Stage II VRS Incremental Benefit Analysis

EPA's *Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures* (henceforth will be referred to as the *Guidance on Removing Stage II*) provides for a method of calculating the incremental emissions benefit of keeping Stage II VRS versus the phase in of ORVR. The overall Stage II-ORVR increment is an area-wide emission control gain over the ozone season from Stage II installations at GDFs as ORVR is phased in. Calculation of this increment can also indicate the potential loss of emission reductions from removing Stage II. This equation (entitled *Stage II VRS Incremental Benefit Equation)* used in the calculation is:

(1) $increment_i$ = Emissions Benefit of Stage II – Emissions Increase Due to Incompatibility, or

$increment_i = (Q_{SII})(1-Q_{ORVRi})(N_{iuSII}) – (Q_{SIIva})(CF_i)$, where:

$increment_i$ = the fractional reduction of VOCs from refueling in the nonattainment area during ozone season for a given end of calendar year.

i = year ending

Q_{SII} = fraction of gasoline throughput covered by Stage II vapor recovery systems

Q_{ORVRi} = fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles

η_{iuSII} = The in-use Stage II control efficiency (e.g., if removes 100 percent of VOCs each time would use 1.0)

Q_{SIIva} = fraction of gasoline throughput covered by traditional vacuum assist Stage II VRS

CF_i = Compatibility factor term which is determined from studies looking at excessive emissions produced by the incompatibility between vacuum assist Stage II VRS and ORVR which depends in part on GDF designs and varies by year.

The *increment* for the Atlanta 13-county area has been calculated for the years 2012 through 2017. These calculations assume immediate deactivation of the requirement for all areas. The methodology and tables used to determine the values of the terms in the equation as they apply to Atlanta 13 county area can be found below. With these Atlanta-specific values included, the equation is further reduced.

(2) $increment_i = (0.9)(1-Q_{ORVRi})(0.62) – (0.95)(0.765)(VMT_{ORVRi})$, where:

Q_{ORVRi} = fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles for a given year

VMT_{ORVRi} = fraction of vehicle miles traveled that are linked to ORVR equipped vehicles for a given year.

The fraction of vehicle miles traveled was directly provided by the EPA's Guidance Document, Appendix A, Table A-1 (USEPA, "Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures," Office of Air Quality Planning and Standards, EPA-457/B-12-001, August 7, 2012). For more details, consult EPA Memorandum "Updated data for ORVR Widespread Use Assessment" February 29, 2012, in docket (number EPA-HQ-OAR-2010-1076).

The final calculations of the increment were made and listed in Table A-1 after locating in the *Guidance on Removing Stage II* the values to plug into the reduced equation for Q_{ORVRi} and VMT_{ORVRi} for years ending in 2012-2017.

Table A-1

Incremental Benefit of Maintaining Stage II VRS in Atlanta with ORVR Phase-In

Year Ending	Q_{ORVR}	VMT_{ORVR} (fraction)	Incremental Benefit	Incremental Benefit
	(fraction)	(fraction)	(fractional reduction)	(tons/day)
2012	0.777	0.800	0.0659	2.26
2013	0.810	0.834	0.0454	1.56
2014	0.840	0.863	0.0266	0.92
2015	0.865	0.888	0.0108	0.37
2016	0.886	0.909	-0.00245	-0.085
2017	0.903	0.925	-0.0131	-0.450

As shown in Table A-1 above, the increment declines from 2.26 tons/day in 2012 to zero during 2016 before demonstrating a detrimental effect of -0.450 tons/day by 2017. This indicates a disbenefit over time. Details regarding the unit conversion of increment from fractional reduction to tons/day reduction including the need for this conversion are discussed on pages A-6 to A-8. Table A-2 provides an overview of the minimal initial impact that Stage II removal would have on Atlanta's ability to attain the ozone NAAQS standards. Note that fractions are predominately used in Table A-1 and in the description of the equation variables in this Appendix while the tables in the *Guidance on Removing Stage II* use percentages. Therefore, each value in those tables in the guidance was divided by 100 before proceeding further with the calculations of the incremental benefit.

Table A-2

Impact of Stage II Removal on Ability of Atlanta to Attain Ozone NAAQS Standards*

Year ending	2006 VOC MVEB	2008 Ozone Maint. Plan Baseline VOC emissions	VOC On-Road emissions inventory with Stage II VRS**	VOC Stage II increment	VOC emissions inventory w/o Stage II VRS**	VOC Stage II increment as % of emissions inventory
	(tons/day)	(tons/day)	(tons/day)	(tons/day)	(tons/day)	(%)
2008	171.83	165.53	165.53	N/A	N/A	N/A
2012	171.83	165.53	127.33	2.26	N/A	N/A
2013	171.83	165.53	117.78	1.56	N/A	N/A
2014	171.83	165.53	108.23	0.92	109.15	0.87
2015	171.83	165.53	98.68	0.37	99.05	0.38
2016	171.83	165.53	89.13	-0.085	89.05	-0.095

* All emissions inventory, baseline and budget values in this chart refer solely to on-road mobile source emissions
** Emissions inventory values in this table for 2008 is based on the 2008 Atlanta Ozone Maintenance Plan baseline and projected inventory for 2016 were taken from *Volume II: Plan 2040 Conformity Determination Report (CDR)*'s transportation conformity demonstration dated July 2011. Inventory numbers for intermediate years were calculated by assuming a linear trend in VOC emissions from 2008-2016.

As shown in Table A-2, Stage II VRS increment never exceeds 1% of the VOC emissions inventory before decreasing to zero from 2014-2016. It is observed that VOC on-road mobile source emissions inventory for cases of Stage II VRS control system removal from 2014-2016 is well below the 2006 motor vehicle budget (MVEB) from the Atlanta Early Progress SIP and 2008 baseline year emissions levels listed in the Atlanta 8-Hour Ozone Maintenance Plan.

Atlanta-Based Values to be Used In the *Stage II VRS Incremental Benefit Equation*

The *Stage II Removal Guidance* provides an equation *(Stage II VRS Incremental Benefit Equation)* along with sample calculations, recommendations and tables to be used by the States to quantify the incremental benefit of Stage II VRS controls. Using this guidance, the variables in the equation are assigned values specific to the Atlanta 13 county area as depicted below in Table A-3.

Table A-3

Atlanta Based Values Used in *Stage II Incremental Benefit Equation*

Variable	Value	Basis for Value
Q_{SII}	0.9	Georgia adopted the CAA exemptions provisions for small GDFs (<50,000 gal/month) and 0.9 is default value for such states in *Stage II Removal Guidance*, similar to our own estimates of 2267 out of 2587 facilities containing Stage II controls (0.88, rounds to 0.9).
Q_{ORVRi}	See Table 1	Gasoline Dispensed Fraction for a given year provided by Table A-1 in *Stage II Removal Guidance* for years 2012-2017
η_{iuSII}	0.62	Frequency of inspections of Stage II VRS controls is now every 3 years which is considered "minimal and less frequent" which is matched to a Stage II VRS efficiency of 0.62 in the *Waiver Rule* (p. 28774)*.
Q_{SIIva}	0.95	13-county percentage of facilities with vacuum assist systems as suggested by the *Guidance on Removing Stage II* and supported by the Georgia EPD Engines & Fuels Unit. There are approximately 2587 facilities with Stage II in place with 2522 of them using vacuum assist Stage II. These numbers demonstrated a slightly higher Q_{SIIva} value than guidance (0.97 vs. 0.95), but are going with guidance to be conservative and account for year to year variation.
CF_i	$0.07645*VMT_{ORVRi}$ (See Table 1 for VMT_{ORVRi} values)	0.07645 is control efficiency loss estimate from weighing two technologies tested in California Air Resources Board study. This value is what states are asked to use**. VMT percentage (VMT_{ORVRi}) for a given year is provided by Table A-1 in *Guidance on Removing Stage II* for years 2012-2017.

*The *Waiver Rule* cites: Technical Guidance – Stage II Vapor Recovery Systems for Control of Vehicle Refueling at Gasoline Dispensing Facilities Volume I: Chapters," EPA-450/3-91-022a, November 1991. This study is a composite of multiple studies.

**EPA Memorandum *Calculating Stage II Vacuum Assist Stage II VRS and ORVR Excess Emissions*, Glenn Passavant, May 2012

The gasoline consumption values and projections were taken from the Department of Energy's 2011 "EIA Annual Outlook (AEO) – Liquid Fuels Supply and Disposition Reference case table" which is referenced on page 20 in EPA's guidance document with the data source provided by EPA on the same page under footnote 29. Other options were provided by the guidance, but this

was the most straightforward approach. Furthermore, EPA's guidance document recommends states use Table A-4 in the guidance's appendix to break down the national gasoline consumption numbers into consumption by the relevant state (Georgia in this case) for the base case (year 2010) and then multiply this value by the ratio of projected consumption/2010 consumption to obtain the future year values seen in this SIP. The AEO report projected in 2017 that gasoline consumption would decrease slightly relative to 2016. Vehicle miles traveled and population is quantified through the transportation planning process whereas gasoline consumption is based on Department of Energy, FHWA and other sources. Vehicle miles traveled can decrease while gasoline consumption flatten out or decrease slightly due to improvements in fuel efficiency of motor vehicles as evidenced by the strengthening of CAFÉ standards

Converting Stage II VPS Fractional Incremental Benefit to Tons/Day

The *Guidance on Removing Stage II* provides an additional equation with examples and recommendations on how to convert the Stage II increment in fractional form into tons/day VOC reduction. This conversion is necessary as tons/day reduction benefit values are used in this document in Tables 1-2 to demonstrate non-interference. The equation is:

$Increment_{i\ (tons/day)} = (Increment_{i\ (fraction)})(GC_i)(EF)(\text{conversion factor})$,

where $GC_i = (GC_{2010})\ (GC_i/GC_{2010})(ATL_{fraction})$

The description of the variables and the values to be plugged into the equation are provided in Table A-4.

Table A-4

Variables and Associated Values Needed to Convert Fractional VOC Emission Benefit to Tons/Day

Variable	Value	Basis for Value
$Increment_{i\ (fraction)}$	See Table 1	For a given end of year *i*, the fractional increment can be obtained from Table A-1 in this Appendix. For details regarding how it was calculated, see Section 3 and page 1-2 of this Appendix.
GC_{2010}	$5.9588x10^{10}$	Gallons of gasoline consumed in the United States in 2010 according to the FHWA Highway Statistics-*Monthly gasoline reported by States-MF33GA* table (2012 version). To get a value for a future year value since more recent data is not available, one needs to grow this value using projections. To get Atlanta's gasoline consumed value, GC_i, for a future year *i*, the GC_{2010} value needs to be multiplied by the ratio of future year consumption to 2010 consumption and by the fraction of national gasoline consumed in Atlanta ($ATL_{fraction}$). The value for this ratio, called "GC_i/GC_{2010}", and $ATL_{fraction}$ is provided below.
(GC_i/GC_{2010})	2012:1.0343 2013:1.0399 2014:1.0410 2015:1.0421 2016:1.0443 2017:1.0377	Ratio of given year's projected national gasoline consumption to gasoline consumption in 2010. This ratio is multiplied by the known 2010 national gasoline consumption value, GC_{2010} to grow the value to future years. Then to obtain the gasoline consumed specifically in Atlanta, this future value is multiplied by the fraction of national gasoline consumption occurring in Atlanta ($ATL_{fraction}$). These gasoline consumption statistics and future projections are provided by the Department of Energy's AIA Annual Outlook (AEO)-*Liquid Fuels Supply and Disposition-Reference case* table (2012 version). This ratio is provided here for the years investigated, 2012-2017.
$ATL_{fraction}$	0.01677214	Fraction of national gasoline supply consumed by the Atlanta 13-county area according to Table A-4 in the *Guidance on Removing Stage II**.
EF	4.6	Uncontrolled displacement refueling emission factor in units of grams per gallon consumed which quantifies the incompatibility between ORVR and Stage II VRS. Value for Georgia provided by Table A-7 in the *Guidance on Removing Stage II* *.
Conversion factor	$7.20465x10^{-9}$	Converts g/season to tons/day. There are $1.10x10^{-6}$ tons in a gram and 153 days in an ozone season. Therefore, $(1.10x10^{-6}ton/g)/153d = 7.20465x10^{-9}$ ton/g/d

* See Appendix A of *Guidance on Removing Stage II* for the equation that was used to determine EF for each state and the table (Table A-7) listing EF by state including Georgia. This guidance also provides additional tables (Tables A-2 and A-3) to allow States to determine EF on their own using the equation along with local Reid Vapor Pressure data. Georgia compared EF calculated on their own with the Table A-7 number and obtained the same quantity, 4.6g/gal.

Using the values in Table A-4, the equation for the end of 2013, for example, is reduced to:

$Increment_{2013(tons/day)} = (Increment_{2013(fraction)})(GC_{2013})(4.6g/gal)(\ 7.20465x10^{-9}ton/g/d)=$
$(Increment_{2013(fraction)})\ (GC_{2010})\ (GC_i/GC_{2010})(ATL_{fraction})\ )(4.6g/gal)(\ 7.20465x10^{-9}ton/g/d)=$
$(0.0454)(\ 5.9588x10^{10}\ gal)(1.0399)(\ 0.01677214)\ (4.6g/gal)(\ 7.20465x10^{-9}\ ton/g/d)=$**1.56 tons/d**

Vehicle class for Stage II comprises MOVES vehicle types 21, 31, and 32 which are passenger cars, passenger trucks, and commercial trucks. Of these vehicle types, only those powered by gasoline resulting in Stage II vehicle recovery applicablitiy were used in the analysis.

Table A-5

Age Distribution of Vehicles Used in VOC emission analysis (13 county area out of the 20 county 1997 ozone maintenance area)

Vehicle Class	Year	Age	Fraction of Vehicles
Motorcycle	2008	0	0.0005
Motorcycle	2008	1	0.10051
Motorcycle	2008	2	0.118612
Motorcycle	2008	3	0.09931
Motorcycle	2008	4	0.075108
Motorcycle	2008	5	0.061206
Motorcycle	2008	6	0.053505
Motorcycle	2008	7	0.047805
Motorcycle	2008	8	0.039704
Motorcycle	2008	9	0.036204
Motorcycle	2008	10	0.033903
Motorcycle	2008	11	0.333633
Motorcycle	2008	12	0
Motorcycle	2008	13	0
Motorcycle	2008	14	0
Motorcycle	2008	15	0
Motorcycle	2008	16	0
Motorcycle	2008	17	0
Motorcycle	2008	18	0
Motorcycle	2008	19	0
Motorcycle	2008	20	0
Motorcycle	2008	21	0
Motorcycle	2008	22	0
Motorcycle	2008	23	0
Motorcycle	2008	24	0
Motorcycle	2008	25	0

Motorcycle	2008	26	0
Motorcycle	2008	27	0
Motorcycle	2008	28	0
Motorcycle	2008	29	0
Motorcycle	2008	30	0
Passenger Car	2008	0	0.023802
Passenger Car	2008	1	0.071207
Passenger Car	2008	2	0.068707
Passenger Car	2008	3	0.077108
Passenger Car	2008	4	0.072907
Passenger Car	2008	5	0.067107
Passenger Car	2008	6	0.068907
Passenger Car	2008	7	0.065607
Passenger Car	2008	8	0.076308
Passenger Car	2008	9	0.061806
Passenger Car	2008	10	0.055906
Passenger Car	2008	11	0.046105
Passenger Car	2008	12	0.039904
Passenger Car	2008	13	0.037004
Passenger Car	2008	14	0.032503
Passenger Car	2008	15	0.026703
Passenger Car	2008	16	0.021402
Passenger Car	2008	17	0.016602
Passenger Car	2008	18	0.012601
Passenger Car	2008	19	0.008901
Passenger Car	2008	20	0.005401
Passenger Car	2008	21	0.0032
Passenger Car	2008	22	0.0026
Passenger Car	2008	23	0.0023
Passenger Car	2008	24	0.002035
Passenger Car	2008	25	0.0018
Passenger Car	2008	26	0.001592
Passenger Car	2008	27	0.001409
Passenger Car	2008	28	0.001246
Passenger Car	2008	29	0.001102
Passenger Car	2008	30	0.026219
Passenger Truck	2008	0	0.023121
Passenger Truck	2008	1	0.071154
Passenger Truck	2008	2	0.105903
Passenger Truck	2008	3	0.075177
Passenger Truck	2008	4	0.061693

Passenger Truck	2008	5	0.069989
Passenger Truck	2008	6	0.083159
Passenger Truck	2008	7	0.026784
Passenger Truck	2008	8	0.039136
Passenger Truck	2008	9	0.043512
Passenger Truck	2008	10	0.041972
Passenger Truck	2008	11	0.033861
Passenger Truck	2008	12	0.029772
Passenger Truck	2008	13	0.039356
Passenger Truck	2008	14	0.041676
Passenger Truck	2008	15	0.043214
Passenger Truck	2008	16	0.029028
Passenger Truck	2008	17	0.035318
Passenger Truck	2008	18	0.030859
Passenger Truck	2008	19	0.025462
Passenger Truck	2008	20	0.017469
Passenger Truck	2008	21	0.01364
Passenger Truck	2008	22	0.015763
Passenger Truck	2008	23	0.000115
Passenger Truck	2008	24	0.000066
Passenger Truck	2008	25	0.000044
Passenger Truck	2008	26	0.000029
Passenger Truck	2008	27	0.000018
Passenger Truck	2008	28	0.000012
Passenger Truck	2008	29	0.000008
Passenger Truck	2008	30	0.002691
Light Commercial Truck	2008	0	0.026942
Light Commercial Truck	2008	1	0.078328
Light Commercial Truck	2008	2	0.106484
Light Commercial Truck	2008	3	0.079146
Light Commercial Truck	2008	4	0.067242
Light Commercial Truck	2008	5	0.06582
Light Commercial Truck	2008	6	0.080436
Light Commercial Truck	2008	7	0.02973
Light Commercial Truck	2008	8	0.040318
Light Commercial Truck	2008	9	0.042595
Light Commercial Truck	2008	10	0.040104
Light Commercial Truck	2008	11	0.031972
Light Commercial Truck	2008	12	0.027782
Light Commercial Truck	2008	13	0.036454
Light Commercial Truck	2008	14	0.038931

Light Commercial Truck	2008	15	0.040401
Light Commercial Truck	2008	16	0.027173
Light Commercial Truck	2008	17	0.033193
Light Commercial Truck	2008	18	0.029596
Light Commercial Truck	2008	19	0.024823
Light Commercial Truck	2008	20	0.018135
Light Commercial Truck	2008	21	0.013929
Light Commercial Truck	2008	22	0.015422
Light Commercial Truck	2008	23	0.000146
Light Commercial Truck	2008	24	0.000067
Light Commercial Truck	2008	25	0.000039
Light Commercial Truck	2008	26	0.000026
Light Commercial Truck	2008	27	0.000019
Light Commercial Truck	2008	28	0.000013
Light Commercial Truck	2008	29	0.000009
Light Commercial Truck	2008	30	0.004724
Intercity Bus	2008	0	0.0029
Intercity Bus	2008	1	0.0279
Intercity Bus	2008	2	0.0999
Intercity Bus	2008	3	0.1233
Intercity Bus	2008	4	0.0602
Intercity Bus	2008	5	0.0595
Intercity Bus	2008	6	0.0426
Intercity Bus	2008	7	0.0587
Intercity Bus	2008	8	0.0206
Intercity Bus	2008	9	0.0492
Intercity Bus	2008	10	0.0286
Intercity Bus	2008	11	0.0477
Intercity Bus	2008	12	0.0066
Intercity Bus	2008	13	0.174
Intercity Bus	2008	14	0.0382
Intercity Bus	2008	15	0.0668
Intercity Bus	2008	16	0.0125
Intercity Bus	2008	17	0.025
Intercity Bus	2008	18	0.0117
Intercity Bus	2008	19	0.0081
Intercity Bus	2008	20	0.0125
Intercity Bus	2008	21	0.0147
Intercity Bus	2008	22	0.0088
Intercity Bus	2008	23	0
Intercity Bus	2008	24	0

Intercity Bus	2008	25	0
Intercity Bus	2008	26	0
Intercity Bus	2008	27	0
Intercity Bus	2008	28	0
Intercity Bus	2008	29	0
Intercity Bus	2008	30	0
Transit Bus	2008	0	0.0029
Transit Bus	2008	1	0.0279
Transit Bus	2008	2	0.0999
Transit Bus	2008	3	0.1233
Transit Bus	2008	4	0.0602
Transit Bus	2008	5	0.0595
Transit Bus	2008	6	0.0426
Transit Bus	2008	7	0.0587
Transit Bus	2008	8	0.0206
Transit Bus	2008	9	0.0492
Transit Bus	2008	10	0.0286
Transit Bus	2008	11	0.0477
Transit Bus	2008	12	0.0066
Transit Bus	2008	13	0.174
Transit Bus	2008	14	0.0382
Transit Bus	2008	15	0.0668
Transit Bus	2008	16	0.0125
Transit Bus	2008	17	0.025
Transit Bus	2008	18	0.0117
Transit Bus	2008	19	0.0081
Transit Bus	2008	20	0.0125
Transit Bus	2008	21	0.0147
Transit Bus	2008	22	0.0088
Transit Bus	2008	23	0
Transit Bus	2008	24	0
Transit Bus	2008	25	0
Transit Bus	2008	26	0
Transit Bus	2008	27	0
Transit Bus	2008	28	0
Transit Bus	2008	29	0
Transit Bus	2008	30	0
School Bus	2008	0	0.036622
School Bus	2008	1	0.054844
School Bus	2008	2	0.050577
School Bus	2008	3	0.073061

School Bus	2008	4	0.064071
School Bus	2008	5	0.071838
School Bus	2008	6	0.048141
School Bus	2008	7	0.064119
School Bus	2008	8	0.079193
School Bus	2008	9	0.024764
School Bus	2008	10	0.058797
School Bus	2008	11	0.045612
School Bus	2008	12	0.064454
School Bus	2008	13	0.07385
School Bus	2008	14	0.031278
School Bus	2008	15	0.049673
School Bus	2008	16	0.014186
School Bus	2008	17	0.011503
School Bus	2008	18	0.013431
School Bus	2008	19	0.010755
School Bus	2008	20	0.007536
School Bus	2008	21	0.005224
School Bus	2008	22	0.006442
School Bus	2008	23	0.008637
School Bus	2008	24	0.011178
School Bus	2008	25	0.008357
School Bus	2008	26	0.000128
School Bus	2008	27	0.000084
School Bus	2008	28	0.000054
School Bus	2008	29	0.000035
School Bus	2008	30	0.011556
Refuse Truck	2008	0	0.049341
Refuse Truck	2008	1	0.069878
Refuse Truck	2008	2	0.084288
Refuse Truck	2008	3	0.078985
Refuse Truck	2008	4	0.074601
Refuse Truck	2008	5	0.06037
Refuse Truck	2008	6	0.050813
Refuse Truck	2008	7	0.049757
Refuse Truck	2008	8	0.0521
Refuse Truck	2008	9	0.040936
Refuse Truck	2008	10	0.037922
Refuse Truck	2008	11	0.03268
Refuse Truck	2008	12	0.03161
Refuse Truck	2008	13	0.029834

Refuse Truck	2008	14	0.032804
Refuse Truck	2008	15	0.031624
Refuse Truck	2008	16	0.027274
Refuse Truck	2008	17	0.024091
Refuse Truck	2008	18	0.026403
Refuse Truck	2008	19	0.018246
Refuse Truck	2008	20	0.01424
Refuse Truck	2008	21	0.012958
Refuse Truck	2008	22	0.012191
Refuse Truck	2008	23	0.011305
Refuse Truck	2008	24	0.010775
Refuse Truck	2008	25	0.008633
Refuse Truck	2008	26	0.007523
Refuse Truck	2008	27	0.006586
Refuse Truck	2008	28	0.006176
Refuse Truck	2008	29	0.005322
Refuse Truck	2008	30	0.000734
Single Unit Short-haul Truck	2008	0	0.048225
Single Unit Short-haul Truck	2008	1	0.048863
Single Unit Short-haul Truck	2008	2	0.074115
Single Unit Short-haul Truck	2008	3	0.082434
Single Unit Short-haul Truck	2008	4	0.079271
Single Unit Short-haul Truck	2008	5	0.062335
Single Unit Short-haul Truck	2008	6	0.046762
Single Unit Short-haul Truck	2008	7	0.045186
Single Unit Short-haul Truck	2008	8	0.059546
Single Unit Short-haul Truck	2008	9	0.038632
Single Unit Short-haul Truck	2008	10	0.034284
Single Unit Short-haul Truck	2008	11	0.030965
Single Unit Short-haul Truck	2008	12	0.031778
Single Unit Short-haul Truck	2008	13	0.031018
Single Unit Short-haul Truck	2008	14	0.037529
Single Unit Short-haul Truck	2008	15	0.037003
Single Unit Short-haul Truck	2008	16	0.027646
Single Unit Short-haul Truck	2008	17	0.025152
Single Unit Short-haul Truck	2008	18	0.028021
Single Unit Short-haul Truck	2008	19	0.019005
Single Unit Short-haul Truck	2008	20	0.011815
Single Unit Short-haul Truck	2008	21	0.009983
Single Unit Short-haul Truck	2008	22	0.010546
Single Unit Short-haul Truck	2008	23	0.01134

Single Unit Short-haul Truck	2008	24	0.01193
Single Unit Short-haul Truck	2008	25	0.00392
Single Unit Short-haul Truck	2008	26	0.003254
Single Unit Short-haul Truck	2008	27	0.002738
Single Unit Short-haul Truck	2008	28	0.002479
Single Unit Short-haul Truck	2008	29	0.002093
Single Unit Short-haul Truck	2008	30	0.042131
Single Unit Long-haul Truck	2008	0	0.051583
Single Unit Long-haul Truck	2008	1	0.050056
Single Unit Long-haul Truck	2008	2	0.076553
Single Unit Long-haul Truck	2008	3	0.085008
Single Unit Long-haul Truck	2008	4	0.081844
Single Unit Long-haul Truck	2008	5	0.064296
Single Unit Long-haul Truck	2008	6	0.048084
Single Unit Long-haul Truck	2008	7	0.04642
Single Unit Long-haul Truck	2008	8	0.059963
Single Unit Long-haul Truck	2008	9	0.039604
Single Unit Long-haul Truck	2008	10	0.034566
Single Unit Long-haul Truck	2008	11	0.031964
Single Unit Long-haul Truck	2008	12	0.032957
Single Unit Long-haul Truck	2008	13	0.031111
Single Unit Long-haul Truck	2008	14	0.037621
Single Unit Long-haul Truck	2008	15	0.037514
Single Unit Long-haul Truck	2008	16	0.027761
Single Unit Long-haul Truck	2008	17	0.025128
Single Unit Long-haul Truck	2008	18	0.027729
Single Unit Long-haul Truck	2008	19	0.018184
Single Unit Long-haul Truck	2008	20	0.011305
Single Unit Long-haul Truck	2008	21	0.009725
Single Unit Long-haul Truck	2008	22	0.009872
Single Unit Long-haul Truck	2008	23	0.01001
Single Unit Long-haul Truck	2008	24	0.01035
Single Unit Long-haul Truck	2008	25	0.003583
Single Unit Long-haul Truck	2008	26	0.003004
Single Unit Long-haul Truck	2008	27	0.002552
Single Unit Long-haul Truck	2008	28	0.002335
Single Unit Long-haul Truck	2008	29	0.001984
Single Unit Long-haul Truck	2008	30	0.027337
Motor Home	2008	0	0.039046
Motor Home	2008	1	0.032525
Motor Home	2008	2	0.061508

Motor Home	2008	3	0.078129
Motor Home	2008	4	0.075746
Motor Home	2008	5	0.058638
Motor Home	2008	6	0.040861
Motor Home	2008	7	0.039175
Motor Home	2008	8	0.06322
Motor Home	2008	9	0.034721
Motor Home	2008	10	0.031256
Motor Home	2008	11	0.027359
Motor Home	2008	12	0.028912
Motor Home	2008	13	0.031535
Motor Home	2008	14	0.040286
Motor Home	2008	15	0.039122
Motor Home	2008	16	0.02759
Motor Home	2008	17	0.025884
Motor Home	2008	18	0.029773
Motor Home	2008	19	0.021554
Motor Home	2008	20	0.011566
Motor Home	2008	21	0.008748
Motor Home	2008	22	0.011203
Motor Home	2008	23	0.014719
Motor Home	2008	24	0.016648
Motor Home	2008	25	0.00178
Motor Home	2008	26	0.001177
Motor Home	2008	27	0.000766
Motor Home	2008	28	0.000497
Motor Home	2008	29	0.000321
Motor Home	2008	30	0.105735
Combination Short-haul Truck	2008	0	0.04779
Combination Short-haul Truck	2008	1	0.072456
Combination Short-haul Truck	2008	2	0.084584
Combination Short-haul Truck	2008	3	0.077142
Combination Short-haul Truck	2008	4	0.072573
Combination Short-haul Truck	2008	5	0.059065
Combination Short-haul Truck	2008	6	0.050749
Combination Short-haul Truck	2008	7	0.049819
Combination Short-haul Truck	2008	8	0.050756
Combination Short-haul Truck	2008	9	0.040788
Combination Short-haul Truck	2008	10	0.038333
Combination Short-haul Truck	2008	11	0.032429
Combination Short-haul Truck	2008	12	0.030981

Combination Short-haul Truck	2008	13	0.029607
Combination Short-haul Truck	2008	14	0.032044
Combination Short-haul Truck	2008	15	0.030547
Combination Short-haul Truck	2008	16	0.02716
Combination Short-haul Truck	2008	17	0.023944
Combination Short-haul Truck	2008	18	0.02631
Combination Short-haul Truck	2008	19	0.018552
Combination Short-haul Truck	2008	20	0.014869
Combination Short-haul Truck	2008	21	0.01354
Combination Short-haul Truck	2008	22	0.012786
Combination Short-haul Truck	2008	23	0.011981
Combination Short-haul Truck	2008	24	0.011409
Combination Short-haul Truck	2008	25	0.009523
Combination Short-haul Truck	2008	26	0.0083
Combination Short-haul Truck	2008	27	0.007265
Combination Short-haul Truck	2008	28	0.006811
Combination Short-haul Truck	2008	29	0.005868
Combination Short-haul Truck	2008	30	0.002021
Combination Long-haul Truck	2008	0	0.045964
Combination Long-haul Truck	2008	1	0.077391
Combination Long-haul Truck	2008	2	0.085794
Combination Long-haul Truck	2008	3	0.074575
Combination Long-haul Truck	2008	4	0.069676
Combination Long-haul Truck	2008	5	0.057287
Combination Long-haul Truck	2008	6	0.051006
Combination Long-haul Truck	2008	7	0.050275
Combination Long-haul Truck	2008	8	0.048475
Combination Long-haul Truck	2008	9	0.040795
Combination Long-haul Truck	2008	10	0.039143
Combination Long-haul Truck	2008	11	0.032259
Combination Long-haul Truck	2008	12	0.030188
Combination Long-haul Truck	2008	13	0.029228
Combination Long-haul Truck	2008	14	0.03071
Combination Long-haul Truck	2008	15	0.028768
Combination Long-haul Truck	2008	16	0.026989
Combination Long-haul Truck	2008	17	0.023673
Combination Long-haul Truck	2008	18	0.02606
Combination Long-haul Truck	2008	19	0.018868
Combination Long-haul Truck	2008	20	0.015849
Combination Long-haul Truck	2008	21	0.014508
Combination Long-haul Truck	2008	22	0.013658

Combination Long-haul Truck	2008	23	0.012814
Combination Long-haul Truck	2008	24	0.012098
Combination Long-haul Truck	2008	25	0.011015
Combination Long-haul Truck	2008	26	0.009616
Combination Long-haul Truck	2008	27	0.008424
Combination Long-haul Truck	2008	28	0.007902
Combination Long-haul Truck	2008	29	0.006811
Combination Long-haul Truck	2008	30	0.000182

Table A-6

Age Distribution of Vehicles Used in VOC emission analysis (7 county area out of the 20 county 1997 ozone maintenance area)

Vehicle Class	Year	Age	Fraction of Vehicles
Motorcycle	2008	0	0.0005
Motorcycle	2008	1	0.0984
Motorcycle	2008	2	0.1081
Motorcycle	2008	3	0.0942
Motorcycle	2008	4	0.0741
Motorcycle	2008	5	0.0577
Motorcycle	2008	6	0.0549
Motorcycle	2008	7	0.0472
Motorcycle	2008	8	0.0387
Motorcycle	2008	9	0.0364
Motorcycle	2008	10	0.0263
Motorcycle	2008	11	0.3635
Motorcycle	2008	12	0
Motorcycle	2008	13	0
Motorcycle	2008	14	0
Motorcycle	2008	15	0
Motorcycle	2008	16	0
Motorcycle	2008	17	0
Motorcycle	2008	18	0
Motorcycle	2008	19	0
Motorcycle	2008	20	0
Motorcycle	2008	21	0
Motorcycle	2008	22	0
Motorcycle	2008	23	0
Motorcycle	2008	24	0
Motorcycle	2008	25	0

Motorcycle	2008	26	0
Motorcycle	2008	27	0
Motorcycle	2008	28	0
Motorcycle	2008	29	0
Motorcycle	2008	30	0
Passenger Car	2008	0	0.009901
Passenger Car	2008	1	0.044104
Passenger Car	2008	2	0.049405
Passenger Car	2008	3	0.057706
Passenger Car	2008	4	0.054905
Passenger Car	2008	5	0.053105
Passenger Car	2008	6	0.057206
Passenger Car	2008	7	0.057606
Passenger Car	2008	8	0.069907
Passenger Car	2008	9	0.061106
Passenger Car	2008	10	0.058806
Passenger Car	2008	11	0.050405
Passenger Car	2008	12	0.048005
Passenger Car	2008	13	0.045005
Passenger Car	2008	14	0.045505
Passenger Car	2008	15	0.040104
Passenger Car	2008	16	0.033603
Passenger Car	2008	17	0.029303
Passenger Car	2008	18	0.025703
Passenger Car	2008	19	0.019702
Passenger Car	2008	20	0.012201
Passenger Car	2008	21	0.007001
Passenger Car	2008	22	0.006501
Passenger Car	2008	23	0.005601
Passenger Car	2008	24	0.004825
Passenger Car	2008	25	0.004157
Passenger Car	2008	26	0.003581
Passenger Car	2008	27	0.003086
Passenger Car	2008	28	0.002658
Passenger Car	2008	29	0.00229
Passenger Car	2008	30	0.037008
Passenger Truck	2008	0	0.0134
Passenger Truck	2008	1	0.040861
Passenger Truck	2008	2	0.047061
Passenger Truck	2008	3	0.047678
Passenger Truck	2008	4	0.049802

Passenger Truck	2008	5	0.055112
Passenger Truck	2008	6	0.070443
Passenger Truck	2008	7	0.029079
Passenger Truck	2008	8	0.039684
Passenger Truck	2008	9	0.046467
Passenger Truck	2008	10	0.04476
Passenger Truck	2008	11	0.038319
Passenger Truck	2008	12	0.035567
Passenger Truck	2008	13	0.047014
Passenger Truck	2008	14	0.053968
Passenger Truck	2008	15	0.058407
Passenger Truck	2008	16	0.03932
Passenger Truck	2008	17	0.052093
Passenger Truck	2008	18	0.051714
Passenger Truck	2008	19	0.044402
Passenger Truck	2008	20	0.031351
Passenger Truck	2008	21	0.02613
Passenger Truck	2008	22	0.030012
Passenger Truck	2008	23	0.000478
Passenger Truck	2008	24	0.000436
Passenger Truck	2008	25	0.000422
Passenger Truck	2008	26	0.000402
Passenger Truck	2008	27	0.000372
Passenger Truck	2008	28	0.000356
Passenger Truck	2008	29	0.000343
Passenger Truck	2008	30	0.004548
Light Commercial Truck	2008	0	0.015685
Light Commercial Truck	2008	1	0.042317
Light Commercial Truck	2008	2	0.049047
Light Commercial Truck	2008	3	0.051342
Light Commercial Truck	2008	4	0.055018
Light Commercial Truck	2008	5	0.051403
Light Commercial Truck	2008	6	0.06946
Light Commercial Truck	2008	7	0.032822
Light Commercial Truck	2008	8	0.041934
Light Commercial Truck	2008	9	0.046121
Light Commercial Truck	2008	10	0.04344
Light Commercial Truck	2008	11	0.03658
Light Commercial Truck	2008	12	0.033358
Light Commercial Truck	2008	13	0.043466
Light Commercial Truck	2008	14	0.050827

Light Commercial Truck	2008	15	0.055037
Light Commercial Truck	2008	16	0.037184
Light Commercial Truck	2008	17	0.049276
Light Commercial Truck	2008	18	0.049831
Light Commercial Truck	2008	19	0.043615
Light Commercial Truck	2008	20	0.032879
Light Commercial Truck	2008	21	0.026545
Light Commercial Truck	2008	22	0.029535
Light Commercial Truck	2008	23	0.000493
Light Commercial Truck	2008	24	0.000405
Light Commercial Truck	2008	25	0.000367
Light Commercial Truck	2008	26	0.000361
Light Commercial Truck	2008	27	0.000393
Light Commercial Truck	2008	28	0.000386
Light Commercial Truck	2008	29	0.000372
Light Commercial Truck	2008	30	0.010501
Intercity Bus	2008	0	0
Intercity Bus	2008	1	0.039212
Intercity Bus	2008	2	0.107832
Intercity Bus	2008	3	0.078424
Intercity Bus	2008	4	0.039212
Intercity Bus	2008	5	0.068621
Intercity Bus	2008	6	0.019606
Intercity Bus	2008	7	0.196159
Intercity Bus	2008	8	0.098029
Intercity Bus	2008	9	0.039212
Intercity Bus	2008	10	0.049015
Intercity Bus	2008	11	0.019606
Intercity Bus	2008	12	0.019606
Intercity Bus	2008	13	0.009803
Intercity Bus	2008	14	0.019606
Intercity Bus	2008	15	0
Intercity Bus	2008	16	0.019606
Intercity Bus	2008	17	0.009803
Intercity Bus	2008	18	0.009803
Intercity Bus	2008	19	0.019606
Intercity Bus	2008	20	0.009803
Intercity Bus	2008	21	0.078424
Intercity Bus	2008	22	0.049015
Intercity Bus	2008	23	0
Intercity Bus	2008	24	0

Intercity Bus	2008	25	0
Intercity Bus	2008	26	0
Intercity Bus	2008	27	0
Intercity Bus	2008	28	0
Intercity Bus	2008	29	0
Intercity Bus	2008	30	0
Transit Bus	2008	0	0
Transit Bus	2008	1	0.039212
Transit Bus	2008	2	0.107832
Transit Bus	2008	3	0.078424
Transit Bus	2008	4	0.039212
Transit Bus	2008	5	0.068621
Transit Bus	2008	6	0.019606
Transit Bus	2008	7	0.196159
Transit Bus	2008	8	0.098029
Transit Bus	2008	9	0.039212
Transit Bus	2008	10	0.049015
Transit Bus	2008	11	0.019606
Transit Bus	2008	12	0.019606
Transit Bus	2008	13	0.009803
Transit Bus	2008	14	0.019606
Transit Bus	2008	15	0
Transit Bus	2008	16	0.019606
Transit Bus	2008	17	0.009803
Transit Bus	2008	18	0.009803
Transit Bus	2008	19	0.019606
Transit Bus	2008	20	0.009803
Transit Bus	2008	21	0.078424
Transit Bus	2008	22	0.049015
Transit Bus	2008	23	0
Transit Bus	2008	24	0
Transit Bus	2008	25	0
Transit Bus	2008	26	0
Transit Bus	2008	27	0
Transit Bus	2008	28	0
Transit Bus	2008	29	0
Transit Bus	2008	30	0
School Bus	2008	0	0.064774
School Bus	2008	1	0.015322
School Bus	2008	2	0.068632
School Bus	2008	3	0.063226

School Bus	2008	4	0.068425
School Bus	2008	5	0.059428
School Bus	2008	6	0.02765
School Bus	2008	7	0.085921
School Bus	2008	8	0.095068
School Bus	2008	9	0.006077
School Bus	2008	10	0.037989
School Bus	2008	11	0.031647
School Bus	2008	12	0.042059
School Bus	2008	13	0.067039
School Bus	2008	14	0.033032
School Bus	2008	15	0.065607
School Bus	2008	16	0.016997
School Bus	2008	17	0.014547
School Bus	2008	18	0.017783
School Bus	2008	19	0.012217
School Bus	2008	20	0.012787
School Bus	2008	21	0.009648
School Bus	2008	22	0.010238
School Bus	2008	23	0.010624
School Bus	2008	24	0.010901
School Bus	2008	25	0.007175
School Bus	2008	26	0.006278
School Bus	2008	27	0.005723
School Bus	2008	28	0.00207
School Bus	2008	29	0.00013
School Bus	2008	30	0.030987
Refuse Truck	2008	0	0.032947
Refuse Truck	2008	1	0.053251
Refuse Truck	2008	2	0.053796
Refuse Truck	2008	3	0.065918
Refuse Truck	2008	4	0.068904
Refuse Truck	2008	5	0.058114
Refuse Truck	2008	6	0.050908
Refuse Truck	2008	7	0.051593
Refuse Truck	2008	8	0.057315
Refuse Truck	2008	9	0.046104
Refuse Truck	2008	10	0.041169
Refuse Truck	2008	11	0.036167
Refuse Truck	2008	12	0.035258
Refuse Truck	2008	13	0.037093

Refuse Truck	2008	14	0.033576
Refuse Truck	2008	15	0.037192
Refuse Truck	2008	16	0.032712
Refuse Truck	2008	17	0.03073
Refuse Truck	2008	18	0.030444
Refuse Truck	2008	19	0.023488
Refuse Truck	2008	20	0.018045
Refuse Truck	2008	21	0.017664
Refuse Truck	2008	22	0.016542
Refuse Truck	2008	23	0.015199
Refuse Truck	2008	24	0.015258
Refuse Truck	2008	25	0.010792
Refuse Truck	2008	26	0.008885
Refuse Truck	2008	27	0.006868
Refuse Truck	2008	28	0.006436
Refuse Truck	2008	29	0.005545
Refuse Truck	2008	30	0.002088
Single Unit Short-haul Truck	2008	0	0.018095
Single Unit Short-haul Truck	2008	1	0.030997
Single Unit Short-haul Truck	2008	2	0.037588
Single Unit Short-haul Truck	2008	3	0.051465
Single Unit Short-haul Truck	2008	4	0.058546
Single Unit Short-haul Truck	2008	5	0.045876
Single Unit Short-haul Truck	2008	6	0.039778
Single Unit Short-haul Truck	2008	7	0.040884
Single Unit Short-haul Truck	2008	8	0.053671
Single Unit Short-haul Truck	2008	9	0.038557
Single Unit Short-haul Truck	2008	10	0.032097
Single Unit Short-haul Truck	2008	11	0.0312
Single Unit Short-haul Truck	2008	12	0.032839
Single Unit Short-haul Truck	2008	13	0.038872
Single Unit Short-haul Truck	2008	14	0.030822
Single Unit Short-haul Truck	2008	15	0.039118
Single Unit Short-haul Truck	2008	16	0.036573
Single Unit Short-haul Truck	2008	17	0.036517
Single Unit Short-haul Truck	2008	18	0.039263
Single Unit Short-haul Truck	2008	19	0.026897
Single Unit Short-haul Truck	2008	20	0.019728
Single Unit Short-haul Truck	2008	21	0.018272
Single Unit Short-haul Truck	2008	22	0.019638
Single Unit Short-haul Truck	2008	23	0.021677

Single Unit Short-haul Truck	2008	24	0.025482
Single Unit Short-haul Truck	2008	25	0.006893
Single Unit Short-haul Truck	2008	26	0.004457
Single Unit Short-haul Truck	2008	27	0.003368
Single Unit Short-haul Truck	2008	28	0.002956
Single Unit Short-haul Truck	2008	29	0.002452
Single Unit Short-haul Truck	2008	30	0.115422
Single Unit Long-haul Truck	2008	0	0.019088
Single Unit Long-haul Truck	2008	1	0.032835
Single Unit Long-haul Truck	2008	2	0.039847
Single Unit Long-haul Truck	2008	3	0.055161
Single Unit Long-haul Truck	2008	4	0.063103
Single Unit Long-haul Truck	2008	5	0.04944
Single Unit Long-haul Truck	2008	6	0.042936
Single Unit Long-haul Truck	2008	7	0.044115
Single Unit Long-haul Truck	2008	8	0.056385
Single Unit Long-haul Truck	2008	9	0.041101
Single Unit Long-haul Truck	2008	10	0.033782
Single Unit Long-haul Truck	2008	11	0.033499
Single Unit Long-haul Truck	2008	12	0.035515
Single Unit Long-haul Truck	2008	13	0.040682
Single Unit Long-haul Truck	2008	14	0.031709
Single Unit Long-haul Truck	2008	15	0.041152
Single Unit Long-haul Truck	2008	16	0.038508
Single Unit Long-haul Truck	2008	17	0.037969
Single Unit Long-haul Truck	2008	18	0.040433
Single Unit Long-haul Truck	2008	19	0.026605
Single Unit Long-haul Truck	2008	20	0.019648
Single Unit Long-haul Truck	2008	21	0.018734
Single Unit Long-haul Truck	2008	22	0.019247
Single Unit Long-haul Truck	2008	23	0.019631
Single Unit Long-haul Truck	2008	24	0.022576
Single Unit Long-haul Truck	2008	25	0.006133
Single Unit Long-haul Truck	2008	26	0.004077
Single Unit Long-haul Truck	2008	27	0.003087
Single Unit Long-haul Truck	2008	28	0.002754
Single Unit Long-haul Truck	2008	29	0.002309
Single Unit Long-haul Truck	2008	30	0.077936
Motor Home	2008	0	0.007855
Motor Home	2008	1	0.014902
Motor Home	2008	2	0.023879

Motor Home	2008	3	0.035604
Motor Home	2008	4	0.043055
Motor Home	2008	5	0.031506
Motor Home	2008	6	0.026888
Motor Home	2008	7	0.028062
Motor Home	2008	8	0.045813
Motor Home	2008	9	0.028942
Motor Home	2008	10	0.023499
Motor Home	2008	11	0.023525
Motor Home	2008	12	0.025735
Motor Home	2008	13	0.035922
Motor Home	2008	14	0.027387
Motor Home	2008	15	0.035761
Motor Home	2008	16	0.034492
Motor Home	2008	17	0.036531
Motor Home	2008	18	0.041537
Motor Home	2008	19	0.02938
Motor Home	2008	20	0.020818
Motor Home	2008	21	0.017604
Motor Home	2008	22	0.022169
Motor Home	2008	23	0.029632
Motor Home	2008	24	0.037335
Motor Home	2008	25	0.006401
Motor Home	2008	26	0.002856
Motor Home	2008	27	0.002071
Motor Home	2008	28	0.001498
Motor Home	2008	29	0.001079
Motor Home	2008	30	0.258261
Combination Short-haul Truck	2008	0	0.034447
Combination Short-haul Truck	2008	1	0.055321
Combination Short-haul Truck	2008	2	0.054839
Combination Short-haul Truck	2008	3	0.066003
Combination Short-haul Truck	2008	4	0.068005
Combination Short-haul Truck	2008	5	0.057968
Combination Short-haul Truck	2008	6	0.050816
Combination Short-haul Truck	2008	7	0.05141
Combination Short-haul Truck	2008	8	0.056442
Combination Short-haul Truck	2008	9	0.04584
Combination Short-haul Truck	2008	10	0.041549
Combination Short-haul Truck	2008	11	0.03568
Combination Short-haul Truck	2008	12	0.034238

Combination Short-haul Truck	2008	13	0.035945
Combination Short-haul Truck	2008	14	0.033507
Combination Short-haul Truck	2008	15	0.035914
Combination Short-haul Truck	2008	16	0.03122
Combination Short-haul Truck	2008	17	0.029221
Combination Short-haul Truck	2008	18	0.028669
Combination Short-haul Truck	2008	19	0.023178
Combination Short-haul Truck	2008	20	0.017858
Combination Short-haul Truck	2008	21	0.017349
Combination Short-haul Truck	2008	22	0.016322
Combination Short-haul Truck	2008	23	0.015356
Combination Short-haul Truck	2008	24	0.015343
Combination Short-haul Truck	2008	25	0.011703
Combination Short-haul Truck	2008	26	0.009676
Combination Short-haul Truck	2008	27	0.00748
Combination Short-haul Truck	2008	28	0.007006
Combination Short-haul Truck	2008	29	0.006033
Combination Short-haul Truck	2008	30	0.005661
Combination Long-haul Truck	2008	0	0.037494
Combination Long-haul Truck	2008	1	0.059672
Combination Long-haul Truck	2008	2	0.05745
Combination Long-haul Truck	2008	3	0.067314
Combination Long-haul Truck	2008	4	0.067788
Combination Long-haul Truck	2008	5	0.058815
Combination Long-haul Truck	2008	6	0.051635
Combination Long-haul Truck	2008	7	0.052084
Combination Long-haul Truck	2008	8	0.055695
Combination Long-haul Truck	2008	9	0.046153
Combination Long-haul Truck	2008	10	0.042764
Combination Long-haul Truck	2008	11	0.035508
Combination Long-haul Truck	2008	12	0.033212
Combination Long-haul Truck	2008	13	0.034413
Combination Long-haul Truck	2008	14	0.033654
Combination Long-haul Truck	2008	15	0.034213
Combination Long-haul Truck	2008	16	0.029101
Combination Long-haul Truck	2008	17	0.02692
Combination Long-haul Truck	2008	18	0.025794
Combination Long-haul Truck	2008	19	0.02252
Combination Long-haul Truck	2008	20	0.017492
Combination Long-haul Truck	2008	21	0.016919
Combination Long-haul Truck	2008	22	0.015798

Combination Long-haul Truck	2008	23	0.015004
Combination Long-haul Truck	2008	24	0.014591
Combination Long-haul Truck	2008	25	0.013126
Combination Long-haul Truck	2008	26	0.010998
Combination Long-haul Truck	2008	27	0.00851
Combination Long-haul Truck	2008	28	0.007982
Combination Long-haul Truck	2008	29	0.006879
Combination Long-haul Truck	2008	30	0.000502