# Appendix O
# Reasonable Further Progress

This document was originally submitted on August 31, 2007. A 2008 volatile organic compound (VOC) Motor Vehicle Emission Budget (MVEB) was not necessary and/or included in the 2007 Reasonable Further Progress (RFP) submission. Pursuant to 40 CFR 93.109(k), both the NCDAQ and SCDHEC determined that on-road mobile VOCs are insignificant contributors to ozone formation in the Metrolina nonattainment area. However, the EPA has indicated that it will not accept the justification presented for VOC insignificance for the Metrolina nonattainment area. Therefore, the SCDHEC is submitting a 2008 RFP VOC MVEB at this time.

Section V has been added to the 2007 RFP submission to fulfill the 2008 RFP MVEB requirement.

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# REASONABLE FURTHER PROGRESS

## I. INTRODUCTION

Section 182(b)(1) of the Clean Air Act (CAA) mandates a 15 percent volatile organic compounds (VOC) emission reduction, accounting for growth, in the first 6 years after the baseline year (2002) for moderate and above ozone nonattainment areas. Thus, for the York County portion of the Charlotte-Gastonia-Rock Hill, NC-SC 8-hour ozone nonattainment area (referred to as the York County nonattainment area), a reasonable further progress (RFP) analysis between 2002 and 2008 is required.

## II. CALCULATION OF RFP TARGET

The methodology the SCDHEC used to calculate the RFP target levels of VOC emissions is based on the method developed in the CAA, while taking into account the restrictions on creditable emissions and the need to use the 2002 inventory as a baseline. The CAA of 1990 specified four types of measures that are not creditable toward the 15 percent RFP requirement. These are:

(1) Any measure relating to motor vehicle exhaust or evaporative emissions promulgated by the Administrator by January 1, 1990.

(2) Regulations concerning Reid Vapor Pressure (RVP) promulgated after 1990 or required under Section 211(h).

(3) Measures required under Section 182(a)(2)(A) to correct deficiencies in a State Implementation Plan (SIP) regarding VOC Reasonably Available Control Technology (RACT) regulations required prior to enactment of the CAA Amendments of 1990.

(4) State regulations submitted to correct deficiencies in vehicle inspection and maintenance (I/M) existing or required programs.

These four types of measures were all expected to result in a decrease in emissions between 1990 and 1996. Of these four types of measures, RACT and I/M program corrections did not apply to South Carolina, as the State was in attainment for all standards at that time, and as the 1990 RVP requirements were completely in place by 1996 and thus were are already accounted for in the 2002 baseline. As a result, they would produce no additional reductions between 2002 and 2008 or later milestone years.

However, the pre-1990 Federal Motor Vehicle Control Program (FMVCP) will continue to provide additional benefits during the first two decades of the 21st century as remaining vehicles meeting pre-1990 standards are removed from the vehicle fleet. Since these benefits are not creditable for RFP purposes, in order to calculate the target level of emissions for future RFP milestone years, you must first calculate the reductions that would occur over these future years as a result of the pre-1990 FMVCP. The South Carolina Department of Health and Environmental Control (SCDHEC) used Method 1 to account for non-creditable reductions when calculating RFP targets for the 2008 milestone year. They are consistent with requirements of Sections 182(b)(1)(C) and (D) and 182(c)(2)(B) of the CAA. SCDHEC did not have VOC RACT regulations in the York County nonattainment area prior to the enactment of the 1990 CAA, thus only the on-road mobile source sector required an estimation of non-creditable emissions.

Method 1 - For areas that must meet a 15 percent VOC reduction requirement by 2008:

(A) Estimate the actual anthropogenic base year VOC inventory in 2002 with all 2002 control programs in place for all sources.

(B) Using the same highway vehicle activity inputs used to calculate the actual 2002 inventory, run the appropriate motor vehicle emissions model for 2002 and for 2008 with all post-1990 CAA measures turned off. Any other local inputs for vehicle inspection and maintenance (I/M) programs should be set according to the program that was required to be in place in 1990. Fuel Reid Vapor Pressure (RVP) should be set at 9.0 or 7.8 depending on the RVP required in the local area as a result of fuel RVP regulations promulgated in June, 1990.

(C) Calculate the difference between the 2002 and 2008 VOC emission factors calculated in Step B and multiply by 2002 vehicle miles traveled (VMT). The result is the VOC emissions reductions that will occur between 2002 and 2008 without the benefits of any post-1990 CAA measures. These are the non-creditable reductions that occur over this period.

(D) Subtract the non-creditable reductions calculated in Step C from the actual anthropogenic 2002 inventory estimated in Step A. This adjusted VOC inventory is the basis for calculating the target level of emissions in 2008.

(E) Reduce the adjusted VOC inventory calculated in Step D by 15 percent. The result is the target level of VOC emissions in 2008 in order to meet the 2008 ROP requirement. The actual projected 2008 inventory for all sources with all control measures in place and including projected 2008 growth in activity must be at or lower than this target level of emissions.

SCDHEC's 2002 baseline VOC emissions for the York County nonattainment area are presented in Table O-1. The 2008 VOC emission estimates are included in Table O-2. Table O-3 below provides the summary 15% RFP analysis showing the projected 2008 VOC emissions for the area, 17.84 tons/day are well below the target level of emissions, 20.23 tons/day, as calculated using Method 1.

**Table O-1: York County Nonattainment Area 2002 Baseline VOC Emissions (tons/day)**

| County | Point | Area | Non-Road | Highway Mobile | Total |
|---|---|---|---|---|---|
| York (partial) | 7.29 | 7.48 | 3.19 | 6.84 | 24.80 |

**Table O-2: York County Nonattainment Area 2008 Baseline VOC Emissions (tons/day)**

| County | Point | Area | Non-Road | Highway Mobile | Total |
|---|---|---|---|---|---|
| York (partial) | 3.6 | 7.9 | 2.4 | 3.94 | 17.84 |

**Table O-3: York County Nonattainment Area 15% RFP Analysis**

| York County 15% RFP Analysis | VOC (tons/day) | Step from Method 1 |
|---|---|---|
| Total 2002 Base year anthropogenic VOC emissions | 24.8 | Step A |
| Non-creditable VOC reductions | 0.997 | Step C |
| 2002 base year minus the non-creditable emissions | 23.8 | Step D |

| | | |
|---|---|---|
| 2008 target level of VOC emissions | 20.23 | Step E |
| 2008 projected VOC emissions | 17.84 | Projection < Target RFP goal met |

SCDHEC must show continued progress from 2008 through the attainment date (June 15, 2010). To do so, SCDHEC calculated the expected benefits from the fleet turnover for the on-road and off-road mobile sectors. In 2009 and 2010, the SCDHEC expects approximately 0.73 tons per day of $NO_x$ emissions reductions from this fleet turnover. SCDHEC did not calculate future expected VOC emissions reductions in 2009 and 2010 since the area is $NO_x$-limited, but additional VOC reductions are expected from the fleet turnover of the on-road mobile sector. SCDHEC believes these additional reductions demonstrate continued reasonable further progress toward attainment beyond 2008.

## III. ESTIMATION OF NON-CREDITABLE REDUCTIONS

**Table O-4: Estimation Of Non-Creditable Reductions**

| York County (N/A Portion) | 2002 VMT per day | 2002 w/o CAA in grams/mile | 2008 w/o CAA in grams/mile | $2002_{w/o\ CAA}$ EF-$2008_{w/o\ CAA}$ EF in grams/mile | Non Creditable Emissions in grams/day |
|---|---|---|---|---|---|
| Interstate | 1165229 | 1.496 | 1.293 | 0.203 | 236541.487 |
| Expressway | 73187 | 1.640 | 1.423 | 0.217 | 15881.579 |
| Principal Arterial | 839051 | 1.738 | 1.509 | 0.229 | 192142.679 |
| Minor Arterial | 657887 | 1.903 | 1.653 | 0.250 | 164471.75 |
| Collectors | 612438 | 1.780 | 1.546 | 0.234 | 143310.492 |
| Local | 441306 | 3.003 | 2.659 | 0.344 | 151809.264 |
| Total | | | | | 904157.251 |
| Total Tons | | | | | 0.997 tons/day |

Non-creditable emissions for the nonattainment portion of York County South Carolina are estimated to be 0.997 tons per day.

## IV. MOBILE INPUT AND OUTPUT FILES

The following sections include the mobile model input and output files used to calculate the non-creditable emission reductions for RFP.

### A. MOBILE Input Files

```
**********HEADER SECTION**********
*April 27 2007*
MOBILE6 INPUT FILE :
POLLUTANTS        : HC
WITH FIELDNAMES   :
SPREADSHEET       :
RUN DATA          :

**********RUN SECTION #1**********
MIN/MAX TEMP      : 66.0 92.0
FUEL RVP          : 9.0
NO REFUELING      :
NO CLEAN AIR ACT  :
**********SCENARIO SECTION #1*********
SCENARIO RECORD   : YORK COUNTY 2002 BASELINE - INTERSTATE
CALENDAR YEAR     : 2002
EVALUATION MONTH  : 7
AVERAGE SPEED     : 60.6 FREEWAY

**********SCENARIO SECTION #2**********
SCENARIO RECORD   : YORK COUNTY 2002 BASELINE - EXPRESSWAY
CALENDAR YEAR     : 2002
EVALUATION MONTH  : 7
AVERAGE SPEED     : 44.6 FREEWAY

**********SCENARIO SECTION #3**********
SCENARIO RECORD   : YORK COUNTY 2002 BASELINE - PRINCIPAL ARTERIAL
CALENDAR YEAR     : 2002
EVALUATION MONTH  : 7
AVERAGE SPEED     : 36.5 ARTERIAL

**********SCENARIO SECTION #4*********
SCENARIO RECORD   : YORK COUNTY 2002 BASELINE - MINOR ARTERIAL
CALENDAR YEAR     : 2002
EVALUATION MONTH  : 7
AVERAGE SPEED     : 29.2 ARTERIAL

**********SCENARIO SECTION #5**********
SCENARIO RECORD   : YORK COUNTY 2002 BASELINE - COLLECTOR
CALENDAR YEAR     : 2002
EVALUATION MONTH  : 7
AVERAGE SPEED     : 34.2 ARTERIAL

**********SCENARIO SECTION #6**********
SCENARIO RECORD   : YORK COUNTY 2002 BASELINE - LOCAL
CALENDAR YEAR     : 2002
EVALUATION MONTH  : 7
AVERAGE SPEED     : 18.4 LOCAL
```

VMT BY FACILITY : YKFVMT.DEF

**********SCENARIO SECTION #7*********
SCENARIO RECORD : YORK COUNTY 2008 BASELINE - INTERSTATE
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 60.6 FREEWAY

**********SCENARIO SECTION #8**********
SCENARIO RECORD : YORK COUNTY 2008 BASELINE - EXPRESSWAY
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 44.6 FREEWAY

**********SCENARIO SECTION #9**********
SCENARIO RECORD : YORK COUNTY 2008 BASELINE - PRINCIPAL ARTERIAL
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 36.5 ARTERIAL

**********SCENARIO SECTION #10*********
SCENARIO RECORD : YORK COUNTY 2008 BASELINE - MINOR ARTERIAL
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 29.2 ARTERIAL

**********SCENARIO SECTION #11**********
SCENARIO RECORD : YORK COUNTY 2008 BASELINE - COLLECTOR
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 34.2 ARTERIAL

**********SCENARIO SECTION #12**********
SCENARIO RECORD : YORK COUNTY 2008 BASELINE - LOCAL
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 18.4 LOCAL
VMT BY FACILITY : YKFVMT.DEF

**********END OF RUN SECTION #1**********
END OF RUN :

## B. MOBILE Output Files

```
*************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                            *
* Input file: YRK05RFP.IN (file 1, run 1).                              *
*************************************************************************
 M603 Comment:
          User has disabled the calculation of REFUELING emissions.


 Results Reflect No Clean Air Act of 1990
```

```
* ##########################
* YORK COUNTY 2002 BASELINE - INTERSTATE
* File 1, Run 1, Scenario 1.
* ##########################
 M582 Warning:
        The user supplied freeway average speed of 60.6
        will be used for all hours of the day. 100% of VMT
        has been assigned to a fixed combination of freeways
        and freeway ramps for all hours of the day and all
         vehicle types.
 M 48 Warning:
         there are no sales for vehicle class HDGV8b

             Calendar Year:  2002
                   Month:  July
                Altitude:  Low
         Minimum Temperature:  66.0 (F)
         Maximum Temperature:  92.0 (F)
           Absolute Humidity:   75. grains/lb
            Nominal Fuel RVP:   9.0 psi
               Weathered RVP:   8.6 psi
         Fuel Sulfur Content:  300. ppm

         Exhaust I/M Program:  No
           Evap I/M Program:  No
               ATP Program:  No
           Reformulated Gas:  No

     Vehicle Type:     LDGV    LDGT12    LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV      MC
All Veh
          GVWR:            <6000     >6000     (All)
                  ------   ------   ------   ------   ------   ------   ------   ------   ------   ------
  VMT Distribution:   0.4568   0.3091   0.1063          0.0360   0.0008   0.0017   0.0833   0.0060   1.0000
 ---------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
   Composite VOC :     1.411    1.570    2.341    1.767    1.517   0.616    0.819    0.525    2.91    1.496
 ---------------------------------------------------------------------------------------------------------------

* ##########################
* YORK COUNTY 2002 BASELINE - EXPRESSWAY
* File 1, Run 1, Scenario 2.
* ##########################
 M582 Warning:
        The user supplied freeway average speed of 44.6
        will be used for all hours of the day. 100% of VMT
        has been assigned to a fixed combination of freeways
        and freeway ramps for all hours of the day and all
         vehicle types.
 M 48 Warning:
         there are no sales for vehicle class HDGV8b

             Calendar Year:  2002
                   Month:  July
                Altitude:  Low
         Minimum Temperature:  66.0 (F)
```

```
          Maximum Temperature:  92.0 (F)
            Absolute Humidity:   75. grains/lb
             Nominal Fuel RVP:   9.0 psi
                Weathered RVP:   8.6 psi
          Fuel Sulfur Content:  300. ppm

          Exhaust I/M Program:  No
            Evap I/M Program:  No
                ATP Program:  No
            Reformulated Gas:  No

     Vehicle Type:     LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC
All Veh
           GVWR:             <6000     >6000     (All)
                  ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.4568    0.3091    0.1063              0.0360    0.0008    0.0017    0.0833    0.0060    1.0000
 ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :      1.546     1.727     2.574     1.944     1.702    0.650     0.865     0.585      2.37     1.640
 ---------------------------------------------------------------------------------------------------------------------

* ##########################
* YORK COUNTY 2002 BASELINE - PRINCIPAL ARTERIAL
* File 1, Run 1, Scenario 3.
* ##########################
  M583 Warning:
          The user supplied arterial average speed of 36.5
          will be used for all hours of the day.  100% of VMT
          has been assigned to the arterial/collector roadway
          type for all hours of the day and all vehicle types.
  M 48 Warning:
           there are no sales for vehicle class HDGV8b

               Calendar Year:  2002
                      Month:  July
                   Altitude:  Low
          Minimum Temperature:  66.0 (F)
          Maximum Temperature:  92.0 (F)
            Absolute Humidity:   75. grains/lb
             Nominal Fuel RVP:   9.0 psi
                Weathered RVP:   8.6 psi
          Fuel Sulfur Content:  300. ppm

          Exhaust I/M Program:  No
            Evap I/M Program:  No
                ATP Program:  No
            Reformulated Gas:  No

     Vehicle Type:     LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC
All Veh
           GVWR:             <6000     >6000     (All)
                  ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.4568    0.3091    0.1063              0.0360    0.0008    0.0017    0.0833    0.0060    1.0000
 ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :      1.643     1.803     2.684     2.028     1.965    0.706     0.939     0.683      2.47     1.738
```

```
 ------------------------------------------------------------------------------------------------------------------------------------------

* # # #
```

```
          Absolute Humidity:   75. grains/lb
           Nominal Fuel RVP:   9.0 psi
              Weathered RVP:   8.6 psi
         Fuel Sulfur Content:  300. ppm

         Exhaust I/M Program:  No
           Evap I/M Program:  No
               ATP Program:  No
           Reformulated Gas:  No

     Vehicle Type:     LDGV    LDGT12    LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV       MC
All Veh
          GVWR:             <6000     >6000     (All)
                  ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:   0.4568    0.3091    0.1063            0.0360    0.0008    0.0017    0.0833    0.0060    1.0000
 ----------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :     1.683     1.838     2.735     2.067     2.067     0.728     0.968     0.721      2.52     1.780
 ----------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2002 BASELINE - LOCAL
* File 1, Run 1, Scenario 6.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M585 Warning:
         100% of VMT has been assigned to the local roadway
         type for all hours of the day for all vehicle types
         with an average speed of 12.9 mph.

* Reading Hourly Roadway VMT distribution from the following external
* data file: YKFVMT.DEF

  Reading User Supplied ROADWAY VMT Factors
  M 48 Warning:
          there are no sales for vehicle class HDGV8b

              Calendar Year:  2002
                     Month:  July
                  Altitude:  Low
         Minimum Temperature:  66.0 (F)
         Maximum Temperature:  92.0 (F)
          Absolute Humidity:   75. grains/lb
           Nominal Fuel RVP:   9.0 psi
              Weathered RVP:   8.6 psi
         Fuel Sulfur Content:  300. ppm

         Exhaust I/M Program:  No
           Evap I/M Program:  No
               ATP Program:  No
           Reformulated Gas:  No

     Vehicle Type:     LDGV    LDGT12    LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV       MC
All Veh
          GVWR:             <6000     >6000     (All)
                  ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:   0.4568    0.3091    0.1063            0.0360    0.0008    0.0017    0.0833    0.0060    1.0000
```

```
 ------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :      2.865     2.969     4.214     3.288     4.974    1.172     1.556     1.496      3.59     3.003
 ------------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 BASELINE - INTERSTATE
* File 1, Run 1, Scenario 7.
* # # # # # # # # # # # # # # # # # # # # # # # # # #
  M582 Warning:
          The user supplied freeway average speed of 60.6
          will be used for all hours of the day. 100% of VMT
          has been assigned to a fixed combination of freeways
          and freeway ramps for all hours of the day and all
           vehicle types.
  M 48 Warning:
           there are no sales for vehicle class HDGV8b

                Calendar Year:  2008
                        Month:  July
                     Altitude:  Low
           Minimum Temperature:  66.0 (F)
           Maximum Temperature:  92.0 (F)
             Absolute Humidity:   75. grains/lb
              Nominal Fuel RVP:   9.0 psi
                 Weathered RVP:   8.6 psi
           Fuel Sulfur Content:  300. ppm

           Exhaust I/M Program:  No
             Evap I/M Program:  No
                  ATP Program:  No
             Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC
All Veh
            GVWR:              <6000     >6000     (All)
                   ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:    0.3728    0.3705    0.1273            0.0359    0.0004    0.0019    0.0857    0.0055    1.0000
 ------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :      1.298     1.352     1.682     1.436     1.111    0.389     0.599     0.429      2.91     1.293
 ------------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 BASELINE - EXPRESSWAY
* File 1, Run 1, Scenario 8.
* # # # # # # # # # # # # # # # # # # # # # # # # # #
  M582 Warning:
          The user supplied freeway average speed of 44.6
          will be used for all hours of the day. 100% of VMT
          has been assigned to a fixed combination of freeways
          and freeway ramps for all hours of the day and all
           vehicle types.
  M 48 Warning:
           there are no sales for vehicle class HDGV8b
```

Calendar Year: 2008
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 300. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

| Vehicle Type: | LDGV | LDGT12 | LDGT34 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| GVWR: | | <6000 | >6000 | (All) | | | | | | |
| | --- | --- | --- | --- | --- | --- | --- | --- | --- | |
| VMT Distribution: | 0.3728 | 0.3705 | 0.1273 | | 0.0359 | 0.0004 | 0.0019 | 0.0857 | 0.0055 | 1.0000 |
| Composite Emission Factors (g/mi): | | | | | | | | | | |
| Composite VOC : | 1.424 | 1.494 | 1.865 | 1.589 | 1.262 | 0.414 | 0.640 | 0.478 | 2.37 | 1.423 |

* # # # # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 BASELINE - PRINCIPAL ARTERIAL
* File 1, Run 1, Scenario 9.
* # # # # # # # # # # # # # # # # # # # # # # # # # # # #

M583 Warning:
The user supplied arterial average speed of 36.5
will be used for all hours of the day. 100% of VMT
has been assigned to the arterial/collector roadway
type for all hours of the day and all vehicle types.

M 48 Warning:
there are no sales for vehicle class HDGV8b

Calendar Year: 2008
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 300. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

| Vehicle Type: | LDGV | LDGT12 | LDGT34 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| GVWR: | | <6000 | >6000 | (All) | | | | | | |
| | --- | --- | --- | --- | --- | --- | --- | --- | --- | |

```
  VMT Distribution:    0.3728    0.3705    0.1273            0.0359    0.0004    0.0019    0.0857    0.0055    1.0000
 ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
   Composite VOC :      1.517     1.564     1.953     1.664     1.462    0.455     0.706     0.558     2.47     1.509
 ---------------------------------------------------------------------------------------------------------------------

* ##########################
* YORK COUNTY 2008 BASELINE - MINOR ARTERIAL
* File 1, Run 1, Scenario 10.
* ##########################
 M583 Warning:
        The user supplied arterial average speed of 29.2
        will be used for all hours of the day.  100% of VMT
        has been assigned to the arterial/collector roadway
        type for all hours of the day and all vehicle types.
 M 48 Warning:
          there are no sales for vehicle class HDGV8b

              Calendar Year:  2008
                     Month:  July
                  Altitude:  Low
          Minimum Temperature:  66.0 (F)
          Maximum Temperature:  92.0 (F)
            Absolute Humidity:   75. grains/lb
           Nominal Fuel RVP:   9.0 psi
              Weathered RVP:   8.6 psi
          Fuel Sulfur Content:  300. ppm

          Exhaust I/M Program:  No
            Evap I/M Program:  No
                ATP Program:  No
            Reformulated Gas:  No

     Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC
All Veh
          GVWR:              <6000     >6000     (All)
                ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3728    0.3705    0.1273            0.0359    0.0004    0.0019    0.0857    0.0055    1.0000
 ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
   Composite VOC :      1.664     1.694     2.113     1.801     1.746    0.515     0.803     0.674     2.65     1.653
 ---------------------------------------------------------------------------------------------------------------------

* ##########################
* YORK COUNTY 2008 BASELINE - COLLECTOR
* File 1, Run 1, Scenario 11.
* ##########################
 M583 Warning:
        The user supplied arterial average speed of 34.2
        will be used for all hours of the day.  100% of VMT
        has been assigned to the arterial/collector roadway
        type for all hours of the day and all vehicle types.
 M 48 Warning:
          there are no sales for vehicle class HDGV8b

              Calendar Year:  2008
```

```
                Month:  July
               Altitude:  Low
        Minimum Temperature:  66.0 (F)
        Maximum Temperature:  92.0 (F)
          Absolute Humidity:   75. grains/lb
           Nominal Fuel RVP:   9.0 psi
             Weathered RVP:   8.6 psi
        Fuel Sulfur Content:  300. ppm

        Exhaust I/M Program:  No
           Evap I/M Program:  No
               ATP Program:  No
           Reformulated Gas:  No

    Vehicle Type:     LDGV    LDGT12    LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV       MC
All Veh
          GVWR:              <6000     >6000     (All)
                  ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:   0.3728    0.3705    0.1273            0.0359    0.0004    0.0019    0.0857    0.0055    1.0000
 ---------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :     1.555     1.596     1.993     1.698     1.538    0.472     0.732     0.589     2.52     1.546
 ---------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 BASELINE - LOCAL
* File 1, Run 1, Scenario 12.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M585 Warning:
        100% of VMT has been assigned to the local roadway
        type for all hours of the day for all vehicle types
        with an average speed of 12.9 mph.

* Reading Hourly Roadway VMT distribution from the following external
* data file: YKFVMT.DEF

  Reading User Supplied ROADWAY VMT Factors
  M 48 Warning:
         there are no sales for vehicle class HDGV8b

             Calendar Year:  2008
                Month:  July
               Altitude:  Low
        Minimum Temperature:  66.0 (F)
        Maximum Temperature:  92.0 (F)
          Absolute Humidity:   75. grains/lb
           Nominal Fuel RVP:   9.0 psi
             Weathered RVP:   8.6 psi
        Fuel Sulfur Content:  300. ppm

        Exhaust I/M Program:  No
           Evap I/M Program:  No
               ATP Program:  No
           Reformulated Gas:  No

    Vehicle Type:     LDGV    LDGT12    LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV       MC
```

All Veh

| GVWR: | <6000 | >6000 | (All) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| VMT Distribution: | 0.3728 | 0.3705 | 0.1273 | | 0.0359 | 0.0004 | 0.0019 | 0.0857 | 0.0055 | 1.0000 |

Composite Emission Factors (g/mi):

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Composite VOC : | 2.688 | 2.662 | 3.235 | 2.809 | 3.675 | 0.797 | 1.258 | 1.222 | 3.59 | 2.659 |

## V. RFP 2008 VOC MOTOR VEHICLE EMISSIONS BUDGET

In December 2009, EPA Region 4 informed the South Carolina Department of Health and Environmental Control (SCDHEC) they would not support a finding of VOC insignificance for the York County Nonattainment Area. As a result, the RFP State Implementation Plan submitted in 2007 must be amended with a 2008 VOC motor vehicle emissions budget (MVEB). The purpose of this document is to fulfill that requirement. Note that SCDHEC disagrees with EPA's position on VOC insignificance. A review of the VOC insignificance criteria found in 40 CFR 93.109(k) indicates that the York County nonattainment area meets the criteria for VOC insignificance.

### A. Motor Vehicle Emissions Budget

The table below shows the York County Nonattainment Area on-road mobile VOC emissions expressed in tons per day and the corresponding kilograms per day values for 2008. Although emissions are usually expressed in terms of tons per day, the MVEBs will be set in terms of kilograms (kg) per day. The reason for the change is that the MOBILE model generates emission factors in grams per mile. In past conformity exercises, there have been issues with conversions to tons per day, as well as concerns with how MVEBs were rounded to the hundredth place. During the development of the MVEB, the interagency partners for the York County nonattainment area were consulted on this issue. The model inputs are consistent with what was used for the attainment demonstration.

**Table O-5: 2008 On-Road Mobile Source VOC Emissions for the York County Nonattainment Area**

| County | 2008 | |
|---|---|---|
| | Tons/day | Kg/day |
| York (partial) | 6.053 | 5,493 |

The following table shows the 2008 VOC MVEB for the York County Nonattainment Area.

**Table O-6: York County Nonattainment Area VOC MVEB for 2008**

| County | MVEB (Kilograms/day) |
|---|---|
| York (partial) | 5,493 |

### B. Vehicle Miles Traveled Assumptions

In order to calculate emissions from on-road mobile sources, emission factors from the MOBILE model are multiplied by daily VMT. VMT data for the York nonattainment area was provided by the Charlotte Department of Transportation (Table O-7.)

**Table O-7: 2008 York County Nonattainment Area Daily VMT**

| Roadway Classifications | Daily VMT |
|---|---|
| Rural Interstate | 933,718.68 |
| Rural Other Principle Arterial | 86,336.73 |
| Rural Minor Arterial | 275,441.43 |
| Rural Major Collector | 269,042.51 |
| Rural Minor Collector | 32,244.05 |
| Rural Local | 337,156.62 |
| Urban Interstate | 877,562.75 |
| Urban Freeway & Expressway | 84,967.90 |
| Urban Other Principal Arterial | 849,854.30 |
| Urban Minor Arterial | 780,274.19 |
| Urban Collector | 257,149.83 |
| Urban Local | 772,144.93 |
| Total | 933,718.68 |

The following are the mobile6.2 input and output files used to develop the VOC MVEB.

### C. MOBILE Input Files:

```
**********HEADER SECTION**********

*YORK SIP - INTERAGENCY*

MOBILE6 INPUT FILE :
POLLUTANTS        : HC NOX
WITH FIELDNAMES    :
SPREADSHEET        :
RUN DATA           :

**********RUN SECTION #1**********
MIN/MAX TEMP       : 66.0 92.0
FUEL RVP           : 9.0
NO REFUELING       :

**********SCENARIO SECTION #1*********
```

SCENARIO RECORD : YORK COUNTY 2008 - RURAL INTERSTATE
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 61.5 FREEWAY

**********SCENARIO SECTION #2**********
SCENARIO RECORD : YORK COUNTY 2008 - RURAL PRINCIPAL ARTERIAL
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 44.6 ARTERIAL

**********SCENARIO SECTION #3**********
SCENARIO RECORD : YORK COUNTY 2008 - RURAL MINOR ARTERIAL
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 34.6 ARTERIAL

**********SCENARIO SECTION #4*********
SCENARIO RECORD : YORK COUNTY 2008 - RURAL MAJOR COLLECTOR
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 43.4 ARTERIAL

**********SCENARIO SECTION #5**********
SCENARIO RECORD : YORK COUNTY 2008 - RURAL MINOR COLLECTOR
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 21.8 ARTERIAL

**********SCENARIO SECTION #6**********
SCENARIO RECORD : YORK COUNTY 2008 - RURAL LOCAL
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
VMT BY FACILITY : YKFVMT.DEF

**********SCENARIO SECTION #7**********
SCENARIO RECORD : YORK COUNTY 2008 - URBAN INTERSTATE
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 60.3 FREEWAY

**********SCENARIO SECTION #8**********
SCENARIO RECORD : YORK COUNTY 2008 - URBAN FREEWAY-EXPRESSWAY
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 39.2 FREEWAY

**********SCENARIO SECTION #9**********
SCENARIO RECORD : YORK COUNTY 2008 - URBAN PRINCIPAL ARTERIAL
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 32.6 ARTERIAL

**********SCENARIO SECTION #10**********
SCENARIO RECORD : YORK COUNTY 2008 - URBAN MINOR ARTERIAL
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 31.8 ARTERIAL

**********SCENARIO SECTION #11*********
SCENARIO RECORD : YORK COUNTY 2008 - URBAN COLLECTOR
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
AVERAGE SPEED : 23.3 ARTERIAL

**********SCENARIO SECTION #12**********
SCENARIO RECORD : YORK COUNTY 2008 - URBAN LOCAL
CALENDAR YEAR : 2008
EVALUATION MONTH : 7
VMT BY FACILITY : YKFVMT.DEF

END OF RUN :

### D. MOBILE Output Files:

```
*************************************************************************
* MOBILE6.2.03 (24-Sep-2003)                                            *
* Input file: RFPB08.IN (file 1, run 1).                                *
*************************************************************************
 M603 Comment:
          User has disabled the calculation of REFUELING emissions.


* # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 - RURAL INTERSTATE
* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # #
 M515 Warning:
        The combined freeway and ramp average speed entered
        cannot be greater than 60.7 miles per hour.
```

The average speed will be reset to this value.
M582 Warning:
The user supplied freeway average speed of 60.7
will be used for all hours of the day. 100% of VMT
has been assigned to a fixed combination of freeways
and freeway ramps for all hours of the day and all
vehicle types.
M 48 Warning:
there are no sales for vehicle class HDGV8b

Calendar Year: 2008
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

| Vehicle Type: | LDGV | LDGT12 | LDGT34 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| GVWR: | <6000 | >6000 | (All) | | | | | | | |
| VMT Distribution: | 0.3728 | 0.3705 | 0.1273 | | 0.0359 | 0.0004 | 0.0019 | 0.0857 | 0.0055 | 1.0000 |
| Composite Emission Factors (g/mi): | | | | | | | | | | |
| Composite VOC : | 0.741 | 0.760 | 1.222 | 0.878 | 0.803 | 0.227 | 0.429 | 0.294 | 2.89 | 0.784 |
| Composite NOX : | 0.707 | 0.901 | 1.281 | 0.998 | 3.475 | 1.059 | 1.454 | 13.743 | 1.62 | 2.075 |

* # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 - RURAL PRINCIPAL ARTERIAL
* File 1, Run 1, Scenario 2.
* # # # # # # # # # # # # # # # # # # # # # # # # #

M583 Warning:
The user supplied arterial average speed of 44.6
will be used for all hours of the day. 100% of VMT
has been assigned to the arterial/collector roadway
type for all hours of the day and all vehicle types.
M 48 Warning:
there are no sales for vehicle class HDGV8b

Calendar Year: 2008
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

| Vehicle Type: | LDGV | LDGT12 | LDGT34 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| GVWR: | <6000 | >6000 | (All) | | | | | | | |
| VMT Distribution: | 0.3728 | 0.3705 | 0.1273 | | 0.0359 | 0.0004 | 0.0019 | 0.0857 | 0.0055 | 1.0000 |
| Composite Emission Factors (g/mi): | | | | | | | | | | |
| Composite VOC : | 0.808 | 0.818 | 1.335 | 0.950 | 0.895 | 0.240 | 0.455 | 0.327 | 2.34 | 0.848 |
| Composite NOX : | 0.662 | 0.836 | 1.204 | 0.930 | 3.077 | 0.615 | 0.843 | 7.517 | 1.18 | 1.473 |

* # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 - RURAL MINOR ARTERIAL
* File 1, Run 1, Scenario 3.
* # # # # # # # # # # # # # # # # # # # # # # # # #
M583 Warning:
The user supplied arterial average speed of 34.6

will be used for all hours of the day. 100% of VMT
has been assigned to the arterial/collector roadway
type for all hours of the day and all vehicle types.
M 48 Warning:
there are no sales for vehicle class HDGV8b

Calendar Year: 2008
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

| Vehicle Type: | LDGV | LDGT12 | LDGT34 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| GVWR: | <6000 | >6000 | (All) | | | | | | | |
| VMT Distribution: | 0.3728 | 0.3705 | 0.1273 | | 0.0359 | 0.0004 | 0.0019 | 0.0857 | 0.0055 | 1.0000 |

Composite Emission Factors (g/mi):

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Composite VOC : | 0.872 | 0.865 | 1.417 | 1.006 | 1.044 | 0.269 | 0.512 | 0.399 | 2.49 | 0.912 |
| Composite NOX : | 0.651 | 0.814 | 1.182 | 0.909 | 2.855 | 0.569 | 0.779 | 6.951 | 1.13 | 1.401 |

* # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 - RURAL MAJOR COLLECTOR
* File 1, Run 1, Scenario 4.
* # # # # # # # # # # # # # # # # # # # # # # # # #
M583 Warning:
The user supplied arterial average speed of 43.4
will be used for all hours of the day. 100% of VMT
has been assigned to the arterial/collector roadway

type for all hours of the day and all vehicle types.
M 48 Warning:
there are no sales for vehicle class HDGV8b

Calendar Year: 2008
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

| Vehicle Type: | LDGV | LDGT12 | LDGT34 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| GVWR: | <6000 | >6000 | (All) | | | | | | | |
| VMT Distribution: | 0.3728 | 0.3705 | 0.1273 | | 0.0359 | 0.0004 | 0.0019 | 0.0857 | 0.0055 | 1.0000 |

Composite Emission Factors (g/mi):

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Composite VOC : | 0.814 | 0.823 | 1.343 | 0.956 | 0.909 | 0.243 | 0.460 | 0.333 | 2.36 | 0.855 |
| Composite NOX : | 0.661 | 0.833 | 1.201 | 0.927 | 3.052 | 0.608 | 0.832 | 7.422 | 1.18 | 1.461 |

* # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 - RURAL MINOR COLLECTOR
* File 1, Run 1, Scenario 5.
* # # # # # # # # # # # # # # # # # # # # # # # # #
M583 Warning:
The user supplied arterial average speed of 21.8
will be used for all hours of the day. 100% of VMT
has been assigned to the arterial/collector roadway
type for all hours of the day and all vehicle types.
M 48 Warning:

```
          there are no sales for vehicle class HDGV8b

              Calendar Year:  2008
                     Month:  July
                  Altitude:  Low
          Minimum Temperature:  66.0 (F)
          Maximum Temperature:  92.0 (F)
            Absolute Humidity:   75. grains/lb
             Nominal Fuel RVP:   9.0 psi
                Weathered RVP:   8.6 psi
          Fuel Sulfur Content:   30. ppm

          Exhaust I/M Program:  No
             Evap I/M Program:  No
                 ATP Program:  No
             Reformulated Gas:  No

     Vehicle Type:     LDGV    LDGT12    LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV       MC   All
Veh
          GVWR:            <6000     >6000     (All)
                 ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3728    0.3705    0.1273           0.0359    0.0004    0.0019    0.0857    0.0055
1.0000
 ---------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :     1.040     1.006     1.657     1.173     1.469    0.343     0.659     0.586      2.88     1.092
    Composite NOX :     0.733     0.890     1.283     0.990     2.574    0.626     0.858     7.648      0.99     1.521
 ---------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 - RURAL LOCAL
* File 1, Run 1, Scenario 6.
* # # # # # # # # # # # # # # # # # # # # # # # # #

* Reading Hourly Roadway VMT distribution from the following external
* data file: YKFVMT.DEF

 Reading User Supplied ROADWAY VMT Factors
 M 48 Warning:
          there are no sales for vehicle class HDGV8b
```

Calendar Year: 2008
Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

| Vehicle Type: | LDGV | LDGT12 | LDGT34 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| GVWR: | <6000 | >6000 | (All) | | | | | | | |
| VMT Distribution: | 0.3728 | 0.3705 | 0.1273 | | 0.0359 | 0.0004 | 0.0019 | 0.0857 | 0.0055 | 1.0000 |

Composite Emission Factors (g/mi):

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Composite VOC : | 1.393 | 1.305 | 2.126 | 1.515 | 2.292 | 0.443 | 0.857 | 0.837 | 3.55 | 1.449 |
| Composite NOX : | 0.676 | 0.815 | 1.182 | 0.909 | 2.371 | 0.763 | 1.047 | 8.676 | 0.91 | 1.540 |

* # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 - URBAN INTERSTATE
* File 1, Run 1, Scenario 7.
* # # # # # # # # # # # # # # # # # # # # # # # # #

M582 Warning:
The user supplied freeway average speed of 60.3
will be used for all hours of the day. 100% of VMT
has been assigned to a fixed combination of freeways
and freeway ramps for all hours of the day and all
vehicle types.

M 48 Warning:
there are no sales for vehicle class HDGV8b

Calendar Year: 2008

Month: July
Altitude: Low
Minimum Temperature: 66.0 (F)
Maximum Temperature: 92.0 (F)
Absolute Humidity: 75. grains/lb
Nominal Fuel RVP: 9.0 psi
Weathered RVP: 8.6 psi
Fuel Sulfur Content: 30. ppm

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

| Vehicle Type: | LDGV | LDGT12 | LDGT34 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| GVWR: | <6000 | >6000 | (All) | | | | | | | |
| VMT Distribution: | 0.3728 | 0.3705 | 0.1273 | | 0.0359 | 0.0004 | 0.0019 | 0.0857 | 0.0055 | 1.0000 |

Composite Emission Factors (g/mi):

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Composite VOC : | 0.743 | 0.761 | 1.225 | 0.880 | 0.804 | 0.227 | 0.429 | 0.294 | 2.86 | 0.786 |
| Composite NOX : | 0.706 | 0.900 | 1.280 | 0.997 | 3.466 | 1.042 | 1.431 | 13.539 | 1.60 | 2.056 |

* # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 - URBAN FREEWAY-EXPRESSWAY
* File 1, Run 1, Scenario 8.
* # # # # # # # # # # # # # # # # # # # # # # # # #

M582 Warning:
The user supplied freeway average speed of 39.2
will be used for all hours of the day. 100% of VMT
has been assigned to a fixed combination of freeways
and freeway ramps for all hours of the day and all
vehicle types.

M 48 Warning:
there are no sales for vehicle class HDGV8b

Calendar Year: 2008
Month: July

```
                Altitude:  Low
        Minimum Temperature:  66.0 (F)
        Maximum Temperature:  92.0 (F)
         Absolute Humidity:   75. grains/lb
          Nominal Fuel RVP:   9.0 psi
            Weathered RVP:   8.6 psi
        Fuel Sulfur Content:   30. ppm

        Exhaust I/M Program:  No
          Evap I/M Program:  No
              ATP Program:  No
          Reformulated Gas:  No

    Vehicle Type:     LDGV    LDGT12    LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV      MC   All
Veh
         GVWR:            <6000     >6000     (All)
                ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3728    0.3705    0.1273           0.0359    0.0004    0.0019    0.0857    0.0055
1.0000
 ---------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
   Composite VOC :     0.846     0.847     1.384     0.984     0.964    0.253     0.481     0.360     2.40     0.885
   Composite NOX :     0.663     0.833     1.205     0.928     2.958    0.581     0.795     7.921     1.16     1.502
 ---------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 - URBAN PRINCIPAL ARTERIAL
* File 1, Run 1, Scenario 9.
* # # # # # # # # # # # # # # # # # # # # # # # # # #
 M583 Warning:
        The user supplied arterial average speed of 32.6
        will be used for all hours of the day.  100% of VMT
        has been assigned to the arterial/collector roadway
        type for all hours of the day and all vehicle types.
 M 48 Warning:
         there are no sales for vehicle class HDGV8b

             Calendar Year:  2008
                   Month:  July
                Altitude:  Low
        Minimum Temperature:  66.0 (F)
```

```
          Maximum Temperature:  92.0 (F)
           Absolute Humidity:   75. grains/lb
            Nominal Fuel RVP:   9.0 psi
              Weathered RVP:   8.6 psi
          Fuel Sulfur Content:   30. ppm

          Exhaust I/M Program:  No
            Evap I/M Program:  No
                ATP Program:  No
            Reformulated Gas:  No

     Vehicle Type:     LDGV    LDGT12    LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV       MC   All
Veh
          GVWR:            <6000     >6000     (All)
                ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3728    0.3705    0.1273           0.0359    0.0004    0.0019    0.0857    0.0055
1.0000
 ---------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :     0.891     0.880     1.444     1.025     1.088    0.277     0.529     0.420      2.53     0.932
    Composite NOX :     0.658     0.820     1.189     0.914     2.813    0.571     0.782     6.973      1.11     1.407
 ---------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 - URBAN MINOR ARTERIAL
* File 1, Run 1, Scenario 10.
* # # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
         The user supplied arterial average speed of 31.8
         will be used for all hours of the day.  100% of VMT
         has been assigned to the arterial/collector roadway
         type for all hours of the day and all vehicle types.
  M 48 Warning:
          there are no sales for vehicle class HDGV8b

              Calendar Year:  2008
                     Month:  July
                  Altitude:  Low
          Minimum Temperature:  66.0 (F)
          Maximum Temperature:  92.0 (F)
           Absolute Humidity:   75. grains/lb
```

```
          Nominal Fuel RVP:   9.0 psi
            Weathered RVP:   8.6 psi
       Fuel Sulfur Content:   30. ppm

       Exhaust I/M Program:  No
         Evap I/M Program:  No
             ATP Program:  No
         Reformulated Gas:  No

    Vehicle Type:     LDGV    LDGT12    LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV       MC   All
Veh
         GVWR:            <6000     >6000     (All)
                ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3728    0.3705    0.1273           0.0359    0.0004    0.0019    0.0857    0.0055
1.0000
 ---------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
   Composite VOC :     0.899     0.887     1.456     1.033     1.106    0.281     0.536     0.429     2.55     0.941
   Composite NOX :     0.661     0.822     1.192     0.917     2.795    0.571     0.783     6.983     1.11     1.409
 ---------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 - URBAN COLLECTOR
* File 1, Run 1, Scenario 11.
* # # # # # # # # # # # # # # # # # # # # # # # # # #
 M583 Warning:
        The user supplied arterial average speed of 23.3
        will be used for all hours of the day.  100% of VMT
        has been assigned to the arterial/collector roadway
        type for all hours of the day and all vehicle types.
 M 48 Warning:
         there are no sales for vehicle class HDGV8b

             Calendar Year:  2008
                   Month:  July
               Altitude:  Low
       Minimum Temperature:  66.0 (F)
       Maximum Temperature:  92.0 (F)
         Absolute Humidity:   75. grains/lb
          Nominal Fuel RVP:   9.0 psi
            Weathered RVP:   8.6 psi
```

```
          Fuel Sulfur Content:   30. ppm

          Exhaust I/M Program:  No
            Evap I/M Program:  No
                ATP Program:  No
            Reformulated Gas:  No

     Vehicle Type:     LDGV    LDGT12    LDGT34     LDGT     HDGV     LDDV     LDDT     HDDV       MC   All
Veh
           GVWR:            <6000     >6000     (All)
                 ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3728    0.3705    0.1273           0.0359    0.0004    0.0019    0.0857    0.0055
1.0000
 ---------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :     1.011     0.981     1.614     1.143     1.395    0.331     0.636     0.556     2.82     1.060
    Composite NOX :     0.718     0.875     1.264     0.975     2.607    0.612     0.839     7.478     1.01     1.495
 ---------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # # #
* YORK COUNTY 2008 - URBAN LOCAL
* File 1, Run 1, Scenario 12.
* # # # # # # # # # # # # # # # # # # # # # # # # # #

* Reading Hourly Roadway VMT distribution from the following external
* data file: YKFVMT.DEF

 Reading User Supplied ROADWAY VMT Factors
 M 48 Warning:
          there are no sales for vehicle class HDGV8b

              Calendar Year:  2008
                     Month:  July
                  Altitude:  Low
          Minimum Temperature:  66.0 (F)
          Maximum Temperature:  92.0 (F)
            Absolute Humidity:   75. grains/lb
             Nominal Fuel RVP:   9.0 psi
                Weathered RVP:   8.6 psi
          Fuel Sulfur Content:   30. ppm
```

Exhaust I/M Program: No
Evap I/M Program: No
ATP Program: No
Reformulated Gas: No

| Vehicle Type: | LDGV | LDGT12 | LDGT34 | LDGT | HDGV | LDDV | LDDT | HDDV | MC | All Veh |
|---|---|---|---|---|---|---|---|---|---|---|
| GVWR: | <6000 | >6000 | (All) | | | | | | | |
| VMT Distribution: | 0.3728 | 0.3705 | 0.1273 | | 0.0359 | 0.0004 | 0.0019 | 0.0857 | 0.0055 | 1.0000 |

Composite Emission Factors (g/mi):

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Composite VOC : | 1.393 | 1.305 | 2.126 | 1.515 | 2.292 | 0.443 | 0.857 | 0.837 | 3.55 | 1.449 |
| Composite NOX : | 0.676 | 0.815 | 1.182 | 0.909 | 2.371 | 0.763 | 1.047 | 8.676 | 0.91 | 1.540 |