

2022 SmartWay Online Truck Tool: Short Form

For fleets with 20 or fewer trucks,
one class, using diesel or gasoline fuel, without
brokered freight

Technical Documentation

U.S. Version 1.0

(Data Year 2021)

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Transportation and Climate Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

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1.0 Overview

This document provides detailed information on the data sources, calculation methods, and assumptions used within the 2022 SmartWay Online Truck Tool – Short Form (referred to as the Short Form Tool in this document), version 1.0. The Short Form Tool utilizes up-to-date emission factors, in combination with detailed vehicle activity data, to estimate emissions and associated performance metrics. The primary purpose of the Short Form Tool is to help fleets with 20 or fewer trucks (of a single truck class and using only diesel or gasoline fuel) easily input their fleet information, calculate pollutant emissions, and track their emissions performance over time.

The Short Form Tool allows users to evaluate their fleet's performance in terms of different mass-based metrics for CO₂, NO_x, PM (PM₁₀ and PM_{2.5}), and black carbon (BC) including grams per mile and grams per average payload ton-mile. The Short Form Tool is restricted to fleets of 20 or fewer diesel or gasoline powered trucks of a single weight class (e.g., 6, 8b). Please use the all-carrier version of the tool, available through the SmartWay Partner Portal, to enter data for larger fleets and/or fleets using alternative fuels such as natural gas, LPG, and electricity.

The Short Form Tool also collects information on fleet operations and truck body types, allowing accurate assignment of Partner fleets to their appropriate SmartWay Category (e.g., Truckload Dry Van, Dray, Mixed, etc.).

2.0 Data Inputs and Sources

The Short Form Tool user provides vehicle characteristic, operational, and activity data needed for emissions performance estimation (see Section 3 for more information). The Short Form Tool calculates emissions by multiplying fleet activity data with EPA-approved emission rate factors that are stored in look-up tables.

The Short Form Tool contains different types of emission rate factors for different pollutants. CO₂ factors are expressed in grams of CO₂ per gallon of fuel.¹ NO_x, PM, and BC factors are expressed in grams of pollutant per mile traveled for running emissions, and in grams per hour for idle emissions. The CO₂ factors are independent of the truck types, classes, and operational practices in a fleet. NO_x, PM and BC factors, however, vary depending upon truck class and engine model year/emission certification standard.

PM and BC emissions will also vary with the application of PM control retrofits. However, SmartWay partners must use the online – all carrier version of the tool to account for these effects.

2.1 CO₂ FACTORS

The CO₂ factors used in the Short Form Tool are based on fuel consumption. These factors and their sources are summarized below in Table 1.

Table 1. CO₂ Factors by Fuel Type*

	g/gal	Source ²
Gasoline	8,887	(i)
Ethanol	5,764	(ii)
Diesel	10,180	(iii)

* 100% combustion (oxidation) assumed

Today's gasoline contains 10 percent ethanol, or E10. The CO₂ factors for E10 are based on a volumetric weighting of the gasoline and ethanol factors (8,575 g/gal).

¹ At this time other greenhouse gases such as methane (CH₄) and nitrous oxide (N₂O) are not included in the current Short Form Tool.

² i) Final Rule on Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards (75 FR 25324, May 7, 2010). The gasoline factor used in this rule was sourced from the California Air Resources Board and is based on measurement of carbon from a gasoline test fuel (indolene).

ii) Final Rule on Mandatory Reporting of Greenhouse Gases (70 FR 56260, October 30, 2009). Full source documentation is available on pp. 31-32 in the Technical Support Document, *Petroleum Products and Natural Gas Liquids: Definitions, Emission Factors, Methods and Assumptions*, available at <https://www.epa.gov/sites/production/files/2015-07/documents/subpartmmproductdefinitions.pdf>, accessed 12-12-2021.

iii) Fuel economy calculations in 40 C.F.R 600.113 available at http://edocket.access.gpo.gov/cfr_2004/julqtr/pdf/40cfr600.113-93.pdf, accessed 12-12-2021.

2.2 NO_x, PM AND BC FACTORS

The Short Form Tool contains NO_x, PM₁₀, PM_{2.5} and BC³ emission factors for running operation (i.e. gram per mile factors) derived from EPA's MOVES3.0.1 model for diesel and E10⁴ for all heavy truck classes (2b – 8b) under national default temperature and fuel conditions, for model years 1992 through 2022, for the 2021 calendar year.⁵ See Section 2.3 for a detailed discussion of how the MOVES gram per mile emission factors were developed for each SmartWay Category for use in the Tool.

Short-duration (less than 60 minutes) idle emission factors for NO_x, PM and BC were developed separately by model year, truck class, and fuel type (diesel and gasoline). MOVES3.0.1 provides short duration idle in terms of grams and hours of off-network idle operation.

MOVES3.0.1 also provides emission factors for long-duration idle for long-haul diesel trucks. These factors are only applied for Class 8b trucks.⁶ Short-duration factors are applied for all truck class types. The idle factors used in the Tool are presented in Appendix B.

The Short Form Tool also calculates the NO_x, PM and BC emissions associated with transportation refrigeration (reefer) units. The MOVES2014b emissions model was used to develop emission rates for these units for the 2021 calendar year, following these steps:

-  A national average model run was performed for the Industrial sector, including gasoline and diesel fueled equipment;
-  The A/C refrigeration (reefer) unit standard classification codes (SCCs) were extracted from the output files – 2265003060 (gasoline) and 2270003060 (diesel);
-  Grams per day outputs for weekdays and weekends for each of the 12 months were converted to grams per year by aggregating emissions over day types to arrive at an average day value, multiplying by the number of days in each month, and summing over month. This resulted in annual grams of emissions (of NO_x, PM₁₀, and PM_{2.5}) and grams of fuel consumed (in terms of brake specific fuel consumption or BSFC), for each fuel type;
-  BSFC was converted from grams to gallons fuel using the MOVES energy density values of 2,819 g/gal and 3,167 g/gal for gasoline and diesel, respectively.
-  Grams/gallon emission factors were then calculated for each pollutant by dividing the annual grams of emissions of NO_x, PM₁₀ and PM_{2.5} by the annual gallons of fuel consumed for gasoline and diesel.

³ Black carbon factors are assumed to equal the elemental carbon gram per mile factors output by the MOVES model.

⁴ All gasoline consumption in the United States and Canada is now assumed to consist of E10. References to "gasoline" in the Tool and the associated documentation refer to E10.

⁵ Emission factors for model years prior to 1992 are assumed to equal the 1992 values, since 30 year old engines are assumed to be fully deteriorated by the MOVES model.

⁶ NO_x factors for long-term extended idling are higher than short-duration factors for late model engines, since engine operation temperatures and loads at idle are generally not high enough to activate late-model emission controls such as selective catalytic reduction and exhaust gas recirculation.

Black carbon emissions associated with reefer activity were scaled from PM_{2.5} reefer emissions, applying conversion factors for nonroad equipment from the Commission for Environmental Cooperation (0.349 for diesel engines and 0.122 for gasoline engines).⁷

Table 2 provides the fuel factors used in the latest Short Form Tool.

Table 2. Weighted Average Reefer Fuel Factors (g/gallon)

Fuel	NO _x	PM ₁₀	PM _{2.5}	BC
Diesel	47.562	0.965	0.936	0.327
Gasoline	17.631	0.996	0.916	0.112

The above rates are multiplied by the gallons of reefer fuel entered by the user to estimate mass emissions for the above pollutants. CO₂ emissions associated with reefer fuel use are included in the total CO₂ estimate.

The next section describes the process followed to select and adjust the running emission factors from MOVES3.0.1 for use in the Short Form Tool.

2.3 DERIVATION OF RUNNING EMISSION FACTORS BY SMARTWAY CATEGORY

The Short Form Tool requires MOVES running emission rates that are more aggregated than those used in the SmartWay Online Tool for all carriers (the "all carrier" Tool). The all-carrier Tool uses rates broken out by truck class (2b through 8b), model year, roadway type (highway, urban), hours of short-term and long-term idle (i.e., extended idle, hoteling), and mode of urban operation (deceleration, 0-25 mph, 25-50 mph, > 50 mph). The Short Form Tool does not require users to provide detail on roadway type or mode of operation, and only requires total hours of idling (not split by short or long term). For consistency with the all-carrier Tool, the MOVES-based gram per mile emission rates were generated for the Short Form Tool by aggregating the all-carrier Tool rates across roadway type⁸ and mode of operation using the equation below, which applied to all pollutants except CO₂. As shown, the resulting emissions rates are broken down by SmartWay Truck Category, truck weight class, and model year.

$$\text{Small Carrier } EF_{\text{Category, Class, MY}} = A_{\text{Category}} \times EF_{\text{Urban}<25, \text{Class, MY}} + B_{\text{Category}} \times EF_{\text{Urban } 25-50, \text{Class, MY}} \\ + C_{\text{Category}} \times EF_{\text{Urban}>50, \text{Class, MY}} + D_{\text{Category}} \times EF_{\text{Highway, Class, MY}}$$

Where:

A_{Category} = weighting factor (mile fraction) for Urban operation <25 mph by SmartWay category
B_{Category} = weighting factor (mile fraction) for Urban operation 25-50 mph by SmartWay category
C_{Category} = weighting factor (mile fraction) for Urban operation >50 mph by SmartWay category

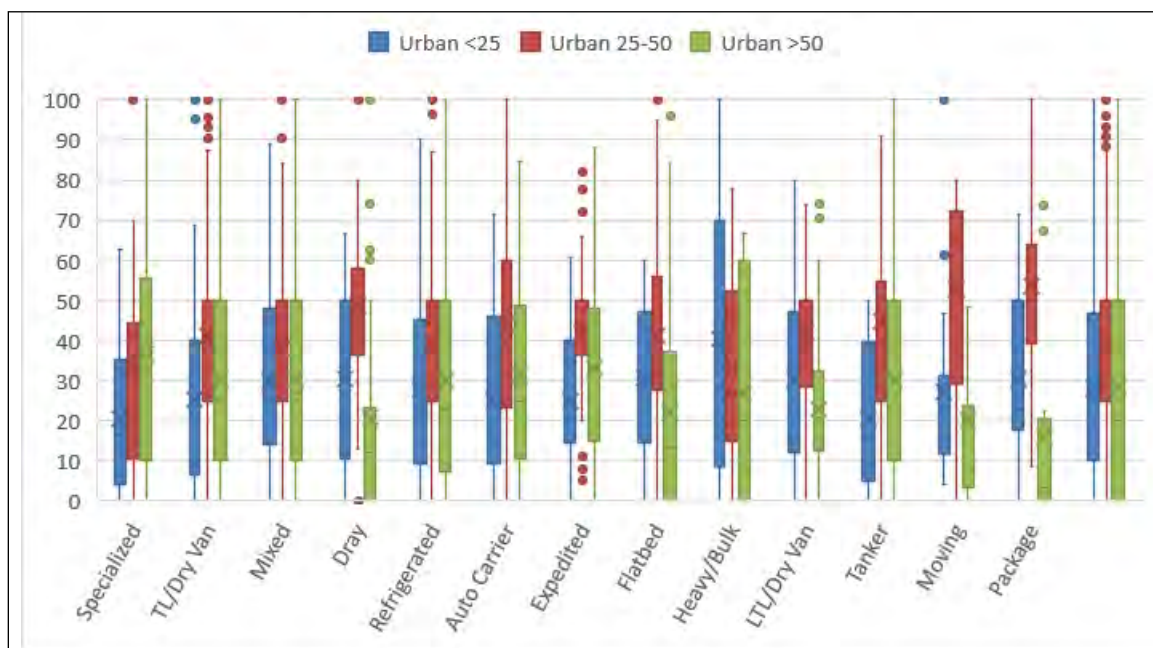
⁷ Commission for Environmental Cooperation (CEC), 2015. North American Black Carbon Emissions Estimation Guidelines: Methods for Estimating Black Carbon Emissions. Prepared for the CEC by Eastern Research Group, Inc. Final Report, May 2015.

⁸ Please refer to the Technical Documentation for the all-carrier Truck Tool for further details.

D_{Category} = weighting factor (mile fraction) for Highway operation, by SmartWay category
 $EF_{\text{Operation, Class, MY}}$ = SmartWay tool emission factor for operation (urban operation <25 mph etc.)
 by weight class and model year

The weighting factors for this aggregation were developed from operational data provided by SmartWay partners from the 2018 calendar year. The partner database was queried for each SmartWay Category to extract fuel type and weight class, total annual miles and the distribution of miles by mode of operation. This resulted in 12,357 data points, nearly half of which used the SmartWay operation mode distribution defaults. Records using default mode distributions were excluded, leaving a sample of 6,858 records for analysis. A check for outliers was performed on these data by looking at the relative (normalized) distribution of miles travelled within the three urban modes of operation only. A box plot showing the distribution of normalized percent operation values in each urban operating mode, by SmartWay category, is shown below.

Figure 1. Percent Operation by Urban Mode (Normalized)



The bottom and top of the boxes are the 25th and 75th percentiles respectively, which define the inter-quartile range (IQR). The median and mean are shown within the boxes as horizontal lines and "X's", respectively. The ends of the whiskers denote the sample range without outliers, which are shown as individual points. Outliers are defined as points that fall outside the 75th percentile + (1.5 × IQR), or 25th percentile - (1.5 × IQR). These outliers were removed from the sample used to calculate operational weighting factors. Since time-in-mode is not independent, for any given outlier point the entire record was removed from the sample including other modes of operation. Though there are only a few dozen outlier points shown in the chart, each point may represent several records, as some partners entered

the same percent operation value for all weight classes in a given truck category. The total number of records removed is shown in the table below, by truck category.

Table 3. Outliers Removed by SmartWay Category

SmartWay Category	Total Records	Outliers Removed
Auto Carrier	124	0
Dray	239	56
Expedited	258	33
Flatbed	358	17
Heavy/Bulk	53	0
LTL/Dry Van	522	24
Mixed	1490	73
Moving	106	3
Package	74	2
Refrigerated	1270	95
Specialized	194	51
Tanker	172	0
TL / Dry Van	1,998	26

Weighting factors were developed by summing total VMT by SmartWay Category and mode of operation over the remaining records and dividing by total VMT for each Category. The resulting weighting factors are shown in the table below.

Table 4. Operation Mode Weighting Factors by SmartWay Category

SmartWay Category	A Urban < 25 mph	B Urban 25 50 mph	C Urban > 50 mph	D Highway
Auto Carrier	0.08	0.14	0.10	0.68
Dray	0.17	0.18	0.11	0.55
Expedited	0.07	0.09	0.09	0.75
Flatbed	0.07	0.09	0.09	0.75
Heavy/Bulk	0.24	0.08	0.05	0.62
LTL/Dry Van	0.14	0.15	0.08	0.63
Mixed	0.10	0.11	0.13	0.66
Moving	0.09	0.14	0.13	0.64
Package	0.69	0.13	0.05	0.14
Refrigerated	0.07	0.09	0.16	0.67
Specialized	0.51	0.03	0.05	0.41

Table 4. Operation Mode Weighting Factors by SmartWay Category

SmartWay Category	A Urban < 25 mph	B Urban 25 50 mph	C Urban > 50 mph	D Highway
Tanker	0.15	0.08	0.11	0.66
TL/Dry Van	0.09	0.10	0.10	0.71

By and large the weights for highway operation vary as expected for the truck categories. For example, package delivery trucks travel only 14 percent of total miles on highways, while expedited shippers travel 75 percent. Specialized truck weights were unusual with only 41 percent of miles on highway; an investigation revealed a small number of high mileage fleets with 25 percent of highway operation dominated this result.

The Short Form Tool multiplies the all-carrier Tool's short-term idle emission rates to the idle hours provided by carriers for truck classes 2b through 8a, since the MOVES long-duration idle rates apply only to Class 8b combination long-haul diesel trucks. For Class 8b trucks, a composite idle rate is estimated based on a weighting of short- and long-duration idle hours supplied by fleets using the all-carrier Tool. All-Carrier Tool data from Class 8b trucks indicate that 56 percent of idle hours are long-duration, and 44 percent are short-duration. This weighting was used to develop the composite idle emission factors for Class 8b diesels for use in the Short Form Tool.

3.0 Emission and Activity Estimation

The emission rates and weighting factors discussed in Section 2 are combined with activity data provided by Partners to calculate mass emissions at the fleet and/or partner level for CO₂, NO_x, PM, and BC as described below.

3.1 CO₂

Mass emissions of CO₂ are calculated within the Short Form Tool utilizing emission factors expressed in *grams per gallon of fuel*, as discussed above. Reefer fuel is aggregated with vehicle fuel inputs in the Tool, with the reefer fuel type assumed to be the same as the vehicle fuel type.

3.2 NO_x, PM AND BC

Unlike CO₂ emissions which only vary with fuel type, NO_x, PM and BC emission rates also vary depending upon engine model year, vehicle class, and operation mode (running or idle). For this reason, EPA developed lookup tables for use in the Short Form Tool with emission factors corresponding to user-supplied inputs regarding their fleet activity. The NO_x, PM and BC emission rates expressed in *grams per mile* were combined with total miles entries to estimate mass emissions. Emissions are calculated at the fuel type/truck class/model year level, following these steps:

1. Multiply total miles per truck per year by the corresponding gram per mile value. (See Appendix A for g/mile values for each SmartWay Category and fuel type (gas and diesel), by truck class group/model year group.) Then divide values by 1.10231×10^6 to obtain short tons.
2. For Class 8b trucks, split reported idle hours into short and long duration components using the average ratios discussed above (44 percent short, 56 percent long). Then multiply the short and long duration idle hours per truck per year by the corresponding short and long duration gram per hour values. Idle factors are split by fuel type, truck class and model year. Convert to short tons.
3. For non-Class 8b trucks, multiply the idle hours entered by the partner by the short duration emission factors, as there are no long duration factors for these trucks. Convert to short tons.
4. If a body type of "Reefer" has been specified for a given fuel type/truck class, calculate NO_x and PM emissions for reefers by multiplying the total gallons entered for reefer fuel⁹ by the corresponding gram per gallon reefer engine emission factors (see Table 2 above). Convert to short tons.

⁹ If a partner does not have an estimate for their reefer fuel use, they may use a default value based on the average ratio of reefer to engine fuel consumption for SmartWay reefer partners (11%).

5. Add tons for steps 1 through 4 to obtain total per truck emissions. Sum across fuel types if needed for the fleet total.

Finally, note that the PM factors output by the MOVES model for use in the Short Form Tool are expressed in terms of $PM_{2.5}$. The MOVES3.0.1 model assumes a fixed ratio of $PM_{10} / PM_{2.5}$ for a given fuel type, as summarized below:

 Gasoline – 1.1304

 Diesel – 1.087

These factors are applied directly to the $PM_{2.5}$ emission factors to obtain mass emission and performance metrics for PM_{10} within the Short Form Tool.

3.3 DATA VALIDATION

The Short Form Tool has a number of standard range and value checks that must be passed before Partners can submit their data to EPA. Many of these checks simply confirm the presence of required data (e.g., total gallons for each fuel type). There is also an implicit validation check on all numeric fields because the system will not accept any non-numeric characters (including minus signs) within these fields. Partners will not be able to finalize their fleet files until all associated errors have been resolved.

Rigorous validation checks of key data inputs are needed to ensure the overall quality of the performance metrics calculated by the Short Form Tool. Validation checks serve three purposes to this end. First, unusually high or low values can be identified and flagged for the user's attention before finalizing inputs. For example, a user may misplace a decimal, inadvertently add an extra zero, or utilize the wrong units (e.g. reporting pounds instead of tons for payload) upon data entry. By comparing these data entries to reliable industry averages and distributions, these values can be flagged allowing users to quickly correct such errors.

Second, under certain circumstances Partners may operate their fleets under atypical conditions, resulting in extreme (outlier) data values. For example, permitted heavy-haul operations may routinely exceed industry-average payload values by 10 or more tons. By flagging such data entries Partners have the opportunity to provide additional information regarding their unique operating conditions through use of the Tool's comment fields.

Finally, independent criteria can be established to ensure that data inputs are never allowed to exceed certain physically constrained absolute limits. For example, a truck cannot exceed roughly 500,000 miles per year, even with dual drivers and minimal maintenance time, simply due to the available hours per year and highway speed limits. Data values above these absolute maximum levels are not allowed by the Short Form Tool, and users are required to modify the associated inputs before proceeding.

The following presents the validation ranges used in the Short Form Tool. Validation ranges are of three types:

1. "Orange" values indicating that the input or derived performance value is notably lower/higher than the expected value. Partners may enter an explanation backing up such entries, but this is not mandatory.
2. "Red" values indicating that the input or derived performance value differs greatly from the expected value. In this case the partner must enter text explaining why this value is accurate. Once entered, the value will change from "Red" to "Orange" on the data entry screen.
3. "Absolute errors" exceed values deemed physically possible and must be changed in order to be accepted by the tool.

Validation ranges for the short form Tool are based on the corresponding values in the all-carrier Tool for the following parameters.

-  Distance per truck per year
-  Miles per gallon
-  Fraction of reefer to engine fuel use (Reefers only)
-  Payload
-  Idle hours per day
-  Service days per year

The following table summarizes the validation range values currently used in the Short Form Tool. These values may be updated in the future to be specific to small truck fleets (based on tool inputs).

Table 5. Short Form Tool Validation Ranges by Parameter

Data Element	Truck Class	SmartWay Category	Absolute Minimum	Low Red	Low Orange	High Orange	High Red	Absolute Max
Mi/Yr per truck	2b	Expedited	0	9,698	16,183	63,029	90,800	500,000
Mi/Yr per truck	2b	Mixed	0	2,046	7,741	53,432	71,391	500,000
Mi/Yr per truck	2b	Package	0	5,247	11,565	47,936	65,500	500,000
Mi/Yr per truck	2b	Truckload	0	6,799	18,007	52,984	58,368	500,000
Mi/Yr per truck	3	Mixed	0	0	5,000	45,712	53,814	500,000
Mi/Yr per truck	4	Mixed	0	1,402	6,556	40,071	51,362	500,000
Mi/Yr per truck	5	Mixed	0	306	3,470	40,000	49,485	500,000
Mi/Yr per truck	6	LTL	0	9,631	11,696	49,080	60,950	500,000
Mi/Yr per truck	6	Mixed	0	2,036	10,931	51,916	67,014	500,000
Mi/Yr per truck	6	Moving	0	3,000	8,000	68,107	79,506	500,000

Table 5. Short Form Tool Validation Ranges by Parameter

Data Element	Truck Class	SmartWay Category	Absolute Minimum	Low Red	Low Orange	High Orange	High Red	Absolute Max
Mi/Yr per truck	6	Package	0	5,921	9,073	65,000	72,065	500,000
Mi/Yr per truck	6	Truckload	0	8,632	14,133	56,713	68,836	500,000
Mi/Yr per truck	7	LTL	0	12,488	15,654	54,122	72,666	500,000
Mi/Yr per truck	7	Mixed	0	0	5,000	67,560	78,694	500,000
Mi/Yr per truck	7	Truckload	0	2,326	10,312	57,249	79,650	500,000
Mi/Yr per truck	8a	LTL	0	10,558	15,625	68,215	88,352	500,000
Mi/Yr per truck	8a	Mixed	0	6,271	13,039	85,890	102,000	500,000
Mi/Yr per truck	8a	Reefer	0	15,505	26,162	70,000	79,308	500,000
Mi/Yr per truck	8a	Truckload	0	10,069	13,877	97,567	128,406	500,000
Mi/Yr per truck	8b	Auto Carrier	0	43,112	51,769	103,710	112,367	500,000
Mi/Yr per truck	8b	Dray	0	6,985	18,413	86,984	98,413	500,000
Mi/Yr per truck	8b	Expedited	0	23,226	27,112	92,857	140,232	500,000
Mi/Yr per truck	8b	Flatbed	0	36,935	47,495	110,856	121,416	500,000
Mi/Yr per truck	8b	Heavy/Bulk	0	44,171	48,663	101,118	108,168	500,000
Mi/Yr per truck	8b	LTL	0	13,983	27,504	108,634	122,156	500,000
Mi/Yr per truck	8b	Mixed	0	12,029	27,477	120,168	135,616	500,000
Mi/Yr per truck	8b	Reefer	0	36,939	52,743	147,566	163,370	500,000
Mi/Yr per truck	8b	Specialty	0	20,765	39,854	105,338	117,433	500,000
Mi/Yr per truck	8b	Truckload	0	29,853	44,672	133,586	148,405	500,000
Mi/Yr per truck	8b	Tanker	0	36,503	47,076	110,517	121,090	500,000
Idle hrs/day	2b	Mixed	0	0	1	4	6	24
Idle hrs/day	2b	Package	0	0	1	6	10	24
Idle hrs/day	2b	Specialty	0	0	1	6	10	24
Idle hrs/day	3	Mixed	0	0	1	4	6	24
Idle hrs/day	3	Package	0	0	1	6	10	24
Idle hrs/day	3	Specialty	0	0	1	6	10	24
Idle hrs/day	4	Mixed	0	0	1	4	6	24
Idle hrs/day	4	Package	0	0	1	6	10	24
Idle hrs/day	4	Specialty	0	0	1	6	10	24
Idle hrs/day	5	Mixed	0	0	1	4	6	24
Idle hrs/day	5	Package	0	0	1	6	10	24
Idle hrs/day	5	Specialty	0	0	1	6	10	24
Idle hrs/day	6	Mixed	0	0	1	4	6	24
Idle hrs/day	6	Package	0	0	1	6	10	24
Idle hrs/day	6	Specialty	0	0	1	6	10	24
Idle hrs/day	7	Mixed	0	0	1	4	6	24
Idle hrs/day	7	Package	0	0	1	6	10	24

Table 5. Short Form Tool Validation Ranges by Parameter

Data Element	Truck Class	SmartWay Category	Absolute Minimum	Low Red	Low Orange	High Orange	High Red	Absolute Max
Idle hrs/day	7	Specialty	0	0	1	6	10	24
Idle hrs/day	8a	Mixed	0	0	1	4	6	24
Idle hrs/day	8a	Package	0	0	1	6	10	24
Idle hrs/day	8a	Specialty	0	0	1	6	10	24
Idle hrs/day	8b	LTL	0	0	1	5	8	24
Idle hrs/day	8b	Mixed	0	0	1	24	24	24
Idle hrs/day	8b	Package	0	0	1	5	8	24
service days /yr	2b	Expedited	0	96	171	320	350	365
service days /yr	2b	Mixed	0	96	171	320	350	365
service days /yr	2b	Package	0	142	200	315	372	365
service days /yr	2b	Truckload	0	96	171	320	350	365
service days /yr	3	Mixed	0	96	171	320	350	365
service days /yr	4	Mixed	0	96	171	320	350	365
service days /yr	5	Mixed	0	96	171	320	350	365
service days /yr	6	LTL	0	96	171	320	350	365
service days /yr	6	Mixed	0	96	171	320	350	365
service days /yr	6	Moving	0	96	171	320	350	365
service days /yr	6	Package	0	142	200	315	372	365
service days /yr	6	Truckload	0	96	171	320	350	365
service days /yr	7	LTL	0	96	171	320	350	365
service days /yr	7	Mixed	0	96	171	320	350	365
service days /yr	7	Truckload	0	96	171	320	350	365
service days /yr	8a	LTL	0	96	171	320	350	365
service days /yr	8a	Mixed	0	96	171	320	350	365

Table 5. Short Form Tool Validation Ranges by Parameter

Data Element	Truck Class	SmartWay Category	Absolute Minimum	Low Red	Low Orange	High Orange	High Red	Absolute Max
service days /yr	8a	Reefer	0	96	171	320	350	365
service days /yr	8a	Truckload	0	96	171	320	350	365
service days /yr	8b	Auto Carrier	0	157	213	325	350	365
service days /yr	8b	Dray	0	157	213	325	350	365
service days /yr	8b	Expedited	0	157	213	325	350	365
service days /yr	8b	Flatbed	0	157	213	325	350	365
service days /yr	8b	Heavy/Bul k	0	157	213	325	350	365
service days /yr	8b	LTL	0	135	193	309	350	365
service days /yr	8b	Mixed	0	157	213	325	350	365
service days /yr	8b	Reefer	0	157	213	325	350	365
service days /yr	8b	Specialty	0	157	213	325	350	365
service days /yr	8b	Truckload	0	157	213	325	350	365
service days /yr	8b	Tanker	0	157	213	325	350	365
payload	2b	Auto Carrier	0	0	0	1	2	6
payload	2b	Dray	0	0	0	1	2	6
payload	2b	Expedited	0	0	0	1	2	6
payload	2b	Flatbed	0	0	1	2	3	6
payload	2b	Heavy/Bul k	0	0	1	2	3	6
payload	2b	LTL	0	0	0	1	1	6
payload	2b	Mixed	0	0	0	1	2	6
payload	2b	Moving	0	0	0	1	2	6
payload	2b	Package	0	0	0	1	1	6
payload	2b	Reefer	0	0	0	1	2	6
payload	2b	Specialty	0	0	0	1	2	6
payload	2b	Truckload	0	0	0	1	2	6
payload	2b	Tanker	0	0	0	1	2	6

Table 5. Short Form Tool Validation Ranges by Parameter

Data Element	Truck Class	SmartWay Category	Absolute Minimum	Low Red	Low Orange	High Orange	High Red	Absolute Max
payload	3	Auto Carrier	0	0	0	2	3	9
payload	3	Dray	0	0	1	2	3	9
payload	3	Expedited	0	0	0	2	3	9
payload	3	Flatbed	0	0	0	2	3	9
payload	3	Heavy/Bulk	0	0	1	2	3	9
payload	3	LTL	0	0	1	2	2	9
payload	3	Mixed	0	0	0	2	3	9
payload	3	Moving	0	0	0	2	3	9
payload	3	Package	0	0	1	2	2	9
payload	3	Reefer	0	0	1	2	3	9
payload	3	Specialty	0	0	0	2	3	9
payload	3	Truckload	0	0	1	2	3	9
payload	3	Tanker	0	0	0	2	3	9
payload	4	Auto Carrier	0	0	1	3	4	12
payload	4	Dray	0	0	1	3	4	12
payload	4	Expedited	0	0	1	3	4	12
payload	4	Flatbed	0	0	1	4	6	12
payload	4	Heavy/Bulk	0	0	1	4	6	12
payload	4	LTL	0	0	1	2	3	12
payload	4	Mixed	0	0	1	3	4	12
payload	4	Moving	0	0	1	2	3	12
payload	4	Package	0	0	1	2	3	12
payload	4	Reefer	0	0	1	3	4	12
payload	4	Specialty	0	0	1	2	3	12
payload	4	Truckload	0	0	1	3	4	12
payload	4	Tanker	0	0	1	3	4	12
payload	5	Auto Carrier	0	1	2	4	5	16
payload	5	Dray	0	1	2	4	5	16
payload	5	Expedited	0	1	2	4	5	16
payload	5	Flatbed	0	1	2	4	5	16
payload	5	Heavy/Bulk	0	1	2	4	5	16
payload	5	LTL	0	1	2	3	3	16
payload	5	Mixed	0	1	2	4	5	16
payload	5	Moving	0	1	2	4	5	16
payload	5	Package	0	1	2	3	3	16

Table 5. Short Form Tool Validation Ranges by Parameter

Data Element	Truck Class	SmartWay Category	Absolute Minimum	Low Red	Low Orange	High Orange	High Red	Absolute Max
payload	5	Reefer	0	1	2	4	5	16
payload	5	Specialty	0	1	2	4	5	16
payload	5	Truckload	0	1	2	4	5	16
payload	5	Tanker	0	1	2	4	5	16
payload	6	Auto Carrier	0	1	2	7	8	21
payload	6	Dray	0	1	3	6	7	21
payload	6	Expedited	0	1	2	7	8	21
payload	6	Flatbed	0	1	3	6	8	21
payload	6	Heavy/Bulk	0	1	3	7	8	21
payload	6	LTL	0	1	3	4	4	21
payload	6	Mixed	0	1	2	7	8	21
payload	6	Moving	0	1	3	6	7	21
payload	6	Package	0	1	3	4	4	21
payload	6	Reefer	0	1	3	7	8	21
payload	6	Specialty	0	1	3	6	7	21
payload	6	Truckload	0	1	3	6	7	21
payload	6	Tanker	0	1	2	7	8	21
payload	7	Auto Carrier	0	4	5	7	8	60
payload	7	Dray	0	2	4	7	9	60
payload	7	Expedited	0	2	4	8	9	60
payload	7	Flatbed	0	4	6	8	9	24
payload	7	Heavy/Bulk	0	6	7	8	9	60
payload	7	LTL	0	1	4	6	6	60
payload	7	Mixed	0	2	4	8	9	60
payload	7	Moving	0	2	4	7	8	60
payload	7	Package	0	1	4	6	6	60
payload	7	Reefer	0	2	5	7	9	60
payload	7	Specialty	0	2	4	7	8	60
payload	7	Truckload	0	2	4	7	9	60
payload	7	Tanker	0	6	7	8	9	60
payload	8a	Auto Carrier	0	8	13	23	29	111
payload	8a	Dray	0	3	4	17	22	60
payload	8a	Expedited	0	3	4	18	29	111
payload	8a	Flatbed	0	10	11	16	22	72
payload	8a	Heavy/Bulk	0	10	13	23	29	111

Table 5. Short Form Tool Validation Ranges by Parameter

Data Element	Truck Class	SmartWay Category	Absolute Minimum	Low Red	Low Orange	High Orange	High Red	Absolute Max
payload	8a	LTL	0	3	4	12	13	60
payload	8a	Mixed	0	3	4	18	29	111
payload	8a	Moving	0	4	8	17	20	111
payload	8a	Package	0	3	4	12	13	60
payload	8a	Reefer	0	4	6	14	18	83
payload	8a	Specialty	0	4	8	17	20	111
payload	8a	Truckload	0	3	4	17	22	60
payload	8a	Tanker	0	6	7	18	23	72
payload	8b	Auto Carrier	0	8	13	23	29	111
payload	8b	Dray	0	11	14	22	26	150
payload	8b	Expedited	0	7	11	36	44	150
payload	8b	Flatbed	0	14	18	27	31	100
payload	8b	Heavy/Bulk	0	15	22	36	44	150
payload	8b	LTL	0	7	12	18	20	150
payload	8b	Mixed	0	7	11	36	44	150
payload	8b	Moving	0	7	11	17	20	111
payload	8b	Package	0	7	12	18	20	150
payload	8b	Reefer	0	14	17	23	26	83
payload	8b	Specialty	0	5	11	17	20	111
payload	8b	Truckload	0	11	14	22	26	150
payload	8b	Tanker	0	19	22	28	31	104
% reefer fuel	All		0	0	0	19	26	50
MPG - Diesel	2b	All	0	5	8	21	23	38
MPG - Diesel	3	All	0	4	6	14	14	29
MPG - Diesel	4	All	0	6	7	12	13	24
MPG - Diesel	5	All	0	4	6	12	15	21
MPG - Diesel	6	All	0	5	6	11	12	17
MPG - Diesel	7	All	0	5	6	11	11	16
MPG - Diesel	8a	All	0	4	5	9	10	12
MPG - Diesel	8b	Auto Carrier	0	4	5	6	6	9
MPG - Diesel	8b	Dray	0	5	5	7	7	11
MPG - Diesel	8b	Expedited	0	6	6	7	7	10
MPG - Diesel	8b	Flatbed	0	4	5	7	7	11
MPG - Diesel	8b	Heavy/Bulk	0	3	4	6	6	10
MPG - Diesel	8b	LTL	0	6	6	7	8	12

Table 5. Short Form Tool Validation Ranges by Parameter

Data Element	Truck Class	SmartWay Category	Absolute Minimum	Low Red	Low Orange	High Orange	High Red	Absolute Max
MPG - Diesel	8b	Mixed	0	5	5	8	8	12
MPG - Diesel	8b	Package	0	6	6	7	8	12
MPG - Diesel	8b	Reefer	0	5	6	8	9	12
MPG - Diesel	8b	Specialty	0	3	4	6	7	10
MPG - Diesel	8b	Truckload	0	5	5	8	8	12
MPG - Diesel	8b	Tanker	0	4	4	7	7	11
MPG - Gasoline	2b	All	0	4	6	16	18	30
MPG - Gasoline	3	All	0	3	5	11	11	23
MPG - Gasoline	4	All	0	5	6	10	10	19
MPG - Gasoline	5	All	0	4	5	10	12	17
MPG - Gasoline	6	All	0	4	5	9	9	13
MPG - Gasoline	7	All	0	4	4	8	9	13
MPG - Gasoline	8a	All	0	3	4	7	8	10
MPG - Gasoline	8b	Auto Carrier	0	3	4	4	5	7
MPG - Gasoline	8b	Dray	0	4	4	5	6	8
MPG - Gasoline	8b	Expedited	0	5	5	6	6	8
MPG - Gasoline	8b	Flatbed	0	3	4	6	6	9
MPG - Gasoline	8b	Heavy/Bulk	0	2	3	5	5	8
MPG - Gasoline	8b	LTL	0	4	5	6	6	9
MPG - Gasoline	8b	Mixed	0	4	4	6	6	9
MPG - Gasoline	8b	Package	0	4	5	6	6	9
MPG - Gasoline	8b	Reefer	0	4	4	7	7	9
MPG - Gasoline	8b	Specialty	0	2	3	5	5	8
MPG - Gasoline	8b	Truckload	0	4	4	6	6	10
MPG - Gasoline	8b	Tanker	0	3	3	5	6	9

4.0 Performance Metrics

The Short Form Tool allows the user to calculate their emissions performance using different metrics. Available performance metrics include:

-  Grams per mile
-  Grams per Payload Ton-Mile

The following calculations are performed for these metrics:

$$\text{g/mile: } \sum E / M$$

where

E = Emissions, M = Miles Driven

$$\text{g/avg payload ton-mile: } \sum E / (M \times AP)$$

where

E = Emissions, M = Miles Driven, AP = Average Payload

For both calculations:

-  Emissions = grams of pollutant
-  Miles Driven = Total Miles

Summations are performed for the different metrics. Each of the metrics is automatically aggregated across model years (for NO_x, PM and BC) for reporting purposes. Additional aggregation may be reported across fuel types as specified by the user.

Appendix A: NO_x, PM & BC Emission Factors (g/mi) 2021 Calendar Year - MOVES3.0.1 Basis

Table A-1. SmartWay Category - Auto Carriers

Category ID	Engine Model Yr	Truck Class	Gas NO _x g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NO _x g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
1	1987	2b	5.0996	0.0049	0.0332	7.4666	0.1732	0.2274
1	1987	3	5.7831	0.0155	0.1055	12.9942	0.3939	0.4999
1	1987	4	5.8335	0.0160	0.1095	14.8825	0.4564	0.5772
1	1987	5	5.6658	0.0141	0.0959	15.4597	0.4282	0.5418
1	1987	6	5.4274	0.0112	0.0764	15.5284	0.4689	0.5929
1	1987	7	5.4274	0.0112	0.0764	16.7655	0.4771	0.6031
1	1987	8a	5.4580	0.0114	0.0777	25.7687	0.7015	0.8848
1	1987	8b	5.4580	0.0114	0.0777	30.7770	0.8201	1.0335
1	1988	2b	5.0996	0.0049	0.0332	7.4666	0.1732	0.2274
1	1988	3	5.7831	0.0155	0.1055	12.9942	0.3939	0.4999
1	1988	4	5.8335	0.0160	0.1095	14.8825	0.4564	0.5772
1	1988	5	5.6658	0.0141	0.0959	15.4597	0.4282	0.5418
1	1988	6	5.4274	0.0112	0.0764	15.5284	0.4689	0.5929
1	1988	7	5.4274	0.0112	0.0764	16.7655	0.4771	0.6031
1	1988	8a	5.4580	0.0114	0.0777	25.7687	0.7015	0.8848
1	1988	8b	5.4580	0.0114	0.0777	30.7770	0.8201	1.0335
1	1989	2b	5.0996	0.0049	0.0332	7.4666	0.1732	0.2274
1	1989	3	5.7831	0.0155	0.1055	12.9942	0.3939	0.4999
1	1989	4	5.8335	0.0160	0.1095	14.8825	0.4564	0.5772
1	1989	5	5.6658	0.0141	0.0959	15.4597	0.4282	0.5418
1	1989	6	5.4274	0.0112	0.0764	15.5284	0.4689	0.5929
1	1989	7	5.4274	0.0112	0.0764	16.7655	0.4771	0.6031
1	1989	8a	5.4580	0.0114	0.0777	25.7687	0.7015	0.8848
1	1989	8b	5.4580	0.0114	0.0777	30.7770	0.8201	1.0335
1	1990	2b	5.0996	0.0049	0.0332	7.4666	0.1732	0.2274
1	1990	3	5.7831	0.0155	0.1055	12.9942	0.3939	0.4999
1	1990	4	5.8335	0.0160	0.1095	14.8825	0.4564	0.5772
1	1990	5	5.6658	0.0141	0.0959	15.4597	0.4282	0.5418

Table A-1. SmartWay Category - Auto Carriers

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
1	1990	6	5.4274	0.0112	0.0764	15.5284	0.4689	0.5929
1	1990	7	5.4274	0.0112	0.0764	16.7655	0.4771	0.6031
1	1990	8a	5.4580	0.0114	0.0777	25.7687	0.7015	0.8848
1	1990	8b	5.4580	0.0114	0.0777	30.7770	0.8201	1.0335
1	1991	2b	5.0996	0.0049	0.0332	7.4666	0.1732	0.2274
1	1991	3	5.7831	0.0155	0.1055	12.9942	0.3939	0.4999
1	1991	4	5.8335	0.0160	0.1095	14.8825	0.4564	0.5772
1	1991	5	5.6658	0.0141	0.0959	15.4597	0.4282	0.5418
1	1991	6	5.4274	0.0112	0.0764	15.5284	0.4689	0.5929
1	1991	7	5.4274	0.0112	0.0764	16.7655	0.4771	0.6031
1	1991	8a	5.4580	0.0114	0.0777	25.7687	0.7015	0.8848
1	1991	8b	5.4580	0.0114	0.0777	30.7770	0.8201	1.0335
1	1992	2b	5.0996	0.0049	0.0332	7.4666	0.1732	0.2274
1	1992	3	5.7831	0.0155	0.1055	12.9942	0.3939	0.4999
1	1992	4	5.8335	0.0160	0.1095	14.8825	0.4564	0.5772
1	1992	5	5.6658	0.0141	0.0959	15.4597	0.4282	0.5418
1	1992	6	5.4274	0.0112	0.0764	15.5284	0.4689	0.5929
1	1992	7	5.4274	0.0112	0.0764	16.7655	0.4771	0.6031
1	1992	8a	5.4580	0.0114	0.0777	25.7687	0.7015	0.8848
1	1992	8b	5.4580	0.0114	0.0777	30.7770	0.8201	1.0335
1	1993	2b	5.1345	0.0061	0.0419	7.9699	0.2069	0.2689
1	1993	3	5.8188	0.0161	0.1101	10.7436	0.3052	0.3905
1	1993	4	5.8567	0.0164	0.1121	16.3261	0.4948	0.6255
1	1993	5	5.8225	0.0162	0.1104	16.3656	0.4380	0.5541
1	1993	6	5.2546	0.0114	0.0780	17.6452	0.4751	0.6007
1	1993	7	5.2546	0.0114	0.0780	19.7439	0.5412	0.6837
1	1993	8a	5.3163	0.0114	0.0778	29.2112	0.7749	0.9769
1	1993	8b	5.3163	0.0114	0.0778	31.2548	0.8226	1.0367
1	1994	2b	4.4707	0.0055	0.0378	7.4479	0.4263	0.5471
1	1994	3	5.8219	0.0098	0.0668	9.9246	0.5251	0.6697
1	1994	4	5.8809	0.0099	0.0672	13.7591	0.6483	0.8211
1	1994	5	5.8770	0.0098	0.0672	16.7531	0.7143	0.9041
1	1994	6	5.2176	0.0092	0.0626	17.1283	0.7059	0.8935

Table A-1. SmartWay Category - Auto Carriers

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
1	1994	7	5.2176	0.0092	0.0626	20.6586	0.7148	0.9042
1	1994	8a	7.8258	0.0127	0.0866	29.2038	0.7676	0.9696
1	1994	8b	7.8258	0.0127	0.0866	31.1058	0.7818	0.9871
1	1995	2b	4.5725	0.0082	0.0562	7.6279	0.4205	0.5390
1	1995	3	5.7151	0.0215	0.1464	13.3219	0.6149	0.7800
1	1995	4	5.8388	0.0228	0.1553	15.0539	0.6566	0.8318
1	1995	5	5.8075	0.0225	0.1532	17.3167	0.7049	0.8922
1	1995	6	5.2099	0.0160	0.1095	17.8295	0.6919	0.8757
1	1995	7	5.2099	0.0160	0.1095	20.1150	0.7083	0.8962
1	1995	8a	7.6667	0.0338	0.2308	28.8596	0.7663	0.9681
1	1995	8b	7.6667	0.0338	0.2308	30.8787	0.7801	0.9849
1	1996	2b	3.7162	0.0056	0.0380	7.6800	0.4053	0.5190
1	1996	3	5.8007	0.0164	0.1122	14.6277	0.6530	0.8273
1	1996	4	5.8646	0.0170	0.1162	16.1733	0.6729	0.8519
1	1996	5	5.8608	0.0170	0.1161	17.2901	0.7096	0.8982
1	1996	6	5.2617	0.0113	0.0772	19.4542	0.7060	0.8934
1	1996	7	5.2617	0.0113	0.0772	20.4727	0.7145	0.9040
1	1996	8a	7.6667	0.0273	0.1862	28.8618	0.7669	0.9689
1	1996	8b	7.6667	0.0273	0.1862	30.9841	0.7828	0.9884
1	1997	2b	3.4020	0.0041	0.0279	6.0516	0.3349	0.4324
1	1997	3	5.7242	0.0129	0.0877	11.5049	0.5390	0.6857
1	1997	4	5.8726	0.0136	0.0930	14.0020	0.6606	0.8366
1	1997	5	5.8386	0.0135	0.0919	15.8157	0.7113	0.9003
1	1997	6	5.2395	0.0103	0.0703	15.7933	0.6802	0.8611
1	1997	7	5.2395	0.0103	0.0703	17.5438	0.6921	0.8761
1	1997	8a	8.8806	0.0105	0.0717	27.7355	0.7557	0.9549
1	1997	8b	8.8806	0.0105	0.0717	30.5925	0.7764	0.9804
1	1998	2b	3.0238	0.0036	0.0246	6.5820	0.2466	0.3191
1	1998	3	3.8553	0.0140	0.0957	13.6301	0.3488	0.4451
1	1998	4	3.8909	0.0157	0.1069	14.3957	0.3601	0.4590
1	1998	5	3.8428	0.0138	0.0939	15.0585	0.3414	0.4356
1	1998	6	3.7755	0.0104	0.0712	14.6949	0.3531	0.4503
1	1998	7	3.7755	0.0104	0.0712	15.6056	0.3546	0.4521

Table A-1. SmartWay Category - Auto Carriers

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
1	1998	8a	4.3111	0.0251	0.1711	25.3154	0.4847	0.6143
1	1998	8b	4.3111	0.0251	0.1711	28.5721	0.5254	0.6646
1	1999	2b	2.3540	0.0045	0.0305	6.0273	0.2458	0.3181
1	1999	3	3.8360	0.0140	0.0956	9.1441	0.3220	0.4117
1	1999	4	3.9813	0.0144	0.0982	9.7520	0.3373	0.4304
1	1999	5	4.0124	0.0142	0.0967	9.7901	0.3381	0.4314
1	1999	6	4.0146	0.0142	0.0967	9.8878	0.3375	0.4307
1	1999	7	3.7218	0.0136	0.0931	10.4084	0.3468	0.4424
1	1999	8a	3.7453	0.0147	0.1002	18.7414	0.4858	0.6157
1	1999	8b	3.7453	0.0147	0.1002	21.3369	0.5303	0.6707
1	2000	2b	2.0962	0.0040	0.0270	6.1715	0.2496	0.3228
1	2000	3	3.8984	0.0127	0.0864	9.1640	0.3233	0.4132
1	2000	4	4.0752	0.0114	0.0774	9.6502	0.3352	0.4278
1	2000	5	4.1237	0.0110	0.0750	9.7254	0.3367	0.4296
1	2000	6	4.1267	0.0110	0.0748	9.8618	0.3393	0.4329
1	2000	7	3.7838	0.0135	0.0922	11.1361	0.3589	0.4574
1	2000	8a	3.7838	0.0135	0.0922	17.3404	0.4605	0.5842
1	2000	8b	3.7838	0.0135	0.0922	21.1702	0.5273	0.6671
1	2001	2b	0.7066	0.0028	0.0190	5.8475	0.2418	0.3132
1	2001	3	1.6114	0.0095	0.0648	8.9046	0.3155	0.4034
1	2001	4	1.6704	0.0094	0.0639	9.3189	0.3259	0.4160
1	2001	5	1.6930	0.0093	0.0635	9.3568	0.3266	0.4170
1	2001	6	1.6945	0.0093	0.0635	10.1138	0.3400	0.4337
1	2001	7	1.5853	0.0096	0.0653	9.9556	0.3374	0.4305
1	2001	8a	1.5853	0.0096	0.0653	18.2265	0.4747	0.6019
1	2001	8b	1.5853	0.0096	0.0653	20.9985	0.5238	0.6627
1	2002	2b	0.6715	0.0024	0.0166	5.9152	0.2434	0.3152
1	2002	3	1.6364	0.0075	0.0509	8.6999	0.3102	0.3969
1	2002	4	1.7172	0.0068	0.0462	9.3026	0.3251	0.4150
1	2002	5	1.7418	0.0066	0.0447	9.3026	0.3251	0.4150
1	2002	6	1.7434	0.0065	0.0446	9.6259	0.3325	0.4245
1	2002	7	1.5904	0.0079	0.0536	10.2161	0.3408	0.4348
1	2002	8a	1.5904	0.0079	0.0536	15.7899	0.4330	0.5500

Table A-1. SmartWay Category - Auto Carriers

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
1	2002	8b	1.5904	0.0079	0.0536	20.6508	0.5173	0.6546
1	2003	2b	0.6065	0.0019	0.0127	4.2251	0.2057	0.2664
1	2003	3	1.6185	0.0060	0.0407	5.8617	0.2690	0.3442
1	2003	4	1.6873	0.0058	0.0396	6.2294	0.2836	0.3621
1	2003	5	1.7090	0.0058	0.0392	6.2294	0.2836	0.3621
1	2003	6	1.7104	0.0058	0.0392	6.6095	0.2942	0.3754
1	2003	7	1.5809	0.0060	0.0412	6.7867	0.3044	0.3882
1	2003	8a	1.5810	0.0060	0.0412	8.8061	0.4008	0.5087
1	2003	8b	1.5810	0.0060	0.0412	10.2183	0.4727	0.5980
1	2004	2b	0.4873	0.0011	0.0080	4.1975	0.2041	0.2644
1	2004	3	1.6360	0.0047	0.0319	5.9088	0.2691	0.3444
1	2004	4	1.7305	0.0045	0.0305	6.3061	0.2847	0.3635
1	2004	5	1.7586	0.0044	0.0301	6.3061	0.2847	0.3635
1	2004	6	1.7605	0.0044	0.0300	6.6770	0.2972	0.3793
1	2004	7	1.5804	0.0048	0.0327	6.8420	0.3062	0.3904
1	2004	8a	1.5804	0.0048	0.0327	8.7811	0.3987	0.5061
1	2004	8b	1.5804	0.0048	0.0327	10.2212	0.4732	0.5986
1	2005	2b	0.3952	0.0010	0.0068	4.0939	0.1994	0.2584
1	2005	3	1.6243	0.0046	0.0312	5.7758	0.2638	0.3378
1	2005	4	1.6766	0.0044	0.0303	6.2766	0.2836	0.3621
1	2005	5	1.7000	0.0044	0.0299	6.2766	0.2836	0.3621
1	2005	6	1.7017	0.0044	0.0299	6.5850	0.2952	0.3767
1	2005	7	1.6046	0.0046	0.0315	6.8770	0.3091	0.3940
1	2005	8a	1.6048	0.0046	0.0315	9.0091	0.4098	0.5199
1	2005	8b	1.6048	0.0046	0.0315	10.2798	0.4758	0.6019
1	2006	2b	0.4368	0.0011	0.0077	4.1497	0.2025	0.2624
1	2006	3	1.6233	0.0048	0.0329	5.7228	0.2620	0.3355
1	2006	4	1.6915	0.0046	0.0316	6.1921	0.2801	0.3578
1	2006	5	1.7178	0.0046	0.0312	6.1921	0.2801	0.3578
1	2006	6	1.7197	0.0046	0.0311	6.4342	0.2899	0.3700
1	2006	7	1.5936	0.0049	0.0335	6.7383	0.3039	0.3874
1	2006	8a	1.5938	0.0049	0.0335	8.8962	0.4051	0.5140
1	2006	8b	1.5938	0.0049	0.0335	10.2591	0.4751	0.6011

Table A-1. SmartWay Category - Auto Carriers

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
1	2007	2b	0.3837	0.0010	0.0070	2.2650	0.0013	0.0115
1	2007	3	1.6258	0.0048	0.0328	3.4877	0.0018	0.0156
1	2007	4	1.6792	0.0046	0.0317	3.7107	0.0019	0.0163
1	2007	5	1.7021	0.0046	0.0312	3.7107	0.0019	0.0163
1	2007	6	1.7038	0.0046	0.0311	3.8525	0.0020	0.0168
1	2007	7	1.6054	0.0049	0.0332	4.2604	0.0021	0.0181
1	2007	8a	1.6065	0.0049	0.0332	6.2237	0.0029	0.0248
1	2007	8b	1.6065	0.0049	0.0332	7.1702	0.0033	0.0282
1	2008	2b	0.2896	0.0009	0.0059	2.1987	0.0013	0.0112
1	2008	3	1.0669	0.0036	0.0244	3.1052	0.0017	0.0142
1	2008	4	1.0339	0.0035	0.0241	3.2845	0.0017	0.0148
1	2008	5	1.0158	0.0035	0.0239	3.2845	0.0017	0.0148
1	2008	6	1.0144	0.0035	0.0239	3.3956	0.0018	0.0151
1	2008	7	1.0772	0.0036	0.0245	3.5297	0.0018	0.0156
1	2008	8a	1.0771	0.0036	0.0245	5.0128	0.0024	0.0205
1	2008	8b	1.0771	0.0036	0.0245	6.8157	0.0031	0.0269
1	2009	2b	0.1781	0.0010	0.0062	2.1793	0.0013	0.0110
1	2009	3	0.6573	0.0036	0.0244	3.6151	0.0019	0.0160
1	2009	4	0.6557	0.0036	0.0243	3.8177	0.0020	0.0168
1	2009	5	0.6548	0.0036	0.0242	3.8177	0.0020	0.0168
1	2009	6	0.6547	0.0036	0.0242	3.8935	0.0020	0.0170
1	2009	7	0.6577	0.0036	0.0244	4.3425	0.0022	0.0184
1	2009	8a	0.6577	0.0036	0.0244	6.2518	0.0029	0.0249
1	2009	8b	0.6577	0.0036	0.0244	7.1456	0.0033	0.0281
1	2010	2b	0.0692	0.0006	0.0034	0.9569	0.0009	0.0077
1	2010	3	0.1087	0.0017	0.0118	1.9282	0.0017	0.0148
1	2010	4	0.1087	0.0017	0.0118	2.0885	0.0019	0.0159
1	2010	5	0.1087	0.0017	0.0118	2.0885	0.0019	0.0159
1	2010	6	0.1087	0.0017	0.0118	2.1612	0.0019	0.0164
1	2010	7	0.1087	0.0017	0.0118	2.4867	0.0017	0.0149
1	2010	8a	0.1087	0.0017	0.0118	3.9486	0.0012	0.0101
1	2010	8b	0.1087	0.0017	0.0118	4.6683	0.0008	0.0071
1	2011	2b	0.0717	0.0007	0.0039	1.0533	0.0009	0.0076

Table A-1. SmartWay Category - Auto Carriers

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
1	2011	3	0.1159	0.0017	0.0116	1.6506	0.0015	0.0131
1	2011	4	0.1285	0.0016	0.0112	1.7498	0.0016	0.0140
1	2011	5	0.1349	0.0016	0.0110	1.7498	0.0016	0.0140
1	2011	6	0.1354	0.0016	0.0110	1.8090	0.0017	0.0142
1	2011	7	0.1117	0.0017	0.0117	1.9736	0.0016	0.0135
1	2011	8a	0.1117	0.0017	0.0117	3.0811	0.0012	0.0102
1	2011	8b	0.1117	0.0017	0.0117	3.9146	0.0008	0.0071
1	2012	2b	0.0736	0.0008	0.0042	0.9907	0.0010	0.0077
1	2012	3	0.1179	0.0017	0.0115	1.6479	0.0016	0.0136
1	2012	4	0.1229	0.0017	0.0113	1.7366	0.0017	0.0144
1	2012	5	0.1257	0.0016	0.0112	1.7366	0.0017	0.0144
1	2012	6	0.1260	0.0016	0.0112	1.7769	0.0017	0.0144
1	2012	7	0.1164	0.0017	0.0115	2.0099	0.0016	0.0135
1	2012	8a	0.1164	0.0017	0.0115	3.1749	0.0011	0.0096
1	2012	8b	0.1164	0.0017	0.0115	3.8292	0.0008	0.0070
1	2013	2b	0.0601	0.0007	0.0032	1.1776	0.0009	0.0075
1	2013	3	0.1241	0.0015	0.0105	1.7472	0.0016	0.0137
1	2013	4	0.1332	0.0015	0.0103	1.8273	0.0017	0.0145
1	2013	5	0.1377	0.0015	0.0101	1.8273	0.0017	0.0145
1	2013	6	0.1380	0.0015	0.0101	1.8625	0.0017	0.0146
1	2013	7	0.1212	0.0015	0.0106	2.0405	0.0016	0.0133
1	2013	8a	0.1216	0.0015	0.0106	2.7747	0.0010	0.0087
1	2013	8b	0.1216	0.0015	0.0106	3.1114	0.0007	0.0063
1	2014	2b	0.0616	0.0009	0.0033	0.5470	0.0004	0.0023
1	2014	3	0.1247	0.0015	0.0101	1.1749	0.0005	0.0041
1	2014	4	0.1281	0.0015	0.0101	1.2484	0.0005	0.0043
1	2014	5	0.1301	0.0015	0.0100	1.2484	0.0005	0.0043
1	2014	6	0.1303	0.0015	0.0100	1.2761	0.0005	0.0044
1	2014	7	0.1236	0.0015	0.0102	1.4351	0.0005	0.0043
1	2014	8a	0.1236	0.0015	0.0102	2.2276	0.0005	0.0043
1	2014	8b	0.1236	0.0015	0.0102	2.6932	0.0005	0.0041
1	2015	2b	0.0561	0.0009	0.0031	0.4337	0.0005	0.0022
1	2015	3	0.1246	0.0015	0.0101	1.0594	0.0005	0.0040

Table A-1. SmartWay Category - Auto Carriers

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
1	2015	4	0.1277	0.0015	0.0101	1.1498	0.0005	0.0043
1	2015	5	0.1296	0.0015	0.0100	1.1498	0.0005	0.0043
1	2015	6	0.1298	0.0015	0.0100	1.1792	0.0005	0.0044
1	2015	7	0.1236	0.0015	0.0102	1.3551	0.0005	0.0043
1	2015	8a	0.1236	0.0015	0.0102	2.2138	0.0005	0.0043
1	2015	8b	0.1236	0.0015	0.0102	2.7080	0.0005	0.0041
1	2016	2b	0.0556	0.0010	0.0031	0.4155	0.0005	0.0022
1	2016	3	0.1245	0.0015	0.0101	1.0104	0.0005	0.0040
1	2016	4	0.1274	0.0015	0.0101	1.1096	0.0005	0.0043
1	2016	5	0.1291	0.0015	0.0100	1.1096	0.0005	0.0043
1	2016	6	0.1292	0.0015	0.0100	1.1343	0.0005	0.0044
1	2016	7	0.1236	0.0015	0.0102	1.2729	0.0005	0.0043
1	2016	8a	0.1236	0.0015	0.0102	2.0628	0.0005	0.0043
1	2016	8b	0.1236	0.0015	0.0102	2.6091	0.0005	0.0041
1	2017	2b	0.0383	0.0010	0.0028	0.3930	0.0005	0.0020
1	2017	3	0.1059	0.0015	0.0101	0.9490	0.0005	0.0038
1	2017	4	0.1081	0.0015	0.0101	1.0468	0.0005	0.0042
1	2017	5	0.1093	0.0015	0.0100	1.0468	0.0005	0.0042
1	2017	6	0.1094	0.0015	0.0100	1.0661	0.0005	0.0042
1	2017	7	0.1053	0.0015	0.0101	1.1754	0.0005	0.0042
1	2017	8a	0.1053	0.0015	0.0101	1.8355	0.0005	0.0042
1	2017	8b	0.1053	0.0015	0.0101	2.3277	0.0005	0.0041
1	2018	2b	0.0371	0.0010	0.0029	0.2797	0.0005	0.0020
1	2018	3	0.0919	0.0015	0.0101	0.8783	0.0005	0.0038
1	2018	4	0.1004	0.0014	0.0099	0.9834	0.0005	0.0042
1	2018	5	0.1049	0.0014	0.0098	0.9834	0.0005	0.0042
1	2018	6	0.1052	0.0014	0.0098	1.0304	0.0005	0.0043
1	2018	7	0.0891	0.0015	0.0101	1.1275	0.0005	0.0042
1	2018	8a	0.0891	0.0015	0.0101	1.7933	0.0005	0.0043
1	2018	8b	0.0891	0.0015	0.0101	2.2688	0.0005	0.0041
1	2019	2b	0.0272	0.0007	0.0018	0.1763	0.0003	0.0012
1	2019	3	0.0876	0.0009	0.0061	0.6034	0.0003	0.0025
1	2019	4	0.0960	0.0009	0.0060	0.6858	0.0003	0.0027

Table A-1. SmartWay Category - Auto Carriers

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
1	2019	5	0.1004	0.0009	0.0060	0.6858	0.0003	0.0027
1	2019	6	0.1008	0.0009	0.0060	0.7193	0.0003	0.0028
1	2019	7	0.0849	0.0009	0.0061	0.7925	0.0003	0.0028
1	2019	8a	0.0849	0.0009	0.0061	1.2881	0.0003	0.0029
1	2019	8b	0.0849	0.0009	0.0061	1.6412	0.0003	0.0028
1	2020	2b	0.0238	0.0006	0.0016	0.1531	0.0003	0.0011
1	2020	3	0.0834	0.0009	0.0061	0.5798	0.0003	0.0024
1	2020	4	0.0921	0.0009	0.0060	0.6760	0.0003	0.0027
1	2020	5	0.0967	0.0009	0.0060	0.6760	0.0003	0.0027
1	2020	6	0.0971	0.0009	0.0060	0.7090	0.0003	0.0028
1	2020	7	0.0806	0.0009	0.0061	0.7786	0.0003	0.0028
1	2020	8a	0.0806	0.0009	0.0061	1.2703	0.0003	0.0029
1	2020	8b	0.0806	0.0009	0.0061	1.6371	0.0003	0.0028
1	2021	2b	0.0202	0.0005	0.0014	0.1360	0.0002	0.0011
1	2021	3	0.0783	0.0009	0.0061	0.5621	0.0003	0.0024
1	2021	4	0.0865	0.0009	0.0060	0.6636	0.0003	0.0027
1	2021	5	0.0909	0.0009	0.0059	0.6636	0.0003	0.0027
1	2021	6	0.0913	0.0009	0.0059	0.6952	0.0003	0.0028
1	2021	7	0.0757	0.0009	0.0061	0.7578	0.0003	0.0028
1	2021	8a	0.0757	0.0009	0.0061	1.2210	0.0003	0.0028
1	2021	8b	0.0757	0.0009	0.0061	1.5803	0.0003	0.0027
1	2022	2b	0.0170	0.0005	0.0014	0.1207	0.0002	0.0011
1	2022	3	0.0741	0.0009	0.0061	0.5517	0.0003	0.0024
1	2022	4	0.0826	0.0009	0.0060	0.6537	0.0003	0.0027
1	2022	5	0.0872	0.0009	0.0059	0.6537	0.0003	0.0027
1	2022	6	0.0875	0.0009	0.0059	0.6856	0.0003	0.0028
1	2022	7	0.0714	0.0009	0.0061	0.7511	0.0003	0.0028
1	2022	8a	0.0714	0.0009	0.0061	1.2236	0.0003	0.0028
1	2022	8b	0.0714	0.0009	0.0061	1.5817	0.0003	0.0027

Table A-2. SmartWay Category - Dray

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
2	1987	2b	5.2506	0.0055	0.0374	7.9001	0.1838	0.2416
2	1987	3	5.9391	0.0175	0.1196	14.0014	0.4280	0.5440
2	1987	4	5.9858	0.0182	0.1242	16.1130	0.4995	0.6324
2	1987	5	5.8316	0.0159	0.1085	16.6616	0.4731	0.5995
2	1987	6	5.6135	0.0126	0.0857	16.7150	0.5114	0.6474
2	1987	7	5.6135	0.0126	0.0857	17.8463	0.5187	0.6566
2	1987	8a	5.6454	0.0128	0.0873	26.3107	0.7345	0.9273
2	1987	8b	5.6454	0.0128	0.0873	31.4006	0.8583	1.0824
2	1988	2b	5.2506	0.0055	0.0374	7.9001	0.1838	0.2416
2	1988	3	5.9391	0.0175	0.1196	14.0014	0.4280	0.5440
2	1988	4	5.9858	0.0182	0.1242	16.1130	0.4995	0.6324
2	1988	5	5.8316	0.0159	0.1085	16.6616	0.4731	0.5995
2	1988	6	5.6135	0.0126	0.0857	16.7150	0.5114	0.6474
2	1988	7	5.6135	0.0126	0.0857	17.8463	0.5187	0.6566
2	1988	8a	5.6454	0.0128	0.0873	26.3107	0.7345	0.9273
2	1988	8b	5.6454	0.0128	0.0873	31.4006	0.8583	1.0824
2	1989	2b	5.2506	0.0055	0.0374	7.9001	0.1838	0.2416
2	1989	3	5.9391	0.0175	0.1196	14.0014	0.4280	0.5440
2	1989	4	5.9858	0.0182	0.1242	16.1130	0.4995	0.6324
2	1989	5	5.8316	0.0159	0.1085	16.6616	0.4731	0.5995
2	1989	6	5.6135	0.0126	0.0857	16.7150	0.5114	0.6474
2	1989	7	5.6135	0.0126	0.0857	17.8463	0.5187	0.6566
2	1989	8a	5.6454	0.0128	0.0873	26.3107	0.7345	0.9273
2	1989	8b	5.6454	0.0128	0.0873	31.4006	0.8583	1.0824
2	1990	2b	5.2506	0.0055	0.0374	7.9001	0.1838	0.2416
2	1990	3	5.9391	0.0175	0.1196	14.0014	0.4280	0.5440
2	1990	4	5.9858	0.0182	0.1242	16.1130	0.4995	0.6324
2	1990	5	5.8316	0.0159	0.1085	16.6616	0.4731	0.5995
2	1990	6	5.6135	0.0126	0.0857	16.7150	0.5114	0.6474
2	1990	7	5.6135	0.0126	0.0857	17.8463	0.5187	0.6566
2	1990	8a	5.6454	0.0128	0.0873	26.3107	0.7345	0.9273
2	1990	8b	5.6454	0.0128	0.0873	31.4006	0.8583	1.0824
2	1991	2b	5.2506	0.0055	0.0374	7.9001	0.1838	0.2416

Table A-2. SmartWay Category - Dray

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
2	1991	3	5.9391	0.0175	0.1196	14.0014	0.4280	0.5440
2	1991	4	5.9858	0.0182	0.1242	16.1130	0.4995	0.6324
2	1991	5	5.8316	0.0159	0.1085	16.6616	0.4731	0.5995
2	1991	6	5.6135	0.0126	0.0857	16.7150	0.5114	0.6474
2	1991	7	5.6135	0.0126	0.0857	17.8463	0.5187	0.6566
2	1991	8a	5.6454	0.0128	0.0873	26.3107	0.7345	0.9273
2	1991	8b	5.6454	0.0128	0.0873	31.4006	0.8583	1.0824
2	1992	2b	5.2506	0.0055	0.0374	7.9001	0.1838	0.2416
2	1992	3	5.9391	0.0175	0.1196	14.0014	0.4280	0.5440
2	1992	4	5.9858	0.0182	0.1242	16.1130	0.4995	0.6324
2	1992	5	5.8316	0.0159	0.1085	16.6616	0.4731	0.5995
2	1992	6	5.6135	0.0126	0.0857	16.7150	0.5114	0.6474
2	1992	7	5.6135	0.0126	0.0857	17.8463	0.5187	0.6566
2	1992	8a	5.6454	0.0128	0.0873	26.3107	0.7345	0.9273
2	1992	8b	5.6454	0.0128	0.0873	31.4006	0.8583	1.0824
2	1993	2b	5.2836	0.0068	0.0467	8.4666	0.2199	0.2862
2	1993	3	5.9664	0.0183	0.1248	11.5103	0.3295	0.4221
2	1993	4	6.0041	0.0186	0.1272	17.4822	0.5368	0.6794
2	1993	5	5.9700	0.0183	0.1252	17.6388	0.4872	0.6172
2	1993	6	5.4069	0.0127	0.0867	18.8199	0.5219	0.6608
2	1993	7	5.4069	0.0127	0.0867	20.6926	0.5823	0.7365
2	1993	8a	5.4702	0.0127	0.0865	29.8114	0.8123	1.0247
2	1993	8b	5.4702	0.0127	0.0865	31.9063	0.8625	1.0875
2	1994	2b	4.5816	0.0053	0.0359	7.9647	0.4950	0.6361
2	1994	3	5.9684	0.0095	0.0645	10.6382	0.6034	0.7709
2	1994	4	6.0284	0.0095	0.0650	14.8488	0.7387	0.9372
2	1994	5	6.0241	0.0095	0.0650	18.0561	0.8166	1.0352
2	1994	6	5.3556	0.0088	0.0598	18.3165	0.8031	1.0181
2	1994	7	5.3556	0.0088	0.0598	21.4538	0.7996	1.0129
2	1994	8a	8.1467	0.0125	0.0852	29.7807	0.8297	1.0491
2	1994	8b	8.1467	0.0125	0.0852	31.7471	0.8394	1.0607
2	1995	2b	4.6889	0.0083	0.0567	8.1579	0.4883	0.6269
2	1995	3	5.8598	0.0221	0.1510	14.3823	0.7038	0.8942

Table A-2. SmartWay Category - Dray

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
2	1995	4	5.9855	0.0236	0.1608	16.1735	0.7483	0.9495
2	1995	5	5.9534	0.0232	0.1585	18.5707	0.8032	1.0182
2	1995	6	5.3468	0.0162	0.1106	18.9125	0.7823	0.9916
2	1995	7	5.3468	0.0162	0.1106	21.0366	0.7943	1.0064
2	1995	8a	7.9508	0.0353	0.2412	29.4500	0.8300	1.0496
2	1995	8b	7.9508	0.0353	0.2412	31.5177	0.8383	1.0593
2	1996	2b	3.7881	0.0060	0.0411	8.2093	0.4690	0.6017
2	1996	3	5.9483	0.0183	0.1248	15.8212	0.7454	0.9457
2	1996	4	6.0124	0.0190	0.1295	17.3285	0.7641	0.9688
2	1996	5	6.0083	0.0190	0.1294	18.5200	0.8081	1.0245
2	1996	6	5.4097	0.0124	0.0846	20.3682	0.7946	1.0069
2	1996	7	5.4097	0.0124	0.0846	21.4066	0.8007	1.0144
2	1996	8a	7.9509	0.0300	0.2049	29.4488	0.8308	1.0506
2	1996	8b	7.9509	0.0300	0.2049	31.6234	0.8411	1.0628
2	1997	2b	3.3970	0.0040	0.0275	6.4190	0.3897	0.5037
2	1997	3	5.8713	0.0129	0.0883	12.2688	0.6155	0.7843
2	1997	4	6.0200	0.0138	0.0939	15.1341	0.7542	0.9568
2	1997	5	5.9859	0.0136	0.0927	16.9928	0.8111	1.0283
2	1997	6	5.3853	0.0103	0.0701	16.8568	0.7723	0.9792
2	1997	7	5.3853	0.0103	0.0701	18.4753	0.7812	0.9903
2	1997	8a	9.1762	0.0101	0.0687	28.2661	0.8214	1.0390
2	1997	8b	9.1762	0.0101	0.0687	31.2099	0.8349	1.0551
2	1998	2b	3.0005	0.0036	0.0248	7.0811	0.2628	0.3419
2	1998	3	3.9017	0.0144	0.0985	14.6434	0.3795	0.4857
2	1998	4	3.9344	0.0162	0.1107	15.4771	0.3926	0.5018
2	1998	5	3.8887	0.0141	0.0965	16.0833	0.3689	0.4722
2	1998	6	3.8278	0.0105	0.0718	15.7521	0.3836	0.4906
2	1998	7	3.8278	0.0105	0.0718	16.5903	0.3833	0.4902
2	1998	8a	4.3716	0.0266	0.1813	25.6764	0.5184	0.6580
2	1998	8b	4.3716	0.0266	0.1813	28.9413	0.5631	0.7131
2	1999	2b	2.3430	0.0047	0.0320	6.4988	0.2616	0.3405
2	1999	3	3.8897	0.0150	0.1024	9.8206	0.3484	0.4469
2	1999	4	4.0492	0.0155	0.1055	10.4766	0.3660	0.4685

Table A-2. SmartWay Category - Dray

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
2	1999	5	4.0839	0.0152	0.1039	10.5138	0.3668	0.4695
2	1999	6	4.0863	0.0152	0.1039	10.5801	0.3648	0.4670
2	1999	7	3.7644	0.0146	0.0996	11.0814	0.3747	0.4794
2	1999	8a	3.7885	0.0157	0.1074	19.0765	0.5189	0.6589
2	1999	8b	3.7885	0.0157	0.1074	21.7440	0.5682	0.7196
2	2000	2b	2.0870	0.0039	0.0269	6.6520	0.2658	0.3456
2	2000	3	3.9636	0.0127	0.0867	9.8458	0.3494	0.4481
2	2000	4	4.1592	0.0114	0.0778	10.3649	0.3630	0.4648
2	2000	5	4.2129	0.0111	0.0754	10.4382	0.3646	0.4668
2	2000	6	4.2163	0.0110	0.0753	10.5731	0.3669	0.4697
2	2000	7	3.8367	0.0135	0.0924	11.7333	0.3861	0.4936
2	2000	8a	3.8367	0.0135	0.0924	17.6670	0.4911	0.6243
2	2000	8b	3.8367	0.0135	0.0924	21.5574	0.5646	0.7151
2	2001	2b	0.7098	0.0029	0.0198	6.3086	0.2570	0.3348
2	2001	3	1.6328	0.0096	0.0655	9.5513	0.3402	0.4366
2	2001	4	1.6985	0.0094	0.0644	9.9989	0.3521	0.4511
2	2001	5	1.7236	0.0094	0.0639	10.0360	0.3529	0.4521
2	2001	6	1.7253	0.0094	0.0639	10.7473	0.3663	0.4688
2	2001	7	1.6038	0.0097	0.0661	10.6168	0.3641	0.4661
2	2001	8a	1.6038	0.0097	0.0661	18.5199	0.5058	0.6425
2	2001	8b	1.6038	0.0097	0.0661	21.3762	0.5605	0.7101
2	2002	2b	0.6744	0.0025	0.0171	6.3797	0.2588	0.3370
2	2002	3	1.6611	0.0077	0.0525	9.3311	0.3342	0.4293
2	2002	4	1.7511	0.0070	0.0477	9.9790	0.3513	0.4500
2	2002	5	1.7784	0.0068	0.0463	9.9790	0.3513	0.4500
2	2002	6	1.7802	0.0068	0.0462	10.3136	0.3593	0.4601
2	2002	7	1.6098	0.0081	0.0552	10.8334	0.3669	0.4696
2	2002	8a	1.6098	0.0081	0.0552	16.1072	0.4612	0.5873
2	2002	8b	1.6098	0.0081	0.0552	21.0073	0.5530	0.7008
2	2003	2b	0.6098	0.0020	0.0133	4.4654	0.2187	0.2848
2	2003	3	1.6404	0.0063	0.0427	6.2310	0.2900	0.3724
2	2003	4	1.7168	0.0061	0.0415	6.6313	0.3067	0.3929
2	2003	5	1.7409	0.0060	0.0412	6.6313	0.3067	0.3929

Table A-2. SmartWay Category - Dray

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
2	2003	6	1.7425	0.0060	0.0411	7.0650	0.3181	0.4073
2	2003	7	1.5987	0.0064	0.0433	7.1987	0.3275	0.4190
2	2003	8a	1.5988	0.0064	0.0433	9.1568	0.4265	0.5425
2	2003	8b	1.5988	0.0064	0.0433	10.6456	0.5057	0.6406
2	2004	2b	0.4903	0.0012	0.0082	4.4372	0.2171	0.2826
2	2004	3	1.6602	0.0048	0.0328	6.2920	0.2900	0.3725
2	2004	4	1.7659	0.0046	0.0311	6.7266	0.3077	0.3942
2	2004	5	1.7973	0.0045	0.0306	6.7266	0.3077	0.3942
2	2004	6	1.7993	0.0045	0.0305	7.1494	0.3216	0.4117
2	2004	7	1.5981	0.0050	0.0338	7.2715	0.3296	0.4216
2	2004	8a	1.5981	0.0050	0.0338	9.1368	0.4241	0.5395
2	2004	8b	1.5981	0.0050	0.0338	10.6494	0.5062	0.6413
2	2005	2b	0.3985	0.0010	0.0070	4.3263	0.2120	0.2762
2	2005	3	1.6486	0.0047	0.0320	6.1433	0.2841	0.3651
2	2005	4	1.7069	0.0045	0.0310	6.6894	0.3064	0.3926
2	2005	5	1.7329	0.0045	0.0305	6.6894	0.3064	0.3926
2	2005	6	1.7348	0.0045	0.0305	7.0398	0.3193	0.4088
2	2005	7	1.6267	0.0047	0.0324	7.2848	0.3321	0.4247
2	2005	8a	1.6269	0.0047	0.0324	9.3628	0.4358	0.5539
2	2005	8b	1.6269	0.0047	0.0324	10.7131	0.5092	0.6450
2	2006	2b	0.4411	0.0011	0.0080	4.3848	0.2152	0.2804
2	2006	3	1.6468	0.0050	0.0340	6.0758	0.2819	0.3624
2	2006	4	1.7229	0.0048	0.0325	6.5852	0.3025	0.3877
2	2006	5	1.7522	0.0047	0.0319	6.5852	0.3025	0.3877
2	2006	6	1.7543	0.0047	0.0318	6.8603	0.3134	0.4013
2	2006	7	1.6137	0.0051	0.0347	7.1223	0.3263	0.4174
2	2006	8a	1.6140	0.0051	0.0347	9.2367	0.4305	0.5474
2	2006	8b	1.6140	0.0051	0.0347	10.6890	0.5085	0.6441
2	2007	2b	0.3873	0.0010	0.0073	2.4622	0.0014	0.0122
2	2007	3	1.6502	0.0050	0.0339	3.7854	0.0020	0.0168
2	2007	4	1.7096	0.0048	0.0325	4.0296	0.0021	0.0177
2	2007	5	1.7352	0.0047	0.0319	4.0296	0.0021	0.0177
2	2007	6	1.7370	0.0047	0.0319	4.1787	0.0021	0.0182

Table A-2. SmartWay Category - Dray

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
2	2007	7	1.6274	0.0050	0.0344	4.5547	0.0023	0.0195
2	2007	8a	1.6286	0.0050	0.0344	6.5202	0.0031	0.0264
2	2007	8b	1.6286	0.0050	0.0344	7.5429	0.0035	0.0302
2	2008	2b	0.2912	0.0009	0.0061	2.3897	0.0014	0.0119
2	2008	3	1.0734	0.0037	0.0252	3.3624	0.0018	0.0153
2	2008	4	1.0412	0.0036	0.0248	3.5568	0.0019	0.0159
2	2008	5	1.0236	0.0036	0.0245	3.5568	0.0019	0.0159
2	2008	6	1.0222	0.0036	0.0245	3.6761	0.0019	0.0163
2	2008	7	1.0835	0.0037	0.0253	3.7963	0.0020	0.0167
2	2008	8a	1.0834	0.0037	0.0253	5.2479	0.0025	0.0218
2	2008	8b	1.0834	0.0037	0.0253	7.1502	0.0034	0.0287
2	2009	2b	0.1779	0.0010	0.0064	2.3675	0.0014	0.0117
2	2009	3	0.6568	0.0037	0.0251	3.9255	0.0020	0.0174
2	2009	4	0.6560	0.0037	0.0250	4.1480	0.0021	0.0182
2	2009	5	0.6555	0.0037	0.0249	4.1480	0.0021	0.0182
2	2009	6	0.6554	0.0037	0.0249	4.2250	0.0022	0.0185
2	2009	7	0.6571	0.0037	0.0251	4.6436	0.0023	0.0199
2	2009	8a	0.6571	0.0037	0.0251	6.5562	0.0031	0.0265
2	2009	8b	0.6571	0.0037	0.0251	7.5204	0.0035	0.0301
2	2010	2b	0.0699	0.0006	0.0035	1.0823	0.0010	0.0083
2	2010	3	0.1131	0.0018	0.0124	2.2161	0.0019	0.0166
2	2010	4	0.1131	0.0018	0.0124	2.4044	0.0021	0.0179
2	2010	5	0.1131	0.0018	0.0124	2.4044	0.0021	0.0179
2	2010	6	0.1131	0.0018	0.0124	2.4849	0.0022	0.0186
2	2010	7	0.1131	0.0018	0.0124	2.8042	0.0020	0.0170
2	2010	8a	0.1131	0.0018	0.0124	4.3782	0.0014	0.0116
2	2010	8b	0.1131	0.0018	0.0124	5.2288	0.0009	0.0080
2	2011	2b	0.0728	0.0008	0.0040	1.1825	0.0010	0.0082
2	2011	3	0.1203	0.0018	0.0122	1.8843	0.0017	0.0145
2	2011	4	0.1328	0.0017	0.0118	2.0016	0.0018	0.0155
2	2011	5	0.1391	0.0017	0.0117	2.0016	0.0018	0.0155
2	2011	6	0.1396	0.0017	0.0116	2.0711	0.0019	0.0159
2	2011	7	0.1162	0.0018	0.0123	2.2337	0.0018	0.0151

Table A-2. SmartWay Category - Dray

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
2	2011	8a	0.1162	0.0018	0.0123	3.4372	0.0014	0.0116
2	2011	8b	0.1162	0.0018	0.0123	4.4384	0.0009	0.0080
2	2012	2b	0.0749	0.0008	0.0044	1.1171	0.0010	0.0083
2	2012	3	0.1224	0.0018	0.0120	1.8896	0.0018	0.0151
2	2012	4	0.1273	0.0017	0.0119	1.9946	0.0019	0.0160
2	2012	5	0.1302	0.0017	0.0118	1.9946	0.0019	0.0160
2	2012	6	0.1304	0.0017	0.0118	2.0398	0.0019	0.0161
2	2012	7	0.1209	0.0018	0.0121	2.2752	0.0018	0.0152
2	2012	8a	0.1209	0.0018	0.0121	3.5614	0.0013	0.0110
2	2012	8b	0.1209	0.0018	0.0121	4.3570	0.0009	0.0079
2	2013	2b	0.0609	0.0007	0.0033	1.3146	0.0010	0.0081
2	2013	3	0.1288	0.0016	0.0110	1.9961	0.0018	0.0154
2	2013	4	0.1376	0.0016	0.0108	2.0925	0.0019	0.0164
2	2013	5	0.1421	0.0016	0.0107	2.0925	0.0019	0.0164
2	2013	6	0.1424	0.0016	0.0107	2.1339	0.0019	0.0165
2	2013	7	0.1259	0.0016	0.0111	2.3160	0.0018	0.0152
2	2013	8a	0.1262	0.0016	0.0111	3.1481	0.0012	0.0100
2	2013	8b	0.1262	0.0016	0.0111	3.5678	0.0008	0.0070
2	2014	2b	0.0622	0.0009	0.0034	0.6288	0.0005	0.0024
2	2014	3	0.1294	0.0016	0.0107	1.4046	0.0005	0.0045
2	2014	4	0.1328	0.0016	0.0106	1.4954	0.0006	0.0048
2	2014	5	0.1347	0.0015	0.0106	1.4954	0.0006	0.0048
2	2014	6	0.1349	0.0015	0.0106	1.5277	0.0006	0.0048
2	2014	7	0.1284	0.0016	0.0107	1.6879	0.0006	0.0048
2	2014	8a	0.1284	0.0016	0.0107	2.5636	0.0006	0.0047
2	2014	8b	0.1284	0.0016	0.0107	3.1330	0.0005	0.0045
2	2015	2b	0.0567	0.0009	0.0032	0.5036	0.0005	0.0023
2	2015	3	0.1293	0.0016	0.0107	1.2811	0.0005	0.0044
2	2015	4	0.1324	0.0016	0.0106	1.3935	0.0006	0.0048
2	2015	5	0.1342	0.0016	0.0106	1.3935	0.0006	0.0048
2	2015	6	0.1344	0.0015	0.0106	1.4273	0.0006	0.0048
2	2015	7	0.1284	0.0016	0.0107	1.6041	0.0006	0.0048
2	2015	8a	0.1284	0.0016	0.0107	2.5488	0.0006	0.0047

Table A-2. SmartWay Category - Dray

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
2	2015	8b	0.1284	0.0016	0.0107	3.1496	0.0005	0.0045
2	2016	2b	0.0561	0.0010	0.0031	0.4814	0.0005	0.0022
2	2016	3	0.1292	0.0016	0.0107	1.2235	0.0005	0.0044
2	2016	4	0.1320	0.0016	0.0106	1.3474	0.0006	0.0048
2	2016	5	0.1337	0.0016	0.0106	1.3474	0.0006	0.0048
2	2016	6	0.1338	0.0016	0.0106	1.3759	0.0006	0.0048
2	2016	7	0.1284	0.0016	0.0107	1.5150	0.0006	0.0048
2	2016	8a	0.1284	0.0016	0.0107	2.3777	0.0006	0.0048
2	2016	8b	0.1284	0.0016	0.0107	3.0370	0.0005	0.0045
2	2017	2b	0.0388	0.0010	0.0029	0.4563	0.0005	0.0021
2	2017	3	0.1103	0.0016	0.0106	1.1500	0.0005	0.0042
2	2017	4	0.1124	0.0016	0.0106	1.2722	0.0005	0.0046
2	2017	5	0.1137	0.0015	0.0106	1.2722	0.0005	0.0046
2	2017	6	0.1138	0.0015	0.0106	1.2947	0.0005	0.0046
2	2017	7	0.1097	0.0016	0.0107	1.4051	0.0005	0.0046
2	2017	8a	0.1097	0.0016	0.0107	2.1292	0.0005	0.0047
2	2017	8b	0.1097	0.0016	0.0107	2.7267	0.0005	0.0045
2	2018	2b	0.0377	0.0011	0.0030	0.3274	0.0005	0.0021
2	2018	3	0.0956	0.0016	0.0106	1.0697	0.0005	0.0042
2	2018	4	0.1040	0.0015	0.0104	1.2002	0.0005	0.0046
2	2018	5	0.1085	0.0015	0.0103	1.2002	0.0005	0.0046
2	2018	6	0.1089	0.0015	0.0103	1.2568	0.0005	0.0047
2	2018	7	0.0928	0.0016	0.0107	1.3531	0.0005	0.0046
2	2018	8a	0.0928	0.0016	0.0107	2.0871	0.0005	0.0047
2	2018	8b	0.0928	0.0016	0.0107	2.6644	0.0005	0.0045
2	2019	2b	0.0276	0.0007	0.0018	0.2065	0.0003	0.0013
2	2019	3	0.0911	0.0009	0.0064	0.7362	0.0004	0.0027
2	2019	4	0.0995	0.0009	0.0063	0.8385	0.0004	0.0030
2	2019	5	0.1039	0.0009	0.0063	0.8385	0.0004	0.0030
2	2019	6	0.1043	0.0009	0.0063	0.8786	0.0004	0.0031
2	2019	7	0.0884	0.0009	0.0064	0.9515	0.0004	0.0031
2	2019	8a	0.0884	0.0009	0.0064	1.4984	0.0004	0.0032
2	2019	8b	0.0884	0.0009	0.0064	1.9272	0.0004	0.0031

Table A-2. SmartWay Category - Dray

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
2	2020	2b	0.0241	0.0006	0.0017	0.1793	0.0003	0.0012
2	2020	3	0.0867	0.0009	0.0064	0.7080	0.0003	0.0027
2	2020	4	0.0954	0.0009	0.0063	0.8274	0.0004	0.0030
2	2020	5	0.1000	0.0009	0.0063	0.8274	0.0004	0.0030
2	2020	6	0.1004	0.0009	0.0063	0.8669	0.0004	0.0031
2	2020	7	0.0839	0.0009	0.0064	0.9361	0.0004	0.0031
2	2020	8a	0.0839	0.0009	0.0064	1.4774	0.0004	0.0032
2	2020	8b	0.0839	0.0009	0.0064	1.9220	0.0004	0.0031
2	2021	2b	0.0205	0.0005	0.0014	0.1596	0.0003	0.0011
2	2021	3	0.0815	0.0009	0.0064	0.6875	0.0003	0.0026
2	2021	4	0.0898	0.0009	0.0063	0.8133	0.0004	0.0030
2	2021	5	0.0942	0.0009	0.0063	0.8133	0.0004	0.0030
2	2021	6	0.0945	0.0009	0.0062	0.8513	0.0004	0.0031
2	2021	7	0.0789	0.0009	0.0064	0.9138	0.0004	0.0030
2	2021	8a	0.0789	0.0009	0.0064	1.4262	0.0004	0.0031
2	2021	8b	0.0789	0.0009	0.0064	1.8640	0.0003	0.0030
2	2022	2b	0.0173	0.0005	0.0014	0.1422	0.0003	0.0011
2	2022	3	0.0771	0.0009	0.0064	0.6757	0.0003	0.0026
2	2022	4	0.0857	0.0009	0.0063	0.8022	0.0004	0.0030
2	2022	5	0.0903	0.0009	0.0063	0.8022	0.0004	0.0030
2	2022	6	0.0907	0.0009	0.0062	0.8405	0.0004	0.0031
2	2022	7	0.0744	0.0009	0.0064	0.9059	0.0004	0.0030
2	2022	8a	0.0744	0.0009	0.0064	1.4291	0.0004	0.0031
2	2022	8b	0.0744	0.0009	0.0064	1.8658	0.0003	0.0030

Table A-3. SmartWay Category - Expedited

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
3	1987	2b	4.8865	0.0047	0.0322	7.1486	0.1656	0.2170
3	1987	3	5.6233	0.0153	0.1044	12.4217	0.3764	0.4772
3	1987	4	5.6743	0.0159	0.1083	14.1728	0.4346	0.5492
3	1987	5	5.5042	0.0139	0.0950	14.7512	0.4076	0.5153

Table A-3. SmartWay Category - Expedited

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
3	1987	6	5.2617	0.0111	0.0759	14.8273	0.4470	0.5647
3	1987	7	5.2617	0.0111	0.0759	16.0982	0.4561	0.5762
3	1987	8a	5.2903	0.0113	0.0772	25.1673	0.6757	0.8518
3	1987	8b	5.2903	0.0113	0.0772	29.9247	0.7839	0.9875
3	1988	2b	4.8865	0.0047	0.0322	7.1486	0.1656	0.2170
3	1988	3	5.6233	0.0153	0.1044	12.4217	0.3764	0.4772
3	1988	4	5.6743	0.0159	0.1083	14.1728	0.4346	0.5492
3	1988	5	5.5042	0.0139	0.0950	14.7512	0.4076	0.5153
3	1988	6	5.2617	0.0111	0.0759	14.8273	0.4470	0.5647
3	1988	7	5.2617	0.0111	0.0759	16.0982	0.4561	0.5762
3	1988	8a	5.2903	0.0113	0.0772	25.1673	0.6757	0.8518
3	1988	8b	5.2903	0.0113	0.0772	29.9247	0.7839	0.9875
3	1989	2b	4.8865	0.0047	0.0322	7.1486	0.1656	0.2170
3	1989	3	5.6233	0.0153	0.1044	12.4217	0.3764	0.4772
3	1989	4	5.6743	0.0159	0.1083	14.1728	0.4346	0.5492
3	1989	5	5.5042	0.0139	0.0950	14.7512	0.4076	0.5153
3	1989	6	5.2617	0.0111	0.0759	14.8273	0.4470	0.5647
3	1989	7	5.2617	0.0111	0.0759	16.0982	0.4561	0.5762
3	1989	8a	5.2903	0.0113	0.0772	25.1673	0.6757	0.8518
3	1989	8b	5.2903	0.0113	0.0772	29.9247	0.7839	0.9875
3	1990	2b	4.8865	0.0047	0.0322	7.1486	0.1656	0.2170
3	1990	3	5.6233	0.0153	0.1044	12.4217	0.3764	0.4772
3	1990	4	5.6743	0.0159	0.1083	14.1728	0.4346	0.5492
3	1990	5	5.5042	0.0139	0.0950	14.7512	0.4076	0.5153
3	1990	6	5.2617	0.0111	0.0759	14.8273	0.4470	0.5647
3	1990	7	5.2617	0.0111	0.0759	16.0982	0.4561	0.5762
3	1990	8a	5.2903	0.0113	0.0772	25.1673	0.6757	0.8518
3	1990	8b	5.2903	0.0113	0.0772	29.9247	0.7839	0.9875
3	1991	2b	4.8865	0.0047	0.0322	7.1486	0.1656	0.2170
3	1991	3	5.6233	0.0153	0.1044	12.4217	0.3764	0.4772
3	1991	4	5.6743	0.0159	0.1083	14.1728	0.4346	0.5492
3	1991	5	5.5042	0.0139	0.0950	14.7512	0.4076	0.5153
3	1991	6	5.2617	0.0111	0.0759	14.8273	0.4470	0.5647

Table A-3. SmartWay Category - Expedited

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
3	1991	7	5.2617	0.0111	0.0759	16.0982	0.4561	0.5762
3	1991	8a	5.2903	0.0113	0.0772	25.1673	0.6757	0.8518
3	1991	8b	5.2903	0.0113	0.0772	29.9247	0.7839	0.9875
3	1992	2b	4.8865	0.0047	0.0322	7.1486	0.1656	0.2170
3	1992	3	5.6233	0.0153	0.1044	12.4217	0.3764	0.4772
3	1992	4	5.6743	0.0159	0.1083	14.1728	0.4346	0.5492
3	1992	5	5.5042	0.0139	0.0950	14.7512	0.4076	0.5153
3	1992	6	5.2617	0.0111	0.0759	14.8273	0.4470	0.5647
3	1992	7	5.2617	0.0111	0.0759	16.0982	0.4561	0.5762
3	1992	8a	5.2903	0.0113	0.0772	25.1673	0.6757	0.8518
3	1992	8b	5.2903	0.0113	0.0772	29.9247	0.7839	0.9875
3	1993	2b	4.9336	0.0060	0.0411	7.6311	0.1978	0.2566
3	1993	3	5.6622	0.0160	0.1089	10.2936	0.2921	0.3734
3	1993	4	5.6994	0.0162	0.1108	15.6265	0.4718	0.5959
3	1993	5	5.6660	0.0160	0.1092	15.5945	0.4162	0.5261
3	1993	6	5.1094	0.0114	0.0778	16.8971	0.4529	0.5722
3	1993	7	5.1094	0.0114	0.0778	19.0776	0.5189	0.6550
3	1993	8a	5.1686	0.0114	0.0775	28.4330	0.7422	0.9352
3	1993	8b	5.1686	0.0114	0.0775	30.3619	0.7854	0.9894
3	1994	2b	4.3075	0.0055	0.0377	7.1138	0.3979	0.5102
3	1994	3	5.6658	0.0096	0.0656	9.5205	0.4947	0.6301
3	1994	4	5.7228	0.0097	0.0660	13.1571	0.6148	0.7779
3	1994	5	5.7194	0.0097	0.0659	15.9540	0.6758	0.8547
3	1994	6	5.0796	0.0091	0.0620	16.3833	0.6680	0.8447
3	1994	7	5.0796	0.0091	0.0620	20.0554	0.6759	0.8544
3	1994	8a	7.5171	0.0123	0.0841	28.4361	0.7197	0.9084
3	1994	8b	7.5171	0.0123	0.0841	30.2258	0.7306	0.9219
3	1995	2b	4.4148	0.0082	0.0557	7.2858	0.3926	0.5027
3	1995	3	5.5627	0.0212	0.1444	12.7207	0.5810	0.7363
3	1995	4	5.6823	0.0224	0.1529	14.3961	0.6206	0.7855
3	1995	5	5.6521	0.0221	0.1509	16.5312	0.6659	0.8421
3	1995	6	5.0734	0.0160	0.1093	17.1237	0.6535	0.8264
3	1995	7	5.0734	0.0160	0.1093	19.4449	0.6687	0.8453

Table A-3. SmartWay Category - Expedited

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
3	1995	8a	7.3743	0.0320	0.2183	28.0987	0.7183	0.9068
3	1995	8b	7.3743	0.0320	0.2183	30.0105	0.7292	0.9201
3	1996	2b	3.6081	0.0052	0.0354	7.3604	0.3797	0.4856
3	1996	3	5.6446	0.0153	0.1045	13.9479	0.6168	0.7807
3	1996	4	5.7069	0.0159	0.1082	15.4830	0.6356	0.8040
3	1996	5	5.7035	0.0159	0.1082	16.5245	0.6708	0.8484
3	1996	6	5.1180	0.0106	0.0727	18.8290	0.6670	0.8433
3	1996	7	5.1180	0.0106	0.0727	19.7928	0.6743	0.8524
3	1996	8a	7.3743	0.0243	0.1657	28.1117	0.7191	0.9078
3	1996	8b	7.3743	0.0243	0.1657	30.1195	0.7319	0.9235
3	1997	2b	3.3186	0.0040	0.0272	5.7940	0.3120	0.4026
3	1997	3	5.5700	0.0125	0.0853	11.0811	0.5102	0.6484
3	1997	4	5.7150	0.0132	0.0904	13.3761	0.6257	0.7917
3	1997	5	5.6818	0.0131	0.0893	15.1180	0.6743	0.8528
3	1997	6	5.0968	0.0101	0.0688	15.1600	0.6439	0.8145
3	1997	7	5.0968	0.0101	0.0688	16.9443	0.6549	0.8282
3	1997	8a	8.5887	0.0103	0.0703	27.0640	0.7093	0.8956
3	1997	8b	8.5887	0.0103	0.0703	29.7587	0.7257	0.9157
3	1998	2b	2.9483	0.0035	0.0237	6.2663	0.2365	0.3051
3	1998	3	3.7282	0.0135	0.0920	13.0227	0.3311	0.4217
3	1998	4	3.7614	0.0150	0.1024	13.7374	0.3413	0.4342
3	1998	5	3.7164	0.0133	0.0904	14.4169	0.3257	0.4147
3	1998	6	3.6536	0.0102	0.0695	14.0425	0.3355	0.4270
3	1998	7	3.6536	0.0102	0.0695	14.9731	0.3377	0.4298
3	1998	8a	4.1586	0.0231	0.1573	24.7740	0.4591	0.5812
3	1998	8b	4.1586	0.0231	0.1573	27.9023	0.4949	0.6255
3	1999	2b	2.2938	0.0042	0.0286	5.7288	0.2360	0.3043
3	1999	3	3.7107	0.0133	0.0907	8.8051	0.3079	0.3927
3	1999	4	3.8508	0.0136	0.0931	9.3922	0.3219	0.4099
3	1999	5	3.8810	0.0135	0.0918	9.4291	0.3225	0.4107
3	1999	6	3.8831	0.0135	0.0919	9.5289	0.3225	0.4107
3	1999	7	3.6007	0.0130	0.0885	10.0510	0.3310	0.4214
3	1999	8a	3.6229	0.0138	0.0944	18.3874	0.4604	0.5828

Table A-3. SmartWay Category - Expedited

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
3	1999	8b	3.6229	0.0138	0.0944	20.8669	0.4994	0.6312
3	2000	2b	2.0417	0.0038	0.0259	5.8721	0.2396	0.3088
3	2000	3	3.7708	0.0123	0.0840	8.8170	0.3091	0.3942
3	2000	4	3.9413	0.0110	0.0753	9.2858	0.3200	0.4076
3	2000	5	3.9881	0.0107	0.0729	9.3588	0.3213	0.4092
3	2000	6	3.9910	0.0107	0.0727	9.4842	0.3237	0.4122
3	2000	7	3.6603	0.0131	0.0897	10.8064	0.3429	0.4363
3	2000	8a	3.6603	0.0131	0.0897	17.0246	0.4378	0.5547
3	2000	8b	3.6603	0.0131	0.0897	20.7181	0.4971	0.6283
3	2001	2b	0.6848	0.0026	0.0175	5.5493	0.2322	0.2996
3	2001	3	1.5590	0.0090	0.0614	8.5832	0.3024	0.3859
3	2001	4	1.6159	0.0089	0.0607	8.9857	0.3121	0.3977
3	2001	5	1.6376	0.0089	0.0604	9.0224	0.3127	0.3985
3	2001	6	1.6391	0.0089	0.0604	9.7869	0.3255	0.4144
3	2001	7	1.5339	0.0090	0.0617	9.6129	0.3227	0.4109
3	2001	8a	1.5339	0.0090	0.0617	17.9107	0.4511	0.5712
3	2001	8b	1.5339	0.0090	0.0617	20.5558	0.4941	0.6245
3	2002	2b	0.6508	0.0023	0.0159	5.6176	0.2337	0.3016
3	2002	3	1.5831	0.0072	0.0494	8.3872	0.2976	0.3799
3	2002	4	1.6609	0.0066	0.0448	8.9743	0.3114	0.3968
3	2002	5	1.6846	0.0064	0.0434	8.9743	0.3114	0.3968
3	2002	6	1.6861	0.0064	0.0433	9.2740	0.3180	0.4051
3	2002	7	1.5387	0.0076	0.0520	9.9002	0.3265	0.4157
3	2002	8a	1.5387	0.0076	0.0520	15.5201	0.4132	0.5240
3	2002	8b	1.5387	0.0076	0.0520	20.2324	0.4885	0.6177
3	2003	2b	0.5873	0.0017	0.0119	4.0018	0.1975	0.2549
3	2003	3	1.5657	0.0057	0.0389	5.6356	0.2580	0.3294
3	2003	4	1.6320	0.0056	0.0380	5.9966	0.2717	0.3461
3	2003	5	1.6530	0.0055	0.0377	5.9966	0.2717	0.3461
3	2003	6	1.6543	0.0055	0.0376	6.3515	0.2811	0.3580
3	2003	7	1.5295	0.0058	0.0395	6.5490	0.2917	0.3712
3	2003	8a	1.5296	0.0058	0.0395	8.5698	0.3821	0.4843
3	2003	8b	1.5296	0.0058	0.0395	9.9231	0.4459	0.5637

Table A-3. SmartWay Category - Expedited

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
3	2004	2b	0.4721	0.0011	0.0076	3.9755	0.1960	0.2530
3	2004	3	1.5826	0.0046	0.0312	5.6773	0.2581	0.3295
3	2004	4	1.6737	0.0044	0.0299	6.0654	0.2726	0.3473
3	2004	5	1.7007	0.0043	0.0296	6.0654	0.2726	0.3473
3	2004	6	1.7025	0.0043	0.0295	6.4118	0.2837	0.3614
3	2004	7	1.5291	0.0047	0.0319	6.5967	0.2931	0.3730
3	2004	8a	1.5291	0.0047	0.0319	8.5454	0.3804	0.4822
3	2004	8b	1.5291	0.0047	0.0319	9.9257	0.4464	0.5642
3	2005	2b	0.3821	0.0009	0.0065	3.8754	0.1915	0.2472
3	2005	3	1.5716	0.0045	0.0305	5.5498	0.2532	0.3235
3	2005	4	1.6219	0.0044	0.0297	6.0394	0.2717	0.3461
3	2005	5	1.6444	0.0043	0.0294	6.0394	0.2717	0.3461
3	2005	6	1.6460	0.0043	0.0294	6.3280	0.2820	0.3591
3	2005	7	1.5527	0.0045	0.0308	6.6418	0.2962	0.3768
3	2005	8a	1.5529	0.0045	0.0308	8.7722	0.3907	0.4949
3	2005	8b	1.5529	0.0045	0.0308	9.9803	0.4486	0.5670
3	2006	2b	0.4219	0.0011	0.0073	3.9280	0.1945	0.2510
3	2006	3	1.5702	0.0047	0.0320	5.5017	0.2517	0.3215
3	2006	4	1.6359	0.0045	0.0309	5.9635	0.2687	0.3424
3	2006	5	1.6613	0.0045	0.0305	5.9635	0.2687	0.3424
3	2006	6	1.6631	0.0045	0.0305	6.1898	0.2773	0.3533
3	2006	7	1.5416	0.0048	0.0325	6.5137	0.2915	0.3710
3	2006	8a	1.5418	0.0048	0.0325	8.6662	0.3865	0.4897
3	2006	8b	1.5418	0.0048	0.0325	9.9617	0.4481	0.5664
3	2007	2b	0.3709	0.0010	0.0067	2.1335	0.0013	0.0110
3	2007	3	1.5726	0.0047	0.0319	3.3359	0.0017	0.0149
3	2007	4	1.6240	0.0045	0.0309	3.5508	0.0018	0.0156
3	2007	5	1.6461	0.0045	0.0305	3.5508	0.0018	0.0156
3	2007	6	1.6477	0.0045	0.0305	3.6868	0.0019	0.0160
3	2007	7	1.5529	0.0047	0.0323	4.1090	0.0020	0.0173
3	2007	8a	1.5539	0.0047	0.0323	6.0408	0.0028	0.0236
3	2007	8b	1.5539	0.0047	0.0323	6.9287	0.0031	0.0266
3	2008	2b	0.2806	0.0008	0.0056	2.0701	0.0013	0.0108

Table A-3. SmartWay Category - Expedited

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
3	2008	3	1.0370	0.0035	0.0238	2.9786	0.0016	0.0137
3	2008	4	1.0048	0.0034	0.0235	3.1552	0.0017	0.0142
3	2008	5	0.9871	0.0034	0.0233	3.1552	0.0017	0.0142
3	2008	6	0.9857	0.0034	0.0233	3.2604	0.0017	0.0145
3	2008	7	1.0472	0.0035	0.0239	3.4014	0.0018	0.0150
3	2008	8a	1.0470	0.0035	0.0239	4.8830	0.0023	0.0197
3	2008	8b	1.0470	0.0035	0.0239	6.6028	0.0030	0.0254
3	2009	2b	0.1735	0.0009	0.0059	2.0572	0.0013	0.0106
3	2009	3	0.6465	0.0035	0.0238	3.4579	0.0018	0.0153
3	2009	4	0.6446	0.0035	0.0237	3.6514	0.0019	0.0159
3	2009	5	0.6435	0.0035	0.0237	3.6514	0.0019	0.0159
3	2009	6	0.6434	0.0035	0.0237	3.7255	0.0019	0.0162
3	2009	7	0.6471	0.0035	0.0238	4.1874	0.0021	0.0176
3	2009	8a	0.6470	0.0035	0.0238	6.0644	0.0028	0.0236
3	2009	8b	0.6470	0.0035	0.0238	6.9030	0.0031	0.0265
3	2010	2b	0.0670	0.0006	0.0033	0.8836	0.0009	0.0073
3	2010	3	0.1048	0.0017	0.0115	1.8107	0.0017	0.0143
3	2010	4	0.1048	0.0017	0.0115	1.9604	0.0018	0.0155
3	2010	5	0.1048	0.0017	0.0115	1.9604	0.0018	0.0155
3	2010	6	0.1048	0.0017	0.0115	2.0301	0.0019	0.0159
3	2010	7	0.1048	0.0017	0.0115	2.3627	0.0017	0.0145
3	2010	8a	0.1048	0.0017	0.0115	3.7839	0.0011	0.0096
3	2010	8b	0.1048	0.0017	0.0115	4.4477	0.0008	0.0069
3	2011	2b	0.0693	0.0007	0.0037	0.9722	0.0009	0.0073
3	2011	3	0.1120	0.0016	0.0112	1.5529	0.0015	0.0127
3	2011	4	0.1245	0.0016	0.0109	1.6477	0.0016	0.0136
3	2011	5	0.1309	0.0016	0.0107	1.6477	0.0016	0.0136
3	2011	6	0.1314	0.0016	0.0107	1.7034	0.0016	0.0139
3	2011	7	0.1078	0.0017	0.0114	1.8717	0.0015	0.0131
3	2011	8a	0.1078	0.0017	0.0114	2.9515	0.0011	0.0098
3	2011	8b	0.1078	0.0017	0.0114	3.7206	0.0008	0.0069
3	2012	2b	0.0711	0.0008	0.0040	0.9155	0.0009	0.0074
3	2012	3	0.1139	0.0016	0.0111	1.5486	0.0016	0.0132

Table A-3. SmartWay Category - Expedited

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
3	2012	4	0.1188	0.0016	0.0110	1.6325	0.0016	0.0140
3	2012	5	0.1217	0.0016	0.0109	1.6325	0.0016	0.0140
3	2012	6	0.1219	0.0016	0.0109	1.6712	0.0016	0.0140
3	2012	7	0.1124	0.0016	0.0111	1.9072	0.0015	0.0131
3	2012	8a	0.1124	0.0016	0.0111	3.0341	0.0011	0.0093
3	2012	8b	0.1124	0.0016	0.0111	3.6332	0.0008	0.0068
3	2013	2b	0.0582	0.0007	0.0030	1.0901	0.0009	0.0072
3	2013	3	0.1200	0.0015	0.0102	1.6412	0.0016	0.0133
3	2013	4	0.1291	0.0015	0.0099	1.7173	0.0017	0.0141
3	2013	5	0.1335	0.0014	0.0098	1.7173	0.0017	0.0141
3	2013	6	0.1339	0.0014	0.0098	1.7507	0.0017	0.0142
3	2013	7	0.1171	0.0015	0.0102	1.9304	0.0015	0.0129
3	2013	8a	0.1174	0.0015	0.0102	2.6345	0.0010	0.0084
3	2013	8b	0.1174	0.0015	0.0102	2.9409	0.0007	0.0061
3	2014	2b	0.0598	0.0008	0.0031	0.5068	0.0004	0.0022
3	2014	3	0.1205	0.0014	0.0098	1.0927	0.0005	0.0039
3	2014	4	0.1239	0.0014	0.0097	1.1597	0.0005	0.0041
3	2014	5	0.1260	0.0014	0.0097	1.1597	0.0005	0.0041
3	2014	6	0.1261	0.0014	0.0097	1.1862	0.0005	0.0042
3	2014	7	0.1195	0.0014	0.0098	1.3476	0.0005	0.0042
3	2014	8a	0.1195	0.0014	0.0098	2.1171	0.0005	0.0041
3	2014	8b	0.1195	0.0014	0.0098	2.5443	0.0005	0.0039
3	2015	2b	0.0545	0.0009	0.0030	0.4003	0.0004	0.0021
3	2015	3	0.1204	0.0014	0.0098	0.9823	0.0005	0.0039
3	2015	4	0.1236	0.0014	0.0097	1.0644	0.0005	0.0041
3	2015	5	0.1254	0.0014	0.0097	1.0644	0.0005	0.0041
3	2015	6	0.1256	0.0014	0.0097	1.0925	0.0005	0.0042
3	2015	7	0.1195	0.0014	0.0098	1.2712	0.0005	0.0042
3	2015	8a	0.1195	0.0014	0.0098	2.1053	0.0005	0.0041
3	2015	8b	0.1195	0.0014	0.0098	2.5591	0.0005	0.0040
3	2016	2b	0.0539	0.0009	0.0029	0.3830	0.0005	0.0021
3	2016	3	0.1203	0.0014	0.0098	0.9361	0.0005	0.0038
3	2016	4	0.1232	0.0014	0.0098	1.0262	0.0005	0.0041

Table A-3. SmartWay Category - Expedited

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
3	2016	5	0.1249	0.0014	0.0097	1.0262	0.0005	0.0041
3	2016	6	0.1250	0.0014	0.0097	1.0497	0.0005	0.0042
3	2016	7	0.1195	0.0014	0.0098	1.1906	0.0005	0.0042
3	2016	8a	0.1195	0.0014	0.0098	1.9611	0.0005	0.0042
3	2016	8b	0.1195	0.0014	0.0098	2.4648	0.0005	0.0040
3	2017	2b	0.0372	0.0009	0.0027	0.3613	0.0005	0.0020
3	2017	3	0.1021	0.0014	0.0098	0.8783	0.0005	0.0037
3	2017	4	0.1043	0.0014	0.0097	0.9672	0.0005	0.0040
3	2017	5	0.1055	0.0014	0.0097	0.9672	0.0005	0.0040
3	2017	6	0.1057	0.0014	0.0097	0.9856	0.0005	0.0040
3	2017	7	0.1015	0.0014	0.0098	1.0964	0.0005	0.0040
3	2017	8a	0.1015	0.0014	0.0098	1.7394	0.0005	0.0041
3	2017	8b	0.1015	0.0014	0.0098	2.1925	0.0005	0.0040
3	2018	2b	0.0360	0.0010	0.0028	0.2578	0.0005	0.0020
3	2018	3	0.0887	0.0014	0.0097	0.8123	0.0005	0.0037
3	2018	4	0.0971	0.0014	0.0096	0.9072	0.0005	0.0040
3	2018	5	0.1016	0.0014	0.0095	0.9072	0.0005	0.0040
3	2018	6	0.1019	0.0014	0.0095	0.9511	0.0005	0.0041
3	2018	7	0.0860	0.0014	0.0098	1.0503	0.0005	0.0040
3	2018	8a	0.0860	0.0014	0.0098	1.6963	0.0005	0.0041
3	2018	8b	0.0860	0.0014	0.0098	2.1340	0.0005	0.0039
3	2019	2b	0.0264	0.0006	0.0017	0.1624	0.0003	0.0012
3	2019	3	0.0845	0.0009	0.0059	0.5578	0.0003	0.0024
3	2019	4	0.0929	0.0009	0.0058	0.6322	0.0003	0.0026
3	2019	5	0.0973	0.0008	0.0058	0.6322	0.0003	0.0026
3	2019	6	0.0976	0.0008	0.0058	0.6635	0.0003	0.0027
3	2019	7	0.0819	0.0009	0.0059	0.7381	0.0003	0.0027
3	2019	8a	0.0819	0.0009	0.0059	1.2189	0.0003	0.0028
3	2019	8b	0.0819	0.0009	0.0059	1.5439	0.0003	0.0027
3	2020	2b	0.0231	0.0006	0.0015	0.1410	0.0003	0.0011
3	2020	3	0.0805	0.0009	0.0059	0.5361	0.0003	0.0023
3	2020	4	0.0891	0.0009	0.0058	0.6229	0.0003	0.0026
3	2020	5	0.0937	0.0008	0.0058	0.6229	0.0003	0.0026

Table A-3. SmartWay Category - Expedited

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
3	2020	6	0.0940	0.0008	0.0058	0.6537	0.0003	0.0027
3	2020	7	0.0778	0.0009	0.0059	0.7248	0.0003	0.0027
3	2020	8a	0.0778	0.0009	0.0059	1.2022	0.0003	0.0028
3	2020	8b	0.0778	0.0009	0.0059	1.5402	0.0003	0.0027
3	2021	2b	0.0197	0.0005	0.0013	0.1253	0.0002	0.0010
3	2021	3	0.0756	0.0009	0.0059	0.5196	0.0003	0.0023
3	2021	4	0.0837	0.0008	0.0058	0.6111	0.0003	0.0026
3	2021	5	0.0880	0.0008	0.0057	0.6111	0.0003	0.0026
3	2021	6	0.0883	0.0008	0.0057	0.6406	0.0003	0.0027
3	2021	7	0.0730	0.0009	0.0059	0.7043	0.0003	0.0026
3	2021	8a	0.0730	0.0009	0.0059	1.1529	0.0003	0.0027
3	2021	8b	0.0730	0.0009	0.0059	1.4828	0.0003	0.0026
3	2022	2b	0.0166	0.0005	0.0014	0.1114	0.0002	0.0010
3	2022	3	0.0716	0.0009	0.0059	0.5099	0.0003	0.0023
3	2022	4	0.0799	0.0008	0.0058	0.6018	0.0003	0.0026
3	2022	5	0.0844	0.0008	0.0057	0.6018	0.0003	0.0026
3	2022	6	0.0847	0.0008	0.0057	0.6316	0.0003	0.0027
3	2022	7	0.0689	0.0009	0.0059	0.6982	0.0003	0.0026
3	2022	8a	0.0689	0.0009	0.0059	1.1555	0.0003	0.0027
3	2022	8b	0.0689	0.0009	0.0059	1.4841	0.0003	0.0026

Table A-4. SmartWay Category - Flatbed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
4	1987	2b	4.8886	0.0047	0.0322	7.1497	0.1656	0.2170
4	1987	3	5.6247	0.0153	0.1043	12.4210	0.3764	0.4772
4	1987	4	5.6756	0.0159	0.1081	14.1721	0.4346	0.5491
4	1987	5	5.5055	0.0139	0.0949	14.7508	0.4075	0.5151
4	1987	6	5.2628	0.0111	0.0758	14.8268	0.4470	0.5647
4	1987	7	5.2628	0.0111	0.0758	16.0982	0.4561	0.5761
4	1987	8a	5.2914	0.0113	0.0771	25.1714	0.6758	0.8519
4	1987	8b	5.2914	0.0113	0.0771	29.9327	0.7841	0.9877

Table A-4. SmartWay Category - Flatbed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
4	1988	2b	4.8886	0.0047	0.0322	7.1497	0.1656	0.2170
4	1988	3	5.6247	0.0153	0.1043	12.4210	0.3764	0.4772
4	1988	4	5.6756	0.0159	0.1081	14.1721	0.4346	0.5491
4	1988	5	5.5055	0.0139	0.0949	14.7508	0.4075	0.5151
4	1988	6	5.2628	0.0111	0.0758	14.8268	0.4470	0.5647
4	1988	7	5.2628	0.0111	0.0758	16.0982	0.4561	0.5761
4	1988	8a	5.2914	0.0113	0.0771	25.1714	0.6758	0.8519
4	1988	8b	5.2914	0.0113	0.0771	29.9327	0.7841	0.9877
4	1989	2b	4.8886	0.0047	0.0322	7.1497	0.1656	0.2170
4	1989	3	5.6247	0.0153	0.1043	12.4210	0.3764	0.4772
4	1989	4	5.6756	0.0159	0.1081	14.1721	0.4346	0.5491
4	1989	5	5.5055	0.0139	0.0949	14.7508	0.4075	0.5151
4	1989	6	5.2628	0.0111	0.0758	14.8268	0.4470	0.5647
4	1989	7	5.2628	0.0111	0.0758	16.0982	0.4561	0.5761
4	1989	8a	5.2914	0.0113	0.0771	25.1714	0.6758	0.8519
4	1989	8b	5.2914	0.0113	0.0771	29.9327	0.7841	0.9877
4	1990	2b	4.8886	0.0047	0.0322	7.1497	0.1656	0.2170
4	1990	3	5.6247	0.0153	0.1043	12.4210	0.3764	0.4772
4	1990	4	5.6756	0.0159	0.1081	14.1721	0.4346	0.5491
4	1990	5	5.5055	0.0139	0.0949	14.7508	0.4075	0.5151
4	1990	6	5.2628	0.0111	0.0758	14.8268	0.4470	0.5647
4	1990	7	5.2628	0.0111	0.0758	16.0982	0.4561	0.5761
4	1990	8a	5.2914	0.0113	0.0771	25.1714	0.6758	0.8519
4	1990	8b	5.2914	0.0113	0.0771	29.9327	0.7841	0.9877
4	1991	2b	4.8886	0.0047	0.0322	7.1497	0.1656	0.2170
4	1991	3	5.6247	0.0153	0.1043	12.4210	0.3764	0.4772
4	1991	4	5.6756	0.0159	0.1081	14.1721	0.4346	0.5491
4	1991	5	5.5055	0.0139	0.0949	14.7508	0.4075	0.5151
4	1991	6	5.2628	0.0111	0.0758	14.8268	0.4470	0.5647
4	1991	7	5.2628	0.0111	0.0758	16.0982	0.4561	0.5761
4	1991	8a	5.2914	0.0113	0.0771	25.1714	0.6758	0.8519
4	1991	8b	5.2914	0.0113	0.0771	29.9327	0.7841	0.9877
4	1992	2b	4.8886	0.0047	0.0322	7.1497	0.1656	0.2170

Table A-4. SmartWay Category - Flatbed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
4	1992	3	5.6247	0.0153	0.1043	12.4210	0.3764	0.4772
4	1992	4	5.6756	0.0159	0.1081	14.1721	0.4346	0.5491
4	1992	5	5.5055	0.0139	0.0949	14.7508	0.4075	0.5151
4	1992	6	5.2628	0.0111	0.0758	14.8268	0.4470	0.5647
4	1992	7	5.2628	0.0111	0.0758	16.0982	0.4561	0.5761
4	1992	8a	5.2914	0.0113	0.0771	25.1714	0.6758	0.8519
4	1992	8b	5.2914	0.0113	0.0771	29.9327	0.7841	0.9877
4	1993	2b	4.9355	0.0060	0.0411	7.6319	0.1978	0.2567
4	1993	3	5.6636	0.0159	0.1088	10.2935	0.2921	0.3733
4	1993	4	5.7008	0.0162	0.1107	15.6263	0.4718	0.5959
4	1993	5	5.6673	0.0160	0.1091	15.5944	0.4161	0.5260
4	1993	6	5.1104	0.0114	0.0777	16.8975	0.4528	0.5721
4	1993	7	5.1104	0.0114	0.0777	19.0788	0.5189	0.6550
4	1993	8a	5.1697	0.0114	0.0775	28.4397	0.7423	0.9354
4	1993	8b	5.1697	0.0114	0.0775	30.3704	0.7856	0.9896
4	1994	2b	4.3092	0.0055	0.0378	7.1145	0.3978	0.5100
4	1994	3	5.6672	0.0096	0.0657	9.5202	0.4945	0.6298
4	1994	4	5.7242	0.0097	0.0660	13.1559	0.6145	0.7776
4	1994	5	5.7209	0.0097	0.0660	15.9541	0.6755	0.8543
4	1994	6	5.0807	0.0091	0.0621	16.3836	0.6677	0.8444
4	1994	7	5.0807	0.0091	0.0621	20.0570	0.6758	0.8542
4	1994	8a	7.5192	0.0123	0.0842	28.4430	0.7198	0.9086
4	1994	8b	7.5192	0.0123	0.0842	30.2341	0.7309	0.9222
4	1995	2b	4.4164	0.0082	0.0557	7.2864	0.3925	0.5025
4	1995	3	5.5640	0.0212	0.1445	12.7200	0.5807	0.7359
4	1995	4	5.6837	0.0224	0.1529	14.3956	0.6204	0.7851
4	1995	5	5.6535	0.0221	0.1509	16.5315	0.6656	0.8418
4	1995	6	5.0745	0.0160	0.1093	17.1243	0.6532	0.8261
4	1995	7	5.0745	0.0160	0.1093	19.4464	0.6685	0.8451
4	1995	8a	7.3764	0.0320	0.2184	28.1053	0.7185	0.9070
4	1995	8b	7.3764	0.0320	0.2184	30.0185	0.7294	0.9204
4	1996	2b	3.6093	0.0052	0.0354	7.3606	0.3796	0.4854
4	1996	3	5.6460	0.0153	0.1046	13.9471	0.6165	0.7803

Table A-4. SmartWay Category - Flatbed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
4	1996	4	5.7083	0.0159	0.1083	15.4827	0.6354	0.8037
4	1996	5	5.7049	0.0159	0.1082	16.5247	0.6705	0.8480
4	1996	6	5.1191	0.0106	0.0727	18.8298	0.6668	0.8431
4	1996	7	5.1191	0.0106	0.0727	19.7944	0.6742	0.8522
4	1996	8a	7.3764	0.0243	0.1658	28.1181	0.7192	0.9079
4	1996	8b	7.3764	0.0243	0.1658	30.1276	0.7321	0.9238
4	1997	2b	3.3202	0.0040	0.0272	5.7948	0.3119	0.4025
4	1997	3	5.5714	0.0125	0.0854	11.0805	0.5099	0.6481
4	1997	4	5.7164	0.0133	0.0904	13.3750	0.6254	0.7913
4	1997	5	5.6832	0.0131	0.0893	15.1177	0.6740	0.8524
4	1997	6	5.0979	0.0101	0.0689	15.1597	0.6437	0.8142
4	1997	7	5.0979	0.0101	0.0689	16.9446	0.6547	0.8279
4	1997	8a	8.5907	0.0103	0.0703	27.0696	0.7094	0.8957
4	1997	8b	8.5907	0.0103	0.0703	29.7664	0.7259	0.9160
4	1998	2b	2.9498	0.0035	0.0237	6.2668	0.2366	0.3051
4	1998	3	3.7299	0.0135	0.0921	13.0228	0.3311	0.4218
4	1998	4	3.7633	0.0150	0.1024	13.7376	0.3413	0.4342
4	1998	5	3.7181	0.0133	0.0905	14.4174	0.3257	0.4147
4	1998	6	3.6552	0.0102	0.0695	14.0429	0.3355	0.4270
4	1998	7	3.6552	0.0102	0.0695	14.9738	0.3377	0.4298
4	1998	8a	4.1606	0.0231	0.1574	24.7795	0.4592	0.5813
4	1998	8b	4.1606	0.0231	0.1574	27.9102	0.4951	0.6257
4	1999	2b	2.2950	0.0042	0.0287	5.7293	0.2360	0.3044
4	1999	3	3.7124	0.0133	0.0907	8.8042	0.3078	0.3927
4	1999	4	3.8525	0.0136	0.0931	9.3911	0.3219	0.4099
4	1999	5	3.8826	0.0135	0.0919	9.4280	0.3225	0.4107
4	1999	6	3.8847	0.0135	0.0919	9.5281	0.3225	0.4107
4	1999	7	3.6024	0.0130	0.0885	10.0504	0.3310	0.4214
4	1999	8a	3.6246	0.0138	0.0944	18.3901	0.4605	0.5829
4	1999	8b	3.6246	0.0138	0.0944	20.8712	0.4996	0.6313
4	2000	2b	2.0428	0.0038	0.0259	5.8725	0.2396	0.3089
4	2000	3	3.7724	0.0123	0.0841	8.8161	0.3091	0.3942
4	2000	4	3.9429	0.0110	0.0753	9.2849	0.3200	0.4076

Table A-4. SmartWay Category - Flatbed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
4	2000	5	3.9896	0.0107	0.0729	9.3579	0.3213	0.4092
4	2000	6	3.9926	0.0107	0.0728	9.4836	0.3237	0.4122
4	2000	7	3.6620	0.0132	0.0897	10.8060	0.3429	0.4363
4	2000	8a	3.6620	0.0132	0.0897	17.0267	0.4379	0.5548
4	2000	8b	3.6620	0.0132	0.0897	20.7222	0.4973	0.6285
4	2001	2b	0.6851	0.0026	0.0176	5.5499	0.2322	0.2997
4	2001	3	1.5597	0.0090	0.0615	8.5822	0.3024	0.3858
4	2001	4	1.6166	0.0089	0.0607	8.9846	0.3121	0.3976
4	2001	5	1.6383	0.0089	0.0605	9.0213	0.3127	0.3985
4	2001	6	1.6398	0.0089	0.0604	9.7861	0.3255	0.4144
4	2001	7	1.5346	0.0091	0.0618	9.6121	0.3227	0.4109
4	2001	8a	1.5346	0.0091	0.0618	17.9131	0.4512	0.5713
4	2001	8b	1.5346	0.0091	0.0618	20.5599	0.4942	0.6246
4	2002	2b	0.6511	0.0023	0.0159	5.6182	0.2338	0.3016
4	2002	3	1.5838	0.0072	0.0494	8.3862	0.2976	0.3799
4	2002	4	1.6616	0.0066	0.0448	8.9731	0.3114	0.3968
4	2002	5	1.6852	0.0064	0.0434	8.9731	0.3114	0.3968
4	2002	6	1.6868	0.0064	0.0433	9.2732	0.3180	0.4051
4	2002	7	1.5394	0.0076	0.0520	9.8994	0.3265	0.4157
4	2002	8a	1.5394	0.0076	0.0520	15.5214	0.4132	0.5241
4	2002	8b	1.5394	0.0076	0.0520	20.2362	0.4887	0.6178
4	2003	2b	0.5876	0.0017	0.0119	4.0032	0.1975	0.2549
4	2003	3	1.5664	0.0057	0.0390	5.6359	0.2580	0.3294
4	2003	4	1.6327	0.0056	0.0380	5.9966	0.2717	0.3461
4	2003	5	1.6537	0.0055	0.0377	5.9966	0.2717	0.3461
4	2003	6	1.6550	0.0055	0.0377	6.3515	0.2811	0.3580
4	2003	7	1.5302	0.0058	0.0395	6.5491	0.2916	0.3712
4	2003	8a	1.5303	0.0058	0.0395	8.5704	0.3822	0.4844
4	2003	8b	1.5303	0.0058	0.0395	9.9240	0.4460	0.5638
4	2004	2b	0.4723	0.0011	0.0076	3.9769	0.1961	0.2530
4	2004	3	1.5833	0.0046	0.0312	5.6775	0.2581	0.3295
4	2004	4	1.6743	0.0044	0.0299	6.0655	0.2726	0.3473
4	2004	5	1.7014	0.0043	0.0296	6.0655	0.2726	0.3473

Table A-4. SmartWay Category - Flatbed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
4	2004	6	1.7031	0.0043	0.0295	6.4117	0.2837	0.3613
4	2004	7	1.5299	0.0047	0.0319	6.5968	0.2931	0.3730
4	2004	8a	1.5299	0.0047	0.0319	8.5459	0.3805	0.4822
4	2004	8b	1.5299	0.0047	0.0319	9.9266	0.4465	0.5644
4	2005	2b	0.3823	0.0009	0.0065	3.8769	0.1915	0.2473
4	2005	3	1.5723	0.0045	0.0305	5.5501	0.2532	0.3235
4	2005	4	1.6225	0.0044	0.0298	6.0395	0.2716	0.3461
4	2005	5	1.6450	0.0043	0.0294	6.0395	0.2716	0.3461
4	2005	6	1.6467	0.0043	0.0294	6.3280	0.2820	0.3591
4	2005	7	1.5534	0.0045	0.0308	6.6418	0.2962	0.3768
4	2005	8a	1.5536	0.0045	0.0308	8.7728	0.3907	0.4950
4	2005	8b	1.5536	0.0045	0.0308	9.9812	0.4487	0.5671
4	2006	2b	0.4221	0.0011	0.0073	3.9294	0.1945	0.2511
4	2006	3	1.5709	0.0047	0.0320	5.5020	0.2516	0.3215
4	2006	4	1.6366	0.0045	0.0309	5.9635	0.2687	0.3424
4	2006	5	1.6620	0.0045	0.0305	5.9635	0.2687	0.3424
4	2006	6	1.6638	0.0045	0.0305	6.1898	0.2773	0.3533
4	2006	7	1.5423	0.0048	0.0325	6.5138	0.2915	0.3710
4	2006	8a	1.5425	0.0048	0.0325	8.6668	0.3865	0.4898
4	2006	8b	1.5425	0.0048	0.0325	9.9626	0.4482	0.5665
4	2007	2b	0.3710	0.0010	0.0067	2.1338	0.0013	0.0110
4	2007	3	1.5733	0.0047	0.0319	3.3356	0.0017	0.0149
4	2007	4	1.6247	0.0045	0.0309	3.5504	0.0018	0.0156
4	2007	5	1.6467	0.0045	0.0305	3.5504	0.0018	0.0156
4	2007	6	1.6484	0.0045	0.0305	3.6864	0.0019	0.0160
4	2007	7	1.5536	0.0047	0.0323	4.1087	0.0020	0.0173
4	2007	8a	1.5547	0.0047	0.0323	6.0409	0.0028	0.0236
4	2007	8b	1.5547	0.0047	0.0323	6.9292	0.0031	0.0266
4	2008	2b	0.2808	0.0008	0.0056	2.0704	0.0013	0.0108
4	2008	3	1.0375	0.0035	0.0238	2.9782	0.0016	0.0137
4	2008	4	1.0052	0.0034	0.0235	3.1547	0.0017	0.0142
4	2008	5	0.9875	0.0034	0.0233	3.1547	0.0017	0.0142
4	2008	6	0.9861	0.0034	0.0233	3.2600	0.0017	0.0145

Table A-4. SmartWay Category - Flatbed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
4	2008	7	1.0476	0.0035	0.0239	3.4009	0.0018	0.0150
4	2008	8a	1.0475	0.0035	0.0239	4.8828	0.0023	0.0197
4	2008	8b	1.0475	0.0035	0.0239	6.6031	0.0030	0.0254
4	2009	2b	0.1736	0.0009	0.0059	2.0575	0.0013	0.0106
4	2009	3	0.6467	0.0035	0.0238	3.4576	0.0018	0.0153
4	2009	4	0.6448	0.0035	0.0237	3.6511	0.0019	0.0159
4	2009	5	0.6437	0.0035	0.0237	3.6511	0.0019	0.0159
4	2009	6	0.6436	0.0035	0.0237	3.7252	0.0019	0.0162
4	2009	7	0.6472	0.0035	0.0238	4.1871	0.0021	0.0176
4	2009	8a	0.6472	0.0035	0.0238	6.0646	0.0028	0.0236
4	2009	8b	0.6472	0.0035	0.0238	6.9035	0.0031	0.0265
4	2010	2b	0.0670	0.0006	0.0033	0.8836	0.0009	0.0073
4	2010	3	0.1048	0.0017	0.0115	1.8099	0.0017	0.0143
4	2010	4	0.1049	0.0017	0.0115	1.9595	0.0018	0.0154
4	2010	5	0.1049	0.0017	0.0115	1.9595	0.0018	0.0154
4	2010	6	0.1049	0.0017	0.0115	2.0292	0.0019	0.0159
4	2010	7	0.1048	0.0017	0.0115	2.3617	0.0017	0.0145
4	2010	8a	0.1048	0.0017	0.0115	3.7825	0.0011	0.0096
4	2010	8b	0.1048	0.0017	0.0115	4.4459	0.0008	0.0068
4	2011	2b	0.0694	0.0007	0.0037	0.9724	0.0009	0.0073
4	2011	3	0.1120	0.0016	0.0112	1.5523	0.0015	0.0127
4	2011	4	0.1245	0.0016	0.0109	1.6470	0.0016	0.0136
4	2011	5	0.1309	0.0016	0.0107	1.6470	0.0016	0.0136
4	2011	6	0.1314	0.0016	0.0107	1.7026	0.0016	0.0139
4	2011	7	0.1078	0.0017	0.0114	1.8709	0.0015	0.0131
4	2011	8a	0.1078	0.0017	0.0114	2.9501	0.0011	0.0098
4	2011	8b	0.1078	0.0017	0.0114	3.7187	0.0008	0.0069
4	2012	2b	0.0711	0.0008	0.0040	0.9155	0.0009	0.0074
4	2012	3	0.1139	0.0016	0.0111	1.5480	0.0015	0.0132
4	2012	4	0.1189	0.0016	0.0110	1.6318	0.0016	0.0140
4	2012	5	0.1217	0.0016	0.0109	1.6318	0.0016	0.0140
4	2012	6	0.1220	0.0016	0.0109	1.6705	0.0016	0.0140
4	2012	7	0.1124	0.0016	0.0111	1.9064	0.0015	0.0131

Table A-4. SmartWay Category - Flatbed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
4	2012	8a	0.1124	0.0016	0.0111	3.0326	0.0011	0.0093
4	2012	8b	0.1124	0.0016	0.0111	3.6313	0.0008	0.0068
4	2013	2b	0.0582	0.0007	0.0030	1.0903	0.0009	0.0072
4	2013	3	0.1200	0.0015	0.0102	1.6406	0.0016	0.0133
4	2013	4	0.1291	0.0015	0.0099	1.7166	0.0017	0.0141
4	2013	5	0.1336	0.0014	0.0098	1.7166	0.0017	0.0141
4	2013	6	0.1339	0.0014	0.0098	1.7500	0.0017	0.0142
4	2013	7	0.1171	0.0015	0.0102	1.9296	0.0015	0.0129
4	2013	8a	0.1175	0.0015	0.0102	2.6332	0.0010	0.0083
4	2013	8b	0.1175	0.0015	0.0102	2.9392	0.0007	0.0060
4	2014	2b	0.0598	0.0008	0.0031	0.5067	0.0004	0.0022
4	2014	3	0.1205	0.0014	0.0098	1.0919	0.0005	0.0039
4	2014	4	0.1240	0.0014	0.0097	1.1588	0.0005	0.0041
4	2014	5	0.1260	0.0014	0.0097	1.1588	0.0005	0.0041
4	2014	6	0.1261	0.0014	0.0097	1.1852	0.0005	0.0042
4	2014	7	0.1195	0.0014	0.0098	1.3466	0.0005	0.0042
4	2014	8a	0.1195	0.0014	0.0098	2.1157	0.0005	0.0041
4	2014	8b	0.1195	0.0014	0.0098	2.5425	0.0005	0.0039
4	2015	2b	0.0545	0.0009	0.0030	0.4002	0.0004	0.0021
4	2015	3	0.1204	0.0014	0.0098	0.9814	0.0005	0.0039
4	2015	4	0.1236	0.0014	0.0097	1.0635	0.0005	0.0041
4	2015	5	0.1255	0.0014	0.0097	1.0635	0.0005	0.0041
4	2015	6	0.1256	0.0014	0.0097	1.0916	0.0005	0.0042
4	2015	7	0.1195	0.0014	0.0098	1.2702	0.0005	0.0042
4	2015	8a	0.1195	0.0014	0.0098	2.1038	0.0005	0.0041
4	2015	8b	0.1195	0.0014	0.0098	2.5572	0.0005	0.0040
4	2016	2b	0.0539	0.0009	0.0029	0.3829	0.0005	0.0021
4	2016	3	0.1203	0.0014	0.0098	0.9353	0.0005	0.0038
4	2016	4	0.1232	0.0014	0.0098	1.0253	0.0005	0.0041
4	2016	5	0.1249	0.0014	0.0097	1.0253	0.0005	0.0041
4	2016	6	0.1251	0.0014	0.0097	1.0488	0.0005	0.0042
4	2016	7	0.1195	0.0014	0.0098	1.1897	0.0005	0.0042
4	2016	8a	0.1195	0.0014	0.0098	1.9597	0.0005	0.0042

Table A-4. SmartWay Category - Flatbed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
4	2016	8b	0.1195	0.0014	0.0098	2.4631	0.0005	0.0040
4	2017	2b	0.0372	0.0009	0.0027	0.3612	0.0005	0.0020
4	2017	3	0.1021	0.0014	0.0098	0.8776	0.0005	0.0037
4	2017	4	0.1043	0.0014	0.0097	0.9663	0.0005	0.0040
4	2017	5	0.1056	0.0014	0.0097	0.9663	0.0005	0.0040
4	2017	6	0.1057	0.0014	0.0097	0.9848	0.0005	0.0040
4	2017	7	0.1015	0.0014	0.0098	1.0955	0.0005	0.0040
4	2017	8a	0.1015	0.0014	0.0098	1.7381	0.0005	0.0041
4	2017	8b	0.1015	0.0014	0.0098	2.1908	0.0005	0.0040
4	2018	2b	0.0360	0.0010	0.0028	0.2577	0.0005	0.0020
4	2018	3	0.0887	0.0014	0.0097	0.8115	0.0005	0.0037
4	2018	4	0.0971	0.0014	0.0096	0.9064	0.0005	0.0040
4	2018	5	0.1016	0.0014	0.0095	0.9064	0.0005	0.0040
4	2018	6	0.1019	0.0014	0.0095	0.9503	0.0005	0.0041
4	2018	7	0.0860	0.0014	0.0098	1.0494	0.0005	0.0040
4	2018	8a	0.0860	0.0014	0.0098	1.6950	0.0005	0.0041
4	2018	8b	0.0860	0.0014	0.0098	2.1324	0.0005	0.0039
4	2019	2b	0.0264	0.0006	0.0017	0.1624	0.0003	0.0012
4	2019	3	0.0846	0.0009	0.0059	0.5573	0.0003	0.0024
4	2019	4	0.0929	0.0009	0.0058	0.6316	0.0003	0.0026
4	2019	5	0.0973	0.0008	0.0058	0.6316	0.0003	0.0026
4	2019	6	0.0977	0.0008	0.0058	0.6629	0.0003	0.0027
4	2019	7	0.0819	0.0009	0.0059	0.7375	0.0003	0.0027
4	2019	8a	0.0819	0.0009	0.0059	1.2180	0.0003	0.0028
4	2019	8b	0.0819	0.0009	0.0059	1.5427	0.0003	0.0027
4	2020	2b	0.0231	0.0006	0.0016	0.1410	0.0003	0.0011
4	2020	3	0.0805	0.0009	0.0059	0.5356	0.0003	0.0023
4	2020	4	0.0891	0.0009	0.0058	0.6223	0.0003	0.0026
4	2020	5	0.0937	0.0008	0.0058	0.6223	0.0003	0.0026
4	2020	6	0.0941	0.0008	0.0058	0.6531	0.0003	0.0027
4	2020	7	0.0778	0.0009	0.0059	0.7242	0.0003	0.0027
4	2020	8a	0.0778	0.0009	0.0059	1.2013	0.0003	0.0028
4	2020	8b	0.0778	0.0009	0.0059	1.5391	0.0003	0.0027

Table A-4. SmartWay Category - Flatbed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
4	2021	2b	0.0197	0.0005	0.0013	0.1253	0.0002	0.0010
4	2021	3	0.0756	0.0009	0.0059	0.5191	0.0003	0.0023
4	2021	4	0.0837	0.0008	0.0058	0.6106	0.0003	0.0026
4	2021	5	0.0880	0.0008	0.0057	0.6106	0.0003	0.0026
4	2021	6	0.0884	0.0008	0.0057	0.6400	0.0003	0.0027
4	2021	7	0.0730	0.0009	0.0059	0.7037	0.0003	0.0026
4	2021	8a	0.0730	0.0009	0.0059	1.1520	0.0003	0.0027
4	2021	8b	0.0730	0.0009	0.0059	1.4817	0.0003	0.0026
4	2022	2b	0.0166	0.0005	0.0014	0.1113	0.0002	0.0010
4	2022	3	0.0716	0.0009	0.0059	0.5094	0.0003	0.0023
4	2022	4	0.0799	0.0008	0.0058	0.6013	0.0003	0.0026
4	2022	5	0.0844	0.0008	0.0057	0.6013	0.0003	0.0026
4	2022	6	0.0848	0.0008	0.0057	0.6310	0.0003	0.0026
4	2022	7	0.0689	0.0009	0.0059	0.6976	0.0003	0.0026
4	2022	8a	0.0689	0.0009	0.0059	1.1546	0.0003	0.0027
4	2022	8b	0.0689	0.0009	0.0059	1.4830	0.0003	0.0026

Table A-5. SmartWay Category - Heavy-Bulk

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
5	1987	2b	4.7151	0.0058	0.0394	7.4348	0.1719	0.2252
5	1987	3	5.5703	0.0197	0.1345	13.6006	0.4167	0.5288
5	1987	4	5.6105	0.0205	0.1396	15.6094	0.4862	0.6153
5	1987	5	5.4778	0.0179	0.1221	16.1150	0.4671	0.5915
5	1987	6	5.2904	0.0142	0.0967	16.1752	0.4973	0.6292
5	1987	7	5.2904	0.0142	0.0967	17.2701	0.5071	0.6416
5	1987	8a	5.3177	0.0144	0.0983	25.1311	0.6965	0.8788
5	1987	8b	5.3177	0.0144	0.0983	29.3519	0.7931	0.9997
5	1988	2b	4.7151	0.0058	0.0394	7.4348	0.1719	0.2252
5	1988	3	5.5703	0.0197	0.1345	13.6006	0.4167	0.5288
5	1988	4	5.6105	0.0205	0.1396	15.6094	0.4862	0.6153
5	1988	5	5.4778	0.0179	0.1221	16.1150	0.4671	0.5915

Table A-5. SmartWay Category - Heavy-Bulk

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
5	1988	6	5.2904	0.0142	0.0967	16.1752	0.4973	0.6292
5	1988	7	5.2904	0.0142	0.0967	17.2701	0.5071	0.6416
5	1988	8a	5.3177	0.0144	0.0983	25.1311	0.6965	0.8788
5	1988	8b	5.3177	0.0144	0.0983	29.3519	0.7931	0.9997
5	1989	2b	4.7151	0.0058	0.0394	7.4348	0.1719	0.2252
5	1989	3	5.5703	0.0197	0.1345	13.6006	0.4167	0.5288
5	1989	4	5.6105	0.0205	0.1396	15.6094	0.4862	0.6153
5	1989	5	5.4778	0.0179	0.1221	16.1150	0.4671	0.5915
5	1989	6	5.2904	0.0142	0.0967	16.1752	0.4973	0.6292
5	1989	7	5.2904	0.0142	0.0967	17.2701	0.5071	0.6416
5	1989	8a	5.3177	0.0144	0.0983	25.1311	0.6965	0.8788
5	1989	8b	5.3177	0.0144	0.0983	29.3519	0.7931	0.9997
5	1990	2b	4.7151	0.0058	0.0394	7.4348	0.1719	0.2252
5	1990	3	5.5703	0.0197	0.1345	13.6006	0.4167	0.5288
5	1990	4	5.6105	0.0205	0.1396	15.6094	0.4862	0.6153
5	1990	5	5.4778	0.0179	0.1221	16.1150	0.4671	0.5915
5	1990	6	5.2904	0.0142	0.0967	16.1752	0.4973	0.6292
5	1990	7	5.2904	0.0142	0.0967	17.2701	0.5071	0.6416
5	1990	8a	5.3177	0.0144	0.0983	25.1311	0.6965	0.8788
5	1990	8b	5.3177	0.0144	0.0983	29.3519	0.7931	0.9997
5	1991	2b	4.7151	0.0058	0.0394	7.4348	0.1719	0.2252
5	1991	3	5.5703	0.0197	0.1345	13.6006	0.4167	0.5288
5	1991	4	5.6105	0.0205	0.1396	15.6094	0.4862	0.6153
5	1991	5	5.4778	0.0179	0.1221	16.1150	0.4671	0.5915
5	1991	6	5.2904	0.0142	0.0967	16.1752	0.4973	0.6292
5	1991	7	5.2904	0.0142	0.0967	17.2701	0.5071	0.6416
5	1991	8a	5.3177	0.0144	0.0983	25.1311	0.6965	0.8788
5	1991	8b	5.3177	0.0144	0.0983	29.3519	0.7931	0.9997
5	1992	2b	4.7151	0.0058	0.0394	7.4348	0.1719	0.2252
5	1992	3	5.5703	0.0197	0.1345	13.6006	0.4167	0.5288
5	1992	4	5.6105	0.0205	0.1396	15.6094	0.4862	0.6153
5	1992	5	5.4778	0.0179	0.1221	16.1150	0.4671	0.5915
5	1992	6	5.2904	0.0142	0.0967	16.1752	0.4973	0.6292

Table A-5. SmartWay Category - Heavy-Bulk

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
5	1992	7	5.2904	0.0142	0.0967	17.2701	0.5071	0.6416
5	1992	8a	5.3177	0.0144	0.0983	25.1311	0.6965	0.8788
5	1992	8b	5.3177	0.0144	0.0983	29.3519	0.7931	0.9997
5	1993	2b	4.7865	0.0074	0.0507	8.0276	0.2062	0.2675
5	1993	3	5.5927	0.0206	0.1404	11.1320	0.3187	0.4074
5	1993	4	5.6259	0.0210	0.1430	16.8998	0.5183	0.6556
5	1993	5	5.5959	0.0206	0.1408	16.9790	0.4832	0.6119
5	1993	6	5.1023	0.0143	0.0979	18.0904	0.5134	0.6496
5	1993	7	5.1023	0.0143	0.0979	19.9207	0.5660	0.7155
5	1993	8a	5.1598	0.0143	0.0973	28.0242	0.7573	0.9549
5	1993	8b	5.1598	0.0143	0.0973	29.7405	0.7959	1.0031
5	1994	2b	4.1555	0.0046	0.0312	7.5604	0.4964	0.6375
5	1994	3	5.5942	0.0077	0.0523	10.3302	0.6121	0.7814
5	1994	4	5.6476	0.0077	0.0526	14.5049	0.7549	0.9573
5	1994	5	5.6439	0.0077	0.0525	17.3422	0.8330	1.0556
5	1994	6	5.0487	0.0073	0.0499	17.6175	0.8144	1.0320
5	1994	7	5.0487	0.0073	0.0499	20.6699	0.7921	1.0031
5	1994	8a	7.5370	0.0102	0.0693	27.9916	0.7640	0.9654
5	1994	8b	7.5370	0.0102	0.0693	29.6149	0.7574	0.9565
5	1995	2b	4.2902	0.0079	0.0542	7.7476	0.4899	0.6285
5	1995	3	5.4989	0.0214	0.1459	13.9656	0.7164	0.9097
5	1995	4	5.6099	0.0227	0.1548	15.6708	0.7584	0.9617
5	1995	5	5.5817	0.0224	0.1528	17.8305	0.8126	1.0296
5	1995	6	5.0460	0.0159	0.1088	18.1909	0.7833	0.9924
5	1995	7	5.0460	0.0159	0.1088	20.1996	0.7856	0.9949
5	1995	8a	7.3481	0.0309	0.2108	27.7142	0.7662	0.9683
5	1995	8b	7.3481	0.0309	0.2108	29.4296	0.7582	0.9575
5	1996	2b	3.4955	0.0054	0.0367	7.8876	0.4727	0.6059
5	1996	3	5.5768	0.0169	0.1152	15.3546	0.7555	0.9581
5	1996	4	5.6335	0.0175	0.1194	16.7747	0.7693	0.9750
5	1996	5	5.6300	0.0175	0.1194	17.8069	0.8184	1.0370
5	1996	6	5.1000	0.0115	0.0787	19.6964	0.7914	1.0024
5	1996	7	5.1000	0.0115	0.0787	20.5510	0.7904	1.0009

Table A-5. SmartWay Category - Heavy-Bulk

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
5	1996	8a	7.3481	0.0241	0.1647	27.7455	0.7676	0.9701
5	1996	8b	7.3481	0.0241	0.1647	29.5420	0.7607	0.9607
5	1997	2b	3.0734	0.0035	0.0239	6.0515	0.3899	0.5037
5	1997	3	5.5075	0.0110	0.0752	11.9942	0.6274	0.7990
5	1997	4	5.6403	0.0117	0.0796	14.7684	0.7705	0.9770
5	1997	5	5.6098	0.0115	0.0787	16.4417	0.8289	1.0504
5	1997	6	5.0740	0.0089	0.0607	16.3598	0.7822	0.9914
5	1997	7	5.0740	0.0089	0.0607	17.9047	0.7842	0.9937
5	1997	8a	8.5951	0.0088	0.0601	26.7753	0.7653	0.9675
5	1997	8b	8.5951	0.0088	0.0601	29.2138	0.7555	0.9543
5	1998	2b	2.6779	0.0032	0.0219	6.7057	0.2484	0.3220
5	1998	3	3.4973	0.0128	0.0872	14.0924	0.3622	0.4627
5	1998	4	3.5180	0.0143	0.0973	14.8601	0.3741	0.4774
5	1998	5	3.4864	0.0126	0.0857	15.4336	0.3528	0.4508
5	1998	6	3.4499	0.0095	0.0652	15.1167	0.3660	0.4673
5	1998	7	3.4499	0.0095	0.0652	15.9106	0.3657	0.4668
5	1998	8a	3.8940	0.0217	0.1482	24.3016	0.4825	0.6118
5	1998	8b	3.8940	0.0217	0.1482	27.0334	0.5176	0.6550
5	1999	2b	2.0983	0.0041	0.0280	6.1389	0.2474	0.3207
5	1999	3	3.5012	0.0137	0.0935	9.6728	0.3365	0.4308
5	1999	4	3.6599	0.0140	0.0956	10.3393	0.3535	0.4518
5	1999	5	3.6954	0.0139	0.0946	10.3707	0.3541	0.4526
5	1999	6	3.6978	0.0139	0.0946	10.3833	0.3511	0.4487
5	1999	7	3.3768	0.0134	0.0917	10.8620	0.3599	0.4597
5	1999	8a	3.3970	0.0142	0.0967	18.3096	0.4830	0.6126
5	1999	8b	3.3970	0.0142	0.0967	20.6136	0.5222	0.6607
5	2000	2b	1.8665	0.0034	0.0230	6.3033	0.2518	0.3261
5	2000	3	3.5814	0.0112	0.0764	9.6733	0.3370	0.4314
5	2000	4	3.7780	0.0100	0.0683	10.1873	0.3499	0.4472
5	2000	5	3.8319	0.0097	0.0661	10.2490	0.3510	0.4487
5	2000	6	3.8354	0.0097	0.0660	10.3299	0.3518	0.4496
5	2000	7	3.4539	0.0120	0.0816	11.4989	0.3701	0.4723
5	2000	8a	3.4539	0.0120	0.0816	17.0399	0.4602	0.5842

Table A-5. SmartWay Category - Heavy-Bulk

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
5	2000	8b	3.4539	0.0120	0.0816	20.4671	0.5196	0.6575
5	2001	2b	0.6337	0.0023	0.0154	5.9319	0.2425	0.3147
5	2001	3	1.4690	0.0071	0.0487	9.4225	0.3297	0.4223
5	2001	4	1.5353	0.0070	0.0481	9.8879	0.3416	0.4369
5	2001	5	1.5605	0.0070	0.0478	9.9191	0.3422	0.4377
5	2001	6	1.5623	0.0070	0.0478	10.5819	0.3533	0.4515
5	2001	7	1.4397	0.0072	0.0490	10.4342	0.3510	0.4486
5	2001	8a	1.4397	0.0072	0.0490	17.8362	0.4729	0.6000
5	2001	8b	1.4397	0.0072	0.0490	20.3085	0.5163	0.6535
5	2002	2b	0.6018	0.0023	0.0154	6.0117	0.2445	0.3172
5	2002	3	1.4980	0.0072	0.0490	9.2079	0.3242	0.4154
5	2002	4	1.5887	0.0065	0.0446	9.8825	0.3412	0.4364
5	2002	5	1.6163	0.0063	0.0432	9.8825	0.3412	0.4364
5	2002	6	1.6181	0.0063	0.0431	10.1364	0.3465	0.4430
5	2002	7	1.4462	0.0075	0.0515	10.6868	0.3545	0.4529
5	2002	8a	1.4462	0.0075	0.0515	15.6557	0.4359	0.5543
5	2002	8b	1.4462	0.0075	0.0515	20.0038	0.5107	0.6465
5	2003	2b	0.5439	0.0016	0.0112	4.0333	0.2067	0.2681
5	2003	3	1.4757	0.0055	0.0377	5.9797	0.2814	0.3606
5	2003	4	1.5530	0.0054	0.0366	6.4052	0.2981	0.3812
5	2003	5	1.5773	0.0053	0.0363	6.4052	0.2981	0.3812
5	2003	6	1.5789	0.0053	0.0362	6.8269	0.3067	0.3920
5	2003	7	1.4336	0.0056	0.0383	6.9713	0.3163	0.4040
5	2003	8a	1.4337	0.0056	0.0383	8.8466	0.4019	0.5106
5	2003	8b	1.4337	0.0056	0.0383	10.2263	0.4660	0.5898
5	2004	2b	0.4385	0.0011	0.0073	4.0085	0.2051	0.2660
5	2004	3	1.4963	0.0045	0.0306	6.0409	0.2810	0.3601
5	2004	4	1.6034	0.0043	0.0291	6.4987	0.2984	0.3816
5	2004	5	1.6352	0.0042	0.0286	6.4987	0.2984	0.3816
5	2004	6	1.6373	0.0042	0.0286	6.9102	0.3093	0.3953
5	2004	7	1.4334	0.0046	0.0314	7.0426	0.3176	0.4056
5	2004	8a	1.4334	0.0046	0.0314	8.8354	0.4000	0.5081
5	2004	8b	1.4334	0.0046	0.0314	10.2309	0.4665	0.5904

Table A-5. SmartWay Category - Heavy-Bulk

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
5	2005	2b	0.3550	0.0009	0.0061	3.8996	0.2001	0.2597
5	2005	3	1.4875	0.0044	0.0299	5.8887	0.2753	0.3530
5	2005	4	1.5460	0.0042	0.0290	6.4631	0.2974	0.3804
5	2005	5	1.5721	0.0042	0.0286	6.4631	0.2974	0.3804
5	2005	6	1.5741	0.0042	0.0286	6.8042	0.3078	0.3934
5	2005	7	1.4656	0.0044	0.0302	7.0602	0.3204	0.4091
5	2005	8a	1.4658	0.0044	0.0302	9.0533	0.4100	0.5205
5	2005	8b	1.4658	0.0044	0.0302	10.2869	0.4687	0.5932
5	2006	2b	0.3923	0.0010	0.0070	3.9505	0.2031	0.2637
5	2006	3	1.4833	0.0046	0.0316	5.8178	0.2737	0.3511
5	2006	4	1.5602	0.0044	0.0302	6.3600	0.2945	0.3767
5	2006	5	1.5899	0.0044	0.0297	6.3600	0.2945	0.3767
5	2006	6	1.5920	0.0044	0.0297	6.6280	0.3033	0.3877
5	2006	7	1.4498	0.0047	0.0322	6.9005	0.3159	0.4035
5	2006	8a	1.4500	0.0047	0.0322	8.9332	0.4059	0.5154
5	2006	8b	1.4500	0.0047	0.0322	10.2653	0.4682	0.5925
5	2007	2b	0.3450	0.0009	0.0064	2.2933	0.0014	0.0115
5	2007	3	1.4871	0.0046	0.0315	3.6989	0.0019	0.0162
5	2007	4	1.5471	0.0044	0.0303	3.9472	0.0020	0.0171
5	2007	5	1.5729	0.0044	0.0298	3.9472	0.0020	0.0171
5	2007	6	1.5749	0.0044	0.0297	4.0843	0.0020	0.0175
5	2007	7	1.4642	0.0047	0.0319	4.4685	0.0022	0.0187
5	2007	8a	1.4652	0.0047	0.0319	6.3266	0.0029	0.0247
5	2007	8b	1.4652	0.0047	0.0319	7.2472	0.0032	0.0278
5	2008	2b	0.2605	0.0008	0.0054	2.2231	0.0013	0.0113
5	2008	3	0.9726	0.0034	0.0234	3.3126	0.0017	0.0149
5	2008	4	0.9441	0.0034	0.0231	3.5233	0.0018	0.0156
5	2008	5	0.9285	0.0034	0.0229	3.5233	0.0018	0.0156
5	2008	6	0.9273	0.0034	0.0229	3.6315	0.0019	0.0160
5	2008	7	0.9815	0.0035	0.0235	3.7574	0.0019	0.0164
5	2008	8a	0.9814	0.0035	0.0235	5.1611	0.0024	0.0208
5	2008	8b	0.9814	0.0035	0.0235	6.9036	0.0031	0.0266
5	2009	2b	0.1609	0.0009	0.0057	2.2187	0.0013	0.0111

Table A-5. SmartWay Category - Heavy-Bulk

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
5	2009	3	0.6186	0.0034	0.0234	3.8382	0.0020	0.0167
5	2009	4	0.6173	0.0034	0.0233	4.0592	0.0020	0.0175
5	2009	5	0.6166	0.0034	0.0232	4.0592	0.0020	0.0175
5	2009	6	0.6165	0.0034	0.0232	4.1313	0.0021	0.0177
5	2009	7	0.6190	0.0034	0.0234	4.5546	0.0022	0.0190
5	2009	8a	0.6190	0.0034	0.0234	6.3580	0.0029	0.0248
5	2009	8b	0.6190	0.0034	0.0234	7.2236	0.0032	0.0277
5	2010	2b	0.0627	0.0006	0.0031	1.0128	0.0009	0.0078
5	2010	3	0.1061	0.0018	0.0120	2.2321	0.0021	0.0177
5	2010	4	0.1061	0.0018	0.0120	2.4253	0.0023	0.0193
5	2010	5	0.1061	0.0018	0.0120	2.4253	0.0023	0.0193
5	2010	6	0.1061	0.0018	0.0120	2.5073	0.0023	0.0200
5	2010	7	0.1061	0.0018	0.0120	2.8474	0.0021	0.0183
5	2010	8a	0.1061	0.0018	0.0120	4.4608	0.0014	0.0123
5	2010	8b	0.1061	0.0018	0.0120	5.3122	0.0010	0.0083
5	2011	2b	0.0656	0.0007	0.0036	1.0912	0.0009	0.0076
5	2011	3	0.1132	0.0017	0.0118	1.8913	0.0018	0.0151
5	2011	4	0.1254	0.0017	0.0115	2.0206	0.0019	0.0163
5	2011	5	0.1316	0.0017	0.0113	2.0206	0.0019	0.0163
5	2011	6	0.1321	0.0017	0.0113	2.0931	0.0020	0.0168
5	2011	7	0.1091	0.0017	0.0119	2.2689	0.0019	0.0159
5	2011	8a	0.1091	0.0017	0.0119	3.5330	0.0014	0.0121
5	2011	8b	0.1091	0.0017	0.0119	4.5651	0.0010	0.0083
5	2012	2b	0.0678	0.0007	0.0040	1.0421	0.0010	0.0078
5	2012	3	0.1152	0.0017	0.0116	1.9031	0.0019	0.0159
5	2012	4	0.1200	0.0017	0.0115	2.0157	0.0020	0.0169
5	2012	5	0.1228	0.0017	0.0115	2.0157	0.0020	0.0169
5	2012	6	0.1230	0.0017	0.0115	2.0631	0.0020	0.0170
5	2012	7	0.1137	0.0017	0.0117	2.3166	0.0019	0.0160
5	2012	8a	0.1137	0.0017	0.0117	3.6651	0.0013	0.0115
5	2012	8b	0.1137	0.0017	0.0117	4.4836	0.0010	0.0082
5	2013	2b	0.0549	0.0006	0.0029	1.2116	0.0009	0.0076
5	2013	3	0.1213	0.0016	0.0107	1.9971	0.0019	0.0163

Table A-5. SmartWay Category - Heavy-Bulk

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
5	2013	4	0.1301	0.0015	0.0105	2.1049	0.0021	0.0175
5	2013	5	0.1344	0.0015	0.0104	2.1049	0.0021	0.0175
5	2013	6	0.1347	0.0015	0.0104	2.1489	0.0021	0.0177
5	2013	7	0.1185	0.0016	0.0108	2.3475	0.0019	0.0162
5	2013	8a	0.1188	0.0016	0.0108	3.2331	0.0012	0.0106
5	2013	8b	0.1188	0.0016	0.0108	3.6753	0.0009	0.0073
5	2014	2b	0.0563	0.0008	0.0031	0.6105	0.0004	0.0022
5	2014	3	0.1220	0.0015	0.0103	1.4623	0.0005	0.0045
5	2014	4	0.1253	0.0015	0.0103	1.5576	0.0006	0.0048
5	2014	5	0.1272	0.0015	0.0102	1.5576	0.0006	0.0048
5	2014	6	0.1274	0.0015	0.0102	1.5921	0.0006	0.0048
5	2014	7	0.1210	0.0015	0.0104	1.7659	0.0006	0.0048
5	2014	8a	0.1210	0.0015	0.0104	2.6959	0.0006	0.0047
5	2014	8b	0.1210	0.0015	0.0104	3.2893	0.0005	0.0045
5	2015	2b	0.0514	0.0008	0.0029	0.4917	0.0004	0.0021
5	2015	3	0.1219	0.0015	0.0103	1.3457	0.0005	0.0044
5	2015	4	0.1249	0.0015	0.0103	1.4632	0.0006	0.0047
5	2015	5	0.1267	0.0015	0.0103	1.4632	0.0006	0.0047
5	2015	6	0.1269	0.0015	0.0103	1.4993	0.0006	0.0048
5	2015	7	0.1210	0.0015	0.0104	1.6902	0.0006	0.0048
5	2015	8a	0.1210	0.0015	0.0104	2.6872	0.0006	0.0047
5	2015	8b	0.1210	0.0015	0.0104	3.3080	0.0005	0.0045
5	2016	2b	0.0508	0.0009	0.0029	0.4667	0.0005	0.0021
5	2016	3	0.1218	0.0015	0.0103	1.2855	0.0005	0.0044
5	2016	4	0.1246	0.0015	0.0103	1.4155	0.0006	0.0047
5	2016	5	0.1262	0.0015	0.0103	1.4155	0.0006	0.0047
5	2016	6	0.1263	0.0015	0.0103	1.4459	0.0006	0.0048
5	2016	7	0.1210	0.0015	0.0104	1.5963	0.0006	0.0048
5	2016	8a	0.1210	0.0015	0.0104	2.5091	0.0006	0.0048
5	2016	8b	0.1210	0.0015	0.0104	3.1918	0.0005	0.0045
5	2017	2b	0.0353	0.0009	0.0026	0.4405	0.0004	0.0019
5	2017	3	0.1037	0.0015	0.0103	1.2071	0.0005	0.0042
5	2017	4	0.1058	0.0015	0.0103	1.3355	0.0005	0.0046

Table A-5. SmartWay Category - Heavy-Bulk

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
5	2017	5	0.1070	0.0015	0.0102	1.3355	0.0005	0.0046
5	2017	6	0.1071	0.0015	0.0102	1.3596	0.0005	0.0046
5	2017	7	0.1031	0.0015	0.0103	1.4791	0.0005	0.0046
5	2017	8a	0.1031	0.0015	0.0103	2.2479	0.0005	0.0047
5	2017	8b	0.1031	0.0015	0.0103	2.8694	0.0005	0.0045
5	2018	2b	0.0343	0.0009	0.0027	0.3222	0.0005	0.0019
5	2018	3	0.0900	0.0015	0.0103	1.1282	0.0005	0.0042
5	2018	4	0.0982	0.0015	0.0101	1.2625	0.0005	0.0046
5	2018	5	0.1025	0.0015	0.0100	1.2625	0.0005	0.0046
5	2018	6	0.1029	0.0015	0.0100	1.3229	0.0005	0.0047
5	2018	7	0.0874	0.0015	0.0103	1.4271	0.0005	0.0046
5	2018	8a	0.0874	0.0015	0.0103	2.2024	0.0005	0.0047
5	2018	8b	0.0874	0.0015	0.0103	2.8030	0.0005	0.0045
5	2019	2b	0.0254	0.0006	0.0017	0.2035	0.0003	0.0012
5	2019	3	0.0858	0.0009	0.0062	0.7774	0.0003	0.0027
5	2019	4	0.0939	0.0009	0.0062	0.8824	0.0004	0.0030
5	2019	5	0.0982	0.0009	0.0061	0.8824	0.0004	0.0030
5	2019	6	0.0986	0.0009	0.0061	0.9252	0.0004	0.0031
5	2019	7	0.0832	0.0009	0.0062	1.0041	0.0004	0.0031
5	2019	8a	0.0832	0.0009	0.0062	1.5817	0.0004	0.0032
5	2019	8b	0.0832	0.0009	0.0062	2.0276	0.0004	0.0031
5	2020	2b	0.0223	0.0005	0.0015	0.1765	0.0003	0.0011
5	2020	3	0.0817	0.0009	0.0062	0.7490	0.0003	0.0027
5	2020	4	0.0901	0.0009	0.0062	0.8712	0.0004	0.0030
5	2020	5	0.0946	0.0009	0.0061	0.8712	0.0004	0.0030
5	2020	6	0.0949	0.0009	0.0061	0.9134	0.0004	0.0031
5	2020	7	0.0790	0.0009	0.0062	0.9882	0.0004	0.0031
5	2020	8a	0.0790	0.0009	0.0062	1.5600	0.0004	0.0032
5	2020	8b	0.0790	0.0009	0.0062	2.0223	0.0004	0.0031
5	2021	2b	0.0190	0.0004	0.0013	0.1577	0.0002	0.0010
5	2021	3	0.0768	0.0009	0.0062	0.7283	0.0003	0.0026
5	2021	4	0.0847	0.0009	0.0061	0.8569	0.0003	0.0030
5	2021	5	0.0890	0.0009	0.0061	0.8569	0.0003	0.0030

Table A-5. SmartWay Category - Heavy-Bulk

Category ID	Engine Model Yr	Truck Class	Gas NO _x g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NO _x g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
5	2021	6	0.0893	0.0009	0.0061	0.8973	0.0004	0.0031
5	2021	7	0.0743	0.0009	0.0062	0.9648	0.0004	0.0030
5	2021	8a	0.0743	0.0009	0.0062	1.5051	0.0004	0.0031
5	2021	8b	0.0743	0.0009	0.0062	1.9598	0.0004	0.0030
5	2022	2b	0.0161	0.0004	0.0014	0.1417	0.0002	0.0010
5	2022	3	0.0727	0.0009	0.0062	0.7168	0.0003	0.0026
5	2022	4	0.0809	0.0009	0.0061	0.8457	0.0003	0.0030
5	2022	5	0.0853	0.0009	0.0061	0.8457	0.0003	0.0030
5	2022	6	0.0857	0.0009	0.0061	0.8864	0.0004	0.0031
5	2022	7	0.0701	0.0009	0.0062	0.9571	0.0004	0.0030
5	2022	8a	0.0701	0.0009	0.0062	1.5085	0.0004	0.0031
5	2022	8b	0.0701	0.0009	0.0062	1.9617	0.0004	0.0030

Table A-6. SmartWay Category - LTL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NO _x g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NO _x g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
6	1987	2b	5.0922	0.0052	0.0356	7.6309	0.1767	0.2320
6	1987	3	5.7915	0.0168	0.1145	13.5262	0.4102	0.5208
6	1987	4	5.8377	0.0174	0.1188	15.5404	0.4773	0.6040
6	1987	5	5.6850	0.0152	0.1040	16.0932	0.4513	0.5713
6	1987	6	5.4690	0.0121	0.0826	16.1564	0.4895	0.6192
6	1987	7	5.4690	0.0121	0.0826	17.3317	0.4978	0.6296
6	1987	8a	5.4997	0.0123	0.0841	25.9347	0.7151	0.9022
6	1987	8b	5.4997	0.0123	0.0841	30.8011	0.8328	1.0498
6	1988	2b	5.0922	0.0052	0.0356	7.6309	0.1767	0.2320
6	1988	3	5.7915	0.0168	0.1145	13.5262	0.4102	0.5208
6	1988	4	5.8377	0.0174	0.1188	15.5404	0.4773	0.6040
6	1988	5	5.6850	0.0152	0.1040	16.0932	0.4513	0.5713
6	1988	6	5.4690	0.0121	0.0826	16.1564	0.4895	0.6192
6	1988	7	5.4690	0.0121	0.0826	17.3317	0.4978	0.6296
6	1988	8a	5.4997	0.0123	0.0841	25.9347	0.7151	0.9022
6	1988	8b	5.4997	0.0123	0.0841	30.8011	0.8328	1.0498

Table A-6. SmartWay Category - LTL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
6	1989	2b	5.0922	0.0052	0.0356	7.6309	0.1767	0.2320
6	1989	3	5.7915	0.0168	0.1145	13.5262	0.4102	0.5208
6	1989	4	5.8377	0.0174	0.1188	15.5404	0.4773	0.6040
6	1989	5	5.6850	0.0152	0.1040	16.0932	0.4513	0.5713
6	1989	6	5.4690	0.0121	0.0826	16.1564	0.4895	0.6192
6	1989	7	5.4690	0.0121	0.0826	17.3317	0.4978	0.6296
6	1989	8a	5.4997	0.0123	0.0841	25.9347	0.7151	0.9022
6	1989	8b	5.4997	0.0123	0.0841	30.8011	0.8328	1.0498
6	1990	2b	5.0922	0.0052	0.0356	7.6309	0.1767	0.2320
6	1990	3	5.7915	0.0168	0.1145	13.5262	0.4102	0.5208
6	1990	4	5.8377	0.0174	0.1188	15.5404	0.4773	0.6040
6	1990	5	5.6850	0.0152	0.1040	16.0932	0.4513	0.5713
6	1990	6	5.4690	0.0121	0.0826	16.1564	0.4895	0.6192
6	1990	7	5.4690	0.0121	0.0826	17.3317	0.4978	0.6296
6	1990	8a	5.4997	0.0123	0.0841	25.9347	0.7151	0.9022
6	1990	8b	5.4997	0.0123	0.0841	30.8011	0.8328	1.0498
6	1991	2b	5.0922	0.0052	0.0356	7.6309	0.1767	0.2320
6	1991	3	5.7915	0.0168	0.1145	13.5262	0.4102	0.5208
6	1991	4	5.8377	0.0174	0.1188	15.5404	0.4773	0.6040
6	1991	5	5.6850	0.0152	0.1040	16.0932	0.4513	0.5713
6	1991	6	5.4690	0.0121	0.0826	16.1564	0.4895	0.6192
6	1991	7	5.4690	0.0121	0.0826	17.3317	0.4978	0.6296
6	1991	8a	5.4997	0.0123	0.0841	25.9347	0.7151	0.9022
6	1991	8b	5.4997	0.0123	0.0841	30.8011	0.8328	1.0498
6	1992	2b	5.0922	0.0052	0.0356	7.6309	0.1767	0.2320
6	1992	3	5.7915	0.0168	0.1145	13.5262	0.4102	0.5208
6	1992	4	5.8377	0.0174	0.1188	15.5404	0.4773	0.6040
6	1992	5	5.6850	0.0152	0.1040	16.0932	0.4513	0.5713
6	1992	6	5.4690	0.0121	0.0826	16.1564	0.4895	0.6192
6	1992	7	5.4690	0.0121	0.0826	17.3317	0.4978	0.6296
6	1992	8a	5.4997	0.0123	0.0841	25.9347	0.7151	0.9022
6	1992	8b	5.4997	0.0123	0.0841	30.8011	0.8328	1.0498
6	1993	2b	5.1314	0.0066	0.0448	8.1749	0.2113	0.2747

Table A-6. SmartWay Category - LTL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
6	1993	3	5.8202	0.0175	0.1194	11.1265	0.3162	0.4047
6	1993	4	5.8567	0.0178	0.1217	16.9298	0.5145	0.6507
6	1993	5	5.8238	0.0176	0.1198	17.0202	0.4636	0.5869
6	1993	6	5.2796	0.0123	0.0839	18.2340	0.4990	0.6314
6	1993	7	5.2796	0.0123	0.0839	20.2069	0.5613	0.7095
6	1993	8a	5.3415	0.0123	0.0837	29.2803	0.7885	0.9943
6	1993	8b	5.3415	0.0123	0.0837	31.2683	0.8360	1.0538
6	1994	2b	4.4558	0.0052	0.0353	7.6639	0.4630	0.5946
6	1994	3	5.8224	0.0090	0.0616	10.2842	0.5683	0.7253
6	1994	4	5.8803	0.0091	0.0620	14.3618	0.6994	0.8865
6	1994	5	5.8762	0.0091	0.0619	17.4152	0.7716	0.9774
6	1994	6	5.2316	0.0085	0.0578	17.7290	0.7600	0.9627
6	1994	7	5.2316	0.0085	0.0578	21.0347	0.7606	0.9629
6	1994	8a	7.9026	0.0119	0.0811	29.2578	0.7955	1.0053
6	1994	8b	7.9026	0.0119	0.0811	31.1207	0.8057	1.0176
6	1995	2b	4.5648	0.0081	0.0556	7.8510	0.4568	0.5860
6	1995	3	5.7183	0.0214	0.1458	13.8827	0.6646	0.8437
6	1995	4	5.8392	0.0227	0.1548	15.6446	0.7077	0.8972
6	1995	5	5.8083	0.0224	0.1527	17.9480	0.7594	0.9619
6	1995	6	5.2253	0.0159	0.1085	18.3682	0.7414	0.9391
6	1995	7	5.2253	0.0159	0.1085	20.5481	0.7546	0.9554
6	1995	8a	7.7265	0.0338	0.2307	28.9336	0.7953	1.0051
6	1995	8b	7.7265	0.0338	0.2307	30.9023	0.8044	1.0160
6	1996	2b	3.7002	0.0057	0.0391	7.9215	0.4398	0.5636
6	1996	3	5.8028	0.0171	0.1168	15.2654	0.7044	0.8930
6	1996	4	5.8647	0.0177	0.1210	16.7798	0.7232	0.9163
6	1996	5	5.8608	0.0177	0.1209	17.9093	0.7643	0.9682
6	1996	6	5.2817	0.0117	0.0799	19.9175	0.7542	0.9550
6	1996	7	5.2817	0.0117	0.0799	20.9084	0.7607	0.9631
6	1996	8a	7.7265	0.0281	0.1918	28.9390	0.7960	1.0061
6	1996	8b	7.7265	0.0281	0.1918	31.0057	0.8072	1.0195
6	1997	2b	3.3381	0.0039	0.0268	6.1883	0.3640	0.4702
6	1997	3	5.7280	0.0122	0.0834	11.9097	0.5819	0.7408

Table A-6. SmartWay Category - LTL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
6	1997	4	5.8721	0.0130	0.0884	14.6237	0.7134	0.9042
6	1997	5	5.8390	0.0128	0.0874	16.4325	0.7675	0.9723
6	1997	6	5.2572	0.0098	0.0669	16.3560	0.7315	0.9269
6	1997	7	5.2572	0.0098	0.0669	18.0255	0.7412	0.9389
6	1997	8a	8.9513	0.0101	0.0692	27.8247	0.7865	0.9943
6	1997	8b	8.9513	0.0101	0.0692	30.6202	0.8010	1.0118
6	1998	2b	2.9504	0.0035	0.0242	6.7886	0.2516	0.3263
6	1998	3	3.8050	0.0138	0.0943	14.1251	0.3623	0.4628
6	1998	4	3.8374	0.0155	0.1056	14.9224	0.3745	0.4779
6	1998	5	3.7926	0.0135	0.0924	15.5462	0.3528	0.4508
6	1998	6	3.7321	0.0102	0.0697	15.2041	0.3664	0.4677
6	1998	7	3.7321	0.0102	0.0697	16.0659	0.3668	0.4682
6	1998	8a	4.2545	0.0251	0.1714	25.2908	0.4991	0.6329
6	1998	8b	4.2545	0.0251	0.1714	28.4256	0.5412	0.6850
6	1999	2b	2.3021	0.0045	0.0307	6.2196	0.2506	0.3250
6	1999	3	3.7913	0.0142	0.0971	9.5028	0.3338	0.4273
6	1999	4	3.9424	0.0146	0.0995	10.1437	0.3505	0.4478
6	1999	5	3.9752	0.0143	0.0978	10.1802	0.3512	0.4488
6	1999	6	3.9774	0.0143	0.0979	10.2462	0.3495	0.4466
6	1999	7	3.6727	0.0139	0.0948	10.7531	0.3591	0.4587
6	1999	8a	3.6957	0.0149	0.1020	18.7924	0.5000	0.6342
6	1999	8b	3.6957	0.0149	0.1020	21.3411	0.5462	0.6913
6	2000	2b	2.0498	0.0039	0.0263	6.3710	0.2547	0.3300
6	2000	3	3.8597	0.0123	0.0838	9.5196	0.3348	0.4285
6	2000	4	4.0445	0.0110	0.0750	10.0259	0.3477	0.4443
6	2000	5	4.0952	0.0106	0.0726	10.0979	0.3491	0.4461
6	2000	6	4.0984	0.0106	0.0724	10.2192	0.3512	0.4487
6	2000	7	3.7399	0.0131	0.0895	11.4378	0.3708	0.4732
6	2000	8a	3.7399	0.0131	0.0895	17.4171	0.4737	0.6014
6	2000	8b	3.7399	0.0131	0.0895	21.1730	0.5430	0.6873
6	2001	2b	0.6945	0.0027	0.0186	6.0307	0.2462	0.3196
6	2001	3	1.5920	0.0088	0.0600	9.2508	0.3265	0.4181
6	2001	4	1.6540	0.0086	0.0589	9.6903	0.3378	0.4320

Table A-6. SmartWay Category - LTL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
6	2001	5	1.6776	0.0086	0.0586	9.7266	0.3386	0.4329
6	2001	6	1.6792	0.0086	0.0585	10.4484	0.3516	0.4492
6	2001	7	1.5647	0.0089	0.0604	10.3011	0.3493	0.4463
6	2001	8a	1.5647	0.0089	0.0604	18.2731	0.4881	0.6193
6	2001	8b	1.5647	0.0089	0.0604	21.0014	0.5393	0.6826
6	2002	2b	0.6599	0.0024	0.0166	6.1021	0.2480	0.3218
6	2002	3	1.6186	0.0075	0.0510	9.0380	0.3208	0.4111
6	2002	4	1.7033	0.0068	0.0463	9.6755	0.3371	0.4310
6	2002	5	1.7291	0.0066	0.0448	9.6755	0.3371	0.4310
6	2002	6	1.7308	0.0066	0.0447	9.9857	0.3443	0.4401
6	2002	7	1.5702	0.0079	0.0537	10.5467	0.3525	0.4503
6	2002	8a	1.5702	0.0079	0.0537	15.9015	0.4454	0.5663
6	2002	8b	1.5702	0.0079	0.0537	20.6571	0.5324	0.6741
6	2003	2b	0.5963	0.0019	0.0127	4.2848	0.2095	0.2719
6	2003	3	1.5992	0.0059	0.0401	6.0189	0.2783	0.3567
6	2003	4	1.6713	0.0057	0.0389	6.4081	0.2943	0.3763
6	2003	5	1.6941	0.0056	0.0385	6.4081	0.2943	0.3763
6	2003	6	1.6956	0.0056	0.0385	6.8137	0.3048	0.3895
6	2003	7	1.5598	0.0060	0.0407	6.9710	0.3149	0.4020
6	2003	8a	1.5599	0.0060	0.0407	8.9458	0.4121	0.5235
6	2003	8b	1.5599	0.0060	0.0407	10.3753	0.4866	0.6160
6	2004	2b	0.4795	0.0011	0.0079	4.2573	0.2080	0.2699
6	2004	3	1.6178	0.0046	0.0316	6.0729	0.2783	0.3567
6	2004	4	1.7173	0.0044	0.0301	6.4939	0.2952	0.3774
6	2004	5	1.7468	0.0043	0.0296	6.4939	0.2952	0.3774
6	2004	6	1.7487	0.0043	0.0296	6.8898	0.3079	0.3934
6	2004	7	1.5594	0.0048	0.0325	7.0350	0.3166	0.4042
6	2004	8a	1.5594	0.0048	0.0325	8.9248	0.4098	0.5206
6	2004	8b	1.5594	0.0048	0.0325	10.3788	0.4871	0.6166
6	2005	2b	0.3890	0.0010	0.0067	4.1502	0.2031	0.2637
6	2005	3	1.6066	0.0045	0.0309	5.9311	0.2727	0.3497
6	2005	4	1.6615	0.0044	0.0300	6.4606	0.2940	0.3759
6	2005	5	1.6860	0.0043	0.0295	6.4606	0.2940	0.3759

Table A-6. SmartWay Category - LTL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
6	2005	6	1.6878	0.0043	0.0295	6.7894	0.3059	0.3909
6	2005	7	1.5861	0.0046	0.0312	7.0598	0.3194	0.4078
6	2005	8a	1.5862	0.0046	0.0312	9.1501	0.4211	0.5347
6	2005	8b	1.5862	0.0046	0.0312	10.4385	0.4898	0.6200
6	2006	2b	0.4302	0.0011	0.0077	4.2062	0.2062	0.2677
6	2006	3	1.6049	0.0048	0.0327	5.8701	0.2707	0.3472
6	2006	4	1.6765	0.0046	0.0313	6.3661	0.2905	0.3715
6	2006	5	1.7042	0.0045	0.0308	6.3661	0.2905	0.3715
6	2006	6	1.7061	0.0045	0.0307	6.6242	0.3005	0.3841
6	2006	7	1.5737	0.0049	0.0333	6.9092	0.3141	0.4011
6	2006	8a	1.5740	0.0049	0.0333	9.0316	0.4163	0.5286
6	2006	8b	1.5740	0.0049	0.0333	10.4165	0.4892	0.6192
6	2007	2b	0.3779	0.0010	0.0070	2.3450	0.0014	0.0117
6	2007	3	1.6079	0.0048	0.0326	3.6365	0.0019	0.0161
6	2007	4	1.6639	0.0046	0.0313	3.8720	0.0020	0.0170
6	2007	5	1.6880	0.0045	0.0308	3.8720	0.0020	0.0170
6	2007	6	1.6897	0.0045	0.0308	4.0150	0.0020	0.0174
6	2007	7	1.5865	0.0048	0.0330	4.4092	0.0022	0.0187
6	2007	8a	1.5876	0.0048	0.0330	6.3572	0.0030	0.0255
6	2007	8b	1.5876	0.0048	0.0330	7.3242	0.0034	0.0291
6	2008	2b	0.2848	0.0009	0.0059	2.2761	0.0013	0.0114
6	2008	3	1.0520	0.0036	0.0242	3.2419	0.0017	0.0147
6	2008	4	1.0200	0.0035	0.0239	3.4332	0.0018	0.0153
6	2008	5	1.0025	0.0035	0.0237	3.4332	0.0018	0.0153
6	2008	6	1.0011	0.0035	0.0236	3.5460	0.0018	0.0157
6	2008	7	1.0620	0.0036	0.0243	3.6746	0.0019	0.0161
6	2008	8a	1.0619	0.0036	0.0243	5.1348	0.0025	0.0211
6	2008	8b	1.0619	0.0036	0.0243	6.9595	0.0032	0.0277
6	2009	2b	0.1748	0.0010	0.0062	2.2576	0.0013	0.0113
6	2009	3	0.6512	0.0035	0.0242	3.7703	0.0019	0.0166
6	2009	4	0.6498	0.0035	0.0241	3.9838	0.0020	0.0174
6	2009	5	0.6490	0.0035	0.0240	3.9838	0.0020	0.0174
6	2009	6	0.6489	0.0035	0.0240	4.0593	0.0021	0.0177

Table A-6. SmartWay Category - LTL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
6	2009	7	0.6516	0.0036	0.0242	4.4946	0.0022	0.0191
6	2009	8a	0.6516	0.0036	0.0242	6.3884	0.0030	0.0256
6	2009	8b	0.6516	0.0036	0.0242	7.3004	0.0034	0.0289
6	2010	2b	0.0683	0.0006	0.0034	1.0144	0.0010	0.0079
6	2010	3	0.1101	0.0018	0.0121	2.0864	0.0019	0.0158
6	2010	4	0.1101	0.0018	0.0121	2.2628	0.0020	0.0171
6	2010	5	0.1101	0.0018	0.0121	2.2628	0.0020	0.0171
6	2010	6	0.1101	0.0018	0.0121	2.3399	0.0021	0.0177
6	2010	7	0.1101	0.0018	0.0121	2.6678	0.0019	0.0162
6	2010	8a	0.1101	0.0018	0.0121	4.2033	0.0013	0.0109
6	2010	8b	0.1101	0.0018	0.0121	4.9950	0.0009	0.0076
6	2011	2b	0.0710	0.0007	0.0039	1.1093	0.0009	0.0078
6	2011	3	0.1173	0.0017	0.0119	1.7789	0.0016	0.0139
6	2011	4	0.1298	0.0017	0.0115	1.8900	0.0017	0.0149
6	2011	5	0.1362	0.0017	0.0113	1.8900	0.0017	0.0149
6	2011	6	0.1366	0.0017	0.0113	1.9553	0.0018	0.0152
6	2011	7	0.1131	0.0018	0.0120	2.1223	0.0017	0.0144
6	2011	8a	0.1131	0.0018	0.0120	3.2982	0.0013	0.0109
6	2011	8b	0.1131	0.0018	0.0120	4.2304	0.0009	0.0076
6	2012	2b	0.0730	0.0008	0.0042	1.0479	0.0010	0.0079
6	2012	3	0.1193	0.0017	0.0117	1.7816	0.0017	0.0145
6	2012	4	0.1242	0.0017	0.0116	1.8805	0.0018	0.0153
6	2012	5	0.1271	0.0017	0.0115	1.8805	0.0018	0.0153
6	2012	6	0.1273	0.0017	0.0115	1.9239	0.0018	0.0154
6	2012	7	0.1178	0.0017	0.0118	2.1630	0.0017	0.0145
6	2012	8a	0.1178	0.0017	0.0118	3.4105	0.0012	0.0104
6	2012	8b	0.1178	0.0017	0.0118	4.1475	0.0009	0.0075
6	2013	2b	0.0595	0.0007	0.0032	1.2356	0.0010	0.0078
6	2013	3	0.1256	0.0016	0.0107	1.8831	0.0017	0.0147
6	2013	4	0.1345	0.0015	0.0105	1.9740	0.0018	0.0156
6	2013	5	0.1390	0.0015	0.0104	1.9740	0.0018	0.0156
6	2013	6	0.1393	0.0015	0.0104	2.0133	0.0018	0.0157
6	2013	7	0.1227	0.0016	0.0108	2.1977	0.0017	0.0144

Table A-6. SmartWay Category - LTL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
6	2013	8a	0.1230	0.0016	0.0108	2.9996	0.0011	0.0094
6	2013	8b	0.1230	0.0016	0.0108	3.3871	0.0008	0.0067
6	2014	2b	0.0609	0.0009	0.0033	0.5889	0.0004	0.0023
6	2014	3	0.1262	0.0015	0.0104	1.3102	0.0005	0.0043
6	2014	4	0.1296	0.0015	0.0103	1.3942	0.0005	0.0045
6	2014	5	0.1315	0.0015	0.0103	1.3942	0.0005	0.0045
6	2014	6	0.1317	0.0015	0.0103	1.4249	0.0005	0.0046
6	2014	7	0.1251	0.0015	0.0104	1.5879	0.0005	0.0046
6	2014	8a	0.1251	0.0015	0.0104	2.4389	0.0005	0.0045
6	2014	8b	0.1251	0.0015	0.0104	2.9663	0.0005	0.0043
6	2015	2b	0.0555	0.0009	0.0031	0.4703	0.0005	0.0022
6	2015	3	0.1261	0.0015	0.0104	1.1918	0.0005	0.0042
6	2015	4	0.1292	0.0015	0.0103	1.2954	0.0005	0.0045
6	2015	5	0.1310	0.0015	0.0103	1.2954	0.0005	0.0045
6	2015	6	0.1312	0.0015	0.0103	1.3277	0.0005	0.0046
6	2015	7	0.1251	0.0015	0.0104	1.5077	0.0005	0.0046
6	2015	8a	0.1251	0.0015	0.0104	2.4260	0.0005	0.0045
6	2015	8b	0.1251	0.0015	0.0104	2.9825	0.0005	0.0043
6	2016	2b	0.0549	0.0010	0.0031	0.4495	0.0005	0.0022
6	2016	3	0.1260	0.0015	0.0104	1.1378	0.0005	0.0042
6	2016	4	0.1288	0.0015	0.0103	1.2520	0.0005	0.0045
6	2016	5	0.1305	0.0015	0.0103	1.2520	0.0005	0.0045
6	2016	6	0.1306	0.0015	0.0103	1.2791	0.0005	0.0046
6	2016	7	0.1251	0.0015	0.0104	1.4209	0.0005	0.0046
6	2016	8a	0.1251	0.0015	0.0104	2.2627	0.0005	0.0045
6	2016	8b	0.1251	0.0015	0.0104	2.8755	0.0005	0.0043
6	2017	2b	0.0380	0.0010	0.0028	0.4254	0.0005	0.0021
6	2017	3	0.1073	0.0015	0.0104	1.0691	0.0005	0.0040
6	2017	4	0.1094	0.0015	0.0103	1.1818	0.0005	0.0044
6	2017	5	0.1107	0.0015	0.0103	1.1818	0.0005	0.0044
6	2017	6	0.1108	0.0015	0.0103	1.2032	0.0005	0.0044
6	2017	7	0.1067	0.0015	0.0104	1.3153	0.0005	0.0044
6	2017	8a	0.1067	0.0015	0.0104	2.0214	0.0005	0.0045

Table A-6. SmartWay Category - LTL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
6	2017	8b	0.1067	0.0015	0.0104	2.5764	0.0005	0.0043
6	2018	2b	0.0368	0.0010	0.0029	0.3051	0.0005	0.0020
6	2018	3	0.0931	0.0015	0.0103	0.9934	0.0005	0.0040
6	2018	4	0.1015	0.0015	0.0101	1.1135	0.0005	0.0044
6	2018	5	0.1060	0.0015	0.0101	1.1135	0.0005	0.0044
6	2018	6	0.1063	0.0015	0.0100	1.1665	0.0005	0.0045
6	2018	7	0.0903	0.0015	0.0104	1.2652	0.0005	0.0044
6	2018	8a	0.0903	0.0015	0.0104	1.9785	0.0005	0.0045
6	2018	8b	0.0903	0.0015	0.0104	2.5146	0.0005	0.0043
6	2019	2b	0.0270	0.0007	0.0018	0.1924	0.0003	0.0012
6	2019	3	0.0887	0.0009	0.0062	0.6833	0.0003	0.0026
6	2019	4	0.0970	0.0009	0.0062	0.7774	0.0003	0.0029
6	2019	5	0.1015	0.0009	0.0061	0.7774	0.0003	0.0029
6	2019	6	0.1019	0.0009	0.0061	0.8151	0.0003	0.0029
6	2019	7	0.0860	0.0009	0.0063	0.8896	0.0003	0.0029
6	2019	8a	0.0860	0.0009	0.0063	1.4209	0.0004	0.0030
6	2019	8b	0.0860	0.0009	0.0063	1.8190	0.0003	0.0030
6	2020	2b	0.0236	0.0006	0.0016	0.1670	0.0003	0.0012
6	2020	3	0.0844	0.0009	0.0062	0.6571	0.0003	0.0026
6	2020	4	0.0931	0.0009	0.0062	0.7669	0.0003	0.0029
6	2020	5	0.0977	0.0009	0.0061	0.7669	0.0003	0.0029
6	2020	6	0.0981	0.0009	0.0061	0.8040	0.0003	0.0029
6	2020	7	0.0817	0.0009	0.0063	0.8748	0.0003	0.0029
6	2020	8a	0.0817	0.0009	0.0063	1.4011	0.0004	0.0030
6	2020	8b	0.0817	0.0009	0.0063	1.8142	0.0003	0.0030
6	2021	2b	0.0201	0.0005	0.0014	0.1486	0.0002	0.0011
6	2021	3	0.0793	0.0009	0.0062	0.6378	0.0003	0.0025
6	2021	4	0.0875	0.0009	0.0061	0.7535	0.0003	0.0028
6	2021	5	0.0919	0.0009	0.0061	0.7535	0.0003	0.0028
6	2021	6	0.0923	0.0009	0.0061	0.7891	0.0003	0.0029
6	2021	7	0.0767	0.0009	0.0062	0.8529	0.0003	0.0029
6	2021	8a	0.0767	0.0009	0.0062	1.3499	0.0003	0.0030
6	2021	8b	0.0767	0.0009	0.0062	1.7556	0.0003	0.0029

Table A-6. SmartWay Category - LTL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NO _x g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NO _x g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
6	2022	2b	0.0170	0.0005	0.0014	0.1324	0.0002	0.0011
6	2022	3	0.0751	0.0009	0.0062	0.6267	0.0003	0.0025
6	2022	4	0.0836	0.0009	0.0061	0.7430	0.0003	0.0028
6	2022	5	0.0881	0.0009	0.0061	0.7430	0.0003	0.0028
6	2022	6	0.0885	0.0009	0.0061	0.7789	0.0003	0.0029
6	2022	7	0.0724	0.0009	0.0062	0.8456	0.0003	0.0029
6	2022	8a	0.0724	0.0009	0.0062	1.3528	0.0003	0.0030
6	2022	8b	0.0724	0.0009	0.0062	1.7573	0.0003	0.0029

Table A-7. SmartWay Category – Mixed

Category ID	Engine Model Yr	Truck Class	Gas NO _x g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NO _x g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
7	1987	2b	5.0489	0.0050	0.0342	7.4041	0.1729	0.2270
7	1987	3	5.7906	0.0162	0.1103	12.8084	0.3939	0.4999
7	1987	4	5.8437	0.0168	0.1145	14.6248	0.4561	0.5768
7	1987	5	5.6661	0.0147	0.1002	15.2025	0.4287	0.5424
7	1987	6	5.4127	0.0116	0.0794	15.2672	0.4681	0.5919
7	1987	7	5.4127	0.0116	0.0794	16.4956	0.4760	0.6018
7	1987	8a	5.4423	0.0118	0.0808	25.4600	0.6923	0.8733
7	1987	8b	5.4423	0.0118	0.0808	30.5035	0.8057	1.0154
7	1988	2b	5.0489	0.0050	0.0342	7.4041	0.1729	0.2270
7	1988	3	5.7906	0.0162	0.1103	12.8084	0.3939	0.4999
7	1988	4	5.8437	0.0168	0.1145	14.6248	0.4561	0.5768
7	1988	5	5.6661	0.0147	0.1002	15.2025	0.4287	0.5424
7	1988	6	5.4127	0.0116	0.0794	15.2672	0.4681	0.5919
7	1988	7	5.4127	0.0116	0.0794	16.4956	0.4760	0.6018
7	1988	8a	5.4423	0.0118	0.0808	25.4600	0.6923	0.8733
7	1988	8b	5.4423	0.0118	0.0808	30.5035	0.8057	1.0154
7	1989	2b	5.0489	0.0050	0.0342	7.4041	0.1729	0.2270
7	1989	3	5.7906	0.0162	0.1103	12.8084	0.3939	0.4999
7	1989	4	5.8437	0.0168	0.1145	14.6248	0.4561	0.5768
7	1989	5	5.6661	0.0147	0.1002	15.2025	0.4287	0.5424

Table A-7. SmartWay Category – Mixed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
7	1989	6	5.4127	0.0116	0.0794	15.2672	0.4681	0.5919
7	1989	7	5.4127	0.0116	0.0794	16.4956	0.4760	0.6018
7	1989	8a	5.4423	0.0118	0.0808	25.4600	0.6923	0.8733
7	1989	8b	5.4423	0.0118	0.0808	30.5035	0.8057	1.0154
7	1990	2b	5.0489	0.0050	0.0342	7.4041	0.1729	0.2270
7	1990	3	5.7906	0.0162	0.1103	12.8084	0.3939	0.4999
7	1990	4	5.8437	0.0168	0.1145	14.6248	0.4561	0.5768
7	1990	5	5.6661	0.0147	0.1002	15.2025	0.4287	0.5424
7	1990	6	5.4127	0.0116	0.0794	15.2672	0.4681	0.5919
7	1990	7	5.4127	0.0116	0.0794	16.4956	0.4760	0.6018
7	1990	8a	5.4423	0.0118	0.0808	25.4600	0.6923	0.8733
7	1990	8b	5.4423	0.0118	0.0808	30.5035	0.8057	1.0154
7	1991	2b	5.0489	0.0050	0.0342	7.4041	0.1729	0.2270
7	1991	3	5.7906	0.0162	0.1103	12.8084	0.3939	0.4999
7	1991	4	5.8437	0.0168	0.1145	14.6248	0.4561	0.5768
7	1991	5	5.6661	0.0147	0.1002	15.2025	0.4287	0.5424
7	1991	6	5.4127	0.0116	0.0794	15.2672	0.4681	0.5919
7	1991	7	5.4127	0.0116	0.0794	16.4956	0.4760	0.6018
7	1991	8a	5.4423	0.0118	0.0808	25.4600	0.6923	0.8733
7	1991	8b	5.4423	0.0118	0.0808	30.5035	0.8057	1.0154
7	1992	2b	5.0489	0.0050	0.0342	7.4041	0.1729	0.2270
7	1992	3	5.7906	0.0162	0.1103	12.8084	0.3939	0.4999
7	1992	4	5.8437	0.0168	0.1145	14.6248	0.4561	0.5768
7	1992	5	5.6661	0.0147	0.1002	15.2025	0.4287	0.5424
7	1992	6	5.4127	0.0116	0.0794	15.2672	0.4681	0.5919
7	1992	7	5.4127	0.0116	0.0794	16.4956	0.4760	0.6018
7	1992	8a	5.4423	0.0118	0.0808	25.4600	0.6923	0.8733
7	1992	8b	5.4423	0.0118	0.0808	30.5035	0.8057	1.0154
7	1993	2b	5.0906	0.0063	0.0432	7.9042	0.2066	0.2685
7	1993	3	5.8303	0.0169	0.1152	10.6236	0.3054	0.3908
7	1993	4	5.8695	0.0172	0.1173	16.0625	0.4932	0.6235
7	1993	5	5.8343	0.0169	0.1155	16.0941	0.4388	0.5553
7	1993	6	5.2456	0.0119	0.0810	17.3687	0.4746	0.6002

Table A-7. SmartWay Category – Mixed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
7	1993	7	5.2456	0.0119	0.0810	19.4514	0.5383	0.6801
7	1993	8a	5.3058	0.0118	0.0808	28.9224	0.7626	0.9614
7	1993	8b	5.3058	0.0118	0.0808	30.9881	0.8082	1.0185
7	1994	2b	4.4416	0.0058	0.0393	7.4023	0.4289	0.5505
7	1994	3	5.8340	0.0104	0.0713	9.8288	0.5284	0.6740
7	1994	4	5.8940	0.0105	0.0718	13.5318	0.6521	0.8261
7	1994	5	5.8906	0.0105	0.0717	16.4755	0.7188	0.9100
7	1994	6	5.2165	0.0097	0.0663	16.8564	0.7086	0.8971
7	1994	7	5.2165	0.0097	0.0663	20.3692	0.7113	0.8999
7	1994	8a	7.7560	0.0134	0.0911	28.9207	0.7466	0.9430
7	1994	8b	7.7560	0.0134	0.0911	30.8384	0.7561	0.9546
7	1995	2b	4.5473	0.0084	0.0573	7.5787	0.4231	0.5424
7	1995	3	5.7245	0.0223	0.1524	13.1274	0.6183	0.7844
7	1995	4	5.8509	0.0237	0.1619	14.8166	0.6589	0.8348
7	1995	5	5.8192	0.0234	0.1597	17.0361	0.7072	0.8953
7	1995	6	5.2065	0.0165	0.1129	17.5585	0.6913	0.8751
7	1995	7	5.2065	0.0165	0.1129	19.8286	0.7047	0.8917
7	1995	8a	7.5921	0.0337	0.2298	28.5709	0.7459	0.9423
7	1995	8b	7.5921	0.0337	0.2298	30.6083	0.7549	0.9531
7	1996	2b	3.7061	0.0055	0.0373	7.6278	0.4079	0.5223
7	1996	3	5.8118	0.0166	0.1133	14.3914	0.6555	0.8305
7	1996	4	5.8773	0.0172	0.1174	15.9166	0.6737	0.8531
7	1996	5	5.8738	0.0172	0.1173	17.0218	0.7122	0.9017
7	1996	6	5.2575	0.0114	0.0775	19.1642	0.7040	0.8910
7	1996	7	5.2575	0.0114	0.0775	20.1875	0.7105	0.8990
7	1996	8a	7.5921	0.0258	0.1762	28.5774	0.7467	0.9433
7	1996	8b	7.5921	0.0258	0.1762	30.7235	0.7576	0.9565
7	1997	2b	3.3918	0.0041	0.0282	6.0214	0.3369	0.4351
7	1997	3	5.7339	0.0137	0.0935	11.3771	0.5422	0.6898
7	1997	4	5.8859	0.0146	0.0994	13.7737	0.6645	0.8417
7	1997	5	5.8512	0.0144	0.0982	15.5652	0.7158	0.9062
7	1997	6	5.2374	0.0109	0.0743	15.5519	0.6822	0.8638
7	1997	7	5.2374	0.0109	0.0743	17.2864	0.6919	0.8759

Table A-7. SmartWay Category – Mixed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
7	1997	8a	8.8050	0.0101	0.0692	27.4508	0.7374	0.9318
7	1997	8b	8.8050	0.0101	0.0692	30.3294	0.7514	0.9488
7	1998	2b	3.0127	0.0036	0.0244	6.5521	0.2491	0.3226
7	1998	3	3.8398	0.0143	0.0977	13.4739	0.3482	0.4444
7	1998	4	3.8733	0.0160	0.1092	14.2167	0.3589	0.4576
7	1998	5	3.8274	0.0141	0.0960	14.8843	0.3421	0.4366
7	1998	6	3.7646	0.0106	0.0726	14.5178	0.3527	0.4498
7	1998	7	3.7646	0.0106	0.0726	15.4302	0.3543	0.4518
7	1998	8a	4.2937	0.0245	0.1670	25.1594	0.4753	0.6024
7	1998	8b	4.2937	0.0245	0.1670	28.4726	0.5127	0.6486
7	1999	2b	2.3454	0.0044	0.0299	6.0043	0.2484	0.3218
7	1999	3	3.8249	0.0142	0.0969	9.0854	0.3226	0.4125
7	1999	4	3.9752	0.0147	0.1004	9.6795	0.3372	0.4304
7	1999	5	4.0078	0.0146	0.0993	9.7174	0.3379	0.4312
7	1999	6	4.0100	0.0146	0.0994	9.8264	0.3379	0.4313
7	1999	7	3.7068	0.0138	0.0939	10.3430	0.3464	0.4420
7	1999	8a	3.7301	0.0147	0.1001	18.6774	0.4761	0.6035
7	1999	8b	3.7301	0.0147	0.1001	21.3107	0.5173	0.6543
7	2000	2b	2.0885	0.0039	0.0267	6.1485	0.2522	0.3264
7	2000	3	3.8916	0.0129	0.0883	9.1082	0.3240	0.4143
7	2000	4	4.0754	0.0117	0.0796	9.5849	0.3354	0.4282
7	2000	5	4.1258	0.0113	0.0772	9.6598	0.3367	0.4298
7	2000	6	4.1290	0.0113	0.0771	9.8061	0.3396	0.4335
7	2000	7	3.7724	0.0138	0.0939	11.0673	0.3580	0.4564
7	2000	8a	3.7724	0.0138	0.0939	17.2696	0.4528	0.5744
7	2000	8b	3.7724	0.0138	0.0939	21.1401	0.5146	0.6510
7	2001	2b	0.7025	0.0028	0.0189	5.8251	0.2445	0.3170
7	2001	3	1.6063	0.0103	0.0703	8.8460	0.3165	0.4049
7	2001	4	1.6678	0.0102	0.0694	9.2502	0.3265	0.4170
7	2001	5	1.6912	0.0101	0.0691	9.2879	0.3271	0.4178
7	2001	6	1.6929	0.0101	0.0691	10.0470	0.3401	0.4341
7	2001	7	1.5791	0.0104	0.0706	9.8908	0.3375	0.4307
7	2001	8a	1.5791	0.0104	0.0706	18.1578	0.4659	0.5908

Table A-7. SmartWay Category – Mixed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
7	2001	8b	1.5791	0.0104	0.0706	20.9663	0.5113	0.6469
7	2002	2b	0.6676	0.0024	0.0164	5.8923	0.2461	0.3190
7	2002	3	1.6325	0.0075	0.0510	8.6438	0.3114	0.3986
7	2002	4	1.7167	0.0068	0.0465	9.2321	0.3257	0.4160
7	2002	5	1.7422	0.0066	0.0452	9.2321	0.3257	0.4160
7	2002	6	1.7439	0.0066	0.0451	9.5646	0.3331	0.4253
7	2002	7	1.5845	0.0079	0.0536	10.1462	0.3408	0.4349
7	2002	8a	1.5845	0.0079	0.0536	15.7051	0.4270	0.5425
7	2002	8b	1.5845	0.0079	0.0536	20.6125	0.5053	0.6395
7	2003	2b	0.6030	0.0018	0.0125	4.1806	0.2080	0.2695
7	2003	3	1.6135	0.0063	0.0427	5.8427	0.2699	0.3456
7	2003	4	1.6851	0.0061	0.0418	6.2138	0.2841	0.3628
7	2003	5	1.7077	0.0061	0.0415	6.2138	0.2841	0.3628
7	2003	6	1.7092	0.0061	0.0414	6.5974	0.2945	0.3759
7	2003	7	1.5744	0.0063	0.0432	6.7700	0.3041	0.3879
7	2003	8a	1.5745	0.0063	0.0432	8.7741	0.3945	0.5008
7	2003	8b	1.5745	0.0063	0.0432	10.1936	0.4614	0.5838
7	2004	2b	0.4848	0.0011	0.0080	4.1535	0.2064	0.2675
7	2004	3	1.6319	0.0048	0.0328	5.8916	0.2702	0.3459
7	2004	4	1.7306	0.0046	0.0315	6.2925	0.2852	0.3643
7	2004	5	1.7598	0.0046	0.0311	6.2925	0.2852	0.3643
7	2004	6	1.7617	0.0046	0.0311	6.6660	0.2975	0.3797
7	2004	7	1.5739	0.0049	0.0336	6.8268	0.3059	0.3902
7	2004	8a	1.5739	0.0049	0.0336	8.7505	0.3927	0.4985
7	2004	8b	1.5739	0.0049	0.0336	10.1966	0.4619	0.5844
7	2005	2b	0.3931	0.0010	0.0067	4.0498	0.2017	0.2615
7	2005	3	1.6203	0.0047	0.0321	5.7574	0.2650	0.3395
7	2005	4	1.6748	0.0046	0.0313	6.2625	0.2841	0.3629
7	2005	5	1.6991	0.0045	0.0309	6.2625	0.2841	0.3629
7	2005	6	1.7009	0.0045	0.0309	6.5727	0.2954	0.3771
7	2005	7	1.5999	0.0048	0.0324	6.8597	0.3086	0.3935
7	2005	8a	1.6000	0.0048	0.0324	8.9785	0.4030	0.5113
7	2005	8b	1.6000	0.0048	0.0324	10.2558	0.4643	0.5873

Table A-7. SmartWay Category – Mixed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
7	2006	2b	0.4345	0.0011	0.0077	4.1047	0.2048	0.2656
7	2006	3	1.6189	0.0050	0.0339	5.7029	0.2632	0.3372
7	2006	4	1.6900	0.0048	0.0327	6.1770	0.2808	0.3587
7	2006	5	1.7174	0.0047	0.0322	6.1770	0.2808	0.3587
7	2006	6	1.7193	0.0047	0.0322	6.4201	0.2902	0.3706
7	2006	7	1.5879	0.0050	0.0344	6.7198	0.3035	0.3871
7	2006	8a	1.5881	0.0050	0.0344	8.8647	0.3986	0.5058
7	2006	8b	1.5881	0.0050	0.0344	10.2348	0.4637	0.5866
7	2007	2b	0.3817	0.0010	0.0070	2.2461	0.0014	0.0116
7	2007	3	1.6216	0.0050	0.0338	3.4755	0.0018	0.0156
7	2007	4	1.6772	0.0048	0.0327	3.6979	0.0019	0.0163
7	2007	5	1.7011	0.0047	0.0322	3.6979	0.0019	0.0163
7	2007	6	1.7029	0.0047	0.0321	3.8410	0.0020	0.0168
7	2007	7	1.6003	0.0050	0.0342	4.2429	0.0021	0.0180
7	2007	8a	1.6014	0.0050	0.0342	6.1920	0.0028	0.0243
7	2007	8b	1.6014	0.0050	0.0342	7.1398	0.0032	0.0275
7	2008	2b	0.2881	0.0009	0.0059	2.1787	0.0013	0.0114
7	2008	3	1.0618	0.0037	0.0251	3.0856	0.0017	0.0143
7	2008	4	1.0294	0.0036	0.0248	3.2633	0.0017	0.0148
7	2008	5	1.0116	0.0036	0.0246	3.2633	0.0017	0.0148
7	2008	6	1.0102	0.0036	0.0246	3.3761	0.0018	0.0152
7	2008	7	1.0720	0.0037	0.0252	3.5077	0.0018	0.0156
7	2008	8a	1.0718	0.0037	0.0252	4.9793	0.0024	0.0203
7	2008	8b	1.0718	0.0037	0.0252	6.7834	0.0031	0.0263
7	2009	2b	0.1773	0.0010	0.0062	2.1627	0.0013	0.0111
7	2009	3	0.6521	0.0037	0.0251	3.6037	0.0019	0.0160
7	2009	4	0.6509	0.0037	0.0250	3.8053	0.0020	0.0167
7	2009	5	0.6502	0.0037	0.0249	3.8053	0.0020	0.0167
7	2009	6	0.6501	0.0037	0.0249	3.8811	0.0020	0.0170
7	2009	7	0.6524	0.0037	0.0251	4.3246	0.0021	0.0183
7	2009	8a	0.6524	0.0037	0.0251	6.2209	0.0029	0.0244
7	2009	8b	0.6524	0.0037	0.0251	7.1157	0.0032	0.0274
7	2010	2b	0.0688	0.0006	0.0034	0.9476	0.0009	0.0077

Table A-7. SmartWay Category – Mixed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
7	2010	3	0.1076	0.0017	0.0117	1.9327	0.0018	0.0152
7	2010	4	0.1076	0.0017	0.0118	2.0934	0.0019	0.0164
7	2010	5	0.1076	0.0017	0.0118	2.0934	0.0019	0.0164
7	2010	6	0.1076	0.0017	0.0118	2.1662	0.0020	0.0169
7	2010	7	0.1076	0.0017	0.0117	2.4873	0.0018	0.0154
7	2010	8a	0.1076	0.0017	0.0117	3.9354	0.0012	0.0104
7	2010	8b	0.1076	0.0017	0.0117	4.6531	0.0008	0.0072
7	2011	2b	0.0713	0.0007	0.0039	1.0417	0.0009	0.0077
7	2011	3	0.1148	0.0017	0.0115	1.6511	0.0016	0.0134
7	2011	4	0.1273	0.0016	0.0112	1.7513	0.0017	0.0143
7	2011	5	0.1337	0.0016	0.0110	1.7513	0.0017	0.0143
7	2011	6	0.1341	0.0016	0.0110	1.8107	0.0017	0.0146
7	2011	7	0.1106	0.0017	0.0117	1.9728	0.0016	0.0139
7	2011	8a	0.1106	0.0017	0.0117	3.0688	0.0012	0.0104
7	2011	8b	0.1106	0.0017	0.0117	3.8983	0.0008	0.0073
7	2012	2b	0.0732	0.0008	0.0042	0.9808	0.0010	0.0078
7	2012	3	0.1168	0.0017	0.0114	1.6491	0.0016	0.0139
7	2012	4	0.1217	0.0016	0.0112	1.7384	0.0017	0.0147
7	2012	5	0.1245	0.0016	0.0112	1.7384	0.0017	0.0147
7	2012	6	0.1248	0.0016	0.0112	1.7786	0.0017	0.0148
7	2012	7	0.1153	0.0017	0.0114	2.0085	0.0016	0.0139
7	2012	8a	0.1153	0.0017	0.0114	3.1614	0.0012	0.0099
7	2012	8b	0.1153	0.0017	0.0114	3.8121	0.0008	0.0072
7	2013	2b	0.0598	0.0007	0.0031	1.1658	0.0009	0.0076
7	2013	3	0.1230	0.0015	0.0104	1.7463	0.0017	0.0141
7	2013	4	0.1319	0.0015	0.0102	1.8270	0.0017	0.0150
7	2013	5	0.1364	0.0015	0.0101	1.8270	0.0017	0.0150
7	2013	6	0.1367	0.0015	0.0101	1.8620	0.0018	0.0150
7	2013	7	0.1200	0.0015	0.0105	2.0371	0.0016	0.0137
7	2013	8a	0.1204	0.0015	0.0105	2.7608	0.0010	0.0090
7	2013	8b	0.1204	0.0015	0.0105	3.0940	0.0007	0.0064
7	2014	2b	0.0612	0.0009	0.0032	0.5440	0.0004	0.0023
7	2014	3	0.1235	0.0015	0.0101	1.1781	0.0005	0.0042

Table A-7. SmartWay Category – Mixed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
7	2014	4	0.1269	0.0015	0.0100	1.2512	0.0005	0.0044
7	2014	5	0.1289	0.0015	0.0100	1.2512	0.0005	0.0044
7	2014	6	0.1291	0.0015	0.0100	1.2788	0.0005	0.0044
7	2014	7	0.1225	0.0015	0.0101	1.4357	0.0005	0.0044
7	2014	8a	0.1225	0.0015	0.0101	2.2213	0.0005	0.0043
7	2014	8b	0.1225	0.0015	0.0101	2.6854	0.0005	0.0041
7	2015	2b	0.0558	0.0009	0.0030	0.4311	0.0005	0.0022
7	2015	3	0.1234	0.0015	0.0101	1.0625	0.0005	0.0041
7	2015	4	0.1266	0.0015	0.0100	1.1522	0.0005	0.0044
7	2015	5	0.1284	0.0015	0.0100	1.1522	0.0005	0.0044
7	2015	6	0.1286	0.0015	0.0100	1.1815	0.0005	0.0044
7	2015	7	0.1225	0.0015	0.0101	1.3553	0.0005	0.0044
7	2015	8a	0.1225	0.0015	0.0101	2.2071	0.0005	0.0044
7	2015	8b	0.1225	0.0015	0.0101	2.7003	0.0005	0.0041
7	2016	2b	0.0552	0.0010	0.0030	0.4124	0.0005	0.0021
7	2016	3	0.1233	0.0015	0.0101	1.0129	0.0005	0.0041
7	2016	4	0.1262	0.0015	0.0100	1.1113	0.0005	0.0044
7	2016	5	0.1279	0.0015	0.0100	1.1113	0.0005	0.0044
7	2016	6	0.1280	0.0015	0.0100	1.1358	0.0005	0.0044
7	2016	7	0.1225	0.0015	0.0101	1.2728	0.0005	0.0044
7	2016	8a	0.1225	0.0015	0.0101	2.0561	0.0005	0.0044
7	2016	8b	0.1225	0.0015	0.0101	2.6010	0.0005	0.0041
7	2017	2b	0.0381	0.0010	0.0028	0.3898	0.0005	0.0020
7	2017	3	0.1049	0.0015	0.0100	0.9506	0.0005	0.0039
7	2017	4	0.1071	0.0015	0.0100	1.0475	0.0005	0.0042
7	2017	5	0.1083	0.0015	0.0100	1.0475	0.0005	0.0042
7	2017	6	0.1084	0.0015	0.0100	1.0668	0.0005	0.0043
7	2017	7	0.1043	0.0015	0.0101	1.1746	0.0005	0.0043
7	2017	8a	0.1043	0.0015	0.0101	1.8284	0.0005	0.0043
7	2017	8b	0.1043	0.0015	0.0101	2.3185	0.0005	0.0041
7	2018	2b	0.0369	0.0010	0.0029	0.2783	0.0005	0.0020
7	2018	3	0.0911	0.0015	0.0100	0.8804	0.0005	0.0039
7	2018	4	0.0995	0.0014	0.0098	0.9842	0.0005	0.0042

Table A-7. SmartWay Category – Mixed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
7	2018	5	0.1039	0.0014	0.0097	0.9842	0.0005	0.0042
7	2018	6	0.1043	0.0014	0.0097	1.0310	0.0005	0.0043
7	2018	7	0.0884	0.0015	0.0101	1.1269	0.0005	0.0043
7	2018	8a	0.0884	0.0015	0.0101	1.7863	0.0005	0.0043
7	2018	8b	0.0884	0.0015	0.0101	2.2602	0.0005	0.0041
7	2019	2b	0.0270	0.0007	0.0018	0.1754	0.0003	0.0012
7	2019	3	0.0868	0.0009	0.0061	0.6050	0.0003	0.0025
7	2019	4	0.0951	0.0009	0.0060	0.6864	0.0003	0.0028
7	2019	5	0.0996	0.0009	0.0059	0.6864	0.0003	0.0028
7	2019	6	0.0999	0.0009	0.0059	0.7198	0.0003	0.0028
7	2019	7	0.0841	0.0009	0.0061	0.7920	0.0003	0.0028
7	2019	8a	0.0841	0.0009	0.0061	1.2831	0.0003	0.0029
7	2019	8b	0.0841	0.0009	0.0061	1.6350	0.0003	0.0028
7	2020	2b	0.0236	0.0006	0.0016	0.1523	0.0003	0.0011
7	2020	3	0.0827	0.0009	0.0061	0.5815	0.0003	0.0025
7	2020	4	0.0913	0.0009	0.0060	0.6766	0.0003	0.0028
7	2020	5	0.0959	0.0009	0.0059	0.6766	0.0003	0.0028
7	2020	6	0.0962	0.0009	0.0059	0.7094	0.0003	0.0028
7	2020	7	0.0799	0.0009	0.0061	0.7781	0.0003	0.0028
7	2020	8a	0.0799	0.0009	0.0061	1.2652	0.0003	0.0029
7	2020	8b	0.0799	0.0009	0.0061	1.6309	0.0003	0.0028
7	2021	2b	0.0201	0.0005	0.0014	0.1354	0.0002	0.0011
7	2021	3	0.0776	0.0009	0.0060	0.5640	0.0003	0.0024
7	2021	4	0.0858	0.0009	0.0059	0.6641	0.0003	0.0028
7	2021	5	0.0901	0.0009	0.0059	0.6641	0.0003	0.0028
7	2021	6	0.0905	0.0009	0.0059	0.6956	0.0003	0.0028
7	2021	7	0.0750	0.0009	0.0061	0.7574	0.0003	0.0028
7	2021	8a	0.0750	0.0009	0.0061	1.2164	0.0003	0.0028
7	2021	8b	0.0750	0.0009	0.0061	1.5748	0.0003	0.0027
7	2022	2b	0.0170	0.0005	0.0014	0.1204	0.0002	0.0011
7	2022	3	0.0735	0.0009	0.0060	0.5536	0.0003	0.0024
7	2022	4	0.0819	0.0009	0.0059	0.6543	0.0003	0.0028
7	2022	5	0.0864	0.0009	0.0059	0.6543	0.0003	0.0028

Table A-7. SmartWay Category – Mixed

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
7	2022	6	0.0868	0.0009	0.0059	0.6861	0.0003	0.0028
7	2022	7	0.0708	0.0009	0.0061	0.7507	0.0003	0.0028
7	2022	8a	0.0708	0.0009	0.0061	1.2190	0.0003	0.0028
7	2022	8b	0.0708	0.0009	0.0061	1.5761	0.0003	0.0027

Table A-8. SmartWay Category - Moving

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
8	1987	2b	5.1919	0.0050	0.0339	7.5725	0.1766	0.2321
8	1987	3	5.8779	0.0157	0.1071	13.0844	0.4002	0.5082
8	1987	4	5.9308	0.0163	0.1112	14.9773	0.4640	0.5870
8	1987	5	5.7546	0.0143	0.0973	15.5597	0.4351	0.5507
8	1987	6	5.5039	0.0113	0.0771	15.6229	0.4763	0.6025
8	1987	7	5.5039	0.0113	0.0771	16.8491	0.4837	0.6117
8	1987	8a	5.5350	0.0115	0.0786	25.8813	0.7075	0.8926
8	1987	8b	5.5350	0.0115	0.0786	31.0887	0.8289	1.0448
8	1988	2b	5.1919	0.0050	0.0339	7.5725	0.1766	0.2321
8	1988	3	5.8779	0.0157	0.1071	13.0844	0.4002	0.5082
8	1988	4	5.9308	0.0163	0.1112	14.9773	0.4640	0.5870
8	1988	5	5.7546	0.0143	0.0973	15.5597	0.4351	0.5507
8	1988	6	5.5039	0.0113	0.0771	15.6229	0.4763	0.6025
8	1988	7	5.5039	0.0113	0.0771	16.8491	0.4837	0.6117
8	1988	8a	5.5350	0.0115	0.0786	25.8813	0.7075	0.8926
8	1988	8b	5.5350	0.0115	0.0786	31.0887	0.8289	1.0448
8	1989	2b	5.1919	0.0050	0.0339	7.5725	0.1766	0.2321
8	1989	3	5.8779	0.0157	0.1071	13.0844	0.4002	0.5082
8	1989	4	5.9308	0.0163	0.1112	14.9773	0.4640	0.5870
8	1989	5	5.7546	0.0143	0.0973	15.5597	0.4351	0.5507
8	1989	6	5.5039	0.0113	0.0771	15.6229	0.4763	0.6025
8	1989	7	5.5039	0.0113	0.0771	16.8491	0.4837	0.6117
8	1989	8a	5.5350	0.0115	0.0786	25.8813	0.7075	0.8926
8	1989	8b	5.5350	0.0115	0.0786	31.0887	0.8289	1.0448

Table A-8. SmartWay Category - Moving

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
8	1990	2b	5.1919	0.0050	0.0339	7.5725	0.1766	0.2321
8	1990	3	5.8779	0.0157	0.1071	13.0844	0.4002	0.5082
8	1990	4	5.9308	0.0163	0.1112	14.9773	0.4640	0.5870
8	1990	5	5.7546	0.0143	0.0973	15.5597	0.4351	0.5507
8	1990	6	5.5039	0.0113	0.0771	15.6229	0.4763	0.6025
8	1990	7	5.5039	0.0113	0.0771	16.8491	0.4837	0.6117
8	1990	8a	5.5350	0.0115	0.0786	25.8813	0.7075	0.8926
8	1990	8b	5.5350	0.0115	0.0786	31.0887	0.8289	1.0448
8	1991	2b	5.1919	0.0050	0.0339	7.5725	0.1766	0.2321
8	1991	3	5.8779	0.0157	0.1071	13.0844	0.4002	0.5082
8	1991	4	5.9308	0.0163	0.1112	14.9773	0.4640	0.5870
8	1991	5	5.7546	0.0143	0.0973	15.5597	0.4351	0.5507
8	1991	6	5.5039	0.0113	0.0771	15.6229	0.4763	0.6025
8	1991	7	5.5039	0.0113	0.0771	16.8491	0.4837	0.6117
8	1991	8a	5.5350	0.0115	0.0786	25.8813	0.7075	0.8926
8	1991	8b	5.5350	0.0115	0.0786	31.0887	0.8289	1.0448
8	1992	2b	5.1919	0.0050	0.0339	7.5725	0.1766	0.2321
8	1992	3	5.8779	0.0157	0.1071	13.0844	0.4002	0.5082
8	1992	4	5.9308	0.0163	0.1112	14.9773	0.4640	0.5870
8	1992	5	5.7546	0.0143	0.0973	15.5597	0.4351	0.5507
8	1992	6	5.5039	0.0113	0.0771	15.6229	0.4763	0.6025
8	1992	7	5.5039	0.0113	0.0771	16.8491	0.4837	0.6117
8	1992	8a	5.5350	0.0115	0.0786	25.8813	0.7075	0.8926
8	1992	8b	5.5350	0.0115	0.0786	31.0887	0.8289	1.0448
8	1993	2b	5.2231	0.0062	0.0425	8.0764	0.2110	0.2744
8	1993	3	5.9159	0.0164	0.1118	10.8391	0.3103	0.3973
8	1993	4	5.9554	0.0167	0.1139	16.4237	0.5025	0.6354
8	1993	5	5.9198	0.0164	0.1121	16.4877	0.4452	0.5635
8	1993	6	5.3268	0.0115	0.0787	17.7660	0.4822	0.6098
8	1993	7	5.3268	0.0115	0.0787	19.8362	0.5476	0.6920
8	1993	8a	5.3889	0.0115	0.0785	29.4603	0.7828	0.9871
8	1993	8b	5.3889	0.0115	0.0785	31.5966	0.8318	1.0485
8	1994	2b	4.5496	0.0058	0.0394	7.5620	0.4359	0.5596

Table A-8. SmartWay Category - Moving

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
8	1994	3	5.9193	0.0105	0.0715	10.0143	0.5348	0.6824
8	1994	4	5.9803	0.0106	0.0721	13.8239	0.6583	0.8342
8	1994	5	5.9765	0.0106	0.0720	16.8857	0.7261	0.9195
8	1994	6	5.2932	0.0097	0.0664	17.2475	0.7171	0.9080
8	1994	7	5.2932	0.0097	0.0664	20.7365	0.7244	0.9167
8	1994	8a	7.9417	0.0135	0.0922	29.4539	0.7755	0.9798
8	1994	8b	7.9417	0.0135	0.0922	31.4394	0.7896	0.9971
8	1995	2b	4.6491	0.0084	0.0574	7.7426	0.4299	0.5513
8	1995	3	5.8081	0.0222	0.1515	13.4165	0.6252	0.7934
8	1995	4	5.9365	0.0236	0.1610	15.1471	0.6671	0.8454
8	1995	5	5.9041	0.0233	0.1588	17.4468	0.7164	0.9071
8	1995	6	5.2827	0.0164	0.1120	17.9410	0.7023	0.8892
8	1995	7	5.2827	0.0164	0.1120	20.2202	0.7183	0.9091
8	1995	8a	7.7740	0.0348	0.2373	29.0976	0.7744	0.9785
8	1995	8b	7.7740	0.0348	0.2373	31.2017	0.7878	0.9949
8	1996	2b	3.7757	0.0057	0.0388	7.7757	0.4138	0.5301
8	1996	3	5.8971	0.0170	0.1162	14.7234	0.6637	0.8411
8	1996	4	5.9634	0.0177	0.1205	16.2693	0.6834	0.8656
8	1996	5	5.9597	0.0176	0.1204	17.4192	0.7211	0.9131
8	1996	6	5.3372	0.0116	0.0794	19.5244	0.7162	0.9066
8	1996	7	5.3372	0.0116	0.0794	20.5837	0.7246	0.9171
8	1996	8a	7.7740	0.0279	0.1904	29.0957	0.7750	0.9793
8	1996	8b	7.7740	0.0279	0.1904	31.3116	0.7906	0.9984
8	1997	2b	3.4582	0.0042	0.0287	6.1495	0.3427	0.4426
8	1997	3	5.8182	0.0137	0.0937	11.5753	0.5478	0.6972
8	1997	4	5.9719	0.0146	0.0997	14.0755	0.6711	0.8502
8	1997	5	5.9368	0.0144	0.0984	15.9175	0.7226	0.9150
8	1997	6	5.3163	0.0109	0.0744	15.8762	0.6906	0.8746
8	1997	7	5.3163	0.0109	0.0744	17.6156	0.7022	0.8891
8	1997	8a	8.9845	0.0105	0.0715	27.9212	0.7638	0.9653
8	1997	8b	8.9845	0.0105	0.0715	30.8993	0.7842	0.9904
8	1998	2b	3.0770	0.0037	0.0251	6.6976	0.2528	0.3278
8	1998	3	3.9302	0.0146	0.0994	13.7676	0.3555	0.4541

Table A-8. SmartWay Category - Moving

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
8	1998	4	3.9666	0.0163	0.1113	14.5408	0.3669	0.4681
8	1998	5	3.9173	0.0143	0.0975	15.2059	0.3482	0.4448
8	1998	6	3.8487	0.0108	0.0734	14.8418	0.3600	0.4594
8	1998	7	3.8487	0.0108	0.0734	15.7532	0.3613	0.4611
8	1998	8a	4.4008	0.0258	0.1763	25.5338	0.4902	0.6216
8	1998	8b	4.4008	0.0258	0.1763	28.9281	0.5313	0.6723
8	1999	2b	2.3951	0.0046	0.0311	6.1406	0.2520	0.3268
8	1999	3	3.9113	0.0145	0.0989	9.2200	0.3278	0.4196
8	1999	4	4.0614	0.0150	0.1023	9.8236	0.3431	0.4382
8	1999	5	4.0937	0.0148	0.1009	9.8626	0.3439	0.4392
8	1999	6	4.0959	0.0148	0.1010	9.9736	0.3437	0.4390
8	1999	7	3.7933	0.0141	0.0959	10.4939	0.3528	0.4504
8	1999	8a	3.8175	0.0151	0.1031	18.8930	0.4911	0.6227
8	1999	8b	3.8175	0.0151	0.1031	21.5899	0.5361	0.6784
8	2000	2b	2.1333	0.0040	0.0275	6.2837	0.2558	0.3315
8	2000	3	3.9764	0.0131	0.0895	9.2471	0.3293	0.4213
8	2000	4	4.1594	0.0118	0.0806	9.7326	0.3412	0.4359
8	2000	5	4.2096	0.0115	0.0781	9.8097	0.3427	0.4378
8	2000	6	4.2128	0.0114	0.0780	9.9622	0.3457	0.4416
8	2000	7	3.8577	0.0140	0.0953	11.2133	0.3647	0.4653
8	2000	8a	3.8577	0.0140	0.0953	17.4598	0.4657	0.5911
8	2000	8b	3.8577	0.0140	0.0953	21.4108	0.5331	0.6746
8	2001	2b	0.7194	0.0029	0.0199	5.9631	0.2480	0.3219
8	2001	3	1.6428	0.0105	0.0714	8.9733	0.3211	0.4111
8	2001	4	1.7039	0.0103	0.0704	9.3822	0.3314	0.4236
8	2001	5	1.7273	0.0103	0.0700	9.4211	0.3322	0.4245
8	2001	6	1.7289	0.0103	0.0699	10.1832	0.3457	0.4415
8	2001	7	1.6157	0.0105	0.0718	10.0329	0.3432	0.4383
8	2001	8a	1.6157	0.0105	0.0718	18.3542	0.4797	0.6085
8	2001	8b	1.6157	0.0105	0.0718	21.2323	0.5294	0.6701
8	2002	2b	0.6836	0.0025	0.0168	6.0293	0.2497	0.3239
8	2002	3	1.6688	0.0076	0.0518	8.7671	0.3157	0.4045
8	2002	4	1.7525	0.0069	0.0472	9.3616	0.3305	0.4225

Table A-8. SmartWay Category - Moving

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
8	2002	5	1.7779	0.0067	0.0458	9.3616	0.3305	0.4225
8	2002	6	1.7796	0.0067	0.0457	9.7074	0.3386	0.4326
8	2002	7	1.6210	0.0080	0.0545	10.2781	0.3464	0.4423
8	2002	8a	1.6210	0.0080	0.0545	15.8659	0.4378	0.5565
8	2002	8b	1.6210	0.0080	0.0545	20.8660	0.5228	0.6618
8	2003	2b	0.6176	0.0019	0.0131	4.3117	0.2109	0.2737
8	2003	3	1.6501	0.0063	0.0431	5.9439	0.2737	0.3507
8	2003	4	1.7214	0.0062	0.0421	6.3127	0.2883	0.3685
8	2003	5	1.7438	0.0061	0.0417	6.3127	0.2883	0.3685
8	2003	6	1.7453	0.0061	0.0417	6.7037	0.2994	0.3825
8	2003	7	1.6112	0.0064	0.0436	6.8708	0.3092	0.3947
8	2003	8a	1.6113	0.0064	0.0436	8.8899	0.4050	0.5143
8	2003	8b	1.6113	0.0064	0.0436	10.3368	0.4777	0.6046
8	2004	2b	0.4962	0.0012	0.0082	4.2838	0.2094	0.2717
8	2004	3	1.6683	0.0048	0.0330	5.9937	0.2740	0.3511
8	2004	4	1.7663	0.0046	0.0315	6.3932	0.2896	0.3701
8	2004	5	1.7955	0.0046	0.0311	6.3932	0.2896	0.3701
8	2004	6	1.7973	0.0046	0.0311	6.7740	0.3027	0.3866
8	2004	7	1.6107	0.0050	0.0338	6.9294	0.3112	0.3971
8	2004	8a	1.6107	0.0050	0.0338	8.8645	0.4029	0.5117
8	2004	8b	1.6107	0.0050	0.0338	10.3397	0.4782	0.6053
8	2005	2b	0.4028	0.0010	0.0069	4.1788	0.2046	0.2656
8	2005	3	1.6561	0.0047	0.0322	5.8588	0.2687	0.3444
8	2005	4	1.7104	0.0046	0.0313	6.3622	0.2884	0.3686
8	2005	5	1.7347	0.0045	0.0309	6.3622	0.2884	0.3686
8	2005	6	1.7364	0.0045	0.0309	6.6784	0.3005	0.3838
8	2005	7	1.6357	0.0048	0.0326	6.9597	0.3138	0.4004
8	2005	8a	1.6359	0.0048	0.0326	9.0939	0.4140	0.5254
8	2005	8b	1.6359	0.0048	0.0326	10.4007	0.4809	0.6086
8	2006	2b	0.4454	0.0011	0.0079	4.2359	0.2077	0.2697
8	2006	3	1.6552	0.0050	0.0341	5.8038	0.2667	0.3420
8	2006	4	1.7259	0.0048	0.0328	6.2744	0.2848	0.3641
8	2006	5	1.7532	0.0047	0.0323	6.2744	0.2848	0.3641

Table A-8. SmartWay Category - Moving

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
8	2006	6	1.7551	0.0047	0.0322	6.5225	0.2949	0.3768
8	2006	7	1.6245	0.0051	0.0347	6.8169	0.3084	0.3935
8	2006	8a	1.6247	0.0051	0.0347	8.9777	0.4091	0.5194
8	2006	8b	1.6247	0.0051	0.0347	10.3790	0.4802	0.6077
8	2007	2b	0.3912	0.0010	0.0072	2.3105	0.0014	0.0118
8	2007	3	1.6579	0.0050	0.0340	3.5333	0.0019	0.0158
8	2007	4	1.7132	0.0048	0.0328	3.7577	0.0019	0.0166
8	2007	5	1.7370	0.0047	0.0323	3.7577	0.0019	0.0166
8	2007	6	1.7388	0.0047	0.0322	3.9035	0.0020	0.0171
8	2007	7	1.6368	0.0050	0.0344	4.3024	0.0021	0.0184
8	2007	8a	1.6378	0.0050	0.0344	6.2785	0.0029	0.0250
8	2007	8b	1.6378	0.0050	0.0344	7.2548	0.0033	0.0285
8	2008	2b	0.2949	0.0009	0.0061	2.2424	0.0013	0.0115
8	2008	3	1.0842	0.0037	0.0252	3.1345	0.0017	0.0144
8	2008	4	1.0509	0.0036	0.0249	3.3114	0.0018	0.0150
8	2008	5	1.0327	0.0036	0.0247	3.3114	0.0018	0.0150
8	2008	6	1.0313	0.0036	0.0247	3.4267	0.0018	0.0154
8	2008	7	1.0946	0.0037	0.0254	3.5566	0.0018	0.0158
8	2008	8a	1.0945	0.0037	0.0254	5.0383	0.0024	0.0207
8	2008	8b	1.0945	0.0037	0.0254	6.8850	0.0032	0.0272
8	2009	2b	0.1809	0.0010	0.0064	2.2212	0.0013	0.0113
8	2009	3	0.6616	0.0037	0.0252	3.6629	0.0019	0.0163
8	2009	4	0.6604	0.0037	0.0251	3.8676	0.0020	0.0171
8	2009	5	0.6597	0.0037	0.0251	3.8676	0.0020	0.0171
8	2009	6	0.6596	0.0037	0.0251	3.9445	0.0020	0.0173
8	2009	7	0.6619	0.0037	0.0252	4.3856	0.0022	0.0187
8	2009	8a	0.6619	0.0037	0.0252	6.3089	0.0029	0.0251
8	2009	8b	0.6619	0.0037	0.0252	7.2309	0.0033	0.0284
8	2010	2b	0.0704	0.0006	0.0035	0.9801	0.0010	0.0079
8	2010	3	0.1099	0.0017	0.0119	1.9626	0.0018	0.0150
8	2010	4	0.1100	0.0017	0.0119	2.1256	0.0019	0.0162
8	2010	5	0.1100	0.0017	0.0119	2.1256	0.0019	0.0162
8	2010	6	0.1100	0.0017	0.0119	2.1990	0.0019	0.0167

Table A-8. SmartWay Category - Moving

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
8	2010	7	0.1099	0.0017	0.0119	2.5171	0.0018	0.0152
8	2010	8a	0.1099	0.0017	0.0119	3.9768	0.0012	0.0103
8	2010	8b	0.1099	0.0017	0.0119	4.7110	0.0008	0.0072
8	2011	2b	0.0730	0.0007	0.0040	1.0798	0.0010	0.0078
8	2011	3	0.1172	0.0017	0.0117	1.6778	0.0016	0.0133
8	2011	4	0.1297	0.0017	0.0113	1.7775	0.0017	0.0142
8	2011	5	0.1362	0.0016	0.0111	1.7775	0.0017	0.0142
8	2011	6	0.1366	0.0016	0.0111	1.8374	0.0017	0.0145
8	2011	7	0.1130	0.0017	0.0118	1.9978	0.0016	0.0137
8	2011	8a	0.1130	0.0017	0.0118	3.0984	0.0012	0.0104
8	2011	8b	0.1130	0.0017	0.0118	3.9438	0.0008	0.0072
8	2012	2b	0.0749	0.0008	0.0043	1.0147	0.0010	0.0079
8	2012	3	0.1192	0.0017	0.0116	1.6752	0.0016	0.0138
8	2012	4	0.1241	0.0017	0.0114	1.7648	0.0017	0.0146
8	2012	5	0.1270	0.0017	0.0113	1.7648	0.0017	0.0146
8	2012	6	0.1272	0.0017	0.0113	1.8052	0.0017	0.0146
8	2012	7	0.1177	0.0017	0.0116	2.0331	0.0016	0.0138
8	2012	8a	0.1177	0.0017	0.0116	3.1936	0.0012	0.0099
8	2012	8b	0.1177	0.0017	0.0116	3.8585	0.0008	0.0071
8	2013	2b	0.0612	0.0007	0.0032	1.2072	0.0010	0.0077
8	2013	3	0.1254	0.0016	0.0106	1.7766	0.0016	0.0139
8	2013	4	0.1345	0.0015	0.0104	1.8568	0.0017	0.0148
8	2013	5	0.1389	0.0015	0.0102	1.8568	0.0017	0.0148
8	2013	6	0.1393	0.0015	0.0102	1.8922	0.0017	0.0149
8	2013	7	0.1225	0.0016	0.0107	2.0657	0.0016	0.0136
8	2013	8a	0.1229	0.0016	0.0107	2.7952	0.0010	0.0089
8	2013	8b	0.1229	0.0016	0.0107	3.1355	0.0007	0.0064
8	2014	2b	0.0626	0.0009	0.0033	0.5587	0.0005	0.0023
8	2014	3	0.1260	0.0015	0.0102	1.1934	0.0005	0.0042
8	2014	4	0.1294	0.0015	0.0102	1.2679	0.0005	0.0044
8	2014	5	0.1314	0.0015	0.0101	1.2679	0.0005	0.0044
8	2014	6	0.1316	0.0015	0.0101	1.2956	0.0005	0.0045
8	2014	7	0.1250	0.0015	0.0103	1.4509	0.0005	0.0044

Table A-8. SmartWay Category - Moving

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
8	2014	8a	0.1250	0.0015	0.0103	2.2389	0.0005	0.0044
8	2014	8b	0.1250	0.0015	0.0103	2.7115	0.0005	0.0042
8	2015	2b	0.0570	0.0009	0.0031	0.4429	0.0005	0.0022
8	2015	3	0.1259	0.0015	0.0102	1.0755	0.0005	0.0041
8	2015	4	0.1291	0.0015	0.0102	1.1672	0.0005	0.0044
8	2015	5	0.1309	0.0015	0.0101	1.1672	0.0005	0.0044
8	2015	6	0.1311	0.0015	0.0101	1.1966	0.0005	0.0045
8	2015	7	0.1250	0.0015	0.0103	1.3686	0.0005	0.0044
8	2015	8a	0.1250	0.0015	0.0103	2.2235	0.0005	0.0044
8	2015	8b	0.1250	0.0015	0.0103	2.7262	0.0005	0.0042
8	2016	2b	0.0564	0.0010	0.0031	0.4246	0.0005	0.0022
8	2016	3	0.1258	0.0015	0.0102	1.0256	0.0005	0.0041
8	2016	4	0.1287	0.0015	0.0102	1.1262	0.0005	0.0044
8	2016	5	0.1304	0.0015	0.0101	1.1262	0.0005	0.0044
8	2016	6	0.1305	0.0015	0.0101	1.1508	0.0005	0.0045
8	2016	7	0.1250	0.0015	0.0103	1.2864	0.0005	0.0044
8	2016	8a	0.1250	0.0015	0.0103	2.0715	0.0005	0.0044
8	2016	8b	0.1250	0.0015	0.0103	2.6261	0.0005	0.0042
8	2017	2b	0.0389	0.0010	0.0028	0.4018	0.0005	0.0021
8	2017	3	0.1071	0.0015	0.0102	0.9632	0.0005	0.0039
8	2017	4	0.1093	0.0015	0.0101	1.0622	0.0005	0.0042
8	2017	5	0.1106	0.0015	0.0101	1.0622	0.0005	0.0042
8	2017	6	0.1107	0.0015	0.0101	1.0816	0.0005	0.0043
8	2017	7	0.1065	0.0015	0.0102	1.1884	0.0005	0.0043
8	2017	8a	0.1065	0.0015	0.0102	1.8439	0.0005	0.0043
8	2017	8b	0.1065	0.0015	0.0102	2.3429	0.0005	0.0042
8	2018	2b	0.0377	0.0011	0.0029	0.2856	0.0005	0.0021
8	2018	3	0.0929	0.0015	0.0102	0.8914	0.0005	0.0039
8	2018	4	0.1014	0.0015	0.0100	0.9981	0.0005	0.0042
8	2018	5	0.1059	0.0014	0.0099	0.9981	0.0005	0.0042
8	2018	6	0.1063	0.0014	0.0099	1.0454	0.0005	0.0043
8	2018	7	0.0902	0.0015	0.0102	1.1401	0.0005	0.0043
8	2018	8a	0.0902	0.0015	0.0102	1.8023	0.0005	0.0043

Table A-8. SmartWay Category - Moving

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
8	2018	8b	0.0902	0.0015	0.0102	2.2847	0.0005	0.0041
8	2019	2b	0.0276	0.0007	0.0018	0.1800	0.0003	0.0013
8	2019	3	0.0886	0.0009	0.0062	0.6124	0.0003	0.0025
8	2019	4	0.0970	0.0009	0.0061	0.6961	0.0003	0.0028
8	2019	5	0.1015	0.0009	0.0060	0.6961	0.0003	0.0028
8	2019	6	0.1018	0.0009	0.0060	0.7298	0.0003	0.0029
8	2019	7	0.0859	0.0009	0.0062	0.8013	0.0003	0.0029
8	2019	8a	0.0859	0.0009	0.0062	1.2944	0.0003	0.0029
8	2019	8b	0.0859	0.0009	0.0062	1.6527	0.0003	0.0029
8	2020	2b	0.0241	0.0006	0.0016	0.1564	0.0003	0.0012
8	2020	3	0.0843	0.0009	0.0062	0.5884	0.0003	0.0025
8	2020	4	0.0930	0.0009	0.0061	0.6861	0.0003	0.0028
8	2020	5	0.0977	0.0009	0.0060	0.6861	0.0003	0.0028
8	2020	6	0.0980	0.0009	0.0060	0.7193	0.0003	0.0029
8	2020	7	0.0815	0.0009	0.0062	0.7873	0.0003	0.0028
8	2020	8a	0.0815	0.0009	0.0062	1.2763	0.0003	0.0029
8	2020	8b	0.0815	0.0009	0.0062	1.6485	0.0003	0.0029
8	2021	2b	0.0205	0.0005	0.0014	0.1388	0.0003	0.0011
8	2021	3	0.0792	0.0009	0.0061	0.5705	0.0003	0.0024
8	2021	4	0.0875	0.0009	0.0060	0.6736	0.0003	0.0028
8	2021	5	0.0919	0.0009	0.0060	0.6736	0.0003	0.0028
8	2021	6	0.0922	0.0009	0.0060	0.7054	0.0003	0.0028
8	2021	7	0.0766	0.0009	0.0061	0.7665	0.0003	0.0028
8	2021	8a	0.0766	0.0009	0.0061	1.2278	0.0003	0.0029
8	2021	8b	0.0766	0.0009	0.0061	1.5928	0.0003	0.0028
8	2022	2b	0.0173	0.0005	0.0014	0.1232	0.0003	0.0011
8	2022	3	0.0750	0.0009	0.0061	0.5598	0.0003	0.0024
8	2022	4	0.0835	0.0009	0.0060	0.6636	0.0003	0.0028
8	2022	5	0.0881	0.0009	0.0060	0.6636	0.0003	0.0028
8	2022	6	0.0884	0.0009	0.0060	0.6957	0.0003	0.0028
8	2022	7	0.0723	0.0009	0.0061	0.7597	0.0003	0.0028
8	2022	8a	0.0723	0.0009	0.0061	1.2303	0.0003	0.0029
8	2022	8b	0.0723	0.0009	0.0061	1.5942	0.0003	0.0028

Table A-g. SmartWay Category - Package

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
9	1987	2b	4.7996	0.0088	0.0599	8.7976	0.2056	0.2700
9	1987	3	5.8807	0.0313	0.2132	17.4157	0.5525	0.7037
9	1987	4	5.9002	0.0325	0.2218	20.2359	0.6582	0.8359
9	1987	5	5.8403	0.0282	0.1925	20.5758	0.6549	0.8325
9	1987	6	5.7610	0.0220	0.1499	20.5745	0.6657	0.8453
9	1987	7	5.7610	0.0220	0.1499	21.1716	0.6742	0.8562
9	1987	8a	5.7890	0.0223	0.1523	26.0875	0.7946	1.0056
9	1987	8b	5.7890	0.0223	0.1523	29.8197	0.8834	1.1158
9	1988	2b	4.7996	0.0088	0.0599	8.7976	0.2056	0.2700
9	1988	3	5.8807	0.0313	0.2132	17.4157	0.5525	0.7037
9	1988	4	5.9002	0.0325	0.2218	20.2359	0.6582	0.8359
9	1988	5	5.8403	0.0282	0.1925	20.5758	0.6549	0.8325
9	1988	6	5.7610	0.0220	0.1499	20.5745	0.6657	0.8453
9	1988	7	5.7610	0.0220	0.1499	21.1716	0.6742	0.8562
9	1988	8a	5.7890	0.0223	0.1523	26.0875	0.7946	1.0056
9	1988	8b	5.7890	0.0223	0.1523	29.8197	0.8834	1.1158
9	1989	2b	4.7996	0.0088	0.0599	8.7976	0.2056	0.2700
9	1989	3	5.8807	0.0313	0.2132	17.4157	0.5525	0.7037
9	1989	4	5.9002	0.0325	0.2218	20.2359	0.6582	0.8359
9	1989	5	5.8403	0.0282	0.1925	20.5758	0.6549	0.8325
9	1989	6	5.7610	0.0220	0.1499	20.5745	0.6657	0.8453
9	1989	7	5.7610	0.0220	0.1499	21.1716	0.6742	0.8562
9	1989	8a	5.7890	0.0223	0.1523	26.0875	0.7946	1.0056
9	1989	8b	5.7890	0.0223	0.1523	29.8197	0.8834	1.1158
9	1990	2b	4.7996	0.0088	0.0599	8.7976	0.2056	0.2700
9	1990	3	5.8807	0.0313	0.2132	17.4157	0.5525	0.7037
9	1990	4	5.9002	0.0325	0.2218	20.2359	0.6582	0.8359
9	1990	5	5.8403	0.0282	0.1925	20.5758	0.6549	0.8325
9	1990	6	5.7610	0.0220	0.1499	20.5745	0.6657	0.8453
9	1990	7	5.7610	0.0220	0.1499	21.1716	0.6742	0.8562
9	1990	8a	5.7890	0.0223	0.1523	26.0875	0.7946	1.0056
9	1990	8b	5.7890	0.0223	0.1523	29.8197	0.8834	1.1158
9	1991	2b	4.7996	0.0088	0.0599	8.7976	0.2056	0.2700

Table A-g. SmartWay Category - Package

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
9	1991	3	5.8807	0.0313	0.2132	17.4157	0.5525	0.7037
9	1991	4	5.9002	0.0325	0.2218	20.2359	0.6582	0.8359
9	1991	5	5.8403	0.0282	0.1925	20.5758	0.6549	0.8325
9	1991	6	5.7610	0.0220	0.1499	20.5745	0.6657	0.8453
9	1991	7	5.7610	0.0220	0.1499	21.1716	0.6742	0.8562
9	1991	8a	5.7890	0.0223	0.1523	26.0875	0.7946	1.0056
9	1991	8b	5.7890	0.0223	0.1523	29.8197	0.8834	1.1158
9	1992	2b	4.7996	0.0088	0.0599	8.7976	0.2056	0.2700
9	1992	3	5.8807	0.0313	0.2132	17.4157	0.5525	0.7037
9	1992	4	5.9002	0.0325	0.2218	20.2359	0.6582	0.8359
9	1992	5	5.8403	0.0282	0.1925	20.5758	0.6549	0.8325
9	1992	6	5.7610	0.0220	0.1499	20.5745	0.6657	0.8453
9	1992	7	5.7610	0.0220	0.1499	21.1716	0.6742	0.8562
9	1992	8a	5.7890	0.0223	0.1523	26.0875	0.7946	1.0056
9	1992	8b	5.7890	0.0223	0.1523	29.8197	0.8834	1.1158
9	1993	2b	4.9055	0.0112	0.0762	9.6864	0.2484	0.3232
9	1993	3	5.8648	0.0326	0.2227	13.9774	0.4126	0.5288
9	1993	4	5.8933	0.0333	0.2273	21.1242	0.6797	0.8628
9	1993	5	5.8673	0.0327	0.2234	21.6251	0.6916	0.8790
9	1993	6	5.4492	0.0218	0.1485	22.2397	0.7060	0.8967
9	1993	7	5.4492	0.0218	0.1485	23.0442	0.7248	0.9196
9	1993	8a	5.5069	0.0216	0.1475	28.6407	0.8553	1.0812
9	1993	8b	5.5069	0.0216	0.1475	30.2170	0.8916	1.1259
9	1994	2b	4.1906	0.0028	0.0193	9.3537	0.7954	1.0246
9	1994	3	5.8615	0.0049	0.0333	13.0334	0.9603	1.2309
9	1994	4	5.9135	0.0049	0.0337	18.7041	1.1630	1.4805
9	1994	5	5.9086	0.0049	0.0336	22.0590	1.2931	1.6443
9	1994	6	5.3370	0.0045	0.0304	21.8582	1.2462	1.5848
9	1994	7	5.3370	0.0045	0.0304	23.1221	1.1476	1.4586
9	1994	8a	8.2662	0.0074	0.0503	28.5102	0.9520	1.2068
9	1994	8b	8.2662	0.0074	0.0503	30.0799	0.9068	1.1482
9	1995	2b	4.3787	0.0080	0.0544	9.5896	0.7851	1.0108
9	1995	3	5.7695	0.0241	0.1647	17.9883	1.1141	1.4200

Table A-g. SmartWay Category - Package

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
9	1995	4	5.8766	0.0259	0.1768	19.8344	1.1647	1.4826
9	1995	5	5.8488	0.0255	0.1740	22.3077	1.2471	1.5857
9	1995	6	5.3344	0.0167	0.1140	21.9567	1.1732	1.4919
9	1995	7	5.3344	0.0167	0.1140	23.1457	1.1447	1.4550
9	1995	8a	7.9232	0.0329	0.2247	28.3397	0.9634	1.2215
9	1995	8b	7.9232	0.0329	0.2247	29.9266	0.9125	1.1556
9	1996	2b	3.5076	0.0067	0.0454	9.8123	0.7520	0.9681
9	1996	3	5.8509	0.0236	0.1610	19.8729	1.1648	1.4828
9	1996	4	5.9018	0.0245	0.1673	21.0280	1.1676	1.4853
9	1996	5	5.8977	0.0245	0.1674	22.2157	1.2548	1.5957
9	1996	6	5.4268	0.0153	0.1047	22.7715	1.1683	1.4853
9	1996	7	5.4268	0.0153	0.1047	23.5327	1.1483	1.4595
9	1996	8a	7.9233	0.0291	0.1986	28.3915	0.9663	1.2252
9	1996	8b	7.9233	0.0291	0.1986	30.0536	0.9148	1.1585
9	1997	2b	2.7237	0.0028	0.0191	7.2482	0.6276	0.8125
9	1997	3	5.7859	0.0101	0.0687	14.9255	0.9708	1.2406
9	1997	4	5.9065	0.0108	0.0735	19.1278	1.1926	1.5180
9	1997	5	5.8786	0.0106	0.0725	20.7962	1.2796	1.6274
9	1997	6	5.3913	0.0078	0.0532	20.2846	1.1899	1.5139
9	1997	7	5.3913	0.0078	0.0532	21.1775	1.1707	1.4890
9	1997	8a	9.2403	0.0054	0.0370	27.3891	0.9802	1.2435
9	1997	8b	9.2403	0.0054	0.0370	29.7141	0.9118	1.1550
9	1998	2b	2.2497	0.0029	0.0198	8.4619	0.3055	0.4024
9	1998	3	3.2848	0.0131	0.0893	17.8044	0.4767	0.6143
9	1998	4	3.2798	0.0149	0.1018	18.7846	0.4947	0.6364
9	1998	5	3.2740	0.0129	0.0878	19.0849	0.4557	0.5876
9	1998	6	3.2923	0.0091	0.0622	18.9200	0.4795	0.6174
9	1998	7	3.2923	0.0091	0.0622	19.3587	0.4717	0.6075
9	1998	8a	3.6687	0.0229	0.1566	24.3861	0.5855	0.7465
9	1998	8b	3.6687	0.0229	0.1566	26.6613	0.6261	0.7954
9	1999	2b	1.8020	0.0044	0.0302	7.7964	0.3032	0.3998
9	1999	3	3.3391	0.0169	0.1150	12.4000	0.4385	0.5670
9	1999	4	3.5616	0.0174	0.1185	13.2749	0.4645	0.5991

Table A-g. SmartWay Category - Package

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
9	1999	5	3.6141	0.0173	0.1178	13.2966	0.4651	0.5998
9	1999	6	3.6174	0.0173	0.1179	13.1280	0.4552	0.5873
9	1999	7	3.1652	0.0164	0.1121	13.4983	0.4649	0.5993
9	1999	8a	3.1836	0.0171	0.1170	18.9481	0.5835	0.7443
9	1999	8b	3.1836	0.0171	0.1170	21.2261	0.6311	0.8017
9	2000	2b	1.6027	0.0028	0.0188	8.0106	0.3095	0.4075
9	2000	3	3.4777	0.0101	0.0686	12.4007	0.4378	0.5659
9	2000	4	3.7614	0.0091	0.0621	13.0451	0.4568	0.5893
9	2000	5	3.8392	0.0088	0.0603	13.0870	0.4579	0.5907
9	2000	6	3.8441	0.0088	0.0602	13.1138	0.4561	0.5882
9	2000	7	3.2935	0.0107	0.0728	13.7921	0.4708	0.6064
9	2000	8a	3.2935	0.0107	0.0728	17.7759	0.5560	0.7105
9	2000	8b	3.2935	0.0107	0.0728	21.0313	0.6267	0.7963
9	2001	2b	0.5692	0.0021	0.0142	7.5281	0.2956	0.3903
9	2001	3	1.3951	0.0057	0.0386	12.0405	0.4266	0.5521
9	2001	4	1.4922	0.0055	0.0378	12.6600	0.4448	0.5745
9	2001	5	1.5292	0.0055	0.0374	12.6818	0.4454	0.5752
9	2001	6	1.5318	0.0055	0.0374	13.1009	0.4538	0.5855
9	2001	7	1.3521	0.0057	0.0390	13.0566	0.4532	0.5847
9	2001	8a	1.3521	0.0057	0.0390	18.3747	0.5682	0.7254
9	2001	8b	1.3521	0.0057	0.0390	20.8525	0.6222	0.7908
9	2002	2b	0.5393	0.0023	0.0158	7.6310	0.2986	0.3940
9	2002	3	1.4396	0.0077	0.0523	11.7660	0.4186	0.5422
9	2002	4	1.5728	0.0071	0.0483	12.6524	0.4445	0.5742
9	2002	5	1.6132	0.0069	0.0471	12.6524	0.4445	0.5742
9	2002	6	1.6158	0.0069	0.0470	12.8809	0.4493	0.5800
9	2002	7	1.3636	0.0080	0.0545	13.1526	0.4547	0.5866
9	2002	8a	1.3636	0.0080	0.0545	16.5170	0.5283	0.6769
9	2002	8b	1.3636	0.0080	0.0545	20.5162	0.6146	0.7816
9	2003	2b	0.4907	0.0017	0.0114	4.6094	0.2524	0.3331
9	2003	3	1.4031	0.0063	0.0428	7.3076	0.3641	0.4716
9	2003	4	1.5160	0.0061	0.0415	7.9010	0.3891	0.5025
9	2003	5	1.5515	0.0060	0.0411	7.9010	0.3891	0.5025

Table A-g. SmartWay Category - Package

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
9	2003	6	1.5539	0.0060	0.0411	8.5439	0.3986	0.5143
9	2003	7	1.3415	0.0064	0.0435	8.5087	0.4044	0.5215
9	2003	8a	1.3416	0.0064	0.0435	10.0278	0.4839	0.6191
9	2003	8b	1.3416	0.0064	0.0435	11.6329	0.5613	0.7134
9	2004	2b	0.3985	0.0011	0.0075	4.5854	0.2503	0.3304
9	2004	3	1.4351	0.0048	0.0328	7.4299	0.3628	0.4700
9	2004	4	1.5944	0.0044	0.0303	8.0738	0.3888	0.5021
9	2004	5	1.6416	0.0043	0.0295	8.0738	0.3888	0.5021
9	2004	6	1.6447	0.0043	0.0295	8.6996	0.4023	0.5189
9	2004	7	1.3415	0.0050	0.0342	8.6549	0.4063	0.5237
9	2004	8a	1.3415	0.0050	0.0342	10.0472	0.4811	0.6157
9	2004	8b	1.3415	0.0050	0.0342	11.6426	0.5618	0.7141
9	2005	2b	0.3248	0.0009	0.0062	4.4474	0.2438	0.3220
9	2005	3	1.4297	0.0047	0.0319	7.2058	0.3545	0.4596
9	2005	4	1.5154	0.0045	0.0304	8.0066	0.3872	0.5001
9	2005	5	1.5538	0.0044	0.0298	8.0066	0.3872	0.5001
9	2005	6	1.5566	0.0044	0.0297	8.5202	0.4004	0.5166
9	2005	7	1.3974	0.0048	0.0324	8.5812	0.4075	0.5253
9	2005	8a	1.3976	0.0048	0.0324	10.2483	0.4916	0.6284
9	2005	8b	1.3976	0.0048	0.0324	11.7134	0.5648	0.7177
9	2006	2b	0.3609	0.0010	0.0072	4.5015	0.2475	0.3270
9	2006	3	1.4192	0.0051	0.0345	7.0682	0.3522	0.4569
9	2006	4	1.5326	0.0047	0.0323	7.8187	0.3833	0.4953
9	2006	5	1.5764	0.0046	0.0315	7.8187	0.3833	0.4953
9	2006	6	1.5795	0.0046	0.0314	8.2228	0.3946	0.5094
9	2006	7	1.3698	0.0052	0.0355	8.3210	0.4020	0.5184
9	2006	8a	1.3700	0.0052	0.0355	10.0770	0.4866	0.6223
9	2006	8b	1.3700	0.0052	0.0355	11.6790	0.5641	0.7168
9	2007	2b	0.3171	0.0009	0.0065	2.9617	0.0016	0.0140
9	2007	3	1.4271	0.0050	0.0344	4.8867	0.0025	0.0212
9	2007	4	1.5152	0.0048	0.0325	5.2300	0.0026	0.0225
9	2007	5	1.5534	0.0046	0.0317	5.2300	0.0026	0.0225
9	2007	6	1.5562	0.0046	0.0316	5.3875	0.0027	0.0229

Table A-g. SmartWay Category - Package

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
9	2007	7	1.3933	0.0052	0.0351	5.6386	0.0028	0.0238
9	2007	8a	1.3946	0.0052	0.0351	7.3897	0.0035	0.0296
9	2007	8b	1.3946	0.0052	0.0351	8.5380	0.0039	0.0335
9	2008	2b	0.2362	0.0008	0.0055	2.8669	0.0016	0.0137
9	2008	3	0.8971	0.0037	0.0254	4.3575	0.0023	0.0193
9	2008	4	0.8763	0.0036	0.0248	4.6486	0.0024	0.0203
9	2008	5	0.8649	0.0036	0.0245	4.6486	0.0024	0.0203
9	2008	6	0.8640	0.0036	0.0245	4.7818	0.0024	0.0208
9	2008	7	0.9037	0.0037	0.0256	4.8522	0.0025	0.0210
9	2008	8a	0.9036	0.0037	0.0256	6.0649	0.0029	0.0251
9	2008	8b	0.9036	0.0037	0.0256	8.0771	0.0037	0.0319
9	2009	2b	0.1429	0.0009	0.0058	2.8702	0.0016	0.0136
9	2009	3	0.5754	0.0037	0.0253	5.0803	0.0026	0.0220
9	2009	4	0.5769	0.0037	0.0251	5.3850	0.0027	0.0231
9	2009	5	0.5777	0.0037	0.0250	5.3850	0.0027	0.0231
9	2009	6	0.5778	0.0037	0.0250	5.4570	0.0027	0.0233
9	2009	7	0.5749	0.0037	0.0253	5.7508	0.0028	0.0243
9	2009	8a	0.5750	0.0037	0.0253	7.4513	0.0035	0.0299
9	2009	8b	0.5750	0.0037	0.0253	8.5226	0.0039	0.0335
9	2010	2b	0.0582	0.0006	0.0032	1.4776	0.0012	0.0098
9	2010	3	0.1172	0.0020	0.0140	3.4906	0.0032	0.0270
9	2010	4	0.1172	0.0020	0.0140	3.8096	0.0035	0.0297
9	2010	5	0.1172	0.0020	0.0140	3.8096	0.0035	0.0297
9	2010	6	0.1172	0.0020	0.0140	3.9269	0.0036	0.0311
9	2010	7	0.1172	0.0020	0.0140	4.2578	0.0034	0.0289
9	2010	8a	0.1172	0.0020	0.0140	6.3841	0.0023	0.0198
9	2010	8b	0.1172	0.0020	0.0140	7.7984	0.0015	0.0125
9	2011	2b	0.0628	0.0007	0.0038	1.5493	0.0011	0.0093
9	2011	3	0.1242	0.0020	0.0139	2.9050	0.0026	0.0219
9	2011	4	0.1356	0.0020	0.0136	3.1248	0.0028	0.0240
9	2011	5	0.1414	0.0020	0.0135	3.1248	0.0028	0.0240
9	2011	6	0.1418	0.0020	0.0135	3.2445	0.0029	0.0249
9	2011	7	0.1204	0.0020	0.0139	3.4234	0.0028	0.0238

Table A-g. SmartWay Category - Package

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
9	2011	8a	0.1204	0.0020	0.0139	5.1532	0.0022	0.0188
9	2011	8b	0.1204	0.0020	0.0139	6.9354	0.0014	0.0124
9	2012	2b	0.0661	0.0008	0.0042	1.5051	0.0012	0.0097
9	2012	3	0.1267	0.0020	0.0137	2.9583	0.0027	0.0233
9	2012	4	0.1311	0.0020	0.0137	3.1488	0.0029	0.0251
9	2012	5	0.1337	0.0020	0.0136	3.1488	0.0029	0.0251
9	2012	6	0.1339	0.0020	0.0136	3.2196	0.0030	0.0253
9	2012	7	0.1254	0.0020	0.0138	3.4992	0.0028	0.0242
9	2012	8a	0.1254	0.0020	0.0138	5.4232	0.0021	0.0180
9	2012	8b	0.1254	0.0020	0.0138	6.8711	0.0014	0.0122
9	2013	2b	0.0521	0.0006	0.0030	1.6917	0.0012	0.0096
9	2013	3	0.1330	0.0019	0.0127	3.0696	0.0029	0.0248
9	2013	4	0.1409	0.0018	0.0125	3.2593	0.0031	0.0269
9	2013	5	0.1448	0.0018	0.0124	3.2593	0.0031	0.0269
9	2013	6	0.1451	0.0018	0.0124	3.3319	0.0032	0.0273
9	2013	7	0.1305	0.0019	0.0127	3.5630	0.0030	0.0254
9	2013	8a	0.1307	0.0019	0.0127	4.9163	0.0020	0.0169
9	2013	8b	0.1307	0.0019	0.0127	5.7358	0.0013	0.0110
9	2014	2b	0.0528	0.0008	0.0031	0.9428	0.0004	0.0025
9	2014	3	0.1342	0.0018	0.0123	2.5106	0.0008	0.0063
9	2014	4	0.1372	0.0018	0.0123	2.6850	0.0008	0.0067
9	2014	5	0.1389	0.0018	0.0122	2.6850	0.0008	0.0067
9	2014	6	0.1390	0.0018	0.0122	2.7409	0.0008	0.0068
9	2014	7	0.1333	0.0018	0.0123	2.9326	0.0008	0.0067
9	2014	8a	0.1333	0.0018	0.0123	4.2699	0.0008	0.0065
9	2014	8b	0.1333	0.0018	0.0123	5.3334	0.0007	0.0061
9	2015	2b	0.0484	0.0008	0.0030	0.7788	0.0004	0.0023
9	2015	3	0.1341	0.0018	0.0123	2.3666	0.0007	0.0062
9	2015	4	0.1368	0.0018	0.0123	2.5838	0.0008	0.0067
9	2015	5	0.1384	0.0018	0.0123	2.5838	0.0008	0.0067
9	2015	6	0.1386	0.0018	0.0122	2.6406	0.0008	0.0068
9	2015	7	0.1333	0.0018	0.0123	2.8482	0.0008	0.0067
9	2015	8a	0.1333	0.0018	0.0123	4.2628	0.0008	0.0065

Table A-g. SmartWay Category - Package

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
9	2015	8b	0.1333	0.0018	0.0123	5.3615	0.0007	0.0061
9	2016	2b	0.0477	0.0009	0.0029	0.7336	0.0005	0.0022
9	2016	3	0.1340	0.0018	0.0123	2.2664	0.0007	0.0061
9	2016	4	0.1365	0.0018	0.0123	2.5082	0.0008	0.0067
9	2016	5	0.1380	0.0018	0.0123	2.5082	0.0008	0.0067
9	2016	6	0.1381	0.0018	0.0123	2.5568	0.0008	0.0068
9	2016	7	0.1333	0.0018	0.0123	2.7197	0.0008	0.0067
9	2016	8a	0.1333	0.0018	0.0123	3.9910	0.0008	0.0066
9	2016	8b	0.1333	0.0018	0.0123	5.1829	0.0007	0.0062
9	2017	2b	0.0339	0.0009	0.0027	0.6952	0.0005	0.0021
9	2017	3	0.1155	0.0018	0.0123	2.1309	0.0007	0.0058
9	2017	4	0.1174	0.0018	0.0122	2.3698	0.0008	0.0065
9	2017	5	0.1185	0.0018	0.0122	2.3698	0.0008	0.0065
9	2017	6	0.1186	0.0018	0.0122	2.4085	0.0008	0.0065
9	2017	7	0.1150	0.0018	0.0123	2.5413	0.0008	0.0065
9	2017	8a	0.1150	0.0018	0.0123	3.6257	0.0008	0.0064
9	2017	8b	0.1150	0.0018	0.0123	4.7231	0.0007	0.0061
9	2018	2b	0.0330	0.0009	0.0029	0.5213	0.0005	0.0021
9	2018	3	0.0998	0.0018	0.0122	2.0118	0.0007	0.0058
9	2018	4	0.1076	0.0018	0.0121	2.2585	0.0008	0.0065
9	2018	5	0.1117	0.0018	0.0121	2.2585	0.0008	0.0065
9	2018	6	0.1120	0.0018	0.0121	2.3637	0.0008	0.0067
9	2018	7	0.0973	0.0018	0.0123	2.4717	0.0008	0.0066
9	2018	8a	0.0973	0.0018	0.0123	3.5775	0.0008	0.0065
9	2018	8b	0.0973	0.0018	0.0123	4.6388	0.0007	0.0061
9	2019	2b	0.0250	0.0006	0.0018	0.3302	0.0003	0.0013
9	2019	3	0.0952	0.0011	0.0074	1.3913	0.0005	0.0038
9	2019	4	0.1029	0.0011	0.0074	1.5841	0.0005	0.0043
9	2019	5	0.1071	0.0011	0.0074	1.5841	0.0005	0.0043
9	2019	6	0.1074	0.0011	0.0074	1.6579	0.0005	0.0044
9	2019	7	0.0927	0.0011	0.0074	1.7408	0.0005	0.0044
9	2019	8a	0.0927	0.0011	0.0074	2.5663	0.0005	0.0044
9	2019	8b	0.0927	0.0011	0.0074	3.3545	0.0005	0.0043

Table A-9. SmartWay Category - Package

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
9	2020	2b	0.0219	0.0005	0.0016	0.2861	0.0003	0.0012
9	2020	3	0.0906	0.0011	0.0074	1.3430	0.0005	0.0037
9	2020	4	0.0987	0.0011	0.0074	1.5671	0.0005	0.0043
9	2020	5	0.1030	0.0011	0.0074	1.5671	0.0005	0.0043
9	2020	6	0.1034	0.0011	0.0074	1.6399	0.0005	0.0044
9	2020	7	0.0880	0.0011	0.0074	1.7179	0.0005	0.0044
9	2020	8a	0.0880	0.0011	0.0074	2.5304	0.0005	0.0044
9	2020	8b	0.0880	0.0011	0.0074	3.3444	0.0005	0.0043
9	2021	2b	0.0188	0.0004	0.0014	0.2570	0.0002	0.0011
9	2021	3	0.0854	0.0011	0.0074	1.3099	0.0004	0.0037
9	2021	4	0.0932	0.0011	0.0073	1.5453	0.0005	0.0042
9	2021	5	0.0974	0.0011	0.0073	1.5453	0.0005	0.0042
9	2021	6	0.0977	0.0011	0.0073	1.6158	0.0005	0.0044
9	2021	7	0.0829	0.0011	0.0074	1.6872	0.0005	0.0043
9	2021	8a	0.0829	0.0011	0.0074	2.4643	0.0005	0.0043
9	2021	8b	0.0829	0.0011	0.0074	3.2730	0.0005	0.0041
9	2022	2b	0.0160	0.0004	0.0014	0.2335	0.0002	0.0011
9	2022	3	0.0809	0.0011	0.0074	1.2929	0.0005	0.0037
9	2022	4	0.0890	0.0011	0.0073	1.5284	0.0005	0.0042
9	2022	5	0.0934	0.0011	0.0073	1.5284	0.0005	0.0042
9	2022	6	0.0937	0.0011	0.0073	1.5991	0.0005	0.0044
9	2022	7	0.0783	0.0011	0.0074	1.6744	0.0005	0.0043
9	2022	8a	0.0783	0.0011	0.0074	2.4693	0.0005	0.0043
9	2022	8b	0.0783	0.0011	0.0074	3.2767	0.0005	0.0041

Table A-10. SmartWay Category - Refrigerated

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
10	1987	2b	5.0882	0.0049	0.0332	7.3329	0.1722	0.2262
10	1987	3	5.8338	0.0156	0.1062	12.4562	0.3862	0.4901
10	1987	4	5.8916	0.0162	0.1103	14.1745	0.4458	0.5637
10	1987	5	5.6976	0.0141	0.0964	14.7712	0.4168	0.5273

Table A-10. SmartWay Category - Refrigerated

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
10	1987	6	5.4196	0.0112	0.0763	14.8358	0.4579	0.5789
10	1987	7	5.4196	0.0112	0.0763	16.0980	0.4652	0.5881
10	1987	8a	5.4492	0.0114	0.0776	25.3347	0.6842	0.8629
10	1987	8b	5.4492	0.0114	0.0776	30.5799	0.7982	1.0059
10	1988	2b	5.0882	0.0049	0.0332	7.3329	0.1722	0.2262
10	1988	3	5.8338	0.0156	0.1062	12.4562	0.3862	0.4901
10	1988	4	5.8916	0.0162	0.1103	14.1745	0.4458	0.5637
10	1988	5	5.6976	0.0141	0.0964	14.7712	0.4168	0.5273
10	1988	6	5.4196	0.0112	0.0763	14.8358	0.4579	0.5789
10	1988	7	5.4196	0.0112	0.0763	16.0980	0.4652	0.5881
10	1988	8a	5.4492	0.0114	0.0776	25.3347	0.6842	0.8629
10	1988	8b	5.4492	0.0114	0.0776	30.5799	0.7982	1.0059
10	1989	2b	5.0882	0.0049	0.0332	7.3329	0.1722	0.2262
10	1989	3	5.8338	0.0156	0.1062	12.4562	0.3862	0.4901
10	1989	4	5.8916	0.0162	0.1103	14.1745	0.4458	0.5637
10	1989	5	5.6976	0.0141	0.0964	14.7712	0.4168	0.5273
10	1989	6	5.4196	0.0112	0.0763	14.8358	0.4579	0.5789
10	1989	7	5.4196	0.0112	0.0763	16.0980	0.4652	0.5881
10	1989	8a	5.4492	0.0114	0.0776	25.3347	0.6842	0.8629
10	1989	8b	5.4492	0.0114	0.0776	30.5799	0.7982	1.0059
10	1990	2b	5.0882	0.0049	0.0332	7.3329	0.1722	0.2262
10	1990	3	5.8338	0.0156	0.1062	12.4562	0.3862	0.4901
10	1990	4	5.8916	0.0162	0.1103	14.1745	0.4458	0.5637
10	1990	5	5.6976	0.0141	0.0964	14.7712	0.4168	0.5273
10	1990	6	5.4196	0.0112	0.0763	14.8358	0.4579	0.5789
10	1990	7	5.4196	0.0112	0.0763	16.0980	0.4652	0.5881
10	1990	8a	5.4492	0.0114	0.0776	25.3347	0.6842	0.8629
10	1990	8b	5.4492	0.0114	0.0776	30.5799	0.7982	1.0059
10	1991	2b	5.0882	0.0049	0.0332	7.3329	0.1722	0.2262
10	1991	3	5.8338	0.0156	0.1062	12.4562	0.3862	0.4901
10	1991	4	5.8916	0.0162	0.1103	14.1745	0.4458	0.5637
10	1991	5	5.6976	0.0141	0.0964	14.7712	0.4168	0.5273
10	1991	6	5.4196	0.0112	0.0763	14.8358	0.4579	0.5789

Table A-10. SmartWay Category - Refrigerated

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
10	1991	7	5.4196	0.0112	0.0763	16.0980	0.4652	0.5881
10	1991	8a	5.4492	0.0114	0.0776	25.3347	0.6842	0.8629
10	1991	8b	5.4492	0.0114	0.0776	30.5799	0.7982	1.0059
10	1992	2b	5.0882	0.0049	0.0332	7.3329	0.1722	0.2262
10	1992	3	5.8338	0.0156	0.1062	12.4562	0.3862	0.4901
10	1992	4	5.8916	0.0162	0.1103	14.1745	0.4458	0.5637
10	1992	5	5.6976	0.0141	0.0964	14.7712	0.4168	0.5273
10	1992	6	5.4196	0.0112	0.0763	14.8358	0.4579	0.5789
10	1992	7	5.4196	0.0112	0.0763	16.0980	0.4652	0.5881
10	1992	8a	5.4492	0.0114	0.0776	25.3347	0.6842	0.8629
10	1992	8b	5.4492	0.0114	0.0776	30.5799	0.7982	1.0059
10	1993	2b	5.1268	0.0061	0.0418	7.8055	0.2056	0.2672
10	1993	3	5.8803	0.0163	0.1110	10.3885	0.3006	0.3848
10	1993	4	5.9215	0.0166	0.1130	15.6484	0.4835	0.6112
10	1993	5	5.8846	0.0163	0.1113	15.6564	0.4255	0.5383
10	1993	6	5.2627	0.0115	0.0781	16.9730	0.4621	0.5842
10	1993	7	5.2627	0.0115	0.0781	19.1219	0.5274	0.6662
10	1993	8a	5.3228	0.0114	0.0779	28.9342	0.7546	0.9513
10	1993	8b	5.3228	0.0114	0.0779	31.0881	0.8006	1.0088
10	1994	2b	4.4841	0.0062	0.0421	7.3047	0.4098	0.5258
10	1994	3	5.8849	0.0115	0.0782	9.6118	0.5052	0.6442
10	1994	4	5.9468	0.0115	0.0787	13.1103	0.6239	0.7901
10	1994	5	5.9437	0.0115	0.0787	16.0366	0.6875	0.8701
10	1994	6	5.2444	0.0106	0.0722	16.4530	0.6787	0.8590
10	1994	7	5.2444	0.0106	0.0722	20.0911	0.6847	0.8661
10	1994	8a	7.7465	0.0145	0.0986	28.9444	0.7271	0.9183
10	1994	8b	7.7465	0.0145	0.0986	30.9332	0.7382	0.9319
10	1995	2b	4.5848	0.0086	0.0586	7.4758	0.4042	0.5179
10	1995	3	5.7707	0.0230	0.1567	12.7561	0.5910	0.7496
10	1995	4	5.9020	0.0244	0.1666	14.4150	0.6306	0.7987
10	1995	5	5.8694	0.0241	0.1643	16.6158	0.6772	0.8570
10	1995	6	5.2316	0.0169	0.1156	17.1929	0.6633	0.8394
10	1995	7	5.2316	0.0169	0.1156	19.5268	0.6779	0.8576

Table A-10. SmartWay Category - Refrigerated

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
10	1995	8a	7.5885	0.0341	0.2329	28.5739	0.7259	0.9169
10	1995	8b	7.5885	0.0341	0.2329	30.6913	0.7367	0.9300
10	1996	2b	3.7440	0.0054	0.0368	7.5025	0.3897	0.4988
10	1996	3	5.8609	0.0165	0.1125	13.9599	0.6272	0.7944
10	1996	4	5.9292	0.0171	0.1166	15.5015	0.6456	0.8173
10	1996	5	5.9260	0.0171	0.1165	16.6119	0.6821	0.8633
10	1996	6	5.2807	0.0113	0.0768	18.8240	0.6765	0.8559
10	1996	7	5.2807	0.0113	0.0768	19.8871	0.6838	0.8650
10	1996	8a	7.5886	0.0253	0.1723	28.5771	0.7266	0.9178
10	1996	8b	7.5886	0.0253	0.1723	30.8123	0.7394	0.9334
10	1997	2b	3.4600	0.0043	0.0295	5.9720	0.3218	0.4155
10	1997	3	5.7804	0.0148	0.1007	11.1131	0.5187	0.6597
10	1997	4	5.9387	0.0157	0.1072	13.3437	0.6355	0.8047
10	1997	5	5.9027	0.0155	0.1059	15.1474	0.6850	0.8669
10	1997	6	5.2634	0.0116	0.0795	15.1629	0.6536	0.8273
10	1997	7	5.2634	0.0116	0.0795	16.9422	0.6641	0.8405
10	1997	8a	8.7922	0.0103	0.0703	27.4185	0.7167	0.9054
10	1997	8b	8.7922	0.0103	0.0703	30.4033	0.7332	0.9256
10	1998	2b	3.0856	0.0037	0.0249	6.4651	0.2494	0.3230
10	1998	3	3.9071	0.0148	0.1009	13.1767	0.3424	0.4369
10	1998	4	3.9426	0.0165	0.1128	13.8969	0.3524	0.4492
10	1998	5	3.8943	0.0145	0.0993	14.5927	0.3380	0.4313
10	1998	6	3.8274	0.0110	0.0749	14.2109	0.3471	0.4426
10	1998	7	3.8274	0.0110	0.0749	15.1567	0.3494	0.4455
10	1998	8a	4.3720	0.0247	0.1684	25.2487	0.4664	0.5909
10	1998	8b	4.3720	0.0247	0.1684	28.7245	0.5022	0.6351
10	1999	2b	2.3984	0.0044	0.0299	5.9272	0.2489	0.3224
10	1999	3	3.8896	0.0143	0.0979	8.8706	0.3177	0.4063
10	1999	4	4.0396	0.0150	0.1021	9.4374	0.3313	0.4227
10	1999	5	4.0719	0.0148	0.1013	9.4768	0.3319	0.4235
10	1999	6	4.0742	0.0149	0.1013	9.6161	0.3331	0.4250
10	1999	7	3.7717	0.0138	0.0943	10.1408	0.3411	0.4350
10	1999	8a	3.7956	0.0147	0.1003	18.7042	0.4671	0.5919

Table A-10. SmartWay Category - Refrigerated

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
10	1999	8b	3.7956	0.0147	0.1003	21.4277	0.5066	0.6406
10	2000	2b	2.1362	0.0040	0.0273	6.0661	0.2525	0.3267
10	2000	3	3.9545	0.0135	0.0919	8.8997	0.3195	0.4084
10	2000	4	4.1377	0.0122	0.0833	9.3605	0.3301	0.4213
10	2000	5	4.1880	0.0119	0.0809	9.4384	0.3314	0.4229
10	2000	6	4.1912	0.0118	0.0807	9.6051	0.3350	0.4274
10	2000	7	3.8358	0.0143	0.0976	10.8890	0.3527	0.4495
10	2000	8a	3.8358	0.0143	0.0976	17.2617	0.4448	0.5641
10	2000	8b	3.8358	0.0143	0.0976	21.2510	0.5041	0.6376
10	2001	2b	0.7160	0.0029	0.0195	5.7554	0.2453	0.3179
10	2001	3	1.6336	0.0114	0.0780	8.6361	0.3122	0.3992
10	2001	4	1.6948	0.0113	0.0772	9.0184	0.3214	0.4103
10	2001	5	1.7182	0.0113	0.0769	9.0577	0.3221	0.4112
10	2001	6	1.7198	0.0113	0.0769	9.8432	0.3353	0.4277
10	2001	7	1.6066	0.0115	0.0783	9.6842	0.3325	0.4242
10	2001	8a	1.6066	0.0115	0.0783	18.1746	0.4575	0.5800
10	2001	8b	1.6066	0.0115	0.0783	21.0732	0.5009	0.6337
10	2002	2b	0.6805	0.0024	0.0164	5.8193	0.2468	0.3198
10	2002	3	1.6596	0.0075	0.0514	8.4390	0.3073	0.3933
10	2002	4	1.7433	0.0069	0.0471	8.9967	0.3205	0.4092
10	2002	5	1.7688	0.0067	0.0458	8.9967	0.3205	0.4092
10	2002	6	1.7704	0.0067	0.0457	9.3512	0.3284	0.4191
10	2002	7	1.6118	0.0079	0.0539	9.9406	0.3358	0.4284
10	2002	8a	1.6118	0.0079	0.0539	15.6491	0.4198	0.5332
10	2002	8b	1.6118	0.0079	0.0539	20.7066	0.4952	0.6266
10	2003	2b	0.6145	0.0019	0.0127	4.1737	0.2085	0.2702
10	2003	3	1.6409	0.0066	0.0448	5.7744	0.2663	0.3408
10	2003	4	1.7122	0.0064	0.0439	6.1325	0.2794	0.3567
10	2003	5	1.7347	0.0064	0.0437	6.1325	0.2794	0.3567
10	2003	6	1.7361	0.0064	0.0437	6.5053	0.2901	0.3702
10	2003	7	1.6020	0.0066	0.0452	6.6852	0.2995	0.3819
10	2003	8a	1.6022	0.0066	0.0452	8.7154	0.3876	0.4919
10	2003	8b	1.6022	0.0066	0.0452	10.1423	0.4520	0.5718

Table A-10. SmartWay Category - Refrigerated

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
10	2004	2b	0.4938	0.0012	0.0081	4.1465	0.2070	0.2682
10	2004	3	1.6591	0.0049	0.0338	5.8205	0.2668	0.3414
10	2004	4	1.7572	0.0048	0.0325	6.2076	0.2808	0.3585
10	2004	5	1.7863	0.0047	0.0322	6.2076	0.2808	0.3585
10	2004	6	1.7882	0.0047	0.0321	6.5699	0.2931	0.3740
10	2004	7	1.6016	0.0051	0.0345	6.7381	0.3014	0.3843
10	2004	8a	1.6016	0.0051	0.0345	8.6891	0.3860	0.4899
10	2004	8b	1.6016	0.0051	0.0345	10.1449	0.4525	0.5724
10	2005	2b	0.4005	0.0010	0.0068	4.0444	0.2023	0.2623
10	2005	3	1.6470	0.0048	0.0330	5.6909	0.2618	0.3353
10	2005	4	1.7012	0.0047	0.0322	6.1792	0.2797	0.3571
10	2005	5	1.7255	0.0047	0.0319	6.1792	0.2797	0.3571
10	2005	6	1.7273	0.0047	0.0318	6.4800	0.2909	0.3713
10	2005	7	1.6266	0.0049	0.0333	6.7751	0.3039	0.3874
10	2005	8a	1.6268	0.0049	0.0333	8.9197	0.3960	0.5023
10	2005	8b	1.6268	0.0049	0.0333	10.2047	0.4548	0.5753
10	2006	2b	0.4427	0.0011	0.0078	4.0996	0.2055	0.2664
10	2006	3	1.6460	0.0051	0.0349	5.6404	0.2600	0.3330
10	2006	4	1.7167	0.0049	0.0337	6.0985	0.2764	0.3529
10	2006	5	1.7440	0.0049	0.0332	6.0985	0.2764	0.3529
10	2006	6	1.7459	0.0049	0.0332	6.3342	0.2857	0.3646
10	2006	7	1.6152	0.0052	0.0354	6.6407	0.2988	0.3809
10	2006	8a	1.6154	0.0052	0.0354	8.8078	0.3916	0.4968
10	2006	8b	1.6154	0.0052	0.0354	10.1840	0.4543	0.5746
10	2007	2b	0.3889	0.0010	0.0071	2.2110	0.0014	0.0116
10	2007	3	1.6486	0.0051	0.0348	3.3962	0.0018	0.0154
10	2007	4	1.7039	0.0049	0.0337	3.6108	0.0019	0.0160
10	2007	5	1.7277	0.0049	0.0332	3.6108	0.0019	0.0160
10	2007	6	1.7295	0.0049	0.0332	3.7554	0.0019	0.0165
10	2007	7	1.6274	0.0052	0.0352	4.1607	0.0021	0.0177
10	2007	8a	1.6284	0.0052	0.0352	6.1230	0.0028	0.0239
10	2007	8b	1.6284	0.0052	0.0352	7.0723	0.0031	0.0269
10	2008	2b	0.2936	0.0009	0.0060	2.1443	0.0013	0.0114

Table A-10. SmartWay Category - Refrigerated

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
10	2008	3	1.0792	0.0038	0.0258	3.0046	0.0016	0.0141
10	2008	4	1.0460	0.0037	0.0255	3.1727	0.0017	0.0146
10	2008	5	1.0279	0.0037	0.0253	3.1727	0.0017	0.0146
10	2008	6	1.0265	0.0037	0.0253	3.2868	0.0017	0.0150
10	2008	7	1.0895	0.0038	0.0259	3.4195	0.0018	0.0154
10	2008	8a	1.0894	0.0038	0.0259	4.9030	0.0023	0.0200
10	2008	8b	1.0894	0.0038	0.0259	6.7146	0.0030	0.0258
10	2009	2b	0.1807	0.0010	0.0063	2.1276	0.0013	0.0112
10	2009	3	0.6571	0.0038	0.0257	3.5213	0.0018	0.0158
10	2009	4	0.6560	0.0038	0.0257	3.7166	0.0019	0.0164
10	2009	5	0.6554	0.0038	0.0256	3.7166	0.0019	0.0164
10	2009	6	0.6554	0.0038	0.0256	3.7932	0.0019	0.0166
10	2009	7	0.6574	0.0038	0.0258	4.2405	0.0021	0.0180
10	2009	8a	0.6574	0.0038	0.0258	6.1511	0.0028	0.0239
10	2009	8b	0.6574	0.0038	0.0258	7.0481	0.0031	0.0268
10	2010	2b	0.0699	0.0006	0.0034	0.9188	0.0009	0.0077
10	2010	3	0.1071	0.0017	0.0116	1.8453	0.0017	0.0147
10	2010	4	0.1071	0.0017	0.0116	1.9969	0.0018	0.0158
10	2010	5	0.1071	0.0017	0.0116	1.9969	0.0018	0.0158
10	2010	6	0.1071	0.0017	0.0116	2.0671	0.0019	0.0163
10	2010	7	0.1071	0.0017	0.0116	2.3818	0.0017	0.0149
10	2010	8a	0.1071	0.0017	0.0116	3.7766	0.0012	0.0100
10	2010	8b	0.1071	0.0017	0.0116	4.4531	0.0008	0.0070
10	2011	2b	0.0724	0.0007	0.0039	1.0149	0.0009	0.0076
10	2011	3	0.1143	0.0017	0.0114	1.5792	0.0015	0.0130
10	2011	4	0.1268	0.0016	0.0110	1.6719	0.0016	0.0139
10	2011	5	0.1332	0.0016	0.0108	1.6719	0.0016	0.0139
10	2011	6	0.1336	0.0016	0.0108	1.7277	0.0017	0.0142
10	2011	7	0.1101	0.0017	0.0115	1.8855	0.0016	0.0134
10	2011	8a	0.1101	0.0017	0.0115	2.9298	0.0012	0.0101
10	2011	8b	0.1101	0.0017	0.0115	3.6987	0.0008	0.0070
10	2012	2b	0.0742	0.0008	0.0042	0.9524	0.0010	0.0077
10	2012	3	0.1162	0.0016	0.0112	1.5739	0.0016	0.0135

Table A-10. SmartWay Category - Refrigerated

Category ID	Engine Model Yr	Truck Class	Gas NO _x g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NO _x g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
10	2012	4	0.1211	0.0016	0.0111	1.6570	0.0017	0.0143
10	2012	5	0.1240	0.0016	0.0110	1.6570	0.0017	0.0143
10	2012	6	0.1242	0.0016	0.0110	1.6950	0.0017	0.0143
10	2012	7	0.1147	0.0017	0.0113	1.9176	0.0016	0.0134
10	2012	8a	0.1147	0.0017	0.0113	3.0106	0.0011	0.0096
10	2012	8b	0.1147	0.0017	0.0113	3.6106	0.0008	0.0069
10	2013	2b	0.0607	0.0007	0.0031	1.1392	0.0009	0.0075
10	2013	3	0.1224	0.0015	0.0103	1.6701	0.0016	0.0136
10	2013	4	0.1314	0.0015	0.0101	1.7438	0.0017	0.0145
10	2013	5	0.1358	0.0015	0.0099	1.7438	0.0017	0.0145
10	2013	6	0.1362	0.0015	0.0099	1.7762	0.0017	0.0145
10	2013	7	0.1194	0.0015	0.0104	1.9440	0.0015	0.0133
10	2013	8a	0.1198	0.0015	0.0104	2.6180	0.0010	0.0086
10	2013	8b	0.1198	0.0015	0.0104	2.9183	0.0007	0.0062
10	2014	2b	0.0621	0.0009	0.0032	0.5212	0.0004	0.0023
10	2014	3	0.1229	0.0015	0.0099	1.0979	0.0005	0.0041
10	2014	4	0.1263	0.0014	0.0099	1.1643	0.0005	0.0043
10	2014	5	0.1283	0.0014	0.0098	1.1643	0.0005	0.0043
10	2014	6	0.1285	0.0014	0.0098	1.1900	0.0005	0.0044
10	2014	7	0.1219	0.0015	0.0100	1.3419	0.0005	0.0043
10	2014	8a	0.1219	0.0015	0.0100	2.0846	0.0005	0.0043
10	2014	8b	0.1219	0.0015	0.0100	2.5108	0.0005	0.0040
10	2015	2b	0.0566	0.0009	0.0031	0.4107	0.0005	0.0022
10	2015	3	0.1228	0.0015	0.0099	0.9830	0.0005	0.0040
10	2015	4	0.1260	0.0014	0.0099	1.0644	0.0005	0.0043
10	2015	5	0.1278	0.0014	0.0098	1.0644	0.0005	0.0043
10	2015	6	0.1280	0.0014	0.0098	1.0917	0.0005	0.0044
10	2015	7	0.1219	0.0015	0.0100	1.2604	0.0005	0.0043
10	2015	8a	0.1219	0.0015	0.0100	2.0690	0.0005	0.0043
10	2015	8b	0.1219	0.0015	0.0100	2.5247	0.0005	0.0040
10	2016	2b	0.0560	0.0010	0.0030	0.3936	0.0005	0.0022
10	2016	3	0.1227	0.0015	0.0099	0.9361	0.0005	0.0040
10	2016	4	0.1256	0.0014	0.0099	1.0250	0.0005	0.0043

Table A-10. SmartWay Category - Refrigerated

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
10	2016	5	0.1273	0.0014	0.0098	1.0250	0.0005	0.0043
10	2016	6	0.1274	0.0014	0.0098	1.0479	0.0005	0.0044
10	2016	7	0.1219	0.0015	0.0100	1.1808	0.0005	0.0043
10	2016	8a	0.1219	0.0015	0.0100	1.9257	0.0005	0.0043
10	2016	8b	0.1219	0.0015	0.0100	2.4300	0.0005	0.0040
10	2017	2b	0.0386	0.0010	0.0028	0.3719	0.0005	0.0020
10	2017	3	0.1044	0.0015	0.0099	0.8779	0.0005	0.0038
10	2017	4	0.1065	0.0014	0.0099	0.9654	0.0005	0.0042
10	2017	5	0.1078	0.0014	0.0098	0.9654	0.0005	0.0042
10	2017	6	0.1079	0.0014	0.0098	0.9833	0.0005	0.0042
10	2017	7	0.1038	0.0015	0.0099	1.0876	0.0005	0.0042
10	2017	8a	0.1038	0.0015	0.0099	1.7071	0.0005	0.0042
10	2017	8b	0.1038	0.0015	0.0099	2.1583	0.0005	0.0040
10	2018	2b	0.0374	0.0010	0.0029	0.2640	0.0005	0.0020
10	2018	3	0.0906	0.0014	0.0099	0.8107	0.0005	0.0038
10	2018	4	0.0991	0.0014	0.0097	0.9050	0.0005	0.0042
10	2018	5	0.1035	0.0014	0.0096	0.9050	0.0005	0.0042
10	2018	6	0.1039	0.0014	0.0096	0.9479	0.0005	0.0042
10	2018	7	0.0879	0.0015	0.0099	1.0412	0.0005	0.0042
10	2018	8a	0.0879	0.0015	0.0099	1.6657	0.0005	0.0042
10	2018	8b	0.0879	0.0015	0.0099	2.1023	0.0005	0.0040
10	2019	2b	0.0273	0.0007	0.0018	0.1663	0.0003	0.0012
10	2019	3	0.0864	0.0009	0.0060	0.5566	0.0003	0.0025
10	2019	4	0.0947	0.0009	0.0059	0.6306	0.0003	0.0027
10	2019	5	0.0992	0.0009	0.0058	0.6306	0.0003	0.0027
10	2019	6	0.0995	0.0009	0.0058	0.6612	0.0003	0.0028
10	2019	7	0.0837	0.0009	0.0060	0.7315	0.0003	0.0028
10	2019	8a	0.0837	0.0009	0.0060	1.1966	0.0003	0.0029
10	2019	8b	0.0837	0.0009	0.0060	1.5209	0.0003	0.0028
10	2020	2b	0.0239	0.0006	0.0016	0.1445	0.0003	0.0011
10	2020	3	0.0822	0.0009	0.0060	0.5347	0.0003	0.0024
10	2020	4	0.0909	0.0009	0.0059	0.6212	0.0003	0.0027
10	2020	5	0.0955	0.0009	0.0058	0.6212	0.0003	0.0027

Table A-10. SmartWay Category - Refrigerated

Category ID	Engine Model Yr	Truck Class	Gas NO _x g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NO _x g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
10	2020	6	0.0958	0.0009	0.0058	0.6513	0.0003	0.0028
10	2020	7	0.0795	0.0009	0.0060	0.7182	0.0003	0.0028
10	2020	8a	0.0795	0.0009	0.0060	1.1799	0.0003	0.0029
10	2020	8b	0.0795	0.0009	0.0060	1.5171	0.0003	0.0028
10	2021	2b	0.0203	0.0005	0.0014	0.1283	0.0002	0.0011
10	2021	3	0.0773	0.0009	0.0059	0.5181	0.0003	0.0024
10	2021	4	0.0854	0.0009	0.0058	0.6093	0.0003	0.0027
10	2021	5	0.0898	0.0009	0.0058	0.6093	0.0003	0.0027
10	2021	6	0.0901	0.0008	0.0058	0.6382	0.0003	0.0028
10	2021	7	0.0747	0.0009	0.0060	0.6983	0.0003	0.0027
10	2021	8a	0.0747	0.0009	0.0060	1.1328	0.0003	0.0028
10	2021	8b	0.0747	0.0009	0.0060	1.4628	0.0003	0.0027
10	2022	2b	0.0171	0.0005	0.0014	0.1137	0.0002	0.0011
10	2022	3	0.0731	0.0009	0.0059	0.5080	0.0003	0.0024
10	2022	4	0.0816	0.0009	0.0058	0.5998	0.0003	0.0027
10	2022	5	0.0861	0.0009	0.0058	0.5998	0.0003	0.0027
10	2022	6	0.0864	0.0008	0.0058	0.6290	0.0003	0.0028
10	2022	7	0.0705	0.0009	0.0060	0.6919	0.0003	0.0027
10	2022	8a	0.0705	0.0009	0.0060	1.1351	0.0003	0.0028
10	2022	8b	0.0705	0.0009	0.0060	1.4641	0.0003	0.0027

Table A-11. SmartWay Category - Specialized

Category ID	Engine Model Yr	Truck Class	Gas NO _x g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NO _x g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
11	1987	2b	4.4465	0.0075	0.0514	7.8248	0.1824	0.2389
11	1987	3	5.5464	0.0271	0.1851	15.1333	0.4783	0.6080
11	1987	4	5.5753	0.0282	0.1923	17.4315	0.5646	0.7158
11	1987	5	5.4812	0.0245	0.1674	17.8340	0.5576	0.7075
11	1987	6	5.3498	0.0192	0.1311	17.8637	0.5730	0.7264
11	1987	7	5.3498	0.0192	0.1311	18.6863	0.5832	0.7394
11	1987	8a	5.3743	0.0195	0.1331	24.7534	0.7183	0.9076
11	1987	8b	5.3743	0.0195	0.1331	28.3282	0.7930	1.0005

Table A-11. SmartWay Category - Specialized

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
11	1988	2b	4.4465	0.0075	0.0514	7.8248	0.1824	0.2389
11	1988	3	5.5464	0.0271	0.1851	15.1333	0.4783	0.6080
11	1988	4	5.5753	0.0282	0.1923	17.4315	0.5646	0.7158
11	1988	5	5.4812	0.0245	0.1674	17.8340	0.5576	0.7075
11	1988	6	5.3498	0.0192	0.1311	17.8637	0.5730	0.7264
11	1988	7	5.3498	0.0192	0.1311	18.6863	0.5832	0.7394
11	1988	8a	5.3743	0.0195	0.1331	24.7534	0.7183	0.9076
11	1988	8b	5.3743	0.0195	0.1331	28.3282	0.7930	1.0005
11	1989	2b	4.4465	0.0075	0.0514	7.8248	0.1824	0.2389
11	1989	3	5.5464	0.0271	0.1851	15.1333	0.4783	0.6080
11	1989	4	5.5753	0.0282	0.1923	17.4315	0.5646	0.7158
11	1989	5	5.4812	0.0245	0.1674	17.8340	0.5576	0.7075
11	1989	6	5.3498	0.0192	0.1311	17.8637	0.5730	0.7264
11	1989	7	5.3498	0.0192	0.1311	18.6863	0.5832	0.7394
11	1989	8a	5.3743	0.0195	0.1331	24.7534	0.7183	0.9076
11	1989	8b	5.3743	0.0195	0.1331	28.3282	0.7930	1.0005
11	1990	2b	4.4465	0.0075	0.0514	7.8248	0.1824	0.2389
11	1990	3	5.5464	0.0271	0.1851	15.1333	0.4783	0.6080
11	1990	4	5.5753	0.0282	0.1923	17.4315	0.5646	0.7158
11	1990	5	5.4812	0.0245	0.1674	17.8340	0.5576	0.7075
11	1990	6	5.3498	0.0192	0.1311	17.8637	0.5730	0.7264
11	1990	7	5.3498	0.0192	0.1311	18.6863	0.5832	0.7394
11	1990	8a	5.3743	0.0195	0.1331	24.7534	0.7183	0.9076
11	1990	8b	5.3743	0.0195	0.1331	28.3282	0.7930	1.0005
11	1991	2b	4.4465	0.0075	0.0514	7.8248	0.1824	0.2389
11	1991	3	5.5464	0.0271	0.1851	15.1333	0.4783	0.6080
11	1991	4	5.5753	0.0282	0.1923	17.4315	0.5646	0.7158
11	1991	5	5.4812	0.0245	0.1674	17.8340	0.5576	0.7075
11	1991	6	5.3498	0.0192	0.1311	17.8637	0.5730	0.7264
11	1991	7	5.3498	0.0192	0.1311	18.6863	0.5832	0.7394
11	1991	8a	5.3743	0.0195	0.1331	24.7534	0.7183	0.9076
11	1991	8b	5.3743	0.0195	0.1331	28.3282	0.7930	1.0005
11	1992	2b	4.4465	0.0075	0.0514	7.8248	0.1824	0.2389

Table A-11. SmartWay Category - Specialized

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
11	1992	3	5.5464	0.0271	0.1851	15.1333	0.4783	0.6080
11	1992	4	5.5753	0.0282	0.1923	17.4315	0.5646	0.7158
11	1992	5	5.4812	0.0245	0.1674	17.8340	0.5576	0.7075
11	1992	6	5.3498	0.0192	0.1311	17.8637	0.5730	0.7264
11	1992	7	5.3498	0.0192	0.1311	18.6863	0.5832	0.7394
11	1992	8a	5.3743	0.0195	0.1331	24.7534	0.7183	0.9076
11	1992	8b	5.3743	0.0195	0.1331	28.3282	0.7930	1.0005
11	1993	2b	4.5600	0.0097	0.0664	8.5746	0.2199	0.2854
11	1993	3	5.5509	0.0283	0.1933	12.2512	0.3600	0.4604
11	1993	4	5.5805	0.0289	0.1971	18.4784	0.5877	0.7447
11	1993	5	5.5537	0.0284	0.1938	18.7212	0.5852	0.7426
11	1993	6	5.1144	0.0192	0.1311	19.5473	0.6042	0.7660
11	1993	7	5.1144	0.0192	0.1311	20.8345	0.6341	0.8031
11	1993	8a	5.1679	0.0191	0.1301	27.1918	0.7679	0.9694
11	1993	8b	5.1679	0.0191	0.1301	28.6685	0.7978	1.0064
11	1994	2b	3.9355	0.0035	0.0242	8.2086	0.6475	0.8329
11	1994	3	5.5502	0.0060	0.0406	11.4347	0.7918	1.0131
11	1994	4	5.6004	0.0060	0.0409	16.2208	0.9685	1.2309
11	1994	5	5.5968	0.0060	0.0408	19.0872	1.0731	1.3625
11	1994	6	5.0374	0.0056	0.0384	19.1389	1.0364	1.3160
11	1994	7	5.0374	0.0056	0.0384	21.2476	0.9616	1.2202
11	1994	8a	7.5345	0.0082	0.0558	27.1146	0.8064	1.0206
11	1994	8b	7.5345	0.0082	0.0558	28.5533	0.7686	0.9718
11	1995	2b	4.1135	0.0079	0.0540	8.4139	0.6392	0.8216
11	1995	3	5.4608	0.0231	0.1578	15.5857	0.9227	1.1741
11	1995	4	5.5649	0.0247	0.1683	17.2813	0.9667	1.2286
11	1995	5	5.5385	0.0243	0.1659	19.4411	1.0346	1.3136
11	1995	6	5.0359	0.0166	0.1134	19.4663	0.9765	1.2399
11	1995	7	5.0359	0.0166	0.1134	20.9981	0.9561	1.2134
11	1995	8a	7.2687	0.0296	0.2017	26.9119	0.8146	1.0312
11	1995	8b	7.2687	0.0296	0.2017	28.4033	0.7732	0.9777
11	1996	2b	3.3468	0.0056	0.0383	8.6365	0.6151	0.7903
11	1996	3	5.5367	0.0196	0.1340	17.1599	0.9655	1.2271

Table A-11. SmartWay Category - Specialized

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
11	1996	4	5.5881	0.0204	0.1391	18.3879	0.9700	1.2320
11	1996	5	5.5848	0.0204	0.1392	19.4077	1.0420	1.3231
11	1996	6	5.1037	0.0130	0.0889	20.6382	0.9749	1.2375
11	1996	7	5.1037	0.0130	0.0889	21.3590	0.9592	1.2172
11	1996	8a	7.2688	0.0224	0.1529	26.9732	0.8173	1.0346
11	1996	8b	7.2688	0.0224	0.1529	28.5347	0.7755	0.9806
11	1997	2b	2.7299	0.0029	0.0201	6.4354	0.5096	0.6590
11	1997	3	5.4722	0.0103	0.0704	13.2011	0.8062	1.0286
11	1997	4	5.5940	0.0110	0.0749	16.5521	0.9912	1.2596
11	1997	5	5.5660	0.0108	0.0740	18.1115	1.0650	1.3524
11	1997	6	5.0741	0.0082	0.0557	17.8515	0.9909	1.2587
11	1997	7	5.0741	0.0082	0.0557	19.0229	0.9770	1.2407
11	1997	8a	8.5604	0.0062	0.0423	26.0928	0.8282	1.0490
11	1997	8b	8.5604	0.0062	0.0423	28.2414	0.7721	0.9765
11	1998	2b	2.2952	0.0028	0.0193	7.3633	0.2717	0.3549
11	1998	3	3.1770	0.0123	0.0842	15.5241	0.4097	0.5257
11	1998	4	3.1771	0.0139	0.0947	16.3448	0.4236	0.5428
11	1998	5	3.1671	0.0122	0.0832	16.7706	0.3963	0.5088
11	1998	6	3.1738	0.0090	0.0615	16.5337	0.4130	0.5296
11	1998	7	3.1738	0.0090	0.0615	17.1309	0.4091	0.5246
11	1998	8a	3.5291	0.0194	0.1323	23.5243	0.5076	0.6455
11	1998	8b	3.5291	0.0194	0.1323	25.8119	0.5379	0.6819
11	1999	2b	1.8219	0.0039	0.0266	6.7611	0.2702	0.3532
11	1999	3	3.2175	0.0148	0.1009	10.9007	0.3816	0.4910
11	1999	4	3.4116	0.0152	0.1038	11.6640	0.4022	0.5165
11	1999	5	3.4572	0.0152	0.1037	11.6875	0.4026	0.5170
11	1999	6	3.4602	0.0152	0.1037	11.5932	0.3962	0.5088
11	1999	7	3.0657	0.0144	0.0985	12.0034	0.4042	0.5187
11	1999	8a	3.0828	0.0149	0.1014	18.1887	0.5067	0.6444
11	1999	8b	3.0828	0.0149	0.1014	20.3306	0.5421	0.6871
11	2000	2b	1.6191	0.0027	0.0187	6.9558	0.2757	0.3599
11	2000	3	3.3334	0.0101	0.0690	10.8914	0.3814	0.4906
11	2000	4	3.5797	0.0091	0.0623	11.4594	0.3964	0.5091

Table A-11. SmartWay Category - Specialized

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
11	2000	5	3.6472	0.0089	0.0605	11.5053	0.3973	0.5102
11	2000	6	3.6515	0.0088	0.0604	11.5408	0.3962	0.5087
11	2000	7	3.1736	0.0107	0.0733	12.4600	0.4112	0.5272
11	2000	8a	3.1736	0.0107	0.0733	17.0314	0.4856	0.6185
11	2000	8b	3.1736	0.0107	0.0733	20.1768	0.5394	0.6839
11	2001	2b	0.5603	0.0018	0.0125	6.5158	0.2639	0.3454
11	2001	3	1.3462	0.0059	0.0399	10.6060	0.3734	0.4807
11	2001	4	1.4301	0.0058	0.0396	11.1479	0.3881	0.4988
11	2001	5	1.4621	0.0058	0.0394	11.1714	0.3885	0.4994
11	2001	6	1.4643	0.0058	0.0394	11.6909	0.3968	0.5095
11	2001	7	1.3091	0.0059	0.0401	11.5875	0.3952	0.5075
11	2001	8a	1.3091	0.0059	0.0401	17.7033	0.4962	0.6315
11	2001	8b	1.3091	0.0059	0.0401	20.0176	0.5361	0.6799
11	2002	2b	0.5313	0.0021	0.0146	6.6110	0.2665	0.3486
11	2002	3	1.3842	0.0072	0.0490	10.3664	0.3669	0.4728
11	2002	4	1.4993	0.0066	0.0451	11.1471	0.3879	0.4987
11	2002	5	1.5342	0.0064	0.0440	11.1471	0.3879	0.4987
11	2002	6	1.5365	0.0064	0.0439	11.3560	0.3916	0.5031
11	2002	7	1.3186	0.0075	0.0511	11.7761	0.3980	0.5110
11	2002	8a	1.3186	0.0075	0.0511	15.7850	0.4640	0.5922
11	2002	8b	1.3186	0.0075	0.0511	19.7242	0.5309	0.6735
11	2003	2b	0.4817	0.0015	0.0100	4.0652	0.2253	0.2947
11	2003	3	1.3533	0.0058	0.0394	6.4961	0.3189	0.4109
11	2003	4	1.4510	0.0056	0.0384	7.0204	0.3392	0.4360
11	2003	5	1.4817	0.0056	0.0381	7.0204	0.3392	0.4360
11	2003	6	1.4838	0.0056	0.0381	7.5488	0.3468	0.4454
11	2003	7	1.3000	0.0059	0.0400	7.6056	0.3541	0.4545
11	2003	8a	1.3001	0.0059	0.0400	9.2500	0.4248	0.5416
11	2003	8b	1.3001	0.0059	0.0400	10.6931	0.4839	0.6136
11	2004	2b	0.3906	0.0010	0.0070	4.0429	0.2235	0.2923
11	2004	3	1.3807	0.0046	0.0313	6.5894	0.3180	0.4096
11	2004	4	1.5178	0.0043	0.0295	7.1541	0.3390	0.4358
11	2004	5	1.5585	0.0042	0.0290	7.1541	0.3390	0.4358

Table A-11. SmartWay Category - Specialized

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
11	2004	6	1.5612	0.0042	0.0289	7.6683	0.3495	0.4488
11	2004	7	1.3001	0.0047	0.0324	7.7145	0.3554	0.4560
11	2004	8a	1.3001	0.0047	0.0324	9.2595	0.4230	0.5393
11	2004	8b	1.3001	0.0047	0.0324	10.7007	0.4843	0.6141
11	2005	2b	0.3165	0.0008	0.0057	3.9206	0.2177	0.2850
11	2005	3	1.3751	0.0045	0.0306	6.3987	0.3112	0.4013
11	2005	4	1.4489	0.0043	0.0295	7.1031	0.3379	0.4344
11	2005	5	1.4820	0.0043	0.0290	7.1031	0.3379	0.4344
11	2005	6	1.4845	0.0042	0.0290	7.5266	0.3481	0.4471
11	2005	7	1.3473	0.0045	0.0310	7.6872	0.3573	0.4584
11	2005	8a	1.3475	0.0045	0.0310	9.4651	0.4318	0.5501
11	2005	8b	1.3475	0.0045	0.0310	10.7607	0.4864	0.6166
11	2006	2b	0.3504	0.0009	0.0066	3.9685	0.2211	0.2894
11	2006	3	1.3661	0.0048	0.0327	6.2917	0.3097	0.3994
11	2006	4	1.4640	0.0045	0.0310	6.9576	0.3351	0.4309
11	2006	5	1.5018	0.0045	0.0304	6.9576	0.3351	0.4309
11	2006	6	1.5045	0.0044	0.0304	7.2905	0.3438	0.4417
11	2006	7	1.3235	0.0049	0.0334	7.4780	0.3531	0.4532
11	2006	8a	1.3237	0.0049	0.0334	9.3218	0.4280	0.5454
11	2006	8b	1.3237	0.0049	0.0334	10.7337	0.4859	0.6161
11	2007	2b	0.3083	0.0009	0.0060	2.5242	0.0015	0.0126
11	2007	3	1.3723	0.0048	0.0326	4.2340	0.0021	0.0184
11	2007	4	1.4484	0.0046	0.0311	4.5310	0.0023	0.0194
11	2007	5	1.4814	0.0045	0.0305	4.5310	0.0023	0.0194
11	2007	6	1.4839	0.0045	0.0304	4.6732	0.0023	0.0198
11	2007	7	1.3432	0.0049	0.0331	4.9906	0.0024	0.0208
11	2007	8a	1.3443	0.0049	0.0331	6.7299	0.0030	0.0259
11	2007	8b	1.3443	0.0049	0.0331	7.7135	0.0034	0.0288
11	2008	2b	0.2319	0.0007	0.0051	2.4420	0.0014	0.0123
11	2008	3	0.8805	0.0035	0.0241	3.7890	0.0020	0.0170
11	2008	4	0.8582	0.0035	0.0237	4.0463	0.0021	0.0179
11	2008	5	0.8460	0.0034	0.0235	4.0463	0.0021	0.0179
11	2008	6	0.8450	0.0034	0.0234	4.1627	0.0021	0.0182

Table A-11. SmartWay Category - Specialized

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
11	2008	7	0.8876	0.0036	0.0243	4.2618	0.0022	0.0185
11	2008	8a	0.8875	0.0036	0.0243	5.5372	0.0026	0.0223
11	2008	8b	0.8875	0.0036	0.0243	7.3345	0.0032	0.0277
11	2009	2b	0.1428	0.0008	0.0054	2.4532	0.0014	0.0121
11	2009	3	0.5737	0.0035	0.0241	4.4005	0.0022	0.0190
11	2009	4	0.5739	0.0035	0.0239	4.6614	0.0023	0.0199
11	2009	5	0.5740	0.0035	0.0239	4.6614	0.0023	0.0199
11	2009	6	0.5740	0.0035	0.0238	4.7310	0.0023	0.0201
11	2009	7	0.5736	0.0035	0.0241	5.0878	0.0025	0.0211
11	2009	8a	0.5737	0.0035	0.0241	6.7746	0.0030	0.0260
11	2009	8b	0.5737	0.0035	0.0241	7.6937	0.0034	0.0287
11	2010	2b	0.0565	0.0005	0.0030	1.2006	0.0010	0.0085
11	2010	3	0.1072	0.0019	0.0127	2.8676	0.0027	0.0232
11	2010	4	0.1072	0.0019	0.0127	3.1260	0.0030	0.0255
11	2010	5	0.1072	0.0019	0.0127	3.1260	0.0030	0.0255
11	2010	6	0.1072	0.0019	0.0127	3.2264	0.0031	0.0266
11	2010	7	0.1072	0.0019	0.0127	3.5684	0.0029	0.0246
11	2010	8a	0.1072	0.0019	0.0127	5.4440	0.0019	0.0166
11	2010	8b	0.1072	0.0019	0.0127	6.5731	0.0012	0.0107
11	2011	2b	0.0603	0.0006	0.0035	1.2628	0.0010	0.0081
11	2011	3	0.1141	0.0018	0.0126	2.3977	0.0022	0.0191
11	2011	4	0.1257	0.0018	0.0123	2.5786	0.0024	0.0208
11	2011	5	0.1316	0.0018	0.0122	2.5786	0.0024	0.0208
11	2011	6	0.1320	0.0018	0.0122	2.6762	0.0025	0.0215
11	2011	7	0.1102	0.0019	0.0126	2.8580	0.0024	0.0205
11	2011	8a	0.1102	0.0019	0.0126	4.3733	0.0019	0.0159
11	2011	8b	0.1102	0.0019	0.0126	5.7893	0.0012	0.0106
11	2012	2b	0.0631	0.0007	0.0038	1.2257	0.0010	0.0085
11	2012	3	0.1163	0.0018	0.0124	2.4339	0.0024	0.0202
11	2012	4	0.1208	0.0018	0.0123	2.5894	0.0025	0.0218
11	2012	5	0.1235	0.0018	0.0123	2.5894	0.0025	0.0218
11	2012	6	0.1237	0.0018	0.0123	2.6493	0.0026	0.0219
11	2012	7	0.1149	0.0018	0.0124	2.9222	0.0024	0.0208

Table A-11. SmartWay Category - Specialized

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
11	2012	8a	0.1149	0.0018	0.0124	4.5768	0.0018	0.0152
11	2012	8b	0.1149	0.0018	0.0124	5.7156	0.0012	0.0104
11	2013	2b	0.0502	0.0006	0.0028	1.3882	0.0010	0.0084
11	2013	3	0.1224	0.0017	0.0114	2.5284	0.0025	0.0214
11	2013	4	0.1306	0.0017	0.0113	2.6829	0.0027	0.0231
11	2013	5	0.1346	0.0016	0.0112	2.6829	0.0027	0.0231
11	2013	6	0.1349	0.0016	0.0112	2.7423	0.0027	0.0234
11	2013	7	0.1198	0.0017	0.0115	2.9627	0.0025	0.0217
11	2013	8a	0.1201	0.0017	0.0115	4.0979	0.0017	0.0142
11	2013	8b	0.1201	0.0017	0.0115	4.7354	0.0011	0.0094
11	2014	2b	0.0513	0.0007	0.0029	0.7636	0.0004	0.0023
11	2014	3	0.1234	0.0016	0.0111	2.0135	0.0007	0.0054
11	2014	4	0.1264	0.0016	0.0111	2.1497	0.0007	0.0058
11	2014	5	0.1282	0.0016	0.0110	2.1497	0.0007	0.0058
11	2014	6	0.1284	0.0016	0.0110	2.1959	0.0007	0.0059
11	2014	7	0.1225	0.0016	0.0111	2.3837	0.0007	0.0058
11	2014	8a	0.1225	0.0016	0.0111	3.5367	0.0007	0.0057
11	2014	8b	0.1225	0.0016	0.0111	4.3738	0.0006	0.0053
11	2015	2b	0.0470	0.0008	0.0028	0.6257	0.0004	0.0021
11	2015	3	0.1233	0.0016	0.0111	1.8866	0.0006	0.0054
11	2015	4	0.1261	0.0016	0.0111	2.0555	0.0007	0.0058
11	2015	5	0.1278	0.0016	0.0110	2.0555	0.0007	0.0058
11	2015	6	0.1279	0.0016	0.0110	2.1028	0.0007	0.0059
11	2015	7	0.1224	0.0016	0.0111	2.3073	0.0007	0.0058
11	2015	8a	0.1224	0.0016	0.0111	3.5316	0.0007	0.0057
11	2015	8b	0.1224	0.0016	0.0111	4.3983	0.0006	0.0053
11	2016	2b	0.0463	0.0008	0.0027	0.5889	0.0004	0.0020
11	2016	3	0.1232	0.0016	0.0111	1.8047	0.0006	0.0053
11	2016	4	0.1258	0.0016	0.0111	1.9925	0.0007	0.0058
11	2016	5	0.1273	0.0016	0.0110	1.9925	0.0007	0.0058
11	2016	6	0.1274	0.0016	0.0110	2.0327	0.0007	0.0059
11	2016	7	0.1224	0.0016	0.0111	2.1935	0.0007	0.0058
11	2016	8a	0.1224	0.0016	0.0111	3.3034	0.0007	0.0057

Table A-11. SmartWay Category - Specialized

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
11	2016	8b	0.1224	0.0016	0.0111	4.2491	0.0006	0.0054
11	2017	2b	0.0327	0.0008	0.0025	0.5562	0.0004	0.0019
11	2017	3	0.1055	0.0016	0.0111	1.6949	0.0006	0.0050
11	2017	4	0.1074	0.0016	0.0110	1.8804	0.0007	0.0056
11	2017	5	0.1085	0.0016	0.0110	1.8804	0.0007	0.0056
11	2017	6	0.1086	0.0016	0.0110	1.9124	0.0007	0.0056
11	2017	7	0.1049	0.0016	0.0111	2.0419	0.0007	0.0056
11	2017	8a	0.1049	0.0016	0.0111	2.9840	0.0007	0.0056
11	2017	8b	0.1049	0.0016	0.0111	3.8516	0.0006	0.0053
11	2018	2b	0.0318	0.0009	0.0027	0.4170	0.0004	0.0019
11	2018	3	0.0914	0.0016	0.0110	1.5970	0.0006	0.0051
11	2018	4	0.0992	0.0016	0.0109	1.7879	0.0007	0.0056
11	2018	5	0.1033	0.0016	0.0108	1.7879	0.0007	0.0056
11	2018	6	0.1036	0.0016	0.0108	1.8723	0.0007	0.0057
11	2018	7	0.0889	0.0016	0.0111	1.9813	0.0007	0.0057
11	2018	8a	0.0889	0.0016	0.0111	2.9356	0.0007	0.0056
11	2018	8b	0.0889	0.0016	0.0111	3.7748	0.0006	0.0053
11	2019	2b	0.0240	0.0006	0.0017	0.2641	0.0003	0.0012
11	2019	3	0.0872	0.0010	0.0067	1.1036	0.0004	0.0033
11	2019	4	0.0949	0.0010	0.0066	1.2526	0.0004	0.0037
11	2019	5	0.0990	0.0010	0.0066	1.2526	0.0004	0.0037
11	2019	6	0.0993	0.0010	0.0066	1.3120	0.0004	0.0038
11	2019	7	0.0847	0.0010	0.0067	1.3950	0.0004	0.0038
11	2019	8a	0.0847	0.0010	0.0067	2.1069	0.0004	0.0038
11	2019	8b	0.0847	0.0010	0.0067	2.7301	0.0004	0.0037
11	2020	2b	0.0211	0.0005	0.0015	0.2288	0.0003	0.0011
11	2020	3	0.0830	0.0010	0.0067	1.0653	0.0004	0.0032
11	2020	4	0.0911	0.0010	0.0066	1.2385	0.0004	0.0037
11	2020	5	0.0953	0.0010	0.0066	1.2385	0.0004	0.0037
11	2020	6	0.0957	0.0010	0.0066	1.2970	0.0004	0.0038
11	2020	7	0.0805	0.0010	0.0067	1.3755	0.0004	0.0038
11	2020	8a	0.0805	0.0010	0.0067	2.0779	0.0004	0.0038
11	2020	8b	0.0805	0.0010	0.0067	2.7223	0.0004	0.0037

Table A-11. SmartWay Category - Specialized

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
11	2021	2b	0.0180	0.0004	0.0013	0.2055	0.0002	0.0010
11	2021	3	0.0781	0.0010	0.0066	1.0385	0.0004	0.0032
11	2021	4	0.0858	0.0010	0.0066	1.2203	0.0004	0.0036
11	2021	5	0.0899	0.0010	0.0066	1.2203	0.0004	0.0036
11	2021	6	0.0902	0.0010	0.0065	1.2768	0.0004	0.0038
11	2021	7	0.0757	0.0010	0.0067	1.3481	0.0004	0.0037
11	2021	8a	0.0757	0.0010	0.0067	2.0161	0.0004	0.0037
11	2021	8b	0.0757	0.0010	0.0067	2.6537	0.0004	0.0036
11	2022	2b	0.0154	0.0004	0.0013	0.1867	0.0002	0.0010
11	2022	3	0.0740	0.0010	0.0067	1.0245	0.0004	0.0032
11	2022	4	0.0820	0.0010	0.0066	1.2063	0.0004	0.0036
11	2022	5	0.0862	0.0010	0.0066	1.2063	0.0004	0.0036
11	2022	6	0.0865	0.0010	0.0066	1.2630	0.0004	0.0038
11	2022	7	0.0715	0.0010	0.0067	1.3379	0.0004	0.0037
11	2022	8a	0.0715	0.0010	0.0067	2.0205	0.0004	0.0037
11	2022	8b	0.0715	0.0010	0.0067	2.6566	0.0004	0.0036

Table A-12. SmartWay Category - Tanker

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
12	1987	2b	4.9034	0.0052	0.0358	7.3403	0.1713	0.2246
12	1987	3	5.7046	0.0174	0.1185	12.8778	0.3975	0.5044
12	1987	4	5.7551	0.0180	0.1230	14.7026	0.4609	0.5829
12	1987	5	5.5866	0.0158	0.1076	15.2604	0.4363	0.5521
12	1987	6	5.3462	0.0125	0.0851	15.3237	0.4725	0.5975
12	1987	7	5.3462	0.0125	0.0851	16.5172	0.4810	0.6082
12	1987	8a	5.3746	0.0127	0.0866	25.1687	0.6863	0.8657
12	1987	8b	5.3746	0.0127	0.0866	29.9504	0.7915	0.9975
12	1988	2b	4.9034	0.0052	0.0358	7.3403	0.1713	0.2246
12	1988	3	5.7046	0.0174	0.1185	12.8778	0.3975	0.5044
12	1988	4	5.7551	0.0180	0.1230	14.7026	0.4609	0.5829
12	1988	5	5.5866	0.0158	0.1076	15.2604	0.4363	0.5521

Table A-12. SmartWay Category - Tanker

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
12	1988	6	5.3462	0.0125	0.0851	15.3237	0.4725	0.5975
12	1988	7	5.3462	0.0125	0.0851	16.5172	0.4810	0.6082
12	1988	8a	5.3746	0.0127	0.0866	25.1687	0.6863	0.8657
12	1988	8b	5.3746	0.0127	0.0866	29.9504	0.7915	0.9975
12	1989	2b	4.9034	0.0052	0.0358	7.3403	0.1713	0.2246
12	1989	3	5.7046	0.0174	0.1185	12.8778	0.3975	0.5044
12	1989	4	5.7551	0.0180	0.1230	14.7026	0.4609	0.5829
12	1989	5	5.5866	0.0158	0.1076	15.2604	0.4363	0.5521
12	1989	6	5.3462	0.0125	0.0851	15.3237	0.4725	0.5975
12	1989	7	5.3462	0.0125	0.0851	16.5172	0.4810	0.6082
12	1989	8a	5.3746	0.0127	0.0866	25.1687	0.6863	0.8657
12	1989	8b	5.3746	0.0127	0.0866	29.9504	0.7915	0.9975
12	1990	2b	4.9034	0.0052	0.0358	7.3403	0.1713	0.2246
12	1990	3	5.7046	0.0174	0.1185	12.8778	0.3975	0.5044
12	1990	4	5.7551	0.0180	0.1230	14.7026	0.4609	0.5829
12	1990	5	5.5866	0.0158	0.1076	15.2604	0.4363	0.5521
12	1990	6	5.3462	0.0125	0.0851	15.3237	0.4725	0.5975
12	1990	7	5.3462	0.0125	0.0851	16.5172	0.4810	0.6082
12	1990	8a	5.3746	0.0127	0.0866	25.1687	0.6863	0.8657
12	1990	8b	5.3746	0.0127	0.0866	29.9504	0.7915	0.9975
12	1991	2b	4.9034	0.0052	0.0358	7.3403	0.1713	0.2246
12	1991	3	5.7046	0.0174	0.1185	12.8778	0.3975	0.5044
12	1991	4	5.7551	0.0180	0.1230	14.7026	0.4609	0.5829
12	1991	5	5.5866	0.0158	0.1076	15.2604	0.4363	0.5521
12	1991	6	5.3462	0.0125	0.0851	15.3237	0.4725	0.5975
12	1991	7	5.3462	0.0125	0.0851	16.5172	0.4810	0.6082
12	1991	8a	5.3746	0.0127	0.0866	25.1687	0.6863	0.8657
12	1991	8b	5.3746	0.0127	0.0866	29.9504	0.7915	0.9975
12	1992	2b	4.9034	0.0052	0.0358	7.3403	0.1713	0.2246
12	1992	3	5.7046	0.0174	0.1185	12.8778	0.3975	0.5044
12	1992	4	5.7551	0.0180	0.1230	14.7026	0.4609	0.5829
12	1992	5	5.5866	0.0158	0.1076	15.2604	0.4363	0.5521
12	1992	6	5.3462	0.0125	0.0851	15.3237	0.4725	0.5975

Table A-12. SmartWay Category - Tanker

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
12	1992	7	5.3462	0.0125	0.0851	16.5172	0.4810	0.6082
12	1992	8a	5.3746	0.0127	0.0866	25.1687	0.6863	0.8657
12	1992	8b	5.3746	0.0127	0.0866	29.9504	0.7915	0.9975
12	1993	2b	4.9577	0.0067	0.0456	7.8621	0.2049	0.2660
12	1993	3	5.7413	0.0181	0.1237	10.6543	0.3070	0.3927
12	1993	4	5.7791	0.0185	0.1260	16.0986	0.4960	0.6270
12	1993	5	5.7452	0.0182	0.1241	16.1293	0.4481	0.5670
12	1993	6	5.1784	0.0127	0.0867	17.3600	0.4817	0.6092
12	1993	7	5.1784	0.0127	0.0867	19.3799	0.5415	0.6842
12	1993	8a	5.2370	0.0127	0.0863	28.4480	0.7517	0.9477
12	1993	8b	5.2370	0.0127	0.0863	30.4034	0.7939	1.0005
12	1994	2b	4.3247	0.0055	0.0375	7.3773	0.4441	0.5700
12	1994	3	5.7447	0.0098	0.0672	9.8729	0.5481	0.6992
12	1994	4	5.8028	0.0099	0.0676	13.6339	0.6768	0.8576
12	1994	5	5.7995	0.0099	0.0676	16.4990	0.7462	0.9448
12	1994	6	5.1461	0.0092	0.0628	16.8608	0.7331	0.9283
12	1994	7	5.1461	0.0092	0.0628	20.2615	0.7266	0.9194
12	1994	8a	7.6209	0.0126	0.0860	28.4412	0.7368	0.9307
12	1994	8b	7.6209	0.0126	0.0860	30.2624	0.7398	0.9339
12	1995	2b	4.4408	0.0083	0.0567	7.5543	0.4382	0.5618
12	1995	3	5.6388	0.0223	0.1522	13.2022	0.6415	0.8140
12	1995	4	5.7611	0.0237	0.1616	14.8728	0.6818	0.8640
12	1995	5	5.7305	0.0234	0.1594	17.0405	0.7313	0.9260
12	1995	6	5.1377	0.0165	0.1128	17.5334	0.7108	0.8999
12	1995	7	5.1377	0.0165	0.1128	19.7307	0.7198	0.9110
12	1995	8a	7.4511	0.0325	0.2221	28.1110	0.7371	0.9312
12	1995	8b	7.4511	0.0325	0.2221	30.0459	0.7393	0.9334
12	1996	2b	3.6257	0.0053	0.0365	7.6317	0.4227	0.5414
12	1996	3	5.7235	0.0166	0.1129	14.4751	0.6786	0.8599
12	1996	4	5.7867	0.0172	0.1170	15.9624	0.6948	0.8800
12	1996	5	5.7834	0.0171	0.1170	17.0309	0.7366	0.9328
12	1996	6	5.1881	0.0113	0.0772	19.1180	0.7216	0.9134
12	1996	7	5.1881	0.0113	0.0772	20.0863	0.7251	0.9177

Table A-12. SmartWay Category - Tanker

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
12	1996	8a	7.4512	0.0244	0.1664	28.1277	0.7382	0.9325
12	1996	8b	7.4512	0.0244	0.1664	30.1641	0.7420	0.9367
12	1997	2b	3.2850	0.0040	0.0270	5.9778	0.3488	0.4504
12	1997	3	5.6479	0.0132	0.0898	11.4403	0.5625	0.7158
12	1997	4	5.7950	0.0140	0.0955	13.8777	0.6900	0.8742
12	1997	5	5.7614	0.0138	0.0943	15.6169	0.7431	0.9410
12	1997	6	5.1672	0.0105	0.0715	15.5978	0.7051	0.8930
12	1997	7	5.1672	0.0105	0.0715	17.2792	0.7117	0.9012
12	1997	8a	8.6734	0.0096	0.0656	27.0580	0.7318	0.9247
12	1997	8b	8.6734	0.0096	0.0656	29.7928	0.7362	0.9295
12	1998	2b	2.9023	0.0034	0.0235	6.5339	0.2481	0.3213
12	1998	3	3.7173	0.0139	0.0947	13.4982	0.3490	0.4455
12	1998	4	3.7461	0.0155	0.1058	14.2323	0.3597	0.4586
12	1998	5	3.7054	0.0137	0.0932	14.8776	0.3427	0.4375
12	1998	6	3.6523	0.0104	0.0706	14.5224	0.3534	0.4508
12	1998	7	3.6523	0.0104	0.0706	15.4051	0.3546	0.4523
12	1998	8a	4.1503	0.0232	0.1581	24.7781	0.4701	0.5958
12	1998	8b	4.1503	0.0232	0.1581	27.9245	0.5050	0.6388
12	1999	2b	2.2630	0.0042	0.0289	5.9858	0.2474	0.3204
12	1999	3	3.7094	0.0140	0.0956	9.1764	0.3243	0.4149
12	1999	4	3.8629	0.0145	0.0989	9.7831	0.3392	0.4330
12	1999	5	3.8966	0.0144	0.0980	9.8189	0.3398	0.4338
12	1999	6	3.8989	0.0144	0.0981	9.9047	0.3393	0.4331
12	1999	7	3.5890	0.0136	0.0927	10.4096	0.3475	0.4434
12	1999	8a	3.6112	0.0144	0.0982	18.4948	0.4708	0.5967
12	1999	8b	3.6112	0.0144	0.0982	21.0284	0.5094	0.6442
12	2000	2b	2.0145	0.0037	0.0254	6.1355	0.2513	0.3252
12	2000	3	3.7809	0.0125	0.0851	9.1925	0.3256	0.4163
12	2000	4	3.9696	0.0112	0.0768	9.6738	0.3370	0.4303
12	2000	5	4.0213	0.0109	0.0745	9.7446	0.3382	0.4318
12	2000	6	4.0246	0.0109	0.0743	9.8738	0.3406	0.4348
12	2000	7	3.6586	0.0133	0.0905	11.1127	0.3585	0.4571
12	2000	8a	3.6586	0.0133	0.0905	17.1301	0.4486	0.5692

Table A-12. SmartWay Category - Tanker

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
12	2000	8b	3.6586	0.0133	0.0905	20.8663	0.5070	0.6413
12	2001	2b	0.6782	0.0026	0.0176	5.7990	0.2433	0.3153
12	2001	3	1.5573	0.0096	0.0654	8.9370	0.3184	0.4074
12	2001	4	1.6206	0.0095	0.0647	9.3531	0.3287	0.4199
12	2001	5	1.6447	0.0094	0.0644	9.3888	0.3293	0.4207
12	2001	6	1.6464	0.0094	0.0644	10.1226	0.3415	0.4359
12	2001	7	1.5294	0.0096	0.0657	9.9669	0.3389	0.4326
12	2001	8a	1.5294	0.0096	0.0657	17.9931	0.4612	0.5848
12	2001	8b	1.5294	0.0096	0.0657	20.6976	0.5038	0.6374
12	2002	2b	0.6444	0.0023	0.0159	5.8697	0.2450	0.3175
12	2002	3	1.5845	0.0074	0.0502	8.7334	0.3133	0.4011
12	2002	4	1.6711	0.0067	0.0459	9.3388	0.3280	0.4190
12	2002	5	1.6975	0.0065	0.0446	9.3388	0.3280	0.4190
12	2002	6	1.6992	0.0065	0.0445	9.6482	0.3347	0.4274
12	2002	7	1.5351	0.0077	0.0527	10.2242	0.3424	0.4369
12	2002	8a	1.5351	0.0077	0.0527	15.6195	0.4243	0.5391
12	2002	8b	1.5351	0.0077	0.0527	20.3598	0.4982	0.6305
12	2003	2b	0.5821	0.0018	0.0119	4.0880	0.2070	0.2683
12	2003	3	1.5643	0.0061	0.0417	5.8380	0.2717	0.3478
12	2003	4	1.6381	0.0060	0.0407	6.2245	0.2862	0.3656
12	2003	5	1.6613	0.0059	0.0405	6.2245	0.2862	0.3656
12	2003	6	1.6628	0.0059	0.0404	6.6159	0.2959	0.3778
12	2003	7	1.5241	0.0062	0.0422	6.7824	0.3054	0.3896
12	2003	8a	1.5242	0.0062	0.0421	8.7455	0.3914	0.4969
12	2003	8b	1.5242	0.0062	0.0421	10.1464	0.4547	0.5752
12	2004	2b	0.4684	0.0011	0.0077	4.0619	0.2055	0.2663
12	2004	3	1.5835	0.0047	0.0324	5.8901	0.2718	0.3479
12	2004	4	1.6854	0.0045	0.0310	6.3068	0.2871	0.3668
12	2004	5	1.7156	0.0045	0.0306	6.3068	0.2871	0.3668
12	2004	6	1.7175	0.0045	0.0306	6.6877	0.2987	0.3813
12	2004	7	1.5238	0.0049	0.0331	6.8425	0.3070	0.3916
12	2004	8a	1.5238	0.0049	0.0331	8.7258	0.3898	0.4948
12	2004	8b	1.5238	0.0049	0.0331	10.1498	0.4551	0.5758

Table A-12. SmartWay Category - Tanker

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
12	2005	2b	0.3795	0.0009	0.0065	3.9574	0.2006	0.2602
12	2005	3	1.5729	0.0046	0.0317	5.7513	0.2666	0.3415
12	2005	4	1.6289	0.0045	0.0308	6.2756	0.2861	0.3655
12	2005	5	1.6539	0.0045	0.0305	6.2756	0.2861	0.3655
12	2005	6	1.6558	0.0045	0.0304	6.5918	0.2968	0.3789
12	2005	7	1.5519	0.0047	0.0320	6.8720	0.3096	0.3949
12	2005	8a	1.5521	0.0047	0.0320	8.9508	0.3997	0.5071
12	2005	8b	1.5521	0.0047	0.0320	10.2076	0.4574	0.5786
12	2006	2b	0.4194	0.0011	0.0074	4.0103	0.2038	0.2642
12	2006	3	1.5705	0.0049	0.0334	5.6925	0.2649	0.3394
12	2006	4	1.6437	0.0047	0.0322	6.1861	0.2830	0.3616
12	2006	5	1.6720	0.0047	0.0317	6.1861	0.2830	0.3616
12	2006	6	1.6740	0.0046	0.0317	6.4341	0.2920	0.3728
12	2006	7	1.5386	0.0050	0.0340	6.7278	0.3048	0.3889
12	2006	8a	1.5388	0.0050	0.0340	8.8361	0.3955	0.5019
12	2006	8b	1.5388	0.0050	0.0340	10.1867	0.4568	0.5779
12	2007	2b	0.3686	0.0010	0.0067	2.2317	0.0014	0.0116
12	2007	3	1.5736	0.0049	0.0333	3.5096	0.0018	0.0157
12	2007	4	1.6308	0.0047	0.0322	3.7378	0.0019	0.0164
12	2007	5	1.6555	0.0046	0.0317	3.7378	0.0019	0.0164
12	2007	6	1.6573	0.0046	0.0317	3.8787	0.0020	0.0168
12	2007	7	1.5517	0.0049	0.0337	4.2761	0.0021	0.0181
12	2007	8a	1.5527	0.0049	0.0337	6.1897	0.0028	0.0241
12	2007	8b	1.5527	0.0049	0.0337	7.1206	0.0032	0.0271
12	2008	2b	0.2784	0.0008	0.0057	2.1637	0.0013	0.0113
12	2008	3	1.0301	0.0036	0.0248	3.1225	0.0017	0.0144
12	2008	4	0.9991	0.0036	0.0244	3.3085	0.0018	0.0150
12	2008	5	0.9821	0.0036	0.0242	3.3085	0.0018	0.0150
12	2008	6	0.9808	0.0036	0.0242	3.4196	0.0018	0.0153
12	2008	7	1.0398	0.0036	0.0249	3.5499	0.0018	0.0157
12	2008	8a	1.0397	0.0036	0.0249	4.9985	0.0024	0.0202
12	2008	8b	1.0397	0.0036	0.0249	6.7719	0.0030	0.0259
12	2009	2b	0.1717	0.0009	0.0060	2.1531	0.0013	0.0111

Table A-12. SmartWay Category - Tanker

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
12	2009	3	0.6392	0.0036	0.0247	3.6403	0.0019	0.0161
12	2009	4	0.6380	0.0036	0.0246	3.8456	0.0020	0.0168
12	2009	5	0.6373	0.0036	0.0246	3.8456	0.0020	0.0168
12	2009	6	0.6373	0.0036	0.0246	3.9201	0.0020	0.0170
12	2009	7	0.6395	0.0036	0.0247	4.3582	0.0021	0.0184
12	2009	8a	0.6395	0.0036	0.0247	6.2188	0.0028	0.0242
12	2009	8b	0.6395	0.0036	0.0247	7.0966	0.0032	0.0270
12	2010	2b	0.0666	0.0006	0.0033	0.9510	0.0009	0.0077
12	2010	3	0.1062	0.0017	0.0117	1.9993	0.0019	0.0160
12	2010	4	0.1062	0.0017	0.0117	2.1676	0.0020	0.0173
12	2010	5	0.1062	0.0017	0.0117	2.1676	0.0020	0.0173
12	2010	6	0.1062	0.0017	0.0117	2.2425	0.0021	0.0179
12	2010	7	0.1062	0.0017	0.0117	2.5687	0.0019	0.0163
12	2010	8a	0.1062	0.0017	0.0117	4.0522	0.0013	0.0109
12	2010	8b	0.1062	0.0017	0.0117	4.7978	0.0009	0.0075
12	2011	2b	0.0692	0.0007	0.0038	1.0386	0.0009	0.0076
12	2011	3	0.1133	0.0017	0.0115	1.7029	0.0016	0.0139
12	2011	4	0.1257	0.0016	0.0112	1.8110	0.0017	0.0149
12	2011	5	0.1320	0.0016	0.0110	1.8110	0.0017	0.0149
12	2011	6	0.1325	0.0016	0.0110	1.8735	0.0018	0.0153
12	2011	7	0.1092	0.0017	0.0116	2.0393	0.0017	0.0145
12	2011	8a	0.1092	0.0017	0.0116	3.1744	0.0013	0.0109
12	2011	8b	0.1092	0.0017	0.0116	4.0493	0.0009	0.0076
12	2012	2b	0.0712	0.0008	0.0041	0.9826	0.0010	0.0077
12	2012	3	0.1153	0.0017	0.0114	1.7049	0.0017	0.0145
12	2012	4	0.1202	0.0016	0.0112	1.8001	0.0018	0.0154
12	2012	5	0.1230	0.0016	0.0112	1.8001	0.0018	0.0154
12	2012	6	0.1232	0.0016	0.0112	1.8420	0.0018	0.0155
12	2012	7	0.1138	0.0017	0.0114	2.0780	0.0017	0.0145
12	2012	8a	0.1138	0.0017	0.0114	3.2760	0.0012	0.0104
12	2012	8b	0.1138	0.0017	0.0114	3.9638	0.0009	0.0074
12	2013	2b	0.0580	0.0007	0.0030	1.1606	0.0009	0.0076
12	2013	3	0.1214	0.0015	0.0104	1.7993	0.0017	0.0148

Table A-12. SmartWay Category - Tanker

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
12	2013	4	0.1303	0.0015	0.0102	1.8872	0.0018	0.0158
12	2013	5	0.1347	0.0015	0.0101	1.8872	0.0018	0.0158
12	2013	6	0.1351	0.0015	0.0101	1.9244	0.0019	0.0159
12	2013	7	0.1186	0.0015	0.0105	2.1055	0.0017	0.0145
12	2013	8a	0.1189	0.0015	0.0105	2.8665	0.0011	0.0094
12	2013	8b	0.1189	0.0015	0.0105	3.2243	0.0008	0.0067
12	2014	2b	0.0594	0.0008	0.0032	0.5552	0.0004	0.0023
12	2014	3	0.1220	0.0015	0.0101	1.2458	0.0005	0.0043
12	2014	4	0.1254	0.0015	0.0100	1.3239	0.0005	0.0045
12	2014	5	0.1274	0.0015	0.0100	1.3239	0.0005	0.0045
12	2014	6	0.1275	0.0015	0.0100	1.3532	0.0005	0.0045
12	2014	7	0.1210	0.0015	0.0101	1.5147	0.0005	0.0045
12	2014	8a	0.1210	0.0015	0.0101	2.3350	0.0005	0.0044
12	2014	8b	0.1210	0.0015	0.0101	2.8288	0.0005	0.0042
12	2015	2b	0.0542	0.0009	0.0030	0.4418	0.0004	0.0021
12	2015	3	0.1219	0.0015	0.0101	1.1307	0.0005	0.0042
12	2015	4	0.1250	0.0015	0.0100	1.2267	0.0005	0.0045
12	2015	5	0.1269	0.0015	0.0100	1.2267	0.0005	0.0045
12	2015	6	0.1270	0.0015	0.0100	1.2576	0.0005	0.0045
12	2015	7	0.1210	0.0015	0.0101	1.4361	0.0005	0.0045
12	2015	8a	0.1210	0.0015	0.0101	2.3225	0.0005	0.0044
12	2015	8b	0.1210	0.0015	0.0101	2.8448	0.0005	0.0042
12	2016	2b	0.0536	0.0009	0.0029	0.4214	0.0005	0.0021
12	2016	3	0.1218	0.0015	0.0101	1.0784	0.0005	0.0042
12	2016	4	0.1247	0.0015	0.0100	1.1839	0.0005	0.0045
12	2016	5	0.1263	0.0015	0.0100	1.1839	0.0005	0.0045
12	2016	6	0.1265	0.0015	0.0100	1.2099	0.0005	0.0045
12	2016	7	0.1210	0.0015	0.0101	1.3505	0.0005	0.0045
12	2016	8a	0.1210	0.0015	0.0101	2.1650	0.0005	0.0045
12	2016	8b	0.1210	0.0015	0.0101	2.7413	0.0005	0.0042
12	2017	2b	0.0371	0.0009	0.0027	0.3979	0.0005	0.0020
12	2017	3	0.1037	0.0015	0.0100	1.0119	0.0005	0.0040
12	2017	4	0.1058	0.0015	0.0100	1.1159	0.0005	0.0043

Table A-12. SmartWay Category - Tanker

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
12	2017	5	0.1070	0.0015	0.0100	1.1159	0.0005	0.0043
12	2017	6	0.1071	0.0015	0.0100	1.1363	0.0005	0.0044
12	2017	7	0.1031	0.0015	0.0101	1.2473	0.0005	0.0043
12	2017	8a	0.1031	0.0015	0.0101	1.9287	0.0005	0.0044
12	2017	8b	0.1031	0.0015	0.0101	2.4487	0.0005	0.0042
12	2018	2b	0.0359	0.0010	0.0028	0.2866	0.0005	0.0020
12	2018	3	0.0900	0.0015	0.0100	0.9401	0.0005	0.0040
12	2018	4	0.0983	0.0014	0.0098	1.0505	0.0005	0.0043
12	2018	5	0.1027	0.0014	0.0097	1.0505	0.0005	0.0043
12	2018	6	0.1030	0.0014	0.0097	1.1005	0.0005	0.0044
12	2018	7	0.0873	0.0015	0.0101	1.1987	0.0005	0.0044
12	2018	8a	0.0873	0.0015	0.0101	1.8855	0.0005	0.0044
12	2018	8b	0.0873	0.0015	0.0101	2.3884	0.0005	0.0042
12	2019	2b	0.0264	0.0006	0.0017	0.1808	0.0003	0.0012
12	2019	3	0.0858	0.0009	0.0061	0.6467	0.0003	0.0026
12	2019	4	0.0940	0.0009	0.0060	0.7331	0.0003	0.0028
12	2019	5	0.0984	0.0009	0.0059	0.7331	0.0003	0.0028
12	2019	6	0.0987	0.0009	0.0059	0.7687	0.0003	0.0029
12	2019	7	0.0831	0.0009	0.0061	0.8427	0.0003	0.0029
12	2019	8a	0.0831	0.0009	0.0061	1.3543	0.0003	0.0030
12	2019	8b	0.0831	0.0009	0.0061	1.7278	0.0003	0.0029
12	2020	2b	0.0231	0.0006	0.0016	0.1569	0.0003	0.0011
12	2020	3	0.0817	0.0009	0.0061	0.6221	0.0003	0.0025
12	2020	4	0.0902	0.0009	0.0060	0.7229	0.0003	0.0028
12	2020	5	0.0947	0.0009	0.0059	0.7229	0.0003	0.0028
12	2020	6	0.0951	0.0009	0.0059	0.7580	0.0003	0.0029
12	2020	7	0.0790	0.0009	0.0061	0.8284	0.0003	0.0029
12	2020	8a	0.0790	0.0009	0.0061	1.3355	0.0003	0.0030
12	2020	8b	0.0790	0.0009	0.0061	1.7234	0.0003	0.0029
12	2021	2b	0.0197	0.0005	0.0014	0.1397	0.0002	0.0010
12	2021	3	0.0767	0.0009	0.0060	0.6039	0.0003	0.0025
12	2021	4	0.0848	0.0009	0.0059	0.7101	0.0003	0.0028
12	2021	5	0.0891	0.0009	0.0059	0.7101	0.0003	0.0028

Table A-12. SmartWay Category - Tanker

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
12	2021	6	0.0894	0.0009	0.0059	0.7437	0.0003	0.0029
12	2021	7	0.0742	0.0009	0.0061	0.8070	0.0003	0.0029
12	2021	8a	0.0742	0.0009	0.0061	1.2852	0.0003	0.0029
12	2021	8b	0.0742	0.0009	0.0061	1.6656	0.0003	0.0028
12	2022	2b	0.0166	0.0005	0.0014	0.1248	0.0002	0.0010
12	2022	3	0.0727	0.0009	0.0060	0.5934	0.0003	0.0025
12	2022	4	0.0810	0.0009	0.0059	0.6999	0.0003	0.0028
12	2022	5	0.0854	0.0009	0.0059	0.6999	0.0003	0.0028
12	2022	6	0.0858	0.0009	0.0059	0.7338	0.0003	0.0029
12	2022	7	0.0700	0.0009	0.0061	0.8001	0.0003	0.0029
12	2022	8a	0.0700	0.0009	0.0061	1.2880	0.0003	0.0029
12	2022	8b	0.0700	0.0009	0.0061	1.6671	0.0003	0.0028

Table A-13. SmartWay Category - TL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
13	1987	2b	4.9338	0.0049	0.0333	7.2501	0.1685	0.2210
13	1987	3	5.6825	0.0159	0.1083	12.6026	0.3846	0.4879
13	1987	4	5.7340	0.0165	0.1124	14.3837	0.4448	0.5623
13	1987	5	5.5621	0.0144	0.0985	14.9586	0.4181	0.5287
13	1987	6	5.3170	0.0115	0.0783	15.0294	0.4570	0.5776
13	1987	7	5.3170	0.0115	0.0783	16.2760	0.4656	0.5884
13	1987	8a	5.3458	0.0117	0.0797	25.2480	0.6820	0.8600
13	1987	8b	5.3458	0.0117	0.0797	30.0879	0.7911	0.9968
13	1988	2b	4.9338	0.0049	0.0333	7.2501	0.1685	0.2210
13	1988	3	5.6825	0.0159	0.1083	12.6026	0.3846	0.4879
13	1988	4	5.7340	0.0165	0.1124	14.3837	0.4448	0.5623
13	1988	5	5.5621	0.0144	0.0985	14.9586	0.4181	0.5287
13	1988	6	5.3170	0.0115	0.0783	15.0294	0.4570	0.5776
13	1988	7	5.3170	0.0115	0.0783	16.2760	0.4656	0.5884
13	1988	8a	5.3458	0.0117	0.0797	25.2480	0.6820	0.8600
13	1988	8b	5.3458	0.0117	0.0797	30.0879	0.7911	0.9968

Table A-13. SmartWay Category - TL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
13	1989	2b	4.9338	0.0049	0.0333	7.2501	0.1685	0.2210
13	1989	3	5.6825	0.0159	0.1083	12.6026	0.3846	0.4879
13	1989	4	5.7340	0.0165	0.1124	14.3837	0.4448	0.5623
13	1989	5	5.5621	0.0144	0.0985	14.9586	0.4181	0.5287
13	1989	6	5.3170	0.0115	0.0783	15.0294	0.4570	0.5776
13	1989	7	5.3170	0.0115	0.0783	16.2760	0.4656	0.5884
13	1989	8a	5.3458	0.0117	0.0797	25.2480	0.6820	0.8600
13	1989	8b	5.3458	0.0117	0.0797	30.0879	0.7911	0.9968
13	1990	2b	4.9338	0.0049	0.0333	7.2501	0.1685	0.2210
13	1990	3	5.6825	0.0159	0.1083	12.6026	0.3846	0.4879
13	1990	4	5.7340	0.0165	0.1124	14.3837	0.4448	0.5623
13	1990	5	5.5621	0.0144	0.0985	14.9586	0.4181	0.5287
13	1990	6	5.3170	0.0115	0.0783	15.0294	0.4570	0.5776
13	1990	7	5.3170	0.0115	0.0783	16.2760	0.4656	0.5884
13	1990	8a	5.3458	0.0117	0.0797	25.2480	0.6820	0.8600
13	1990	8b	5.3458	0.0117	0.0797	30.0879	0.7911	0.9968
13	1991	2b	4.9338	0.0049	0.0333	7.2501	0.1685	0.2210
13	1991	3	5.6825	0.0159	0.1083	12.6026	0.3846	0.4879
13	1991	4	5.7340	0.0165	0.1124	14.3837	0.4448	0.5623
13	1991	5	5.5621	0.0144	0.0985	14.9586	0.4181	0.5287
13	1991	6	5.3170	0.0115	0.0783	15.0294	0.4570	0.5776
13	1991	7	5.3170	0.0115	0.0783	16.2760	0.4656	0.5884
13	1991	8a	5.3458	0.0117	0.0797	25.2480	0.6820	0.8600
13	1991	8b	5.3458	0.0117	0.0797	30.0879	0.7911	0.9968
13	1992	2b	4.9338	0.0049	0.0333	7.2501	0.1685	0.2210
13	1992	3	5.6825	0.0159	0.1083	12.6026	0.3846	0.4879
13	1992	4	5.7340	0.0165	0.1124	14.3837	0.4448	0.5623
13	1992	5	5.5621	0.0144	0.0985	14.9586	0.4181	0.5287
13	1992	6	5.3170	0.0115	0.0783	15.0294	0.4570	0.5776
13	1992	7	5.3170	0.0115	0.0783	16.2760	0.4656	0.5884
13	1992	8a	5.3458	0.0117	0.0797	25.2480	0.6820	0.8600
13	1992	8b	5.3458	0.0117	0.0797	30.0879	0.7911	0.9968
13	1993	2b	4.9806	0.0062	0.0424	7.7438	0.2013	0.2614

Table A-13. SmartWay Category - TL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
13	1993	3	5.7213	0.0166	0.1130	10.4433	0.2982	0.3813
13	1993	4	5.7591	0.0169	0.1151	15.8235	0.4816	0.6086
13	1993	5	5.7251	0.0166	0.1133	15.8193	0.4276	0.5408
13	1993	6	5.1580	0.0117	0.0802	17.1024	0.4636	0.5859
13	1993	7	5.1580	0.0117	0.0802	19.2299	0.5279	0.6667
13	1993	8a	5.2175	0.0117	0.0799	28.5699	0.7493	0.9445
13	1993	8b	5.2175	0.0117	0.0799	30.5407	0.7931	0.9992
13	1994	2b	4.3471	0.0056	0.0381	7.2361	0.4140	0.5310
13	1994	3	5.7248	0.0099	0.0674	9.6628	0.5127	0.6535
13	1994	4	5.7829	0.0099	0.0678	13.3381	0.6352	0.8042
13	1994	5	5.7795	0.0099	0.0678	16.1865	0.6991	0.8846
13	1994	6	5.1280	0.0093	0.0633	16.5914	0.6898	0.8728
13	1994	7	5.1280	0.0093	0.0633	20.1754	0.6939	0.8775
13	1994	8a	7.5997	0.0127	0.0863	28.5701	0.7299	0.9216
13	1994	8b	7.5997	0.0127	0.0863	30.4000	0.7391	0.9329
13	1995	2b	4.4554	0.0082	0.0563	7.4101	0.4084	0.5232
13	1995	3	5.6195	0.0217	0.1479	12.9112	0.6011	0.7622
13	1995	4	5.7414	0.0230	0.1568	14.5896	0.6411	0.8119
13	1995	5	5.7108	0.0227	0.1547	16.7532	0.6879	0.8704
13	1995	6	5.1204	0.0162	0.1109	17.3102	0.6732	0.8518
13	1995	7	5.1204	0.0162	0.1109	19.5971	0.6869	0.8688
13	1995	8a	7.4467	0.0325	0.2221	28.2304	0.7290	0.9206
13	1995	8b	7.4467	0.0325	0.2221	30.1804	0.7379	0.9313
13	1996	2b	3.6379	0.0053	0.0361	7.4782	0.3945	0.5048
13	1996	3	5.7034	0.0159	0.1083	14.1560	0.6375	0.8073
13	1996	4	5.7667	0.0164	0.1122	15.6806	0.6558	0.8299
13	1996	5	5.7632	0.0164	0.1121	16.7440	0.6929	0.8768
13	1996	6	5.1677	0.0110	0.0747	18.9685	0.6861	0.8679
13	1996	7	5.1677	0.0110	0.0747	19.9493	0.6926	0.8759
13	1996	8a	7.4467	0.0247	0.1687	28.2423	0.7298	0.9216
13	1996	8b	7.4467	0.0247	0.1687	30.2926	0.7406	0.9347
13	1997	2b	3.3332	0.0040	0.0274	5.8865	0.3249	0.4193
13	1997	3	5.6277	0.0129	0.0883	11.2212	0.5275	0.6708

Table A-13. SmartWay Category - TL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
13	1997	4	5.7749	0.0137	0.0937	13.5675	0.6469	0.8189
13	1997	5	5.7413	0.0136	0.0925	15.3226	0.6969	0.8819
13	1997	6	5.1469	0.0104	0.0708	15.3394	0.6644	0.8409
13	1997	7	5.1469	0.0104	0.0708	17.0932	0.6743	0.8532
13	1997	8a	8.6620	0.0101	0.0692	27.1693	0.7207	0.9103
13	1997	8b	8.6620	0.0101	0.0692	29.9210	0.7345	0.9271
13	1998	2b	2.9584	0.0035	0.0239	6.3885	0.2419	0.3125
13	1998	3	3.7570	0.0138	0.0940	13.2244	0.3387	0.4318
13	1998	4	3.7896	0.0154	0.1048	13.9500	0.3491	0.4446
13	1998	5	3.7450	0.0135	0.0924	14.6207	0.3330	0.4245
13	1998	6	3.6838	0.0103	0.0705	14.2516	0.3431	0.4371
13	1998	7	3.6838	0.0103	0.0705	15.1693	0.3450	0.4395
13	1998	8a	4.1943	0.0235	0.1601	24.8805	0.4654	0.5894
13	1998	8b	4.1943	0.0235	0.1601	28.0624	0.5015	0.6340
13	1999	2b	2.3029	0.0043	0.0290	5.8464	0.2413	0.3118
13	1999	3	3.7418	0.0137	0.0932	8.9428	0.3146	0.4018
13	1999	4	3.8869	0.0141	0.0960	9.5351	0.3289	0.4193
13	1999	5	3.9183	0.0139	0.0949	9.5721	0.3296	0.4201
13	1999	6	3.9205	0.0139	0.0949	9.6721	0.3294	0.4200
13	1999	7	3.6279	0.0133	0.0907	10.1899	0.3380	0.4307
13	1999	8a	3.6504	0.0142	0.0966	18.4846	0.4664	0.5908
13	1999	8b	3.6504	0.0142	0.0966	21.0151	0.5060	0.6397
13	2000	2b	2.0501	0.0038	0.0260	5.9910	0.2450	0.3163
13	2000	3	3.8056	0.0125	0.0854	8.9584	0.3159	0.4033
13	2000	4	3.9827	0.0112	0.0767	9.4314	0.3270	0.4170
13	2000	5	4.0313	0.0109	0.0743	9.5045	0.3283	0.4186
13	2000	6	4.0344	0.0109	0.0742	9.6363	0.3308	0.4217
13	2000	7	3.6908	0.0133	0.0910	10.9282	0.3496	0.4452
13	2000	8a	3.6908	0.0133	0.0910	17.1091	0.4437	0.5625
13	2000	8b	3.6908	0.0133	0.0910	20.8581	0.5036	0.6367
13	2001	2b	0.6886	0.0026	0.0179	5.6658	0.2374	0.3070
13	2001	3	1.5717	0.0095	0.0645	8.7132	0.3089	0.3946
13	2001	4	1.6309	0.0093	0.0637	9.1185	0.3188	0.4066

Table A-13. SmartWay Category - TL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
13	2001	5	1.6535	0.0093	0.0634	9.1553	0.3194	0.4074
13	2001	6	1.6551	0.0093	0.0634	9.9132	0.3321	0.4233
13	2001	7	1.5456	0.0095	0.0648	9.7471	0.3294	0.4199
13	2001	8a	1.5456	0.0095	0.0648	17.9920	0.4568	0.5788
13	2001	8b	1.5456	0.0095	0.0648	20.6916	0.5004	0.6328
13	2002	2b	0.6544	0.0023	0.0160	5.7343	0.2390	0.3090
13	2002	3	1.5969	0.0073	0.0500	8.5143	0.3039	0.3885
13	2002	4	1.6779	0.0067	0.0455	9.1047	0.3181	0.4057
13	2002	5	1.7025	0.0065	0.0441	9.1047	0.3181	0.4057
13	2002	6	1.7041	0.0064	0.0440	9.4150	0.3249	0.4143
13	2002	7	1.5507	0.0077	0.0525	10.0208	0.3330	0.4244
13	2002	8a	1.5507	0.0077	0.0525	15.5872	0.4188	0.5316
13	2002	8b	1.5507	0.0077	0.0525	20.3575	0.4947	0.6258
13	2003	2b	0.5908	0.0018	0.0121	4.0650	0.2019	0.2611
13	2003	3	1.5786	0.0059	0.0404	5.7255	0.2635	0.3368
13	2003	4	1.6476	0.0058	0.0395	6.0935	0.2775	0.3539
13	2003	5	1.6693	0.0057	0.0392	6.0935	0.2775	0.3539
13	2003	6	1.6708	0.0057	0.0391	6.4622	0.2872	0.3662
13	2003	7	1.5409	0.0060	0.0409	6.6479	0.2973	0.3788
13	2003	8a	1.5410	0.0060	0.0409	8.6546	0.3870	0.4909
13	2003	8b	1.5410	0.0060	0.0409	10.0338	0.4516	0.5711
13	2004	2b	0.4750	0.0011	0.0077	4.0385	0.2004	0.2591
13	2004	3	1.5963	0.0047	0.0318	5.7709	0.2637	0.3370
13	2004	4	1.6912	0.0045	0.0305	6.1672	0.2784	0.3552
13	2004	5	1.7194	0.0044	0.0302	6.1672	0.2784	0.3552
13	2004	6	1.7212	0.0044	0.0301	6.5267	0.2900	0.3697
13	2004	7	1.5406	0.0048	0.0326	6.7001	0.2989	0.3808
13	2004	8a	1.5406	0.0048	0.0326	8.6312	0.3853	0.4887
13	2004	8b	1.5406	0.0048	0.0326	10.0367	0.4521	0.5717
13	2005	2b	0.3847	0.0009	0.0065	3.9367	0.1958	0.2533
13	2005	3	1.5852	0.0046	0.0311	5.6397	0.2587	0.3308
13	2005	4	1.6375	0.0044	0.0303	6.1393	0.2774	0.3539
13	2005	5	1.6610	0.0044	0.0300	6.1393	0.2774	0.3539

Table A-13. SmartWay Category - TL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
13	2005	6	1.6627	0.0044	0.0300	6.4383	0.2881	0.3673
13	2005	7	1.5655	0.0046	0.0314	6.7393	0.3018	0.3844
13	2005	8a	1.5657	0.0046	0.0314	8.8581	0.3955	0.5014
13	2005	8b	1.5657	0.0046	0.0314	10.0931	0.4544	0.5745
13	2006	2b	0.4249	0.0011	0.0074	3.9899	0.1988	0.2572
13	2006	3	1.5836	0.0048	0.0328	5.5881	0.2570	0.3287
13	2006	4	1.6520	0.0046	0.0316	6.0585	0.2744	0.3500
13	2006	5	1.6785	0.0046	0.0312	6.0585	0.2744	0.3500
13	2006	6	1.6803	0.0046	0.0311	6.2929	0.2833	0.3612
13	2006	7	1.5538	0.0049	0.0333	6.6053	0.2970	0.3783
13	2006	8a	1.5540	0.0049	0.0333	8.7485	0.3913	0.4961
13	2006	8b	1.5540	0.0049	0.0333	10.0735	0.4538	0.5738
13	2007	2b	0.3735	0.0010	0.0068	2.1805	0.0013	0.0113
13	2007	3	1.5862	0.0048	0.0327	3.4027	0.0018	0.0152
13	2007	4	1.6397	0.0046	0.0316	3.6218	0.0019	0.0159
13	2007	5	1.6627	0.0046	0.0312	3.6218	0.0019	0.0159
13	2007	6	1.6644	0.0046	0.0311	3.7605	0.0019	0.0163
13	2007	7	1.5657	0.0048	0.0331	4.1731	0.0021	0.0176
13	2007	8a	1.5668	0.0048	0.0331	6.1066	0.0028	0.0238
13	2007	8b	1.5668	0.0048	0.0331	7.0181	0.0031	0.0269
13	2008	2b	0.2823	0.0008	0.0057	2.1152	0.0013	0.0110
13	2008	3	1.0427	0.0036	0.0243	3.0316	0.0016	0.0140
13	2008	4	1.0106	0.0035	0.0240	3.2100	0.0017	0.0145
13	2008	5	0.9930	0.0035	0.0238	3.2100	0.0017	0.0145
13	2008	6	0.9916	0.0035	0.0238	3.3182	0.0017	0.0149
13	2008	7	1.0528	0.0036	0.0244	3.4549	0.0018	0.0153
13	2008	8a	1.0526	0.0036	0.0244	4.9284	0.0023	0.0200
13	2008	8b	1.0526	0.0036	0.0244	6.6800	0.0030	0.0257
13	2009	2b	0.1743	0.0009	0.0060	2.1019	0.0013	0.0108
13	2009	3	0.6468	0.0036	0.0243	3.5278	0.0018	0.0156
13	2009	4	0.6452	0.0035	0.0242	3.7254	0.0019	0.0163
13	2009	5	0.6443	0.0035	0.0242	3.7254	0.0019	0.0163
13	2009	6	0.6443	0.0035	0.0242	3.8001	0.0019	0.0165

Table A-13. SmartWay Category - TL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
13	2009	7	0.6473	0.0036	0.0243	4.2530	0.0021	0.0179
13	2009	8a	0.6473	0.0036	0.0243	6.1326	0.0028	0.0239
13	2009	8b	0.6473	0.0036	0.0243	6.9931	0.0031	0.0268
13	2010	2b	0.0674	0.0006	0.0033	0.9122	0.0009	0.0075
13	2010	3	0.1058	0.0017	0.0116	1.8750	0.0017	0.0148
13	2010	4	0.1058	0.0017	0.0116	2.0308	0.0019	0.0160
13	2010	5	0.1058	0.0017	0.0116	2.0308	0.0019	0.0160
13	2010	6	0.1058	0.0017	0.0116	2.1022	0.0019	0.0165
13	2010	7	0.1058	0.0017	0.0116	2.4306	0.0018	0.0150
13	2010	8a	0.1058	0.0017	0.0116	3.8694	0.0012	0.0100
13	2010	8b	0.1058	0.0017	0.0116	4.5614	0.0008	0.0071
13	2011	2b	0.0699	0.0007	0.0038	1.0022	0.0009	0.0074
13	2011	3	0.1130	0.0017	0.0114	1.6044	0.0015	0.0131
13	2011	4	0.1255	0.0016	0.0110	1.7028	0.0016	0.0140
13	2011	5	0.1319	0.0016	0.0108	1.7028	0.0016	0.0140
13	2011	6	0.1323	0.0016	0.0108	1.7607	0.0017	0.0143
13	2011	7	0.1088	0.0017	0.0115	1.9268	0.0016	0.0135
13	2011	8a	0.1088	0.0017	0.0115	3.0201	0.0012	0.0101
13	2011	8b	0.1088	0.0017	0.0115	3.8232	0.0008	0.0071
13	2012	2b	0.0717	0.0008	0.0041	0.9444	0.0009	0.0075
13	2012	3	0.1149	0.0016	0.0112	1.6018	0.0016	0.0136
13	2012	4	0.1198	0.0016	0.0111	1.6890	0.0017	0.0144
13	2012	5	0.1227	0.0016	0.0110	1.6890	0.0017	0.0144
13	2012	6	0.1229	0.0016	0.0110	1.7286	0.0017	0.0145
13	2012	7	0.1134	0.0017	0.0113	1.9630	0.0016	0.0135
13	2012	8a	0.1134	0.0017	0.0113	3.1086	0.0011	0.0096
13	2012	8b	0.1134	0.0017	0.0113	3.7364	0.0008	0.0070
13	2013	2b	0.0586	0.0007	0.0031	1.1224	0.0009	0.0074
13	2013	3	0.1211	0.0015	0.0103	1.6959	0.0016	0.0137
13	2013	4	0.1301	0.0015	0.0100	1.7752	0.0017	0.0146
13	2013	5	0.1345	0.0015	0.0099	1.7752	0.0017	0.0146
13	2013	6	0.1349	0.0015	0.0099	1.8097	0.0017	0.0147
13	2013	7	0.1181	0.0015	0.0104	1.9883	0.0016	0.0134

Table A-13. SmartWay Category - TL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
13	2013	8a	0.1185	0.0015	0.0103	2.7071	0.0010	0.0087
13	2013	8b	0.1185	0.0015	0.0103	3.0293	0.0007	0.0062
13	2014	2b	0.0601	0.0008	0.0032	0.5249	0.0004	0.0022
13	2014	3	0.1216	0.0015	0.0099	1.1412	0.0005	0.0041
13	2014	4	0.1250	0.0014	0.0099	1.2117	0.0005	0.0043
13	2014	5	0.1270	0.0014	0.0098	1.2117	0.0005	0.0043
13	2014	6	0.1272	0.0014	0.0098	1.2389	0.0005	0.0043
13	2014	7	0.1206	0.0015	0.0099	1.3991	0.0005	0.0043
13	2014	8a	0.1206	0.0015	0.0099	2.1814	0.0005	0.0042
13	2014	8b	0.1206	0.0015	0.0099	2.6296	0.0005	0.0040
13	2015	2b	0.0548	0.0009	0.0030	0.4156	0.0004	0.0021
13	2015	3	0.1215	0.0015	0.0099	1.0286	0.0005	0.0040
13	2015	4	0.1246	0.0014	0.0099	1.1151	0.0005	0.0043
13	2015	5	0.1265	0.0014	0.0098	1.1151	0.0005	0.0043
13	2015	6	0.1266	0.0014	0.0098	1.1439	0.0005	0.0043
13	2015	7	0.1206	0.0015	0.0099	1.3213	0.0005	0.0043
13	2015	8a	0.1206	0.0015	0.0099	2.1688	0.0005	0.0043
13	2015	8b	0.1206	0.0015	0.0099	2.6446	0.0005	0.0040
13	2016	2b	0.0542	0.0009	0.0030	0.3974	0.0005	0.0021
13	2016	3	0.1214	0.0015	0.0099	0.9805	0.0005	0.0040
13	2016	4	0.1243	0.0014	0.0099	1.0754	0.0005	0.0043
13	2016	5	0.1260	0.0014	0.0098	1.0754	0.0005	0.0043
13	2016	6	0.1261	0.0014	0.0098	1.0996	0.0005	0.0043
13	2016	7	0.1205	0.0015	0.0099	1.2393	0.0005	0.0043
13	2016	8a	0.1205	0.0015	0.0099	2.0205	0.0005	0.0043
13	2016	8b	0.1205	0.0015	0.0099	2.5474	0.0005	0.0041
13	2017	2b	0.0374	0.0009	0.0027	0.3751	0.0005	0.0020
13	2017	3	0.1032	0.0014	0.0099	0.9200	0.0005	0.0038
13	2017	4	0.1053	0.0014	0.0098	1.0136	0.0005	0.0041
13	2017	5	0.1066	0.0014	0.0098	1.0136	0.0005	0.0041
13	2017	6	0.1067	0.0014	0.0098	1.0325	0.0005	0.0041
13	2017	7	0.1025	0.0015	0.0099	1.1426	0.0005	0.0041
13	2017	8a	0.1025	0.0015	0.0099	1.7948	0.0005	0.0042

Table A-13. SmartWay Category - TL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
13	2017	8b	0.1025	0.0015	0.0099	2.2690	0.0005	0.0040
13	2018	2b	0.0363	0.0010	0.0028	0.2681	0.0005	0.0020
13	2018	3	0.0896	0.0014	0.0099	0.8519	0.0005	0.0038
13	2018	4	0.0980	0.0014	0.0097	0.9518	0.0005	0.0041
13	2018	5	0.1024	0.0014	0.0096	0.9518	0.0005	0.0041
13	2018	6	0.1027	0.0014	0.0096	0.9975	0.0005	0.0042
13	2018	7	0.0869	0.0015	0.0099	1.0956	0.0005	0.0042
13	2018	8a	0.0869	0.0015	0.0099	1.7519	0.0005	0.0042
13	2018	8b	0.0869	0.0015	0.0099	2.2103	0.0005	0.0040
13	2019	2b	0.0266	0.0006	0.0017	0.1690	0.0003	0.0012
13	2019	3	0.0854	0.0009	0.0060	0.5853	0.0003	0.0025
13	2019	4	0.0937	0.0009	0.0059	0.6636	0.0003	0.0027
13	2019	5	0.0981	0.0009	0.0058	0.6636	0.0003	0.0027
13	2019	6	0.0984	0.0009	0.0058	0.6962	0.0003	0.0028
13	2019	7	0.0827	0.0009	0.0060	0.7700	0.0003	0.0028
13	2019	8a	0.0827	0.0009	0.0060	1.2587	0.0003	0.0029
13	2019	8b	0.0827	0.0009	0.0060	1.5990	0.0003	0.0028
13	2020	2b	0.0233	0.0006	0.0016	0.1467	0.0003	0.0011
13	2020	3	0.0813	0.0009	0.0060	0.5626	0.0003	0.0024
13	2020	4	0.0899	0.0009	0.0059	0.6540	0.0003	0.0027
13	2020	5	0.0945	0.0009	0.0058	0.6540	0.0003	0.0027
13	2020	6	0.0948	0.0009	0.0058	0.6861	0.0003	0.0028
13	2020	7	0.0785	0.0009	0.0060	0.7564	0.0003	0.0028
13	2020	8a	0.0785	0.0009	0.0060	1.2413	0.0003	0.0029
13	2020	8b	0.0785	0.0009	0.0060	1.5951	0.0003	0.0028
13	2021	2b	0.0198	0.0005	0.0014	0.1304	0.0002	0.0010
13	2021	3	0.0764	0.0009	0.0059	0.5456	0.0003	0.0024
13	2021	4	0.0844	0.0009	0.0058	0.6419	0.0003	0.0027
13	2021	5	0.0888	0.0008	0.0058	0.6419	0.0003	0.0027
13	2021	6	0.0891	0.0008	0.0058	0.6725	0.0003	0.0027
13	2021	7	0.0738	0.0009	0.0060	0.7357	0.0003	0.0027
13	2021	8a	0.0738	0.0009	0.0060	1.1920	0.0003	0.0028
13	2021	8b	0.0738	0.0009	0.0060	1.5380	0.0003	0.0027

Table A-13. SmartWay Category - TL/Dry Van

Category ID	Engine Model Yr	Truck Class	Gas NOx g/mi	Gas BC g/mi	Gas PM _{2.5} g/mi	Diesel NOx g/mi	Diesel BC g/mi	Diesel PM _{2.5} g/mi
13	2022	2b	0.0167	0.0005	0.0014	0.1160	0.0002	0.0010
13	2022	3	0.0723	0.0009	0.0059	0.5355	0.0003	0.0024
13	2022	4	0.0806	0.0009	0.0058	0.6323	0.0003	0.0027
13	2022	5	0.0851	0.0008	0.0058	0.6323	0.0003	0.0027
13	2022	6	0.0855	0.0008	0.0058	0.6633	0.0003	0.0027
13	2022	7	0.0696	0.0009	0.0060	0.7293	0.0003	0.0027
13	2022	8a	0.0696	0.0009	0.0060	1.1946	0.0003	0.0028
13	2022	8b	0.0696	0.0009	0.0060	1.5393	0.0003	0.0027

Appendix B: NO_x, PM & BC Idle Factors – g/hr 2021 Calendar Year, MOVES3.0.1 Basis

**Table B-1. Short Duration Idle Emission Factors
(< 60 minutes per idle event) (g/hr)**

Pollutant	Fuel	Model Year	Class 2b	Class 3	Class 4 5	Class 6 7	Class 8a/b
BC	Diesel	1987	1.9094	1.9094	1.6821	1.9090	1.9090
BC	Diesel	1988	1.9094	1.9094	1.6821	1.9090	1.9090
BC	Diesel	1989	1.9094	1.9094	1.6821	1.9090	1.9090
BC	Diesel	1990	1.9094	1.9094	1.6821	1.9090	1.9090
BC	Diesel	1991	1.9094	1.9094	1.6821	1.9090	1.9090
BC	Diesel	1992	1.9094	1.9094	1.6821	1.9090	1.9090
BC	Diesel	1993	1.9347	1.9347	1.6821	1.9090	1.9090
BC	Diesel	1994	4.0068	4.0068	3.5316	3.3006	2.9187
BC	Diesel	1995	4.0231	4.0231	3.5316	3.3006	2.9187
BC	Diesel	1996	4.0307	4.0307	3.5316	3.3006	2.9187
BC	Diesel	1997	3.9950	3.9950	3.5316	3.3006	2.9187
BC	Diesel	1998	3.7667	3.7667	3.3216	3.1336	2.7913
BC	Diesel	1999	3.7988	3.7988	3.3216	3.1336	2.7913
BC	Diesel	2000	3.7301	3.7301	3.3216	3.1336	2.7913
BC	Diesel	2001	3.3301	3.3301	3.3216	3.1336	2.7913
BC	Diesel	2002	3.3304	3.3304	3.3216	3.1336	2.7913
BC	Diesel	2003	2.8328	2.8328	2.8253	2.8253	2.5226
BC	Diesel	2004	2.8331	2.8331	2.8253	2.8253	2.5226
BC	Diesel	2005	2.8316	2.8316	2.8253	2.8253	2.5226
BC	Diesel	2006	2.8315	2.8315	2.8253	2.8253	2.5226
BC	Diesel	2007	0.0456	0.0456	0.0454	0.0303	0.0303
BC	Diesel	2008	0.0456	0.0456	0.0454	0.0303	0.0303
BC	Diesel	2009	0.0456	0.0456	0.0454	0.0303	0.0303
BC	Diesel	2010	0.0058	0.0058	0.0069	0.0577	0.0021
BC	Diesel	2011	0.0057	0.0057	0.0067	0.0566	0.0021
BC	Diesel	2012	0.0058	0.0058	0.0067	0.0569	0.0021
BC	Diesel	2013	0.0058	0.0058	0.0060	0.0507	0.0018

**Table B-1. Short Duration Idle Emission Factors
(< 60 minutes per idle event) (g/hr)**

Pollutant	Fuel	Model Year	Class 2b	Class 3	Class 4 5	Class 6 7	Class 8a/b
BC	Diesel	2014	0.0007	0.0007	0.0008	0.0066	0.0027
BC	Diesel	2015	0.0007	0.0007	0.0008	0.0066	0.0027
BC	Diesel	2016	0.0007	0.0007	0.0008	0.0066	0.0027
BC	Diesel	2017	0.0007	0.0007	0.0008	0.0061	0.0027
BC	Diesel	2018	0.0007	0.0007	0.0008	0.0061	0.0027
BC	Diesel	2019	0.0004	0.0004	0.0005	0.0042	0.0019
BC	Diesel	2020	0.0004	0.0004	0.0005	0.0042	0.0019
BC	Diesel	2021	0.0004	0.0004	0.0005	0.0042	0.0019
BC	Diesel	2022	0.0004	0.0004	0.0005	0.0042	0.0019
BC	E10	1987	0.0196	0.0196	0.0196	0.0196	0.0196
BC	E10	1988	0.0196	0.0196	0.0196	0.0196	0.0196
BC	E10	1989	0.0196	0.0196	0.0196	0.0196	0.0196
BC	E10	1990	0.0196	0.0196	0.0196	0.0196	0.0196
BC	E10	1991	0.0196	0.0196	0.0196	0.0196	0.0196
BC	E10	1992	0.0196	0.0196	0.0196	0.0196	0.0196
BC	E10	1993	0.0196	0.0196	0.0196	0.0196	0.0196
BC	E10	1994	0.0064	0.0064	0.0064	0.0064	0.0064
BC	E10	1995	0.0076	0.0076	0.0076	0.0076	0.0076
BC	E10	1996	0.0178	0.0178	0.0178	0.0178	0.0178
BC	E10	1997	0.0187	0.0187	0.0187	0.0187	0.0187
BC	E10	1998	0.0112	0.0112	0.0112	0.0112	0.0112
BC	E10	1999	0.0054	0.0054	0.0054	0.0054	0.0054
BC	E10	2000	0.0024	0.0024	0.0024	0.0024	0.0024
BC	E10	2001	0.0023	0.0023	0.0023	0.0023	0.0023
BC	E10	2002	0.0096	0.0096	0.0096	0.0096	0.0096
BC	E10	2003	0.0043	0.0043	0.0043	0.0043	0.0043
BC	E10	2004	0.0100	0.0100	0.0100	0.0100	0.0100
BC	E10	2005	0.0100	0.0100	0.0100	0.0100	0.0100
BC	E10	2006	0.0100	0.0100	0.0100	0.0100	0.0100
BC	E10	2007	0.0100	0.0100	0.0100	0.0100	0.0100
BC	E10	2008	0.0076	0.0076	0.0076	0.0076	0.0076
BC	E10	2009	0.0076	0.0076	0.0076	0.0076	0.0076
BC	E10	2010	0.0081	0.0081	0.0092	0.0031	0.0031

**Table B-1. Short Duration Idle Emission Factors
(< 60 minutes per idle event) (g/hr)**

Pollutant	Fuel	Model Year	Class 2b	Class 3	Class 4 5	Class 6 7	Class 8a/b
BC	E10	2011	0.0081	0.0081	0.0092	0.0031	0.0031
BC	E10	2012	0.0081	0.0081	0.0092	0.0031	0.0031
BC	E10	2013	0.0081	0.0081	0.0081	0.0031	0.0031
BC	E10	2014	0.0081	0.0081	0.0081	0.0031	0.0031
BC	E10	2015	0.0081	0.0081	0.0081	0.0031	0.0031
BC	E10	2016	0.0081	0.0081	0.0081	0.0031	0.0031
BC	E10	2017	0.0081	0.0081	0.0081	0.0020	0.0031
BC	E10	2018	0.0081	0.0081	0.0081	0.0020	0.0031
BC	E10	2019	0.0051	0.0051	0.0051	0.0020	0.0020
BC	E10	2020	0.0051	0.0051	0.0051	0.0020	0.0020
BC	E10	2021	0.0051	0.0051	0.0051	0.0020	0.0020
BC	E10	2022	0.0051	0.0051	0.0051	0.0020	0.0020
NOx	Diesel	1987	122.0871	122.0871	122.0866	141.3957	141.3955
NOx	Diesel	1988	122.0871	122.0871	122.0866	141.3957	141.3955
NOx	Diesel	1989	122.0871	122.0871	122.0866	141.3957	141.3955
NOx	Diesel	1990	122.0871	122.0871	122.0866	141.3957	141.3955
NOx	Diesel	1991	122.0871	122.0871	122.0866	141.3957	141.3955
NOx	Diesel	1992	122.0871	122.0871	122.0866	141.3957	141.3955
NOx	Diesel	1993	122.0870	122.0870	122.0870	141.3953	141.3958
NOx	Diesel	1994	122.0868	122.0868	122.0867	141.3958	141.3955
NOx	Diesel	1995	122.0868	122.0868	122.0863	141.3954	141.3957
NOx	Diesel	1996	122.0868	122.0868	122.0873	141.3951	141.3957
NOx	Diesel	1997	122.0867	122.0867	122.0865	141.3958	141.3956
NOx	Diesel	1998	97.6691	97.6691	97.6690	118.7281	118.7277
NOx	Diesel	1999	97.6690	97.6690	97.6695	97.6691	156.6231
NOx	Diesel	2000	97.6690	97.6690	97.6691	97.6688	156.6232
NOx	Diesel	2001	97.6094	97.6094	97.6699	97.6690	156.6234
NOx	Diesel	2002	97.6074	97.6074	97.6691	97.6694	156.6236
NOx	Diesel	2003	22.1874	22.1874	22.2015	46.3494	57.6141
NOx	Diesel	2004	22.1868	22.1868	22.2015	46.3495	57.6140
NOx	Diesel	2005	22.1896	22.1896	22.2015	46.3494	57.6140
NOx	Diesel	2006	22.1898	22.1898	22.2015	46.3493	57.6140
NOx	Diesel	2007	20.5609	20.5609	20.5745	23.0982	53.9491

**Table B-1. Short Duration Idle Emission Factors
(< 60 minutes per idle event) (g/hr)**

Pollutant	Fuel	Model Year	Class 2b	Class 3	Class 4 5	Class 6 7	Class 8a/b
NOx	Diesel	2008	20.5595	20.5595	20.5694	23.0942	53.9450
NOx	Diesel	2009	20.5632	20.5632	20.5751	23.0995	53.9491
NOx	Diesel	2010	17.5447	17.5447	20.0061	35.8799	47.6257
NOx	Diesel	2011	23.0818	23.0818	26.2619	34.7485	42.2061
NOx	Diesel	2012	20.2334	20.2334	23.0160	34.8452	41.6651
NOx	Diesel	2013	31.5569	31.5569	31.6707	21.0337	35.9170
NOx	Diesel	2014	14.3869	14.3869	14.4261	29.0937	49.5783
NOx	Diesel	2015	10.1654	10.1654	10.1980	27.9510	49.3588
NOx	Diesel	2016	10.1616	10.1616	10.1981	27.9581	50.0966
NOx	Diesel	2017	10.1602	10.1602	10.1981	26.1324	52.9653
NOx	Diesel	2018	6.3981	6.3981	10.1977	26.0170	52.9678
NOx	Diesel	2019	3.9796	3.9796	6.4542	18.3863	38.3851
NOx	Diesel	2020	3.4638	3.4638	6.4543	18.3853	38.3830
NOx	Diesel	2021	2.9878	2.9878	6.4543	18.3847	38.3814
NOx	Diesel	2022	2.4738	2.4738	6.4543	18.3852	38.3827
NOx	E10	1987	6.9913	6.9913	6.9913	6.9913	6.9914
NOx	E10	1988	6.9913	6.9913	6.9913	6.9913	6.9914
NOx	E10	1989	6.9913	6.9913	6.9913	6.9913	6.9914
NOx	E10	1990	6.9913	6.9913	6.9913	6.9913	6.9914
NOx	E10	1991	6.9913	6.9913	6.9913	6.9913	6.9914
NOx	E10	1992	6.9913	6.9913	6.9913	6.9913	6.9914
NOx	E10	1993	6.9913	6.9913	6.9914	6.9913	6.9913
NOx	E10	1994	7.0090	7.0090	7.0090	7.0090	7.0090
NOx	E10	1995	7.0090	7.0090	7.0090	7.0090	7.0090
NOx	E10	1996	7.0090	7.0090	7.0090	7.0090	7.0090
NOx	E10	1997	7.0090	7.0090	7.0090	7.0090	7.0090
NOx	E10	1998	14.5236	14.5236	14.5236	14.5236	14.5236
NOx	E10	1999	14.5236	14.5236	14.5236	14.5236	14.5236
NOx	E10	2000	14.5236	14.5236	14.5237	14.5236	14.5236
NOx	E10	2001	7.6027	7.6027	6.1736	6.1736	6.1736
NOx	E10	2002	7.6255	7.6255	6.1736	6.1736	6.1736
NOx	E10	2003	7.6578	7.6578	6.1736	6.1736	6.1736
NOx	E10	2004	7.6120	7.6120	6.1736	6.1736	6.1736

**Table B-1. Short Duration Idle Emission Factors
(< 60 minutes per idle event) (g/hr)**

Pollutant	Fuel	Model Year	Class 2b	Class 3	Class 4 5	Class 6 7	Class 8a/b
NOx	E10	2005	7.5482	7.5482	6.1736	6.1736	6.1736
NOx	E10	2006	7.5746	7.5746	6.1736	6.1736	6.1736
NOx	E10	2007	7.5544	7.5544	6.1736	6.1736	6.1736
NOx	E10	2008	3.7517	3.7517	3.1320	1.8521	1.8521
NOx	E10	2009	0.1080	0.1080	0.0904	1.8521	1.8521
NOx	E10	2010	0.3022	0.3022	0.2555	0.2555	0.2555
NOx	E10	2011	0.3034	0.3034	0.2555	0.2555	0.2555
NOx	E10	2012	0.3022	0.3022	0.2555	0.2555	0.2555
NOx	E10	2013	0.2998	0.2998	0.2555	0.2555	0.2555
NOx	E10	2014	0.2827	0.2827	0.2555	0.2555	0.2555
NOx	E10	2015	0.2846	0.2846	0.2555	0.2555	0.2555
NOx	E10	2016	0.2862	0.2862	0.2555	0.2555	0.2555
NOx	E10	2017	0.1559	0.1559	0.1394	0.1394	0.1394
NOx	E10	2018	0.1246	0.1246	0.1394	0.1394	0.1394
NOx	E10	2019	0.0955	0.0955	0.1394	0.1394	0.1394
NOx	E10	2020	0.0755	0.0755	0.1394	0.1394	0.1394
NOx	E10	2021	0.0553	0.0553	0.1394	0.1394	0.1394
NOx	E10	2022	0.0343	0.0343	0.1394	0.1394	0.1394
PM10	Diesel	1987	4.9731	4.9731	5.7622	6.5394	6.5393
PM10	Diesel	1988	4.9731	4.9731	5.7622	6.5394	6.5393
PM10	Diesel	1989	4.9731	4.9731	5.7622	6.5394	6.5393
PM10	Diesel	1990	4.9731	4.9731	5.7622	6.5394	6.5393
PM10	Diesel	1991	4.9731	4.9731	5.7622	6.5394	6.5393
PM10	Diesel	1992	4.9731	4.9731	5.7622	6.5394	6.5393
PM10	Diesel	1993	4.8853	4.8853	5.7623	6.5393	6.5394
PM10	Diesel	1994	10.4478	10.4478	12.0978	11.3064	9.9982
PM10	Diesel	1995	10.3912	10.3912	12.0978	11.3063	9.9982
PM10	Diesel	1996	10.3647	10.3647	12.0978	11.3064	9.9982
PM10	Diesel	1997	10.4887	10.4887	12.0978	11.3064	9.9982
PM10	Diesel	1998	9.8330	9.8330	11.3785	10.7344	9.5617
PM10	Diesel	1999	9.7216	9.7216	11.3785	10.7344	9.5617
PM10	Diesel	2000	9.9602	9.9602	11.3785	10.7344	9.5617
PM10	Diesel	2001	9.0042	9.0042	11.3785	10.7344	9.5617

**Table B-1. Short Duration Idle Emission Factors
(< 60 minutes per idle event) (g/hr)**

Pollutant	Fuel	Model Year	Class 2b	Class 3	Class 4 5	Class 6 7	Class 8a/b
PM10	Diesel	2002	8.9264	8.9264	11.3785	10.7344	9.5617
PM10	Diesel	2003	7.5808	7.5808	9.6782	9.6782	8.6413
PM10	Diesel	2004	7.4934	7.4934	9.6782	9.6782	8.6413
PM10	Diesel	2005	7.9040	7.9040	9.6782	9.6782	8.6413
PM10	Diesel	2006	7.9332	7.9332	9.6782	9.6782	8.6413
PM10	Diesel	2007	0.4244	0.4244	0.4228	0.2824	0.2824
PM10	Diesel	2008	0.4242	0.4242	0.4228	0.2823	0.2824
PM10	Diesel	2009	0.4241	0.4241	0.4228	0.2823	0.2823
PM10	Diesel	2010	0.0540	0.0540	0.0640	0.5367	0.0194
PM10	Diesel	2011	0.0533	0.0533	0.0620	0.5263	0.0193
PM10	Diesel	2012	0.0538	0.0538	0.0623	0.5291	0.0194
PM10	Diesel	2013	0.0541	0.0541	0.0559	0.4716	0.0171
PM10	Diesel	2014	0.0069	0.0069	0.0071	0.0613	0.0255
PM10	Diesel	2015	0.0069	0.0069	0.0071	0.0613	0.0255
PM10	Diesel	2016	0.0069	0.0069	0.0071	0.0612	0.0255
PM10	Diesel	2017	0.0068	0.0068	0.0071	0.0571	0.0254
PM10	Diesel	2018	0.0068	0.0068	0.0071	0.0572	0.0254
PM10	Diesel	2019	0.0041	0.0041	0.0043	0.0387	0.0178
PM10	Diesel	2020	0.0041	0.0041	0.0043	0.0387	0.0178
PM10	Diesel	2021	0.0041	0.0041	0.0043	0.0387	0.0178
PM10	Diesel	2022	0.0041	0.0041	0.0043	0.0387	0.0178
PM10	E10	1987	0.1513	0.1513	0.1513	0.1513	0.1513
PM10	E10	1988	0.1513	0.1513	0.1513	0.1513	0.1513
PM10	E10	1989	0.1513	0.1513	0.1513	0.1513	0.1513
PM10	E10	1990	0.1513	0.1513	0.1513	0.1513	0.1513
PM10	E10	1991	0.1513	0.1513	0.1513	0.1513	0.1513
PM10	E10	1992	0.1513	0.1513	0.1513	0.1513	0.1513
PM10	E10	1993	0.1513	0.1513	0.1513	0.1513	0.1513
PM10	E10	1994	0.0495	0.0495	0.0495	0.0495	0.0495
PM10	E10	1995	0.0589	0.0589	0.0589	0.0589	0.0589
PM10	E10	1996	0.1371	0.1371	0.1371	0.1371	0.1371
PM10	E10	1997	0.1443	0.1443	0.1443	0.1443	0.1443
PM10	E10	1998	0.0861	0.0861	0.0861	0.0861	0.0861

**Table B-1. Short Duration Idle Emission Factors
(< 60 minutes per idle event) (g/hr)**

Pollutant	Fuel	Model Year	Class 2b	Class 3	Class 4 5	Class 6 7	Class 8a/b
PM10	E10	1999	0.0418	0.0418	0.0418	0.0418	0.0418
PM10	E10	2000	0.0186	0.0186	0.0186	0.0186	0.0186
PM10	E10	2001	0.0174	0.0174	0.0174	0.0174	0.0174
PM10	E10	2002	0.0738	0.0738	0.0738	0.0738	0.0738
PM10	E10	2003	0.0330	0.0330	0.0330	0.0330	0.0330
PM10	E10	2004	0.0794	0.0794	0.0771	0.0771	0.0771
PM10	E10	2005	0.0793	0.0793	0.0771	0.0771	0.0771
PM10	E10	2006	0.0794	0.0794	0.0771	0.0771	0.0771
PM10	E10	2007	0.0793	0.0793	0.0771	0.0771	0.0771
PM10	E10	2008	0.0599	0.0599	0.0584	0.0584	0.0584
PM10	E10	2009	0.0599	0.0599	0.0584	0.0584	0.0584
PM10	E10	2010	0.0619	0.0619	0.0693	0.0231	0.0231
PM10	E10	2011	0.0620	0.0620	0.0693	0.0231	0.0231
PM10	E10	2012	0.0619	0.0619	0.0693	0.0231	0.0231
PM10	E10	2013	0.0618	0.0618	0.0605	0.0209	0.0209
PM10	E10	2014	0.0613	0.0613	0.0605	0.0209	0.0209
PM10	E10	2015	0.0614	0.0614	0.0605	0.0209	0.0209
PM10	E10	2016	0.0614	0.0614	0.0605	0.0209	0.0209
PM10	E10	2017	0.0614	0.0614	0.0605	0.0187	0.0209
PM10	E10	2018	0.0613	0.0613	0.0605	0.0187	0.0209
PM10	E10	2019	0.0368	0.0368	0.0363	0.0132	0.0143
PM10	E10	2020	0.0368	0.0368	0.0363	0.0132	0.0143
PM10	E10	2021	0.0368	0.0368	0.0363	0.0132	0.0143
PM10	E10	2022	0.0368	0.0368	0.0363	0.0132	0.0143
PM25	Diesel	1987	4.5752	4.5752	5.3012	6.0162	6.0162
PM25	Diesel	1988	4.5752	4.5752	5.3012	6.0162	6.0162
PM25	Diesel	1989	4.5752	4.5752	5.3012	6.0162	6.0162
PM25	Diesel	1990	4.5752	4.5752	5.3012	6.0162	6.0162
PM25	Diesel	1991	4.5752	4.5752	5.3012	6.0162	6.0162
PM25	Diesel	1992	4.5752	4.5752	5.3012	6.0162	6.0162
PM25	Diesel	1993	4.4945	4.4945	5.3012	6.0162	6.0162
PM25	Diesel	1994	9.6120	9.6120	11.1299	10.4018	9.1983
PM25	Diesel	1995	9.5599	9.5599	11.1299	10.4018	9.1983

**Table B-1. Short Duration Idle Emission Factors
(< 60 minutes per idle event) (g/hr)**

Pollutant	Fuel	Model Year	Class 2b	Class 3	Class 4 5	Class 6 7	Class 8a/b
PM25	Diesel	1996	9.5355	9.5355	11.1300	10.4018	9.1983
PM25	Diesel	1997	9.6496	9.6496	11.1299	10.4018	9.1983
PM25	Diesel	1998	9.0463	9.0463	10.4681	9.8756	8.7968
PM25	Diesel	1999	8.9439	8.9439	10.4682	9.8756	8.7968
PM25	Diesel	2000	9.1633	9.1633	10.4682	9.8756	8.7968
PM25	Diesel	2001	8.2838	8.2838	10.4682	9.8756	8.7968
PM25	Diesel	2002	8.2123	8.2123	10.4681	9.8756	8.7968
PM25	Diesel	2003	6.9743	6.9743	8.9040	8.9039	7.9500
PM25	Diesel	2004	6.8939	6.8939	8.9039	8.9040	7.9499
PM25	Diesel	2005	7.2717	7.2717	8.9039	8.9039	7.9500
PM25	Diesel	2006	7.2985	7.2985	8.9040	8.9039	7.9499
PM25	Diesel	2007	0.3904	0.3904	0.3889	0.2598	0.2598
PM25	Diesel	2008	0.3903	0.3903	0.3889	0.2598	0.2598
PM25	Diesel	2009	0.3902	0.3902	0.3889	0.2598	0.2598
PM25	Diesel	2010	0.0496	0.0496	0.0589	0.4938	0.0178
PM25	Diesel	2011	0.0491	0.0491	0.0570	0.4842	0.0178
PM25	Diesel	2012	0.0495	0.0495	0.0574	0.4868	0.0178
PM25	Diesel	2013	0.0497	0.0497	0.0515	0.4339	0.0158
PM25	Diesel	2014	0.0064	0.0064	0.0066	0.0564	0.0235
PM25	Diesel	2015	0.0063	0.0063	0.0066	0.0564	0.0235
PM25	Diesel	2016	0.0063	0.0063	0.0066	0.0563	0.0234
PM25	Diesel	2017	0.0063	0.0063	0.0066	0.0525	0.0234
PM25	Diesel	2018	0.0063	0.0063	0.0066	0.0526	0.0234
PM25	Diesel	2019	0.0038	0.0038	0.0039	0.0356	0.0164
PM25	Diesel	2020	0.0037	0.0037	0.0039	0.0356	0.0164
PM25	Diesel	2021	0.0037	0.0037	0.0039	0.0356	0.0163
PM25	Diesel	2022	0.0037	0.0037	0.0039	0.0356	0.0164
PM25	E10	1987	0.1338	0.1338	0.1338	0.1338	0.1338
PM25	E10	1988	0.1338	0.1338	0.1338	0.1338	0.1338
PM25	E10	1989	0.1338	0.1338	0.1338	0.1338	0.1338
PM25	E10	1990	0.1338	0.1338	0.1338	0.1338	0.1338
PM25	E10	1991	0.1338	0.1338	0.1338	0.1338	0.1338
PM25	E10	1992	0.1338	0.1338	0.1338	0.1338	0.1338

**Table B-1. Short Duration Idle Emission Factors
(< 60 minutes per idle event) (g/hr)**

Pollutant	Fuel	Model Year	Class 2b	Class 3	Class 4 5	Class 6 7	Class 8a/b
PM25	E10	1993	0.1338	0.1338	0.1338	0.1338	0.1338
PM25	E10	1994	0.0437	0.0437	0.0437	0.0437	0.0437
PM25	E10	1995	0.0521	0.0521	0.0521	0.0521	0.0521
PM25	E10	1996	0.1213	0.1213	0.1213	0.1213	0.1213
PM25	E10	1997	0.1276	0.1276	0.1276	0.1276	0.1276
PM25	E10	1998	0.0762	0.0762	0.0762	0.0762	0.0762
PM25	E10	1999	0.0370	0.0370	0.0370	0.0370	0.0370
PM25	E10	2000	0.0164	0.0164	0.0164	0.0164	0.0164
PM25	E10	2001	0.0154	0.0154	0.0154	0.0154	0.0154
PM25	E10	2002	0.0653	0.0653	0.0653	0.0653	0.0653
PM25	E10	2003	0.0292	0.0292	0.0292	0.0292	0.0292
PM25	E10	2004	0.0703	0.0703	0.0682	0.0682	0.0682
PM25	E10	2005	0.0702	0.0702	0.0682	0.0682	0.0682
PM25	E10	2006	0.0702	0.0702	0.0682	0.0682	0.0682
PM25	E10	2007	0.0702	0.0702	0.0682	0.0682	0.0682
PM25	E10	2008	0.0530	0.0530	0.0516	0.0516	0.0516
PM25	E10	2009	0.0530	0.0530	0.0516	0.0516	0.0516
PM25	E10	2010	0.0548	0.0548	0.0613	0.0204	0.0204
PM25	E10	2011	0.0548	0.0548	0.0613	0.0204	0.0204
PM25	E10	2012	0.0548	0.0548	0.0613	0.0204	0.0204
PM25	E10	2013	0.0547	0.0547	0.0535	0.0185	0.0185
PM25	E10	2014	0.0542	0.0542	0.0535	0.0185	0.0185
PM25	E10	2015	0.0543	0.0543	0.0535	0.0185	0.0185
PM25	E10	2016	0.0543	0.0543	0.0535	0.0185	0.0185
PM25	E10	2017	0.0543	0.0543	0.0535	0.0165	0.0185
PM25	E10	2018	0.0542	0.0542	0.0535	0.0165	0.0185
PM25	E10	2019	0.0325	0.0325	0.0321	0.0117	0.0127
PM25	E10	2020	0.0325	0.0325	0.0321	0.0117	0.0127
PM25	E10	2021	0.0325	0.0325	0.0321	0.0117	0.0127
PM25	E10	2022	0.0325	0.0325	0.0321	0.0117	0.0127

Table B-2. Extended Idle Emission Factors – Class 8b Diesels Only (g/hr)

Model Year	NO _x	PM ₁₀	PM _{2.5}	BC
1987	240.2429	5.0122	4.6112	1.0734
1988	240.2429	5.0122	4.6112	1.0734
1989	240.2429	5.0122	4.6112	1.0734
1990	240.2429	5.0122	4.6112	1.0734
1991	240.2429	5.0122	4.6112	1.0734
1992	240.6355	5.0126	4.6116	1.0712
1993	233.7694	5.0055	4.6051	1.1091
1994	239.5414	7.6970	7.0812	1.6593
1995	239.1037	7.6998	7.0838	1.6642
1996	237.1570	7.7123	7.0953	1.6861
1997	239.5059	7.6972	7.0814	1.6597
1998	237.4083	7.3710	6.7813	1.6087
1999	241.3615	7.3485	6.7606	1.5668
2000	241.9880	7.3450	6.7573	1.5602
2001	239.2928	7.3603	6.7715	1.5888
2002	237.7230	7.3693	6.7797	1.6054
2003	239.3402	6.6509	6.1188	1.4352
2004	237.0764	6.6622	6.1292	1.4567
2005	238.3276	6.6560	6.1235	1.4448
2006	239.0454	6.6524	6.1202	1.4380
2007	210.1205	0.4182	0.3847	0.0344
2008	208.6581	0.4177	0.3843	0.0344
2009	211.7047	0.4186	0.3852	0.0344
2010	211.2663	0.4168	0.3834	0.0343
2011	210.1316	0.4164	0.3831	0.0343
2012	210.1319	0.4164	0.3831	0.0343
2013	210.1323	0.4129	0.3799	0.0340
2014	210.1332	0.4129	0.3799	0.0340
2015	210.1322	0.4129	0.3799	0.0340
2016	210.1320	0.4129	0.3799	0.0340
2017	210.1325	0.4129	0.3799	0.0340
2018	210.1323	0.4129	0.3799	0.0340
2019	210.1328	0.4129	0.3799	0.0340
2020	210.1321	0.4129	0.3799	0.0340
2021	210.1326	0.4129	0.3799	0.0340

Table B-2. Extended Idle Emission Factors – Class 8b Diesels Only (g/hr)

Model Year	NO _x	PM ₁₀	PM _{2.5}	BC
2022	210.1326	0.4129	0.3799	0.0340



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