Appendix I

Air Quality and Climate Change Technical Memorandum

Contents

1.0 Introduction 1-1
1.1 Summary of Project 1-1
1.2 Organization of the Air Quality and Climate Change Technical Memorandum 1-1
2.0 Methodology and Results 2-1
2.1 Construction Emissions Inventories 2-2
2.1.1 Construction Equipment Exhaust 2-2
2.1.2 Haul Truck Exhaust 2-6
2.1.3 Worker and Vendor Commute 2-6
2.1.4 Architectural Coating 2-8
2.1.5 Asphalt Paving 2-9
2.1.6 Demolition 2-9
2.1.7 Surface Disturbance 2-11
2.1.8 Material Movement 2-14
2.1.9 On-road Fugitive Dust 2-15
2.2 Operational Emissions Inventories 2-16
2.2.1 Study Area Emissions Inventories 2-16
2.2.2 Line Haul Locomotive Activity 2-17
2.2.3 Switch Locomotive Activity 2-21
2.2.4 UTR Truck Activity 2-22
2.2.5 OTR Truck Activity 2-25
2.2.6 Worker Commute 2-27
2.2.7 Electricity Use 2-28
2.2.8 Water Use 2-29
2.2.9 Wastewater 2-30
2.2.10 Solid Waste 2-30
2.2.11 Hazardous Air Pollutants (HAPs) Emissions Inventories 2-31
2.3 AERMOD Dispersion Modeling 2-32
2.3.1 Control Pathway 2-33
2.3.2 Meteorology Data 2-35
2.3.3 Building Data 2-35
2.3.4 Terrain Data 2-35
2.3.5 Receptor Grids 2-35
2.3.6 Source Pathway 2-35
2.4 Health Risk Assessment (HRA) 2-44
3.0 Construction Emissions Inventories 3-1
4.0 Operational Emissions Inventories 4-1
5.0 AERMOD Dispersion Modeling 5-1
6.0 Health Risk Assessment (HRA) 6-1
6.1 No-Action Alternative 6-1
6.2 Proposed Project (Alternative 1) 6-2
6.3 Alternative 2 6-3
6.4 Alternative 3 6-4
6.5 Alternative 4 6-5
6.6 Alternative 5 6-6
6.7 Alternative 6 6-7
6.8 Alternative 7 6-8

7.0 References 7-1

List of Tables

Table 2-1 HAP Ratios 2-1
Table 2-2 Global Warming Potential (GWP) of GHGs 2-2
Table 2-3 MOVES Model Construction Equipment Inputs 2-3
Table 2-4 CH_4 and N_2O Nonroad Emission Factor Conversion 2-3
Table 2-5 Construction Equipment Exhaust Activity Alternative Multipliers 2-5
Table 2-6 Construction Haul Truck Activity 2-6
Table 2-7 Construction Haul Truck Emissions—Criteria Pollutants (tons) 2-6
Table 2-8 Construction Haul Truck Emissions—GHGs (MT) 2-6
Table 2-9 MOVES Model Worker and Vendor Commute Inputs 2-7
Table 2-10 CalEEMod Building Construction Worker and Vendor Trip Rates 2-7
Table 2-11 CalEEMod Building Construction Worker and Vendor Data 2-8
Table 2-12 Construction Worker and Vendor Commute Emissions—Criteria Pollutants 2-8
Table 2-13 Architectural Coating Data, Sources, and Emissions 2-9
Table 2-14 Asphalt Paving Data, Sources, and Emissions 2-9
Table 2-15 Demolition Building Dismemberment Data, Sources, and Emissions 2-10
Table 2-16 Demolition Debris Loading Data, Sources, and Emissions 2-11
Table 2-17 Surface Disturbance Grading Rates 2-12
Table 2-18 Surface Disturbance Grading Data and Sources 2-12
Table 2-19 Grader Operating Hours 2-12
Table 2-20 Surface Disturbance Grading Emissions 2-12
Table 2-21 Surface Disturbance from Bulldozing Data and Sources 2-13
Table 2-22 Dozer Operating Hours 2-13
Table 2-23 Surface Disturbance Bulldozing Emissions 2-14
Table 2-24 Material Movement Data, Sources, and Emissions 2-14
Table 2-25 On-road Fugitive Dust Data, Sources, and Emissions 2-15
Table 2-26 Study Area Criteria Pollutant Emissions Inventory 2-16
Table 2-27 Study Area HAP Emissions 2-17
Table 2-28 Line Haul Emission Factors Data 2-18
Table 2-29 Line Haul Emission Factors (g/hphr) 2-18
Table 2-30 Off-Terminal Line Haul Emissions Data 2-19
Table 2-31 Off-Terminal Line Haul Emissions—Criteria Pollutants (tons) 2-19
Table 2-32 Off-Terminal Line Haul Emissions—GHGs (MT) 2-20
Table 2-33 On-Terminal Line Haul Emissions Data 2-20
Table 2-34 On-Terminal Line Haul Emissions—Criteria Pollutants (tons) 2-20
Table 2-35 Off-Terminal Line Haul Emissions—GHGs (MT) 2-20
Table 2-36 Switch Locomotive Emission Factors Data 2-21
Table 2-37 Switch Locomotive Emission Factors (g/hphr) 2-21
Table 2-38 Switch Locomotive Emissions Data 2-22
Table 2-39 Switch Locomotive Emissions—Criteria Pollutants (tons) 2-22
Table 2-40 Switch Locomotive Emissions—GHGs (MT) 2-22
Table 2-41 MOVES Model UTR Truck Inputs 2-23
Table 2-42 UTR Truck Emission Factors (g/hphr) 2-23
Table 2-43 UTR Truck Emissions Data 2-24
Table 2-44 UTR Truck Emissions—Criteria Pollutants (tons) 2-25
Table 2-45 UTR Truck Emissions—GHGs (MT) 2-25

Table 2-46 OTR Truck Running Emission Factors (g/VMT) 2-25
Table 2-47 OTR Truck Running and Idling Emissions Data 2-26
Table 2-48 OTR Truck Idling Emission Factors (g/day) 2-26
Table 2-49 OTR Truck Emissions—Criteria Pollutants (tons) 2-27
Table 2-50 OTR Truck Emissions—GHGs (MT) 2-27
Table 2-51 Worker Commute Running Emission Factors (g/VMT) 2-27
Table 2-52 Worker Commute Emissions Data 2-28
Table 2-53 Worker Commute Emissions—Criteria Pollutants and GHGs 2-28
Table 2-54 Electricity Emissions Data and Emissions 2-29
Table 2-55 GHG Emissions Associated with Electricity Use 2-29
Table 2-56 Electricity Emissions Data 2-29
Table 2-57 GHG Emissions Associated with Electricity Use 2-29
Table 2-58 Electricity Emissions Data 2-30
Table 2-59 GHG Emissions Associated with Electricity Use 2-30
Table 2-60 Solid Waste Emissions Data 2-31
Table 2-61 GHG Emissions Associated with Solid Waste 2-31
Table 2-62 HAP Ratios 2-31
Table 2-63 Operational Emissions – HAPs 2-32
Table 2-68 Control Pathway Inputs—CO 2-33
Table 2-69 Control Pathway Inputs—NO_2 1 Hour 2-33
Table 2-70 Control Pathway Inputs—NO_2 Annual 2-33
Table 2-71 Control Pathway Inputs—$PM_{2.5}$ 2-33
Table 2-72 Control Pathway Inputs—PM_{10} 2-34
Table 2-73 Control Pathway Inputs—SO_2 1 Hour 2-34
Table 2-74 Control Pathway Inputs—SO_2 3 Hour 2-34
Table 2-75 Control Pathway Inputs—DPM 2-34
Table 2-76 Meteorology Pathway Inputs 2-35
Table 2-77 Terrain Processor Inputs 2-35
Table 2-78 Off-Terminal Line Haul Source Inputs 2-36
Table 2-79 Off-Terminal Line Haul Emission Rates Data 2-37
Table 2-80 On-Terminal Line Haul Source Inputs 2-37
Table 2-81 On-Terminal Line Haul Emission Rates Data 2-38
Table 2-82 Switch Locomotive Source Inputs 2-38
Table 2-83 Switch Locomotive Emission Rates Data 2-39
Table 2-84 UTR Truck Activity Source Inputs 2-39
Table 2-85 UTR Truck Emission Rates Data 2-40
Table 2-86 OTR Truck Activity Source Inputs 2-41
Table 2-87 MOVES Model Public Roadway Inputs 2-43
Table 2-88 AERMOD Criteria Pollutant Maximum Outputs 2-44
Table 3-1 MOVES Model Construction Equipment Emission Factor Outputs by SCC 3-1
Table 3-2 MOVES Model Construction Equipment Emissions 3-4
Table 3-3 MOVES Model Construction Worker and Vendor Commute Emission Factor Outputs 3-12
Table 3-4 Construction Equipment Exhaust Emissions – Criteria Pollutants 3-15
Table 3-5 Construction Equipment Exhaust Emissions – GHGs 3-15
Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area 4-1
Table 4-2 MOVES Output for UTR Trucks 4-24
Table 5-1 Off-Terminal Line Haul Emission Rates Calculations 5-3
Table 5-2 Total On-Terminal Line Haul Activity 5-3

Table 5-3 On-Terminal Line Haul Activity Distribution (Line Volume Sources) 5-4
Table 5-4 On-Terminal Line Haul Activity Distribution (Area Volume Source)..... 5-4
Table 5-5 Switch Locomotive Emission Rates Calculations..... 5-4
Table 5-6 UTR Truck Running Emission Rates Calculations 5-5
Table 5-7 UTR Truck Idling Emission Rates Calculations..... 5-5
Table 5-8 Public Roadway Plume Height Calculations—Criteria Pollutants..... 5-7
Table 5-9 MOVES Project Data Manager—Age Distribution 5-9
Table 5-10 MOVES Project Data Manager—Meteorology..... 5-9
Table 5-11 MOVES Project Data Manager—Fuels (Fuel Supply) 5-9
Table 5-12 MOVES Project Data Manager—Fuels (Fuel Formulation) 5-10
Table 5-13 MOVES Project Data Manager—Fuels (Fuel Usage Fraction).....5-10
Table 5-14 MOVES Project Data Manager—Fuels (avft) 5-11
Table 5-15 MOVES Project Data Manager—Hotelling.....5-15
Table 5-16 MOVES Project Data Manager—Operating Mode Distribution.....5-16
Table 5-17 MOVES Project Data Manager—Off-Network—No-Action Alternative 5-20
Table 5-18 MOVES Project Data Manager—Off-Network—Alternatives 1 through 7 5-20
Table 5-19 MOVES Project Data Manager—Links—No-Action Alternative.....5-21
Table 5-20 MOVES Project Data Manager—Links—Alternatives 1 and 3 5-23
Table 5-21 MOVES Project Data Manager—Links—Alternatives 2 and 4 5-25
Table 5-22 MOVES Project Data Manager—Links—Alternatives 5, 6, and 7.....5-27
Table 5-23 MOVES Project Data Manager—Link Source Type—No-Action Alternative 5-29
Table 5-24 MOVES Project Data Manager— Link Source Type —Alternatives 1 and 3.....5-31
Table 5-25 MOVES Project Data Manager— Link Source Type —Alternatives 2 and 4.....5-33
Table 5-26 MOVES Project Data Manager— Link Source Type —Alternatives 5, 6, and 7 5-35
Table 5-27 MOVES Output and AERMOD Emission Rates— On-site Idling —Alternatives 1 through 7 5-36
Table 5-28 MOVES Output and AERMOD Emission Rates— DPM —No-Action Alternative 5-37
Table 5-29 MOVES Output and AERMOD Emission Rates— NAAQS —No-Action Alternative 5-38
Table 5-30 MOVES Output and AERMOD Emission Rates— DPM —Alternatives 1 & 3.....5-40
Table 5-31 MOVES Output and AERMOD Emission Rates— NAAQS —Alternatives 1 & 3.....5-41
Table 5-32 MOVES Output and AERMOD Emission Rates— DPM —Alternatives 2 & 4.....5-43
Table 5-33 MOVES Output and AERMOD Emission Rates— NAAQS —Alternatives 2 & 4.....5-44
Table 5-34 MOVES Output and AERMOD Emission Rates— DPM —Alternatives 5, 6 & 7 5-46
Table 5-35 MOVES Output and AERMOD Emission Rates— NAAQS —Alternatives 5, 6 & 7.....5-47
Table 6-1 No-Action Alternative Health Risk Calculations..... 6-9
Table 6-2 Proposed Project (Alternative 1) Health Risk Calculations.....6-10
Table 6-3 Alternative 2 Health Risk Calculations.....6-11
Table 6-4 Alternative 3 Health Risk Calculations.....6-12
Table 6-5 Alternative 4 Health Risk Calculations.....6-13
Table 6-6 Alternative 5 Health Risk Calculations.....6-14
Table 6-7 Alternative 6 Health Risk Calculations.....6-15
Table 6-8 Alternative 7 Health Risk Calculations.....6-16

List of Figures

Figure 5-1 Alternatives 1 through 4 Dispersion Modeling Receptors 5-1
Figure 5-2 Alternatives 5 through 7 Dispersion Modeling Receptors 5-2
Figure 5-3 Air Dispersion Modeling Roads 5-6
Figure 6-1 No Action Alternative Cancer Risk 6-1
Figure 6-2 Proposed Project (Alternative 1) Cancer Risk 6-2
Figure 6-3 Alternative 2 Cancer Risk 6-3
Figure 6-4 Alternative 3 Cancer Risk 6-4
Figure 6-5 Alternative 4 Cancer Risk 6-5
Figure 6-6 Alternative 5 Cancer Risk 6-6
Figure 6-7 Alternative 6 Cancer Risk 6-7
Figure 6-8 Alternative 7 Cancer Risk 6-8

1.0 INTRODUCTION

This Air Quality and Climate Change Technical Memorandum (Tech Memo) provides the documentation and support of the discussions and findings within the Proposed Charleston Navy Base Intermodal Container Transfer Facility (ICTF) Draft Environmental Impact Statement (Draft EIS), Section 4.13, Environmental Consequences—Air Quality, and Section 4.14, Environmental Consequences—Climate Change. This report focused on documenting the quantification of air quality and greenhouse gas (GHG) pollutants, and associated health risk impacts, of the Proposed Project and alternatives. Regulatory and environmental settings are not addressed in this document. In addition, impact assessments and determinations are not addressed within this document.

1.1 SUMMARY OF PROJECT

The South Carolina Department of Commerce Division of Public Railways / Palmetto Railways (Palmetto Railways) has proposed to construct a state-of-the-art Intermodal Container Transfer Facility (ICTF) at the former Charleston Naval Complex (CNC) to facilitate the transfer of international cargo containers between ships/trucks and rail (e.g., trains). The Proposed Project, also referred to as the Navy Base Intermodal Container Transfer Facility (Navy Base ICTF), would provide equal access to the Class I rail carriers (CSX Transportation [CSX] and Norfolk Southern Railway [NS]) that serve the Port of Charleston (Port) and various local businesses and industries. The proposed facility would be designed to accommodate existing and projected future intermodal container traffic within the region. Seven alternatives and a No-Action alternative are proposed and analyzed in this Tech Memo.

- Alternative 1: Proposed Project: CSX – Milford / NS – Hospital District
- Alternative 2: CSX – Milford / NS – S-line
- Alternative 3: CSX – Kingsworth / NS – Hospital
- Alternative 4: CSX & NS – Milford
- Alternative 5: River Center Site: CSX – Milford / NS – Hospital District
- Alternative 6: River Center Site: CSX – Kingsworth / NS – Hospital
- Alternative 7: River Center Site: CSX & NS – Milford
- No-Action Alternative

1.2 ORGANIZATION OF THE AIR QUALITY AND CLIMATE CHANGE TECHNICAL MEMORANDUM

This Technical Memorandum is organized as follows:

Chapter 1—(this chapter) provides a brief introduction and summary of the project followed by the organization of the information to assist the reader in navigating the information.

Chapter 2—Methodology and Results, provides the assumptions, methods, and calculations used to analyze air quality and Climate Change impacts from the construction and operational emissions of criteria pollutants, Hazardous Air Pollutants (HAPs), and GHGs.

Chapter 3—Construction Emissions Inventories, provides the construction calculations, data, and model outputs used to quantify criteria pollutant, HAP, and GHG emissions from construction activities.

Chapter 4—Operational Emissions Inventories, provides the operation calculations, data, and model outputs used to quantify criteria pollutant, HAP, and GHG emissions from operational activities. Proposed Project and alternatives

Chapter 5—AERMOD Dispersion Modeling, provides the calculations, data, and model inputs used to model the dispersion of criteria pollutants and HAPs for all alternatives. This model predicts the localized dispersal pattern of air pollutants and HAPs within the troposphere and is useful in determining localized air pollutant and HAPs hot spots that warrant additional review and mitigation. For this reason, the AERMOD model was used to evaluate potential air quality impacts of the Proposed Project and alternatives. Since the impact of GHG emissions are the result of the GHG concentration globally in the stratosphere, AERMOD is not useful in analyzing Climate Change impacts and was not used for that purpose.

Chapter 6—Health Risk Assessment (HRA), provides the calculations and data used to quantify health risk from HAP exposure from the Proposed Project and alternatives.

Chapter 7—References

2.0 METHODOLOGY AND RESULTS

Impacts on Air Quality and Climate Change by the Proposed Project and alternatives were evaluated by estimating the criteria pollutant, HAPs, and GHG emissions associated with the construction and operation of the Proposed Project and alternatives. Criteria pollutants of concern for this project include carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM) $PM_{2.5}$, PM_{10}, and sulfur dioxide (SO_2). NO_2 impacts are commonly evaluated by analyzing nitrogen oxides (NO_x), which is done in this analysis. O_3 is not directly emitted, but rather formed in the air through a photochemical reaction of NO_x and volatile organic compounds (VOCs), referred to as O_3 precursors. O_3 impacts are evaluated by analyzing NO_x and VOC emissions.

Once criteria pollutant emissions inventories were completed for each project alternative, the amount of non-diesel particulate matter (DPM) HAPs emitted were calculated. Non-DPM HAPs are determined as a ratio of criteria pollutants (i.e., VOC) discharged. The ratios were obtained from the Environmental Protection Agency (EPA) document *Air Toxic Emissions from On-Road Vehicles in MOVES2014* and are detailed in the tables below (USEPA 2015a).

Table 2-1 HAP Ratios

Priority MSAT (non-DPM HAP) (1)	Proxy Pollutant	Ratio of MSAT to Proxy Pollutant
Benzene	VOC	0.01291
1,3-Butadiene	VOC	0.00080
Formaldehyde	VOC	0.21744
Naphthalene	VOC	0.01630
Polycyclic organic matter(2)	VOC	0.00130

(1) Acrolein is a non-DPM HAP, however it was not quantified due to its level of uncertainty.
(2) Polycyclic organic matter defines a broad class of compounds that includes polycyclic aromatic compounds. The EPA document, Air Toxic Emissions from On-Road Vehicles in MOVES2014, provides ratios for fifteen polycyclic aromatic compounds. A sum of the ratios for the fifteen compounds was used to represent the overall ratio for polycyclic organic matter.
Notes: All ratios were taken for 2007 and later diesel vehicles.
Source: USEPA 2015a

Individual GHGs have varying heat-trapping properties and atmospheric lifetimes. Table 2-2 identifies the CO_2 equivalent (CO_2e) of basic GHGs. Each GHG is compared to carbon dioxide (CO_2) with respect to its ability to trap infrared radiation, its atmospheric lifetime, and its chemical structure. The CO_2e is a consistent methodology for comparing GHG emissions since it normalizes various GHG emissions to a consistent measure. For example, methane (CH_4) is a GHG that is 25 times more potent than CO_2; therefore, one metric ton of CH_4 is equal to 25 metric tons CO_2e. When direct calculation to metric tons of CO_2e was not available, GWPs were used to convert calculated CH_4 and nitrous oxide (N_2O) emissions into CO_2e.

Table 2-2 Global Warming Potential (GWP) of GHGs

GHG	GWP
CO_2	1
CH_4	25
N_2O	298

Source: IPCC 2007

All sources of criteria pollutant, HAP, and GHG emissions that were reasonably foreseeable were included in this analysis. Air emissions were evaluated for the full build-out year, 2038, to best represent the air emissions at full operating capacity. Accordingly, 2038 criteria pollutant, HAP, and GHG emissions inventories represent the criteria pollutant, HAP, and GHG emissions for all operating years after 2038, and a conservative estimate for interim years between opening year, 2018, and full build-out.

Climate Change impacts, dispersion modeling, and an HRA were also evaluated. Methodology is outlined below.

2.1 CONSTRUCTION EMISSIONS INVENTORIES

Construction period criteria pollutant and GHG emissions inventories included emissions from construction equipment exhaust, haul truck trips for importing and exporting material, and worker and vendor commute to and from the construction sites. Pollutant emissions would also be caused by off-gassing emissions from solvents in architectural paints and asphalt paving. Additionally, particulate matter would be emitted from surface disturbance activities, building demolition, the material movement of imports and exports, and on-road vehicle activity. Pollutant emissions from each of these activities were quantified as detailed below. Under the No-Action Alternative, future use of the Proposed Project and River Center project sites would likely be mixed-use and industrial (e.g., rail-served warehousing distribution center). As such, the site would need to be built for these uses and construction activities would occur. Construction criteria pollutant emissions would be short term and were not quantified.

2.1.1 Construction Equipment Exhaust

Construction equipment exhaust emissions were estimated for each equipment type for each year using the following equation:

$$\textbf{Annual Emissions} = \textbf{Hr x HP x LF x EF}$$

Where:

Hr	=	Annual operating hours (hours)
HP	=	Horsepower (hp)
LF	=	Load Factor (unitless)
EF	=	Emission Factor (grams/hphr)

Construction equipment list, monthly operating hours per equipment type and construction activity, and horsepower were provided by Palmetto Railways for the Proposed Project Alternative. Load factors were taken from the EPA's *Median Life, Annual Activity, and Load Factor Values for*

Nonroad Engine Emissions Modeling (USEPA 2010). Emission factors were developed in the EPA Motor Vehicle Emissions Simulator (MOVES) model (USEPA 2015b). The following are inputs used for the EPA MOVES model.

Table 2-3 MOVES Model Construction Equipment Inputs

MOVES RunSpec	Inputs
Model	Nonroad
Domain/Scale	National
Calculation Type	Inventory
Years	2015, 2016, 2017, 2018, 2019
Months	All Selected
Days	Weekend, Weekdays
Geographic Bounds	SOUTH CAROLINA – Charleston County
Fuels	Nonroad Diesel Fuel
Sectors	Commercial, Construction, Industrial, Railroad
Road Type	Preselected-Nonroad
Pollutants and Processes	Total Gaseous Hydrocarbons, Non-Methane Hydrocarbons, Volatile Organic Compounds, Methane, Carbon Monoxide, Oxides of Nitrogen. Ammonia, Primary Exhaust $PM_{2.5}$ – Total, Primary Exhaust PM_{10} – Total, Sulfur Dioxide, Atmospheric CO_2
Management Input Data Sets	None
Rate of Progress	Not Selected
General Output	Mass Units: Grams Energy Units: Joules Distance Units: Miles
Output Emissions Detail	Emission Process, SCC
Advanced Performance Features	Not Selected

Emission factors from a weekday in January were used with the process of running exhaust, to provide a conservative estimate of CO emissions, which are higher during winter months. Construction equipment emission factors from MOVES are shown in Table 2-9.

CH_4 and N_2O emission factors were developed using CO_2 emission factors and ratios of each GHG's diesel fuel content from EPA's *Emission Factors for Greenhouse Gas Inventories* (USEPA 2014a).

Table 2-4 CH_4 and N_2O Nonroad Emission Factor Conversion

GHG	grams GHG/gal of diesel fuel
CO_2	10,210
CH_4	0.57
N_2O	0.26
CH_4/CO_2 Ratio	5.583 x 10-5 g CH_4 / g CO_2
N_2O/CO_2 Ratio	2.547 x 10-5 g N_2O / g CO_2

Source: USEPA 2014a

Construction equipment operating hours and schedule were only available for the Proposed Project (Alternative 1). Construction activities for the site demolition and surcharge, on-site NBIF yard,

and utility relocations were assumed to be the same for Alternatives 1 through 7. Construction equipment exhaust emissions of roadway and railway construction were developed for Alternatives 2 through 7 by developing activity multipliers based on the roadway and rail track length to be constructed. These multipliers are shown below.

Table 2-5 Construction Equipment Exhaust Activity Alternative Multipliers

Construction Area	Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 5		Alternative 6		Alternative 7	
	Length (ft.)	Multiplier	Length (ft.)	Multiplier	Length (ft.)	Multiplier	Length (ft.)	Multiplier	Length (ft.)	Multiplier	Length (ft.)	Multiplier	Length (ft.)	Multiplier
Site Demo and Surcharge		1		1		1		1		1		1		1
Roadways-Cosgrove/ McMillan Extension	3366	1	3366	1	3366	1	3366	1	2554	0.8	2554	0.8	2554	0.8
On-Site NBIF Yard		1		1		1		1		1		1		1
Roadways-Hobson/ Bainbridge Re-alignment	4397	1	4397	1	4397	1	4397	1	4397	1	4397	1	4397	1
Roadways-Drayage Road	6697	1	6697	1	6697	1	6697	1	1,2064	1.8	1,2064	1.8	12064	1.8
South Lead Track	4679	1	4679	1	3675	0.8	4679	1	9524	2	8418	1.8	9524	2
North Lead Track	6188	1	6678	1.1	6391	1	4439	0.7	999	0.2	999	0.2	52	0
Utility Relocations		1		1		1		1		1		1		1

2.1.2 Haul Truck Exhaust

Construction haul truck exhaust emissions from importing and exporting material were estimated using emission factors developed in Nonroad model in MOVES for off-highway trucks along with the activity provided by Palmetto Railways including haul trip distance, haul truck capacity, and schedule. Construction haul truck activity used in calculations is shown below. Load Factors were taken from EPA's *Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling* (USEPA 2010). Haul truck activity is the same for Alternatives 1 through 7.

Table 2-6 Construction Haul Truck Activity

Import Quantity (CY)	Export Quantity (CY)	Haul Truck Capacity (CY)	Import Haul Distance (miles)	Export Haul Distance (miles)	Average Haul Distance (miles)	Total VMT	Speed (mph)	HP	LF	Total Operating Hours
105,000	263,000	15	33	23	28	686,933	30	360	0.59	22,898

VMT was calculated as: VMT = (Import Quantity + Export Quantity) x (Average Haul Distance) / (Haul Truck Capacity)
Operating Hours were calculated as: Operating Hours = VMT / Speed
Source: Palmetto Railways, USEPA 2010

Construction equipment exhaust emissions were calculated using the same equation as other construction equipment. Haul truck emissions are the same for Alternatives 1 through 7. Haul truck exhaust emissions are shown below.

Table 2-7 Construction Haul Truck Emissions—Criteria Pollutants (tons)

CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC
10,305	26,701	1,159	1,124	32	2,445

Source: Palmetto Railways, USEPA 2010, 2015b

Table 2-8 Construction Haul Truck Emissions—GHGs (MT)

CO_2	CH_4	CH_4	CO_2e
2,608	<1	<1	2,631

Source: IPCC 2007, Palmetto Railways, USEPA 2010, 2014a, 2015b

2.1.3 Worker and Vendor Commute

Criteria pollutant and GHG emissions from workers and vendors commuting to and from the construction site were developed using methods from the California Air Pollution Control Officer's (CAPCOA) California Emissions Estimator Model (CalEEMod) calculation methods, activity information provided by Palmetto Railways, and assumptions (CAPCOA 2013). Emission factors for the worker and vendor commute exhaust emissions were developed in the MOVES model and Palmetto Railways provided activity information including the construction schedule. The following are inputs used for the EPA MOVES model. Emission factors from a weekday in January were used with the process of running exhaust to provide a conservative estimate of CO emissions, which are higher during winter months. MOVES model outputs of the emission factors are shown in Table 2-9.

Table 2-9 MOVES Model Worker and Vendor Commute Inputs

MOVES RunSpec	Inputs
Model	Onroad
Domain/Scale	National
Calculation Type	Inventory
Years	2016
Months	January
Days	Weekday
Geographic Bounds	Nation
Fuels	Gasoline Fuel
Sectors	Passenger Cars, Passenger Trucks
Road Type	Preselected
Pollutants and Processes	Total Gaseous Hydrocarbons, Non-Methane Hydrocarbons, Volatile Organic Compounds, Methane, Carbon Monoxide, Oxides of Nitrogen. Ammonia, Primary Exhaust $PM_{2.5}$ – Total, Primary Exhaust PM_{10} – Total, Sulfur Dioxide, Atmospheric CO_2 CO_2e
Management Input Data Sets	None
Rate of Progress	Not Selected
General Output	Mass Units: Grams Energy Units: Joules Distance Units: Miles
Output Emissions Detail	Emission Process, Source Use Type
Advanced Performance Features	Not Selected

Construction worker and vendor trip rates were taken from CalEEMod calculations and are shown below.

Table 2-10 CalEEMod 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 1,000 sqft	0.32	0.1639
Office/Industrial	Daily Trips per 1,000 sqft	0.42	0.1639

Source: CAPCOA 2013

The Office/Industrial land use subtype was used for the calculations. Architectural coating worker trips are 20% of building construction phase trips (CAPCOA 2013).

Construction worker and vendor activity is the same for Alternatives 1 through 7 and is shown below. Building square feet and construction schedule was provided by Palmetto Railways and average commute length was taken from the Federal Highway Administration's (FHWA) *Summary of Travel Trends: 2009 National Household Travel Survey* (FHWA 2011). Local, state, and regional commute length data was not available, so FHWA's national data was used.

Table 2-11 CalEEMod Building Construction Worker and Vendor Data

Daily Worker trips per 1,000 SF	Daily Vendor trips per 1,000 SF	Building SF	Daily Worker Trips	Daily Vendor Trips	Daily Architectural Coating Trips	Average Commute Length (mi)	Total days or Building Construction
0.42	0.1639	2,000	840	327.8	233.56	12.09	200

Source: Palmetto Railways, CAPCOA 2013, FHWA 2011

The following equation was used to calculate emissions:

$$\textbf{Emissions (g)} = \textbf{VMT x EF}$$

Where

VMT = Vehicle Miles Traveled
EF = Emission Factor (g/veh*mile)

VMT was determined by CalEEMod worker and vendor trip rates and trip lengths, CalEEMod ratio of number of workers per equipment, the national average commute trip length (FHWA 2011), and the project specific construction schedule. Construction worker and vendor commute emissions are the same for Alternatives 1 through 7 and are shown below.

Table 2-12 Construction Worker and Vendor Commute Emissions—Criteria Pollutants

CO (tons)	NO_x (tons)	PM_{10} (tons)	$PM_{2.5}$ (tons)	SO_2 (tons)	VOC(tons)	CO_2e (MT)
11.979	1.766	0.035	0.031	0.027	0.298	1,362

Source: Palmetto Railways, USEPA 2014a, 2015b, CAPCOA 2013, IPCC 2007

2.1.4 Architectural Coating

Criteria pollutant and GHG emissions from off-gassing emissions from architectural paint were developed using methods from the CAPCOA CalEEMod calculation methods, information provided by Palmetto Railways, and assumptions (CAPCOA 2013).

Emissions were calculated using the following equations:

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

Where:

E_{AC} = Emissions (lb VOC)
EF = Emission Factor (lb/sqft)
F = Fraction of Surface Area (unitless)
A = Building Surface Area (sqft)

And:

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

Where:

C_{VOC} = VOC content (g/L)

Off-gassing emissions from architectural coating, along with the data and sources used are show below. VOC is the only pollutant of concern for off-gassing emissions from architectural coating.

Table 2-13 Architectural Coating Data, Sources, and Emissions

Data	Value	Source
Coating Surface (SF)	2,000	Palmetto Railways
Interior VOC Content (g/L)	730	Palmetto Railways
Exterior VOC Content (g/L)	0	Palmetto Railways
Number of Coats	2	CAPCOA 2013
Fraction of Surface Area	0.75	CAPCOA 2013
VOC Emissions (tons)	0.051	See above Sources

Source: Palmetto Railways, CAPCOA 2013

2.1.5 Asphalt Paving

Criteria pollutant and GHG emissions from off-gassing emissions from asphalt paving were developed using methods from the CAPCOA CalEEMod calculation methods, information provided by Palmetto Railways, and assumptions (CAPCOA 2013).

Emissions were calculated using the following equation:

$$\mathbf{E_{AP} = EF_{AP} \times A_{paving}}$$

Where:

EAP = Emissions (lb VOC)
EF = Emission Factor (lb VOC/acre)
A = Paving Surface Area (acre)

Off-gassing emissions from asphalt paving, along with the data and sources used are show below. VOC is the only pollutant of concern for off-gassing emissions from asphalt paving.

Table 2-14 Asphalt Paving Data, Sources, and Emissions

Data	Value	Source
Paving Area (acres)	126	Palmetto Railways
Emission Factor (lb VOC/acre)	2.62	CAPCOA 2013
VOC Emissions (tons)	0.165	See above Sources

Source: Palmetto Railways, CAPCOA 2013

2.1.6 Demolition

Particulate matter emissions from demolition were developed using methods from the CAPCOA CalEEMod calculation methods, activity information provided by Palmetto Railways, and assumptions (CAPCOA 2013). Particulate matter would be emitted from demolition activities of building dismemberment and debris loading.

Emissions from demolition building dismemberment were calculated using the following equations:

$$\mathbf{E_D = EF_D \times W}$$

Where

E_D = Emissions (lb of PM)
EF_D = Emission Factor (lb of PM / ton of debris)

W = building waste (ton of debris) = (0.046 tons of waste / 1 sqft)

And:

$$\mathbf{EF_D = k \times (0.0032) \times (U / 5)^{1.3} / (M / 2)^{1.4}}$$

Where

k = particle size multiplier (unitless)
U = mean wind speed (m/s)
M = Material moisture content

Particulate emissions from demolition building dismemberment, along with the data and sources used are show below. PM_{10} and $PM_{2.5}$ are the only pollutant of concern for demolition building dismemberment.

Table 2-15 Demolition Building Dismemberment Data, Sources, and Emissions

Data	Value	Source
k (PM_{10})	0.35	CAPCOA 2013
k ($PM_{2.5}$)	0.053	CAPCOA 2013
U, Mean Wind Speed (m/s)	9.3	SERCC 2012
M, Material Moisture Content	0.02	CAPCOA 2013
Building SF to be demolished, Alternatives 1-4	740,500	Palmetto Railways
Building SF to be demolished, Alternatives 1-4	1,156,256	Palmetto Railways
PM_{10} Emissions (tons), Alternatives 1-4	0.3	See above Sources
$PM_{2.5}$ Emissions (tons), Alternatives 1-4	0.1	See above Sources
PM_{10} Emissions (tons), Alternatives 5-7	0.5	See above Sources
$PM_{2.5}$ Emissions (tons), Alternatives 5-7	0.1	See above Sources

Source: Palmetto Railways, CAPCOA 2013, SERCC 2012

Emissions from demolition debris loading were calculated using the following equations:

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

Where

EF_L = Emission Factor of (lb of PM /ton)
k = particle size multiplier (unitless)
$EF_{L\text{-}TSP}$ = Emission Factor (lb of TSP / ton of debris)

And:

$$\mathbf{E_L = EF_L \times SF \times 0.046}$$

Where

E_L = Emissions (lb/ton)
SF = Building demolition (sqft)

Particulate emissions from demolition debris loading, along with the data and sources used are show below. PM_{10} and $PM_{2.5}$ are the only pollutant of concern for demolition debris loading.

Table 2-16 Demolition Debris Loading Data, Sources, and Emissions

Data	Value	Source
k (PM_{10})	0.35	CAPCOA 2013
k ($PM_{2.5}$)	0.053	CAPCOA 2013
$EF_{L\text{-}TSP}$ (lb TSP / ton debris)	0.058	CAPCOA 2013
Building SF to be demolished, Alternatives 1-4	740,500	Palmetto Railways
Building SF to be demolished, Alternatives 1-4	1,156,256	Palmetto Railways
PM_{10} Emissions (tons), Alternatives 1-4	27.3	See above Sources
$PM_{2.5}$ Emissions (tons), Alternatives 1-4	4.1	See above Sources
PM_{10} Emissions (tons), Alternatives 5-7	42.6	See above Sources
$PM_{2.5}$ Emissions (tons), Alternatives 5-7	6.5	See above Sources

Source: Palmetto Railways, CAPCOA 2013

2.1.7 Surface Disturbance

Particulate matter emissions from surface disturbance were developed using methods from the CAPCOA CalEEMod calculation methods, activity information provided by Palmetto Railways, and assumptions (CAPCOA 2013). Particulate matter emissions from surface disturbance would come from grading and bulldozing activities.

Emissions from surface disturbance from grading were calculated using the following equations:

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

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

Where

EF	=	Emission Factor (lb / VMT)
S	=	mean vehicle speed (mph)
F	=	Scaling Factor (unitless)

And:

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

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

Where

E	=	Emissions (lb)
VMT	=	Vehicle miles traveled (miles)
As	=	Acreage of grading site (acres)
Wb	=	Blade width of grading equipment

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 shown below (CAPCOA 2013).

Table 2-17 Surface Disturbance Grading Rates

Equipment Type	Acres/8hr-da7
Crawler Tractors	0.5
Graders	0.5
Rubber Tire Dozers	0.5
Scrapers	1

Source: CAPCOA 2013

Particulate emissions data and sources from surface disturbance from grading are show below. PM_{10} and $PM_{2.5}$ are the only pollutant of concern for surface disturbance from grading.

Table 2-18 Surface Disturbance Grading Data and Sources

Data	Value	Source
S, mean vehicle speed (mph)	7.1	CAPCOA 2013
F_{PM10}	0.6	CAPCOA 2013
$F_{PM2.5}$	0.031	CAPCOA 2013
Wb, Blade width (ft)	12	CAPCOA 2013
Acres/8hr-day	0.5	CAPCOA 2013
Grader Operating Hours	See Table 2-19	Palmetto Railways

Source: CAPCOA 2013

Construction equipment operating hours and schedule were only available for the Proposed Project (Alternative 1). Operating hours from grading equipment were developed for Alternatives 2 through 7 by developing activity multipliers based on the roadway and rail track length to be constructed. These multipliers are shown in Table 2-5. Grading operating hours of Alternative 1 and those calculated using multipliers for Alternatives 2 through7 are shown below.

Table 2-19 Grader Operating Hours

Construction Activity	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Site Demo and Surcharge	241.0	241.0	241.0	241.0	241.0	241.0	241.0
Roadways-Cosgrove/ McMillan Extension	800.0	800.0	800.0	800.0	607.0	607.0	607.0
On-Site NBIF Yard	3,680.0	3,680.0	3,680.0	3,680.0	3,680.0	3,680.0	3,680.0
Roadways-Hobson/ Bainbridge Re-alignment	360.0	360.0	360.0	360.0	360.0	360.0	360.0
Roadways-Drayage Road	2,040.0	2,040.0	2,040.0	2,040.0	3,674.9	3,674.9	3,674.9
South Lead Track	320.0	320.0	251.3	320.0	651.4	575.7	651.4
North Lead Track	480.0	518.0	495.7	344.3	77.5	77.5	4.0
Utility Relocations	86.0	86.0	86.0	86.0	86.0	86.0	86.0
Total	8,007.0	8,045.0	7,954.1	7,871.3	9,377.7	9,302.1	9,304.3

Source: Palmetto Railways

Particulate emissions from surface disturbance from grading are show below.

Table 2-20 Surface Disturbance Grading Emissions

Pollutant	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
PM_{10} (tons)	0.27	0.27	0.26	0.26	0.31	0.31	0.31
$PM_{2.5}$ (tons)	0.03	0.03	0.03	0.03	0.03	0.03	0.03

Source: Palmetto Railways, CAPCOA 2013

Emissions from surface disturbance from bulldozing were calculated using the following equations:

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

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

Where

EF = Emission Factor (lb / VMT)
C = arbitrary coefficient used by AP-42
M = material moisture content (%)
S = material silt content (%)
F = Scaling Factor (unitless)

Particulate emissions data and sources from surface disturbance from bulldozing are shown below. PM_{10} and $PM_{2.5}$ are the only pollutant of concern for surface disturbance from bulldozing.

Table 2-21 Surface Disturbance from Bulldozing Data and Sources

Data	Value	Source
C_{TSP}	5.7	CAPCOA 2013
C_{PM15}	1	CAPCOA 2013
M	0.075	CAPCOA 2013
S	0.069	CAPCOA 2013
F_{PM10}	0.75	CAPCOA 2013
$F_{PM2.5}$	0.105	CAPCOA 2013
Dozer Operating Hours	See Table 2-22	Palmetto Railways

Source: Palmetto Railways, CAPCOA 2013

Construction equipment operating hours and schedule were only available for the Proposed Project (Alternative 1). Operating hours from bulldozing equipment were developed for Alternatives 2 through 7 by developing activity multipliers based on the roadway and rail track length to be constructed. These multipliers are shown in Table 2-5. Dozer operating hours of Alternative 1 and those calculated using multipliers for Alternatives 2 through 7 are shown below.

Table 2-22 Dozer Operating Hours

Construction Activity	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Site Demo and Surcharge	1,161.0	1,161.0	1,161.0	1,161.0	1,161.0	1,161.0	1,161.0
Roadways-Cosgrove/ McMillan Extension	720.0	720.0	720.0	720.0	546.3	546.3	546.3
On-Site NBIF Yard	2,880.0	2,880.0	2,880.0	2,880.0	2,880.0	2,880.0	2,880.0
Roadways-Hobson/ Bainbridge Re-alignment	480.0	480.0	480.0	480.0	480.0	480.0	480.0
Roadways-Drayage Road	2,080.0	2,080.0	2,080.0	2,080.0	3,746.9	3,746.9	3,746.9
South Lead Track	540.0	540.0	424.1	540.0	1,099.2	971.5	1,099.2
North Lead Track	660.0	712.3	681.7	473.5	106.6	106.6	5.5
Utility Relocations	258.0	258.0	258.0	258.0	258.0	258.0	258.0
Total	8,779.0	8,831.3	8,684.8	8,592.5	10,277.9	10,150.3	10,176.9

Source: Palmetto Railways

Particulate emissions from surface disturbance from bulldozing are show below.

Table 2-23 Surface Disturbance Bulldozing Emissions

Pollutant	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
PM_{10} (tons)	2.2	2.3	2.2	2.2	2.6	2.6	2.6
$PM_{2.5}$ (tons)	3.1	3.1	3.0	3.0	3.6	3.6	3.6

Source: Palmetto Railways, CAPCOA 2013

2.1.8 Material Movement

Particulate emissions from material movement were developed using methods from the CAPCOA CalEEMod calculation methods, activity information provided by Palmetto Railways, and assumptions (CAPCOA 2013).

Particulate emissions from material movement is caused by the process of loading and unloading haul trucks with material such as soil. The following equations were used to determine particulate matter dust from material transport with haul trucks:

$$\mathbf{E = EF \times TP}$$

Where:

E = Emissions (lb)
EF = Emission Factor (lb/ton)
TP = Throughput of loaded and unloaded materials (tons)

And:

$$\mathbf{EF_D = k \times (0.0032) \times (U / 5)^{1.3} / (M / 2)^{1.4}}$$

Where

k = particle size multiplier (unitless)
U = mean wind speed (m/s)
M = Material moisture content

Particulate emissions from material movement, along with the data and sources used are show below. PM_{10} and $PM_{2.5}$ are the only pollutant of concern for material movement.

Table 2-24 Material Movement Data, Sources, and Emissions

Data	Value	Source
k (PM_{10})	0.35	CAPCOA 2013
k ($PM_{2.5}$)	0.053	CAPCOA 2013
U, Mean Wind Speed (m/s)	9.3	SERCC 2012
M, Material Moisture Content	0.12	CAPCOA 2013
Total Import and Export Quantity (CY)	368,000	Palmetto Railways
CY to ton conversion (ton/CY)	1.2641662	CAPCOA 2013
PM_{10} Emissions (tons)	30.0	See above Sources
$PM_{2.5}$ Emissions (tons)	4.5	See above Sources

Source: Palmetto Railways, CAPCOA 2013, SERCC 2012

2.1.9 On-road Fugitive Dust

Fugitive dust particles are composed mainly of soil minerals and are caused by driving on paved or unpaved roads. Particulate emissions from on-road vehicle activity were developed using methods from the CAPCOA CalEEMod calculation methods, activity information provided by Palmetto Railways, and assumptions (CAPCOA 2013). Full travel on paved roads was assumed. The following equations were used to determine particulate matter on-road fugitive dust.

$$\mathbf{E = E_{ext} \times VMT}$$

Where:

E = Emissions (g)
E_{ext} = Average emission factor (g/VMT)
VMT = Vehicle Miles Traveled (miles)

And:

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

Where:

k = particle size multiplier (g/VMT)
sL = road surface silt loading (g/m^2)
W = Average weight of all vehicles traveling the road (tons)
P = number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period
N = number of days in the averaging period

Particulate emissions from on-road fugitive dust, along with the data and sources used are show below. PM_{10} and $PM_{2.5}$ are the only pollutant of concern for on-road fugitive dust.

Table 2-25 On-road Fugitive Dust Data, Sources, and Emissions

Data	Value	Source
k (PM_{10})	1	CAPCOA 2013
k ($PM_{2.5}$)	0.25	CAPCOA 2013
sL (g/m2)	0.2	USEPA 2011
P (days)	110	USEPA 2011
N (days)	365	CAPCOA 2013
W (tons)	2.4	CAPCOA 2013
VMT (miles)	686,933	(1)
PM_{10} Emissions (tons)	0.4	See above Sources
$PM_{2.5}$ Emissions (tons)	0.1	See above Sources

(1) VMT was calculated as: VMT = (Import Quantity + Export Quantity) x (Average Haul Distance) / (Haul Truck Capacity)
Source: Palmetto Railways, CAPCOA 2013, SERCC 2012, USEPA 2011

2.2 OPERATIONAL EMISSIONS INVENTORIES

Operational period criteria pollutant, HAPs, and GHG emissions included emissions from locomotive activity, Utility Tractor Rig (UTR) truck trips and idling, Over-the-Road (OTR) truck trips and idling, and worker commute. Locomotive pollutant emissions were estimated for off-terminal line haul activity, on-terminal line haul activity, and switch locomotive activity. Line haul locomotives are used to move freight. Switch locomotives are used to put rail cars together to form trains within or around a railyard. They are also referred to as "switchers." GHG emissions associated with electricity consumption, water use, waste water, and solid waste generation would also be emitted from the operation of the Proposed Project and alternatives. Emissions from each of these activities were quantified as detailed below.

There would be no increase in emissions due to locomotive activity for the No-Action Alternative. It is assumed that the existing facility workers would be sufficient for the increase in container throughput; therefore, there is no increase in emissions due to worker commute for the No-Action Alternative. Further, under the No-Action Alternative, the Proposed Project site and River Center project site would not be constructed and operated, including the private drayage road. Therefore, it is assumed that additional UTR trucks would not be operated under the No-Action Alternative, and OTR trucks would be used to transport all additional containers from existing terminals to the CSX and NS facilities. Although CSX and NS would undertake operational and structural modifications to Ashley Junction and 7-Mile rail yards, it is assumed CSX and NS would not increase their facility's energy use, water use, waste water and solid waste generation. Therefore, there are no increases in GHG emissions due to energy use, water use, waste water and solid waste generation for the No-Action Alternative. It is common for intermodal container transfer facilities to use off-road equipment such as forklifts and cranes in its operations. However, CSX and NS crane and forklift activity was unavailable. Although it is reasonable to assume that some activity would take place, emissions from on-site off-road equipment was not quantified. Therefore, emissions due to operational activities of the No-Action Alternative would include running emissions from OTR truck trips and idling emissions from idling on-site at the Ashley Junction and 7-Mile rail yards.

2.2.1 Study Area Emissions Inventories

Criteria and HAPs pollutants emitted from the Study Area (Tri-County area) were taken from the 2011 EPA NEI and shown below.

Table 2-26 Study Area Criteria Pollutant Emissions Inventory

Criteria Pollutant	Tri-County Area Emissions Inventory (ton)
CO	230,292.8
NO_x	36,526.0
PM_{10}	26,159.7
$PM_{2.5}$	11,299.7
SO_2	26,442.8
VOC	122,145.5

Source: USEPA 2015c

Table 2-27 Study Area HAP Emissions

Priority MSAT	Tri-County Area HAP Emissions (ton)
Benzene	566.7
1,3-Butadiene	125.4
Formaldehyde	2,192.6
Naphthalene	1,991.0
Polycyclic organic matter	158.8

Notes and Acronyms:
Acrolein is a non-DPM HAP, however it was not included due to its level of uncertainty.
The EPA NEI 2011 did not include emissions of naphthalene and Polycyclic organic matter. These emissions were calculated from the VOC emissions reported in the EPA NEI 2011 and the MSAT ratios listed in Table 2-1.
Source: USEPA 2015a, 2015c.

2.2.2 Line Haul Locomotive Activity

Line haul locomotive pollutant emissions were estimated for off-terminal line haul activity and on-terminal line haul activity. Line haul emission factors were taken from and developed using methods from EPA's *Emission Factors for Locomotives* (USEPA 2009a). The EPA's *Emission Factors for Locomotives* provided locomotive emission factors through the year 2040. 2038 Large Line haul emission factors were used for NO_x, PM_{10}, and HC (hydrocarbons) in g/gal. Line haul emissions factors for CO were provided in g/hphr and would be the same for any year or locomotive tier. These pollutants were the only emission factors available. Emission factors for other criteria pollutants and GHGs were developed using methods in EPA's *Emission Factors for Locomotives* and are listed below.

- VOC emissions were assumed to be equal to 1.053 times the HC emissions
- $PM_{2.5}$ emissions were estimated to be 0.97 times the PM_{10} emissions
- SO_2 and CO_2 emission rates were calculated based on the diesel fuel properties
- CH4 emissions were assumed to be proportional to the total HC emissions
- N_2O emissions were assumed to be proportional to the total NO_x emissions

Line Haul emission factors in g/hphr were calculated using the following equations.

For NO_x, PM_{10}, and HC:

$$\mathbf{EF_{hphr} = EF_{gal} / CF}$$

Where:

EF_{hphr} = Emission Factor (g/hphr)
EF_{gal} = Emission Factor (g/gal)
CF = Conversion Factor (hphr/gal)

For SO_2:

$$\mathbf{EF_{gal} = FD \times F \times (MW_{SO2}/MW_S) \times FC}$$

Where:

FD = Diesel Fuel density (g/gal)
F = Fraction of Sulfur converted to SO_2

MW_{SO2} = Molecular Weight of SO_2 (g/mole)
MW_S = Molecular Weight of Sulfur (g/mole)
FC = Fuel content of Sulfur (ppm) (USEPA 2015d)

For CO_2:

$$\mathbf{EF_{gal} = FD \times (MW_{CO2}/MW_C) \times FC}$$

Where:

FD = Diesel Fuel density (g/gal)
MW_{CO2} = Molecular Weight of CO_2 (g/mole)
MW_C = Molecular Weight of Carbon (g/mole)
FC = Fuel content of Carbon (%)

And:

$$\mathbf{EF_{hphr} = EF_{gal} / CF}$$

Line haul emissions factors for CO were provided in g/hphr in EPA's *Emission Factors for Locomotives.* The VOC emission factor was calculated to be 1.053 times the HC emission factor. The $PM_{2.5}$ emission factor was calculated to be 0.97 times the PM_{10} emission factor. The CH4 emission factor was assumed to be proportional to the HC emission factor. The N_2O emission factor was assumed to be proportional to the NO_x emission factors. It is important to emphasize that the emission rates rely on many simplifying assumptions. Thus emission rates calculated should be considered as approximations.

Line haul emission factors and data used to develop them are shown below.

Table 2-28 Line Haul Emission Factors Data

Data	Value	Source
EF_{gal} (g/gal)	Varies	USEPA 2009a
CF	20.8	USEPA 2009a
FD (g diesel/gal)	3,200	USEPA 2009a
MW_{SO2} (g/mole)	64	Palmetto Railways
MW_S (g/mole)	32	Palmetto Railways
MW_{CO2} (g/mole)	44	SCSPA 2013
MW_C (g/mole)	12	SCSPA 2013
FC_S	15×10^{-6}	USEPA 2015d
FC_C	0.87	USEPA 2009a

Note: ULSD Sulfur fuel was assumed

Table 2-29 Line Haul Emission Factors (g/hphr)

Criteria Pollutant or GHG	Line Haul Emission Factors (g/hphr)
CO	1.28
NO_x	1.490
PM_{10}	0.024
$PM_{2.5}$	0.023
SO_2	0.005
VOC	0.056
CO_2	491.2
CH_4	0.053

N_2O	1.490

Source: Palmetto Railways, USEPA 2009a, 2015d

Off-terminal line haul emissions were developed using methods from the EPA's *Emission Factors for Locomotives* and activity provided by Palmetto Railways including the number of daily trains, number of locomotive engines per train, and locomotive engine horsepower (USEPA 2009a). The load factor was taken from EPA's *Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories* and the calculation method, train speed, average distance to Tri County Border was taken from the South Carolina State Port Authority's *2011 Air Emissions Inventory Update* (USEPA 2009b, SCSPA 2013).

Off-terminal Line Haul emissions were calculated using the following equations:

$$\mathbf{E = EF_{hphr} \times HP \times Hr \times LF}$$

Where:

E	=	Emissions (tons or MT)
EF_{hphr}	=	Emission Factor (grams/hphr)
HP	=	Horsepower (HP)
Hr	=	Annual Locomotive Hours (hours)
LF	=	Load Factor (%)

And:

$$\mathbf{Hr = DT \times L / Speed \times Dist \times (Days/Year)}$$

Where:

DT	=	Number of Daily Trains (trains)
L	=	Locomotives per train (locomotives)
Speed	=	Off-terminal Train Speed (mph)
Dist	=	Average Distance to County Border (miles)
Day/Yr	=	365 (days)

Off-terminal Line Haul emissions and data used in calculations are shown below. Off-terminal line haul emissions would be the same for the Proposed Project and Alternatives 2 through 7.

Table 2-30 Off-Terminal Line Haul Emissions Data

Data	Value	Source
EF_{hphr} (g/hphr)	See Table 2-28	See Table 2-28
HP	4,000	Palmetto Railways
LF	28%	USEPA 2009b
DT (trains)	8	Palmetto Railways
L (locomotives)	2	Palmetto Railways
Speed (mph)	40	SCSPA 2013
Dist (miles)	35	SCSPA 2013

Table 2-31 Off-Terminal Line Haul Emissions—Criteria Pollutants (tons)

CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC
8.075	9.402	0.152	0.147	0.028	0.351

Source: Palmetto Railways, USEPA 2009a, 2009b, 2015d, SCSPA 2013

Table 2-32 Off-Terminal Line Haul Emissions—GHGs (MT)

CO_2	CH_4	CH_4	CO_2e
2,811	0.303	8.530	5,361

Source: IPCC 2007, Palmetto Railways, USEPA 2009a, 2009b, 2014a, 2015d

On-terminal line haul pollutant emissions were estimated using the same emission factors, daily trains, number of locomotive engines per train, and locomotive engine horsepower as the off-terminal line haul calculation, in addition to daily hours of activity per train, provided by Palmetto Railways.

On-terminal Line Haul emissions were calculated using the following equations:

$$\mathbf{E = EF_{hphr} \times HP \times Hr \times LF}$$

Where:

E = Emissions (tons or MT)
HP = Horsepower (HP)
Hr = Annual Locomotive Hours (hours)
LF = Load Factor (%)

And:

$$\mathbf{Hr = DT \times DA \times L}$$

Where:

DT = Number of Daily Trains (trains)
DA = Daily activity per train (hours)
L = Locomotives per train (locomotives)

On-terminal Line Haul emissions and data used in calculations are shown below. On-terminal line haul emissions would be the same for the Proposed Project and Alternatives 2 through 7.

Table 2-33 On-Terminal Line Haul Emissions Data

Data	Value	Source
EF_{hphr} (g/hphr)	See Table 2-28	See Table 2-28
HP	4,000	Palmetto Railways
LF	28%	USEPA 2009b
DT (trains)	8	Palmetto Railways
L (locomotives)	2	Palmetto Railways
DA (hours/train)	1	Palmetto Railways

Table 2-34 On-Terminal Line Haul Emissions—Criteria Pollutants (tons)

CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC
9.229	10.746	0.173	0.168	0.033	0.402

Source: Palmetto Railways, USEPA 2009a, 2009b, 2015d, SCSPA 2013

Table 2-35 Off-Terminal Line Haul Emissions—GHGs (MT)

CO_2	CH_4	N_2O	CO_2e
3,313	0.346	9.748	6,127

Source: IPCC 2007, Palmetto Railways, USEPA 2009a, 2009b, 2014a, 2015d

2.2.3 Switch Locomotive Activity

Switch locomotive emission factors were taken from and developed using methods from the EPA's *Emission Factors for Locomotives* (USEPA 2009a). EPA's *Emission Factors for Locomotives* provided locomotive emission factors switch locomotive engines by tier. Tier 4 switch engine emission factors were used for NO_x, PM_{10}, HC (hydrocarbons), and CO in g/hphr. These pollutants were the only emission factors available. Emission factors for other criteria pollutants and GHGs were developed using methods in EPA's *Emission Factors for Locomotives* and are listed below.

- VOC emissions were assumed to be equal to 1.053 times the HC emissions
- $PM_{2.5}$ emissions were estimated to be 0.97 times the PM_{10} emissions
- SO_2 and CO_2 emission rates were calculated based on the diesel fuel properties
- CH4 emissions were assumed to be proportional to the total HC emissions
- N_2O emissions were assumed to be proportional to the total NO_x emissions

Switch locomotive emission factors of SO_2 and CO_2 in g/gal were calculated using the same equations and data as for those for line haul emission factors in g/gal. Emission factors for SO_2 and CO_2 in g/hphr were calculated using the same equation as the line haul emission factors in g/hphr, but a difference conversion factor (CF). It is important to emphasize that the emission rates rely on many simplifying assumptions. Thus emission rates calculated should be considered as approximations.

Switch emission factors and data used to develop them are shown below.

Table 2-36 Switch Locomotive Emission Factors Data

Data	Value	Source
EF_{gal} (g/gal)	Varies	USEPA 2009a
Tier	4	Palmetto Railways
CF	15.2	USEPA 2009a
FD (g diesel/gal)	3,200	See Table 2-28
MW_{SO2} (g/mole)	64	See Table 2-28
MW_S (g/mole)	32	See Table 2-28
MW_{CO2} (g/mole)	44	See Table 2-28
MW_C (g/mole)	12	See Table 2-28
FC_S	15×10^{-6}	See Table 2-28
FC_C	0.87	See Table 2-28

Note: ULSD Sulfur fuel was assumed

Table 2-37 Switch Locomotive Emission Factors (g/hphr)

Criteria Pollutant or GHG	Line Haul Emission Factors (g/hphr)
CO	1.83
NO_x	1.00
PM_{10}	0.015
$PM_{2.5}$	0.015
SO_2	0.006
VOC	0.084
CO_2	672.2
CH_4	0.080

N_2O	1.000

Source: Palmetto Railways, USEPA 2009a, 2015d

The switch locomotive pollutant emissions were estimated using emission factors shown above and activity provided by Palmetto Railways including switch locomotive engine tier, daily hours of activity per train, and switch locomotive engine horsepower. The load factor was derived from EPA's *Locomotive Emission Standards* (USEPA 2009a, 1998).

Switch locomotive emissions were calculated using the same equations as for on-terminal line haul emissions.

Switch locomotive emissions and data used in calculations are shown below. Switch locomotive emissions would be the same for the Proposed Project and Alternatives 2 through 7.

Table 2-38 Switch Locomotive Emissions Data

Data	Value	Source
EF_{hphr} (g/hphr)	See Table 2-37	See Table 2-37
HP	2,000	Palmetto Railways
LF	10.6%	USEPA 1998
DT (trains)	8	Palmetto Railways
L (locomotives)	2	Palmetto Railways
DA (hours/train)	2.17	Palmetto Railways

Table 2-39 Switch Locomotive Emissions—Criteria Pollutants (tons)

CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC
5.420	2.962	0.044	0.043	0.018	0.249

Source: Palmetto Railways, USEPA 1998, 2009a, 2015d, SCSPA 2013

Table 2-40 Switch Locomotive Emissions—GHGs (MT)

CO_2	CH_4	N_2O	CO_2e
1,805.9	0.215	2.687	2,611.9

Source: IPCC 2007, Palmetto Railways, USEPA 1998, 2009a, 2014a, 2015d

2.2.4 UTR Truck Activity

UTR truck emissions were estimated for running emissions during truck trips to and from the site and idling emissions on-site. Emission factors for UTR trucks were developed using the MOVES model (USEPA 2015b). The following are inputs used for the EPA MOVES model.

Table 2-41 MOVES Model UTR Truck Inputs

MOVES RunSpec	Inputs
Model	Nonroad
Domain/Scale	National
Calculation Type	Inventory
Years	2038
Months	January
Days	Weekdays
Geographic Bounds	SOUTH CAROLINA – Charleston County
Fuels	Nonroad Diesel Fuel
Sectors	Industrial
Road Type	Preselected-Nonroad
Pollutants and Processes	Total Gaseous Hydrocarbons, Non-Methane Hydrocarbons, Volatile Organic Compounds, Methane, Carbon Monoxide, Oxides of Nitrogen. Primary Exhaust $PM_{2.5}$ – Total, Primary Exhaust PM_{10} – Total, Sulfur Dioxide, Atmospheric CO_2
Management Input Data Sets	None
Rate of Progress	Not Selected
General Output	Mass Units: Grams Energy Units: Joules Distance Units: Miles
Output Emissions Detail	Emission Process, SCC
Advanced Performance Features	Not Selected

Emission factors from a weekday in January were used with the process of running exhaust to provide a conservative estimate of CO emissions, which are higher during winter months... UTR truck emission factors from MOVES are shown in Table 4-2. N_2O emission factors were developed using CO_2 emission factors and ratios of each GHG's diesel fuel content from EPA's *Emission Factors for Greenhouse Gas Inventories* (USEPA 2014a). Table 2-4 shows these ratios.

UTR truck emission factors are shown below.

Table 2-42 UTR Truck Emission Factors (g/hphr)

Criteria Pollutant or GHG	UTR Truck Emission Factors (g/hphr)
CO	0.160
NO_x	0.383
PM_{10}	0.011
$PM_{2.5}$	0.011
SO_2	0.003
VOC	0.155
CO_2	543.8
CH_4	0.013
N_2O	0.014

Source: Palmetto Railways, USEPA 2015b

UTR truck running and idling emissions were estimated using activity from Palmetto Railways, and data taken from EPA's *Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories* (USEPA 2009b).

UTR truck running and idling emissions were estimated using the following equation.

Annual Emissions = Hr x HP x LF x EF

Where:

Hr	=	Annual operating hours (hours)
HP	=	Horsepower (hp)
LF	=	Load Factor (unitless)
EF	=	Emission Factor (grams/hphr)

And for UTR truck running:

Hr = Truckloads x (One-way Trip/Truckload) x Trip Distance x (Days/Yr) / Speed

Where:

Truckloads	=	Daily UTR truckloads
Trip Distance	=	Length of the Drayage Road (miles)
Days/Yr	=	365 (days)
Speed	=	UTR truck speed on Drayage Road (mph)

And for UTR truck idling:

Hr = Truckloads x (Idle Time) x (Days/Yr) / (Min/Hr)

Where:

Truckloads	=	Daily UTR truckloads
Idle Time	=	Idle Time per truckload (minutes)
Days/Yr	=	365 (days)
Min/Hr	=	Minutes per Hour (minutes)

UTR truck running and idling emissions and data used in calculations are shown below.

Table 2-43 UTR Truck Emissions Data

Data	Value	Source
EFhphr (g/hphr)	See Table 2-42	See Table 2-42
HP	175	Palmetto Railways
LF	65%	USEPA 2009b
Daily UTR Truckloads	554	Palmetto Railways
Trip Distance (miles)—Alternatives 1-4	1	Palmetto Railways
Trip Distance (miles)—Alternatives 5-7	2	Palmetto Railways
Trips per Truckload	2	Palmetto Railways
Idle Time (min)	5	Palmetto Railways
Speed (mph)	20	Palmetto Railways

Table 2-44 UTR Truck Emissions—Criteria Pollutants (tons)

Alternative, Activity	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC
Alternatives 1-4: Running	0.406	0.972	0.028	0.027	0.007	0.394
Alternatives 5-7: Running	0.812	1.944	0.055	0.054	0.014	0.788
Alternatives 1-7: Idling	0.388	0.810	0.023	0.022	0.006	0.328

Source: Palmetto Railways, USEPA 2009b, 2015b

Table 2-45 UTR Truck Emissions—GHGs (MT)

Alternative, Activity	CO_2	CH_4	N_2O	CO_2e
Alternatives 1-4: Running	1,250.7	0.030	0.032	1,260.9
Alternatives 5-7: Running	2,501.4	0.060	0.064	2,521.9
Alternatives 1-7: Idling	1,042.3	0.025	0.027	1,050.8

Source: IPCC 2007, Palmetto Railways, USEPA 2009b, 2014a, 2015b

2.2.5 OTR Truck Activity

OTR truck emissions were estimated for running emissions during truck trips to and from the site and idling emissions on-site. Emission factors for OTR trucks were developed using the MOVES model (USEPA 2015b).

Emission factors from a weekday in January were used with the process of running exhaust to provide a conservative estimate of CO emissions, which are higher during winter months. For running emissions, the OTR trucks were assumed to be traveling half of their time at 30 mph and the other half 60 mph to represent both highway and off-highway travel. The composite emission factors for OTR trucks were developed as average emission factors of 30 mph emission factors and 60 mph emission factors. A 30 mph emission factor for each pollutant and GHG was developed as an average of the g/VMT emission factors of roadway links with 30 mph speed limits. Similarly, 60 mph emission factors for each pollutant and GHG were developed as an average of the g/VMT emission factors of roadway links with 60 mph speed limits. The inputs used for the EPA MOVES model are further detailed in Section 2.4 and provided in Chapter 5.

The composite OTR truck running emission factors developed from MOVES are shown below.

Table 2-46 OTR Truck Running Emission Factors (g/VMT)

Criteria Pollutant or GHG	OTR Truck Emission Factors at 30 mph (g/VMT)	OTR Truck Emission Factors at 60 mph (g/VMT)	Composite OTR Truck Emission Factors (g/VMT)
CO	0.4530	0.3117	0.3824
NO_x	2.2702	1.6095	1.9399
PM_{10}	0.0332	0.0150	0.0091
$PM_{2.5}$	0.0305	0.0138	0.0222
SO_2	0.0167	0.0125	0.0146
VOC	0.1222	0.0797	0.1010
CO_2e	2,009.51	1,449.38	1,729.45

Source: USEPA 2015b

OTR truck running emissions were estimated using activity from Palmetto Railways, and the following equation.

Annual Emissions = EF x (Truckloads) x (Trip Distance) x (Days/Yr)

Where:

EF	=	Emission Factor (grams/VMT)
Truckloads	=	Daily OTR truckloads
Trip Distance	=	Trip Distance (miles)
Days/Yr	=	365 (days)

Emission factors for OTR truck idling were developed using the MOVES Off-Network Link for Charleston County, South Carolina. A January weekday in 2038 from 5–6 PM was used to provide a conservative estimate of CO emissions, which are higher during winter months.. OTR truck idling activity was provided by Palmetto Railways. It was assumed that in the No-Action Alternative, all truckloads would be made by OTR trucks and idling time would be 15 minutes. OTR idle time for Alternatives would be reduced to 7.5 minutes due to proposed minimization measures. Link 69 represents the off-network link. The inputs used for the EPA MOVES model are further detailed in Section 2.5 and provided in Chapter 5.

OTR truck running and idling data used to develop inputs for the MOVES model and emissions calculations are shown below.

Table 2-47 OTR Truck Running and Idling Emissions Data

Data	Value	Source
EF (g/VMT)	See Table 2-46	See Table 2-46
Trip Distance—Alternatives 1-7 (miles)	7.7	Palmetto Railways
Trip Distance—No-Action Alternative (miles)	14.7	Palmetto Railways
Daily OTR Truckloads—Alternatives 1-7	1,293	Palmetto Railways
Daily OTR Truckloads—No-Action Alternative	1,847	Palmetto Railways
Idling Time per Truckload—Alternatives 1-7 (min)	7.5	Palmetto Railways
Idling Time per Truckload—No-Action Alternative (min)	15	Palmetto Railways

OTR truck idling emissions were estimated using the following equation.

Annual Emissions = (EF) x (Days/Yr)

Where:

EF	=	Emission Factor (grams/day)
Days/Yr	=	365 (days)

The OTR truck idling emission factors developed from MOVES are shown below.

Table 2-48 OTR Truck Idling Emission Factors (g/day)

Criteria Pollutant or GHG	OTR Truck Idling Emission Factors—Alternatives 1-7	OTR Truck Idling Emission Factors—No-Action Alternative
CO	11,995	34,272
NO_x	25,262	72,170
PM_{10}	110.2	314.9
$PM_{2.5}$	101.4	289.7
SO_2	9.6	27.4
VOC	3,658.7	10,453
CO_2e	1,233,930	3,525,242

Source: USEPA 2015b

OTR truck running and idling emissions are shown below.

Table 2-49 OTR Truck Emissions—Criteria Pollutants (tons)

Alternative, Activity	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC
Alternatives 1-7: Running	3.063	15.541	0.193	0.178	0.117	0.809
No-Action Alternative: Running	8.353	42.382	0.527	0.484	0.319	2.205
Alternatives 1-7: Idling	4.827	10.164	0.044	0.041	0.004	1.472
No-Action Alternative: Idling	13.789	29.037	0.127	0.117	0.011	4.206

Source: Palmetto Railways, USEPA 2015b

Table 2-50 OTR Truck Emissions—GHGs (MT)

Alternative, Activity	CO_2e
Alternatives 1-7: Running	12,751.2
No-Action Alternative: Running	34,773.4
Alternatives 1-7: Idling	450.4
No-Action Alternative: Idling	1,286.7

Source: IPCC 2007, Palmetto Railways, USEPA 2015b

2.2.6 Worker Commute

Worker commute emissions were estimated for running emissions during employee commutes to and from the site. Gasolines passenger cars were assumed for the vehicle type. Emission factors for worker commute emissions were developed using the MOVES model (USEPA 2015b).

Emission factors from a weekday in January were used with the process of running exhaust to provide a conservative estimate of CO emissions, which are higher during winter months. For running emissions, the passenger cars were assumed to be traveling half of their time at 30 mph and the other half 60 mph to represent both highway and off-highway travel. The composite emission factors for passenger cars were developed as average emission factors of 30 mph emission factors and 60 mph emission factors. A 30 mph emission factor for each pollutant and GHG was developed as an average of the g/VMT emission factors of roadway links with 30 mph speed limits. Similarly, 60 mph emission factors for each pollutant and GHG were developed as an average of the g/VMT emission factors of roadway links with 60 mph speed limits. The inputs used for the EPA MOVES model are further detailed in Section 2.5 and provided in Chapter 5.

The composite worker commute running emission factors developed from MOVES are shown in below.

Table 2-51 Worker Commute Running Emission Factors (g/VMT)

Criteria Pollutant or GHG	Passenger Car Emission Factors at 30 mph (g/VMT)	Passenger Car Emission Factors at 60 mph (g/VMT)	Composite Passenger Car Emission Factors (g/VMT)
CO	0.6454	0.4925	0.5690
NO_x	0.0148	0.0200	0.0174
PM_{10}	0.0020	0.0016	0.0018
$PM_{2.5}$	0.0018	0.0014	0.0016
SO_2	0.0013	0.0011	0.0012
VOC	0.1600	0.0773	0.1187
CO_2e	189.9	158.3	174.1

Source: USEPA 2015b

Worker commute running emissions were estimated using activity from Palmetto Railways, and the following equation.

Annual Emissions = EF x Trips x (Trip Distance) x (Days/Yr)

Where:

EF	=	Emission Factor (grams/VMT)
Trips	=	Daily worker trips
Trip Distance	=	Trip Distance (miles)
Days/Yr	=	365 (days)

Worker commute data used to develop inputs for the MOVES model and emission calculations are shown below.

Table 2-52 Worker Commute Emissions Data

Data	Value	Source
EF (g/VMT)	See Table 2-51	See Table 2-51
Daily Trips	1,100	Palmetto Railways
Trip Distance (miles)	10.4	Palmetto Railways

Worker commute emissions are shown below. Worker commute emissions would be the same for the Proposed Project and Alternatives 2 through 7.

Table 2-53 Worker Commute Emissions—Criteria Pollutants and GHGs

CO (tons)	NO_x (tons)	PM_{10} (tons)	$PM_{2.5}$ (tons)	SO_2 (tons)	VOC (tons)	CO_2e (MT)
2.619	0.080	0.008	0.007	0.005	0.546	727.0

Source: Palmetto Railways, USEPA 2015b

2.2.7 Electricity Use

GHG emissions associated with electricity use were estimated using emission factors from EPA's *Emission Factors for Greenhouse Gas Inventories* and annual electricity usage, provided by Palmetto Railways (USEPA 2014b).

GHG emissions associated with electricity use were estimated using the following equation.

Annual Emissions = EF x (Electricity Usage)

Where:

EF	=	Emission Factor (lb GHG/MWh)
Electricity Usage	=	Annual Electricity usage (kWh)

Electricity data used in calculations and GHG emissions associated with electricity use are shown below. GHG emissions associated with electricity use would be the same for the Proposed Project and Alternatives 2 through 7.

Table 2-54 Electricity Emissions Data and Emissions

Data	Value	Source
EF—CO_2 (lb CO_2/kWh)	1,073.65	USEPA 2014a
EF—CH_4 (lb CH_4/kWh)	0.02169	USEPA 2014a
EF—N_2O (lb N_2O/kWh)	0.01764	USEPA 2014a
Electricity Usage (kWh)	7,192	Palmetto Railways

Table 2-55 GHG Emissions Associated with Electricity Use

CO_2 (MT)	CH_4 (MT)	N_2O (MT)	CO_2e (MT)
3.5	<0.1	<0.1	3.5

Source: Palmetto Railways, USEPA 2014a

2.2.8 Water Use

GHG emissions associated with water use were estimated using emission factors from EPA's *Emission Factors for Greenhouse Gas Inventories*, along with annual water consumption provided by Palmetto Railways and electricity intensity from the U.S. Department of Energy's (USDOE) *2010 Buildings Energy Data Book* (USEPA 2014a, USDOE 2011).

GHG emissions associated with water use were estimated using the following equation.

Annual Emissions = EF x (Water Use) x (Electricity Intensity)

Where:

EF = Emission Factor (lb GHG/MWh)
Water Use = Annual water consumption (gal)
Electricity Intensity = Electricity use associated with water consumption (kWh/MG)

Water and electricity data used in calculations and GHG emissions associated with water use are shown below. GHG emissions associated with water use would be the same for the Proposed Project and Alternatives 2 through 7.

Table 2-56 Electricity Emissions Data

Data	Value	Source
EF—CO_2 (lb CO_2/kWh)	1,073.65	USEPA 2014a
EF—CH_4 (lb CH_4/kWh)	0.02169	USEPA 2014a
EF—N_2O (lb N_2O/kWh)	0.01764	USEPA 2014a
Water Use (gal)	264,625	Palmetto Railways
Electricity Intensity (kWh/MG)	2,295	USDOE 2011

Table 2-57 GHG Emissions Associated with Electricity Use

CO_2 (MT)	CH_4 (MT)	N_2O (MT)	CO_2e (MT)
0.30	<0.1	<0.1	0.30

Source: Palmetto Railways, USEPA 2014a, USDOE 2011

2.2.9 Wastewater

GHG emissions associated with wastewater were estimated using emission factors from EPA's *Emission Factors for Greenhouse Gas Inventories*, along with annual water consumption provided by Palmetto Railways and electricity intensity from the U.S. Department of Energy's (USDOE) *2010 Buildings Energy Data Book* (USEPA 2014a, USDOE 2011).

GHG emissions associated with wastewater were estimated using the following equation.

Annual Emissions = EF x (Water Use) x (Electricity Intensity)

Where:

EF	= Emission Factor (lb GHG/MWh)
Water Use	= Annual water consumption (gal)
Electricity Intensity	= Electricity use associated with water consumption (kWh/MG)

Wastewater and electricity data used in calculations and GHG emissions associated with wastewater are shown below. GHG emissions associated with water use would be the same for the Proposed Project and Alternatives 2 through 7.

Table 2-58 Electricity Emissions Data

Data	Value	Source
EF—CO_2 (lb CO_2/kWh)	1,073.65	USEPA 2014a
EF—CH_4 (lb CH_4/kWh)	0.02169	USEPA 2014a
EF—N_2O (lb N_2O/kWh)	0.01764	USEPA 2014a
Water Use (gal)	36,500	Palmetto Railways
Electricity Intensity (kWh/MG)	1,649	USDOE 2011

Table 2-59 GHG Emissions Associated with Electricity Use

CO_2 (MT)	CH_4 (MT)	N_2O (MT)	CO_2e (MT)
0.03	<0.1	<0.1	0.03

Source: Palmetto Railways, USEPA 2014a, USDOE 2011

2.2.10 Solid Waste

GHG emissions from solid waste generation were determined using methodology from the EPA's AP-42, *Compilation of Air Pollutant Emission Factors* (USEPA 2011). All solid waste from the ICTF site would be delivered to a local landfill. The following equation was used to calculate landfill gas of CH_4.

$$Q_{CH4} = L_0 R (e^{-kc} - e^{-kt})$$

Where:

Q_{CH4}	=	Methane generation rate at time t (m^3/yr)
L_0	=	Methane generation potential, (m^3 CH_4/Mg refuse)
R	=	Average annual refuse acceptance rate during active life (Mg/yr)
e	=	Base log, (the base number used in the logarithmic function, 2.718)
k	=	Methane generation rate constant (yr^{-1})
c	=	Time since landfill closure (yrs) (c=0 for active landfills)

t = Time since the initial refuse placement (yrs)

The landfill used for the Proposed Project and alternatives, Bee's Ferry Landfill, is currently operating and was assumed to be active in the future as well. The AP-42 equation yields Q_{CH4} in units of m^3/yr. Conversion factors were used to convert the m^3/yr output to MT/year. The AP-42 equation is specifically for calculating CH4 landfill emissions, however the document provides additional methods for calculating CO_2 and N_2O emissions. Landfill gas consists of approximately 40 percent by volume CO_2, 55 percent CH_4, and 5 percent N_2 (USEPA 2011). These percents by volume of CO_2 and N_2 were used to calculate landfill emissions of CO_2 and N_2O from solid waste from the Proposed Project and alternatives. The calculated amount for N_2 was assumed to be entirely N_2O for a conservative estimate.

Data used in calculations and GHG emissions associated with solid waste are shown below. GHG emissions associated with solid waste would be the same for the Proposed Project and Alternatives 2 through 7.

Table 2-60 Solid Waste Emissions Data

Data	Value	Source
L0 (m^3 CH_4/Mg refuse)	100	USEPA 2011
Annual Waste Disposal (tons)	21	Palmetto Railways
R (Mg/year)	19.0509	USEPA 2011
k (year-1)	2.718	USEPA 2011
c (years)	0	USEPA 2011
t (years)	1	Chosen for annual calculation
Conversion Factor—CO_2 (MT/m^3)	0.0018	ICBE 2000
Conversion Factor—CH_4 (MT/m^3)	0.0007	USEPA 2014b
Conversion Factor—N_2O (MT/m^3)	0.0012	AirProducts 2016

Table 2-61 GHG Emissions Associated with Solid Waste

CO_2 (MT)	CH_4 (MT)	N_2O (MT)	CO_2e (MT)
0.10	0.05	0.01	3.72

Source: IPCC 2007, Palmetto Railways, USEPA 2014a, 2014b, 2011, ICBE 2000, AirProducts 2016

2.2.11 Hazardous Air Pollutants (HAPs) Emissions Inventories

Once emissions inventories were completed for each project alternative, the amount of non-DPM HAPs emitted were calculated. Non-DPM HAPs are determined as a ratio of criteria pollutants (i.e., VOC) discharged. The ratios were obtained from EPA document *Air Toxic Emissions from On-Road Vehicles in MOVES2014* and are detailed in the tables below (USEPA 2015a).

Table 2-62 HAP Ratios

Priority MSAT (non-DPM HAP)(1)	Proxy Pollutant	Ratio of MSAT to Proxy Pollutant
Benzene	VOC	0.01291
1,3-Butadiene	VOC	0.00080
Formaldehyde	VOC	0.21744
Naphthalene	VOC	0.01630
Polycyclic organic matter(2)	VOC	0.00130

(1) Acrolein is a non-DPM HAP, however it was not quantified due to uncertainty.
(2) Polycyclic organic matter defines a broad class of compounds that includes polycyclic aromatic compounds. The EPA document, *Air Toxic Emissions from On-Road Vehicles in MOVES2014,* provides ratios for fifteen polycyclic aromatic compounds. A sum of the ratios for the fifteen compounds was used to represent the overall ratio for polycyclic organic matter.

Notes: All ratios were taken for 2007 and later diesel vehicles.
Source: USEPA 2015a

Non-DPM HAP emissions from the operation of the Proposed Project and alternatives is shown below.

Table 2-63 Operational Emissions – HAPs

Alternative	HAPs (tons)				
	Benzene	1,3-Butadiene	Formaldehyde	Napthalene	Polycyclic organic matter
Alternative 1	0.059	0.004	0.990	0.074	0.006
Alternative 2	0.059	0.004	0.990	0.074	0.006
Alternative 3	0.059	0.004	0.990	0.074	0.006
Alternative 4	0.059	0.004	0.990	0.074	0.006
Alternative 5	0.064	0.004	1.075	0.081	0.006
Alternative 6	0.064	0.004	1.075	0.081	0.006
Alternative 7	0.064	0.004	1.075	0.081	0.006
No-Action Alternative	0.083	0.005	1.394	0.104	0.008

Source: USEPA 2015a, 2015b, 2010, Palmetto Railways

2.3 AERMOD DISPERSION MODELING

Dispersion modeling was included in this analysis to evaluate the Proposed Project's and alternatives' compliance with the CO, NO_2, $PM_{2.5}$, PM_{10}, and SO_2 NAAQS, in addition to finding DPM concentrations for the HRA. When a pollutant is emitted from a source, such as exhaust from a passenger car, it is dispersed in the air and becomes less potent or less concentrated as it is dispersed. Concentrations of the criteria pollutants and DPM emitted from the operation of the Proposed Project and alternatives were estimated using the AERMOD Dispersion Model. AERMOD requires meteorological, terrain, receptor, and pollutant source data inputs. Modeling was conducted for the full buildout year, 2038. Alternatives 1 through 4 were modeled together, as were Alternatives 5 through 7 to simplify the model runs and reduce model run times. The No-Action Alternative was run separately. This is further discussed in section 2.4.6.

The AERMOD Dispersion Model was selected as the appropriate dispersion model for criteria pollutants, because it is a preferred or recommended dispersion model as listed in Appendix W by EPA (USEPA 2005). The American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC) was formed to introduce state-of-the-art modeling concepts into EPA's air quality models. Through AERMIC, the modeling system, AERMOD, was introduced that incorporated air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of both surface and elevated sources and both simple and complex terrain. The AERMOD Dispersion Model is a stationary source dispersion model. Although many of the pollutant sources of the Proposed Project and alternatives would be considered mobile sources, such as the UTR and OTR trucks traveling on roadways, these can be modeled as line sources in AERMOD, as is supported in SCDHEC guidance (SCDHEC 2001). For these reasons, AERMOD was selected as the appropriate dispersion model for criteria pollutants.

2.3.1 Control Pathway

Control Pathway inputs vary depending on the pollutant modeled. The following are Control Pathway inputs used for each model run. Some pollutants needed multiple runs due to the NAAQS. Any input options not included in these tables were either not selected, or the default was used.

Table 2-64 Control Pathway Inputs—CO

AERMOD Input Options	Inputs or Selection
Regulatory Default Options	Concentration
Pollutant Type	CO
Averaging Time Options	1-Hour, 8-Hour
Dispersion Coefficient	Urban
Terrain Height Options	Elevated
Receptor Elevations/Hill Heights	Run AERMOD using the AERMAP Receptor Output file

Table 2-65 Control Pathway Inputs—NO_2 1 Hour

AERMOD Input Options	Inputs or Selection
Non-Default Options	Conversion of NOx to NO2
Pollutant Type	NO2
Averaging Time Options	1-Hour
1-Hour Average Options	1-Hour NO2 NAAQS
Dispersion Coefficient	Urban
Exponential Decay	No
Terrain Height Options	Elevated
Receptor Elevations/Hill Heights	Run AERMOD using the AERMAP Receptor Output file
Conversion Methods	Tier 2—ARM
ARM Options	1-Hour NO2/NOx Ratio: 0.800 Annual NO2/NOx Ratio (Optional)—0.750

Table 2-66 Control Pathway Inputs—NO_2 Annual

AERMOD Input Options	Inputs or Selection
Non-Default Options	Conversion of NOx to NO2
Pollutant Type	NO2
Averaging Time Options	Annual
Dispersion Coefficient	Urban
Exponential Decay	No
Terrain Height Options	Elevated
Receptor Elevations/Hill Heights	Run AERMOD using the AERMAP Receptor Output file
Conversion Methods	Tier 2—ARM
ARM Options	1-Hour NO2/NOx Ratio: 0.800 Annual NO2/NOx Ratio (Optional)—0.750

Table 2-67 Control Pathway Inputs—$PM_{2.5}$

AERMOD Input Options	Inputs or Selection
Regulatory Default Options	Concentration
Pollutant Type	PM-2.5 NAAQS
Averaging Time Options	24-Hour, Annual
24-Hour Average Options	24-Hour PM-2.5 NAAQS

Dispersion Coefficient	Urban
Terrain Height Options	Elevated
Receptor Elevations/Hill Heights	Run AERMOD using the AERMAP Receptor Output file

Table 2-68 Control Pathway Inputs—PM_{10}

AERMOD Input Options	Inputs or Selection
Regulatory Default Options	Concentration
Pollutant Type	PM-10 NAAQS
Averaging Time Options	24-Hour
Dispersion Coefficient	Urban
Terrain Height Options	Elevated
Receptor Elevations/Hill Heights	Run AERMOD using the AERMAP Receptor Output file

Table 2-69 Control Pathway Inputs—SO_2 1 Hour

AERMOD Input Options	Inputs or Selection
Regulatory Default Options	Concentration
Pollutant Type	SO_2
Averaging Time Options	1-Hour
1-Hour Average Options	1-Hour SO_2 NAAQS
Dispersion Coefficient	Urban
Exponential Decay	No
Terrain Height Options	Elevated
Receptor Elevations/Hill Heights	Run AERMOD using the AERMAP Receptor Output file

Table 2-70 Control Pathway Inputs—SO_2 3 Hour

AERMOD Input Options	Inputs or Selection
Regulatory Default Options	Concentration
Pollutant Type	SO_2
Averaging Time Options	3-Hour
Dispersion Coefficient	Urban
Exponential Decay	No
Terrain Height Options	Elevated
Receptor Elevations/Hill Heights	Run AERMOD using the AERMAP Receptor Output file

Table 2-71 Control Pathway Inputs—DPM

AERMOD Input Options	Inputs or Selection
Regulatory Default Options	Concentration
Pollutant Type	$PM_{2.5}$
Averaging Time Options	Annual
Dispersion Coefficient	Urban
Terrain Height Options	Elevated
Receptor Elevations/Hill Heights	Run AERMOD using the AERMAP Receptor Output file

2.3.2 Meteorology Data

Meteorology data was taken from SCDHEC, which provides pre-processed NWS meteorological data sets for the years 2002-2006 for the use of AERMOD in South Carolina. Data from Charleston County was used (SCDHEC 2015a).

Table 2-72 Meteorology Pathway Inputs

AERMOD Input Options	Inputs or Selection	Source
Surface Met Data	Uploaded file	SCDHEC 2015a
Profile Met Data	Uploaded file	SCDHEC 2015a
Base Elevations (MSL) (ft)	46.0	SCDHEC 2015b
Read Entire Met Data File?	Yes	-

2.3.3 Building Data

Building inputs were not used because there would be no tall buildings directly adjacent to emissions sources.

2.3.4 Terrain Data

Terrain data was taken from SCDHEC, which provides National Elevation Dataset (NED) for the use of AERMOD in South Carolina. This data is in county divisions at 1 arc-second (approximately 30-meter) horizontal resolution in GeoTIFF format. Data from Charleston County was used (SCDHEC 2013).

Table 2-73 Terrain Processor Inputs

AERMOD Input Options	Inputs or Selection	Source
Terrain Options	Elevated	-
Map Type:	NED GEOTIFF	SCDHEC 2013
Terrain	Uploaded file	SCDHEC 2013

2.3.5 Receptor Grids

Receptors grids were placed over the sensitive receptors in the study area at 50 meters spacing between the boundaries of the Proposed Project and River Center sites and 300 meters from them. Receptors grids were then placed at 100 meters spacing from 300 meters from the sites to at least a quarter mile (1,320 feet) from the pollutant sources. Flagpole receptors were used at a default height of 1.8 meters (6 feet) to represent the breathing height of an adult. The receptor grid and spacing included in the dispersion modeling for the Proposed Project and Alternatives are shown in Figures 5-1 and Figure 5-2.

2.3.6 Source Pathway

The sources included in the model were proposed off-terminal line haul rail, on-terminal line haul rail, switch locomotives, UTR trucks on the private drayage road, UTR truck on-site idling, OTR

trucks on public roads, OTR truck on-site idling, and on-road passenger vehicles. Data, assumptions, and inputs used to develop these sources are described for each source below.

2.3.6.1 Line Haul Locomotives

Line haul locomotive pollutant emissions were estimated for off-terminal line haul activity and on-terminal line haul activity for Alternatives 1 through 7.

Off-terminal line haul activity was modeled as a line volume source. Off-terminal line haul rail sources were extended to reasonable boundaries of East Montague Avenue to the north and I-26 and South Rhett Avenue to the east. On the northern side of the Proposed Project and River Center sites, off-terminal line haul activity transitioned to on-terminal activity just south of Noisette Creek. On the southern side of the Proposed Project and River Center sites, off-terminal line haul activity transitioned to on-terminal activity near Kingsworth Avenue. Rail activity was modeled as an incremental increase from the 2013 Baseline Conditions using daily train crossing data from Appendix F. Off-terminal line haul inputs are shown below.

Table 2-74 Off-Terminal Line Haul Source Inputs

AERMOD Source Input Option	Input	Source
Source Type	Line Volume	--
Configuration	Separated	--
Plume Height (feet)	22	LAHD 2011-An average of the lower estimates of daytime and nighttime plume heights.
Plume Width (meters)	9.05	LAHD 2011
Emission Rate (grams/second)	Varies per rail segment and pollutant. See Table 5-1	Palmetto Railways, USEPA 2009a, 2009b, SCSPA 2013

Off-terminal line haul emissions rates were calculated using the following equations:

$$\mathbf{ER = EF_{hphr} \times HP \times Hr \times LF / (seconds/day)}$$

Where:

ER	=	Emission Rate (grams/second)
EF_{hphr}	=	Emission Factor (grams/hphr)
HP	=	Horsepower (HP)
Hr	=	Daily Locomotive Hours (hours/day)
LF	=	Load Factor (%)

And:

$$\mathbf{Hr = DT \times L / Speed \times Dist}$$

Where:

DT	=	Number of Daily Train Crossings (trains)
L	=	Locomotives per train (locomotives)
Speed	=	Off-terminal Train Speed near facility (mph)
Dist	=	Length of modeled rail segment (miles)

Emission rates were developed using the same data used to develop the operational criteria pollutant emissions inventories, as well as additional data taken from the transportation analysis

(Appendix F - Transportation Technical Memorandum) and other sources as necessary. Off-terminal Line Haul data used in the emission rates calculations are shown below. Off-terminal Line Haul emission rates and calculations are shown in Table 5-1.

Table 2-75 Off-Terminal Line Haul Emission Rates Data

Data	Value	Source
EFhphr (g/hphr)	See Table 2-28	See Table 2-28
HP	4,000	Palmetto Railways
LF	28%	USEPA 2009b
DT (trains)	4	Appendix F
L (locomotives)	2	Palmetto Railways
Speed (mph)	10	Palmetto Railways
Dist (miles)	Varies, See Table 5-1	Google Maps

Of on-terminal line haul activity, 20 percent was modeled as a polygon area source on-site and 40 percent was modeled as a line volume source for each of the NS and CSX rail lines connecting to the Proposed Project and River Center sites. These ratios were provided by Palmetto Railways to best represent where the on-terminal line haul locomotives activities would occur. On-terminal line haul rail activity is bounded by Noisette Creek to the north and Kingsworth Avenue to the south. Line volume sources were used to model on-terminal line haul activity north and south of the Proposed Project and River Center sites. A polygon area volume source was used to model on-terminal line haul activity on-site, where it would occur over multiple tracks. On-terminal line haul inputs are shown below.

Table 2-76 On-Terminal Line Haul Source Inputs

AERMOD Source Input Option	Input	Source
Source Type	Line Volume, Polygon Area Volume	--
Configuration	Separated	--
Plume Height (feet)	22	LAHD 2011-An average of the lower estimates of daytime and nighttime plume heights.
Plume Width (meters)	15.15	LAHD 2011
Emission Rate (grams/second)	Varies per rail segment and pollutant. See Table 5-2, Table 5-3, and Table 5-4	Palmetto Railways, USEPA 2009a, 2009b, SCSPA 2013

Emissions rates for the total on-terminal line haul activity were calculated using the following equations:

$$\mathbf{ER = EF_{hphr} \times HP \times Hr \times LF \,/\, (seconds/day)}$$

Where:

ER	=	Emission Rate (grams/second)
EF_{hphr}	=	Emission Factor (grams/hphr)
HP	=	Horsepower (HP)
Hr	=	Daily Locomotive Hours (hours/day)
LF	=	Load Factor (%)

And:

$$Hr = DT \times L \times A$$

Where:

DT	=	Number of Daily Trains (trains)
L	=	Locomotives per train (locomotives)
A	=	Daily activity per train (hours/train)

After calculating the total emission rates, the activity proportions provided by Palmetto were applied (20%, 40%, 40%) to determine the emission rate of each on-terminal line haul source. Emission rates were developed using the same data used to develop the operational criteria pollutant emissions inventories, as well as additional data taken from Appendix F and other sources as necessary. On-terminal Line Haul data used in the emission rates calculations are shown below. Off-terminal Line Haul emission rates and calculations are shown in Table 5-2, Table 5-3, and Table 5-4.

Table 2-77 On-Terminal Line Haul Emission Rates Data

Data	Value	Source
EFhphr (g/hphr)	See Table 2-28	See Table 2-28
HP	4,000	Palmetto Railways
LF	28%	USEPA 2009b
DT (trains)	8	Palmetto Railways
L (locomotives)	2	Palmetto Railways
A (hours/train)	1	Palmetto Railways

2.3.6.2 Switch Locomotives

Switch locomotive activity was modeled as two area sources: one on the northern portion of the Proposed Project and alternatives sites and the other on the southern portion. Emission rates for the full switch activity was calculated first. Then, half of that activity was distributed to each of the northern and southern switch areas. These ratios were provided by Palmetto Railways to best represent where the switch locomotive activities will occur. Polygon area volume sources were used to model switch locomotive activity on-site, where it would occur over an area. Switch locomotive inputs are shown below.

Table 2-78 Switch Locomotive Source Inputs

AERMOD Source Input Option	Input	Source
Source Type	Polygon Area	--
Plume Height (feet)	43.5	LAHD 2011-An average of the lower estimates of daytime and nighttime plume heights.
Emission Rate (grams/second)	Varies per pollutant. See Table 5-5	Palmetto Railways, USEPA 1998, 2009a, SCSPA 2013

Emissions rates for the total switch locomotive activity were calculated using the following equations:

$$ER = EF_{hphr} \times HP \times Hr \times LF / (seconds/day)$$

Where:

ER	=	Emission Rate (grams/second)
EF_{hphr}	=	Emission Factor (grams/hphr)
HP	=	Horsepower (HP)
Hr	=	Daily Locomotive Hours (hours/day)
LF	=	Load Factor (%)

And:

$$\mathbf{Hr = DT \times A}$$

Where:

DT	=	Number of Daily Trains (trains)
A	=	Daily activity per train (hours/train)

After calculating the total emission rates, the activity proportions provided by Palmetto were applied (50%, 50%) to determine the emission rate of each switch locomotive source. Emission rates were developed using the same data used to develop the operational criteria pollutant emissions inventories and other sources as necessary. Switch locomotive data used in the emission rates calculations are shown below. Switch locomotive emission rates and calculations are shown in Table 5-5.

Table 2-79 Switch Locomotive Emission Rates Data

Data	Value	Source
EFhphr (g/hphr)	See Table 2-36	See Table 2-36
HP	2,000	Palmetto Railways
LF	10.6%	USEPA 1998
DT (trains)	8	Palmetto Railways
A (hours/train)	2.17	SCSPA 2013

2.3.6.3 UTR Truck Activity

UTR truck emissions were modeled for running activity during truck trips to and from the site and idling activity on-site. UTR truck activity was modeled as a line volume source for the private Drayage Road and a polygon area source for the on-site idling activity. UTR truck activity inputs are shown below.

Table 2-80 UTR Truck Activity Source Inputs

AERMOD Source Input Option	Input	Source
Source Type	Line Volume, Polygon Area Volume	--
Configuration	Separated	--
Plume Height (feet)	15	LAHD 2011
Plume Width (meters)	21.34	Width of Drayage Road (provided by Palmetto Railways) + 6.0 meters
Emission Rate (grams/second)	Varies per pollutant. See Table 5-6 and Table 5-7	Palmetto Railways, USEPA 2015b

UTR truck running and idling emissions rates were estimated using the following equations.

$$\mathbf{ER = EF_{hphr} \times HP \times Hr \times LF / (seconds/day)}$$

Where:

ER	=	Emission Rate (grams/second)
EF_{hphr}	=	Emission Factor (grams/hphr)
HP	=	Horsepower (HP)
Hr	=	Daily Truck Activity (hours/day)
LF	=	Load Factor (%)

And for UTR truck running:

Hr = Truckloads x (One-way Trip/Truckload) x Trip Distance / Speed

Where:

Truckloads	=	Daily UTR truckloads
Trip Distance	=	Length of the Drayage Road (miles)
Speed	=	UTR truck speed on Drayage Road (mph)

And for UTR truck idling:

Hr = Truckloads x (Idle Time) / (Min/Hr)

Where:

Truckloads	=	Daily UTR truckloads
Idle Time	=	Idle Time per truckload (minutes)
Min/Hr	=	60 (minutes/hour)

Emission factors for UTR trucks were developed using the MOVES model (USEPA 2015b). The inputs used for the EPA MOVES model are in Table 2-41. UTR truck emission factors (in grams/hphr) are in Table 2-42. UTR truck emission rates data used in calculations are shown below. UTR truck emission rates and calculations are shown in Table 5-6 and Table 5-7.

Table 2-81 UTR Truck Emission Rates Data

Data	Value	Source
EFhphr (g/hphr)	See Table 2-42	See Table 2-42
HP	175	Palmetto Railways
LF	65%	USEPA 2009b
Truckloads	554	Palmetto Railways
Trip Distance (miles)—Alternatives 1-4	1	Palmetto Railways
Trip Distance (miles)—Alternatives 5-7	2	Palmetto Railways
Speed (mph)	20	Assumption

2.3.6.4 OTR Truck Activity and Worker Commute on Public Roadways

OTR truck emissions were modeled for running activity during truck trips to and from the site and idling activity on-site. OTR truck activity was modeled as line volume sources for the public roadways and a polygon area source for the on-site idling activity. All truck traffic was assumed to

be diesel-fueled OTR trucks. Worker commute on public roadways was assumed to be made in gasoline fueled passenger cars. This source was not included in the DPM modeling because they do not run on diesel fuel, and so do not emit DPM. They were, however, included in dispersion modeling of the criteria pollutants.

OTR truck activity and worker commute from the Proposed Project and alternatives on public roadways could not be isolated. Rather, all passenger car and truck traffic were included in the roadway sources, as is presented Appendix F. Appendix F includes over 200 roadway links, however, this analysis has a more narrowed scope and does not need all roadways links modeled to provide a reasonable estimate of air quality impacts. To reduce the number of roadway links included in the air dispersion model, a screening process was applied and includes the following:

- All future roadways built for the Proposed Project and alternatives were included
- Existing roadways were included if they were within a quarter mile of a pollutant source and had 10,000 vehicle ADT or 1,000 truck ADT
- Roadways that projected the same ADT for all alternatives were excluded
- Roadways that did not project an increment of ADT from the 2013 Baseline Conditions were excluded
- Roadways that projected a higher truck ADT for the No-Action Alternative than for Alternatives 1 through 7 were excluded

This limited the public roadways to 35 roadway links included in the dispersion modeling for Alternatives 1 through 7 and 34 roadway links included in the No-Action Alternative. The public roadway links included in the dispersion modeling is shown in Figure 6-3.

OTR truck activity inputs are shown below.

Table 2-82 OTR Truck Activity Source Inputs

AERMOD Source Input Option	Input	Source
Source Type	Line Volume, Polygon Area Volume	--
Configuration	Separated	--
Plume Height (feet)	15, Varies per roadway segment [(1)] See Table 5-8	LAHD 2011
Plume Width (meters)	Varies per roadway segment	Width of public roadway (measured in Google Maps) + 6.0 meters
Emission Rate (grams/second)	Varies per pollutant and roadway segment. See Table 5-27 through Table 5-35.	Palmetto Railways, USEPA 2015b

(1) Plume Height for OTR trucks modeled for DPM is 15 feet. The NAAQS modeling included passenger cars on public roadways, which were modeled together with OTR trucks. These plume heights were developed as weighted averages of the plume height of OTR trucks (15 feet) and passenger cars (2 feet).

Emission factors for OTR trucks and passenger cars were developed using the MOVES model (USEPA 2015b). Emission factors from a weekday in January from 5-6 PM were used with the process of running exhaust to conservatively estimate CO emissions and represent the nighttime peak traffic hour. The following are inputs used for the Run Specifications in the EPA MOVES model.

The inputs used for the EPA MOVES model Project Data Manager are in Chapter 5. OTR truck and passenger car emission factors were converted from the MOVES output (in grams/hour) to the

AERMOD emission rates (in grams/second). The MOVES output emission factors and converted AERMOD emission rates are in Chapter 5. Data and assumptions used to populate the Project Data Manager include:

- Link volumes were taken from Appendix F.
- Link length was measured in Google Maps.
- Link average grade was assumed to be 6% for ramps and 0% for all other roadways.
- Link source type hour fractions were developed from passenger car and truck AADT from Appendix F.
- Age distribution was developed using the EPA MOVES default age distribution tool. A lag time of 5 years was assumed for OTR trucks to better represent OTR truck fleets.
- The meteorology data was developed using data from the NOAA NCDC Quality Controlled Local Climatological Data and EPA's MOBILE6 meteorological data converter (NOAA 2016, USEPA 2016a)
- No I/M Programs was selected.
- Default Fuels tables were used.
- Link69 represented the off-network link. Its output was in grams/day, which was converted to grams/second for the AERMOD emission rate.

Table 2-83 MOVES Model Public Roadway Inputs

MOVES RunSpec	Inputs
Model	Onroad
Domain/Scale	Project
Calculation Type	Inventory
Years	2038
Months	January
Days	Weekdays
Hours	17:00-17:59
Geographic Bounds	SOUTH CAROLINA – Charleston County
Fuels	Diesel Fuel—Combination Long-haul Truck, Gasoline—Passenger Car
Road Type	All Selected
Pollutants and Processes	Total Gaseous Hydrocarbons, Non-Methane Hydrocarbons, Non-Methane Organic Gases, Total Organic Gases, Volatile Organic Compounds, Methane, Carbon Monoxide, Oxides of Nitrogen, Nitrogen Dioxide, Nitrous Oxide, Primary Exhaust $PM_{2.5}$ – Total, Primary Exhaust $PM_{2.5}$ – Species Primary Exhaust PM_{10} – Total, Sulfur Dioxide, Total Energy Consumption, Atmospheric CO_2, CO_2 Equivalent
Management Input Data Sets	None
Rate of Progress	Not Selected
General Output	Mass Units: Grams Energy Units: Joules Distance Units: Miles Activity: Distance Traveled, Population
Output Emissions Detail	None or Fuel Type [(1)]
Advanced Performance Features	Not Selected

[(1)] None was selected for NAAQS dispersion modeling output to yield a total public roadway emission factor with both cars and trucks. Fuel Type was selected to get separate emission factors for cars and trucks when only truck emission factors were needed for DPM dispersion modeling.

2.3.6.5 Other Model Inputs and Methods

The Source Group function was used to provide outputs of pollutant concentrations by emissions source. The source groups were the private Drayage Road, Line Haul Rail, Switch Rail, Truck Idling, and Public Roadways. Alternatives 1 through 4 were modeled together, as were Alternatives 5 through 7 to simplify the model runs and reduce model run times. The No-Action Alternative was run separately. The use of Source groups made it possible to run multiple alternatives together because sources from individual alternatives could be separated within a single run. For example, the source groups used for the Line Haul Rail in Alternatives 1 through 4 were separated into each alternative's line haul sources: Rail 1, Rail 2, Rail 3, and Rail 4. There were some activities, however, that were the same across alternatives, such as switch activities, which is a source group that applied to Alternatives 1 through 7. There were a few roadway segments with different traffic

volumes, so multiple source groups were used when necessary to separate activities. For example, Alternatives 1 and 3 had the same roadway volumes, so their Public Roadway source group was the same and labeled Roads13. Similarly, the Public Roadways source group for Alternatives 2 and 4 were separated and named Roads24 when Alternatives 1 through 4 were modeled together. Alternatives 5 through 7 had the same activity levels for all sources except Rail.

A single Urban Group was used with a population input of 104,054.

2.3.6.6 NAAQS Model Outputs

AERMOD outputs concentration in μg/m^3. Some criteria pollutants, such as NO_2, were converted to another metric, such as ppm or ppb, to match the NAAQS. The maximum output value over a residence was taken from the model and converted if necessary. These maximum outputs of criteria pollutants for each alternative are below. DPM model outputs are discussed in section 2.5.

Table 2-84 AERMOD Criteria Pollutant Maximum Outputs

Pollutant		Average Time	AERMOD Results							
			No-Action Alt	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6	Alt 7
Carbon Monoxide		8-hour	0.046 ppm	0.054 ppm	0.054 ppm	0.054 ppm	0.056 ppm	0.058 ppm	0.058 ppm	0.055 ppm
		1-hour	0.073 ppm	0.081 ppm	0.081 ppm	0.081 ppm	0.078 ppm	0.087 ppm	0.087 ppm	0.082 ppm
Nitrogen Dioxide		1-hour	9.324 ppb	56.552 ppb	56.543 ppb	56.840 ppb	60.134 ppb	69.368 ppb	69.369 ppb	66.321 ppb
		Annual	1.352 ppb	5.805 ppb	5.807 ppb	5.807 ppb	5.822 ppb	5.613 ppb	5.613 ppb	5.591 ppb
Particle Pollution	$PM_{2.5}$	Annual	0.066 μg/m3	0.103 μg/m3	0.103 μg/m3	0.103 μg/m3	0.103 μg/m3	0.109 μg/m3	0.109 μg/m3	0.108 μg/m3
		Annual	0.066 μg/m3	0.103 μg/m3	0.103 μg/m3	0.103 μg/m3	0.103 μg/m3	0.109 μg/m3	0.109 μg/m3	0.108 μg/m3
		24-hour	0.129 μg/m3	0.252 μg/m3	0.252 μg/m3	0.252 μg/m3	0.252 μg/m3	0.405 μg/m3	0.405 μg/m3	0.399 μg/m3
	PM_{10}	24-hour	0.197 μg/m3	0.364 μg/m3	0.362 μg/m3	0.362 μg/m3	0.363 μg/m3	0.484 μg/m3	0.484 μg/m3	0.477 μg/m3
Sulfur Dioxide		1-hour	0.128 ppb	0.167 ppb	0.167 ppb	0.167 ppb	0.170 ppb	0.140 ppb	0.140 ppb	0.140 ppb
		3-hour	<0.001 ppm	<0.001 ppm	<0.001 ppm	<0.001 ppm	<0.001 ppm	<0.001 ppm	<0.001 ppm	<0.001 ppm

Note: The NAAQS for PM2.5 has primary and secondary standards for the annual averaging time; 12 μg/m^3 is the primary standard and 15 μg/m^3 is the secondary standard

2.4 HEALTH RISK ASSESSMENT (HRA)

A human health risk assessment is the process to estimate the nature and probability of adverse health effects in humans who may be exposed to chemicals in contaminated environmental media, now or in the future. An evaluation of DPM was conducted using EPA protocols as listed in the Air Toxics Risk Assessment Reference Library Volume 1 (USEPA 2004). A human health risk assessment includes the four basic steps presented below.

Planning, Scoping, and Problem Formulation is performed to identify the assessment questions, state the quantity and quality of data needed to answer those questions, establish the scope of this analysis, provide an in-depth discussion of how the analysis will be done, outline timing and resource considerations, identify product and documentation needs, and identify who will participate in the overall process from start to finish, along with their roles. During this process, an identification and evaluation of available data and ancillary information about the study area will be performed, to help identify key chemicals, sources, and potential exposures, to determine what kind of analyses can be performed, and to establish the data gaps which need to be filled.

DPM is the HAP of concern for the Proposed Project and alternatives. The primary source of DPM associated with the Proposed Project and alternatives is diesel engines, including the truck (UTR and OTR) and rail activity (line haul and switch locomotives). The concentration of DPM in the air would be necessary in evaluating its associated risk. DPM concentrations resulting from the Proposed Project and alternatives were modeled using the AERMOD dispersion model.

Exposure Assessment is conducted to identify: (1) who is potentially exposed to air toxics; (2) what chemicals they may be exposed to; and (3) how they may be exposed to those chemicals, including the concentrations of chemicals in the air they breathe in.

Those who would be potentially exposed to air toxics from the Proposed Project and alternatives are people residing near the Proposed Project and River Center sites. Residences within a quarter mile (1,320 feet) from the pollutant sources were included in the analysis. This population would be exposed to HAPs in the air, however, DPM is the pollutant of concern for this analysis because the other HAPs present a substantially lower health risk.

There are two exposure durations that are commonly used in exposure assessments: acute and chronic. Acute exposure refers to situations in which the exposure occurs over a short period of time (usually minutes, hours, or a day) and usually at relatively high concentrations. The averaging times commonly used to represent acute exposure concentrations are a 24-hour average, a 1-hour average, or a 15-minute average. Acute exposure may result in immediate respiratory and sensory irritation, chemical burns, narcosis, eye damage, and various other effects. Acute exposures also may result in longer-term health effects. Chronic exposure refers to situations in which the exposure occurs repeatedly over a long period of time (usually years to lifetime). Chronic exposures are relatively low in concentration and may result in health effects that do not show up immediately and that persist over the long term, such as cardiovascular disease, respiratory disease, liver and kidney disease, reproductive effects, neurological damage, and cancer (USEPA 2004). Chronic exposure was included in this analysis due to the operational lifetime of the Proposed Project and alternatives, as well as the more severe health effects associated with chronic exposure.

Toxicity Assessment considers: (1) the types of adverse health effects associated with exposure to the chemicals in question; (2) the exposure circumstances associated with the effects (e.g., inhalation vs ingestion), and (3) the relationship between the amount of exposure and the resulting response (commonly referred to as the dose-response relationship).

DPM contains significant levels of fine particulates, which pose a significant health risk because they can pass through the nose and throat and lodge themselves in the lungs. These fine particles can cause lung damage and premature death. They can also aggravate conditions such as asthma and bronchitis. In addition, in its health assessment for diesel engine exhaust, EPA concluded that chronic inhalation exposure is likely to pose a lung cancer hazard to humans (USEPA 2006).

Depending on the type of effect and the chemical, there are two types of dose-response values that traditionally may be derived: predictive cancer risk estimates, such as the inhalation unit risk estimate (IUR), and predictive non-cancer estimates, such as the reference concentration (RfC). Both types of dose-response values may be developed for the same chemical, as appropriate. The IUR is the upper-bound excess lifetime cancer risk estimated to result from continuous exposure to

an agent via inhalation per μg/m^3 over a lifetime. EPA's s Office of Air Quality Planning and Standards has chronic toxicological values for risk assessments of HAPs, however there is none listed for the IUR of diesel engine emissions (USEPA 2014c). The California Air Resources Board (ARB), which is part of the California EPA, published a report on diesel exhaust which reviewed human epidemiological studies of occupationally exposed populations which are useful for quantitative risk assessment. The report demonstrated that the IUR based on human epidemiological data ranges from 1.3 x 10^{-4} to 2.4 x 10^{-3} (μg/m^3)$^{-1}$. After considering the results of the meta-analysis of human studies, as well as the detailed analysis of railroad workers, the report concludes that 3 x 10^{-4} (μg/m^3)$^{-1}$ is a reasonable estimate of unit risk expressed in terms of diesel particulate (ARB 1998). Thus this IUR is used in this analysis.

The RfC is an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subpopulations) that is likely to be without an appreciable risk of deleterious effects during a lifetime. The RfC is generally used in non-cancer health assessments. The RfC of DPM is 5 μg/m^3 (USEPA 2014c).

Risk Characterization is the integration of information on hazard, exposure, and toxicity to provide an estimate of the likelihood that any of the identified adverse effects would occur in exposed people. Specifically, chemical-specific dose-response toxicity information is mathematically combined with modeled or monitored exposure estimates, to give numbers that represent estimates of the potential for the exposure to cause an adverse health outcome. Risk characterization should be transparent, clear, consistent, and reasonable.

Quantification of risk and hazard is the step where exposure concentrations in air are combined with applicable inhalation dose-response values (the IUR and RfC). Predictive excess cancer risk estimates are presented separately from non-cancer hazard quotients.

For inhalation exposures, chronic cancer risks for individual air toxics are typically estimated by multiplying the estimate of long-term exposure concentration (EC) by the corresponding IUR for each pollutant to estimate the potential incremental cancer risk for an individual (USEPA 2004):

$$\text{Risk} = \text{EC} \times \text{IUR}$$

Where:

Risk = Cancer risk to an individual (expressed as an upper-bound risk of contracting cancer over a lifetime)

EC = Estimate of long-term inhalation exposure concentration for a specific air toxic

IUR = the corresponding inhalation unit risk estimate for that air toxic

Performing the estimate in this way provides an estimate of the probability of developing cancer over a lifetime due to the exposure in question. Because of the way this equation is written, the underlying presumption is that a person is exposed continuously to the EC for their full lifetime (usually assumed to be 70 years). The EC used in this analysis is the maximum concentration output from the AERMOD dispersion model over a residence. The concentration represents an annual average that is averaged over 5 years.

The potential risks calculated for specific inhalation exposures are excess or incremental risks; that is, they are potential risks that are in addition to those risks already faced by the population under study for reasons other than exposure to air toxics (e.g., hereditary, lifestyle risks such as smoking). Estimates of excess cancer risk are usually expressed as a statistical probability. For example, an additional risk of contracting cancer of 1 chance in 1,000,000 means that for every 1,000,000 people that are exposed, in the way that we have presumed, 1 of those people may develop cancer over their lifetime.

For inhalation exposures, non-cancer hazards are estimated by dividing the estimate of the chronic inhalation EC by the RfC (USEPA 2004):

$$\text{Non-cancer Hazard} = EC / RfC$$

Where:

EC = estimate of chronic inhalation exposure to that air toxic; and
RfC = the corresponding reference concentration for that air toxic.

The EC used in this analysis is the maximum concentration output from the AERMOD dispersion model over a residence. The concentration represents an annual average that is averaged over 5 years.

It is important to address variability and uncertainty in risk characterizations, as scientific uncertainty is inherent in the risk assessment process.

Variability refers to true heterogeneity or diversity. For example, among a local community that is exposed to an air toxic originating from the same source, and with all people breathing the same contaminant concentration in ambient air, the risks from inhalation of the contaminated air will still vary among the people in the population. This may be due to differences in exposure (i.e., different people have different exposure frequencies and exposure durations), as well as differences in response (e.g., differences in metabolic processes of chemical uptake into target organs).

Uncertainty occurs because of a lack of knowledge. For example, we can be very certain that different people are exposed to contaminated air for different time periods, but we may be uncertain about how much variability there is in these exposure durations among the people in the population. Data may not be available concerning the amount of time specific people spend indoors at home, outdoors near home, or in other "microenvironments." Often, it is difficult to distinguish between uncertainty and variability in a risk assessment, particularly if available data are limited. For that reason, in many cases variability can be treated as a type of uncertainty in the risk assessment. Uncertainty is an inherent characteristic of each step of the risk assessment process.

Uncertainty, when applied to the process of risk assessment, is defined as "a lack of knowledge about specific factors, parameters, or models." Such uncertainties affect the confidence of any risk estimates that were developed for individuals exposed to the substances in question. It is important to keep in mind that many parameter values (e.g., emissions rates) may be *both* uncertain and variable. Also, the presence of uncertainty in risk assessment does not imply that the results of the

risk assessment are wrong, but rather that the risks cannot be estimated beyond a certain degree of confidence (USEPA 2004).

There is uncertainty inherent in the IUR and RfC. As described above, the ARB found a range of IUR values and developed a reasonable value from the range. The RfC is also an estimate, with uncertainty spanning perhaps an order of magnitude. The EC taken from the AERMOD dispersion model also contains uncertainty, from both the AERMOD model inputs as well as the model itself. Even the perfect dispersion model is likely to have deviations from observed concentrations, due to variations in unknown conditions (USEPA 2005). The cancer risk equation presumes that a person is continuously exposed to the EC for 70 years. This means that the person would be standing outside their home continuously for 70 years. Further, the EC used in this analysis is the maximum concentration output from the AERMOD dispersion model over a residence. All nearby residents would not be exposed to this maximum concentration. In order to take into account the uncertainties in the science, the risk numbers used are plausible upper limits of the actual risk based on conservative assumptions. In actuality, the risk is probably somewhat lower than calculated, and in fact may be zero.

The full build-out year (2038) was selected for the HRA rather than the opening year (2018) because the build-out would include full operation of the project and worst-case traffic volumes on public roadways. The level of impact was determined based on the increase in cancer and non-cancer HQ risk compared to a baseline risk exposure. The No-Action Alternative served as the baseline condition and represents the projected 2038 traffic volumes, and rail operation in the Study Area without implementation of the Proposed Project.

Health risk calculations and figures are in Chapter 6.

3.0 CONSTRUCTION EMISSIONS INVENTORIES

Table 3-1 MOVES Model Construction Equipment Emission Factor Outputs by SCC

Year	SCC	2 - CO	3 - NOx	31 - SO_2	90 - Atmospheric CO_2	100 - Primary Exhaust PM_{10} - Total	110 - Primary Exhaust $PM_{2.5}$ - Total	CH_4	N_2O	87 - VOC
2015	2270002003	1.146	2.440	0.003	550.192	0.191	0.185	0.031	0.014	0.223
2015	2270002006	4.483	4.882	0.004	588.258	0.478	0.463	0.033	0.015	0.726
2015	2270002009	3.825	4.781	0.004	588.428	0.435	0.422	0.033	0.015	0.669
2015	2270002015	1.442	2.740	0.003	559.023	0.225	0.219	0.031	0.014	0.249
2015	2270002018	1.093	2.430	0.003	536.299	0.142	0.137	0.030	0.014	0.190
2015	2270002021	1.555	3.021	0.003	555.954	0.248	0.241	0.031	0.014	0.288
2015	2270002024	2.003	3.912	0.003	554.638	0.276	0.267	0.031	0.014	0.317
2015	2270002027	2.170	4.515	0.004	585.670	0.331	0.321	0.033	0.015	0.484
2015	2270002030	2.001	3.560	0.004	576.907	0.279	0.271	0.032	0.015	0.302
2015	2270002033	1.477	4.574	0.003	539.259	0.256	0.248	0.030	0.014	0.375
2015	2270002036	0.826	1.959	0.003	541.414	0.150	0.146	0.030	0.014	0.194
2015	2270002039	2.184	3.691	0.004	591.059	0.306	0.297	0.033	0.015	0.322
2015	2270002042	2.375	4.971	0.004	563.596	0.376	0.365	0.031	0.014	0.546
2015	2270002045	0.714	2.746	0.003	532.717	0.127	0.123	0.030	0.014	0.221
2015	2270002048	0.750	1.951	0.003	537.159	0.144	0.140	0.030	0.014	0.196
2015	2270002051	0.961	2.490	0.003	536.200	0.108	0.105	0.030	0.014	0.228
2015	2270002054	1.070	3.198	0.003	545.173	0.160	0.155	0.030	0.014	0.241
2015	2270002057	1.932	2.973	0.003	568.889	0.286	0.277	0.032	0.014	0.283
2015	2270002060	1.151	2.829	0.003	539.384	0.178	0.173	0.030	0.014	0.231
2015	2270002066	4.265	4.559	0.004	663.474	0.675	0.655	0.037	0.017	0.871
2015	2270002069	1.060	2.454	0.003	539.230	0.160	0.155	0.030	0.014	0.210
2015	2270002072	5.667	5.268	0.004	691.592	0.860	0.835	0.039	0.018	1.179
2015	2270002075	1.382	3.346	0.003	536.131	0.164	0.159	0.030	0.014	0.245
2015	2270002078	5.811	5.515	0.004	681.732	0.881	0.855	0.038	0.017	1.350
2015	2270002081	1.519	3.426	0.003	537.109	0.211	0.205	0.030	0.014	0.253
2015	2270006005	2.062	4.608	0.004	567.817	0.352	0.342	0.032	0.014	0.507
2016	2270002003	0.994	2.141	0.003	550.241	0.166	0.161	0.031	0.014	0.207
2016	2270002006	4.470	4.750	0.004	588.340	0.456	0.442	0.033	0.015	0.701
2016	2270002009	3.802	4.675	0.004	588.502	0.418	0.406	0.033	0.015	0.646
2016	2270002015	1.271	2.428	0.003	559.081	0.199	0.193	0.031	0.014	0.230
2016	2270002018	0.969	2.126	0.003	536.317	0.126	0.122	0.030	0.014	0.184
2016	2270002021	1.409	2.734	0.003	556.014	0.223	0.216	0.031	0.014	0.268
2016	2270002024	1.826	3.632	0.003	554.704	0.250	0.242	0.031	0.014	0.297
2016	2270002027	2.088	4.401	0.004	585.738	0.315	0.305	0.033	0.015	0.461
2016	2270002030	1.798	3.312	0.003	576.982	0.245	0.238	0.032	0.015	0.278
2016	2270002033	1.362	4.279	0.003	539.327	0.236	0.229	0.030	0.014	0.353
2016	2270002036	0.679	1.638	0.003	541.443	0.121	0.117	0.030	0.014	0.184
2016	2270002039	1.966	3.445	0.004	591.135	0.269	0.261	0.033	0.015	0.296
2016	2270002042	2.264	4.710	0.004	563.684	0.353	0.343	0.031	0.014	0.517
2016	2270002045	0.636	2.415	0.003	532.755	0.113	0.109	0.030	0.014	0.208
2016	2270002048	0.631	1.643	0.003	537.191	0.119	0.116	0.030	0.014	0.186
2016	2270002051	0.813	2.241	0.003	536.229	0.089	0.086	0.030	0.014	0.219
2016	2270002054	0.961	2.900	0.003	545.219	0.143	0.138	0.030	0.014	0.226

Table 3-1 MOVES Model Construction Equipment Emission Factor Outputs by SCC

Year	SCC	2 - CO	3 - NOx	31 - SO_2	90 - Atmospheric CO_2	100 - Primary Exhaust PM_{10} - Total	110 - Primary Exhaust $PM_{2.5}$ - Total	CH_4	N_2O	87 - VOC
2016	2270002057	1.729	2.646	0.003	568.961	0.255	0.247	0.032	0.014	0.260
2016	2270002060	1.025	2.520	0.003	539.426	0.159	0.155	0.030	0.014	0.217
2016	2270002066	3.916	4.205	0.004	663.706	0.619	0.601	0.037	0.017	0.794
2016	2270002069	0.926	2.148	0.003	539.263	0.139	0.135	0.030	0.014	0.199
2016	2270002072	5.297	5.033	0.004	691.860	0.801	0.777	0.039	0.018	1.089
2016	2270002075	1.250	3.070	0.003	536.167	0.149	0.144	0.030	0.014	0.234
2016	2270002078	5.436	5.261	0.004	682.043	0.820	0.795	0.038	0.017	1.247
2016	2270002081	1.382	3.125	0.003	537.152	0.192	0.186	0.030	0.014	0.239
2016	2270006005	1.926	4.376	0.004	567.919	0.327	0.317	0.032	0.014	0.472
2017	2270002003	0.850	1.876	0.003	550.280	0.140	0.136	0.031	0.014	0.194
2017	2270002006	4.461	4.635	0.004	588.408	0.435	0.422	0.033	0.015	0.680
2017	2270002009	3.784	4.587	0.004	588.559	0.402	0.390	0.033	0.015	0.627
2017	2270002015	1.111	2.146	0.003	559.130	0.174	0.169	0.031	0.014	0.213
2017	2270002018	0.852	1.845	0.003	536.336	0.111	0.107	0.030	0.014	0.178
2017	2270002021	1.271	2.470	0.003	556.066	0.200	0.194	0.031	0.014	0.251
2017	2270002024	1.661	3.367	0.003	554.761	0.226	0.219	0.031	0.014	0.278
2017	2270002027	2.022	4.305	0.004	585.791	0.302	0.293	0.033	0.015	0.444
2017	2270002030	1.607	3.085	0.003	577.049	0.214	0.208	0.032	0.015	0.255
2017	2270002033	1.252	3.996	0.003	539.391	0.218	0.211	0.030	0.014	0.332
2017	2270002036	0.543	1.363	0.003	541.468	0.092	0.089	0.030	0.014	0.176
2017	2270002039	1.762	3.214	0.003	591.206	0.235	0.228	0.033	0.015	0.272
2017	2270002042	2.158	4.460	0.004	563.768	0.331	0.321	0.031	0.014	0.490
2017	2270002045	0.564	2.117	0.003	532.788	0.100	0.097	0.030	0.014	0.198
2017	2270002048	0.517	1.362	0.003	537.219	0.095	0.092	0.030	0.014	0.178
2017	2270002051	0.674	2.030	0.003	536.255	0.071	0.069	0.030	0.014	0.211
2017	2270002054	0.859	2.622	0.003	545.260	0.127	0.123	0.030	0.014	0.212
2017	2270002057	1.536	2.343	0.003	569.021	0.226	0.219	0.032	0.014	0.239
2017	2270002060	0.911	2.245	0.003	539.459	0.141	0.137	0.030	0.014	0.207
2017	2270002066	3.611	3.882	0.004	663.915	0.567	0.550	0.037	0.017	0.726
2017	2270002069	0.799	1.868	0.003	539.291	0.117	0.114	0.030	0.014	0.191
2017	2270002072	4.943	4.807	0.004	692.111	0.743	0.721	0.039	0.018	1.005
2017	2270002075	1.126	2.813	0.003	536.201	0.134	0.130	0.030	0.014	0.224
2017	2270002078	5.070	5.017	0.004	682.345	0.761	0.738	0.038	0.017	1.147
2017	2270002081	1.257	2.846	0.003	537.188	0.174	0.169	0.030	0.014	0.228
2017	2270006005	1.803	4.157	0.004	568.009	0.304	0.295	0.032	0.014	0.443
2018	2270002003	0.716	1.641	0.003	550.311	0.114	0.111	0.031	0.014	0.184
2018	2270002006	4.455	4.552	0.004	588.450	0.414	0.402	0.033	0.015	0.664
2018	2270002009	3.772	4.525	0.004	588.599	0.387	0.375	0.033	0.015	0.614
2018	2270002015	0.960	1.896	0.003	559.169	0.148	0.144	0.031	0.014	0.201
2018	2270002018	0.742	1.585	0.003	536.354	0.096	0.093	0.030	0.014	0.173
2018	2270002021	1.141	2.225	0.003	556.113	0.179	0.174	0.031	0.014	0.235
2018	2270002024	1.516	3.126	0.003	554.806	0.205	0.199	0.031	0.014	0.263
2018	2270002027	1.964	4.221	0.004	585.834	0.290	0.281	0.033	0.015	0.430
2018	2270002030	1.427	2.878	0.003	577.107	0.187	0.182	0.032	0.015	0.236
2018	2270002033	1.147	3.725	0.003	539.451	0.200	0.194	0.030	0.014	0.313
2018	2270002036	0.421	1.121	0.003	541.490	0.066	0.064	0.030	0.014	0.169
2018	2270002039	1.569	3.002	0.003	591.266	0.205	0.199	0.033	0.015	0.252

Table 3-1 MOVES Model Construction Equipment Emission Factor Outputs by SCC

Year	SCC	2 - CO	3 - NOx	31 - SO_2	90 - Atmospheric CO_2	100 - Primary Exhaust PM_{10} - Total	110 - Primary Exhaust $PM_{2.5}$ - Total	CH_4	N_2O	87 - VOC
2018	2270002042	2.055	4.218	0.004	563.849	0.310	0.300	0.031	0.014	0.464
2018	2270002045	0.497	1.856	0.003	532.814	0.087	0.084	0.030	0.014	0.190
2018	2270002048	0.411	1.114	0.003	537.239	0.072	0.070	0.030	0.014	0.171
2018	2270002051	0.547	1.853	0.003	536.278	0.056	0.054	0.030	0.014	0.203
2018	2270002054	0.763	2.369	0.003	545.297	0.112	0.108	0.030	0.014	0.201
2018	2270002057	1.353	2.060	0.003	569.080	0.199	0.193	0.032	0.014	0.220
2018	2270002060	0.804	1.996	0.003	539.488	0.123	0.120	0.030	0.014	0.198
2018	2270002066	3.346	3.583	0.004	664.088	0.522	0.506	0.037	0.017	0.668
2018	2270002069	0.678	1.614	0.003	539.315	0.097	0.094	0.030	0.014	0.183
2018	2270002072	4.604	4.591	0.004	692.355	0.687	0.666	0.039	0.018	0.925
2018	2270002075	1.010	2.573	0.003	536.230	0.120	0.116	0.030	0.014	0.214
2018	2270002078	4.716	4.782	0.004	682.636	0.703	0.682	0.038	0.017	1.052
2018	2270002081	1.140	2.582	0.003	537.221	0.158	0.153	0.030	0.014	0.217
2018	2270006005	1.690	3.952	0.003	568.086	0.283	0.274	0.032	0.014	0.416
2019	2270002003	0.593	1.436	0.003	550.336	0.090	0.088	0.031	0.014	0.176
2019	2270002006	4.455	4.495	0.004	588.488	0.396	0.384	0.033	0.015	0.654
2019	2270002009	3.767	4.482	0.004	588.630	0.375	0.363	0.033	0.015	0.605
2019	2270002015	0.826	1.683	0.003	559.198	0.124	0.120	0.031	0.014	0.191
2019	2270002018	0.638	1.360	0.003	536.368	0.081	0.078	0.030	0.014	0.169
2019	2270002021	1.020	2.004	0.003	556.155	0.159	0.154	0.031	0.014	0.221
2019	2270002024	1.381	2.900	0.003	554.845	0.186	0.180	0.031	0.014	0.249
2019	2270002027	1.913	4.145	0.004	585.869	0.281	0.272	0.033	0.015	0.419
2019	2270002030	1.256	2.685	0.003	577.158	0.162	0.157	0.032	0.015	0.218
2019	2270002033	1.049	3.465	0.003	539.508	0.183	0.177	0.030	0.014	0.294
2019	2270002036	0.333	0.926	0.003	541.505	0.047	0.045	0.030	0.014	0.165
2019	2270002039	1.387	2.806	0.003	591.322	0.178	0.173	0.033	0.015	0.233
2019	2270002042	1.957	3.987	0.003	563.927	0.289	0.280	0.031	0.014	0.439
2019	2270002045	0.435	1.619	0.003	532.835	0.075	0.073	0.030	0.014	0.183
2019	2270002048	0.318	0.898	0.003	537.258	0.051	0.049	0.030	0.014	0.165
2019	2270002051	0.451	1.755	0.003	536.308	0.047	0.046	0.030	0.014	0.192
2019	2270002054	0.674	2.146	0.003	545.326	0.098	0.095	0.030	0.014	0.191
2019	2270002057	1.180	1.806	0.003	569.126	0.173	0.167	0.032	0.014	0.205
2019	2270002060	0.704	1.768	0.003	539.512	0.106	0.103	0.030	0.014	0.190
2019	2270002066	3.098	3.298	0.004	664.249	0.478	0.463	0.037	0.017	0.614
2019	2270002069	0.567	1.396	0.003	539.335	0.077	0.075	0.030	0.014	0.177
2019	2270002072	4.279	4.383	0.004	692.582	0.633	0.614	0.039	0.018	0.850
2019	2270002075	0.899	2.350	0.003	536.257	0.106	0.103	0.030	0.014	0.206
2019	2270002078	4.375	4.557	0.004	682.910	0.647	0.628	0.038	0.017	0.960
2019	2270002081	1.031	2.333	0.003	537.251	0.143	0.139	0.030	0.014	0.208
2019	2270006005	1.584	3.756	0.003	568.160	0.263	0.255	0.032	0.014	0.392

Table 3-2 MOVES Model Construction Equipment Emissions

Equipment	SCC	HP	Year	Operating Hours	Load Factor
NBIF-C.1 Site Demo & Surcharge					
Backhoe Loader	2270002066	124	2015	149	0.21
Crawler Crane	2270002045	285	2015	149	0.43
Dump Truck	2270002051	360	2015	378	0.59
Excavator	2270002036	513	2015	269	0.59
Front End Loader - Wheeled	2270002066	287	2015	431	0.21
Generator	2270006005	60	2015	298	0.43
Grader	2270002048	213	2015	202	0.59
Haul Trucks - Demo End dump	-	360	2015	448	-
Haul Trucks - Tandom Bottom Dump	-	360	2015	5508	-
Large Dozer	2270002069	410	2015	309	0.59
Material Handler - demolition	2270002048	190	2015	298	0.59
Mobile Crane	2270002045	355	2015	149	0.43
Roller Compactor - Sheepsfoot	2270002015	157	2015	200	0.59
Scraper	2270002018	407	2015	640	0.59
Skid Steer	2270002072	90	2015	298	0.21
Water Truck	2270002051	360	2015	351	0.59
Roadways- Cosgrove/McMillan Extension					
Ashalt Milling Machine	2270002036	755	2017	0	0.59
Ashalt Paver	2270002003	142	2017	0	0.59
Backhoe Loader	2270002066	124	2017	1600	0.21
Concrete Trucks	2270002051	360	2017	1040	0.59
Crawler Crane	2270002045	285	2017	2081	0.43
Drum Roller	2270002015	102	2017	463	0.59
Dump Truck	2270002051	360	2017	1281	0.59
Excavator	2270002036	513	2017	1080	0.59
Front End Loader - Wheeled	2270002066	287	2017	1743	0.21
Grader	2270002048	213	2017	783	0.59
Haul Trucks - Demo End dump	-	360	2017	880	-
Haul Trucks - Tandom Bottom Dump	-	360	2017	1286	-
Large Dozer	2270002069	410	2017	720	0.59
Material Handler - demolition	2270002048	190	2017	400	0.59
Mobile Crane	2270002045	355	2017	2199	0.43
Pile Driver - Impact	2270002048	180	2017	160	0.59
Roller Compactor - Sheepsfoot	2270002015	157	2017	320	0.59
Skid Steer	2270002072	90	2017	801	0.21
Truck Mounted Pavement Striper	2270002051	250	2017	0	0.59
Water Truck	2270002051	360	2017	783	0.59
Roadways- Cosgrove/McMillan Extension					
Ashalt Milling Machine	2270002036	755	2018	80	0.59
Ashalt Paver	2270002003	142	2018	480	0.59
Backhoe Loader	2270002066	124	2018	0	0.21
Concrete Trucks	2270002051	360	2018	168	0.59
Crawler Crane	2270002045	285	2018	0	0.43
Drum Roller	2270002015	102	2018	737	0.59
Dump Truck	2270002051	360	2018	160	0.59
Excavator	2270002036	513	2018	0	0.59
Front End Loader - Wheeled	2270002066	287	2018	17	0.21
Grader	2270002048	213	2018	17	0.59

Table 3-2 MOVES Model Construction Equipment Emissions

Equipment	SCC	HP	Year	Operating Hours	Load Factor
Haul Trucks - Demo End dump	-	360	2018	0	-
Haul Trucks - Tandom Bottom Dump	-	360	2018	434	-
Large Dozer	2270002069	410	2018	0	0.59
Material Handler - demolition	2270002048	190	2018	0	0.59
Mobile Crane	2270002045	355	2018	120	0.43
Pile Driver - Impact	2270002048	180	2018	0	0.59
Roller Compactor - Sheepsfoot	2270002015	157	2018	0	0.59
Skid Steer	2270002072	90	2018	0	0.21
Truck Mounted Pavement Striper	2270002051	250	2018	120	0.59
Water Truck	2270002051	360	2018	17	0.59
NBIF-C.2 On-Site NBIF Yard					
Ashalt Paver	2270002003	142	2016	0	0.59
Backhoe Loader	2270002066	124	2016	0	0.21
Concrete Pump	2270002051	350	2016	0	0.59
Concrete Trucks	2270002051	360	2016	0	0.59
Crawler Crane	2270002045	285	2016	0	0.43
Drum Roller	2270002015	102	2016	0	0.59
Dump Truck	2270002051	360	2016	0	0.59
Excavator	2270002036	513	2016	0	0.59
Front End Loader - Wheeled	2270002066	287	2016	0	0.21
Generator	2270006005	60	2016	0	0.43
Grader	2270002048	213	2016	0	0.59
Haul Trucks - Demo End dump	-	360	2016	0	-
Haul Trucks - Tandom Bottom Dump	-	360	2016	0	-
Large Dozer	2270002069	410	2016	0	0.59
Material Handler - demolition	2270002048	190	2016	0	0.59
Mobile Crane	2270002045	355	2016	0	0.43
Pile Driver - Impact	2270002048	180	2016	0	0.59
Rail Placement Machine	2270002066	287	2016	0	0.21
Rail Welding Machine	2270002069	350	2016	0	350
Roller Compactor - Sheepsfoot	2270002015	157	2016	0	0.59
Scraper	2270002018	407	2016	0	0.59
Skid Steer	2270002072	90	2016	0	0.21
Water Truck	2270002051	360	2016	0	0.59
NBIF-C.2 On-Site NBIF Yard					
Ashalt Paver	2270002003	142	2017	0	0.59
Backhoe Small	2270002066	74	2017	344	0.21
Backhoe Loader	2270002066	124	2017	6058	0.21
Concrete Pump	2270002051	350	2017	230	0.59
Concrete Trucks	2270002051	360	2017	1908	0.59
Crawler Crane	2270002045	285	2017	1304	0.43
Drum Roller	2270002015	102	2017	0	0.59
Dump Truck	2270002051	360	2017	2554	0.59
Excavator	2270002036	513	2017	3488	0.59
Excavator Small	2270002036	115	2017	64	0.59
Front End Loader - Wheeled	2270002066	287	2017	5213	0.21
Generator	2270006005	60	2017	664	0.43
Grader	2270002048	213	2017	1144	0.59
Haul Trucks - Demo End dump	-	360	2017	1784	-

Table 3-2 MOVES Model Construction Equipment Emissions

Equipment	SCC	HP	Year	Operating Hours	Load Factor
Haul Trucks - Tandom Bottom Dump	-	360	2017	7560	-
Large Dozer	2270002069	410	2017	980	0.59
Material Handler - demolition	2270002048	190	2017	752	0.59
Mobile Crane	2270002045	355	2017	2862	0.43
Pile Driver - Impact	2270002048	180	2017	960	0.59
Rail Production Tamper Machine	2270002066	230	2017	584	0.21
Rail Welding Machine	2270002069	350	2017	640	350
Roller Compactor - Sheepsfoot	2270002015	157	2017	1768	0.59
Scraper	2270002018	407	2017	720	0.59
Skid Steer	2270002072	90	2017	5859	0.21
Water Truck	2270002051	360	2017	1064	0.59
NBIF-C.2 On-Site NBIF Yard					
Ashalt Paver	2270002003	142	2018	1600	0.59
Backhoe Small	2270002066	74	2018	80	0.21
Backhoe Loader	2270002066	124	2018	2922	0.21
Concrete Pump	2270002051	350	2018	110	0.59
Concrete Trucks	2270002051	360	2018	444	0.59
Crawler Crane	2270002045	285	2018	216	0.43
Drum Roller	2270002015	102	2018	6240	0.59
Dump Truck	2270002051	360	2018	3426	0.59
Excavator	2270002036	513	2018	1592	0.59
Excavator Small	2270002036	115	2018	0	0.59
Front End Loader - Wheeled	2270002066	287	2018	3027	0.21
Generator	2270006005	60	2018	216	0.43
Grader	2270002048	213	2018	2536	0.59
Haul Trucks - Demo End dump	-	360	2018	1080	-
Haul Trucks - Tandom Bottom Dump	-	360	2018	6480	-
Large Dozer	2270002069	410	2018	1900	0.59
Material Handler - demolition	2270002048	190	2018	432	0.59
Mobile Crane	2270002045	355	2018	1552	0.43
Pile Driver - Impact	2270002048	180	2018	0	0.59
Rail Production Tamper Machine	2270002066	287	2018	2936	0.21
Rail Welding Machine	2270002069	350	2018	0	350
Roller Compactor - Sheepsfoot	2270002015	157	2018	5152	0.59
Scraper	2270002018	407	2018	0	0.59
Skid Steer	2270002072	90	2018	1851	0.21
Water Truck	2270002051	360	2018	216	0.59
Roadway- Hobson/Bainbridge Re-alignment					
Ashalt Milling Machine	2270002036	755	2017	40	0.59
Ashalt Paver	2270002003	142	2017	80	0.59
Backhoe Loader	2270002066	124	2017	320	0.21
Concrete Trucks	2270002051	360	2017	227	0.59
Crawler Crane	2270002045	285	2017	320	0.43
Drum Roller	2270002015	102	2017	280	0.59
Dump Truck	2270002051	360	2017	360	0.59
Excavator	2270002036	513	2017	720	0.59
Front End Loader - Wheeled	2270002066	287	2017	360	0.21
Grader	2270002048	213	2017	360	0.59
Haul Trucks - Demo End dump	-	360	2017	640	-

Table 3-2 MOVES Model Construction Equipment Emissions

Equipment	SCC	HP	Year	Operating Hours	Load Factor
Haul Trucks - Tandom Bottom Dump	-	360	2017	680	-
Large Dozer	2270002069	410	2017	480	0.59
Material Handler - demolition	2270002048	190	2017	320	0.59
Mobile Crane	2270002045	355	2017	0	0.43
Roller Compactor - Sheepsfoot	2270002015	157	2017	160	0.59
Skid Steer	2270002072	90	2017	640	0.21
Truck Mounted Pavement Striper	2270002051	250	2017	0	0.59
Water Truck	2270002051	360	2017	360	0.59
Roadway- Hobson/Bainbridge Re-alignment					
Ashalt Milling Machine	2270002036	755	2018	0	0.59
Ashalt Paver	2270002003	142	2018	80	0.59
Backhoe Loader	2270002066	124	2018	0	0.21
Concrete Trucks	2270002051	360	2018	13	0.59
Crawler Crane	2270002045	285	2018	0	0.43
Drum Roller	2270002015	102	2018	160	0.59
Dump Truck	2270002051	360	2018	0	0.59
Excavator	2270002036	513	2018	0	0.59
Front End Loader - Wheeled	2270002066	287	2018	0	0.21
Grader	2270002048	213	2018	0	0.59
Haul Trucks - Demo End dump	-	360	2018	0	-
Haul Trucks - Tandom Bottom Dump	-	360	2018	80	-
Large Dozer	2270002069	410	2018	0	0.59
Material Handler - demolition	2270002048	190	2018	0	0.59
Mobile Crane	2270002045	355	2018	60	0.43
Roller Compactor - Sheepsfoot	2270002015	157	2018	0	0.59
Skid Steer	2270002072	90	2018	0	0.21
Truck Mounted Pavement Striper	2270002051	250	2018	40	0.59
Water Truck	2270002051	360	2018	0	0.59
Roadway- Drayage Road					
Ashalt Paver	2270002003	142	2017	0	0.59
Backhoe Loader	2270002066	124	2017	175	0.21
Concrete Pump	2270002051	350	2017	0	0.59
Concrete Trucks	2270002051	360	2017	0	0.59
Crawler Crane	2270002045	285	2017	876	0.43
Drum Roller	2270002015	102	2017	0	0.59
Dump Truck	2270002051	360	2017	876	0.59
Excavator	2270002036	513	2017	701	0.59
Front End Loader - Wheeled	2270002066	287	2017	175	0.21
Front End Loader - Wheeled Small	2270002066	149	2017	0	0.21
Grader	2270002048	213	2017	0	0.59
Haul Trucks - Demo End dump	-	360	2017	1226	-
Haul Trucks - Tandom Bottom Dump	-	360	2017	0	-
Large Dozer	2270002069	410	2017	701	0.59
Material Handler - demolition	2270002048	190	2017	701	0.59
Mobile Crane	2270002045	355	2017	0	0.43
Pile Driver - Impact	2270002048	180	2017	0	0.59
Roller Compactor - Sheepsfoot	2270002015	157	2017	0	0.59
Skid Steer	2270002072	90	2017	1226	0.21
Truck Mounted Pavement Striper	2270002051	250	2017	0	0.59

Table 3-2 MOVES Model Construction Equipment Emissions

Equipment	SCC	HP	Year	Operating Hours	Load Factor
Water Truck	2270002051	360	2017	0	0.59
Roadway- Drayage Road					
Ashalt Paver	2270002003	142	2018	703	0.59
Backhoe Loader	2270002066	124	2018	3145	0.21
Concrete Pump	2270002051	350	2018	114	0.59
Concrete Trucks	2270002051	360	2018	1554	0.59
Crawler Crane	2270002045	285	2018	3364	0.43
Drum Roller	2270002015	102	2018	2206	0.59
Dump Truck	2270002051	360	2018	1044	0.59
Excavator	2270002036	513	2018	1979	0.59
Front End Loader - Wheeled	2270002066	287	2018	2745	0.21
Front End Loader - Wheeled Small	2270002066	149	2018	120	0.21
Grader	2270002048	213	2018	2040	0.59
Haul Trucks - Demo End dump	-	360	2018	534	-
Haul Trucks - Tandom Bottom Dump	-	360	2018	2744	-
Large Dozer	2270002069	410	2018	1379	0.59
Material Handler - demolition	2270002048	190	2018	339	0.59
Mobile Crane	2270002045	355	2018	3080	0.43
Pile Driver - Impact	2270002048	180	2018	640	0.59
Roller Compactor - Sheepsfoot	2270002015	157	2018	1040	0.59
Skid Steer	2270002072	90	2018	1654	0.21
Truck Mounted Pavement Striper	2270002051	250	2018	200	0.59
Water Truck	2270002051	360	2018	2040	0.59
Roadway- Drayage Road					
Ashalt Paver	2270002003	142	2019	137	0.59
Backhoe Loader	2270002066	124	2019	0	0.21
Concrete Pump	2270002051	350	2019	6	0.59
Concrete Trucks	2270002051	360	2019	124	0.59
Crawler Crane	2270002045	285	2019	0	0.43
Drum Roller	2270002015	102	2019	274	0.59
Dump Truck	2270002051	360	2019	0	0.59
Excavator	2270002036	513	2019	0	0.59
Front End Loader - Wheeled	2270002066	287	2019	0	0.21
Front End Loader - Wheeled Small	2270002066	149	2019	0	0.21
Grader	2270002048	213	2019	0	0.59
Haul Trucks - Demo End dump	-	360	2019	0	-
Haul Trucks - Tandom Bottom Dump	-	360	2019	137	-
Large Dozer	2270002069	410	2019	0	0.59
Material Handler - demolition	2270002048	190	2019	0	0.59
Mobile Crane	2270002045	355	2019	0	0.43
Pile Driver - Impact	2270002048	180	2019	0	0.59
Roller Compactor - Sheepsfoot	2270002015	157	2019	0	0.59
Skid Steer	2270002072	90	2019	0	0.21
Truck Mounted Pavement Striper	2270002051	250	2019	80	0.59
Water Truck	2270002051	360	2019	0	0.59
South Lead Track					
Backhoe Loader	2270002066	124	2017	150	0.21
Concrete Trucks	2270002051	360	2017	0	0.59
Crawler Crane	2270002045	285	2017	0	0.43

Table 3-2 MOVES Model Construction Equipment Emissions

Equipment	SCC	HP	Year	Operating Hours	Load Factor
Drum Roller	2270002015	102	2017	240	0.59
Dump Truck	2270002051	360	2017	540	0.59
Excavator	2270002036	513	2017	540	0.59
Front End Loader - Wheeled	2270002066	287	2017	540	0.21
Grader	2270002048	213	2017	320	0.59
Haul Trucks - Demo End dump	-	360	2017	240	-
Haul Trucks - Tandom Bottom Dump	-	360	2017	560	-
Large Dozer	2270002069	410	2017	540	0.59
Material Handler - demolition	2270002048	190	2017	180	0.59
Mobile Crane	2270002045	355	2017	60	0.43
Pile Driver - Impact	2270002048	180	2017	0	0.59
Rail Production Tamper Machine	2270002066	287	2017	300	0.21
Rail Welding Machine	2270002069	350	2017	300	350
Roller Compactor - Sheepsfoot	2270002015	157	2017	120	0.59
Service Truck	2270002051	360	2017	150	0.59
Skid Steer	2270002072	90	2017	300	0.21
North Lead Track					
Backhoe Loader	2270002066	124	2017	320	0.21
Concrete Pump	2270002051	350	2017	60	0.59
Concrete Trucks	2270002051	360	2017	100	0.59
Crawler Crane	2270002045	285	2017	120	0.43
Drum Roller	2270002015	102	2017	120	0.59
Dump Truck	2270002051	360	2017	660	0.59
Excavator	2270002036	513	2017	600	0.59
Front End Loader - Wheeled	2270002066	287	2017	660	0.21
Grader	2270002048	213	2017	480	0.59
Haul Trucks - Demo End dump	-	360	2017	240	-
Haul Trucks - Tandom Bottom Dump	-	360	2017	1480	-
Large Dozer	2270002069	410	2017	660	0.59
Material Handler - demolition	2270002048	190	2017	120	0.59
Mobile Crane	2270002045	355	2017	1108	0.43
Pile Driver - Impact	2270002048	180	2017	120	0.59
Rail Production Tamper Machine	2270002066	230	2017	240	0.21
Rail Welding Machine	2270002069	350	2017	240	350
Roller Compactor - Sheepsfoot	2270002015	157	2017	120	0.59
Scraper	2270002018	407	2017	240	0.59
Service Truck	2270002051	360	2017	360	0.59
Skid Steer	2270002072	90	2017	1020	0.21
NBIF-C.1 Site Demo & Surcharge					
Backhoe Loader	2270002066	124	2016	852	0.21
Crawler Crane	2270002045	285	2016	852	0.43
Dump Truck	2270002051	360	2016	1699	0.59
Excavator	2270002036	513	2016	852	0.59
Front End Loader - Wheeled	2270002066	287	2016	889	0.21
Generator	2270006005	60	2016	1699	0.43
Grader	2270002048	213	2016	39	0.59
Haul Trucks - Demo End dump	-	360	2016	2556	-
Haul Trucks - Tandom Bottom Dump	-	360	2016	1692	-
Large Dozer	2270002069	410	2016	852	0.59

Table 3-2 MOVES Model Construction Equipment Emissions

Equipment	SCC	HP	Year	Operating Hours	Load Factor
Material Handler - demolition	2270002048	190	2016	1699	0.59
Mobile Crane	2270002045	355	2016	852	0.43
Roller Compactor - Sheepsfoot	2270002015	157	2016	0	0.59
Scraper	2270002018	407	2016	0	0.59
Skid Steer	2270002072	90	2016	1699	0.21
Water Truck	2270002051	360	2016	889	0.59
Utility Relocations					
Asphalt Paver	2270002003	142	2015	0	0.59
Auger Drill - Truck Mounted	2270002033	150	2015	0	0.43
Backhoe - Small	2270002066	74	2015	0	0.21
Backhoe Loader	2270002066	124	2015	0	0.21
Concrete Pump	2270002051	350	2015	0	0.59
Concrete Trucks	2270002051	360	2015	0	0.59
Crawler Crane	2270002045	285	2015	0	0.43
Directional Drilling Machine	2270002033	125	2015	0	0.43
Drum Roller	2270002015	102	2015	0	0.59
Dump Truck	2270002051	360	2015	0	0.59
Excavator	2270002036	513	2015	0	0.59
Front End Loader - Wheeled	2270002066	287	2015	0	0.21
Generator	2270006005	60	2015	0	0.43
Grader	2270002048	213	2015	0	0.59
Haul Trucks - Demo End dump	-	360	2015	0	-
Large Dozer	2270002069	410	2015	0	0.59
Material Handler - demolition	2270002048	190	2015	0	0.59
Mobile Crane	2270002045	355	2015	0	0.43
Pile Driver - Impact	2270002048	180	2015	0	0.59
Pile Driver - Vibratory	2270002048	180	2015	0	0.59
Roller Compactor - Sheepsfoot	2270002015	157	2015	0	0.59
Service Truck	2270002051	360	2015	0	0.59
Skid Steer	2270002072	90	2015	0	0.21
Trenching machine	2270002030	67	2015	6	0.59
Vacuum Excavator	2270002036	49	2015	6	0.59
Water Truck	2270002051	360	2015	0	0.59
Utility Relocations					
Asphalt Paver	2270002003	142	2016	0	0.59
Auger Drill - Truck Mounted	2270002033	150	2016	0	0.43
Backhoe - Small	2270002066	74	2016	129	0.21
Backhoe Loader	2270002066	124	2016	0	0.21
Concrete Pump	2270002051	350	2016	153	0.59
Concrete Trucks	2270002051	360	2016	126	0.59
Crawler Crane	2270002045	285	2016	353	0.43
Directional Drilling Machine	2270002033	125	2016	180	0.43
Drum Roller	2270002015	102	2016	86	0.59
Dump Truck	2270002051	360	2016	731	0.59
Excavator	2270002036	513	2016	833	0.59
Front End Loader - Wheeled	2270002066	287	2016	352	0.21
Generator	2270006005	60	2016	263	0.43
Grader	2270002048	213	2016	86	0.59
Haul Trucks - Demo End dump	-	360	2016	731	-

Table 3-2 MOVES Model Construction Equipment Emissions

Equipment	SCC	HP	Year	Operating Hours	Load Factor
Large Dozer	2270002069	410	2016	258	0.59
Material Handler - demolition	2270002048	190	2016	0	0.59
Mobile Crane	2270002045	355	2016	257	0.43
Pile Driver - Impact	2270002048	180	2016	52	0.59
Pile Driver - Vibratory	2270002048	180	2016	138	0.59
Roller Compactor - Sheepsfoot	2270002015	157	2016	0	0.59
Service Truck	2270002051	360	2016	0	0.59
Skid Steer	2270002072	90	2016	411	0.21
Trenching machine	2270002030	67	2016	1730	0.59
Vacuum Excavator	2270002036	49	2016	2340	0.59
Water Truck	2270002051	360	2016	172	0.59
Utility Relocations					
Asphalt Paver	2270002003	142	2017	86	0.59
Auger Drill - Truck Mounted	2270002033	150	2017	323	0.43
Backhoe - Small	2270002066	74	2017	0	0.21
Backhoe Loader	2270002066	124	2017	258	0.21
Concrete Pump	2270002051	350	2017	105	0.59
Concrete Trucks	2270002051	360	2017	63	0.59
Crawler Crane	2270002045	285	2017	345	0.43
Directional Drilling Machine	2270002033	125	2017	180	0.43
Drum Roller	2270002015	102	2017	172	0.59
Dump Truck	2270002051	360	2017	172	0.59
Excavator	2270002036	513	2017	543	0.59
Front End Loader - Wheeled	2270002066	287	2017	508	0.21
Generator	2270006005	60	2017	597	0.43
Grader	2270002048	213	2017	0	0.59
Haul Trucks - Demo End dump	-	360	2017	1720	-
Large Dozer	2270002069	410	2017	0	0.59
Material Handler - demolition	2270002048	190	2017	87	0.59
Mobile Crane	2270002045	355	2017	706	0.43
Pile Driver - Impact	2270002048	180	2017	0	0.59
Pile Driver - Vibratory	2270002048	180	2017	0	0.59
Roller Compactor - Sheepsfoot	2270002015	157	2017	87	0.59
Service Truck	2270002051	360	2017	539	0.59
Skid Steer	2270002072	90	2017	105	0.21
Trenching machine	2270002030	67	2017	1195	0.59
Vacuum Excavator	2270002036	49	2017	1375	0.59
Water Truck	2270002051	360	2017	0	0.59

Source: IPCC 2007, USEPA 2015b, 2010, 2014a, Palmetto Railways

Table 3-3 MOVES Model Construction Worker and Vendor Commute Emission Factor Outputs

Year	Pollutant	Process	Source Type	Emission Quant	Emission Rate
2016	1	1	21	13728220	0.054050133
2016	2	1	21	603291072	2.375250576
2016	3	1	21	79289376	0.312174578
2016	5	1	21	1049207.25	0.004130892
2016	6	1	21	526675	0.002073601
2016	31	1	21	1603349	0.006312634
2016	33	1	21	9879035	0.038895294
2016	79	1	21	12679001	0.049919195
2016	87	1	21	12667455	0.049873736
2016	90	1	21	87725457408	345.3887401
2016	91	1	21	1.22E+15	4805967.113
2016	98	1	21	87908589568	346.1097598
2016	100	1	21	2229723	0.008778765
2016	110	1	21	1972456	0.007765865
2016	112	1	21	287253.8125	0.001130963
2016	115	1	21	61862.3125	0.000243562
2016	118	1	21	1685201	0.006634898
2016	119	1	21	0	0
2016	1	1	31	19811480	0.117508534
2016	2	1	31	680967808	4.039048496
2016	3	1	31	106837504	0.633689074
2016	5	1	31	1111123	0.006590443
2016	6	1	31	685523.3125	0.004066069
2016	31	1	31	1405831	0.008338455
2016	33	1	31	13456060	0.079812406
2016	79	1	31	18700350	0.110918049
2016	87	1	31	18526540	0.109887123
2016	90	1	31	76918521856	456.229555
2016	91	1	31	1.07E+15	6348275.756
2016	98	1	31	77150478336	457.6053667
2016	100	1	31	1722765	0.010218297
2016	110	1	31	1523991	0.009039302
2016	112	1	31	221916.7969	0.001316263
2016	115	1	31	47969.28906	0.000284522
2016	118	1	31	1302074	0.007723038
2016	119	1	31	0	0
2017	1	1	21	9960744	0.038868344
2017	2	1	21	554861824	2.165155587
2017	3	1	21	54627900	0.21316641
2017	5	1	21	743239.375	0.002900234
2017	6	1	21	475600.9063	0.001855867
2017	31	1	21	568043.8125	0.002216594
2017	33	1	21	6691218	0.026110155
2017	79	1	21	9217485	0.035968034
2017	87	1	21	9212366	0.035948059
2017	90	1	21	86500671488	337.5388322
2017	91	1	21	1.20E+15	4696734.315
2017	98	1	21	86661070848	338.164735

Table 3-3 MOVES Model Construction Worker and Vendor Commute Emission Factor Outputs

Year	Pollutant	Process	Source Type	Emission Quant	Emission Rate
2017	100	1	21	1976815	0.007713834
2017	110	1	21	1748729	0.006823808
2017	112	1	21	256090.2969	0.000999303
2017	115	1	21	45408.33984	0.00017719
2017	118	1	21	1492638	0.005824501
2017	119	1	21	0	0
2017	1	1	31	14297250	0.084725802
2017	2	1	31	608586112	3.606494009
2017	3	1	31	72427968	0.429209651
2017	5	1	31	793775.3125	0.004703929
2017	6	1	31	597739.1875	0.003542215
2017	31	1	31	490979.3125	0.002909554
2017	33	1	31	8869993	0.052563764
2017	79	1	31	13503460	0.080021786
2017	87	1	31	13420690	0.079531289
2017	90	1	31	74765434880	443.0615284
2017	91	1	31	1.04E+15	6165045.133
2017	98	1	31	74963460096	444.23503
2017	100	1	31	1557393	0.009229143
2017	110	1	31	1377700	0.008164279
2017	112	1	31	201742	0.001195527
2017	115	1	31	35864.83203	0.000212536
2017	118	1	31	1175959	0.006968758
2017	119	1	31	0	0
2018	1	1	21	8224155	0.031882094
2018	2	1	21	522470016	2.02542853
2018	3	1	21	45302568	0.175621779
2018	5	1	21	692815.875	0.002685798
2018	6	1	21	435304.3125	0.001687518
2018	31	1	21	557672.1875	0.002161895
2018	33	1	21	5713670	0.022149846
2018	79	1	21	7531337	0.029196288
2018	87	1	21	7471764	0.028965344
2018	90	1	21	84909588480	329.1639668
2018	91	1	21	1.18E+15	4580204.175
2018	98	1	21	85056651264	329.7340763
2018	100	1	21	1755578	0.006805745
2018	110	1	21	1553018	0.006020493
2018	112	1	21	227410.9063	0.00088159
2018	115	1	21	40453.64063	0.000156824
2018	118	1	21	1325608	0.005138906
2018	119	1	21	0	0
2018	1	1	31	11953904	0.070878312
2018	2	1	31	557198464	3.303798197
2018	3	1	31	61311912	0.363536868
2018	5	1	31	735061.875	0.004358404
2018	6	1	31	524336.125	0.003108947
2018	31	1	31	476270.4063	0.002823951
2018	33	1	31	7698271	0.045645377

Table 3-3 MOVES Model Construction Worker and Vendor Commute Emission Factor Outputs

Year	Pollutant	Process	Source Type	Emission Quant	Emission Rate
2018	79	1	31	11218840	0.066519895
2018	87	1	31	11091887	0.065767152
2018	90	1	31	72515616768	429.9670215
2018	91	1	31	1.01E+15	5982856.875
2018	98	1	31	72690278400	431.0026431
2018	100	1	31	1417215	0.008403096
2018	110	1	31	1253697	0.007433549
2018	112	1	31	183572.0938	0.001088454
2018	115	1	31	32713.41992	0.000193968
2018	118	1	31	1070124	0.006345089
2018	119	1	31	0	0
2019	1	1	21	6849404	0.02635563
2019	2	1	21	494538176	1.902919605
2019	3	1	21	37731392	0.145185567
2019	5	1	21	651527.8125	0.002506996
2019	6	1	21	405657.1875	0.001560917
2019	31	1	21	546713.8125	0.002103685
2019	33	1	21	4897820	0.018846184
2019	79	1	21	6197878	0.023848641
2019	87	1	21	6100137	0.023472546
2019	90	1	21	83233628160	320.2723481
2019	91	1	21	1.16E+15	4456480.666
2019	98	1	21	83370786816	320.800117
2019	100	1	21	1563671	0.006016806
2019	110	1	21	1383253	0.005322581
2019	112	1	21	202538.5938	0.000779343
2019	115	1	21	36121.32031	0.00013899
2019	118	1	21	1180714	0.004543236
2019	119	1	21	0	0
2019	1	1	31	10011412	0.059333181
2019	2	1	31	512796800	3.039118296
2019	3	1	31	52089928	0.308713809
2019	5	1	31	688105.8125	0.004078097
2019	6	1	31	465655.0938	0.00275973
2019	31	1	31	462771.5938	0.002742641
2019	33	1	31	6702262	0.039721322
2019	79	1	31	9323300	0.055255048
2019	87	1	31	9172528	0.054361489
2019	90	1	31	70453911552	417.5489621
2019	91	1	31	9.80343E+14	5810057.6
2019	98	1	31	70609993728	418.4739916
2019	100	1	31	1289374	0.007641546
2019	110	1	31	1140605	0.006759858
2019	112	1	31	167004.2031	0.00098976
2019	115	1	31	29820.23047	0.000176731
2019	118	1	31	973600	0.005770094
2019	119	1	31	0	0

Source: USEPA 2015b, CAPCOA 2013

Summaries of Construction Equipment Exhaust Emissions are shown below.

Table 3-4 Construction Equipment Exhaust Emissions – Criteria Pollutants

Alternative	Criteria Pollutant (tons)					
	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC
Alternative 1	149.5	345.1	22.0	21.4	0.5	36.2
Alternative 2	151.7	350.1	22.4	21.7	0.6	36.7
Alternative 3	143.3	330.7	21.1	20.5	0.5	34.7
Alternative 4	141.9	327.4	20.9	20.3	0.5	34.4
Alternative 5	163.7	378.2	24.1	23.4	0.6	39.7
Alternative 6	155.9	360.0	23.0	22.3	0.6	37.9
Alternative 7	159.6	368.6	23.5	2.8	0.6	38.8

Source: USEPA 2015b, 2010, Palmetto Railways

Table 3-5 Construction Equipment Exhaust Emissions – GHGs

Alternative	GHGs (MT)			
	CO_2	CH_4	CH_4	CO_2e
Alternative 1	89,817	5	2	90,624
Alternative 2	91,116	5	2	91,935
Alternative 3	86,035	5	2	86,808
Alternative 4	85,178	5	2	85,943
Alternative 5	98,625	6	3	99,512
Alternative 6	93,867	5	2	94,710
Alternative 7	96,114	5	2	96,977

Source: IPCC 2007, USEPA 2015b, 2010, 2014a, Palmetto Railways

4.0 OPERATIONAL EMISSIONS INVENTORIES

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Berkeley	Fires - Agricultural Field Burning	106990	1,3-Butadiene	2840.66	LB	2011
Berkeley	Fires - Prescribed Fires	106990	1,3-Butadiene	72241.45733	LB	2011
Berkeley	Fires - Wildfires	106990	1,3-Butadiene	11156.56468	LB	2011
Berkeley	Fuel Comb - Comm/Institutional - Oil	106990	1,3-Butadiene	0.0300799	LB	2011
Berkeley	Fuel Comb - Electric Generation - Other	106990	1,3-Butadiene	20	LB	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Oil	106990	1,3-Butadiene	0.471744	LB	2011
Berkeley	Fuel Comb - Residential - Wood	106990	1,3-Butadiene	864.3591994	LB	2011
Berkeley	Mobile - Aircraft	106990	1,3-Butadiene	74.4076357	LB	2011
Berkeley	Mobile - Locomotives	106990	1,3-Butadiene	160.6812646	LB	2011
Berkeley	Mobile - Nonroad Equipment - Diesel	106990	1,3-Butadiene	141.1776387	LB	2011
Berkeley	Mobile - Nonroad Equipment - Gasoline	106990	1,3-Butadiene	7610.238895	LB	2011
Berkeley	Mobile - On-Road Diesel Heavy Duty Vehicles	106990	1,3-Butadiene	722.4895	LB	2011
Berkeley	Mobile - On-Road Diesel Light Duty Vehicles	106990	1,3-Butadiene	126.2804	LB	2011
Berkeley	Mobile - On-Road non-Diesel Heavy Duty Vehicles	106990	1,3-Butadiene	246.543278	LB	2011
Berkeley	Mobile - On-Road non-Diesel Light Duty Vehicles	106990	1,3-Butadiene	12637.4628	LB	2011
Berkeley	Solvent - Industrial Surface Coating & Solvent Use	106990	1,3-Butadiene	0.550353	LB	2011
Berkeley	Waste Disposal	106990	1,3-Butadiene	0.6697158	LB	2011
Charleston	Fires - Agricultural Field Burning	106990	1,3-Butadiene	1924.028	LB	2011
Charleston	Fires - Prescribed Fires	106990	1,3-Butadiene	23863.70455	LB	2011
Charleston	Fires - Wildfires	106990	1,3-Butadiene	31499.52457	LB	2011
Charleston	Fuel Comb - Comm/Institutional - Oil	106990	1,3-Butadiene	0.147118	LB	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Oil	106990	1,3-Butadiene	0.934543	LB	2011
Charleston	Fuel Comb - Residential - Wood	106990	1,3-Butadiene	1945.873453	LB	2011
Charleston	Mobile - Aircraft	106990	1,3-Butadiene	1357.627866	LB	2011
Charleston	Mobile - Locomotives	106990	1,3-Butadiene	198.1462907	LB	2011
Charleston	Mobile - Nonroad Equipment - Diesel	106990	1,3-Butadiene	568.3930955	LB	2011
Charleston	Mobile - Nonroad Equipment - Gasoline	106990	1,3-Butadiene	15888.95764	LB	2011
Charleston	Mobile - Nonroad Equipment - Other	106990	1,3-Butadiene	22.80335586	LB	2011
Charleston	Mobile - On-Road Diesel Heavy Duty Vehicles	106990	1,3-Butadiene	1780.184	LB	2011
Charleston	Mobile - On-Road Diesel Light Duty Vehicles	106990	1,3-Butadiene	291.2098	LB	2011
Charleston	Mobile - On-Road non-Diesel Heavy Duty Vehicles	106990	1,3-Butadiene	555.3760298	LB	2011
Charleston	Mobile - On-Road non-Diesel Light Duty Vehicles	106990	1,3-Butadiene	26214.1826	LB	2011
Charleston	Solvent - Industrial Surface Coating & Solvent Use	106990	1,3-Butadiene	0.547344	LB	2011
Charleston	Waste Disposal	106990	1,3-Butadiene	0.389954	LB	2011
Dorchester	Fires - Agricultural Field Burning	106990	1,3-Butadiene	1113.182	LB	2011
Dorchester	Fires - Prescribed Fires	106990	1,3-Butadiene	7647.875263	LB	2011
Dorchester	Fires - Wildfires	106990	1,3-Butadiene	14111.45372	LB	2011
Dorchester	Fuel Comb - Comm/Institutional - Oil	106990	1,3-Butadiene	0.0182521	LB	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Oil	106990	1,3-Butadiene	0.419317	LB	2011
Dorchester	Fuel Comb - Residential - Wood	106990	1,3-Butadiene	657.3414376	LB	2011
Dorchester	Mobile - Aircraft	106990	1,3-Butadiene	113.254286	LB	2011
Dorchester	Mobile - Locomotives	106990	1,3-Butadiene	33.58820728	LB	2011
Dorchester	Mobile - Nonroad Equipment - Diesel	106990	1,3-Butadiene	121.8945757	LB	2011
Dorchester	Mobile - Nonroad Equipment - Gasoline	106990	1,3-Butadiene	1954.360617	LB	2011
Dorchester	Mobile - On-Road Diesel Heavy Duty Vehicles	106990	1,3-Butadiene	553.450564	LB	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Dorchester	Mobile - On-Road Diesel Light Duty Vehicles	106990	1,3-Butadiene	88.2974	LB	2011
Dorchester	Mobile - On-Road non-Diesel Heavy Duty Vehicles	106990	1,3-Butadiene	175.6640301	LB	2011
Dorchester	Mobile - On-Road non-Diesel Light Duty Vehicles	106990	1,3-Butadiene	9289.5854	LB	2011
Dorchester	Solvent - Industrial Surface Coating & Solvent Use	106990	1,3-Butadiene	0.320687	LB	2011
Dorchester	Waste Disposal	106990	1,3-Butadiene	0.1424412	LB	2011
Berkeley	Fires - Prescribed Fires	107028	Acrolein	75630.61072	LB	2011
Berkeley	Fires - Wildfires	107028	Acrolein	11679.94037	LB	2011
Berkeley	Fuel Comb - Comm/Institutional - Oil	107028	Acrolein	0.0711608	LB	2011
Berkeley	Fuel Comb - Electric Generation - Coal	107028	Acrolein	1977.72	LB	2011
Berkeley	Fuel Comb - Electric Generation - Other	107028	Acrolein	480	LB	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Biomass	107028	Acrolein	266.976	LB	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Coal	107028	Acrolein	9.722	LB	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Oil	107028	Acrolein	1.11602	LB	2011
Berkeley	Fuel Comb - Residential - Wood	107028	Acrolein	283.774196	LB	2011
Berkeley	Industrial Processes - Pulp & Paper	107028	Acrolein	884.8564	LB	2011
Berkeley	Mobile - Aircraft	107028	Acrolein	80.75047785	LB	2011
Berkeley	Mobile - Commercial Marine Vessels	107028	Acrolein	0.608768386	LB	2011
Berkeley	Mobile - Locomotives	107028	Acrolein	154.6471764	LB	2011
Berkeley	Mobile - Nonroad Equipment - Diesel	107028	Acrolein	229.9104909	LB	2011
Berkeley	Mobile - Nonroad Equipment - Gasoline	107028	Acrolein	541.7325373	LB	2011
Berkeley	Mobile - On-Road Diesel Heavy Duty Vehicles	107028	Acrolein	1761.22024	LB	2011
Berkeley	Mobile - On-Road Diesel Light Duty Vehicles	107028	Acrolein	292.1262	LB	2011
Berkeley	Mobile - On-Road non-Diesel Heavy Duty Vehicles	107028	Acrolein	33.9689223	LB	2011
Berkeley	Mobile - On-Road non-Diesel Light Duty Vehicles	107028	Acrolein	1428.00502	LB	2011
Berkeley	Waste Disposal	107028	Acrolein	326.80042	LB	2011
Charleston	Fires - Prescribed Fires	107028	Acrolein	24983.23884	LB	2011
Charleston	Fires - Wildfires	107028	Acrolein	32977.30545	LB	2011
Charleston	Fuel Comb - Comm/Institutional - Oil	107028	Acrolein	0.348042	LB	2011
Charleston	Fuel Comb - Electric Generation - Natural Gas	107028	Acrolein	24.8387	LB	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Biomass	107028	Acrolein	15756.82	LB	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Coal	107028	Acrolein	68.366	LB	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Oil	107028	Acrolein	2.21088	LB	2011
Charleston	Fuel Comb - Residential - Other	107028	Acrolein	0.00161976	LB	2011
Charleston	Fuel Comb - Residential - Wood	107028	Acrolein	638.005118	LB	2011
Charleston	Industrial Processes - Chemical Manuf	107028	Acrolein	0.916564	LB	2011
Charleston	Industrial Processes - Pulp & Paper	107028	Acrolein	5838.3324	LB	2011
Charleston	Mobile - Aircraft	107028	Acrolein	1861.783919	LB	2011
Charleston	Mobile - Commercial Marine Vessels	107028	Acrolein	93.90985189	LB	2011
Charleston	Mobile - Locomotives	107028	Acrolein	190.7050045	LB	2011
Charleston	Mobile - Nonroad Equipment - Diesel	107028	Acrolein	925.6386528	LB	2011
Charleston	Mobile - Nonroad Equipment - Gasoline	107028	Acrolein	1117.240123	LB	2011
Charleston	Mobile - Nonroad Equipment - Other	107028	Acrolein	33.103358	LB	2011
Charleston	Mobile - On-Road Diesel Heavy Duty Vehicles	107028	Acrolein	4332.64284	LB	2011
Charleston	Mobile - On-Road Diesel Light Duty Vehicles	107028	Acrolein	672.667	LB	2011
Charleston	Mobile - On-Road non-Diesel Heavy Duty Vehicles	107028	Acrolein	79.804062	LB	2011
Charleston	Mobile - On-Road non-Diesel Light Duty Vehicles	107028	Acrolein	2967.1728	LB	2011
Charleston	Waste Disposal	107028	Acrolein	5.96584	LB	2011
Dorchester	Fires - Prescribed Fires	107028	Acrolein	8006.667152	LB	2011
Dorchester	Fires - Wildfires	107028	Acrolein	14773.46876	LB	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Dorchester	Fuel Comb - Comm/Institutional - Oil	107028	Acrolein	0.0431796	LB	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Biomass	107028	Acrolein	1037.276	LB	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Oil	107028	Acrolein	0.99199	LB	2011
Dorchester	Fuel Comb - Residential - Wood	107028	Acrolein	215.7131	LB	2011
Dorchester	Mobile - Aircraft	107028	Acrolein	128.4233336	LB	2011
Dorchester	Mobile - Locomotives	107028	Acrolein	32.32686406	LB	2011
Dorchester	Mobile - Nonroad Equipment - Diesel	107028	Acrolein	198.5074851	LB	2011
Dorchester	Mobile - Nonroad Equipment - Gasoline	107028	Acrolein	164.4544032	LB	2011
Dorchester	Mobile - On-Road Diesel Heavy Duty Vehicles	107028	Acrolein	1372.06646	LB	2011
Dorchester	Mobile - On-Road Diesel Light Duty Vehicles	107028	Acrolein	204.4212	LB	2011
Dorchester	Mobile - On-Road non-Diesel Heavy Duty Vehicles	107028	Acrolein	23.52285224	LB	2011
Dorchester	Mobile - On-Road non-Diesel Light Duty Vehicles	107028	Acrolein	1051.8634	LB	2011
Dorchester	Waste Disposal	107028	Acrolein	2.17918	LB	2011
Berkeley	Bulk Gasoline Terminals	71432	Benzene	155.2536	LB	2011
Berkeley	Commercial Cooking	71432	Benzene	1171.1308	LB	2011
Berkeley	Fires - Agricultural Field Burning	71432	Benzene	5721.44	LB	2011
Berkeley	Fires - Prescribed Fires	71432	Benzene	200670.7798	LB	2011
Berkeley	Fires - Wildfires	71432	Benzene	30990.46007	LB	2011
Berkeley	Fuel Comb - Comm/Institutional - Natural Gas	71432	Benzene	1.01104	LB	2011
Berkeley	Fuel Comb - Comm/Institutional - Oil	71432	Benzene	0.722499214	LB	2011
Berkeley	Fuel Comb - Comm/Institutional - Other	71432	Benzene	0.000860335	LB	2011
Berkeley	Fuel Comb - Electric Generation - Coal	71432	Benzene	8865.634	LB	2011
Berkeley	Fuel Comb - Electric Generation - Natural Gas	71432	Benzene	0.6100206	LB	2011
Berkeley	Fuel Comb - Electric Generation - Oil	71432	Benzene	1.4155072	LB	2011
Berkeley	Fuel Comb - Electric Generation - Other	71432	Benzene	40	LB	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Biomass	71432	Benzene	280.324	LB	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Coal	71432	Benzene	43.586	LB	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	71432	Benzene	7.54769894	LB	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Oil	71432	Benzene	22.47530598	LB	2011
Berkeley	Fuel Comb - Residential - Natural Gas	71432	Benzene	0.82314	LB	2011
Berkeley	Fuel Comb - Residential - Oil	71432	Benzene	0.02316875	LB	2011
Berkeley	Fuel Comb - Residential - Other	71432	Benzene	0.315992	LB	2011
Berkeley	Fuel Comb - Residential - Wood	71432	Benzene	4538.933426	LB	2011
Berkeley	Gas Stations	71432	Benzene	9389.67194	LB	2011
Berkeley	Industrial Processes - Chemical Manuf	71432	Benzene	9764	LB	2011
Berkeley	Industrial Processes - NEC	71432	Benzene	308.4031296	LB	2011
Berkeley	Industrial Processes - Non-ferrous Metals	71432	Benzene	10.570402	LB	2011
Berkeley	Industrial Processes - Pulp & Paper	71432	Benzene	245.8574	LB	2011
Berkeley	Industrial Processes - Storage and Transfer	71432	Benzene	107.455	LB	2011
Berkeley	Miscellaneous Non-Industrial NEC	71432	Benzene	474.944756	LB	2011
Berkeley	Mobile - Aircraft	71432	Benzene	135.6422759	LB	2011
Berkeley	Mobile - Commercial Marine Vessels	71432	Benzene	3.5385081	LB	2011
Berkeley	Mobile - Locomotives	71432	Benzene	127.9796046	LB	2011
Berkeley	Mobile - Nonroad Equipment - Diesel	71432	Benzene	1542.823344	LB	2011
Berkeley	Mobile - Nonroad Equipment - Gasoline	71432	Benzene	78649.07515	LB	2011
Berkeley	Mobile - On-Road Diesel Heavy Duty Vehicles	71432	Benzene	2099.88334	LB	2011
Berkeley	Mobile - On-Road Diesel Light Duty Vehicles	71432	Benzene	346.3994	LB	2011
Berkeley	Mobile - On-Road non-Diesel Heavy Duty Vehicles	71432	Benzene	1759.975822	LB	2011
Berkeley	Mobile - On-Road non-Diesel Light Duty Vehicles	71432	Benzene	72502.592	LB	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Berkeley	Solvent - Industrial Surface Coating & Solvent Use	71432	Benzene	0.020575	LB	2011
Berkeley	Waste Disposal	71432	Benzene	12785	LB	2011
Charleston	Bulk Gasoline Terminals	71432	Benzene	2898.694	LB	2011
Charleston	Commercial Cooking	71432	Benzene	5601.476	LB	2011
Charleston	Fires - Agricultural Field Burning	71432	Benzene	3875.24	LB	2011
Charleston	Fires - Prescribed Fires	71432	Benzene	66288.08317	LB	2011
Charleston	Fires - Wildfires	71432	Benzene	87498.74688	LB	2011
Charleston	Fuel Comb - Comm/Institutional - Natural Gas	71432	Benzene	4.94492	LB	2011
Charleston	Fuel Comb - Comm/Institutional - Oil	71432	Benzene	3.53368933	LB	2011
Charleston	Fuel Comb - Comm/Institutional - Other	71432	Benzene	0.00420783	LB	2011
Charleston	Fuel Comb - Electric Generation - Natural Gas	71432	Benzene	7.746	LB	2011
Charleston	Fuel Comb - Electric Generation - Oil	71432	Benzene	3.14075866	LB	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Biomass	71432	Benzene	16544.66	LB	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Coal	71432	Benzene	306.47	LB	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	71432	Benzene	2.350715	LB	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Oil	71432	Benzene	22.45010198	LB	2011
Charleston	Fuel Comb - Residential - Natural Gas	71432	Benzene	5.24367	LB	2011
Charleston	Fuel Comb - Residential - Oil	71432	Benzene	0.0522844	LB	2011
Charleston	Fuel Comb - Residential - Other	71432	Benzene	0.54795399	LB	2011
Charleston	Fuel Comb - Residential - Wood	71432	Benzene	10134.85556	LB	2011
Charleston	Gas Stations	71432	Benzene	24930.558	LB	2011
Charleston	Industrial Processes - Chemical Manuf	71432	Benzene	86.68254	LB	2011
Charleston	Industrial Processes - NEC	71432	Benzene	669.164375	LB	2011
Charleston	Industrial Processes - Pulp & Paper	71432	Benzene	1991.29744	LB	2011
Charleston	Industrial Processes - Storage and Transfer	71432	Benzene	1502.6968	LB	2011
Charleston	Miscellaneous Non-Industrial NEC	71432	Benzene	1985.87829	LB	2011
Charleston	Mobile - Aircraft	71432	Benzene	1598.804116	LB	2011
Charleston	Mobile - Commercial Marine Vessels	71432	Benzene	547.702112	LB	2011
Charleston	Mobile - Locomotives	71432	Benzene	157.8196275	LB	2011
Charleston	Mobile - Nonroad Equipment - Diesel	71432	Benzene	6322.162888	LB	2011
Charleston	Mobile - Nonroad Equipment - Gasoline	71432	Benzene	129940.2081	LB	2011
Charleston	Mobile - Nonroad Equipment - Other	71432	Benzene	26.81553576	LB	2011
Charleston	Mobile - On-Road Diesel Heavy Duty Vehicles	71432	Benzene	5165.03754	LB	2011
Charleston	Mobile - On-Road Diesel Light Duty Vehicles	71432	Benzene	797.506	LB	2011
Charleston	Mobile - On-Road non-Diesel Heavy Duty Vehicles	71432	Benzene	4196.385806	LB	2011
Charleston	Mobile - On-Road non-Diesel Light Duty Vehicles	71432	Benzene	151838.086	LB	2011
Charleston	Solvent - Industrial Surface Coating & Solvent Use	71432	Benzene	0.568647	LB	2011
Charleston	Waste Disposal	71432	Benzene	254.8596	LB	2011
Dorchester	Bulk Gasoline Terminals	71432	Benzene	155.343	LB	2011
Dorchester	Commercial Cooking	71432	Benzene	1045.545	LB	2011
Dorchester	Fires - Agricultural Field Burning	71432	Benzene	2242.08	LB	2011
Dorchester	Fires - Prescribed Fires	71432	Benzene	21244.10229	LB	2011
Dorchester	Fires - Wildfires	71432	Benzene	39198.48808	LB	2011
Dorchester	Fuel Comb - Comm/Institutional - Natural Gas	71432	Benzene	0.613488	LB	2011
Dorchester	Fuel Comb - Comm/Institutional - Oil	71432	Benzene	0.538365494	LB	2011
Dorchester	Fuel Comb - Comm/Institutional - Other	71432	Benzene	0.000522042	LB	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Biomass	71432	Benzene	1089.14	LB	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	71432	Benzene	0.63495272	LB	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Oil	71432	Benzene	10.80565364	LB	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Dorchester	Fuel Comb - Residential - Natural Gas	71432	Benzene	0.863457	LB	2011
Dorchester	Fuel Comb - Residential - Oil	71432	Benzene	0.01237819	LB	2011
Dorchester	Fuel Comb - Residential - Other	71432	Benzene	0.213838	LB	2011
Dorchester	Fuel Comb - Residential - Wood	71432	Benzene	3444.858698	LB	2011
Dorchester	Gas Stations	71432	Benzene	6738.20144	LB	2011
Dorchester	Industrial Processes - Cement Manuf	71432	Benzene	18357.32	LB	2011
Dorchester	Industrial Processes - NEC	71432	Benzene	10.50161	LB	2011
Dorchester	Industrial Processes - Non-ferrous Metals	71432	Benzene	1.39876	LB	2011
Dorchester	Industrial Processes - Storage and Transfer	71432	Benzene	99.7326	LB	2011
Dorchester	Miscellaneous Non-Industrial NEC	71432	Benzene	369.458338	LB	2011
Dorchester	Mobile - Aircraft	71432	Benzene	194.01982	LB	2011
Dorchester	Mobile - Locomotives	71432	Benzene	26.75238528	LB	2011
Dorchester	Mobile - Nonroad Equipment - Diesel	71432	Benzene	1332.090789	LB	2011
Dorchester	Mobile - Nonroad Equipment - Gasoline	71432	Benzene	13177.9379	LB	2011
Dorchester	Mobile - On-Road Diesel Heavy Duty Vehicles	71432	Benzene	1638.73018	LB	2011
Dorchester	Mobile - On-Road Diesel Light Duty Vehicles	71432	Benzene	242.419	LB	2011
Dorchester	Mobile - On-Road non-Diesel Heavy Duty Vehicles	71432	Benzene	1209.600051	LB	2011
Dorchester	Mobile - On-Road non-Diesel Light Duty Vehicles	71432	Benzene	53318.116	LB	2011
Dorchester	Solvent - Industrial Surface Coating & Solvent Use	71432	Benzene	14.122963	LB	2011
Dorchester	Waste Disposal	71432	Benzene	192.3584	LB	2011
Berkeley	Biogenics - Vegetation and Soil	CO	Carbon Monoxide	4469	TON	2011
Berkeley	Commercial Cooking	CO	Carbon Monoxide	16.015957	TON	2011
Berkeley	Fires - Agricultural Field Burning	CO	Carbon Monoxide	398.068	TON	2011
Berkeley	Fires - Prescribed Fires	CO	Carbon Monoxide	17038.07721	TON	2011
Berkeley	Fires - Wildfires	CO	Carbon Monoxide	2497.208693	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Biomass	CO	Carbon Monoxide	4.67989	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Coal	CO	Carbon Monoxide	0.116281	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Natural Gas	CO	Carbon Monoxide	20.2208	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Oil	CO	Carbon Monoxide	0.4211919	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Other	CO	Carbon Monoxide	0.0187695	TON	2011
Berkeley	Fuel Comb - Electric Generation - Coal	CO	Carbon Monoxide	10783.37373	TON	2011
Berkeley	Fuel Comb - Electric Generation - Natural Gas	CO	Carbon Monoxide	2.085942	TON	2011
Berkeley	Fuel Comb - Electric Generation - Oil	CO	Carbon Monoxide	8.01518138	TON	2011
Berkeley	Fuel Comb - Electric Generation - Other	CO	Carbon Monoxide	52.775448	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Biomass	CO	Carbon Monoxide	208.6157	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Coal	CO	Carbon Monoxide	89.17385	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	CO	Carbon Monoxide	89.83518019	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Oil	CO	Carbon Monoxide	14.31147143	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Other	CO	Carbon Monoxide	0.016875	TON	2011
Berkeley	Fuel Comb - Residential - Natural Gas	CO	Carbon Monoxide	7.46612	TON	2011
Berkeley	Fuel Comb - Residential - Oil	CO	Carbon Monoxide	0.2748955	TON	2011
Berkeley	Fuel Comb - Residential - Other	CO	Carbon Monoxide	6.01815	TON	2011
Berkeley	Fuel Comb - Residential - Wood	CO	Carbon Monoxide	303.96211	TON	2011
Berkeley	Industrial Processes - Chemical Manuf	CO	Carbon Monoxide	333.3501	TON	2011
Berkeley	Industrial Processes - Ferrous Metals	CO	Carbon Monoxide	992.84	TON	2011
Berkeley	Industrial Processes - NEC	CO	Carbon Monoxide	6.8605526	TON	2011
Berkeley	Industrial Processes - Non-ferrous Metals	CO	Carbon Monoxide	45861.38878	TON	2011
Berkeley	Industrial Processes - Pulp & Paper	CO	Carbon Monoxide	45.29968	TON	2011
Berkeley	Miscellaneous Non-Industrial NEC	CO	Carbon Monoxide	0.00281968	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Berkeley	Mobile - Aircraft	CO	Carbon Monoxide	85.248012	TON	2011
Berkeley	Mobile - Commercial Marine Vessels	CO	Carbon Monoxide	1.23639916	TON	2011
Berkeley	Mobile - Locomotives	CO	Carbon Monoxide	72.5395638	TON	2011
Berkeley	Mobile - Nonroad Equipment - Diesel	CO	Carbon Monoxide	200.5695556	TON	2011
Berkeley	Mobile - Nonroad Equipment - Gasoline	CO	Carbon Monoxide	8868.238257	TON	2011
Berkeley	Mobile - Nonroad Equipment - Other	CO	Carbon Monoxide	308.073997	TON	2011
Berkeley	Mobile - On-Road Diesel Heavy Duty Vehicles	CO	Carbon Monoxide	528.7308	TON	2011
Berkeley	Mobile - On-Road Diesel Light Duty Vehicles	CO	Carbon Monoxide	208.5467	TON	2011
Berkeley	Mobile - On-Road non-Diesel Heavy Duty Vehicles	CO	Carbon Monoxide	618.352078	TON	2011
Berkeley	Mobile - On-Road non-Diesel Light Duty Vehicles	CO	Carbon Monoxide	14271.16	TON	2011
Berkeley	Waste Disposal	CO	Carbon Monoxide	4574.3705	TON	2011
Charleston	Biogenics - Vegetation and Soil	CO	Carbon Monoxide	3461.51	TON	2011
Charleston	Commercial Cooking	CO	Carbon Monoxide	74.02143	TON	2011
Charleston	Fires - Agricultural Field Burning	CO	Carbon Monoxide	269.618	TON	2011
Charleston	Fires - Prescribed Fires	CO	Carbon Monoxide	6514.741737	TON	2011
Charleston	Fires - Wildfires	CO	Carbon Monoxide	7651.122157	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Biomass	CO	Carbon Monoxide	22.889	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Coal	CO	Carbon Monoxide	0.56872	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Natural Gas	CO	Carbon Monoxide	98.8985	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Oil	CO	Carbon Monoxide	2.06002	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Other	CO	Carbon Monoxide	0.099949	TON	2011
Charleston	Fuel Comb - Electric Generation - Natural Gas	CO	Carbon Monoxide	42.8936	TON	2011
Charleston	Fuel Comb - Electric Generation - Oil	CO	Carbon Monoxide	0.0239014	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Biomass	CO	Carbon Monoxide	541.222	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Coal	CO	Carbon Monoxide	251.50435	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	CO	Carbon Monoxide	44.61783	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Oil	CO	Carbon Monoxide	13.3920318	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Other	CO	Carbon Monoxide	0.0793	TON	2011
Charleston	Fuel Comb - Residential - Natural Gas	CO	Carbon Monoxide	47.5616	TON	2011
Charleston	Fuel Comb - Residential - Oil	CO	Carbon Monoxide	0.6203505	TON	2011
Charleston	Fuel Comb - Residential - Other	CO	Carbon Monoxide	11.0679009	TON	2011
Charleston	Fuel Comb - Residential - Wood	CO	Carbon Monoxide	678.987265	TON	2011
Charleston	Industrial Processes - Chemical Manuf	CO	Carbon Monoxide	5.7	TON	2011
Charleston	Industrial Processes - NEC	CO	Carbon Monoxide	3.38996	TON	2011
Charleston	Industrial Processes - Pulp & Paper	CO	Carbon Monoxide	5074.975843	TON	2011
Charleston	Miscellaneous Non-Industrial NEC	CO	Carbon Monoxide	0.00579575	TON	2011
Charleston	Mobile - Aircraft	CO	Carbon Monoxide	758.0987521	TON	2011
Charleston	Mobile - Commercial Marine Vessels	CO	Carbon Monoxide	286.3006079	TON	2011
Charleston	Mobile - Locomotives	CO	Carbon Monoxide	88.61346318	TON	2011
Charleston	Mobile - Nonroad Equipment - Diesel	CO	Carbon Monoxide	902.8851125	TON	2011
Charleston	Mobile - Nonroad Equipment - Gasoline	CO	Carbon Monoxide	23154.13746	TON	2011
Charleston	Mobile - Nonroad Equipment - Other	CO	Carbon Monoxide	576.5106151	TON	2011
Charleston	Mobile - On-Road Diesel Heavy Duty Vehicles	CO	Carbon Monoxide	1274.14481	TON	2011
Charleston	Mobile - On-Road Diesel Light Duty Vehicles	CO	Carbon Monoxide	483.633	TON	2011
Charleston	Mobile - On-Road non-Diesel Heavy Duty Vehicles	CO	Carbon Monoxide	1380.470856	TON	2011
Charleston	Mobile - On-Road non-Diesel Light Duty Vehicles	CO	Carbon Monoxide	31283.657	TON	2011
Charleston	Solvent - Industrial Surface Coating & Solvent Use	CO	Carbon Monoxide	0.07644	TON	2011
Charleston	Waste Disposal	CO	Carbon Monoxide	1.989425	TON	2011
Dorchester	Biogenics - Vegetation and Soil	CO	Carbon Monoxide	2668.59	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Dorchester	Commercial Cooking	CO	Carbon Monoxide	14.049536	TON	2011
Dorchester	Fires - Agricultural Field Burning	CO	Carbon Monoxide	155.993	TON	2011
Dorchester	Fires - Prescribed Fires	CO	Carbon Monoxide	1826.681695	TON	2011
Dorchester	Fires - Wildfires	CO	Carbon Monoxide	3218.846463	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Biomass	CO	Carbon Monoxide	2.839705	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Coal	CO	Carbon Monoxide	0.070558	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Natural Gas	CO	Carbon Monoxide	12.26975	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Oil	CO	Carbon Monoxide	0.30644875	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Other	CO	Carbon Monoxide	0.0113891	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Biomass	CO	Carbon Monoxide	245.4292	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Coal	CO	Carbon Monoxide	4.76106	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	CO	Carbon Monoxide	12.7010703	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Oil	CO	Carbon Monoxide	5.785491185	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Other	CO	Carbon Monoxide	0	TON	2011
Dorchester	Fuel Comb - Residential - Natural Gas	CO	Carbon Monoxide	7.83181	TON	2011
Dorchester	Fuel Comb - Residential - Oil	CO	Carbon Monoxide	0.14686615	TON	2011
Dorchester	Fuel Comb - Residential - Other	CO	Carbon Monoxide	4.0726	TON	2011
Dorchester	Fuel Comb - Residential - Wood	CO	Carbon Monoxide	230.691949	TON	2011
Dorchester	Industrial Processes - Cement Manuf	CO	Carbon Monoxide	2967.5862	TON	2011
Dorchester	Industrial Processes - NEC	CO	Carbon Monoxide	5150.297683	TON	2011
Dorchester	Industrial Processes - Non-ferrous Metals	CO	Carbon Monoxide	26.21474	TON	2011
Dorchester	Miscellaneous Non-Industrial NEC	CO	Carbon Monoxide	0.002117055	TON	2011
Dorchester	Mobile - Aircraft	CO	Carbon Monoxide	117.11488	TON	2011
Dorchester	Mobile - Locomotives	CO	Carbon Monoxide	15.04126501	TON	2011
Dorchester	Mobile - Nonroad Equipment - Diesel	CO	Carbon Monoxide	177.5807007	TON	2011
Dorchester	Mobile - Nonroad Equipment - Gasoline	CO	Carbon Monoxide	3305.322117	TON	2011
Dorchester	Mobile - Nonroad Equipment - Other	CO	Carbon Monoxide	158.6908065	TON	2011
Dorchester	Mobile - On-Road Diesel Heavy Duty Vehicles	CO	Carbon Monoxide	385.99167	TON	2011
Dorchester	Mobile - On-Road Diesel Light Duty Vehicles	CO	Carbon Monoxide	151.4612	TON	2011
Dorchester	Mobile - On-Road non-Diesel Heavy Duty Vehicles	CO	Carbon Monoxide	454.613569	TON	2011
Dorchester	Mobile - On-Road non-Diesel Light Duty Vehicles	CO	Carbon Monoxide	10915.336	TON	2011
Dorchester	Waste Disposal	CO	Carbon Monoxide	67.86	TON	2011
Berkeley	Biogenics - Vegetation and Soil	50000	Formaldehyde	1248650	LB	2011
Berkeley	Commercial Cooking	50000	Formaldehyde	949.5646	LB	2011
Berkeley	Fires - Agricultural Field Burning	50000	Formaldehyde	27042.4	LB	2011
Berkeley	Fires - Prescribed Fires	50000	Formaldehyde	459313.3064	LB	2011
Berkeley	Fires - Wildfires	50000	Formaldehyde	70933.71191	LB	2011
Berkeley	Fuel Comb - Comm/Institutional - Coal	50000	Formaldehyde	0.011163	LB	2011
Berkeley	Fuel Comb - Comm/Institutional - Natural Gas	50000	Formaldehyde	37.914	LB	2011
Berkeley	Fuel Comb - Comm/Institutional - Oil	50000	Formaldehyde	1.665736	LB	2011
Berkeley	Fuel Comb - Comm/Institutional - Other	50000	Formaldehyde	0.0322625	LB	2011
Berkeley	Fuel Comb - Electric Generation - Coal	50000	Formaldehyde	1636.73	LB	2011
Berkeley	Fuel Comb - Electric Generation - Natural Gas	50000	Formaldehyde	36.116736	LB	2011
Berkeley	Fuel Comb - Electric Generation - Oil	50000	Formaldehyde	92.770456	LB	2011
Berkeley	Fuel Comb - Electric Generation - Other	50000	Formaldehyde	4840	LB	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Biomass	50000	Formaldehyde	293.674	LB	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Coal	50000	Formaldehyde	8.560208	LB	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	50000	Formaldehyde	270.2627952	LB	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Oil	50000	Formaldehyde	65.94804254	LB	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Berkeley	Fuel Comb - Residential - Natural Gas	50000	Formaldehyde	29.3979	LB	2011
Berkeley	Fuel Comb - Residential - Oil	50000	Formaldehyde	3.707	LB	2011
Berkeley	Fuel Comb - Residential - Other	50000	Formaldehyde	11.2854	LB	2011
Berkeley	Fuel Comb - Residential - Wood	50000	Formaldehyde	5211.27146	LB	2011
Berkeley	Industrial Processes - Chemical Manuf	50000	Formaldehyde	3959.04	LB	2011
Berkeley	Industrial Processes - NEC	50000	Formaldehyde	12.2516968	LB	2011
Berkeley	Industrial Processes - Non-ferrous Metals	50000	Formaldehyde	377.49296	LB	2011
Berkeley	Industrial Processes - Pulp & Paper	50000	Formaldehyde	3690.224	LB	2011
Berkeley	Industrial Processes - Storage and Transfer	50000	Formaldehyde	940	LB	2011
Berkeley	Mobile - Aircraft	50000	Formaldehyde	453.687583	LB	2011
Berkeley	Mobile - Commercial Marine Vessels	50000	Formaldehyde	26.0204624	LB	2011
Berkeley	Mobile - Locomotives	50000	Formaldehyde	2142.794716	LB	2011
Berkeley	Mobile - Nonroad Equipment - Diesel	50000	Formaldehyde	8960.491464	LB	2011
Berkeley	Mobile - Nonroad Equipment - Gasoline	50000	Formaldehyde	8774.27488	LB	2011
Berkeley	Mobile - On-Road Diesel Heavy Duty Vehicles	50000	Formaldehyde	22280.385	LB	2011
Berkeley	Mobile - On-Road Diesel Light Duty Vehicles	50000	Formaldehyde	3518.33	LB	2011
Berkeley	Mobile - On-Road non-Diesel Heavy Duty Vehicles	50000	Formaldehyde	656.68088	LB	2011
Berkeley	Mobile - On-Road non-Diesel Light Duty Vehicles	50000	Formaldehyde	24972.338	LB	2011
Berkeley	Solvent - Industrial Surface Coating & Solvent Use	50000	Formaldehyde	22.03296	LB	2011
Berkeley	Waste Disposal	50000	Formaldehyde	1868.1489	LB	2011
Charleston	Biogenics - Vegetation and Soil	50000	Formaldehyde	893034	LB	2011
Charleston	Commercial Cooking	50000	Formaldehyde	4476.072	LB	2011
Charleston	Fires - Agricultural Field Burning	50000	Formaldehyde	18316.32	LB	2011
Charleston	Fires - Prescribed Fires	50000	Formaldehyde	151726.0596	LB	2011
Charleston	Fires - Wildfires	50000	Formaldehyde	200274.8224	LB	2011
Charleston	Fuel Comb - Comm/Institutional - Coal	50000	Formaldehyde	0.0545972	LB	2011
Charleston	Fuel Comb - Comm/Institutional - Natural Gas	50000	Formaldehyde	185.434	LB	2011
Charleston	Fuel Comb - Comm/Institutional - Oil	50000	Formaldehyde	8.146991	LB	2011
Charleston	Fuel Comb - Comm/Institutional - Other	50000	Formaldehyde	0.157794	LB	2011
Charleston	Fuel Comb - Electric Generation - Natural Gas	50000	Formaldehyde	458.142	LB	2011
Charleston	Fuel Comb - Electric Generation - Oil	50000	Formaldehyde	11.0811436	LB	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Biomass	50000	Formaldehyde	17332.5	LB	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Coal	50000	Formaldehyde	57.59867	LB	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	50000	Formaldehyde	85.1173	LB	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Oil	50000	Formaldehyde	47.370407	LB	2011
Charleston	Fuel Comb - Residential - Natural Gas	50000	Formaldehyde	187.274	LB	2011
Charleston	Fuel Comb - Residential - Oil	50000	Formaldehyde	8.3655	LB	2011
Charleston	Fuel Comb - Residential - Other	50000	Formaldehyde	19.31184049	LB	2011
Charleston	Fuel Comb - Residential - Wood	50000	Formaldehyde	11719.2264	LB	2011
Charleston	Industrial Processes - Chemical Manuf	50000	Formaldehyde	1216.6161	LB	2011
Charleston	Industrial Processes - NEC	50000	Formaldehyde	12221.18495	LB	2011
Charleston	Industrial Processes - Pulp & Paper	50000	Formaldehyde	13549.3028	LB	2011
Charleston	Mobile - Aircraft	50000	Formaldehyde	9549.509835	LB	2011
Charleston	Mobile - Commercial Marine Vessels	50000	Formaldehyde	4309.453383	LB	2011
Charleston	Mobile - Locomotives	50000	Formaldehyde	2642.41465	LB	2011
Charleston	Mobile - Nonroad Equipment - Diesel	50000	Formaldehyde	36143.41056	LB	2011
Charleston	Mobile - Nonroad Equipment - Gasoline	50000	Formaldehyde	21760.01913	LB	2011
Charleston	Mobile - Nonroad Equipment - Other	50000	Formaldehyde	168.9010635	LB	2011
Charleston	Mobile - On-Road Diesel Heavy Duty Vehicles	50000	Formaldehyde	54736.6286	LB	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Charleston	Mobile - On-Road Diesel Light Duty Vehicles	50000	Formaldehyde	8089.62	LB	2011
Charleston	Mobile - On-Road non-Diesel Heavy Duty Vehicles	50000	Formaldehyde	1579.809834	LB	2011
Charleston	Mobile - On-Road non-Diesel Light Duty Vehicles	50000	Formaldehyde	52638.822	LB	2011
Charleston	Solvent - Industrial Surface Coating & Solvent Use	50000	Formaldehyde	149.2826	LB	2011
Charleston	Waste Disposal	50000	Formaldehyde	0.30606	LB	2011
Dorchester	Biogenics - Vegetation and Soil	50000	Formaldehyde	756884	LB	2011
Dorchester	Commercial Cooking	50000	Formaldehyde	836.4364	LB	2011
Dorchester	Fires - Agricultural Field Burning	50000	Formaldehyde	10597.24	LB	2011
Dorchester	Fires - Prescribed Fires	50000	Formaldehyde	48625.39868	LB	2011
Dorchester	Fires - Wildfires	50000	Formaldehyde	89720.90163	LB	2011
Dorchester	Fuel Comb - Comm/Institutional - Coal	50000	Formaldehyde	0.00677356	LB	2011
Dorchester	Fuel Comb - Comm/Institutional - Natural Gas	50000	Formaldehyde	23.0058	LB	2011
Dorchester	Fuel Comb - Comm/Institutional - Oil	50000	Formaldehyde	1.136751	LB	2011
Dorchester	Fuel Comb - Comm/Institutional - Other	50000	Formaldehyde	0.0195766	LB	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Coal	50000	Formaldehyde	0.457062	LB	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	50000	Formaldehyde	23.247518	LB	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Oil	50000	Formaldehyde	17.9732203	LB	2011
Dorchester	Fuel Comb - Residential - Natural Gas	50000	Formaldehyde	30.8377	LB	2011
Dorchester	Fuel Comb - Residential - Oil	50000	Formaldehyde	1.980506	LB	2011
Dorchester	Fuel Comb - Residential - Other	50000	Formaldehyde	7.63706	LB	2011
Dorchester	Fuel Comb - Residential - Wood	50000	Formaldehyde	3960.88442	LB	2011
Dorchester	Industrial Processes - Cement Manuf	50000	Formaldehyde	527.772	LB	2011
Dorchester	Industrial Processes - NEC	50000	Formaldehyde	1.98042	LB	2011
Dorchester	Industrial Processes - Non-ferrous Metals	50000	Formaldehyde	49.9648	LB	2011
Dorchester	Industrial Processes - Pulp & Paper	50000	Formaldehyde	3838	LB	2011
Dorchester	Mobile - Aircraft	50000	Formaldehyde	708.602236	LB	2011
Dorchester	Mobile - Locomotives	50000	Formaldehyde	447.920984	LB	2011
Dorchester	Mobile - Nonroad Equipment - Diesel	50000	Formaldehyde	7736.594384	LB	2011
Dorchester	Mobile - Nonroad Equipment - Gasoline	50000	Formaldehyde	3353.081039	LB	2011
Dorchester	Mobile - On-Road Diesel Heavy Duty Vehicles	50000	Formaldehyde	17617.4592	LB	2011
Dorchester	Mobile - On-Road Diesel Light Duty Vehicles	50000	Formaldehyde	2463.91	LB	2011
Dorchester	Mobile - On-Road non-Diesel Heavy Duty Vehicles	50000	Formaldehyde	450.2973972	LB	2011
Dorchester	Mobile - On-Road non-Diesel Light Duty Vehicles	50000	Formaldehyde	18346.6014	LB	2011
Dorchester	Solvent - Industrial Surface Coating & Solvent Use	50000	Formaldehyde	32.4692	LB	2011
Dorchester	Waste Disposal	50000	Formaldehyde	0.1117964	LB	2011
Berkeley	Biogenics - Vegetation and Soil	NO_X	Nitrogen Oxides	176.043	TON	2011
Berkeley	Fires - Agricultural Field Burning	NO_X	Nitrogen Oxides	17.1828	TON	2011
Berkeley	Fires - Prescribed Fires	NO_X	Nitrogen Oxides	385.25353	TON	2011
Berkeley	Fires - Wildfires	NO_X	Nitrogen Oxides	60.967991	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Biomass	NO_X	Nitrogen Oxides	1.71596	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Coal	NO_X	Nitrogen Oxides	0.255818	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Natural Gas	NO_X	Nitrogen Oxides	24.07235	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Oil	NO_X	Nitrogen Oxides	1.92155705	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Other	NO_X	Nitrogen Oxides	0.0335119	TON	2011
Berkeley	Fuel Comb - Electric Generation - Coal	NO_X	Nitrogen Oxides	8142.1	TON	2011
Berkeley	Fuel Comb - Electric Generation - Natural Gas	NO_X	Nitrogen Oxides	8.13865	TON	2011
Berkeley	Fuel Comb - Electric Generation - Oil	NO_X	Nitrogen Oxides	14.0449104	TON	2011
Berkeley	Fuel Comb - Electric Generation - Other	NO_X	Nitrogen Oxides	10.4	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Biomass	NO_X	Nitrogen Oxides	85.5028	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Coal	NO_X	Nitrogen Oxides	158.9339	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	NO_X	Nitrogen Oxides	162.0417254	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Oil	NO_X	Nitrogen Oxides	83.2660555	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Other	NO_X	Nitrogen Oxides	0.02925	TON	2011
Berkeley	Fuel Comb - Residential - Natural Gas	NO_X	Nitrogen Oxides	17.5454	TON	2011
Berkeley	Fuel Comb - Residential - Oil	NO_X	Nitrogen Oxides	0.9896255	TON	2011
Berkeley	Fuel Comb - Residential - Other	NO_X	Nitrogen Oxides	10.7485	TON	2011
Berkeley	Fuel Comb - Residential - Wood	NO_X	Nitrogen Oxides	4.8266722	TON	2011
Berkeley	Industrial Processes - Chemical Manuf	NO_X	Nitrogen Oxides	0.1251	TON	2011
Berkeley	Industrial Processes - Ferrous Metals	NO_X	Nitrogen Oxides	263.9197	TON	2011
Berkeley	Industrial Processes - NEC	NO_X	Nitrogen Oxides	7.7348245	TON	2011
Berkeley	Industrial Processes - Non-ferrous Metals	NO_X	Nitrogen Oxides	279.599244	TON	2011
Berkeley	Industrial Processes - Pulp & Paper	NO_X	Nitrogen Oxides	28.980823	TON	2011
Berkeley	Miscellaneous Non-Industrial NEC	NO_X	Nitrogen Oxides	0.59993	TON	2011
Berkeley	Mobile - Aircraft	NO_X	Nitrogen Oxides	1.12847467	TON	2011
Berkeley	Mobile - Commercial Marine Vessels	NO_X	Nitrogen Oxides	6.0825259	TON	2011
Berkeley	Mobile - Locomotives	NO_X	Nitrogen Oxides	522.316731	TON	2011
Berkeley	Mobile - Nonroad Equipment - Diesel	NO_X	Nitrogen Oxides	419.3904818	TON	2011
Berkeley	Mobile - Nonroad Equipment - Gasoline	NO_X	Nitrogen Oxides	259.6615786	TON	2011
Berkeley	Mobile - Nonroad Equipment - Other	NO_X	Nitrogen Oxides	46.6508875	TON	2011
Berkeley	Mobile - On-Road Diesel Heavy Duty Vehicles	NO_X	Nitrogen Oxides	1536.32115	TON	2011
Berkeley	Mobile - On-Road Diesel Light Duty Vehicles	NO_X	Nitrogen Oxides	57.50644	TON	2011
Berkeley	Mobile - On-Road non-Diesel Heavy Duty Vehicles	NO_X	Nitrogen Oxides	57.5507381	TON	2011
Berkeley	Mobile - On-Road non-Diesel Light Duty Vehicles	NO_X	Nitrogen Oxides	1809.8448	TON	2011
Berkeley	Waste Disposal	NO_X	Nitrogen Oxides	148.634256	TON	2011
Charleston	Biogenics - Vegetation and Soil	NO_X	Nitrogen Oxides	129.864	TON	2011
Charleston	Fires - Agricultural Field Burning	NO_X	Nitrogen Oxides	11.6382	TON	2011
Charleston	Fires - Prescribed Fires	NO_X	Nitrogen Oxides	117.494598	TON	2011
Charleston	Fires - Wildfires	NO_X	Nitrogen Oxides	165.545732	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Biomass	NO_X	Nitrogen Oxides	8.39265	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Coal	NO_X	Nitrogen Oxides	1.251185	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Natural Gas	NO_X	Nitrogen Oxides	117.736	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Oil	NO_X	Nitrogen Oxides	9.3982165	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Other	NO_X	Nitrogen Oxides	0.178029	TON	2011
Charleston	Fuel Comb - Electric Generation - Natural Gas	NO_X	Nitrogen Oxides	40.6702	TON	2011
Charleston	Fuel Comb - Electric Generation - Oil	NO_X	Nitrogen Oxides	0.0972385	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Biomass	NO_X	Nitrogen Oxides	136.99	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Coal	NO_X	Nitrogen Oxides	1421.04445	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	NO_X	Nitrogen Oxides	51.08075	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Oil	NO_X	Nitrogen Oxides	77.13342275	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Other	NO_X	Nitrogen Oxides	0.137	TON	2011
Charleston	Fuel Comb - Residential - Natural Gas	NO_X	Nitrogen Oxides	111.77	TON	2011
Charleston	Fuel Comb - Residential - Oil	NO_X	Nitrogen Oxides	2.23326	TON	2011
Charleston	Fuel Comb - Residential - Other	NO_X	Nitrogen Oxides	18.41713871	TON	2011
Charleston	Fuel Comb - Residential - Wood	NO_X	Nitrogen Oxides	10.8307186	TON	2011
Charleston	Industrial Processes - NEC	NO_X	Nitrogen Oxides	3.748889	TON	2011
Charleston	Industrial Processes - Pulp & Paper	NO_X	Nitrogen Oxides	947.32	TON	2011
Charleston	Miscellaneous Non-Industrial NEC	NO_X	Nitrogen Oxides	1.23314	TON	2011
Charleston	Mobile - Aircraft	NO_X	Nitrogen Oxides	163.612299	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Charleston	Mobile - Commercial Marine Vessels	NO_X	Nitrogen Oxides	2199.823302	TON	2011
Charleston	Mobile - Locomotives	NO_X	Nitrogen Oxides	660.3617137	TON	2011
Charleston	Mobile - Nonroad Equipment - Diesel	NO_X	Nitrogen Oxides	1600.412305	TON	2011
Charleston	Mobile - Nonroad Equipment - Gasoline	NO_X	Nitrogen Oxides	532.5682654	TON	2011
Charleston	Mobile - Nonroad Equipment - Other	NO_X	Nitrogen Oxides	94.49427531	TON	2011
Charleston	Mobile - On-Road Diesel Heavy Duty Vehicles	NO_X	Nitrogen Oxides	3594.5566	TON	2011
Charleston	Mobile - On-Road Diesel Light Duty Vehicles	NO_X	Nitrogen Oxides	135.5925	TON	2011
Charleston	Mobile - On-Road non-Diesel Heavy Duty Vehicles	NO_X	Nitrogen Oxides	127.3656896	TON	2011
Charleston	Mobile - On-Road non-Diesel Light Duty Vehicles	NO_X	Nitrogen Oxides	3886.2926	TON	2011
Charleston	Solvent - Industrial Surface Coating & Solvent Use	NO_X	Nitrogen Oxides	0.091	TON	2011
Dorchester	Biogenics - Vegetation and Soil	NO_X	Nitrogen Oxides	162.144	TON	2011
Dorchester	Fires - Agricultural Field Burning	NO_X	Nitrogen Oxides	6.7335	TON	2011
Dorchester	Fires - Prescribed Fires	NO_X	Nitrogen Oxides	40.531945	TON	2011
Dorchester	Fires - Wildfires	NO_X	Nitrogen Oxides	76.460828	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Biomass	NO_X	Nitrogen Oxides	1.041225	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Coal	NO_X	Nitrogen Oxides	0.1552275	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Natural Gas	NO_X	Nitrogen Oxides	14.60685	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Oil	NO_X	Nitrogen Oxides	1.4021365	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Other	NO_X	Nitrogen Oxides	0.02033465	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Biomass	NO_X	Nitrogen Oxides	124.9987	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Coal	NO_X	Nitrogen Oxides	10.47435	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	NO_X	Nitrogen Oxides	15.1203526	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Oil	NO_X	Nitrogen Oxides	28.60544965	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Other	NO_X	Nitrogen Oxides	0	TON	2011
Dorchester	Fuel Comb - Residential - Natural Gas	NO_X	Nitrogen Oxides	18.4047	TON	2011
Dorchester	Fuel Comb - Residential - Oil	NO_X	Nitrogen Oxides	0.528719	TON	2011
Dorchester	Fuel Comb - Residential - Other	NO_X	Nitrogen Oxides	7.27371	TON	2011
Dorchester	Fuel Comb - Residential - Wood	NO_X	Nitrogen Oxides	3.6712996	TON	2011
Dorchester	Industrial Processes - Cement Manuf	NO_X	Nitrogen Oxides	1413.01576	TON	2011
Dorchester	Industrial Processes - NEC	NO_X	Nitrogen Oxides	229.12978	TON	2011
Dorchester	Industrial Processes - Non-ferrous Metals	NO_X	Nitrogen Oxides	31.208	TON	2011
Dorchester	Miscellaneous Non-Industrial NEC	NO_X	Nitrogen Oxides	0.4504375	TON	2011
Dorchester	Mobile - Aircraft	NO_X	Nitrogen Oxides	1.7813591	TON	2011
Dorchester	Mobile - Locomotives	NO_X	Nitrogen Oxides	100.2102955	TON	2011
Dorchester	Mobile - Nonroad Equipment - Diesel	NO_X	Nitrogen Oxides	327.5273752	TON	2011
Dorchester	Mobile - Nonroad Equipment - Gasoline	NO_X	Nitrogen Oxides	41.21688112	TON	2011
Dorchester	Mobile - Nonroad Equipment - Other	NO_X	Nitrogen Oxides	24.19879551	TON	2011
Dorchester	Mobile - On-Road Diesel Heavy Duty Vehicles	NO_X	Nitrogen Oxides	1177.46948	TON	2011
Dorchester	Mobile - On-Road Diesel Light Duty Vehicles	NO_X	Nitrogen Oxides	41.44049	TON	2011
Dorchester	Mobile - On-Road non-Diesel Heavy Duty Vehicles	NO_X	Nitrogen Oxides	42.9671718	TON	2011
Dorchester	Mobile - On-Road non-Diesel Light Duty Vehicles	NO_X	Nitrogen Oxides	1379.26934	TON	2011
Dorchester	Waste Disposal	NO_X	Nitrogen Oxides	12.47	TON	2011
Berkeley	Agriculture - Crops & Livestock Dust	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	108.761	TON	2011
Berkeley	Commercial Cooking	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	41.242763	TON	2011
Berkeley	Dust - Construction Dust	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	362.0661	TON	2011
Berkeley	Dust - Paved Road Dust	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	712.07	TON	2011
Berkeley	Dust - Unpaved Road Dust	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	4664.57	TON	2011
Berkeley	Fires - Agricultural Field Burning	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	57.276	TON	2011
Berkeley	Fires - Prescribed Fires	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	1869.698779	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Berkeley	Fires - Wildfires	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	278.05617	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Biomass	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	4.032505	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Coal	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.3032605	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Natural Gas	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.1251765	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Oil	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.2802696	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Other	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.000117751	TON	2011
Berkeley	Fuel Comb - Electric Generation - Coal	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	2490.105	TON	2011
Berkeley	Fuel Comb - Electric Generation - Natural Gas	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.1678972	TON	2011
Berkeley	Fuel Comb - Electric Generation - Oil	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	1.651198784	TON	2011
Berkeley	Fuel Comb - Electric Generation - Other	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	1.466464	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Biomass	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	178.3665	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Coal	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	16.2143	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	13.06011212	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Oil	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	14.01592401	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Other	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.001575	TON	2011
Berkeley	Fuel Comb - Residential - Natural Gas	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.0970596	TON	2011
Berkeley	Fuel Comb - Residential - Oil	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.13085	TON	2011
Berkeley	Fuel Comb - Residential - Other	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.0372598	TON	2011
Berkeley	Fuel Comb - Residential - Wood	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	44.0983792	TON	2011
Berkeley	Industrial Processes - Chemical Manuf	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	5.224	TON	2011
Berkeley	Industrial Processes - Ferrous Metals	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	215.842402	TON	2011
Berkeley	Industrial Processes - Mining	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	160.69604	TON	2011
Berkeley	Industrial Processes - NEC	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	34.06742532	TON	2011
Berkeley	Industrial Processes - Non-ferrous Metals	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	127.0119287	TON	2011
Berkeley	Industrial Processes - Pulp & Paper	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	58.66217	TON	2011
Berkeley	Industrial Processes - Storage and Transfer	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	36.683823	TON	2011
Berkeley	Miscellaneous Non-Industrial NEC	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.03953555	TON	2011
Berkeley	Mobile - Aircraft	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	1.86823785	TON	2011
Berkeley	Mobile - Commercial Marine Vessels	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.20102861	TON	2011
Berkeley	Mobile - Locomotives	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	16.83047416	TON	2011
Berkeley	Mobile - Nonroad Equipment - Diesel	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	30.62493321	TON	2011
Berkeley	Mobile - Nonroad Equipment - Gasoline	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	48.59446123	TON	2011
Berkeley	Mobile - Nonroad Equipment - Other	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.751819606	TON	2011
Berkeley	Mobile - On-Road Diesel Heavy Duty Vehicles	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	120.052361	TON	2011
Berkeley	Mobile - On-Road Diesel Light Duty Vehicles	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	4.37874	TON	2011
Berkeley	Mobile - On-Road non-Diesel Heavy Duty Vehicles	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	2.03674026	TON	2011
Berkeley	Mobile - On-Road non-Diesel Light Duty Vehicles	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	96.747754	TON	2011
Berkeley	Waste Disposal	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	535.2787	TON	2011
Charleston	Agriculture - Crops & Livestock Dust	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	49.6274	TON	2011
Charleston	Commercial Cooking	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	193.80094	TON	2011
Charleston	Dust - Construction Dust	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	430.119	TON	2011
Charleston	Dust - Paved Road Dust	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	1095.67	TON	2011
Charleston	Dust - Unpaved Road Dust	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	3451.95	TON	2011
Charleston	Fires - Agricultural Field Burning	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	38.794	TON	2011
Charleston	Fires - Prescribed Fires	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	688.280611	TON	2011
Charleston	Fires - Wildfires	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	832.94853	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Biomass	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	19.7227	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Coal	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	1.483225	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Natural Gas	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.61223	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Charleston	Fuel Comb - Comm/Institutional - Oil	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	1.4673734	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Other	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.00133691	TON	2011
Charleston	Fuel Comb - Electric Generation - Natural Gas	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	1.5422	TON	2011
Charleston	Fuel Comb - Electric Generation - Oil	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.00280252	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Biomass	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	374.1865	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Coal	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	110.71875	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	3.203757	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Oil	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	8.72443041	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Other	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.0074	TON	2011
Charleston	Fuel Comb - Residential - Natural Gas	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.618301	TON	2011
Charleston	Fuel Comb - Residential - Oil	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.295287	TON	2011
Charleston	Fuel Comb - Residential - Other	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.084067178	TON	2011
Charleston	Fuel Comb - Residential - Wood	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	98.301371	TON	2011
Charleston	Industrial Processes - Chemical Manuf	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	10.35	TON	2011
Charleston	Industrial Processes - Mining	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	16.9852	TON	2011
Charleston	Industrial Processes - NEC	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	8.7986391	TON	2011
Charleston	Industrial Processes - Pulp & Paper	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	356.242781	TON	2011
Charleston	Industrial Processes - Storage and Transfer	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.001779	TON	2011
Charleston	Miscellaneous Non-Industrial NEC	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.081264	TON	2011
Charleston	Mobile - Aircraft	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	17.35853365	TON	2011
Charleston	Mobile - Commercial Marine Vessels	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	214.714621	TON	2011
Charleston	Mobile - Locomotives	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	20.75473064	TON	2011
Charleston	Mobile - Nonroad Equipment - Diesel	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	124.1858768	TON	2011
Charleston	Mobile - Nonroad Equipment - Gasoline	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	93.28693835	TON	2011
Charleston	Mobile - Nonroad Equipment - Other	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	2.315451878	TON	2011
Charleston	Mobile - On-Road Diesel Heavy Duty Vehicles	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	312.362811	TON	2011
Charleston	Mobile - On-Road Diesel Light Duty Vehicles	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	11.160447	TON	2011
Charleston	Mobile - On-Road non-Diesel Heavy Duty Vehicles	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	5.23498743	TON	2011
Charleston	Mobile - On-Road non-Diesel Light Duty Vehicles	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	258.514116	TON	2011
Charleston	Solvent - Industrial Surface Coating & Solvent Use	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	1.066916	TON	2011
Dorchester	Agriculture - Crops & Livestock Dust	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	316.004	TON	2011
Dorchester	Commercial Cooking	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	36.541806	TON	2011
Dorchester	Dust - Construction Dust	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	93.618	TON	2011
Dorchester	Dust - Paved Road Dust	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	431.348	TON	2011
Dorchester	Dust - Unpaved Road Dust	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	2410.1	TON	2011
Dorchester	Fires - Agricultural Field Burning	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	22.445	TON	2011
Dorchester	Fires - Prescribed Fires	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	199.764776	TON	2011
Dorchester	Fires - Wildfires	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	356.510029	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Biomass	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	2.44688	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Coal	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.184015	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Natural Gas	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.0759555	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Oil	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.194148915	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Other	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.00007145	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Biomass	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	144.444	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Coal	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	12.41685	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.61524391	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Oil	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	3.0657644	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Other	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0	TON	2011
Dorchester	Fuel Comb - Residential - Natural Gas	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.101813	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Dorchester	Fuel Comb - Residential - Oil	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.06990835	TON	2011
Dorchester	Fuel Comb - Residential - Other	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.0252144	TON	2011
Dorchester	Fuel Comb - Residential - Wood	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	33.4575088	TON	2011
Dorchester	Industrial Processes - Cement Manuf	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	370.745258	TON	2011
Dorchester	Industrial Processes - Chemical Manuf	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0	TON	2011
Dorchester	Industrial Processes - Mining	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	67.8179	TON	2011
Dorchester	Industrial Processes - NEC	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	138.2773269	TON	2011
Dorchester	Industrial Processes - Non-ferrous Metals	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	2.371808	TON	2011
Dorchester	Industrial Processes - Pulp & Paper	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	10.3127	TON	2011
Dorchester	Industrial Processes - Storage and Transfer	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	104.7605418	TON	2011
Dorchester	Miscellaneous Non-Industrial NEC	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.0296838	TON	2011
Dorchester	Mobile - Aircraft	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	2.7496496	TON	2011
Dorchester	Mobile - Locomotives	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	3.518175623	TON	2011
Dorchester	Mobile - Nonroad Equipment - Diesel	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	27.89888736	TON	2011
Dorchester	Mobile - Nonroad Equipment - Gasoline	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	11.89756384	TON	2011
Dorchester	Mobile - Nonroad Equipment - Other	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.387790917	TON	2011
Dorchester	Mobile - On-Road Diesel Heavy Duty Vehicles	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	80.133894	TON	2011
Dorchester	Mobile - On-Road Diesel Light Duty Vehicles	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	2.941793	TON	2011
Dorchester	Mobile - On-Road non-Diesel Heavy Duty Vehicles	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	1.45641357	TON	2011
Dorchester	Mobile - On-Road non-Diesel Light Duty Vehicles	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	61.899695	TON	2011
Dorchester	Solvent - Industrial Surface Coating & Solvent Use	PM_{10}-PRI	PM_{10} Prim (Filt+Cond)	0.031333	TON	2011
Berkeley	Agriculture - Crops & Livestock Dust	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	21.7514	TON	2011
Berkeley	Commercial Cooking	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	38.283273	TON	2011
Berkeley	Dust - Construction Dust	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	36.20661	TON	2011
Berkeley	Dust - Paved Road Dust	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	178.018	TON	2011
Berkeley	Dust - Unpaved Road Dust	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	463.95	TON	2011
Berkeley	Fires - Agricultural Field Burning	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	57.276	TON	2011
Berkeley	Fires - Prescribed Fires	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	1584.490769	TON	2011
Berkeley	Fires - Wildfires	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	235.64103	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Biomass	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	3.48652	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Coal	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.056745	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Natural Gas	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.103511	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Oil	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.2751717	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Other	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	9.42005E-05	TON	2011
Berkeley	Fuel Comb - Electric Generation - Coal	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	1933.846	TON	2011
Berkeley	Fuel Comb - Electric Generation - Natural Gas	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.1678972	TON	2011
Berkeley	Fuel Comb - Electric Generation - Oil	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	1.16302514	TON	2011
Berkeley	Fuel Comb - Electric Generation - Other	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.8514497	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Biomass	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	141.216808	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Coal	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	3.60389	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	13.05075347	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Oil	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	10.67018632	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Other	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.001575	TON	2011
Berkeley	Fuel Comb - Residential - Natural Gas	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.0802608	TON	2011
Berkeley	Fuel Comb - Residential - Oil	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.11710525	TON	2011
Berkeley	Fuel Comb - Residential - Other	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.030811	TON	2011
Berkeley	Fuel Comb - Residential - Wood	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	44.0223592	TON	2011
Berkeley	Industrial Processes - Chemical Manuf	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	5.17108	TON	2011
Berkeley	Industrial Processes - Ferrous Metals	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	182.0056576	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Berkeley	Industrial Processes - Mining	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	27.84488367	TON	2011
Berkeley	Industrial Processes - NEC	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	27.78731951	TON	2011
Berkeley	Industrial Processes - Non-ferrous Metals	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	76.2058906	TON	2011
Berkeley	Industrial Processes - Pulp & Paper	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	57.3085605	TON	2011
Berkeley	Industrial Processes - Storage and Transfer	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	22.05348777	TON	2011
Berkeley	Miscellaneous Non-Industrial NEC	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.03953555	TON	2011
Berkeley	Mobile - Aircraft	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	1.461092912	TON	2011
Berkeley	Mobile - Commercial Marine Vessels	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.194997845	TON	2011
Berkeley	Mobile - Locomotives	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	15.48403744	TON	2011
Berkeley	Mobile - Nonroad Equipment - Diesel	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	29.7061922	TON	2011
Berkeley	Mobile - Nonroad Equipment - Gasoline	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	44.70691771	TON	2011
Berkeley	Mobile - Nonroad Equipment - Other	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.751819606	TON	2011
Berkeley	Mobile - On-Road Diesel Heavy Duty Vehicles	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	88.684152	TON	2011
Berkeley	Mobile - On-Road Diesel Light Duty Vehicles	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	3.074738	TON	2011
Berkeley	Mobile - On-Road non-Diesel Heavy Duty Vehicles	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.683677973	TON	2011
Berkeley	Mobile - On-Road non-Diesel Light Duty Vehicles	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	29.032044	TON	2011
Berkeley	Waste Disposal	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	426.72447	TON	2011
Charleston	Agriculture - Crops & Livestock Dust	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	9.92343	TON	2011
Charleston	Commercial Cooking	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	179.92505	TON	2011
Charleston	Dust - Construction Dust	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	43.0119	TON	2011
Charleston	Dust - Paved Road Dust	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	273.917	TON	2011
Charleston	Dust - Unpaved Road Dust	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	343.34	TON	2011
Charleston	Fires - Agricultural Field Burning	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	38.794	TON	2011
Charleston	Fires - Prescribed Fires	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	583.289053	TON	2011
Charleston	Fires - Wildfires	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	705.888901	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Biomass	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	17.0523	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Coal	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.2775355	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Natural Gas	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.506265	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Oil	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	1.4536317	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Other	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.001221729	TON	2011
Charleston	Fuel Comb - Electric Generation - Natural Gas	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	1.5422	TON	2011
Charleston	Fuel Comb - Electric Generation - Oil	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.00280252	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Biomass	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	327.679	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Coal	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	76.6842	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	3.117417	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Oil	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	6.27336726	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Other	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.0074	TON	2011
Charleston	Fuel Comb - Residential - Natural Gas	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.511287	TON	2011
Charleston	Fuel Comb - Residential - Oil	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.2642695	TON	2011
Charleston	Fuel Comb - Residential - Other	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.06628485	TON	2011
Charleston	Fuel Comb - Residential - Wood	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	98.133771	TON	2011
Charleston	Industrial Processes - Chemical Manuf	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	10.0161	TON	2011
Charleston	Industrial Processes - Mining	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	2.12314	TON	2011
Charleston	Industrial Processes - NEC	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	4.0110268	TON	2011
Charleston	Industrial Processes - Pulp & Paper	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	319.7734521	TON	2011
Charleston	Industrial Processes - Storage and Transfer	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.000627882	TON	2011
Charleston	Miscellaneous Non-Industrial NEC	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.081264	TON	2011
Charleston	Mobile - Aircraft	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	15.37002257	TON	2011
Charleston	Mobile - Commercial Marine Vessels	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	196.4732761	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Charleston	Mobile - Locomotives	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	19.51904551	TON	2011
Charleston	Mobile - Nonroad Equipment - Diesel	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	120.4557759	TON	2011
Charleston	Mobile - Nonroad Equipment - Gasoline	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	85.82562144	TON	2011
Charleston	Mobile - Nonroad Equipment - Other	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	2.315005388	TON	2011
Charleston	Mobile - On-Road Diesel Heavy Duty Vehicles	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	224.729625	TON	2011
Charleston	Mobile - On-Road Diesel Light Duty Vehicles	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	7.547574	TON	2011
Charleston	Mobile - On-Road non-Diesel Heavy Duty Vehicles	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	1.5374843	TON	2011
Charleston	Mobile - On-Road non-Diesel Light Duty Vehicles	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	69.389686	TON	2011
Charleston	Solvent - Industrial Surface Coating & Solvent Use	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	1.066916	TON	2011
Dorchester	Agriculture - Crops & Livestock Dust	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	63.1975	TON	2011
Dorchester	Commercial Cooking	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	33.91488	TON	2011
Dorchester	Dust - Construction Dust	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	9.3618	TON	2011
Dorchester	Dust - Paved Road Dust	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	107.837	TON	2011
Dorchester	Dust - Unpaved Road Dust	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	239.715	TON	2011
Dorchester	Fires - Agricultural Field Burning	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	22.445	TON	2011
Dorchester	Fires - Prescribed Fires	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	169.292115	TON	2011
Dorchester	Fires - Wildfires	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	302.12699	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Biomass	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	2.11558	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Coal	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.03443225	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Natural Gas	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.0628095	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Oil	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.192444015	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Other	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.00005716	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Biomass	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	124.887	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Coal	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	2.3234	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.60692536	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Oil	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	2.561235995	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Other	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0	TON	2011
Dorchester	Fuel Comb - Residential - Natural Gas	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.0841919	TON	2011
Dorchester	Fuel Comb - Residential - Oil	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.06256505	TON	2011
Dorchester	Fuel Comb - Residential - Other	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.0208504	TON	2011
Dorchester	Fuel Comb - Residential - Wood	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	33.3991288	TON	2011
Dorchester	Industrial Processes - Cement Manuf	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	252.047563	TON	2011
Dorchester	Industrial Processes - Chemical Manuf	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0	TON	2011
Dorchester	Industrial Processes - Mining	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	8.47724	TON	2011
Dorchester	Industrial Processes - NEC	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	135.1086846	TON	2011
Dorchester	Industrial Processes - Non-ferrous Metals	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	2.371808	TON	2011
Dorchester	Industrial Processes - Pulp & Paper	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	4.7630428	TON	2011
Dorchester	Industrial Processes - Storage and Transfer	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	55.47696686	TON	2011
Dorchester	Miscellaneous Non-Industrial NEC	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.0296838	TON	2011
Dorchester	Mobile - Aircraft	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	2.1952925	TON	2011
Dorchester	Mobile - Locomotives	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	3.236723609	TON	2011
Dorchester	Mobile - Nonroad Equipment - Diesel	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	27.06191258	TON	2011
Dorchester	Mobile - Nonroad Equipment - Gasoline	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	10.94576581	TON	2011
Dorchester	Mobile - Nonroad Equipment - Other	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.387790917	TON	2011
Dorchester	Mobile - On-Road Diesel Heavy Duty Vehicles	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	60.688647	TON	2011
Dorchester	Mobile - On-Road Diesel Light Duty Vehicles	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	2.134308	TON	2011
Dorchester	Mobile - On-Road non-Diesel Heavy Duty Vehicles	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.600584737	TON	2011
Dorchester	Mobile - On-Road non-Diesel Light Duty Vehicles	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	20.757308	TON	2011
Dorchester	Solvent - Industrial Surface Coating & Solvent Use	$PM_{2.5}$-PRI	$PM_{2.5}$ Prim (Filt+Cond)	0.0259997	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Berkeley	Fires - Agricultural Field Burning	SO_2	Sulfur Dioxide	2.29104	TON	2011
Berkeley	Fires - Prescribed Fires	SO_2	Sulfur Dioxide	174.756427	TON	2011
Berkeley	Fires - Wildfires	SO_2	Sulfur Dioxide	26.990063	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Biomass	SO_2	Sulfur Dioxide	0.1949955	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Coal	SO_2	Sulfur Dioxide	0.945595	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Natural Gas	SO_2	Sulfur Dioxide	0.144434	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Oil	SO_2	Sulfur Dioxide	0.40359844	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Other	SO_2	Sulfur Dioxide	0.000141301	TON	2011
Berkeley	Fuel Comb - Electric Generation - Coal	SO_2	Sulfur Dioxide	16267.1	TON	2011
Berkeley	Fuel Comb - Electric Generation - Natural Gas	SO_2	Sulfur Dioxide	0.086473	TON	2011
Berkeley	Fuel Comb - Electric Generation - Oil	SO_2	Sulfur Dioxide	0.411246927	TON	2011
Berkeley	Fuel Comb - Electric Generation - Other	SO_2	Sulfur Dioxide	12.43	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Biomass	SO_2	Sulfur Dioxide	8.6923	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Coal	SO_2	Sulfur Dioxide	591.22225	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	SO_2	Sulfur Dioxide	1.0784809	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Oil	SO_2	Sulfur Dioxide	165.2125532	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Other	SO_2	Sulfur Dioxide	2.25E-07	TON	2011
Berkeley	Fuel Comb - Residential - Natural Gas	SO_2	Sulfur Dioxide	0.111992	TON	2011
Berkeley	Fuel Comb - Residential - Oil	SO_2	Sulfur Dioxide	2.34211	TON	2011
Berkeley	Fuel Comb - Residential - Other	SO_2	Sulfur Dioxide	0.0429921	TON	2011
Berkeley	Fuel Comb - Residential - Wood	SO_2	Sulfur Dioxide	0.6475773	TON	2011
Berkeley	Industrial Processes - Chemical Manuf	SO_2	Sulfur Dioxide	0.0576	TON	2011
Berkeley	Industrial Processes - Ferrous Metals	SO_2	Sulfur Dioxide	145.72	TON	2011
Berkeley	Industrial Processes - NEC	SO_2	Sulfur Dioxide	0.049003747	TON	2011
Berkeley	Industrial Processes - Non-ferrous Metals	SO_2	Sulfur Dioxide	3752.913909	TON	2011
Berkeley	Miscellaneous Non-Industrial NEC	SO_2	Sulfur Dioxide	0.0923895	TON	2011
Berkeley	Mobile - Aircraft	SO_2	Sulfur Dioxide	0.22719305	TON	2011
Berkeley	Mobile - Commercial Marine Vessels	SO_2	Sulfur Dioxide	0.07474499	TON	2011
Berkeley	Mobile - Locomotives	SO_2	Sulfur Dioxide	5.12224067	TON	2011
Berkeley	Mobile - Nonroad Equipment - Diesel	SO_2	Sulfur Dioxide	0.995241592	TON	2011
Berkeley	Mobile - Nonroad Equipment - Gasoline	SO_2	Sulfur Dioxide	0.927662234	TON	2011
Berkeley	Mobile - Nonroad Equipment - Other	SO_2	Sulfur Dioxide	0.144628937	TON	2011
Berkeley	Mobile - On-Road Diesel Heavy Duty Vehicles	SO_2	Sulfur Dioxide	2.12740643	TON	2011
Berkeley	Mobile - On-Road Diesel Light Duty Vehicles	SO_2	Sulfur Dioxide	0.1220347	TON	2011
Berkeley	Mobile - On-Road non-Diesel Heavy Duty Vehicles	SO_2	Sulfur Dioxide	0.352234231	TON	2011
Berkeley	Mobile - On-Road non-Diesel Light Duty Vehicles	SO_2	Sulfur Dioxide	13.6196924	TON	2011
Berkeley	Waste Disposal	SO_2	Sulfur Dioxide	3.5699374	TON	2011
Charleston	Fires - Agricultural Field Burning	SO_2	Sulfur Dioxide	1.55176	TON	2011
Charleston	Fires - Prescribed Fires	SO_2	Sulfur Dioxide	57.704209	TON	2011
Charleston	Fires - Wildfires	SO_2	Sulfur Dioxide	76.196043	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Biomass	SO_2	Sulfur Dioxide	0.95371	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Coal	SO_2	Sulfur Dioxide	4.624835	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Natural Gas	SO_2	Sulfur Dioxide	0.706415	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Oil	SO_2	Sulfur Dioxide	1.97396914	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Other	SO_2	Sulfur Dioxide	0.000691242	TON	2011
Charleston	Fuel Comb - Electric Generation - Natural Gas	SO_2	Sulfur Dioxide	0.7501	TON	2011
Charleston	Fuel Comb - Electric Generation - Oil	SO_2	Sulfur Dioxide	0.00160207	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Biomass	SO_2	Sulfur Dioxide	15.56705	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Coal	SO_2	Sulfur Dioxide	883.2575	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Charleston	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	SO_2	Sulfur Dioxide	0.2436216	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Oil	SO_2	Sulfur Dioxide	71.4580058	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Other	SO_2	Sulfur Dioxide	0.0028333	TON	2011
Charleston	Fuel Comb - Residential - Natural Gas	SO_2	Sulfur Dioxide	0.713424	TON	2011
Charleston	Fuel Comb - Residential - Oil	SO_2	Sulfur Dioxide	5.285385	TON	2011
Charleston	Fuel Comb - Residential - Other	SO_2	Sulfur Dioxide	0.184669278	TON	2011
Charleston	Fuel Comb - Residential - Wood	SO_2	Sulfur Dioxide	1.4307672	TON	2011
Charleston	Industrial Processes - Chemical Manuf	SO_2	Sulfur Dioxide	3.12	TON	2011
Charleston	Industrial Processes - NEC	SO_2	Sulfur Dioxide	0.02348776	TON	2011
Charleston	Industrial Processes - Pulp & Paper	SO_2	Sulfur Dioxide	1061.92	TON	2011
Charleston	Miscellaneous Non-Industrial NEC	SO_2	Sulfur Dioxide	0.1899035	TON	2011
Charleston	Mobile - Aircraft	SO_2	Sulfur Dioxide	22.47869149	TON	2011
Charleston	Mobile - Commercial Marine Vessels	SO_2	Sulfur Dioxide	1498.771058	TON	2011
Charleston	Mobile - Locomotives	SO_2	Sulfur Dioxide	6.149026045	TON	2011
Charleston	Mobile - Nonroad Equipment - Diesel	SO_2	Sulfur Dioxide	4.012883224	TON	2011
Charleston	Mobile - Nonroad Equipment - Gasoline	SO_2	Sulfur Dioxide	2.074112227	TON	2011
Charleston	Mobile - Nonroad Equipment - Other	SO_2	Sulfur Dioxide	1.113355551	TON	2011
Charleston	Mobile - On-Road Diesel Heavy Duty Vehicles	SO_2	Sulfur Dioxide	5.017935	TON	2011
Charleston	Mobile - On-Road Diesel Light Duty Vehicles	SO_2	Sulfur Dioxide	0.2883512	TON	2011
Charleston	Mobile - On-Road non-Diesel Heavy Duty Vehicles	SO_2	Sulfur Dioxide	0.848195128	TON	2011
Charleston	Mobile - On-Road non-Diesel Light Duty Vehicles	SO_2	Sulfur Dioxide	31.7716	TON	2011
Charleston	Solvent - Industrial Surface Coating & Solvent Use	SO_2	Sulfur Dioxide	0.000546	TON	2011
Dorchester	Fires - Agricultural Field Burning	SO_2	Sulfur Dioxide	0.8978	TON	2011
Dorchester	Fires - Prescribed Fires	SO_2	Sulfur Dioxide	18.499854	TON	2011
Dorchester	Fires - Wildfires	SO_2	Sulfur Dioxide	34.139851	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Biomass	SO_2	Sulfur Dioxide	0.118321	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Coal	SO_2	Sulfur Dioxide	0.573775	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Natural Gas	SO_2	Sulfur Dioxide	0.087641	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Oil	SO_2	Sulfur Dioxide	0.260427425	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Other	SO_2	Sulfur Dioxide	0.00008574	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Biomass	SO_2	Sulfur Dioxide	10.22619	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Coal	SO_2	Sulfur Dioxide	36.90775	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	SO_2	Sulfur Dioxide	0.0907214	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Oil	SO_2	Sulfur Dioxide	21.2369249	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Other	SO_2	Sulfur Dioxide	0	TON	2011
Dorchester	Fuel Comb - Residential - Natural Gas	SO_2	Sulfur Dioxide	0.117477	TON	2011
Dorchester	Fuel Comb - Residential - Oil	SO_2	Sulfur Dioxide	1.251302	TON	2011
Dorchester	Fuel Comb - Residential - Other	SO_2	Sulfur Dioxide	0.0290935	TON	2011
Dorchester	Fuel Comb - Residential - Wood	SO_2	Sulfur Dioxide	0.48918834	TON	2011
Dorchester	Industrial Processes - Cement Manuf	SO_2	Sulfur Dioxide	388.82731	TON	2011
Dorchester	Industrial Processes - NEC	SO_2	Sulfur Dioxide	970.9334229	TON	2011
Dorchester	Industrial Processes - Non-ferrous Metals	SO_2	Sulfur Dioxide	0.1998624	TON	2011
Dorchester	Miscellaneous Non-Industrial NEC	SO_2	Sulfur Dioxide	0.0693675	TON	2011
Dorchester	Mobile - Aircraft	SO_2	Sulfur Dioxide	0.35863998	TON	2011
Dorchester	Mobile - Locomotives	SO_2	Sulfur Dioxide	1.062109083	TON	2011
Dorchester	Mobile - Nonroad Equipment - Diesel	SO_2	Sulfur Dioxide	0.804580918	TON	2011
Dorchester	Mobile - Nonroad Equipment - Gasoline	SO_2	Sulfur Dioxide	0.229055671	TON	2011
Dorchester	Mobile - Nonroad Equipment - Other	SO_2	Sulfur Dioxide	0.074636611	TON	2011
Dorchester	Mobile - On-Road Diesel Heavy Duty Vehicles	SO_2	Sulfur Dioxide	1.56975736	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Dorchester	Mobile - On-Road Diesel Light Duty Vehicles	SO_2	Sulfur Dioxide	0.0879893	TON	2011
Dorchester	Mobile - On-Road non-Diesel Heavy Duty Vehicles	SO_2	Sulfur Dioxide	0.248226369	TON	2011
Dorchester	Mobile - On-Road non-Diesel Light Duty Vehicles	SO_2	Sulfur Dioxide	9.8704415	TON	2011
Dorchester	Waste Disposal	SO_2	Sulfur Dioxide	1.96	TON	2011
Berkeley	Biogenics - Vegetation and Soil	VOC	Volatile Organic Compounds	37593.6	TON	2011
Berkeley	Bulk Gasoline Terminals	VOC	Volatile Organic Compounds	19.94245	TON	2011
Berkeley	Commercial Cooking	VOC	Volatile Organic Compounds	5.6499071	TON	2011
Berkeley	Fires - Agricultural Field Burning	VOC	Volatile Organic Compounds	34.3656	TON	2011
Berkeley	Fires - Prescribed Fires	VOC	Volatile Organic Compounds	4062.466649	TON	2011
Berkeley	Fires - Wildfires	VOC	Volatile Organic Compounds	596.677368	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Biomass	VOC	Volatile Organic Compounds	0.132597	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Coal	VOC	Volatile Organic Compounds	0.00116281	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Natural Gas	VOC	Volatile Organic Compounds	1.32398	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Oil	VOC	Volatile Organic Compounds	0.003855145	TON	2011
Berkeley	Fuel Comb - Comm/Institutional - Other	VOC	Volatile Organic Compounds	0.00122461	TON	2011
Berkeley	Fuel Comb - Electric Generation - Coal	VOC	Volatile Organic Compounds	126.696482	TON	2011
Berkeley	Fuel Comb - Electric Generation - Natural Gas	VOC	Volatile Organic Compounds	0.053437	TON	2011
Berkeley	Fuel Comb - Electric Generation - Oil	VOC	Volatile Organic Compounds	1.503236295	TON	2011
Berkeley	Fuel Comb - Electric Generation - Other	VOC	Volatile Organic Compounds	11.21509	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Biomass	VOC	Volatile Organic Compounds	5.910774	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Coal	VOC	Volatile Organic Compounds	0.8917385	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	VOC	Volatile Organic Compounds	9.88608706	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Oil	VOC	Volatile Organic Compounds	4.691187279	TON	2011
Berkeley	Fuel Comb - Industrial Boilers, ICEs - Other	VOC	Volatile Organic Compounds	0.0018	TON	2011
Berkeley	Fuel Comb - Residential - Natural Gas	VOC	Volatile Organic Compounds	1.02659	TON	2011
Berkeley	Fuel Comb - Residential - Oil	VOC	Volatile Organic Compounds	0.0384854	TON	2011
Berkeley	Fuel Comb - Residential - Other	VOC	Volatile Organic Compounds	0.394094	TON	2011
Berkeley	Fuel Comb - Residential - Wood	VOC	Volatile Organic Compounds	57.40771645	TON	2011
Berkeley	Gas Stations	VOC	Volatile Organic Compounds	788.13159	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Berkeley	Industrial Processes - Chemical Manuf	VOC	Volatile Organic Compounds	436.580341	TON	2011
Berkeley	Industrial Processes - Ferrous Metals	VOC	Volatile Organic Compounds	100.47246	TON	2011
Berkeley	Industrial Processes - NEC	VOC	Volatile Organic Compounds	169.3441601	TON	2011
Berkeley	Industrial Processes - Non-ferrous Metals	VOC	Volatile Organic Compounds	132.3070903	TON	2011
Berkeley	Industrial Processes - Petroleum Refineries	VOC	Volatile Organic Compounds	30.99	TON	2011
Berkeley	Industrial Processes - Pulp & Paper	VOC	Volatile Organic Compounds	63.7965	TON	2011
Berkeley	Industrial Processes - Storage and Transfer	VOC	Volatile Organic Compounds	68.6157772	TON	2011
Berkeley	Miscellaneous Non-Industrial NEC	VOC	Volatile Organic Compounds	137.0267838	TON	2011
Berkeley	Mobile - Aircraft	VOC	Volatile Organic Compounds	2.405547707	TON	2011
Berkeley	Mobile - Commercial Marine Vessels	VOC	Volatile Organic Compounds	0.139146844	TON	2011
Berkeley	Mobile - Locomotives	VOC	Volatile Organic Compounds	25.1420089	TON	2011
Berkeley	Mobile - Nonroad Equipment - Diesel	VOC	Volatile Organic Compounds	37.91837997	TON	2011
Berkeley	Mobile - Nonroad Equipment - Gasoline	VOC	Volatile Organic Compounds	2483.423034	TON	2011
Berkeley	Mobile - Nonroad Equipment - Other	VOC	Volatile Organic Compounds	11.78270614	TON	2011
Berkeley	Mobile - On-Road Diesel Heavy Duty Vehicles	VOC	Volatile Organic Compounds	129.199129	TON	2011
Berkeley	Mobile - On-Road Diesel Light Duty Vehicles	VOC	Volatile Organic Compounds	21.88563	TON	2011
Berkeley	Mobile - On-Road non-Diesel Heavy Duty Vehicles	VOC	Volatile Organic Compounds	31.8215664	TON	2011
Berkeley	Mobile - On-Road non-Diesel Light Duty Vehicles	VOC	Volatile Organic Compounds	1407.4328	TON	2011
Berkeley	Solvent - Consumer & Commercial Solvent Use	VOC	Volatile Organic Compounds	764.5599	TON	2011
Berkeley	Solvent - Degreasing	VOC	Volatile Organic Compounds	100.6145	TON	2011
Berkeley	Solvent - Dry Cleaning	VOC	Volatile Organic Compounds	0.2	TON	2011
Berkeley	Solvent - Graphic Arts	VOC	Volatile Organic Compounds	7.9713	TON	2011
Berkeley	Solvent - Industrial Surface Coating & Solvent Use	VOC	Volatile Organic Compounds	225.3454485	TON	2011
Berkeley	Solvent - Non-Industrial Surface Coating	VOC	Volatile Organic Compounds	208.0765	TON	2011
Berkeley	Waste Disposal	VOC	Volatile Organic Compounds	330.1099	TON	2011
Charleston	Biogenics - Vegetation and Soil	VOC	Volatile Organic Compounds	26587	TON	2011
Charleston	Bulk Gasoline Terminals	VOC	Volatile Organic Compounds	370.706	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Charleston	Commercial Cooking	VOC	Volatile Organic Compounds	26.0379727	TON	2011
Charleston	Fires - Agricultural Field Burning	VOC	Volatile Organic Compounds	23.2764	TON	2011
Charleston	Fires - Prescribed Fires	VOC	Volatile Organic Compounds	1545.01579	TON	2011
Charleston	Fires - Wildfires	VOC	Volatile Organic Compounds	1822.210218	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Biomass	VOC	Volatile Organic Compounds	0.64852	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Coal	VOC	Volatile Organic Compounds	0.0056872	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Natural Gas	VOC	Volatile Organic Compounds	6.4755	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Oil	VOC	Volatile Organic Compounds	0.018855245	TON	2011
Charleston	Fuel Comb - Comm/Institutional - Other	VOC	Volatile Organic Compounds	0.00685845	TON	2011
Charleston	Fuel Comb - Electric Generation - Natural Gas	VOC	Volatile Organic Compounds	4.0751	TON	2011
Charleston	Fuel Comb - Electric Generation - Oil	VOC	Volatile Organic Compounds	0.00290755	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Biomass	VOC	Volatile Organic Compounds	44.0688	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Coal	VOC	Volatile Organic Compounds	7.178491	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	VOC	Volatile Organic Compounds	3.074632	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Oil	VOC	Volatile Organic Compounds	4.535952605	TON	2011
Charleston	Fuel Comb - Industrial Boilers, ICEs - Other	VOC	Volatile Organic Compounds	0.0106	TON	2011
Charleston	Fuel Comb - Residential - Natural Gas	VOC	Volatile Organic Compounds	6.53972	TON	2011
Charleston	Fuel Comb - Residential - Oil	VOC	Volatile Organic Compounds	0.0868491	TON	2011
Charleston	Fuel Comb - Residential - Other	VOC	Volatile Organic Compounds	0.702343933	TON	2011
Charleston	Fuel Comb - Residential - Wood	VOC	Volatile Organic Compounds	128.1681621	TON	2011
Charleston	Gas Stations	VOC	Volatile Organic Compounds	2059.94287	TON	2011
Charleston	Industrial Processes - Chemical Manuf	VOC	Volatile Organic Compounds	128.87209	TON	2011
Charleston	Industrial Processes - NEC	VOC	Volatile Organic Compounds	356.0100407	TON	2011
Charleston	Industrial Processes - Pulp & Paper	VOC	Volatile Organic Compounds	634.3283608	TON	2011
Charleston	Industrial Processes - Storage and Transfer	VOC	Volatile Organic Compounds	271.27686	TON	2011
Charleston	Miscellaneous Non-Industrial NEC	VOC	Volatile Organic Compounds	573.562693	TON	2011
Charleston	Mobile - Aircraft	VOC	Volatile Organic Compounds	46.76501406	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Charleston	Mobile - Commercial Marine Vessels	VOC	Volatile Organic Compounds	113.6851882	TON	2011
Charleston	Mobile - Locomotives	VOC	Volatile Organic Compounds	38.85897559	TON	2011
Charleston	Mobile - Nonroad Equipment - Diesel	VOC	Volatile Organic Compounds	155.8769964	TON	2011
Charleston	Mobile - Nonroad Equipment - Gasoline	VOC	Volatile Organic Compounds	3460.35968	TON	2011
Charleston	Mobile - Nonroad Equipment - Other	VOC	Volatile Organic Compounds	22.6912091	TON	2011
Charleston	Mobile - On-Road Diesel Heavy Duty Vehicles	VOC	Volatile Organic Compounds	318.038689	TON	2011
Charleston	Mobile - On-Road Diesel Light Duty Vehicles	VOC	Volatile Organic Compounds	50.4257	TON	2011
Charleston	Mobile - On-Road non-Diesel Heavy Duty Vehicles	VOC	Volatile Organic Compounds	72.6122794	TON	2011
Charleston	Mobile - On-Road non-Diesel Light Duty Vehicles	VOC	Volatile Organic Compounds	2938.6794	TON	2011
Charleston	Solvent - Consumer & Commercial Solvent Use	VOC	Volatile Organic Compounds	1535.9458	TON	2011
Charleston	Solvent - Dry Cleaning	VOC	Volatile Organic Compounds	1.62	TON	2011
Charleston	Solvent - Graphic Arts	VOC	Volatile Organic Compounds	17.37635	TON	2011
Charleston	Solvent - Industrial Surface Coating & Solvent Use	VOC	Volatile Organic Compounds	782.4513055	TON	2011
Charleston	Solvent - Non-Industrial Surface Coating	VOC	Volatile Organic Compounds	409.7445	TON	2011
Charleston	Waste Disposal	VOC	Volatile Organic Compounds	6.60282	TON	2011
Dorchester	Biogenics - Vegetation and Soil	VOC	Volatile Organic Compounds	22373.1	TON	2011
Dorchester	Bulk Gasoline Terminals	VOC	Volatile Organic Compounds	19.82877	TON	2011
Dorchester	Commercial Cooking	VOC	Volatile Organic Compounds	4.9140623	TON	2011
Dorchester	Fires - Agricultural Field Burning	VOC	Volatile Organic Compounds	13.467	TON	2011
Dorchester	Fires - Prescribed Fires	VOC	Volatile Organic Compounds	435.328276	TON	2011
Dorchester	Fires - Wildfires	VOC	Volatile Organic Compounds	768.51003	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Biomass	VOC	Volatile Organic Compounds	0.0804585	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Coal	VOC	Volatile Organic Compounds	0.00070558	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Natural Gas	VOC	Volatile Organic Compounds	0.803375	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Oil	VOC	Volatile Organic Compounds	0.021617263	TON	2011
Dorchester	Fuel Comb - Comm/Institutional - Other	VOC	Volatile Organic Compounds	0.00074308	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Biomass	VOC	Volatile Organic Compounds	4.749615	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Coal	VOC	Volatile Organic Compounds	0.0476106	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Natural Gas	VOC	Volatile Organic Compounds	0.8316182	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Oil	VOC	Volatile Organic Compounds	2.084201248	TON	2011
Dorchester	Fuel Comb - Industrial Boilers, ICEs - Other	VOC	Volatile Organic Compounds	0	TON	2011
Dorchester	Fuel Comb - Residential - Natural Gas	VOC	Volatile Organic Compounds	1.07687	TON	2011
Dorchester	Fuel Comb - Residential - Oil	VOC	Volatile Organic Compounds	0.0205613	TON	2011
Dorchester	Fuel Comb - Residential - Other	VOC	Volatile Organic Compounds	0.266691	TON	2011
Dorchester	Fuel Comb - Residential - Wood	VOC	Volatile Organic Compounds	43.5829336	TON	2011
Dorchester	Gas Stations	VOC	Volatile Organic Compounds	565.897354	TON	2011
Dorchester	Industrial Processes - Cement Manuf	VOC	Volatile Organic Compounds	77.119915	TON	2011
Dorchester	Industrial Processes - NEC	VOC	Volatile Organic Compounds	156.2189801	TON	2011
Dorchester	Industrial Processes - Non-ferrous Metals	VOC	Volatile Organic Compounds	1.8320715	TON	2011
Dorchester	Industrial Processes - Pulp & Paper	VOC	Volatile Organic Compounds	215.8943	TON	2011
Dorchester	Industrial Processes - Storage and Transfer	VOC	Volatile Organic Compounds	15.918607	TON	2011
Dorchester	Miscellaneous Non-Industrial NEC	VOC	Volatile Organic Compounds	106.5373985	TON	2011
Dorchester	Mobile - Aircraft	VOC	Volatile Organic Compounds	3.6189592	TON	2011
Dorchester	Mobile - Locomotives	VOC	Volatile Organic Compounds	5.250007996	TON	2011
Dorchester	Mobile - Nonroad Equipment - Diesel	VOC	Volatile Organic Compounds	32.73917603	TON	2011
Dorchester	Mobile - Nonroad Equipment - Gasoline	VOC	Volatile Organic Compounds	265.5993056	TON	2011
Dorchester	Mobile - Nonroad Equipment - Other	VOC	Volatile Organic Compounds	6.088127672	TON	2011
Dorchester	Mobile - On-Road Diesel Heavy Duty Vehicles	VOC	Volatile Organic Compounds	99.988723	TON	2011
Dorchester	Mobile - On-Road Diesel Light Duty Vehicles	VOC	Volatile Organic Compounds	15.31	TON	2011
Dorchester	Mobile - On-Road non-Diesel Heavy Duty Vehicles	VOC	Volatile Organic Compounds	22.31098672	TON	2011
Dorchester	Mobile - On-Road non-Diesel Light Duty Vehicles	VOC	Volatile Organic Compounds	1029.3101	TON	2011
Dorchester	Solvent - Consumer & Commercial Solvent Use	VOC	Volatile Organic Compounds	660.54482	TON	2011
Dorchester	Solvent - Degreasing	VOC	Volatile Organic Compounds	76.134	TON	2011
Dorchester	Solvent - Dry Cleaning	VOC	Volatile Organic Compounds	0.21	TON	2011

Table 4-1 USEPA NEI 2011 Criteria Pollutants and HAPs for the Tri-County Area

County	EI Sector	Pollutant Code	Pollutant Name	Emissions	UOM	Inventory Year
Dorchester	Solvent - Graphic Arts	VOC	Volatile Organic Compounds	8.309	TON	2011
Dorchester	Solvent - Industrial Surface Coating & Solvent Use	VOC	Volatile Organic Compounds	113.9715075	TON	2011
Dorchester	Solvent - Non-Industrial Surface Coating	VOC	Volatile Organic Compounds	159.7695	TON	2011
Dorchester	Waste Disposal	VOC	Volatile Organic Compounds	13.504491	TON	2011

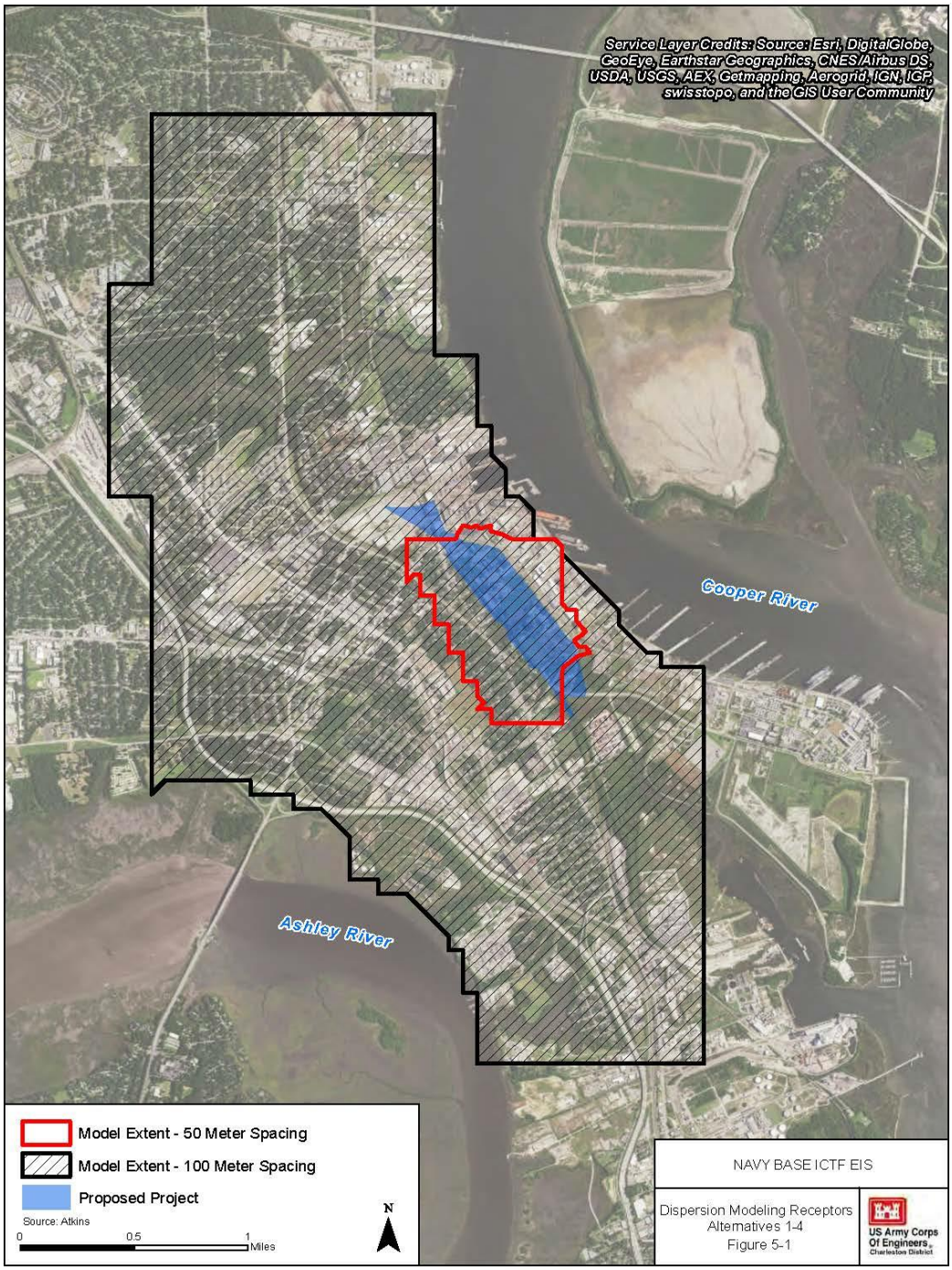
Source: USEPA 2015c

Table 4-2 MOVES Output for UTR Trucks

Year	Month	Day	State	County	SCC	Pollutant	Process	Emission Rate (g/hp-hr per day)
2038	1	5	45	45019	2270003070	1	1	0.13219288
2038	1	5	45	45019	2270003070	2	1	0.16008679
2038	1	5	45	45019	2270003070	3	1	0.38331365
2038	1	5	45	45019	2270003070	5	1	0.01295492
2038	1	5	45	45019	2270003070	31	1	0.00262419
2038	1	5	45	45019	2270003070	79	1	0.11923811
2038	1	5	45	45019	2270003070	87	1	0.15537608
2038	1	5	45	45019	2270003070	90	1	543.750226
2038	1	5	45	45019	2270003070	100	1	0.01092613
2038	1	5	45	45019	2270003070	110	1	0.0105983

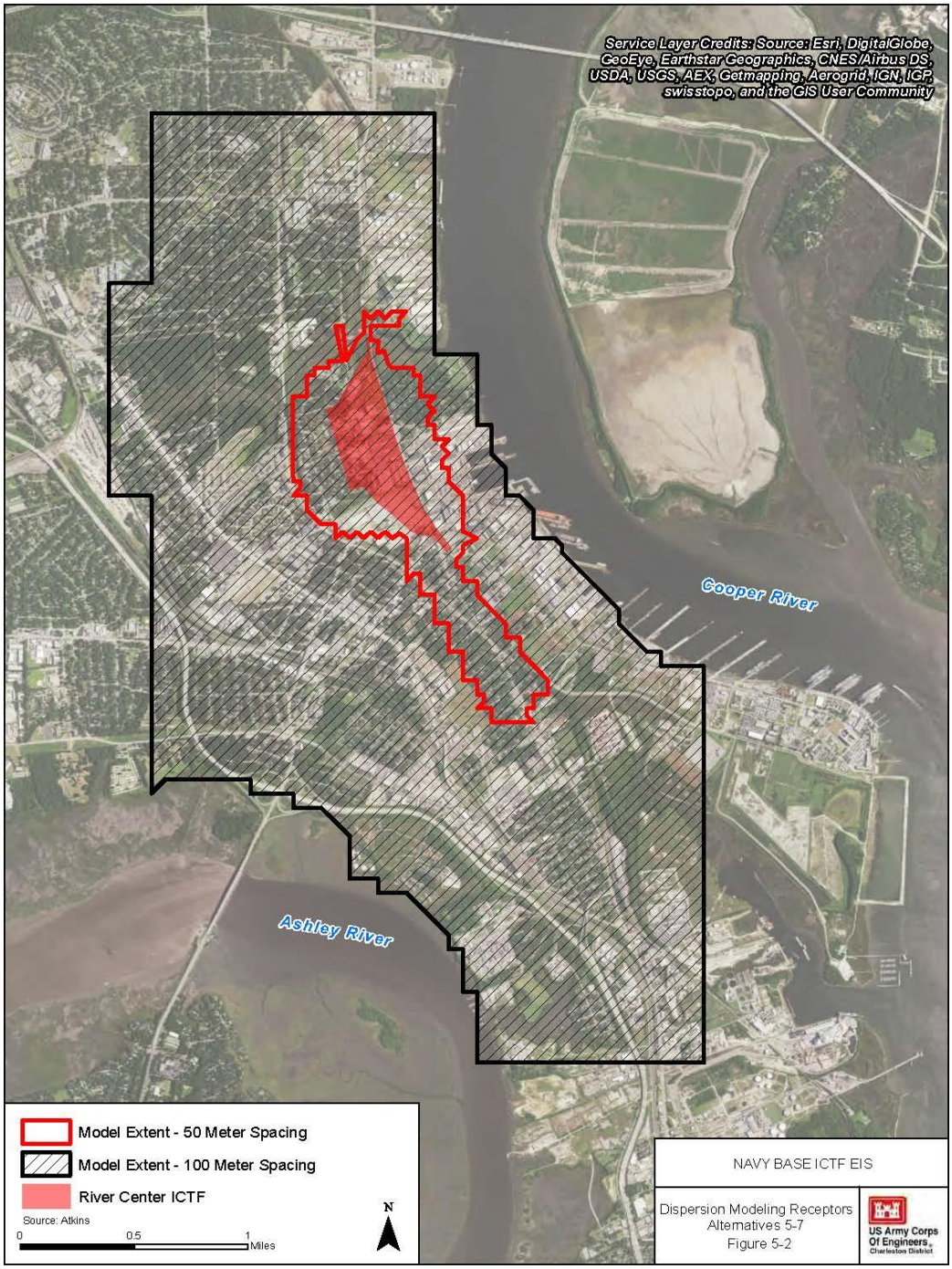
Source: Palmetto Railways, USEPA 2015b

5.0 AERMOD DISPERSION MODELING



Source: Lakes AERMOD

Figure 5-1 Alternatives 1 through 4 Dispersion Modeling Receptors



Source: Lakes AERMOD

Figure 5-2 Alternatives 5 through 7 Dispersion Modeling Receptors

Table 5-1 Off-Terminal Line Haul Emission Rates Calculations

AERMOD Line Volume Source Name	Description	Alternatives these links apply to	Length (m)	Length (miles)	Daily Train Crossings	Locomotives / train	Speed (mph)	Daily locomotive hours	HP	Load Factor	NOx (g/s)	PM_{10} (g/s)	CO (g/s)	$PM_{2.5}$ (g/s)	SO_2 (g/s)
Rail1	Related activity-Accabee Rd to Irving Ave	1, 2, 3, 4, 5, 6, 7	2478	1.54	4	2	10	1.23	4000	0.28	0.02380	0.00038	0.02044	0.00037	0.00007
Rail2	Related activity; Irving Ave to south	1, 2, 4, 5, 7	947	0.59	4	2	10	0.47	4000	0.28	0.00909	0.00015	0.00781	0.00014	0.00003
Rail3	Milford St southern loop	1, 2, 4, 5, 7	2059	1.28	4	2	10	1.02	4000	0.28	0.01977	0.00032	0.01698	0.00031	0.00006
Rail3B	Southern loop, additional for Alt 4 and 7	4, 7	2062	1.28	4	2	10	1.03	4000	0.28	0.01981	0.00032	0.01701	0.00031	0.00006
Rail4	Southern short loop	3, 6	385.2	0.24	4	2	10	0.19	4000	0.28	0.00370	0.00006	0.00318	0.00006	0.00001

Length (m) measured in AERMOD model.
Daily Train Crossings from Transportation Study Data.
Locomotives per train, speed, and horsepower provided by Palmetto Railways.
Load Factor from EPA's *Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories (2009).*
Source: Palmetto Railways, USEPA 2009a, 2009b, SCSPA 2013

Table 5-2 Total On-Terminal Line Haul Activity

Daily Trains	Daily Activity per train (hours)	Locomotives / train	Daily locomotive hours	HP	Load Factor	Seconds / Day Conversion	NOx (g/s)	PM_{10} (g/s)	CO (g/s)	$PM_{2.5}$ (g/s)	SO_2 (g/s)
8	1	2	16	4000	0.28	86400	0.31	0.005	0.265	0.005	0.000936

Daily trains, daily activity per train, locomotives per train, and horsepower provided by Palmetto Railways.
Load Factor from EPA's *Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories (2009).*
Source: Palmetto Railways, USEPA 2009a, 2009b, SCSPA 2013

Table 5-3 On-Terminal Line Haul Activity Distribution (Line Volume Sources)

AERMOD Line Volume Source Name	Description	Alternatives these links apply to	Fraction of Activity per total Zone	NOx (g/s)	PM_{10} (g/s)	CO (g/s)	$PM_{2.5}$ (g/s)	SO_2 (g/s)
Rail5	Zone 3 for Alts 1,2,4	1, 2, 3	40%	0.124	0.002	0.106	0	4E-04
Rail5B	Additional Zone 3 for Alt 4	4	40%	0.124	0.002	0.106	0	4E-04
Rail6	Zone 3 for Alt 3	3	40%	0.124	0.002	0.106	0	4E-04
Rail7	Zone 1 for Alts 1 and 3	1, 3	40%	0.124	0.002	0.106	0	4E-04
Rail8	Zone 1 of Alt 2	2	40%	0.124	0.002	0.106	0	4E-04
Rail9	Zone 1 for Alt 5, 6	5, 6	40%	0.124	0.002	0.106	0	4E-04
Rail10	Zone 3 for Alt 5, 7	5, 7	40%	0.124	0.002	0.106	0	4E-04
Rail10B	Additional Zone 3 for Alt 7	7	40%	0.124	0.002	0.106	0	4E-04
Rail11	Zone 3 for Alt 6	6	40%	0.124	0.002	0.106	0	4E-04

Fraction of activity per zone provided by Palmetto Railways for Alternatives 1, 2, 3, 5, and 6.
Fraction of activity per zone for Alternatives 4 and 7 assumed 20% for Zone 2 and 80% for Zone 3. There is no Zone 1 for Alternatives 4 and 7.
Source: Palmetto Railways, USEPA 2009a, 2009b, SCSPA 2013

Table 5-4 On-Terminal Line Haul Activity Distribution (Area Volume Source)

AERMOD Area Volume Source Name	Description	Fraction of Activity per total Zone	NOx (g/s)	PM_{10} (g/s)	CO (g/s)	$PM_{2.5}$ (g/s)	SO_2 (g/s)
Zone2	On Terminal Zone 2	20%	0.062	1E-03	0.053	1E-03	0

Zone2 source activity is consistent for Alternatives 1 through 7.
Fraction of activity per total zone provided by Palmetto Railways.
Source: Palmetto Railways, USEPA 2009a, 2009b, SCSPA 2013

Table 5-5 Switch Locomotive Emission Rates Calculations

	Trains / day	Locomotive Hours / train	Daily Locomotive Hours	HP/locomotive engine	Load Factor	Daily hphr	NOx (g/s)	PM_{10} (g/s)	CO (g/s)	$PM_{2.5}$ (g/s)	SO_2 (g/s)
Total Activity	8	2.17	17.36	2000	0.106	34720	0.042596296	0.000639	0.077951	0.00062	0.000263
Half Activity							0.021298148	0.000319	0.038976	0.00031	0.000132

Trains per day, locomotive hours per train, and horsepower provided by Palmetto Railways.
Load Factor developed from EPA's *Locomotive Emission Standards (1998).*
Half Activity calculated because half of Switch activity occur on north portion of site and the other half occur at the southern portion of the site, as provided by Palmetto Railways.
Source: Palmetto Railways, USEPA 1998, 2009a, SCSPA 2013

Table 5-6 UTR Truck Running Emission Rates Calculations

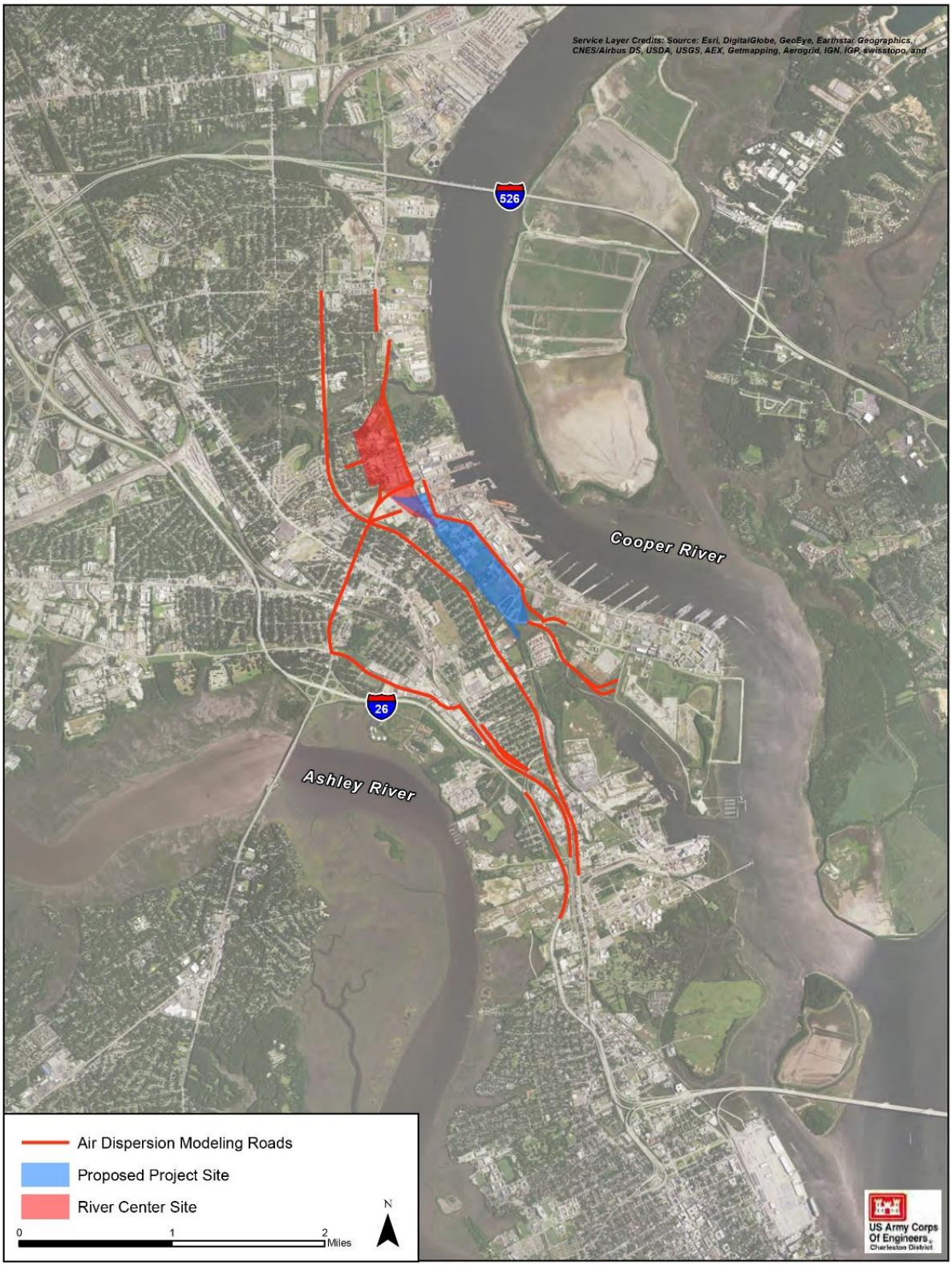
	SCC	HP	Load Factor	Drayage Road Length (miles)	Speed (mph)	Round Trips	Daily Operating Hours	AERMOD CO EF (g/s)	AERMOD NOx EF (g/s)	AERMOD PM_{10} EF (g/s)	AERMOD $PM_{2.5}$ EF (g/s)	AERMOD SO_2 EF (g/s)
Alt 1-4	2270003070	175	0.65	1	20	554	55.4	0.011676	0.027958	0.000797	0.000773	0.000191
Alt 5-7	2270003070	175	0.65	2	20	554	110.8	0.023352	0.055915	0.001594	0.001546	0.000383

Nonroad Emission Factor developed for Charleston County, SC. January weekday in 2038.
HP, Drayage Road Length, and Round Trips provided by Palmetto Railways.
SCC, Load Factor and Speed taken from EPA's *Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories.*
Source: Palmetto Railways, USEPA 2009b, 2015b

Table 5-7 UTR Truck Idling Emission Rates Calculations

	SCC	HP	Load Factor	Round Trips	Idle Time per trip (min)	Daily Operating Hours	AERMOD CO EF (g/s)	AERMOD NOx EF (g/s)	AERMOD PM_{10} EF (g/s)	AERMOD $PM_{2.5}$ EF (g/s)	AERMOD SO_2 EF (g/s)
Alts 1-7	2270003070	175	0.65	554	5	46.16667	0.00973	0.023298	0.000664	0.000644	0.00016

Nonroad Emission Factor developed for Charleston County, SC. January weekday in 2038.
HP, Round Trips, and idle time per trip provided by Palmetto Railways.
SCC and Load Factor taken from EPA's *Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories.*
Source: Palmetto Railways, USEPA 2009b, 2015b



Source: Lakes AERMOD

Figure 5-2 Air Dispersion Modeling Roads

Table 5-8 Public Roadway Plume Height Calculations—Criteria Pollutants

linkID	Car release height (f)	Truck release height (ft)	No-Action 2038 Link Release Height	Build Alts 2 & 4 2038 Link Release Height	Build Alts 1 & 3 2038 Link Release Height	Build Alts 5, 6 & 7 2038 Link Release Height
1	2	15	3.496736	3.411441	3.411441	3.440855
2	2	15	3.068552	3.239305	3.239305	3.090167
3	2	15	3.070558	3.262018	3.262018	3.092587
4	2	15	4.987903	5.285894	5.285894	5.195025
5	2	15	4.071486	4.344937	4.344937	4.380635
6	2	15	9.849576	9.973724	9.973724	9.43287
7	2	15	9.78634	10.05857	10.05857	9.442933
8	2	15	6.489849	6.984761	6.984761	6.59565
9	2	15	4.027915	4.343333	4.343333	4.28054
10	2	15	9.821667	10.02896	10.02896	9.465082
11	2	15	9.814689	10.0413	10.0413	9.420324
12	2	15	3.175601	2.674863	2.674863	2.712375
13	2	15	2.946744	2.576378	2.576378	2.638974
14	2	15	3.055835	2.69382	2.69382	2.764285
15	2	15	3.360245	2.907508	2.907508	3.072948
16	2	15	3.317697	2.668492	2.668492	2.99527
17	2	15	4.16125	3.04661	3.04661	3.507849
18	2	15	2.463589	4.121609	2.541667	2
19	2	15	2.804036	2.807669	2.807669	2.984987
20	2	15	2.891507	2.876071	2.876071	2.895305
21	2	15	3.384649	4.407249	4.407249	3.959269
22	2	15	3.858509	4.219262	4.219262	4.226784
23	2	15	3.576247	4.302947	4.302947	4.092372
24	2	15	4.098693	2.788693	2.788693	4.410121
25	2	15	4.065049	2.698255	2.698255	4.451534
26	2	15	4.1756	2.875305	2.875305	4.498471
27	2	15	3.109384	2.768141	2.768141	4.367756
28	2	15	3.194061	3.320654	3.320654	4.16556
29	2	15	3.064655	2.815989	2.815989	2.754486
30	2	15	3.037815	2	2	2
31	2	15	3.603063	4.202573	4.202573	4.07875
32	2	15	3.995323	7.450639	7.450639	4.227633
33	2	15	4.637364	2	2	2
34	2	15	5.654711	2	2	2
35	2	15	3.095531	3.129313	3.129313	3.127282
36	2	15	2.431818	3.762487	3.762487	4.91936
37	2	15	3.879195	2	2	2
38	2	15	4.169869	4.142429	4.142429	4.217942
39	2	15	2.687202	6.110752	6.110752	2.411667
40	2	15	2	6.449585	6.449585	2
41	2	15	2.515389	7.076107	7.076107	2.543927
42	2	15	15.07781	11.85505	11.85505	8.362121
43	2	15	2.578997	2.480358	2.480358	2.422222
44	2	15	2.942954	2.71612	2.71612	2.411667
45	2	15	3.715278	2.67522	2.67522	2.571759
46	2	15	2	32.58645	32.58645	2
47	2	15	2	15.35816	15.35816	2
48	2	15	2	2	2	2.411667

Table 5-8 Public Roadway Plume Height Calculations—Criteria Pollutants

linkID	Car release height (f)	Truck release height (ft)	No-Action 2038 Link Release Height	Build Alts 2 & 4 2038 Link Release Height	Build Alts 1 & 3 2038 Link Release Height	Build Alts 5, 6 & 7 2038 Link Release Height
49	2	15	2	2	2	18.13061
50	2	15	9.790888	10.0563	10.0563	9.44143
51	2	15	2.411667	7.383333	7.383333	2.588095
52	2	15	2.411667	5.084353	5.084353	2.825874
53	2	15	12.77113	12.58225	12.58225	13.43519
54	2	15	2	5.399328	5.399328	4.090081
55	2	15	2.411667	5.296448	5.296448	3.667778
56	2	15	2.411667	5.883648	5.883648	2.688812
57	2	15	2.411667	6.975118	6.975118	2.490079
58	2	15	3.264378	3.007741	3.007741	3.230377
59	2	15	3.469874	3.160755	3.160755	3.457227
60	2	15	2.958916	2.836974	2.836974	2.990876
61	2	15	4.402528	4.470678	4.470678	4.774593
62	2	15	4.318676	4.391573	4.391573	4.732987
63	2	15	4.386502	4.460777	4.460777	4.81095
64	2	15	4.89256	5.031489	5.031489	5.390199
65	2	15	2.826815	2.84256	2.84256	2.847377
66	2	15	2.769772	2.768741	2.768741	2.79136
67	2	15	2.77135	2.772805	2.772805	2.794908
68	2	15	2.726169	2.73328	2.73328	2.851912

Source: LAHD 2011

Table 5-9 MOVES Project Data Manager—Age Distribution

Type	Year	Age	Age Fraction
21	2038	0	0.07045743
21	2038	1	0.06956676
21	2038	2	0.06863288
21	2038	3	0.06781738
21	2038	4	0.06676744
21	2038	5	0.06532273
21	2038	6	0.0640001
21	2038	7	0.06226121
21	2038	8	0.06023452
21	2038	9	0.05788071
21	2038	10	0.05523408
21	2038	11	0.05206899
21	2038	12	0.04829508
21	2038	13	0.04283933
21	2038	14	0.03484975
21	2038	15	0.02798387
21	2038	16	0.02188243
21	2038	17	0.0167711
21	2038	18	0.01271121
21	2038	19	0.00952262
21	2038	20	0.00708236
21	2038	21	0.00532812
21	2038	22	0.00390726
21	2038	23	0.00279439
21	2038	24	0.00200712
21	2038	25	0.00140406
21	2038	26	0.00099201
21	2038	27	0.00045004
21	2038	28	0.00037329
21	2038	29	0.00025282
21	2038	30	0.00030892

Type	Year	Age	Age Fraction
62	2038	0	0
62	2038	1	0
62	2038	2	0
62	2038	3	0
62	2038	4	0
62	2038	5	0.06032063
62	2038	6	0.05911135
62	2038	7	0.05802297
62	2038	8	0.05692167
62	2038	9	0.05563849
62	2038	10	0.05403264
62	2038	11	0.05215566
62	2038	12	0.05011857
62	2038	13	0.04779779
62	2038	14	0.04546121
62	2038	15	0.04301406
62	2038	16	0.04026554
62	2038	17	0.03755697
62	2038	18	0.03456157
62	2038	19	0.03171926
62	2038	20	0.0292986
62	2038	21	0.02733185
62	2038	22	0.02548555
62	2038	23	0.02365151
62	2038	24	0.02169976
62	2038	25	0.01983911
62	2038	26	0.01757693
62	2038	27	0.01634813
62	2038	28	0.01470125
62	2038	29	0.01245381
62	2038	30	0.06491514

Table 5-10 MOVES Project Data Manager—Meteorology

Month	Zone	Hour	Temperature	Relative Humidity
1	450190	18	64.7	65.7

Table 5-11 MOVES Project Data Manager—Fuels (Fuel Supply)

Fuel Region	Fuel Year	Month Group	Fuel Formulation	Market Share	Market Share CV
100000000	2038	1	6163	0.670538	0.5
100000000	2038	1	6165	0.329462	0.5
100000000	2038	1	25005	1	0.5

Table 5-12 MOVES Project Data Manager—Fuels (Fuel Formulation)

Fuel Formu-lation	Fuel Subtype	RVP	Sulfur Level	ETOH Volume	MTBE Volume	ETBE Volume	TAME Volume	Aromatic Content	Olefin Content	Benzene Content	e200	e300	BioDiesel Ester Volume	Cetane Index	PAH Content	T50	T90
10	10	6.9	30	0	0	0	0	26.1	5.6	1	41.09	83.09	0	0	0	218	329
20	20	0	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	10	8.7	338	0	0	0	0	26.4	11.9	1.64	50	83	0	0	0	199.816	329.409
97	10	6.6	150	0	11.7581	0	0	24	11	0.8	52	84	0	0	0	195.735	324.864
98	10	6.9	30	0	0	0	0	26.1	5.6	1	41.09	83.09	0	0	0	218	329
99	10	6.9	90	0	0	0	0	26.1	5.6	1	41.09	83.09	0	0	0	218	329
6163	12	11.82	10	10	0	0	0	17.63	9.33	0.61	55.11	84.04	0	0	0	189.39	324.68
6165	15	10.82	10	15	0	0	0	15.59	8.13	0.61	61.34	84.51	0	0	0	176.68	322.54
25005	21	0	15	0	0	0	0	0	0	0	0	0	5	0	0	0	0

Table 5-13 MOVES Project Data Manager—Fuels (Fuel Usage Fraction)

County	Fuel Year	Model Year Group	Bin Fuel Type	Fuel Supply Fuel Type	Usage Fraction
45019	2038	0	1	1	1
45019	2038	0	2	2	1

Table 5-14 MOVES Project Data Manager—Fuels (avft)

Source Type ID	Model Year	Fuel Type	Eng Tech ID	Fuel Eng Fraction
21	1960	1	1	0.993123
21	1960	2	1	0.006877
21	1960	5	1	0
21	1960	9	30	0
21	1961	1	1	0.993123
21	1961	2	1	0.006877
21	1961	5	1	0
21	1961	9	30	0
21	1962	1	1	0.993123
21	1962	2	1	0.006877
21	1962	5	1	0
21	1962	9	30	0
21	1963	1	1	0.993123
21	1963	2	1	0.006877
21	1963	5	1	0
21	1963	9	30	0
21	1964	1	1	0.993123
21	1964	2	1	0.006877
21	1964	5	1	0
21	1964	9	30	0
21	1965	1	1	0.993123
21	1965	2	1	0.006877
21	1965	5	1	0
21	1965	9	30	0
21	1966	1	1	0.993123
21	1966	2	1	0.006877
21	1966	5	1	0
21	1966	9	30	0
21	1967	1	1	0.993123
21	1967	2	1	0.006877
21	1967	5	1	0
21	1967	9	30	0
21	1968	1	1	0.993123
21	1968	2	1	0.006877
21	1968	5	1	0
21	1968	9	30	0
21	1969	1	1	0.993123
21	1969	2	1	0.006877
21	1969	5	1	0
21	1969	9	30	0
21	1970	1	1	0.993123
21	1970	2	1	0.006877
21	1970	5	1	0
21	1970	9	30	0
21	1971	1	1	0.993123
21	1971	2	1	0.006877
21	1971	5	1	0
21	1971	9	30	0
21	1972	1	1	0.993123
21	1972	2	1	0.006877
21	1972	5	1	0
21	1972	9	30	0
21	1973	1	1	0.993123
21	1973	2	1	0.006877
21	1973	5	1	0
21	1973	9	30	0
21	1974	1	1	0.993123
21	1974	2	1	0.006877
21	1974	5	1	0
21	1974	9	30	0
21	1975	1	1	0.98198
21	1975	2	1	0.01802
21	1975	5	1	0
21	1975	9	30	0
21	1976	1	1	0.983491
21	1976	2	1	0.016509
21	1976	5	1	0
21	1976	9	30	0
21	1977	1	1	0.987068
21	1977	2	1	0.012932
21	1977	5	1	0
21	1977	9	30	0
21	1978	1	1	0.984943
21	1978	2	1	0.015057
21	1978	5	1	0
21	1978	9	30	0
21	1979	1	1	0.968834
21	1979	2	1	0.031166
21	1979	5	1	0
21	1979	9	30	0
21	1980	1	1	0.953329
21	1980	2	1	0.046671
21	1980	5	1	0
21	1980	9	30	0
21	1981	1	1	0.923598
21	1981	2	1	0.076402
21	1981	5	1	0
21	1981	9	30	0
21	1982	1	1	0.893278
21	1982	2	1	0.106722
21	1982	5	1	0
21	1982	9	30	0
21	1983	1	1	0.922683
21	1983	2	1	0.077317
21	1983	5	1	0
21	1983	9	30	0
21	1984	1	1	0.955646
21	1984	2	1	0.044354

Source Type ID	Model Year	Fuel Type	Eng Tech ID	Fuel Eng Fraction
21	1984	5	1	0
21	1984	9	30	0
21	1985	1	1	0.966251
21	1985	2	1	0.033749
21	1985	5	1	0
21	1985	9	30	0
21	1986	1	1	0.991118
21	1986	2	1	0.008882
21	1986	5	1	0
21	1986	9	30	0
21	1987	1	1	0.987233
21	1987	2	1	0.012767
21	1987	5	1	0
21	1987	9	30	0
21	1988	1	1	0.99974
21	1988	2	1	0.00026
21	1988	5	1	0
21	1988	9	30	0
21	1989	1	1	0.999089
21	1989	2	1	0.000911
21	1989	5	1	0
21	1989	9	30	0
21	1990	1	1	0.998936
21	1990	2	1	0.001064
21	1990	5	1	0
21	1990	9	30	0
21	1991	1	1	0.997177
21	1991	2	1	0.002823
21	1991	5	1	0
21	1991	9	30	0
21	1992	1	1	0.998835
21	1992	2	1	0.001165
21	1992	5	1	0
21	1992	9	30	0
21	1993	1	1	0.999308
21	1993	2	1	0.000692
21	1993	5	1	0
21	1993	9	30	0
21	1994	1	1	0.99985
21	1994	2	1	0.00015
21	1994	5	1	0
21	1994	9	30	0
21	1995	1	1	0.999057
21	1995	2	1	0.000943
21	1995	5	1	0
21	1995	9	30	0
21	1996	1	1	0.998757
21	1996	2	1	0.001243
21	1996	5	1	0
21	1996	9	30	0

Source Type ID	Model Year	Fuel Type	Eng Tech ID	Fuel Eng Fraction
21	1997	1	1	0.999093
21	1997	2	1	0.000907
21	1997	5	1	0
21	1997	9	30	0
21	1998	1	1	0.988774
21	1998	2	1	0.002207
21	1998	5	1	0.009019
21	1998	9	30	0
21	1999	1	1	0.981177
21	1999	2	1	0.001879
21	1999	5	1	0.016944
21	1999	9	30	0
21	2000	1	1	0.975542
21	2000	2	1	0.002573
21	2000	5	1	0.021885
21	2000	9	30	0
21	2001	1	1	0.974028
21	2001	2	1	0.002976
21	2001	5	1	0.022996
21	2001	9	30	0
21	2002	1	1	0.962322
21	2002	2	1	0.004306
21	2002	5	1	0.033373
21	2002	9	30	0
21	2003	1	1	0.960066
21	2003	2	1	0.00392
21	2003	5	1	0.036013
21	2003	9	30	0
21	2004	1	1	0.967152
21	2004	2	1	0.003106
21	2004	5	1	0.029742
21	2004	9	30	0
21	2005	1	1	0.964805
21	2005	2	1	0.00479
21	2005	5	1	0.030404
21	2005	9	30	0
21	2006	1	1	0.95877
21	2006	2	1	0.006892
21	2006	5	1	0.034338
21	2006	9	30	0
21	2007	1	1	0.963121
21	2007	2	1	0.000342
21	2007	5	1	0.036536
21	2007	9	30	0
21	2008	1	1	0.948717
21	2008	2	1	0.000534
21	2008	5	1	0.05075
21	2008	9	30	0
21	2009	1	1	0.948159
21	2009	2	1	0.007368

Source Type ID	Model Year	Fuel Type	Eng Tech ID	Fuel Eng Fraction
21	2009	5	1	0.044473
21	2009	9	30	0
21	2010	1	1	0.935791
21	2010	2	1	0.010123
21	2010	5	1	0.054087
21	2010	9	30	0
21	2011	1	1	0.913843
21	2011	2	1	0.011746
21	2011	5	1	0.074411
21	2011	9	30	0
21	2012	1	1	0.895682
21	2012	2	1	0.011746
21	2012	5	1	0.092572
21	2012	9	30	0
21	2013	1	1	0.93728
21	2013	2	1	0.011746
21	2013	5	1	0.050974
21	2013	9	30	0
21	2014	1	1	0.937464
21	2014	2	1	0.011746
21	2014	5	1	0.05079
21	2014	9	30	0
21	2015	1	1	0.937289
21	2015	2	1	0.011746
21	2015	5	1	0.050965
21	2015	9	30	0
21	2016	1	1	0.937235
21	2016	2	1	0.011746
21	2016	5	1	0.05102
21	2016	9	30	0
21	2017	1	1	0.937116
21	2017	2	1	0.011746
21	2017	5	1	0.051138
21	2017	9	30	0
21	2018	1	1	0.936413
21	2018	2	1	0.011746
21	2018	5	1	0.051842
21	2018	9	30	0
21	2019	1	1	0.935253
21	2019	2	1	0.011746
21	2019	5	1	0.053001
21	2019	9	30	0
21	2020	1	1	0.936415
21	2020	2	1	0.011746
21	2020	5	1	0.051839
21	2020	9	30	0
21	2021	1	1	0.935945
21	2021	2	1	0.011746
21	2021	5	1	0.052309
21	2021	9	30	0

Source Type ID	Model Year	Fuel Type	Eng Tech ID	Fuel Eng Fraction
21	2022	1	1	0.934552
21	2022	2	1	0.011746
21	2022	5	1	0.053702
21	2022	9	30	0
21	2023	1	1	0.935968
21	2023	2	1	0.011746
21	2023	5	1	0.052286
21	2023	9	30	0
21	2024	1	1	0.936511
21	2024	2	1	0.011746
21	2024	5	1	0.051743
21	2024	9	30	0
21	2025	1	1	0.936478
21	2025	2	1	0.011746
21	2025	5	1	0.051776
21	2025	9	30	0
21	2026	1	1	0.936381
21	2026	2	1	0.011746
21	2026	5	1	0.051873
21	2026	9	30	0
21	2027	1	1	0.93614
21	2027	2	1	0.011746
21	2027	5	1	0.052114
21	2027	9	30	0
21	2028	1	1	0.935788
21	2028	2	1	0.011746
21	2028	5	1	0.052466
21	2028	9	30	0
21	2029	1	1	0.93532
21	2029	2	1	0.011746
21	2029	5	1	0.052934
21	2029	9	30	0
21	2030	1	1	0.934851
21	2030	2	1	0.011746
21	2030	5	1	0.053403
21	2030	9	30	0
21	2031	1	1	0.934728
21	2031	2	1	0.011746
21	2031	5	1	0.053526
21	2031	9	30	0
21	2032	1	1	0.935037
21	2032	2	1	0.011746
21	2032	5	1	0.053217
21	2032	9	30	0
21	2033	1	1	0.935509
21	2033	2	1	0.011746
21	2033	5	1	0.052745
21	2033	9	30	0
21	2034	1	1	0.9359
21	2034	2	1	0.011746

Source Type ID	Model Year	Fuel Type	Eng Tech ID	Fuel Eng Fraction
21	2034	5	1	0.052354
21	2034	9	30	0
21	2035	1	1	0.936501
21	2035	2	1	0.011746
21	2035	5	1	0.051753
21	2035	9	30	0
21	2036	1	1	0.936788
21	2036	2	1	0.011746
21	2036	5	1	0.051466
21	2036	9	30	0
21	2037	1	1	0.937089
21	2037	2	1	0.011746
21	2037	5	1	0.051165
21	2037	9	30	0
21	2038	1	1	0.937317
21	2038	2	1	0.011746
21	2038	5	1	0.050937
21	2038	9	30	0
21	2039	1	1	0.937338
21	2039	2	1	0.011746
21	2039	5	1	0.050916
21	2039	9	30	0
21	2040	1	1	0.937356
21	2040	2	1	0.011746
21	2040	5	1	0.050898
21	2040	9	30	0
21	2041	1	1	0.937356
21	2041	2	1	0.011746
21	2041	5	1	0.050898
21	2041	9	30	0
21	2042	1	1	0.937356
21	2042	2	1	0.011746
21	2042	5	1	0.050898
21	2042	9	30	0
21	2043	1	1	0.937356
21	2043	2	1	0.011746
21	2043	5	1	0.050898
21	2043	9	30	0
21	2044	1	1	0.937356
21	2044	2	1	0.011746
21	2044	5	1	0.050898
21	2044	9	30	0
21	2045	1	1	0.937356
21	2045	2	1	0.011746
21	2045	5	1	0.050898
21	2045	9	30	0
21	2046	1	1	0.937356
21	2046	2	1	0.011746
21	2046	5	1	0.050898
21	2046	9	30	0

Source Type ID	Model Year	Fuel Type	Eng Tech ID	Fuel Eng Fraction
21	2047	1	1	0.937356
21	2047	2	1	0.011746
21	2047	5	1	0.050898
21	2047	9	30	0
21	2048	1	1	0.937356
21	2048	2	1	0.011746
21	2048	5	1	0.050898
21	2048	9	30	0
21	2049	1	1	0.937356
21	2049	2	1	0.011746
21	2049	5	1	0.050898
21	2049	9	30	0
21	2050	1	1	0.937356
21	2050	2	1	0.011746
21	2050	5	1	0.050898
21	2050	9	30	0
62	1960	2	1	1
62	1961	2	1	1
62	1962	2	1	1
62	1963	2	1	1
62	1964	2	1	1
62	1965	2	1	1
62	1966	2	1	1
62	1967	2	1	1
62	1968	2	1	1
62	1969	2	1	1
62	1970	2	1	1
62	1971	2	1	1
62	1972	2	1	1
62	1973	2	1	1
62	1974	2	1	1
62	1975	2	1	1
62	1976	2	1	1
62	1977	2	1	1
62	1978	2	1	1
62	1979	2	1	1
62	1980	2	1	1
62	1981	2	1	1
62	1982	2	1	1
62	1983	2	1	1
62	1984	2	1	1
62	1985	2	1	1
62	1986	2	1	1
62	1987	2	1	1
62	1988	2	1	1
62	1989	2	1	1
62	1990	2	1	1
62	1991	2	1	1
62	1992	2	1	1
62	1993	2	1	1

Source Type ID	Model Year	Fuel Type	Eng Tech ID	Fuel Eng Fraction
62	1994	2	1	1
62	1995	2	1	1
62	1996	2	1	1
62	1997	2	1	1
62	1998	2	1	1
62	1999	2	1	1
62	2000	2	1	1
62	2001	2	1	1
62	2002	2	1	1
62	2003	2	1	1
62	2004	2	1	1
62	2005	2	1	1
62	2006	2	1	1
62	2007	2	1	1
62	2008	2	1	1
62	2009	2	1	1
62	2010	2	1	1
62	2011	2	1	1
62	2012	2	1	1
62	2013	2	1	1
62	2014	2	1	1
62	2015	2	1	1
62	2016	2	1	1
62	2017	2	1	1
62	2018	2	1	1
62	2019	2	1	1
62	2020	2	1	1
62	2021	2	1	1
62	2022	2	1	1

Source Type ID	Model Year	Fuel Type	Eng Tech ID	Fuel Eng Fraction
62	2023	2	1	1
62	2024	2	1	1
62	2025	2	1	1
62	2026	2	1	1
62	2027	2	1	1
62	2028	2	1	1
62	2029	2	1	1
62	2030	2	1	1
62	2031	2	1	1
62	2032	2	1	1
62	2033	2	1	1
62	2034	2	1	1
62	2035	2	1	1
62	2036	2	1	1
62	2037	2	1	1
62	2038	2	1	1
62	2039	2	1	1
62	2040	2	1	1
62	2041	2	1	1
62	2042	2	1	1
62	2043	2	1	1
62	2044	2	1	1
62	2045	2	1	1
62	2046	2	1	1
62	2047	2	1	1
62	2048	2	1	1
62	2049	2	1	1
62	2050	2	1	1

Table 5-15 MOVES Project Data Manager—Hotelling

Begin Model Year	End Model Year	Op Mode	Op Mode Fraction
2008	2009	200	1
2008	2009	201	0
2008	2009	203	0
2008	2009	204	0
2010	2050	200	0.7
2010	2050	201	0.3
2010	2050	203	0
2010	2050	204	0

Table 5-16 MOVES Project Data Manager—Operating Mode Distribution

Source Type	Hour Day	Link	Pol Process	Op Mode	Op Mode Fraction
21	185	69	101	0	0
21	185	69	101	1	0
21	185	69	101	11	0
21	185	69	101	12	0
21	185	69	101	13	0
21	185	69	101	14	0
21	185	69	101	15	0
21	185	69	101	16	0
21	185	69	101	21	0
21	185	69	101	22	0
21	185	69	101	23	0
21	185	69	101	24	0
21	185	69	101	25	0
21	185	69	101	27	0
21	185	69	101	28	0
21	185	69	101	29	0
21	185	69	101	30	0
21	185	69	101	33	0
21	185	69	101	35	0
21	185	69	101	37	0
21	185	69	101	38	0
21	185	69	101	39	0
21	185	69	101	40	0
21	185	69	101	501	0
21	185	69	102	101	0
21	185	69	102	102	0
21	185	69	102	103	0
21	185	69	102	104	0
21	185	69	102	105	0
21	185	69	102	106	0
21	185	69	102	107	0
21	185	69	102	108	0
21	185	69	111	150	0
21	185	69	111	151	0
21	185	69	111	300	0
21	185	69	113	150	0
21	185	69	113	151	0
21	185	69	113	300	0
21	185	69	190	200	1
21	185	69	191	201	0
21	185	69	201	0	0
21	185	69	201	1	0
21	185	69	201	11	0
21	185	69	201	12	0
21	185	69	201	13	0
21	185	69	201	14	0
21	185	69	201	15	0
21	185	69	201	16	0
21	185	69	201	21	0
21	185	69	201	22	0
21	185	69	201	23	0
21	185	69	201	24	0
21	185	69	201	25	0
21	185	69	201	27	0
21	185	69	201	28	0
21	185	69	201	29	0
21	185	69	201	30	0
21	185	69	201	33	0
21	185	69	201	35	0
21	185	69	201	37	0
21	185	69	201	38	0
21	185	69	201	39	0
21	185	69	201	40	0
21	185	69	201	501	0
21	185	69	202	101	0
21	185	69	202	102	0
21	185	69	202	103	0
21	185	69	202	104	0
21	185	69	202	105	0
21	185	69	202	106	0
21	185	69	202	107	0
21	185	69	202	108	0
21	185	69	290	200	1
21	185	69	291	201	0
21	185	69	301	0	0
21	185	69	301	1	0
21	185	69	301	11	0
21	185	69	301	12	0
21	185	69	301	13	0
21	185	69	301	14	0
21	185	69	301	15	0
21	185	69	301	16	0
21	185	69	301	21	0
21	185	69	301	22	0
21	185	69	301	23	0
21	185	69	301	24	0
21	185	69	301	25	0
21	185	69	301	27	0
21	185	69	301	28	0
21	185	69	301	29	0
21	185	69	301	30	0
21	185	69	301	33	0

Source Type	Hour Day	Link	Pol Process	Op Mode	Op Mode Fraction
21	185	69	301	35	0
21	185	69	301	37	0
21	185	69	301	38	0
21	185	69	301	39	0
21	185	69	301	40	0
21	185	69	301	501	0
21	185	69	302	101	0
21	185	69	302	102	0
21	185	69	302	103	0
21	185	69	302	104	0
21	185	69	302	105	0
21	185	69	302	106	0
21	185	69	302	107	0
21	185	69	302	108	0
21	185	69	390	200	1
21	185	69	391	201	0
21	185	69	501	300	0
21	185	69	502	100	0
21	185	69	601	300	0
21	185	69	602	100	0
21	185	69	9090	200	1
21	185	69	9101	0	0
21	185	69	9101	1	0
21	185	69	9101	11	0
21	185	69	9101	12	0
21	185	69	9101	13	0
21	185	69	9101	14	0
21	185	69	9101	15	0
21	185	69	9101	16	0
21	185	69	9101	21	0
21	185	69	9101	22	0
21	185	69	9101	23	0
21	185	69	9101	24	0
21	185	69	9101	25	0
21	185	69	9101	27	0
21	185	69	9101	28	0
21	185	69	9101	29	0
21	185	69	9101	30	0
21	185	69	9101	33	0
21	185	69	9101	35	0
21	185	69	9101	37	0
21	185	69	9101	38	0
21	185	69	9101	39	0
21	185	69	9101	40	0
21	185	69	9101	501	0
21	185	69	9102	100	0
21	185	69	9102	101	0
21	185	69	9102	102	0
21	185	69	9102	103	0
21	185	69	9102	104	0

Source Type	Hour Day	Link	Pol Process	Op Mode	Op Mode Fraction
21	185	69	9102	105	0
21	185	69	9102	106	0
21	185	69	9102	107	0
21	185	69	9102	108	0
21	185	69	9190	200	1
21	185	69	9191	201	0
21	185	69	9890	200	1
21	185	69	11201	0	0
21	185	69	11201	1	0
21	185	69	11201	11	0
21	185	69	11201	12	0
21	185	69	11201	13	0
21	185	69	11201	14	0
21	185	69	11201	15	0
21	185	69	11201	16	0
21	185	69	11201	21	0
21	185	69	11201	22	0
21	185	69	11201	23	0
21	185	69	11201	24	0
21	185	69	11201	25	0
21	185	69	11201	27	0
21	185	69	11201	28	0
21	185	69	11201	29	0
21	185	69	11201	30	0
21	185	69	11201	33	0
21	185	69	11201	35	0
21	185	69	11201	37	0
21	185	69	11201	38	0
21	185	69	11201	39	0
21	185	69	11201	40	0
21	185	69	11201	501	0
21	185	69	11202	101	0
21	185	69	11202	102	0
21	185	69	11202	103	0
21	185	69	11202	104	0
21	185	69	11202	105	0
21	185	69	11202	106	0
21	185	69	11202	107	0
21	185	69	11202	108	0
21	185	69	11290	200	1
21	185	69	11291	201	0
21	185	69	11590	200	1
21	185	69	11801	0	0
21	185	69	11801	1	0
21	185	69	11801	11	0
21	185	69	11801	12	0
21	185	69	11801	13	0
21	185	69	11801	14	0
21	185	69	11801	15	0
21	185	69	11801	16	0

Source Type	Hour Day	Link	Pol Process	Op Mode	Op Mode Fraction
21	185	69	11801	21	0
21	185	69	11801	22	0
21	185	69	11801	23	0
21	185	69	11801	24	0
21	185	69	11801	25	0
21	185	69	11801	27	0
21	185	69	11801	28	0
21	185	69	11801	29	0
21	185	69	11801	30	0
21	185	69	11801	33	0
21	185	69	11801	35	0
21	185	69	11801	37	0
21	185	69	11801	38	0
21	185	69	11801	39	0
21	185	69	11801	40	0
21	185	69	11801	501	0
21	185	69	11802	101	0
21	185	69	11802	102	0
21	185	69	11802	103	0
21	185	69	11802	104	0
21	185	69	11802	105	0
21	185	69	11802	106	0
21	185	69	11802	107	0
21	185	69	11802	108	0
21	185	69	11890	200	1
21	185	69	11891	201	0
62	185	69	101	0	0
62	185	69	101	1	0
62	185	69	101	11	0
62	185	69	101	12	0
62	185	69	101	13	0
62	185	69	101	14	0
62	185	69	101	15	0
62	185	69	101	16	0
62	185	69	101	21	0
62	185	69	101	22	0
62	185	69	101	23	0
62	185	69	101	24	0
62	185	69	101	25	0
62	185	69	101	27	0
62	185	69	101	28	0
62	185	69	101	29	0
62	185	69	101	30	0
62	185	69	101	33	0
62	185	69	101	35	0
62	185	69	101	37	0
62	185	69	101	38	0
62	185	69	101	39	0
62	185	69	101	40	0
62	185	69	101	501	0

Source Type	Hour Day	Link	Pol Process	Op Mode	Op Mode Fraction
62	185	69	102	101	0
62	185	69	102	102	0
62	185	69	102	103	0
62	185	69	102	104	0
62	185	69	102	105	0
62	185	69	102	106	0
62	185	69	102	107	0
62	185	69	102	108	0
62	185	69	111	150	0
62	185	69	111	151	0
62	185	69	111	300	0
62	185	69	113	150	0
62	185	69	113	151	0
62	185	69	113	300	0
62	185	69	190	200	1
62	185	69	191	201	0
62	185	69	201	0	0
62	185	69	201	1	0
62	185	69	201	11	0
62	185	69	201	12	0
62	185	69	201	13	0
62	185	69	201	14	0
62	185	69	201	15	0
62	185	69	201	16	0
62	185	69	201	21	0
62	185	69	201	22	0
62	185	69	201	23	0
62	185	69	201	24	0
62	185	69	201	25	0
62	185	69	201	27	0
62	185	69	201	28	0
62	185	69	201	29	0
62	185	69	201	30	0
62	185	69	201	33	0
62	185	69	201	35	0
62	185	69	201	37	0
62	185	69	201	38	0
62	185	69	201	39	0
62	185	69	201	40	0
62	185	69	201	501	0
62	185	69	202	101	0
62	185	69	202	102	0
62	185	69	202	103	0
62	185	69	202	104	0
62	185	69	202	105	0
62	185	69	202	106	0
62	185	69	202	107	0
62	185	69	202	108	0
62	185	69	290	200	1
62	185	69	291	201	0

Source Type	Hour Day	Link	Pol Process	Op Mode	Op Mode Fraction
62	185	69	301	0	0
62	185	69	301	1	0
62	185	69	301	11	0
62	185	69	301	12	0
62	185	69	301	13	0
62	185	69	301	14	0
62	185	69	301	15	0
62	185	69	301	16	0
62	185	69	301	21	0
62	185	69	301	22	0
62	185	69	301	23	0
62	185	69	301	24	0
62	185	69	301	25	0
62	185	69	301	27	0
62	185	69	301	28	0
62	185	69	301	29	0
62	185	69	301	30	0
62	185	69	301	33	0
62	185	69	301	35	0
62	185	69	301	37	0
62	185	69	301	38	0
62	185	69	301	39	0
62	185	69	301	40	0
62	185	69	301	501	0
62	185	69	302	101	0
62	185	69	302	102	0
62	185	69	302	103	0
62	185	69	302	104	0
62	185	69	302	105	0
62	185	69	302	106	0
62	185	69	302	107	0
62	185	69	302	108	0
62	185	69	390	200	1
62	185	69	391	201	0
62	185	69	501	300	0
62	185	69	502	100	0
62	185	69	601	300	0
62	185	69	602	100	0
62	185	69	9090	200	1
62	185	69	9101	0	0
62	185	69	9101	1	0
62	185	69	9101	11	0
62	185	69	9101	12	0
62	185	69	9101	13	0
62	185	69	9101	14	0
62	185	69	9101	15	0
62	185	69	9101	16	0
62	185	69	9101	21	0
62	185	69	9101	22	0
62	185	69	9101	23	0

Source Type	Hour Day	Link	Pol Process	Op Mode	Op Mode Fraction
62	185	69	9101	24	0
62	185	69	9101	25	0
62	185	69	9101	27	0
62	185	69	9101	28	0
62	185	69	9101	29	0
62	185	69	9101	30	0
62	185	69	9101	33	0
62	185	69	9101	35	0
62	185	69	9101	37	0
62	185	69	9101	38	0
62	185	69	9101	39	0
62	185	69	9101	40	0
62	185	69	9101	501	0
62	185	69	9102	100	0
62	185	69	9102	101	0
62	185	69	9102	102	0
62	185	69	9102	103	0
62	185	69	9102	104	0
62	185	69	9102	105	0
62	185	69	9102	106	0
62	185	69	9102	107	0
62	185	69	9102	108	0
62	185	69	9190	200	1
62	185	69	9191	201	0
62	185	69	9890	200	1
62	185	69	11201	0	0
62	185	69	11201	1	0
62	185	69	11201	11	0
62	185	69	11201	12	0
62	185	69	11201	13	0
62	185	69	11201	14	0
62	185	69	11201	15	0
62	185	69	11201	16	0
62	185	69	11201	21	0
62	185	69	11201	22	0
62	185	69	11201	23	0
62	185	69	11201	24	0
62	185	69	11201	25	0
62	185	69	11201	27	0
62	185	69	11201	28	0
62	185	69	11201	29	0
62	185	69	11201	30	0
62	185	69	11201	33	0
62	185	69	11201	35	0
62	185	69	11201	37	0
62	185	69	11201	38	0
62	185	69	11201	39	0
62	185	69	11201	40	0
62	185	69	11201	501	0
62	185	69	11202	101	0

Source Type	Hour Day	Link	Pol Process	Op Mode	Op Mode Fraction
62	185	69	11202	102	0
62	185	69	11202	103	0
62	185	69	11202	104	0
62	185	69	11202	105	0
62	185	69	11202	106	0
62	185	69	11202	107	0
62	185	69	11202	108	0
62	185	69	11290	200	1
62	185	69	11291	201	0
62	185	69	11590	200	1
62	185	69	11801	0	0
62	185	69	11801	1	0
62	185	69	11801	11	0
62	185	69	11801	12	0
62	185	69	11801	13	0
62	185	69	11801	14	0
62	185	69	11801	15	0
62	185	69	11801	16	0
62	185	69	11801	21	0
62	185	69	11801	22	0
62	185	69	11801	23	0
62	185	69	11801	24	0
62	185	69	11801	25	0

Source Type	Hour Day	Link	Pol Process	Op Mode	Op Mode Fraction
62	185	69	11801	27	0
62	185	69	11801	28	0
62	185	69	11801	29	0
62	185	69	11801	30	0
62	185	69	11801	33	0
62	185	69	11801	35	0
62	185	69	11801	37	0
62	185	69	11801	38	0
62	185	69	11801	39	0
62	185	69	11801	40	0
62	185	69	11801	501	0
62	185	69	11802	101	0
62	185	69	11802	102	0
62	185	69	11802	103	0
62	185	69	11802	104	0
62	185	69	11802	105	0
62	185	69	11802	106	0
62	185	69	11802	107	0
62	185	69	11802	108	0
62	185	69	11890	200	1
62	185	69	11891	201	0

Table 5-17 MOVES Project Data Manager—Off-Network—No-Action Alternative

Zone	Source Type	Vehicle Population	Start Fraction	Extended Idle Fraction	Parked Vehicle Fraction
450190	21	0	0	0	0
450190	62	0	0	0	0

Table 5-18 MOVES Project Data Manager—Off-Network—Alternatives 1 through 7

Zone	Source Type	Vehicle Population	Start Fraction	Extended Idle Fraction	Parked Vehicle Fraction
450190	21	0	0	0	0
450190	62	162	0	1	0

Table 5-19 MOVES Project Data Manager—Links—No-Action Alternative

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
1	45019	450190	4	0.7197	###	60	I-26; Cosgrove to Meeting (Future PAR)	0
2	45019	450190	4	0.8522	###	60	I-26; Meeting (Future PAR) to Heriot Street	0
3	45019	450190	4	0.2462	###	60	I-26; Heriot Street to Mount Pleasant	0
4	45019	450190	4	0.4735	288	45	I-26 EB Ramps; EB Off to Meeting (Future EB Off to Meeting & PAR)	0.06
5	45019	450190	4	0.5114	146	45	I-26 EB Ramps; Future EB Off Split to Meeting	0.06
6	45019	450190	4	0.5114	142	45	I-26 EB Ramps; Future EB Off Split to Port Access Rd	0.06
7	45019	450190	4	0.2273	133	45	I-26 EB Ramps; Future EB On from Port Access Rd	0.06
8	45019	450190	4	0.4735	375	45	I-26 WB Ramps; WB On from Meeting (Future WB On from Meeting & PAR)	0.06
9	45019	450190	4	0.4053	196	45	I-26 WB Ramps; Future WB On Split from Meeting	0.06
10	45019	450190	4	0.4053	179	45	I-26 WB Ramps; Future WB On Split from Port Access Rd	0.06
11	45019	450190	4	0.4545	133	45	I-26 WB Ramps; Future WB Off to Port Access Rd	0.06
12	45019	450190	5	0.5682	938	30	US-52: Helm Ave to McMillan Ave	0
13	45019	450190	5	0.2045	858	30	US-52:McMillan Ave to Dorchester Rd	0
14	45019	450190	5	0.1515	850	30	US-52: Dorchester Rd to Cosgrove Ave	0
15	45019	450190	5	0.2277	713	30	US-52: Cosgrove Ave to Reynolds Ave	0
16	45019	450190	5	0.2652	642	30	US-52: Reynolds Ave to US-78	0
17	45019	450190	5	0.4159	375	30	US-52: US-78 to Burton Lane	0
18	45019	450190	5	0.2225	88	35	SC-7 Cosgrove Ave; East of Spruill Ave (Future Clemson ICTF Spruill to Noisette)	0
19	45019	450190	5	0.2795	621	35	SC-7 Cosgrove Ave; Spruill Ave to Rivers Ave	0
20	45019	450190	5	0.6222	###	35	SC-7 Cosgrove Ave; Rivers Ave to Azalea Drive	0
21	45019	450190	5	0.5947	367	40	Spruill Ave; Montague Ave to Aragon Ave	0
22	45019	450190	5	0.9127	692	40	Spruill Ave; Aragon Ave to McMillan Ave	0
23	45019	450190	5	0.1449	925	40	Spruill Ave; McMillan Ave to Cosgrove Ave	0
24	45019	450190	5	0.2898	563	40	Spruill Ave; Cosgrove Ave to Reynolds Ave	0
25	45019	450190	5	0.4394	563	40	Spruill Ave; Reynolds Ave to N. Carolina Ave	0
26	45019	450190	5	0.4023	592	40	Spruill Ave; N. Carolina Ave to Burton Lane	0
27	45019	450190	5	0.2652	558	40	Spruill Ave; Burton Lane to Stromboli Ave	0
28	45019	450190	5	0.5966	513	40	Spruill Ave; Stromboli Ave to I-26 Ramps	0
29	45019	450190	5	0.3193	483	30	McMillan Ave; Rivers Ave to Spruill Ave	0
30	45019	450190	5	0.3883	438	30	McMillan Ave; St. Johns Ave to Noisette Boulevard	0
31	45019	450190	5	0.2396	425	45	Virginia Ave; Montague Ave to Ave B	0
32	45019	450190	5	0.0417	171	45	Virginia Ave; Ave B to Buist Ave	0
33	45019	450190	5	0.3011	433	30	Clement/Burton/Viaduct; Spruill Ave to Viaduct Ramps	0
34	45019	450190	5	0.0947	288	30	Clement/Burton/Viaduct; Viaduct Ramps to Hobson Ave	0
35	45019	450190	5	0.9185	446	35	Azalea Drive; Cosgrove Ave to US-78	0
36	45019	450190	5	0.32	54	30	Stromboli Ave; Future Local Access Rd to Spruill Ave	0
37	45019	450190	4	0.267	496	30	Bainbridge Ave; Viaduct Ramp to Future Local Access Rd	0.06
38	45019	450190	5	0.35	421	30	Bainbridge Ave; East of Future Local Access Rd	0
39	45019	450190	5	0.6837	321	30	North Hobson Ave; McMillan Ave to Future Clemson ICTF Employee Dwy	0
40	45019	450190	5	0.1	321	30	North Hobson Ave; Future Clemson ICTF Employee	0

Table 5-19 MOVES Project Data Manager—Links—No-Action Alternative

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
							Dwy to Future Clemson ICTF Truck Dwy	
41	45019	450190	5	0.3116	271	30	North Hobson Ave; Future Clemson ICTF Truck Dwy to Viaduct Rd	0
42	45019	450190	5	0.2614	75	30	South Hobson Ave; East of Viaduct Rd (Future North of S Hobson/Local Access Rd)	0
43	45019	450190	5	0.7169	304	30	Noisette Boulevard; Ave B to Turnbull Ave	0
44	45019	450190	5	0.2557	338	30	Noisette Boulevard; Turnbull Ave to McMillan Ave	0
45	45019	450190	5	0.125	342	30	Ave B; Virginia Ave to Noisette Boulevard	0
46	45019	450190	5	0.1	0	30	Future Clemson ICTF Employee Dwy; South of N Hobson Ave	0
47	45019	450190	5	0.1	0	30	Future Clemson ICTF Truck Dwy; South of N Hobson Ave	0
48	45019	450190	5	0.1383	0	30	Future RC ICTF Employee Dwy; North of St Johns Ave	0
49	45019	450190	5	0.3011	0	30	Future RC ICTF Truck Dwy; North of Spruill Ave	0
50	45019	450190	5	0.644	604	30	Future Port Access Rd; I-26 to Future Local Access Rd	0
51	45019	450190	5	0.1	67	30	Future Port Access Rd; Off-Ramp to Local Access Rd	0
52	45019	450190	5	0.1	67	30	Future Port Access Rd; On-Ramp from Local Access Rd	0
53	45019	450190	5	0.2652	458	30	Future Port Access Rd; Future Local Access Rd to Future Navy Base Port Terminal	0
54	45019	450190	5	0.2973	0	30	Future Local Access Rd; South Hobson Ave to Bainbridge Ave	0
55	45019	450190	5	0.2604	204	30	Future Local Access Rd; Bainbridge Ave to Future Stromboli Ave Ext	0
56	45019	450190	5	0.3267	158	30	Future Local Access Rd; Future Stromboli Ave Ext to Future Port Access Rd On-Ramp	0
57	45019	450190	5	0.1	71	30	Future Local Access Rd; Future Port Access Rd On-Ramp to Future Port Access Rd Off-Ramp	0
58	45019	450190	5	0.2519	300	30	US-52 (Meeting Street); Hackeman Ave to I-26 Ramps	0
59	45019	450190	5	0.3788	454	30	US-52 (Meeting Street); I-26 Ramps to Spruill Ave	0
60	45019	450190	5	0.1383	971	30	US-52 (Meeting Street); Spruill Ave to Pittsburg Ave	0
61	45019	450190	5	0.142	950	30	US-52 (Meeting Street); Pittsburg Ave to Discher St	0
62	45019	450190	5	0.2652	917	30	US-52 (Meeting Street); Discher St to Herbert St	0
63	45019	450190	5	0.0947	900	30	US-52 (Meeting Street); Herbert St to Milford St	0
64	45019	450190	5	0.1799	633	35	US-78 (King St Ext); Azalea Dr to Hackemann Ave	0
65	45019	450190	5	0.7178	596	35	US-78 (King St Ext); Hackemann Ave to Summerville Ave	0
66	45019	450190	5	0.3598	583	35	US-78 (King St Ext); Summerville Ave to Discher St	0
67	45019	450190	5	0.2273	596	35	US-78 (King St Ext); Discher St to Hagood St	0
68	45019	450190	5	0.2036	575	40	Spruill Ave; I-26 Ramps to Meeting Street	0
69	45019	450190	1	0	0	0	On-site Truck Idling	0

Table 5-20 MOVES Project Data Manager—Links—Alternatives 1 and 3

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
1	45019	450190	4	0.7197	4425	60	I-26; Cosgrove to Meeting (Future PAR)	0
2	45019	450190	4	0.8522	4313	60	I-26; Meeting (Future PAR) to Heriot Street	0
3	45019	450190	4	0.2462	3829	60	I-26; Heriot Street to Mount Pleasant	0
4	45019	450190	4	0.4735	254	45	I-26 EB Ramps; EB Off to Meeting (Future EB Off to Meeting & PAR)	0.06
5	45019	450190	4	0.5114	146	45	I-26 EB Ramps; Future EB Off Split to Meeting	0.06
6	45019	450190	4	0.5114	108	45	I-26 EB Ramps; Future EB Off Split to Port Access Rd	0.06
7	45019	450190	4	0.2273	179	45	I-26 EB Ramps; Future EB On from Port Access Rd	0.06
8	45019	450190	4	0.4735	300	45	I-26 WB Ramps;WB On from Meeting (Future WB On from Meeting & PAR)	0.06
9	45019	450190	4	0.4053	183	45	I-26 WB Ramps;Future WB On Split from Meeting	0.06
10	45019	450190	4	0.4053	117	45	I-26 WB Ramps;Future WB On Split from Port Access Rd	0.06
11	45019	450190	4	0.4545	196	45	I-26 WB Ramps;Future WB Off to Port Access Rd	0.06
12	45019	450190	5	0.5682	917	30	US-52: Helm Ave to McMillan Ave	0
13	45019	450190	5	0.2045	863	30	US-52:McMillan Ave to Dorchester Rd	0
14	45019	450190	5	0.1515	888	30	US-52: Dorchester Rd to Cosgrove Ave	0
15	45019	450190	5	0.2277	700	30	US-52: Cosgrove Ave to Reynolds Ave	0
16	45019	450190	5	0.2652	625	30	US-52: Reynolds Ave to US-78	0
17	45019	450190	5	0.4159	358	30	US-52: US-78 to Burton Lane	0
18	45019	450190	5	0.4129	613	35	SC-7 Cosgrove Ave;East of Spruill Ave (Future Clemson ICTF Spruill to Noisette)	0
19	45019	450190	5	0.2795	721	35	SC-7 Cosgrove Ave; Spruill Ave to Rivers Ave	0
20	45019	450190	5	0.6222	1092	35	SC-7 Cosgrove Ave; Rivers Ave to Azalea Drive	0
21	45019	450190	5	0.5947	367	40	Spruill Ave; Montague Ave to Aragon Ave	0
22	45019	450190	5	0.9127	696	40	Spruill Ave; Aragon Ave to McMillan Ave	0
23	45019	450190	5	0.1449	867	40	Spruill Ave; McMillan Ave to Cosgrove Ave	0
24	45019	450190	5	0.2898	600	40	Spruill Ave; Cosgrove Ave to Reynolds Ave	0
25	45019	450190	5	0.4394	608	40	Spruill Ave; Reynolds Ave to N. Carolina Ave	0
26	45019	450190	5	0.4023	642	40	Spruill Ave; N. Carolina Ave to Burton Lane	0
27	45019	450190	5	0.2652	654	40	Spruill Ave; Burton Lane to Stromboli Ave	0
28	45019	450190	5	0.5966	479	40	Spruill Ave; Stromboli Ave to I-26 Ramps	0
29	45019	450190	5	0.3193	458	30	McMillan Ave; Rivers Ave to Spruill Ave	0
30	45019	450190	5	0.3883	0	30	McMillan Ave; St. Johns Ave to Noisette Boulevard	0
31	45019	450190	5	0.2396	479	45	Virginia Ave; Montague Ave to Ave B	0
32	45019	450190	5	0.0417	121	45	Virginia Ave; Ave B to Buist Ave	0
33	45019	450190	5	0.3011	0	30	Clement/Burton/Viaduct; Spruill Ave to Viaduct Ramps	0
34	45019	450190	5	0.0947	0	30	Clement/Burton/Viaduct; Viaduct Ramps to Hobson Ave	0
35	45019	450190	5	0.9185	446	35	Azalea Drive; Cosgrove Ave to US-78	0
36	45019	450190	5	0.32	138	30	Stromboli Ave; Future Local Access Rd to Spruill Ave	0
37	45019	450190	4	0.267	0	30	Bainbridge Ave; Viaduct Ramp to Future Local Access Rd	0.06
38	45019	450190	5	0.35	467	30	Bainbridge Ave; East of Future Local Access Rd	0
39	45019	450190	5	0.6837	296	30	North Hobson Ave; McMillan Ave to Future Clemson ICTF Employee Dwy	0
40	45019	450190	5	0.1	279	30	North Hobson Ave; Future Clemson ICTF Employee Dwy to Future Clemson ICTF Truck Dwy	0
41	45019	450190	5	0.3116	296	30	North Hobson Ave; Future Clemson ICTF Truck Dwy to Viaduct Rd	0
42	45019	450190	5	0.2614	75	30	South Hobson Ave; East of Viaduct Rd (Future North of S Hobson/Local Access Rd)	0
43	45019	450190	5	0.7169	396	30	Noisette Boulevard; Ave B to Turnbull Ave	0

Table 5-20 MOVES Project Data Manager—Links—Alternatives 1 and 3

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
44	45019	450190	5	0.2557	446	30	Noisette Boulevard; Turnbull Ave to McMillan Ave	0
45	45019	450190	5	0.125	408	30	Ave B; Virginia Ave to Noisette Boulevard	0
46	45019	450190	5	0.1	46	30	Future Clemson ICTF Employee Dwy; South of N Hobson Ave	0
47	45019	450190	5	0.1	104	30	Future Clemson ICTF Truck Dwy; South of N Hobson Ave	0
48	45019	450190	5	0.1383	0	30	Future RC ICTF Employee Dwy; North of St Johns Ave	0
49	45019	450190	5	0.3011	0	30	Future RC ICTF Truck Dwy; North of Spruill Ave	0
50	45019	450190	5	0.644	633	30	Future Port Access Rd; I-26 to Future Local Access Rd	0
51	45019	450190	5	0.1	113	30	Future Port Access Rd; Off-Ramp to Local Access Rd	0
52	45019	450190	5	0.1	104	30	Future Port Access Rd; On-Ramp from Local Access Rd	0
53	45019	450190	5	0.2652	400	30	Future Port Access Rd; Future Local Access Rd to Future Navy Base Port Terminal	0
54	45019	450190	5	0.2973	296	30	Future Local Access Rd; South Hobson Ave to Bainbridge Ave	0
55	45019	450190	5	0.2604	350	30	Future Local Access Rd; Bainbridge Ave to Future Stromboli Ave Ext	0
56	45019	450190	5	0.3267	238	30	Future Local Access Rd; Future Stromboli Ave Ext to Future Port Access Rd On-Ramp	0
57	45019	450190	5	0.1	113	30	Future Local Access Rd; Future Port Access Rd On-Ramp to Future Port Access Rd Off-Ramp	0
58	45019	450190	5	0.2519	292	30	US-52 (Meeting Street); Hackeman Ave to I-26 Ramps	0
59	45019	450190	5	0.3788	433	30	US-52 (Meeting Street); I-26 Ramps to Spruill Ave	0
60	45019	450190	5	0.1383	954	30	US-52 (Meeting Street); Spruill Ave to Pittsburg Ave	0
61	45019	450190	5	0.142	933	30	US-52 (Meeting Street); Pittsburg Ave to Discher St	0
62	45019	450190	5	0.2652	900	30	US-52 (Meeting Street); Discher St to Herbert St	0
63	45019	450190	5	0.0947	883	30	US-52 (Meeting Street); Herbert St to Milford St	0
64	45019	450190	5	0.1799	621	35	US-78 (King St Ext); Azalea Dr to Hackemann Ave	0
65	45019	450190	5	0.7178	583	35	US-78 (King St Ext); Hackemann Ave to Summerville Ave	0
66	45019	450190	5	0.3598	571	35	US-78 (King St Ext); Summerville Ave to Discher St	0
67	45019	450190	5	0.2273	583	35	US-78 (King St Ext); Discher St to Hagood St	0
68	45019	450190	5	0.2036	554	40	Spruill Ave; I-26 Ramps to Meeting Street	0
69	45019	450190	1	0	0	0	On-site Truck Idling	0

Table 5-21 MOVES Project Data Manager—Links—Alternatives 2 and 4

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
1	45019	450190	4	0.7197	4425	60	I-26; Cosgrove to Meeting (Future PAR)	0
2	45019	450190	4	0.8522	4313	60	I-26; Meeting (Future PAR) to Heriot Street	0
3	45019	450190	4	0.2462	3829	60	I-26; Heriot Street to Mount Pleasant	0
4	45019	450190	4	0.4735	254	45	I-26 EB Ramps; EB Off to Meeting (Future EB Off to Meeting & PAR)	0.06
5	45019	450190	4	0.5114	146	45	I-26 EB Ramps; Future EB Off Split to Meeting	0.06
6	45019	450190	4	0.5114	108	45	I-26 EB Ramps; Future EB Off Split to Port Access Rd	0.06
7	45019	450190	4	0.2273	179	45	I-26 EB Ramps; Future EB On from Port Access Rd	0.06
8	45019	450190	4	0.4735	300	45	I-26 WB Ramps;WB On from Meeting (Future WB On from Meeting & PAR)	0.06
9	45019	450190	4	0.4053	183	45	I-26 WB Ramps; Future WB On Split from Meeting	0.06
10	45019	450190	4	0.4053	117	45	I-26 WB Ramps; Future WB On Split from Port Access Rd	0.06
11	45019	450190	4	0.4545	196	45	I-26 WB Ramps; Future WB Off to Port Access Rd	0.06
12	45019	450190	5	0.5682	917	30	US-52: Helm Ave to McMillan Ave	0
13	45019	450190	5	0.2045	863	30	US-52:McMillan Ave to Dorchester Rd	0
14	45019	450190	5	0.1515	888	30	US-52: Dorchester Rd to Cosgrove Ave	0
15	45019	450190	5	0.2277	700	30	US-52: Cosgrove Ave to Reynolds Ave	0
16	45019	450190	5	0.2652	625	30	US-52: Reynolds Ave to US-78	0
17	45019	450190	5	0.4159	358	30	US-52: US-78 to Burton Lane	0
18	45019	450190	5	0.4129	738	35	SC-7 Cosgrove Ave; East of Spruill Ave (Future Clemson ICTF Spruill to Noisette)	0
19	45019	450190	5	0.2795	721	35	SC-7 Cosgrove Ave; Spruill Ave to Rivers Ave	0
20	45019	450190	5	0.6222	1092	35	SC-7 Cosgrove Ave; Rivers Ave to Azalea Drive	0
21	45019	450190	5	0.5947	367	40	Spruill Ave; Montague Ave to Aragon Ave	0
22	45019	450190	5	0.9127	692	40	Spruill Ave; Aragon Ave to McMillan Ave	0
23	45019	450190	5	0.1449	779	40	Spruill Ave; McMillan Ave to Cosgrove Ave	0
24	45019	450190	5	0.2898	600	40	Spruill Ave; Cosgrove Ave to Reynolds Ave	0
25	45019	450190	5	0.4394	608	40	Spruill Ave; Reynolds Ave to N. Carolina Ave	0
26	45019	450190	5	0.4023	642	40	Spruill Ave; N. Carolina Ave to Burton Lane	0
27	45019	450190	5	0.2652	654	40	Spruill Ave; Burton Lane to Stromboli Ave	0
28	45019	450190	5	0.5966	479	40	Spruill Ave; Stromboli Ave to I-26 Ramps	0
29	45019	450190	5	0.3193	458	30	McMillan Ave; Rivers Ave to Spruill Ave	0
30	45019	450190	5	0.3883	0	30	McMillan Ave; St. Johns Ave to Noisette Boulevard	0
31	45019	450190	5	0.2396	479	45	Virginia Ave; Montague Ave to Ave B	0
32	45019	450190	5	0.0417	121	45	Virginia Ave; Ave B to Buist Ave	0
33	45019	450190	5	0.3011	0	30	Clement/Burton/Viaduct; Spruill Ave to Viaduct Ramps	0
34	45019	450190	5	0.0947	0	30	Clement/Burton/Viaduct; Viaduct Ramps to Hobson Ave	0
35	45019	450190	5	0.9185	446	35	Azalea Drive; Cosgrove Ave to US-78	0
36	45019	450190	5	0.32	138	30	Stromboli Ave; Future Local Access Rd to Spruill Ave	0
37	45019	450190	4	0.267	0	30	Bainbridge Ave; Viaduct Ramp to Future Local Access Rd	0.06
38	45019	450190	5	0.35	467	30	Bainbridge Ave; East of Future Local Access Rd	0
39	45019	450190	5	0.6837	296	30	North Hobson Ave; McMillan Ave to Future Clemson ICTF Employee Dwy	0
40	45019	450190	5	0.1	279	30	North Hobson Ave; Future Clemson ICTF Employee Dwy to Future Clemson ICTF Truck Dwy	0
41	45019	450190	5	0.3116	296	30	North Hobson Ave; Future Clemson ICTF Truck Dwy to Viaduct Rd	0
42	45019	450190	5	0.2614	75	30	South Hobson Ave; East of Viaduct Rd (Future North of S Hobson/Local Access Rd)	0
43	45019	450190	5	0.7169	371	30	Noisette Boulevard; Ave B to Turnbull Ave	0

Table 5-21 MOVES Project Data Manager—Links—Alternatives 2 and 4

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
44	45019	450190	5	0.2557	438	30	Noisette Boulevard; Turnbull Ave to McMillan Ave	0
45	45019	450190	5	0.125	408	30	Ave B; Virginia Ave to Noisette Boulevard	0
46	45019	450190	5	0.1	46	30	Future Clemson ICTF Employee Dwy; South of N Hobson Ave	0
47	45019	450190	5	0.1	104	30	Future Clemson ICTF Truck Dwy; South of N Hobson Ave	0
48	45019	450190	5	0.1383	0	30	Future RC ICTF Employee Dwy; North of St Johns Ave	0
49	45019	450190	5	0.3011	0	30	Future RC ICTF Truck Dwy; North of Spruill Ave	0
50	45019	450190	5	0.644	633	30	Future Port Access Rd; I-26 to Future Local Access Rd	0
51	45019	450190	5	0.1	113	30	Future Port Access Rd; Off-Ramp to Local Access Rd	0
52	45019	450190	5	0.1	104	30	Future Port Access Rd; On-Ramp from Local Access Rd	0
53	45019	450190	5	0.2652	400	30	Future Port Access Rd; Future Local Access Rd to Future Navy Base Port Terminal	0
54	45019	450190	5	0.2973	296	30	Future Local Access Rd; South Hobson Ave to Bainbridge Ave	0
55	45019	450190	5	0.2604	350	30	Future Local Access Rd; Bainbridge Ave to Future Stromboli Ave Ext	0
56	45019	450190	5	0.3267	238	30	Future Local Access Rd; Future Stromboli Ave Ext to Future Port Access Rd On-Ramp	0
57	45019	450190	5	0.1	113	30	Future Local Access Rd; Future Port Access Rd On-Ramp to Future Port Access Rd Off-Ramp	0
58	45019	450190	5	0.2519	292	30	US-52 (Meeting Street); Hackeman Ave to I-26 Ramps	0
59	45019	450190	5	0.3788	433	30	US-52 (Meeting Street); I-26 Ramps to Spruill Ave	0
60	45019	450190	5	0.1383	954	30	US-52 (Meeting Street); Spruill Ave to Pittsburg Ave	0
61	45019	450190	5	0.142	933	30	US-52 (Meeting Street); Pittsburg Ave to Discher St	0
62	45019	450190	5	0.2652	900	30	US-52 (Meeting Street); Discher St to Herbert St	0
63	45019	450190	5	0.0947	883	30	US-52 (Meeting Street); Herbert St to Milford St	0
64	45019	450190	5	0.1799	621	35	US-78 (King St Ext); Azalea Dr to Hackemann Ave	0
65	45019	450190	5	0.7178	583	35	US-78 (King St Ext); Hackemann Ave to Summerville Ave	0
66	45019	450190	5	0.3598	571	35	US-78 (King St Ext); Summerville Ave to Discher St	0
67	45019	450190	5	0.2273	583	35	US-78 (King St Ext); Discher St to Hagood St	0
68	45019	450190	5	0.2036	554	40	Spruill Ave; I-26 Ramps to Meeting Street	0
69	45019	450190	1	0	0	0	On-site Truck Idling	0

Table 5-22 MOVES Project Data Manager—Links—Alternatives 5, 6, and 7

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
1	45019	450190	4	0.7197	4492	60	I-26; Cosgrove to Meeting (Future PAR)	0
2	45019	450190	4	0.8522	4333	60	I-26; Meeting (Future PAR) to Heriot Street	0
3	45019	450190	4	0.2462	3842	60	I-26; Heriot Street to Mount Pleasant	0
4	45019	450190	4	0.4735	258	45	I-26 EB Ramps; EB Off to Meeting (Future EB Off to Meeting & PAR)	0.06
5	45019	450190	4	0.5114	150	45	I-26 EB Ramps; Future EB Off Split to Meeting	0.06
6	45019	450190	4	0.5114	108	45	I-26 EB Ramps; Future EB Off Split to Port Access Rd	0.06
7	45019	450190	4	0.2273	171	45	I-26 EB Ramps; Future EB On from Port Access Rd	0.06
8	45019	450190	4	0.4735	325	45	I-26 WB Ramps; WB On from Meeting (Future WB On from Meeting & PAR)	0.06
9	45019	450190	4	0.4053	196	45	I-26 WB Ramps; Future WB On Split from Meeting	0.06
10	45019	450190	4	0.4053	129	45	I-26 WB Ramps; Future WB On Split from Port Access Rd	0.06
11	45019	450190	4	0.4545	196	45	I-26 WB Ramps; Future WB Off to Port Access Rd	0.06
12	45019	450190	5	0.5682	867	30	US-52: Helm Ave to McMillan Ave	0
13	45019	450190	5	0.2045	917	30	US-52:McMillan Ave to Dorchester Rd	0
14	45019	450190	5	0.1515	888	30	US-52: Dorchester Rd to Cosgrove Ave	0
15	45019	450190	5	0.2277	742	30	US-52: Cosgrove Ave to Reynolds Ave	0
16	45019	450190	5	0.2652	671	30	US-52: Reynolds Ave to US-78	0
17	45019	450190	5	0.4159	400	30	US-52: US-78 to Burton Lane	0
18	45019	450190	5	0.1	0	35	SC-7 Cosgrove Ave; East of Spruill Ave (Future Clemson ICTF Spruill to Noisette)	0
19	45019	450190	5	0.2795	596	35	SC-7 Cosgrove Ave; Spruill Ave to Rivers Ave	0
20	45019	450190	5	0.6222	1075	35	SC-7 Cosgrove Ave; Rivers Ave to Azalea Drive	0
21	45019	450190	5	0.5947	463	40	Spruill Ave; Montague Ave to Aragon Ave	0
22	45019	450190	5	0.9127	796	40	Spruill Ave; Aragon Ave to McMillan Ave	0
23	45019	450190	5	0.1449	933	40	Spruill Ave; McMillan Ave to Cosgrove Ave	0
24	45019	450190	5	0.2898	579	40	Spruill Ave; Cosgrove Ave to Reynolds Ave	0
25	45019	450190	5	0.4394	571	40	Spruill Ave; Reynolds Ave to N. Carolina Ave	0
26	45019	450190	5	0.4023	613	40	Spruill Ave; N. Carolina Ave to Burton Lane	0
27	45019	450190	5	0.2652	688	40	Spruill Ave; Burton Lane to Stromboli Ave	0
28	45019	450190	5	0.5966	425	40	Spruill Ave; Stromboli Ave to I-26 Ramps	0
29	45019	450190	5	0.3193	354	30	McMillan Ave; Rivers Ave to Spruill Ave	0
30	45019	450190	5	0.3883	0	30	McMillan Ave; St. Johns Ave to Noisette Boulevard	0
31	45019	450190	5	0.2396	479	45	Virginia Ave; Montague Ave to Ave B	0
32	45019	450190	5	0.0417	308	45	Virginia Ave; Ave B to Buist Ave	0
33	45019	450190	5	0.3011	0	30	Clement/Burton/Viaduct; Spruill Ave to Viaduct Ramps	0
34	45019	450190	5	0.0947	0	30	Clement/Burton/Viaduct; Viaduct Ramps to Hobson Ave	0
35	45019	450190	5	0.9185	454	35	Azalea Drive; Cosgrove Ave to US-78	0
36	45019	450190	5	0.32	254	30	Stromboli Ave; Future Local Access Rd to Spruill Ave	0
37	45019	450190	4	0.267	0	30	Bainbridge Ave; Viaduct Ramp to Future Local Access Rd	0.06
38	45019	450190	5	0.35	442	30	Bainbridge Ave; East of Future Local Access Rd	0
39	45019	450190	5	0.6837	296	30	North Hobson Ave; McMillan Ave to Future Clemson ICTF Employee Dwy	0
40	45019	450190	5	0.1	296	30	North Hobson Ave; Future Clemson ICTF Employee Dwy to Future Clemson ICTF Truck Dwy	0
41	45019	450190	5	0.3116	329	30	North Hobson Ave; Future Clemson ICTF Truck Dwy to Viaduct Rd	0
42	45019	450190	5	0.2614	75	30	South Hobson Ave; East of Viaduct Rd (Future North of S Hobson/Local Access Rd)	0
43	45019	450190	5	0.7169	442	30	Noisette Boulevard; Ave B to Turnbull Ave	0

Table 5-22 MOVES Project Data Manager—Links—Alternatives 5, 6, and 7

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
44	45019	450190	5	0.2557	279	30	Noisette Boulevard; Turnbull Ave to McMillan Ave	0
45	45019	450190	5	0.125	488	30	Ave B; Virginia Ave to Noisette Boulevard	0
46	45019	450190	5	0.1	0	30	Future Clemson ICTF Employee Dwy; South of N Hobson Ave	0
47	45019	450190	5	0.1	0	30	Future Clemson ICTF Truck Dwy; South of N Hobson Ave	0
48	45019	450190	5	0.1383	46	30	Future RC ICTF Employee Dwy; North of St Johns Ave	0
49	45019	450190	5	0.3011	104	30	Future RC ICTF Truck Dwy; North of Spruill Ave	0
50	45019	450190	5	0.644	629	30	Future Port Access Rd; I-26 to Future Local Access Rd	0
51	45019	450190	5	0.1	117	30	Future Port Access Rd; Off-Ramp to Local Access Rd	0
52	45019	450190	5	0.1	100	30	Future Port Access Rd; On-Ramp from Local Access Rd	0
53	45019	450190	5	0.2652	400	30	Future Port Access Rd; Future Local Access Rd to Future Navy Base Port Terminal	0
54	45019	450190	5	0.2973	358	30	Future Local Access Rd; South Hobson Ave to Bainbridge Ave	0
55	45019	450190	5	0.2604	450	30	Future Local Access Rd; Bainbridge Ave to Future Stromboli Ave Ext	0
56	45019	450190	5	0.3267	233	30	Future Local Access Rd; Future Stromboli Ave Ext to Future Port Access Rd On-Ramp	0
57	45019	450190	5	0.1	117	30	Future Local Access Rd; Future Port Access Rd On-Ramp to Future Port Access Rd Off-Ramp	0
58	45019	450190	5	0.2519	308	30	US-52 (Meeting Street); Hackeman Ave to I-26 Ramps	0
59	45019	450190	5	0.3788	471	30	US-52 (Meeting Street); I-26 Ramps to Spruill Ave	0
60	45019	450190	5	0.1383	933	30	US-52 (Meeting Street); Spruill Ave to Pittsburg Ave	0
61	45019	450190	5	0.142	913	30	US-52 (Meeting Street); Pittsburg Ave to Discher St	0
62	45019	450190	5	0.2652	879	30	US-52 (Meeting Street); Discher St to Herbert St	0
63	45019	450190	5	0.0947	863	30	US-52 (Meeting Street); Herbert St to Milford St	0
64	45019	450190	5	0.1799	629	35	US-78 (King St Ext); Azalea Dr to Hackemann Ave	0
65	45019	450190	5	0.7178	592	35	US-78 (King St Ext); Hackemann Ave to Summerville Ave	0
66	45019	450190	5	0.3598	579	35	US-78 (King St Ext); Summerville Ave to Discher St	0
67	45019	450190	5	0.2273	592	35	US-78 (King St Ext); Discher St to Hagood St	0
68	45019	450190	5	0.2036	500	40	Spruill Ave; I-26 Ramps to Meeting Street	0
69	45019	450190	1	0	0	0	On-site Truck Idling	0

Table 5-23 MOVES Project Data Manager—Link Source Type—No-Action Alternative

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
1	45019	450190	4	0.7197	4563	60	I-26; Cosgrove to Meeting (Future PAR)	0
2	45019	450190	4	0.8522	4254	60	I-26; Meeting (Future PAR) to Heriot Street	0
3	45019	450190	4	0.2462	3783	60	I-26; Heriot Street to Mount Pleasant	0
4	45019	450190	4	0.4735	288	45	I-26 EB Ramps; EB Off to Meeting (Future EB Off to Meeting & PAR)	0.06
5	45019	450190	4	0.5114	146	45	I-26 EB Ramps; Future EB Off Split to Meeting	0.06
6	45019	450190	4	0.5114	142	45	I-26 EB Ramps; Future EB Off Split to Port Access Rd	0.06
7	45019	450190	4	0.2273	133	45	I-26 EB Ramps; Future EB On from Port Access Rd	0.06
8	45019	450190	4	0.4735	375	45	I-26 WB Ramps;WB On from Meeting (Future WB On from Meeting & PAR)	0.06
9	45019	450190	4	0.4053	196	45	I-26 WB Ramps;Future WB On Split from Meeting	0.06
10	45019	450190	4	0.4053	179	45	I-26 WB Ramps;Future WB On Split from Port Access Rd	0.06
11	45019	450190	4	0.4545	133	45	I-26 WB Ramps;Future WB Off to Port Access Rd	0.06
12	45019	450190	5	0.5682	938	30	US-52: Helm Ave to McMillan Ave	0
13	45019	450190	5	0.2045	858	30	US-52:McMillan Ave to Dorchester Rd	0
14	45019	450190	5	0.1515	850	30	US-52: Dorchester Rd to Cosgrove Ave	0
15	45019	450190	5	0.2277	713	30	US-52: Cosgrove Ave to Reynolds Ave	0
16	45019	450190	5	0.2652	642	30	US-52: Reynolds Ave to US-78	0
17	45019	450190	5	0.4159	375	30	US-52: US-78 to Burton Lane	0
18	45019	450190	5	0.2225	88	35	SC-7 Cosgrove Ave; East of Spruill Ave (Future Clemson ICTF Spruill to Noisette)	0
19	45019	450190	5	0.2795	621	35	SC-7 Cosgrove Ave; Spruill Ave to Rivers Ave	0
20	45019	450190	5	0.6222	1058	35	SC-7 Cosgrove Ave; Rivers Ave to Azalea Drive	0
21	45019	450190	5	0.5947	367	40	Spruill Ave; Montague Ave to Aragon Ave	0
22	45019	450190	5	0.9127	692	40	Spruill Ave; Aragon Ave to McMillan Ave	0
23	45019	450190	5	0.1449	925	40	Spruill Ave; McMillan Ave to Cosgrove Ave	0
24	45019	450190	5	0.2898	563	40	Spruill Ave; Cosgrove Ave to Reynolds Ave	0
25	45019	450190	5	0.4394	563	40	Spruill Ave; Reynolds Ave to N. Carolina Ave	0
26	45019	450190	5	0.4023	592	40	Spruill Ave; N. Carolina Ave to Burton Lane	0
27	45019	450190	5	0.2652	558	40	Spruill Ave; Burton Lane to Stromboli Ave	0
28	45019	450190	5	0.5966	513	40	Spruill Ave; Stromboli Ave to I-26 Ramps	0
29	45019	450190	5	0.3193	483	30	McMillan Ave; Rivers Ave to Spruill Ave	0
30	45019	450190	5	0.3883	438	30	McMillan Ave; St. Johns Ave to Noisette Boulevard	0
31	45019	450190	5	0.2396	425	45	Virginia Ave; Montague Ave to Ave B	0
32	45019	450190	5	0.0417	171	45	Virginia Ave; Ave B to Buist Ave	0
33	45019	450190	5	0.3011	433	30	Clement/Burton/Viaduct; Spruill Ave to Viaduct Ramps	0
34	45019	450190	5	0.0947	288	30	Clement/Burton/Viaduct; Viaduct Ramps to Hobson Ave	0
35	45019	450190	5	0.9185	446	35	Azalea Drive; Cosgrove Ave to US-78	0
36	45019	450190	5	0.32	54	30	Stromboli Ave; Future Local Access Rd to Spruill Ave	0
37	45019	450190	4	0.267	496	30	Bainbridge Ave; Viaduct Ramp to Future Local Access Rd	0.06
38	45019	450190	5	0.35	421	30	Bainbridge Ave; East of Future Local Access Rd	0
39	45019	450190	5	0.6837	321	30	North Hobson Ave; McMillan Ave to Future Clemson ICTF Employee Dwy	0
40	45019	450190	5	0.1	321	30	North Hobson Ave; Future Clemson ICTF Employee Dwy to Future Clemson ICTF Truck Dwy	0
41	45019	450190	5	0.3116	271	30	North Hobson Ave; Future Clemson ICTF Truck Dwy to Viaduct Rd	0
42	45019	450190	5	0.2614	75	30	South Hobson Ave; East of Viaduct Rd (Future North of S Hobson/Local Access Rd)	0
43	45019	450190	5	0.7169	304	30	Noisette Boulevard; Ave B to Turnbull Ave	0

Table 5-23 MOVES Project Data Manager—Link Source Type—No-Action Alternative

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
44	45019	450190	5	0.2557	338	30	Noisette Boulevard; Turnbull Ave to McMillan Ave	0
45	45019	450190	5	0.125	342	30	Ave B; Virginia Ave to Noisette Boulevard	0
46	45019	450190	5	0.1	0	30	Future Clemson ICTF Employee Dwy; South of N Hobson Ave	0
47	45019	450190	5	0.1	0	30	Future Clemson ICTF Truck Dwy; South of N Hobson Ave	0
48	45019	450190	5	0.1383	0	30	Future RC ICTF Employee Dwy; North of St Johns Ave	0
49	45019	450190	5	0.3011	0	30	Future RC ICTF Truck Dwy; North of Spruill Ave	0
50	45019	450190	5	0.644	604	30	Future Port Access Rd; I-26 to Future Local Access Rd	0
51	45019	450190	5	0.1	67	30	Future Port Access Rd; Off-Ramp to Local Access Rd	0
52	45019	450190	5	0.1	67	30	Future Port Access Rd; On-Ramp from Local Access Rd	0
53	45019	450190	5	0.2652	458	30	Future Port Access Rd; Future Local Access Rd to Future Navy Base Port Terminal	0
54	45019	450190	5	0.2973	0	30	Future Local Access Rd; South Hobson Ave to Bainbridge Ave	0
55	45019	450190	5	0.2604	204	30	Future Local Access Rd; Bainbridge Ave to Future Stromboli Ave Ext	0
56	45019	450190	5	0.3267	158	30	Future Local Access Rd; Future Stromboli Ave Ext to Future Port Access Rd On-Ramp	0
57	45019	450190	5	0.1	71	30	Future Local Access Rd; Future Port Access Rd On-Ramp to Future Port Access Rd Off-Ramp	0
58	45019	450190	5	0.2519	300	30	US-52 (Meeting Street); Hackeman Ave to I-26 Ramps	0
59	45019	450190	5	0.3788	454	30	US-52 (Meeting Street); I-26 Ramps to Spruill Ave	0
60	45019	450190	5	0.1383	971	30	US-52 (Meeting Street); Spruill Ave to Pittsburg Ave	0
61	45019	450190	5	0.142	950	30	US-52 (Meeting Street); Pittsburg Ave to Discher St	0
62	45019	450190	5	0.2652	917	30	US-52 (Meeting Street); Discher St to Herbert St	0
63	45019	450190	5	0.0947	900	30	US-52 (Meeting Street); Herbert St to Milford St	0
64	45019	450190	5	0.1799	633	35	US-78 (King St Ext); Azalea Dr to Hackemann Ave	0
65	45019	450190	5	0.7178	596	35	US-78 (King St Ext); Hackemann Ave to Summerville Ave	0
66	45019	450190	5	0.3598	583	35	US-78 (King St Ext); Summerville Ave to Discher St	0
67	45019	450190	5	0.2273	596	35	US-78 (King St Ext); Discher St to Hagood St	0
68	45019	450190	5	0.2036	575	40	Spruill Ave; I-26 Ramps to Meeting Street	0
69	45019	450190	1	0	0	0	On-site Truck Idling	0

Table 5-24 MOVES Project Data Manager— Link Source Type —Alternatives 1 and 3

Link	County	Zone	Rd Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
1	45019	450190	4	0.7197	4425	60	I-26; Cosgrove to Meeting (Future PAR)	0
2	45019	450190	4	0.8522	4313	60	I-26; Meeting (Future PAR) to Heriot Street	0
3	45019	450190	4	0.2462	3829	60	I-26; Heriot Street to Mount Pleasant	0
4	45019	450190	4	0.4735	254	45	I-26 EB Ramps; EB Off to Meeting (Future EB Off to Meeting & PAR)	0.06
5	45019	450190	4	0.5114	146	45	I-26 EB Ramps; Future EB Off Split to Meeting	0.06
6	45019	450190	4	0.5114	108	45	I-26 EB Ramps; Future EB Off Split to Port Access Rd	0.06
7	45019	450190	4	0.2273	179	45	I-26 EB Ramps; Future EB On from Port Access Rd	0.06
8	45019	450190	4	0.4735	300	45	I-26 WB Ramps; WB On from Meeting (Future WB On from Meeting & PAR)	0.06
9	45019	450190	4	0.4053	183	45	I-26 WB Ramps; Future WB On Split from Meeting	0.06
10	45019	450190	4	0.4053	117	45	I-26 WB Ramps; Future WB On Split from Port Access Rd	0.06
11	45019	450190	4	0.4545	196	45	I-26 WB Ramps; Future WB Off to Port Access Rd	0.06
12	45019	450190	5	0.5682	917	30	US-52: Helm Ave to McMillan Ave	0
13	45019	450190	5	0.2045	863	30	US-52:McMillan Ave to Dorchester Rd	0
14	45019	450190	5	0.1515	888	30	US-52: Dorchester Rd to Cosgrove Ave	0
15	45019	450190	5	0.2277	700	30	US-52: Cosgrove Ave to Reynolds Ave	0
16	45019	450190	5	0.2652	625	30	US-52: Reynolds Ave to US-78	0
17	45019	450190	5	0.4159	358	30	US-52: US-78 to Burton Lane	0
18	45019	450190	5	0.4129	613	35	SC-7 Cosgrove Ave; East of Spruill Ave (Future Clemson ICTF Spruill to Noisette)	0
19	45019	450190	5	0.2795	721	35	SC-7 Cosgrove Ave; Spruill Ave to Rivers Ave	0
20	45019	450190	5	0.6222	1092	35	SC-7 Cosgrove Ave; Rivers Ave to Azalea Drive	0
21	45019	450190	5	0.5947	367	40	Spruill Ave; Montague Ave to Aragon Ave	0
22	45019	450190	5	0.9127	696	40	Spruill Ave; Aragon Ave to McMillan Ave	0
23	45019	450190	5	0.1449	867	40	Spruill Ave; McMillan Ave to Cosgrove Ave	0
24	45019	450190	5	0.2898	600	40	Spruill Ave; Cosgrove Ave to Reynolds Ave	0
25	45019	450190	5	0.4394	608	40	Spruill Ave; Reynolds Ave to N. Carolina Ave	0
26	45019	450190	5	0.4023	642	40	Spruill Ave; N. Carolina Ave to Burton Lane	0
27	45019	450190	5	0.2652	654	40	Spruill Ave; Burton Lane to Stromboli Ave	0
28	45019	450190	5	0.5966	479	40	Spruill Ave; Stromboli Ave to I-26 Ramps	0
29	45019	450190	5	0.3193	458	30	McMillan Ave; Rivers Ave to Spruill Ave	0
30	45019	450190	5	0.3883	0	30	McMillan Ave; St. Johns Ave to Noisette Boulevard	0
31	45019	450190	5	0.2396	479	45	Virginia Ave; Montague Ave to Ave B	0
32	45019	450190	5	0.0417	121	45	Virginia Ave; Ave B to Buist Ave	0
33	45019	450190	5	0.3011	0	30	Clement/Burton/Viaduct; Spruill Ave to Viaduct Ramps	0
34	45019	450190	5	0.0947	0	30	Clement/Burton/Viaduct; Viaduct Ramps to Hobson Ave	0
35	45019	450190	5	0.9185	446	35	Azalea Drive; Cosgrove Ave to US-78	0
36	45019	450190	5	0.32	138	30	Stromboli Ave; Future Local Access Rd to Spruill Ave	0
37	45019	450190	4	0.267	0	30	Bainbridge Ave; Viaduct Ramp to Future Local Access Rd	0.06
38	45019	450190	5	0.35	467	30	Bainbridge Ave; East of Future Local Access Rd	0
39	45019	450190	5	0.6837	296	30	North Hobson Ave; McMillan Ave to Future Clemson ICTF Employee Dwy	0
40	45019	450190	5	0.1	279	30	North Hobson Ave; Future Clemson ICTF Employee Dwy to Future Clemson ICTF Truck Dwy	0
41	45019	450190	5	0.3116	296	30	North Hobson Ave; Future Clemson ICTF Truck Dwy to Viaduct Rd	0
42	45019	450190	5	0.2614	75	30	South Hobson Ave; East of Viaduct Rd (Future North of S Hobson/Local Access Rd)	0
43	45019	450190	5	0.7169	396	30	Noisette Boulevard; Ave B to Turnbull Ave	0

Table 5-24 MOVES Project Data Manager— Link Source Type —Alternatives 1 and 3

Link	County	Zone	Rd Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
44	45019	450190	5	0.2557	446	30	Noisette Boulevard; Turnbull Ave to McMillan Ave	0
45	45019	450190	5	0.125	408	30	Ave B; Virginia Ave to Noisette Boulevard	0
46	45019	450190	5	0.1	46	30	Future Clemson ICTF Employee Dwy; South of N Hobson Ave	0
47	45019	450190	5	0.1	104	30	Future Clemson ICTF Truck Dwy; South of N Hobson Ave	0
48	45019	450190	5	0.1383	0	30	Future RC ICTF Employee Dwy; North of St Johns Ave	0
49	45019	450190	5	0.3011	0	30	Future RC ICTF Truck Dwy; North of Spruill Ave	0
50	45019	450190	5	0.644	633	30	Future Port Access Rd; I-26 to Future Local Access Rd	0
51	45019	450190	5	0.1	113	30	Future Port Access Rd; Off-Ramp to Local Access Rd	0
52	45019	450190	5	0.1	104	30	Future Port Access Rd; On-Ramp from Local Access Rd	0
53	45019	450190	5	0.2652	400	30	Future Port Access Rd; Future Local Access Rd to Future Navy Base Port Terminal	0
54	45019	450190	5	0.2973	296	30	Future Local Access Rd; South Hobson Ave to Bainbridge Ave	0
55	45019	450190	5	0.2604	350	30	Future Local Access Rd; Bainbridge Ave to Future Stromboli Ave Ext	0
56	45019	450190	5	0.3267	238	30	Future Local Access Rd; Future Stromboli Ave Ext to Future Port Access Rd On-Ramp	0
57	45019	450190	5	0.1	113	30	Future Local Access Rd; Future Port Access Rd On-Ramp to Future Port Access Rd Off-Ramp	0
58	45019	450190	5	0.2519	292	30	US-52 (Meeting Street); Hackeman Ave to I-26 Ramps	0
59	45019	450190	5	0.3788	433	30	US-52 (Meeting Street); I-26 Ramps to Spruill Ave	0
60	45019	450190	5	0.1383	954	30	US-52 (Meeting Street); Spruill Ave to Pittsburg Ave	0
61	45019	450190	5	0.142	933	30	US-52 (Meeting Street); Pittsburg Ave to Discher St	0
62	45019	450190	5	0.2652	900	30	US-52 (Meeting Street); Discher St to Herbert St	0
63	45019	450190	5	0.0947	883	30	US-52 (Meeting Street); Herbert St to Milford St	0
64	45019	450190	5	0.1799	621	35	US-78 (King St Ext); Azalea Dr to Hackemann Ave	0
65	45019	450190	5	0.7178	583	35	US-78 (King St Ext); Hackemann Ave to Summerville Ave	0
66	45019	450190	5	0.3598	571	35	US-78 (King St Ext); Summerville Ave to Discher St	0
67	45019	450190	5	0.2273	583	35	US-78 (King St Ext); Discher St to Hagood St	0
68	45019	450190	5	0.2036	554	40	Spruill Ave; I-26 Ramps to Meeting Street	0
69	45019	450190	1	0	0	0	On-site Truck Idling	0

Table 5-25 MOVES Project Data Manager— Link Source Type —Alternatives 2 and 4

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
1	45019	450190	4	0.7197	4425	60	I-26; Cosgrove to Meeting (Future PAR)	0
2	45019	450190	4	0.8522	4313	60	I-26; Meeting (Future PAR) to Heriot Street	0
3	45019	450190	4	0.2462	3829	60	I-26; Heriot Street to Mount Pleasant	0
4	45019	450190	4	0.4735	254	45	I-26 EB Ramps; EB Off to Meeting (Future EB Off to Meeting & PAR)	0.06
5	45019	450190	4	0.5114	146	45	I-26 EB Ramps; Future EB Off Split to Meeting	0.06
6	45019	450190	4	0.5114	108	45	I-26 EB Ramps; Future EB Off Split to Port Access Rd	0.06
7	45019	450190	4	0.2273	179	45	I-26 EB Ramps; Future EB On from Port Access Rd	0.06
8	45019	450190	4	0.4735	300	45	I-26 WB Ramps;WB On from Meeting (Future WB On from Meeting & PAR)	0.06
9	45019	450190	4	0.4053	183	45	I-26 WB Ramps;Future WB On Split from Meeting	0.06
10	45019	450190	4	0.4053	117	45	I-26 WB Ramps;Future WB On Split from Port Access Rd	0.06
11	45019	450190	4	0.4545	196	45	I-26 WB Ramps;Future WB Off to Port Access Rd	0.06
12	45019	450190	5	0.5682	917	30	US-52: Helm Ave to McMillan Ave	0
13	45019	450190	5	0.2045	863	30	US-52:McMillan Ave to Dorchester Rd	0
14	45019	450190	5	0.1515	888	30	US-52: Dorchester Rd to Cosgrove Ave	0
15	45019	450190	5	0.2277	700	30	US-52: Cosgrove Ave to Reynolds Ave	0
16	45019	450190	5	0.2652	625	30	US-52: Reynolds Ave to US-78	0
17	45019	450190	5	0.4159	358	30	US-52: US-78 to Burton Lane	0
18	45019	450190	5	0.4129	738	35	SC-7 Cosgrove Ave; East of Spruill Ave (Future Clemson ICTF Spruill to Noisette)	0
19	45019	450190	5	0.2795	721	35	SC-7 Cosgrove Ave; Spruill Ave to Rivers Ave	0
20	45019	450190	5	0.6222	1092	35	SC-7 Cosgrove Ave; Rivers Ave to Azalea Drive	0
21	45019	450190	5	0.5947	367	40	Spruill Ave; Montague Ave to Aragon Ave	0
22	45019	450190	5	0.9127	692	40	Spruill Ave; Aragon Ave to McMillan Ave	0
23	45019	450190	5	0.1449	779	40	Spruill Ave; McMillan Ave to Cosgrove Ave	0
24	45019	450190	5	0.2898	600	40	Spruill Ave; Cosgrove Ave to Reynolds Ave	0
25	45019	450190	5	0.4394	608	40	Spruill Ave; Reynolds Ave to N. Carolina Ave	0
26	45019	450190	5	0.4023	642	40	Spruill Ave; N. Carolina Ave to Burton Lane	0
27	45019	450190	5	0.2652	654	40	Spruill Ave; Burton Lane to Stromboli Ave	0
28	45019	450190	5	0.5966	479	40	Spruill Ave; Stromboli Ave to I-26 Ramps	0
29	45019	450190	5	0.3193	458	30	McMillan Ave; Rivers Ave to Spruill Ave	0
30	45019	450190	5	0.3883	0	30	McMillan Ave; St. Johns Ave to Noisette Boulevard	0
31	45019	450190	5	0.2396	479	45	Virginia Ave; Montague Ave to Ave B	0
32	45019	450190	5	0.0417	121	45	Virginia Ave; Ave B to Buist Ave	0
33	45019	450190	5	0.3011	0	30	Clement/Burton/Viaduct; Spruill Ave to Viaduct Ramps	0
34	45019	450190	5	0.0947	0	30	Clement/Burton/Viaduct; Viaduct Ramps to Hobson Ave	0
35	45019	450190	5	0.9185	446	35	Azalea Drive; Cosgrove Ave to US-78	0
36	45019	450190	5	0.32	138	30	Stromboli Ave; Future Local Access Rd to Spruill Ave	0
37	45019	450190	4	0.267	0	30	Bainbridge Ave; Viaduct Ramp to Future Local Access Rd	0.06
38	45019	450190	5	0.35	467	30	Bainbridge Ave; East of Future Local Access Rd	0
39	45019	450190	5	0.6837	296	30	North Hobson Ave; McMillan Ave to Future Clemson ICTF Employee Dwy	0
40	45019	450190	5	0.1	279	30	North Hobson Ave; Future Clemson ICTF Employee Dwy to Future Clemson ICTF Truck Dwy	0
41	45019	450190	5	0.3116	296	30	North Hobson Ave; Future Clemson ICTF Truck Dwy to Viaduct Rd	0
42	45019	450190	5	0.2614	75	30	South Hobson Ave; East of Viaduct Rd (Future North of S Hobson/Local Access Rd)	0
43	45019	450190	5	0.7169	371	30	Noisette Boulevard; Ave B to Turnbull Ave	0

Table 5-25 MOVES Project Data Manager— Link Source Type —Alternatives 2 and 4

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
44	45019	450190	5	0.2557	438	30	Noisette Boulevard; Turnbull Ave to McMillan Ave	0
45	45019	450190	5	0.125	408	30	Ave B; Virginia Ave to Noisette Boulevard	0
46	45019	450190	5	0.1	46	30	Future Clemson ICTF Employee Dwy; South of N Hobson Ave	0
47	45019	450190	5	0.1	104	30	Future Clemson ICTF Truck Dwy; South of N Hobson Ave	0
48	45019	450190	5	0.1383	0	30	Future RC ICTF Employee Dwy; North of St Johns Ave	0
49	45019	450190	5	0.3011	0	30	Future RC ICTF Truck Dwy; North of Spruill Ave	0
50	45019	450190	5	0.644	633	30	Future Port Access Rd; I-26 to Future Local Access Rd	0
51	45019	450190	5	0.1	113	30	Future Port Access Rd; Off-Ramp to Local Access Rd	0
52	45019	450190	5	0.1	104	30	Future Port Access Rd; On-Ramp from Local Access Rd	0
53	45019	450190	5	0.2652	400	30	Future Port Access Rd; Future Local Access Rd to Future Navy Base Port Terminal	0
54	45019	450190	5	0.2973	296	30	Future Local Access Rd; South Hobson Ave to Bainbridge Ave	0
55	45019	450190	5	0.2604	350	30	Future Local Access Rd; Bainbridge Ave to Future Stromboli Ave Ext	0
56	45019	450190	5	0.3267	238	30	Future Local Access Rd; Future Stromboli Ave Ext to Future Port Access Rd On-Ramp	0
57	45019	450190	5	0.1	113	30	Future Local Access Rd; Future Port Access Rd On-Ramp to Future Port Access Rd Off-Ramp	0
58	45019	450190	5	0.2519	292	30	US-52 (Meeting Street); Hackeman Ave to I-26 Ramps	0
59	45019	450190	5	0.3788	433	30	US-52 (Meeting Street); I-26 Ramps to Spruill Ave	0
60	45019	450190	5	0.1383	954	30	US-52 (Meeting Street); Spruill Ave to Pittsburg Ave	0
61	45019	450190	5	0.142	933	30	US-52 (Meeting Street); Pittsburg Ave to Discher St	0
62	45019	450190	5	0.2652	900	30	US-52 (Meeting Street); Discher St to Herbert St	0
63	45019	450190	5	0.0947	883	30	US-52 (Meeting Street); Herbert St to Milford St	0
64	45019	450190	5	0.1799	621	35	US-78 (King St Ext); Azalea Dr to Hackemann Ave	0
65	45019	450190	5	0.7178	583	35	US-78 (King St Ext); Hackemann Ave to Summerville Ave	0
66	45019	450190	5	0.3598	571	35	US-78 (King St Ext); Summerville Ave to Discher St	0
67	45019	450190	5	0.2273	583	35	US-78 (King St Ext); Discher St to Hagood St	0
68	45019	450190	5	0.2036	554	40	Spruill Ave; I-26 Ramps to Meeting Street	0
69	45019	450190	1	0	0	0	On-site Truck Idling	0

Table 5-26 MOVES Project Data Manager— Link Source Type —Alternatives 5, 6, and 7

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
1	45019	450190	4	0.7197	4492	60	I-26; Cosgrove to Meeting (Future PAR)	0
2	45019	450190	4	0.8522	4333	60	I-26; Meeting (Future PAR) to Heriot Street	0
3	45019	450190	4	0.2462	3842	60	I-26; Heriot Street to Mount Pleasant	0
4	45019	450190	4	0.4735	258	45	I-26 EB Ramps; EB Off to Meeting (Future EB Off to Meeting & PAR)	0.06
5	45019	450190	4	0.5114	150	45	I-26 EB Ramps; Future EB Off Split to Meeting	0.06
6	45019	450190	4	0.5114	108	45	I-26 EB Ramps; Future EB Off Split to Port Access Rd	0.06
7	45019	450190	4	0.2273	171	45	I-26 EB Ramps; Future EB On from Port Access Rd	0.06
8	45019	450190	4	0.4735	325	45	I-26 WB Ramps;WB On from Meeting (Future WB On from Meeting & PAR)	0.06
9	45019	450190	4	0.4053	196	45	I-26 WB Ramps;Future WB On Split from Meeting	0.06
10	45019	450190	4	0.4053	129	45	I-26 WB Ramps;Future WB On Split from Port Access Rd	0.06
11	45019	450190	4	0.4545	196	45	I-26 WB Ramps;Future WB Off to Port Access Rd	0.06
12	45019	450190	5	0.5682	867	30	US-52: Helm Ave to McMillan Ave	0
13	45019	450190	5	0.2045	917	30	US-52:McMillan Ave to Dorchester Rd	0
14	45019	450190	5	0.1515	888	30	US-52: Dorchester Rd to Cosgrove Ave	0
15	45019	450190	5	0.2277	742	30	US-52: Cosgrove Ave to Reynolds Ave	0
16	45019	450190	5	0.2652	671	30	US-52: Reynolds Ave to US-78	0
17	45019	450190	5	0.4159	400	30	US-52: US-78 to Burton Lane	0
18	45019	450190	5	0.1	0	35	SC-7 Cosgrove Ave; East of Spruill Ave (Future Clemson ICTF Spruill to Noisette)	0
19	45019	450190	5	0.2795	596	35	SC-7 Cosgrove Ave; Spruill Ave to Rivers Ave	0
20	45019	450190	5	0.6222	1075	35	SC-7 Cosgrove Ave; Rivers Ave to Azalea Drive	0
21	45019	450190	5	0.5947	463	40	Spruill Ave; Montague Ave to Aragon Ave	0
22	45019	450190	5	0.9127	796	40	Spruill Ave; Aragon Ave to McMillan Ave	0
23	45019	450190	5	0.1449	933	40	Spruill Ave; McMillan Ave to Cosgrove Ave	0
24	45019	450190	5	0.2898	579	40	Spruill Ave; Cosgrove Ave to Reynolds Ave	0
25	45019	450190	5	0.4394	571	40	Spruill Ave; Reynolds Ave to N. Carolina Ave	0
26	45019	450190	5	0.4023	613	40	Spruill Ave; N. Carolina Ave to Burton Lane	0
27	45019	450190	5	0.2652	688	40	Spruill Ave; Burton Lane to Stromboli Ave	0
28	45019	450190	5	0.5966	425	40	Spruill Ave; Stromboli Ave to I-26 Ramps	0
29	45019	450190	5	0.3193	354	30	McMillan Ave; Rivers Ave to Spruill Ave	0
30	45019	450190	5	0.3883	0	30	McMillan Ave; St. Johns Ave to Noisette Boulevard	0
31	45019	450190	5	0.2396	479	45	Virginia Ave; Montague Ave to Ave B	0
32	45019	450190	5	0.0417	308	45	Virginia Ave; Ave B to Buist Ave	0
33	45019	450190	5	0.3011	0	30	Clement/Burton/Viaduct; Spruill Ave to Viaduct Ramps	0
34	45019	450190	5	0.0947	0	30	Clement/Burton/Viaduct; Viaduct Ramps to Hobson Ave	0
35	45019	450190	5	0.9185	454	35	Azalea Drive; Cosgrove Ave to US-78	0
36	45019	450190	5	0.32	254	30	Stromboli Ave; Future Local Access Rd to Spruill Ave	0
37	45019	450190	4	0.267	0	30	Bainbridge Ave; Viaduct Ramp to Future Local Access Rd	0.06
38	45019	450190	5	0.35	442	30	Bainbridge Ave; East of Future Local Access Rd	0
39	45019	450190	5	0.6837	296	30	North Hobson Ave; McMillan Ave to Future Clemson ICTF Employee Dwy	0
40	45019	450190	5	0.1	296	30	North Hobson Ave; Future Clemson ICTF Employee Dwy to Future Clemson ICTF Truck Dwy	0
41	45019	450190	5	0.3116	329	30	North Hobson Ave; Future Clemson ICTF Truck Dwy to Viaduct Rd	0
42	45019	450190	5	0.2614	75	30	South Hobson Ave; East of Viaduct Rd (Future North of	0

Table 5-26 MOVES Project Data Manager— Link Source Type —Alternatives 5, 6, and 7

Link	County	Zone	Road Type	Link Length	Link Volume	Link Avg Speed	Link Description	Link Avg Grade
							S Hobson/Local Access Rd)	
43	45019	450190	5	0.7169	442	30	Noisette Boulevard; Ave B to Turnbull Ave	0
44	45019	450190	5	0.2557	279	30	Noisette Boulevard; Turnbull Ave to McMillan Ave	0
45	45019	450190	5	0.125	488	30	Ave B; Virginia Ave to Noisette Boulevard	0
46	45019	450190	5	0.1	0	30	Future Clemson ICTF Employee Dwy; South of N Hobson Ave	0
47	45019	450190	5	0.1	0	30	Future Clemson ICTF Truck Dwy; South of N Hobson Ave	0
48	45019	450190	5	0.1383	46	30	Future RC ICTF Employee Dwy; North of St Johns Ave	0
49	45019	450190	5	0.3011	104	30	Future RC ICTF Truck Dwy; North of Spruill Ave	0
50	45019	450190	5	0.644	629	30	Future Port Access Rd; I-26 to Future Local Access Rd	0
51	45019	450190	5	0.1	117	30	Future Port Access Rd; Off-Ramp to Local Access Rd	0
52	45019	450190	5	0.1	100	30	Future Port Access Rd; On-Ramp from Local Access Rd	0
53	45019	450190	5	0.2652	400	30	Future Port Access Rd; Future Local Access Rd to Future Navy Base Port Terminal	0
54	45019	450190	5	0.2973	358	30	Future Local Access Rd; South Hobson Ave to Bainbridge Ave	0
55	45019	450190	5	0.2604	450	30	Future Local Access Rd; Bainbridge Ave to Future Stromboli Ave Ext	0
56	45019	450190	5	0.3267	233	30	Future Local Access Rd; Future Stromboli Ave Ext to Future Port Access Rd On-Ramp	0
57	45019	450190	5	0.1	117	30	Future Local Access Rd; Future Port Access Rd On-Ramp to Future Port Access Rd Off-Ramp	0
58	45019	450190	5	0.2519	308	30	US-52 (Meeting Street); Hackeman Ave to I-26 Ramps	0
59	45019	450190	5	0.3788	471	30	US-52 (Meeting Street); I-26 Ramps to Spruill Ave	0
60	45019	450190	5	0.1383	933	30	US-52 (Meeting Street); Spruill Ave to Pittsburg Ave	0
61	45019	450190	5	0.142	913	30	US-52 (Meeting Street); Pittsburg Ave to Discher St	0
62	45019	450190	5	0.2652	879	30	US-52 (Meeting Street); Discher St to Herbert St	0
63	45019	450190	5	0.0947	863	30	US-52 (Meeting Street); Herbert St to Milford St	0
64	45019	450190	5	0.1799	629	35	US-78 (King St Ext); Azalea Dr to Hackemann Ave	0
65	45019	450190	5	0.7178	592	35	US-78 (King St Ext); Hackemann Ave to Summerville Ave	0
66	45019	450190	5	0.3598	579	35	US-78 (King St Ext); Summerville Ave to Discher St	0
67	45019	450190	5	0.2273	592	35	US-78 (King St Ext); Discher St to Hagood St	0
68	45019	450190	5	0.2036	500	40	Spruill Ave; I-26 Ramps to Meeting Street	0
69	45019	450190	1	0	0	0	On-site Truck Idling	0

Table 5-27 MOVES Output and AERMOD Emission Rates— On-site Idling —Alternatives 1 through 7

Link	Pollut-ant	Emission Quant (g/day)	Pollutant ID	Emission Quant (g/day)	Pollut-ant	Emission Quant (g/day)	Pollut-ant	Emission Quant (g/day)	Pollut-ant	Emission Quant (g/day)	$PM_{2.5}$ EF (g/s)	PM_{10} EF (g/s)	SO_2 EF (g/s)	NOx EF (g/s)	CO EF (g/s)
69	110	101.409	100	110.227	31	9.60351	3	25261.5	2	11996.2	0.001174	0.001276	0.000111	0.292378	0.138845

LinkID 69 represents the Off-Network Link in the MOVES model to develop OTR idling emission factors
Link 69 was modeled to represent a full day of idling.

Table 5-28 MOVES Output and AERMOD Emission Rates— DPM —No-Action Alternative

Link	Pollutant	Fuel Type	Emission Quant (g/hr)	DPM EF (g/s)
1	110	2	4.801	1.3E-03
2	110	2	3.784	1.1E-03
3	110	2	0.974	2.7E-04
4	110	2	0.597	1.7E-04
5	110	2	0.227	6.3E-05
6	110	2	0.834	2.3E-04
7	110	2	0.346	9.6E-05
8	110	2	1.170	3.2E-04
9	110	2	0.236	6.6E-05
10	110	2	0.833	2.3E-04
11	110	2	0.695	1.9E-04
12	110	2	1.352	3.8E-04
13	110	2	0.359	1.0E-04
14	110	2	0.294	8.2E-05
15	110	2	0.476	1.3E-04
16	110	2	0.484	1.3E-04
17	110	2	0.728	2.0E-04
18	110	2	0.015	4.2E-06
19	110	2	0.233	6.5E-05
20	110	2	0.981	2.7E-04
21	110	2	0.466	1.3E-04
22	110	2	1.812	5.0E-04
23	110	2	0.326	9.1E-05
24	110	2	0.528	1.5E-04
25	110	2	0.788	2.2E-04
26	110	2	0.800	2.2E-04
27	110	2	0.254	7.0E-05
28	110	2	0.564	1.6E-04
29	110	2	0.355	9.9E-05
30	110	2	0.381	1.1E-04
31	110	2	0.236	6.6E-05
32	110	2	0.021	5.7E-06
33	110	2	0.743	2.1E-04
34	110	2	0.215	6.0E-05
35	110	2	0.749	2.1E-04
36	110	2	0.016	4.5E-06
37	110	2	0.541	1.5E-04
38	110	2	0.690	1.9E-04
39	110	2	0.325	9.0E-05
40	110	2	0.000	0.0E+00
41	110	2	0.094	2.6E-05
42	110	2	0.550	1.5E-04
43	110	2	0.273	7.6E-05
44	110	2	0.176	4.9E-05
45	110	2	0.158	4.4E-05
46	110	2	0.000	0.0E+00
47	110	2	0.000	0.0E+00
48	110	2	0.000	0.0E+00
49	110	2	0.000	0.0E+00
50	110	2	6.544	1.8E-03
51	110	2	0.006	1.6E-06
52	110	2	0.006	1.6E-06
53	110	2	2.826	7.9E-04
54	110	2	0.000	0.0E+00
55	110	2	0.047	1.3E-05
56	110	2	0.046	1.3E-05
57	110	2	0.006	1.7E-06
58	110	2	0.206	5.7E-05
59	110	2	0.546	1.5E-04
60	110	2	0.278	7.7E-05
61	110	2	0.700	1.9E-04
62	110	2	1.217	3.4E-04
63	110	2	0.439	1.2E-04
64	110	2	0.550	1.5E-04
65	110	2	0.591	1.6E-04
66	110	2	0.270	7.5E-05
67	110	2	0.174	4.8E-05
68	110	2	0.131	3.6E-05
69	110	2	0.000	0.0E+00

Links 1-68 represent roadways. They were modeled to represent an average hour of activity
LinkID 69 represents the Off-Network Link in the MOVES model to develop OTR idling emission factors
Link 69 was modeled to represent a full day of idling.

Table 5-29 MOVES Output and AERMOD Emission Rates— NAAQS —No-Action Alternative

Link	$PM_{2.5}$ (g/hr)	PM_{10} (g/hr)	SO_2 (g/hr)	NOx (g/hr)	CO (g/hr)	$PM_{2.5}$ EF (g/s)	PM_{10} EF (g/s)	SO_2 EF (g/s)	NOx EF (g/s)	CO EF (g/s)
1	8.66	9.58	7.57	551.79	1449.97	2.4E-03	2.7E-03	2.1E-03	1.5E-01	4.0E-01
2	8.20	9.11	7.00	454.40	1620.98	2.3E-03	2.5E-03	1.9E-03	1.3E-01	4.5E-01
3	2.11	2.34	1.80	116.93	416.45	5.9E-04	6.5E-04	5.0E-04	3.2E-02	1.2E-01
4	0.75	0.82	0.55	48.16	60.09	2.1E-04	2.3E-04	1.5E-04	1.3E-02	1.7E-02
5	0.32	0.35	0.23	18.66	33.59	8.8E-05	9.7E-05	6.4E-05	5.2E-03	9.3E-03
6	0.88	0.95	0.64	65.45	28.54	2.4E-04	2.7E-04	1.8E-04	1.8E-02	7.9E-03
7	0.36	0.40	0.26	27.16	11.96	1.0E-04	1.1E-04	7.4E-05	7.5E-03	3.3E-03
8	1.34	1.46	0.98	92.97	75.78	3.7E-04	4.1E-04	2.7E-04	2.6E-02	2.1E-02
9	0.33	0.37	0.24	19.47	35.78	9.3E-05	1.0E-04	6.8E-05	5.4E-03	9.9E-03
10	0.88	0.95	0.64	65.38	28.63	2.4E-04	2.6E-04	1.8E-04	1.8E-02	8.0E-03
11	0.73	0.79	0.53	54.51	23.89	2.0E-04	2.2E-04	1.5E-04	1.5E-02	6.6E-03
12	2.15	2.37	1.38	95.17	313.19	6.0E-04	6.6E-04	3.8E-04	2.6E-02	8.7E-02
13	0.63	0.69	0.41	25.73	103.75	1.7E-04	1.9E-04	1.1E-04	7.1E-03	2.9E-02
14	0.49	0.54	0.31	20.84	75.92	1.4E-04	1.5E-04	8.7E-05	5.8E-03	2.1E-02
15	0.72	0.79	0.46	33.19	94.97	2.0E-04	2.2E-04	1.3E-04	9.2E-03	2.6E-02
16	0.74	0.81	0.47	33.79	99.72	2.0E-04	2.3E-04	1.3E-04	9.4E-03	2.8E-02
17	0.94	1.03	0.59	49.42	89.58	2.6E-04	2.9E-04	1.6E-04	1.4E-02	2.5E-02
18	0.04	0.05	0.03	1.38	10.68	1.2E-05	1.4E-05	8.6E-06	3.8E-04	3.0E-03
19	0.48	0.54	0.33	19.47	94.47	1.3E-04	1.5E-04	9.3E-05	5.4E-03	2.6E-02
20	1.93	2.14	1.33	80.87	357.76	5.4E-04	5.9E-04	3.7E-04	2.2E-02	9.9E-02
21	0.75	0.83	0.53	38.29	106.59	2.1E-04	2.3E-04	1.5E-04	1.1E-02	3.0E-02
22	2.61	2.87	1.84	145.49	305.36	7.2E-04	8.0E-04	5.1E-04	4.0E-02	8.5E-02
23	0.50	0.55	0.35	26.51	65.24	1.4E-04	1.5E-04	9.8E-05	7.4E-03	1.8E-02
24	0.73	0.80	0.51	42.10	78.43	2.0E-04	2.2E-04	1.4E-04	1.2E-02	2.2E-02
25	1.09	1.20	0.77	62.87	119.01	3.0E-04	3.3E-04	2.1E-04	1.7E-02	3.3E-02
26	1.09	1.20	0.77	63.60	114.32	3.0E-04	3.3E-04	2.1E-04	1.8E-02	3.2E-02
27	0.45	0.50	0.32	21.28	72.82	1.3E-04	1.4E-04	8.9E-05	5.9E-03	2.0E-02
28	0.97	1.07	0.69	46.94	150.09	2.7E-04	3.0E-04	1.9E-04	1.3E-02	4.2E-02
29	0.59	0.65	0.38	25.17	90.97	1.6E-04	1.8E-04	1.1E-04	7.0E-03	2.5E-02
30	0.64	0.70	0.41	27.07	100.20	1.8E-04	2.0E-04	1.1E-04	7.5E-03	2.8E-02
31	0.36	0.40	0.27	19.84	47.01	1.0E-04	1.1E-04	7.4E-05	5.5E-03	1.3E-02
32	0.03	0.03	0.02	1.70	3.26	8.1E-06	8.9E-06	5.9E-06	4.7E-04	9.1E-04
33	0.91	1.00	0.56	50.05	74.09	2.5E-04	2.8E-04	1.6E-04	1.4E-02	2.1E-02
34	0.25	0.27	0.15	14.33	15.08	6.9E-05	7.5E-05	4.2E-05	4.0E-03	4.2E-03
35	1.33	1.47	0.91	60.43	221.43	3.7E-04	4.1E-04	2.5E-04	1.7E-02	6.2E-02
36	0.04	0.05	0.03	1.29	10.37	1.2E-05	1.4E-05	8.2E-06	3.6E-04	2.9E-03
37	0.71	0.78	0.45	36.42	65.89	2.0E-04	2.2E-04	1.3E-04	1.0E-02	1.8E-02
38	0.89	0.98	0.55	46.85	84.59	2.5E-04	2.7E-04	1.5E-04	1.3E-02	2.3E-02
39	0.67	0.74	0.44	24.17	130.44	1.9E-04	2.1E-04	1.2E-04	6.7E-03	3.6E-02
40	0.05	0.06	0.04	0.44	19.38	1.5E-05	1.7E-05	1.1E-05	1.2E-04	5.4E-03
41	0.23	0.25	0.15	7.26	50.38	6.3E-05	7.0E-05	4.2E-05	2.0E-03	1.4E-02
42	0.55	0.60	0.33	36.01	8.34	1.5E-04	1.7E-04	9.1E-05	1.0E-02	2.3E-03
43	0.62	0.68	0.41	20.72	129.99	1.7E-04	1.9E-04	1.1E-04	5.8E-03	3.6E-02
44	0.31	0.34	0.20	12.60	51.01	8.5E-05	9.4E-05	5.5E-05	3.5E-03	1.4E-02
45	0.22	0.24	0.14	10.86	24.79	6.1E-05	6.7E-05	3.8E-05	3.0E-03	6.9E-03
46	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Table 5-29 MOVES Output and AERMOD Emission Rates— NAAQS —No-Action Alternative

Link	$PM_{2.5}$ (g/hr)	PM_{10} (g/hr)	SO_2 (g/hr)	NOx (g/hr)	CO (g/hr)	$PM_{2.5}$ EF (g/s)	PM_{10} EF (g/s)	SO_2 EF (g/s)	NOx EF (g/s)	CO EF (g/s)
47	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
48	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
49	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
50	6.80	7.40	4.06	430.43	193.38	1.9E-03	2.1E-03	1.1E-03	1.2E-01	5.4E-02
51	0.02	0.02	0.01	0.48	3.99	4.6E-06	5.1E-06	3.1E-06	1.3E-04	1.1E-03
52	0.02	0.02	0.01	0.48	3.99	4.6E-06	5.1E-06	3.1E-06	1.3E-04	1.1E-03
53	2.86	3.11	1.70	185.26	55.43	7.9E-04	8.6E-04	4.7E-04	5.1E-02	1.5E-02
54	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
55	0.13	0.15	0.09	3.80	31.82	3.7E-05	4.1E-05	2.5E-05	1.1E-03	8.8E-03
56	0.13	0.14	0.09	3.70	30.96	3.6E-05	4.0E-05	2.4E-05	1.0E-03	8.6E-03
57	0.02	0.02	0.01	0.51	4.24	4.9E-06	5.5E-06	3.3E-06	1.4E-04	1.2E-03
58	0.32	0.35	0.20	14.44	44.34	8.9E-05	9.8E-05	5.6E-05	4.0E-03	1.2E-02
59	0.80	0.88	0.50	37.83	100.45	2.2E-04	2.4E-04	1.4E-04	1.1E-02	2.8E-02
60	0.48	0.53	0.31	19.91	79.34	1.3E-04	1.5E-04	8.7E-05	5.5E-03	2.2E-02
61	0.88	0.97	0.55	47.31	77.04	2.4E-04	2.7E-04	1.5E-04	1.3E-02	2.1E-02
62	1.55	1.69	0.96	82.40	139.11	4.3E-04	4.7E-04	2.7E-04	2.3E-02	3.9E-02
63	0.55	0.61	0.34	29.70	48.69	1.5E-04	1.7E-04	9.5E-05	8.2E-03	1.4E-02
64	0.69	0.75	0.46	41.65	59.03	1.9E-04	2.1E-04	1.3E-04	1.2E-02	1.6E-02
65	1.21	1.34	0.83	49.17	232.71	3.4E-04	3.7E-04	2.3E-04	1.4E-02	6.5E-02
66	0.58	0.64	0.40	22.68	114.35	1.6E-04	1.8E-04	1.1E-04	6.3E-03	3.2E-02
67	0.37	0.41	0.26	14.66	73.79	1.0E-04	1.1E-04	7.1E-05	4.1E-03	2.0E-02
68	0.29	0.33	0.21	11.63	58.06	8.2E-05	9.1E-05	5.8E-05	3.2E-03	1.6E-02
69	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Links 1-68 represent roadways. They were modeled to represent an average hour of activity
LinkID 69 represents the Off-Network Link in the MOVES model to develop OTR idling emission factors
Link 69 was modeled to represent a full day of idling.

Table 5-30 MOVES Output and AERMOD Emission Rates— DPM —Alternatives 1 & 3

Link	Pollutant ID	Fuel Type ID	Emission Quant (g/hr)	DPM EF (g/s)	Link	Pollutant ID	Fuel Type ID	Emission Quant (g/hr)	DPM EF (g/s)
1	110	2	4.78	1.3E-03	36	110	2	0.18	5.1E-05
2	110	2	4.84	1.3E-03	37	110	2	0.00	0.0E+00
3	110	2	1.26	3.5E-04	38	110	2	0.82	2.3E-04
4	110	2	0.63	1.8E-04	39	110	2	1.95	5.4E-04
5	110	2	0.28	7.8E-05	40	110	2	0.29	8.1E-05
6	110	2	0.71	2.0E-04	41	110	2	1.10	3.1E-04
7	110	2	0.52	1.5E-04	42	110	2	0.45	1.3E-04
8	110	2	1.13	3.1E-04	43	110	2	0.32	8.9E-05
9	110	2	0.28	7.7E-05	44	110	2	0.19	5.3E-05
10	110	2	0.61	1.7E-04	45	110	2	0.08	2.2E-05
11	110	2	1.14	3.2E-04	46	110	2	0.00	0.0E+00
12	110	2	0.83	2.3E-04	47	110	2	0.32	8.8E-05
13	110	2	0.24	6.6E-05	48	110	2	0.00	0.0E+00
14	110	2	0.22	6.1E-05	49	110	2	0.00	0.0E+00
15	110	2	0.34	9.4E-05	50	110	2	7.72	2.1E-03
16	110	2	0.26	7.2E-05	51	110	2	0.14	4.0E-05
17	110	2	0.37	1.0E-04	52	110	2	0.08	2.1E-05
18	110	2	0.25	6.9E-05	53	110	2	2.64	7.3E-04
19	110	2	0.30	8.2E-05	54	110	2	0.70	2.0E-04
20	110	2	1.08	3.0E-04	55	110	2	0.71	2.0E-04
21	110	2	0.88	2.5E-04	56	110	2	0.71	2.0E-04
22	110	2	2.37	6.6E-04	57	110	2	0.13	3.7E-05
23	110	2	0.49	1.4E-04	58	110	2	0.17	4.8E-05
24	110	2	0.23	6.4E-05	59	110	2	0.45	1.2E-04
25	110	2	0.31	8.7E-05	60	110	2	0.26	7.2E-05
26	110	2	0.38	1.1E-04	61	110	2	0.77	2.1E-04
27	110	2	0.22	6.2E-05	62	110	2	1.34	3.7E-04
28	110	2	0.63	1.8E-04	63	110	2	0.48	1.3E-04
29	110	2	0.28	7.8E-05	64	110	2	0.62	1.7E-04
30	110	2	0.00	0.0E+00	65	110	2	0.64	1.8E-04
31	110	2	0.40	1.1E-04	66	110	2	0.29	8.0E-05
32	110	2	0.04	1.2E-05	67	110	2	0.19	5.2E-05
33	110	2	0.00	0.0E+00	68	110	2	0.14	3.9E-05
34	110	2	0.00	0.0E+00	69	110	2	101.41	2.8E-02
35	110	2	0.84	2.3E-04					

Links 1-68 represent roadways. They were modeled to represent an average hour of activity
LinkID 69 represents the Off-Network Link in the MOVES model to develop OTR idling emission factors
Link 69 was modeled to represent a full day of idling.

Table 5-31 MOVES Output and AERMOD Emission Rates— NAAQS —Alternatives 1 & 3

Link	$PM_{2.5}$ (g/hr)	PM_{10} (g/hr)	SO_2 (g/hr)	NOx (g/hr)	CO (g/hr)	$PM_{2.5}$ EF (g/s)	PM_{10} EF (g/s)	SO_2 EF (g/s)	NOx EF (g/s)	CO EF (g/s)
1	8.55	9.46	7.13	609.79	1416.35	2.4E-03	2.6E-03	2.0E-03	1.7E-01	3.9E-01
2	9.26	10.26	7.67	626.28	1641.73	2.6E-03	2.8E-03	2.1E-03	1.7E-01	4.6E-01
3	2.40	2.65	1.99	163.27	420.89	6.7E-04	7.4E-04	5.5E-04	4.5E-02	1.2E-01
4	0.76	0.83	0.52	57.11	53.45	2.1E-04	2.3E-04	1.4E-04	1.6E-02	1.5E-02
5	0.37	0.40	0.25	25.60	33.69	1.0E-04	1.1E-04	7.0E-05	7.1E-03	9.4E-03
6	0.74	0.80	0.50	62.53	22.51	2.0E-04	2.2E-04	1.4E-04	1.7E-02	6.3E-03
7	0.55	0.59	0.37	46.45	16.52	1.5E-04	1.7E-04	1.0E-04	1.3E-02	4.6E-03
8	1.26	1.37	0.85	101.09	61.15	3.5E-04	3.8E-04	2.4E-04	2.8E-02	1.7E-02
9	0.37	0.40	0.25	25.49	33.57	1.0E-04	1.1E-04	7.0E-05	7.1E-03	9.3E-03
10	0.63	0.69	0.43	53.74	19.20	1.8E-04	1.9E-04	1.2E-04	1.5E-02	5.3E-03
11	1.19	1.30	0.81	101.30	36.12	3.3E-04	3.6E-04	2.2E-04	2.8E-02	1.0E-02
12	1.64	1.82	1.04	68.21	310.56	4.6E-04	5.0E-04	2.9E-04	1.9E-02	8.6E-02
13	0.52	0.57	0.33	20.08	105.37	1.4E-04	1.6E-04	9.2E-05	5.6E-03	2.9E-02
14	0.43	0.48	0.27	18.05	80.14	1.2E-04	1.3E-04	7.5E-05	5.0E-03	2.2E-02
15	0.58	0.65	0.36	27.31	94.61	1.6E-04	1.8E-04	1.0E-04	7.6E-03	2.6E-02
16	0.52	0.58	0.33	21.52	98.84	1.4E-04	1.6E-04	9.2E-05	6.0E-03	2.7E-02
17	0.59	0.65	0.36	29.13	88.22	1.6E-04	1.8E-04	1.0E-04	8.1E-03	2.5E-02
18	0.62	0.69	0.42	24.27	138.78	1.7E-04	1.9E-04	1.2E-04	6.7E-03	3.9E-02
19	0.59	0.65	0.39	27.38	109.99	1.6E-04	1.8E-04	1.1E-04	7.6E-03	3.1E-02
20	2.06	2.28	1.36	99.27	370.32	5.7E-04	6.3E-04	3.8E-04	2.8E-02	1.0E-01
21	1.14	1.25	0.76	78.45	105.14	3.2E-04	3.5E-04	2.1E-04	2.2E-02	2.9E-02
22	3.14	3.45	2.08	211.39	307.29	8.7E-04	9.6E-04	5.8E-04	5.9E-02	8.5E-02
23	0.64	0.70	0.42	43.30	60.67	1.8E-04	1.9E-04	1.2E-04	1.2E-02	1.7E-02
24	0.47	0.52	0.32	22.28	86.36	1.3E-04	1.5E-04	9.0E-05	6.2E-03	2.4E-02
25	0.69	0.76	0.47	30.79	132.98	1.9E-04	2.1E-04	1.3E-04	8.6E-03	3.7E-02
26	0.73	0.81	0.50	36.27	128.02	2.0E-04	2.3E-04	1.4E-04	1.0E-02	3.6E-02
27	0.46	0.51	0.32	21.72	86.20	1.3E-04	1.4E-04	8.9E-05	6.0E-03	2.4E-02
28	1.01	1.12	0.68	58.39	140.62	2.8E-04	3.1E-04	1.9E-04	1.6E-02	3.9E-02
29	0.51	0.56	0.32	22.75	87.02	1.4E-04	1.6E-04	8.8E-05	6.3E-03	2.4E-02
30	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
31	0.53	0.59	0.37	36.67	52.72	1.5E-04	1.6E-04	1.0E-04	1.0E-02	1.5E-02
32	0.05	0.05	0.03	3.86	2.17	1.3E-05	1.4E-05	8.9E-06	1.1E-03	6.0E-04
33	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
34	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
35	1.42	1.57	0.93	75.41	222.15	3.9E-04	4.4E-04	2.6E-04	2.1E-02	6.2E-02
36	0.24	0.27	0.15	14.07	25.68	6.8E-05	7.5E-05	4.0E-05	3.9E-03	7.1E-03
37	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
38	1.05	1.15	0.61	62.99	94.60	2.9E-04	3.2E-04	1.7E-04	1.7E-02	2.6E-02
39	2.18	2.38	1.24	147.11	112.52	6.1E-04	6.6E-04	3.4E-04	4.1E-02	3.1E-02
40	0.32	0.35	0.18	21.95	15.42	8.9E-05	9.8E-05	5.0E-05	6.1E-03	4.3E-03
41	1.19	1.30	0.67	82.49	50.25	3.3E-04	3.6E-04	1.9E-04	2.3E-02	1.4E-02
42	0.46	0.50	0.25	33.81	9.60	1.3E-04	1.4E-04	7.1E-05	9.4E-03	2.7E-03
43	0.77	0.86	0.50	27.58	169.84	2.1E-04	2.4E-04	1.4E-04	7.7E-03	4.7E-02
44	0.37	0.41	0.23	15.74	67.92	1.0E-04	1.1E-04	6.5E-05	4.4E-03	1.9E-02
45	0.16	0.18	0.10	6.69	30.43	4.5E-05	4.9E-05	2.8E-05	1.9E-03	8.5E-03
46	0.01	0.01	0.01	0.06	2.77	2.1E-06	2.4E-06	1.5E-06	1.8E-05	7.7E-04
47	0.32	0.35	0.17	23.65	4.72	8.8E-05	9.6E-05	4.8E-05	6.6E-03	1.3E-03
48	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
49	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Table 5-31 MOVES Output and AERMOD Emission Rates— NAAQS —Alternatives 1 & 3

Link	$PM_{2.5}$ (g/hr)	PM_{10} (g/hr)	SO_2 (g/hr)	NOx (g/hr)	CO (g/hr)	$PM_{2.5}$ EF (g/s)	PM_{10} EF (g/s)	SO_2 EF (g/s)	NOx EF (g/s)	CO EF (g/s)
50	7.97	8.68	4.42	575.96	208.20	2.2E-03	2.4E-03	1.2E-03	1.6E-01	5.8E-02
51	0.15	0.17	0.09	10.67	6.09	4.3E-05	4.6E-05	2.4E-05	3.0E-03	1.7E-03
52	0.09	0.10	0.05	5.72	5.92	2.5E-05	2.7E-05	1.4E-05	1.6E-03	1.6E-03
53	2.67	2.90	1.47	196.31	51.03	7.4E-04	8.1E-04	4.1E-04	5.5E-02	1.4E-02
54	0.81	0.88	0.46	53.11	49.66	2.2E-04	2.5E-04	1.3E-04	1.5E-02	1.4E-02
55	0.82	0.89	0.47	53.41	51.57	2.3E-04	2.5E-04	1.3E-04	1.5E-02	1.4E-02
56	0.80	0.87	0.45	53.37	43.37	2.2E-04	2.4E-04	1.3E-04	1.5E-02	1.2E-02
57	0.14	0.16	0.08	9.87	6.15	4.0E-05	4.3E-05	2.2E-05	2.7E-03	1.7E-03
58	0.29	0.32	0.18	13.87	43.52	7.9E-05	8.8E-05	4.9E-05	3.9E-03	1.2E-02
59	0.69	0.76	0.42	35.34	96.95	1.9E-04	2.1E-04	1.2E-04	9.8E-03	2.7E-02
60	0.46	0.51	0.29	20.99	78.43	1.3E-04	1.4E-04	8.0E-05	5.8E-03	2.2E-02
61	0.95	1.04	0.55	58.67	76.26	2.6E-04	2.9E-04	1.5E-04	1.6E-02	2.1E-02
62	1.66	1.82	0.97	102.37	137.55	4.6E-04	5.1E-04	2.7E-04	2.8E-02	3.8E-02
63	0.60	0.65	0.35	36.88	48.14	1.7E-04	1.8E-04	9.6E-05	1.0E-02	1.3E-02
64	0.75	0.82	0.47	52.45	58.33	2.1E-04	2.3E-04	1.3E-04	1.5E-02	1.6E-02
65	1.25	1.38	0.83	59.09	228.43	3.5E-04	3.8E-04	2.3E-04	1.6E-02	6.3E-02
66	0.59	0.65	0.39	26.71	112.21	1.6E-04	1.8E-04	1.1E-04	7.4E-03	3.1E-02
67	0.38	0.42	0.25	17.32	72.43	1.1E-04	1.2E-04	7.0E-05	4.8E-03	2.0E-02
68	0.30	0.33	0.20	13.56	56.10	8.2E-05	9.1E-05	5.7E-05	3.8E-03	1.6E-02
69	101.41	110.23	9.60	25261.50	11996.20	2.8E-02	3.1E-02	2.7E-03	7.0E+00	3.3E+00

Links 1-68 represent roadways. They were modeled to represent an average hour of activity
LinkID 69 represents the Off-Network Link in the MOVES model to develop OTR idling emission factors
Link 69 was modeled to represent a full day of idling.

Table 5-32 MOVES Output and AERMOD Emission Rates— DPM —Alternatives 2 & 4

Link	Pollutant ID	Fuel Type ID	Emission Quant (g/hr)	DPM EF (g/s)
1	110	2	4.78	1.3E-03
2	110	2	4.84	1.3E-03
3	110	2	1.26	3.5E-04
4	110	2	0.63	1.8E-04
5	110	2	0.28	7.8E-05
6	110	2	0.71	2.0E-04
7	110	2	0.52	1.5E-04
8	110	2	1.13	3.1E-04
9	110	2	0.28	7.7E-05
10	110	2	0.61	1.7E-04
11	110	2	1.14	3.2E-04
12	110	2	0.83	2.3E-04
13	110	2	0.24	6.6E-05
14	110	2	0.22	6.1E-05
15	110	2	0.34	9.4E-05
16	110	2	0.26	7.2E-05
17	110	2	0.37	1.0E-04
18	110	2	1.17	3.3E-04
19	110	2	0.30	8.2E-05
20	110	2	1.08	3.0E-04
21	110	2	0.88	2.5E-04
22	110	2	2.35	6.5E-04
23	110	2	0.44	1.2E-04
24	110	2	0.23	6.4E-05
25	110	2	0.31	8.7E-05
26	110	2	0.38	1.1E-04
27	110	2	0.22	6.2E-05
28	110	2	0.63	1.8E-04
29	110	2	0.28	7.8E-05
30	110	2	0.00	0.0E+00
31	110	2	0.40	1.1E-04
32	110	2	0.04	1.2E-05
33	110	2	0.00	0.0E+00
34	110	2	0.00	0.0E+00
35	110	2	0.84	2.3E-04
36	110	2	0.18	5.1E-05
37	110	2	0.00	0.0E+00
38	110	2	0.82	2.3E-04
39	110	2	1.95	5.4E-04
40	110	2	0.29	8.1E-05
41	110	2	1.10	3.1E-04
42	110	2	0.45	1.3E-04
43	110	2	0.30	8.3E-05
44	110	2	0.19	5.2E-05
45	110	2	0.08	2.2E-05
46	110	2	0.00	0.0E+00
47	110	2	0.32	8.8E-05
48	110	2	0.00	0.0E+00
49	110	2	0.00	0.0E+00
50	110	2	7.72	2.1E-03
51	110	2	0.14	4.0E-05
52	110	2	0.08	2.1E-05
53	110	2	2.64	7.3E-04
54	110	2	0.70	2.0E-04
55	110	2	0.71	2.0E-04
56	110	2	0.71	2.0E-04
57	110	2	0.13	3.7E-05
58	110	2	0.17	4.8E-05
59	110	2	0.45	1.2E-04
60	110	2	0.26	7.2E-05
61	110	2	0.77	2.1E-04
62	110	2	1.34	3.7E-04
63	110	2	0.48	1.3E-04
64	110	2	0.62	1.7E-04
65	110	2	0.64	1.8E-04
66	110	2	0.29	8.0E-05
67	110	2	0.19	5.2E-05
68	110	2	0.14	3.9E-05
69	110	2	101.41	2.8E-02

Links 1-68 represent roadways. They were modeled to represent an average hour of activity
LinkID 69 represents the Off-Network Link in the MOVES model to develop OTR idling emission factors
Link 69 was modeled to represent a full day of idling.

Table 5-33 MOVES Output and AERMOD Emission Rates— NAAQS —Alternatives 2 & 4

Link	$PM_{2.5}$ (g/hr)	PM_{10} (g/hr)	SO_2 (g/hr)	NOx (g/hr)	CO (g/hr)	$PM_{2.5}$ EF (g/s)	PM_{10} EF (g/s)	SO_2 EF (g/s)	NOx EF (g/s)	CO EF (g/s)
1	8.55	9.46	7.13	609.79	1416.35	2.4E-03	2.6E-03	2.0E-03	1.7E-01	3.9E-01
2	9.26	10.26	7.67	626.28	1641.73	2.6E-03	2.8E-03	2.1E-03	1.7E-01	4.6E-01
3	2.40	2.65	1.99	163.27	420.89	6.7E-04	7.4E-04	5.5E-04	4.5E-02	1.2E-01
4	0.76	0.83	0.52	57.11	53.45	2.1E-04	2.3E-04	1.4E-04	1.6E-02	1.5E-02
5	0.37	0.40	0.25	25.60	33.69	1.0E-04	1.1E-04	7.0E-05	7.1E-03	9.4E-03
6	0.74	0.80	0.50	62.53	22.51	2.0E-04	2.2E-04	1.4E-04	1.7E-02	6.3E-03
7	0.55	0.59	0.37	46.45	16.52	1.5E-04	1.7E-04	1.0E-04	1.3E-02	4.6E-03
8	1.26	1.37	0.85	101.09	61.15	3.5E-04	3.8E-04	2.4E-04	2.8E-02	1.7E-02
9	0.37	0.40	0.25	25.49	33.57	1.0E-04	1.1E-04	7.0E-05	7.1E-03	9.3E-03
10	0.63	0.69	0.43	53.74	19.20	1.8E-04	1.9E-04	1.2E-04	1.5E-02	5.3E-03
11	1.19	1.30	0.81	101.30	36.12	3.3E-04	3.6E-04	2.2E-04	2.8E-02	1.0E-02
12	1.64	1.82	1.04	68.21	310.56	4.6E-04	5.0E-04	2.9E-04	1.9E-02	8.6E-02
13	0.52	0.57	0.33	20.08	105.37	1.4E-04	1.6E-04	9.2E-05	5.6E-03	2.9E-02
14	0.43	0.48	0.27	18.05	80.14	1.2E-04	1.3E-04	7.5E-05	5.0E-03	2.2E-02
15	0.58	0.65	0.36	27.31	94.61	1.6E-04	1.8E-04	1.0E-04	7.6E-03	2.6E-02
16	0.52	0.58	0.33	21.52	98.84	1.4E-04	1.6E-04	9.2E-05	6.0E-03	2.7E-02
17	0.59	0.65	0.36	29.13	88.22	1.6E-04	1.8E-04	1.0E-04	8.1E-03	2.5E-02
18	1.57	1.72	0.99	101.43	161.98	4.4E-04	4.8E-04	2.8E-04	2.8E-02	4.5E-02
19	0.59	0.65	0.39	27.38	109.99	1.6E-04	1.8E-04	1.1E-04	7.6E-03	3.1E-02
20	2.06	2.28	1.36	99.27	370.32	5.7E-04	6.3E-04	3.8E-04	2.8E-02	1.0E-01
21	1.14	1.25	0.76	78.45	105.14	3.2E-04	3.5E-04	2.1E-04	2.2E-02	2.9E-02
22	3.12	3.43	2.07	210.13	305.45	8.7E-04	9.5E-04	5.8E-04	5.8E-02	8.5E-02
23	0.57	0.63	0.38	38.93	54.54	1.6E-04	1.7E-04	1.1E-04	1.1E-02	1.5E-02
24	0.47	0.52	0.32	22.28	86.36	1.3E-04	1.5E-04	9.0E-05	6.2E-03	2.4E-02
25	0.69	0.76	0.47	30.79	132.98	1.9E-04	2.1E-04	1.3E-04	8.6E-03	3.7E-02
26	0.73	0.81	0.50	36.27	128.02	2.0E-04	2.3E-04	1.4E-04	1.0E-02	3.6E-02
27	0.46	0.51	0.32	21.72	86.20	1.3E-04	1.4E-04	8.9E-05	6.0E-03	2.4E-02
28	1.01	1.12	0.68	58.39	140.62	2.8E-04	3.1E-04	1.9E-04	1.6E-02	3.9E-02
29	0.51	0.56	0.32	22.75	87.02	1.4E-04	1.6E-04	8.8E-05	6.3E-03	2.4E-02
30	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
31	0.53	0.59	0.37	36.67	52.72	1.5E-04	1.6E-04	1.0E-04	1.0E-02	1.5E-02
32	0.05	0.05	0.03	3.86	2.17	1.3E-05	1.4E-05	8.9E-06	1.1E-03	6.0E-04
33	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
34	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
35	1.42	1.57	0.93	75.41	222.15	3.9E-04	4.4E-04	2.6E-04	2.1E-02	6.2E-02
36	0.24	0.27	0.15	14.07	25.68	6.8E-05	7.5E-05	4.0E-05	3.9E-03	7.1E-03
37	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
38	1.05	1.15	0.61	62.99	94.60	2.9E-04	3.2E-04	1.7E-04	1.7E-02	2.6E-02
39	2.18	2.38	1.24	147.11	112.52	6.1E-04	6.6E-04	3.4E-04	4.1E-02	3.1E-02
40	0.32	0.35	0.18	21.95	15.42	8.9E-05	9.8E-05	5.0E-05	6.1E-03	4.3E-03
41	1.19	1.30	0.67	82.49	50.25	3.3E-04	3.6E-04	1.9E-04	2.3E-02	1.4E-02
42	0.46	0.50	0.25	33.81	9.60	1.3E-04	1.4E-04	7.1E-05	9.4E-03	2.7E-03
43	0.72	0.80	0.47	25.84	159.12	2.0E-04	2.2E-04	1.3E-04	7.2E-03	4.4E-02
44	0.36	0.40	0.23	15.45	66.65	1.0E-04	1.1E-04	6.4E-05	4.3E-03	1.9E-02
45	0.16	0.18	0.10	6.69	30.43	4.5E-05	4.9E-05	2.8E-05	1.9E-03	8.5E-03
46	0.01	0.01	0.01	0.06	2.77	2.1E-06	2.4E-06	1.5E-06	1.8E-05	7.7E-04
47	0.32	0.35	0.17	23.65	4.72	8.8E-05	9.6E-05	4.8E-05	6.6E-03	1.3E-03
48	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
49	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Table 5-33 MOVES Output and AERMOD Emission Rates— NAAQS —Alternatives 2 & 4

Link	$PM_{2.5}$ (g/hr)	PM_{10} (g/hr)	SO_2 (g/hr)	NOx (g/hr)	CO (g/hr)	$PM_{2.5}$ EF (g/s)	PM_{10} EF (g/s)	SO_2 EF (g/s)	NOx EF (g/s)	CO EF (g/s)
50	7.97	8.68	4.42	575.96	208.20	2.2E-03	2.4E-03	1.2E-03	1.6E-01	5.8E-02
51	0.15	0.17	0.09	10.67	6.09	4.3E-05	4.6E-05	2.4E-05	3.0E-03	1.7E-03
52	0.09	0.10	0.05	5.72	5.92	2.5E-05	2.7E-05	1.4E-05	1.6E-03	1.6E-03
53	2.67	2.90	1.47	196.31	51.03	7.4E-04	8.1E-04	4.1E-04	5.5E-02	1.4E-02
54	0.81	0.88	0.46	53.11	49.66	2.2E-04	2.5E-04	1.3E-04	1.5E-02	1.4E-02
55	0.82	0.89	0.47	53.41	51.57	2.3E-04	2.5E-04	1.3E-04	1.5E-02	1.4E-02
56	0.80	0.87	0.45	53.37	43.37	2.2E-04	2.4E-04	1.3E-04	1.5E-02	1.2E-02
57	0.14	0.16	0.08	9.87	6.15	4.0E-05	4.3E-05	2.2E-05	2.7E-03	1.7E-03
58	0.29	0.32	0.18	13.87	43.52	7.9E-05	8.8E-05	4.9E-05	3.9E-03	1.2E-02
59	0.69	0.76	0.42	35.34	96.95	1.9E-04	2.1E-04	1.2E-04	9.8E-03	2.7E-02
60	0.46	0.51	0.29	20.99	78.43	1.3E-04	1.4E-04	8.0E-05	5.8E-03	2.2E-02
61	0.95	1.04	0.55	58.67	76.26	2.6E-04	2.9E-04	1.5E-04	1.6E-02	2.1E-02
62	1.66	1.82	0.97	102.37	137.55	4.6E-04	5.1E-04	2.7E-04	2.8E-02	3.8E-02
63	0.60	0.65	0.35	36.88	48.14	1.7E-04	1.8E-04	9.6E-05	1.0E-02	1.3E-02
64	0.75	0.82	0.47	52.45	58.33	2.1E-04	2.3E-04	1.3E-04	1.5E-02	1.6E-02
65	1.25	1.38	0.83	59.09	228.43	3.5E-04	3.8E-04	2.3E-04	1.6E-02	6.3E-02
66	0.59	0.65	0.39	26.71	112.21	1.6E-04	1.8E-04	1.1E-04	7.4E-03	3.1E-02
67	0.38	0.42	0.25	17.32	72.43	1.1E-04	1.2E-04	7.0E-05	4.8E-03	2.0E-02
68	0.30	0.33	0.20	13.56	56.10	8.2E-05	9.1E-05	5.7E-05	3.8E-03	1.6E-02
69	101.41	110.23	9.60	25261.50	11996.20	2.8E-02	3.1E-02	2.7E-03	7.0E+00	3.3E+00

Links 1-68 represent roadways. They were modeled to represent an average hour of activity
LinkID 69 represents the Off-Network Link in the MOVES model to develop OTR idling emission factors
Link 69 was modeled to represent a full day of idling.

Table 5-34 MOVES Output and AERMOD Emission Rates— DPM —Alternatives 5, 6 & 7

Link	Pollutant ID	Fuel Type ID	Emission Quant (g/hr)	DPM EF (g/s)
1	110	2	4.95	1.4E-03
2	110	2	4.28	1.2E-03
3	110	2	1.10	3.1E-04
4	110	2	0.62	1.7E-04
5	110	2	0.29	8.1E-05
6	110	2	0.66	1.8E-04
7	110	2	0.46	1.3E-04
8	110	2	1.13	3.1E-04
9	110	2	0.29	8.0E-05
10	110	2	0.62	1.7E-04
11	110	2	1.05	2.9E-04
12	110	2	0.82	2.3E-04
13	110	2	0.28	7.8E-05
14	110	2	0.24	6.7E-05
15	110	2	0.43	1.2E-04
16	110	2	0.42	1.2E-04
17	110	2	0.59	1.6E-04
18	110	2	0.00	0.0E+00
19	110	2	0.30	8.3E-05
20	110	2	1.09	3.0E-04
21	110	2	0.91	2.5E-04
22	110	2	2.72	7.6E-04
23	110	2	0.48	1.3E-04
24	110	2	0.68	1.9E-04
25	110	2	1.03	2.9E-04
26	110	2	1.03	2.9E-04
27	110	2	0.73	2.0E-04
28	110	2	0.92	2.6E-04
29	110	2	0.20	5.6E-05
30	110	2	0.00	0.0E+00
31	110	2	0.38	1.0E-04
32	110	2	0.05	1.3E-05
33	110	2	0.00	0.0E+00
34	110	2	0.00	0.0E+00
35	110	2	0.85	2.4E-04
36	110	2	0.56	1.5E-04
37	110	2	0.00	0.0E+00
38	110	2	0.81	2.2E-04
39	110	2	0.20	5.4E-05
40	110	2	0.00	0.0E+00
41	110	2	0.13	3.6E-05
42	110	2	0.29	8.1E-05
43	110	2	0.31	8.7E-05
44	110	2	0.07	1.9E-05
45	110	2	0.08	2.3E-05
46	110	2	0.00	0.0E+00
47	110	2	0.00	0.0E+00
48	110	2	0.01	1.7E-06
49	110	2	0.96	2.7E-04
50	110	2	7.08	2.0E-03
51	110	2	0.02	4.5E-06
52	110	2	0.02	5.4E-06
53	110	2	2.85	7.9E-04
54	110	2	0.52	1.5E-04
55	110	2	0.46	1.3E-04
56	110	2	0.12	3.4E-05
57	110	2	0.01	3.7E-06
58	110	2	0.22	6.2E-05
59	110	2	0.61	1.7E-04
60	110	2	0.30	8.3E-05
61	110	2	0.84	2.3E-04
62	110	2	1.50	4.2E-04
63	110	2	0.54	1.5E-04
64	110	2	0.70	1.9E-04
65	110	2	0.65	1.8E-04
66	110	2	0.30	8.3E-05
67	110	2	0.19	5.4E-05
68	110	2	0.15	4.0E-05
69	110	2	101.41	2.8E-02

Links 1-68 represent roadways. They were modeled to represent an average hour of activity
LinkID 69 represents the Off-Network Link in the MOVES model to develop OTR idling emission factors
Link 69 was modeled to represent a full day of idling.

Table 5-35 MOVES Output and AERMOD Emission Rates— NAAQS —Alternatives 5, 6 & 7

Link	$PM_{2.5}$ (g/hr)	PM_{10} (g/hr)	SO_2 (g/hr)	NOx (g/hr)	CO (g/hr)	$PM_{2.5}$ EF (g/s)	PM_{10} EF (g/s)	SO_2 EF (g/s)	NOx EF (g/s)	CO EF (g/s)
1	8.77	9.70	7.32	630.61	1436.60	2.4E-03	2.7E-03	2.0E-03	1.8E-01	4.0E-01
2	8.77	9.73	7.22	561.91	1655.98	2.4E-03	2.7E-03	2.0E-03	1.6E-01	4.6E-01
3	2.25	2.50	1.85	144.20	424.11	6.2E-04	6.9E-04	5.1E-04	4.0E-02	1.2E-01
4	0.76	0.83	0.52	56.50	54.42	2.1E-04	2.3E-04	1.4E-04	1.6E-02	1.5E-02
5	0.38	0.42	0.26	26.71	34.63	1.1E-04	1.2E-04	7.3E-05	7.4E-03	9.6E-03
6	0.69	0.75	0.47	58.35	22.76	1.9E-04	2.1E-04	1.3E-04	1.6E-02	6.3E-03
7	0.49	0.53	0.33	40.95	15.95	1.3E-04	1.5E-04	9.1E-05	1.1E-02	4.4E-03
8	1.27	1.39	0.87	101.15	66.73	3.5E-04	3.9E-04	2.4E-04	2.8E-02	1.9E-02
9	0.38	0.42	0.26	26.53	35.90	1.1E-04	1.2E-04	7.3E-05	7.4E-03	1.0E-02
10	0.66	0.71	0.44	55.37	21.49	1.8E-04	2.0E-04	1.2E-04	1.5E-02	6.0E-03
11	1.11	1.21	0.75	93.59	36.57	3.1E-04	3.4E-04	2.1E-04	2.6E-02	1.0E-02
12	1.59	1.76	1.00	67.69	293.40	4.4E-04	4.9E-04	2.8E-04	1.9E-02	8.2E-02
13	0.58	0.64	0.37	23.38	111.85	1.6E-04	1.8E-04	1.0E-04	6.5E-03	3.1E-02
14	0.45	0.50	0.28	19.69	80.03	1.2E-04	1.4E-04	7.9E-05	5.5E-03	2.2E-02
15	0.68	0.75	0.42	33.78	99.91	1.9E-04	2.1E-04	1.2E-04	9.4E-03	2.8E-02
16	0.69	0.76	0.42	33.19	105.41	1.9E-04	2.1E-04	1.2E-04	9.2E-03	2.9E-02
17	0.83	0.91	0.50	45.84	97.58	2.3E-04	2.5E-04	1.4E-04	1.3E-02	2.7E-02
18	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
19	0.54	0.59	0.35	27.06	90.60	1.5E-04	1.6E-04	9.8E-05	7.5E-03	2.5E-02
20	2.05	2.27	1.36	99.69	364.53	5.7E-04	6.3E-04	3.8E-04	2.8E-02	1.0E-01
21	1.25	1.37	0.83	81.32	133.72	3.5E-04	3.8E-04	2.3E-04	2.3E-02	3.7E-02
22	3.60	3.96	2.39	242.55	351.40	1.0E-03	1.1E-03	6.6E-04	6.7E-02	9.8E-02
23	0.64	0.71	0.43	42.56	65.59	1.8E-04	2.0E-04	1.2E-04	1.2E-02	1.8E-02
24	0.88	0.97	0.58	60.45	80.92	2.4E-04	2.7E-04	1.6E-04	1.7E-02	2.2E-02
25	1.33	1.46	0.88	91.83	120.84	3.7E-04	4.1E-04	2.4E-04	2.6E-02	3.4E-02
26	1.33	1.46	0.88	91.86	118.61	3.7E-04	4.0E-04	2.4E-04	2.6E-02	3.3E-02
27	0.94	1.04	0.62	64.56	87.97	2.6E-04	2.9E-04	1.7E-04	1.8E-02	2.4E-02
28	1.23	1.35	0.82	82.45	122.80	3.4E-04	3.8E-04	2.3E-04	2.3E-02	3.4E-02
29	0.38	0.42	0.24	16.37	67.32	1.0E-04	1.2E-04	6.6E-05	4.5E-03	1.9E-02
30	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
31	0.51	0.56	0.35	34.71	52.84	1.4E-04	1.6E-04	9.8E-05	9.6E-03	1.5E-02
32	0.06	0.07	0.04	4.15	5.90	1.7E-05	1.8E-05	1.2E-05	1.2E-03	1.6E-03
33	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
34	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
35	1.44	1.59	0.94	76.70	226.32	4.0E-04	4.4E-04	2.6E-04	2.1E-02	6.3E-02
36	0.66	0.72	0.38	42.34	46.37	1.8E-04	2.0E-04	1.1E-04	1.2E-02	1.3E-02
37	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
38	1.02	1.11	0.59	61.64	89.40	2.8E-04	3.1E-04	1.6E-04	1.7E-02	2.5E-02
39	0.52	0.58	0.34	17.25	121.22	1.4E-04	1.6E-04	9.4E-05	4.8E-03	3.4E-02
40	0.05	0.06	0.04	0.41	17.87	1.4E-05	1.5E-05	9.8E-06	1.1E-04	5.0E-03
41	0.29	0.33	0.19	11.10	61.31	8.1E-05	9.0E-05	5.2E-05	3.1E-03	1.7E-02
42	0.31	0.34	0.17	21.92	10.39	8.6E-05	9.4E-05	4.8E-05	6.1E-03	2.9E-03
43	0.82	0.91	0.54	27.58	189.72	2.3E-04	2.5E-04	1.5E-04	7.7E-03	5.3E-02
44	0.18	0.20	0.12	6.09	42.78	5.1E-05	5.7E-05	3.3E-05	1.7E-03	1.2E-02
45	0.18	0.20	0.11	6.89	36.41	4.9E-05	5.5E-05	3.2E-05	1.9E-03	1.0E-02
46	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
47	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
48	0.02	0.02	0.01	0.54	3.80	4.5E-06	5.0E-06	3.0E-06	1.5E-04	1.1E-03
49	0.96	1.04	0.53	71.20	14.21	2.7E-04	2.9E-04	1.5E-04	2.0E-02	3.9E-03

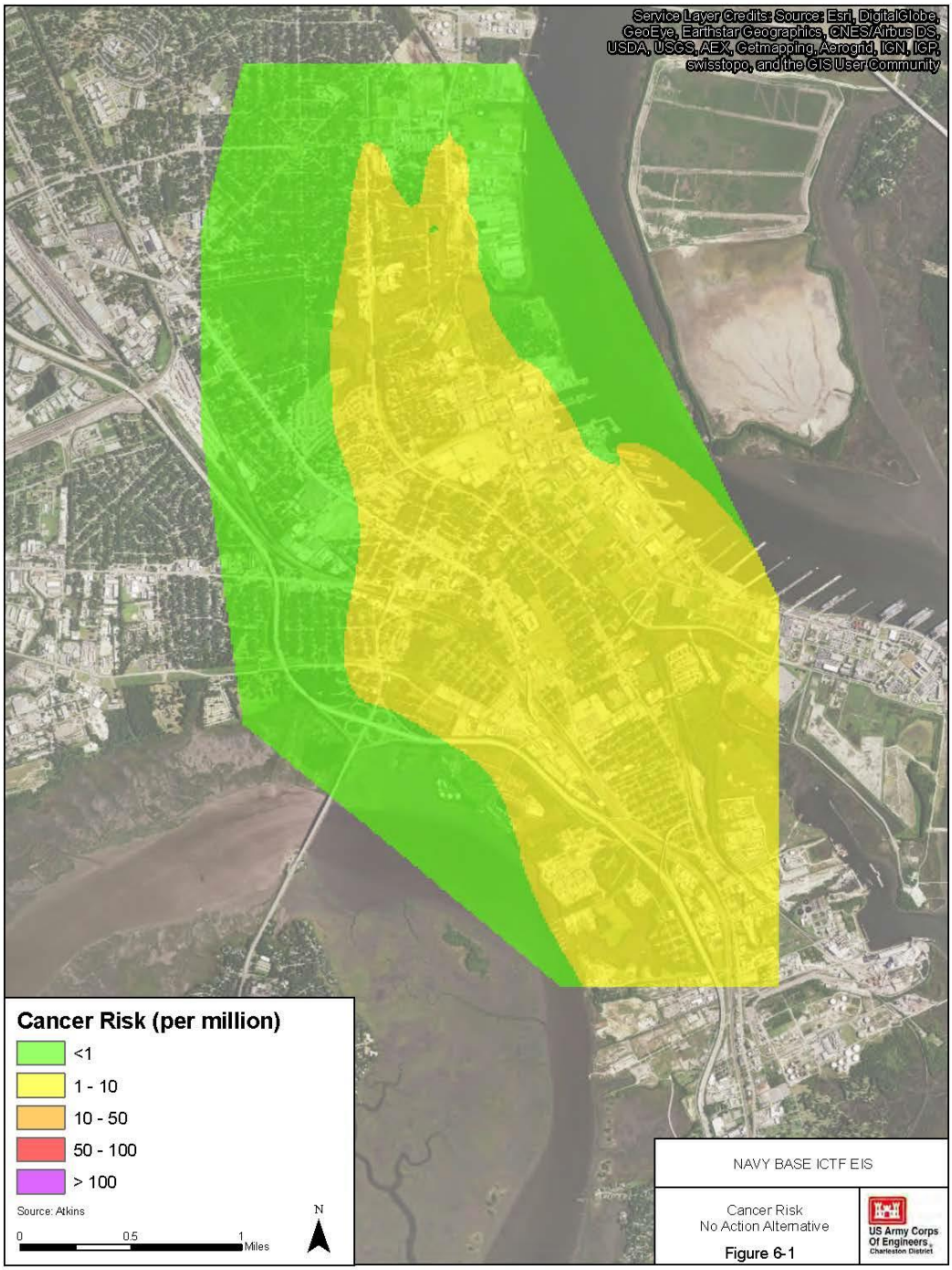
Table 5-35 MOVES Output and AERMOD Emission Rates— NAAQS —Alternatives 5, 6 & 7

Link	$PM_{2.5}$ (g/hr)	PM_{10} (g/hr)	SO_2 (g/hr)	NOx (g/hr)	CO (g/hr)	$PM_{2.5}$ EF (g/s)	PM_{10} EF (g/s)	SO_2 EF (g/s)	NOx EF (g/s)	CO EF (g/s)
50	7.37	8.02	4.09	528.93	209.72	2.0E-03	2.2E-03	1.1E-03	1.5E-01	5.8E-02
51	0.03	0.04	0.02	1.35	6.97	9.6E-06	1.1E-05	6.1E-06	3.8E-04	1.9E-03
52	0.03	0.04	0.02	1.57	5.94	9.7E-06	1.1E-05	6.0E-06	4.4E-04	1.7E-03
53	2.87	3.12	1.58	212.01	49.98	8.0E-04	8.7E-04	4.4E-04	5.9E-02	1.4E-02
54	0.67	0.73	0.39	40.12	61.77	1.9E-04	2.0E-04	1.1E-04	1.1E-02	1.7E-02
55	0.63	0.69	0.37	35.54	68.52	1.7E-04	1.9E-04	1.0E-04	9.9E-03	1.9E-02
56	0.24	0.27	0.15	10.17	45.44	6.7E-05	7.5E-05	4.3E-05	2.8E-03	1.3E-02
57	0.03	0.04	0.02	1.15	6.98	8.9E-06	9.9E-06	5.8E-06	3.2E-04	1.9E-03
58	0.34	0.37	0.21	17.66	45.81	9.5E-05	1.0E-04	5.7E-05	4.9E-03	1.3E-02
59	0.87	0.96	0.52	47.57	104.72	2.4E-04	2.7E-04	1.5E-04	1.3E-02	2.9E-02
60	0.50	0.55	0.31	23.98	76.49	1.4E-04	1.5E-04	8.5E-05	6.7E-03	2.1E-02
61	1.01	1.11	0.58	64.19	74.10	2.8E-04	3.1E-04	1.6E-04	1.8E-02	2.1E-02
62	1.80	1.97	1.04	113.82	133.44	5.0E-04	5.5E-04	2.9E-04	3.2E-02	3.7E-02
63	0.64	0.71	0.37	40.98	46.67	1.8E-04	2.0E-04	1.0E-04	1.1E-02	1.3E-02
64	0.83	0.90	0.51	59.25	58.68	2.3E-04	2.5E-04	1.4E-04	1.6E-02	1.6E-02
65	1.27	1.40	0.84	60.24	231.68	3.5E-04	3.9E-04	2.3E-04	1.7E-02	6.4E-02
66	0.60	0.67	0.40	27.81	113.80	1.7E-04	1.9E-04	1.1E-04	7.7E-03	3.2E-02
67	0.39	0.43	0.26	18.02	73.44	1.1E-04	1.2E-04	7.2E-05	5.0E-03	2.0E-02
68	0.29	0.32	0.20	13.96	50.51	7.9E-05	8.8E-05	5.4E-05	3.9E-03	1.4E-02
69	101.41	110.23	9.60	25261.50	11996.20	2.8E-02	3.1E-02	2.7E-03	7.0E+00	3.3E+00

Links 1-68 represent roadways. They were modeled to represent an average hour of activity
LinkID 69 represents the Off-Network Link in the MOVES model to develop OTR idling emission factors
Link 69 was modeled to represent a full day of idling.

6.0 HEALTH RISK ASSESSMENT (HRA)

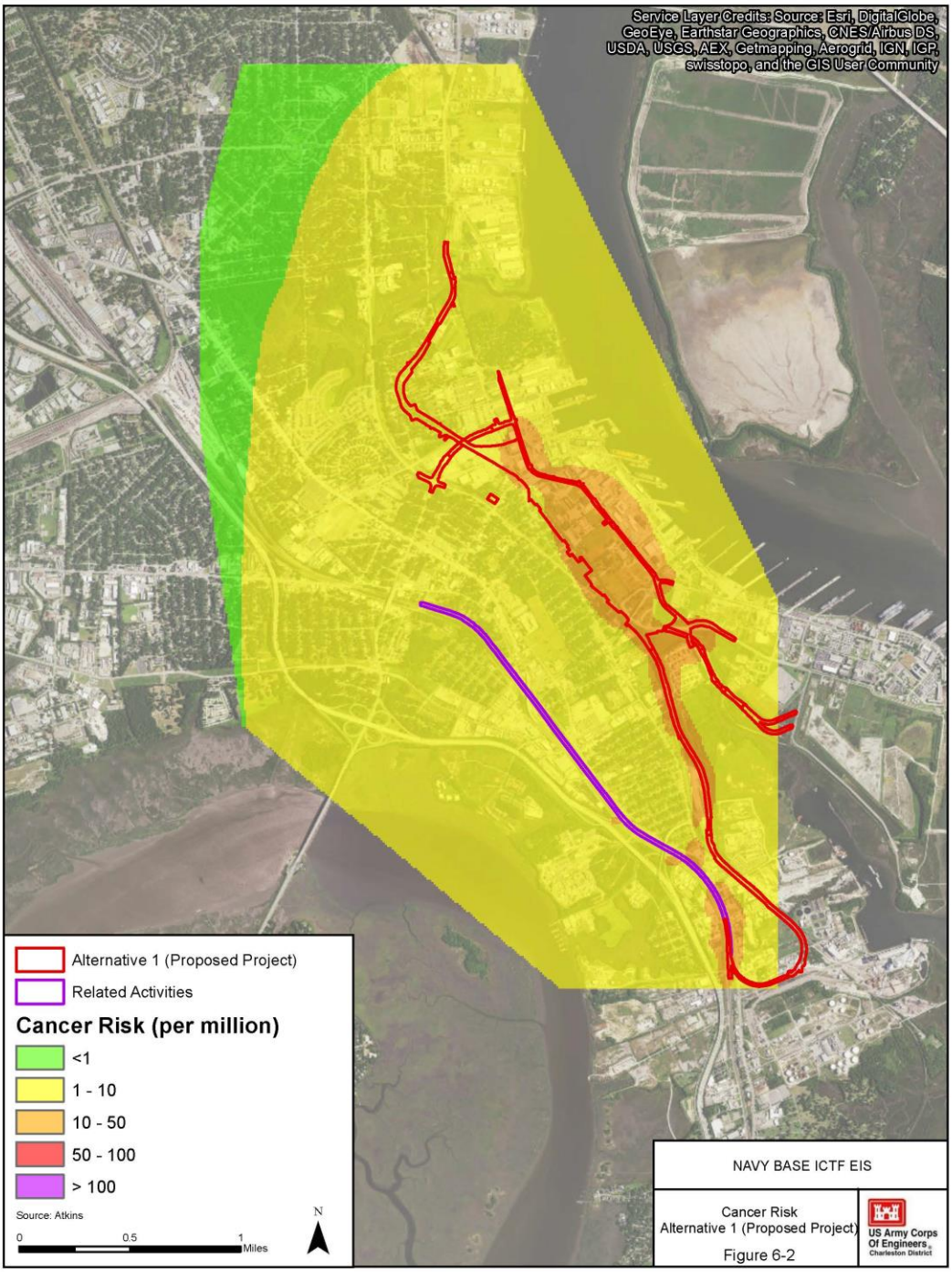
6.1 NO-ACTION ALTERNATIVE



Source: Lakes AERMOD, OEHHA 2003, USEPA 2005

Figure 6-1 No Action Alternative Cancer Risk

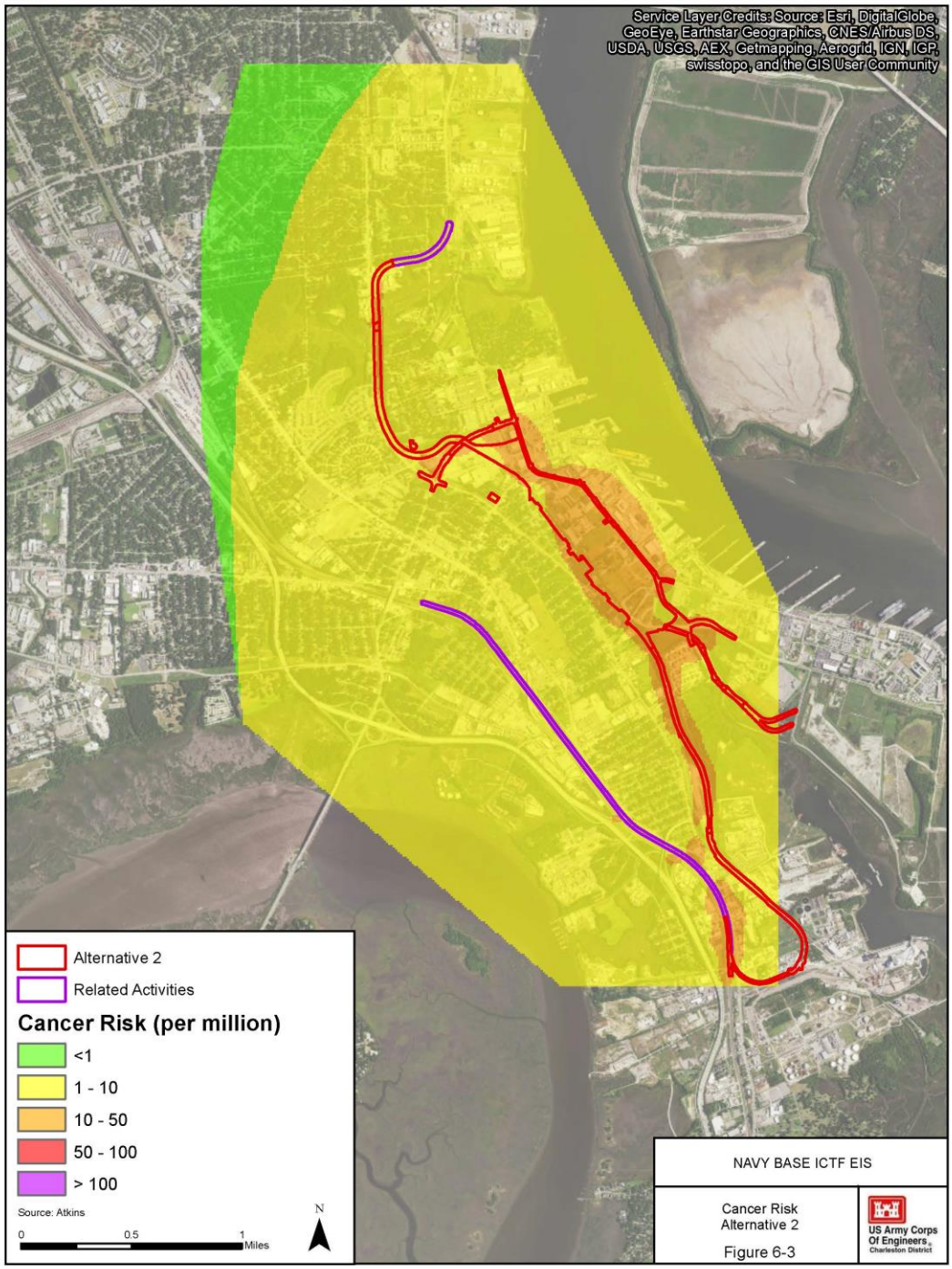
6.2 PROPOSED PROJECT (ALTERNATIVE 1)



Source: Lakes AERMOD, OEHHA 2003, USEPA 2005

Figure 6-2 Proposed Project (Alternative 1) Cancer Risk

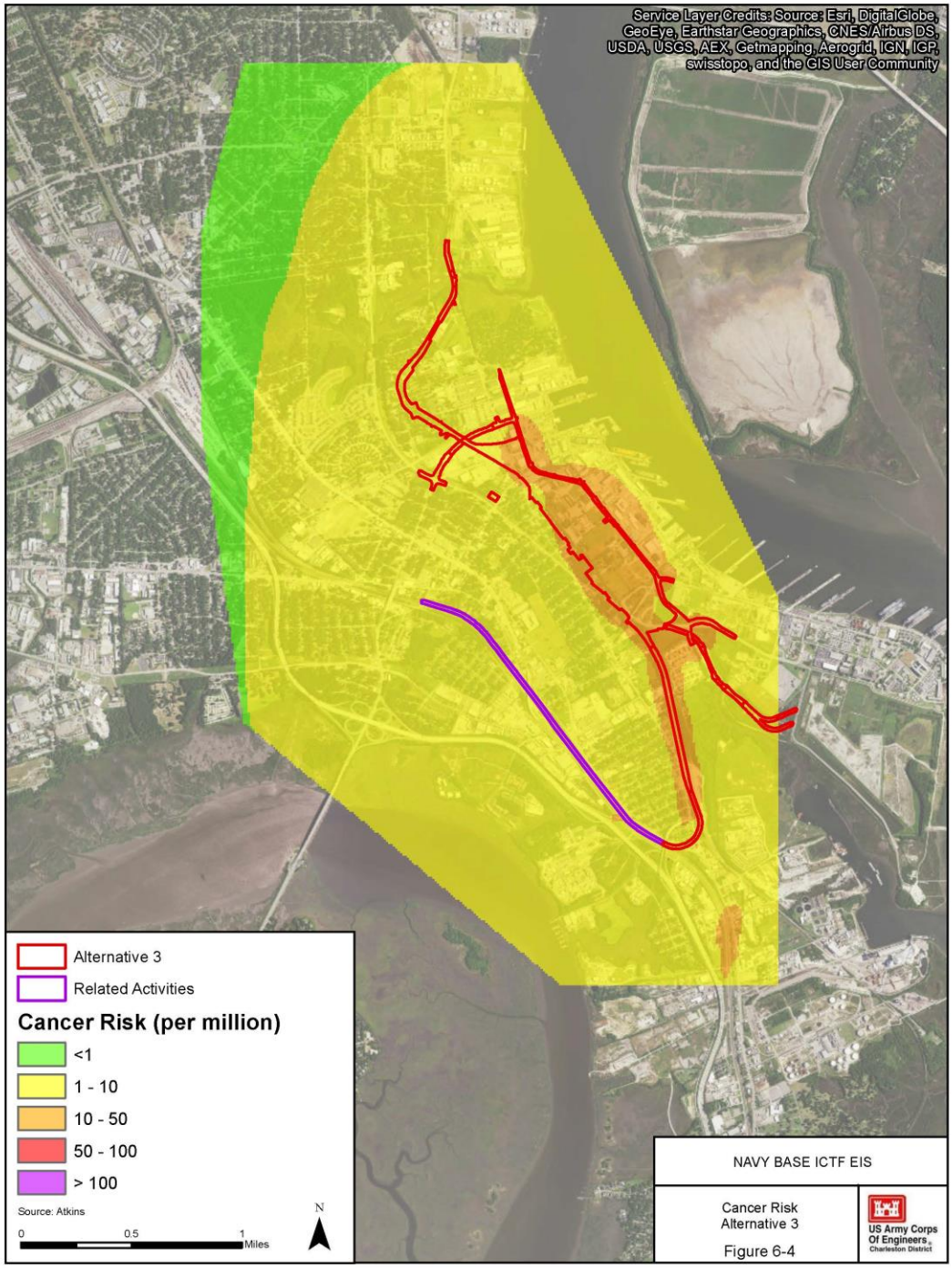
6.3 ALTERNATIVE 2



Source: Lakes AERMOD, OEHHA 2003, USEPA 2005

Figure 6-3 Alternative 2 Cancer Risk

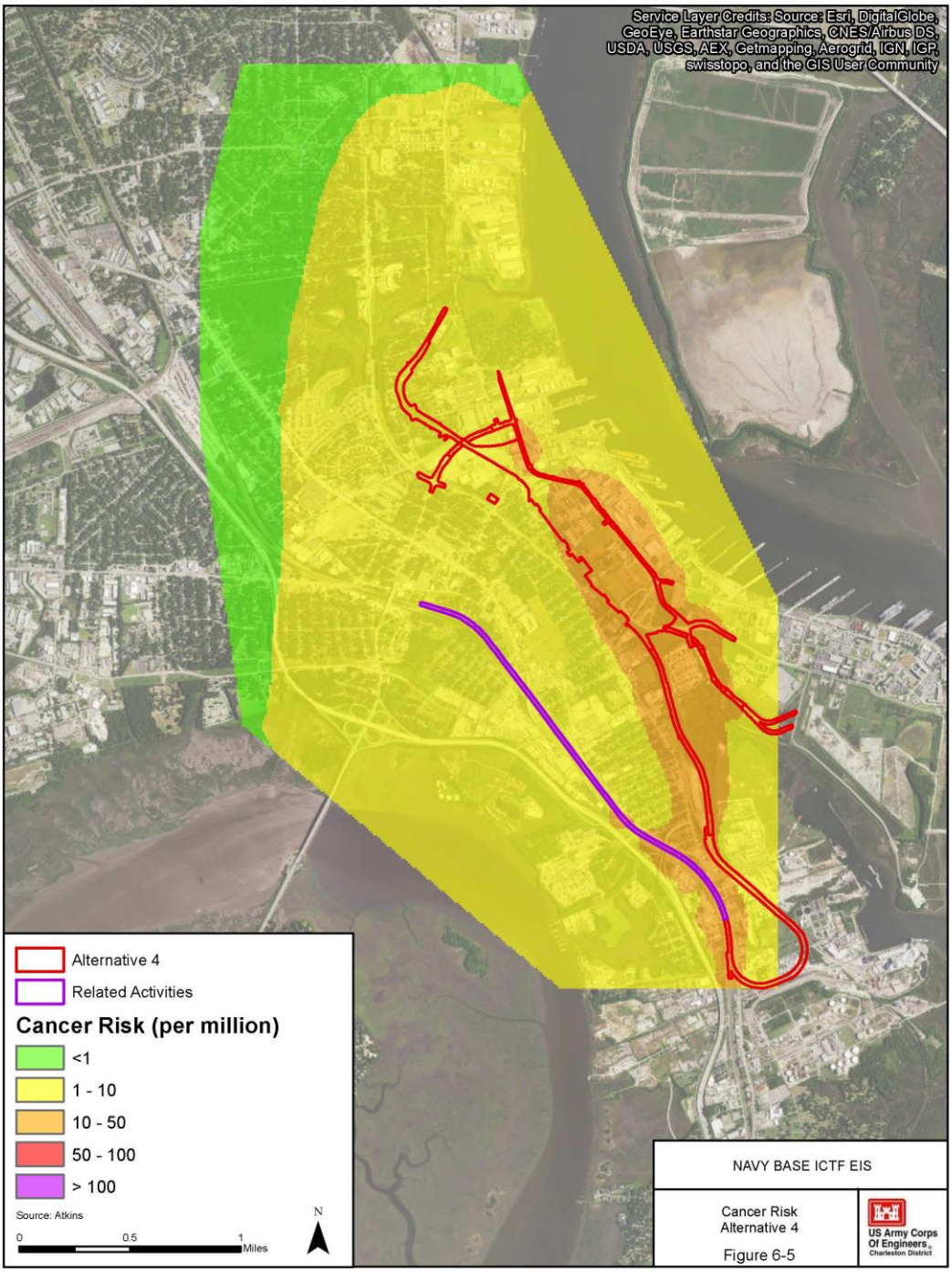
6.4 ALTERNATIVE 3



Source: Lakes AERMOD, OEHHA 2003, USEPA 2005

Figure 6-4 Alternative 3 Cancer Risk

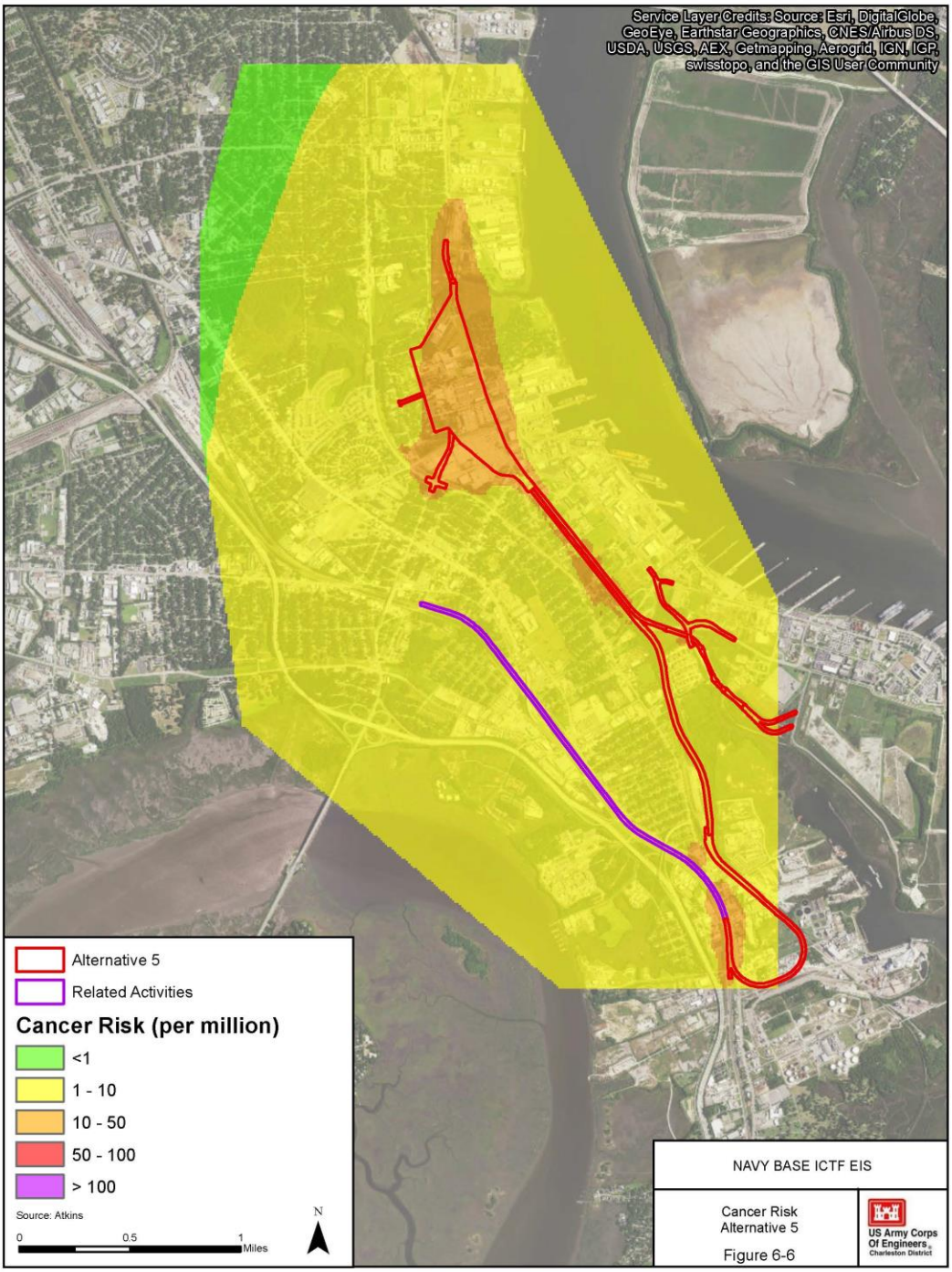
6.5 ALTERNATIVE 4



Source: Lakes AERMOD, OEHHA 2003, USEPA 2005

Figure 6-5 Alternative 4 Cancer Risk

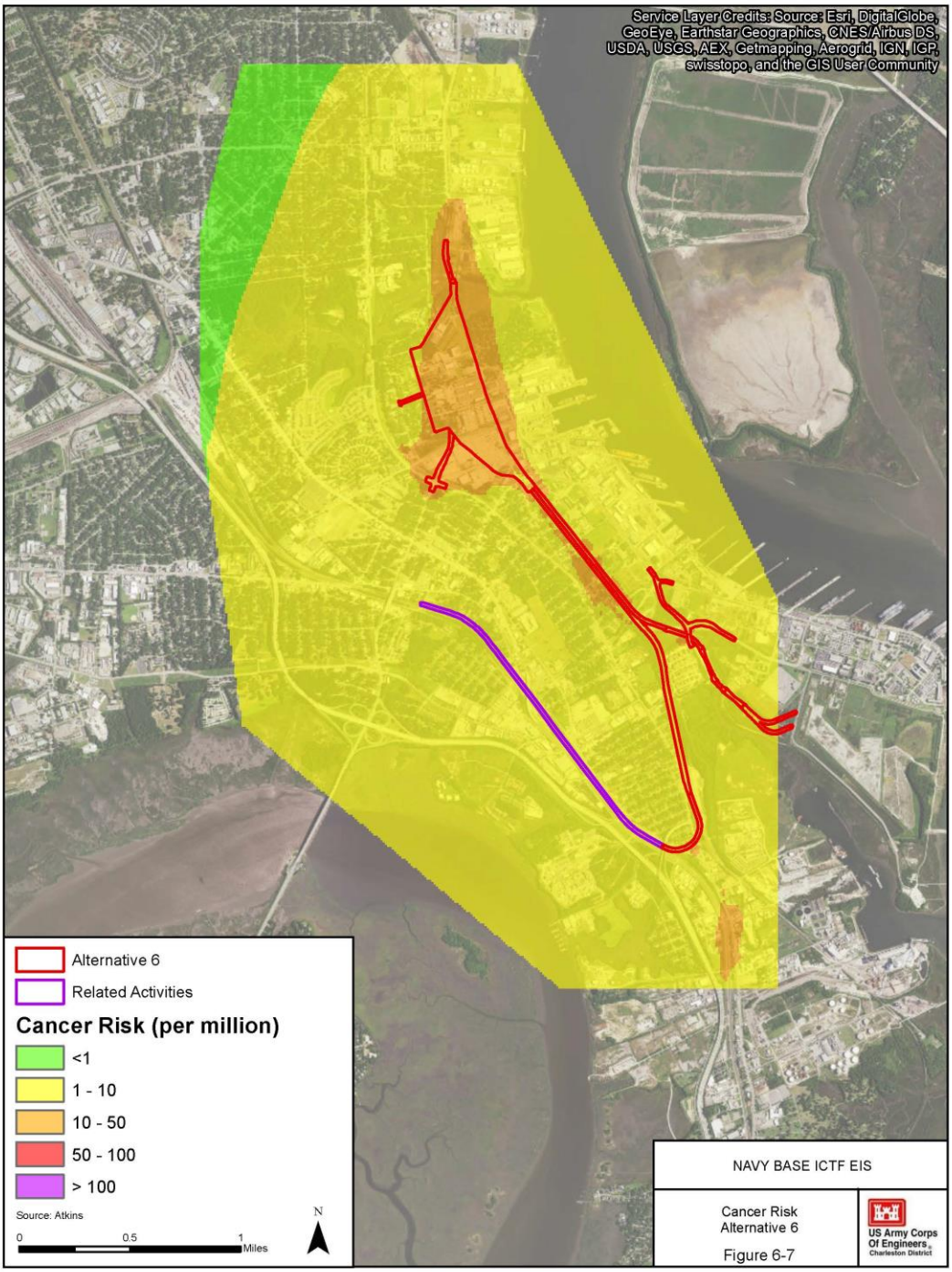
6.6 ALTERNATIVE 5



Source: Lakes AERMOD, OEHHA 2003, USEPA 2005

Figure 6-6 Alternative 5 Cancer Risk

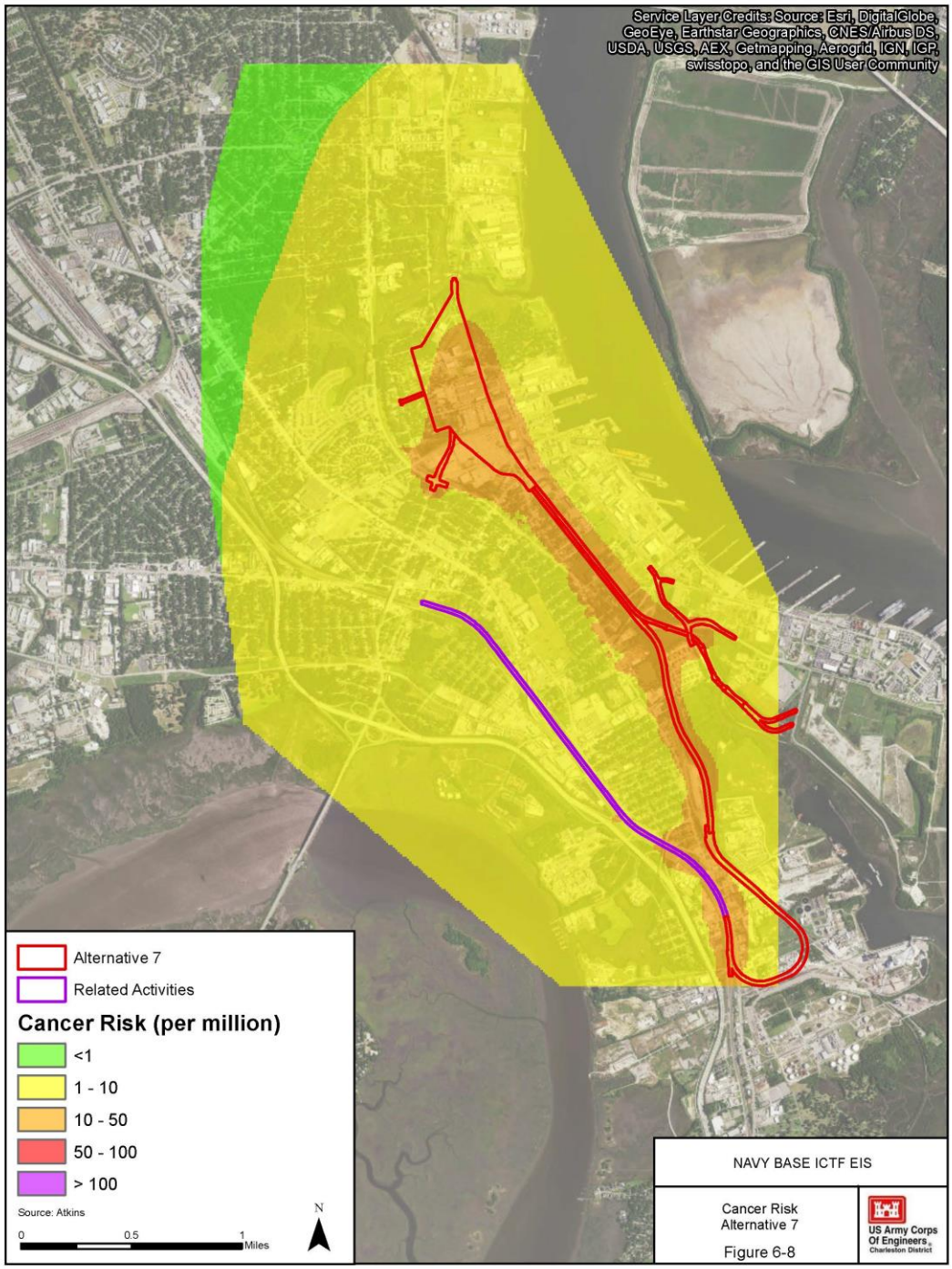
6.7 ALTERNATIVE 6



Source: Lakes AERMOD, OEHHA 2003, USEPA 2005

Figure 6-7 Alternative 6 Cancer Risk

6.8 ALTERNATIVE 7



Source: Lakes AERMOD, OEHHA 2003, USEPA 2005

Figure 6-8 Alternative 7 Cancer Risk

Table 6-1 No-Action Alternative Health Risk Calculations

		EC (mg/m³)	IUR 1/(mg/m³)	Cancer Risk	Conversion Factor to Per Million	Cancer Risk (per million)	RfC (mg/m³)	Non-Cancer HQ	Source Group Contribution
Source Group		Alternative:	No Action						
Line Haul Rail	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
Switch Rail	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
UTR Truck Running	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
UTR Truck Idling	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
OTR Truck Running	Annual	0.03185	0.0003	9.555E-06	1,000,000	9.555	5	0.00637	100.00%
OTR Truck Idling	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
Worker Commute	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
On-site Offroad Equipment	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
Total	Annual	0.03185	0.0003	9.555E-06	1,000,000	9.555	5	0.00637	100.00%

OTR Truck Running includes all trucks on public roadways

Table 6-2 Proposed Project (Alternative 1) Health Risk Calculations

		EC (mg/m³)	IUR 1/(mg/m³)	Cancer Risk	Converison Factor to Per Million	Cancer Risk (per million)	RfC (mg/m³)	Non-Cancer HQ	Source Group Contribution
Source Group		Alternative:	Proposed Project Alternative 1						
Line Haul Rail	Annual	0.01747	0.0003	5.241E-06	1,000,000	5.24	5	0.003494	37.73%
Switch Rail	Annual	0.00107	0.0003	3.21E-07	1,000,000	0.32	5	0.000214	2.31%
UTR Truck Running	Annual	0.00041	0.0003	1.23E-07	1,000,000	0.12	5	0.000082	0.89%
UTR Truck Idling	Annual	0.00536	0.0003	1.608E-06	1,000,000	1.61	5	0.001072	11.58%
OTR Truck Running	Annual	0.00774	0.0003	2.322E-06	1,000,000	2.32	5	0.001548	16.72%
OTR Truck Idling	Annual	0.01425	0.0003	4.275E-06	1,000,000	4.28	5	0.00285	30.78%
Worker Commute	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
On-site Offroad Equipment	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
Total	Annual	**0.04630**	0.0003	1.389E-05	1,000,000	13.89	5	0.00926	100.00%

Notes: UTR Truck Running is from Drayage Road, UTR/OTR Truck idling emissions were modeled as one source group.

Their individual concentrations have been determined using the ratio of UTR truck idling emission factors to OTR truck idling emission factors.

Line Haul Rail Locomotives were modeled as a source together

Worker commute was no included in DPM modeling because gasoline passenger cars were assumed, which do not emit DPM.

OTR Truck Running includes all trucks on public roadways

Table 6-3 Alternative 2 Health Risk Calculations

		EC (mg/m³)	IUR 1/(mg/m³)	Cancer Risk	Converison Factor to per million	Cancer Risk (per million)	RfC (mg/m³)	Non-Cancer HQ	Source Group Contribution
Source Group		Alternative:	Alternative 2						
Line Haul Rail	Annual	0.01736	0.0003	5.208E-06	1,000,000	5.21	5	0.003472	37.48%
Switch Rail	Annual	0.00107	0.0003	3.21E-07	1,000,000	0.32	5	0.000214	2.31%
UTR Truck Running	Annual	0.00041	0.0003	1.23E-07	1,000,000	0.12	5	0.000082	0.89%
UTR Truck Idling	Annual	0.00536	0.0003	1.608E-06	1,000,000	1.61	5	0.001072	11.57%
OTR Truck Running	Annual	0.00787	0.0003	2.361E-06	1,000,000	2.36	5	0.001574	16.99%
OTR Truck Idling	Annual	0.01425	0.0003	4.275E-06	1,000,000	4.28	5	0.00285	30.76%
Worker Commute	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
On-site Offroad Equipment	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
Total	Annual	**0.04632**	0.0003	1.39E-05	1,000,000	13.90	5	0.009264	100.00%

Notes: UTR Truck Running is from Drayage Road, UTR/OTR Truck idling emissions were modeled as one source group.

Their individual concentrations have been determined using the ratio of UTR truck idling emission factors to OTR truck idling emission factors.

Line Haul Rail Locomotives were modeled as a source together.

Worker commute was no included in DPM modeling because gasoline passenger cars were assumed, which do not emit DPM.

OTR Truck Running includes all trucks on public roadways.

Table 6-4 Alternative 3 Health Risk Calculations

		EC (mg/m³)	IUR 1/(mg/m³)	Cancer Risk	Converison Factor to per million	Cancer Risk (per million)	RfC (mg/m³)	Non-Cancer HQ	Source Group Contribution
Source Group		Alternative:	Alternative 3						
Line Haul Rail	Annual	0.01745	0.0003	5.235E-06	1,000,000	5.24	5	0.00349	37.71%
Switch Rail	Annual	0.00107	0.0003	3.21E-07	1,000,000	0.32	5	0.000214	2.31%
UTR Truck Running	Annual	0.00041	0.0003	1.23E-07	1,000,000	0.12	5	0.000082	0.89%
UTR Truck Idling	Annual	0.00536	0.0003	1.608E-06	1,000,000	1.61	5	0.001072	11.58%
OTR Truck Running	Annual	0.00774	0.0003	2.322E-06	1,000,000	2.32	5	0.001548	16.72%
OTR Truck Idling	Annual	0.01425	0.0003	4.275E-06	1,000,000	4.28	5	0.00285	30.79%
Worker Commute	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
On-site Offroad Equipment	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
Total	Annual	**0.04628**	0.0003	1.388E-05	1,000,000	13.88	5	0.009256	100.00%

Notes: UTR Truck Running is from Drayage Road, UTR/OTR Truck idling emissions were modeled as one source group.

Their individual concentrations have been determined using the ratio of UTR truck idling emission factors to OTR truck idling emission factors.

Line Haul Rail Locomotives were modeled as a source together.

Worker commute was no included in DPM modeling because gasoline passenger cars were assumed, which do not emit DPM.

OTR Truck Running includes all trucks on public roadways.

Table 6-5 Alternative 4 Health Risk Calculations

		EC (mg/m³)	IUR 1/(mg/m³)	Cancer Risk	Converison Factor to per million	Cancer Risk (per million)	RfC (mg/m³)	Non-Cancer HQ	Source Group Contribution
Source Group		Alternative:	Alternative 4						
Line Haul Rail	Annual	0.03983	0.0003	1.195E-05	1,000,000	11.95	5	0.007966	67.39%
Switch Rail	Annual	0.00194	0.0003	5.82E-07	1,000,000	0.58	5	0.000388	3.28%
UTR Truck Running	Annual	0.00103	0.0003	3.09E-07	1,000,000	0.31	5	0.000206	1.74%
UTR Truck Idling	Annual	0.00224	0.0003	6.72E-07	1,000,000	0.67	5	0.000448	3.79%
OTR Truck Running	Annual	0.00810	0.0003	2.43E-06	1,000,000	2.43	5	0.00162	13.71%
OTR Truck Idling	Annual	0.00596	0.0003	1.788E-06	1,000,000	1.79	5	0.001192	10.08%
Worker Commute	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
On-site Offroad Equipment	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
Total	Annual	**0.05910**	0.0003	1.773E-05	1,000,000	17.73	5	0.01182	100.00%

Notes: UTR Truck Running is from Drayage Road, UTR/OTR Truck idling emissions were modeled as one source group.

Their individual concentrations have been determined using the ratio of UTR truck idling emission factors to OTR truck idling emission factors.

Line Haul Rail Locomotives were modeled as a source together.

Worker commute was no included in DPM modeling because gasoline passenger cars were assumed, which do not emit DPM.

OTR Truck Running includes all trucks on public roadways.

Table 6-6 Alternative 5 Health Risk Calculations

		EC (mg/m³)	IUR 1/(mg/m³)	Cancer Risk	Converison Factor to per million	Cancer Risk (per million)	RfC (mg/m³)	Non-Cancer HQ	Source Group Contribution
Source Group		Alternative:	Alternative 5						
Line Haul Rail	Annual	0.01099	0.0003	3.297E-06	1,000,000	3.30	5	0.002198	13.29%
Switch Rail	Annual	0.00116	0.0003	3.48E-07	1,000,000	0.35	5	0.000232	1.40%
UTR Truck Running	Annual	0.00125	0.0003	3.75E-07	1,000,000	0.38	5	0.00025	1.51%
UTR Truck Idling	Annual	0.01224	0.0003	3.672E-06	1,000,000	3.67	5	0.002448	14.81%
OTR Truck Running	Annual	0.02448	0.0003	7.344E-06	1,000,000	7.34	5	0.004896	29.61%
OTR Truck Idling	Annual	0.03255	0.0003	9.765E-06	1,000,000	9.77	5	0.00651	39.37%
Worker Commute	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
On-site Offroad Equipment	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
Total	Annual	**0.08267**	0.0003	2.48E-05	1,000,000	24.80	5	0.016534	100.00%

Notes: UTR Truck Running is from Drayage Road, UTR/OTR Truck idling emissions were modeled as one source group.

Their individual concentrations have been determined using the ratio of UTR truck idling emission factors to OTR truck idling emission factors.

Line Haul Rail Locomotives were modeled as a source together.

Worker commute was no included in DPM modeling because gasoline passenger cars were assumed, which do not emit DPM.

OTR Truck Running includes all trucks on public roadways.

Table 6-7 Alternative 6 Health Risk Calculations

		EC (mg/m³)	IUR 1/(mg/m³)	Cancer Risk	Converison Factor to per million	Cancer Risk (per million)	RfC (mg/m³)	Non-Cancer HQ	Source Group Contribution
Source Group		Alternative:	Alternative 6						
Line Haul Rail	Annual	0.01098	0.0003	3.294E-06	1,000,000	3.29	5	0.002196	13.28%
Switch Rail	Annual	0.00116	0.0003	3.48E-07	1,000,000	0.35	5	0.000232	1.40%
UTR Truck Running	Annual	0.00125	0.0003	3.75E-07	1,000,000	0.38	5	0.00025	1.51%
UTR Truck Idling	Annual	0.01224	0.0003	3.672E-06	1,000,000	3.67	5	0.002448	14.81%
OTR Truck Running	Annual	0.02448	0.0003	7.344E-06	1,000,000	7.34	5	0.004896	29.62%
OTR Truck Idling	Annual	0.03255	0.0003	9.765E-06	1,000,000	9.77	5	0.00651	39.38%
Worker Commute	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
On-site Offroad Equipment	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
Total	Annual	**0.08266**	0.0003	2.48E-05	1,000,000	24.80	5	0.016532	100.00%

Notes: UTR Truck Running is from Drayage Road, UTR/OTR Truck idling emissions were modeled as one source group.

Their individual concentrations have been determined using the ratio of UTR truck idling emission factors to OTR truck idling emission factors.

Line Haul Rail Locomotives were modeled as a source together.

Worker commute was no included in DPM modeling because gasoline passenger cars were assumed, which do not emit DPM.

OTR Truck Running includes all trucks on public roadways.

Table 6-8 Alternative 7 Health Risk Calculations

		EC (mg/m³)	IUR 1/(mg/m³)	Cancer Risk	Converison Factor to per million	Cancer Risk (per million)	RfC (mg/m³)	Non-Cancer HQ	Source Group Contribution
Source Group		Alternative:	Alternative 7						
Line Haul Rail	Annual	0.01002	0.0003	3.006E-06	1,000,000	3.01	5	0.002004	12.26%
Switch Rail	Annual	0.00116	0.0003	3.48E-07	1,000,000	0.35	5	0.000232	1.42%
UTR Truck Running	Annual	0.00125	0.0003	3.75E-07	1,000,000	0.38	5	0.00025	1.53%
UTR Truck Idling	Annual	0.01224	0.0003	3.672E-06	1,000,000	3.67	5	0.002448	14.98%
OTR Truck Running	Annual	0.02448	0.0003	7.344E-06	1,000,000	7.34	5	0.004896	29.96%
OTR Truck Idling	Annual	0.03255	0.0003	9.765E-06	1,000,000	9.77	5	0.00651	39.84%
Worker Commute	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
On-site Offroad Equipment	Annual	0.00000	0.0003	0	1,000,000	0	5	0	0.00%
Total	Annual	**0.08170**	0.0003	2.451E-05	1,000,000	24.51	5	0.01634	100.00%

Notes: UTR Truck Running is from Drayage Road, UTR/OTR Truck idling emissions were modeled as one source group.

Their individual concentrations have been determined using the ratio of UTR truck idling emission factors to OTR truck idling emission factors.

Line Haul Rail Locomotives were modeled as a source together.r

Worker commute was no included in DPM modeling because gasoline passenger cars were assumed, which do not emit DPM.

OTR Truck Running includes all trucks on public roadways.

7.0 REFERENCES

Air Products. 2016. Nitrogen – Weight and Volume Equivalents. http://www.airproducts.com/products/Gases/gas-facts/conversion-formulas/weight-and-volume-equivalents/nitrogen.aspx. Accessed February 17, 2016.

California Air Pollution Control Officers (CAPCOA). 2013. California Emissions Estimator Model (CalEEMod) Appendix A Calculation Details for CalEEMod. July 2013.

California Air Resources Board (ARB). 1998. The Report on Diesel Exhaust. April. http://www.arb.ca.gov/toxics/dieseltac/de-fnds.htm. Accessed March 24, 2016.

Federal Highway Administration (FHWA). 2011. Summary of Travel Trends: 2009 National Household Travel Survey. June 2011.

Intergovernmental Panel on Climate Change (IPCC). 2007. Fourth Assessment Report: Climate Change 2007. https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html. Accessed February 16, 2016.

International Carbon Bank & Exchange (ICBE). 2000. http://www.icbe.com/carbondatabase/CO2volumecalculation.asp. Accessed February 17, 2016.

Los Angeles Harbor Department (LAHD). 2011. Appendix C2: Dispersion Modeling of Criteria Pollutants for the Southern California Intermodal Gateway Project. September 2011.

National Oceanic and Atmospheric Administration (NOAA). 2016. Quality Controlled Local Climatological Data: Hourly Observations Table Charleston AFB/International Airport (13880). https://www.ncdc.noaa.gov/data-access/land-based-station-data/land-based-datasets/quality-controlled-local-climatological-data-qclcd. Accessed January 18, 2016.

South Carolina Department of Health and Environmental Control (SCDHEC). 2015a.Pre=processed, NWS Meteorological Data Sets, 2002-06: Charleston County. Downloaded from http://www.scdhec.gov/Environment/AirQuality/ComplianceandReporting/AirDispersion Modeling/ModelingData/. Accessed January 25, 2016.

South Carolina Department of Health and Environmental Control (SCDHEC). 2015b. NWS Meteorological Data, 2002-06: Surface Station Elevations and Surface/Upper-Air Station Pairings. http://www.scdhec.gov/environment/docs/SC02-06_Met_Data-Station_Elevations.pdf. Accessed January 25, 2016.

South Carolina Department of Health and Environmental Control (SCDHEC). 2013. Digital Terrain Data: National Elevation Dataset (NED) for use in AERMOD: Charleston County. Downloaded from http://www.scdhec.gov/Environment/AirQuality/ComplianceandReporting/AirDispersion Modeling/ModelingData/. Accessed January 25, 2016. South Carolina Department of Health and Environmental Control (SCDHEC). 2001. Air Quality Modeling Guidelines. July 2001.

South Carolina State Ports Authority (SCSPA). 2013. 2011 Air Emissions Inventory Update. April, 2013.

Southeast Regional Climate Center (SERCC). 2012. Average Wind Speed (mph) for Selected Cities in the Southeast. https://www.sercc.com/climateinfo/historical/avgwind.html. Accessed January 11, 2016.

U.S. Department of Energy (USDOE). 2011. 2010 Buildings Energy Databook. March 2011.

U.S. Environmental Protection Agency (USEPA). 2004. Air Toxics Risk Assessment Reference Library: Volume 1 Technical Resources Manual. April 2004.

U.S. Environmental Protection Agency (USEPA). 2005. Federal Register 40 CFR Part 51. Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions; Final Rule. November 2005.

U.S. Environmental Protection Agency (USEPA). 2006. Air Toxics Risk Assessment Reference Library: Volume 3 Community-Scale Assessment. April 2006.

U.S. Environmental Protection Agency (USEPA). 2009a. Emission Factors for Locomotives. April 2009.

U.S. Environmental Protection Agency (USEPA). 2009b. Current Methodologies in Preparing Mobile Source Port-Related Emission Inventories. April 2009.

U.S. Environmental Protection Agency (USEPA). 2010. Median Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling. July 2010.

U.S. Environmental Protection Agency (USEPA). 2011. AP 42, Fifth Edition, Volume I, Chapter 13: Miscellaneous Sources, Section 13.2.1 Paved Roads. January 2011.

U.S. Environmental Protection Agency (USEPA). 2013. North Birmingham Air Toxics Risk Assessment. March 2013.

U.S. Environmental Protection Agency (USEPA). 2014a. Emission Factors for Greenhouse Gas Inventories. April 2014.

U.S. Environmental Protection Agency (USEPA). 2014b. Coalbed Methane Outreach Program (CMOP). http://www3.epa.gov/cmop/index.html. Accessed February 17, 2016.

U.S. Environmental Protection Agency (USEPA). 2014c. Table 1. Prioritized Chronic Dose-Response Values. May. Downloaded from https://www.epa.gov/fera/dose-response-assessment-assessing-health-risks-associated-exposure-hazardous-air-pollutants. Accessed April 5, 2016.

U.S. Environmental Protection Agency (USEPA). 2015a. Air Toxic Emissions from On-road Vehicles in MOVES 2014.

U.S. Environmental Protection Agency (USEPA). 2015b. Motor Vehicle Emission Simulator (MOVES) MOVES2014a.

U.S. Environmental Protection Agency (USEPA). 2015c. The 2011 National Emissions Inventory. http://www3.epa.gov/ttnchie1/net/2011inventory.html. Accessed February 26, 2016.

U.S. Environmental Protection Agency (USEPA). 2015d. Diesel Fuel Standards & Rulemakings. http://www.epa.gov/diesel-fuel-standards/diesel-fuel-standards-rulemakings. Accessed February 28, 2016.

U.S. Environmental Protection Agency (USEPA). 2016a. Meteorological Data Converter MOBILE6. https://www3.epa.gov/otaq/models/moves/tools.htm. Accessed January 18, 2016.

U.S. Environmental Protection Agency (USEPA). 1998. Locomotive Emission Standards. April 1998.