipment	2023	G4	R	16	25	6.889	544.729	4.574	0.021	0.318	0.318	858.879	0.387
Other Lawn & Garden Equipment	2024	G2	C	0	2	68.855	320.179	2.775	0.035	0.551	0.551	858.88	4.279
Other Lawn & Garden Equipment	2024	G2	C	6	15	68.655	319.739	2.773	0.035	0.56	0.56	858.879	4.267
Other Lawn & Garden Equipment	2024	G2	R	0	2	68.855	320.179	2.775	0.035	0.551	0.551	858.88	4.279
Other Lawn & Garden Equipment	2024	G2	R	6	15	68.655	319.739	2.773	0.035	0.56	0.56	858.879	4.267
Other Lawn & Garden Equipment	2024	G4	C	3	5	12.406	457.453	3.088	0.029	1.972	1.972	858.879	0.698
Other Lawn & Garden Equipment	2024	G4	C	6	15	6.664	513.136	4.781	0.024	0.318	0.318	858.879	0.375

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Other Lawn & Garden Equipment	2024	G4	C	16	25	6.834	544.234	4.554	0.021	0.318	0.318	858.879	0.384
Other Lawn & Garden Equipment	2024	G4	R	3	5	12.406	457.453	3.088	0.029	1.972	1.972	858.879	0.698
Other Lawn & Garden Equipment	2024	G4	R	6	15	6.664	513.136	4.781	0.024	0.318	0.318	858.879	0.375
Other Lawn & Garden Equipment	2024	G4	R	16	25	6.834	544.234	4.554	0.021	0.318	0.318	858.879	0.384
Other Lawn & Garden Equipment	2025	G2	C	0	2	68.3	319.298	2.773	0.035	0.535	0.535	858.879	4.245
Other Lawn & Garden Equipment	2025	G2	C	6	15	68.187	319.079	2.772	0.035	0.542	0.542	858.879	4.238
Other Lawn & Garden Equipment	2025	G2	R	0	2	68.3	319.298	2.773	0.035	0.535	0.535	858.879	4.245
Other Lawn & Garden Equipment	2025	G2	R	6	15	68.187	319.079	2.772	0.035	0.542	0.542	858.879	4.238
Other Lawn & Garden Equipment	2025	G4	C	3	5	12.316	456.385	3.066	0.029	1.972	1.972	858.879	0.693
Other Lawn & Garden Equipment	2025	G4	C	6	15	6.622	512.645	4.766	0.024	0.318	0.318	858.879	0.372
Other Lawn & Garden Equipment	2025	G4	C	16	25	6.795	543.816	4.543	0.021	0.318	0.318	858.879	0.382
Other Lawn & Garden Equipment	2025	G4	R	3	5	12.316	456.385	3.066	0.029	1.972	1.972	858.879	0.693
Other Lawn & Garden Equipment	2025	G4	R	6	15	6.622	512.645	4.766	0.024	0.318	0.318	858.879	0.372
Other Lawn & Garden Equipment	2025	G4	R	16	25	6.795	543.816	4.543	0.021	0.318	0.318	858.879	0.382
Other Lawn & Garden Equipment	2030	G2	C	0	2	67.063	317.793	2.764	0.035	0.5	0.5	858.879	4.168
Other Lawn & Garden Equipment	2030	G2	C	6	15	67.061	317.79	2.764	0.035	0.5	0.5	858.879	4.168
Other Lawn & Garden Equipment	2030	G2	R	0	2	67.063	317.793	2.764	0.035	0.5	0.5	858.879	4.168
Other Lawn & Garden Equipment	2030	G2	R	6	15	67.061	317.79	2.764	0.035	0.5	0.5	858.879	4.168
Other Lawn & Garden Equipment	2030	G4	C	3	5	12.077	453.765	2.985	0.029	1.971	1.971	858.879	0.68
Other Lawn & Garden Equipment	2030	G4	C	6	15	6.486	511.085	4.712	0.024	0.318	0.318	858.879	0.365
Other Lawn & Garden Equipment	2030	G4	C	16	25	6.668	542.44	4.502	0.021	0.318	0.318	858.879	0.375
Other Lawn & Garden Equipment	2030	G4	R	3	5	12.077	453.765	2.985	0.029	1.971	1.971	858.879	0.68
Other Lawn & Garden Equipment	2030	G4	R	6	15	6.486	511.085	4.712	0.024	0.318	0.318	858.879	0.365
Other Lawn & Garden Equipment	2030	G4	R	16	25	6.668	542.44	4.502	0.021	0.318	0.318	858.879	0.375
Other Lawn & Garden Equipment	2035	G2	C	0	2	66.983	317.759	2.758	0.035	0.499	0.499	858.879	4.163
Other Lawn & Garden Equipment	2035	G2	C	6	15	66.983	317.759	2.758	0.035	0.499	0.499	858.879	4.163
Other Lawn & Garden Equipment	2035	G2	R	0	2	66.983	317.759	2.758	0.035	0.499	0.499	858.879	4.163
Other Lawn & Garden Equipment	2035	G2	R	6	15	66.983	317.759	2.758	0.035	0.499	0.499	858.879	4.163
Other Lawn & Garden Equipment	2035	G4	C	3	5	12.016	453.055	2.948	0.029	1.971	1.971	858.879	0.677
Other Lawn & Garden Equipment	2035	G4	C	6	15	6.44	510.509	4.686	0.024	0.318	0.318	858.879	0.362
Other Lawn & Garden Equipment	2035	G4	C	16	25	6.62	541.868	4.48	0.021	0.318	0.318	858.879	0.373
Other Lawn & Garden Equipment	2035	G4	R	3	5	12.016	453.055	2.948	0.029	1.971	1.971	858.879	0.677
Other Lawn & Garden Equipment	2035	G4	R	6	15	6.44	510.509	4.686	0.024	0.318	0.318	858.879	0.362
Other Lawn & Garden Equipment	2035	G4	R	16	25	6.62	541.868	4.48	0.021	0.318	0.318	858.879	0.373
Other Lawn & Garden Equipment	2040	G2	C	0	2	66.971	317.759	2.758	0.035	0.499	0.499	858.879	4.162
Other Lawn & Garden Equipment	2040	G2	C	6	15	66.971	317.759	2.758	0.035	0.499	0.499	858.879	4.162
Other Lawn & Garden Equipment	2040	G2	R	0	2	66.971	317.759	2.758	0.035	0.499	0.499	858.879	4.162
Other Lawn & Garden Equipment	2040	G2	R	6	15	66.971	317.759	2.758	0.035	0.499	0.499	858.879	4.162
Other Lawn & Garden Equipment	2040	G4	C	3	5	12.002	452.678	2.942	0.029	1.971	1.971	858.879	0.676
Other Lawn & Garden Equipment	2040	G4	C	6	15	6.428	510.057	4.679	0.024	0.318	0.318	858.879	0.362
Other Lawn & Garden Equipment	2040	G4	C	16	25	6.607	541.388	4.474	0.021	0.318	0.318	858.879	0.372
Other Lawn & Garden Equipment	2040	G4	R	3	5	12.002	452.678	2.942	0.029	1.971	1.971	858.879	0.676
Other Lawn & Garden Equipment	2040	G4	R	6	15	6.428	510.057	4.679	0.024	0.318	0.318	858.879	0.362
Other Lawn & Garden Equipment	2040	G4	R	16	25	6.607	541.388	4.474	0.021	0.318	0.318	858.879	0.372
Rear Engine Riding Mowers	1990	G4	C	6	15	22.909	915.938	8.6	0.359	0.371	0.371	858.879	2.705
Rear Engine Riding Mowers	1990	G4	C	16	25	21.231	912.759	8.476	0.319	0.371	0.371	858.879	2.507
Rear Engine Riding Mowers	1990	G4	R	6	15	22.909	915.938	8.6	0.359	0.371	0.371	858.879	2.705
Rear Engine Riding Mowers	1990	G4	R	16	25	21.231	912.759	8.476	0.319	0.371	0.371	858.879	2.507
Rear Engine Riding Mowers	2000	G4	C	6	15	20.645	670.814	6.649	0.034	0.37	0.37	858.879	1.128
Rear Engine Riding Mowers	2000	G4	C	16	25	18.437	666.497	5.668	0.03	0.37	0.37	858.879	1.007
Rear Engine Riding Mowers	2000	G4	R	6	15	20.645	670.814	6.649	0.034	0.37	0.37	858.879	1.128
Rear Engine Riding Mowers	2000	G4	R	16	25	18.437	666.497	5.668	0.03	0.37	0.37	858.879	1.007
Rear Engine Riding Mowers	2005	G4	C	6	15	13.656	554.614	7.702	0.024	0.37	0.37	858.879	0.766
Rear Engine Riding Mowers	2005	G4	C	16	25	13.498	576.678	6.968	0.021	0.37	0.37	858.879	0.758
Rear Engine Riding Mowers	2005	G4	R	6	15	13.656	554.614	7.702	0.024	0.37	0.37	858.879	0.766
Rear Engine Riding Mowers	2005	G4	R	16	25	13.498	576.678	6.968	0.021	0.37	0.37	858.879	0.758
Rear Engine Riding Mowers	2010	G4	C	6	15	9.521	522.282	6.198	0.024	0.37	0.37	858.879	0.534
Rear Engine Riding Mowers	2010	G4	C	16	25	9.505	550.919	5.959	0.021	0.37	0.37	858.879	0.534
Rear Engine Riding Mowers	2010	G4	R	6	15	9.521	522.282	6.198	0.024	0.37	0.37	858.879	0.534
Rear Engine Riding Mowers	2010	G4	R	16	25	9.505	550.919	5.959	0.021	0.37	0.37	858.879	0.534
Rear Engine Riding Mowers	2011	G4	C	6	15	9.168	519.756	6.099	0.024	0.37	0.37	858.879	0.515
Rear Engine Riding Mowers	2011	G4	C	16	25	9.185	549.03	5.885	0.021	0.37	0.37	858.879	0.516
Rear Engine Riding Mowers	2011	G4	R	6	15	9.168	519.756	6.099	0.024	0.37	0.37	858.879	0.515
Rear Engine Riding Mowers	2011	G4	R	16	25	9.185	549.03	5.885	0.021	0.37	0.37	858.879	0.516
Rear Engine Riding Mowers	2012	G4	C	6	15	8.85	517.872	5.992	0.024	0.37	0.37	858.879	0.497
Rear Engine Riding Mowers	2012	G4	C	16	25	8.887	547.664	5.805	0.021	0.37	0.37	858.879	0.499
Rear Engine Riding Mowers	2012	G4	R	6	15	8.85	517.872	5.992	0.024	0.37	0.37	858.879	0.497
Rear Engine Riding Mowers	2012	G4	R	16	25	8.887	547.664	5.805	0.021	0.37	0.37	858.879	0.499
Rear Engine Riding Mowers	2013	G4	C	6	15	8.562	516.231	5.892	0.024	0.37	0.37	858.879	0.481
Rear Engine Riding Mowers	2013	G4	C	16	25	8.612	546.488	5.732	0.021	0.37	0.37	858.879	0.484
Rear Engine Riding Mowers	2013	G4	R	6	15	8.562	516.231	5.892	0.024	0.37	0.37	858.879	0.481
Rear Engine Riding Mowers	2013	G4	R	16	25	8.612	546.488	5.732	0.021	0.37	0.37	858.879	0.484
Rear Engine Riding Mowers	2014	G4	C	6	15	8.303	514.847	5.793	0.024	0.37	0.37	858.879	0.466
Rear Engine Riding Mowers	2014	G4	C	16	25	8.36	545.483	5.66	0.021	0.37	0.37	858.879	0.469
Rear Engine Riding Mowers	2014	G4	R	6	15	8.303	514.847	5.793	0.024	0.37	0.37	858.879	0.466
Rear Engine Riding Mowers	2014	G4	R	16	25	8.36	545.483	5.66	0.021	0.37	0.37	858.879	0.469

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Rear Engine Riding Mowers	2015	G4	C	6	15	8.07	513.744	5.696	0.024	0.37	0.37	858.879	0.453
Rear Engine Riding Mowers	2015	G4	C	16	25	8.128	544.687	5.589	0.021	0.37	0.37	858.879	0.456
Rear Engine Riding Mowers	2015	G4	R	6	15	8.07	513.744	5.696	0.024	0.37	0.37	858.879	0.453
Rear Engine Riding Mowers	2015	G4	R	16	25	8.128	544.687	5.589	0.021	0.37	0.37	858.879	0.456
Rear Engine Riding Mowers	2016	G4	C	6	15	7.873	512.921	5.604	0.024	0.37	0.37	858.879	0.442
Rear Engine Riding Mowers	2016	G4	C	16	25	7.924	544.091	5.523	0.021	0.37	0.37	858.879	0.445
Rear Engine Riding Mowers	2016	G4	R	6	15	7.873	512.921	5.604	0.024	0.37	0.37	858.879	0.442
Rear Engine Riding Mowers	2016	G4	R	16	25	7.924	544.091	5.523	0.021	0.37	0.37	858.879	0.445
Rear Engine Riding Mowers	2017	G4	C	6	15	7.773	512.361	5.568	0.024	0.37	0.37	858.88	0.437
Rear Engine Riding Mowers	2017	G4	C	16	25	7.826	543.681	5.499	0.021	0.37	0.37	858.879	0.44
Rear Engine Riding Mowers	2017	G4	R	6	15	7.773	512.361	5.568	0.024	0.37	0.37	858.88	0.437
Rear Engine Riding Mowers	2017	G4	R	16	25	7.826	543.681	5.499	0.021	0.37	0.37	858.879	0.44
Rear Engine Riding Mowers	2018	G4	C	6	15	7.704	511.993	5.54	0.024	0.37	0.37	858.879	0.433
Rear Engine Riding Mowers	2018	G4	C	16	25	7.756	543.404	5.48	0.021	0.37	0.37	858.879	0.436
Rear Engine Riding Mowers	2018	G4	R	6	15	7.704	511.993	5.54	0.024	0.37	0.37	858.879	0.433
Rear Engine Riding Mowers	2018	G4	R	16	25	7.756	543.404	5.48	0.021	0.37	0.37	858.879	0.436
Rear Engine Riding Mowers	2019	G4	C	6	15	7.66	511.821	5.514	0.024	0.37	0.37	858.879	0.43
Rear Engine Riding Mowers	2019	G4	C	16	25	7.707	543.26	5.463	0.021	0.37	0.37	858.88	0.433
Rear Engine Riding Mowers	2019	G4	R	6	15	7.66	511.821	5.514	0.024	0.37	0.37	858.879	0.43
Rear Engine Riding Mowers	2019	G4	R	16	25	7.707	543.26	5.463	0.021	0.37	0.37	858.88	0.433
Rear Engine Riding Mowers	2020	G4	C	6	15	7.631	511.749	5.492	0.024	0.37	0.37	858.879	0.429
Rear Engine Riding Mowers	2020	G4	C	16	25	7.672	543.183	5.446	0.021	0.37	0.37	858.879	0.431
Rear Engine Riding Mowers	2020	G4	R	6	15	7.631	511.749	5.492	0.024	0.37	0.37	858.879	0.429
Rear Engine Riding Mowers	2020	G4	R	16	25	7.672	543.183	5.446	0.021	0.37	0.37	858.879	0.431
Rear Engine Riding Mowers	2021	G4	C	6	15	7.604	511.699	5.471	0.024	0.37	0.37	858.88	0.427
Rear Engine Riding Mowers	2021	G4	C	16	25	7.641	543.131	5.43	0.021	0.37	0.37	858.879	0.429
Rear Engine Riding Mowers	2021	G4	R	6	15	7.604	511.699	5.471	0.024	0.37	0.37	858.88	0.427
Rear Engine Riding Mowers	2021	G4	R	16	25	7.641	543.131	5.43	0.021	0.37	0.37	858.879	0.429
Rear Engine Riding Mowers	2022	G4	C	6	15	7.589	511.628	5.459	0.024	0.37	0.37	858.88	0.426
Rear Engine Riding Mowers	2022	G4	C	16	25	7.622	543.055	5.422	0.021	0.37	0.37	858.879	0.428
Rear Engine Riding Mowers	2022	G4	R	6	15	7.589	511.628	5.459	0.024	0.37	0.37	858.88	0.426
Rear Engine Riding Mowers	2022	G4	R	16	25	7.622	543.055	5.422	0.021	0.37	0.37	858.879	0.428
Rear Engine Riding Mowers	2023	G4	C	6	15	7.579	511.555	5.452	0.024	0.37	0.37	858.879	0.426
Rear Engine Riding Mowers	2023	G4	C	16	25	7.609	542.977	5.417	0.021	0.37	0.37	858.879	0.428
Rear Engine Riding Mowers	2023	G4	R	6	15	7.579	511.555	5.452	0.024	0.37	0.37	858.879	0.426
Rear Engine Riding Mowers	2023	G4	R	16	25	7.609	542.977	5.417	0.021	0.37	0.37	858.879	0.428
Rear Engine Riding Mowers	2024	G4	C	6	15	7.573	511.479	5.447	0.024	0.37	0.37	858.879	0.426
Rear Engine Riding Mowers	2024	G4	C	16	25	7.602	542.897	5.414	0.021	0.37	0.37	858.879	0.427
Rear Engine Riding Mowers	2024	G4	R	6	15	7.573	511.479	5.447	0.024	0.37	0.37	858.879	0.426
Rear Engine Riding Mowers	2024	G4	R	16	25	7.602	542.897	5.414	0.021	0.37	0.37	858.879	0.427
Rear Engine Riding Mowers	2025	G4	C	6	15	7.571	511.402	5.445	0.024	0.37	0.37	858.879	0.426
Rear Engine Riding Mowers	2025	G4	C	16	25	7.599	542.815	5.413	0.021	0.37	0.37	858.879	0.427
Rear Engine Riding Mowers	2025	G4	R	6	15	7.571	511.402	5.445	0.024	0.37	0.37	858.879	0.426
Rear Engine Riding Mowers	2025	G4	R	16	25	7.599	542.815	5.413	0.021	0.37	0.37	858.879	0.427
Rear Engine Riding Mowers	2030	G4	C	6	15	7.565	510.995	5.443	0.024	0.37	0.37	858.879	0.426
Rear Engine Riding Mowers	2030	G4	C	16	25	7.593	542.384	5.411	0.021	0.37	0.37	858.879	0.427
Rear Engine Riding Mowers	2030	G4	R	6	15	7.565	510.995	5.443	0.024	0.37	0.37	858.879	0.426
Rear Engine Riding Mowers	2030	G4	R	16	25	7.593	542.384	5.411	0.021	0.37	0.37	858.879	0.427
Rear Engine Riding Mowers	2035	G4	C	6	15	7.56	510.58	5.441	0.024	0.37	0.37	858.879	0.426
Rear Engine Riding Mowers	2035	G4	C	16	25	7.588	541.943	5.409	0.021	0.37	0.37	858.879	0.427
Rear Engine Riding Mowers	2035	G4	R	6	15	7.56	510.58	5.441	0.024	0.37	0.37	858.879	0.426
Rear Engine Riding Mowers	2035	G4	R	16	25	7.588	541.943	5.409	0.021	0.37	0.37	858.879	0.427
Rear Engine Riding Mowers	2040	G4	C	6	15	7.554	510.128	5.438	0.024	0.37	0.37	858.879	0.425
Rear Engine Riding Mowers	2040	G4	C	16	25	7.582	541.463	5.406	0.021	0.37	0.37	858.879	0.427
Rear Engine Riding Mowers	2040	G4	R	6	15	7.554	510.128	5.438	0.024	0.37	0.37	858.879	0.425
Rear Engine Riding Mowers	2040	G4	R	16	25	7.582	541.463	5.406	0.021	0.37	0.37	858.879	0.427
Shredders	1990	G2	C	6	15	383.517	971.999	0.625	0.518	7.199	7.199	858.879	32.707
Shredders	1990	G2	R	6	15	383.517	971.999	0.625	0.518	7.199	7.199	858.879	32.707
Shredders	1990	G4	C	3	5	73.086	1281.602	4.878	0.434	2.254	2.254	858.879	8.633
Shredders	1990	G4	R	3	5	73.086	1281.602	4.878	0.434	2.254	2.254	858.879	8.633
Shredders	2000	G2	C	6	15	140.016	646.117	4.113	0.049	7.199	7.199	858.879	8.474
Shredders	2000	G2	R	6	15	140.016	646.117	4.113	0.049	7.199	7.199	858.879	8.474
Shredders	2000	G4	C	3	5	42.745	785.17	5.669	0.041	5.16	5.16	858.879	2.336
Shredders	2000	G4	R	3	5	42.745	785.17	5.669	0.041	5.16	5.16	858.879	2.336
Shredders	2005	G2	C	6	15	87.504	541.643	5.415	0.035	7.199	7.199	858.879	5.438
Shredders	2005	G2	R	6	15	87.504	541.643	5.415	0.035	7.199	7.199	858.879	5.438
Shredders	2005	G4	C	3	5	26.261	563.118	7.001	0.029	1.606	1.606	858.879	1.474
Shredders	2005	G4	R	3	5	26.261	563.118	7.001	0.029	1.606	1.606	858.879	1.474
Shredders	2010	G2	C	6	15	44.762	499.088	6.097	0.035	7.199	7.199	858.879	2.782
Shredders	2010	G2	R	6	15	44.762	499.088	6.097	0.035	7.199	7.199	858.879	2.782
Shredders	2010	G4	C	3	5	21.525	509.857	7.252	0.029	1.289	1.289	858.879	1.209
Shredders	2010	G4	R	3	5	21.525	509.857	7.252	0.029	1.289	1.289	858.879	1.209
Shredders	2011	G2	C	6	15	36.618	490.701	6.226	0.035	7.199	7.199	858.879	2.275
Shredders	2011	G2	R	6	15	36.618	490.701	6.226	0.035	7.199	7.199	858.879	2.275
Shredders	2011	G4	C	3	5	20.596	499.294	7.299	0.029	1.218	1.218	858.879	1.157
Shredders	2011	G4	R	3	5	20.596	499.294	7.299	0.029	1.218	1.218	858.879	1.157

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Shredders	2012	G2	C	6	15	29.387	482.281	6.335	0.035	7.199	7.199	858.879	1.826
Shredders	2012	G2	R	6	15	29.387	482.281	6.335	0.035	7.199	7.199	858.879	1.826
Shredders	2012	G4	C	3	5	19.754	488.364	7.34	0.029	1.143	1.143	858.879	1.11
Shredders	2012	G4	R	3	5	19.754	488.364	7.34	0.029	1.143	1.143	858.879	1.11
Shredders	2013	G2	C	6	15	25.29	477.106	6.4	0.035	7.199	7.199	858.879	1.571
Shredders	2013	G2	R	6	15	25.29	477.106	6.4	0.035	7.199	7.199	858.879	1.571
Shredders	2013	G4	C	3	5	19.236	481.12	7.372	0.029	1.031	1.031	858.879	1.081
Shredders	2013	G4	R	3	5	19.236	481.12	7.372	0.029	1.031	1.031	858.879	1.081
Shredders	2014	G2	C	6	15	22.674	473.079	6.444	0.035	7.199	7.199	858.879	1.409
Shredders	2014	G2	R	6	15	22.674	473.079	6.444	0.035	7.199	7.199	858.879	1.409
Shredders	2014	G4	C	3	5	18.878	474.915	7.402	0.029	0.904	0.904	858.879	1.061
Shredders	2014	G4	R	3	5	18.878	474.915	7.402	0.029	0.904	0.904	858.879	1.061
Shredders	2015	G2	C	6	15	20.409	469.199	6.483	0.035	7.199	7.199	858.879	1.268
Shredders	2015	G2	R	6	15	20.409	469.199	6.483	0.035	7.199	7.199	858.879	1.268
Shredders	2015	G4	C	3	5	18.556	468.937	7.429	0.029	0.778	0.778	858.879	1.043
Shredders	2015	G4	R	3	5	18.556	468.937	7.429	0.029	0.778	0.778	858.879	1.043
Shredders	2016	G2	C	6	15	18.435	465.619	6.518	0.035	7.199	7.199	858.879	1.145
Shredders	2016	G2	R	6	15	18.435	465.619	6.518	0.035	7.199	7.199	858.879	1.145
Shredders	2016	G4	C	3	5	18.269	463.456	7.454	0.029	0.66	0.66	858.879	1.027
Shredders	2016	G4	R	3	5	18.269	463.456	7.454	0.029	0.66	0.66	858.879	1.027
Shredders	2017	G2	C	6	15	16.635	462.285	6.549	0.035	7.199	7.199	858.879	1.033
Shredders	2017	G2	R	6	15	16.635	462.285	6.549	0.035	7.199	7.199	858.879	1.033
Shredders	2017	G4	C	3	5	18.008	458.475	7.477	0.029	0.557	0.557	858.879	1.012
Shredders	2017	G4	R	3	5	18.008	458.475	7.477	0.029	0.557	0.557	858.879	1.012
Shredders	2018	G2	C	6	15	15.12	459.444	6.576	0.035	7.199	7.199	858.879	0.939
Shredders	2018	G2	R	6	15	15.12	459.444	6.576	0.035	7.199	7.199	858.879	0.939
Shredders	2018	G4	C	3	5	17.808	455.299	7.491	0.029	0.504	0.504	858.879	1.001
Shredders	2018	G4	R	3	5	17.808	455.299	7.491	0.029	0.504	0.504	858.879	1.001
Shredders	2019	G2	C	6	15	13.778	457.456	6.599	0.035	7.199	7.199	858.879	0.856
Shredders	2019	G2	R	6	15	13.778	457.456	6.599	0.035	7.199	7.199	858.879	0.856
Shredders	2019	G4	C	3	5	17.638	452.882	7.502	0.029	0.473	0.473	858.879	0.992
Shredders	2019	G4	R	3	5	17.638	452.882	7.502	0.029	0.473	0.473	858.879	0.992
Shredders	2020	G2	C	6	15	12.601	455.916	6.618	0.035	7.199	7.199	858.879	0.783
Shredders	2020	G2	R	6	15	12.601	455.916	6.618	0.035	7.199	7.199	858.879	0.783
Shredders	2020	G4	C	3	5	17.489	450.769	7.511	0.029	0.447	0.447	858.879	0.983
Shredders	2020	G4	R	3	5	17.489	450.769	7.511	0.029	0.447	0.447	858.879	0.983
Shredders	2021	G2	C	6	15	11.563	454.545	6.635	0.035	7.199	7.199	858.879	0.718
Shredders	2021	G2	R	6	15	11.563	454.545	6.635	0.035	7.199	7.199	858.879	0.718
Shredders	2021	G4	C	3	5	17.348	449.038	7.516	0.029	0.422	0.422	858.879	0.975
Shredders	2021	G4	R	3	5	17.348	449.038	7.516	0.029	0.422	0.422	858.879	0.975
Shredders	2022	G2	C	6	15	10.763	453.447	6.649	0.035	7.199	7.199	858.879	0.668
Shredders	2022	G2	R	6	15	10.763	453.447	6.649	0.035	7.199	7.199	858.879	0.668
Shredders	2022	G4	C	3	5	17.25	447.183	7.527	0.029	0.399	0.399	858.879	0.97
Shredders	2022	G4	R	3	5	17.25	447.183	7.527	0.029	0.399	0.399	858.879	0.97
Shredders	2023	G2	C	6	15	10.088	452.461	6.66	0.035	7.199	7.199	858.879	0.627
Shredders	2023	G2	R	6	15	10.088	452.461	6.66	0.035	7.199	7.199	858.879	0.627
Shredders	2023	G4	C	3	5	17.154	445.909	7.53	0.029	0.379	0.379	858.879	0.965
Shredders	2023	G4	R	3	5	17.154	445.909	7.53	0.029	0.379	0.379	858.879	0.965
Shredders	2024	G2	C	6	15	9.575	451.691	6.669	0.035	7.199	7.199	858.879	0.595
Shredders	2024	G2	R	6	15	9.575	451.691	6.669	0.035	7.199	7.199	858.879	0.595
Shredders	2024	G4	C	3	5	17.084	444.654	7.537	0.029	0.36	0.36	858.879	0.961
Shredders	2024	G4	R	3	5	17.084	444.654	7.537	0.029	0.36	0.36	858.879	0.961
Shredders	2025	G2	C	6	15	9.157	451.013	6.676	0.035	7.2	7.2	858.879	0.569
Shredders	2025	G2	R	6	15	9.157	451.013	6.676	0.035	7.2	7.2	858.879	0.569
Shredders	2025	G4	C	3	5	17.02	443.666	7.54	0.029	0.343	0.343	858.879	0.957
Shredders	2025	G4	R	3	5	17.02	443.666	7.54	0.029	0.343	0.343	858.879	0.957
Shredders	2030	G2	C	6	15	8.653	449.536	6.686	0.035	7.199	7.199	858.879	0.537
Shredders	2030	G2	R	6	15	8.653	449.536	6.686	0.035	7.199	7.199	858.879	0.537
Shredders	2030	G4	C	3	5	16.911	441.143	7.547	0.029	0.287	0.287	858.879	0.952
Shredders	2030	G4	R	3	5	16.911	441.143	7.547	0.029	0.287	0.287	858.879	0.952
Shredders	2035	G2	C	6	15	8.648	449.319	6.686	0.035	7.199	7.199	858.879	0.537
Shredders	2035	G2	R	6	15	8.648	449.319	6.686	0.035	7.199	7.199	858.879	0.537
Shredders	2035	G4	C	3	5	16.893	440.552	7.546	0.029	0.279	0.279	858.879	0.952
Shredders	2035	G4	R	3	5	16.893	440.552	7.546	0.029	0.279	0.279	858.879	0.952
Shredders	2040	G2	C	6	15	8.648	449.319	6.686	0.035	7.199	7.199	858.879	0.537
Shredders	2040	G2	R	6	15	8.648	449.319	6.686	0.035	7.199	7.199	858.879	0.537
Shredders	2040	G4	C	3	5	16.881	440.169	7.543	0.029	0.279	0.279	858.879	0.952
Shredders	2040	G4	R	3	5	16.881	440.169	7.543	0.029	0.279	0.279	858.879	0.952
Snowblowers	1990	G2	C	6	15	294.22	1043.999	1.937	0.518	7.239	7.239	858.879	25.092
Snowblowers	1990	G2	C	16	25	383.517	971.999	0.661	0.518	7.199	7.199	858.879	32.707
Snowblowers	1990	G2	R	6	15	294.22	1043.999	1.937	0.518	7.239	7.239	858.879	25.092
Snowblowers	1990	G2	R	16	25	383.517	971.999	0.661	0.518	7.199	7.199	858.879	32.707
Snowblowers	1990	G4	C	3	5	63.466	1319.693	5.335	0.434	1.646	1.646	858.879	6.925
Snowblowers	1990	G4	C	6	15	17.288	998.584	8.833	0.359	0.292	0.292	858.879	1.886
Snowblowers	1990	G4	C	16	25	17.033	998.089	8.814	0.319	0.292	0.292	858.879	1.858
Snowblowers	1990	G4	R	3	5	63.466	1319.693	5.335	0.434	1.646	1.646	858.879	6.925

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Snowblowers	1990	G4	R	6	15	17.288	998.584	8.833	0.359	0.292	0.292	858.879	1.886
Snowblowers	1990	G4	R	16	25	17.033	998.089	8.814	0.319	0.292	0.292	858.879	1.858
Snowblowers	2000	G2	C	6	15	166.997	509.415	3.015	0.051	4.285	4.285	858.879	10.107
Snowblowers	2000	G2	C	16	25	183.257	440.038	2.719	0.051	4.275	4.275	858.879	11.092
Snowblowers	2000	G2	R	6	15	166.997	509.415	3.015	0.051	4.285	4.285	858.879	10.107
Snowblowers	2000	G2	R	16	25	183.257	440.038	2.719	0.051	4.275	4.275	858.879	11.092
Snowblowers	2000	G4	C	3	5	31.589	850.441	5.693	0.043	1.639	1.639	858.879	1.597
Snowblowers	2000	G4	C	6	15	13.541	715.233	7.256	0.035	0.292	0.292	858.88	0.684
Snowblowers	2000	G4	C	16	25	13.002	730.145	6.298	0.031	0.292	0.292	858.879	0.657
Snowblowers	2000	G4	R	3	5	31.589	850.441	5.693	0.043	1.639	1.639	858.879	1.597
Snowblowers	2000	G4	R	6	15	13.541	715.233	7.256	0.035	0.292	0.292	858.88	0.684
Snowblowers	2000	G4	R	16	25	13.002	730.145	6.298	0.031	0.292	0.292	858.879	0.657
Snowblowers	2005	G2	C	6	15	120.913	437.03	2.781	0.035	2.897	2.897	858.879	7.515
Snowblowers	2005	G2	C	16	25	127.158	389.652	2.603	0.035	2.89	2.89	858.879	7.903
Snowblowers	2005	G2	R	6	15	120.913	437.03	2.781	0.035	2.897	2.897	858.879	7.515
Snowblowers	2005	G2	R	16	25	127.158	389.652	2.603	0.035	2.89	2.89	858.879	7.903
Snowblowers	2005	G4	C	3	5	23.699	681.336	6.453	0.029	1.645	1.645	858.879	1.231
Snowblowers	2005	G4	C	6	15	11.29	624.579	7.317	0.024	0.292	0.292	858.879	0.587
Snowblowers	2005	G4	C	16	25	11.494	650.913	6.689	0.021	0.292	0.292	858.879	0.597
Snowblowers	2005	G4	R	3	5	23.699	681.336	6.453	0.029	1.645	1.645	858.879	1.231
Snowblowers	2005	G4	R	6	15	11.29	624.579	7.317	0.024	0.292	0.292	858.879	0.587
Snowblowers	2005	G4	R	16	25	11.494	650.913	6.689	0.021	0.292	0.292	858.879	0.597
Snowblowers	2010	G2	C	6	15	87.804	375.893	2.851	0.035	1.934	1.934	858.879	5.457
Snowblowers	2010	G2	C	16	25	89.649	344.324	2.79	0.035	1.932	1.932	858.879	5.572
Snowblowers	2010	G2	R	6	15	87.804	375.893	2.851	0.035	1.934	1.934	858.879	5.457
Snowblowers	2010	G2	R	16	25	89.649	344.324	2.79	0.035	1.932	1.932	858.879	5.572
Snowblowers	2010	G4	C	3	5	15.722	625.42	3.815	0.029	1.647	1.647	858.879	0.818
Snowblowers	2010	G4	C	6	15	8.524	596.884	5.71	0.024	0.292	0.292	858.879	0.443
Snowblowers	2010	G4	C	16	25	8.65	627.18	5.206	0.021	0.292	0.292	858.879	0.45
Snowblowers	2010	G4	R	3	5	15.722	625.42	3.815	0.029	1.647	1.647	858.879	0.818
Snowblowers	2010	G4	R	6	15	8.524	596.884	5.71	0.024	0.292	0.292	858.879	0.443
Snowblowers	2010	G4	R	16	25	8.65	627.18	5.206	0.021	0.292	0.292	858.879	0.45
Snowblowers	2011	G2	C	6	15	81.769	367.186	2.88	0.035	1.73	1.73	858.879	5.082
Snowblowers	2011	G2	C	16	25	83.443	339.783	2.832	0.035	1.728	1.728	858.879	5.186
Snowblowers	2011	G2	R	6	15	81.769	367.186	2.88	0.035	1.73	1.73	858.879	5.082
Snowblowers	2011	G2	R	16	25	83.443	339.783	2.832	0.035	1.728	1.728	858.879	5.186
Snowblowers	2011	G4	C	3	5	14.985	618.315	3.717	0.029	1.647	1.647	858.879	0.78
Snowblowers	2011	G4	C	6	15	8.316	593.895	5.631	0.024	0.292	0.292	858.88	0.433
Snowblowers	2011	G4	C	16	25	8.459	624.839	5.138	0.021	0.292	0.292	858.879	0.44
Snowblowers	2011	G4	R	3	5	14.985	618.315	3.717	0.029	1.647	1.647	858.879	0.78
Snowblowers	2011	G4	R	6	15	8.316	593.895	5.631	0.024	0.292	0.292	858.88	0.433
Snowblowers	2011	G4	R	16	25	8.459	624.839	5.138	0.021	0.292	0.292	858.879	0.44
Snowblowers	2012	G2	C	6	15	76.002	359.672	2.906	0.035	1.532	1.532	858.879	4.723
Snowblowers	2012	G2	C	16	25	77.837	336.967	2.865	0.035	1.531	1.531	858.88	4.837
Snowblowers	2012	G2	R	6	15	76.002	359.672	2.906	0.035	1.532	1.532	858.879	4.723
Snowblowers	2012	G2	R	16	25	77.837	336.967	2.865	0.035	1.531	1.531	858.88	4.837
Snowblowers	2012	G4	C	3	5	14.444	611.581	3.618	0.029	1.647	1.647	858.879	0.752
Snowblowers	2012	G4	C	6	15	8.128	590.571	5.557	0.024	0.292	0.292	858.879	0.423
Snowblowers	2012	G4	C	16	25	8.29	622.001	5.081	0.021	0.292	0.292	858.879	0.431
Snowblowers	2012	G4	R	3	5	14.444	611.581	3.618	0.029	1.647	1.647	858.879	0.752
Snowblowers	2012	G4	R	6	15	8.128	590.571	5.557	0.024	0.292	0.292	858.879	0.423
Snowblowers	2012	G4	R	16	25	8.29	622.001	5.081	0.021	0.292	0.292	858.879	0.431
Snowblowers	2013	G2	C	6	15	70.36	352.374	2.931	0.035	1.341	1.341	858.879	4.373
Snowblowers	2013	G2	C	16	25	72.339	334.375	2.895	0.035	1.34	1.34	858.879	4.496
Snowblowers	2013	G2	R	6	15	70.36	352.374	2.931	0.035	1.341	1.341	858.879	4.373
Snowblowers	2013	G2	R	16	25	72.339	334.375	2.895	0.035	1.34	1.34	858.879	4.496
Snowblowers	2013	G4	C	3	5	13.944	604.538	3.519	0.029	1.647	1.647	858.879	0.726
Snowblowers	2013	G4	C	6	15	7.943	586.794	5.483	0.024	0.292	0.292	858.879	0.413
Snowblowers	2013	G4	C	16	25	8.124	618.655	5.026	0.021	0.292	0.292	858.879	0.423
Snowblowers	2013	G4	R	3	5	13.944	604.538	3.519	0.029	1.647	1.647	858.879	0.726
Snowblowers	2013	G4	R	6	15	7.943	586.794	5.483	0.024	0.292	0.292	858.879	0.413
Snowblowers	2013	G4	R	16	25	8.124	618.655	5.026	0.021	0.292	0.292	858.879	0.423
Snowblowers	2014	G2	C	6	15	65.026	345.508	2.952	0.035	1.16	1.16	858.879	4.041
Snowblowers	2014	G2	C	16	25	67.062	331.911	2.922	0.035	1.159	1.159	858.879	4.168
Snowblowers	2014	G2	R	6	15	65.026	345.508	2.952	0.035	1.16	1.16	858.879	4.041
Snowblowers	2014	G2	R	16	25	67.062	331.911	2.922	0.035	1.159	1.159	858.879	4.168
Snowblowers	2014	G4	C	3	5	13.463	597.617	3.42	0.029	1.647	1.647	858.879	0.701
Snowblowers	2014	G4	C	6	15	7.759	583.06	5.411	0.024	0.292	0.292	858.879	0.404
Snowblowers	2014	G4	C	16	25	7.959	615.34	4.972	0.021	0.292	0.292	858.879	0.414
Snowblowers	2014	G4	R	3	5	13.463	597.617	3.42	0.029	1.647	1.647	858.879	0.701
Snowblowers	2014	G4	R	6	15	7.759	583.06	5.411	0.024	0.292	0.292	858.879	0.404
Snowblowers	2014	G4	R	16	25	7.959	615.34	4.972	0.021	0.292	0.292	858.879	0.414
Snowblowers	2015	G2	C	6	15	60.176	339.189	2.969	0.035	0.997	0.997	858.879	3.74
Snowblowers	2015	G2	C	16	25	62.152	329.468	2.944	0.035	0.996	0.996	858.879	3.863
Snowblowers	2015	G2	R	6	15	60.176	339.189	2.969	0.035	0.997	0.997	858.879	3.74
Snowblowers	2015	G2	R	16	25	62.152	329.468	2.944	0.035	0.996	0.996	858.879	3.863

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Snowblowers	2015	G4	C	3	5	12.989	590.776	3.324	0.029	1.647	1.647	858.879	0.676
Snowblowers	2015	G4	C	6	15	7.579	579.355	5.341	0.024	0.292	0.292	858.879	0.395
Snowblowers	2015	G4	C	16	25	7.797	612.045	4.92	0.021	0.292	0.292	858.879	0.406
Snowblowers	2015	G4	R	3	5	12.989	590.776	3.324	0.029	1.647	1.647	858.879	0.676
Snowblowers	2015	G4	R	6	15	7.579	579.355	5.341	0.024	0.292	0.292	858.879	0.395
Snowblowers	2015	G4	R	16	25	7.797	612.045	4.92	0.021	0.292	0.292	858.879	0.406
Snowblowers	2016	G2	C	6	15	57.315	335.352	2.964	0.035	0.906	0.906	858.879	3.562
Snowblowers	2016	G2	C	16	25	59.144	327.612	2.943	0.035	0.905	0.905	858.879	3.676
Snowblowers	2016	G2	R	6	15	57.315	335.352	2.964	0.035	0.906	0.906	858.879	3.562
Snowblowers	2016	G2	R	16	25	59.144	327.612	2.943	0.035	0.905	0.905	858.879	3.676
Snowblowers	2016	G4	C	3	5	12.555	584.605	3.23	0.029	1.647	1.647	858.879	0.654
Snowblowers	2016	G4	C	6	15	7.408	576.051	5.274	0.024	0.292	0.292	858.879	0.386
Snowblowers	2016	G4	C	16	25	7.644	609.121	4.871	0.021	0.292	0.292	858.879	0.398
Snowblowers	2016	G4	R	3	5	12.555	584.605	3.23	0.029	1.647	1.647	858.879	0.654
Snowblowers	2016	G4	R	6	15	7.408	576.051	5.274	0.024	0.292	0.292	858.879	0.386
Snowblowers	2016	G4	R	16	25	7.644	609.121	4.871	0.021	0.292	0.292	858.879	0.398
Snowblowers	2017	G2	C	6	15	55.381	332.569	2.953	0.035	0.847	0.847	858.879	3.442
Snowblowers	2017	G2	C	16	25	57.035	325.993	2.936	0.035	0.847	0.847	858.879	3.545
Snowblowers	2017	G2	R	6	15	55.381	332.569	2.953	0.035	0.847	0.847	858.879	3.442
Snowblowers	2017	G2	R	16	25	57.035	325.993	2.936	0.035	0.847	0.847	858.879	3.545
Snowblowers	2017	G4	C	3	5	12.174	579.337	3.144	0.029	1.647	1.647	858.879	0.634
Snowblowers	2017	G4	C	6	15	7.258	573.275	5.213	0.024	0.292	0.292	858.879	0.378
Snowblowers	2017	G4	C	16	25	7.509	606.665	4.824	0.021	0.292	0.292	858.879	0.391
Snowblowers	2017	G4	R	3	5	12.174	579.337	3.144	0.029	1.647	1.647	858.879	0.634
Snowblowers	2017	G4	R	6	15	7.258	573.275	5.213	0.024	0.292	0.292	858.879	0.378
Snowblowers	2017	G4	R	16	25	7.509	606.665	4.824	0.021	0.292	0.292	858.879	0.391
Snowblowers	2018	G2	C	6	15	53.698	330.087	2.941	0.035	0.796	0.796	858.879	3.337
Snowblowers	2018	G2	C	16	25	55.166	324.485	2.928	0.035	0.796	0.796	858.879	3.428
Snowblowers	2018	G2	R	6	15	53.698	330.087	2.941	0.035	0.796	0.796	858.879	3.337
Snowblowers	2018	G2	R	16	25	55.166	324.485	2.928	0.035	0.796	0.796	858.879	3.428
Snowblowers	2018	G4	C	3	5	11.857	575.798	3.058	0.029	1.647	1.647	858.879	0.618
Snowblowers	2018	G4	C	6	15	7.134	571.462	5.154	0.024	0.292	0.292	858.879	0.372
Snowblowers	2018	G4	C	16	25	7.391	605.064	4.774	0.021	0.292	0.292	858.879	0.385
Snowblowers	2018	G4	R	3	5	11.857	575.798	3.058	0.029	1.647	1.647	858.879	0.618
Snowblowers	2018	G4	R	6	15	7.134	571.462	5.154	0.024	0.292	0.292	858.879	0.372
Snowblowers	2018	G4	R	16	25	7.391	605.064	4.774	0.021	0.292	0.292	858.879	0.385
Snowblowers	2019	G2	C	6	15	52.176	327.869	2.93	0.035	0.75	0.75	858.879	3.242
Snowblowers	2019	G2	C	16	25	53.46	323.141	2.92	0.035	0.75	0.75	858.879	3.322
Snowblowers	2019	G2	R	6	15	52.176	327.869	2.93	0.035	0.75	0.75	858.879	3.242
Snowblowers	2019	G2	R	16	25	53.46	323.141	2.92	0.035	0.75	0.75	858.879	3.322
Snowblowers	2019	G4	C	3	5	11.577	573.112	2.971	0.029	1.648	1.648	858.879	0.604
Snowblowers	2019	G4	C	6	15	7.023	570.119	5.096	0.024	0.292	0.292	858.879	0.366
Snowblowers	2019	G4	C	16	25	7.282	603.882	4.723	0.021	0.292	0.292	858.879	0.38
Snowblowers	2019	G4	R	3	5	11.577	573.112	2.971	0.029	1.648	1.648	858.879	0.604
Snowblowers	2019	G4	R	6	15	7.023	570.119	5.096	0.024	0.292	0.292	858.879	0.366
Snowblowers	2019	G4	R	16	25	7.282	603.882	4.723	0.021	0.292	0.292	858.879	0.38
Snowblowers	2020	G2	C	6	15	50.759	325.86	2.921	0.035	0.706	0.706	858.879	3.154
Snowblowers	2020	G2	C	16	25	51.862	321.96	2.913	0.035	0.706	0.706	858.879	3.223
Snowblowers	2020	G2	R	6	15	50.759	325.86	2.921	0.035	0.706	0.706	858.879	3.154
Snowblowers	2020	G2	R	16	25	51.862	321.96	2.913	0.035	0.706	0.706	858.879	3.223
Snowblowers	2020	G4	C	3	5	11.32	570.763	2.884	0.029	1.648	1.648	858.879	0.59
Snowblowers	2020	G4	C	6	15	6.917	568.949	5.038	0.024	0.292	0.292	858.879	0.361
Snowblowers	2020	G4	C	16	25	7.178	602.855	4.673	0.021	0.292	0.292	858.879	0.374
Snowblowers	2020	G4	R	3	5	11.32	570.763	2.884	0.029	1.648	1.648	858.879	0.59
Snowblowers	2020	G4	R	6	15	6.917	568.949	5.038	0.024	0.292	0.292	858.879	0.361
Snowblowers	2020	G4	R	16	25	7.178	602.855	4.673	0.021	0.292	0.292	858.879	0.374
Snowblowers	2021	G2	C	6	15	49.269	323.908	2.918	0.035	0.663	0.663	858.879	3.062
Snowblowers	2021	G2	C	16	25	50.166	320.811	2.913	0.035	0.663	0.663	858.879	3.118
Snowblowers	2021	G2	R	6	15	49.269	323.908	2.918	0.035	0.663	0.663	858.879	3.062
Snowblowers	2021	G2	R	16	25	50.166	320.811	2.913	0.035	0.663	0.663	858.879	3.118
Snowblowers	2021	G4	C	3	5	11.036	568.463	2.784	0.029	1.647	1.647	858.879	0.576
Snowblowers	2021	G4	C	6	15	6.794	567.544	4.97	0.024	0.292	0.292	858.879	0.354
Snowblowers	2021	G4	C	16	25	7.056	601.586	4.613	0.021	0.292	0.292	858.88	0.368
Snowblowers	2021	G4	R	3	5	11.036	568.463	2.784	0.029	1.647	1.647	858.879	0.576
Snowblowers	2021	G4	R	6	15	6.794	567.544	4.97	0.024	0.292	0.292	858.879	0.354
Snowblowers	2021	G4	R	16	25	7.056	601.586	4.613	0.021	0.292	0.292	858.88	0.368
Snowblowers	2022	G2	C	6	15	48.322	322.483	2.918	0.035	0.629	0.629	858.879	3.003
Snowblowers	2022	G2	C	16	25	49.065	320.014	2.915	0.035	0.629	0.629	858.879	3.049
Snowblowers	2022	G2	R	6	15	48.322	322.483	2.918	0.035	0.629	0.629	858.879	3.003
Snowblowers	2022	G2	R	16	25	49.065	320.014	2.915	0.035	0.629	0.629	858.879	3.049
Snowblowers	2022	G4	C	3	5	10.839	566.566	2.708	0.029	1.647	1.647	858.879	0.566
Snowblowers	2022	G4	C	6	15	6.7	566.599	4.917	0.024	0.292	0.292	858.879	0.349
Snowblowers	2022	G4	C	16	25	6.963	600.747	4.567	0.021	0.292	0.292	858.88	0.363
Snowblowers	2022	G4	R	3	5	10.839	566.566	2.708	0.029	1.647	1.647	858.879	0.566
Snowblowers	2022	G4	R	6	15	6.7	566.599	4.917	0.024	0.292	0.292	858.879	0.349
Snowblowers	2022	G4	R	16	25	6.963	600.747	4.567	0.021	0.292	0.292	858.88	0.363

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Snowblowers	2023	G2	C	6	15	47.429	321.202	2.919	0.035	0.599	0.599	858.879	2.947
Snowblowers	2023	G2	C	16	25	48.018	319.301	2.917	0.035	0.599	0.599	858.879	2.984
Snowblowers	2023	G2	R	6	15	47.429	321.202	2.919	0.035	0.599	0.599	858.879	2.947
Snowblowers	2023	G2	R	16	25	48.018	319.301	2.917	0.035	0.599	0.599	858.879	2.984
Snowblowers	2023	G4	C	3	5	10.691	564.937	2.664	0.029	1.647	1.647	858.879	0.558
Snowblowers	2023	G4	C	6	15	6.613	565.723	4.868	0.024	0.292	0.292	858.879	0.345
Snowblowers	2023	G4	C	16	25	6.877	599.961	4.524	0.021	0.292	0.292	858.879	0.359
Snowblowers	2023	G4	R	3	5	10.691	564.937	2.664	0.029	1.647	1.647	858.879	0.558
Snowblowers	2023	G4	R	6	15	6.613	565.723	4.868	0.024	0.292	0.292	858.879	0.345
Snowblowers	2023	G4	R	16	25	6.877	599.961	4.524	0.021	0.292	0.292	858.879	0.359
Snowblowers	2024	G2	C	6	15	46.67	320.149	2.92	0.035	0.573	0.573	858.879	2.9
Snowblowers	2024	G2	C	16	25	47.12	318.737	2.919	0.035	0.573	0.573	858.879	2.928
Snowblowers	2024	G2	R	6	15	46.67	320.149	2.92	0.035	0.573	0.573	858.879	2.9
Snowblowers	2024	G2	R	16	25	47.12	318.737	2.919	0.035	0.573	0.573	858.879	2.928
Snowblowers	2024	G4	C	3	5	10.578	563.519	2.635	0.029	1.647	1.647	858.879	0.552
Snowblowers	2024	G4	C	6	15	6.556	564.959	4.839	0.024	0.292	0.292	858.879	0.342
Snowblowers	2024	G4	C	16	25	6.822	599.274	4.5	0.021	0.292	0.292	858.879	0.356
Snowblowers	2024	G4	R	3	5	10.578	563.519	2.635	0.029	1.647	1.647	858.879	0.552
Snowblowers	2024	G4	R	6	15	6.556	564.959	4.839	0.024	0.292	0.292	858.879	0.342
Snowblowers	2024	G4	R	16	25	6.822	599.274	4.5	0.021	0.292	0.292	858.879	0.356
Snowblowers	2025	G2	C	6	15	46.053	319.364	2.919	0.035	0.552	0.552	858.879	2.862
Snowblowers	2025	G2	C	16	25	46.385	318.356	2.919	0.035	0.552	0.552	858.879	2.883
Snowblowers	2025	G2	R	6	15	46.053	319.364	2.919	0.035	0.552	0.552	858.879	2.862
Snowblowers	2025	G2	R	16	25	46.385	318.356	2.919	0.035	0.552	0.552	858.879	2.883
Snowblowers	2025	G4	C	3	5	10.49	562.347	2.61	0.029	1.647	1.647	858.879	0.548
Snowblowers	2025	G4	C	6	15	6.514	564.306	4.82	0.024	0.292	0.292	858.879	0.34
Snowblowers	2025	G4	C	16	25	6.782	598.683	4.485	0.021	0.292	0.292	858.879	0.354
Snowblowers	2025	G4	R	3	5	10.49	562.347	2.61	0.029	1.647	1.647	858.879	0.548
Snowblowers	2025	G4	R	6	15	6.514	564.306	4.82	0.024	0.292	0.292	858.879	0.34
Snowblowers	2025	G4	R	16	25	6.782	598.683	4.485	0.021	0.292	0.292	858.879	0.354
Snowblowers	2030	G2	C	6	15	44.544	317.797	2.911	0.035	0.501	0.501	858.879	2.768
Snowblowers	2030	G2	C	16	25	44.555	317.775	2.911	0.035	0.501	0.501	858.879	2.769
Snowblowers	2030	G2	R	6	15	44.544	317.797	2.911	0.035	0.501	0.501	858.879	2.768
Snowblowers	2030	G2	R	16	25	44.555	317.775	2.911	0.035	0.501	0.501	858.879	2.769
Snowblowers	2030	G4	C	3	5	10.268	559.045	2.518	0.029	1.647	1.647	858.879	0.537
Snowblowers	2030	G4	C	6	15	6.384	562.117	4.754	0.024	0.292	0.292	858.879	0.334
Snowblowers	2030	G4	C	16	25	6.658	596.614	4.433	0.021	0.292	0.292	858.879	0.348
Snowblowers	2030	G4	R	3	5	10.268	559.045	2.518	0.029	1.647	1.647	858.879	0.537
Snowblowers	2030	G4	R	6	15	6.384	562.117	4.754	0.024	0.292	0.292	858.879	0.334
Snowblowers	2030	G4	R	16	25	6.658	596.614	4.433	0.021	0.292	0.292	858.879	0.348
Snowblowers	2035	G2	C	6	15	44.492	317.759	2.904	0.035	0.499	0.499	858.879	2.765
Snowblowers	2035	G2	C	16	25	44.492	317.759	2.904	0.035	0.499	0.499	858.879	2.765
Snowblowers	2035	G2	R	6	15	44.492	317.759	2.904	0.035	0.499	0.499	858.879	2.765
Snowblowers	2035	G2	R	16	25	44.492	317.759	2.904	0.035	0.499	0.499	858.879	2.765
Snowblowers	2035	G4	C	3	5	10.203	557.747	2.478	0.029	1.647	1.647	858.88	0.534
Snowblowers	2035	G4	C	6	15	6.334	561.031	4.721	0.024	0.292	0.292	858.879	0.331
Snowblowers	2035	G4	C	16	25	6.607	595.493	4.404	0.021	0.292	0.292	858.879	0.346
Snowblowers	2035	G4	R	3	5	10.203	557.747	2.478	0.029	1.647	1.647	858.88	0.534
Snowblowers	2035	G4	R	6	15	6.334	561.031	4.721	0.024	0.292	0.292	858.879	0.331
Snowblowers	2035	G4	R	16	25	6.607	595.493	4.404	0.021	0.292	0.292	858.879	0.346
Snowblowers	2040	G2	C	6	15	44.458	317.759	2.902	0.035	0.499	0.499	858.879	2.763
Snowblowers	2040	G2	C	16	25	44.458	317.759	2.902	0.035	0.499	0.499	858.879	2.763
Snowblowers	2040	G2	R	6	15	44.458	317.759	2.902	0.035	0.499	0.499	858.879	2.763
Snowblowers	2040	G2	R	16	25	44.458	317.759	2.902	0.035	0.499	0.499	858.879	2.763
Snowblowers	2040	G4	C	3	5	10.181	556.898	2.469	0.029	1.647	1.647	858.879	0.534
Snowblowers	2040	G4	C	6	15	6.318	560.117	4.709	0.024	0.292	0.292	858.879	0.331
Snowblowers	2040	G4	C	16	25	6.589	594.522	4.393	0.021	0.292	0.292	858.879	0.345
Snowblowers	2040	G4	R	3	5	10.181	556.898	2.469	0.029	1.647	1.647	858.879	0.534
Snowblowers	2040	G4	R	6	15	6.318	560.117	4.709	0.024	0.292	0.292	858.879	0.331
Snowblowers	2040	G4	R	16	25	6.589	594.522	4.393	0.021	0.292	0.292	858.879	0.345
Tillers	1990	G4	C	3	5	78.112	1313.172	4.892	0.434	2.184	2.184	858.879	9.227
Tillers	1990	G4	R	3	5	78.112	1313.172	4.892	0.434	2.184	2.184	858.879	9.227
Tillers	2000	G4	C	3	5	44.791	796.46	5.611	0.041	2.193	2.193	858.879	2.448
Tillers	2000	G4	R	3	5	44.791	796.46	5.611	0.041	2.193	2.193	858.879	2.448
Tillers	2005	G4	C	3	5	30.033	576.602	6.868	0.029	2.205	2.205	858.879	1.686
Tillers	2005	G4	R	3	5	30.033	576.602	6.868	0.029	2.205	2.205	858.879	1.686
Tillers	2010	G4	C	3	5	19.82	476.644	4.825	0.029	2.202	2.202	858.879	1.113
Tillers	2010	G4	R	3	5	19.82	476.644	4.825	0.029	2.202	2.202	858.879	1.113
Tillers	2011	G4	C	3	5	18.665	464.23	4.587	0.029	2.201	2.201	858.879	1.048
Tillers	2011	G4	R	3	5	18.665	464.23	4.587	0.029	2.201	2.201	858.879	1.048
Tillers	2012	G4	C	3	5	17.59	452.097	4.413	0.029	2.201	2.201	858.879	0.988
Tillers	2012	G4	R	3	5	17.59	452.097	4.413	0.029	2.201	2.201	858.879	0.988
Tillers	2013	G4	C	3	5	16.614	440.935	4.284	0.029	2.202	2.202	858.879	0.933
Tillers	2013	G4	R	3	5	16.614	440.935	4.284	0.029	2.202	2.202	858.879	0.933
Tillers	2014	G4	C	3	5	16.012	434.739	4.16	0.029	2.203	2.203	858.879	0.899
Tillers	2014	G4	R	3	5	16.012	434.739	4.16	0.029	2.203	2.203	858.879	0.899

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Tillers	2015	G4	C	3	5	15.546	430.244	4.042	0.029	2.203	2.203	858.879	0.873
Tillers	2015	G4	R	3	5	15.546	430.244	4.042	0.029	2.203	2.203	858.879	0.873
Tillers	2016	G4	C	3	5	15.127	426.462	3.92	0.029	2.203	2.203	858.879	0.85
Tillers	2016	G4	R	3	5	15.127	426.462	3.92	0.029	2.203	2.203	858.879	0.85
Tillers	2017	G4	C	3	5	14.77	423.384	3.802	0.029	2.203	2.203	858.879	0.83
Tillers	2017	G4	R	3	5	14.77	423.384	3.802	0.029	2.203	2.203	858.879	0.83
Tillers	2018	G4	C	3	5	14.48	421.308	3.679	0.029	2.202	2.202	858.879	0.814
Tillers	2018	G4	R	3	5	14.48	421.308	3.679	0.029	2.202	2.202	858.879	0.814
Tillers	2019	G4	C	3	5	14.288	419.526	3.625	0.029	2.201	2.201	858.879	0.803
Tillers	2019	G4	R	3	5	14.288	419.526	3.625	0.029	2.201	2.201	858.879	0.803
Tillers	2020	G4	C	3	5	14.146	417.94	3.592	0.029	2.201	2.201	858.879	0.795
Tillers	2020	G4	R	3	5	14.146	417.94	3.592	0.029	2.201	2.201	858.879	0.795
Tillers	2021	G4	C	3	5	14.021	417.224	3.555	0.029	2.199	2.199	858.879	0.788
Tillers	2021	G4	R	3	5	14.021	417.224	3.555	0.029	2.199	2.199	858.879	0.788
Tillers	2022	G4	C	3	5	13.948	416.23	3.529	0.029	2.2	2.2	858.879	0.784
Tillers	2022	G4	R	3	5	13.948	416.23	3.529	0.029	2.2	2.2	858.879	0.784
Tillers	2023	G4	C	3	5	13.897	415.541	3.507	0.029	2.201	2.201	858.879	0.781
Tillers	2023	G4	R	3	5	13.897	415.541	3.507	0.029	2.201	2.201	858.879	0.781
Tillers	2024	G4	C	3	5	13.867	415.111	3.487	0.029	2.201	2.201	858.879	0.78
Tillers	2024	G4	R	3	5	13.867	415.111	3.487	0.029	2.201	2.201	858.879	0.78
Tillers	2025	G4	C	3	5	13.844	415.049	3.467	0.029	2.201	2.201	858.879	0.779
Tillers	2025	G4	R	3	5	13.844	415.049	3.467	0.029	2.201	2.201	858.879	0.779
Tillers	2030	G4	C	3	5	13.817	414.708	3.43	0.029	2.201	2.201	858.879	0.778
Tillers	2030	G4	R	3	5	13.817	414.708	3.43	0.029	2.201	2.201	858.879	0.778
Tillers	2035	G4	C	3	5	13.802	414.506	3.427	0.029	2.2	2.2	858.879	0.777
Tillers	2035	G4	R	3	5	13.802	414.506	3.427	0.029	2.2	2.2	858.879	0.777
Tillers	2040	G4	C	3	5	13.793	414.121	3.426	0.029	2.2	2.2	858.879	0.777
Tillers	2040	G4	R	3	5	13.793	414.121	3.426	0.029	2.2	2.2	858.879	0.777
Trimmers/Edgers/Brush Cutters	1990	G2	C	0	2	375.815	1332.647	1.862	0.466	6.479	6.479	772.991	32.05
Trimmers/Edgers/Brush Cutters	1990	G2	R	0	2	375.815	1332.647	1.862	0.466	6.479	6.479	772.991	32.05
Trimmers/Edgers/Brush Cutters	1990	G4	C	3	5	87.785	1374.249	4.92	0.434	2.809	2.809	858.879	10.37
Trimmers/Edgers/Brush Cutters	1990	G4	R	3	5	87.785	1374.249	4.92	0.434	2.809	2.809	858.879	10.37
Trimmers/Edgers/Brush Cutters	2000	G2	C	0	2	176.618	459.625	2.752	0.044	3.345	3.345	772.991	10.69
Trimmers/Edgers/Brush Cutters	2000	G2	R	0	2	176.618	459.625	2.752	0.044	3.345	3.345	772.991	10.69
Trimmers/Edgers/Brush Cutters	2000	G4	C	3	5	54.699	841.478	5.786	0.041	5.753	5.753	858.879	2.99
Trimmers/Edgers/Brush Cutters	2000	G4	R	3	5	54.699	841.478	5.786	0.041	5.753	5.753	858.879	2.99
Trimmers/Edgers/Brush Cutters	2005	G2	C	0	2	98.602	316.166	2.832	0.031	1.087	1.087	772.991	6.128
Trimmers/Edgers/Brush Cutters	2005	G2	R	0	2	98.602	316.166	2.832	0.031	1.087	1.087	772.991	6.128
Trimmers/Edgers/Brush Cutters	2005	G4	C	3	5	35.939	581.254	7.372	0.029	2.009	2.009	858.879	2.018
Trimmers/Edgers/Brush Cutters	2005	G4	R	3	5	35.939	581.254	7.372	0.029	2.009	2.009	858.879	2.018
Trimmers/Edgers/Brush Cutters	2010	G2	C	0	2	79.871	287.902	2.592	0.031	0.496	0.496	772.991	4.964
Trimmers/Edgers/Brush Cutters	2010	G2	R	0	2	79.871	287.902	2.592	0.031	0.496	0.496	772.991	4.964
Trimmers/Edgers/Brush Cutters	2010	G4	C	3	5	26.461	465.71	8.024	0.029	1.29	1.29	858.879	1.486
Trimmers/Edgers/Brush Cutters	2010	G4	R	3	5	26.461	465.71	8.024	0.029	1.29	1.29	858.879	1.486
Trimmers/Edgers/Brush Cutters	2011	G2	C	0	2	78.813	286.76	2.544	0.031	0.468	0.468	772.991	4.898
Trimmers/Edgers/Brush Cutters	2011	G2	R	0	2	78.813	286.76	2.544	0.031	0.468	0.468	772.991	4.898
Trimmers/Edgers/Brush Cutters	2011	G4	C	3	5	25.278	450.89	8.121	0.029	1.107	1.107	858.879	1.42
Trimmers/Edgers/Brush Cutters	2011	G4	R	3	5	25.278	450.89	8.121	0.029	1.107	1.107	858.879	1.42
Trimmers/Edgers/Brush Cutters	2012	G2	C	0	2	78.373	286.165	2.526	0.031	0.454	0.454	772.991	4.871
Trimmers/Edgers/Brush Cutters	2012	G2	R	0	2	78.373	286.165	2.526	0.031	0.454	0.454	772.991	4.871
Trimmers/Edgers/Brush Cutters	2012	G4	C	3	5	24.16	436.282	8.219	0.029	0.931	0.931	858.879	1.357
Trimmers/Edgers/Brush Cutters	2012	G4	R	3	5	24.16	436.282	8.219	0.029	0.931	0.931	858.879	1.357
Trimmers/Edgers/Brush Cutters	2013	G2	C	0	2	78.144	285.984	2.511	0.031	0.449	0.449	772.991	4.857
Trimmers/Edgers/Brush Cutters	2013	G2	R	0	2	78.144	285.984	2.511	0.031	0.449	0.449	772.991	4.857
Trimmers/Edgers/Brush Cutters	2013	G4	C	3	5	23.066	422.421	8.311	0.029	0.765	0.765	858.879	1.296
Trimmers/Edgers/Brush Cutters	2013	G4	R	3	5	23.066	422.421	8.311	0.029	0.765	0.765	858.879	1.296
Trimmers/Edgers/Brush Cutters	2014	G2	C	0	2	78.02	285.983	2.5	0.031	0.449	0.449	772.991	4.849
Trimmers/Edgers/Brush Cutters	2014	G2	R	0	2	78.02	285.983	2.5	0.031	0.449	0.449	772.991	4.849
Trimmers/Edgers/Brush Cutters	2014	G4	C	3	5	22.083	409.949	8.4	0.029	0.613	0.613	858.879	1.241
Trimmers/Edgers/Brush Cutters	2014	G4	R	3	5	22.083	409.949	8.4	0.029	0.613	0.613	858.879	1.241
Trimmers/Edgers/Brush Cutters	2015	G2	C	0	2	77.92	285.983	2.491	0.031	0.449	0.449	772.991	4.843
Trimmers/Edgers/Brush Cutters	2015	G2	R	0	2	77.92	285.983	2.491	0.031	0.449	0.449	772.991	4.843
Trimmers/Edgers/Brush Cutters	2015	G4	C	3	5	21.454	402.105	8.453	0.029	0.544	0.544	858.879	1.206
Trimmers/Edgers/Brush Cutters	2015	G4	R	3	5	21.454	402.105	8.453	0.029	0.544	0.544	858.879	1.206
Trimmers/Edgers/Brush Cutters	2016	G2	C	0	2	77.872	285.983	2.486	0.031	0.449	0.449	772.991	4.84
Trimmers/Edgers/Brush Cutters	2016	G2	R	0	2	77.872	285.983	2.486	0.031	0.449	0.449	772.991	4.84
Trimmers/Edgers/Brush Cutters	2016	G4	C	3	5	20.977	396.349	8.491	0.029	0.498	0.498	858.879	1.179
Trimmers/Edgers/Brush Cutters	2016	G4	R	3	5	20.977	396.349	8.491	0.029	0.498	0.498	858.879	1.179
Trimmers/Edgers/Brush Cutters	2017	G2	C	0	2	77.862	285.983	2.483	0.031	0.449	0.449	772.992	4.839
Trimmers/Edgers/Brush Cutters	2017	G2	R	0	2	77.862	285.983	2.483	0.031	0.449	0.449	772.992	4.839
Trimmers/Edgers/Brush Cutters	2017	G4	C	3	5	20.584	391.403	8.525	0.029	0.456	0.456	858.879	1.157
Trimmers/Edgers/Brush Cutters	2017	G4	R	3	5	20.584	391.403	8.525	0.029	0.456	0.456	858.879	1.157
Trimmers/Edgers/Brush Cutters	2018	G2	C	0	2	77.847	285.983	2.482	0.031	0.449	0.449	772.991	4.838
Trimmers/Edgers/Brush Cutters	2018	G2	R	0	2	77.847	285.983	2.482	0.031	0.449	0.449	772.991	4.838
Trimmers/Edgers/Brush Cutters	2018	G4	C	3	5	20.244	387.191	8.552	0.029	0.419	0.419	858.88	1.138
Trimmers/Edgers/Brush Cutters	2018	G4	R	3	5	20.244	387.191	8.552	0.029	0.419	0.419	858.88	1.138

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Trimmers/Edgers/Brush Cutters	2019	G2	C	0	2	77.85	285.983	2.482	0.031	0.449	0.449	772.991	4.838
Trimmers/Edgers/Brush Cutters	2019	G2	R	0	2	77.85	285.983	2.482	0.031	0.449	0.449	772.991	4.838
Trimmers/Edgers/Brush Cutters	2019	G4	C	3	5	19.984	384.057	8.573	0.029	0.389	0.389	858.88	1.123
Trimmers/Edgers/Brush Cutters	2019	G4	R	3	5	19.984	384.057	8.573	0.029	0.389	0.389	858.88	1.123
Trimmers/Edgers/Brush Cutters	2020	G2	C	0	2	77.851	285.983	2.482	0.031	0.449	0.449	772.991	4.838
Trimmers/Edgers/Brush Cutters	2020	G2	R	0	2	77.851	285.983	2.482	0.031	0.449	0.449	772.991	4.838
Trimmers/Edgers/Brush Cutters	2020	G4	C	3	5	19.759	381.691	8.585	0.029	0.361	0.361	858.879	1.111
Trimmers/Edgers/Brush Cutters	2020	G4	R	3	5	19.759	381.691	8.585	0.029	0.361	0.361	858.879	1.111
Trimmers/Edgers/Brush Cutters	2021	G2	C	0	2	77.75	285.983	2.482	0.031	0.449	0.449	772.991	4.832
Trimmers/Edgers/Brush Cutters	2021	G2	R	0	2	77.75	285.983	2.482	0.031	0.449	0.449	772.991	4.832
Trimmers/Edgers/Brush Cutters	2021	G4	C	3	5	19.581	380.309	8.589	0.029	0.338	0.338	858.879	1.101
Trimmers/Edgers/Brush Cutters	2021	G4	R	3	5	19.581	380.309	8.589	0.029	0.338	0.338	858.879	1.101
Trimmers/Edgers/Brush Cutters	2022	G2	C	0	2	77.784	285.983	2.482	0.031	0.449	0.449	772.991	4.834
Trimmers/Edgers/Brush Cutters	2022	G2	R	0	2	77.784	285.983	2.482	0.031	0.449	0.449	772.991	4.834
Trimmers/Edgers/Brush Cutters	2022	G4	C	3	5	19.486	378.671	8.602	0.029	0.318	0.318	858.879	1.096
Trimmers/Edgers/Brush Cutters	2022	G4	R	3	5	19.486	378.671	8.602	0.029	0.318	0.318	858.879	1.096
Trimmers/Edgers/Brush Cutters	2023	G2	C	0	2	77.802	285.983	2.482	0.031	0.449	0.449	772.991	4.835
Trimmers/Edgers/Brush Cutters	2023	G2	R	0	2	77.802	285.983	2.482	0.031	0.449	0.449	772.991	4.835
Trimmers/Edgers/Brush Cutters	2023	G4	C	3	5	19.411	377.801	8.608	0.029	0.303	0.303	858.879	1.092
Trimmers/Edgers/Brush Cutters	2023	G4	R	3	5	19.411	377.801	8.608	0.029	0.303	0.303	858.879	1.092
Trimmers/Edgers/Brush Cutters	2024	G2	C	0	2	77.822	285.983	2.482	0.031	0.449	0.449	772.991	4.837
Trimmers/Edgers/Brush Cutters	2024	G2	R	0	2	77.822	285.983	2.482	0.031	0.449	0.449	772.991	4.837
Trimmers/Edgers/Brush Cutters	2024	G4	C	3	5	19.364	377.078	8.613	0.029	0.292	0.292	858.879	1.089
Trimmers/Edgers/Brush Cutters	2024	G4	R	3	5	19.364	377.078	8.613	0.029	0.292	0.292	858.879	1.089
Trimmers/Edgers/Brush Cutters	2025	G2	C	0	2	77.833	285.983	2.482	0.031	0.449	0.449	772.991	4.837
Trimmers/Edgers/Brush Cutters	2025	G2	R	0	2	77.833	285.983	2.482	0.031	0.449	0.449	772.991	4.837
Trimmers/Edgers/Brush Cutters	2025	G4	C	3	5	19.327	376.636	8.615	0.029	0.285	0.285	858.879	1.087
Trimmers/Edgers/Brush Cutters	2025	G4	R	3	5	19.327	376.636	8.615	0.029	0.285	0.285	858.879	1.087
Trimmers/Edgers/Brush Cutters	2030	G2	C	0	2	77.793	285.983	2.482	0.031	0.449	0.449	772.991	4.835
Trimmers/Edgers/Brush Cutters	2030	G2	R	0	2	77.793	285.983	2.482	0.031	0.449	0.449	772.991	4.835
Trimmers/Edgers/Brush Cutters	2030	G4	C	3	5	19.297	375.8	8.618	0.029	0.279	0.279	858.879	1.086
Trimmers/Edgers/Brush Cutters	2030	G4	R	3	5	19.297	375.8	8.618	0.029	0.279	0.279	858.879	1.086
Trimmers/Edgers/Brush Cutters	2035	G2	C	0	2	77.785	285.983	2.482	0.031	0.449	0.449	772.991	4.834
Trimmers/Edgers/Brush Cutters	2035	G2	R	0	2	77.785	285.983	2.482	0.031	0.449	0.449	772.991	4.834
Trimmers/Edgers/Brush Cutters	2035	G4	C	3	5	19.273	375.785	8.61	0.029	0.279	0.279	858.879	1.086
Trimmers/Edgers/Brush Cutters	2035	G4	R	3	5	19.273	375.785	8.61	0.029	0.279	0.279	858.879	1.086
Trimmers/Edgers/Brush Cutters	2040	G2	C	0	2	77.783	285.983	2.482	0.031	0.449	0.449	772.991	4.834
Trimmers/Edgers/Brush Cutters	2040	G2	R	0	2	77.783	285.983	2.482	0.031	0.449	0.449	772.991	4.834
Trimmers/Edgers/Brush Cutters	2040	G4	C	3	5	19.26	375.439	8.607	0.029	0.279	0.279	858.88	1.086
Trimmers/Edgers/Brush Cutters	2040	G4	R	3	5	19.26	375.439	8.607	0.029	0.279	0.279	858.88	1.086
Wood Splitters	1990	G4	C	3	5	72.405	1277.201	4.876	0.434	2.026	2.026	858.879	8.553
Wood Splitters	1990	G4	R	3	5	72.405	1277.201	4.876	0.434	2.026	2.026	858.879	8.553
Wood Splitters	2000	G4	C	3	5	39.734	763.399	5.668	0.041	2.025	2.025	858.879	2.172
Wood Splitters	2000	G4	R	3	5	39.734	763.399	5.668	0.041	2.025	2.025	858.879	2.172
Wood Splitters	2005	G4	C	3	5	24.031	546.706	6.964	0.029	2.026	2.026	858.879	1.349
Wood Splitters	2005	G4	R	3	5	24.031	546.706	6.964	0.029	2.026	2.026	858.879	1.349
Wood Splitters	2010	G4	C	3	5	17.322	497.944	4.296	0.029	2.027	2.027	858.879	0.973
Wood Splitters	2010	G4	R	3	5	17.322	497.944	4.296	0.029	2.027	2.027	858.879	0.973
Wood Splitters	2011	G4	C	3	5	16.626	491.73	4.202	0.029	2.026	2.026	858.88	0.934
Wood Splitters	2011	G4	R	3	5	16.626	491.73	4.202	0.029	2.026	2.026	858.88	0.934
Wood Splitters	2012	G4	C	3	5	16.118	485.723	4.111	0.029	2.027	2.027	858.879	0.905
Wood Splitters	2012	G4	R	3	5	16.118	485.723	4.111	0.029	2.027	2.027	858.879	0.905
Wood Splitters	2013	G4	C	3	5	15.648	479.726	4.02	0.029	2.026	2.026	858.879	0.879
Wood Splitters	2013	G4	R	3	5	15.648	479.726	4.02	0.029	2.026	2.026	858.879	0.879
Wood Splitters	2014	G4	C	3	5	15.214	473.893	3.931	0.029	2.027	2.027	858.879	0.855
Wood Splitters	2014	G4	R	3	5	15.214	473.893	3.931	0.029	2.027	2.027	858.879	0.855
Wood Splitters	2015	G4	C	3	5	14.797	468.31	3.845	0.029	2.027	2.027	858.879	0.831
Wood Splitters	2015	G4	R	3	5	14.797	468.31	3.845	0.029	2.027	2.027	858.879	0.831
Wood Splitters	2016	G4	C	3	5	14.421	463.308	3.759	0.029	2.026	2.026	858.879	0.81
Wood Splitters	2016	G4	R	3	5	14.421	463.308	3.759	0.029	2.026	2.026	858.879	0.81
Wood Splitters	2017	G4	C	3	5	14.081	458.821	3.676	0.029	2.027	2.027	858.879	0.791
Wood Splitters	2017	G4	R	3	5	14.081	458.821	3.676	0.029	2.027	2.027	858.879	0.791
Wood Splitters	2018	G4	C	3	5	13.794	455.965	3.589	0.029	2.027	2.027	858.879	0.775
Wood Splitters	2018	G4	R	3	5	13.794	455.965	3.589	0.029	2.027	2.027	858.879	0.775
Wood Splitters	2019	G4	C	3	5	13.542	453.901	3.503	0.029	2.027	2.027	858.88	0.761
Wood Splitters	2019	G4	R	3	5	13.542	453.901	3.503	0.029	2.027	2.027	858.88	0.761
Wood Splitters	2020	G4	C	3	5	13.32	452.189	3.419	0.029	2.027	2.027	858.879	0.749
Wood Splitters	2020	G4	R	3	5	13.32	452.189	3.419	0.029	2.027	2.027	858.879	0.749
Wood Splitters	2021	G4	C	3	5	13.11	450.835	3.337	0.029	2.026	2.026	858.879	0.737
Wood Splitters	2021	G4	R	3	5	13.11	450.835	3.337	0.029	2.026	2.026	858.879	0.737
Wood Splitters	2022	G4	C	3	5	12.957	449.327	3.27	0.029	2.027	2.027	858.879	0.728
Wood Splitters	2022	G4	R	3	5	12.957	449.327	3.27	0.029	2.027	2.027	858.879	0.728
Wood Splitters	2023	G4	C	3	5	12.835	448.312	3.229	0.029	2.026	2.026	858.879	0.722
Wood Splitters	2023	G4	R	3	5	12.835	448.312	3.229	0.029	2.026	2.026	858.879	0.722
Wood Splitters	2024	G4	C	3	5	12.751	447.259	3.204	0.029	2.027	2.027	858.879	0.717
Wood Splitters	2024	G4	R	3	5	12.751	447.259	3.204	0.029	2.027	2.027	858.879	0.717

Table 7.2 Landscape Equipment Running Emission Factors

Equipment Type	Year	Engine Type	Commercial or Residential	Low Hp	High Hp	ROG g/bhp-hr	CO, g/bhp-hr	NOX, g/bhp-hr	SO2, g/bhp-hr	PM10, g/bhp-hr	PM2.5, g/bhp-hr	CO2, g/bhp-hr	CH4, g/bhp-hr
Wood Splitters	2025	G4	C	3	5	12.68	446.516	3.181	0.029	2.027	2.027	858.879	0.713
Wood Splitters	2025	G4	R	3	5	12.68	446.516	3.181	0.029	2.027	2.027	858.879	0.713
Wood Splitters	2030	G4	C	3	5	12.507	444.35	3.1	0.029	2.026	2.026	858.879	0.704
Wood Splitters	2030	G4	R	3	5	12.507	444.35	3.1	0.029	2.026	2.026	858.879	0.704
Wood Splitters	2035	G4	C	3	5	12.449	443.751	3.065	0.029	2.026	2.026	858.879	0.701
Wood Splitters	2035	G4	R	3	5	12.449	443.751	3.065	0.029	2.026	2.026	858.879	0.701
Wood Splitters	2040	G4	C	3	5	12.434	443.365	3.059	0.029	2.026	2.026	858.879	0.701
Wood Splitters	2040	G4	R	3	5	12.434	443.365	3.059	0.029	2.026	2.026	858.879	0.701

Table 7.3 Landscape Equipment Usage

Land Use Type	Landscape Equipment Type	Usage	Units
Non-Residential	Chainsaws	2.47E-05	hr/sqft/day
	Chainsaws Preempt	2.47E-05	hr/sqft/day
	Front Mowers	1.81E-06	hr/sqft/day
	Lawn & Garden Tractors	4.04E-07	hr/sqft/day
	Lawn Mowers	2.49E-05	hr/sqft/day
	Leaf Blowers/Vacuums	9.54E-06	hr/sqft/day
	Other Lawn & Garden Equipment	1.43E-05	hr/sqft/day
	Rear Engine Riding Mowers	1.81E-06	hr/sqft/day
	Shredders	8.60E-06	hr/sqft/day
	Snowblowers	1.41E-07	hr/sqft/day
	Tillers	1.07E-06	hr/sqft/day
	Trimmers/Edgers/Brush Cutters	1.96E-05	hr/sqft/day
	Wood Splitters	7.18E-06	hr/sqft/day
	Residential	Chainsaws	2.46E-03
Chainsaws Preempt		2.46E-03	hr/du/day
Chippers/Stump Grinders		1.36E-03	hr/du/day
Front Mowers		3.09E-03	hr/du/day
Lawn & Garden Tractors		7.60E-04	hr/du/day
Lawn Mowers		1.51E-02	hr/du/day
Leaf Blowers/Vacuums		1.05E-03	hr/du/day
Other Lawn & Garden Equipment		3.53E-04	hr/du/day
Rear Engine Riding Mowers		3.09E-03	hr/du/day
Shredders		5.18E-05	hr/du/day
Snowblowers		2.98E-05	hr/du/day
Tillers		1.48E-03	hr/du/day
Trimmers/Edgers/Brush Cutters		1.45E-03	hr/du/day
Wood Splitters		5.42E-05	hr/du/day

Notes:

1. Based on the total hours in OFFROAD2007 and number of dwelling units and non-residential square footage in California.

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Apartments High Rise	1	N	979.51	3277.06	741.44	3305	1599
Apartments High Rise	2	N	543.54	3277.06	741.44	10189	2687
Apartments High Rise	3	N	826.30	3277.06	741.44	12200	3723
Apartments High Rise	4	N	392.47	3277.06	741.44	7914	3155
Apartments High Rise	5	N	502.89	3277.06	741.44	8825	2615
Apartments High Rise	6	N	543.54	3277.06	741.44	10189	2687
Apartments High Rise	7	N	964.00	3277.06	741.44	15657	4769
Apartments High Rise	8	N	211.98	3277.06	741.44	8530	5516
Apartments High Rise	9	N	297.91	3277.06	741.44	10119	6384
Apartments High Rise	10	N	910.58	3277.06	741.44	12647	6030
Apartments High Rise	11	N	194.04	3277.06	741.44	6329	4831
Apartments High Rise	12	N	304.35	3277.06	741.44	6778	6281
Apartments High Rise	13	N	246.93	3277.06	741.44	4688	4180
Apartments High Rise	14	N	979.51	3277.06	741.44	3305	1599
Apartments High Rise	15	N	910.58	3277.06	741.44	12647	6030
Apartments High Rise	1	Y	277.31	2557.38	741.44	2896	1662
Apartments High Rise	2	Y	401.59	2554.47	741.44	8883	1716
Apartments High Rise	3	Y	532.58	2553.86	741.44	10691	1662
Apartments High Rise	4	Y	282.15	2558.55	741.44	6873	1736
Apartments High Rise	5	Y	388.61	2561.86	741.44	7733	1662
Apartments High Rise	6	Y	401.59	2554.47	741.44	8883	1716
Apartments High Rise	7	Y	656.57	2553.86	741.44	13684	1704
Apartments High Rise	8	Y	226.43	2555.58	741.44	7475	1662
Apartments High Rise	9	Y	307.17	2553.86	741.44	8819	1719
Apartments High Rise	10	Y	696.81	2553.86	741.44	10983	1779
Apartments High Rise	11	Y	231.59	2553.86	741.44	5546	1662
Apartments High Rise	12	Y	332.65	2553.86	741.44	5940	1662
Apartments High Rise	13	Y	200.21	2553.86	741.44	4108	1662
Apartments High Rise	14	Y	277.31	2557.38	741.44	2896	1662
Apartments High Rise	15	Y	696.81	2553.86	741.44	10983	1779
Apartments Low Rise	1	N	915.02	3418.36	810.36	13276	1599
Apartments Low Rise	2	N	602.73	3418.36	810.36	13581	2687
Apartments Low Rise	3	N	818.86	3418.36	810.36	15027	3723
Apartments Low Rise	4	N	431.22	3418.36	810.36	10164	3155
Apartments Low Rise	5	N	274.84	3418.36	810.36	25591	2615
Apartments Low Rise	6	N	602.73	3418.36	810.36	13581	2687
Apartments Low Rise	7	N	770.01	3418.36	810.36	17188	4769
Apartments Low Rise	8	N	208.74	3418.36	810.36	10453	5516
Apartments Low Rise	9	N	303.39	3418.36	810.36	14366	6384
Apartments Low Rise	10	N	1034.36	3418.36	810.36	13773	6030
Apartments Low Rise	11	N	159.21	3418.36	810.36	13398	4831
Apartments Low Rise	12	N	231.70	3418.36	810.36	6489	6281
Apartments Low Rise	13	N	307.62	3418.36	810.36	10167	4180
Apartments Low Rise	14	N	915.02	3418.36	810.36	13276	1599
Apartments Low Rise	15	N	1034.36	3418.36	810.36	13773	6030
Apartments Low Rise	1	Y	186.93	2635.07	810.36	11634	2498
Apartments Low Rise	2	Y	433.59	2631.74	810.36	11901	2498
Apartments Low Rise	3	Y	499.01	2630.88	810.36	13168	2498
Apartments Low Rise	4	Y	295.03	2634.44	810.36	8907	2498
Apartments Low Rise	5	Y	143.36	2630.88	810.36	22211	2753
Apartments Low Rise	6	Y	433.59	2631.74	810.36	11901	2498
Apartments Low Rise	7	Y	438.88	2630.88	810.36	15062	2498
Apartments Low Rise	8	Y	197.46	2631.99	810.36	9160	2498
Apartments Low Rise	9	Y	286.35	2630.88	810.36	12489	2616
Apartments Low Rise	10	Y	792.75	2630.88	810.36	12069	2498
Apartments Low Rise	11	Y	170.99	2630.88	810.36	11673	2579
Apartments Low Rise	12	Y	234.73	2630.88	810.36	5686	2498
Apartments Low Rise	13	Y	230.08	2635.92	810.36	8909	2498
Apartments Low Rise	14	Y	186.93	2635.07	810.36	11634	2498
Apartments Low Rise	15	Y	792.75	2630.88	810.36	12069	2498
Apartments Mid Rise	1	N	979.51	3277.06	741.44	3305	1599
Apartments Mid Rise	2	N	543.54	3277.06	741.44	10189	2687
Apartments Mid Rise	3	N	826.30	3277.06	741.44	12200	3723
Apartments Mid Rise	4	N	392.47	3277.06	741.44	7914	3155
Apartments Mid Rise	5	N	502.89	3277.06	741.44	8825	2615
Apartments Mid Rise	6	N	543.54	3277.06	741.44	10189	2687
Apartments Mid Rise	7	N	964.00	3277.06	741.44	15657	4769

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Apartments Mid Rise	8	N	211.98	3277.06	741.44	8530	5516
Apartments Mid Rise	9	N	297.91	3277.06	741.44	10119	6384
Apartments Mid Rise	10	N	910.58	3277.06	741.44	12647	6030
Apartments Mid Rise	11	N	194.04	3277.06	741.44	6329	4831
Apartments Mid Rise	12	N	304.35	3277.06	741.44	6778	6281
Apartments Mid Rise	13	N	246.93	3277.06	741.44	4688	4180
Apartments Mid Rise	14	N	979.51	3277.06	741.44	3305	1599
Apartments Mid Rise	15	N	910.58	3277.06	741.44	12647	6030
Apartments Mid Rise	1	Y	277.31	2557.38	741.44	2896	1662
Apartments Mid Rise	2	Y	401.59	2554.47	741.44	8883	1716
Apartments Mid Rise	3	Y	532.58	2553.86	741.44	10691	1662
Apartments Mid Rise	4	Y	282.15	2558.55	741.44	6873	1736
Apartments Mid Rise	5	Y	388.61	2561.86	741.44	7733	1662
Apartments Mid Rise	6	Y	401.59	2554.47	741.44	8883	1716
Apartments Mid Rise	7	Y	656.57	2553.86	741.44	13684	1704
Apartments Mid Rise	8	Y	226.43	2555.58	741.44	7475	1662
Apartments Mid Rise	9	Y	307.17	2553.86	741.44	8819	1719
Apartments Mid Rise	10	Y	696.81	2553.86	741.44	10983	1779
Apartments Mid Rise	11	Y	231.59	2553.86	741.44	5546	1662
Apartments Mid Rise	12	Y	332.65	2553.86	741.44	5940	1662
Apartments Mid Rise	13	Y	200.21	2553.86	741.44	4108	1662
Apartments Mid Rise	14	Y	277.31	2557.38	741.44	2896	1662
Apartments Mid Rise	15	Y	696.81	2553.86	741.44	10983	1779
Arena	1	N	0.65	1.85	1.86	3	0
Arena	2	N	1.73	4.20	2.68	19	0
Arena	3	N	2.05	4.16	2.78	17	4
Arena	4	N	1.55	3.70	3.17	20	7
Arena	5	N	1.27	3.36	3.07	18	7
Arena	6	N	3.58	7.20	4.72	24	12
Arena	7	N	0.42	1.31	0.67	17	0
Arena	8	N	1.71	3.83	3.08	14	7
Arena	9	N	2.36	5.75	3.20	14	4
Arena	10	N	2.31	5.02	3.01	15	17
Arena	11	N	2.36	5.75	3.20	14	4
Arena	12	N	2.36	5.75	3.20	14	4
Arena	13	N	1.27	4.27	2.91	4	7
Arena	14	N	0.65	1.85	1.86	3	0
Arena	15	N	2.31	5.02	3.01	15	17
Arena	1	Y	0.83	1.85	2.28	4	0
Arena	2	Y	2.17	4.20	3.26	22	0
Arena	3	Y	2.52	4.16	3.35	20	4
Arena	4	Y	1.93	3.70	3.80	23	7
Arena	5	Y	1.59	3.36	3.70	20	7
Arena	6	Y	4.47	7.20	5.65	26	12
Arena	7	Y	0.51	1.31	0.91	19	0
Arena	8	Y	2.12	3.83	3.70	15	7
Arena	9	Y	2.94	5.75	3.85	15	4
Arena	10	Y	2.89	5.02	3.62	17	17
Arena	11	Y	2.94	5.75	3.85	15	4
Arena	12	Y	2.94	5.75	3.85	15	4
Arena	13	Y	1.59	4.27	3.52	5	7
Arena	14	Y	0.83	1.85	2.28	4	0
Arena	15	Y	2.89	5.02	3.62	17	17
Automobile Care Center	1	N	0.65	1.85	1.86	3	0
Automobile Care Center	2	N	1.73	4.20	2.68	19	0
Automobile Care Center	3	N	2.05	4.16	2.78	17	4
Automobile Care Center	4	N	1.55	3.70	3.17	20	7
Automobile Care Center	5	N	1.27	3.36	3.07	18	7
Automobile Care Center	6	N	3.58	7.20	4.72	24	12
Automobile Care Center	7	N	0.42	1.31	0.67	17	0
Automobile Care Center	8	N	1.71	3.83	3.08	14	7
Automobile Care Center	9	N	2.36	5.75	3.20	14	4
Automobile Care Center	10	N	2.31	5.02	3.01	15	17
Automobile Care Center	11	N	2.36	5.75	3.20	14	4
Automobile Care Center	12	N	2.36	5.75	3.20	14	4
Automobile Care Center	13	N	1.27	4.27	2.91	4	7
Automobile Care Center	14	N	0.65	1.85	1.86	3	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Automobile Care Center	15	N	2.31	5.02	3.01	15	17
Automobile Care Center	1	Y	0.83	1.85	2.28	4	0
Automobile Care Center	2	Y	2.17	4.20	3.26	22	0
Automobile Care Center	3	Y	2.52	4.16	3.35	20	4
Automobile Care Center	4	Y	1.93	3.70	3.80	23	7
Automobile Care Center	5	Y	1.59	3.36	3.70	20	7
Automobile Care Center	6	Y	4.47	7.20	5.65	26	12
Automobile Care Center	7	Y	0.51	1.31	0.91	19	0
Automobile Care Center	8	Y	2.12	3.83	3.70	15	7
Automobile Care Center	9	Y	2.94	5.75	3.85	15	4
Automobile Care Center	10	Y	2.89	5.02	3.62	17	17
Automobile Care Center	11	Y	2.94	5.75	3.85	15	4
Automobile Care Center	12	Y	2.94	5.75	3.85	15	4
Automobile Care Center	13	Y	1.59	4.27	3.52	5	7
Automobile Care Center	14	Y	0.83	1.85	2.28	4	0
Automobile Care Center	15	Y	2.89	5.02	3.62	17	17
Bank (with Drive-Through)	1	N	0.65	1.85	1.86	3	0
Bank (with Drive-Through)	2	N	1.73	4.20	2.68	19	0
Bank (with Drive-Through)	3	N	2.05	4.16	2.78	17	4
Bank (with Drive-Through)	4	N	1.55	3.70	3.17	20	7
Bank (with Drive-Through)	5	N	1.27	3.36	3.07	18	7
Bank (with Drive-Through)	6	N	3.58	7.20	4.72	24	12
Bank (with Drive-Through)	7	N	0.42	1.31	0.67	17	0
Bank (with Drive-Through)	8	N	1.71	3.83	3.08	14	7
Bank (with Drive-Through)	9	N	2.36	5.75	3.20	14	4
Bank (with Drive-Through)	10	N	2.31	5.02	3.01	15	17
Bank (with Drive-Through)	11	N	2.36	5.75	3.20	14	4
Bank (with Drive-Through)	12	N	2.36	5.75	3.20	14	4
Bank (with Drive-Through)	13	N	1.27	4.27	2.91	4	7
Bank (with Drive-Through)	14	N	0.65	1.85	1.86	3	0
Bank (with Drive-Through)	15	N	2.31	5.02	3.01	15	17
Bank (with Drive-Through)	1	Y	0.83	1.85	2.28	4	0
Bank (with Drive-Through)	2	Y	2.17	4.20	3.26	22	0
Bank (with Drive-Through)	3	Y	2.52	4.16	3.35	20	4
Bank (with Drive-Through)	4	Y	1.93	3.70	3.80	23	7
Bank (with Drive-Through)	5	Y	1.59	3.36	3.70	20	7
Bank (with Drive-Through)	6	Y	4.47	7.20	5.65	26	12
Bank (with Drive-Through)	7	Y	0.51	1.31	0.91	19	0
Bank (with Drive-Through)	8	Y	2.12	3.83	3.70	15	7
Bank (with Drive-Through)	9	Y	2.94	5.75	3.85	15	4
Bank (with Drive-Through)	10	Y	2.89	5.02	3.62	17	17
Bank (with Drive-Through)	11	Y	2.94	5.75	3.85	15	4
Bank (with Drive-Through)	12	Y	2.94	5.75	3.85	15	4
Bank (with Drive-Through)	13	Y	1.59	4.27	3.52	5	7
Bank (with Drive-Through)	14	Y	0.83	1.85	2.28	4	0
Bank (with Drive-Through)	15	Y	2.89	5.02	3.62	17	17
City Park	1	N	0.00	0.00	0.00	0	0
City Park	2	N	0.00	0.00	0.00	0	0
City Park	3	N	0.00	0.00	0.00	0	0
City Park	4	N	0.00	0.00	0.00	0	0
City Park	5	N	0.00	0.00	0.00	0	0
City Park	6	N	0.00	0.00	0.00	0	0
City Park	7	N	0.00	0.00	0.00	0	0
City Park	8	N	0.00	0.00	0.00	0	0
City Park	9	N	0.00	0.00	0.00	0	0
City Park	10	N	0.00	0.00	0.00	0	0
City Park	11	N	0.00	0.00	0.00	0	0
City Park	12	N	0.00	0.00	0.00	0	0
City Park	13	N	0.00	0.00	0.00	0	0
City Park	14	N	0.00	0.00	0.00	0	0
City Park	15	N	0.00	0.00	0.00	0	0
City Park	1	Y	0.00	0.00	0.00	0	0
City Park	2	Y	0.00	0.00	0.00	0	0
City Park	3	Y	0.00	0.00	0.00	0	0
City Park	4	Y	0.00	0.00	0.00	0	0
City Park	5	Y	0.00	0.00	0.00	0	0
City Park	6	Y	0.00	0.00	0.00	0	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
City Park	7	Y	0.00	0.00	0.00	0	0
City Park	8	Y	0.00	0.00	0.00	0	0
City Park	9	Y	0.00	0.00	0.00	0	0
City Park	10	Y	0.00	0.00	0.00	0	0
City Park	11	Y	0.00	0.00	0.00	0	0
City Park	12	Y	0.00	0.00	0.00	0	0
City Park	13	Y	0.00	0.00	0.00	0	0
City Park	14	Y	0.00	0.00	0.00	0	0
City Park	15	Y	0.00	0.00	0.00	0	0
Condo/Townhouse	1	N	1100.69	4109.59	1001.10	4682	1599
Condo/Townhouse	2	N	432.17	4109.59	1001.10	22613	2687
Condo/Townhouse	3	N	806.33	4109.59	1001.10	18029	3723
Condo/Townhouse	4	N	282.35	4109.59	1001.10	19706	3155
Condo/Townhouse	5	N	231.62	4109.59	1001.10	25448	2615
Condo/Townhouse	6	N	432.17	4109.59	1001.10	22613	2687
Condo/Townhouse	7	N	714.91	4109.59	1001.10	9334	4769
Condo/Townhouse	8	N	195.26	4109.59	1001.10	15354	5516
Condo/Townhouse	9	N	276.14	4109.59	1001.10	13661	6384
Condo/Townhouse	10	N	958.04	4109.59	1001.10	21055	6030
Condo/Townhouse	11	N	211.36	4109.59	1001.10	16993	4831
Condo/Townhouse	12	N	259.62	4109.59	1001.10	12376	6281
Condo/Townhouse	13	N	257.33	4109.59	1001.10	12915	4180
Condo/Townhouse	14	N	1100.69	4109.59	1001.10	4682	1599
Condo/Townhouse	15	N	958.04	4109.59	1001.10	21055	6030
Condo/Townhouse	1	Y	618.37	3125.85	1001.10	4221	2951
Condo/Townhouse	2	Y	375.03	3125.85	1001.10	20388	2951
Condo/Townhouse	3	Y	671.81	3125.85	1001.10	16255	2951
Condo/Townhouse	4	Y	229.45	3125.85	1001.10	17767	2951
Condo/Townhouse	5	Y	169.05	3125.85	1001.10	22944	2951
Condo/Townhouse	6	Y	375.03	3125.85	1001.10	20388	2951
Condo/Townhouse	7	Y	551.09	3125.85	1001.10	8416	2951
Condo/Townhouse	8	Y	245.59	3126.32	1001.10	13843	2951
Condo/Townhouse	9	Y	336.00	3126.97	1001.10	12317	2951
Condo/Townhouse	10	Y	933.44	3125.85	1001.10	18983	2951
Condo/Townhouse	11	Y	286.69	3125.85	1001.10	15240	3047
Condo/Townhouse	12	Y	336.32	3125.85	1001.10	11139	2974
Condo/Townhouse	13	Y	257.40	3126.41	1001.10	11602	3002
Condo/Townhouse	14	Y	618.37	3125.85	1001.10	4221	2951
Condo/Townhouse	15	Y	933.44	3125.85	1001.10	18983	2951
Condo/Townhouse High Rise	1	N	979.51	3277.06	1001.10	3305	1599
Condo/Townhouse High Rise	2	N	543.54	3277.06	1001.10	10189	2687
Condo/Townhouse High Rise	3	N	826.30	3277.06	1001.10	12200	3723
Condo/Townhouse High Rise	4	N	392.47	3277.06	1001.10	7914	3155
Condo/Townhouse High Rise	5	N	502.89	3277.06	1001.10	8825	2615
Condo/Townhouse High Rise	6	N	543.54	3277.06	1001.10	10189	2687
Condo/Townhouse High Rise	7	N	964.00	3277.06	1001.10	15657	4769
Condo/Townhouse High Rise	8	N	211.98	3277.06	1001.10	8530	5516
Condo/Townhouse High Rise	9	N	297.91	3277.06	1001.10	10119	6384
Condo/Townhouse High Rise	10	N	910.58	3277.06	1001.10	12647	6030
Condo/Townhouse High Rise	11	N	194.04	3277.06	1001.10	6329	4831
Condo/Townhouse High Rise	12	N	304.35	3277.06	1001.10	6778	6281
Condo/Townhouse High Rise	13	N	246.93	3277.06	1001.10	4688	4180
Condo/Townhouse High Rise	14	N	979.51	3277.06	1001.10	3305	1599
Condo/Townhouse High Rise	15	N	910.58	3277.06	1001.10	12647	6030
Condo/Townhouse High Rise	1	Y	618.37	3125.85	1001.10	4221	2951
Condo/Townhouse High Rise	2	Y	375.03	3125.85	1001.10	20388	2951
Condo/Townhouse High Rise	3	Y	671.81	3125.85	1001.10	16255	2951
Condo/Townhouse High Rise	4	Y	229.45	3125.85	1001.10	17767	2951
Condo/Townhouse High Rise	5	Y	169.05	3125.85	1001.10	22944	2951
Condo/Townhouse High Rise	6	Y	375.03	3125.85	1001.10	20388	2951
Condo/Townhouse High Rise	7	Y	551.09	3125.85	1001.10	8416	2951
Condo/Townhouse High Rise	8	Y	245.59	3126.32	1001.10	13843	2951
Condo/Townhouse High Rise	9	Y	336.00	3126.97	1001.10	12317	2951
Condo/Townhouse High Rise	10	Y	933.44	3125.85	1001.10	18983	2951
Condo/Townhouse High Rise	11	Y	286.69	3125.85	1001.10	15240	3047
Condo/Townhouse High Rise	12	Y	336.32	3125.85	1001.10	11139	2974
Condo/Townhouse High Rise	13	Y	257.40	3126.41	1001.10	11602	3002

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Condo/Townhouse High Rise	14	Y	618.37	3125.85	1001.10	4221	2951
Condo/Townhouse High Rise	15	Y	933.44	3125.85	1001.10	18983	2951
Congregate Care (Assisted Living)	1	N	979.51	3277.06	741.44	3305	1599
Congregate Care (Assisted Living)	2	N	543.54	3277.06	741.44	10189	2687
Congregate Care (Assisted Living)	3	N	826.30	3277.06	741.44	12200	3723
Congregate Care (Assisted Living)	4	N	392.47	3277.06	741.44	7914	3155
Congregate Care (Assisted Living)	5	N	502.89	3277.06	741.44	8825	2615
Congregate Care (Assisted Living)	6	N	543.54	3277.06	741.44	10189	2687
Congregate Care (Assisted Living)	7	N	964.00	3277.06	741.44	15657	4769
Congregate Care (Assisted Living)	8	N	211.98	3277.06	741.44	8530	5516
Congregate Care (Assisted Living)	9	N	297.91	3277.06	741.44	10119	6384
Congregate Care (Assisted Living)	10	N	910.58	3277.06	741.44	12647	6030
Congregate Care (Assisted Living)	11	N	194.04	3277.06	741.44	6329	4831
Congregate Care (Assisted Living)	12	N	304.35	3277.06	741.44	6778	6281
Congregate Care (Assisted Living)	13	N	246.93	3277.06	741.44	4688	4180
Congregate Care (Assisted Living)	14	N	979.51	3277.06	741.44	3305	1599
Congregate Care (Assisted Living)	15	N	910.58	3277.06	741.44	12647	6030
Congregate Care (Assisted Living)	1	Y	277.31	2557.38	741.44	2896	1662
Congregate Care (Assisted Living)	2	Y	401.59	2554.47	741.44	8883	1716
Congregate Care (Assisted Living)	3	Y	532.58	2553.86	741.44	10691	1662
Congregate Care (Assisted Living)	4	Y	282.15	2558.55	741.44	6873	1736
Congregate Care (Assisted Living)	5	Y	388.61	2561.86	741.44	7733	1662
Congregate Care (Assisted Living)	6	Y	401.59	2554.47	741.44	8883	1716
Congregate Care (Assisted Living)	7	Y	656.57	2553.86	741.44	13684	1704
Congregate Care (Assisted Living)	8	Y	226.43	2555.58	741.44	7475	1662
Congregate Care (Assisted Living)	9	Y	307.17	2553.86	741.44	8819	1719
Congregate Care (Assisted Living)	10	Y	696.81	2553.86	741.44	10983	1779
Congregate Care (Assisted Living)	11	Y	231.59	2553.86	741.44	5546	1662
Congregate Care (Assisted Living)	12	Y	332.65	2553.86	741.44	5940	1662
Congregate Care (Assisted Living)	13	Y	200.21	2553.86	741.44	4108	1662
Congregate Care (Assisted Living)	14	Y	277.31	2557.38	741.44	2896	1662
Congregate Care (Assisted Living)	15	Y	696.81	2553.86	741.44	10983	1779
Convenience Market (24 hour)	1	N	5.25	2.81	5.84	7	0
Convenience Market (24 hour)	2	N	4.08	1.98	6.08	11	0
Convenience Market (24 hour)	3	N	2.24	2.30	3.81	9	2
Convenience Market (24 hour)	4	N	2.89	2.68	5.38	2	0
Convenience Market (24 hour)	5	N	2.35	3.36	5.00	4	1
Convenience Market (24 hour)	6	N	3.41	2.98	5.47	5	1
Convenience Market (24 hour)	7	N	3.31	2.49	4.65	6	0
Convenience Market (24 hour)	8	N	3.07	2.80	5.85	1	1
Convenience Market (24 hour)	9	N	4.20	3.23	6.43	1	0
Convenience Market (24 hour)	10	N	4.80	2.44	5.77	2	0
Convenience Market (24 hour)	11	N	4.20	3.23	6.43	1	0
Convenience Market (24 hour)	12	N	4.20	3.23	6.43	1	0
Convenience Market (24 hour)	13	N	3.34	3.16	6.39	1	1
Convenience Market (24 hour)	14	N	5.25	2.81	5.84	7	0
Convenience Market (24 hour)	15	N	4.80	2.44	5.77	2	0
Convenience Market (24 hour)	1	Y	6.81	2.81	6.86	9	0
Convenience Market (24 hour)	2	Y	4.97	1.98	7.17	14	0
Convenience Market (24 hour)	3	Y	2.77	2.30	4.53	10	2
Convenience Market (24 hour)	4	Y	3.55	2.68	6.02	3	0
Convenience Market (24 hour)	5	Y	2.90	3.36	5.88	5	1
Convenience Market (24 hour)	6	Y	4.20	2.98	6.45	6	1
Convenience Market (24 hour)	7	Y	4.12	2.49	5.50	7	0
Convenience Market (24 hour)	8	Y	3.79	2.80	6.85	1	1
Convenience Market (24 hour)	9	Y	5.17	3.23	7.56	1	0
Convenience Market (24 hour)	10	Y	5.95	2.44	8.20	2	0
Convenience Market (24 hour)	11	Y	5.17	3.23	7.56	1	0
Convenience Market (24 hour)	12	Y	5.17	3.23	7.56	1	0
Convenience Market (24 hour)	13	Y	4.13	3.16	7.50	1	1
Convenience Market (24 hour)	14	Y	6.81	2.81	6.86	9	0
Convenience Market (24 hour)	15	Y	5.95	2.44	8.20	2	0
Convenience Market with Gas Pumps	1	N	5.25	2.81	5.84	7	0
Convenience Market with Gas Pumps	2	N	4.08	1.98	6.08	11	0
Convenience Market with Gas Pumps	3	N	2.24	2.30	3.81	9	2
Convenience Market with Gas Pumps	4	N	2.89	2.68	5.38	2	0
Convenience Market with Gas Pumps	5	N	2.35	3.36	5.00	4	1

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Convenience Market with Gas Pumps	6	N	3.41	2.98	5.47	5	1
Convenience Market with Gas Pumps	7	N	3.31	2.49	4.65	6	0
Convenience Market with Gas Pumps	8	N	3.07	2.80	5.85	1	1
Convenience Market with Gas Pumps	9	N	4.20	3.23	6.43	1	0
Convenience Market with Gas Pumps	10	N	4.80	2.44	5.77	2	0
Convenience Market with Gas Pumps	11	N	4.20	3.23	6.43	1	0
Convenience Market with Gas Pumps	12	N	4.20	3.23	6.43	1	0
Convenience Market with Gas Pumps	13	N	3.34	3.16	6.39	1	1
Convenience Market with Gas Pumps	14	N	5.25	2.81	5.84	7	0
Convenience Market with Gas Pumps	15	N	4.80	2.44	5.77	2	0
Convenience Market with Gas Pumps	1	Y	6.81	2.81	6.86	9	0
Convenience Market with Gas Pumps	2	Y	4.97	1.98	7.17	14	0
Convenience Market with Gas Pumps	3	Y	2.77	2.30	4.53	10	2
Convenience Market with Gas Pumps	4	Y	3.55	2.68	6.02	3	0
Convenience Market with Gas Pumps	5	Y	2.90	3.36	5.88	5	1
Convenience Market with Gas Pumps	6	Y	4.20	2.98	6.45	6	1
Convenience Market with Gas Pumps	7	Y	4.12	2.49	5.50	7	0
Convenience Market with Gas Pumps	8	Y	3.79	2.80	6.85	1	1
Convenience Market with Gas Pumps	9	Y	5.17	3.23	7.56	1	0
Convenience Market with Gas Pumps	10	Y	5.95	2.44	8.20	2	0
Convenience Market with Gas Pumps	11	Y	5.17	3.23	7.56	1	0
Convenience Market with Gas Pumps	12	Y	5.17	3.23	7.56	1	0
Convenience Market with Gas Pumps	13	Y	4.13	3.16	7.50	1	1
Convenience Market with Gas Pumps	14	Y	6.81	2.81	6.86	9	0
Convenience Market with Gas Pumps	15	Y	5.95	2.44	8.20	2	0
Day-Care Center	1	N	1.70	1.48	3.80	14	1
Day-Care Center	2	N	1.97	1.42	2.40	9	0
Day-Care Center	3	N	2.25	1.89	3.08	23	2
Day-Care Center	4	N	1.63	1.28	2.62	18	1
Day-Care Center	5	N	0.69	1.27	2.58	15	2
Day-Care Center	6	N	2.15	2.17	3.19	15	1
Day-Care Center	7	N	2.04	1.95	3.54	10	0
Day-Care Center	8	N	1.98	1.51	2.75	11	1
Day-Care Center	9	N	1.83	1.59	2.66	9	1
Day-Care Center	10	N	2.92	1.49	3.11	7	2
Day-Care Center	11	N	1.83	1.59	2.66	9	1
Day-Care Center	12	N	1.83	1.59	2.66	9	1
Day-Care Center	13	N	1.60	1.18	2.61	5	0
Day-Care Center	14	N	1.70	1.48	3.80	14	1
Day-Care Center	15	N	2.92	1.49	3.11	7	2
Day-Care Center	1	Y	2.18	1.48	4.55	16	1
Day-Care Center	2	Y	2.43	1.42	2.90	11	0
Day-Care Center	3	Y	2.81	1.89	3.69	27	2
Day-Care Center	4	Y	2.03	1.28	3.02	21	1
Day-Care Center	5	Y	0.86	1.27	3.11	18	2
Day-Care Center	6	Y	2.74	2.17	3.82	17	1
Day-Care Center	7	Y	2.54	1.95	4.27	12	0
Day-Care Center	8	Y	2.46	1.51	3.30	12	1
Day-Care Center	9	Y	2.29	1.59	3.20	11	1
Day-Care Center	10	Y	3.64	1.49	4.52	8	2
Day-Care Center	11	Y	2.29	1.59	3.20	11	1
Day-Care Center	12	Y	2.29	1.59	3.20	11	1
Day-Care Center	13	Y	2.03	1.18	3.14	6	0
Day-Care Center	14	Y	2.18	1.48	4.55	16	1
Day-Care Center	15	Y	3.64	1.49	4.52	8	2
Discount Club	1	N	5.25	2.81	5.84	7	0
Discount Club	2	N	4.08	1.98	6.08	11	0
Discount Club	3	N	2.24	2.30	3.81	9	2
Discount Club	4	N	2.89	2.68	5.38	2	0
Discount Club	5	N	2.35	3.36	5.00	4	1
Discount Club	6	N	3.41	2.98	5.47	5	1
Discount Club	7	N	3.31	2.49	4.65	6	0
Discount Club	8	N	3.07	2.80	5.85	1	1
Discount Club	9	N	4.20	3.23	6.43	1	0
Discount Club	10	N	4.80	2.44	5.77	2	0
Discount Club	11	N	4.20	3.23	6.43	1	0
Discount Club	12	N	4.20	3.23	6.43	1	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Discount Club	13	N	3.34	3.16	6.39	1	1
Discount Club	14	N	5.25	2.81	5.84	7	0
Discount Club	15	N	4.80	2.44	5.77	2	0
Discount Club	1	Y	6.81	2.81	6.86	9	0
Discount Club	2	Y	4.97	1.98	7.17	14	0
Discount Club	3	Y	2.77	2.30	4.53	10	2
Discount Club	4	Y	3.55	2.68	6.02	3	0
Discount Club	5	Y	2.90	3.36	5.88	5	1
Discount Club	6	Y	4.20	2.98	6.45	6	1
Discount Club	7	Y	4.12	2.49	5.50	7	0
Discount Club	8	Y	3.79	2.80	6.85	1	1
Discount Club	9	Y	5.17	3.23	7.56	1	0
Discount Club	10	Y	5.95	2.44	8.20	2	0
Discount Club	11	Y	5.17	3.23	7.56	1	0
Discount Club	12	Y	5.17	3.23	7.56	1	0
Discount Club	13	Y	4.13	3.16	7.50	1	1
Discount Club	14	Y	6.81	2.81	6.86	9	0
Discount Club	15	Y	5.95	2.44	8.20	2	0
Electronic Superstore	1	N	5.25	2.81	5.84	7	0
Electronic Superstore	2	N	4.08	1.98	6.08	11	0
Electronic Superstore	3	N	2.24	2.30	3.81	9	2
Electronic Superstore	4	N	2.89	2.68	5.38	2	0
Electronic Superstore	5	N	2.35	3.36	5.00	4	1
Electronic Superstore	6	N	3.41	2.98	5.47	5	1
Electronic Superstore	7	N	3.31	2.49	4.65	6	0
Electronic Superstore	8	N	3.07	2.80	5.85	1	1
Electronic Superstore	9	N	4.20	3.23	6.43	1	0
Electronic Superstore	10	N	4.80	2.44	5.77	2	0
Electronic Superstore	11	N	4.20	3.23	6.43	1	0
Electronic Superstore	12	N	4.20	3.23	6.43	1	0
Electronic Superstore	13	N	3.34	3.16	6.39	1	1
Electronic Superstore	14	N	5.25	2.81	5.84	7	0
Electronic Superstore	15	N	4.80	2.44	5.77	2	0
Electronic Superstore	1	Y	6.81	2.81	6.86	9	0
Electronic Superstore	2	Y	4.97	1.98	7.17	14	0
Electronic Superstore	3	Y	2.77	2.30	4.53	10	2
Electronic Superstore	4	Y	3.55	2.68	6.02	3	0
Electronic Superstore	5	Y	2.90	3.36	5.88	5	1
Electronic Superstore	6	Y	4.20	2.98	6.45	6	1
Electronic Superstore	7	Y	4.12	2.49	5.50	7	0
Electronic Superstore	8	Y	3.79	2.80	6.85	1	1
Electronic Superstore	9	Y	5.17	3.23	7.56	1	0
Electronic Superstore	10	Y	5.95	2.44	8.20	2	0
Electronic Superstore	11	Y	5.17	3.23	7.56	1	0
Electronic Superstore	12	Y	5.17	3.23	7.56	1	0
Electronic Superstore	13	Y	4.13	3.16	7.50	1	1
Electronic Superstore	14	Y	6.81	2.81	6.86	9	0
Electronic Superstore	15	Y	5.95	2.44	8.20	2	0
Elementary School	1	N	1.70	1.48	3.80	14	1
Elementary School	2	N	1.97	1.42	2.40	9	0
Elementary School	3	N	2.25	1.89	3.08	23	2
Elementary School	4	N	1.63	1.28	2.62	18	1
Elementary School	5	N	0.69	1.27	2.58	15	2
Elementary School	6	N	2.15	2.17	3.19	15	1
Elementary School	7	N	2.04	1.95	3.54	10	0
Elementary School	8	N	1.98	1.51	2.75	11	1
Elementary School	9	N	1.83	1.59	2.66	9	1
Elementary School	10	N	2.92	1.49	3.11	7	2
Elementary School	11	N	1.83	1.59	2.66	9	1
Elementary School	12	N	1.83	1.59	2.66	9	1
Elementary School	13	N	1.60	1.18	2.61	5	0
Elementary School	14	N	1.70	1.48	3.80	14	1
Elementary School	15	N	2.92	1.49	3.11	7	2
Elementary School	1	Y	2.18	1.48	4.55	16	1
Elementary School	2	Y	2.43	1.42	2.90	11	0
Elementary School	3	Y	2.81	1.89	3.69	27	2
Elementary School	4	Y	2.03	1.28	3.02	21	1

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Elementary School	5	Y	0.86	1.27	3.11	18	2
Elementary School	6	Y	2.74	2.17	3.82	17	1
Elementary School	7	Y	2.54	1.95	4.27	12	0
Elementary School	8	Y	2.46	1.51	3.30	12	1
Elementary School	9	Y	2.29	1.59	3.20	11	1
Elementary School	10	Y	3.64	1.49	4.52	8	2
Elementary School	11	Y	2.29	1.59	3.20	11	1
Elementary School	12	Y	2.29	1.59	3.20	11	1
Elementary School	13	Y	2.03	1.18	3.14	6	0
Elementary School	14	Y	2.18	1.48	4.55	16	1
Elementary School	15	Y	3.64	1.49	4.52	8	2
Enclosed Parking Structure	1	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	2	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	3	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	4	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	5	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	6	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	7	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	8	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	9	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	10	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	11	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	12	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	13	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	14	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	15	N	3.92	0.00	2.63	0	0
Enclosed Parking Structure	1	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	2	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	3	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	4	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	5	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	6	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	7	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	8	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	9	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	10	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	11	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	12	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	13	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	14	Y	3.92	0.00	2.63	0	0
Enclosed Parking Structure	15	Y	3.92	0.00	2.63	0	0
Enclosed Parking with Elevator	1	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	2	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	3	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	4	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	5	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	6	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	7	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	8	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	9	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	10	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	11	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	12	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	13	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	14	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	15	N	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	1	Y	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	2	Y	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	3	Y	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	4	Y	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	5	Y	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	6	Y	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	7	Y	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	8	Y	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	9	Y	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	10	Y	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	11	Y	3.92	0.19	2.63	0	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Enclosed Parking with Elevator	12	Y	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	13	Y	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	14	Y	3.92	0.19	2.63	0	0
Enclosed Parking with Elevator	15	Y	3.92	0.19	2.63	0	0
Fast Food Restaurant w/o Drive Thru	1	N	4.20	15.83	4.87	28	89
Fast Food Restaurant w/o Drive Thru	2	N	6.35	17.72	7.80	41	69
Fast Food Restaurant w/o Drive Thru	3	N	6.86	16.25	6.34	36	175
Fast Food Restaurant w/o Drive Thru	4	N	5.31	22.30	5.51	61	147
Fast Food Restaurant w/o Drive Thru	5	N	2.80	20.97	5.48	40	128
Fast Food Restaurant w/o Drive Thru	6	N	9.22	26.72	6.35	60	118
Fast Food Restaurant w/o Drive Thru	7	N	8.18	20.65	5.18	18	81
Fast Food Restaurant w/o Drive Thru	8	N	9.13	20.11	7.87	79	181
Fast Food Restaurant w/o Drive Thru	9	N	8.50	28.16	8.13	43	188
Fast Food Restaurant w/o Drive Thru	10	N	12.98	28.48	6.83	78	196
Fast Food Restaurant w/o Drive Thru	11	N	8.50	28.16	8.13	43	188
Fast Food Restaurant w/o Drive Thru	12	N	8.50	28.16	8.13	43	188
Fast Food Restaurant w/o Drive Thru	13	N	8.63	23.69	6.97	36	138
Fast Food Restaurant w/o Drive Thru	14	N	4.20	15.83	4.87	28	89
Fast Food Restaurant w/o Drive Thru	15	N	12.98	28.48	6.83	78	196
Fast Food Restaurant w/o Drive Thru	1	Y	5.30	15.83	5.76	30	89
Fast Food Restaurant w/o Drive Thru	2	Y	7.80	17.72	9.18	45	69
Fast Food Restaurant w/o Drive Thru	3	Y	8.49	16.25	7.47	39	175
Fast Food Restaurant w/o Drive Thru	4	Y	6.58	22.30	6.25	65	147
Fast Food Restaurant w/o Drive Thru	5	Y	3.42	20.97	6.45	43	128
Fast Food Restaurant w/o Drive Thru	6	Y	11.47	26.72	7.44	65	118
Fast Food Restaurant w/o Drive Thru	7	Y	10.14	20.65	6.13	21	81
Fast Food Restaurant w/o Drive Thru	8	Y	11.27	20.11	9.20	84	181
Fast Food Restaurant w/o Drive Thru	9	Y	10.52	28.16	9.64	47	188
Fast Food Restaurant w/o Drive Thru	10	Y	16.13	28.48	9.51	84	196
Fast Food Restaurant w/o Drive Thru	11	Y	10.52	28.16	9.64	47	188
Fast Food Restaurant w/o Drive Thru	12	Y	10.52	28.16	9.64	47	188
Fast Food Restaurant w/o Drive Thru	13	Y	10.67	23.69	8.19	38	138
Fast Food Restaurant w/o Drive Thru	14	Y	5.30	15.83	5.76	30	89
Fast Food Restaurant w/o Drive Thru	15	Y	16.13	28.48	9.51	84	196
Fast Food Restaurant with Drive Thru	1	N	4.20	15.83	4.87	28	89
Fast Food Restaurant with Drive Thru	2	N	6.35	17.72	7.80	41	69
Fast Food Restaurant with Drive Thru	3	N	6.86	16.25	6.34	36	175
Fast Food Restaurant with Drive Thru	4	N	5.31	22.30	5.51	61	147
Fast Food Restaurant with Drive Thru	5	N	2.80	20.97	5.48	40	128
Fast Food Restaurant with Drive Thru	6	N	9.22	26.72	6.35	60	118
Fast Food Restaurant with Drive Thru	7	N	8.18	20.65	5.18	18	81
Fast Food Restaurant with Drive Thru	8	N	9.13	20.11	7.87	79	181
Fast Food Restaurant with Drive Thru	9	N	8.50	28.16	8.13	43	188
Fast Food Restaurant with Drive Thru	10	N	12.98	28.48	6.83	78	196
Fast Food Restaurant with Drive Thru	11	N	8.50	28.16	8.13	43	188
Fast Food Restaurant with Drive Thru	12	N	8.50	28.16	8.13	43	188
Fast Food Restaurant with Drive Thru	13	N	8.63	23.69	6.97	36	138
Fast Food Restaurant with Drive Thru	14	N	4.20	15.83	4.87	28	89
Fast Food Restaurant with Drive Thru	15	N	12.98	28.48	6.83	78	196
Fast Food Restaurant with Drive Thru	1	Y	5.30	15.83	5.76	30	89
Fast Food Restaurant with Drive Thru	2	Y	7.80	17.72	9.18	45	69
Fast Food Restaurant with Drive Thru	3	Y	8.49	16.25	7.47	39	175
Fast Food Restaurant with Drive Thru	4	Y	6.58	22.30	6.25	65	147
Fast Food Restaurant with Drive Thru	5	Y	3.42	20.97	6.45	43	128
Fast Food Restaurant with Drive Thru	6	Y	11.47	26.72	7.44	65	118
Fast Food Restaurant with Drive Thru	7	Y	10.14	20.65	6.13	21	81
Fast Food Restaurant with Drive Thru	8	Y	11.27	20.11	9.20	84	181
Fast Food Restaurant with Drive Thru	9	Y	10.52	28.16	9.64	47	188
Fast Food Restaurant with Drive Thru	10	Y	16.13	28.48	9.51	84	196
Fast Food Restaurant with Drive Thru	11	Y	10.52	28.16	9.64	47	188
Fast Food Restaurant with Drive Thru	12	Y	10.52	28.16	9.64	47	188
Fast Food Restaurant with Drive Thru	13	Y	10.67	23.69	8.19	38	138
Fast Food Restaurant with Drive Thru	14	Y	5.30	15.83	5.76	30	89
Fast Food Restaurant with Drive Thru	15	Y	16.13	28.48	9.51	84	196
Free-Standing Discount Store	1	N	5.25	2.81	5.84	7	0
Free-Standing Discount Store	2	N	4.08	1.98	6.08	11	0
Free-Standing Discount Store	3	N	2.24	2.30	3.81	9	2

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Free-Standing Discount Store	4	N	2.89	2.68	5.38	2	0
Free-Standing Discount Store	5	N	2.35	3.36	5.00	4	1
Free-Standing Discount Store	6	N	3.41	2.98	5.47	5	1
Free-Standing Discount Store	7	N	3.31	2.49	4.65	6	0
Free-Standing Discount Store	8	N	3.07	2.80	5.85	1	1
Free-Standing Discount Store	9	N	4.20	3.23	6.43	1	0
Free-Standing Discount Store	10	N	4.80	2.44	5.77	2	0
Free-Standing Discount Store	11	N	4.20	3.23	6.43	1	0
Free-Standing Discount Store	12	N	4.20	3.23	6.43	1	0
Free-Standing Discount Store	13	N	3.34	3.16	6.39	1	1
Free-Standing Discount Store	14	N	5.25	2.81	5.84	7	0
Free-Standing Discount Store	15	N	4.80	2.44	5.77	2	0
Free-Standing Discount Store	1	Y	6.81	2.81	6.86	9	0
Free-Standing Discount Store	2	Y	4.97	1.98	7.17	14	0
Free-Standing Discount Store	3	Y	2.77	2.30	4.53	10	2
Free-Standing Discount Store	4	Y	3.55	2.68	6.02	3	0
Free-Standing Discount Store	5	Y	2.90	3.36	5.88	5	1
Free-Standing Discount Store	6	Y	4.20	2.98	6.45	6	1
Free-Standing Discount Store	7	Y	4.12	2.49	5.50	7	0
Free-Standing Discount Store	8	Y	3.79	2.80	6.85	1	1
Free-Standing Discount Store	9	Y	5.17	3.23	7.56	1	0
Free-Standing Discount Store	10	Y	5.95	2.44	8.20	2	0
Free-Standing Discount Store	11	Y	5.17	3.23	7.56	1	0
Free-Standing Discount Store	12	Y	5.17	3.23	7.56	1	0
Free-Standing Discount Store	13	Y	4.13	3.16	7.50	1	1
Free-Standing Discount Store	14	Y	6.81	2.81	6.86	9	0
Free-Standing Discount Store	15	Y	5.95	2.44	8.20	2	0
Free-Standing Discount Superstore	1	N	5.25	2.81	5.84	7	0
Free-Standing Discount Superstore	2	N	4.08	1.98	6.08	11	0
Free-Standing Discount Superstore	3	N	2.24	2.30	3.81	9	2
Free-Standing Discount Superstore	4	N	2.89	2.68	5.38	2	0
Free-Standing Discount Superstore	5	N	2.35	3.36	5.00	4	1
Free-Standing Discount Superstore	6	N	3.41	2.98	5.47	5	1
Free-Standing Discount Superstore	7	N	3.31	2.49	4.65	6	0
Free-Standing Discount Superstore	8	N	3.07	2.80	5.85	1	1
Free-Standing Discount Superstore	9	N	4.20	3.23	6.43	1	0
Free-Standing Discount Superstore	10	N	4.80	2.44	5.77	2	0
Free-Standing Discount Superstore	11	N	4.20	3.23	6.43	1	0
Free-Standing Discount Superstore	12	N	4.20	3.23	6.43	1	0
Free-Standing Discount Superstore	13	N	3.34	3.16	6.39	1	1
Free-Standing Discount Superstore	14	N	5.25	2.81	5.84	7	0
Free-Standing Discount Superstore	15	N	4.80	2.44	5.77	2	0
Free-Standing Discount Superstore	1	Y	6.81	2.81	6.86	9	0
Free-Standing Discount Superstore	2	Y	4.97	1.98	7.17	14	0
Free-Standing Discount Superstore	3	Y	2.77	2.30	4.53	10	2
Free-Standing Discount Superstore	4	Y	3.55	2.68	6.02	3	0
Free-Standing Discount Superstore	5	Y	2.90	3.36	5.88	5	1
Free-Standing Discount Superstore	6	Y	4.20	2.98	6.45	6	1
Free-Standing Discount Superstore	7	Y	4.12	2.49	5.50	7	0
Free-Standing Discount Superstore	8	Y	3.79	2.80	6.85	1	1
Free-Standing Discount Superstore	9	Y	5.17	3.23	7.56	1	0
Free-Standing Discount Superstore	10	Y	5.95	2.44	8.20	2	0
Free-Standing Discount Superstore	11	Y	5.17	3.23	7.56	1	0
Free-Standing Discount Superstore	12	Y	5.17	3.23	7.56	1	0
Free-Standing Discount Superstore	13	Y	4.13	3.16	7.50	1	1
Free-Standing Discount Superstore	14	Y	6.81	2.81	6.86	9	0
Free-Standing Discount Superstore	15	Y	5.95	2.44	8.20	2	0
Gasoline/Service Station	1	N	0.65	1.85	1.86	3	0
Gasoline/Service Station	2	N	1.73	4.20	2.68	19	0
Gasoline/Service Station	3	N	2.05	4.16	2.78	17	4
Gasoline/Service Station	4	N	1.55	3.70	3.17	20	7
Gasoline/Service Station	5	N	1.27	3.36	3.07	18	7
Gasoline/Service Station	6	N	3.58	7.20	4.72	24	12
Gasoline/Service Station	7	N	0.42	1.31	0.67	17	0
Gasoline/Service Station	8	N	1.71	3.83	3.08	14	7
Gasoline/Service Station	9	N	2.36	5.75	3.20	14	4
Gasoline/Service Station	10	N	2.31	5.02	3.01	15	17

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Gasoline/Service Station	11	N	2.36	5.75	3.20	14	4
Gasoline/Service Station	12	N	2.36	5.75	3.20	14	4
Gasoline/Service Station	13	N	1.27	4.27	2.91	4	7
Gasoline/Service Station	14	N	0.65	1.85	1.86	3	0
Gasoline/Service Station	15	N	2.31	5.02	3.01	15	17
Gasoline/Service Station	1	Y	0.83	1.85	2.28	4	0
Gasoline/Service Station	2	Y	2.17	4.20	3.26	22	0
Gasoline/Service Station	3	Y	2.52	4.16	3.35	20	4
Gasoline/Service Station	4	Y	1.93	3.70	3.80	23	7
Gasoline/Service Station	5	Y	1.59	3.36	3.70	20	7
Gasoline/Service Station	6	Y	4.47	7.20	5.65	26	12
Gasoline/Service Station	7	Y	0.51	1.31	0.91	19	0
Gasoline/Service Station	8	Y	2.12	3.83	3.70	15	7
Gasoline/Service Station	9	Y	2.94	5.75	3.85	15	4
Gasoline/Service Station	10	Y	2.89	5.02	3.62	17	17
Gasoline/Service Station	11	Y	2.94	5.75	3.85	15	4
Gasoline/Service Station	12	Y	2.94	5.75	3.85	15	4
Gasoline/Service Station	13	Y	1.59	4.27	3.52	5	7
Gasoline/Service Station	14	Y	0.83	1.85	2.28	4	0
Gasoline/Service Station	15	Y	2.89	5.02	3.62	17	17
General Heavy Industry	1	N	0.65	1.85	1.86	3	0
General Heavy Industry	2	N	1.73	4.20	2.68	19	0
General Heavy Industry	3	N	2.05	4.16	2.78	17	4
General Heavy Industry	4	N	1.55	3.70	3.17	20	7
General Heavy Industry	5	N	1.27	3.36	3.07	18	7
General Heavy Industry	6	N	3.58	7.20	4.72	24	12
General Heavy Industry	7	N	0.42	1.31	0.67	17	0
General Heavy Industry	8	N	1.71	3.83	3.08	14	7
General Heavy Industry	9	N	2.36	5.75	3.20	14	4
General Heavy Industry	10	N	2.31	5.02	3.01	15	17
General Heavy Industry	11	N	2.36	5.75	3.20	14	4
General Heavy Industry	12	N	2.36	5.75	3.20	14	4
General Heavy Industry	13	N	1.27	4.27	2.91	4	7
General Heavy Industry	14	N	0.65	1.85	1.86	3	0
General Heavy Industry	15	N	2.31	5.02	3.01	15	17
General Heavy Industry	1	Y	0.83	1.85	2.28	4	0
General Heavy Industry	2	Y	2.17	4.20	3.26	22	0
General Heavy Industry	3	Y	2.52	4.16	3.35	20	4
General Heavy Industry	4	Y	1.93	3.70	3.80	23	7
General Heavy Industry	5	Y	1.59	3.36	3.70	20	7
General Heavy Industry	6	Y	4.47	7.20	5.65	26	12
General Heavy Industry	7	Y	0.51	1.31	0.91	19	0
General Heavy Industry	8	Y	2.12	3.83	3.70	15	7
General Heavy Industry	9	Y	2.94	5.75	3.85	15	4
General Heavy Industry	10	Y	2.89	5.02	3.62	17	17
General Heavy Industry	11	Y	2.94	5.75	3.85	15	4
General Heavy Industry	12	Y	2.94	5.75	3.85	15	4
General Heavy Industry	13	Y	1.59	4.27	3.52	5	7
General Heavy Industry	14	Y	0.83	1.85	2.28	4	0
General Heavy Industry	15	Y	2.89	5.02	3.62	17	17
General Light Industry	1	N	0.65	1.85	1.86	3	0
General Light Industry	2	N	1.73	4.20	2.68	19	0
General Light Industry	3	N	2.05	4.16	2.78	17	4
General Light Industry	4	N	1.55	3.70	3.17	20	7
General Light Industry	5	N	1.27	3.36	3.07	18	7
General Light Industry	6	N	3.58	7.20	4.72	24	12
General Light Industry	7	N	0.42	1.31	0.67	17	0
General Light Industry	8	N	1.71	3.83	3.08	14	7
General Light Industry	9	N	2.36	5.75	3.20	14	4
General Light Industry	10	N	2.31	5.02	3.01	15	17
General Light Industry	11	N	2.36	5.75	3.20	14	4
General Light Industry	12	N	2.36	5.75	3.20	14	4
General Light Industry	13	N	1.27	4.27	2.91	4	7
General Light Industry	14	N	0.65	1.85	1.86	3	0
General Light Industry	15	N	2.31	5.02	3.01	15	17
General Light Industry	1	Y	0.83	1.85	2.28	4	0
General Light Industry	2	Y	2.17	4.20	3.26	22	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
General Light Industry	3	Y	2.52	4.16	3.35	20	4
General Light Industry	4	Y	1.93	3.70	3.80	23	7
General Light Industry	5	Y	1.59	3.36	3.70	20	7
General Light Industry	6	Y	4.47	7.20	5.65	26	12
General Light Industry	7	Y	0.51	1.31	0.91	19	0
General Light Industry	8	Y	2.12	3.83	3.70	15	7
General Light Industry	9	Y	2.94	5.75	3.85	15	4
General Light Industry	10	Y	2.89	5.02	3.62	17	17
General Light Industry	11	Y	2.94	5.75	3.85	15	4
General Light Industry	12	Y	2.94	5.75	3.85	15	4
General Light Industry	13	Y	1.59	4.27	3.52	5	7
General Light Industry	14	Y	0.83	1.85	2.28	4	0
General Light Industry	15	Y	2.89	5.02	3.62	17	17
General Office Building	1	N	3.81	3.98	3.55	20	0
General Office Building	2	N	3.37	3.62	3.25	16	0
General Office Building	3	N	2.75	3.58	2.99	13	0
General Office Building	4	N	6.40	7.84	3.98	16	0
General Office Building	5	N	4.30	4.80	3.67	18	1
General Office Building	6	N	5.22	5.75	3.80	12	1
General Office Building	7	N	3.03	3.31	3.86	16	1
General Office Building	8	N	4.94	4.94	4.46	9	1
General Office Building	9	N	4.82	4.62	3.88	10	0
General Office Building	10	N	3.22	2.79	3.75	3	0
General Office Building	11	N	4.82	4.62	3.88	10	0
General Office Building	12	N	4.82	4.62	3.88	10	0
General Office Building	13	N	4.88	4.97	3.91	16	4
General Office Building	14	N	3.81	3.98	3.55	20	0
General Office Building	15	N	3.22	2.79	3.75	3	0
General Office Building	1	Y	5.02	3.98	4.24	24	0
General Office Building	2	Y	4.20	3.62	3.88	20	0
General Office Building	3	Y	3.45	3.58	3.58	15	0
General Office Building	4	Y	8.01	7.84	4.72	20	0
General Office Building	5	Y	5.42	4.80	4.34	23	1
General Office Building	6	Y	6.76	5.75	4.50	15	1
General Office Building	7	Y	3.78	3.31	4.58	20	1
General Office Building	8	Y	6.17	4.94	5.27	10	1
General Office Building	9	Y	5.99	4.62	4.63	12	0
General Office Building	10	Y	4.03	2.79	4.45	4	0
General Office Building	11	Y	5.99	4.62	4.63	12	0
General Office Building	12	Y	5.99	4.62	4.63	12	0
General Office Building	13	Y	6.14	4.97	4.63	19	4
General Office Building	14	Y	5.02	3.98	4.24	24	0
General Office Building	15	Y	4.03	2.79	4.45	4	0
Golf Course	1	N	0.00	0.00	0.00	0	0
Golf Course	2	N	0.00	0.00	0.00	0	0
Golf Course	3	N	0.00	0.00	0.00	0	0
Golf Course	4	N	0.00	0.00	0.00	0	0
Golf Course	5	N	0.00	0.00	0.00	0	0
Golf Course	6	N	0.00	0.00	0.00	0	0
Golf Course	7	N	0.00	0.00	0.00	0	0
Golf Course	8	N	0.00	0.00	0.00	0	0
Golf Course	9	N	0.00	0.00	0.00	0	0
Golf Course	10	N	0.00	0.00	0.00	0	0
Golf Course	11	N	0.00	0.00	0.00	0	0
Golf Course	12	N	0.00	0.00	0.00	0	0
Golf Course	13	N	0.00	0.00	0.00	0	0
Golf Course	14	N	0.00	0.00	0.00	0	0
Golf Course	15	N	0.00	0.00	0.00	0	0
Golf Course	1	Y	0.00	0.00	0.00	0	0
Golf Course	2	Y	0.00	0.00	0.00	0	0
Golf Course	3	Y	0.00	0.00	0.00	0	0
Golf Course	4	Y	0.00	0.00	0.00	0	0
Golf Course	5	Y	0.00	0.00	0.00	0	0
Golf Course	6	Y	0.00	0.00	0.00	0	0
Golf Course	7	Y	0.00	0.00	0.00	0	0
Golf Course	8	Y	0.00	0.00	0.00	0	0
Golf Course	9	Y	0.00	0.00	0.00	0	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Golf Course	10	Y	0.00	0.00	0.00	0	0
Golf Course	11	Y	0.00	0.00	0.00	0	0
Golf Course	12	Y	0.00	0.00	0.00	0	0
Golf Course	13	Y	0.00	0.00	0.00	0	0
Golf Course	14	Y	0.00	0.00	0.00	0	0
Golf Course	15	Y	0.00	0.00	0.00	0	0
Government (Civic Center)	1	N	3.81	3.98	3.55	20	0
Government (Civic Center)	2	N	3.37	3.62	3.25	16	0
Government (Civic Center)	3	N	2.75	3.58	2.99	13	0
Government (Civic Center)	4	N	6.40	7.84	3.98	16	0
Government (Civic Center)	5	N	4.30	4.80	3.67	18	1
Government (Civic Center)	6	N	5.22	5.75	3.80	12	1
Government (Civic Center)	7	N	3.03	3.31	3.86	16	1
Government (Civic Center)	8	N	4.94	4.94	4.46	9	1
Government (Civic Center)	9	N	4.82	4.62	3.88	10	0
Government (Civic Center)	10	N	3.22	2.79	3.75	3	0
Government (Civic Center)	11	N	4.82	4.62	3.88	10	0
Government (Civic Center)	12	N	4.82	4.62	3.88	10	0
Government (Civic Center)	13	N	4.88	4.97	3.91	16	4
Government (Civic Center)	14	N	3.81	3.98	3.55	20	0
Government (Civic Center)	15	N	3.22	2.79	3.75	3	0
Government (Civic Center)	1	Y	5.02	3.98	4.24	24	0
Government (Civic Center)	2	Y	4.20	3.62	3.88	20	0
Government (Civic Center)	3	Y	3.45	3.58	3.58	15	0
Government (Civic Center)	4	Y	8.01	7.84	4.72	20	0
Government (Civic Center)	5	Y	5.42	4.80	4.34	23	1
Government (Civic Center)	6	Y	6.76	5.75	4.50	15	1
Government (Civic Center)	7	Y	3.78	3.31	4.58	20	1
Government (Civic Center)	8	Y	6.17	4.94	5.27	10	1
Government (Civic Center)	9	Y	5.99	4.62	4.63	12	0
Government (Civic Center)	10	Y	4.03	2.79	4.45	4	0
Government (Civic Center)	11	Y	5.99	4.62	4.63	12	0
Government (Civic Center)	12	Y	5.99	4.62	4.63	12	0
Government (Civic Center)	13	Y	6.14	4.97	4.63	19	4
Government (Civic Center)	14	Y	5.02	3.98	4.24	24	0
Government (Civic Center)	15	Y	4.03	2.79	4.45	4	0
Government Office Building	1	N	3.81	3.98	3.55	20	0
Government Office Building	2	N	3.37	3.62	3.25	16	0
Government Office Building	3	N	2.75	3.58	2.99	13	0
Government Office Building	4	N	6.40	7.84	3.98	16	0
Government Office Building	5	N	4.30	4.80	3.67	18	1
Government Office Building	6	N	5.22	5.75	3.80	12	1
Government Office Building	7	N	3.03	3.31	3.86	16	1
Government Office Building	8	N	4.94	4.94	4.46	9	1
Government Office Building	9	N	4.82	4.62	3.88	10	0
Government Office Building	10	N	3.22	2.79	3.75	3	0
Government Office Building	11	N	4.82	4.62	3.88	10	0
Government Office Building	12	N	4.82	4.62	3.88	10	0
Government Office Building	13	N	4.88	4.97	3.91	16	4
Government Office Building	14	N	3.81	3.98	3.55	20	0
Government Office Building	15	N	3.22	2.79	3.75	3	0
Government Office Building	1	Y	5.02	3.98	4.24	24	0
Government Office Building	2	Y	4.20	3.62	3.88	20	0
Government Office Building	3	Y	3.45	3.58	3.58	15	0
Government Office Building	4	Y	8.01	7.84	4.72	20	0
Government Office Building	5	Y	5.42	4.80	4.34	23	1
Government Office Building	6	Y	6.76	5.75	4.50	15	1
Government Office Building	7	Y	3.78	3.31	4.58	20	1
Government Office Building	8	Y	6.17	4.94	5.27	10	1
Government Office Building	9	Y	5.99	4.62	4.63	12	0
Government Office Building	10	Y	4.03	2.79	4.45	4	0
Government Office Building	11	Y	5.99	4.62	4.63	12	0
Government Office Building	12	Y	5.99	4.62	4.63	12	0
Government Office Building	13	Y	6.14	4.97	4.63	19	4
Government Office Building	14	Y	5.02	3.98	4.24	24	0
Government Office Building	15	Y	4.03	2.79	4.45	4	0
Hardware/Paint Store	1	N	5.25	2.81	5.84	7	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Hardware/Paint Store	2	N	4.08	1.98	6.08	11	0
Hardware/Paint Store	3	N	2.24	2.30	3.81	9	2
Hardware/Paint Store	4	N	2.89	2.68	5.38	2	0
Hardware/Paint Store	5	N	2.35	3.36	5.00	4	1
Hardware/Paint Store	6	N	3.41	2.98	5.47	5	1
Hardware/Paint Store	7	N	3.31	2.49	4.65	6	0
Hardware/Paint Store	8	N	3.07	2.80	5.85	1	1
Hardware/Paint Store	9	N	4.20	3.23	6.43	1	0
Hardware/Paint Store	10	N	4.80	2.44	5.77	2	0
Hardware/Paint Store	11	N	4.20	3.23	6.43	1	0
Hardware/Paint Store	12	N	4.20	3.23	6.43	1	0
Hardware/Paint Store	13	N	3.34	3.16	6.39	1	1
Hardware/Paint Store	14	N	5.25	2.81	5.84	7	0
Hardware/Paint Store	15	N	4.80	2.44	5.77	2	0
Hardware/Paint Store	1	Y	6.81	2.81	6.86	9	0
Hardware/Paint Store	2	Y	4.97	1.98	7.17	14	0
Hardware/Paint Store	3	Y	2.77	2.30	4.53	10	2
Hardware/Paint Store	4	Y	3.55	2.68	6.02	3	0
Hardware/Paint Store	5	Y	2.90	3.36	5.88	5	1
Hardware/Paint Store	6	Y	4.20	2.98	6.45	6	1
Hardware/Paint Store	7	Y	4.12	2.49	5.50	7	0
Hardware/Paint Store	8	Y	3.79	2.80	6.85	1	1
Hardware/Paint Store	9	Y	5.17	3.23	7.56	1	0
Hardware/Paint Store	10	Y	5.95	2.44	8.20	2	0
Hardware/Paint Store	11	Y	5.17	3.23	7.56	1	0
Hardware/Paint Store	12	Y	5.17	3.23	7.56	1	0
Hardware/Paint Store	13	Y	4.13	3.16	7.50	1	1
Hardware/Paint Store	14	Y	6.81	2.81	6.86	9	0
Hardware/Paint Store	15	Y	5.95	2.44	8.20	2	0
Health Club	1	N	0.65	1.85	1.86	3	0
Health Club	2	N	1.73	4.20	2.68	19	0
Health Club	3	N	2.05	4.16	2.78	17	4
Health Club	4	N	1.55	3.70	3.17	20	7
Health Club	5	N	1.27	3.36	3.07	18	7
Health Club	6	N	3.58	7.20	4.72	24	12
Health Club	7	N	0.42	1.31	0.67	17	0
Health Club	8	N	1.71	3.83	3.08	14	7
Health Club	9	N	2.36	5.75	3.20	14	4
Health Club	10	N	2.31	5.02	3.01	15	17
Health Club	11	N	2.36	5.75	3.20	14	4
Health Club	12	N	2.36	5.75	3.20	14	4
Health Club	13	N	1.27	4.27	2.91	4	7
Health Club	14	N	0.65	1.85	1.86	3	0
Health Club	15	N	2.31	5.02	3.01	15	17
Health Club	1	Y	0.83	1.85	2.28	4	0
Health Club	2	Y	2.17	4.20	3.26	22	0
Health Club	3	Y	2.52	4.16	3.35	20	4
Health Club	4	Y	1.93	3.70	3.80	23	7
Health Club	5	Y	1.59	3.36	3.70	20	7
Health Club	6	Y	4.47	7.20	5.65	26	12
Health Club	7	Y	0.51	1.31	0.91	19	0
Health Club	8	Y	2.12	3.83	3.70	15	7
Health Club	9	Y	2.94	5.75	3.85	15	4
Health Club	10	Y	2.89	5.02	3.62	17	17
Health Club	11	Y	2.94	5.75	3.85	15	4
Health Club	12	Y	2.94	5.75	3.85	15	4
Health Club	13	Y	1.59	4.27	3.52	5	7
Health Club	14	Y	0.83	1.85	2.28	4	0
Health Club	15	Y	2.89	5.02	3.62	17	17
High School	1	N	1.70	1.48	3.80	14	1
High School	2	N	1.97	1.42	2.40	9	0
High School	3	N	2.25	1.89	3.08	23	2
High School	4	N	1.63	1.28	2.62	18	1
High School	5	N	0.69	1.27	2.58	15	2
High School	6	N	2.15	2.17	3.19	15	1
High School	7	N	2.04	1.95	3.54	10	0
High School	8	N	1.98	1.51	2.75	11	1

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
High School	9	N	1.83	1.59	2.66	9	1
High School	10	N	2.92	1.49	3.11	7	2
High School	11	N	1.83	1.59	2.66	9	1
High School	12	N	1.83	1.59	2.66	9	1
High School	13	N	1.60	1.18	2.61	5	0
High School	14	N	1.70	1.48	3.80	14	1
High School	15	N	2.92	1.49	3.11	7	2
High School	1	Y	2.18	1.48	4.55	16	1
High School	2	Y	2.43	1.42	2.90	11	0
High School	3	Y	2.81	1.89	3.69	27	2
High School	4	Y	2.03	1.28	3.02	21	1
High School	5	Y	0.86	1.27	3.11	18	2
High School	6	Y	2.74	2.17	3.82	17	1
High School	7	Y	2.54	1.95	4.27	12	0
High School	8	Y	2.46	1.51	3.30	12	1
High School	9	Y	2.29	1.59	3.20	11	1
High School	10	Y	3.64	1.49	4.52	8	2
High School	11	Y	2.29	1.59	3.20	11	1
High School	12	Y	2.29	1.59	3.20	11	1
High School	13	Y	2.03	1.18	3.14	6	0
High School	14	Y	2.18	1.48	4.55	16	1
High School	15	Y	3.64	1.49	4.52	8	2
High Turnover (Sit Down Restaurant)	1	N	4.20	15.83	4.87	28	89
High Turnover (Sit Down Restaurant)	2	N	6.35	17.72	7.80	41	69
High Turnover (Sit Down Restaurant)	3	N	6.86	16.25	6.34	36	175
High Turnover (Sit Down Restaurant)	4	N	5.31	22.30	5.51	61	147
High Turnover (Sit Down Restaurant)	5	N	2.80	20.97	5.48	40	128
High Turnover (Sit Down Restaurant)	6	N	9.22	26.72	6.35	60	118
High Turnover (Sit Down Restaurant)	7	N	8.18	20.65	5.18	18	81
High Turnover (Sit Down Restaurant)	8	N	9.13	20.11	7.87	79	181
High Turnover (Sit Down Restaurant)	9	N	8.50	28.16	8.13	43	188
High Turnover (Sit Down Restaurant)	10	N	12.98	28.48	6.83	78	196
High Turnover (Sit Down Restaurant)	11	N	8.50	28.16	8.13	43	188
High Turnover (Sit Down Restaurant)	12	N	8.50	28.16	8.13	43	188
High Turnover (Sit Down Restaurant)	13	N	8.63	23.69	6.97	36	138
High Turnover (Sit Down Restaurant)	14	N	4.20	15.83	4.87	28	89
High Turnover (Sit Down Restaurant)	15	N	12.98	28.48	6.83	78	196
High Turnover (Sit Down Restaurant)	1	Y	5.30	15.83	5.76	30	89
High Turnover (Sit Down Restaurant)	2	Y	7.80	17.72	9.18	45	69
High Turnover (Sit Down Restaurant)	3	Y	8.49	16.25	7.47	39	175
High Turnover (Sit Down Restaurant)	4	Y	6.58	22.30	6.25	65	147
High Turnover (Sit Down Restaurant)	5	Y	3.42	20.97	6.45	43	128
High Turnover (Sit Down Restaurant)	6	Y	11.47	26.72	7.44	65	118
High Turnover (Sit Down Restaurant)	7	Y	10.14	20.65	6.13	21	81
High Turnover (Sit Down Restaurant)	8	Y	11.27	20.11	9.20	84	181
High Turnover (Sit Down Restaurant)	9	Y	10.52	28.16	9.64	47	188
High Turnover (Sit Down Restaurant)	10	Y	16.13	28.48	9.51	84	196
High Turnover (Sit Down Restaurant)	11	Y	10.52	28.16	9.64	47	188
High Turnover (Sit Down Restaurant)	12	Y	10.52	28.16	9.64	47	188
High Turnover (Sit Down Restaurant)	13	Y	10.67	23.69	8.19	38	138
High Turnover (Sit Down Restaurant)	14	Y	5.30	15.83	5.76	30	89
High Turnover (Sit Down Restaurant)	15	Y	16.13	28.48	9.51	84	196
Home Improvement Superstore	1	N	5.25	2.81	5.84	7	0
Home Improvement Superstore	2	N	4.08	1.98	6.08	11	0
Home Improvement Superstore	3	N	2.24	2.30	3.81	9	2
Home Improvement Superstore	4	N	2.89	2.68	5.38	2	0
Home Improvement Superstore	5	N	2.35	3.36	5.00	4	1
Home Improvement Superstore	6	N	3.41	2.98	5.47	5	1
Home Improvement Superstore	7	N	3.31	2.49	4.65	6	0
Home Improvement Superstore	8	N	3.07	2.80	5.85	1	1
Home Improvement Superstore	9	N	4.20	3.23	6.43	1	0
Home Improvement Superstore	10	N	4.80	2.44	5.77	2	0
Home Improvement Superstore	11	N	4.20	3.23	6.43	1	0
Home Improvement Superstore	12	N	4.20	3.23	6.43	1	0
Home Improvement Superstore	13	N	3.34	3.16	6.39	1	1
Home Improvement Superstore	14	N	5.25	2.81	5.84	7	0
Home Improvement Superstore	15	N	4.80	2.44	5.77	2	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Home Improvement Superstore	1	Y	6.81	2.81	6.86	9	0
Home Improvement Superstore	2	Y	4.97	1.98	7.17	14	0
Home Improvement Superstore	3	Y	2.77	2.30	4.53	10	2
Home Improvement Superstore	4	Y	3.55	2.68	6.02	3	0
Home Improvement Superstore	5	Y	2.90	3.36	5.88	5	1
Home Improvement Superstore	6	Y	4.20	2.98	6.45	6	1
Home Improvement Superstore	7	Y	4.12	2.49	5.50	7	0
Home Improvement Superstore	8	Y	3.79	2.80	6.85	1	1
Home Improvement Superstore	9	Y	5.17	3.23	7.56	1	0
Home Improvement Superstore	10	Y	5.95	2.44	8.20	2	0
Home Improvement Superstore	11	Y	5.17	3.23	7.56	1	0
Home Improvement Superstore	12	Y	5.17	3.23	7.56	1	0
Home Improvement Superstore	13	Y	4.13	3.16	7.50	1	1
Home Improvement Superstore	14	Y	6.81	2.81	6.86	9	0
Home Improvement Superstore	15	Y	5.95	2.44	8.20	2	0
Hospital	1	N	4.52	5.35	3.50	9	0
Hospital	2	N	5.69	5.64	4.64	61	24
Hospital	3	N	5.86	3.96	3.74	35	8
Hospital	4	N	9.49	6.46	4.94	94	17
Hospital	5	N	6.78	5.52	4.34	85	16
Hospital	6	N	9.62	6.17	5.10	58	10
Hospital	7	N	4.36	4.96	4.08	25	2
Hospital	8	N	7.35	4.33	4.61	51	9
Hospital	9	N	10.44	7.55	5.44	55	10
Hospital	10	N	8.75	5.56	4.64	70	6
Hospital	11	N	10.44	7.55	5.44	55	10
Hospital	12	N	10.44	7.55	5.44	55	10
Hospital	13	N	6.68	5.87	4.64	51	7
Hospital	14	N	4.52	5.35	3.50	9	0
Hospital	15	N	8.75	5.56	4.64	70	6
Hospital	1	Y	4.83	5.35	3.91	11	0
Hospital	2	Y	6.11	5.64	5.11	64	24
Hospital	3	Y	6.26	3.96	4.17	38	8
Hospital	4	Y	10.23	6.46	5.43	101	17
Hospital	5	Y	7.39	5.52	4.78	93	16
Hospital	6	Y	10.35	6.17	5.59	64	10
Hospital	7	Y	4.70	4.96	4.55	28	2
Hospital	8	Y	7.95	4.33	5.09	56	9
Hospital	9	Y	11.27	7.55	5.99	62	10
Hospital	10	Y	9.50	5.56	5.13	77	6
Hospital	11	Y	11.27	7.55	5.99	62	10
Hospital	12	Y	11.27	7.55	5.99	62	10
Hospital	13	Y	7.21	5.87	5.09	54	7
Hospital	14	Y	4.83	5.35	3.91	11	0
Hospital	15	Y	9.50	5.56	5.13	77	6
Hotel	1	N	2.12	2.87	2.65	21	0
Hotel	2	N	1.96	1.37	3.49	27	0
Hotel	3	N	4.33	2.30	1.55	18	7
Hotel	4	N	2.15	3.22	2.41	40	5
Hotel	5	N	2.29	2.85	3.21	30	7
Hotel	6	N	3.77	3.33	2.95	33	6
Hotel	7	N	4.76	3.68	3.91	33	2
Hotel	8	N	2.91	3.24	3.11	29	5
Hotel	9	N	2.68	2.89	2.20	20	4
Hotel	10	N	6.79	6.23	5.58	55	5
Hotel	11	N	2.68	2.89	2.20	20	4
Hotel	12	N	2.68	2.89	2.20	20	4
Hotel	13	N	5.01	3.67	4.61	48	11
Hotel	14	N	2.12	2.87	2.65	21	0
Hotel	15	N	6.79	6.23	5.58	55	5
Hotel	1	Y	2.80	2.87	3.23	22	0
Hotel	2	Y	2.68	1.37	4.22	28	0
Hotel	3	Y	5.38	2.30	1.93	20	7
Hotel	4	Y	2.81	3.22	2.93	42	5
Hotel	5	Y	2.95	2.85	3.82	32	7
Hotel	6	Y	4.91	3.33	3.53	36	6
Hotel	7	Y	5.99	3.68	4.67	36	2

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Hotel	8	Y	3.64	3.24	3.71	31	5
Hotel	9	Y	3.50	2.89	2.67	22	4
Hotel	10	Y	8.54	6.23	6.57	63	5
Hotel	11	Y	3.50	2.89	2.67	22	4
Hotel	12	Y	3.50	2.89	2.67	22	4
Hotel	13	Y	6.29	3.67	5.43	50	11
Hotel	14	Y	2.80	2.87	3.23	22	0
Hotel	15	Y	8.54	6.23	6.57	63	5
Industrial Park	1	N	3.81	3.98	3.55	20	0
Industrial Park	2	N	3.37	3.62	3.25	16	0
Industrial Park	3	N	2.75	3.58	2.99	13	0
Industrial Park	4	N	6.40	7.84	3.98	16	0
Industrial Park	5	N	4.30	4.80	3.67	18	1
Industrial Park	6	N	5.22	5.75	3.80	12	1
Industrial Park	7	N	3.03	3.31	3.86	16	1
Industrial Park	8	N	4.94	4.94	4.46	9	1
Industrial Park	9	N	4.82	4.62	3.88	10	0
Industrial Park	10	N	3.22	2.79	3.75	3	0
Industrial Park	11	N	4.82	4.62	3.88	10	0
Industrial Park	12	N	4.82	4.62	3.88	10	0
Industrial Park	13	N	4.88	4.97	3.91	16	4
Industrial Park	14	N	3.81	3.98	3.55	20	0
Industrial Park	15	N	3.22	2.79	3.75	3	0
Industrial Park	1	Y	5.02	3.98	4.24	24	0
Industrial Park	2	Y	4.20	3.62	3.88	20	0
Industrial Park	3	Y	3.45	3.58	3.58	15	0
Industrial Park	4	Y	8.01	7.84	4.72	20	0
Industrial Park	5	Y	5.42	4.80	4.34	23	1
Industrial Park	6	Y	6.76	5.75	4.50	15	1
Industrial Park	7	Y	3.78	3.31	4.58	20	1
Industrial Park	8	Y	6.17	4.94	5.27	10	1
Industrial Park	9	Y	5.99	4.62	4.63	12	0
Industrial Park	10	Y	4.03	2.79	4.45	4	0
Industrial Park	11	Y	5.99	4.62	4.63	12	0
Industrial Park	12	Y	5.99	4.62	4.63	12	0
Industrial Park	13	Y	6.14	4.97	4.63	19	4
Industrial Park	14	Y	5.02	3.98	4.24	24	0
Industrial Park	15	Y	4.03	2.79	4.45	4	0
Junior College (2yr)	1	N	2.72	1.73	5.93	22	0
Junior College (2yr)	2	N	3.94	0.34	4.76	41	0
Junior College (2yr)	3	N	3.11	2.63	5.97	21	1
Junior College (2yr)	4	N	2.87	2.27	2.99	21	3
Junior College (2yr)	5	N	4.34	3.15	3.01	34	1
Junior College (2yr)	6	N	3.53	2.09	3.12	26	0
Junior College (2yr)	7	N	3.80	6.44	6.00	52	0
Junior College (2yr)	8	N	5.23	2.72	4.75	10	5
Junior College (2yr)	9	N	3.18	3.59	3.48	27	1
Junior College (2yr)	10	N	2.07	1.92	4.10	14	0
Junior College (2yr)	11	N	3.18	3.59	3.48	27	1
Junior College (2yr)	12	N	3.18	3.59	3.48	27	1
Junior College (2yr)	13	N	2.79	2.69	3.63	31	5
Junior College (2yr)	14	N	2.72	1.73	5.93	22	0
Junior College (2yr)	15	N	2.07	1.92	4.10	14	0
Junior College (2yr)	1	Y	3.42	1.73	7.02	25	0
Junior College (2yr)	2	Y	5.14	0.34	5.63	50	0
Junior College (2yr)	3	Y	3.94	2.63	7.00	25	1
Junior College (2yr)	4	Y	3.49	2.27	3.58	24	3
Junior College (2yr)	5	Y	5.41	3.15	3.61	40	1
Junior College (2yr)	6	Y	4.47	2.09	3.75	31	0
Junior College (2yr)	7	Y	4.74	6.44	7.07	59	0
Junior College (2yr)	8	Y	7.10	2.72	5.59	12	5
Junior College (2yr)	9	Y	4.07	3.59	4.14	31	1
Junior College (2yr)	10	Y	2.64	1.92	4.86	17	0
Junior College (2yr)	11	Y	4.07	3.59	4.14	31	1
Junior College (2yr)	12	Y	4.07	3.59	4.14	31	1
Junior College (2yr)	13	Y	3.73	2.69	4.35	36	5
Junior College (2yr)	14	Y	3.42	1.73	7.02	25	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Junior College (2yr)	15	Y	2.64	1.92	4.86	17	0
Junior High School	1	N	1.70	1.48	3.80	14	1
Junior High School	2	N	1.97	1.42	2.40	9	0
Junior High School	3	N	2.25	1.89	3.08	23	2
Junior High School	4	N	1.63	1.28	2.62	18	1
Junior High School	5	N	0.69	1.27	2.58	15	2
Junior High School	6	N	2.15	2.17	3.19	15	1
Junior High School	7	N	2.04	1.95	3.54	10	0
Junior High School	8	N	1.98	1.51	2.75	11	1
Junior High School	9	N	1.83	1.59	2.66	9	1
Junior High School	10	N	2.92	1.49	3.11	7	2
Junior High School	11	N	1.83	1.59	2.66	9	1
Junior High School	12	N	1.83	1.59	2.66	9	1
Junior High School	13	N	1.60	1.18	2.61	5	0
Junior High School	14	N	1.70	1.48	3.80	14	1
Junior High School	15	N	2.92	1.49	3.11	7	2
Junior High School	1	Y	2.18	1.48	4.55	16	1
Junior High School	2	Y	2.43	1.42	2.90	11	0
Junior High School	3	Y	2.81	1.89	3.69	27	2
Junior High School	4	Y	2.03	1.28	3.02	21	1
Junior High School	5	Y	0.86	1.27	3.11	18	2
Junior High School	6	Y	2.74	2.17	3.82	17	1
Junior High School	7	Y	2.54	1.95	4.27	12	0
Junior High School	8	Y	2.46	1.51	3.30	12	1
Junior High School	9	Y	2.29	1.59	3.20	11	1
Junior High School	10	Y	3.64	1.49	4.52	8	2
Junior High School	11	Y	2.29	1.59	3.20	11	1
Junior High School	12	Y	2.29	1.59	3.20	11	1
Junior High School	13	Y	2.03	1.18	3.14	6	0
Junior High School	14	Y	2.18	1.48	4.55	16	1
Junior High School	15	Y	3.64	1.49	4.52	8	2
Library	1	N	0.65	1.85	1.86	3	0
Library	2	N	1.73	4.20	2.68	19	0
Library	3	N	2.05	4.16	2.78	17	4
Library	4	N	1.55	3.70	3.17	20	7
Library	5	N	1.27	3.36	3.07	18	7
Library	6	N	3.58	7.20	4.72	24	12
Library	7	N	0.42	1.31	0.67	17	0
Library	8	N	1.71	3.83	3.08	14	7
Library	9	N	2.36	5.75	3.20	14	4
Library	10	N	2.31	5.02	3.01	15	17
Library	11	N	2.36	5.75	3.20	14	4
Library	12	N	2.36	5.75	3.20	14	4
Library	13	N	1.27	4.27	2.91	4	7
Library	14	N	0.65	1.85	1.86	3	0
Library	15	N	2.31	5.02	3.01	15	17
Library	1	Y	0.83	1.85	2.28	4	0
Library	2	Y	2.17	4.20	3.26	22	0
Library	3	Y	2.52	4.16	3.35	20	4
Library	4	Y	1.93	3.70	3.80	23	7
Library	5	Y	1.59	3.36	3.70	20	7
Library	6	Y	4.47	7.20	5.65	26	12
Library	7	Y	0.51	1.31	0.91	19	0
Library	8	Y	2.12	3.83	3.70	15	7
Library	9	Y	2.94	5.75	3.85	15	4
Library	10	Y	2.89	5.02	3.62	17	17
Library	11	Y	2.94	5.75	3.85	15	4
Library	12	Y	2.94	5.75	3.85	15	4
Library	13	Y	1.59	4.27	3.52	5	7
Library	14	Y	0.83	1.85	2.28	4	0
Library	15	Y	2.89	5.02	3.62	17	17
Manufacturing	1	N	0.65	1.85	1.86	3	0
Manufacturing	2	N	1.73	4.20	2.68	19	0
Manufacturing	3	N	2.05	4.16	2.78	17	4
Manufacturing	4	N	1.55	3.70	3.17	20	7
Manufacturing	5	N	1.27	3.36	3.07	18	7
Manufacturing	6	N	3.58	7.20	4.72	24	12

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Manufacturing	7	N	0.42	1.31	0.67	17	0
Manufacturing	8	N	1.71	3.83	3.08	14	7
Manufacturing	9	N	2.36	5.75	3.20	14	4
Manufacturing	10	N	2.31	5.02	3.01	15	17
Manufacturing	11	N	2.36	5.75	3.20	14	4
Manufacturing	12	N	2.36	5.75	3.20	14	4
Manufacturing	13	N	1.27	4.27	2.91	4	7
Manufacturing	14	N	0.65	1.85	1.86	3	0
Manufacturing	15	N	2.31	5.02	3.01	15	17
Manufacturing	1	Y	0.83	1.85	2.28	4	0
Manufacturing	2	Y	2.17	4.20	3.26	22	0
Manufacturing	3	Y	2.52	4.16	3.35	20	4
Manufacturing	4	Y	1.93	3.70	3.80	23	7
Manufacturing	5	Y	1.59	3.36	3.70	20	7
Manufacturing	6	Y	4.47	7.20	5.65	26	12
Manufacturing	7	Y	0.51	1.31	0.91	19	0
Manufacturing	8	Y	2.12	3.83	3.70	15	7
Manufacturing	9	Y	2.94	5.75	3.85	15	4
Manufacturing	10	Y	2.89	5.02	3.62	17	17
Manufacturing	11	Y	2.94	5.75	3.85	15	4
Manufacturing	12	Y	2.94	5.75	3.85	15	4
Manufacturing	13	Y	1.59	4.27	3.52	5	7
Manufacturing	14	Y	0.83	1.85	2.28	4	0
Manufacturing	15	Y	2.89	5.02	3.62	17	17
Medical Office Building	1	N	3.81	3.98	3.55	20	0
Medical Office Building	2	N	3.37	3.62	3.25	16	0
Medical Office Building	3	N	2.75	3.58	2.99	13	0
Medical Office Building	4	N	6.40	7.84	3.98	16	0
Medical Office Building	5	N	4.30	4.80	3.67	18	1
Medical Office Building	6	N	5.22	5.75	3.80	12	1
Medical Office Building	7	N	3.03	3.31	3.86	16	1
Medical Office Building	8	N	4.94	4.94	4.46	9	1
Medical Office Building	9	N	4.82	4.62	3.88	10	0
Medical Office Building	10	N	3.22	2.79	3.75	3	0
Medical Office Building	11	N	4.82	4.62	3.88	10	0
Medical Office Building	12	N	4.82	4.62	3.88	10	0
Medical Office Building	13	N	4.88	4.97	3.91	16	4
Medical Office Building	14	N	3.81	3.98	3.55	20	0
Medical Office Building	15	N	3.22	2.79	3.75	3	0
Medical Office Building	1	Y	5.02	3.98	4.24	24	0
Medical Office Building	2	Y	4.20	3.62	3.88	20	0
Medical Office Building	3	Y	3.45	3.58	3.58	15	0
Medical Office Building	4	Y	8.01	7.84	4.72	20	0
Medical Office Building	5	Y	5.42	4.80	4.34	23	1
Medical Office Building	6	Y	6.76	5.75	4.50	15	1
Medical Office Building	7	Y	3.78	3.31	4.58	20	1
Medical Office Building	8	Y	6.17	4.94	5.27	10	1
Medical Office Building	9	Y	5.99	4.62	4.63	12	0
Medical Office Building	10	Y	4.03	2.79	4.45	4	0
Medical Office Building	11	Y	5.99	4.62	4.63	12	0
Medical Office Building	12	Y	5.99	4.62	4.63	12	0
Medical Office Building	13	Y	6.14	4.97	4.63	19	4
Medical Office Building	14	Y	5.02	3.98	4.24	24	0
Medical Office Building	15	Y	4.03	2.79	4.45	4	0
Mobile Home Park	1	N	790.56	4329.07	1038.60	3415	1599
Mobile Home Park	2	N	449.36	4329.07	1038.60	6323	2687
Mobile Home Park	3	N	755.17	4329.07	1038.60	16740	3723
Mobile Home Park	4	N	350.79	4329.07	1038.60	17518	3155
Mobile Home Park	5	N	213.03	4329.07	1038.60	25066	2615
Mobile Home Park	6	N	449.36	4329.07	1038.60	6323	2687
Mobile Home Park	7	N	641.84	4329.07	1038.60	19559	4769
Mobile Home Park	8	N	315.52	4329.07	1038.60	20454	5516
Mobile Home Park	9	N	251.12	4329.07	1038.60	14668	6384
Mobile Home Park	10	N	889.17	4329.07	1038.60	22827	6030
Mobile Home Park	11	N	200.65	4329.07	1038.60	2352	4831
Mobile Home Park	12	N	480.19	4329.07	1038.60	29839	6281
Mobile Home Park	13	N	431.60	4329.07	1038.60	23945	4180

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Mobile Home Park	14	N	790.56	4329.07	1038.60	3415	1599
Mobile Home Park	15	N	889.17	4329.07	1038.60	22827	6030
Mobile Home Park	1	Y	598.69	3335.73	1038.60	3079	2103
Mobile Home Park	2	Y	755.88	3321.27	1038.60	5701	2103
Mobile Home Park	3	Y	964.74	3329.98	1038.60	15033	2174
Mobile Home Park	4	Y	671.32	3321.27	1038.60	15794	2103
Mobile Home Park	5	Y	507.33	3321.27	1038.60	22600	2103
Mobile Home Park	6	Y	755.88	3321.27	1038.60	5701	2103
Mobile Home Park	7	Y	823.21	3322.99	1038.60	17433	2343
Mobile Home Park	8	Y	749.49	3321.27	1038.60	18441	2103
Mobile Home Park	9	Y	667.48	3321.27	1038.60	13224	2103
Mobile Home Park	10	Y	1211.87	3321.27	1038.60	20581	2103
Mobile Home Park	11	Y	634.34	3321.27	1038.60	2121	2103
Mobile Home Park	12	Y	959.26	3321.27	1038.60	26903	2103
Mobile Home Park	13	Y	825.64	3321.27	1038.60	21589	2103
Mobile Home Park	14	Y	598.69	3335.73	1038.60	3079	2103
Mobile Home Park	15	Y	1211.87	3321.27	1038.60	20581	2103
Motel	1	N	2.12	2.87	2.65	21	0
Motel	2	N	1.96	1.37	3.49	27	0
Motel	3	N	4.33	2.30	1.55	18	7
Motel	4	N	2.15	3.22	2.41	40	5
Motel	5	N	2.29	2.85	3.21	30	7
Motel	6	N	3.77	3.33	2.95	33	6
Motel	7	N	4.76	3.68	3.91	33	2
Motel	8	N	2.91	3.24	3.11	29	5
Motel	9	N	2.68	2.89	2.20	20	4
Motel	10	N	6.79	6.23	5.58	55	5
Motel	11	N	2.68	2.89	2.20	20	4
Motel	12	N	2.68	2.89	2.20	20	4
Motel	13	N	5.01	3.67	4.61	48	11
Motel	14	N	2.12	2.87	2.65	21	0
Motel	15	N	6.79	6.23	5.58	55	5
Motel	1	Y	2.80	2.87	3.23	22	0
Motel	2	Y	2.68	1.37	4.22	28	0
Motel	3	Y	5.38	2.30	1.93	20	7
Motel	4	Y	2.81	3.22	2.93	42	5
Motel	5	Y	2.95	2.85	3.82	32	7
Motel	6	Y	4.91	3.33	3.53	36	6
Motel	7	Y	5.99	3.68	4.67	36	2
Motel	8	Y	3.64	3.24	3.71	31	5
Motel	9	Y	3.50	2.89	2.67	22	4
Motel	10	Y	8.54	6.23	6.57	63	5
Motel	11	Y	3.50	2.89	2.67	22	4
Motel	12	Y	3.50	2.89	2.67	22	4
Motel	13	Y	6.29	3.67	5.43	50	11
Motel	14	Y	2.80	2.87	3.23	22	0
Motel	15	Y	8.54	6.23	6.57	63	5
Movie Theater (No Matinee)	1	N	0.65	1.85	1.86	3	0
Movie Theater (No Matinee)	2	N	1.73	4.20	2.68	19	0
Movie Theater (No Matinee)	3	N	2.05	4.16	2.78	17	4
Movie Theater (No Matinee)	4	N	1.55	3.70	3.17	20	7
Movie Theater (No Matinee)	5	N	1.27	3.36	3.07	18	7
Movie Theater (No Matinee)	6	N	3.58	7.20	4.72	24	12
Movie Theater (No Matinee)	7	N	0.42	1.31	0.67	17	0
Movie Theater (No Matinee)	8	N	1.71	3.83	3.08	14	7
Movie Theater (No Matinee)	9	N	2.36	5.75	3.20	14	4
Movie Theater (No Matinee)	10	N	2.31	5.02	3.01	15	17
Movie Theater (No Matinee)	11	N	2.36	5.75	3.20	14	4
Movie Theater (No Matinee)	12	N	2.36	5.75	3.20	14	4
Movie Theater (No Matinee)	13	N	1.27	4.27	2.91	4	7
Movie Theater (No Matinee)	14	N	0.65	1.85	1.86	3	0
Movie Theater (No Matinee)	15	N	2.31	5.02	3.01	15	17
Movie Theater (No Matinee)	1	Y	0.83	1.85	2.28	4	0
Movie Theater (No Matinee)	2	Y	2.17	4.20	3.26	22	0
Movie Theater (No Matinee)	3	Y	2.52	4.16	3.35	20	4
Movie Theater (No Matinee)	4	Y	1.93	3.70	3.80	23	7
Movie Theater (No Matinee)	5	Y	1.59	3.36	3.70	20	7

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Movie Theater (No Matinee)	6	Y	4.47	7.20	5.65	26	12
Movie Theater (No Matinee)	7	Y	0.51	1.31	0.91	19	0
Movie Theater (No Matinee)	8	Y	2.12	3.83	3.70	15	7
Movie Theater (No Matinee)	9	Y	2.94	5.75	3.85	15	4
Movie Theater (No Matinee)	10	Y	2.89	5.02	3.62	17	17
Movie Theater (No Matinee)	11	Y	2.94	5.75	3.85	15	4
Movie Theater (No Matinee)	12	Y	2.94	5.75	3.85	15	4
Movie Theater (No Matinee)	13	Y	1.59	4.27	3.52	5	7
Movie Theater (No Matinee)	14	Y	0.83	1.85	2.28	4	0
Movie Theater (No Matinee)	15	Y	2.89	5.02	3.62	17	17
Office Park	1	N	1.45	2.42	3.78	17	0
Office Park	2	N	3.14	4.35	3.27	11	0
Office Park	3	N	3.75	4.49	3.69	22	1
Office Park	4	N	7.64	8.40	3.97	21	0
Office Park	5	N	4.48	4.81	3.55	18	1
Office Park	6	N	6.05	6.47	4.10	15	1
Office Park	7	N	4.15	3.76	5.22	37	0
Office Park	8	N	5.65	5.60	4.51	11	1
Office Park	9	N	5.89	4.79	3.84	10	0
Office Park	10	N	3.22	2.60	4.35	3	0
Office Park	11	N	5.89	4.79	3.84	10	0
Office Park	12	N	5.89	4.79	3.84	10	0
Office Park	13	N	6.14	6.01	4.01	26	7
Office Park	14	N	1.45	2.42	3.78	17	0
Office Park	15	N	3.22	2.60	4.35	3	0
Office Park	1	Y	1.78	2.42	4.48	21	0
Office Park	2	Y	3.91	4.35	3.89	13	0
Office Park	3	Y	4.73	4.49	4.39	26	1
Office Park	4	Y	9.54	8.40	4.71	26	0
Office Park	5	Y	5.65	4.81	4.21	21	1
Office Park	6	Y	7.89	6.47	4.84	18	1
Office Park	7	Y	5.26	3.76	6.13	44	0
Office Park	8	Y	7.05	5.60	5.32	13	1
Office Park	9	Y	7.30	4.79	4.56	12	0
Office Park	10	Y	4.01	2.60	5.13	4	0
Office Park	11	Y	7.30	4.79	4.56	12	0
Office Park	12	Y	7.30	4.79	4.56	12	0
Office Park	13	Y	7.71	6.01	4.74	31	7
Office Park	14	Y	1.78	2.42	4.48	21	0
Office Park	15	Y	4.01	2.60	5.13	4	0
Other Asphalt Surfaces	1	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	2	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	3	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	4	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	5	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	6	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	7	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	8	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	9	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	10	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	11	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	12	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	13	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	14	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	15	N	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	1	Y	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	2	Y	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	3	Y	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	4	Y	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	5	Y	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	6	Y	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	7	Y	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	8	Y	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	9	Y	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	10	Y	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	11	Y	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	12	Y	0.00	0.00	0.00	0	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Other Asphalt Surfaces	13	Y	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	14	Y	0.00	0.00	0.00	0	0
Other Asphalt Surfaces	15	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	1	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	2	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	3	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	4	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	5	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	6	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	7	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	8	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	9	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	10	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	11	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	12	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	13	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	14	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	15	N	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	1	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	2	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	3	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	4	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	5	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	6	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	7	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	8	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	9	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	10	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	11	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	12	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	13	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	14	Y	0.00	0.00	0.00	0	0
Other Non-Asphalt Surfaces	15	Y	0.00	0.00	0.00	0	0
Parking Lot	1	N	0.00	0.00	0.88	0	0
Parking Lot	2	N	0.00	0.00	0.88	0	0
Parking Lot	3	N	0.00	0.00	0.88	0	0
Parking Lot	4	N	0.00	0.00	0.88	0	0
Parking Lot	5	N	0.00	0.00	0.88	0	0
Parking Lot	6	N	0.00	0.00	0.88	0	0
Parking Lot	7	N	0.00	0.00	0.88	0	0
Parking Lot	8	N	0.00	0.00	0.88	0	0
Parking Lot	9	N	0.00	0.00	0.88	0	0
Parking Lot	10	N	0.00	0.00	0.88	0	0
Parking Lot	11	N	0.00	0.00	0.88	0	0
Parking Lot	12	N	0.00	0.00	0.88	0	0
Parking Lot	13	N	0.00	0.00	0.88	0	0
Parking Lot	14	N	0.00	0.00	0.88	0	0
Parking Lot	15	N	0.00	0.00	0.88	0	0
Parking Lot	1	Y	0.00	0.00	0.88	0	0
Parking Lot	2	Y	0.00	0.00	0.88	0	0
Parking Lot	3	Y	0.00	0.00	0.88	0	0
Parking Lot	4	Y	0.00	0.00	0.88	0	0
Parking Lot	5	Y	0.00	0.00	0.88	0	0
Parking Lot	6	Y	0.00	0.00	0.88	0	0
Parking Lot	7	Y	0.00	0.00	0.88	0	0
Parking Lot	8	Y	0.00	0.00	0.88	0	0
Parking Lot	9	Y	0.00	0.00	0.88	0	0
Parking Lot	10	Y	0.00	0.00	0.88	0	0
Parking Lot	11	Y	0.00	0.00	0.88	0	0
Parking Lot	12	Y	0.00	0.00	0.88	0	0
Parking Lot	13	Y	0.00	0.00	0.88	0	0
Parking Lot	14	Y	0.00	0.00	0.88	0	0
Parking Lot	15	Y	0.00	0.00	0.88	0	0
Pharmacy/Drugstore w/o Drive Thru	1	N	5.25	2.81	5.84	7	0
Pharmacy/Drugstore w/o Drive Thru	2	N	4.08	1.98	6.08	11	0
Pharmacy/Drugstore w/o Drive Thru	3	N	2.24	2.30	3.81	9	2
Pharmacy/Drugstore w/o Drive Thru	4	N	2.89	2.68	5.38	2	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Pharmacy/Drugstore w/o Drive Thru	5	N	2.35	3.36	5.00	4	1
Pharmacy/Drugstore w/o Drive Thru	6	N	3.41	2.98	5.47	5	1
Pharmacy/Drugstore w/o Drive Thru	7	N	3.31	2.49	4.65	6	0
Pharmacy/Drugstore w/o Drive Thru	8	N	3.07	2.80	5.85	1	1
Pharmacy/Drugstore w/o Drive Thru	9	N	4.20	3.23	6.43	1	0
Pharmacy/Drugstore w/o Drive Thru	10	N	4.80	2.44	5.77	2	0
Pharmacy/Drugstore w/o Drive Thru	11	N	4.20	3.23	6.43	1	0
Pharmacy/Drugstore w/o Drive Thru	12	N	4.20	3.23	6.43	1	0
Pharmacy/Drugstore w/o Drive Thru	13	N	3.34	3.16	6.39	1	1
Pharmacy/Drugstore w/o Drive Thru	14	N	5.25	2.81	5.84	7	0
Pharmacy/Drugstore w/o Drive Thru	15	N	4.80	2.44	5.77	2	0
Pharmacy/Drugstore w/o Drive Thru	1	Y	6.81	2.81	6.86	9	0
Pharmacy/Drugstore w/o Drive Thru	2	Y	4.97	1.98	7.17	14	0
Pharmacy/Drugstore w/o Drive Thru	3	Y	2.77	2.30	4.53	10	2
Pharmacy/Drugstore w/o Drive Thru	4	Y	3.55	2.68	6.02	3	0
Pharmacy/Drugstore w/o Drive Thru	5	Y	2.90	3.36	5.88	5	1
Pharmacy/Drugstore w/o Drive Thru	6	Y	4.20	2.98	6.45	6	1
Pharmacy/Drugstore w/o Drive Thru	7	Y	4.12	2.49	5.50	7	0
Pharmacy/Drugstore w/o Drive Thru	8	Y	3.79	2.80	6.85	1	1
Pharmacy/Drugstore w/o Drive Thru	9	Y	5.17	3.23	7.56	1	0
Pharmacy/Drugstore w/o Drive Thru	10	Y	5.95	2.44	8.20	2	0
Pharmacy/Drugstore w/o Drive Thru	11	Y	5.17	3.23	7.56	1	0
Pharmacy/Drugstore w/o Drive Thru	12	Y	5.17	3.23	7.56	1	0
Pharmacy/Drugstore w/o Drive Thru	13	Y	4.13	3.16	7.50	1	1
Pharmacy/Drugstore w/o Drive Thru	14	Y	6.81	2.81	6.86	9	0
Pharmacy/Drugstore w/o Drive Thru	15	Y	5.95	2.44	8.20	2	0
Pharmacy/Drugstore with Drive Thru	1	N	5.25	2.81	5.84	7	0
Pharmacy/Drugstore with Drive Thru	2	N	4.08	1.98	6.08	11	0
Pharmacy/Drugstore with Drive Thru	3	N	2.24	2.30	3.81	9	2
Pharmacy/Drugstore with Drive Thru	4	N	2.89	2.68	5.38	2	0
Pharmacy/Drugstore with Drive Thru	5	N	2.35	3.36	5.00	4	1
Pharmacy/Drugstore with Drive Thru	6	N	3.41	2.98	5.47	5	1
Pharmacy/Drugstore with Drive Thru	7	N	3.31	2.49	4.65	6	0
Pharmacy/Drugstore with Drive Thru	8	N	3.07	2.80	5.85	1	1
Pharmacy/Drugstore with Drive Thru	9	N	4.20	3.23	6.43	1	0
Pharmacy/Drugstore with Drive Thru	10	N	4.80	2.44	5.77	2	0
Pharmacy/Drugstore with Drive Thru	11	N	4.20	3.23	6.43	1	0
Pharmacy/Drugstore with Drive Thru	12	N	4.20	3.23	6.43	1	0
Pharmacy/Drugstore with Drive Thru	13	N	3.34	3.16	6.39	1	1
Pharmacy/Drugstore with Drive Thru	14	N	5.25	2.81	5.84	7	0
Pharmacy/Drugstore with Drive Thru	15	N	4.80	2.44	5.77	2	0
Pharmacy/Drugstore with Drive Thru	1	Y	6.81	2.81	6.86	9	0
Pharmacy/Drugstore with Drive Thru	2	Y	4.97	1.98	7.17	14	0
Pharmacy/Drugstore with Drive Thru	3	Y	2.77	2.30	4.53	10	2
Pharmacy/Drugstore with Drive Thru	4	Y	3.55	2.68	6.02	3	0
Pharmacy/Drugstore with Drive Thru	5	Y	2.90	3.36	5.88	5	1
Pharmacy/Drugstore with Drive Thru	6	Y	4.20	2.98	6.45	6	1
Pharmacy/Drugstore with Drive Thru	7	Y	4.12	2.49	5.50	7	0
Pharmacy/Drugstore with Drive Thru	8	Y	3.79	2.80	6.85	1	1
Pharmacy/Drugstore with Drive Thru	9	Y	5.17	3.23	7.56	1	0
Pharmacy/Drugstore with Drive Thru	10	Y	5.95	2.44	8.20	2	0
Pharmacy/Drugstore with Drive Thru	11	Y	5.17	3.23	7.56	1	0
Pharmacy/Drugstore with Drive Thru	12	Y	5.17	3.23	7.56	1	0
Pharmacy/Drugstore with Drive Thru	13	Y	4.13	3.16	7.50	1	1
Pharmacy/Drugstore with Drive Thru	14	Y	6.81	2.81	6.86	9	0
Pharmacy/Drugstore with Drive Thru	15	Y	5.95	2.44	8.20	2	0
Place of Worship	1	N	0.65	1.85	1.86	3	0
Place of Worship	2	N	1.73	4.20	2.68	19	0
Place of Worship	3	N	2.05	4.16	2.78	17	4
Place of Worship	4	N	1.55	3.70	3.17	20	7
Place of Worship	5	N	1.27	3.36	3.07	18	7
Place of Worship	6	N	3.58	7.20	4.72	24	12
Place of Worship	7	N	0.42	1.31	0.67	17	0
Place of Worship	8	N	1.71	3.83	3.08	14	7
Place of Worship	9	N	2.36	5.75	3.20	14	4
Place of Worship	10	N	2.31	5.02	3.01	15	17
Place of Worship	11	N	2.36	5.75	3.20	14	4

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Place of Worship	12	N	2.36	5.75	3.20	14	4
Place of Worship	13	N	1.27	4.27	2.91	4	7
Place of Worship	14	N	0.65	1.85	1.86	3	0
Place of Worship	15	N	2.31	5.02	3.01	15	17
Place of Worship	1	Y	0.83	1.85	2.28	4	0
Place of Worship	2	Y	2.17	4.20	3.26	22	0
Place of Worship	3	Y	2.52	4.16	3.35	20	4
Place of Worship	4	Y	1.93	3.70	3.80	23	7
Place of Worship	5	Y	1.59	3.36	3.70	20	7
Place of Worship	6	Y	4.47	7.20	5.65	26	12
Place of Worship	7	Y	0.51	1.31	0.91	19	0
Place of Worship	8	Y	2.12	3.83	3.70	15	7
Place of Worship	9	Y	2.94	5.75	3.85	15	4
Place of Worship	10	Y	2.89	5.02	3.62	17	17
Place of Worship	11	Y	2.94	5.75	3.85	15	4
Place of Worship	12	Y	2.94	5.75	3.85	15	4
Place of Worship	13	Y	1.59	4.27	3.52	5	7
Place of Worship	14	Y	0.83	1.85	2.28	4	0
Place of Worship	15	Y	2.89	5.02	3.62	17	17
Quality Restaurant	1	N	4.20	15.83	4.87	28	89
Quality Restaurant	2	N	6.35	17.72	7.80	41	69
Quality Restaurant	3	N	6.86	16.25	6.34	36	175
Quality Restaurant	4	N	5.31	22.30	5.51	61	147
Quality Restaurant	5	N	2.80	20.97	5.48	40	128
Quality Restaurant	6	N	9.22	26.72	6.35	60	118
Quality Restaurant	7	N	8.18	20.65	5.18	18	81
Quality Restaurant	8	N	9.13	20.11	7.87	79	181
Quality Restaurant	9	N	8.50	28.16	8.13	43	188
Quality Restaurant	10	N	12.98	28.48	6.83	78	196
Quality Restaurant	11	N	8.50	28.16	8.13	43	188
Quality Restaurant	12	N	8.50	28.16	8.13	43	188
Quality Restaurant	13	N	8.63	23.69	6.97	36	138
Quality Restaurant	14	N	4.20	15.83	4.87	28	89
Quality Restaurant	15	N	12.98	28.48	6.83	78	196
Quality Restaurant	1	Y	5.30	15.83	5.76	30	89
Quality Restaurant	2	Y	7.80	17.72	9.18	45	69
Quality Restaurant	3	Y	8.49	16.25	7.47	39	175
Quality Restaurant	4	Y	6.58	22.30	6.25	65	147
Quality Restaurant	5	Y	3.42	20.97	6.45	43	128
Quality Restaurant	6	Y	11.47	26.72	7.44	65	118
Quality Restaurant	7	Y	10.14	20.65	6.13	21	81
Quality Restaurant	8	Y	11.27	20.11	9.20	84	181
Quality Restaurant	9	Y	10.52	28.16	9.64	47	188
Quality Restaurant	10	Y	16.13	28.48	9.51	84	196
Quality Restaurant	11	Y	10.52	28.16	9.64	47	188
Quality Restaurant	12	Y	10.52	28.16	9.64	47	188
Quality Restaurant	13	Y	10.67	23.69	8.19	38	138
Quality Restaurant	14	Y	5.30	15.83	5.76	30	89
Quality Restaurant	15	Y	16.13	28.48	9.51	84	196
Racquet Club	1	N	0.65	1.85	1.86	3	0
Racquet Club	2	N	1.73	4.20	2.68	19	0
Racquet Club	3	N	2.05	4.16	2.78	17	4
Racquet Club	4	N	1.55	3.70	3.17	20	7
Racquet Club	5	N	1.27	3.36	3.07	18	7
Racquet Club	6	N	3.58	7.20	4.72	24	12
Racquet Club	7	N	0.42	1.31	0.67	17	0
Racquet Club	8	N	1.71	3.83	3.08	14	7
Racquet Club	9	N	2.36	5.75	3.20	14	4
Racquet Club	10	N	2.31	5.02	3.01	15	17
Racquet Club	11	N	2.36	5.75	3.20	14	4
Racquet Club	12	N	2.36	5.75	3.20	14	4
Racquet Club	13	N	1.27	4.27	2.91	4	7
Racquet Club	14	N	0.65	1.85	1.86	3	0
Racquet Club	15	N	2.31	5.02	3.01	15	17
Racquet Club	1	Y	0.83	1.85	2.28	4	0
Racquet Club	2	Y	2.17	4.20	3.26	22	0
Racquet Club	3	Y	2.52	4.16	3.35	20	4

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Racquet Club	4	Y	1.93	3.70	3.80	23	7
Racquet Club	5	Y	1.59	3.36	3.70	20	7
Racquet Club	6	Y	4.47	7.20	5.65	26	12
Racquet Club	7	Y	0.51	1.31	0.91	19	0
Racquet Club	8	Y	2.12	3.83	3.70	15	7
Racquet Club	9	Y	2.94	5.75	3.85	15	4
Racquet Club	10	Y	2.89	5.02	3.62	17	17
Racquet Club	11	Y	2.94	5.75	3.85	15	4
Racquet Club	12	Y	2.94	5.75	3.85	15	4
Racquet Club	13	Y	1.59	4.27	3.52	5	7
Racquet Club	14	Y	0.83	1.85	2.28	4	0
Racquet Club	15	Y	2.89	5.02	3.62	17	17
Recreational Swimming Pool	1	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	2	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	3	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	4	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	5	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	6	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	7	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	8	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	9	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	10	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	11	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	12	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	13	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	14	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	15	N	0.00	0.00	0.00	0	0
Recreational Swimming Pool	1	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	2	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	3	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	4	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	5	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	6	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	7	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	8	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	9	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	10	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	11	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	12	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	13	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	14	Y	0.00	0.00	0.00	0	0
Recreational Swimming Pool	15	Y	0.00	0.00	0.00	0	0
Refrigerated Warehouse-No Rail	1	N	0.23	11.15	2.46	0	0
Refrigerated Warehouse-No Rail	2	N	0.38	15.28	3.19	1	0
Refrigerated Warehouse-No Rail	3	N	0.50	21.99	2.51	0	0
Refrigerated Warehouse-No Rail	4	N	0.15	7.99	1.66	1	3
Refrigerated Warehouse-No Rail	5	N	0.88	20.65	2.40	5	13
Refrigerated Warehouse-No Rail	6	N	0.48	13.70	1.90	1	1
Refrigerated Warehouse-No Rail	7	N	0.60	26.24	2.17	5	3
Refrigerated Warehouse-No Rail	8	N	0.31	19.26	2.81	1	0
Refrigerated Warehouse-No Rail	9	N	0.44	13.61	2.80	1	0
Refrigerated Warehouse-No Rail	10	N	1.12	36.52	2.42	3	49
Refrigerated Warehouse-No Rail	11	N	0.44	13.61	2.80	1	0
Refrigerated Warehouse-No Rail	12	N	0.44	13.61	2.80	1	0
Refrigerated Warehouse-No Rail	13	N	2.17	27.88	3.70	6	0
Refrigerated Warehouse-No Rail	14	N	0.23	11.15	2.46	0	0
Refrigerated Warehouse-No Rail	15	N	1.12	36.52	2.42	3	49
Refrigerated Warehouse-No Rail	1	Y	0.28	11.15	2.96	0	0
Refrigerated Warehouse-No Rail	2	Y	0.46	15.28	3.80	1	0
Refrigerated Warehouse-No Rail	3	Y	0.61	21.99	3.04	0	0
Refrigerated Warehouse-No Rail	4	Y	0.19	7.99	1.82	1	3
Refrigerated Warehouse-No Rail	5	Y	1.08	20.65	2.89	6	13
Refrigerated Warehouse-No Rail	6	Y	0.63	13.70	2.33	1	1
Refrigerated Warehouse-No Rail	7	Y	0.72	26.24	2.64	7	3
Refrigerated Warehouse-No Rail	8	Y	0.38	19.26	3.22	1	0
Refrigerated Warehouse-No Rail	9	Y	0.55	13.61	3.35	1	0
Refrigerated Warehouse-No Rail	10	Y	1.41	36.52	3.63	3	49

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Refrigerated Warehouse-No Rail	11	Y	0.55	13.61	3.35	1	0
Refrigerated Warehouse-No Rail	12	Y	0.55	13.61	3.35	1	0
Refrigerated Warehouse-No Rail	13	Y	2.64	27.88	4.39	7	0
Refrigerated Warehouse-No Rail	14	Y	0.28	11.15	2.96	0	0
Refrigerated Warehouse-No Rail	15	Y	1.41	36.52	3.63	3	49
Refrigerated Warehouse-Rail	1	N	0.23	11.15	2.46	0	0
Refrigerated Warehouse-Rail	2	N	0.38	15.28	3.19	1	0
Refrigerated Warehouse-Rail	3	N	0.50	21.99	2.51	0	0
Refrigerated Warehouse-Rail	4	N	0.15	7.99	1.66	1	3
Refrigerated Warehouse-Rail	5	N	0.88	20.65	2.40	5	13
Refrigerated Warehouse-Rail	6	N	0.48	13.70	1.90	1	1
Refrigerated Warehouse-Rail	7	N	0.60	26.24	2.17	5	3
Refrigerated Warehouse-Rail	8	N	0.31	19.26	2.81	1	0
Refrigerated Warehouse-Rail	9	N	0.44	13.61	2.80	1	0
Refrigerated Warehouse-Rail	10	N	1.12	36.52	2.42	3	49
Refrigerated Warehouse-Rail	11	N	0.44	13.61	2.80	1	0
Refrigerated Warehouse-Rail	12	N	0.44	13.61	2.80	1	0
Refrigerated Warehouse-Rail	13	N	2.17	27.88	3.70	6	0
Refrigerated Warehouse-Rail	14	N	0.23	11.15	2.46	0	0
Refrigerated Warehouse-Rail	15	N	1.12	36.52	2.42	3	49
Refrigerated Warehouse-Rail	1	Y	0.28	11.15	2.96	0	0
Refrigerated Warehouse-Rail	2	Y	0.46	15.28	3.80	1	0
Refrigerated Warehouse-Rail	3	Y	0.61	21.99	3.04	0	0
Refrigerated Warehouse-Rail	4	Y	0.19	7.99	1.82	1	3
Refrigerated Warehouse-Rail	5	Y	1.08	20.65	2.89	6	13
Refrigerated Warehouse-Rail	6	Y	0.63	13.70	2.33	1	1
Refrigerated Warehouse-Rail	7	Y	0.72	26.24	2.64	7	3
Refrigerated Warehouse-Rail	8	Y	0.38	19.26	3.22	1	0
Refrigerated Warehouse-Rail	9	Y	0.55	13.61	3.35	1	0
Refrigerated Warehouse-Rail	10	Y	1.41	36.52	3.63	3	49
Refrigerated Warehouse-Rail	11	Y	0.55	13.61	3.35	1	0
Refrigerated Warehouse-Rail	12	Y	0.55	13.61	3.35	1	0
Refrigerated Warehouse-Rail	13	Y	2.64	27.88	4.39	7	0
Refrigerated Warehouse-Rail	14	Y	0.28	11.15	2.96	0	0
Refrigerated Warehouse-Rail	15	Y	1.41	36.52	3.63	3	49
Regional Shopping Center	1	N	5.25	2.81	5.84	7	0
Regional Shopping Center	2	N	4.08	1.98	6.08	11	0
Regional Shopping Center	3	N	2.24	2.30	3.81	9	2
Regional Shopping Center	4	N	2.89	2.68	5.38	2	0
Regional Shopping Center	5	N	2.35	3.36	5.00	4	1
Regional Shopping Center	6	N	3.41	2.98	5.47	5	1
Regional Shopping Center	7	N	3.31	2.49	4.65	6	0
Regional Shopping Center	8	N	3.07	2.80	5.85	1	1
Regional Shopping Center	9	N	4.20	3.23	6.43	1	0
Regional Shopping Center	10	N	4.80	2.44	5.77	2	0
Regional Shopping Center	11	N	4.20	3.23	6.43	1	0
Regional Shopping Center	12	N	4.20	3.23	6.43	1	0
Regional Shopping Center	13	N	3.34	3.16	6.39	1	1
Regional Shopping Center	14	N	5.25	2.81	5.84	7	0
Regional Shopping Center	15	N	4.80	2.44	5.77	2	0
Regional Shopping Center	1	Y	6.81	2.81	6.86	9	0
Regional Shopping Center	2	Y	4.97	1.98	7.17	14	0
Regional Shopping Center	3	Y	2.77	2.30	4.53	10	2
Regional Shopping Center	4	Y	3.55	2.68	6.02	3	0
Regional Shopping Center	5	Y	2.90	3.36	5.88	5	1
Regional Shopping Center	6	Y	4.20	2.98	6.45	6	1
Regional Shopping Center	7	Y	4.12	2.49	5.50	7	0
Regional Shopping Center	8	Y	3.79	2.80	6.85	1	1
Regional Shopping Center	9	Y	5.17	3.23	7.56	1	0
Regional Shopping Center	10	Y	5.95	2.44	8.20	2	0
Regional Shopping Center	11	Y	5.17	3.23	7.56	1	0
Regional Shopping Center	12	Y	5.17	3.23	7.56	1	0
Regional Shopping Center	13	Y	4.13	3.16	7.50	1	1
Regional Shopping Center	14	Y	6.81	2.81	6.86	9	0
Regional Shopping Center	15	Y	5.95	2.44	8.20	2	0
Research & Development	1	N	0.65	1.85	1.86	3	0
Research & Development	2	N	1.73	4.20	2.68	19	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Research & Development	3	N	2.05	4.16	2.78	17	4
Research & Development	4	N	1.55	3.70	3.17	20	7
Research & Development	5	N	1.27	3.36	3.07	18	7
Research & Development	6	N	3.58	7.20	4.72	24	12
Research & Development	7	N	0.42	1.31	0.67	17	0
Research & Development	8	N	1.71	3.83	3.08	14	7
Research & Development	9	N	2.36	5.75	3.20	14	4
Research & Development	10	N	2.31	5.02	3.01	15	17
Research & Development	11	N	2.36	5.75	3.20	14	4
Research & Development	12	N	2.36	5.75	3.20	14	4
Research & Development	13	N	1.27	4.27	2.91	4	7
Research & Development	14	N	0.65	1.85	1.86	3	0
Research & Development	15	N	2.31	5.02	3.01	15	17
Research & Development	1	Y	0.83	1.85	2.28	4	0
Research & Development	2	Y	2.17	4.20	3.26	22	0
Research & Development	3	Y	2.52	4.16	3.35	20	4
Research & Development	4	Y	1.93	3.70	3.80	23	7
Research & Development	5	Y	1.59	3.36	3.70	20	7
Research & Development	6	Y	4.47	7.20	5.65	26	12
Research & Development	7	Y	0.51	1.31	0.91	19	0
Research & Development	8	Y	2.12	3.83	3.70	15	7
Research & Development	9	Y	2.94	5.75	3.85	15	4
Research & Development	10	Y	2.89	5.02	3.62	17	17
Research & Development	11	Y	2.94	5.75	3.85	15	4
Research & Development	12	Y	2.94	5.75	3.85	15	4
Research & Development	13	Y	1.59	4.27	3.52	5	7
Research & Development	14	Y	0.83	1.85	2.28	4	0
Research & Development	15	Y	2.89	5.02	3.62	17	17
Retirement Community	1	N	915.02	3418.36	1001.10	13276	1599
Retirement Community	2	N	602.73	3418.36	1001.10	13581	2687
Retirement Community	3	N	818.86	3418.36	1001.10	15027	3723
Retirement Community	4	N	431.22	3418.36	1001.10	10164	3155
Retirement Community	5	N	274.84	3418.36	1001.10	25591	2615
Retirement Community	6	N	602.73	3418.36	1001.10	13581	2687
Retirement Community	7	N	770.01	3418.36	1001.10	17188	4769
Retirement Community	8	N	208.74	3418.36	1001.10	10453	5516
Retirement Community	9	N	303.39	3418.36	1001.10	14366	6384
Retirement Community	10	N	1034.36	3418.36	1001.10	13773	6030
Retirement Community	11	N	159.21	3418.36	1001.10	13398	4831
Retirement Community	12	N	231.70	3418.36	1001.10	6489	6281
Retirement Community	13	N	307.62	3418.36	1001.10	10167	4180
Retirement Community	14	N	915.02	3418.36	1001.10	13276	1599
Retirement Community	15	N	1034.36	3418.36	1001.10	13773	6030
Retirement Community	1	Y	618.37	3125.85	1001.10	4221	2951
Retirement Community	2	Y	375.03	3125.85	1001.10	20388	2951
Retirement Community	3	Y	671.81	3125.85	1001.10	16255	2951
Retirement Community	4	Y	229.45	3125.85	1001.10	17767	2951
Retirement Community	5	Y	169.05	3125.85	1001.10	22944	2951
Retirement Community	6	Y	375.03	3125.85	1001.10	20388	2951
Retirement Community	7	Y	551.09	3125.85	1001.10	8416	2951
Retirement Community	8	Y	245.59	3126.32	1001.10	13843	2951
Retirement Community	9	Y	336.00	3126.97	1001.10	12317	2951
Retirement Community	10	Y	933.44	3125.85	1001.10	18983	2951
Retirement Community	11	Y	286.69	3125.85	1001.10	15240	3047
Retirement Community	12	Y	336.32	3125.85	1001.10	11139	2974
Retirement Community	13	Y	257.40	3126.41	1001.10	11602	3002
Retirement Community	14	Y	618.37	3125.85	1001.10	4221	2951
Retirement Community	15	Y	933.44	3125.85	1001.10	18983	2951
Single Family Housing	1	N	1033.30	6680.41	1608.84	13313	1599
Single Family Housing	2	N	768.93	6680.41	1608.84	29301	2687
Single Family Housing	3	N	1127.90	6680.41	1608.84	28383	3723
Single Family Housing	4	N	368.92	6680.41	1608.84	32798	3155
Single Family Housing	5	N	246.52	6680.41	1608.84	50264	2615
Single Family Housing	6	N	768.93	6680.41	1608.84	29301	2687
Single Family Housing	7	N	939.13	6680.41	1608.84	26538	4769
Single Family Housing	8	N	287.34	6680.41	1608.84	25682	5516
Single Family Housing	9	N	502.24	6680.41	1608.84	26697	6384

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Single Family Housing	10	N	1077.77	6680.41	1608.84	31096	6030
Single Family Housing	11	N	238.85	6680.41	1608.84	28690	4831
Single Family Housing	12	N	647.82	6680.41	1608.84	29806	6281
Single Family Housing	13	N	374.93	6680.41	1608.84	24313	4180
Single Family Housing	14	N	1033.30	6680.41	1608.84	13313	1599
Single Family Housing	15	N	1077.77	6680.41	1608.84	31096	6030
Single Family Housing	1	Y	686.47	5105.81	1608.84	12959	6168
Single Family Housing	2	Y	943.88	5098.84	1608.84	29131	5934
Single Family Housing	3	Y	1243.06	5093.98	1608.84	28148	6005
Single Family Housing	4	Y	476.86	5095.49	1608.84	32673	5877
Single Family Housing	5	Y	321.72	5096.44	1608.84	49808	6193
Single Family Housing	6	Y	943.88	5098.84	1608.84	29131	5934
Single Family Housing	7	Y	988.10	5099.35	1608.84	26247	6070
Single Family Housing	8	Y	505.85	5089.81	1608.84	25627	5819
Single Family Housing	9	Y	771.15	5089.81	1608.84	26604	5857
Single Family Housing	10	Y	1269.07	5089.81	1608.84	30908	5950
Single Family Housing	11	Y	467.55	5089.81	1608.84	28629	5819
Single Family Housing	12	Y	974.99	5089.81	1608.84	29742	5819
Single Family Housing	13	Y	550.61	5089.81	1608.84	24261	5819
Single Family Housing	14	Y	686.47	5105.81	1608.84	12959	6168
Single Family Housing	15	Y	1269.07	5089.81	1608.84	30908	5950
Strip Mall	1	N	5.25	2.81	5.84	7	0
Strip Mall	2	N	4.08	1.98	6.08	11	0
Strip Mall	3	N	2.24	2.30	3.81	9	2
Strip Mall	4	N	2.89	2.68	5.38	2	0
Strip Mall	5	N	2.35	3.36	5.00	4	1
Strip Mall	6	N	3.41	2.98	5.47	5	1
Strip Mall	7	N	3.31	2.49	4.65	6	0
Strip Mall	8	N	3.07	2.80	5.85	1	1
Strip Mall	9	N	4.20	3.23	6.43	1	0
Strip Mall	10	N	4.80	2.44	5.77	2	0
Strip Mall	11	N	4.20	3.23	6.43	1	0
Strip Mall	12	N	4.20	3.23	6.43	1	0
Strip Mall	13	N	3.34	3.16	6.39	1	1
Strip Mall	14	N	5.25	2.81	5.84	7	0
Strip Mall	15	N	4.80	2.44	5.77	2	0
Strip Mall	1	Y	6.81	2.81	6.86	9	0
Strip Mall	2	Y	4.97	1.98	7.17	14	0
Strip Mall	3	Y	2.77	2.30	4.53	10	2
Strip Mall	4	Y	3.55	2.68	6.02	3	0
Strip Mall	5	Y	2.90	3.36	5.88	5	1
Strip Mall	6	Y	4.20	2.98	6.45	6	1
Strip Mall	7	Y	4.12	2.49	5.50	7	0
Strip Mall	8	Y	3.79	2.80	6.85	1	1
Strip Mall	9	Y	5.17	3.23	7.56	1	0
Strip Mall	10	Y	5.95	2.44	8.20	2	0
Strip Mall	11	Y	5.17	3.23	7.56	1	0
Strip Mall	12	Y	5.17	3.23	7.56	1	0
Strip Mall	13	Y	4.13	3.16	7.50	1	1
Strip Mall	14	Y	6.81	2.81	6.86	9	0
Strip Mall	15	Y	5.95	2.44	8.20	2	0
Supermarket	1	N	2.47	25.04	6.94	25	1
Supermarket	2	N	6.03	26.20	8.49	39	0
Supermarket	3	N	4.09	22.51	6.76	15	14
Supermarket	4	N	4.28	30.13	7.33	17	6
Supermarket	5	N	2.85	27.24	7.61	25	13
Supermarket	6	N	5.98	25.85	9.06	16	9
Supermarket	7	N	4.19	25.36	8.49	8	1
Supermarket	8	N	4.94	25.23	8.90	10	11
Supermarket	9	N	4.63	25.88	7.22	10	12
Supermarket	10	N	6.37	22.82	6.66	13	7
Supermarket	11	N	4.63	25.88	7.22	10	12
Supermarket	12	N	4.63	25.88	7.22	10	12
Supermarket	13	N	3.41	25.54	7.12	10	15
Supermarket	14	N	2.47	25.04	6.94	25	1
Supermarket	15	N	6.37	22.82	6.66	13	7
Supermarket	1	Y	3.02	25.04	8.09	27	1

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Supermarket	2	Y	7.50	26.20	9.86	45	0
Supermarket	3	Y	5.05	22.51	7.91	18	14
Supermarket	4	Y	5.25	30.13	8.17	20	6
Supermarket	5	Y	3.43	27.24	8.88	28	13
Supermarket	6	Y	7.36	25.85	10.53	19	9
Supermarket	7	Y	5.16	25.36	9.92	8	1
Supermarket	8	Y	6.08	25.23	10.35	11	11
Supermarket	9	Y	5.77	25.88	8.45	11	12
Supermarket	10	Y	7.92	22.82	9.70	15	7
Supermarket	11	Y	5.77	25.88	8.45	11	12
Supermarket	12	Y	5.77	25.88	8.45	11	12
Supermarket	13	Y	4.18	25.54	8.33	11	15
Supermarket	14	Y	3.02	25.04	8.09	27	1
Supermarket	15	Y	7.92	22.82	9.70	15	7
Unenclosed Parking Structure	1	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	2	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	3	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	4	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	5	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	6	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	7	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	8	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	9	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	10	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	11	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	12	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	13	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	14	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	15	N	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	1	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	2	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	3	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	4	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	5	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	6	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	7	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	8	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	9	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	10	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	11	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	12	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	13	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	14	Y	0.00	0.00	2.63	0	0
Unenclosed Parking Structure	15	Y	0.00	0.00	2.63	0	0
Unenclosed Parking with Elevator	1	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	2	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	3	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	4	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	5	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	6	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	7	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	8	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	9	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	10	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	11	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	12	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	13	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	14	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	15	N	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	1	Y	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	2	Y	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	3	Y	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	4	Y	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	5	Y	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	6	Y	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	7	Y	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	8	Y	0.00	0.19	2.63	0	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Unenclosed Parking with Elevator	9	Y	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	10	Y	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	11	Y	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	12	Y	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	13	Y	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	14	Y	0.00	0.19	2.63	0	0
Unenclosed Parking with Elevator	15	Y	0.00	0.19	2.63	0	0
University/College (4yr)	1	N	2.72	1.73	5.93	22	0
University/College (4yr)	2	N	3.94	0.34	4.76	41	0
University/College (4yr)	3	N	3.11	2.63	5.97	21	1
University/College (4yr)	4	N	2.87	2.27	2.99	21	3
University/College (4yr)	5	N	4.34	3.15	3.01	34	1
University/College (4yr)	6	N	3.53	2.09	3.12	26	0
University/College (4yr)	7	N	3.80	6.44	6.00	52	0
University/College (4yr)	8	N	5.23	2.72	4.75	10	5
University/College (4yr)	9	N	3.18	3.59	3.48	27	1
University/College (4yr)	10	N	2.07	1.92	4.10	14	0
University/College (4yr)	11	N	3.18	3.59	3.48	27	1
University/College (4yr)	12	N	3.18	3.59	3.48	27	1
University/College (4yr)	13	N	2.79	2.69	3.63	31	5
University/College (4yr)	14	N	2.72	1.73	5.93	22	0
University/College (4yr)	15	N	2.07	1.92	4.10	14	0
University/College (4yr)	1	Y	3.42	1.73	7.02	25	0
University/College (4yr)	2	Y	5.14	0.34	5.63	50	0
University/College (4yr)	3	Y	3.94	2.63	7.00	25	1
University/College (4yr)	4	Y	3.49	2.27	3.58	24	3
University/College (4yr)	5	Y	5.41	3.15	3.61	40	1
University/College (4yr)	6	Y	4.47	2.09	3.75	31	0
University/College (4yr)	7	Y	4.74	6.44	7.07	59	0
University/College (4yr)	8	Y	7.10	2.72	5.59	12	5
University/College (4yr)	9	Y	4.07	3.59	4.14	31	1
University/College (4yr)	10	Y	2.64	1.92	4.86	17	0
University/College (4yr)	11	Y	4.07	3.59	4.14	31	1
University/College (4yr)	12	Y	4.07	3.59	4.14	31	1
University/College (4yr)	13	Y	3.73	2.69	4.35	36	5
University/College (4yr)	14	Y	3.42	1.73	7.02	25	0
University/College (4yr)	15	Y	2.64	1.92	4.86	17	0
Unrefrigerated Warehouse-No Rail	1	N	0.00	0.00	0.00	0	0
Unrefrigerated Warehouse-No Rail	2	N	0.52	1.77	2.39	6	0
Unrefrigerated Warehouse-No Rail	3	N	1.09	5.13	2.31	17	1
Unrefrigerated Warehouse-No Rail	4	N	0.33	1.07	2.20	3	0
Unrefrigerated Warehouse-No Rail	5	N	0.25	1.38	2.22	1	0
Unrefrigerated Warehouse-No Rail	6	N	0.27	1.36	1.64	0	0
Unrefrigerated Warehouse-No Rail	7	N	0.94	0.95	1.51	0	0
Unrefrigerated Warehouse-No Rail	8	N	0.62	1.61	2.01	4	0
Unrefrigerated Warehouse-No Rail	9	N	0.68	1.34	1.96	1	0
Unrefrigerated Warehouse-No Rail	10	N	0.39	0.82	1.20	2	0
Unrefrigerated Warehouse-No Rail	11	N	0.68	1.34	1.96	1	0
Unrefrigerated Warehouse-No Rail	12	N	0.68	1.34	1.96	1	0
Unrefrigerated Warehouse-No Rail	13	N	0.92	1.11	1.70	2	0
Unrefrigerated Warehouse-No Rail	14	N	0.00	0.00	0.00	0	0
Unrefrigerated Warehouse-No Rail	15	N	0.39	0.82	1.20	2	0
Unrefrigerated Warehouse-No Rail	1	Y	0.00	0.00	0.00	0	0
Unrefrigerated Warehouse-No Rail	2	Y	0.65	1.77	2.89	8	0
Unrefrigerated Warehouse-No Rail	3	Y	1.36	5.13	3.94	18	1
Unrefrigerated Warehouse-No Rail	4	Y	0.42	1.07	2.57	4	0
Unrefrigerated Warehouse-No Rail	5	Y	0.31	1.38	2.69	1	0
Unrefrigerated Warehouse-No Rail	6	Y	0.38	1.36	1.88	1	0
Unrefrigerated Warehouse-No Rail	7	Y	0.00	0.00	0.00	0	0
Unrefrigerated Warehouse-No Rail	8	Y	0.77	1.61	2.30	5	0
Unrefrigerated Warehouse-No Rail	9	Y	0.85	1.34	2.38	1	0
Unrefrigerated Warehouse-No Rail	10	Y	0.48	0.82	1.88	2	0
Unrefrigerated Warehouse-No Rail	11	Y	0.85	1.34	2.38	1	0
Unrefrigerated Warehouse-No Rail	12	Y	0.85	1.34	2.38	1	0
Unrefrigerated Warehouse-No Rail	13	Y	1.13	1.11	2.09	2	0
Unrefrigerated Warehouse-No Rail	14	Y	0.00	0.00	0.00	0	0
Unrefrigerated Warehouse-No Rail	15	Y	0.48	0.82	1.88	2	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
Unrefrigerated Warehouse-Rail	1	N	0.00	0.00	0.00	0	0
Unrefrigerated Warehouse-Rail	2	N	0.52	1.77	2.39	6	0
Unrefrigerated Warehouse-Rail	3	N	1.09	5.13	2.31	17	1
Unrefrigerated Warehouse-Rail	4	N	0.33	1.07	2.20	3	0
Unrefrigerated Warehouse-Rail	5	N	0.25	1.38	2.22	1	0
Unrefrigerated Warehouse-Rail	6	N	0.27	1.36	1.64	0	0
Unrefrigerated Warehouse-Rail	7	N	0.94	0.95	1.51	1	0
Unrefrigerated Warehouse-Rail	8	N	0.62	1.61	2.01	4	0
Unrefrigerated Warehouse-Rail	9	N	0.68	1.34	1.96	1	0
Unrefrigerated Warehouse-Rail	10	N	0.39	0.82	1.20	2	0
Unrefrigerated Warehouse-Rail	11	N	0.68	1.34	1.96	1	0
Unrefrigerated Warehouse-Rail	12	N	0.68	1.34	1.96	1	0
Unrefrigerated Warehouse-Rail	13	N	0.92	1.11	1.70	2	0
Unrefrigerated Warehouse-Rail	14	N	0.00	0.00	0.00	0	0
Unrefrigerated Warehouse-Rail	15	N	0.39	0.82	1.20	2	0
Unrefrigerated Warehouse-Rail	1	Y	0.00	0.00	0.00	0	0
Unrefrigerated Warehouse-Rail	2	Y	0.65	1.77	2.89	8	0
Unrefrigerated Warehouse-Rail	3	Y	1.36	5.13	3.94	18	1
Unrefrigerated Warehouse-Rail	4	Y	0.42	1.07	2.57	4	0
Unrefrigerated Warehouse-Rail	5	Y	0.31	1.38	2.69	1	0
Unrefrigerated Warehouse-Rail	6	Y	0.38	1.36	1.88	1	0
Unrefrigerated Warehouse-Rail	7	Y	0.00	0.00	0.00	0	0
Unrefrigerated Warehouse-Rail	8	Y	0.77	1.61	2.30	5	0
Unrefrigerated Warehouse-Rail	9	Y	0.85	1.34	2.38	1	0
Unrefrigerated Warehouse-Rail	10	Y	0.48	0.82	1.88	2	0
Unrefrigerated Warehouse-Rail	11	Y	0.85	1.34	2.38	1	0
Unrefrigerated Warehouse-Rail	12	Y	0.85	1.34	2.38	1	0
Unrefrigerated Warehouse-Rail	13	Y	1.13	1.11	2.09	2	0
Unrefrigerated Warehouse-Rail	14	Y	0.00	0.00	0.00	0	0
Unrefrigerated Warehouse-Rail	15	Y	0.48	0.82	1.88	2	0
User Defined Commercial	1	N	0.00	0.00	0.00	0	0
User Defined Commercial	2	N	0.00	0.00	0.00	0	0
User Defined Commercial	3	N	0.00	0.00	0.00	0	0
User Defined Commercial	4	N	0.00	0.00	0.00	0	0
User Defined Commercial	5	N	0.00	0.00	0.00	0	0
User Defined Commercial	6	N	0.00	0.00	0.00	0	0
User Defined Commercial	7	N	0.00	0.00	0.00	0	0
User Defined Commercial	8	N	0.00	0.00	0.00	0	0
User Defined Commercial	9	N	0.00	0.00	0.00	0	0
User Defined Commercial	10	N	0.00	0.00	0.00	0	0
User Defined Commercial	11	N	0.00	0.00	0.00	0	0
User Defined Commercial	12	N	0.00	0.00	0.00	0	0
User Defined Commercial	13	N	0.00	0.00	0.00	0	0
User Defined Commercial	14	N	0.00	0.00	0.00	0	0
User Defined Commercial	15	N	0.00	0.00	0.00	0	0
User Defined Commercial	1	Y	0.00	0.00	0.00	0	0
User Defined Commercial	2	Y	0.00	0.00	0.00	0	0
User Defined Commercial	3	Y	0.00	0.00	0.00	0	0
User Defined Commercial	4	Y	0.00	0.00	0.00	0	0
User Defined Commercial	5	Y	0.00	0.00	0.00	0	0
User Defined Commercial	6	Y	0.00	0.00	0.00	0	0
User Defined Commercial	7	Y	0.00	0.00	0.00	0	0
User Defined Commercial	8	Y	0.00	0.00	0.00	0	0
User Defined Commercial	9	Y	0.00	0.00	0.00	0	0
User Defined Commercial	10	Y	0.00	0.00	0.00	0	0
User Defined Commercial	11	Y	0.00	0.00	0.00	0	0
User Defined Commercial	12	Y	0.00	0.00	0.00	0	0
User Defined Commercial	13	Y	0.00	0.00	0.00	0	0
User Defined Commercial	14	Y	0.00	0.00	0.00	0	0
User Defined Commercial	15	Y	0.00	0.00	0.00	0	0
User Defined Educational	1	N	0.00	0.00	0.00	0	0
User Defined Educational	2	N	0.00	0.00	0.00	0	0
User Defined Educational	3	N	0.00	0.00	0.00	0	0
User Defined Educational	4	N	0.00	0.00	0.00	0	0
User Defined Educational	5	N	0.00	0.00	0.00	0	0
User Defined Educational	6	N	0.00	0.00	0.00	0	0
User Defined Educational	7	N	0.00	0.00	0.00	0	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
User Defined Educational	8	N	0.00	0.00	0.00	0	0
User Defined Educational	9	N	0.00	0.00	0.00	0	0
User Defined Educational	10	N	0.00	0.00	0.00	0	0
User Defined Educational	11	N	0.00	0.00	0.00	0	0
User Defined Educational	12	N	0.00	0.00	0.00	0	0
User Defined Educational	13	N	0.00	0.00	0.00	0	0
User Defined Educational	14	N	0.00	0.00	0.00	0	0
User Defined Educational	15	N	0.00	0.00	0.00	0	0
User Defined Educational	1	Y	0.00	0.00	0.00	0	0
User Defined Educational	2	Y	0.00	0.00	0.00	0	0
User Defined Educational	3	Y	0.00	0.00	0.00	0	0
User Defined Educational	4	Y	0.00	0.00	0.00	0	0
User Defined Educational	5	Y	0.00	0.00	0.00	0	0
User Defined Educational	6	Y	0.00	0.00	0.00	0	0
User Defined Educational	7	Y	0.00	0.00	0.00	0	0
User Defined Educational	8	Y	0.00	0.00	0.00	0	0
User Defined Educational	9	Y	0.00	0.00	0.00	0	0
User Defined Educational	10	Y	0.00	0.00	0.00	0	0
User Defined Educational	11	Y	0.00	0.00	0.00	0	0
User Defined Educational	12	Y	0.00	0.00	0.00	0	0
User Defined Educational	13	Y	0.00	0.00	0.00	0	0
User Defined Educational	14	Y	0.00	0.00	0.00	0	0
User Defined Educational	15	Y	0.00	0.00	0.00	0	0
User Defined Industrial	1	N	0.00	0.00	0.00	0	0
User Defined Industrial	2	N	0.00	0.00	0.00	0	0
User Defined Industrial	3	N	0.00	0.00	0.00	0	0
User Defined Industrial	4	N	0.00	0.00	0.00	0	0
User Defined Industrial	5	N	0.00	0.00	0.00	0	0
User Defined Industrial	6	N	0.00	0.00	0.00	0	0
User Defined Industrial	7	N	0.00	0.00	0.00	0	0
User Defined Industrial	8	N	0.00	0.00	0.00	0	0
User Defined Industrial	9	N	0.00	0.00	0.00	0	0
User Defined Industrial	10	N	0.00	0.00	0.00	0	0
User Defined Industrial	11	N	0.00	0.00	0.00	0	0
User Defined Industrial	12	N	0.00	0.00	0.00	0	0
User Defined Industrial	13	N	0.00	0.00	0.00	0	0
User Defined Industrial	14	N	0.00	0.00	0.00	0	0
User Defined Industrial	15	N	0.00	0.00	0.00	0	0
User Defined Industrial	1	Y	0.00	0.00	0.00	0	0
User Defined Industrial	2	Y	0.00	0.00	0.00	0	0
User Defined Industrial	3	Y	0.00	0.00	0.00	0	0
User Defined Industrial	4	Y	0.00	0.00	0.00	0	0
User Defined Industrial	5	Y	0.00	0.00	0.00	0	0
User Defined Industrial	6	Y	0.00	0.00	0.00	0	0
User Defined Industrial	7	Y	0.00	0.00	0.00	0	0
User Defined Industrial	8	Y	0.00	0.00	0.00	0	0
User Defined Industrial	9	Y	0.00	0.00	0.00	0	0
User Defined Industrial	10	Y	0.00	0.00	0.00	0	0
User Defined Industrial	11	Y	0.00	0.00	0.00	0	0
User Defined Industrial	12	Y	0.00	0.00	0.00	0	0
User Defined Industrial	13	Y	0.00	0.00	0.00	0	0
User Defined Industrial	14	Y	0.00	0.00	0.00	0	0
User Defined Industrial	15	Y	0.00	0.00	0.00	0	0
User Defined Parking	1	N	0.00	0.00	0.00	0	0
User Defined Parking	2	N	0.00	0.00	0.00	0	0
User Defined Parking	3	N	0.00	0.00	0.00	0	0
User Defined Parking	4	N	0.00	0.00	0.00	0	0
User Defined Parking	5	N	0.00	0.00	0.00	0	0
User Defined Parking	6	N	0.00	0.00	0.00	0	0
User Defined Parking	7	N	0.00	0.00	0.00	0	0
User Defined Parking	8	N	0.00	0.00	0.00	0	0
User Defined Parking	9	N	0.00	0.00	0.00	0	0
User Defined Parking	10	N	0.00	0.00	0.00	0	0
User Defined Parking	11	N	0.00	0.00	0.00	0	0
User Defined Parking	12	N	0.00	0.00	0.00	0	0
User Defined Parking	13	N	0.00	0.00	0.00	0	0
User Defined Parking	14	N	0.00	0.00	0.00	0	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity	Electricity	Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
User Defined Parking	15	N	0.00	0.00	0.00	0	0
User Defined Parking	1	Y	0.00	0.00	0.00	0	0
User Defined Parking	2	Y	0.00	0.00	0.00	0	0
User Defined Parking	3	Y	0.00	0.00	0.00	0	0
User Defined Parking	4	Y	0.00	0.00	0.00	0	0
User Defined Parking	5	Y	0.00	0.00	0.00	0	0
User Defined Parking	6	Y	0.00	0.00	0.00	0	0
User Defined Parking	7	Y	0.00	0.00	0.00	0	0
User Defined Parking	8	Y	0.00	0.00	0.00	0	0
User Defined Parking	9	Y	0.00	0.00	0.00	0	0
User Defined Parking	10	Y	0.00	0.00	0.00	0	0
User Defined Parking	11	Y	0.00	0.00	0.00	0	0
User Defined Parking	12	Y	0.00	0.00	0.00	0	0
User Defined Parking	13	Y	0.00	0.00	0.00	0	0
User Defined Parking	14	Y	0.00	0.00	0.00	0	0
User Defined Parking	15	Y	0.00	0.00	0.00	0	0
User Defined Recreational	1	N	0.00	0.00	0.00	0	0
User Defined Recreational	2	N	0.00	0.00	0.00	0	0
User Defined Recreational	3	N	0.00	0.00	0.00	0	0
User Defined Recreational	4	N	0.00	0.00	0.00	0	0
User Defined Recreational	5	N	0.00	0.00	0.00	0	0
User Defined Recreational	6	N	0.00	0.00	0.00	0	0
User Defined Recreational	7	N	0.00	0.00	0.00	0	0
User Defined Recreational	8	N	0.00	0.00	0.00	0	0
User Defined Recreational	9	N	0.00	0.00	0.00	0	0
User Defined Recreational	10	N	0.00	0.00	0.00	0	0
User Defined Recreational	11	N	0.00	0.00	0.00	0	0
User Defined Recreational	12	N	0.00	0.00	0.00	0	0
User Defined Recreational	13	N	0.00	0.00	0.00	0	0
User Defined Recreational	14	N	0.00	0.00	0.00	0	0
User Defined Recreational	15	N	0.00	0.00	0.00	0	0
User Defined Recreational	1	Y	0.00	0.00	0.00	0	0
User Defined Recreational	2	Y	0.00	0.00	0.00	0	0
User Defined Recreational	3	Y	0.00	0.00	0.00	0	0
User Defined Recreational	4	Y	0.00	0.00	0.00	0	0
User Defined Recreational	5	Y	0.00	0.00	0.00	0	0
User Defined Recreational	6	Y	0.00	0.00	0.00	0	0
User Defined Recreational	7	Y	0.00	0.00	0.00	0	0
User Defined Recreational	8	Y	0.00	0.00	0.00	0	0
User Defined Recreational	9	Y	0.00	0.00	0.00	0	0
User Defined Recreational	10	Y	0.00	0.00	0.00	0	0
User Defined Recreational	11	Y	0.00	0.00	0.00	0	0
User Defined Recreational	12	Y	0.00	0.00	0.00	0	0
User Defined Recreational	13	Y	0.00	0.00	0.00	0	0
User Defined Recreational	14	Y	0.00	0.00	0.00	0	0
User Defined Recreational	15	Y	0.00	0.00	0.00	0	0
User Defined Residential	1	N	0.00	0.00	0.00	0	0
User Defined Residential	2	N	0.00	0.00	0.00	0	0
User Defined Residential	3	N	0.00	0.00	0.00	0	0
User Defined Residential	4	N	0.00	0.00	0.00	0	0
User Defined Residential	5	N	0.00	0.00	0.00	0	0
User Defined Residential	6	N	0.00	0.00	0.00	0	0
User Defined Residential	7	N	0.00	0.00	0.00	0	0
User Defined Residential	8	N	0.00	0.00	0.00	0	0
User Defined Residential	9	N	0.00	0.00	0.00	0	0
User Defined Residential	10	N	0.00	0.00	0.00	0	0
User Defined Residential	11	N	0.00	0.00	0.00	0	0
User Defined Residential	12	N	0.00	0.00	0.00	0	0
User Defined Residential	13	N	0.00	0.00	0.00	0	0
User Defined Residential	14	N	0.00	0.00	0.00	0	0
User Defined Residential	15	N	0.00	0.00	0.00	0	0
User Defined Residential	1	Y	0.00	0.00	0.00	0	0
User Defined Residential	2	Y	0.00	0.00	0.00	0	0
User Defined Residential	3	Y	0.00	0.00	0.00	0	0
User Defined Residential	4	Y	0.00	0.00	0.00	0	0
User Defined Residential	5	Y	0.00	0.00	0.00	0	0
User Defined Residential	6	Y	0.00	0.00	0.00	0	0

Table 8.1 Energy Use by Climate Zone and Land Use Type

Land Use Sub Type	Climate Zone	Historical	T24	NT24	Lighting	T24	NT24
			Electricity	Electricity		Natural Gas	Natural Gas
			KWhr per DU or SQFT			kBtu per DU or SQFT	
User Defined Residential	7	Y	0.00	0.00	0.00	0	0
User Defined Residential	8	Y	0.00	0.00	0.00	0	0
User Defined Residential	9	Y	0.00	0.00	0.00	0	0
User Defined Residential	10	Y	0.00	0.00	0.00	0	0
User Defined Residential	11	Y	0.00	0.00	0.00	0	0
User Defined Residential	12	Y	0.00	0.00	0.00	0	0
User Defined Residential	13	Y	0.00	0.00	0.00	0	0
User Defined Residential	14	Y	0.00	0.00	0.00	0	0
User Defined Residential	15	Y	0.00	0.00	0.00	0	0
User Defined Retail	1	N	0.00	0.00	0.00	0	0
User Defined Retail	2	N	0.00	0.00	0.00	0	0
User Defined Retail	3	N	0.00	0.00	0.00	0	0
User Defined Retail	4	N	0.00	0.00	0.00	0	0
User Defined Retail	5	N	0.00	0.00	0.00	0	0
User Defined Retail	6	N	0.00	0.00	0.00	0	0
User Defined Retail	7	N	0.00	0.00	0.00	0	0
User Defined Retail	8	N	0.00	0.00	0.00	0	0
User Defined Retail	9	N	0.00	0.00	0.00	0	0
User Defined Retail	10	N	0.00	0.00	0.00	0	0
User Defined Retail	11	N	0.00	0.00	0.00	0	0
User Defined Retail	12	N	0.00	0.00	0.00	0	0
User Defined Retail	13	N	0.00	0.00	0.00	0	0
User Defined Retail	14	N	0.00	0.00	0.00	0	0
User Defined Retail	15	N	0.00	0.00	0.00	0	0
User Defined Retail	1	Y	0.00	0.00	0.00	0	0
User Defined Retail	2	Y	0.00	0.00	0.00	0	0
User Defined Retail	3	Y	0.00	0.00	0.00	0	0
User Defined Retail	4	Y	0.00	0.00	0.00	0	0
User Defined Retail	5	Y	0.00	0.00	0.00	0	0
User Defined Retail	6	Y	0.00	0.00	0.00	0	0
User Defined Retail	7	Y	0.00	0.00	0.00	0	0
User Defined Retail	8	Y	0.00	0.00	0.00	0	0
User Defined Retail	9	Y	0.00	0.00	0.00	0	0
User Defined Retail	10	Y	0.00	0.00	0.00	0	0
User Defined Retail	11	Y	0.00	0.00	0.00	0	0
User Defined Retail	12	Y	0.00	0.00	0.00	0	0
User Defined Retail	13	Y	0.00	0.00	0.00	0	0
User Defined Retail	14	Y	0.00	0.00	0.00	0	0
User Defined Retail	15	Y	0.00	0.00	0.00	0	0

Table 8.2 Natural Gas Emission Factors

Land Use Type	TOG, lb/MMBTU	ROG, lb/MMBTU	SO ₂ , lb/MMBTU	NO _X , lb/MMBTU	PB, lb/MMBTU	PM ₁₀ , lb/MMBTU	PM _{2.5} , lb/MMBTU	CO, lb/MMBTU	CO ₂ NBIO, lb/MMBTU	CH ₄ , lb/MMBTU	N ₂ O, lb/MMBTU
Residential	0.01078431	0.01078431	0.00058824	0.09215686	4.90196E-07	0.00745098	0.00745098	0.03921569	117.647059	0.0022549	0.00215686
Nonresidential	0.01078431	0.01078431	0.00058824	0.09803922	4.90196E-07	0.00745098	0.00745098	0.08235294	117.647059	0.0022549	0.00215686

Table 9.1 Water Use Rates

Land Use Sub Type	Size Metric	Indoor Water, gal/size/year ¹	Outdoor Water, gal/size/year ¹
Apartments High Rise	Dwelling Unit	65,154	41,075
Apartments Low Rise	Dwelling Unit	65,154	41,075
Apartments Mid Rise	Dwelling Unit	65,154	41,075
Arena	1000sqft	430,770	27,496
Arena	Acre	1,346,157	85,925
Automobile Care Center	1000sqft	94,081	57,663
Bank (with Drive-Through)	1000sqft	39,623	24,285
City Park	Acre		1,191,481
Condo/Townhouse	Dwelling Unit	65,154	41,075
Condo/Townhouse High Rise	Dwelling Unit	65,154	41,075
Congregate Care (Assisted Living)	Dwelling Unit	65,154	41,075
Convenience Market (24 hour)	1000sqft	74,073	45,399
Convenience Market with Gas Pumps	1000sqft	74,073	45,399
Convenience Market with Gas Pumps	Pump	10,457	6,409
Day-Care Center	1000sqft	42,890	110,287
Day-Care Center	Student	2,424	6,234
Day-Care Center	Employee	386	993
Discount Club	1000sqft	74,073	45,399
Electronic Superstore	1000sqft	74,073	45,399
Elementary School	1000sqft	28,997	74,564
Elementary School	Student	2,424	6,234
Elementary School	Employee	29,523	75,917
Fast Food Restaurant w/o Drive Thru	1000sqft	303,534	19,374
Fast Food Restaurant with Drive Thru	1000sqft	303,534	19,374
Free-Standing Discount Store	1000sqft	74,073	45,399
Free-Standing Discount Superstore	1000sqft	74,073	45,399
Gasoline/Service Station	1000sqft	94,081	57,663
General Heavy Industry	1000sqft	231,250	
General Light Industry	1000sqft	231,250	
General Office Building	1000sqft	177,734	108,934
Golf Course	Acre		1,191,481
Golf Course	Hole		8,317,850
Government (Civic Center)	1000sqft	198,660	121,759
Government Office Building	1000sqft	198,660	121,759
Hardware/Paint Store	1000sqft	74,073	45,399
health club	1000sqft	59,143	36,249
High School	1000sqft	33,205	85,383
High School	Employee	39,494	101,555
High School	Student	4,405	11,327
High Turnover (Sit Down Restaurant)	1000sqft	303,534	19,374
Home Improvement Superstore	1000sqft	74,073	45,399
Hospital	1000sqft	125,481	23,901
Hospital	Bed	89,814	17,107
Hotel	Room	25,367	2,819
Industrial Park	1000sqft	231,250	
Junior College (2yr)	1000sqft	49,049	76,718
Junior College (2yr)	Employee	58,339	91,248
Junior College (2yr)	Student	2,141	3,349
Junior High School	1000sqft	20,621	53,025
Junior High School	Student	2,424	6,234
Junior High School	Employee	24,527	63,069

Table 9.1 Water Use Rates

Land Use Sub Type	Size Metric	Indoor Water, gal/size/year ¹	Outdoor Water, gal/size/year ¹
Library	1000sqft	31,289	48,939
Library	Employee	29,219	45,702
Manufacturing	1000sqft	231,250	
Medical Office Building	1000sqft	125,481	23,901
Mobile Home Park	Dwelling Unit	65,154	41,075
Motel	Room	25,367	2,819
Movie Theater (No Matinee)	1000sqft	401,601	25,634
Movie Theater (No Matinee)	Screen	1,104,404	70,494
Movie Theater (No Matinee)	Seat	9,036	577
Office Park	1000sqft	177,734	108,934
Parking Lot	Space		
Unenclosed Parking Structure	Space		
Enclosed Parking Structure	Space		
Unenclosed Parking with Elevator	Space		
Enclosed Parking with Elevator	Space		
Parking Lot	1000sqft		
Unenclosed Parking Structure	1000sqft		
Enclosed Parking Structure	1000sqft		
Unenclosed Parking with Elevator	1000sqft		
Enclosed Parking with Elevator	1000sqft		
Other Asphalt Surfaces	1000sqft		
Other Non-Asphalt Surfaces	1000sqft		
Parking Lot	Acre		
Unenclosed Parking Structure	Acre		
Enclosed Parking Structure	Acre		
Unenclosed Parking with Elevator	Acre		
Enclosed Parking with Elevator	Acre		
Other Asphalt Surfaces	Acre		
Other Non-Asphalt Surfaces	Acre		
Pharmacy/Drugstore w/o Drive Thru	1000sqft	70,448	43,178
Pharmacy/Drugstore with Drive Thru	1000sqft	70,448	43,178
Place of Worship	1000sqft	31,289	48,939
Place of Worship	Seat	1,580	2,472
Quality Restaurant	1000sqft	303,534	19,374
Racquet Club	1000sqft	59,143	36,249
Recreational Swimming Pool	1000sqft	59,143	36,249
Refrigerated Warehouse-No Rail	1000sqft	231,250	
Refrigerated Warehouse-Rail	1000sqft	231,250	
Regional Shopping Center	1000sqft	74,073	45,399
Research & Development	1000sqft	491,694	
Retirement Community	Dwelling Unit	65,154	41,075
Single Family Housing	Dwelling Unit	65,154	41,075
Strip Mall	1000sqft	74,073	45,399
Supermarket	1000sqft	123,268	3,812
University/College (4yr)	Employee	8,222	12,860
University/College (4yr)	Student	2,141	3,349
University/College (4yr)	1000sqft	11,649	18,221
Unrefrigerated Warehouse-No Rail	1000sqft	231,250	
Unrefrigerated Warehouse-Rail	1000sqft	231,250	

1. Industrial water use is based on a work-year of 250 days per year.

Table 9.2 Water and Wastewater Electricity Intensity

Location Type	Name	Source	Supply Water	Treat Water	Distribute Water	Wastewater Treatment
			kWhr/ million gallons			
Air Basin	Great Basin Valleys	1	2117	111	1272	1911
	Lake County	1	2117	111	1272	1911
	Lake Tahoe	1	2117	111	1272	1911
	Mojave Desert	2	9727	111	1272	1911
	Mountain Counties	1	2117	111	1272	1911
	North Central Coast	1	2117	111	1272	1911
	North Coast	1	2117	111	1272	1911
	Northeast Plateau	1	2117	111	1272	1911
	Sacramento Valley	1	2117	111	1272	1911
	Salton Sea	2	9727	111	1272	1911
	San Diego	2	9727	111	1272	1911
	San Francisco Bay Area	1	2117	111	1272	1911
	San Joaquin Valley	1	2117	111	1272	1911
	South Central Coast	1	2117	111	1272	1911
	South Coast	2	9727	111	1272	1911
Air District	Amador County APCD	1	2117	111	1272	1911
	Antelope Valley APCD	2	9727	111	1272	1911
	Bay Area AQMD	1	2117	111	1272	1911
	Butte County AQMD	1	2117	111	1272	1911
	Calaveras County AQMD	1	2117	111	1272	1911
	Colusa County APCD	1	2117	111	1272	1911
	El Dorado County APCD	1	2117	111	1272	1911
	Feather River AQMD	1	2117	111	1272	1911
	Glenn County APCD	1	2117	111	1272	1911
	Great Basin UAPCD	1	2117	111	1272	1911
	Imperial County APCD	2	9727	111	1272	1911
	Kern County APCD	2	9727	111	1272	1911
	Lake County AQMD	1	2117	111	1272	1911
	Lassen County APCD	1	2117	111	1272	1911
	Mariposa County APCD	1	2117	111	1272	1911
	Mendocino County AQMD	1	2117	111	1272	1911
	Modoc County APCD	1	2117	111	1272	1911
	Mojave Desert AQMD	2	9727	111	1272	1911
	Monterey Bay Unified APCD	1	2117	111	1272	1911
	North Coast Unified APCD	1	2117	111	1272	1911
	Northern Sierra AQMD	1	2117	111	1272	1911
	Northern Sonoma County APCD	1	2117	111	1272	1911
	Placer County APCD	1	2117	111	1272	1911
	Sacramento Metropolitan AQMD	1	2117	111	1272	1911
	San Diego County APCD	2	9727	111	1272	1911
	San Joaquin Valley Unified APCD	1	2117	111	1272	1911
	San Luis Obispo County APCD	1	2117	111	1272	1911
	Santa Barbara County APCD	1	2117	111	1272	1911
	Shasta County AQMD	1	2117	111	1272	1911
	Siskiyou County APCD	1	2117	111	1272	1911
	South Coast AQMD	2	9727	111	1272	1911
	Tehama County APCD	1	2117	111	1272	1911
	Tuolumne County APCD	1	2117	111	1272	1911
Ventura County APCD	2	9727	111	1272	1911	
Yolo/Solano AQMD	1	2117	111	1272	1911	

Table 9.2 Water and Wastewater Electricity Intensity

Location Type	Name	Source	Supply Water	Treat Water	Distribute Water	Wastewater Treatment
			kWhr/ million gallons			
	Alameda	1	2117	111	1272	1911
	Alpine	1	2117	111	1272	1911
	Amador	1	2117	111	1272	1911
	Butte	1	2117	111	1272	1911
	Calaveras	1	2117	111	1272	1911
	Colusa	1	2117	111	1272	1911
	Contra Costa	1	2117	111	1272	1911
	Del Norte	1	2117	111	1272	1911
	El Dorado-Lake Tahoe	1	2117	111	1272	1911
	El Dorado-Mountain County	1	2117	111	1272	1911
	Fresno	1	2117	111	1272	1911
	Glenn	1	2117	111	1272	1911
	Humboldt	1	2117	111	1272	1911
	Imperial	2	9727	111	1272	1911
	Inyo	2	9727	111	1272	1911
	Kern-Mojave Desert	2	9727	111	1272	1911
	Kern-San Joaquin	1	2117	111	1272	1911
	Kings	1	2117	111	1272	1911
	Lake	1	2117	111	1272	1911
	Lassen	1	2117	111	1272	1911
	Los Angeles-Mojave Desert	2	9727	111	1272	1911
	Los Angeles-South Coast	2	9727	111	1272	1911
	Madera	1	2117	111	1272	1911
	Marin	1	2117	111	1272	1911
	Mariposa	1	2117	111	1272	1911
	Mendocino-Coastal	1	2117	111	1272	1911
	Mendocino-Inland	1	2117	111	1272	1911
	Mendocino-Rural Inland North	1	2117	111	1272	1911
	Mendocino-Rural Inland South	1	2117	111	1272	1911
	Merced	1	2117	111	1272	1911
	Modoc	1	2117	111	1272	1911
	Mono	1	2117	111	1272	1911
	Monterey	1	2117	111	1272	1911
	Napa	1	2117	111	1272	1911
	Nevada	1	2117	111	1272	1911
	Orange	2	9727	111	1272	1911
	Placer-Lake Tahoe	1	2117	111	1272	1911
	Placer-Mountain Counties	1	2117	111	1272	1911
	Placer-Sacramento	1	2117	111	1272	1911
	Plumas	1	2117	111	1272	1911
	Riverside-Mojave Desert MDAQMD	2	9727	111	1272	1911
	Riverside-Mojave Desert SCAQMD	2	9727	111	1272	1911
	Riverside-Salton Sea	2	9727	111	1272	1911
	Riverside-South Coast	2	9727	111	1272	1911
	Sacramento	1	2117	111	1272	1911
	San Benito	1	2117	111	1272	1911
	San Bernardino-Mojave Desert	2	9727	111	1272	1911
	San Bernardino-South Coast	2	9727	111	1272	1911
	San Diego	2	9727	111	1272	1911
	San Francisco	1	2117	111	1272	1911
	San Joaquin	1	2117	111	1272	1911
	San Luis Obispo	1	2117	111	1272	1911
	San Mateo	1	2117	111	1272	1911
	Santa Barbara-North of Santa Ynez	1	2117	111	1272	1911
	Santa Barbara-South of Santa Ynez Range	1	2117	111	1272	1911
	Santa Clara	1	2117	111	1272	1911
	Santa Cruz	1	2117	111	1272	1911
	Shasta	1	2117	111	1272	1911
	Sierra	1	2117	111	1272	1911

Table 9.2 Water and Wastewater Electricity Intensity

Location Type	Name	Source	Supply Water	Treat Water	Distribute Water	Wastewater Treatment
			kWhr/ million gallons			
Counties	Siskiyou	1	2117	111	1272	1911
	Solano-San Francisco	1	2117	111	1272	1911
	Solano-San Joaquin	1	2117	111	1272	1911
	Sonoma-North Coast	1	2117	111	1272	1911
	Sonoma-San Francisco	1	2117	111	1272	1911
	Stanislaus	1	2117	111	1272	1911
	Sutter	1	2117	111	1272	1911
	Tehama	1	2117	111	1272	1911
	Trinity	1	2117	111	1272	1911
	Tulare	1	2117	111	1272	1911
	Tuolumne	1	2117	111	1272	1911
	Ventura	2	9727	111	1272	1911
	Yolo	1	2117	111	1272	1911
	Yuba	1	2117	111	1272	1911
Statewide	Statewide	3	5922	111	1272	1911

Notes:

1. Data is based on the value for Northern California reported in the CEC 2006 Report " Refining Estimates of Water-Related Energy Use in California."
2. Data is based on the value for Southern California reported in the CEC 2006 Report " Refining Estimates of Water-Related Energy Use in California."
3. Data is based on the average of the Northern and Southern California values reported in the CEC 2006 Report " Refining Estimates of Water-Related Energy Use in California."

Table 9.3 Percent of Wastewater Distribution Types

Location Type	Name	Source	Septic Tank	Aerobic	Anaerobic, Facultative Lagoons	Anaerobic, Combustion of Gas	Anaerobic, Cogeneration of Gas
Air Basin	Great Basin Valleys	1	10.33	87.46	2.21	100	0
	Lake County	1	10.33	87.46	2.21	100	0
	Lake Tahoe	1	10.33	87.46	2.21	100	0
	Mojave Desert	1	10.33	87.46	2.21	100	0
	Mountain Counties	1	10.33	87.46	2.21	100	0
	North Central Coast	1	10.33	87.46	2.21	100	0
	North Coast	1	10.33	87.46	2.21	100	0
	Northeast Plateau	1	10.33	87.46	2.21	100	0
	Sacramento Valley	1	10.33	87.46	2.21	100	0
	Salton Sea	1	10.33	87.46	2.21	100	0
	San Diego	1	10.33	87.46	2.21	100	0
	San Diego	1	10.33	87.46	2.21	100	0
	San Francisco Bay Area	1	10.33	87.46	2.21	100	0
	San Joaquin Valley	1	10.33	87.46	2.21	100	0
	South Central Coast	1	10.33	87.46	2.21	100	0
South Coast	1	10.33	87.46	2.21	100	0	
Air District	Amador County APCD	1	10.33	87.46	2.21	100	0
	Antelope Valley APCD	1	10.33	87.46	2.21	100	0
	Bay Area AQMD	1	10.33	87.46	2.21	100	0
	Butte County AQMD	1	10.33	87.46	2.21	100	0
	Calaveras County AQMD	1	10.33	87.46	2.21	100	0
	Colusa County APCD	1	10.33	87.46	2.21	100	0
	El Dorado County APCD	1	10.33	87.46	2.21	100	0
	Feather River AQMD	1	10.33	87.46	2.21	100	0
	Glenn County APCD	1	10.33	87.46	2.21	100	0
	Great Basin UAPCD	1	10.33	87.46	2.21	100	0
	Imperial County APCD	1	10.33	87.46	2.21	100	0
	Kern County APCD	1	10.33	87.46	2.21	100	0
	Lake County AQMD	1	10.33	87.46	2.21	100	0
	Lassen County APCD	1	10.33	87.46	2.21	100	0
	Mariposa County APCD	1	10.33	87.46	2.21	100	0
	Mendocino County AQMD	1	10.33	87.46	2.21	100	0
	Modoc County APCD	1	10.33	87.46	2.21	100	0
	Mojave Desert AQMD	1	10.33	87.46	2.21	100	0
	Monterey Bay Unified APCD	1	10.33	87.46	2.21	100	0
	North Coast Unified APCD	1	10.33	87.46	2.21	100	0
	Northern Sierra AQMD	1	10.33	87.46	2.21	100	0
	Northern Sonoma County APCD	1	10.33	87.46	2.21	100	0
	Placer County APCD	1	10.33	87.46	2.21	100	0
	Sacramento Metropolitan AQMD	2	0	100	0	15	85
	San Diego County APCD	1	10.33	87.46	2.21	100	0
	San Joaquin Valley Unified APCD	1	10.33	87.46	2.21	100	0
	San Luis Obispo County APCD	1	10.33	87.46	2.21	100	0
	Santa Barbara County APCD	2	0	100	0	100	0
	Shasta County AQMD	1	10.33	87.46	2.21	100	0
	Siskiyou County APCD	1	10.33	87.46	2.21	100	0
	South Coast AQMD	1	10.33	87.46	2.21	100	0
	Tehama County APCD	2	67	33	0	100	0
	Tuolumne County APCD	1	10.33	87.46	2.21	100	0
Ventura County APCD	1	10.33	87.46	2.21	100	0	
Yolo/Solano AQMD	1	10.33	87.46	2.21	100	0	
	Alameda	1	10.33	87.46	2.21	100	0
	Alpine	1	10.33	87.46	2.21	100	0
	Amador	1	10.33	87.46	2.21	100	0
	Butte	1	10.33	87.46	2.21	100	0
	Calaveras	1	10.33	87.46	2.21	100	0
	Colusa	1	10.33	87.46	2.21	100	0
	Contra Costa	1	10.33	87.46	2.21	100	0
	Del Norte	1	10.33	87.46	2.21	100	0
	El Dorado-Lake Tahoe	1	10.33	87.46	2.21	100	0
	El Dorado-Mountain County	1	10.33	87.46	2.21	100	0
	Fresno	1	10.33	87.46	2.21	100	0
	Glenn	1	10.33	87.46	2.21	100	0

Table 9.3 Percent of Wastewater Distribution Types

Location Type	Name	Source	Septic Tank	Aerobic	Anaerobic, Facultative Lagoons	Anaerobic, Combustion of Gas	Anaerobic, Cogeneration of Gas
Counties	Humboldt	1	10.33	87.46	2.21	100	0
	Imperial	1	10.33	87.46	2.21	100	0
	Inyo	1	10.33	87.46	2.21	100	0
	Kern-Mojave Desert	1	10.33	87.46	2.21	100	0
	Kern-San Joaquin	1	10.33	87.46	2.21	100	0
	Kings	1	10.33	87.46	2.21	100	0
	Lake	1	10.33	87.46	2.21	100	0
	Lassen	1	10.33	87.46	2.21	100	0
	Los Angeles-Mojave Desert	1	10.33	87.46	2.21	100	0
	Los Angeles-South Coast	1	10.33	87.46	2.21	100	0
	Madera	1	10.33	87.46	2.21	100	0
	Marin	1	10.33	87.46	2.21	100	0
	Mariposa	1	10.33	87.46	2.21	100	0
	Mendocino-Coastal	1	10.33	87.46	2.21	100	0
	Mendocino-Inland	1	10.33	87.46	2.21	100	0
	Mendocino-Rural Inland North	1	10.33	87.46	2.21	100	0
	Mendocino-Rural Inland South	1	10.33	87.46	2.21	100	0
	Merced	1	10.33	87.46	2.21	100	0
	Modoc	1	10.33	87.46	2.21	100	0
	Mono	1	10.33	87.46	2.21	100	0
	Monterey	1	10.33	87.46	2.21	100	0
	Napa	1	10.33	87.46	2.21	100	0
	Nevada	1	10.33	87.46	2.21	100	0
	Orange	1	10.33	87.46	2.21	100	0
	Placer-Lake Tahoe	1	10.33	87.46	2.21	100	0
	Placer-Mountain Counties	1	10.33	87.46	2.21	100	0
	Placer-Sacramento	1	10.33	87.46	2.21	100	0
	Plumas	1	10.33	87.46	2.21	100	0
	Riverside-Mojave Desert MDAQMD	1	10.33	87.46	2.21	100	0
	Riverside-Mojave Desert SCAQMD	1	10.33	87.46	2.21	100	0
	Riverside-Salton Sea	1	10.33	87.46	2.21	100	0
	Riverside-South Coast	1	10.33	87.46	2.21	100	0
	Sacramento	2	0	100	0	15	85
	San Benito	1	10.33	87.46	2.21	100	0
	San Bernardino-Mojave Desert	1	10.33	87.46	2.21	100	0
	San Bernardino-South Coast	1	10.33	87.46	2.21	100	0
	San Francisco	1	10.33	87.46	2.21	100	0
	San Joaquin	1	10.33	87.46	2.21	100	0
	San Luis Obispo	1	10.33	87.46	2.21	100	0
	San Mateo	1	10.33	87.46	2.21	100	0
	Santa Barbara-North of Santa Ynez	2	0	100	0	100	0
	Santa Barbara-South of Santa Ynez Range	2	0	100	0	100	0
	Santa Clara	1	10.33	87.46	2.21	100	0
	Santa Cruz	1	10.33	87.46	2.21	100	0
	Shasta	1	10.33	87.46	2.21	100	0
	Sierra	1	10.33	87.46	2.21	100	0
	Siskiyou	1	10.33	87.46	2.21	100	0
	Solano-San Francisco	1	10.33	87.46	2.21	100	0
	Solano-San Joaquin	1	10.33	87.46	2.21	100	0
	Sonoma-North Coast	1	10.33	87.46	2.21	100	0
Sonoma-San Francisco	1	10.33	87.46	2.21	100	0	
Stanislaus	1	10.33	87.46	2.21	100	0	
Sutter	1	10.33	87.46	2.21	100	0	
Tehama	2	67	33	0	100	0	
Trinity	1	10.33	87.46	2.21	100	0	
Tulare	1	10.33	87.46	2.21	100	0	
Tuolumne	1	10.33	87.46	2.21	100	0	
Ventura	1	10.33	87.46	2.21	100	0	
Yolo	1	10.33	87.46	2.21	100	0	
Yuba	1	10.33	87.46	2.21	100	0	
Statewide	Statewide	1	10.33	87.46	2.21	100	0

Notes:

Table 9.3 Percent of Wastewater Distribution Types

Location Type	Name	Source	Septic Tank	Aerobic	Anaerobic, Facultative Lagoons	Anaerobic, Combustion of Gas	Anaerobic, Cogeneration of Gas
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1. The default is based on the ratio of wastewater treatment types used in California GHG emission inventories developed by ARB.
2. The value is based on information provided by the District.

Table 9.4 Wastewater Treatment Direct Emissions

Wastewater Treatment Type	CO2 Biogenic, ton/gal	CO2 Non-Biogenic, ton/gal	CH4, ton/gal	N2O, ton/gal
Septic	0	0	2.50362E-07	8.48121E-10
Aerobic	3.89999E-07	0	1.34234E-09	8.48121E-10
Anaerobic Facultative	3.89999E-07	0	4.01921E-07	8.48121E-10
Digester Burn	0	0	0	0
Digester Cogen	0	0	0	0

Note:

Digester combustion emissions are estimated using water intensity emission factors.

Table 10.1 Solid Waste Disposal Rates

Location Type	Name	Land Use Sub Type	Size Metric	Rate, ton/size/year
Air Basin	Great Basin Valleys	Single Family Housing	Resident	0.25
	Lake County	Single Family Housing	Resident	0.36
	Lake Tahoe	Single Family Housing	Resident	0.31
	Mojave Desert	Single Family Housing	Resident	0.41
	Mountain Counties	Single Family Housing	Resident	0.26
	North Central Coast	Single Family Housing	Resident	0.44
	North Coast	Single Family Housing	Resident	0.40
	Northeast Plateau	Single Family Housing	Resident	0.25
	Sacramento Valley	Single Family Housing	Resident	0.36
	Salton Sea	Single Family Housing	Resident	0.41
	San Diego	Single Family Housing	Resident	0.41
	San Diego	Single Family Housing	Resident	0.41
	San Francisco Bay Area	Single Family Housing	Resident	0.42
	San Joaquin Valley	Single Family Housing	Resident	0.38
	South Central Coast	Single Family Housing	Resident	0.41
	South Coast	Single Family Housing	Resident	0.41
	Air District	Amador County APCD	Single Family Housing	Resident
Antelope Valley APCD		Single Family Housing	Resident	0.41
Bay Area AQMD		Single Family Housing	Resident	0.42
Butte County AQMD		Single Family Housing	Resident	0.36
Calaveras County AQMD		Single Family Housing	Resident	0.25
Colusa County APCD		Single Family Housing	Resident	0.36
El Dorado County APCD		Single Family Housing	Resident	0.25
Feather River AQMD		Single Family Housing	Resident	0.36
Glenn County APCD		Single Family Housing	Resident	0.36
Great Basin UAPCD		Single Family Housing	Resident	0.25
Imperial County APCD		Single Family Housing	Resident	0.41
Kern County APCD		Single Family Housing	Resident	0.41
Lake County AQMD		Single Family Housing	Resident	0.36
Lassen County APCD		Single Family Housing	Resident	0.25
Mariposa County APCD		Single Family Housing	Resident	0.25
Mendocino County AQMD		Single Family Housing	Resident	0.44
Modoc County APCD		Single Family Housing	Resident	0.25
Mojave Desert AQMD		Single Family Housing	Resident	0.41
Monterey Bay Unified APCD		Single Family Housing	Resident	0.44
North Coast Unified APCD		Single Family Housing	Resident	0.38
Northern Sierra AQMD		Single Family Housing	Resident	0.25
Northern Sonoma County APCD		Single Family Housing	Resident	0.42
Placer County APCD		Single Family Housing	Resident	0.36
Sacramento Metropolitan AQMD		Single Family Housing	Resident	0.36
San Diego County APCD		Single Family Housing	Resident	0.41
San Joaquin Valley Unified APCD		Single Family Housing	Resident	0.38
San Luis Obispo County APCD		Single Family Housing	Resident	0.41
Santa Barbara County APCD		Single Family Housing	Resident	0.41
Shasta County AQMD		Single Family Housing	Resident	0.25
Siskiyou County APCD		Single Family Housing	Resident	0.25
South Coast AQMD	Single Family Housing	Resident	0.41	
Tehama County APCD	Single Family Housing	Resident	0.36	
Tuolumne County APCD	Single Family Housing	Resident	0.25	
Ventura County APCD	Single Family Housing	Resident	0.41	
Yolo/Solano AQMD	Single Family Housing	Resident	0.39	
	Alameda	Single Family Housing	Resident	0.42
	Alpine	Single Family Housing	Resident	0.25
	Amador	Single Family Housing	Resident	0.25
	Butte	Single Family Housing	Resident	0.36
	Calaveras	Single Family Housing	Resident	0.25
	Colusa	Single Family Housing	Resident	0.36

Table 10.1 Solid Waste Disposal Rates

Location Type	Name	Land Use Sub Type	Size Metric	Rate, ton/size/year
County	Contra Costa	Single Family Housing	Resident	0.42
	Del Norte	Single Family Housing	Resident	0.44
	El Dorado-Lake Tahoe	Single Family Housing	Resident	0.25
	El Dorado-Mountain County	Single Family Housing	Resident	0.25
	Fresno	Single Family Housing	Resident	0.36
	Glenn	Single Family Housing	Resident	0.36
	Humboldt	Single Family Housing	Resident	0.44
	Imperial	Single Family Housing	Resident	0.41
	Inyo	Single Family Housing	Resident	0.25
	Kern-Mojave Desert	Single Family Housing	Resident	0.41
	Kern-San Joaquin	Single Family Housing	Resident	0.41
	Kings	Single Family Housing	Resident	0.36
	Lake	Single Family Housing	Resident	0.36
	Lassen	Single Family Housing	Resident	0.25
	Los Angeles-Mojave Desert	Single Family Housing	Resident	0.41
	Los Angeles-South Coast	Single Family Housing	Resident	0.41
	Madera	Single Family Housing	Resident	0.36
	Marin	Single Family Housing	Resident	0.42
	Mariposa	Single Family Housing	Resident	0.25
	Mendocino-Coastal	Single Family Housing	Resident	0.44
	Mendocino-Inland	Single Family Housing	Resident	0.44
	Mendocino-Rural Inland North	Single Family Housing	Resident	0.44
	Mendocino-Rural Inland South	Single Family Housing	Resident	0.44
	Merced	Single Family Housing	Resident	0.36
	Modoc	Single Family Housing	Resident	0.25
	Mono	Single Family Housing	Resident	0.25
	Monterey	Single Family Housing	Resident	0.44
	Napa	Single Family Housing	Resident	0.42
	Nevada	Single Family Housing	Resident	0.25
	Orange	Single Family Housing	Resident	0.41
	Placer-Lake Tahoe	Single Family Housing	Resident	0.36
	Placer-Mountain Counties	Single Family Housing	Resident	0.36
	Placer-Sacramento	Single Family Housing	Resident	0.36
	Plumas	Single Family Housing	Resident	0.25
	Riverside-Mojave Desert MDAQMD	Single Family Housing	Resident	0.41
	Riverside-Mojave Desert SCAQMD	Single Family Housing	Resident	0.41
	Riverside-Salton Sea	Single Family Housing	Resident	0.41
	Riverside-South Coast	Single Family Housing	Resident	0.41
	Sacramento	Single Family Housing	Resident	0.36
	San Benito	Single Family Housing	Resident	0.44
	San Bernardino-Mojave Desert	Single Family Housing	Resident	0.41
	San Bernardino-South Coast	Single Family Housing	Resident	0.41
	San Francisco	Single Family Housing	Resident	0.42
	San Joaquin	Single Family Housing	Resident	0.36
	San Luis Obispo	Single Family Housing	Resident	0.41
	San Mateo	Single Family Housing	Resident	0.42
	Santa Barbara-North of Santa Ynez	Single Family Housing	Resident	0.41
Santa Barbara-South of Santa Ynez Range	Single Family Housing	Resident	0.41	
Santa Clara	Single Family Housing	Resident	0.42	
Santa Cruz	Single Family Housing	Resident	0.44	
Shasta	Single Family Housing	Resident	0.25	
Sierra	Single Family Housing	Resident	0.25	
Siskiyou	Single Family Housing	Resident	0.25	
Solano-San Francisco	Single Family Housing	Resident	0.42	
Solano-San Joaquin	Single Family Housing	Resident	0.42	
Sonoma-North Coast	Single Family Housing	Resident	0.42	
Sonoma-San Francisco	Single Family Housing	Resident	0.42	

Table 10.1 Solid Waste Disposal Rates

Location Type	Name	Land Use Sub Type	Size Metric	Rate, ton/size/year
	Stanislaus	Single Family Housing	Resident	0.36
	Sutter	Single Family Housing	Resident	0.36
	Tehama	Single Family Housing	Resident	0.36
	Trinity	Single Family Housing	Resident	0.25
	Tulare	Single Family Housing	Resident	0.36
	Tuolumne	Single Family Housing	Resident	0.25
	Ventura	Single Family Housing	Resident	0.41
	Yolo	Single Family Housing	Resident	0.36
	Yuba	Single Family Housing	Resident	0.36
	Statewide	Single Family Housing	Resident	0.36
	Statewide	Apartments High Rise	Dwelling Unit	0.46
	Statewide	Apartments Low Rise	Dwelling Unit	0.46
	Statewide	Apartments Mid Rise	Dwelling Unit	0.46
	Statewide	Arena	100visitors	0.09
	Statewide	Arena	1000sqft	0.03
	Statewide	Arena	Acre	0.09
	Statewide	Automobile Care Center	Employee	0.86
	Statewide	Automobile Care Center	1000sqft	3.82
	Statewide	Bank (with Drive-Through)	1000sqft	0.93
	Statewide	City Park	100visitors	0.09
	Statewide	City Park	Acre	0.09
	Statewide	Condo/Townhouse	Dwelling Unit	0.46
	Statewide	Condo/Townhouse High Rise	Dwelling Unit	0.46
	Statewide	Congregate Care (Assisted Living)	Dwelling Unit	0.91
	Statewide	Convenience Market (24 hour)	Employee	0.86
	Statewide	Convenience Market (24 hour)	1000sqft	3.01
	Statewide	Convenience Market with Gas Pumps	Employee	0.86
	Statewide	Convenience Market with Gas Pumps	1000sqft	3.01
	Statewide	Convenience Market with Gas Pumps	pumps	0.42
	Statewide	Day-Care Center	1000sqft	1.30
	Statewide	Day-Care Center	Employee	0.80
	Statewide	Day-Care Center	Student	0.18
	Statewide	Discount Club	Employee	1.23
	Statewide	Discount Club	1000sqft	4.30
	Statewide	Electronic Superstore	Employee	0.86
	Statewide	Electronic Superstore	1000sqft	3.01
	Statewide	Elementary School	1000sqft	1.30
	Statewide	Elementary School	Employee	0.80
	Statewide	Elementary School	Student	0.18
	Statewide	Fast Food Restaurant w/o Drive Thru	Employee	2.13
	Statewide	Fast Food Restaurant w/o Drive Thru	1000sqft	11.52
	Statewide	Fast Food Restaurant with Drive Thru	Employee	2.13
	Statewide	Fast Food Restaurant with Drive Thru	1000sqft	11.52
	Statewide	Free-Standing Discount Store	Employee	1.23
	Statewide	Free-Standing Discount Store	1000sqft	4.30
	Statewide	Free-Standing Discount Superstore	Employee	1.23
	Statewide	Free-Standing Discount Superstore	1000sqft	4.30
	Statewide	Gasoline/Service Station	Employee	0.86
	Statewide	Gasoline/Service Station	Pump	0.54
	Statewide	Gasoline/Service Station	1000sqft	3.82
	Statewide	General Heavy Industry	Employee	1.15
	Statewide	General Heavy Industry	1000sqft	1.24
	Statewide	General Light Industry	Employee	1.15
	Statewide	General Light Industry	1000sqft	1.24
	Statewide	General Office Building	1000sqft	0.93
	Statewide	Golf Course	100visitors	0.93
	Statewide	Golf Course	Acre	0.93

Table 10.1 Solid Waste Disposal Rates

Location Type	Name	Land Use Sub Type	Size Metric	Rate, ton/size/year
	Statewide	Golf Course	Employee	0.93
	Statewide	Golf Course	Hole	0.13
	Statewide	Government (Civic Center)	1000sqft	5.70
	Statewide	Government (Civic Center)	100visitors	0.09
	Statewide	Government Office Building	1000sqft	0.93
	Statewide	Hardware/Paint Store	Employee	3.17
	Statewide	Hardware/Paint Store	1000sqft	11.09
	Statewide	Health Club	1000sqft	5.70
	Statewide	Health Club	100visitors	0.09
	Statewide	High School	1000sqft	1.30
	Statewide	High School	Employee	0.80
	Statewide	High School	Student	0.18
	Statewide	High Turnover (Sit Down Restaurant)	Employee	2.20
	Statewide	High Turnover (Sit Down Restaurant)	1000sqft	11.90
	Statewide	Home Improvement Superstore	Employee	3.17
	Statewide	Home Improvement Superstore	1000sqft	11.09
	Statewide	Hospital	Bed	2.92
	Statewide	Hospital	Employee	2.02
	Statewide	Hospital	1000sqft	10.80
	Statewide	Hotel	Employee	1.95
	Statewide	Hotel	Room	0.55
	Statewide	Hotel	1000sqft	10.80
Statewide	Statewide	Industrial Park	Employee	1.15
	Statewide	Industrial Park	1000sqft	1.24
	Statewide	Junior College (2yr)	1000sqft	1.30
	Statewide	Junior College (2yr)	Employee	0.80
	Statewide	Junior College (2yr)	Student	0.18
	Statewide	Junior High School	1000sqft	1.30
	Statewide	Junior High School	Employee	0.80
	Statewide	Junior High School	Student	0.18
	Statewide	Library	1000sqft	0.92
	Statewide	Library	Employee	0.86
	Statewide	Manufacturing	Employee	1.15
	Statewide	Manufacturing	1000sqft	1.24
	Statewide	Medical Office Building	Employee	3.09
	Statewide	Medical Office Building	1000sqft	10.80
	Statewide	Mobile Home Park	Dwelling Unit	0.46
	Statewide	Motel	Employee	1.95
	Statewide	Motel	Room	0.55
	Statewide	Motel	1000sqft	10.80
	Statewide	Movie Theater (No Matinee)	1000sqft	5.70
	Statewide	Movie Theater (No Matinee)	100visitors	0.09
	Statewide	Movie Theater (No Matinee)	Screen	15.68
	Statewide	Movie Theater (no matinee)	seats	0.13
	Statewide	Office Park	1000sqft	0.93
	Statewide	Parking Lot	Space	0.00
	Statewide	Unenclosed Parking Structure	Space	0.00
	Statewide	Enclosed Parking Structure	Space	0.00
	Statewide	Unenclosed Parking with Elevator	Space	0.00
	Statewide	Enclosed Parking with Elevator	Space	0.00
	Statewide	Parking Lot	Acre	0.00
	Statewide	Unenclosed Parking Structure	Acre	0.00
	Statewide	Enclosed Parking Structure	Acre	0.00
	Statewide	Unenclosed Parking with Elevator	Acre	0.00
	Statewide	Enclosed Parking with Elevator	Acre	0.00
	Statewide	Parking Lot	1000sqft	0.00
	Statewide	Unenclosed Parking Structure	1000sqft	0.00

Table 10.1 Solid Waste Disposal Rates

Location Type	Name	Land Use Sub Type	Size Metric	Rate, ton/size/year
Statewide		Enclosed Parking Structure	1000sqft	0.00
Statewide		Unenclosed Parking with Elevator	1000sqft	0.00
Statewide		Enclosed Parking with Elevator	1000sqft	0.00
Statewide		Other Asphalt Surfaces	Acre	0.00
Statewide		Other Non-Asphalt Surfaces	Acre	0.00
Statewide		Other Asphalt Surfaces	1000sqft	0.00
Statewide		Other Non-Asphalt Surfaces	1000sqft	0.00
Statewide		Pharmacy/Drugstore w/o Drive Thru	Employee	0.86
Statewide		Pharmacy/Drugstore w/o Drive Thru	1000sqft	3.01
Statewide		Pharmacy/Drugstore with Drive Thru	Employee	0.86
Statewide		Pharmacy/Drugstore with Drive Thru	1000sqft	3.01
Statewide		Place of Worship	1000sqft	5.70
Statewide		Place of Worship	100visitors	0.09
Statewide		Place of Worship	Seat	9.00
Statewide		Quality Restaurant	Employee	2.20
Statewide		Quality Restaurant	1000sqft	0.91
Statewide		Racquet Club	1000sqft	5.70
Statewide		Racquet Club	100visitors	0.09
Statewide		Recreational Swimming Pool	1000sqft	5.70
Statewide		Recreational Swimming Pool	100visitors	0.09
Statewide		Refrigerated Warehouse-No Rail	Employee	1.15
Statewide		Refrigerated Warehouse-No Rail	1000sqft	0.94
Statewide		Refrigerated Warehouse-Rail	Employee	1.15
Statewide		Refrigerated Warehouse-Rail	1000sqft	0.94
Statewide		Regional Shopping Center	1000sqft	1.05
Statewide		Research & Development	Employee	7.60
Statewide		Research & Development	1000sqft	0.08
Statewide		Retirement Community	Dwelling Unit	0.46
Statewide		Strip Mall	1000sqft	1.05
Statewide		Supermarket	Employee	2.38
Statewide		Supermarket	1000sqft	5.64
Statewide		University/College (4yr)	Employee	0.8
Statewide		University/College (4yr)	Student	0.1825
Statewide		University/College (4yr)	1000sqft	1.3
Statewide		Unrefrigerated Warehouse-No Rail	Employee	1.15
Statewide		Unrefrigerated Warehouse-No Rail	1000sqft	0.94
Statewide		Unrefrigerated Warehouse-Rail	Employee	1.15
Statewide		Unrefrigerated Warehouse-Rail	1000sqft	0.94

Table 10.2 Support for Solid Waste Emission Factors

MSW Category	Fraction Total Organic Degradable Carbon per Waste Type ^a	Default Decomposable Anaerobic Fraction ^b	Waste Stream Composition Fraction ^c	Fraction of Carbon Emissions
Newspaper	0.465	0.161	0.013	0.00049
Office Paper	0.398	0.874	0.019	0.00330
Corrugated Boxes	0.405	0.383	0.048	0.00372
Coated paper	0.405	0.21	0.094	0.00400
Food	0.117	0.828	0.155	0.00751
Grass	0.192	0.322	0.025333333	0.00078
Leaves	0.478	0.1	0.012666667	0.00030
Branches	0.279	0.176	0.033	0.00081
Lumber	0.43	0.233	0.145	0.00726
textiles	0.24	0.5	0.054	0.00324
diapers	0.24	0.5	0.043	0.00258
construction demolition	0.04	0.5	0.146	0.00146
medical waste	0.15	0.5	0	0.00000
sludge/manure	0.05	0.5	0.001	0.00001

Generation Fraction	mass carbon	0.03547
	mass CH4	0.04730
	mass CO2	0.13006

Emission Factors

Description	Collection Efficiency	Destruction Fraction	Oxidation Fraction	CO2 Emissions, ^d ton/ton waste	CH4 Emissions, ^e ton/ton waste
No LFG Collection	0	0	0.1	0.143068564	0.042565854
LFG Collect and Combust	0.75	0.98	0.1	0.228909703	0.011350894
Cogen				waste*(0.2289 - 6.3382E-05*UtilityCO2)	0.011350894

a) California Air Resources Board, the California Climate Action Registry, ICLEI-Local Governments for Sustainability and The Climate Registry, Local Government Operations Protocol for the quantification and reporting of greenhouse gas emissions inventories, Version 1.0, September 2008, Table 9.6 Total Organic Degradable Carbon per Waste Type (TDOC).

b) CARB, 2008, Table 9.7 Default Decomposable Anaerobic Fraction (DANF) of the TDOC per waste type

- c) California Integrated Waste Management Board, California 2008 Statewide Waste Characterization Study, August 2009, Table ES-3:
Composition of California's Overall Disposed Waste Stream by Material Type
- d) CO₂ emission factor, ton/ton waste = generation fraction x (collection fraction x destruction fraction x (1 - collection fraction) x oxidation fraction + 1) x molecular weight of CO₂/molecular weight of carbon
- e) CH₄ emission factor, ton/ton waste = generation fraction x (collection fraction x (1 - destruction fraction) + (1 - collection fraction) x (1 - oxidation fraction)) x molecular weight of CH₄/molecular weight of carbon

Table 11.1 Change in Sequestered GHG Emissions

Vegetation Land Use Type	Vegetation Land Use Subtype	Biogenic CO2 Emissions (MT CO2/Acre)
Forest Land	Scrub	14.3
Forest Land	Trees	111
Cropland	Cropland	6.2
Grassland	Grassland	4.31
Wetlands	Wetlands	0
Others	Others	0

Notes:

1. Based on values indicated in IPCC Guidelines for National Greenhouse Gas Inventories (IPCC Guidelines). Available online at <http://www.ipccnggip.iges.or.jp/public/2006gl/vol4.htm>

Table 11.2 Sequestration of Trees

Species	CO2 Sequestered (MT/tree/year)
Aspen	0.0352
Soft Maple	0.0433
Mixed Hardwood	0.0367
Hardwood Maple	0.0521
Juniper	0.0121
Cedar/Larch	0.0264
Douglas Fir	0.0447
True Fir/Hemlock	0.0381
Pine	0.0319
Spruce	0.0337
Miscellaneous	0.0354

Notes:

1. Species class-specific sequestration values are provided in Table 8.2 of "2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4". For species that do not appear in Table 8.2, the species was classified as "miscellaneous" and the average value of all listed data was used.

2. An active growing period of 20 years is assumed for the new trees planted.

Table 12.1 Diesel Emergency Generator and Fire Pump Emission Factors

Equipment Type	Low HP	High HF	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
			lb/hp-hr	lb/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	g/hp-hr	lb/hp-hr
Emergency Genera	0	11	0.00247	0.00225	5.97	5.32	0.00494	0.60	0.60	1.15	0.073
Emergency Genera	11	25	0.00247	0.00225	4.93	5.32	0.00494	0.60	0.60	1.15	0.073
Emergency Genera	25	50	0.00247	0.00225	4.10	5.32	0.00494	0.45	0.45	1.15	0.073
Emergency Genera	50	75	0.00247	0.00225	3.70	3.33	0.00494	0.15	0.15	1.15	0.073
Emergency Genera	75	100	0.00247	0.00225	3.70	3.33	0.00494	0.15	0.15	1.15	0.073
Emergency Genera	100	175	0.00247	0.00225	3.70	2.85	0.00494	0.15	0.15	1.15	0.073
Emergency Genera	175	300	0.00247	0.00225	2.60	2.85	0.00494	0.15	0.15	1.15	0.073
Emergency Genera	300	600	0.00247	0.00225	2.60	2.85	0.00494	0.15	0.15	1.15	0.073
Emergency Genera	600	750	0.00247	0.00225	2.60	2.85	0.00494	0.15	0.15	1.15	0.073
Emergency Genera	750	9999	0.00247	0.00225	2.60	4.56	0.00494	0.15	0.15	1.15	0.073
Fire Pump	0	11	0.00247	0.00225	6.00	5.32	0.00494	0.30	0.30	1.15	0.073
Fire Pump	11	25	0.00247	0.00225	4.90	5.32	0.00494	0.30	0.30	1.15	0.073
Fire Pump	25	50	0.00247	0.00225	4.10	5.32	0.00494	0.22	0.22	1.15	0.073
Fire Pump	50	75	0.00247	0.00225	3.70	3.33	0.00494	0.30	0.30	1.15	0.073
Fire Pump	75	100	0.00247	0.00225	3.70	3.33	0.00494	0.30	0.30	1.15	0.073
Fire Pump	100	175	0.00247	0.00225	3.70	2.85	0.00494	0.22	0.22	1.15	0.073
Fire Pump	175	300	0.00247	0.00225	2.60	2.85	0.00494	0.15	0.15	1.15	0.073
Fire Pump	300	600	0.00247	0.00225	2.60	2.85	0.00494	0.15	0.15	1.15	0.073
Fire Pump	600	750	0.00247	0.00225	2.60	2.85	0.00494	0.15	0.15	1.15	0.073
Fire Pump	750	9999	0.00247	0.00225	2.60	4.56	0.00494	0.15	0.15	1.15	0.073

Table 12.2 Natural Gas Emergency Generator Emission Factors

Equipment Type	Low HP	High HF	TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
			lb/MMBtu	ppmv	ppmv	ppmv	lb/MMBtu	lb/MMBtu	lb/MMBtu	lb/MMBtu	lb/MMBtu
Emergency Genera	0	500	0.358	250	2000	45	0.0006	0.0095	0.0095	110	0.23
Emergency Genera	500	9999	0.358	250	2000	36	0.0006	0.0095	0.0095	110	0.23

Table 12.3 Diesel Boiler Emission Factors

Equipment Type	Rated Heat Input (MMBtu/Hour)		TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
	Low	High	lb/10 ³ gal	lb/10 ³ gal	lb/10 ³ gal	lb/MMBtu	lb/10 ³ gal	lb/10 ³ gal	lb/10 ³ gal	lb/10 ³ gal	lb/10 ³ gal
	Boiler	0	9999	0.556	0.340	5.00	0.05	0.225	1.00	0.25	25000

Table 12.4 Natural Boiler Emission Factors

Equipment Type	Rated Heat Input (MMBtu/Hour)		TOG	ROG	CO	NOX	SO2	PM10	PM2.5	CO2	CH4
	Low	High	lb/10 ⁶ scf	lb/10 ⁶ scf	lb/10 ⁶ scf	lb/MMBtu	lb/10 ⁶ scf	lb/10 ⁶ scf	lb/10 ⁶ scf	lb/10 ⁶ scf	lb/10 ⁶ scf
	Boiler	0	2	11	5.5	98	0.024	0.6	7.6	7.6	120000
Boiler	2	5	11	5.5	98	0.011	0.6	7.6	7.6	120000	2.3
Boiler	5	75	11	5.5	98	0.011	0.6	7.6	7.6	120000	2.3
Boiler	75	9999	11	5.5	98	0.0062	0.6	7.6	7.6	120000	2.3