

**ITEM 13 – Information**  
November 16, 2005

Briefing on the Fine Particles (PM2.5) Conformity Analysis for  
The 2005 CLRP and FY 2006-2011 TIP

**Staff**

**Recommendation:** Receive briefing on the draft results of the PM2.5 air quality conformity assessment for the 2005 CLRP and the FY 2006-2011 TIP

**Issues:** None

**Background:** At the July 20 meeting, the Board approved the scope of work for conducting the PM2.5 conformity analysis for the 2005 CLRP and FY 2006-2011 TIP. At the October 19 meeting, the Board received a briefing on the progress to date on this analysis.

These results are scheduled to be released for public comment at the November 16 TPB meeting. The Board will be asked to approve this analysis at the December 21 TPB meeting.

# **National Capital Region Transportation Planning Board**

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## **Memorandum**

November 16, 2005

To: Transportation Planning Board

From: Michael J. Clifford  
Systems Planning Applications Director

Subject: Draft Results of the Fine Particles Standards (PM2.5) Air Quality Conformity Assessment of the 2005 Constrained Long Range Plan (CLRP) and the FY2006-2011 Transportation Improvement Program (TIP)

## **Introduction**

This memo transmits draft summary results of the fine particles (PM2.5) air quality conformity assessment of the 2005 CLRP and the FY2006-2011 TIP (full report is attached). While the CLRP and TIP were subject to an air quality conformity assessment which was approved by the TPB on October 19, 2005, that assessment reflected requirements associated with the 8-hour ozone and Wintertime carbon monoxide standards. On December 17, 2004 EPA designated the Washington, DC-MD-VA area as nonattainment for the PM2.5 standards. On April 5, 2005 EPA published the final set of rules for transportation conformity associated with the new standards (complementing an initial set of conformity rule amendments published on July 1, 2004). EPA requirements include that the TPB demonstrate conformity to the new rule by April 5, 2006 or face a conformity lapse, i.e., limitations on transportation projects which may proceed toward implementation. These additional requirements, which became effective while the 8-hour conformity assessment was in progress, led to this supplemental air quality analysis of the plan and program.

## **Methods**

The scope of work for this analysis, approved by the TPB at its July 20, 2005 meeting, identified methods to address the new PM2.5 requirements which are consistent with the 8-hour air quality assessment. Work tasks utilize the latest models and methods, i.e., COG's Round 7.0 Cooperative Forecasts, TPB's Version 2.1D #50 travel demand model, and EPA's Mobile6.2 emissions factor model.

Conformity assessment criteria for the PM2.5 standards provided in EPA's July 1, 2004 transportation conformity rule amendments include a demonstration that PM2.5 emissions (including both direct PM2.5 and NOx precursors) for each analysis year of the CLRP and TIP are not greater than base year 2002 emissions. EPA has provided these criteria for use during an interim period which will continue only until state air quality implementation plan (SIP) activities determine emissions reduction requirements to attain the fine particles standards, and establish new mobile emissions budgets for inclusion in the air quality plans for meeting the standards.

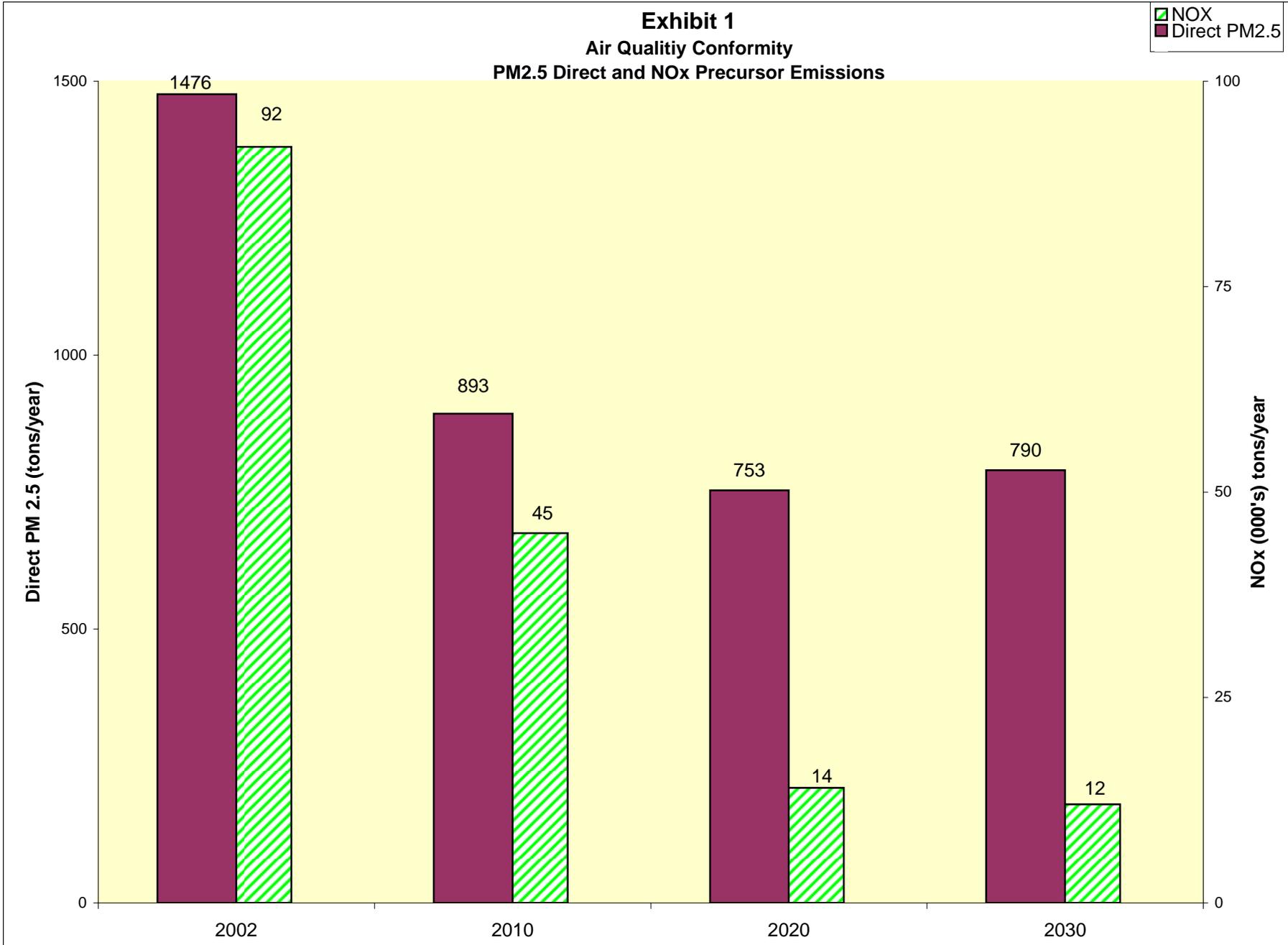
## **Results**

The PM2.5 conformity assessment includes the estimation of direct PM2.5 and NOx precursor emissions for the 2002, 2010, 2020 and 2030 analysis years. The following exhibit presents these emissions for each milestone year. The exhibit shows that mobile emissions are well below the 2002 base year levels for each pollutant. Therefore, the analytical results described in this air quality assessment provide a basis for a determination by the TPB of conformity of the 2005 CLRP and the FY2006-2011 TIP with respect to fine particle standards.

## **Next Steps**

These results are provided for release today for 30 day public comment and interagency consultation. Following receipt of and response to comments, TPB approval action is scheduled for December 21, 2005. This schedule has been established to provide federal agencies with sufficient time to conduct their review and approval process in advance of the conformity lapse deadline of April 5, 2006.

Following:   Exhibit  
                  Attached report



# **FINE PARTICLES (PM 2.5) STANDARDS AIR QUALITY CONFORMITY ASSESSMENT**

**Supplement to the Air Quality Conformity Assessment  
of the 2005 Constrained Long Range Plan Amendments and  
FY2006-2011 Transportation Improvement Program**

November 16, 2005

The preparation of this report was financially aided through grants from the District of Columbia Department of Transportation, the Maryland Department of Transportation, the Virginia Department of Rail & Public Transportation, the Virginia Department of Transportation, Federal Highway Administration, and the U.S. Department of Transportation, Federal Transit Administration, under the Urban Mass Transportation Act of 1964, as amended.

**NATIONAL CAPITAL REGION TRANSPORTATION PLANNING BOARD  
METROPOLITAN WASHINGTON COUNCIL OF GOVERNMENTS**

# TABLE OF CONTENTS

Introduction .....	1
Background .....	1
Work Activities .....	2
< Travel Modeling Process .....	2
< Emissions Factors .....	2
< Emissions Calculations .....	3
Emissions Analyses .....	3
Summary .....	3
Map of Non-Attainment Area .....	4
Exhibits .....	5
Attachments .....	A-E

# LIST OF EXHIBITS

	<u>Page</u>
PM 2.5 Nonattainment Area Map.....	4
1. Travel Demand Summary .....	5
2. 2002 & 2010 Inputs for Mobile6.2 PM2.5 Modeling: Seasonal .....	6
3. 2002 Emission Rates for Direct PM 2.5 (District of Columbia).....	7
4. Direct PM2.5 Emission Rates for District of Columbia .....	8
5. NOx precursor Mobile6.2 Running Emission Rates for DC (Spring Season) .....	9
6. 2002 Seasonal NOx Precursor Mobile6.2 Running Emission Rates for DC.....	10
7. Direct PM2.5 Emissions Summary Table .....	11
8. PM2.5 NOx Precursor Emissions Summary Table.....	12
9. PM2.5 Direct and NOx Precursor Emissions .....	13

# LIST OF ATTACHMENTS

A.	PM2.5 Conformity Scope of Work .....	A1-A8
B.	TPB-MWAQC Correspondence Relating to Analysis Methods .....	B1-B2
C.	Emissions Memo .....	C1-C8
D.	Transit & School Bus Memo .....	D1-D6
E..	Auto Access .....	E1-E12

## **I. INTRODUCTION**

This report documents the results of the fine particles (PM2.5) standards air quality conformity assessment of the 2005 Constrained Long Range Plan (CLRP) and the FY2006-2011 Transportation Improvement Program (TIP). This supplements the technical report, Air Quality Conformity Determination Of The 2005 Constrained Long Range Plan And The FY2006-2011 Transportation Improvement Program For The Washington Metropolitan Region (October 19, 2005), which addressed carbon monoxide and the 8-hour ozone standard. As assessment criteria for the fine particles standards include the analysis of the same milestone years previously analyzed for the ozone and carbon monoxide standards (2002, 2010, 2020 and 2030), travel demand technical methods and results developed in that earlier work are applied directly to this analysis. Major differences associated with the fine particles conformity assessment include estimation of direct PM2.5 emissions and NOx precursor emissions, for a revised nonattainment geography (see Figure 1), on a yearly, instead of daily, basis. Tasks for this supplemental analysis included: translation of the previously reported annual average weekday travel (AAWDT) estimates into average daily (ADT) values by season, estimation of environmental inputs and PM2.5 direct and NOx precursor emissions rate outputs for each season, the subsequent calculation of emissions for each season, and tabulation to yearly totals.

## **II. BACKGROUND**

On December 17, 2004 the Environmental Protection Agency (EPA) designated 224 counties, as well as the District of Columbia, that exceeded the health-based standards for fine particles (PM2.5) as nonattainment areas. PM2.5 standards refer to particulate matter less than or equal to 2.5 micrometers in diameter. The Washington, DC-MD-VA area (consisting of the Washington metropolitan statistical area, excluding Stafford County, Virginia, and Calvert County, Maryland) was designated nonattainment for PM2.5 (see map), and is required to attain clean air as soon as possible but no later than 2010.

As published in the January 5, 2005 Federal Register, these PM2.5 nonattainment designations became effective on April 5, 2005. Nonattainment areas are required by early 2008 to submit to EPA a state implementation plan (SIP) to define the expected methods for reducing the fine particulate matter level in the air and emissions of PM2.5 precursors. However, the new standards affect transportation conformity planning requirements immediately: areas have a 1 year grace period starting April 5, 2005 in which to demonstrate conformity of transportation plans and programs to the new standards. If a plan or TIP which conforms to the new standards is not in place (including both TPB and federal approvals) by April 5, 2006, the conformity status lapses.

Since EPA had not issued its necessary second set of PM2.5 transportation conformity regulations at the time of the TPB's annual plan / program update cycle, staff prepared a draft work scope for the air quality conformity assessment of the 2005 CLRP and FY2006-2011 TIP, to address only ozone season and winter carbon monoxide requirements. This scope was released for public comment in February and adopted by the TPB at its April 20, 2005 meeting. This timing required TPB staff to prepare a "supplemental" scope of work (Attachment A) for the PM2.5 component of the conformity assessment of the 2005 CLRP and FY2006 – 11 TIP. The TPB released that scope of work for public comment on June 15, 2005, and approved it along with response to comment at its July 20, 2005 meeting. This report documents the results of

performing those work activities and the air quality conformity findings.

### **III. WORK ACTIVITIES**

Technical work activities for the supplemental conformity assessment of the 2005 CLRP and FY2006-2011 TIP included the preparation of direct PM<sub>2.5</sub> and nitrogen oxide (NO<sub>x</sub>) precursor emissions inventories for the 2002, 2010, 2020, and 2030 analysis years. This involved use of the following technical inputs: Round 7.0 Cooperative Forecasts; the Version 2.1D Travel Demand Model utilizing this year's project submissions to the CLRP and TIP; EPA's Mobile6.2 Emissions Factor Model; and a refined Mobile Emissions Post-Processor using latest travel demand and mobile emissions planning assumptions. This report presents the results of the supplemental conformity analysis, as follows.

#### **Travel Modeling Process**

The travel demand estimation for AAWDT prepared in the ozone / carbon monoxide conformity assessment provided the starting point for this work. However, since estimates of annual travel and emissions are required for fine particles assessment, the application of seasonal travel adjustment factors was therefore required. Since seasonal travel totals have to include weekend travel as well as weekday travel, staff prepared adjustment factors to represent ADT occurring in each season of the year. The upper table in Exhibit 1 shows the AAWDT VMT estimates for the PM<sub>2.5</sub> nonattainment area for each of the analysis years; the lower table presents the seasonal adjustment factor necessary to develop ADT VMT for each season.

#### **Emissions Factors**

COG/TPB staff, in conjunction with COG Department of Environmental Programs staff and with the consultant assistance of E.H. Pechan and Associates, developed the PM<sub>2.5</sub> direct and NO<sub>x</sub> precursor motor vehicle emissions factors through the use of EPA's Mobile6.2 emissions factor model. The development of these factors involved interaction with MWAQC's Technical Advisory Committee and its Emissions Inventory Work Group, in a series of meetings and conference calls over the August to October time period, to finalize the emissions factor modeling approach and to develop the necessary environmental inputs to EPA's Mobile6.2 emissions factor model. The basic approach, which initially considered application of hourly inputs of temperature and humidity, involved the use of seasonal average daily minimum / maximum temperatures and associated default humidity values.

Similarly, data periods of analysis under consideration included annual, seasonal and monthly. After a lengthy effort involving tests of different levels of aggregation, including task orders to TPB's consultant to modify the existing software which provides an interface between the Mobile model and TPB's emissions calculation software, it was finally decided to conduct the emissions factor analysis on a seasonal basis, consistent with the travel demand approach. Environmental data inputs to the modeling process are shown in Exhibit 2 for the 2002 and 2010 analysis years.

Exhibit 3 presents Mobile model output emissions rates for direct PM<sub>2.5</sub>, using District of Columbia data as an illustration. This table shows the component pollutants and rates, as well as

the total PM2.5 rates for 2002. Exhibit 4 shows how direct PM2.5 rates vary through time, as well as by season of the year. While Winter rates are noticeably higher than the other seasons, the rates show a significant decrease through time, primarily due to the impacts of having cleaner vehicles in the fleet. These gram / mile rates are shown in a bar chart, unlike the familiar line graphs seen with NOx, since they do not vary by vehicle speed.

Exhibit 5 shows NOx precursor rates through time; these steep reductions in emissions rates in the future are similar to the trends seen with direct PM2.5 and in previous analyses of NOx as a precursor pollutant to ozone. Exhibit 6 shows NOx precursor rates by season, which exhibit similar characteristics to direct PM2.5, i.e., higher Winter season rates.

### **Emissions Calculations**

Emissions calculations are performed in a software package called the emissions ‘postprocessor’, which was modified by TPB staff to accommodate the new PM2.5 pollutants and geography, utilizing the seasonal approach. Once travel demand and emissions factors were developed they were applied in the emissions postprocessor to yield the direct PM2.5 emissions and precursor emissions, shown in Exhibits 7 and 8, respectively. Arrayed to show values by travel component, by season, through time and yearly totals, the tables indicate dramatic reductions through time in each component of travel. Emissions are also seen to vary by season, according to VMT changes and emissions factor changes occurring throughout the year. Documentation of the emissions calculations for each of these travel components is contained in Attachments C – E.

## **IV. EMISSIONS ANALYSES**

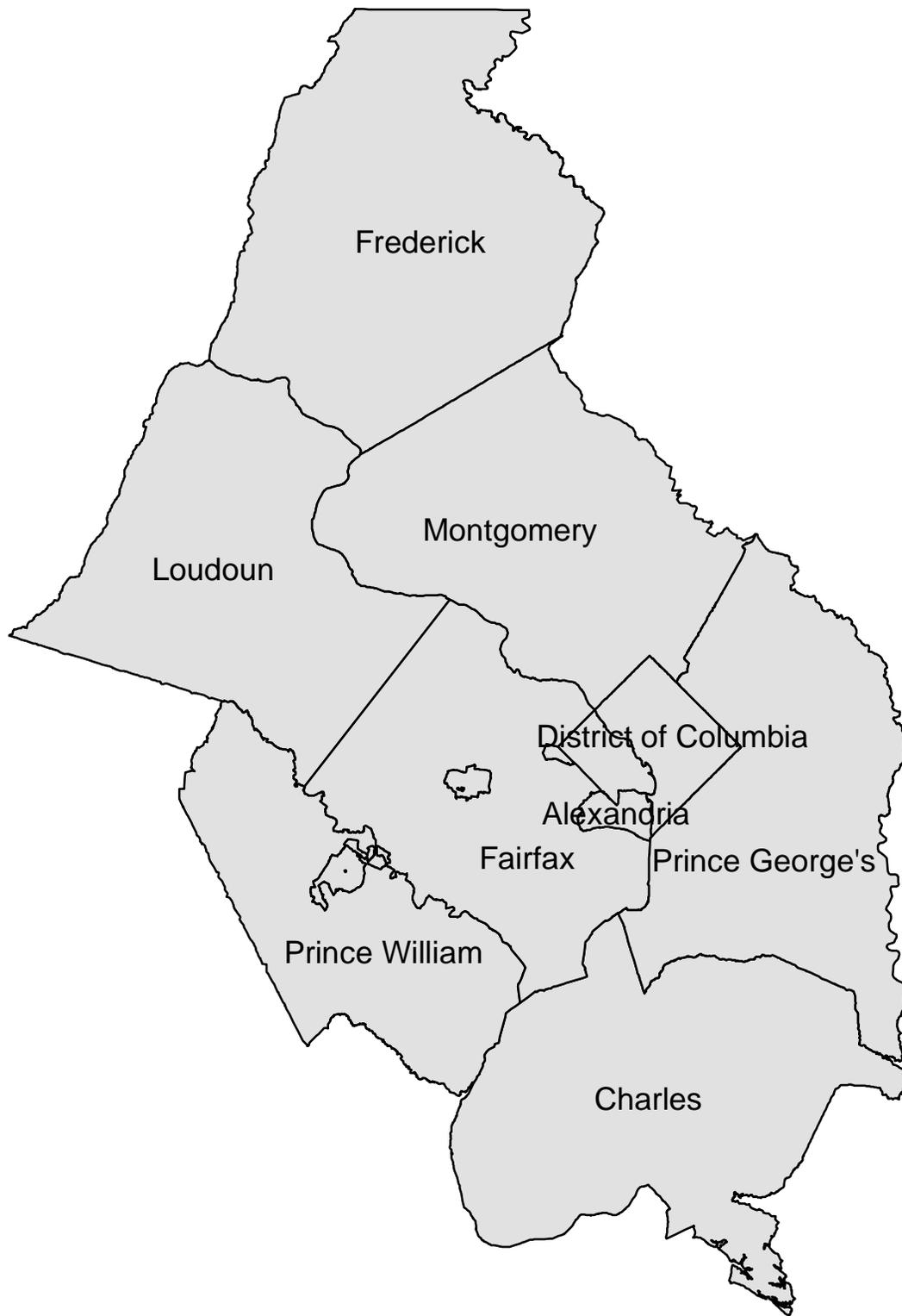
As there are no mobile source emissions budgets for fine particles at this point, the relevant emissions test is that direct PM2.5 and NOx precursor emissions in each plan and program action scenario (forecast year) are not greater than base year 2002 emissions. As shown in the Exhibits 7 and 8 summary tables and graphically in Exhibit 9, this criterion is met handily for each analysis year.

## **V. SUMMARY**

This report documents the technical methods and results of plan and program conformity analysis with respect to the fine particles standards. The analytical results described in this air quality assessment provide a basis for a determination by the TPB of conformity of the 2005 CLRP and the FY2006-2011 TIP, with the July 2004 and May 2005 transportation conformity regulations, and all other requirements of the Clean Air Act Amendments of 1990.

Following:   Map  
                  Exhibits 1-9  
                  Attachments A-E

# Washington DC-Maryland-Virginia PM 2.5 Nonattainment Area



## EXHIBIT 1

### Travel Demand Summary PM2.5 NonAttainment Modeled Area AAWDT Vehicle Miles Traveled (millions)

	<u>2002</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>
<b>VMT</b>	107.5	121.0	136.6	147.5

### Adjustment Factors to Convert AAWDT to ADT By Season

<b>Season</b>	<b>Factor</b>
Winter (Dec- Feb)	0.901
Spring (March-May)	0.957
Summer (June-Aug)	0.998
Fall (Sept-Nov)	0.945

## EXHIBIT 2

### 2002 Inputs for Mobile 6.2 Particulate Matter 2.5 Modeling: Seasonal

Fuel program: 4\*

						Sulfur				Oxy. Fuel	
Season	Months	Temperature (°F)		RVP (psi)		Gasoline (ppm)	Diesel (ppm)			Ether. %	Ethanol %
		Min	Max	Regional	Humidity	Regional	DC	MD	Va		
Winter	Dec										
	Jan	27.2	44.1	12.9	Default	279-1000	324	302	330	1.5	3.5
	Feb										
Spring	Mar										
	Apr	45.7	66.1	6.7	Default	129-1000	326	308	344	2.1	N/A
	May										
Summer	Jun										
	Jul	66.7	84.7	6.7	Default	129-1000	329	315	357	2.1	N/A
	Aug										
Fall	Sep										
	Oct	49.5	67.5	12.9	Default	279-1000	326	308	344	1.5	3.5
	Nov										

### 2010 Inputs for Mobile 6.2 Particulate Matter 2.5 Modeling: Seasonal

Fuel Program:4\*

						Sulfur		Oxy. Fuel	
Season	Months	Temperature (°F)		RVP (psi)		Diesel (ppm)	Gasoline (ppm)	Ether. %	Ethanol %
		Min	Max	Regional	Humidity	Regional	Regional		
Winter	Dec								
	Jan	27.2	44.1	12.9	Default	43 ppm	30-80	1.5	3.5
	Feb								
Spring	Mar								
	Apr	45.7	66.1	6.8	Default	43 ppm	30-80	2.1	N/A
	May								
Summer	Jun								
	Jul	66.7	84.7	6.8	Default	11 ppm	30-80	2.1	N/A
	Aug								
Fall	Sep								
	Oct	49.5	67.5	12.9	Default	11 ppm	30-80	1.5	3.5
	Nov								

Temperature values from DEP summarized at National and Dulles Airports

Gasoline Sulfur from EPA guidance

Diesel Sulfur from EPA guidance

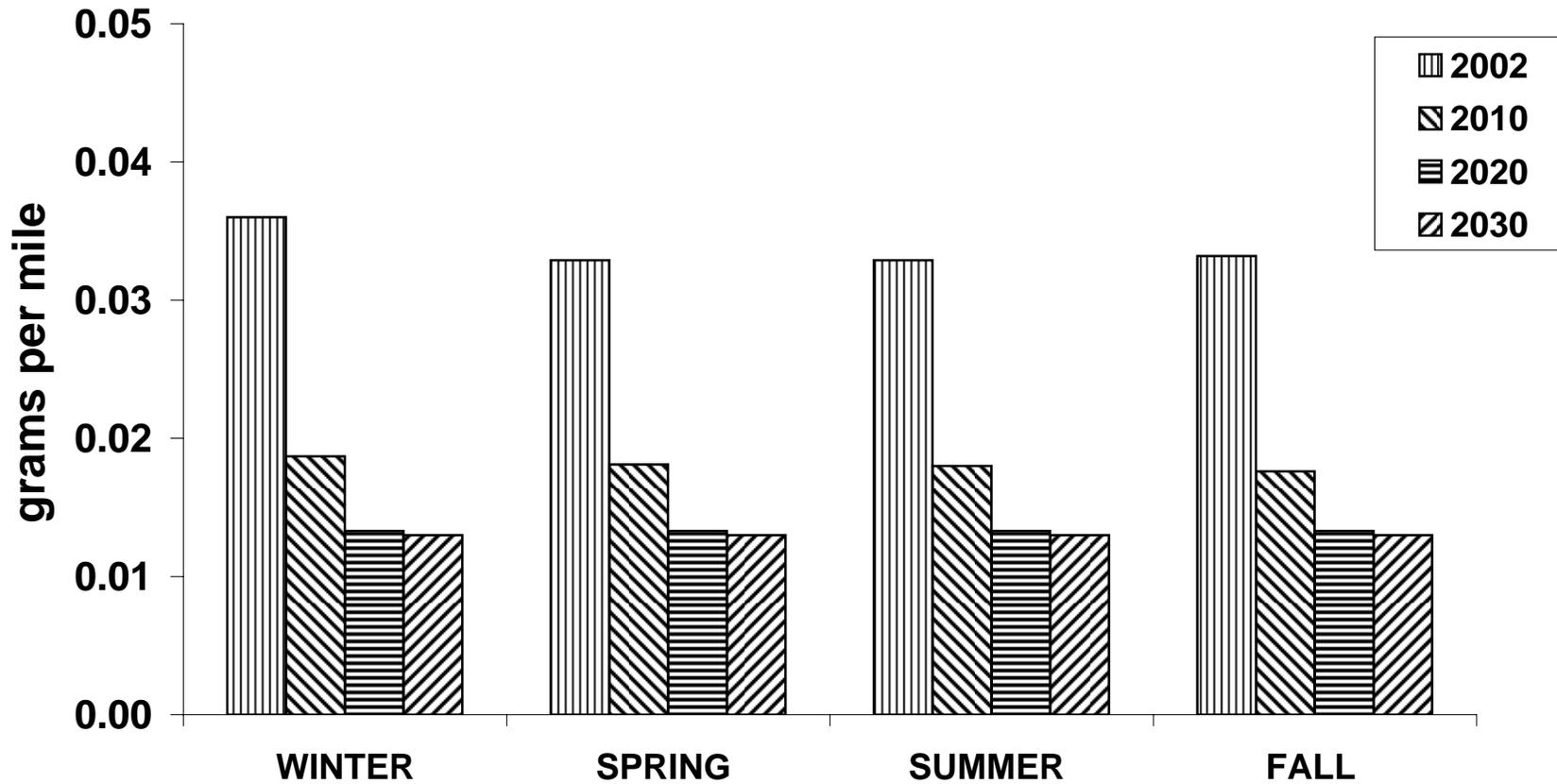
\* Fuel program '4' is used due to Mobile6.2 program bug identified with use of fuel program '2S'

### EXHIBIT 3

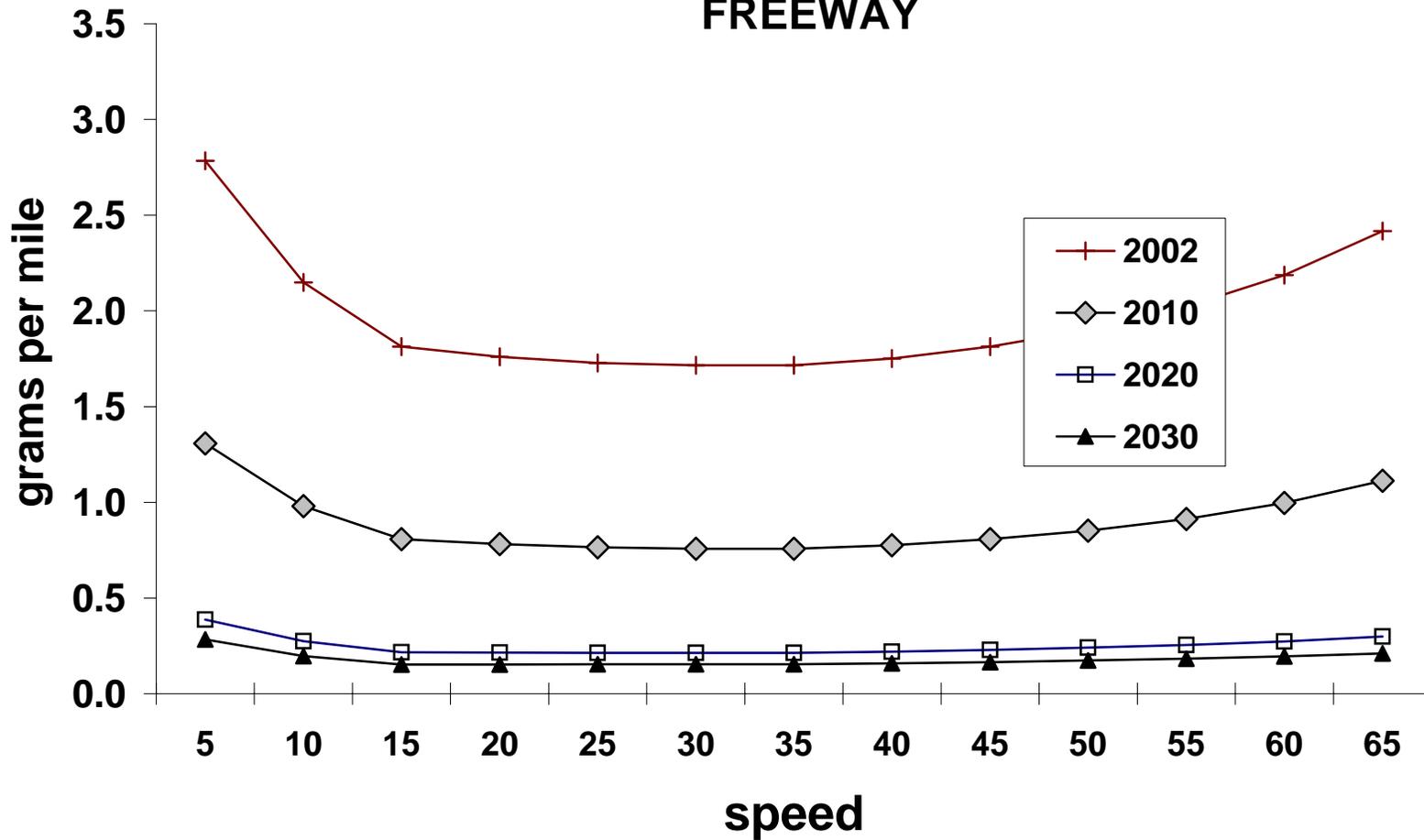
## 2002 Emission Rates for Direct PM for the District of Columbia

Components of PM25	gm/mile
Lead:	0.0000
GASPM:	0.0054
ECARBON:	0.0120
OCARBON:	0.0060
SO4:	0.0050
<b>Total Exhaust PM:</b>	<b>0.0284</b>
Brake:	0.0053
Tire:	0.0023
<b>Total PM:</b>	<b>0.0360</b>

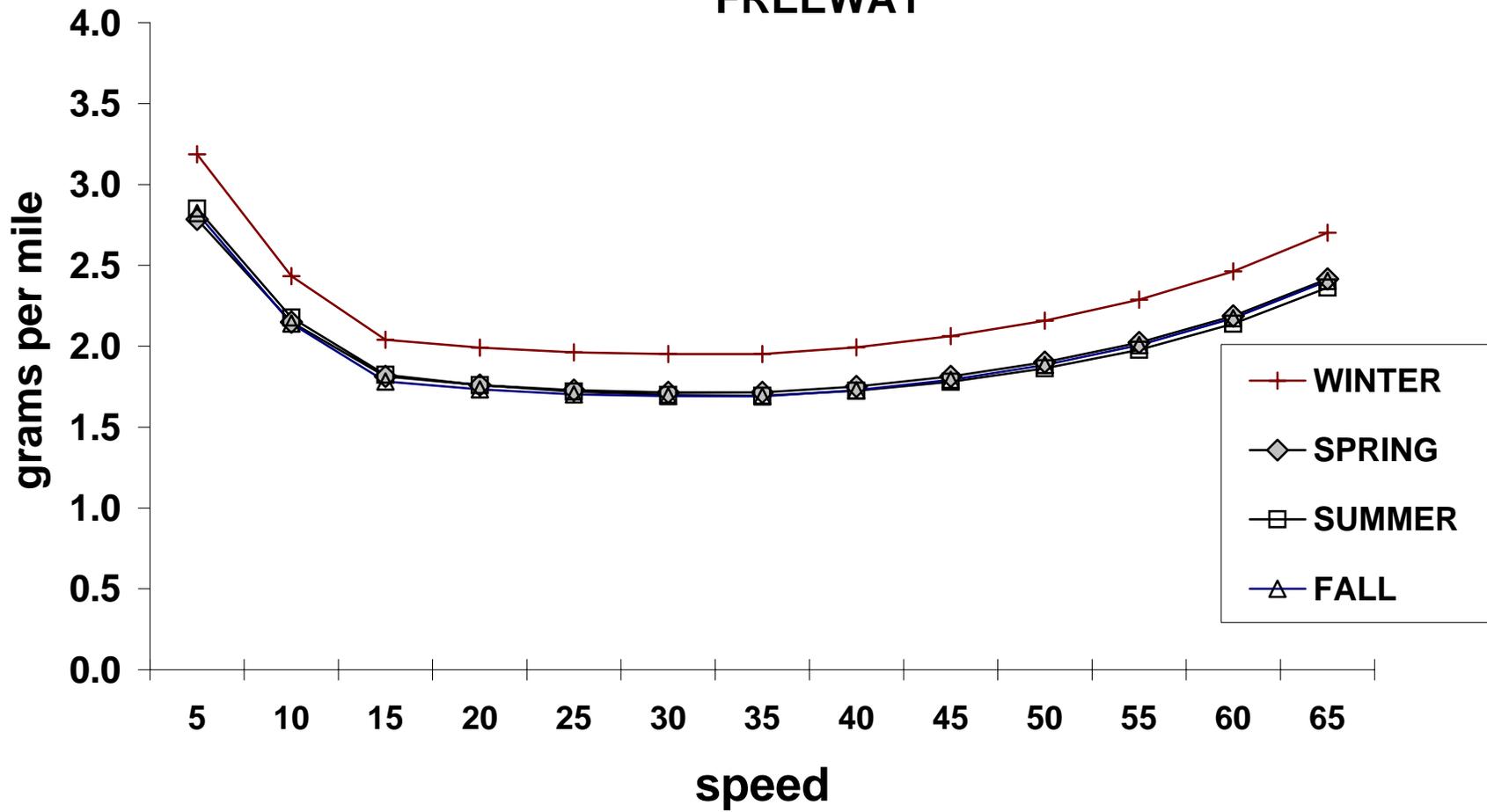
**Exhibit 4**  
**DIRECT PM2.5 EMISSION RATES FOR DISTRICT OF COLUMBIA**  
**(MAJOR ROADS NETWORK)**



**Exhibit 5**  
**NO<sub>x</sub> PRECURSOR MOBILE6.2 RUNNING EMISSION RATES FOR**  
**DISTRICT OF COLUMBIA (SPRING SEASON)**  
**FREEWAY**



**Exhibit 6**  
**2002 SEASONAL NO<sub>x</sub> PRECURSOR MOBILE6.2 RUNNING EMISSION**  
**RATES FOR DISTRICT OF COLUMBIA**  
**FREEWAY**



**EXHIBIT 7**  
**AIR QUALITY CONFORMITY SUMMARY TABLE**

**Direct PM2.5 Emissions**  
**Mobile Source Emissions Inventories**  
**for 2005 CLRP and FY 2006-2011 TIP**  
**(Tons)**

	Direct PM2.5				
	2002	2010	2020	2030	
<b>WINTER</b>	Major Roads	3.93	2.30	1.83	1.91
	Local Roads	0.17	0.12	0.12	0.13
	School Buses	0.17	0.03	0.02	0.01
	Transit Buses	0.25	0.04	0.02	0.01
	Auto Access	0.01	0.01	0.01	0.01
	Total (Daily)	4.54	2.50	2.00	2.08
	<b>WINTER SEASON TOTAL ( 90 Days)</b>	369.84	218.38	176.82	184.99

	Direct PM2.5				
	2002	2010	2020	2030	
<b>SPRING</b>	Major Roads	3.84	2.37	1.93	2.03
	Local Roads	0.17	0.13	0.13	0.14
	School Buses	0.16	0.03	0.02	0.01
	Transit Buses	0.24	0.04	0.02	0.01
	Auto Access	0.01	0.01	0.01	0.01
	Total (Daily)	4.43	2.58	2.11	2.21
	<b>SPRING SEASON TOTAL (92 Days)</b>	354.33	230.34	190.64	200.18

	Direct PM2.5				
	2002	2010	2020	2030	
<b>SUMMER</b>	Major Roads	4.02	2.45	2.01	2.11
	Local Roads	0.17	0.13	0.14	0.15
	School Buses	0.16	0.03	0.02	0.01
	Transit Buses	0.25	0.04	0.02	0.01
	Auto Access	0.01	0.01	0.01	0.01
	Total (Daily)	4.61	2.66	2.20	2.30
	<b>SUMMER SEASON TOTAL (92 Days)</b>	386.01	226.26	198.94	209.05

	Direct Pm2.5				
	2002	2010	2020	2030	
<b>FALL</b>	Major Roads	3.84	2.27	1.91	2.00
	Local Roads	0.17	0.13	0.13	0.14
	School Buses	0.14	0.03	0.02	0.01
	Transit Buses	0.22	0.04	0.02	0.01
	Auto Access	0.01	0.01	0.01	0.01
	Total (Daily)	4.39	2.47	2.09	2.18
	<b>FALL SEASON TOTAL (91 Days)</b>	365.46	218.45	186.81	195.35

<b>ANNUAL TOTAL</b>	1,475.64	893.44	753.21	789.58
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**EXHIBIT 8**  
**AIR QUALITY CONFORMITY SUMMARY TABLE**  
**PM2.5 NOx Precusor Emissions**  
**Mobile Source Emissions Inventories**  
**for 2005 CLRP and FY 2006-2011 TIP**  
**(Tons)**

	NOx				
	2002	2010	2020	2030	
<b>WINTER</b>	Major Roads-Starts	18.09	11.07	3.56	2.76
	Major Roads-VMT	223.72	107.47	35.14	26.75
	Local Roads	11.06	5.69	2.44	2.06
	School Buses	5.63	3.61	0.69	0.27
	Transit Buses	6.30	4.05	0.96	0.25
	Auto Access	1.94	0.91	0.42	0.37
	Total (Daily)	252.87	132.80	43.21	32.46
	<b>WINTER SEASON TOTAL ( 90 Days)</b>	<b>23,777.17</b>	<b>11,783.50</b>	<b>3,855.77</b>	<b>2,903.08</b>

	NOx				
	2002	2010	2020	2030	
<b>SPRING</b>	Major Roads-Starts	15.34	10.06	3.31	2.62
	Major Roads-VMT	209.27	101.03	33.98	26.43
	Local Roads	9.82	5.25	2.33	2.02
	School Buses	5.56	3.43	0.66	0.27
	Transit Buses	6.24	3.90	0.93	0.25
	Auto Access	1.65	0.82	0.40	0.35
	Total (Daily)	247.88	124.48	41.60	31.95
	<b>SPRING SEASON TOTAL ( 92 Days)</b>	<b>22,572.65</b>	<b>11,314.30</b>	<b>2,795.26</b>	<b>2,919.89</b>

	NOx				
	2002	2010	2020	2030	
<b>SUMMER</b>	Major Roads-Starts	13.85	9.25	3.05	2.41
	Major Roads-VMT	214.72	103.20	34.86	27.26
	Local Roads	10.38	5.48	2.49	2.19
	School Buses	5.56	3.43	0.67	0.27
	Transit Buses	6.24	3.90	0.93	0.25
	Auto Access	1.61	0.81	0.39	0.35
	Total (Daily)	252.37	126.06	42.39	32.74
	<b>SUMMER SEASON TOTAL ( 92 Days)</b>	<b>22,886.88</b>	<b>11,398.30</b>	<b>3,854.73</b>	<b>2,987.88</b>

	NOx				
	2002	2010	2020	2030	
<b>FALL</b>	Major Roads-Starts	15.93	9.33	3.10	2.54
	Major Roads-VMT	208.43	91.87	32.43	25.57
	Local Roads	10.27	4.85	2.21	1.96
	School Buses	5.48	3.16	0.56	0.27
	Transit Buses	6.02	3.66	0.86	0.25
	Auto Access	1.75	0.76	0.37	0.34
	Total (Daily)	247.88	113.62	39.54	30.94
	<b>FALL SEASON TOTAL ( 91 Days)</b>	<b>22,330.66</b>	<b>10,215.00</b>	<b>3,570.89</b>	<b>2,796.39</b>

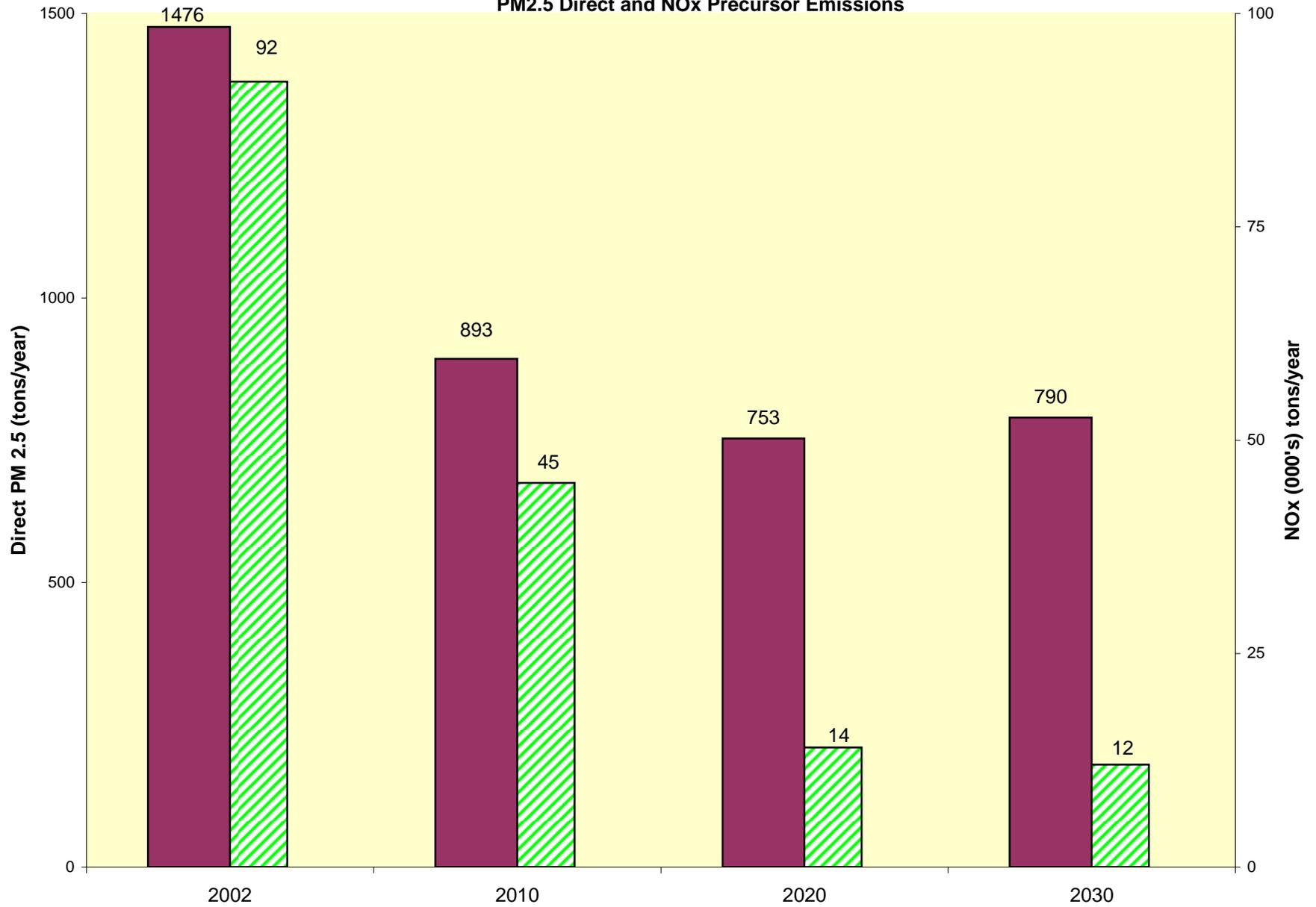
<b>ANNUAL TOTAL</b>	91,567.36	44,711.10	14,076.65	11,607.24
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### Exhibit 9

#### Air Quality Conformity

#### PM2.5 Direct and NOx Precursor Emissions

NOx  
Direct PM2.5



# **ATTACHMENT A**

**FINE PARTICLES (PM2.5) STANDARDS  
AIR QUALITY CONFORMITY ASSESSMENT**

**SCOPE OF WORK**

**Supplement to the Air Quality Conformity Assessment  
of the 2005 Constrained Long Range Plan Amendments and  
FY2006-2011 Transportation Improvement Program**

**I. INTRODUCTION**

On December 17, 2004 the Environmental Protection Agency (EPA) designated 224 counties, as well as the District of Columbia, that exceeded the health-based standards for fine particles (PM2.5) as nonattainment areas. PM2.5 standards refer to particulate matter less than or equal to 2.5 micrometers in diameter. The Washington, DC-MD-VA area (consisting of the Washington metropolitan statistical area, excluding Stafford County, Virginia, and Calvert County, Maryland) was designated nonattainment for PM2.5 and is required to attain clean air as soon as possible but no later than 2010.

As published in the January 5, 2005 Federal Register, these PM2.5 nonattainment designations became effective on April 5, 2005. Nonattainment areas are required by early 2008 to submit to EPA a state implementation plan (SIP) to define the expected methods for reducing the fine particulate matter level in the air and emissions of PM2.5 precursors. However, the new standards affect transportation conformity planning requirements immediately: areas have a one year grace period starting April 5, 2005 in which to demonstrate conformity of transportation plans and programs to the new standards. If a plan and TIP which conform to the new standards are not in place (including both TPB and federal approvals) by April 6, 2006, the conformity status lapses.

This scope of work presents an outline of the work tasks, including preparation of both direct particles and precursors, to address the conformity requirements of the fine particles standards. It supplements the ongoing TPB work activities directed at the 8-hour ozone and Winter carbon monoxide (CO) standards, to ensure that all requirements are addressed in performing the Air Quality Conformity Assessment of the 2005 CLRP and FY2006-2011 TIP.

## **II. REQUIREMENTS AND APPROACH**

### **A. Criteria (See Exhibit 1)**

As described in the 1990 Clean Air Act Amendments, conformity is demonstrated if transportation plans and programs:

1. Are consistent with most recent estimates of mobile source emissions,
2. Provide expeditious implementation of TCMs, and
3. Contribute to annual emissions reductions.

### **B. Approach**

1. Analytical: The analytical approach outlined here supplements the current conformity assessment efforts underway to analyze the 2005 CLRP and FY2006-2011 TIP with respect to 8-hour ozone and Winter CO standards. Specifically, travel demand estimates for each analysis year being prepared as part of that work will be utilized in conjunction with the development and application of PM2.5 emissions rates to yield required PM2.5 emissions levels. (I.E. Round 7 Cooperative Forecasts, and all network inputs and technical methods approved by the TPB at its April 20, 2005 meeting, are therefore relevant to this PM2.5 analysis.) Emissions will be inventoried for yearly totals instead of on a daily basis.
2. Evaluation: Criteria and procedures for demonstrating conformity with respect to PM2.5 in the interim period before state implementation plans (SIPs) are filed differ from ozone or wintertime carbon monoxide assessments in that there are no existing budgets which can be applied. In a case such as this EPA provides two options for regional emissions analysis to be used until motor vehicle emissions budgets are established in the SIP. For both PM2.5 directly emitted particles and precursors, one of the following requirements must be met:

Option 1. “The emissions predicted in the “Action” scenario are not greater than the emissions predicted in the “Baseline” scenario, and this can be reasonably expected to be true in the periods between the analysis years; or

Option 2. The emissions predicted in the “Action” scenario are not greater than 2002 emissions.”

A SIP has not yet been prepared to inventory point, area and mobile categories to define the extent of the problem by source in the Washington area. However, since base year 2002 on-road mobile source direct and precursor PM2.5 emissions are necessary for the SIP, it is recommended that option 2, reductions from the base 2002 inventory, be utilized as the relevant regional emissions test for conformity. The MOBILE6.2 model will be used to generate emissions factors for PM2.5 direct particles and NOx precursors.

### **III. CONSULTATION**

1. Execute TPB consultation procedures as outlined in the consultation procedures report adopted by the TPB on May 20, 1998.
2. Participate in meetings of MWAQC, its Technical Advisory Committee and its Conformity Subcommittee to discuss the scope of work activities, TERM development process, and other elements as needed; discuss at TPB meetings or forums, as needed, the following milestones:
  - Project solicitation
  - Scope of work
  - TERM proposals
  - Project submissions: documentation and comments
  - Analysis of TERMS, list of mitigation measures
  - Conformity assessment: documentation and comments
  - Process: comments and responses

### **IV. WORK TASKS**

1. Prepare 2002 base conditions
  - Develop and apply Mobile6.2 emission factors for PM2.5 direct particles and NOx precursors
  - Calculate yearly (not daily) emissions for total PM2.5 and NOx precursors using latest seasonal traffic adjustments
2. Prepare 2010 emissions estimates
  - Develop and apply Mobile6.2 emission factors
  - Calculate emissions as above
3. Prepare 2020 emissions estimates
  - As in year 2010 tasks
4. Prepare 2030 emissions estimates
  - As in year 2010 tasks
5. Analyze results of above technical analysis

- Reductions from 2002 base
  - With review by the Travel Management Subcommittee, the Technical Committee and the TPB, identify and recommend additional measures should the plan or program fail the regional emissions test in any year and incorporate
6. Assess conformity and document results in a report
- Document methods
  - Draft conformity report
  - Forward to technical committees and policy committees
  - Make available for public and interagency consultation
  - Receive comments
  - Address comments and present to TPB for action
  - Finalize report and forward to FHWA and FTA

## **V. SCHEDULE**

The schedule for the execution of these work activities is shown in Exhibit 2, attached. This schedule shows the adoption of the PM2.5 conformity determination by the TPB in October 2005, which allows sufficient time for distribution, review and final approval by federal agencies in order to meet the April 5, 2006 deadline for avoiding a conformity lapse.

# Exhibit 1

## Conformity Criteria

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### All Actions at all times:

Sec. 93.110	Latest planning assumptions.
Sec. 93.111	Latest emissions model.
Sec. 93.112	Consultation.

### Transportation Plan:

Sec. 93.113(b)	TCMs.
Sec. 93.118 or Sec. 93.119	Emissions budget or Emission reduction.

### TIP:

Sec. 93.113(c)	TCMs.
Sec. 93.118 or Sec. 93.119	Emissions budget or Emission reduction.

### Project (From a Conforming Plan and TIP):

Sec. 93.114	Currently conforming plan and TIP.
Sec. 93.115	Project from a conforming plan and TIP.
Sec. 93.116	CO and PM10 hot spots.
Sec. 93.117	PM10 control measures.

### Project (Not From a Conforming Plan and TIP):

Sec. 93.113(d)	TCMs.
Sec. 93.114	Currently conforming plan and TIP.
Sec. 93.116	CO and PM10 hot spots.
Sec. 93.117	PM10 control measures.
Sec. 93.119	Interim emissions in areas without motor vehicle emissions budgets

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### **Sec. 93.110 Criteria and procedures: Latest planning assumptions.**

The conformity determination must be based upon the most recent planning assumptions in force at the time of the conformity determination.

### **Sec. 93.111 Criteria and procedures: Latest emissions model.**

The conformity determination must be based on the latest emission estimation model available.

### **Sec. 93.112 Criteria and procedures: Consultation.**

Conformity must be determined according to the consultation procedures in this subpart and in the applicable implementation plan, and according to the public involvement procedures established in compliance with 23 CFR part 450.

**Sec. 93.113 Criteria and procedures: Timely implementation of TCMs.**

The transportation plan, TIP, or any FHWA/FTA project which is not from a conforming plan and TIP must provide for the timely implementation of TCMs from the applicable implementation plan.

**Sec. 93.114 Criteria and procedures: Currently conforming transportation plan and TIP.**

There must be a currently conforming transportation plan and currently conforming TIP at the time of project approval.

**Sec. 93.115 Criteria and procedures: Projects from a plan and TIP.**

The project must come from a conforming plan and program.

**Sec. 93.116 Criteria and procedures: Localized CO and PM10 violations (hot spots).**

The FHWA/FTA project must not cause or contribute to any new localized CO or PM10 violations or increase the frequency or severity of any existing CO or PM10 violations in CO and PM10 nonattainment and maintenance areas.

**Sec. 93.117 Criteria and procedures: Compliance with PM10 control measures.**

The FHWA/FTA project must comply with PM10 control measures in the applicable implementation plan.

**Sec. 93.119 Criteria and procedures: Interim emissions in areas without motor vehicle budgets**

The FHWA/FTA project must satisfy the interim emissions test(s).

**NOTE:** See EPA's May 6, 2005 conformity regulations for the full text associated with each section's requirements.

**Exhibit 2**

**PROPOSED PM2.5 STANDARD SUPPLEMENT TO THE YEAR  
2005 CLRP AND FY 2006-2011 TIP  
AIR QUALITY CONFORMITY SCHEDULE**

June 3, 2005	TPB Technical Committee Reviews Draft Work Scope for the Air Quality Analysis
*June 15, 2005	TPB Releases Draft Work Scope for Public Comment and Inter-Agency Review
*July 20, 2005	TPB Reviews Public Comments, Approves Draft Scope of Work
September 9, 2005	TPB Technical Committee Reviews Draft Conformity Report
September 15, 2005	Draft Conformity Report Released for Public Comment and Interagency Review
*September 21, 2005	TPB Receives Briefing on Draft Air Quality Conformity Determination
*October 19, 2005	TPB Reviews Public Comments on Draft Document, Approves Responses to Comments, and Adopts the PM 2.5 Air Quality Conformity Determination

\*TPB Meeting

## WORK SCOPE ATTACHMENT A

### POLICY AND TECHNICAL INPUT ASSUMPTIONS PM2.5 STANDARDS CONFORMITY ASSESSMENT

#### 1. Land Activity

- Round 7 Cooperative Forecasts

#### 2. Policy and Project Inputs

- Highway, HOV and transit projects and operating parameters
- Financially constrained project submissions advanced by the TPB on 4/20/2005

#### 3. Travel Demand Modeling Methods

- 'Version 2.1 D #50' Travel Model
- All HOV facilities at HOV-3 in 2010
- Transit "capacity constraint" procedures (2010 constrains later years)

#### 4. Emission Factors

- Emission factors methods as developed and applied in the SIP and in the 2004 CLRP conformity process: MOBILE6.2, 2002 registration data, VMT mix specific to each analysis year
- Enhanced I/M in DC, MD, and VA, using state-specified standards
- Refinements based upon EPA's Mobile6.2 guidance
- PM2.5 factors for total directly emitted particles and NOx precursors

#### 5. Emissions Modeling Methods / Credits

- Updated post-processor methods to reflect EPA guidance associated with Mobile6.2 model release updates for local road speed profiles in rural areas
- Yearly PM2.5 emissions (total PM2.5 and NOx precursors) using latest seasonal traffic adjustments
- Offline emissions analyses

#### 6. Conformity Assessment Criteria

- 5/6/05 EPA's "*Transportation Conformity Rule Amendments for the New PM2.5 National Ambient Air Quality Standard: PM2.5 Precursors*"
- Analysis years: 2010, 2020, 2030

# **ATTACHMENT B**

# **Metropolitan Washington Air Quality Committee**

Suite 300, 777 North Capitol Street, N.E. Washington, D.C. 20002-4239 202-962-3358 Fax: 202-962-3203

July 13, 2005

Honorable Phil Mendelson, Chair  
National Capital Region Transportation Planning Board  
777 North Capitol Street, NE  
Washington, D.C. 20002

Dear Chair Mendelson:

Thank you for soliciting input on the scope of work for the Fine Particles (PM<sub>2.5</sub>) Standards Supplemental Air Quality Conformity Assessment of the 2005 CLRP and the FY2006-2011 TIP. According to EPA guidance, the Washington region is required to conduct a conformity determination for direct emissions and precursors of fine particulate pollution (PM<sub>2.5</sub>) by April 6, 2006 to avoid a conformity lapse. As proposed in TPB's scope of work, the TPB intends to complete the PM<sub>2.5</sub> conformity determination as a supplement to the on-going work to assess conformity for the 8-hour ozone standard in October 2005.

EPA's Transportation Conformity Rule Amendments provide two options for conformity determination during the interim period prior to the SIPs development in the new PM<sub>2.5</sub> non-attainment areas and the establishment of mobile budgets for PM<sub>2.5</sub> pollution and its precursors. The two options are (1) build no greater than no-build, or (2) build no greater than 2002. The TPB proposes to use Option 2, the build no greater than 2002 budget test in this year's conformity analysis. We note that both options provide an interim test until the state air agencies develop mobile emissions budgets for PM<sub>2.5</sub> and its precursor pollutants. For this year's analysis, we support the TPB's choice of interim method because it makes the best use of available resources and supports the budget concept. For any PM<sub>2.5</sub> conformity analysis in the coming years of the interim period, MWAQC urges TPB and the state air agencies to work together to determine which option is most appropriate for conformity analysis.

For the current PM<sub>2.5</sub> conformity cycle, we support the TPB proposed approach of emissions analysis and conformity determination only for direct PM<sub>2.5</sub> and for precursor NO<sub>x</sub>. We are urging the TPB and the three state air agencies to work together to determine which of the other precursors of PM<sub>2.5</sub> (VOCs, SO<sub>x</sub>, ammonia etc.) contribute significantly for possible inclusion in the analysis for the next conformity cycle and beyond.

EPA is expected to release additional guidance on PM<sub>2.5</sub> conformity. The proposed scope of work may change when this new additional guidance becomes available later this year. The MWAQC Technical Advisory Committee is available to work with TPB staff for making any needed changes in the work scope and to develop any other new inputs required to complete the analysis.

Meeting the PM<sub>2.5</sub> standard is expected to require continuation of all mobile and non-mobile emission reduction commitments, and possibly new ones in the near future. States and local governments are urged to maintain their commitments to TERMS and other emission reduction measures, regardless of whether implementation of these measures is currently critical for conformity determination during the interim period.

Thank you for the opportunity to comment on the PM<sub>2.5</sub> conformity assessment scope of work. We look forward to working closely with you on making further improvements to the region's air quality to meet the new PM<sub>2.5</sub> standard.

Sincerely,

A handwritten signature in black ink, reading "Dana Kauffman". The signature is fluid and cursive, with a long horizontal stroke at the end.

Hon. T. Dana Kauffman, Chair  
Metropolitan Washington Air Quality Committee

# **ATTACHMENT C**

## MEMORANDUM

**TO:** Files

**FROM:** Ronald Milone

**DATE:** November 10, 2005

**SUBJECT:** Mobile Emissions PM 2.5 Post Processor Description and Results

### 1.0 Introduction

This memorandum accompanies earlier documentation of the TPB mobile emissions post processor<sup>1</sup> and describes a newly developed process for estimating the amount of fine particulates (PM2.5) generated by mobile sources. The PM2.5 emissions post processor involves a series of TP+ scripts that are quite similar, and in some cases, identical to the existing process used to calculating mobile emissions in the TPB's annual Conformity Determination work. Like the existing post processor, the PM2.5 post processor combines EPA Mobile6-based emission rates with network link volumes and trip tables generated by the regional travel model. However, the PM2.5 post processor is different in the pollutants considered, the development of the emission rates, and the treatment of seasonal VMT adjustments.

The existing post processor addresses VOC, CO, and NO<sub>x</sub> pollutants. The Mobile6 based emission rates associated with these pollutants are developed on the basis of average seasonal conditions. VOC and NO<sub>x</sub> rates are reflective of a 'worst-case' condition during the ozone (summertime) season while CO rates are associated with a 'worst-case' wintertime condition. Since the network VMT generated by the travel model reflects average annual weekday traffic (AAWDT), network link volumes are factored to reflect weekday conditions for the time of year that is appropriate for the emissions calculation. The post processor is designed to calculate emissions using average *seasonal* weekday travel (ASWDT). With that said, the following distinguishing features of the PM2.5 post processor can be made.

- 1) Mobile6-based emission rates supporting the PM2.5 post processor relate to PM2.5 and NO<sub>x</sub> emissions only. NO<sub>x</sub> emissions are considered in the overall PM2.5 calculation since they indirectly contribute to particulate levels in the atmosphere. The PM2.5 rates currently generated by the Mobile model are VMT-based while NO<sub>x</sub> emissions are associated with trip-starts as well as miles traveled.
- 2) The PM2.5 post processor ultimately produces an *annualized* estimate of PM2.5 and NO<sub>x</sub> emissions for the Washington, D.C. MSA. The annual tonnage is estimated by first computing the *average daily* emissions on a seasonal basis. The daily emission result is then multiplied by the number of days of each respective season. Calculating emissions on a seasonal basis therefore requires the provision of seasonal PM2.5/NO<sub>x</sub> emission

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<sup>1</sup> See 9/16/05 Memorandum from Milone to Files on the subject: Mobile Emissions Post Processor Description and Results.

rates from Mobile6, and network link VMT that reflects average seasonal travel for each season of the year. Table 1 lists VMT factors that are used to convert AAWDT volume to average daily seasonal traffic (ASDT). The number of days in each season is also displayed.

**Table 1: Seasonal Parameters Used in the PM2.5 Emission Calculation**

Season	Months	AAWDT to ASDT Factor	No. of Days
Winter	December – February	0.9028	90
Spring	March – May	0.9570	92
Summer	June-August	0.9984	92
Fall	September– November	0.9445	91

- 3) The PM2.5 reporting is based on a modified definition of the Washington MSA area with respect to earlier reporting. The PM2.5 MSA report is based on a ten-jurisdiction area comprised of the District of Columbia, Montgomery County, Prince George’s County, Arlington County, the City of Alexandria, Fairfax County, Loudoun County, Prince William County, Frederick County, and Charles County. Previous MSA reports included the above jurisdictions with Stafford and Calvert Counties added.

## 2.0 Mobile6 Emission Rate Processing

PM2.5 and NOx emission rates used in the PM2.5 post processor are prepared on a county-specific basis, as shown Table 2. The table indicates that emission rates are explicitly modeled (using Mobile6) for 16 of the 27 jurisdictions. The remaining 11 jurisdictions are assigned ‘borrowed’ rates from neighboring modeled jurisdictions.

The Mobile6 model generates PM2.5 and NOx rates by jurisdiction in separate batch executions. PM2.5 Mobile6 listing files are produced for each of the 16 modeled jurisdictions. Each listing contains emission rate summaries for 8 scenarios: stabilized network rates by season (Winter, Spring, Summer, and Fall), and stabilized local road rates by season. The PM2.5 emission rates generated by Mobile6 do not vary by speed, in contrast to NOx rates which are sensitive to highway speed. The emission rate listings are processed by a Fortran program (M6RATESPM.EXE) so that PM rates are consolidated onto a machine readable text file. A single file is created for each jurisdiction and is assigned a special name that is referenced by the batch file (Seasonal\_Emiss.bat) that executes the post processor.

Since NOx emission rates vary by operating mode and by speed, the number of Mobile6 seasonal emission scenarios is considerably larger than the PM2.5 scenarios. Table 3 indicates that 716 Mobile6 scenarios are executed, resulting in a lengthy listing file for each modeled jurisdiction. Another program named M6RATESS.EXE is used to convert each listing into six machine readable files containing seasonal NOx rates for stabilized network arterials, stabilized network freeway non-ramps, stabilized freeway ramps, local hot and cold starting rates, local stabilized rates, and stabilized/local arterial rates. All files contain per-mile rates by speed (if relevant) that are arrayed by season (Winter, Spring, Summer, and Fall). The cold/hot starting rates, however, are converted into per-trip rates. The six files are assigned special names that are referenced by

the batch file that executes the post processor. The reader should consult the above referenced 9/16/05 memorandum for computation details of the M6RATESS program (which are identical to those of the documented M6RATES program).

**Table 2: Jurisdictional Emission Areas**

<b>Emission Area System Number</b>	<b>Jurisdiction / External Area</b>	<b>File-name code</b>	<b>MSA Member Yes/No</b>	<b>Mobile Rates Modeled/Borrowed</b>
1	Washington, DC	Dc	Yes	Modeled
2	Montgomery County	Mc	Yes	Modeled
3	Prince George's County	Pg	Yes	Modeled
4	Howard County	-	No	Borrowed (Prince George's Co.)
5	Anne Arundel County	-	No	Borrowed (Prince George's Co.)
6	Carroll County	-	No	Borrowed (Prince George's Co.)
7	Baltimore Area Externals	-	No	Borrowed (Prince George's Co.)
8	Calvert County	Ca	Yes	Modeled
9	Charles County	Ch	Yes	Modeled
10	Frederick County	Fr	Yes	Modeled
11	Frederick Co. Externals	-	No	Borrowed (Frederick Co.)
12	Arlington	Ar	Yes	Modeled
13	Fairfax County	Fx	Yes	Modeled
14	Loudoun County	Ld	Yes	Modeled
15	Prince William County	Pw	Yes	Modeled
16	Stafford County	St	Yes	Modeled
17	City of Alexandria	Al	Yes	Modeled
18	St. Mary's County	Sm	No	Modeled
19	Washington Co. Externals	We	No	Modeled
20	Clarke County	Cl	No	Modeled
21	Fauquier County	-	No	Borrowed (Clarke Co.)
22	Jefferson Co, WVA	-	No	Borrowed (Clarke Co.)
23	Western External Area	-	No	Borrowed (Clarke Co.)
24	Spotsylvania County	Sp	No	Modeled
25	King George County	-	No	Borrowed (Spotsylvania Co.)
26	City of Fredericksburg	-	No	Borrowed (Spotsylvania Co.)
27	Southern External Area	-	No	Borrowed (Spotsylvania Co.)

**Table 3: Sequence of NOx Emission Mobile Scenarios Generated for each Jurisdiction**

<b>MOBILE6 ‘Scenarios’</b>	<b>Operating Mode</b>	<b>Facility Type</b>	<b>Speed Specifications</b>
<b>Winter:</b> 1- 65	Stabilized	Arterial	1 to 65 mph in 1 mph increments
66-130	Stabilized	Freeway, Non-Ramp	1 to 65 mph in 1 mph increments
131	Stabilized	Freeway Ramp	Single speed / 35.0 mph
132	Cold	Local	Single speed / 12.9 mph
133	Hot	Local	Single speed / 12.9 mph
134	Stabilized	Local	Single speed / 12.9 mph
135-179	Stabilized	Arterial(w/ Rural VMT Mix)	1 to 45 mph in 1 mph increments
<b>Spring:</b> 180-244	Stabilized	Arterial	1 to 65 mph in 1 mph increments
245-309	Stabilized	Freeway, Non-Ramp	1 to 65 mph in 1 mph increments
310	Stabilized	Freeway Ramp	Single speed / 35.0 mph
311	Cold	Local	Single speed / 12.9 mph
312	Hot	Local	Single speed / 12.9 mph
313	Stabilized	Local	Single speed / 12.9 mph
314-358	Stabilized	Arterial(w/ Rural VMT Mix)	1 to 45 mph in 1 mph increments
<b>Summer:</b> 359-423	Stabilized	Arterial	1 to 65 mph in 1 mph increments
424-488	Stabilized	Freeway, Non-Ramp	1 to 65 mph in 1 mph increments
489	Stabilized	Freeway Ramp	Single speed / 35.0 mph
490	Cold	Local	Single speed / 12.9 mph
491	Hot	Local	Single speed / 12.9 mph
492	Stabilized	Local	Single speed / 12.9 mph
493-537	Stabilized	Arterial(w/ Rural VMT Mix)	1 to 45 mph in 1 mph increments
<b>Fall :</b> 538-602	Stabilized	Arterial	1 to 65 mph in 1 mph increments
603-667	Stabilized	Freeway, Non-Ramp	1 to 65 mph in 1 mph increments
668	Stabilized	Freeway Ramp	Single speed / 35.0 mph
669	Cold	Local	Single speed / 12.9 mph
670	Hot	Local	Single speed / 12.9 mph
671	Stabilized	Local	Single speed / 12.9 mph
672-716	Stabilized	Arterial(w/ Rural VMT Mix)	1 to 45 mph in 1 mph increments

Thus, the PM2.5 post processor requires 112 emission rate files containing seasonal emission rates: 16 PM2.5 emission rate files (one for each modeled jurisdiction) and 96 NOx emission rate files (6 rate files for each of the 16 jurisdictions). Table 4 describes the files that are developed for each jurisdiction as inputs to the PM2.5 post processor.

**Table 4: Emission Rates PM2.5 Post Processor Input File Descriptions**

Filename	File Description	Notes
M6<Yr>PM<Jr>.N_L	Stabilized/PM Network/Local rates	A one-line text file containing nine items: a speed value and 8 PM2.5 rate values(gm./mi): network rates by season (Win.,Spr.,Sum.,Fall) and local rates by season (Win.,Spr.,Sum.,Fall)
M6<Yr>Nx<Jr>.R_A	Stabilized/Arterial Running NOx rates	A 65-line text file containing five items: speed, NOx rates (all gm/mi) by season (Win.,Spr.,Sum.,Fall).
M6<Yr>Nx<Jr>.R_F	Stabilized/Freeway non-ramp Running NOx rates	A 65-line text file containing five items: speed, NOx rates (all gm/mi) by season (Win.,Spr.,Sum.,Fall).
M6<Yr>Nx<Jr>.RAM	Stabilized/Freeway ramp Running NOx rates	A one-line text file containing five items: speed, NOx rates (all gm/mi) by season (Win.,Spr.,Sum.,Fall).
M6<Yr>Nx<Jr>.STT	Cold/Hot start rates	A one-line text file containing five items: speed, NOx Cold start rates rates (all gm/trip) by season (Win.,Spr.,Sum.,Fall), and Hot start rates by season (Win.,Spr.,Sum.,Fall).
M6<Yr>Nx<Jr>.LCL	Stabilized/Local Running NOx rates	A one-line text file containing five items: speed, NOx rates (all gm/mi) by season (Win.,Spr.,Sum.,Fall).
M6<Yr>Nx<Jr>.R_R	Stabilized/Arterial Running/Rural NOx rates	A 45-line text file containing five items: speed, NOx rates (all gm/mi) by season (Win.,Spr.,Sum.,Fall).

Note: <Yr> relates to year, e.g., '02', '10', '30' etc./ <Jr> relates to a two-digit juris code(see Table 2)

### 5.0 PM2.5 Post-Processor Program Steps

The PM2.5 post processor may be executed with the provision of: 1) travel demand output files, 2) emission rate files by jurisdiction as described above, and 3) a small text file containing jurisdiction level VMT information. The travel demand output files include the final iteration loaded highway network (I6HWY.NET) and three vehicle trip tables corresponding to the AM, PM, and off peak periods (I6AM.VTT, I6PM.VTT, I6OP.VTT). The jurisdictional VMT file (Base\_Juris\_VMT.txt) is a pre-existing file containing base year estimates of network-based VMT, local (or off-network) VMT, and the estimated proportion of network VMT that is urban and rural. This information is used to develop future year local VMT that is urban and local. All VMT information corresponds only to jurisdictions within the MSA as defined above.

The TP+ scripts used to execute the PM2.5 post-processor are described below in order of execution. The computations are identical to those documented in the above referenced 9/16/05 memorandum, except that:

- VOC and CO emissions generation has been removed
- PM emissions generation has been added
- The batch file executing the post processor has been modified so that it executes four times, for each modeled season

- The summary routines have been modified so that *seasonal* emission totals are listed out at jurisdiction level and at the MSA level, in addition to *daily* emission totals.

The five steps are summarized below. (Associated TP+ script names are in parenthesis):

1) Trip Table Formatting (AQTRIPS.S): AM, PM, and off-peak trip tables produced by the travel demand model are read. The program produces zonal trip-ends for each of the three time periods. It also produces a file containing the proportion of daily vehicle trips from/to each of the 27 emission areas. Since the trip proportions are developed with daily trips, the proportion in the *i/j* direction is generally the same as that in the *j/i* direction.

2) Time-of-Day Trip-Ends Program (ZONESPRD.S): The program reads the zonal origins and destinations, described above, and apportions them among discrete hourly periods.

3) VMT Formating Program (Pre\_Local.S): The program summarizes modeled VMT at the jurisdiction level and writes a summary file to be used in the LOCAL.S program.

4) Time-of-Day VMT and speeds program (PEAK\_SPREAD\_Seasonal\_Nx.S): The program reads the AM, PM, and off-peak network link volumes produced by the travel demand model. It produces hourly volumes, VMT, and restrained speed for each highway link. The hourly VMT and highway speeds are sensitive to seasonal adjustment factors.

5) Running Emissions Program (RUNNING\_Seasonal\_Nx.S): The program computes hot stabilized emissions on a link-by-link and hour-by-hour basis. It reads 1) the hourly link VMT and highway speed files developed above, 2) MOBILE6-based running emission rates which are provided on the basis of speed, and 3) the county level trip proportions file. PM2.5 and NOx running emissions result from the program.

6) Start/Soak Emissions Program (STRT\_SKR\_Seasonal\_Nx.S): The program applies emission rates to the trip- ends to compute start-up and soaking emissions on a zone-by-zone and hour-by-hour basis. The program reads: 1) hourly trip-ends, 2) the MOBILE6-generated cold/hot starting rates, and 3) the county-level trip proportions file. NOx starting emissions result from the program. Note that trip tables are not affected by seasonal adjustments.

7) Local Emissions Program (LOCAL\_Seasonal\_Nx.S): The program computes hot stabilized emissions on a link-by-link and hour-by-hour basis. It reads 1) a file containing forecasted local/urban and local/rural VMT at the jurisdiction level and 2) PM2.5 and Arterial NOx stabilized rates specially developed for local roads. PM2.5 and NOx rates are produced.

A batch file (Seasonal\_Emiss.Bat) is normally used to facilitate the execution the above scripts in a 'command prompt' window. The batch file defines the input file locations, defines global environment variables that are referenced by the scripts (the modeled year, the seasonal VMT adjustment, the number of days in each season, and text labels), and then executes the scripts. After executing steps 1-3, steps 4-7 are executed four times, i.e., for each of the four seasons. The batch file ultimately produces three small text files containing jurisdiction level running,

starting, and local emissions at the jurisdiction and MSA levels, by season (Winter, Spring, Summer, and Fall). The files are named:

- <year>\_running.txt
- <year>\_strt\_skr.txt
- <year>\_local.txt

The following attachments include program and script listings for the procedures discussed above.

Attachment 1

- M6RatesS Program Files
- M6RatesS.f90
- M6RateS.ctl

Attachment 2

- M6RatesPM Program Files
- M6RatesPM.f90
- Run\_M6RatesPM.bat

Attachment 3

- Post Processor Batch File & TP+ Scripts
- Seasonal\_Emiss.Bat
- AQTRIP.S
- ZONESPRD.S
- Pre\_Local.S
- Peak\_Spread\_Seasonal\_Nx.S
- Running\_Seasonal\_Nx.S
- Strt\_Skr\_Seasonal\_Nx.S
- Local\_Seasonal\_Nx.S

Attachment 4

- Example Post Processor Output Listings
- 2002\_Strt\_Skr.txt
- 2002\_Running.txt
- 2002\_Local.txt

---

# Attachment 1

## M6Rates Program Files

M6RatesS.f90.....	1-1
M6RateS.ctl .....	1-7



# M6RatesS.f90

```

program M6RATESS
-----
! compile command:          LF95  m6ratesS.f90
! program execution command: m6ratesS ??????.ctl
!
! corrections made based on comments from m mullen(E.H. PECHAN)10/29/02
!
! This program is used to read a Mobile6 listing and to compute/write
! out 'final' running and start-up emissions used in MWCOG's
! mobile emissions calculation process.  This program is designed
! to read SEASONAL Mobile listing
!
! The Mobile6 Listing file MUST be in Mobile5b Format
! The sequence of scenarios MUST be as follows:
!
! (START)
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 1.00 Season: Winter
!*FV FILE: .FV OPMODE: Stable FACILITY: Arterial SCENARIO: 1
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 1.00 Season: Spring
!*FV FILE: .FV OPMODE: Stable FACILITY: Arterial SCENARIO: 2
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 1.00 Season: Summer
!*FV FILE: .FV OPMODE: Stable FACILITY: Arterial SCENARIO: 3
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 1.00 Season: Fall
!*FV FILE: .FV OPMODE: Stable FACILITY: Arterial SCENARIO: 4
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 65.0 Season: Winter
!*FV FILE: .FV OPMODE: Stable FACILITY: Arterial SCENARIO: 257
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 65.0 Season: Spring
!*FV FILE: .FV OPMODE: Stable FACILITY: Arterial SCENARIO: 258
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 65.0 Season: Summer
!*FV FILE: .FV OPMODE: Stable FACILITY: Arterial SCENARIO: 259
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 65.0 Season: Fall
!*FV FILE: .FV OPMODE: Stable FACILITY: Arterial SCENARIO: 260
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 1.00 Season: Winter
!*FV FILE: .FV OPMODE: Stable FACILITY: Non-Ramp SCENARIO: 261
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 1.00 Season: Spring
!* File 1, Run 1, Scenario 262.
!* #####
!*FV FILE: .FV OPMODE: Stable FACILITY: Non-Ramp SCENARIO: 262
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 1.00 Season: Summer
!*FV FILE: .FV OPMODE: Stable FACILITY: Non-Ramp SCENARIO: 263
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 1.00 Season: Fall

```

```

!*FV FILE: .FV OPMODE: Stable FACILITY: Non-Ramp SCENARIO: 264
!
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 65.0 Season: Winter
!*FV FILE: .FV OPMODE: Stable FACILITY: Non-Ramp SCENARIO: 517
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 65.0 Season: Spring
!*FV FILE: .FV OPMODE: Stable FACILITY: Non-Ramp SCENARIO: 518
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 65.0 Season: Summer
!*FV FILE: .FV OPMODE: Stable FACILITY: Non-Ramp SCENARIO: 519
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 65.0 Season: Fall
!*FV FILE: .FV OPMODE: Stable FACILITY: Non-Ramp SCENARIO: 520
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 34.6 Season: Winter
!*FV FILE: FV4.FV OPMODE: Stable FACILITY: Fwy Ramp SCENARIO: 521
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 34.6 Season: Spring
!*FV FILE: FV4.FV OPMODE: Stable FACILITY: Fwy Ramp SCENARIO: 522
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 34.6 Season: Summer
!*FV FILE: FV4.FV OPMODE: Stable FACILITY: Fwy Ramp SCENARIO: 523
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 34.6 Season: Fall
!*FV FILE: FV4.FV OPMODE: Stable FACILITY: Fwy Ramp SCENARIO: 524
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 12.9 Season: Winter
!*FV FILE: FV3.FV OPMODE: Cold FACILITY: Local SCENARIO: 525
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 12.9 Season: Winter
!*FV FILE: FV3.FV OPMODE: Hot FACILITY: Local SCENARIO: 526
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 12.9 Season: Winter
!*FV FILE: FV3.FV OPMODE: Stable FACILITY: Local SCENARIO: 527
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 12.9 Season: Spring
!*FV FILE: FV3.FV OPMODE: Cold FACILITY: Local SCENARIO: 528
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 12.9 Season: Spring
!*FV FILE: FV3.FV OPMODE: Hot FACILITY: Local SCENARIO: 529
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 12.9 Season: Spring
!*FV FILE: FV3.FV OPMODE: Stable FACILITY: Local SCENARIO: 530
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 12.9 Season: Summer
!*FV FILE: FV3.FV OPMODE: Cold FACILITY: Local SCENARIO: 531
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 12.9 Season: Summer
!*FV FILE: FV3.FV OPMODE: Hot FACILITY: Local SCENARIO: 532
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 12.9 Season: Summer
!*FV FILE: FV3.FV OPMODE: Stable FACILITY: Local SCENARIO: 533
!
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 12.9 Season: Fall
!*FV FILE: FV3.FV OPMODE: Cold FACILITY: Local SCENARIO: 534
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 12.9 Season: Fall
!*FV FILE: FV3.FV OPMODE: Hot FACILITY: Local SCENARIO: 535
!* #####
!* St & Cnty: 11001 MY: 2005 Speed: 12.9 Season: Fall
!*FV FILE: FV3.FV OPMODE: Stable FACILITY: Local SCENARIO: 536
!* #####

```



# Attachment 1: M6Rates Program Files

```

8000 format(//,' PROGRAM: M6RATESM(v.10/01/05 - MWCOG/rjm) ')
      write(*,8001) dt(2),dt(3),dt(1),dt(5),dt(6),dt(7)
      write(7,8001) dt(2),dt(3),dt(1),dt(5),dt(6),dt(7)
8001 format(//,' EXECUTION DATE(MonDayYr): ',i2,'/',i2,'/',i4,4x, &
          ' Time(HrMinSec): ',i2,':',i2,':',i2, '//)

      write(7,899) utitle,uyear,ujur
899 format(//,'-----&
&-----&
//,' Description: ',a80,/, ' Year: ',a5, ' Jurisdiction: ',a30, &
//,'-----&
&-----&
//)

!
! write out user-specified I/O filenames and 'delete' strings
!
      write(7,801) listing,mob6_fil,artrun,fwyrun,start,local,ramp, &
artrural
801 format (//,' User Specified Filenames: ',/,/, &
' Report listing: ',a60,/, &
' (I) Mobile6 Raw Listing File: ',a60,/, &
' (O) Arterial Running Emission Rates: ',a60,/, &
' (O) Freeway Running Emission Rates: ',a60,/, &
' (O) Start-up Emission Rates: ',a60,/, &
' (O) Local Running Emission Rates: ',a60,/, &
' (O) Fwy Ramp Running Emission Rates: ',a60,/, &
' (O) Art. Running (w/RuralVMTMix) Rates: ',a60)

!
! write out user-specified I/O filenames and params
!

      write(7,111) &
hdgv_t,lddt_t,lddv_t,ldgt12_t,ldgt34_t,ldgv_t,mc_t, &
hdgv_m,lddt_m,lddv_m,ldgt12_m,ldgt34_m,ldgv_m,mc_m, &
hdgv_s,lddt_s,lddv_s,ldgt12_s,ldgt34_s,ldgv_s,mc_s

111 format(//,'User Specified Daily Ends,VMT,Starts by Veh.Type:',/,/ &
,'Avg Trip-Ends/day by Vehicle Type',/,/ &
' hdgv lddt lddv ldgt12 ldgt34 ldgv mc', &
/,7f9.4,/,/ &
,'Avg VMT/day by Vehicle Type',/,/ &
' hdgv lddt lddv ldgt12 ldgt34 ldgv mc', &
/,7f9.4,/,/ &
,'Avg Starts/day by Vehicle Type',/,/ &
' hdgv lddt lddv ldgt12 ldgt34 ldgv mc', &
/,7f9.4)

!-----&
      write(7,800) char(12) ! page break character
800 format (al) !
!-----&

      write(7,899) utitle,uyear,ujur

! Check that the Mobile 6 text - Input file actually exists
INQUIRE (FILE =mob6_fil, EXIST = exists)
IF (.NOT. exists) then
      write(*,888) mob6_fil
      write(7,888) mob6_fil
888 format(' File: ',a30,' Not Found ',/,,' Program aborted ')
      stop ' 8'
ENDIF

!
      open (unit=9,file=mob6_fil,status='old')

      open (unit=15,file=artrun)
      open (unit=16,file=fwyrun)
      open (unit=17,file=start)
      open (unit=18,file=local)

```

```

open (unit=19,file=ramp)
open (unit=22,file=artrural)

open (unit=20,file='temp.dat')
open (unit=21,file='verify.dat')
write(*,995)
995 format(//,' Reading Input Mobile6 Listing File '//)

55 read (9,200,end=990) line
200 format(al32)
scnflg = line(66:74)
scnind = line(75:79)
seaflg = line(48:54) !
seaind = line(56:61) !
spdflg = line(34:39)
spdind = line(40:44)
modflg = line(22:28)
modind = line(29:35)
facflg = line(43:51)
facind = line(52:60)
v1 = line(1:20)
v2 = line(22:31)
v3 = line(32:41)
v4 = line(42:51)
v5 = line(52:61)
v6 = line(62:71)
v7 = line(72:81)
v8 = line(82:91)
v9 = line(92:101)
v10 = line(102:111)
v11 = line(112:121)

if (scnflg .eq. 'SCENARIO:') then
      scn_ = scnind
endif

if (spdflg .eq. 'Speed:') then
      spd_ = spdind
endif

if (seaflg .eq. 'Season:') then
      if (seaind .eq. 'Winter') then
            sea_ = ' 1'
      elseif (seaind .eq. 'Spring') then
            sea_ = ' 2'
      elseif (seaind .eq. 'Summer') then
            sea_ = ' 3'
      elseif (seaind .eq. 'Fall ') then
            sea_ = ' 4'
      endif
endif

if (modflg .eq. 'OPMODE:') then
      mod_ = modind
endif

if (facflg .eq. 'FACILITY:') then
      fac_ = facind
endif

if ((v1 .eq. ' VMT Distribution:') .or. &
(v1 .eq. ' VOC Start:') .or. &
(v1 .eq. ' VOC Total Exhaust:') .or. &
(v1 .eq. ' CO Start:') .or. &
(v1 .eq. ' CO Total Exhaust:') .or. &
(v1 .eq. ' NOx Start:') .or. &
(v1 .eq. ' NOx Total Exhaust:') .or. &
(v1 .eq. ' Hot Soak Loss:') .or. &
(v1 .eq. ' Diurnal Loss:') .or. &
(v1 .eq. ' Crankcase Loss:') .or. &

```

# Attachment 1: M6Rates Program Files

```

(v1 .eq. ' Resting Loss:') .or. &
(v1 .eq. ' Running Loss:') then &

      write(20,880) &
      scn_ ,sea_ ,spd_ ,mod_ ,fac_ ,v1,v2,v3,v4,v5,v6,v7,v8,v9,v10,v11
880   format(a5,a3,a5,a7,a9,a20,10a10)
      endif
990   goto 55
      continue

!=====
! Begin Arterial Emissions Work ... =
!=====
      rewind(20)

45   read(20,872,end=802) &
      scenario,sea_no, speed, mod_, fac_,(vmtdst(i),i=1,10), &
      (hcstrt(i),i=1,10), &
      (hctotx(i),i=1,10), &
      (costrt(i),i=1,10), &
      (cototx(i),i=1,10), &
      (nxstrt(i),i=1,10), &
      (nxtotx(i),i=1,10), &
      (hotskl(i),i=1,10), &
      (diurnl(i),i=1,10), &
      (restgl(i),i=1,10), &
      (runngl(i),i=1,10), &
      (crankl(i),i=1,10)

872   format(i5,i3,f5.1,a7,a9,20x,10f10.4, &
      (11(/,49x,10f10.4)))

      write(21,870)
      format(' ',/)
      write(21,872)
      scenario,sea_no, speed, mod_, fac_,(vmtdst(i),i=1,10), &
      (hcstrt(i),i=1,10), &
      (hctotx(i),i=1,10), &
      (costrt(i),i=1,10), &
      (cototx(i),i=1,10), &
      (nxstrt(i),i=1,10), &
      (nxtotx(i),i=1,10), &
      (hotskl(i),i=1,10), &
      (diurnl(i),i=1,10), &
      (restgl(i),i=1,10), &
      (runngl(i),i=1,10), &
      (crankl(i),i=1,10)

!
! Now go through emission computations
!
! define emission rate dimensions
! convert speed into integer

      ispeed = NINT(speed) ! convert real speed to NEAREST integer value

! create emission type (etype) variable
      if ((fac_ == ' Arterial' ) .AND. &
          (mod_ == ' Stable' ) .AND. &
          (scenario < 500 )) etype = 1 ! Arterial/stabilized

      if (fac_ == ' Non-Ramp' ) etype = 2 ! Freeway non-ramp/stabilized

      if (fac_ == ' Fwy Ramp' ) etype = 3 ! Freeway Ramp/stabilized

      if ((fac_ == ' Local ' ) .AND. &

```

```

(mod_ == ' Stable' )) etype= 4 ! Local Road/stabilized

      if (mod_ == ' Cold ' ) etype = 5 ! Local / Cold

      if (mod_ == ' Hot ' ) etype = 6 ! Local / Hot

      if ((fac_ == ' Arterial' ) .AND. &
          (mod_ == ' Stable' ) .AND. &
          (scenario > 500 )) etype = 7 ! Arterial/Stabilized/Local

! Calculate VMT Distribution for Gas-related Vehicle Types:

      totalvmt = vmtdst(10)

      if (totalvmt .eq. 0) then
        pctlgv = 0
        pctlgt12 = 0
        pctlgt34 = 0
        pcthdgv = 0
        pctlddv = 0
        pctlddt = 0
        pctmc = 0
      else
        pctlgv = vmtdst(1) / totalvmt
        pctlgt12 = vmtdst(2) / totalvmt
        pctlgt34 = vmtdst(3) / totalvmt
        pcthdgv = vmtdst(5) / totalvmt
        pctmc = vmtdst(9) / totalvmt
        pctlddv = vmtdst(6) / totalvmt
        pctlddt = vmtdst(7) / totalvmt
        pctmc = vmtdst(9) / totalvmt
      endif

!
! Calculate Cold Start-up HC, CO, and NX emission rates (gm/mi)
! and multiple by miles to get per trip rates
!

! first check that for the zero divide for miles/starts (by vehicle)
!

      if (ldgv_s .eq. 0) then
        ldgvms = 0
      else
        ldgvms = ldgv_m / ldgv_s
      endif
      if (ldgt12_s .eq. 0) then
        ldgt12ms = 0
      else
        ldgt12ms = ldgt12_m / ldgt12_s
      endif
      if (ldgt34_s .eq. 0) then
        ldgt34ms = 0
      else
        ldgt34ms = ldgt34_m / ldgt34_s
      endif
      if (lddv_s .eq. 0) then
        lddvms = 0
      else
        lddvms = lddv_m / lddv_s
      endif
      if (lddt_s .eq. 0) then
        lddtms = 0
      else
        lddtms = lddt_m / lddt_s
      endif
      if (mc_s .eq. 0) then
        mcms = 0
      else
        mcms = mc_m / mc_s
      endif

!
! Calculate composite Hot Soak, Wt Diurnal, Crank Case, & Rest Loss

```

# Attachment 1: M6Rates Program Files

```

! components here:
!
! first check that for the zero divide for miles/trips (by vehicle)
!
  if (ldgv_t .eq. 0) then
    ldgvmt = 0
  else
    ldgvmt = ldgv_m / ldgv_t
  endif
  if (ldgt12_t .eq. 0) then
    ldgt12mt = 0
  else
    ldgt12mt = ldgt12_m / ldgt12_t
  endif
  if (ldgt34_t .eq. 0) then
    ldgt34mt = 0
  else
    ldgt34mt = ldgt34_m / ldgt34_t
  endif
  if (hdgv_t .eq. 0) then
    hdgvmt = 0
  else
    hdgvmt = hdgv_m / hdgv_t
  endif
  if (mc_t .eq. 0) then
    mcmt = 0
  else
    mcmt = mc_m / mc_t
  endif

  comp_hs = (hotskl(1) * ldgvmt * pctlgv ) + &
            (hotskl(2) * ldgt12mt * pctlgt12) + &
            (hotskl(3) * ldgt34mt * pctlgt34) + &
            (hotskl(5) * hdgvmt * pcthdgv ) + &
            (hotskl(9) * mcmt * pctmc )

  comp_wd = (diurnl(1) * ldgv_m * pctlgv ) + &
            (diurnl(2) * ldgt12_m * pctlgt12) + &
            (diurnl(3) * ldgt34_m * pctlgt34) + &
            (diurnl(5) * hdgv_m * pcthdgv ) + &
            (diurnl(9) * mc_m * pctmc )

  comp_cc = (crankl(1) * pctlgv ) + &
            (crankl(2) * pctlgt12) + &
            (crankl(3) * pctlgt34) + &
            (crankl(5) * pcthdgv ) + &
            (crankl(9) * pctmc )

  comp_rn = (runngl(1) * pctlgv ) + &
            (runngl(2) * pctlgt12) + &
            (runngl(3) * pctlgt34) + &
            (runngl(5) * pcthdgv ) + &
            (runngl(9) * pctmc )

  comp_rg = (restgl(1) * ldgv_m * pctlgv ) + &
            (restgl(2) * ldgt12_m * pctlgt12) + &
            (restgl(3) * ldgt34_m * pctlgt34) + &
            (restgl(5) * hdgv_m * pcthdgv ) + &
            (restgl(9) * mc_m * pctmc )

!
! now define the final composite HC, CO, and NOx rates

```

```

!
  comp_hc(etype, ispeed, sea_no) = hctotx(10) + comp_cc + comp_rn
  comp_co(etype, ispeed, sea_no) = cototx(10)
  comp_nx(etype, ispeed, sea_no) = nxtotx(10)

  comp_hcc(etype, ispeed, sea_no) = ((hcstr(1) * ldgvms * pctlgv ) + &
                                     (hcstr(2) * ldgt12ms * pctlgt12) + &
                                     (hcstr(3) * ldgt34ms * pctlgt34) + &
                                     (hcstr(6) * lddvms * pctlddv ) + &
                                     (hcstr(7) * lddtms * pctlddt ) + &
                                     (hcstr(9) * mcms * pctmc ))

  comp_coc(etype, ispeed, sea_no) = ((costr(1) * ldgvms * pctlgv ) + &
                                     (costr(2) * ldgt12ms * pctlgt12) + &
                                     (costr(3) * ldgt34ms * pctlgt34) + &
                                     (costr(6) * lddvms * pctlddv ) + &
                                     (costr(7) * lddtms * pctlddt ) + &
                                     (costr(9) * mcms * pctmc ))

  comp_nxc(etype, ispeed, sea_no) = ((nxstr(1) * ldgvms * pctlgv ) + &
                                     (nxstr(2) * ldgt12ms * pctlgt12) + &
                                     (nxstr(3) * ldgt34ms * pctlgt34) + &
                                     (nxstr(6) * lddvms * pctlddv ) + &
                                     (nxstr(7) * lddtms * pctlddt ) + &
                                     (nxstr(9) * mcms * pctmc ))

!!

  comp_hch(etype, ispeed, sea_no) = ((hcstr(1) * ldgvms * pctlgv ) + &
                                     (hcstr(2) * ldgt12ms * pctlgt12) + &
                                     (hcstr(3) * ldgt34ms * pctlgt34) + &
                                     (hcstr(6) * lddvms * pctlddv ) + &
                                     (hcstr(7) * lddtms * pctlddt ) + &
                                     (hcstr(9) * mcms * pctmc ))

  comp_coh(etype, ispeed, sea_no) = ((costr(1) * ldgvms * pctlgv ) + &
                                     (costr(2) * ldgt12ms * pctlgt12) + &
                                     (costr(3) * ldgt34ms * pctlgt34) + &
                                     (costr(6) * lddvms * pctlddv ) + &
                                     (costr(7) * lddtms * pctlddt ) + &
                                     (costr(9) * mcms * pctmc ))

  comp_nxh(etype, ispeed, sea_no) = ((nxstr(1) * ldgvms * pctlgv ) + &
                                     (nxstr(2) * ldgt12ms * pctlgt12) + &
                                     (nxstr(3) * ldgt34ms * pctlgt34) + &
                                     (nxstr(6) * lddvms * pctlddv ) + &
                                     (nxstr(7) * lddtms * pctlddt ) + &
                                     (nxstr(9) * mcms * pctmc ))

!!

  goto 45
802 continue
  !@ open (unit=15, file=artrun) 1
  !@ open (unit=16, file=fwyrun) 2
  !@ open (unit=17, file=start) 5,6
  !@ open (unit=18, file=local) 4
  !@ open (unit=19, file=ramp) 3
  !@ open (unit=22, file=artrural) 7

!-----
  write(7,800) char(12) ! page break character
  write(7,861)
861 format (/, 'M6 Composite Nx Arterial Stabilized Emission Rates by Season:', //, &
          ' Spd Season 1/Winter, 2/Spring, 3/Summer, 4/Fall -->> ', //, &
          ' mph ', &
          ' --- ')

! Write out the Seasonal arterial Nx rates
! to the data(Unit 15) & report file
do i=1,65

```

## Attachment 1: M6Rates Program Files

```

      if (comp_nx(1,i,1) == 0) cycle
      write(7,862) i, (comp_nx(1,i,j),j=1,4)
      write(15,862) i, (comp_nx(1,i,j),j=1,4)
862 format(1x,i3,6x,12(F7.3,2x))
end do

      close(15)
!-----
      write(7,800) char(12) ! page break character
      write(7,863)
863 format (/, 'M6 Composite Nx Freeway Stabilized Emission Rates by Season:',/, , &
' Spd      Season 1/Winter, 2/Spring, 3/Summer, 4/Fall -->> ',/, , &
' mph      ', &
' ---      ')

! Write out the Seasonal freeway Nx rates
! to the data(Unit 16) & report file
do i=1,65
      if (comp_nx(2,i,1) == 0) cycle
      write(7,862) i, (comp_nx(2,i,j),j=1,4)
      write(16,862) i, (comp_nx(2,i,j),j=1,4)

end do

      close(16)
!-----
!-----
      write(7,800) char(12) ! page break character
      write(7,865)
865 format (/, 'M6 Composite Nx startup Emission Rates by Season:',/, , &
' Spd      24 rates printed: Cold rate, Season 1/Winter, 2/Spring, 3/Summer, 4/Fall /
Hot rate, Season 1/Winter, 2/Spring, 3/Summer, 4/Fall -->> ',/, , &
' mph      ', &
' ---      ')

! Write out the Seasonal startup rates Nx rates
! to the data(Unit 17) & report file
do i=1,65
      if (comp_nxh(6,i,j),j=1,4), (comp_nxc(5,i,1) == 0) cycle
      write(7,866) i, (comp_nxh(6,i,j),j=1,4), (comp_nxc(5,i,j),j=1,4)
      write(17,866) i, (comp_nxh(6,i,j),j=1,4), (comp_nxc(5,i,j),j=1,4)
866 format(1x,i3,6x,12(F7.3,2x),12(F7.3,2x))
end do

      close(17)
!-----
!-----
      write(7,800) char(12) ! page break character
      write(7,867)
867 format (/, 'M6 Composite Nx Local Stabilized Emission Rates by Season:',/, , &
' Spd      Season 1/Winter, 2/Spring, 3/Summer, 4/Fall -->> ',/, , &
' mph      ', &
' ---      ')

! Write out the Seasonal freeway Nx rates
! to the data(Unit 18) & report file
do i=1,65
      if (comp_nx(4,i,1) == 0) cycle
      write(7,862) i, (comp_nx(4,i,j),j=1,4)
      write(18,862) i, (comp_nx(4,i,j),j=1,4)

end do

      close(18)
!-----
!-----
      write(7,800) char(12) ! page break character
      write(7,868)
868 format (/, 'M6 Composite Nx Ramp Stabilized Emission Rates by Season:',/, , &
' Spd      Season 1/Winter, 2/Spring, 3/Summer, 4/Fall -->> ',/, , &
' mph      ', &
' ---      ')

! Write out the Seasonal freeway Nx rates

```

```

! to the data(Unit 19) & report file
do i=1,65
      if (comp_nx(3,i,1) == 0) cycle
      write(7,862) i, (comp_nx(3,i,j),j=1,4)
      write(19,862) i, (comp_nx(3,i,j),j=1,4)

end do

      close(19)
!-----
!-----
      write(7,800) char(12) ! page break character
      write(7,869)
869 format (/, 'M6 Composite Nx Art/Rural Stabilized Emission Rates by Season:',/, , &
' Spd      Season 1/Winter, 2/Spring, 3/Summer, 4/Fall -->> ',/, , &
' mph      ', &
' ---      ')

! Write out the Seasonal freeway Nx rates
! to the data(Unit 22) & report file
do i=1,65
      if (comp_nx(7,i,1) == 0) cycle
      write(7,862) i, (comp_nx(7,i,j),j=1,4)
      write(22,862) i, (comp_nx(7,i,j),j=1,4)

end do

      close(22)
!-----
!-----
      write(7,890)
890 format(//, '-- Normal Completion -- ')
!-----
      stop 'Normal Completion'
      end

```

## M6RateS.ct1

```
! CAL05.Ctl
! Control File for M6RATES Program
!
! The INPUT file is:
! unit 9: Mobile 6 listing - in Mobile 5b format
!
!
! The 5 OUTPUT files are:
!
! unit 07: listing - (the program listing file)
! unit 15: artrun - Arterial running emission rates by speed
! unit 16: fwyrun - Freeway running emission rates by speed
! unit 17: start - Startup (Cold/Hot) emission rates
! unit 18: local - Local running emission rates
! unit 19: ramp - Freeway-Ramp running emission rates
!
! Params specify the Avg Trips (*_T), miles (*_M) and Starts (*.s)
!
&descr
  utitle = 'xxxx'
  uyear = 'xxxx'
  ujur = 'x County'
/
&files
  listing = 'm6ratesS.rpt'
  mob6_fil = 'M0511001.TXT'
  artrun = 'm0511001.r_a'
  fwyrun = 'm0511001.r_f'
  start = 'm0511001.stt'
  local = 'm0511001.lcl'
  ramp = 'm0511001.ram'
  artrural = 'm0511001.r_r'
/
&params
  hdgv_t = 4.9123
  lddt_t = 5.7548
  lddv_t = 5.1979
  ldgt12_t = 5.7548
  ldgt34_t = 5.7548
  ldgv_t = 5.3799
  mc_t = 0.9639

  hdgv_m = 32.1339
  lddt_m = 34.7558
  lddv_m = 14.4768
  ldgt12_m = 38.4124
  ldgt34_m = 36.4774
  ldgv_m = 28.7107
  mc_m = 8.3415

  hdgv_s = 6.88
  lddt_s = 8.06
  lddv_s = 7.28
  ldgt12_s = 8.06
  ldgt34_s = 8.06
  ldgv_s = 7.28
  mc_s = 1.35
/
```

---

## Attachment 2

### M6RatesPM Program Files

M6RatesPM.f90.....	2-1
Run_M6RatesPM.bat.....	2-2



**M6RatesPM.f90**

```

program M6RATESPM
! -----
!   compile command:      LF95   m6ratesPM.f95
!   program execution command: m6rates <mobile text file>
! -----
! This program is used to read a Mobile6 listing and to compute/write
! out 'final' running and start-up emissions used in MWCOG's
! mobile emissions calculation process.
!
! The Mobile6 PM Listings file MUST be in Mobile5b Format
! The sequence of scenarios MUST be as follows:
!
! SCENARIO: 1  PM/ Network Winter
! SCENARIO: 2  PM/ Network Spring
! SCENARIO: 3  PM/ Network Summer
! SCENARIO: 4  PM/ Network Fall
!
! SCENARIO: 5  PM/ Local   Winter
! SCENARIO: 6  PM/ Local   Spring
! SCENARIO: 7  PM/ Local   Summer
! SCENARIO: 8  PM/ Local   Fall
!
! A one line file is written out containing 8 Rates:
!
!   Network-based           Local-based
!   Winter Spring Summer Fall Rates and Winter Spring Summer Fall
!   (1)   (2)   (3)   (4)           (5)   (6)   (7)   (8)
! -----
! variable declarations
! -----

character(len=132):: line
character(len=20)  :: v1
character(len=5)  :: spdind, sped_
character(len=6)  :: spdflg, sea_, seaind
character(len=7)  :: seaflg
character(len=8)  :: scnind1, scnind2, scen_, scenflg1,scenflg2
character(len=10) :: v11, seasonrate(8)

logical :: exists

character(len=120):: inp_file

! //////////////////////////////////////
! // Read in control file information here //
! //////////////////////////////////////

call GETCL(inp_file)

INQUIRE (file=inp_file,exist=exists)
IF (.not.exists) then
write (*,8004) inp_file
8004   format (lx,' File: ',a30,' not found',/,,' Program aborted')
stop ' 8'
ENDIF

open (unit=9,file=inp_file,status='old')
open (unit=15,file='M6ratesPM.txt')

write(*,995)
995 format(/,' Reading Input Mobile6 Listing File  '//)

```

```

55 read (9,200,end=990) line
200 format(a132)
scenflg1= line(18:25) !
scenflg2= line(19:26) !
scnind1 = line(26:27) !
scnind2 = line(27:28) !
spdflg  = line(34:39) !
spdind  = line(40:44) !
seaflg  = line(48:54)
seaind  = line(56:61)
v1      = line(1:20)
v11     = line(112:121)

if (scenflg1 .eq. 'Scenario') then
scen_ = scnind1
endif
if (scenflg2 .eq. 'Scenario') then
scen_ = scnind2
endif

if (spdflg .eq. 'Speed:') then
sped_ = spdind
endif

if (seaflg .eq. 'Season:') then
sea_ = seaind
endif

if ((v1 .eq. ' Total PM:') .and. (sped_ .eq. ' 35.0') .and. &
(scen_ .eq. ' 1') .and. (sea_ .eq. 'Winter')) then
seasonrate(1) = v11
endif
if ((v1 .eq. ' Total PM:') .and. (sped_ .eq. ' 35.0') .and. &
(scen_ .eq. ' 2') .and. (sea_ .eq. 'Spring')) then
seasonrate(2) = v11
endif
if ((v1 .eq. ' Total PM:') .and. (sped_ .eq. ' 35.0') .and. &
(scen_ .eq. ' 3') .and. (sea_ .eq. 'Summer')) then
seasonrate(3) = v11
endif
if ((v1 .eq. ' Total PM:') .and. (sped_ .eq. ' 35.0') .and. &
(scen_ .eq. ' 4') .and. (sea_ .eq. 'Fall ')) then
seasonrate(4) = v11
endif
if ((v1 .eq. ' Total PM:') .and. (sped_ .eq. ' 35.0') .and. &
(scen_ .eq. ' 5') .and. (sea_ .eq. 'Winter')) then
seasonrate(5) = v11
endif
if ((v1 .eq. ' Total PM:') .and. (sped_ .eq. ' 35.0') .and. &
(scen_ .eq. ' 6') .and. (sea_ .eq. 'Spring')) then
seasonrate(6) = v11
endif
if ((v1 .eq. ' Total PM:') .and. (sped_ .eq. ' 35.0') .and. &
(scen_ .eq. ' 7') .and. (sea_ .eq. 'Summer')) then
seasonrate(7) = v11
endif
if ((v1 .eq. ' Total PM:') .and. (sped_ .eq. ' 35.0') .and. &
(scen_ .eq. ' 8') .and. (sea_ .eq. 'Fall ')) then
seasonrate(8) = v11
endif

goto 55
990 continue

```

```
45  write (15,872) sped_, seasonrate(1),      &
    seasonrate(2),      &
    seasonrate(3),      &
    seasonrate(4),      &
    seasonrate(5),      &
    seasonrate(6),      &
    seasonrate(7),      &
    seasonrate(8)
```

```
872  format(a5,8(a10))
```

```
!-----
  write(*,890)
890  format(//, '-- Normal Completion -- ')
!-----
  stop 'Normal Completion'
  end
```

## Run M6RatesPM.bat

```
:: Run the M6RATESPM program in batch
:: Run 16 times for each juris;
:: after each run rename generic output file name to
:: juris. specific name
```

```
M6RATESPM M0511001.PM
rename m6RatesPM.txt m605pmDC.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmAL.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmAR.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmCA.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmCH.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmCL.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmFR.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmFX.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmLD.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmMC.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmPG.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPW.txt m605pmCA.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmSM.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmSP.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmST.N_L

rem M6RATESPM XXXXXXXX.PM
rem rename m6RatesPM.txt m605pmWE.N_L

rem Finished
```

---

## Attachment 3

### Post Processor Batch File and TP+ Scripts

Seasonal_Emiss.bat.....	3-1
AQTRIP.S.....	3-4
ZONESPRD.S.....	3-6
Pre_Local.s.....	3-7
Peak_Spread_Seasonal_Nx.s.....	3-8
Running_Seasonal_Nx.s.....	3-16
Strt_Skr_Seasonal_Nx.s.....	3-33
Local_Seasonal_Nx.s.....	3-41



## Seasonal Emiss.bat

```
REM =====
REM Seasonal_Emiss.bat =
REM Seasonal Nx & PM Mobile Emission Estimation =
REM Year: =
REM Description: Travel Model: V21D#50 Sept 2005 =
REM Land Use: Rnd 7.0 =
REM Emission Rates: Mobile 6.2 2010 =
REM Networks: TIP 2006-11 =
REM =====

REM ===== Input File Specification Section =====

REM 'Final' Loaded Network & AM, PM, Off-Peak Trip Tables & juris level local VMT file
REM note that input file Base_Juris_VMT.txt is prepared, provided by user
REM Futr_Juris_VMT.txt is generated by the Pre_Local Program

set _inpnet_=I:\CGV2_1D_50_Sept_05_Conformity2006\2002\i6hwy.net
set _inpamt_=I:\CGV2_1D_50_Sept_05_Conformity2006\2002\i6am.vtt
set _inppmt_=I:\CGV2_1D_50_Sept_05_Conformity2006\2002\i6pm.vtt
set _inpopt_=I:\CGV2_1D_50_Sept_05_Conformity2006\2002\i6op.vtt
set _inpllocalB_=Base_Juris_VMT.txt
set _inpllocalF_=Futr_Juris_VMT.txt

REM MOBILE6 Emission File subdirectory (if needed) & Naming 'Prefix'
set _M6Sub_=I:\CGV2_1D_50_Sept_05_Conformity2006\EMISSIONS\M6Rates\2002_Season\
set _M6NxPre_=m602NX
set _M6PMPre_=m602PM

REM =====
REM ===== End of Input File Specifications =====
REM =====

REM Global Parameters:
REM _SeasonFtr_ AAWDT to Seasonal ADT ftr. (Win:0.9028/Spr: .9570/Sum: 0.9984/Fall 0.9445/)
REM _SeasonDays_ No. of Days in each Season (Win: 90/Spr: 92/Sum: 92/Fall: 91)
REM _SeasonRateNo_ Index used in Rate lookups (Win: 1/Spr: 2/Sum: 3/Fall: 4)
REM _Season_ Season label in Reports 'Winter', 'Spring', 'Summer', or 'Fall'
REM _Year_ Year label in Reports '2010' for example

REM =====
REM ===== Start TP+ program executions =====
REM =====

runtp AQTRIP.S
runtp ZONESPRD.S
runtp pre_local.s

REM #####
REM ##### Begin Winter #####
REM #####

set _Year_=2002

set _SeasonFtr_=0.9028
set _SeasonDays_=90
set _SeasonRateNo_=1
set _Season_=Winter

runtp Peak_Spread_Seasonal_Nx.S
runtp RUNNING_Seasonal_Nx.S
runtp STRT_SKR_Seasonal_Nx.S
runtp local_Seasonal_Nx.s
```

### Attachment 3: Post Processor Batch File & TP+ Scripts

---

```
copy Peak_Spread_Seasonal_Nx.rpt  %_Season_%_Peak_Spread.rpt
copy RUNNING_Seasonal_Nx.rpt     %_Season_%_RUNNING.rpt
copy STRT_SKR_Seasonal_Nx.rpt    %_Season_%_STRT_SKR.rpt
copy local_Seasonal_Nx.rpt       %_Season_%_local.rpt

del Peak_Spread_Seasonal_Nx.rpt
del RUNNING_Seasonal_Nx.rpt
del STRT_SKR_Seasonal_Nx.rpt
del local_Seasonal_Nx.rpt

copy strt_skr.txt                %_Season_%_strt_skr.txt
copy running.txt                 %_Season_%_running.txt
copy local.txt                   %_Season_%_local.txt

REM #####
REM #####      End Winter #####
REM #####

REM #####
REM #####      Begin Spring #####
REM #####

set _SeasonFtr_=0.9570
set _SeasonDays_=92
set _SeasonRateNo_=2
set _Season_=Spring

runtp  Peak_Spread_Seasonal_Nx.S
runtp  RUNNING_Seasonal_Nx.S
runtp  STRT_SKR_Seasonal_Nx.S
runtp  local_Seasonal_Nx.s

copy Peak_Spread_Seasonal_Nx.rpt  %_Season_%_Peak_Spread.rpt
copy RUNNING_Seasonal_Nx.rpt     %_Season_%_RUNNING.rpt
copy STRT_SKR_Seasonal_Nx.rpt    %_Season_%_STRT_SKR.rpt
copy local_Seasonal_Nx.rpt       %_Season_%_local.rpt

del Peak_Spread_Seasonal_Nx.rpt
del RUNNING_Seasonal_Nx.rpt
del STRT_SKR_Seasonal_Nx.rpt
del local_Seasonal_Nx.rpt

copy strt_skr.txt                %_Season_%_strt_skr.txt
copy running.txt                 %_Season_%_running.txt
copy local.txt                   %_Season_%_local.txt

REM #####
REM #####      End Spring #####
REM #####

REM #####
REM #####      Begin Summer #####
REM #####

set _SeasonFtr_=0.9984
set _SeasonDays_=92
set _SeasonRateNo_=3
set _Season_=Summer

runtp  Peak_Spread_Seasonal_Nx.S
runtp  RUNNING_Seasonal_Nx.S
runtp  STRT_SKR_Seasonal_Nx.S
runtp  local_Seasonal_Nx.s

copy Peak_Spread_Seasonal_Nx.rpt  %_Season_%_Peak_Spread.rpt
copy RUNNING_Seasonal_Nx.rpt     %_Season_%_RUNNING.rpt
copy STRT_SKR_Seasonal_Nx.rpt    %_Season_%_STRT_SKR.rpt
copy local_Seasonal_Nx.rpt       %_Season_%_local.rpt

del Peak_Spread_Seasonal_Nx.rpt
del RUNNING_Seasonal_Nx.rpt
```

### Attachment 3: Post Processor Batch File & TP+ Scripts

---

```
del STRT_SKR_Seasonal_Nx.rpt
del local_Seasonal_Nx.rpt

copy strt_skr.txt          %_Season_%_strt_skr.txt
copy running.txt          %_Season_%_running.txt
copy local.txt             %_Season_%_local.txt

REM #####
REM #####          End   Summer  #####
REM #####

REM #####
REM #####          Begin Fall  #####
REM #####

set _SeasonFtr_=0.9445
set _SeasonDays_=91
set _SeasonRateNo_=4
set _Season_=Fall

runtpg Peak_Spread_Seasonal_Nx.S
runtpg RUNNING_Seasonal_Nx.S
runtpg STRT_SKR_Seasonal_Nx.S
runtpg local_Seasonal_Nx.s

copy Peak_Spread_Seasonal_Nx.rpt %_Season_%_Peak_Spread.rpt
copy RUNNING_Seasonal_Nx.rpt    %_Season_%_RUNNING.rpt
copy STRT_SKR_Seasonal_Nx.rpt   %_Season_%_STRT_SKR.rpt
copy local_Seasonal_Nx.rpt      %_Season_%_local.rpt

del Peak_Spread_Seasonal_Nx.rpt
del RUNNING_Seasonal_Nx.rpt
del STRT_SKR_Seasonal_Nx.rpt
del local_Seasonal_Nx.rpt

copy strt_skr.txt          %_Season_%_strt_skr.txt
copy running.txt          %_Season_%_running.txt
copy local.txt             %_Season_%_local.txt

REM #####
REM #####          End   Fall   #####
REM #####

REM = Copy 4 Seasonal Starting/Running/Local Summary Files to Single Starting/Running/Local Files =

copy Winter_strt_skr.txt + Spring_strt_skr.txt + Summer_strt_skr.txt + Fall_strt_skr.txt %_year_%_strt_skr.txt
copy Winter_running.txt + Spring_running.txt + Summer_running.txt + Fall_running.txt %_year_%_running.txt
copy Winter_local.txt + Spring_local.txt + Summer_local.txt + Fall_local.txt %_year_%_local.txt

REM ===== and clear env. variables =====

set _inpnet_=
set _inpamt_=
set _inppmt_=
set _inpopt_=
set _inplocalB_=
set _inplocalF_=
set _M6Sub_=
set _M6Pre_=
set _SeasonFtr_=
set _SeasonDays_=
set _SeasonRateNo_=
set _Season_=
set _Year_=

REM ===== END =====
```

## AQTRIP.S

```

*del tppl*.PRN
; =====
; AQTRIP.S
;
; Prepare Vehicle trips tables for AQ emission estimation process
;
; =====
; Define Inputs/ Outputs / Global Variable Names/Parameters
;-----
;Input Files :
AMTRP   = '%_inpamt_%'; Iter 2 AM Vehicle Trips(spec'd in batch)
PMTRP   = '%_inppmt_%'; Iter 2 PM Vehicle Trips(spec'd in batch)
OPTRP   = '%_inpopt_%'; Iter 2 OP Vehicle Trips(spec'd in batch)

;Output Files :
daytrips = 'i224hrve.tt' ; Balanced 24Hr Veh Trips
tripends = 'trip.end' ; 24hr,am,pm,op Trip-Ends
tripdst = 'trip.dst' ; 27x27 Trip distribution

;Number Of Air Quality Juris./Extl Station TAZ Groups
aqd = '27'

;-----
;Define the 30 Air Quality Juris-Extl/TAZ Equiv -
;-----
COPY FILE=AQD_TAZ.EQV
; ; Jur Jur Rate Set
; ; -----
D 1 = 1- 319 ; DC DC 1
D 2 = 320- 627 ; Mtg Mtg 2
D 3 = 640-1020 ; PG PG 3
D 4 = 1080-1099 ; How PG 3
D 5 = 1110-1142 ; AA PG 3
D 6 = 1060-1073 ; Car PG 3
D 7 = 2172-2191 ; Balt Extls PG 3
D 8 = 1150-1163 ; Cal Cal 4
D 9 = 1200-1223 ; Chs Chs 5
D 10 = 1030-1053 ; Frd Frd 6
D 11 = 2169-2171 ; Frd Extls Frd 6
D 12 = 1230-1311 ; Arl Arl 7
D 13 = 1400-1755 ; Ffx Ffx 8
D 14 = 1780-1905 ; Ldn Ldn 9
D 15 = 1920-2061 ; PW PW 10
D 16 = 2080-2093 ; Sta Sta 11
D 17 = 1330-1389 ; Alx Alx 12
D 18 = 1170-1190 ; Stm Stm 13
D 19 = 2164-2168 ; Wash Co Extls Wash Co 14
D 20 = 2130-2132 ; Clk Clk 15
D 21 = 2115-2125 ; Fau Clk 15
D 22 = 2135-2141 ; Jef Clk 15
D 23 = 2154-2163 ; Clk Extls Clk 15
D 24 = 2105-2110 ; Spts Spts 16
D 25 = 2070-2074 ; KG Spts 16
D 26 = 2100-2101 ; Frdbg Spts 16
D 27 = 2145-2153 ; Spts Extls Spts 16
;
ENDCOPY

;-----
; Program script follows:
;-----

```

```

; Step 1.
; First read in Final Iter 2. Time per.-specific trip tables
; (they are segmented by mode)
; consolidate into daily, AM, PM, and Off-Peak trip tables, write out
;-----
;
RUN PGM=MATRIX ; - - - - -
MATI[1] = @AMTRP@ ; AM Trip file
MATI[2] = @PMTRP@ ; PM Trip file
MATI[3] = @OPTRP@ ; OP Trip file
MATO = totdayve.tem, MO=30,31,32,33 ;output trip file
; 4 -tables
; 1) daily(unbalanced)
; 2) AM Total Trips
; 3) PM Total Trips
; 4) OP Total Trips
;
; AM PM Off-Pk
;-----
MW[1] = MI.1.1 MW[11] = MI.2.1 MW[21] = MI.3.1 ; <- 1-Occ Vehs
MW[2] = MI.1.2 MW[12] = MI.2.2 MW[22] = MI.3.2 ; <- 2-Occ Vehs
MW[3] = MI.1.3 MW[13] = MI.2.3 MW[23] = MI.3.3 ; <- 3-Occ Vehs
MW[4] = MI.1.4 MW[14] = MI.2.4 MW[24] = MI.3.4 ; <- Medium Heavy Trks
MW[5] = MI.1.5 MW[15] = MI.2.5 MW[25] = MI.3.5 ; <- Airport Pax Adrs
;
; Consolidate daily, AM,PM,OPk trips here (in mtxs 30,31,32,33)
;
MW[30] = MW[1] + MW[11] + MW[21] + ; Total Veh Trips
MW[2] + MW[12] + MW[22] + ; in mw[30]
MW[3] + MW[13] + MW[23] + ;
MW[4] + MW[14] + MW[24] + ;
MW[5] + MW[15] + MW[25] ;
;
MW[31] = MW[01] + MW[02] + MW[03] + MW[04] + MW[05] ; Total AM Trips
MW[32] = MW[11] + MW[12] + MW[13] + MW[14] + MW[15] ; Total PM Trips
MW[33] = MW[21] + MW[22] + MW[23] + MW[24] + MW[25] ; Total OPk Trips
;
endrun
;=====
; Step 2.
; Read in Daily(unbalanced),AM,PM,OP veh. trip tab & get X-pose of each.
; write out ASCII zone file listing Daily(balanced), AM,PM,&OP Os/Ds.
; Write out daily balanced trip table
;-----
RUN PGM=MATRIX
MATI[1] = totdayve.tem ; 24 Hr Veh Trips/ Unbalanced
MATO = @daytrips@, MO=10 ; 24 Hr Veh Trips/ Balanced
;
MW[1] = MI.1.1 ; Total Daily Veh.Trips/Unbalanced
MW[2] = MI.1.1.T ; Total Daily Veh.Trips/Unbalanced - Transposed
;
;
MW[11] = MI.1.2 ; AM Veh.Trips/Unbalanced
MW[12] = MI.1.2.T ; AM Veh.Trips/Unbalanced - Transposed
;
;
MW[21] = MI.1.3 ; PM Veh.Trips/Unbalanced
MW[22] = MI.1.3.T ; PM Veh.Trips/Unbalanced - Transposed
;
;
MW[31] = MI.1.4 ; OP Veh.Trips/Unbalanced

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

MW[32] = MI.1.4.T ; Total OP Veh.Trips/Unbalanced - Transposed
;
;-----
; Now, balance the total daily vehicle trip table here -
; and then get the row and col totals of the daily, AM, PM, and Off- -
; peak trips -
;-----
;
MW[10]= (MW[1] + MW[2]) * 0.50

RSUM10 = ROWSUM(10) ; Zonal Row Total of daily BALANCED Veh. trips
RSUM11 = ROWSUM(11) ; Zonal Row Total of AM Veh. trips
RSUM12 = ROWSUM(12) ; Zonal Col Total of AM Veh. trips
RSUM21 = ROWSUM(21) ; Zonal Row Total of PM Veh. trips
RSUM22 = ROWSUM(22) ; Zonal Col Total of PM Veh. trips
RSUM31 = ROWSUM(31) ; Zonal Row Total of OffPk Veh. trips
RSUM32 = ROWSUM(32) ; Zonal Col Total of OffPk Veh. trips

List = I(5), rsum10(10.2), rsum10(10.2), ; Daily Bal O/Ds
        rsum11(10.2), rsum12(10.2), ; AM Os/Ds
        rsum21(10.2), rsum22(10.2), ; PM Os/Ds
        rsum31(10.2), rsum32(10.2), ; OP Os/Ds
        file=@tripends@

ENDRUN ; all done
;
;-----
; Step 3.
; Squeeze zonal daily balanced trip table to Air Quality Districts
;-----
;
RUN PGM=MATRIX
MATI[1] = @daytrips@ ; 24 Hr Veh Trips/ Balanced
MATO = sqz.tem,MO=1 ; 24 Hr Veh Trips/ Balanced squeezed
MW[1] = MI.1.1 ; Total Daily Veh.Trips/Balanced
RENUMBER FILE=AQD_TAZ.EQV, MISSINGZI=M, MISSINGZO=W
ENDRUN

;
;-----
; Step 4.
; Read squeezed district level daily balanced veh. trip table
;-----
;
RUN PGM=MATRIX
ZONES=@AQD@
ARRAY ROWCHKI=@AQD@, ROWADJ=@AQD@, ROWCHKF=@AQD@
MATI[1] = sqz.tem ;
MATO = sqzfttrxp.tem,mo=3,dec=4
MW[1] = MI.1.1 ; Total Daily Veh.Trips/Balanced/Squeezed
ROWSM1 = ROWSUM(1) ; MATRIX ROW Total
JLOOP
MW[2][J] = Round(MW[1][J] / ROWSM1 * 1000.00)
ENDJLOOP

ROWCHKI[i] = 0
ROWADJ[i] = 0
JLOOP
ROWchkI[i] = rowchkI[i] + MW[2][J] ; Initial Check
ENDJLOOP

ROWADJ[i] = 1000.0 - ROWCHKI[i]

ROWCHKF[i] = 0
JLOOP
IF (I=J)
    MW[2][J] = MW[2][J] + ROWADJ[i]
ENDIF
ENDJLOOP

JLOOP
ROWchkF[i] = rowchkF[i] + MW[2][J] ; Final Check

```

```

MW[3][J] = MW[2][J] / 1000.0
ENDJLOOP

JLOOP
LIST =I(5),J(5),MW[1](10),MW[2](10),MW[3](10.4),
        rowchkI[i](6),ROWADJ[i](6),ROWCHKF[i](6),file=distchk.asc
ENDJLOOP

RUN PGM=MATRIX
MATI = sqzfttrxp.tem
MW[1] = mi.1.1.T
PRINT FORM=6.3,
LIST =i(5),' ',
mw[1][01],', ',mw[1][02],', ',mw[1][03],', ',mw[1][04],', ',
mw[1][05],', ',mw[1][06],', ',mw[1][07],', ',mw[1][08],', ',
mw[1][09],', ',mw[1][10],', ',mw[1][11],', ',mw[1][12],', ',
mw[1][13],', ',mw[1][14],', ',mw[1][15],', ',mw[1][16],', ',
mw[1][17],', ',mw[1][18],', ',mw[1][19],', ',mw[1][20],', ',
mw[1][21],', ',mw[1][22],', ',mw[1][23],', ',mw[1][24],', ',
mw[1][25],', ',mw[1][26],', ',mw[1][27],
file=@tripdst@
ENDRUN

*copy tppl*.PRN aqtrip.rpt

```

## ZONESPRD.S

```
*DEL TPPL*.PRN
;-----
;ZONESPRD.S - This program reads zonal modeled AM/PM/Off-Pk Prd trips
;               and allocates them to each hour.  Output is a zone file
;               of hourly origins and destinations.
;-----
;
; The input file is named: trip.end (from the aqtrip.s program)
; The output files are:   hrlyorig.asc (hourly trip origins file)
;                       hrlydest.asc (hourly trip destins.file)
;
;
run pgm=matrix
zones=2191
ZDATI[1] = trip.end,z=1-5,day_o=6-15,day_d=16-25,
           am_o=26-35, am_d=36-45,
           pm_o=46-55, pm_d=56-65,
           op_o=66-75, op_d=76-85

; Set up arrays

ARRAY,
HORIG=24, ; hrly Origins
HDEST=24 ; hrly Destinations

;Establish Hrly distributions for AM, PM and Off-Pk Period Trips
;Curves taken from 1994 HTS Auto Dr. Trips in motion distributions
;Note: Hours range from 1-24, instead of 0-23
; Pcts of last hour (24) may be adjusted slightly to force normalization

LOOKUP NAME=HR_DST,           ; <<-- HRLY Trip Distributions
LOOKUP[1]=1, RESULT=2,      ; AM
LOOKUP[2]=1, RESULT=3,      ; PM
LOOKUP[3]=1, RESULT=4,      ; OP
INTERPOLATE = N,LIST=T,

R= " 1, 0.000, 0.000, 0.003, ",
   " 2, 0.000, 0.000, 0.004, ",
   " 3, 0.000, 0.000, 0.003, ",
   " 4, 0.000, 0.000, 0.003, ",
   " 5, 0.000, 0.000, 0.005, ",
   " 6, 0.000, 0.000, 0.022, ",
   " 7, 0.201, 0.000, 0.000, ",
   " 8, 0.398, 0.000, 0.000, ",
   " 9, 0.401, 0.000, 0.000, ",
   "10, 0.000, 0.000, 0.097, ",
   "11, 0.000, 0.000, 0.082, ",
   "12, 0.000, 0.000, 0.092, ",
   "13, 0.000, 0.000, 0.101, ",
   "14, 0.000, 0.000, 0.089, ",
   "15, 0.000, 0.000, 0.090, ",
   "16, 0.000, 0.000, 0.116, ",
   "17, 0.000, 0.314, 0.000, ",
   "18, 0.000, 0.373, 0.000, ",
   "19, 0.000, 0.313, 0.000, ",
   "20, 0.000, 0.000, 0.108, ",
   "21, 0.000, 0.000, 0.077, ",
   "22, 0.000, 0.000, 0.058, ",
   "23, 0.000, 0.000, 0.034, ",
   "24, 0.000, 0.000, 0.016, "

;-----
; NOTE: The hourly arrays are indexed from 1 to 24, as follows:
; 1- 12mid - 12:59AM      13- 12noon - 12:59PM
; 2- 1:00AM - 1:59AM      14- 1:00PM - 1:59PM
; 3- 2:00AM - 2:59AM      15- 2:00PM - 2:59PM
```

```
; 4- 3:00AM - 3:59AM      16- 3:00PM - 3:59PM
; 5- 4:00AM - 4:59AM      17- 4:00PM - 4:59PM
; 6- 5:00AM - 5:59AM      18- 5:00PM - 5:59PM
; 7- 6:00AM - 6:59AM      19- 6:00PM - 6:59PM
; 8- 7:00AM - 1:59AM      20- 7:00PM - 7:59PM
; 9- 8:00AM - 2:59AM      21- 8:00PM - 8:59PM
;10- 9:00AM - 3:59AM      22- 9:00PM - 9:59PM
;11-10:00AM - 4:59AM      23-10:00PM - 10:59PM
;12-11:00AM - 11:59AM     24-11:00PM - 11:59PM
;-----
;
SUM_IO = SUM_IO + am_o[i] + pm_o[i] + op_o[i] ; sum of input origins
SUM_ID = SUM_ID + am_d[i] + pm_d[i] + op_d[i] ; sum of input destinations
;-----
; Hourly Origin Trip Allocation -
;-----

LOOP IDX=1,24
HORIG[IDX] = (am_o[i] * HR_DST(1,IDX)) +
             (pm_o[i] * HR_DST(2,IDX)) +
             (op_o[i] * HR_DST(3,IDX))

HDEST[IDX] = (am_d[i] * HR_DST(1,IDX)) +
             (pm_d[i] * HR_DST(2,IDX)) +
             (op_d[i] * HR_DST(3,IDX))

;
; Let's accumulate hourly Origins/Destinations to make sure 'Outs=Ins'
;
SUM_HO = SUM_HO + HORIG[IDX] ; sum of hourly origins
SUM_HD = SUM_HD + HDEST[IDX] ; sum of hourly destinations

ENDLOOP
;
; List out Hourly hourly Origins/Destinations
;
LIST = I(5),
HORIG[01](10.2),HORIG[02](10.2),HORIG[03](10.2),HORIG[04](10.2),
HORIG[05](10.2),HORIG[06](10.2),HORIG[07](10.2),HORIG[08](10.2),
HORIG[09](10.2),HORIG[10](10.2),HORIG[11](10.2),HORIG[12](10.2),
HORIG[13](10.2),HORIG[14](10.2),HORIG[15](10.2),HORIG[16](10.2),
HORIG[17](10.2),HORIG[18](10.2),HORIG[19](10.2),HORIG[20](10.2),
HORIG[21](10.2),HORIG[22](10.2),HORIG[23](10.2),HORIG[24](10.2),
file=HRLYORIG.ASC

LIST = I(5),
HDEST[01](10.2),HDEST[02](10.2),HDEST[03](10.2),HDEST[04](10.2),
HDEST[05](10.2),HDEST[06](10.2),HDEST[07](10.2),HDEST[08](10.2),
HDEST[09](10.2),HDEST[10](10.2),HDEST[11](10.2),HDEST[12](10.2),
HDEST[13](10.2),HDEST[14](10.2),HDEST[15](10.2),HDEST[16](10.2),
HDEST[17](10.2),HDEST[18](10.2),HDEST[19](10.2),HDEST[20](10.2),
HDEST[21](10.2),HDEST[22](10.2),HDEST[23](10.2),HDEST[24](10.2),
file=HRLYDEST.ASC

endrun
;-----
*copy tppl*.prn zonesprd.rpt
```

## Pre Locals

```
*del tppl*.prn
;-----
;Pre_Local.s - This script reads a forecast loaded links file and summarizes VMT
;              at the jurisdiction level, rounding figures to 000s. This
information
;              will be read in by the LOCAL.S script to compute local emissions
run pgm=hwyload
neti = %_inpnet_%

ARRAY J_VMT_Fut = 27, ; Juris. Future Yr Network VMT Total
      J_VMT_FutRnd= 27 ; Juris. Future Yr Network VMT Total / Rounded to nearest
1000

zones = 1

LOOKUP NAME=NetEms, ; Emission jurisdiction code related to network
jurisdiction code
LOOKUP[1]=1, RESULT=2, ; Note: external VMT is not distinguished from internal
VMT
INTERPOLATE = N,LIST=T,FAIL=99,99,99, ;
;lw.JUR JCD
R=" 0, 1", ; DC
" 1, 2", ; Mtg
" 2, 3", ; PG
" 3, 12", ; Arl
" 4, 17", ; Alx
" 5, 13", ; FFx
" 6, 14", ; Ldn
" 7, 15", ; PW
" 9, 10", ; Frd
"10, 4", ; How
"11, 5", ; Aar
"12, 9", ; Chs
"14, 6", ; Car
"15, 8", ; Cal
"16, 18", ; StM
"17, 25", ; KG
"18, 26", ; Fbg
"19, 16", ; Sta
"20, 24", ; Spts
"21, 21", ; Fau
"22, 20", ; Clk
"23, 22" ; Jef

; Set up arrays
phase = linkread

t0 = li.amhtime
lw.totvol = li.i624vol
lw.distance = li.distance
lw.jur = li.jur
lw.ftype = li.ftype
lw.totvmt = lw.totvol*lw.distance

endphase

phase = iloop
;
linkloop ; select -
if (lw.ftype>0 ) ; <<--- ALL HIGHWAY links
idx =netEms(1,lw.jur)
J_VMT_Fut[idx] = J_VMT_Fut[idx] + lw.totvmt ; Juris. Future Yr Network
VMT Total
endif
endlinkloop

; Round to 1000s at Juris level and get regional totals:
```

```
loop k=1,27
J_VMT_FutRnd[K] = (Round(J_VMT_Fut[k]/1000.0)) * 1000.0 ; Juris. Future Yr
Network VMT Total
T_VMT_Fut = T_VMT_Fut + J_VMT_Fut[k]
endloop

loop k=1,27
Print form=10.0 list = k(5),' ',J_VMT_Fut[k], J_VMT_FutRnd[k],
' ; ; EmisJurCode/ VMT Unrounded /VMT Rounded to nrst 000 / reg VMT= ',
T_VMT_Fut,
File = Futr_Juris_VMT.txt

endloop
endphase
endrun
```

## Peak Spread Seasonal Nx.s

```
*del tppl*.prn
;
;-----
;Peak_Spread_Seasonal_Nx.s - Post-traffic assignment process to develop hourly
; speeds and volumes. The hourly speeds will be used
; to recompute AM, PM and Off-Peak Period Speeds which
; will be recycled back to the trip distribution process
;
; The program was built of of PEAKTST4.S which was one
; of many V2.1C post-processor alternative tests explored by
; Milone&Kirby in the Fall of 2003 for the TRB Model Review
; committee.
;
; This run includes special freeway volume overrides based
; on skycomp-based volume flow volumes for congested links
;
; -----
; Changes per V2.1 D Draft 50 Model:
; 1. Speed is NOT the minimum of pre-/post- spreaded hrly volumes, as
before.
; 2. Speed is based on the initial volume only.
; Frwy speed-flow curves now have w/ 16 mph floor for freeways (not 8mph
as before).
; 3. Original 'initial' hrly distributions adjusted so that
peaking assumptions used in traffic assignment are maintained.
; 4. The time period volumes from the traffic assignment are 'conserved'.
; i.e., The initial hourly volumes are adjusted to match assignment
loads.
; 5. Non-Freeway Speed flow curves updated.
;-----
; August/Sept 2006 Changes
; Environment Variable added : _SeasonFtr_
; factor is applied to total volume to convert avg weekday volume to
; appropriate seasonal volume
; Define Inputs/Outputs:
;
; Step 1. Accumulate regional AM&PM highway volume.
; The AM/PM totals will be stored in temporary variables
; _AMVOL and _PMVOL.
run pgm=hwynt
neti = %_inpnet_%
neto = dummy.net,include = a,b,i6amvol,i6pmvol
;
; if (a>2191 && b>2191)
; _AMVOL = _AMVOL + i6amvol
; _PMVOL = _PMVOL + i6pmvol
; endif
;
; LOG PREFIX=HWYNET , VAR =_AMVOL, _PMVOL ; pass regional AM/PM volumes figures
endrun ; out to TP MAIN as HWYNET._AMVOL &
HWYNET._PMVOL
*del dummy.net
;-----
; Step 2. (TP_MAIN)
; - Calculated ratio of regional PM volume to AM volume
; in variable: ftram
;
amtot=hwynt._amvol
pmtot=hwynt._pmvol
ftram=pmtot/amtot
; Step 3 (TP+/hwynt)
```

```
; - Apply ratio (ftram) to AM volume to develop scaled AM Volume
; - Identify AM/PM HOV link using a 0/1 'flags'(AMHOVFLG/PMHOVFLG)
; These links must be identified so that they will be allocated
; to hourly periods using special hourly distributions.
run pgm=hwynt
neti = %_inpnet_%
neto = temp.net,include = a,b,distance,spdclass,capclass,ftype,amhntime,
amlane,pmlane,oplane,i6amvol,i6pmvol,i6opvol,i624vol,jur,atype,
i6amspd,i6pmspd,i6opspd,
amhovflg,pmhovflg,ftramvol
amhovflg = 0
pmhovflg = 0
if (i6amvol = i624vol) amhovflg = 1
if (i6pmvol = i624vol) pmhovflg = 1
ftramvol = i6amvol * @ftram@ ; ftramvol is the scaled am vol so that the
regional total
endrun ; equals the pm total. The scaled vol is
used to develop a balanced ; distribution of am,pm peaking class
codes for the system below. ; It is not used for any other purpose
;-----
; Step 4. (TP+/hwynt)
; Now develop final hourly VMT and Speeds
;
run pgm=hwyload
neti = temp.net
; Set up arrays
ARRAY,
CAPA=24, ; hourly link capacities
IVOL=24, ; initial hrly volumes based on table lookup distributions
IVCR=24, ; Initial V/C ratio
IVMT=24, ; Initial VMT
ISPD=24, ; Initial Restrained Hrly Speed
XVOL=24, ; excess hrly volume- portion of initial volume exceeding capacity
NVOL=24, ; 'New' hrly volume- initial volume+excess from adjacent hr(s)
FVOL=24, ; Final hrly volume- final hourly volume (after volume spreading)
NVCR=24, ; New V/C ratio
NSPD=24, ; New Restrained Hrly Speed
FSPD=24, ; Final Restrained Hrly Speed
DSPD=24, ; Difference between Initial and Final Speed
LANE=24, ; lanes
FVMT=24 ; Final VMT
;-----
; NOTE: The hourly arrays are indexed from 1 to 24, as follows:
; 1- 12mid - 12:59AM 13- 12noon - 12:59PM
; 2- 1:00AM - 1:59AM 14- 1:00PM - 1:59PM
; 3- 2:00AM - 2:59AM 15- 2:00PM - 2:59PM
; 4- 3:00AM - 3:59AM 16- 3:00PM - 3:59PM
; 5- 4:00AM - 4:59AM 17- 4:00PM - 4:59PM
; 6- 5:00AM - 5:59AM 18- 5:00PM - 5:59PM
; 7- 6:00AM - 6:59AM 19- 6:00PM - 6:59PM
; 8- 7:00AM - 7:59AM 20- 7:00PM - 7:59PM
; 9- 8:00AM - 8:59AM 21- 8:00PM - 8:59PM
;10- 9:00AM - 9:59AM 22- 9:00PM - 9:59PM
;11-10:00AM - 10:59AM 23-10:00PM - 10:59PM
;12-11:00AM - 11:59AM 24-11:00PM - 11:59PM
;-----
;
```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

; Initial Hourly traffic distribution LOOKUP for NON-HOV Links
;-----
;Establish 9 lookup Hrly distributions
;Curves taken from M.Freeman's 8/27/02 Memo to File (Figure 5)
;Note: Hours range from 1-24, instead of 0-23
;      Pets of last hour (24) may be adjusted slightly to force normalization
;      Updated 8/25 by milone, moran
; so that assignment&peak spreader use consistent peaking assumptions
LOOKUP NAME=HR_DIST,      ; <-- HRLY distributions by peak type&Ft
LOOKUP[1]=1, RESULT=2,   ; AM / Freeway
LOOKUP[2]=1, RESULT=3,   ; AM / Arterial
LOOKUP[3]=1, RESULT=4,   ; AM / Local/Collector

LOOKUP[4]=1, RESULT=5,   ; PM / Freeway
LOOKUP[5]=1, RESULT=6,   ; PM / Arterial
LOOKUP[6]=1, RESULT=7,   ; PM / Local/Collector

LOOKUP[7]=1, RESULT=8,   ; Even / Freeway
LOOKUP[8]=1, RESULT=9,   ; Even / Arterial
LOOKUP[9]=1, RESULT=10, ; Even / Local/Collector
INTERPOLATE = N,LIST=T,
R= " 1 0.767 0.490 0.337 1.113 0.760 0.621 1.073 0.671 0.520",
   " 2 0.548 0.301 0.195 0.644 0.408 0.323 0.728 0.396 0.305",
   " 3 0.517 0.250 0.176 0.478 0.281 0.242 0.606 0.301 0.238",
   " 4 0.717 0.374 0.285 0.420 0.238 0.199 0.680 0.330 0.301",
   " 5 1.879 1.092 0.958 0.581 0.377 0.321 1.235 0.719 0.703",
   " 6 6.199 4.052 3.801 1.379 1.075 0.962 3.602 2.272 2.369",
   " 7 8.662 8.748 9.188 3.238 2.699 2.583 4.991 4.578 4.832",
   " 8 11.133 12.380 13.403 4.629 4.618 4.667 6.955 7.651 8.064",
   " 9 8.038 9.822 10.917 4.711 5.148 5.068 5.442 6.899 7.265",
   "10 6.937 6.386 6.095 3.836 4.376 4.096 5.927 6.112 5.800",
   "11 5.138 4.707 4.495 3.898 4.192 3.938 5.176 5.153 4.802",
   "12 4.679 4.531 4.509 4.208 4.674 4.543 5.148 5.404 5.141",
   "13 4.653 4.717 4.809 4.611 5.252 5.247 5.340 5.803 5.496",
   "14 4.584 4.639 4.635 4.832 5.210 5.007 5.450 5.678 5.336",
   "15 4.662 4.802 4.845 5.950 5.874 5.763 6.102 5.971 5.890",
   "16 4.703 5.092 5.167 7.319 7.139 7.034 6.801 6.619 6.679",
   "17 4.558 5.259 5.238 9.950 9.580 10.056 5.944 6.258 6.610",
   "18 4.763 5.545 5.584 10.866 10.929 11.574 6.631 7.153 7.661",
   "19 4.324 4.983 4.919 8.551 9.029 9.651 5.347 5.921 6.435",
   "20 3.655 3.903 3.716 5.613 6.012 6.167 4.994 5.294 5.452",
   "21 2.950 2.965 2.698 4.246 4.436 4.597 3.885 4.047 4.088",
   "22 2.644 2.403 2.010 3.682 3.579 3.518 3.441 3.269 3.061",
   "23 2.058 1.639 1.297 2.798 2.409 2.203 2.696 2.212 1.901",
   "24 1.232 0.920 0.723 2.447 1.705 1.620 1.806 1.289 1.052"

;;; Original / Fall 2003 Hourly Curves - Superseded -
; " 1, 0.758, 0.490, 0.337, 1.169, 0.780, 0.645, 1.022, 0.642, 0.507",
; " 2, 0.541, 0.301, 0.195, 0.677, 0.419, 0.336, 0.693, 0.379, 0.297",
; " 3, 0.511, 0.250, 0.176, 0.502, 0.288, 0.251, 0.577, 0.288, 0.232",
; " 4, 0.708, 0.374, 0.285, 0.441, 0.244, 0.207, 0.648, 0.316, 0.294",
; " 5, 1.856, 1.091, 0.959, 0.610, 0.387, 0.334, 1.176, 0.688, 0.686",
; " 6, 6.123, 4.048, 3.804, 1.449, 1.103, 1.000, 3.431, 2.175, 2.310",
; " 7, 9.488, 9.020, 9.206, 3.011, 2.603, 2.452, 5.805, 5.069, 5.153",
; " 8,10.022,11.834,13.334, 4.305, 4.454, 4.430, 6.769, 7.724, 7.985",
; " 9, 8.804,10.128,10.938, 4.381, 4.965, 4.811, 6.330, 7.639, 7.748",
; "10, 6.735, 6.373, 6.106, 4.030, 4.489, 4.257, 5.645, 5.852, 5.656",
; "11, 5.075, 4.703, 4.499, 4.095, 4.300, 4.093, 4.930, 4.933, 4.683",
; "12, 4.622, 4.527, 4.513, 4.421, 4.794, 4.721, 4.903, 5.174, 5.013",
; "13, 4.596, 4.713, 4.813, 4.844, 5.387, 5.453, 5.086, 5.556, 5.359",
; "14, 4.528, 4.635, 4.639, 5.076, 5.344, 5.204, 5.191, 5.436, 5.203",
; "15, 4.605, 4.798, 4.849, 6.251, 6.025, 5.989, 5.812, 5.717, 5.743",
; "16, 4.645, 5.087, 5.171, 8.268, 7.593, 7.701, 6.477, 6.337, 6.513",
; "17, 4.637, 5.265, 5.233, 9.493, 9.303, 9.537, 6.702, 6.859, 7.033",
; "18, 4.845, 5.551, 5.579, 9.659,10.417,11.003, 6.753, 7.301, 7.571",
; "19, 4.399, 4.988, 4.915, 8.159, 8.768, 9.153, 6.029, 6.490, 6.847",
; "20, 3.610, 3.899, 3.719, 5.897, 6.167, 6.409, 4.756, 5.068, 5.316",
; "21, 2.914, 2.962, 2.700, 4.461, 4.550, 4.778, 3.700, 3.875, 3.986",
; "22, 2.612, 2.401, 2.012, 3.868, 3.671, 3.656, 3.277, 3.130, 2.985",
; "23, 2.033, 1.637, 1.298, 2.939, 2.471, 2.290, 2.568, 2.118, 1.854",
; "24, 1.333, 0.925, 0.720, 1.994, 1.478, 1.290, 1.720, 1.234, 1.026"

```

```

;;;
;-----
; End of Hourly non-HOV traffic distribution LOOKUP
;-----
; Initial Hourly traffic distribution LOOKUP for Special HOV Links
;-----
;Establish 9 lookup Hrly distributions
;Curves taken from Fall 2002 HOV traffic counts provided by Pat Zilliaccus
; provide in Mar 2003 (undocumented).
;
LOOKUP NAME=HR_HOVD,      ; <-- HOV HRLY distributions by type
LOOKUP[1]=1, RESULT=2,   ; AM prd HOV Operation on Freeways
LOOKUP[2]=1, RESULT=3,   ; PM prd HOV Operation on Freeway
LOOKUP[3]=1, RESULT=4,   ; unused / for future use
LOOKUP[4]=1, RESULT=5,   ; unused / for future use
LOOKUP[5]=1, RESULT=6,   ; unused / for future use
LOOKUP[6]=1, RESULT=7,   ; unused / for future use
LOOKUP[7]=1, RESULT=8,   ; unused / for future use
LOOKUP[8]=1, RESULT=9,   ; unused / for future use
LOOKUP[9]=1, RESULT=10, ; unused / for future use
INTERPOLATE = N,LIST=T,
R= " 1, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   " 2, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   " 3, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   " 4, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   " 5, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   " 6, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   " 7,29.700, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   " 8,43.300, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   " 9,27.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "10, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "11, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "12, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "13, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "14, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "15, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "16, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "17, 0.000,37.300, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "18, 0.000,41.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "19, 0.000,21.700, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "20, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "21, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "22, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "23, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000",
   "24, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000, 0.000"

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

;-----
; End of HOV Hourly traffic distribution LOOKUP
;-----

;-----
; Speed Lookup tables - Speed is a function of V/C
;-----

LOOKUP NAME = SPDA,
LOOKUP[1] = 1,RESULT=2, ; FWY/RMP AT=1-2
LOOKUP[2] = 1,RESULT=3, ; FWY/RMP AT=3-4
LOOKUP[3] = 1,RESULT=4, ; FWY/RMP AT=5-7
LOOKUP[4] = 1,RESULT=5, ; MAJ AT=1-2
LOOKUP[5] = 1,RESULT=6, ; MAJ AT=3-4
LOOKUP[6] = 1,RESULT=7, ; MAJ AT=5
LOOKUP[7] = 1,RESULT=8, ; MAJ AT=6-7
LOOKUP[8] = 1,RESULT=9, ; MIN AT=1-2
LOOKUP[9] = 1,RESULT=10, ; MIN AT=3-4
LOOKUP[10] = 1,RESULT=11, ; MIN AT=5
LOOKUP[11] = 1,RESULT=12, ; MIN AT=6-7
LOOKUP[12] = 1,RESULT=13, ; COL AT=1-2
LOOKUP[13] = 1,RESULT=14, ; COL AT=3-4
LOOKUP[14] = 1,RESULT=15, ; COL AT=5
LOOKUP[15] = 1,RESULT=16, ; COL AT=6-7
LOOKUP[16] = 1,RESULT=17, ; EXP AT=1-2
LOOKUP[17] = 1,RESULT=18, ; EXP AT=3-5
LOOKUP[18] = 1,RESULT=19, ; EXP AT=6-7

INTERPOLATE = Y, LIST=T,
; UPDATED 9/23/04 Speed Flow Curves - sivasailam/milone
;
; V/C |---- Freeway ---|---- Maj Art -----|----- Minor Art -----|---- Expr -----|
; Atp-> 1-2 3-4 5-7 1-2 3-4 5 6-7 1-2 3-4 5 6-7 1-2 3-4 5 6-7 1-2 3-5 6-7
;
R= " 0.00 55.000 60.000 67.000 25.000 35.000 40.000 45.000 20.000 30.000 35.000 40.000 15.000 20.000 25.000 30.000 45.000 50.000 55.000",
" 0.10 54.945 59.945 66.940 24.300 33.600 38.600 43.600 19.400 28.900 33.800 39.200 14.500 19.300 24.300 28.800 44.945 49.939 54.933",
" 0.20 54.890 59.890 66.880 23.600 32.200 37.200 42.200 18.800 27.800 32.600 38.400 14.000 18.600 23.600 27.600 44.890 49.878 54.866",
" 0.30 54.810 59.800 66.790 22.900 30.800 35.800 40.800 18.200 26.700 31.400 37.600 13.500 17.900 22.900 26.400 44.820 49.800 54.780",
" 0.40 54.710 59.690 66.670 22.200 29.400 34.400 39.400 17.600 25.600 30.200 36.800 13.000 17.200 22.200 25.200 44.730 49.700 54.670",
" 0.50 54.570 59.540 66.490 21.500 28.000 33.000 38.000 17.000 24.500 29.000 36.000 12.500 16.500 21.500 24.000 44.620 49.578 54.536",
" 0.60 54.370 59.300 66.180 20.800 27.000 31.600 36.400 16.400 23.400 27.800 35.000 12.000 16.000 20.800 23.000 44.470 49.411 54.352",
" 0.70 54.060 58.910 65.600 20.100 26.000 30.200 34.800 15.800 22.300 26.600 34.100 11.500 15.500 20.100 22.000 44.260 49.178 54.096",
" 0.80 53.540 58.170 64.260 19.400 25.000 28.800 33.200 15.200 21.200 25.400 31.400 11.000 15.000 19.400 21.000 43.970 48.856 53.741",
" 0.90 52.560 56.560 60.840 18.700 24.000 27.400 31.600 14.600 20.100 24.200 28.700 10.500 14.500 18.700 20.000 43.530 48.367 53.203",
" 1.00 50.580 53.220 55.280 18.000 23.000 26.000 30.000 14.000 19.000 23.000 26.000 10.000 14.000 18.000 19.000 42.820 47.578 52.336",
" 1.10 46.860 48.550 49.875 16.600 20.800 23.400 27.200 12.800 17.600 21.000 23.600 9.200 12.800 16.600 17.600 41.250 45.833 50.417",
" 1.17 44.256 45.281 46.092 15.620 19.260 21.580 25.240 11.960 16.620 19.600 21.920 8.640 11.960 15.620 16.620 40.151 44.612 49.073",
" 1.20 43.140 43.880 44.470 15.200 18.600 20.800 24.400 11.600 16.200 19.000 21.200 8.400 11.600 15.200 16.200 39.680 44.089 48.498",
" 1.30 39.335 39.870 40.315 13.800 16.400 18.200 21.600 10.400 14.800 17.000 18.800 7.600 10.400 13.800 14.800 36.925 41.028 45.131",
" 1.40 35.530 35.860 36.160 12.400 14.200 15.600 18.800 9.200 13.400 15.000 16.400 6.800 9.200 12.400 13.400 34.170 37.967 41.763",
" 1.50 32.470 32.740 32.990 11.000 12.000 13.000 16.000 8.000 12.000 13.000 14.000 6.000 8.000 11.000 12.000 31.420 34.911 38.402",
" 1.60 29.410 29.620 29.820 11.000 12.000 13.000 16.000 8.000 12.000 13.000 14.000 6.000 8.000 11.000 12.000 28.670 31.856 35.041",
" 1.80 24.550 24.700 24.850 11.000 12.000 13.000 16.000 8.000 12.000 13.000 14.000 6.000 8.000 11.000 12.000 24.050 26.722 29.394",
" 2.00 20.610 20.730 20.860 11.000 12.000 13.000 16.000 8.000 12.000 13.000 14.000 6.000 8.000 11.000 12.000 20.230 22.478 24.726",
" 2.25 16.650 16.750 16.850 11.000 12.000 13.000 16.000 8.000 12.000 13.000 14.000 6.000 8.000 11.000 12.000 16.350 18.167 19.983",
"99.99 16.650 16.750 16.850 11.000 12.000 13.000 16.000 8.000 12.000 13.000 14.000 6.000 8.000 11.000 12.000 16.350 18.167 19.983"
;
;
;
;
;>>
;-----
; Added Lookup - Freeway Volume Flow (v/hr/ln) as a function of V/C -
; (D.Sivasailam 12/9/03).
; Note: Volume flows on freeways for congested conditions -
; - these values will be used to develop override hrly -
; freeway link volumes where V/C > 1.0 -
;-----

LOOKUP NAME = CFWYFLWA, ; congested freeway flow array

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

LOOKUP[1]=1, RESULT=2, ; Area Type 1
LOOKUP[2]=1, RESULT=3, ; Area Type 2
LOOKUP[3]=1, RESULT=4, ; Area Type 3
LOOKUP[4]=1, RESULT=5, ; Area Type 4
LOOKUP[5]=1, RESULT=6, ; Area Type 5
LOOKUP[6]=1, RESULT=7, ; Area Type 6
LOOKUP[7]=1, RESULT=8, ; Area Type 7
INTERPOLATE=Y, LIST=T, ; Interpolate Between Points, List out
;
; LOOKUP VALUES FOLLOW - UNITS: Vehicles Per Hour Per Lane (VPHPL)
;
; V/C AT1 AT2 AT3 AT4 AT5 AT6 AT7
;-----
R= " 1.00 1500 1600 1800 1800 2000 2000 2100 ",
" 1.20 1433 1528 1719 1719 1911 1911 2006 ",
" 1.40 1366 1457 1639 1639 1821 1821 1912 ",
" 1.60 1299 1385 1559 1559 1732 1732 1818 ",
" 1.80 1214 1295 1457 1457 1619 1619 1699 ",
" 2.00 1128 1204 1355 1355 1505 1505 1580 ",
" 2.25 1017 1085 1221 1221 1356 1356 1424 ",
"99.99 1017 1085 1221 1221 1356 1356 1424 "
;>>
;-----
; End of Speed Lookup tables -
;-----

zones = 1

phase = linkread
t0 = li.amhtime

;
lw.amcap = capacityfor(li.amlane,li.capclass)
lw.pmcap = capacityfor(li.pmlane,li.capclass)
lw.opcap = capacityfor(li.oplane,li.capclass)

lw.amlane = li.amlane
lw.pmlane = li.pmlane
lw.oplane = li.oplane

lw.ffspd = speedfor(1,li.spdclass)
lw.distance = li.distance

lw.amspd = li.i6amspd
lw.pmspd = li.i6pmspd
lw.opspd = li.i6opspd

lw.amvol = li.i6amvol * %_SeasonFtr_%
lw.pmvol = li.i6pmvol * %_SeasonFtr_%
lw.opvol = li.i6opvol * %_SeasonFtr_%
lw.totvol = li.i624vol * %_SeasonFtr_%

lw.amvmt = lw.amvol*lw.distance
lw.pmvmt = lw.pmvol*lw.distance
lw.opvmt = lw.opvol*lw.distance

lw.ftramvol = li.ftramvol

lw.ftype = li.ftype
lw.atype = li.atype
lw.jur = li.jur
lw.amhovflg = li.amhovflg
lw.pmhovflg = li.pmhovflg

endphase

phase = iloop
;
linkloop ; select -

```

```

if (lw.ftype>0 ) ; <<--- ALL HIGHWAY links
;-----
; Define peaking class 1, 2, or 3 (AM, PM, or Even) -
; Note AM,PM tolerances originally set to +/-7.5% changed to +/- 10% -
;-----
;
if (lw.totvol = 0)
pkdfpct = 0
else
pkdfpct = ((lw.ftramvol - lw.pmvol) / lw.totvol) * 100.00
endif

if (pkdfpct > 7.50)
pkclass = 1 ; AM type peaking
elseif (pkdfpct < -7.50)
pkclass = 2 ; PM type peaking
else
pkclass = 3 ; Even type peaking
endif

;
;-----
; Define Facility Class 1, 2, or 3 (freeway, arterial, collector/local) -
;-----
;
if (lw.ftype = 1 || lw.ftype = 5 || lw.ftype = 6)
ftclass = 1 ; Freeway/Expresway/Ramp
elseif (lw.ftype = 2 || lw.ftype = 3)
ftclass = 2 ; Arterial
else
ftclass = 3 ; local
endif

;
;-----
; Define Joint Peak / Facility (JPF) Class 1-9
;-----
;
if (pkclass = 1 && ftclass = 1) jpf = 1 ; AM/freeway
if (pkclass = 1 && ftclass = 2) jpf = 2 ; AM/arterial
if (pkclass = 1 && ftclass = 3) jpf = 3 ; AM/collector/local

if (pkclass = 2 && ftclass = 1) jpf = 4 ; PM/freeway
if (pkclass = 2 && ftclass = 2) jpf = 5 ; PM/arterial
if (pkclass = 2 && ftclass = 3) jpf = 6 ; PM/collector/local

if (pkclass = 3 && ftclass = 1) jpf = 7 ; Even/freeway
if (pkclass = 3 && ftclass = 2) jpf = 8 ; Even/arterial
if (pkclass = 3 && ftclass = 3) jpf = 9 ; Even/collector/local

;
;-----
; Now apply the appropriate initial distributions to daily volume -
; and compute initial capacities to develop IVOL & CAPA hourly arrays -
; Note: Hourly AM,PM,Off-Pk volumes may not sum to period volumes in -
; the loaded links file. reconciliation will occur following the initial -
; allocation of hourly volumes IVOL[1] ... IVOL[24]
;-----
;
LOOP IDX=1,24
IF (lw.amhovflg = 0 && lw.pmhovflg = 0 ) ; if link is operating all day...
IVOL[idx] = (HR_DIST(jpf,idx) * lw.totvol)/100.0 ; initial hrly volume
ENDIF

IF (lw.amhovflg = 1) ; if link operates during AM hrs...

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

    IVOL[idx] = (HR_HOVD(1,idx) * lw.totvol)/100.0 ; initial hrly volume
ENDIF
IF (lw.pmhovflg = 1) ; if link operates during PM hrs...
    IVOL[idx] = (HR_HOVD(2,idx) * lw.totvol)/100.0 ; initial hrly volume
ENDIF
; Define Hourly lanes and capacities
;
if (idx > 6 && idx < 10) ; compute capacity
    capa[idx] = lw.amcap ; based on time slot
    lane[idx] = lw.amlane ;;> am lanes
elseif (idx > 16 && idx < 20)
    capa[idx] = lw.pmcap
    lane[idx] = lw.pmlane ;;> pm lanes
else
    capa[idx] = lw.opcap
    lane[idx] = lw.oplane ;;> op lanes
endif
ENDLOOP

;-----
; Next factor the link hourly volumes to ensure they are equal to the
; the period volumes of the input loaded links file.
;
;-----
_iniamvol = IVOL[7] + IVOL[8] + IVOL[9]
_inipmvol = IVOL[17] + IVOL[18] + IVOL[19]
_iniopvol = lw.totvol - (_iniamvol + _inipmvol)

LOOP IDX=1,24
IF (IDX = 7, 8, 9 && _iniamvol > 0)
    IVOL[idx] = IVOL[idx] * (lw.amvol/_iniamvol)
ELSEIF (IDX = 17,18,19 && _inipmvol > 0)
    IVOL[idx] = IVOL[idx] * (lw.pmvol/_inipmvol)
ELSEIF (_iniopvol > 0)
    IVOL[idx] = IVOL[idx] * ((lw.totvol-(lw.amvol+lw.pmvol)) / _iniopvol)
ENDIF

; Compute the Initial VMT
;
IVMT[IDX] = IVOL[IDX]* lw.DISTANCE ;Final VMT = Final/Spread Vol
; * Distance

;
; Compute the Initial V/C
;
IVCR[IDX] = (IVOL[IDX] / CAPA[IDX])
;
; Compute the INITIAL Speed based on INITIAL V/C
; Lookup Curves based on Facility type and Area Type
IF (lw.ftype = 1,6 && lw.atype = 1,2)
    ISPD[IDX] = SPDA(1,IVCR[IDX])
ENDIF
IF (lw.ftype = 1,6 && lw.atype = 3,4)
    ISPD[IDX] = SPDA(2,IVCR[IDX])
ENDIF
IF (lw.ftype = 1,6 && lw.atype = 5-7)
    ISPD[IDX] = SPDA(3,IVCR[IDX])
ENDIF
IF (lw.ftype = 2 && lw.atype = 1-2)
    ISPD[IDX] = SPDA(4,IVCR[IDX])

```

```

ENDIF
IF (lw.ftype = 2 && lw.atype = 3-4)
    ISPD[IDX] = SPDA(5,IVCR[IDX])
ENDIF
IF (lw.ftype = 2 && lw.atype = 5)
    ISPD[IDX] = SPDA(6,IVCR[IDX])
ENDIF
IF (lw.ftype = 2 && lw.atype = 6-7)
    ISPD[IDX] = SPDA(7,IVCR[IDX])
ENDIF
IF (lw.ftype = 3 && lw.atype = 1-2)
    ISPD[IDX] = SPDA(8,IVCR[IDX])
ENDIF
IF (lw.ftype = 3 && lw.atype = 3-4)
    ISPD[IDX] = SPDA(9,IVCR[IDX])
ENDIF
IF (lw.ftype = 3 && lw.atype = 5)
    ISPD[IDX] = SPDA(10,IVCR[IDX])
ENDIF
IF (lw.ftype = 3 && lw.atype = 6-7)
    ISPD[IDX] = SPDA(11,IVCR[IDX])
ENDIF
IF (lw.ftype = 4 && lw.atype = 1-2)
    ISPD[IDX] = SPDA(12,IVCR[IDX])
ENDIF
IF (lw.ftype = 4 && lw.atype = 3-4)
    ISPD[IDX] = SPDA(13,IVCR[IDX])
ENDIF
IF (lw.ftype = 4 && lw.atype = 5)
    ISPD[IDX] = SPDA(14,IVCR[IDX])
ENDIF
IF (lw.ftype = 4 && lw.atype = 6-7)
    ISPD[IDX] = SPDA(15,IVCR[IDX])
ENDIF
IF (lw.ftype = 5 && lw.atype = 1-2)
    ISPD[IDX] = SPDA(16,IVCR[IDX])
ENDIF
IF (lw.ftype = 5 && lw.atype = 3-5)
    ISPD[IDX] = SPDA(17,IVCR[IDX])
ENDIF
IF (lw.ftype = 5 && lw.atype = 6-7)
    ISPD[IDX] = SPDA(18,IVCR[IDX])
ENDIF
ENDLOOP

;-----
; Now, invoke peak spreading routine to develop 'final' volumes
;-----
NVOL[18]=IVOL[18] ; Hour 18 (PM Peak hour 5-6PM)
NVOL[17]=IVOL[17] ;
NVOL[19]=IVOL[19] ;
FVOL[18]=IVOL[18] ; spread to
IF (NVOL[18] > CAPA[18] ; shoulder hrs (17/19)
    FVOL[18] = CAPA[18]
;;> -- freeway override --
if (lw.ftype=1)
    FVOL[18] = CFWYFLWA(lw.atype,IVCR[18]) * lane[18]
endif
;;>
XVOL[18] = NVOL[18] - FVOL[18] ; -- a 50/50 split
NVOL[17] = IVOL[17] + (XVOL[18]*0.50)
NVOL[19] = IVOL[19] + (XVOL[18]*0.50) ;
ENDIF
NVOL[8]=IVOL[8] ; Hour 8 (AM Peak hour 7-8AM)

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

NVOL[7]=IVOL[7] ;
NVOL[9]=IVOL[9] ;
FVOL[8]=IVOL[8] ; spread to
IF (NVOL[8] > CAPA[8]) ; shoulder hrs (7/9)
FVOL[8] = CAPA[8]
;;> -- freeway override --
if (lw.ftype=1)
FVOL[8] = CFWYFLWA(lw.atype,IVCR[8]) * lane[8]
endif
;;>
XVOL[8] = NVOL[8] - FVOL[8] ; -- a 50/50 split
NVOL[7] = IVOL[7] + (XVOL[8]*0.50) ;
NVOL[9] = IVOL[9] + (XVOL[8]*0.50) ;
ENDIF

LOOP IDX = 7,2,-1 ; Pre- AM Peak
FVOL[IDX] = NVOL[IDX] ; Spread (hrs 7-2)
IF (NVOL[IDX] > CAPA[IDX]) ;
FVOL[IDX] = CAPA[IDX]
;;> -- freeway override --
if (lw.ftype=1)
FVOL[IDX] = CFWYFLWA(lw.atype,IVCR[IDX]) * lane[idx]
endif
;;>
XVOL[IDX] = NVOL[IDX] - FVOL[IDX] ;
ENDIF
TMP=(IDX-1) ;
NVOL[TMP] = IVOL[TMP]+XVOL[IDX] ;
ENDLOOP
NVOL[1] = IVOL[1] + XVOL[2] ; Hour 1 / No spread
FVOL[1] = IVOL[1] + XVOL[2] ; Hour 1 / No spread
; even if > capacity

LOOP IDX = 9,12 ; Post-AM Peak
FVOL[IDX] = NVOL[IDX] ; Spread (hrs 9-12)
IF (NVOL[IDX] > CAPA[IDX]) ;
FVOL[IDX] = CAPA[IDX]
;;> -- freeway override --
if (lw.ftype=1)
FVOL[IDX] = CFWYFLWA(lw.atype,IVCR[IDX]) * lane[idx]
endif
;;>
XVOL[IDX] = NVOL[IDX] - FVOL[IDX] ;
ENDIF
TMP=(IDX+1) ;
NVOL[TMP] = IVOL[TMP]+XVOL[IDX] ;
ENDLOOP

LOOP IDX = 17,14,-1 ; Pre- PM Peak
FVOL[IDX] = NVOL[IDX] ; Spread (hrs 17-14)
IF (NVOL[IDX] > CAPA[IDX]) ;
FVOL[IDX] = CAPA[IDX]
;;> -- freeway override --
if (lw.ftype=1)
FVOL[IDX] = CFWYFLWA(lw.atype,IVCR[IDX]) * lane[idx]
endif
;;>
XVOL[IDX] = NVOL[IDX] - FVOL[IDX] ;
ENDIF
TMP=(IDX-1) ;
NVOL[TMP] = IVOL[TMP]+XVOL[IDX] ;
ENDLOOP
NVOL[13] = IVOL[13] + XVOL[12] + XVOL[14] ; Hour 13 (Noon Hr)
FVOL[13] = IVOL[13] + XVOL[12] + XVOL[14] ; Hour 13 (Noon Hr)
; No Spread

LOOP IDX = 19,23 ; Post-PM Peak
FVOL[IDX] = NVOL[IDX] ; Spread (hrs 19-23)

```

```

IF (NVOL[IDX] > CAPA[IDX]) ;
FVOL[IDX] = CAPA[IDX]
;;> -- freeway override --
if (lw.ftype=1)
FVOL[IDX] = CFWYFLWA(lw.atype,IVCR[IDX]) * lane[idx]
endif
;;>
XVOL[IDX] = NVOL[IDX] - FVOL[IDX] ;
ENDIF
TMP=(IDX+1) ;
NVOL[TMP] = IVOL[TMP]+XVOL[IDX] ;
ENDLOOP
NVOL[24] = IVOL[24] + XVOL[23] ; Hour 24 (Last Hr)
FVOL[24] = IVOL[24] + XVOL[23] ; Hour 24 (Last Hr)
; no Spread
;
;-----
; Now we're finished with the 'final' hourly volume development.
; Next, compute hourly V/C ratio, volume delay function, and Speed
; using the 'final' hourly volume. also compute Final VMT
; Note that the VC is based on NVOL, or the NONSPREADED volume (IVOL+XVOL)
;
;-----
LOOP IDX=1,24
;; NVCR[IDX] =(NVOL[IDX] / CAPA[IDX])
;;>
NVCR[IDX] =(FVOL[IDX] / CAPA[IDX])
if (lw.ftype = 1 && IVCR[IDX] > NVCR[IDX])
NVCR[IDX] = IVCR[IDX]
endif
;;>
; Compute the NEW Speed based on NEW V/C ratio
;
IF (lw.ftype = 1,6 && lw.atype = 1,2)
NSPD[IDX] = SPDA(1,NVCR[IDX])
ENDIF
IF (lw.ftype = 1,6 && lw.atype = 3,4)
NSPD[IDX] = SPDA(2,NVCR[IDX])
ENDIF
IF (lw.ftype = 1,6 && lw.atype = 5-7)
NSPD[IDX] = SPDA(3,NVCR[IDX])
ENDIF

IF (lw.ftype = 2 && lw.atype = 1-2)
NSPD[IDX] = SPDA(4,NVCR[IDX])
ENDIF
IF (lw.ftype = 2 && lw.atype = 3-4)
NSPD[IDX] = SPDA(5,NVCR[IDX])
ENDIF
IF (lw.ftype = 2 && lw.atype = 5)
NSPD[IDX] = SPDA(6,NVCR[IDX])
ENDIF
IF (lw.ftype = 2 && lw.atype = 6-7)
NSPD[IDX] = SPDA(7,NVCR[IDX])
ENDIF

IF (lw.ftype = 3 && lw.atype = 1-2)
NSPD[IDX] = SPDA(8,NVCR[IDX])
ENDIF
IF (lw.ftype = 3 && lw.atype = 3-4)
NSPD[IDX] = SPDA(9,NVCR[IDX])
ENDIF
IF (lw.ftype = 3 && lw.atype = 5)
NSPD[IDX] = SPDA(10,NVCR[IDX])
ENDIF
IF (lw.ftype = 3 && lw.atype = 6-7)
NSPD[IDX] = SPDA(11,NVCR[IDX])

```



### *Attachment 3: Post Processor Batch File & TP+ Scripts*

---

```
IVOL[idx] = 0
IVCR[idx] = 0
IVMT[idx] = 0
ISPD[idx] = 0
XVOL[idx] = 0
NVOL[idx] = 0
FVOL[idx] = 0
NVCR[idx] = 0
NSPD[idx] = 0
FSPD[idx] = 0
DSPD[idx] = 0
LANE[idx] = 0
FVMT[idx] = 0
endloop
```

```
endlinkloop
```

```
endphase
endrun
```

```
; -----
*copy tppl*.prn peak_spread.rpt
```

## Running Seasonal Nx.s

```

*del ttpl*.prn
;-----
; Program: RUNNING_Seasonal_Nx.S
;
; Calculate running Nx emissions by Season
; using hourly volumes developed from
; the Peak_Spread.S program
; Updates
; 8/19/05 Added GMperTN Parameter
; 8/31/05 added 'txt' file creation for printing jurisdictional results
; added _Year_, _Season_, _SeasonFtr_, _SeasonRateNo_ environmental variables
;-----

INNET  ='temp.net'      ; input basic network
HRNETVMT='hourlylk.vmt' ; input hourly vmt
HRNETSPD='hourlylk.spd' ; input hourly speed
JTRPDST='trip.dst'     ; veh trip juris level distr
GMperTN = 907184.74    ; Grams oper Ton parameter
SNO=%_SeasonRateNo_%  ; Season rate no. 1/Winter, 2/Spring, 3/Summer, 4/Fall
;-----
; Emission -
;-----
; 1) DC          15) PW
; 2) Mtg         16) Sta
; 3) PG          17) Alx
; 4) How         18) STM
; 5) Aar         19) WashCoExtls  2164-2168
; 6) Car         20) Clk
; 7) Balt Extls 2172-2191 21) Fau
; 8) Cal         22) Jef
; 9) Chs         23) VA W.Extls  2154-2163
; 10) Frd        24) Spts
; 11) Frd. Extls 2169-2171 25) KG
; 12) Arl        26) Fbg
; 13) FFX        27) VA S.Extls  2145-2153
; 14) Ldn
;-----
j01A_RAT='%_m6Sub_%%_m6NxPre_%dc.r.a'; DC      Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j02A_RAT='%_m6Sub_%%_m6NxPre_%mc.r.a'; Mtg      Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j03A_RAT='%_m6Sub_%%_m6NxPre_%pg.r.a'; PG       Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j04A_RAT='%_m6Sub_%%_m6NxPre_%pg.r.a'; "       Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j05A_RAT='%_m6Sub_%%_m6NxPre_%pg.r.a'; "       Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j06A_RAT='%_m6Sub_%%_m6NxPre_%pg.r.a'; "       Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j07A_RAT='%_m6Sub_%%_m6NxPre_%pg.r.a'; "       Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j08A_RAT='%_m6Sub_%%_m6NxPre_%ca.r.a'; Cal      Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j09A_RAT='%_m6Sub_%%_m6NxPre_%ch.r.a'; Chs     Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j10A_RAT='%_m6Sub_%%_m6NxPre_%fr.r.a'; Frd     Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j11A_RAT='%_m6Sub_%%_m6NxPre_%fr.r.a'; "       Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j12A_RAT='%_m6Sub_%%_m6NxPre_%ar.r.a'; Arl     Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j13A_RAT='%_m6Sub_%%_m6NxPre_%fx.r.a'; Ffx     Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j14A_RAT='%_m6Sub_%%_m6NxPre_%ld.r.a'; Ldn     Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j15A_RAT='%_m6Sub_%%_m6NxPre_%pw.r.a'; PW     Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)

```

```

j16A_RAT='%_m6Sub_%%_m6NxPre_%st.r.a'; Sta    Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j17A_RAT='%_m6Sub_%%_m6NxPre_%al.r.a'; Alx    Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j18A_RAT='%_m6Sub_%%_m6NxPre_%sm.r.a'; StM    Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j19A_RAT='%_m6Sub_%%_m6NxPre_%we.r.a'; Wash   Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j20A_RAT='%_m6Sub_%%_m6NxPre_%cl.r.a'; Clk    Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j21A_RAT='%_m6Sub_%%_m6NxPre_%cl.r.a'; "     Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j22A_RAT='%_m6Sub_%%_m6NxPre_%cl.r.a'; "     Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j23A_RAT='%_m6Sub_%%_m6NxPre_%cl.r.a'; "     Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j24A_RAT='%_m6Sub_%%_m6NxPre_%sp.r.a'; Spts   Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j25A_RAT='%_m6Sub_%%_m6NxPre_%sp.r.a'; "     Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j26A_RAT='%_m6Sub_%%_m6NxPre_%sp.r.a'; "     Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j27A_RAT='%_m6Sub_%%_m6NxPre_%sp.r.a'; "     Art 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
;-----
j01F_RAT='%_m6Sub_%%_m6NxPre_%dc.r.f'; DC      Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j02F_RAT='%_m6Sub_%%_m6NxPre_%mc.r.f'; Mtg     Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j03F_RAT='%_m6Sub_%%_m6NxPre_%pg.r.f'; PG     Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j04F_RAT='%_m6Sub_%%_m6NxPre_%pg.r.f'; "     Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j05F_RAT='%_m6Sub_%%_m6NxPre_%pg.r.f'; "     Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j06F_RAT='%_m6Sub_%%_m6NxPre_%pg.r.f'; "     Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j07F_RAT='%_m6Sub_%%_m6NxPre_%pg.r.f'; "     Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j08F_RAT='%_m6Sub_%%_m6NxPre_%ca.r.f'; Cal    Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j09F_RAT='%_m6Sub_%%_m6NxPre_%ch.r.f'; Chs    Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j10F_RAT='%_m6Sub_%%_m6NxPre_%fr.r.f'; Frd    Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j11F_RAT='%_m6Sub_%%_m6NxPre_%fr.r.f'; "     Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j12F_RAT='%_m6Sub_%%_m6NxPre_%ar.r.f'; Arl    Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j13F_RAT='%_m6Sub_%%_m6NxPre_%fx.r.f'; Ffx    Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j14F_RAT='%_m6Sub_%%_m6NxPre_%ld.r.f'; Ldn    Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j15F_RAT='%_m6Sub_%%_m6NxPre_%pw.r.f'; PW     Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j16F_RAT='%_m6Sub_%%_m6NxPre_%st.r.f'; Sta    Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j17F_RAT='%_m6Sub_%%_m6NxPre_%al.r.f'; Alx    Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j18F_RAT='%_m6Sub_%%_m6NxPre_%sm.r.f'; StM    Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j19F_RAT='%_m6Sub_%%_m6NxPre_%we.r.f'; Wash   Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j20F_RAT='%_m6Sub_%%_m6NxPre_%cl.r.f'; Clk    Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j21F_RAT='%_m6Sub_%%_m6NxPre_%cl.r.f'; "     Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j22F_RAT='%_m6Sub_%%_m6NxPre_%cl.r.f'; "     Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j23F_RAT='%_m6Sub_%%_m6NxPre_%cl.r.f'; "     Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

j24F_RAT='%_m6Sub_%%_m6NxPre_&sp.r.f'; Spts Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j25F_RAT='%_m6Sub_%%_m6NxPre_&sp.r.f'; " Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j26F_RAT='%_m6Sub_%%_m6NxPre_&sp.r.f'; " Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j27F_RAT='%_m6Sub_%%_m6NxPre_&sp.r.f'; " Fwy 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
;-----
j01R_RAT='%_m6Sub_%%_m6NxPre_&dc.ram'; DC Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j02R_RAT='%_m6Sub_%%_m6NxPre_&mc.ram'; Mtg Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j03R_RAT='%_m6Sub_%%_m6NxPre_&pg.ram'; PG Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j04R_RAT='%_m6Sub_%%_m6NxPre_&pg.ram'; " Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j05R_RAT='%_m6Sub_%%_m6NxPre_&pg.ram'; " Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j06R_RAT='%_m6Sub_%%_m6NxPre_&pg.ram'; " Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j07R_RAT='%_m6Sub_%%_m6NxPre_&pg.ram'; " Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j08R_RAT='%_m6Sub_%%_m6NxPre_&ca.ram'; Cal Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j09R_RAT='%_m6Sub_%%_m6NxPre_&ch.ram'; Chs Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j10R_RAT='%_m6Sub_%%_m6NxPre_&fr.ram'; Frd Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j11R_RAT='%_m6Sub_%%_m6NxPre_&fr.ram'; " Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j12R_RAT='%_m6Sub_%%_m6NxPre_&ar.ram'; Arl Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j13R_RAT='%_m6Sub_%%_m6NxPre_&fx.ram'; Ffx Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j14R_RAT='%_m6Sub_%%_m6NxPre_&ld.ram'; Ldn Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j15R_RAT='%_m6Sub_%%_m6NxPre_&pw.ram'; PW Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j16R_RAT='%_m6Sub_%%_m6NxPre_&st.ram'; Sta Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j17R_RAT='%_m6Sub_%%_m6NxPre_&al.ram'; Alx Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j18R_RAT='%_m6Sub_%%_m6NxPre_&sm.ram'; StM Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j19R_RAT='%_m6Sub_%%_m6NxPre_&we.ram'; Wash Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j20R_RAT='%_m6Sub_%%_m6NxPre_&cl.ram'; Clk Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j21R_RAT='%_m6Sub_%%_m6NxPre_&cl.ram'; " Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j22R_RAT='%_m6Sub_%%_m6NxPre_&cl.ram'; " Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j23R_RAT='%_m6Sub_%%_m6NxPre_&cl.ram'; " Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j24R_RAT='%_m6Sub_%%_m6NxPre_&sp.ram'; Spts Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j25R_RAT='%_m6Sub_%%_m6NxPre_&sp.ram'; " Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j26R_RAT='%_m6Sub_%%_m6NxPre_&sp.ram'; " Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
j27R_RAT='%_m6Sub_%%_m6NxPre_&sp.ram'; " Rmp 4 Seasonal Nx Rates
(Wntr,Sprg,Summr,Fall)
;-----
j01PM_RAT='%_m6Sub_%%_m6PMPre_&dc.n.l'; DC Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j02PM_RAT='%_m6Sub_%%_m6PMPre_&mc.n.l'; Mtg Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j03PM_RAT='%_m6Sub_%%_m6PMPre_&pg.n.l'; PG Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)

```

```

j04PM_RAT='%_m6Sub_%%_m6PMPre_&pg.n.l'; " Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j05PM_RAT='%_m6Sub_%%_m6PMPre_&pg.n.l'; " Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j06PM_RAT='%_m6Sub_%%_m6PMPre_&pg.n.l'; " Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j07PM_RAT='%_m6Sub_%%_m6PMPre_&pg.n.l'; " Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j08PM_RAT='%_m6Sub_%%_m6PMPre_&ca.n.l'; Cal Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j09PM_RAT='%_m6Sub_%%_m6PMPre_&ch.n.l'; Chs Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j10PM_RAT='%_m6Sub_%%_m6PMPre_&fr.n.l'; Frd Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j11PM_RAT='%_m6Sub_%%_m6PMPre_&fr.n.l'; " Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j12PM_RAT='%_m6Sub_%%_m6PMPre_&ar.n.l'; Arl Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j13PM_RAT='%_m6Sub_%%_m6PMPre_&fx.n.l'; Ffx Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j14PM_RAT='%_m6Sub_%%_m6PMPre_&ld.n.l'; Ldn Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j15PM_RAT='%_m6Sub_%%_m6PMPre_&pw.n.l'; PW Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j16PM_RAT='%_m6Sub_%%_m6PMPre_&st.n.l'; Sta Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j17PM_RAT='%_m6Sub_%%_m6PMPre_&al.n.l'; Alx Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j18PM_RAT='%_m6Sub_%%_m6PMPre_&sm.n.l'; StM Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j19PM_RAT='%_m6Sub_%%_m6PMPre_&we.n.l'; Wash Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j20PM_RAT='%_m6Sub_%%_m6PMPre_&cl.n.l'; Clk Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j21PM_RAT='%_m6Sub_%%_m6PMPre_&cl.n.l'; " Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j22PM_RAT='%_m6Sub_%%_m6PMPre_&cl.n.l'; " Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j23PM_RAT='%_m6Sub_%%_m6PMPre_&cl.n.l'; " Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j24PM_RAT='%_m6Sub_%%_m6PMPre_&sp.n.l'; Spts Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j25PM_RAT='%_m6Sub_%%_m6PMPre_&sp.n.l'; " Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j26PM_RAT='%_m6Sub_%%_m6PMPre_&sp.n.l'; " Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)
j27PM_RAT='%_m6Sub_%%_m6PMPre_&sp.n.l'; " Seasonal PM Rates
(Wntr,Sprg,Summr,Fall)

run pgm=hwynet
neti = @innet@
neto = temp2.net

linki[2] = @hrnetvmt@ var = a, b,
vmt01 vmt02,vmt03,vmt04,vmt05,vmt06,vmt07,vmt08,vmt09,vmt10,
vmt11 vmt12,vmt13,vmt14,vmt15,vmt16,vmt17,vmt18,vmt19,vmt20,
vmt21 vmt22,vmt23,vmt24

linki[3] = @hrnetspd@ var = a, b,
spd01 spd02,spd03,spd04,spd05,spd06,spd07,spd08,spd09,spd10,
spd11 spd12,spd13,spd14,spd15,spd16,spd17,spd18,spd19,spd20,
spd21 spd22,spd23,spd24

; CREATE SOME FREQUENCY-CROSSTABS FOR CHECKING
; if (i624vol > 0 && FType >0)
; _cnt=1
;else
; _cnt =0
;endif
;CROSSTAB VAR=_CNT,ROW=FTYPE, RANGE=0-5-1,0-5
;CROSSTAB VAR=_CNT,ROW=FTYPE, RANGE=1-7-1, COL=OPLANE, RANGE=1-7-1

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

IF (A=3192-3200 ) ;**debug selection
  list = a(6), b(6), ftype(3)
endif
endrun

run pgm=hwyload
  neti = temp2.net
; Set up arrays
array, ;
  vmt =24, ; Hourly VMT
  spd =24, ; Hourly Speed
  CPR =24, ; Hourly composite PM Network Rate
  CNR =24, ; Hourly composite Nx Rate
  PEM =24, ; Hourly PM emissions
  NEM =24 ; Hourly Nx emissions

; Set up Lookup tables
;-----
; Jurisdictional Trip Distribution Array
;-----
LOOKUP NAME=JDST, ;
  LOOKUP[01]=1, RESULT=2, ;
  LOOKUP[02]=1, RESULT=3, ;
  LOOKUP[03]=1, RESULT=4, ;
  LOOKUP[04]=1, RESULT=5, ;
  LOOKUP[05]=1, RESULT=6, ;
  LOOKUP[06]=1, RESULT=7, ;
  LOOKUP[07]=1, RESULT=8, ;
  LOOKUP[08]=1, RESULT=9, ;
  LOOKUP[09]=1, RESULT=10, ;
  LOOKUP[10]=1, RESULT=11, ;
  LOOKUP[11]=1, RESULT=12, ;
  LOOKUP[12]=1, RESULT=13, ;
  LOOKUP[13]=1, RESULT=14, ;
  LOOKUP[14]=1, RESULT=15, ;
  LOOKUP[15]=1, RESULT=16, ;
  LOOKUP[16]=1, RESULT=17, ;
  LOOKUP[17]=1, RESULT=18, ;
  LOOKUP[18]=1, RESULT=19, ;
  LOOKUP[19]=1, RESULT=20, ;
  LOOKUP[20]=1, RESULT=21, ;
  LOOKUP[21]=1, RESULT=22, ;
  LOOKUP[22]=1, RESULT=23, ;
  LOOKUP[23]=1, RESULT=24, ;
  LOOKUP[24]=1, RESULT=25, ;
  LOOKUP[25]=1, RESULT=26, ;
  LOOKUP[26]=1, RESULT=27, ;
  LOOKUP[27]=1, RESULT=28, ;
  INTERPOLATE = N,LIST=T,File=@JRTRPDST@

;-----
; Emission Rate Speed Lookups by jurisdiction
;-----
; ARTERIAL Seasonal Nx Rates LOOK-Ups Here (1/Winter,2/Spring,3/Summer,4/Fall)
;-----
LOOKUP NAME=J01AR, ;
  LOOKUP[1]=1, RESULT=2, ;
  LOOKUP[2]=1, RESULT=3, ;
  LOOKUP[3]=1, RESULT=4, ;
  LOOKUP[4]=1, RESULT=5, ;
  INTERPOLATE = N,LIST=T,file=@J01A_RAT@

LOOKUP NAME=J02AR, ;
  LOOKUP[1]=1, RESULT=2, ;
  LOOKUP[2]=1, RESULT=3, ;
  LOOKUP[3]=1, RESULT=4, ;
  LOOKUP[4]=1, RESULT=5, ;
  INTERPOLATE = N,LIST=T,file=@J02A_RAT@

LOOKUP NAME=J03AR, ;
  LOOKUP[1]=1, RESULT=2, ;

```

```

  LOOKUP[2]=1, RESULT=3, ;
  LOOKUP[3]=1, RESULT=4, ;
  LOOKUP[4]=1, RESULT=5, ;
  INTERPOLATE = N,LIST=T,file=@J03A_RAT@

LOOKUP NAME=J04AR, ;
  LOOKUP[1]=1, RESULT=2, ;
  LOOKUP[2]=1, RESULT=3, ;
  LOOKUP[3]=1, RESULT=4, ;
  LOOKUP[4]=1, RESULT=5, ;
  INTERPOLATE = N,LIST=T,file=@J04A_RAT@

LOOKUP NAME=J05AR, ;
  LOOKUP[1]=1, RESULT=2, ;
  LOOKUP[2]=1, RESULT=3, ;
  LOOKUP[3]=1, RESULT=4, ;
  LOOKUP[4]=1, RESULT=5, ;
  INTERPOLATE = N,LIST=T,file=@J05A_RAT@

LOOKUP NAME=J06AR, ;
  LOOKUP[1]=1, RESULT=2, ;
  LOOKUP[2]=1, RESULT=3, ;
  LOOKUP[3]=1, RESULT=4, ;
  LOOKUP[4]=1, RESULT=5, ;
  INTERPOLATE = N,LIST=T,file=@J06A_RAT@

LOOKUP NAME=J07AR, ;
  LOOKUP[1]=1, RESULT=2, ;
  LOOKUP[2]=1, RESULT=3, ;
  LOOKUP[3]=1, RESULT=4, ;
  LOOKUP[4]=1, RESULT=5, ;
  INTERPOLATE = N,LIST=T,file=@J07A_RAT@

LOOKUP NAME=J08AR, ;
  LOOKUP[1]=1, RESULT=2, ;
  LOOKUP[2]=1, RESULT=3, ;
  LOOKUP[3]=1, RESULT=4, ;
  LOOKUP[4]=1, RESULT=5, ;
  INTERPOLATE = N,LIST=T,file=@J08A_RAT@

LOOKUP NAME=J09AR, ;
  LOOKUP[1]=1, RESULT=2, ;
  LOOKUP[2]=1, RESULT=3, ;
  LOOKUP[3]=1, RESULT=4, ;
  LOOKUP[4]=1, RESULT=5, ;
  INTERPOLATE = N,LIST=T,file=@J09A_RAT@

LOOKUP NAME=J10AR, ;
  LOOKUP[1]=1, RESULT=2, ;
  LOOKUP[2]=1, RESULT=3, ;
  LOOKUP[3]=1, RESULT=4, ;
  LOOKUP[4]=1, RESULT=5, ;
  INTERPOLATE = N,LIST=T,file=@J10A_RAT@

LOOKUP NAME=J11AR, ;
  LOOKUP[1]=1, RESULT=2, ;
  LOOKUP[2]=1, RESULT=3, ;
  LOOKUP[3]=1, RESULT=4, ;
  LOOKUP[4]=1, RESULT=5, ;
  INTERPOLATE = N,LIST=T,file=@J11A_RAT@

LOOKUP NAME=J12AR, ;
  LOOKUP[1]=1, RESULT=2, ;
  LOOKUP[2]=1, RESULT=3, ;
  LOOKUP[3]=1, RESULT=4, ;
  LOOKUP[4]=1, RESULT=5, ;
  INTERPOLATE = N,LIST=T,file=@J12A_RAT@

LOOKUP NAME=J13AR, ;
  LOOKUP[1]=1, RESULT=2, ;
  LOOKUP[2]=1, RESULT=3, ;
  LOOKUP[3]=1, RESULT=4, ;

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J13A_RAT@

LOOKUP NAME=J14AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J14A_RAT@

LOOKUP NAME=J15AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J15A_RAT@

LOOKUP NAME=J16AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J16A_RAT@

LOOKUP NAME=J17AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J17A_RAT@

LOOKUP NAME=J18AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J18A_RAT@

LOOKUP NAME=J19AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J19A_RAT@

LOOKUP NAME=J20AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J20A_RAT@

LOOKUP NAME=J21AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J21A_RAT@

LOOKUP NAME=J22AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J22A_RAT@

LOOKUP NAME=J23AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J23A_RAT@

```

```

LOOKUP NAME=J24AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J24A_RAT@

LOOKUP NAME=J25AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J25A_RAT@

LOOKUP NAME=J26AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J26A_RAT@

LOOKUP NAME=J27AR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J27A_RAT@

;-----
; FREEWAY Seasonal Nx Rates LOOK-Ups Here (1/Winter,2/Spring,3/Summer,4/Fall)
;-----
LOOKUP NAME=J01FR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J01F_RAT@

LOOKUP NAME=J02FR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J02F_RAT@

LOOKUP NAME=J03FR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J03F_RAT@

LOOKUP NAME=J04FR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J04F_RAT@

LOOKUP NAME=J05FR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J05F_RAT@

LOOKUP NAME=J06FR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;

```



### Attachment 3: Post Processor Batch File & TP+ Scripts

```

LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J27F_RAT@
;-----
; RAMP Seasonal Nx Rates LOOK-Ups Here (1/Winter,2/Spring,3/Summer,4/Fall)
;-----
LOOKUP NAME=J01RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J01R_RAT@

LOOKUP NAME=J02RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J02R_RAT@

LOOKUP NAME=J03RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J03R_RAT@

LOOKUP NAME=J04RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J04R_RAT@

LOOKUP NAME=J05RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J05R_RAT@

LOOKUP NAME=J06RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J06R_RAT@

LOOKUP NAME=J07RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J07R_RAT@

LOOKUP NAME=J08RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J08R_RAT@

LOOKUP NAME=J09RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J09R_RAT@

LOOKUP NAME=J10RR, ;

```

```

LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J10R_RAT@

LOOKUP NAME=J11RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J11R_RAT@

LOOKUP NAME=J12RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J12R_RAT@

LOOKUP NAME=J13RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J13R_RAT@

LOOKUP NAME=J14RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J14R_RAT@

LOOKUP NAME=J15RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J15R_RAT@

LOOKUP NAME=J16RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J16R_RAT@

LOOKUP NAME=J17RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J17R_RAT@

LOOKUP NAME=J18RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J18R_RAT@

LOOKUP NAME=J19RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J19R_RAT@

LOOKUP NAME=J20RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J20R_RAT@

LOOKUP NAME=J21RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J21R_RAT@

LOOKUP NAME=J22RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J22R_RAT@

LOOKUP NAME=J23RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J23R_RAT@

LOOKUP NAME=J24RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J24R_RAT@

LOOKUP NAME=J25RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J25R_RAT@

LOOKUP NAME=J26RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J26R_RAT@

LOOKUP NAME=J27RR, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
INTERPOLATE = N,LIST=T,file=@J27R_RAT@

;-----
; PM Seasonal PM Rate LOOK-Ups Here Network: 1/Winter,2/Spring,3/Summer,4/Fall)
; Local: 5/Winter,6/Spring,7/Summer,8/Fall)
;-----
LOOKUP NAME=J01PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J01PM_RAT@

LOOKUP NAME=J02PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;

```

```

LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J02PM_RAT@

LOOKUP NAME=J03PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J03PM_RAT@

LOOKUP NAME=J04PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J04PM_RAT@

LOOKUP NAME=J05PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J05PM_RAT@

LOOKUP NAME=J06PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J06PM_RAT@

LOOKUP NAME=J07PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J07PM_RAT@

LOOKUP NAME=J08PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J08PM_RAT@

```



### Attachment 3: Post Processor Batch File & TP+ Scripts

```

LOOKUP NAME=J22PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J22PM_RAT@

LOOKUP NAME=J23PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J23PM_RAT@

LOOKUP NAME=J24PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J24PM_RAT@

LOOKUP NAME=J25PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J25PM_RAT@

LOOKUP NAME=J26PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J26PM_RAT@

LOOKUP NAME=J27PM, ;
LOOKUP[1]=1, RESULT=2, ;
LOOKUP[2]=1, RESULT=3, ;
LOOKUP[3]=1, RESULT=4, ;
LOOKUP[4]=1, RESULT=5, ;
LOOKUP[5]=1, RESULT=6, ;
LOOKUP[6]=1, RESULT=7, ;
LOOKUP[7]=1, RESULT=8, ;
LOOKUP[8]=1, RESULT=9, ;
INTERPOLATE = N,LIST=T,file=@J27PM_RAT@
-----
; End of Emission Rate Lookups
-----
zones=1

phase=linkread
t0=li.amhtime ; dummy in a t0 -any link attribute will do

lw.ftype = li.ftype ; facility type code
lw.jur = li.jur ; jurisdiction code
lw.totvol = li.i624vol ; total link volume

lw.vmt01 = li.vmt01 ;
lw.vmt02 = li.vmt02 ;
lw.vmt03 = li.vmt03 ;
lw.vmt04 = li.vmt04 ;
lw.vmt05 = li.vmt05 ;
lw.vmt06 = li.vmt06 ;
lw.vmt07 = li.vmt07 ;
lw.vmt08 = li.vmt08 ;
lw.vmt09 = li.vmt09 ;
lw.vmt10 = li.vmt10 ;
lw.vmt11 = li.vmt11 ;
lw.vmt12 = li.vmt12 ;
lw.vmt13 = li.vmt13 ;
lw.vmt14 = li.vmt14 ;
lw.vmt15 = li.vmt15 ;
lw.vmt16 = li.vmt16 ;
lw.vmt17 = li.vmt17 ;
lw.vmt18 = li.vmt18 ;
lw.vmt19 = li.vmt19 ;
lw.vmt20 = li.vmt20 ;
lw.vmt21 = li.vmt21 ;
lw.vmt22 = li.vmt22 ;
lw.vmt23 = li.vmt23 ;
lw.vmt24 = li.vmt24 ;

lw.spd01 = li.spd01 ;
lw.spd02 = li.spd02 ;
lw.spd03 = li.spd03 ;
lw.spd04 = li.spd04 ;
lw.spd05 = li.spd05 ;
lw.spd06 = li.spd06 ;
lw.spd07 = li.spd07 ;
lw.spd08 = li.spd08 ;
lw.spd09 = li.spd09 ;
lw.spd10 = li.spd10 ;
lw.spd11 = li.spd11 ;
lw.spd12 = li.spd12 ;
lw.spd13 = li.spd13 ;
lw.spd14 = li.spd14 ;
lw.spd15 = li.spd15 ;
lw.spd16 = li.spd16 ;
lw.spd17 = li.spd17 ;
lw.spd18 = li.spd18 ;
lw.spd19 = li.spd19 ;
lw.spd20 = li.spd20 ;
lw.spd21 = li.spd21 ;
lw.spd22 = li.spd22 ;
lw.spd23 = li.spd23 ;
lw.spd24 = li.spd24 ;

endphase

phase=iloop
linkloop
;; IF (A=3192-3200 ) ;**debug selection
IF (lw.FTYPE > 0 && lw.TOTVOL > 0) ; <----- Link Selection Criteria
-----
;Next define air quality jurisdiction codes (jcd). -
; These are different from the standard -
; 'jur' codes on network links, since they include -
; include some external station ranges. -
-----

IF (lw.Jur = 0) ; 1 DC
JCD = 1
ENDIF

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

IF (lw.Jur = 1) ; 2 Mtg
  JCD = 2
ENDIF
IF (lw.Jur = 2) ; 3 PG
  JCD = 3
ENDIF
IF (lw.Jur = 9) ;10 Frd
  JCD = 10
ENDIF
IF (lw.Jur = 14) ; 6 Car
  JCD = 6
ENDIF
IF (lw.Jur = 10) ; 4 How
  JCD = 4
ENDIF
IF (lw.Jur = 11) ; 5 Aar
  JCD = 5
ENDIF
IF (lw.Jur = 15) ; 8 Cal
  JCD = 8
ENDIF
IF (lw.Jur = 16) ;18 StM
  JCD = 18
ENDIF
IF (lw.Jur = 12) ; 9 Chs
  JCD = 9
ENDIF
IF (lw.Jur = 3) ;12 Ar1
  JCD = 12
ENDIF
IF (lw.Jur = 4) ;17 Alx
  JCD = 17
ENDIF
IF (lw.Jur = 5) ;13 FFx
  JCD = 13
ENDIF
IF (lw.Jur = 6) ;14 Ldn
  JCD = 14
ENDIF
IF (lw.Jur = 7) ;15 PW
  JCD = 15
ENDIF
IF (lw.Jur = 17) ;25 KG
  JCD = 25
ENDIF
IF (lw.Jur = 19) ;16 Sta
  JCD = 16
ENDIF
IF (lw.Jur = 18) ;26 Fbg
  JCD = 26
ENDIF
IF (lw.Jur = 20) ;24 Spts
  JCD = 24
ENDIF
IF (lw.Jur = 21) ;21 Fau
  JCD = 21
ENDIF
IF (lw.Jur = 22) ;20 Clk
  JCD = 20
ENDIF
IF (lw.Jur = 23) ;22 Jef
  JCD = 22
ENDIF
IF ((A>2144 & A<2154) || (B>2144 & B<2154)) ;27 S.Ext1s 2145-2153
  JCD = 27
ENDIF
IF ((A>2153 & A<2164) || (B>2153 & B<2164)) ;23 W.Ext1s 2154-2163
  JCD = 23
ENDIF
IF ((A>2163 & A<2169) || (B>2163 & B<2169)) ;19 NW. Ext1 2164-2168
  JCD = 19
ENDIF

```

```

IF ((A>2168 & A<2172) || (B>2168 & B<2172)) ;11 Frd 2169-2171
  JCD = 11
ENDIF
IF ((A>2171 & A<2192) || (B>2171 & B<2192)) ; 7 Balt Ext1s 2172-2191
  JCD = 7
ENDIF

;-----
; end of JCD definitions
;-----

;-----
; Put vmt and spd into hourly arrays
;-----

vmt[01]=lw.vmt01 vmt[02]=lw.vmt02 vmt[03]=lw.vmt03 vmt[04]=lw.vmt04
vmt[05]=lw.vmt05 vmt[06]=lw.vmt06 vmt[07]=lw.vmt07 vmt[08]=lw.vmt08
vmt[09]=lw.vmt09 vmt[10]=lw.vmt10 vmt[11]=lw.vmt11 vmt[12]=lw.vmt12
vmt[13]=lw.vmt13 vmt[14]=lw.vmt14 vmt[15]=lw.vmt15 vmt[16]=lw.vmt16
vmt[17]=lw.vmt17 vmt[18]=lw.vmt18 vmt[19]=lw.vmt19 vmt[20]=lw.vmt20
vmt[21]=lw.vmt21 vmt[22]=lw.vmt22 vmt[23]=lw.vmt23 vmt[24]=lw.vmt24

spd[01]=lw.spd01 spd[02]=lw.spd02 spd[03]=lw.spd03 spd[04]=lw.spd04
spd[05]=lw.spd05 spd[06]=lw.spd06 spd[07]=lw.spd07 spd[08]=lw.spd08
spd[09]=lw.spd09 spd[10]=lw.spd10 spd[11]=lw.spd11 spd[12]=lw.spd12
spd[13]=lw.spd13 spd[14]=lw.spd14 spd[15]=lw.spd15 spd[16]=lw.spd16
spd[17]=lw.spd17 spd[18]=lw.spd18 spd[19]=lw.spd19 spd[20]=lw.spd20
spd[21]=lw.spd21 spd[22]=lw.spd22 spd[23]=lw.spd23 spd[24]=lw.spd24

;-----
; Now compute hourly composite NOx, PM Emission rates (CNR,CPR)
; and emissions (CEM,PEM)
; which, for running rates, are computed by facility type
; (freeways, arterials, and freeway ramps)
;-----

if (lw.ftype = 1 || lw.ftype = 5)
  LOOP IDX= 1,24
    ; -- for arterial, freeway, ramp, and network PM
    CNR[IDX] = (J01FR@Sno@,Spd[idx]) * JDST(JCD,1) + ; COMPOSITE
              (J02FR@Sno@,Spd[idx]) * JDST(JCD,2) + ; Nx FREEWAY
              (J03FR@Sno@,Spd[idx]) * JDST(JCD,3) + ; RATE
              (J04FR@Sno@,Spd[idx]) * JDST(JCD,4) + ;
              (J05FR@Sno@,Spd[idx]) * JDST(JCD,5) + ;
              (J06FR@Sno@,Spd[idx]) * JDST(JCD,6) + ;
              (J07FR@Sno@,Spd[idx]) * JDST(JCD,7) + ;
              (J08FR@Sno@,Spd[idx]) * JDST(JCD,8) + ;
              (J09FR@Sno@,Spd[idx]) * JDST(JCD,9) + ;
              (J10FR@Sno@,Spd[idx]) * JDST(JCD,10) + ;
              (J11FR@Sno@,Spd[idx]) * JDST(JCD,11) + ;
              (J12FR@Sno@,Spd[idx]) * JDST(JCD,12) + ;
              (J13FR@Sno@,Spd[idx]) * JDST(JCD,13) + ;
              (J14FR@Sno@,Spd[idx]) * JDST(JCD,14) + ;
              (J15FR@Sno@,Spd[idx]) * JDST(JCD,15) + ;
              (J16FR@Sno@,Spd[idx]) * JDST(JCD,16) + ;
              (J17FR@Sno@,Spd[idx]) * JDST(JCD,17) + ;
              (J18FR@Sno@,Spd[idx]) * JDST(JCD,18) + ;
              (J19FR@Sno@,Spd[idx]) * JDST(JCD,19) + ;
              (J20FR@Sno@,Spd[idx]) * JDST(JCD,20) + ;
              (J21FR@Sno@,Spd[idx]) * JDST(JCD,21) + ;
              (J22FR@Sno@,Spd[idx]) * JDST(JCD,22) + ;
              (J23FR@Sno@,Spd[idx]) * JDST(JCD,23) + ;
              (J24FR@Sno@,Spd[idx]) * JDST(JCD,24) + ;
              (J25FR@Sno@,Spd[idx]) * JDST(JCD,25) + ;
              (J26FR@Sno@,Spd[idx]) * JDST(JCD,26) + ;
              (J27FR@Sno@,Spd[idx]) * JDST(JCD,27) + ;

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

NEM[IDX] = CNR[idx] * VMT[idx] ; Nx Emissions (gm)

ENDLOOP
ENDIF
; -----
if (lw.ftype > 1 && lw.ftype < 5)
  LOOP IDX= 1,24

  CNR[IDX] = (J01AR(@Sno@,Spd[idx]) * JDST(JCD,1)) + ; COMPOSITE
             (J02AR(@Sno@,Spd[idx]) * JDST(JCD,2)) + ; Nx ARTERIAL
             (J03AR(@Sno@,Spd[idx]) * JDST(JCD,3)) + ; RATE
             (J04AR(@Sno@,Spd[idx]) * JDST(JCD,4)) + ;
             (J05AR(@Sno@,Spd[idx]) * JDST(JCD,5)) + ;
             (J06AR(@Sno@,Spd[idx]) * JDST(JCD,6)) + ;
             (J07AR(@Sno@,Spd[idx]) * JDST(JCD,7)) + ;
             (J08AR(@Sno@,Spd[idx]) * JDST(JCD,8)) + ;
             (J09AR(@Sno@,Spd[idx]) * JDST(JCD,9)) + ;
             (J10AR(@Sno@,Spd[idx]) * JDST(JCD,10)) + ;
             (J11AR(@Sno@,Spd[idx]) * JDST(JCD,11)) + ;
             (J12AR(@Sno@,Spd[idx]) * JDST(JCD,12)) + ;
             (J13AR(@Sno@,Spd[idx]) * JDST(JCD,13)) + ;
             (J14AR(@Sno@,Spd[idx]) * JDST(JCD,14)) + ;
             (J15AR(@Sno@,Spd[idx]) * JDST(JCD,15)) + ;
             (J16AR(@Sno@,Spd[idx]) * JDST(JCD,16)) + ;
             (J17AR(@Sno@,Spd[idx]) * JDST(JCD,17)) + ;
             (J18AR(@Sno@,Spd[idx]) * JDST(JCD,18)) + ;
             (J19AR(@Sno@,Spd[idx]) * JDST(JCD,19)) + ;
             (J20AR(@Sno@,Spd[idx]) * JDST(JCD,20)) + ;
             (J21AR(@Sno@,Spd[idx]) * JDST(JCD,21)) + ;
             (J22AR(@Sno@,Spd[idx]) * JDST(JCD,22)) + ;
             (J23AR(@Sno@,Spd[idx]) * JDST(JCD,23)) + ;
             (J24AR(@Sno@,Spd[idx]) * JDST(JCD,24)) + ;
             (J25AR(@Sno@,Spd[idx]) * JDST(JCD,25)) + ;
             (J26AR(@Sno@,Spd[idx]) * JDST(JCD,26)) + ;
             (J27AR(@Sno@,Spd[idx]) * JDST(JCD,27)) + ;

  NEM[IDX] = CNR[idx] * VMT[idx] ; Nx Emissions (gm)

  ENDLOOP
  ENDIF
; -----
if (lw.ftype = 6 )
  LOOP IDX= 1,24
  SPD[IDX] = 35 ; Make RAMP SPEEDS EQUAL to 35 MPH
              ; Per the lookup table

  CNR[IDX] = (J01RR(@Sno@,Spd[idx]) * JDST(JCD,1)) + ; COMPOSITE
             (J02RR(@Sno@,Spd[idx]) * JDST(JCD,2)) + ; Nx ARTERIAL
             (J03RR(@Sno@,Spd[idx]) * JDST(JCD,3)) + ; RATE
             (J04RR(@Sno@,Spd[idx]) * JDST(JCD,4)) + ;
             (J05RR(@Sno@,Spd[idx]) * JDST(JCD,5)) + ;
             (J06RR(@Sno@,Spd[idx]) * JDST(JCD,6)) + ;
             (J07RR(@Sno@,Spd[idx]) * JDST(JCD,7)) + ;
             (J08RR(@Sno@,Spd[idx]) * JDST(JCD,8)) + ;
             (J09RR(@Sno@,Spd[idx]) * JDST(JCD,9)) + ;
             (J10RR(@Sno@,Spd[idx]) * JDST(JCD,10)) + ;
             (J11RR(@Sno@,Spd[idx]) * JDST(JCD,11)) + ;
             (J12RR(@Sno@,Spd[idx]) * JDST(JCD,12)) + ;
             (J13RR(@Sno@,Spd[idx]) * JDST(JCD,13)) + ;
             (J14RR(@Sno@,Spd[idx]) * JDST(JCD,14)) + ;
             (J15RR(@Sno@,Spd[idx]) * JDST(JCD,15)) + ;
             (J16RR(@Sno@,Spd[idx]) * JDST(JCD,16)) + ;

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```

(J17RR(@Sno@,Spd[idx]) * JDST(JCD,17)) + ;
(J18RR(@Sno@,Spd[idx]) * JDST(JCD,18)) + ;
(J19RR(@Sno@,Spd[idx]) * JDST(JCD,19)) + ;
(J20RR(@Sno@,Spd[idx]) * JDST(JCD,20)) + ;
(J21RR(@Sno@,Spd[idx]) * JDST(JCD,21)) + ;
(J22RR(@Sno@,Spd[idx]) * JDST(JCD,22)) + ;
(J23RR(@Sno@,Spd[idx]) * JDST(JCD,23)) + ;
(J24RR(@Sno@,Spd[idx]) * JDST(JCD,24)) + ;
(J25RR(@Sno@,Spd[idx]) * JDST(JCD,25)) + ;
(J26RR(@Sno@,Spd[idx]) * JDST(JCD,26)) + ;
(J27RR(@Sno@,Spd[idx]) * JDST(JCD,27)) + ;

  NEM[IDX] = CNR[idx] * VMT[idx] ; Nx Emissions (gm)

  ENDLOOP
  ENDIF
;PM emissions :
  LOOP IDX= 1,24
  SPD[IDX] = 35 ; Make SPEEDS EQUAL to 35 MPH
              ; Per the lookup table

  CPR[IDX] = (J01PM(@Sno@,Spd[idx]) * JDST(JCD,1)) + ; COMPOSITE
             (J02PM(@Sno@,Spd[idx]) * JDST(JCD,2)) + ; PM Network
             (J03PM(@Sno@,Spd[idx]) * JDST(JCD,3)) + ; RATE
             (J04PM(@Sno@,Spd[idx]) * JDST(JCD,4)) + ;
             (J05PM(@Sno@,Spd[idx]) * JDST(JCD,5)) + ;
             (J06PM(@Sno@,Spd[idx]) * JDST(JCD,6)) + ;
             (J07PM(@Sno@,Spd[idx]) * JDST(JCD,7)) + ;
             (J08PM(@Sno@,Spd[idx]) * JDST(JCD,8)) + ;
             (J09PM(@Sno@,Spd[idx]) * JDST(JCD,9)) + ;
             (J10PM(@Sno@,Spd[idx]) * JDST(JCD,10)) + ;
             (J11PM(@Sno@,Spd[idx]) * JDST(JCD,11)) + ;
             (J12PM(@Sno@,Spd[idx]) * JDST(JCD,12)) + ;
             (J13PM(@Sno@,Spd[idx]) * JDST(JCD,13)) + ;
             (J14PM(@Sno@,Spd[idx]) * JDST(JCD,14)) + ;
             (J15PM(@Sno@,Spd[idx]) * JDST(JCD,15)) + ;
             (J16PM(@Sno@,Spd[idx]) * JDST(JCD,16)) + ;
             (J17PM(@Sno@,Spd[idx]) * JDST(JCD,17)) + ;
             (J18PM(@Sno@,Spd[idx]) * JDST(JCD,18)) + ;
             (J19PM(@Sno@,Spd[idx]) * JDST(JCD,19)) + ;
             (J20PM(@Sno@,Spd[idx]) * JDST(JCD,20)) + ;
             (J21PM(@Sno@,Spd[idx]) * JDST(JCD,21)) + ;
             (J22PM(@Sno@,Spd[idx]) * JDST(JCD,22)) + ;
             (J23PM(@Sno@,Spd[idx]) * JDST(JCD,23)) + ;
             (J24PM(@Sno@,Spd[idx]) * JDST(JCD,24)) + ;
             (J25PM(@Sno@,Spd[idx]) * JDST(JCD,25)) + ;
             (J26PM(@Sno@,Spd[idx]) * JDST(JCD,26)) + ;
             (J27PM(@Sno@,Spd[idx]) * JDST(JCD,27)) + ;

  PEM[IDX] = CPR[idx] * VMT[idx] ; PM Network Emissions (gm)

  ENDLOOP
;***** debug section - dumping link-level outputs for selected links
if (a=3200-3300)
  list = ' A B hr spd jcd ft vmt nx_r pm_r N_E PM_E ',
        file=running.dbg
  list = '-----'
        file=running.dbg
  LOOP IDX= 1,24
  list = a(6), b(6), idx(4), spd[idx](4),jcd(4),lw.ftype(4),
        VMT[idx](8.2), cnr[idx](6.3),' ',cpr[idx](6.3),' ',
        NEM[idx](10.2),PEM[idx](10.2),
        file=running.dbg
  ENDLOOP
endif

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

;***** end of debug section

;-----
; Accumulate total,hourly Nx,PM emissions and VMT
; Reset All Hourly Arrays before going to the next link
;-----
;

PEM_01 = PEM_01 + PEM[01] ; Accumulated PM Emiss. Hour 01
NEM_01 = NEM_01 + NEM[01] ; Accumulated Nx Emiss. Hour 01
VMT_01 = VMT_01 + vmt[01] ; Accumulated VMT Hour 01

PEM_02 = PEM_02 + PEM[02] ; Accumulated PM Emiss. Hour 02
NEM_02 = NEM_02 + NEM[02] ; Accumulated Nx Emiss. Hour 02
VMT_02 = VMT_02 + vmt[02] ; Accumulated VMT Hour 02

PEM_03 = PEM_03 + PEM[03] ; Accumulated PM Emiss. Hour 03
NEM_03 = NEM_03 + NEM[03] ; Accumulated Nx Emiss. Hour 03
VMT_03 = VMT_03 + vmt[03] ; Accumulated VMT Hour 03

PEM_04 = PEM_04 + PEM[04] ; Accumulated PM Emiss. Hour 04
NEM_04 = NEM_04 + NEM[04] ; Accumulated Nx Emiss. Hour 04
VMT_04 = VMT_04 + vmt[04] ; Accumulated VMT Hour 04

PEM_05 = PEM_05 + PEM[05] ; Accumulated PM Emiss. Hour 05
NEM_05 = NEM_05 + NEM[05] ; Accumulated Nx Emiss. Hour 05
VMT_05 = VMT_05 + vmt[05] ; Accumulated VMT Hour 05

PEM_06 = PEM_06 + PEM[06] ; Accumulated PM Emiss. Hour 06
NEM_06 = NEM_06 + NEM[06] ; Accumulated Nx Emiss. Hour 06
VMT_06 = VMT_06 + vmt[06] ; Accumulated VMT Hour 06

PEM_07 = PEM_07 + PEM[07] ; Accumulated PM Emiss. Hour 07
NEM_07 = NEM_07 + NEM[07] ; Accumulated Nx Emiss. Hour 07
VMT_07 = VMT_07 + vmt[07] ; Accumulated VMT Hour 07

PEM_08 = PEM_08 + PEM[08] ; Accumulated PM Emiss. Hour 08
NEM_08 = NEM_08 + NEM[08] ; Accumulated Nx Emiss. Hour 08
VMT_08 = VMT_08 + vmt[08] ; Accumulated VMT Hour 08

PEM_09 = PEM_09 + PEM[09] ; Accumulated PM Emiss. Hour 09
NEM_09 = NEM_09 + NEM[09] ; Accumulated Nx Emiss. Hour 09
VMT_09 = VMT_09 + vmt[09] ; Accumulated VMT Hour 09

PEM_10 = PEM_10 + PEM[10] ; Accumulated PM Emiss. Hour 10
NEM_10 = NEM_10 + NEM[10] ; Accumulated Nx Emiss. Hour 10
VMT_10 = VMT_10 + vmt[10] ; Accumulated VMT Hour 10

PEM_11 = PEM_11 + PEM[11] ; Accumulated PM Emiss. Hour 11
NEM_11 = NEM_11 + NEM[11] ; Accumulated Nx Emiss. Hour 11
VMT_11 = VMT_11 + vmt[11] ; Accumulated VMT Hour 11

PEM_12 = PEM_12 + PEM[12] ; Accumulated PM Emiss. Hour 12
NEM_12 = NEM_12 + NEM[12] ; Accumulated Nx Emiss. Hour 12
VMT_12 = VMT_12 + vmt[12] ; Accumulated VMT Hour 12

PEM_13 = PEM_13 + PEM[13] ; Accumulated PM Emiss. Hour 13
NEM_13 = NEM_13 + NEM[13] ; Accumulated Nx Emiss. Hour 13
VMT_13 = VMT_13 + vmt[13] ; Accumulated VMT Hour 13

PEM_14 = PEM_14 + PEM[14] ; Accumulated PM Emiss. Hour 14
NEM_14 = NEM_14 + NEM[14] ; Accumulated Nx Emiss. Hour 14
VMT_14 = VMT_14 + vmt[14] ; Accumulated VMT Hour 14

PEM_15 = PEM_15 + PEM[15] ; Accumulated PM Emiss. Hour 15
NEM_15 = NEM_15 + NEM[15] ; Accumulated Nx Emiss. Hour 15
VMT_15 = VMT_15 + vmt[15] ; Accumulated VMT Hour 15

PEM_16 = PEM_16 + PEM[16] ; Accumulated PM Emiss. Hour 16
NEM_16 = NEM_16 + NEM[16] ; Accumulated Nx Emiss. Hour 16
VMT_16 = VMT_16 + vmt[16] ; Accumulated VMT Hour 16

PEM_17 = PEM_17 + PEM[17] ; Accumulated PM Emiss. Hour 17
NEM_17 = NEM_17 + NEM[17] ; Accumulated Nx Emiss. Hour 17
VMT_17 = VMT_17 + vmt[17] ; Accumulated VMT Hour 17

PEM_18 = PEM_18 + PEM[18] ; Accumulated PM Emiss. Hour 18
NEM_18 = NEM_18 + NEM[18] ; Accumulated Nx Emiss. Hour 18
VMT_18 = VMT_18 + vmt[18] ; Accumulated VMT Hour 18

PEM_19 = PEM_19 + PEM[19] ; Accumulated PM Emiss. Hour 19
NEM_19 = NEM_19 + NEM[19] ; Accumulated Nx Emiss. Hour 19
VMT_19 = VMT_19 + vmt[19] ; Accumulated VMT Hour 19

PEM_20 = PEM_20 + PEM[20] ; Accumulated PM Emiss. Hour 20
NEM_20 = NEM_20 + NEM[20] ; Accumulated Nx Emiss. Hour 20
VMT_20 = VMT_20 + vmt[20] ; Accumulated VMT Hour 20

PEM_21 = PEM_21 + PEM[21] ; Accumulated PM Emiss. Hour 21
NEM_21 = NEM_21 + NEM[21] ; Accumulated Nx Emiss. Hour 21
VMT_21 = VMT_21 + vmt[21] ; Accumulated VMT Hour 21

PEM_22 = PEM_22 + PEM[22] ; Accumulated PM Emiss. Hour 22
NEM_22 = NEM_22 + NEM[22] ; Accumulated Nx Emiss. Hour 22
VMT_22 = VMT_22 + vmt[22] ; Accumulated VMT Hour 22

PEM_23 = PEM_23 + PEM[23] ; Accumulated PM Emiss. Hour 23
NEM_23 = NEM_23 + NEM[23] ; Accumulated Nx Emiss. Hour 23
VMT_23 = VMT_23 + vmt[23] ; Accumulated VMT Hour 23

PEM_24 = PEM_24 + PEM[24] ; Accumulated PM Emiss. Hour 24
NEM_24 = NEM_24 + NEM[24] ; Accumulated Nx Emiss. Hour 24
VMT_24 = VMT_24 + vmt[24] ; Accumulated VMT Hour 24

LOOP IDX= 1,24
PEMTOT = PEMTOT + PEM[IDX] ; Accumulated PM Emiss. Total
NEMTOT = NEMTOT + NEM[IDX] ; Accumulated Nx Emiss. Total
VMTTOT = VMTTOT + vmt[IDX] ; Accumulated VMT Total
ENDLOOP

;-----
; Finally, write out all the link information
;
;-----

;
PRINT FORM=8.0,
list= a(6),b(6),
lw.ftype, lw.jur, jcd,
file=linkout.INI

PRINT FORM=3.0,
list= a(6),b(6),
spd[1], spd[2], spd[3], spd[4], spd[5], spd[6], spd[7], spd[8],
spd[9], spd[10], spd[11], spd[12], spd[13], spd[14], spd[15], spd[16],
spd[17], spd[18], spd[19], spd[20], spd[21], spd[22], spd[23], spd[24],
file=linkout.SPD

PRINT FORM=10.2,
list= a(6),b(6),
vmt[1], vmt[2], vmt[3], vmt[4], vmt[5], vmt[6], vmt[7], vmt[8],
vmt[9], vmt[10], vmt[11], vmt[12], vmt[13], vmt[14], vmt[15], vmt[16],
vmt[17], vmt[18], vmt[19], vmt[20], vmt[21], vmt[22], vmt[23], vmt[24],
file=linkout.VMT

PRINT FORM=10.2,
list= a(6),b(6),
pem[1], pem[2], pem[3], pem[4], pem[5], pem[6], pem[7], pem[8],
pem[9], pem[10], pem[11], pem[12], pem[13], pem[14], pem[15], pem[16],

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### Attachment 3: Post Processor Batch File & TP+ Scripts

```

pem[17],pem[18],pem[19],pem[20],pem[21],pem[22],pem[23],pem[24],
file=linkout.pem

PRINT FORM=10.2,
list= a(6),b(6),
nem[1], nem[2], nem[3], nem[4], nem[5], nem[6], nem[7], nem[8],
nem[9],nem[10],nem[11],nem[12],nem[13],nem[14],nem[15],nem[16],
nem[17],nem[18],nem[19],nem[20],nem[21],nem[22],nem[23],nem[24],
file=linkout.pem
;-----
; End of link write section
;
;-----

ENDIF ; <<----- END OF Link Selection Critereaa loop
ENDLINKLOOP ; End of linkloop

;
; Now, List out the total emissions by Hour
;
LIST = 'Summary of Nx, PM      Emissions(gms), by Hour '
List = '
print form= 15.2cs LIST = 'Hour 01: ',PEM_01, NEM_01,VMT_01
print form= 15.2cs LIST = 'Hour 02: ',PEM_02, NEM_02,VMT_02
print form= 15.2cs LIST = 'Hour 03: ',PEM_03, NEM_03,VMT_03
print form= 15.2cs LIST = 'Hour 04: ',PEM_04, NEM_04,VMT_04
print form= 15.2cs LIST = 'Hour 05: ',PEM_05, NEM_05,VMT_05
print form= 15.2cs LIST = 'Hour 06: ',PEM_06, NEM_06,VMT_06
print form= 15.2cs LIST = 'Hour 07: ',PEM_07, NEM_07,VMT_07
print form= 15.2cs LIST = 'Hour 08: ',PEM_08, NEM_08,VMT_08
print form= 15.2cs LIST = 'Hour 09: ',PEM_09, NEM_09,VMT_09
print form= 15.2cs LIST = 'Hour 10: ',PEM_10, NEM_10,VMT_10
print form= 15.2cs LIST = 'Hour 11: ',PEM_11, NEM_11,VMT_11
print form= 15.2cs LIST = 'Hour 12: ',PEM_12, NEM_12,VMT_12
print form= 15.2cs LIST = 'Hour 13: ',PEM_13, NEM_13,VMT_13
print form= 15.2cs LIST = 'Hour 14: ',PEM_14, NEM_14,VMT_14
print form= 15.2cs LIST = 'Hour 15: ',PEM_15, NEM_15,VMT_15
print form= 15.2cs LIST = 'Hour 16: ',PEM_16, NEM_16,VMT_16
print form= 15.2cs LIST = 'Hour 17: ',PEM_17, NEM_17,VMT_17
print form= 15.2cs LIST = 'Hour 18: ',PEM_18, NEM_18,VMT_18
print form= 15.2cs LIST = 'Hour 19: ',PEM_19, NEM_19,VMT_19
print form= 15.2cs LIST = 'Hour 20: ',PEM_20, NEM_20,VMT_20
print form= 15.2cs LIST = 'Hour 21: ',PEM_21, NEM_21,VMT_21
print form= 15.2cs LIST = 'Hour 22: ',PEM_22, NEM_22,VMT_22
print form= 15.2cs LIST = 'Hour 23: ',PEM_23, NEM_23,VMT_23
print form= 15.2cs LIST = 'Hour 24: ',PEM_24, NEM_24,VMT_24
List = '
print form= 15.2cs,
LIST=          'SUM ',PEMTOT(20.2),'          ',NEMTOT(20.2)
print form= 15.2cs,
LIST =          '          ',          ',          ', VMTTOT(20.2)

endphase

endrun

;-----
run pgm=hwynt
neti      = @innet@
neto      = dummy.net

linki[2] = linkout.vmt var = a, b,
vmt01 vmt02,vmt03,vmt04,vmt05,vmt06,vmt07,vmt08,vmt09,vmt10,
vmt11 vmt12,vmt13,vmt14,vmt15,vmt16,vmt17,vmt18,vmt19,vmt20,
vmt21 vmt22,vmt23,vmt24

linki[3] = linkout.spd var = a, b,
spd01 spd02,spd03,spd04,spd05,spd06,spd07,spd08,spd09,spd10,
spd11 spd12,spd13,spd14,spd15,spd16,spd17,spd18,spd19,spd20,
spd21 spd22,spd23,spd24

```

```

linki[4] = linkout.pem var = a, b,
PEM01 PEM02,PEM03,PEM04,PEM05,PEM06,PEM07,PEM08,PEM09,PEM10,
PEM11 PEM12,PEM13,PEM14,PEM15,PEM16,PEM17,PEM18,PEM19,PEM20,
PEM21 PEM22,PEM23,PEM24

linki[6] = linkout.nem var = a, b,
nem01 nem02,nem03,nem04,nem05,nem06,nem07,nem08,nem09,nem10,
nem11 nem12,nem13,nem14,nem15,nem16,nem17,nem18,nem19,nem20,
nem21 nem22,nem23,nem24

;-----
if (i624vol > 0 && FType >0)
    _cnt=1
else
    _cnt =0
endif
; define MSA/NonMSA      NOTE: This is MSA Definition is 10 not 12 jurs.(no
stafford/Calvert)
; MSA= dc,mtg,pg,arl,alx,ffx,ldn,pw,frd,chs,cal,stf
if (JUR=0-7 || jur = 9 || jur=12)
    msa= 1
else
    msa= 0
endif

VMT =
vmt01+vmt02+vmt03+vmt04+vmt05+vmt06+vmt07+vmt08+vmt09+vmt10+
vmt11+vmt12+vmt13+vmt14+vmt15+vmt16+vmt17+vmt18+vmt19+vmt20+
vmt21+vmt22+vmt23+vmt24

PEM =
PEM01+PEM02+PEM03+PEM04+PEM05+PEM06+PEM07+PEM08+PEM09+PEM10+
PEM11+PEM12+PEM13+PEM14+PEM15+PEM16+PEM17+PEM18+PEM19+PEM20+
PEM21+PEM22+PEM23+PEM24

NEM =
nem01+nem02+nem03+nem04+nem05+nem06+nem07+nem08+nem09+nem10+
nem11+nem12+nem13+nem14+nem15+nem16+nem17+nem18+nem19+nem20+
nem21+nem22+nem23+nem24

wSPD=
vmt01*spd01 + vmt02*spd02 + vmt03*spd03 + vmt04*spd04 +
vmt05*spd05 + vmt06*spd06 + vmt07*spd07 + vmt08*spd08 +
vmt09*spd09 + vmt10*spd10 + vmt11*spd11 + vmt12*spd12 +
vmt13*spd13 + vmt14*spd14 + vmt15*spd15 + vmt16*spd16 +
vmt17*spd17 + vmt18*spd18 + vmt19*spd19 + vmt20*spd20 +
vmt21*spd21 + vmt22*spd22 + vmt23*spd23 + vmt24*spd24

IF (VMT = 0)
    SPD = 0
ELSE
    SPD = Wspd / vmt ; daily weighted link speed
ENDIF

IF (SPD < 2.5)
    spdgroup= 0
ELSEIF (SPD < 7.5)
    spdgroup= 5
ELSEIF (SPD < 12.5)
    spdgroup= 10
ELSEIF (SPD < 17.5)
    spdgroup= 15
ELSEIF (SPD < 22.5)
    spdgroup= 20
ELSEIF (SPD < 27.5)
    spdgroup= 25
ELSEIF (SPD < 32.5)
    spdgroup= 30
ELSEIF (SPD < 37.5)

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

    spdgroup= 35
ELSEIF (SPD < 42.5)
    spdgroup= 40
ELSEIF (SPD < 47.5)
    spdgroup= 45
ELSEIF (SPD < 52.5)
    spdgroup= 50
ELSEIF (SPD < 57.5)
    spdgroup= 55
ELSEIF (SPD < 62.5)
    spdgroup= 60
ELSE
    spdgroup= 65
ENDIF

WSPD01=vmt01*spd01 WSPD09=vmt09*spd09 WSPD17=vmt17*spd17
WSPD02=vmt02*spd02 WSPD10=vmt10*spd10 WSPD18=vmt18*spd18
WSPD03=vmt03*spd03 WSPD11=vmt11*spd11 WSPD19=vmt19*spd19
WSPD04=vmt04*spd04 WSPD12=vmt12*spd12 WSPD20=vmt20*spd20
WSPD05=vmt05*spd05 WSPD13=vmt13*spd13 WSPD21=vmt21*spd21
WSPD06=vmt06*spd06 WSPD14=vmt14*spd14 WSPD22=vmt22*spd22
WSPD07=vmt07*spd07 WSPD15=vmt15*spd15 WSPD23=vmt23*spd23
WSPD08=vmt08*spd08 WSPD16=vmt16*spd16 WSPD24=vmt24*spd24

;-----
; Hourly Crosstab summaries start here. -
; Each Hourly Crosstab is a summary of: -
; VMT, Spd*VMT, PM(gms), Nx(gms), Wgtd Speed(mph), -
; PM(tns), Nx(tns) -
;-----
;
CROSSTAB VAR=vmt01,wspd01,PEM01,NEM01,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD01/vmt01, form=9.3cs,
COMP=PEM01/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONS)
COMP=NEM01/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONS)

CROSSTAB VAR=vmt02,wspd02,PEM02,NEM02,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD02/vmt02, form=9.3cs,
COMP=PEM02/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONS)
COMP=NEM02/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONS)

CROSSTAB VAR=vmt03,wspd03,PEM03,NEM03,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD03/vmt03, form=9.3cs,
COMP=PEM03/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONS)
COMP=NEM03/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONS)

CROSSTAB VAR=vmt04,wspd04,PEM04,NEM04,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD04/vmt04, form=9.3cs,
COMP=PEM04/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONS)
COMP=NEM04/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONS)

CROSSTAB VAR=vmt05,wspd05,PEM05,NEM05,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD05/vmt05, form=9.3cs,

```

```

COMP=PEM05/ @GMperTN@ ,form=9.3cs ;PM Emissions (in TONS)
COMP=NEM05/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONS)

CROSSTAB VAR=vmt06,wspd06,PEM06,NEM06,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD06/vmt06, form=9.3cs,
COMP=PEM06/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONS)
COMP=NEM06/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONS)

CROSSTAB VAR=vmt07,wspd07,PEM07,NEM07,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD07/vmt07, form=9.3cs,
COMP=PEM07/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONS)
COMP=NEM07/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONS)

CROSSTAB VAR=vmt08,wspd08,PEM08,NEM08,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD08/vmt08, form=9.3cs,
COMP=PEM08/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONS)
COMP=NEM08/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONS)

CROSSTAB VAR=vmt09,wspd09,PEM09,NEM09,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD09/vmt09, form=9.3cs,
COMP=PEM09/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONS)
COMP=NEM09/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONS)

CROSSTAB VAR=vmt10,wspd10,PEM10,NEM10,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD10/vmt10, form=9.3cs,
COMP=PEM10/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONS)
COMP=NEM10/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONS)

CROSSTAB VAR=vmt11,wspd11,PEM11,NEM11,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD11/vmt11, form=9.3cs,
COMP=PEM11/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONS)
COMP=NEM11/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONS)

CROSSTAB VAR=vmt12,wspd12,PEM12,NEM12,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD12/vmt12, form=9.3cs,
COMP=PEM12/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONS)
COMP=NEM12/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONS)

CROSSTAB VAR=vmt13,wspd13,PEM13,NEM13,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD13/vmt13, form=9.3cs,
COMP=PEM13/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONS)
COMP=NEM13/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONS)

CROSSTAB VAR=vmt14,wspd14,PEM14,NEM14,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD14/vmt14, form=9.3cs,

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

COMP=PEM14/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONs)
COMP=NEM14/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONs)

CROSSTAB VAR=vmt15,wspd15,PEM15,NEM15,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD15/vmt15, form=9.3cs,
COMP=PEM15/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONs)
COMP=NEM15/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONs)

CROSSTAB VAR=vmt16,wspd16,PEM16,NEM16,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD16/vmt16, form=9.3cs,
COMP=PEM16/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONs)
COMP=NEM16/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONs)

CROSSTAB VAR=vmt17,wspd17,PEM17,NEM17,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD17/vmt17, form=9.3cs,
COMP=PEM17/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONs)
COMP=NEM17/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONs)

CROSSTAB VAR=vmt18,wspd18,PEM18,NEM18,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD18/vmt18, form=9.3cs,
COMP=PEM18/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONs)
COMP=NEM18/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONs)

CROSSTAB VAR=vmt19,wspd19,PEM19,NEM19,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD19/vmt19, form=9.3cs,
COMP=PEM19/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONs)
COMP=NEM19/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONs)

CROSSTAB VAR=vmt20,wspd20,PEM20,NEM20,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD20/vmt20, form=9.3cs,
COMP=PEM20/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONs)
COMP=NEM20/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONs)

CROSSTAB VAR=vmt21,wspd21,PEM21,NEM21,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD21/vmt21, form=9.3cs,
COMP=PEM21/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONs)
COMP=NEM21/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONs)

CROSSTAB VAR=vmt22,wspd22,PEM22,NEM22,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD22/vmt22, form=9.3cs,
COMP=PEM22/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONs)
COMP=NEM22/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONs)

CROSSTAB VAR=vmt23,wspd23,PEM23,NEM23,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wSPD23/vmt23, form=9.3cs,

COMP=PEM23/ @GMperTN@ , form=9.3cs ;PM Emissions (in TONs)
COMP=NEM23/ @GMperTN@ , form=9.3cs ;Nx Emissions (in TONs)

-----
; Total Regional Crosstab summary is below: Juris x FTpe -
; Reflects all 24 hours. -
; VMT, Spd*VMT, PM(gms), Nx(gms), Wgtd Speed(mph), -
; PM(tns), Nx(tns) -
-----
; TOTAL VMT, Nx, PM Emissions
CROSSTAB VAR=_cnt, vmt, PEM, nem,wspd,form=12cs,
ROW=jur,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wspd/vmt, form=12.lcs, ;WGTD SPEED
COMP=PEM / @GMperTN@ , form=9.3cs ;PM Emissions (in TONs)
COMP=NEM / @GMperTN@ , form=9.3cs ;Nx Emissions (in TONs)
-----
; Total Regional Crosstab summary is below: MSA x Ftype -
; Reflects all 24 hours. -
; VMT, Spd*VMT, PM(gms), Nx(gms), Wgtd Speed(mph), -
; PM(tns), Nx(tns) -
-----
; TOTAL VMT, Nx, PM Emissions
CROSSTAB VAR=_cnt, vmt, PEM, nem,wspd,form=12cs,
ROW=msa,RANGE=0-30-1,,0-30,
COL=FTYPE, RANGE=0-6-1,0-6,
COMP=wspd/vmt, form=12.lcs, ;WGTD SPEED
COMP=PEM / @GMperTN@ , form=9.3cs ;PM Emissions (in TONs)
COMP=NEM / @GMperTN@ , form=9.3cs ;Nx Emissions (in TONs)

CROSSTAB VAR=_cnt,vmt,PEM,nem,form=12cs,
ROW=spdgroupr,RANGE=0-65-1,,0-65,
COL=msa, RANGE=0-1-1,0-1,
COMP=PEM/ @GMperTN@ , form=9.3cs ;PM Emissions in tons
COMP=NEM/ @GMperTN@ , form=9.3cs ;Nx Emissions in tons
COMP=PEM/vmt, form=9.3cs, ;PM Emissions composite rate
COMP=NEM/vmt, form=9.3cs ;Nx Emissions composite rate
endrun

-----
;
;Now lets wite out a neat jurisdiction level summary file
-----
;
; will be read in by the LOCAL.S script to compute local emissions

Out_TXT='RUNNING.TXT' ; Output text file containing results
vmtftr =%_SeasonFtr_% ; Monthly or Season Factor applied to VMT
SDays =%_SeasonDays_% ; No. of Days in the season

GMperTN = 907184.74 ; Grams per Ton parameter
run pgm=hwyload
neti = dummy.net

ARRAY J_VMT = 27, ; Juris. Network VMT Total
J_PM = 27, J_PMR = 27, J_PMT = 27, ; Juris. PM gms, rates gm/mi,
tons per day
J_NX = 27, J_NXR = 27, J_NXT = 27, ; Juris. NX gms, rates gm/mi,
tons per day
J_PMT_S = 27, ; Juris. PM tons per Season
J_NXT_S = 27 ; Juris. NX tons per Season

zones = 1

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

LOOKUP NAME=NetEms,      ; Emission jurisdiction code related to network
jurisdiction code
LOOKUP[1]=1, RESULT=2, ; Note: external VMT is not distinguished from internal
VMT
INTERPOLATE = N,LIST=T,FAIL=99,99,99, ;
;lw JUR JCD
R= 0, 1, ; DC
" 1, 2, ; Mtg
" 2, 3, ; PG
" 3, 12, ; Arl
" 4, 17, ; Alx
" 5, 13, ; FFx
" 6, 14, ; Ldn
" 7, 15, ; PW
" 9, 10, ; Frd
"10, 4, ; How
"11, 5, ; Aar
"12, 9, ; Chs
"14, 6, ; Car
"15, 8, ; Cal
"16, 18, ; STM
"17, 25, ; KG
"18, 26, ; Fbg
"19, 16, ; Sta
"20, 24, ; Spts
"21, 21, ; Fau
"22, 20, ; Clk
"23, 22" ; Jef

; Set up arrays
phase = linkread

t0 = li.amhtime
lw.ftype = li.ftype
lw.vmt = li.vmt
lw.PEM = li.PEM
lw.nem = li.nem
lw.jur = li.jur

endphase

;
phase = iloop
linkloop ; select -
if (lw.ftype>0 ) ; <<--- ALL HIGHWAY links
idx =netEms(1,lw.jur)
J_VMT[idx] = J_VMT[idx] + lw.vmt ; Juris. Network VMT Total
J_PM[idx] = J_PM[idx] + lw.PEM ; Juris. Network VMT Total
J_NX[idx] = J_NX[idx] + lw.nem ; Juris. Network VMT Total

T_VMT = T_VMT + lw.vmt
T_PM = T_PM + lw.PEM
T_NX = T_NX + lw.nem

;
endif

; regional totals:

endlinkloop

;TOTAL RATES:
IF (T_VMT = 0)
T_PMR = 0
T_NXR = 0
ELSE
T_PMR = T_PM / T_VMT
T_NXR = T_NX / T_VMT
ENDIF

```

```

; compute UNFACTORED Regional VMT for reporting purposes (rounded to nearest
thousand)

_UnfrVMT = Round((T_VMT / %_SeasonFTR_%) / 1000.0) * 1000.0

Print form=10.0 list = 'Running Emission Results',
file=@out_TXT@
Print form=10.0 list = 'Year: ', '%_Year_%', ' Season/Month: ', '%_Season_%',
file=@out_TXT@
Print form=10.0 list = 'Season/Month Factor Applied to Modeled AAWDT VMT:
', '%_SeasonFtr_%', file=@out_TXT@
Print form=10.0 list = 'No. of Days in the Season:
', '%_SeasonDays_%', file=@out_TXT@
Print form=10.0 list = ' ', file=@out_TXT@

Print list=' Daily Daily Daily Daily Daily
Daily Seasonal Seasonal ',file=@Out_TXT@
Print list=' Juris VMT PM(gms) NX(gms) PM g/mi Nx g/mi
PM Tons Nx Tons Nx Tons PM Tons ',file=@Out_TXT@
Print list='-----|-----|-----|-----|-----|-----
|-----|-----|-----|-----|',file=@Out_TXT@

LOOP k=1,27
; CALCULATE Seasonal EMISSIONS IN TONS HERE
;
; CALCULATE DAILY Emissions IN TONS HERE (round to three decimal places)
;
J_PMT[k] = (Round(J_PM[k]/ @GMperTN@ * 1000.0)) / 1000.0
J_NXT[k] = (Round(J_NX[k]/ @GMperTN@ * 1000.0)) / 1000.0
;
;
; Accumulate Regional EMISSIONS IN Gms/Tons HERE
;
T_PMT= T_PMT + J_PMT[k]
T_NXT= T_NXT + J_NXT[k]

J_PMT_S[k] = J_PMT[k] * @SDays@
J_NXT_S[k] = J_NXT[k] * @SDays@

T_PMT_S= T_PMT_S + J_PMT_S[k]
T_NXT_S= T_NXT_S + J_NXT_S[k]

print form= 10.3 list = ' jno/nx tons per day/days in season/ nox tons /year:
',k,j_nxt[k],@sdays@, J_NXT_S[k],
file =
jur.chk
ENDLOOP
;
LOOP k=1,27
; GET AVG rates BY JURIS.& REGIONAL
;
;JURIS RATES (Gm/MI):
IF (J_VMT[k] = 0)
J_PMR[k] = 0
J_NXR[k] = 0
ELSE
J_PMR[k] = J_PM[k] / J_VMT[k]
J_NXR[k] = J_NX[k] / J_VMT[k]
ENDIF

IF (k= 1) _jur = str(k,3,0) +' *DC '
IF (k= 2) _jur = str(k,3,0) +' *Mtg '
IF (k= 3) _jur = str(k,3,0) +' *PG '
IF (k= 4) _jur = str(k,3,0) +' How '
IF (k= 5) _jur = str(k,3,0) +' AAR '
IF (k= 6) _jur = str(k,3,0) +' Car '
IF (k= 7) _jur = str(k,3,0) +' BaltX'
IF (k= 8) _jur = str(k,3,0) +' Cal '
IF (k= 9) _jur = str(k,3,0) +' *Chs '

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

IF (k=10) _jur = str(k,3,0) + ' *Frd '
IF (k=11) _jur = str(k,3,0) + ' *FrdX '
IF (k=12) _jur = str(k,3,0) + ' *Arl '
IF (k=13) _jur = str(k,3,0) + ' *Ffx '
IF (k=14) _jur = str(k,3,0) + ' *Ldn '
IF (k=15) _jur = str(k,3,0) + ' *PW '
IF (k=16) _jur = str(k,3,0) + ' Sta '
IF (k=17) _jur = str(k,3,0) + ' *Alx '
IF (k=18) _jur = str(k,3,0) + ' StM '
IF (k=19) _jur = str(k,3,0) + ' WaCoX'
IF (k=20) _jur = str(k,3,0) + ' Clk '
IF (k=21) _jur = str(k,3,0) + ' Fau '
IF (k=22) _jur = str(k,3,0) + ' JeFf '
IF (k=23) _jur = str(k,3,0) + ' WestX'
IF (k=24) _jur = str(k,3,0) + ' Spots'
IF (k=25) _jur = str(k,3,0) + ' KGeo '
IF (k=26) _jur = str(k,3,0) + ' Fbrg '
IF (k=27) _jur = str(k,3,0) + ' SouX '

Print form=13.0csv list = _jur,J_VMT[k],J_PMT[k],J_NX[k],
                        J_PMR[k](10.3),J_NXR[k](10.3),
J_PMT[k](10.3),J_NXT[k](10.3),J_NXT_S[k](10.2),J_PMT_S[k](10.2),
                        File=@out_TXT@
endloop

Print list=' ',file=@Out_TXT@
Print form=13.0csv list = 'Total ',T_VMT, T_PM, T_NX,
                        T_PMR(10.3),T_NXR(10.3),
                        T_PMT(10.3),T_NXT(10.3),
T_NXT_S(10.2), T_PMT_S(10.2),
                        File=@out_TXT@

Print list=' Note: * indicates MSA '
,file=@Out_TXT@

; Finally compute, print MSA pollutant, trip totals
; MSA defined as dc,mtg,pg,arl,alx,ffx,ldn,pw,frd,chs (Not incl Calvert & Stafford)
;
MSA_VMT= J_VMT[01] + J_VMT[02] + J_VMT[03] +
        J_VMT[09] + J_VMT[10] + J_VMT[12] + J_VMT[13] +
        J_VMT[14] + J_VMT[15] + J_VMT[17]

MSA_PMT= J_PMT[01] + J_PMT[02] + J_PMT[03] +
        J_PMT[09] + J_PMT[10] + J_PMT[12] + J_PMT[13] +
        J_PMT[14] + J_PMT[15] + J_PMT[17]

MSA_NXT= J_NXT[01] + J_NXT[02] + J_NXT[03] +
        J_NXT[09] + J_NXT[10] + J_NXT[12] + J_NXT[13] +
        J_NXT[14] + J_NXT[15] + J_NXT[17]

MSA_NXT_S= J_NXT_S[01] + J_NXT_S[02] + J_NXT_S[03] +
        J_NXT_S[09] + J_NXT_S[10] + J_NXT_S[12] + J_NXT_S[13] +
        J_NXT_S[14] + J_NXT_S[15] + J_NXT_S[17]

MSA_PMT_S= J_PMT_S[01] + J_PMT_S[02] + J_PMT_S[03] +
        J_PMT_S[09] + J_PMT_S[10] + J_PMT_S[12] + J_PMT_S[13] +
        J_PMT_S[14] + J_PMT_S[15] + J_PMT_S[17]

Print list=' '
,file=@Out_TXT@
Print list=' MSA RUNNING EMISSION TOTALS
,file=@Out_TXT@
Print list=' MSA definition: DC,MTG,PG,ARL,ALX,FFX,LDN,PW,FRD,& CHS ',file=@Out_TXT@

print, form=13.0csv,list = ' MSA Seasonal Daily VMT ',MSA_VMT
,file=@Out_TXT@
print, form=13.3csv,list = ' MSA Seasonal Daily PM Running Emissions(Tons): ',MSA_PMT
,file=@Out_TXT@
print, form=13.3csv,list = ' MSA Seasonal Daily NX Running Emissions(Tons): ',MSA_NXT
,file=@Out_TXT@
print, form=13.2csv,list = ' MSA Seasonal ', '%_SeasonDays_%', '-Day NX Running
Emissions(Tons): ',MSA_NXT_S
,file=@Out_TXT@

```

```

print, form=13.2csv,list = ' MSA Seasonal ', '%_SeasonDays_%', '-Day PM Running
Emissions(Tons): ',MSA_PMT_S
,file=@Out_TXT@

Print form=13.0csv list = 'Note: Approximate Unadjusted VMT for the modeled Region
is: ',_UnftrVMT, file=@Out_TXT@

endphase
endrun

*copy tppl*.prn running_Seasonal_Nx.rpt

*del tppl*.prn

```

## Strt Skr Seasonal Nx.s

```
*del tpp1*.PRN
-----
;STRT_SKR_Seasonal_Nx.S - Calculation of Zonal Startup / SOAK emissions
;Note 4/15/03 update - "smoothed" hot/cold start distribution at hour 4
; 4/29/03 corrected starting emission equation error
; 8/19/04 created output text file (STRT_SKR.TXT) that results are sent to
;
-----
; INPUT Files:
JRTRPDST='trip.dst' ; veh trip juris level distr
HRLY_Os ='HRLYORIG.ASC' ; Hourly Zonal trip origins
HRLY_Ds ='HRLYDEST.ASC' ; Hourly Zonal trip destinations
; Output File/Parameters
Out_TXT ='STRT_SKR.TXT' ; Output text file containing results
GMperTN = 907184.74 ; Grams per Ton parameter
HNNo=%_SeasonRateNo_% ; Seasonal Hot Start rate no. 1/Winter, 2/Spring,
3/Summer, 4/Fall
CNNo=%_SeasonRateNo_% + 4 ; Seasonal Cold Start rate no. 1/Winter, 2/Spring,
3/Summer, 4/Fall
SDays=%_SeasonDays_% ; No. of Days in the saeson
-----
; Emission juris codes
-----
; 1) DC 15) PW
; 2) Mtg 16) Sta
; 3) PG 17) Alx
; 4) How 18) STM
; 5) Aar 19) WashCoExtls 2164-2168
; 6) Car 20) Clk
; 7) Balt Extls 2172-2191 21) Fau
; 8) Cal 22) Jef
; 9) Chs 23) VA W.Extls 2154-2163
; 10) Frd 24) Spts
; 11) Frd Extls 2169-2171 25) KG
; 12) Arl 26) Fbg
; 13) FFX 27) VA S.Extls 2145-2153
; 14) Ldn
-----
j01S_RAT='%_m6Sub_%%_m6NxPre_%dc.stt'; DC Strt Nx Rates
j02S_RAT='%_m6Sub_%%_m6NxPre_%mc.stt'; Mtg Strt Nx Rates
j03S_RAT='%_m6Sub_%%_m6NxPre_%pg.stt'; PG Strt Nx Rates
j04S_RAT='%_m6Sub_%%_m6NxPre_%pg.stt'; " Strt Nx Rates
j05S_RAT='%_m6Sub_%%_m6NxPre_%pg.stt'; " Strt Nx Rates
j06S_RAT='%_m6Sub_%%_m6NxPre_%pg.stt'; " Strt Nx Rates
j07S_RAT='%_m6Sub_%%_m6NxPre_%pg.stt'; " Strt Nx Rates
j08S_RAT='%_m6Sub_%%_m6NxPre_%ca.stt'; Cal Strt Nx Rates
j09S_RAT='%_m6Sub_%%_m6NxPre_%ch.stt'; Chs Strt Nx Rates
j10S_RAT='%_m6Sub_%%_m6NxPre_%fr.stt'; Frd Strt Nx Rates
j11S_RAT='%_m6Sub_%%_m6NxPre_%fr.stt'; " Strt Nx Rates
j12S_RAT='%_m6Sub_%%_m6NxPre_%ar.stt'; Arl Strt Nx Rates
j13S_RAT='%_m6Sub_%%_m6NxPre_%fx.stt'; Pfx Strt Nx Rates
j14S_RAT='%_m6Sub_%%_m6NxPre_%ld.stt'; Ldn Strt Nx Rates
j15S_RAT='%_m6Sub_%%_m6NxPre_%pw.stt'; PW Strt Nx Rates
j16S_RAT='%_m6Sub_%%_m6NxPre_%st.stt'; Sta Strt Nx Rates
j17S_RAT='%_m6Sub_%%_m6NxPre_%al.stt'; Alx Strt Nx Rates
j18S_RAT='%_m6Sub_%%_m6NxPre_%sm.stt'; STM Strt Nx Rates
j19S_RAT='%_m6Sub_%%_m6NxPre_%we.stt'; Wash Strt Nx Rates
j20S_RAT='%_m6Sub_%%_m6NxPre_%cl.stt'; Clk Strt Nx Rates
j21S_RAT='%_m6Sub_%%_m6NxPre_%cl.stt'; " Strt Nx Rates
j22S_RAT='%_m6Sub_%%_m6NxPre_%cl.stt'; " Strt Nx Rates
j23S_RAT='%_m6Sub_%%_m6NxPre_%cl.stt'; " Strt Nx Rates
j24S_RAT='%_m6Sub_%%_m6NxPre_%sp.stt'; Spts Strt Nx Rates
j25S_RAT='%_m6Sub_%%_m6NxPre_%sp.stt'; " Strt Nx Rates
j26S_RAT='%_m6Sub_%%_m6NxPre_%sp.stt'; " Strt Nx Rates
j27S_RAT='%_m6Sub_%%_m6NxPre_%sp.stt'; " Strt Nx Rates
-----
;
```

```
J01SKRAT='%_m6Sub_%%_m6NxPre_%dc.ram'; DC Strt Nx Rates
j02SKRAT='%_m6Sub_%%_m6NxPre_%mc.ram'; Mtg Strt Nx Rates
j03SKRAT='%_m6Sub_%%_m6NxPre_%pg.ram'; PG Strt Nx Rates
j04SKRAT='%_m6Sub_%%_m6NxPre_%pg.ram'; " Strt Nx Rates
j05SKRAT='%_m6Sub_%%_m6NxPre_%pg.ram'; " Strt Nx Rates
j06SKRAT='%_m6Sub_%%_m6NxPre_%pg.ram'; " Strt Nx Rates
j07SKRAT='%_m6Sub_%%_m6NxPre_%pg.ram'; " Strt Nx Rates
j08SKRAT='%_m6Sub_%%_m6NxPre_%ca.ram'; Cal Strt Nx Rates
j09SKRAT='%_m6Sub_%%_m6NxPre_%ch.ram'; Chs Strt Nx Rates
j10SKRAT='%_m6Sub_%%_m6NxPre_%fr.ram'; Frd Strt Nx Rates
j11SKRAT='%_m6Sub_%%_m6NxPre_%fr.ram'; " Strt Nx Rates
j12SKRAT='%_m6Sub_%%_m6NxPre_%ar.ram'; Arl Strt Nx Rates
j13SKRAT='%_m6Sub_%%_m6NxPre_%fx.ram'; Pfx Strt Nx Rates
j14SKRAT='%_m6Sub_%%_m6NxPre_%ld.ram'; Ldn Strt Nx Rates
j15SKRAT='%_m6Sub_%%_m6NxPre_%pw.ram'; PW Strt Nx Rates
j16SKRAT='%_m6Sub_%%_m6NxPre_%st.ram'; Sta Strt Nx Rates
j17SKRAT='%_m6Sub_%%_m6NxPre_%al.ram'; Alx Strt Nx Rates
j18SKRAT='%_m6Sub_%%_m6NxPre_%sm.ram'; STM Strt Nx Rates
j19SKRAT='%_m6Sub_%%_m6NxPre_%we.ram'; Wash Strt Nx Rates
j20SKRAT='%_m6Sub_%%_m6NxPre_%cl.ram'; Clk Strt Nx Rates
j21SKRAT='%_m6Sub_%%_m6NxPre_%cl.ram'; " Strt Nx Rates
j22SKRAT='%_m6Sub_%%_m6NxPre_%cl.ram'; " Strt Nx Rates
j23SKRAT='%_m6Sub_%%_m6NxPre_%cl.ram'; " Strt Nx Rates
j24SKRAT='%_m6Sub_%%_m6NxPre_%sp.ram'; Spts Strt Nx Rates
j25SKRAT='%_m6Sub_%%_m6NxPre_%sp.ram'; " Strt Nx Rates
j26SKRAT='%_m6Sub_%%_m6NxPre_%sp.ram'; " Strt Nx Rates
j27SKRAT='%_m6Sub_%%_m6NxPre_%sp.ram'; " Strt Nx Rates
-----
run pgm=matrix
;
-----
zones=2191

ZDATI[1]=@HRLY_Os@,Z=1-5,
HORIG01= 6- 15, HORIG02= 16- 25, HORIG03= 26- 35, HORIG04= 36- 45,
HORIG05= 46- 55, HORIG06= 56- 65, HORIG07= 66- 75, HORIG08= 76- 85,
HORIG09= 86- 95, HORIG10= 96- 105, HORIG11=106-115, HORIG12=116-125,
HORIG13=126-135, HORIG14=136- 145, HORIG15=146-155, HORIG16=156-165,
HORIG17=166-175, HORIG18=176- 185, HORIG19=186-195, HORIG20=196-205,
HORIG21=206-215, HORIG22=216- 225, HORIG23=226-235, HORIG24=236-245

ZDATI[2]=@HRLY_Ds@,Z=1-5,
HDEST01= 6- 15, HDEST02= 16- 25, HDEST03= 26- 35, HDEST04= 36- 45,
HDEST05= 46- 55, HDEST06= 56- 65, HDEST07= 66- 75, HDEST08= 76- 85,
HDEST09= 86- 95, HDEST10= 96- 105, HDEST11=106-115, HDEST12=116-125,
HDEST13=126-135, HDEST14=136- 145, HDEST15=146-155, HDEST16=156-165,
HDEST17=166-175, HDEST18=176- 185, HDEST19=186-195, HDEST20=196-205,
HDEST21=206-215, HDEST22=216- 225, HDEST23=226-235, HDEST24=236-245

; Set up arrays

ARRAY,
STRT =24, ; hrly Origins
STOP =24, ; hrly Destinations

CNCR =24, ; Cold Start Composite Nx Rate
HNCR =24, ; Hot Start Composite Nx Rate
STNE =24, ; Start Composite Nx EMISS
J_NX =27, ; Daily Juris. NX Total EMISSIONS GMS
J_NXR =27, ; Daily Juris. NX Total RATE Gm/Tr
J_NXT =27, ; Daily Juris. NX Total EMISSIONS TONS
J_NXT_S =27, ; Seasonal Juris. NX Total EMISSIONS TONS
J_ST =27, ; Daily Juris. Trip Starts
J_SP =27 ; Daily Juris. Trip Stops

;Establish hourly cold and hot start pcts
; - The proportion of Cold, Hot Vehicle starts for each hour (1-24)
; - Distributions taken from 1994 HTS - Hamid Humeida

;
-----
; NOTE: The hourly arrays are indexed from 1 to 24, as follows:
; 1- 12mid - 12:59AM 13- 12noon - 12:59PM
; 2- 1:00AM - 1:59AM 14- 1:00PM - 1:59PM
```

Attachment 3: Post Processor Batch File & TP+ Scripts

```

; 3- 2:00AM - 2:59AM      15- 2:00PM - 2:59PM
; 4- 3:00AM - 3:59AM      16- 3:00PM - 3:59PM
; 5- 4:00AM - 4:59AM      17- 4:00PM - 4:59PM
; 6- 5:00AM - 5:59AM      18- 5:00PM - 5:59PM
; 7- 6:00AM - 6:59AM      19- 6:00PM - 6:59PM
; 8- 7:00AM - 1:59AM      20- 7:00PM - 7:59PM
; 9- 8:00AM - 2:59AM      21- 8:00PM - 8:59PM
;10- 9:00AM - 3:59AM      22- 9:00PM - 9:59PM
;11-10:00AM - 4:59AM      23-10:00PM - 10:59PM
;12-11:00AM - 11:59AM     24-11:00PM - 11:59PM
;-----
;
;

```

```

LOOKUP NAME=CHDST,          ;Cold / Hot Distribution for each hour
LOOKUP[1]=1, RESULT=2,     ; Pct. Cold Starts
LOOKUP[2]=1, RESULT=3,     ; Pct. Hot Starts
INTERPOLATE = N,LIST=T,

```

```

R= " 1,0.847,0.153 ",
   " 2,0.838,0.162 ",
   " 3,0.929,0.071 ",
   " 4,0.912,0.088 ",
   " 5,0.894,0.106 ",
   " 6,0.930,0.070 ",
   " 7,0.884,0.116 ",
   " 8,0.829,0.171 ",
   " 9,0.730,0.270 ",
   "10,0.615,0.385 ",
   "11,0.554,0.446 ",
   "12,0.551,0.449 ",
   "13,0.505,0.495 ",
   "14,0.512,0.488 ",
   "15,0.562,0.438 ",
   "16,0.583,0.417 ",
   "17,0.605,0.395 ",
   "18,0.599,0.401 ",
   "19,0.552,0.448 ",
   "20,0.570,0.430 ",
   "21,0.616,0.384 ",
   "22,0.664,0.336 ",
   "23,0.711,0.289 ",
   "24,0.730,0.270 "

```

```

;-----
LOOKUP NAME=JCDAZRG,        ; JCD AQ Juris code/taz range equiv
LOOKUP[1]=1, RESULT=2,     ; Low TAZ Range
LOOKUP[2]=1, RESULT=3,     ; High TAZ Range
LOOKUP[3]=1, RESULT=4,     ; JCD Code (1-27)
INTERPOLATE = N,LIST=T,FAIL=0,0,0,

```

```

R= " 1, 1, 319, 1 ", ; DC
   " 2, 320, 627, 2 ", ; Mtg
   " 3, 640, 1020, 3 ", ; PG
   " 4, 1080, 1099, 4 ", ; How
   " 5, 1110, 1142, 5 ", ; Aar
   " 6, 1060, 1073, 6 ", ; Car
   " 7, 2172, 2191, 7 ", ; Balt Extls 2172-2191
   " 8, 1150, 1163, 8 ", ; Cal
   " 9, 1200, 1223, 9 ", ; Chs
   "10, 1030, 1053, 10 ", ; Frd
   "11, 2169, 2171, 11 ", ; Frd Extls 2169-2171
   "12, 1230, 1311, 12 ", ; Arl
   "13, 1400, 1755, 13 ", ; FFX
   "14, 1780, 1905, 14 ", ; Ldn
   "15, 1920, 2061, 15 ", ; PW
   "16, 2080, 2093, 16 ", ; Sta
   "17, 1330, 1389, 17 ", ; Alx
   "18, 1170, 1190, 18 ", ; StM
   "19, 2164, 2168, 19 ", ; NW. Extls 2164-2168
   "20, 2130, 2132, 20 ", ; Clk
   "21, 2115, 2125, 21 ", ; Fau
   "22, 2135, 2141, 22 ", ; Jef

```

```

" 23, 2154, 2163, 23 ", ; W.Extls 2154-2163
" 24, 2105, 2110, 24 ", ; Spts
" 25, 2070, 2074, 25 ", ; KG
" 26, 2100, 2101, 26 ", ; Fbg
" 27, 2145, 2153, 27 ", ; S.Extls 2145-2153
;
;-----
; Jurisdictional Trip Distribution Array
;-----

```

```

LOOKUP NAME=JDST,          ;
LOOKUP[01]=1, RESULT=2,    ;
LOOKUP[02]=1, RESULT=3,    ;
LOOKUP[03]=1, RESULT=4,    ;
LOOKUP[04]=1, RESULT=5,    ;
LOOKUP[05]=1, RESULT=6,    ;
LOOKUP[06]=1, RESULT=7,    ;
LOOKUP[07]=1, RESULT=8,    ;
LOOKUP[08]=1, RESULT=9,    ;
LOOKUP[09]=1, RESULT=10,   ;
LOOKUP[10]=1, RESULT=11,   ;
LOOKUP[11]=1, RESULT=12,   ;
LOOKUP[12]=1, RESULT=13,   ;
LOOKUP[13]=1, RESULT=14,   ;
LOOKUP[14]=1, RESULT=15,   ;
LOOKUP[15]=1, RESULT=16,   ;
LOOKUP[16]=1, RESULT=17,   ;
LOOKUP[17]=1, RESULT=18,   ;
LOOKUP[18]=1, RESULT=19,   ;
LOOKUP[19]=1, RESULT=20,   ;
LOOKUP[20]=1, RESULT=21,   ;
LOOKUP[21]=1, RESULT=22,   ;
LOOKUP[22]=1, RESULT=23,   ;
LOOKUP[23]=1, RESULT=24,   ;
LOOKUP[24]=1, RESULT=25,   ;
LOOKUP[25]=1, RESULT=26,   ;
LOOKUP[26]=1, RESULT=27,   ;
LOOKUP[27]=1, RESULT=28,   ;
INTERPOLATE = N,LIST=T,FAIL=0,0,0,File=@jrtrpdst@
;-----
; Hot & Cold start emission rate lookups by jurisdiction
;-----
;
;-----

```

```

LOOKUP NAME=J01SR,          ;
LOOKUP[1]=1, RESULT=2,     ; Hot Nx Winter Start Rate (gm/trip)
LOOKUP[2]=1, RESULT=3,     ; Hot Nx Spring Start Rate (gm/trip)
LOOKUP[3]=1, RESULT=4,     ; Hot Nx Summer Start Rate (gm/trip)
LOOKUP[4]=1, RESULT=5,     ; Hot Nx Fall Start Rate (gm/trip)
LOOKUP[5]=1, RESULT=6,     ; Cold Nx Winter Start Rate (gm/trip)
LOOKUP[6]=1, RESULT=7,     ; Cold Nx Spring Start Rate (gm/trip)
LOOKUP[7]=1, RESULT=8,     ; Cold Nx Summer Start Rate (gm/trip)
LOOKUP[8]=1, RESULT=9,     ; Cold Nx Fall Start Rate (gm/trip)
INTERPOLATE = N,LIST=T,file=@J01S_RAT@

```

```

LOOKUP NAME=J02SR,          ;
LOOKUP[1]=1, RESULT=2,     ; Hot Nx Winter Start Rate (gm/trip)
LOOKUP[2]=1, RESULT=3,     ; Hot Nx Spring Start Rate (gm/trip)
LOOKUP[3]=1, RESULT=4,     ; Hot Nx Summer Start Rate (gm/trip)
LOOKUP[4]=1, RESULT=5,     ; Hot Nx Fall Start Rate (gm/trip)
LOOKUP[5]=1, RESULT=6,     ; Cold Nx Winter Start Rate (gm/trip)
LOOKUP[6]=1, RESULT=7,     ; Cold Nx Spring Start Rate (gm/trip)
LOOKUP[7]=1, RESULT=8,     ; Cold Nx Summer Start Rate (gm/trip)
LOOKUP[8]=1, RESULT=9,     ; Cold Nx Fall Start Rate (gm/trip)
INTERPOLATE = N,LIST=T,file=@J02S_RAT@

```

```

LOOKUP NAME=J03SR,          ;
LOOKUP[1]=1, RESULT=2,     ; Hot Nx Winter Start Rate (gm/trip)
LOOKUP[2]=1, RESULT=3,     ; Hot Nx Spring Start Rate (gm/trip)
LOOKUP[3]=1, RESULT=4,     ; Hot Nx Summer Start Rate (gm/trip)
LOOKUP[4]=1, RESULT=5,     ; Hot Nx Fall Start Rate (gm/trip)
LOOKUP[5]=1, RESULT=6,     ; Cold Nx Winter Start Rate (gm/trip)

```





### Attachment 3: Post Processor Batch File & TP+ Scripts

```

STOP[05]=HDEST05 STOP[11]=HDEST11 STOP[17]=HDEST17 STOP[23]=HDEST23
STOP[06]=HDEST06 STOP[12]=HDEST12 STOP[18]=HDEST18 STOP[24]=HDEST24

;-----
;Next, define air quality jurisdiction codes (jcd). -
; associated with each origin TAZ. -
; These include some external station ranges as well as jurisdictions -
;-----
      JCD = 0 ; initialize JCD Code
LOOP  IDX = 1,27
      IF ( (I >= JCCTAZRG(1,IDX)) && (I <= JCCTAZRG(2,IDX)) )
          JCD = JCCTAZRG(3,IDX)
      ENDIF
ENDLOOP
;-----
; end of JCD definitions
;-----
; Now compute hourly
; Composite Hot NOx emission rate (HNCR)
; Composite Cold NOx emission rate (CNCR)
;-----
;
      LOOP  IDX= 1,24
          ; 35 is dummy lookup value to read 1-line lookup tabs

; ---- Begin Hot Start composite Nx Rate computations -----

      HNCR[IDX] = (J01SR(@Hno@,13) * JDST(JCD,1)) + ; Hot Start
                  (J02SR(@Hno@,13) * JDST(JCD,2)) + ; Nx Composite
                  (J03SR(@Hno@,13) * JDST(JCD,3)) + ; RATE
                  (J04SR(@Hno@,13) * JDST(JCD,4)) + ;
                  (J05SR(@Hno@,13) * JDST(JCD,5)) + ;
                  (J06SR(@Hno@,13) * JDST(JCD,6)) + ;
                  (J07SR(@Hno@,13) * JDST(JCD,7)) + ;
                  (J08SR(@Hno@,13) * JDST(JCD,8)) + ;
                  (J09SR(@Hno@,13) * JDST(JCD,9)) + ;
                  (J10SR(@Hno@,13) * JDST(JCD,10)) + ;
                  (J11SR(@Hno@,13) * JDST(JCD,11)) + ;
                  (J12SR(@Hno@,13) * JDST(JCD,12)) + ;
                  (J13SR(@Hno@,13) * JDST(JCD,13)) + ;
                  (J14SR(@Hno@,13) * JDST(JCD,14)) + ;
                  (J15SR(@Hno@,13) * JDST(JCD,15)) + ;
                  (J16SR(@Hno@,13) * JDST(JCD,16)) + ;
                  (J17SR(@Hno@,13) * JDST(JCD,17)) + ;
                  (J18SR(@Hno@,13) * JDST(JCD,18)) + ;
                  (J19SR(@Hno@,13) * JDST(JCD,19)) + ;
                  (J20SR(@Hno@,13) * JDST(JCD,20)) + ;
                  (J21SR(@Hno@,13) * JDST(JCD,21)) + ;
                  (J22SR(@Hno@,13) * JDST(JCD,22)) + ;
                  (J23SR(@Hno@,13) * JDST(JCD,23)) + ;
                  (J24SR(@Hno@,13) * JDST(JCD,24)) + ;
                  (J25SR(@Hno@,13) * JDST(JCD,25)) + ;
                  (J26SR(@Hno@,13) * JDST(JCD,26)) + ;
                  (J27SR(@Hno@,13) * JDST(JCD,27)) + ;

; ----- End Hot Start Rate Computations -----
; ---Begin Cold Start Composite Nx Rate computations -----

      CNCR[IDX] = (J01SR(@Cno@,13) * JDST(JCD,1)) + ; Cold Start
                  (J02SR(@Cno@,13) * JDST(JCD,2)) + ; Nx Composite
                  (J03SR(@Cno@,13) * JDST(JCD,3)) + ; RATE
                  (J04SR(@Cno@,13) * JDST(JCD,4)) + ;
                  (J05SR(@Cno@,13) * JDST(JCD,5)) + ;
                  (J06SR(@Cno@,13) * JDST(JCD,6)) + ;
                  (J07SR(@Cno@,13) * JDST(JCD,7)) + ;
                  (J08SR(@Cno@,13) * JDST(JCD,8)) + ;

```

```

(J09SR(@Cno@,13) * JDST(JCD,9)) + ;
(J10SR(@Cno@,13) * JDST(JCD,10)) + ;
(J11SR(@Cno@,13) * JDST(JCD,11)) + ;
(J12SR(@Cno@,13) * JDST(JCD,12)) + ;
(J13SR(@Cno@,13) * JDST(JCD,13)) + ;
(J14SR(@Cno@,13) * JDST(JCD,14)) + ;
(J15SR(@Cno@,13) * JDST(JCD,15)) + ;
(J16SR(@Cno@,13) * JDST(JCD,16)) + ;
(J17SR(@Cno@,13) * JDST(JCD,17)) + ;
(J18SR(@Cno@,13) * JDST(JCD,18)) + ;
(J19SR(@Cno@,13) * JDST(JCD,19)) + ;
(J20SR(@Cno@,13) * JDST(JCD,20)) + ;
(J21SR(@Cno@,13) * JDST(JCD,21)) + ;
(J22SR(@Cno@,13) * JDST(JCD,22)) + ;
(J23SR(@Cno@,13) * JDST(JCD,23)) + ;
(J24SR(@Cno@,13) * JDST(JCD,24)) + ;
(J25SR(@Cno@,13) * JDST(JCD,25)) + ;
(J26SR(@Cno@,13) * JDST(JCD,26)) + ;
(J27SR(@Cno@,13) * JDST(JCD,27)) + ;
; ----- End Cold Start Rate Computations -----

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```
; ----- Now apply Composite Cold/Hot Rates to trip origins-----
; -- TO COMPUTE HOURLY Nx EMISSIONS -----
; w/ 4/29/03 correction

      STNE[idx] = strt[idx] *
              ((CNCR[idx] * CHDST(1,idx)) + (HNCR[idx] * CHDST(2,idx)))

;----- accumulate Jurisdictional Nx emissions, starts-----
;-----
LOOP JDX=1,27
IF (JCD=JDX) ;
  J_NX[jdx] = J_NX[jdx] + STNE[idx] ; NX (gms) per day
  J_ST[jdx] = J_ST[jdx] + STRT[idx] ; Starts per Day
  J_SP[jdx] = J_SP[jdx] + STOP[idx] ; Stops per Day

ENDIF
ENDLOOP

;-----
;---END of Jurisdictional Nx emissions, starts -----
;-----

;-----
;TOTAL Regional Nx, Trip Origins -
;-----
;
  TOTNX_ST = TOTNX_ST + STNE[idx]
  TOTstart = TOTstart + strt[idx]
  TOTstop  = TOTstop  + stop[idx]
ENDLOOP

;-----
if (i=627,628)
  t1=jdst(jcd,1),
  t2=jdst(jcd,2)  t3=jdst(jcd,3) t4=jdst(jcd,4)  t5=jdst(jcd,5),
  t6=jdst(jcd,6)  t7=jdst(jcd,7) t8=jdst(jcd,8)  t9=jdst(jcd,9),
  t10=jdst(jcd,10) t11=jdst(jcd,11) t12=jdst(jcd,12) t13=jdst(jcd,13),
  t14=jdst(jcd,14) t15=jdst(jcd,15) t16=jdst(jcd,16) t17=jdst(jcd,17),
  t18=jdst(jcd,18) t19=jdst(jcd,19) t20=jdst(jcd,20) t21=jdst(jcd,21),
  t22=jdst(jcd,22) t23=jdst(jcd,23) t24=jdst(jcd,24) t25=jdst(jcd,25),
  t26=jdst(jcd,26) t27=jdst(jcd,27)

list=i(5), t1(5.3), t2(5.3), t3(5.3), t4(5.3),
          t5(5.3), t6(5.3), t7(5.3), t8(5.3),
          t9(5.3), t10(5.3), t11(5.3), t12(5.3),
          t13(5.3), t14(5.3), t15(5.3), t16(5.3),
          t17(5.3), t18(5.3), t19(5.3), t20(5.3),
          t21(5.3), t22(5.3), t23(5.3), t24(5.3),
          t25(5.3), t26(5.3), t27(5.3),
          file=dud.dat ;
endif
;-----

IF (I=ZONES) ; ALL DONE WITH ZONE LOOP
;
; GET AVG rates BY JURIS.& REGIONAL
; get total seasonal Nox emissions

;
;JURIS rates:
LOOP TDX=1,27
  IF (J_ST[TDX] = 0)
    J_NXR[TDX] = 0
  ELSE
    J_NXR[TDX] = J_NX[TDX] / J_ST[TDX]
  ENDIF

;
; CALCULATE daily nox Emissions in tons HERE
;
```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

J_NXT[TDX] = (Round( J_NX[TDX] / @GMperTN@ *1000.0) ) / 1000.0
; CALCULATE seasonal nox emissions IN TONS HERE
;
J_NXT_S[TDX] = J_NXT[TDX]* @SDays@
; CALCULATE TOTAL TONS per Day
T_NXT = T_NXT + J_NXT[TDX]
;
T_NXT_S = T_NXT_S + J_NXT_S[TDX]
;
;
ENDLOOP

;TOTAL RATES:
IF (TOTSTART = 0)
  T_NXR = 0
ELSE
  T_NXR = TOTNX_ST / TOTSTART
ENDIF

; Now List Out The Results
;
Print LIST=' ' ,file=@Out_TXT@
Print LIST=' Total Starting Nox Emissions (gms) By Jurisdiction ' ,file=@Out_TXT@
Print form=10.0 list = 'Year: ', '%_Year_%', ' Season/Month: ', '%_Season_%', file=@Out_TXT@
Print LIST=' Daily Daily Nx Rate Daily ', '@SDays@', '-Day ' ,file=@Out_TXT@
Print LIST='Juris Nx(gms) Trip Starts (gm/trip) Nx(tns) Nx(tns) ' ,file=@Out_TXT@
Print LIST='-----',file=@Out_TXT@
print, form=13.0csv,list = ' 1 DC ', J_NX[01] J_ST[01] J_NXR[01](13.3) J_NXT[01](13.3) J_NXT_S[01](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = ' 2 MTG', J_NX[02] J_ST[02] J_NXR[02](13.3) J_NXT[02](13.3) J_NXT_S[02](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = ' 3 PG ', J_NX[03] J_ST[03] J_NXR[03](13.3) J_NXT[03](13.3) J_NXT_S[03](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = ' 4 HOW', J_NX[04] J_ST[04] J_NXR[04](13.3) J_NXT[04](13.3) J_NXT_S[04](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = ' 5 AAR', J_NX[05] J_ST[05] J_NXR[05](13.3) J_NXT[05](13.3) J_NXT_S[05](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = ' 6 CAR', J_NX[06] J_ST[06] J_NXR[06](13.3) J_NXT[06](13.3) J_NXT_S[06](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = ' 7 BalX', J_NX[07] J_ST[07] J_NXR[07](13.3) J_NXT[07](13.3) J_NXT_S[07](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = ' 8 CAL', J_NX[08] J_ST[08] J_NXR[08](13.3) J_NXT[08](13.3) J_NXT_S[08](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = ' 9 CHS', J_NX[09] J_ST[09] J_NXR[09](13.3) J_NXT[09](13.3) J_NXT_S[09](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '10 FRD', J_NX[10] J_ST[10] J_NXR[10](13.3) J_NXT[10](13.3) J_NXT_S[10](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '11 FrdX', J_NX[11] J_ST[11] J_NXR[11](13.3) J_NXT[11](13.3) J_NXT_S[11](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '12 ARL', J_NX[12] J_ST[12] J_NXR[12](13.3) J_NXT[12](13.3) J_NXT_S[12](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '13 FFX', J_NX[13] J_ST[13] J_NXR[13](13.3) J_NXT[13](13.3) J_NXT_S[13](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '14 LDN', J_NX[14] J_ST[14] J_NXR[14](13.3) J_NXT[14](13.3) J_NXT_S[14](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '15 PW ', J_NX[15] J_ST[15] J_NXR[15](13.3) J_NXT[15](13.3) J_NXT_S[15](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '16 STA', J_NX[16] J_ST[16] J_NXR[16](13.3) J_NXT[16](13.3) J_NXT_S[16](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '17 ALX', J_NX[17] J_ST[17] J_NXR[17](13.3) J_NXT[17](13.3) J_NXT_S[17](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '18 STM', J_NX[18] J_ST[18] J_NXR[18](13.3) J_NXT[18](13.3) J_NXT_S[18](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '19 WasX', J_NX[19] J_ST[19] J_NXR[19](13.3) J_NXT[19](13.3) J_NXT_S[19](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '20 CLK', J_NX[20] J_ST[20] J_NXR[20](13.3) J_NXT[20](13.3) J_NXT_S[20](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '21 FAU', J_NX[21] J_ST[21] J_NXR[21](13.3) J_NXT[21](13.3) J_NXT_S[21](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '22 JEF', J_NX[22] J_ST[22] J_NXR[22](13.3) J_NXT[22](13.3) J_NXT_S[22](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '23 VawX', J_NX[23] J_ST[23] J_NXR[23](13.3) J_NXT[23](13.3) J_NXT_S[23](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '24 SPT', J_NX[24] J_ST[24] J_NXR[24](13.3) J_NXT[24](13.3) J_NXT_S[24](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '25 KG', J_NX[25] J_ST[25] J_NXR[25](13.3) J_NXT[25](13.3) J_NXT_S[25](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '26 FBG', J_NX[26] J_ST[26] J_NXR[26](13.3) J_NXT[26](13.3) J_NXT_S[26](13.2) ,file=@Out_TXT@
print, form=13.0csv,list = '27 VaSX', J_NX[27] J_ST[27] J_NXR[27](13.3) J_NXT[27](13.3) J_NXT_S[27](13.2) ,file=@Out_TXT@
Print list=' ' ,file=@Out_TXT@
print, form=13.0csv ,list = ' TOTAL ',TOTNX_ST,TOTSTART T_NXR(13.3) T_NXT(13.3) ,T_NXT_S(13.2) , file=@Out_TXT@

Print LIST=' ' ,file=@Out_TXT@
Print LIST=' ' ,file=@Out_TXT@
;
; Finally compute, print MSA pollutant, trip totals
; MSA defined as dc,mtg,pg,arl,alx,ffx,ldn,pw,frd,& chs (Not Calvert & Stafford)

MSA_ST = J_ST[01] + J_ST[02] + J_ST[03] +
J_ST[09] + J_ST[10] + J_ST[12] + J_ST[13] +

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

---

```
J_ST[14] + J_ST[15] + J_ST[17]

MSA_SP = J_SP[01] + J_SP[02] + J_SP[03] +
         J_SP[09] + J_SP[10] + J_SP[12] + J_SP[13] +
         J_SP[14] + J_SP[15] + J_SP[17]

MSA_NXT= J_NXT[01] + J_NXT[02] + J_NXT[03] +
         J_NXT[09] + J_NXT[10] + J_NXT[12] + J_NXT[13] +
         J_NXT[14] + J_NXT[15] + J_NXT[17]

MSA_NXT_S= J_NXT_S[01] + J_NXT_S[02] + J_NXT_S[03] +
           J_NXT_S[09] + J_NXT_S[10] + J_NXT_S[12] + J_NXT_S[13] +
           J_NXT_S[14] + J_NXT_S[15] + J_NXT_S[17]

Print list= ' ' ,file=@Out_TXT@
Print list=' MSA TOTALS: ' ,file=@Out_TXT@
Print list=' MSA definition: DC,MTG,PG,ARL,ALX,FFX,LDN,PW,FRD,& CHS ' ,file=@Out_TXT@
Print list=' ' ,file=@Out_TXT@

print, form=13.0csv,list ='MSA Seasonal Daily TRIP STARTS: ' ,MSA_ST, file=@Out_TXT@
print, form=13.0csv,list ='MSA Seasonal Daily TRIP STOPS : ' ,MSA_SP,file=@Out_TXT@
Print list=' ' ,file=@Out_TXT@
print, form=13.3csv,list ='MSA Seasonal Daily NX Start Emissions(Tons): ' ,MSA_NXT,file=@Out_TXT@
print, form=13.3csv,list ='MSA Seasonal ' ,'%_SeasonDays_%', '-Day NX Start Emissions(Tons): ' ,MSA_NXT_S ,file=@Out_TXT@

ENDIF
ENDRUN
*copy tppl*.PRN stRT_SKR_Seasonal_Nx.rpt
```

## Local Seasonal Nx.s

```

*del tppl*.PRN
-----
;LOCAL.S - Calculation of Local nx,PM emissions at Juris Level
; Emissions calculated differently for Urban and Rural VMT.
; Urban emiss's based on single Mobile 6 Local VMT mix
; rate at 12.5 mph
; Arterial emiss's based on Mobile 6 Local VMT mix rate
; from speeds of 1 to 45 mph; the distribution of
; Local VMT for each speed is based on a regional
; distribution
-----
;INPUT Files:

JurBVMTFile='%_inplocalB_%' ; Jurisdictional Base VMT file- contains Base VMT growth/Rural&Urban Pcts
JurFVMTFile='%_inplocalF_%' ; Jurisdictional Future VMT file- contains Future VMT
GMperTN = 907184.74 ; Grams per Ton parameter
RNO =%_SeasonRateNo_% ; Seasonal Local Nx rate no. 1/Winter, 2/Spring, 3/Summer, 4/Fall
SDays=%_SeasonDays_% ; Seasonal Local Nx rate no. 1/Winter, 2/Spring, 3/Summer, 4/Fall
-----
; Emission juris codes - These are the 'ZONES' that are processed
-----
;
; 1) DC 15) PW
; 2) Mtg 16) Sta
; 3) PG 17) Alx
; 4) How 18) STM
; 5) Aar 19) WashCoExtls 2164-2168
; 6) Car 20) Clk
; 7) Balt Extls 2172-2191 21) Fau
; 8) Cal 22) Jef
; 9) Chs 23) VA W.Extls 2154-2163
; 10) Frd 24) Spts
; 11) Frd. Extls 2169-2171 25) KG
; 12) Arl 26) Fbg
; 13) PFX 27) VA S.Extls 2145-2153
; 14) Ldn
-----
j01L_RAT='%_m6Sub_%_m6NxPre_%dc.lcl'; DC Local ,Nx Rates (Winter, Spring, Summer, Fall)
j02L_RAT='%_m6Sub_%_m6NxPre_%mc.lcl'; Mtg Local ,Nx Rates (Winter, Spring, Summer, Fall)
j03L_RAT='%_m6Sub_%_m6NxPre_%pg.lcl'; PG Local ,Nx Rates (Winter, Spring, Summer, Fall)
j04L_RAT='%_m6Sub_%_m6NxPre_%pg.lcl'; " Local ,Nx Rates (Winter, Spring, Summer, Fall)
j05L_RAT='%_m6Sub_%_m6NxPre_%pg.lcl'; " Local ,Nx Rates (Winter, Spring, Summer, Fall)
j06L_RAT='%_m6Sub_%_m6NxPre_%pg.lcl'; " Local ,Nx Rates (Winter, Spring, Summer, Fall)
j07L_RAT='%_m6Sub_%_m6NxPre_%pg.lcl'; " Local ,Nx Rates (Winter, Spring, Summer, Fall)
j08L_RAT='%_m6Sub_%_m6NxPre_%ca.lcl'; Cal Local ,Nx Rates (Winter, Spring, Summer, Fall)
j09L_RAT='%_m6Sub_%_m6NxPre_%ch.lcl'; Chs Local ,Nx Rates (Winter, Spring, Summer, Fall)
j10L_RAT='%_m6Sub_%_m6NxPre_%fr.lcl'; Frd Local ,Nx Rates (Winter, Spring, Summer, Fall)
j11L_RAT='%_m6Sub_%_m6NxPre_%fr.lcl'; " Local ,Nx Rates (Winter, Spring, Summer, Fall)
j12L_RAT='%_m6Sub_%_m6NxPre_%ar.lcl'; Arl Local ,Nx Rates (Winter, Spring, Summer, Fall)
j13L_RAT='%_m6Sub_%_m6NxPre_%fx.lcl'; Pfx Local ,Nx Rates (Winter, Spring, Summer, Fall)
j14L_RAT='%_m6Sub_%_m6NxPre_%ld.lcl'; Ldn Local ,Nx Rates (Winter, Spring, Summer, Fall)
j15L_RAT='%_m6Sub_%_m6NxPre_%pw.lcl'; PW Local ,Nx Rates (Winter, Spring, Summer, Fall)
j16L_RAT='%_m6Sub_%_m6NxPre_%st.lcl'; Sta Local ,Nx Rates (Winter, Spring, Summer, Fall)
j17L_RAT='%_m6Sub_%_m6NxPre_%al.lcl'; Alx Local ,Nx Rates (Winter, Spring, Summer, Fall)
j18L_RAT='%_m6Sub_%_m6NxPre_%sm.lcl'; STM Local ,Nx Rates (Winter, Spring, Summer, Fall)
j19L_RAT='%_m6Sub_%_m6NxPre_%we.lcl'; Wash Local ,Nx Rates (Winter, Spring, Summer, Fall)
j20L_RAT='%_m6Sub_%_m6NxPre_%cl.lcl'; Clk Local ,Nx Rates (Winter, Spring, Summer, Fall)
j21L_RAT='%_m6Sub_%_m6NxPre_%cl.lcl'; " Local ,Nx Rates (Winter, Spring, Summer, Fall)
j22L_RAT='%_m6Sub_%_m6NxPre_%cl.lcl'; " Local ,Nx Rates (Winter, Spring, Summer, Fall)
j23L_RAT='%_m6Sub_%_m6NxPre_%cl.lcl'; " Local ,Nx Rates (Winter, Spring, Summer, Fall)
j24L_RAT='%_m6Sub_%_m6NxPre_%sp.lcl'; Spts Local ,Nx Rates (Winter, Spring, Summer, Fall)
j25L_RAT='%_m6Sub_%_m6NxPre_%sp.lcl'; " Local ,Nx Rates (Winter, Spring, Summer, Fall)
j26L_RAT='%_m6Sub_%_m6NxPre_%sp.lcl'; " Local ,Nx Rates (Winter, Spring, Summer, Fall)
j27L_RAT='%_m6Sub_%_m6NxPre_%sp.lcl'; " Local ,Nx Rates (Winter, Spring, Summer, Fall)
-----
;
j01RARAT='%_m6Sub_%_m6NxPre_%dc.r_r'; DC Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j02RARAT='%_m6Sub_%_m6NxPre_%mc.r_r'; Mtg Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

j03RARAT='_m6Sub_%%_m6NxPre_%%pg.r_r'; PG Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j04RARAT='_m6Sub_%%_m6NxPre_%%pg.r_r'; " Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j05RARAT='_m6Sub_%%_m6NxPre_%%pg.r_r'; " Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j06RARAT='_m6Sub_%%_m6NxPre_%%pg.r_r'; " Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j07RARAT='_m6Sub_%%_m6NxPre_%%pg.r_r'; " Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j08RARAT='_m6Sub_%%_m6NxPre_%%ca.r_r'; Cal Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j09RARAT='_m6Sub_%%_m6NxPre_%%ch.r_r'; Chs Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j10RARAT='_m6Sub_%%_m6NxPre_%%fr.r_r'; Frd Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j11RARAT='_m6Sub_%%_m6NxPre_%%fr.r_r'; " Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j12RARAT='_m6Sub_%%_m6NxPre_%%ar.r_r'; Ar1 Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j13RARAT='_m6Sub_%%_m6NxPre_%%fx.r_r'; Pfx Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j14RARAT='_m6Sub_%%_m6NxPre_%%ld.r_r'; Ldn Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j15RARAT='_m6Sub_%%_m6NxPre_%%pw.r_r'; PW Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j16RARAT='_m6Sub_%%_m6NxPre_%%st.r_r'; Sta Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j17RARAT='_m6Sub_%%_m6NxPre_%%al.r_r'; Alx Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j18RARAT='_m6Sub_%%_m6NxPre_%%sm.r_r'; StM Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j19RARAT='_m6Sub_%%_m6NxPre_%%we.r_r'; Wash Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j20RARAT='_m6Sub_%%_m6NxPre_%%cl.r_r'; Clk Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j21RARAT='_m6Sub_%%_m6NxPre_%%cl.r_r'; " Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j22RARAT='_m6Sub_%%_m6NxPre_%%cl.r_r'; " Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j23RARAT='_m6Sub_%%_m6NxPre_%%cl.r_r'; " Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j24RARAT='_m6Sub_%%_m6NxPre_%%sp.r_r'; Spts Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j25RARAT='_m6Sub_%%_m6NxPre_%%sp.r_r'; " Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j26RARAT='_m6Sub_%%_m6NxPre_%%sp.r_r'; " Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
j27RARAT='_m6Sub_%%_m6NxPre_%%sp.r_r'; " Rural-Arterial Running Nx Rates (Winter, Spring, Summer, Fall)
;-----
J01PMRAT='_m6Sub_%%_m6PMPre_%%dc.N.L'; DC PM Local Rates (Winter, Spring, Summer, Fall)
j02PMRAT='_m6Sub_%%_m6PMPre_%%mc.N.L'; Mtg PM Local Rates (Winter, Spring, Summer, Fall)
j03PMRAT='_m6Sub_%%_m6PMPre_%%pg.N.L'; PG PM Local Rates (Winter, Spring, Summer, Fall)
j04PMRAT='_m6Sub_%%_m6PMPre_%%pg.N.L'; " PM Local Rates (Winter, Spring, Summer, Fall)
j05PMRAT='_m6Sub_%%_m6PMPre_%%pg.N.L'; " PM Local Rates (Winter, Spring, Summer, Fall)
j06PMRAT='_m6Sub_%%_m6PMPre_%%pg.N.L'; " PM Local Rates (Winter, Spring, Summer, Fall)
j07PMRAT='_m6Sub_%%_m6PMPre_%%pg.N.L'; " PM Local Rates (Winter, Spring, Summer, Fall)
j08PMRAT='_m6Sub_%%_m6PMPre_%%ca.N.L'; Cal PM Local Rates (Winter, Spring, Summer, Fall)
j09PMRAT='_m6Sub_%%_m6PMPre_%%ch.N.L'; Chs PM Local Rates (Winter, Spring, Summer, Fall)
j10PMRAT='_m6Sub_%%_m6PMPre_%%fr.N.L'; Frd PM Local Rates (Winter, Spring, Summer, Fall)
j11PMRAT='_m6Sub_%%_m6PMPre_%%fr.N.L'; " PM Local Rates (Winter, Spring, Summer, Fall)
j12PMRAT='_m6Sub_%%_m6PMPre_%%ar.N.L'; Ar1 PM Local Rates (Winter, Spring, Summer, Fall)
j13PMRAT='_m6Sub_%%_m6PMPre_%%fx.N.L'; Pfx PM Local Rates (Winter, Spring, Summer, Fall)
j14PMRAT='_m6Sub_%%_m6PMPre_%%ld.N.L'; Ldn PM Local Rates (Winter, Spring, Summer, Fall)
j15PMRAT='_m6Sub_%%_m6PMPre_%%pw.N.L'; PW PM Local Rates (Winter, Spring, Summer, Fall)
j16PMRAT='_m6Sub_%%_m6PMPre_%%st.N.L'; Sta PM Local Rates (Winter, Spring, Summer, Fall)
j17PMRAT='_m6Sub_%%_m6PMPre_%%al.N.L'; Alx PM Local Rates (Winter, Spring, Summer, Fall)
j18PMRAT='_m6Sub_%%_m6PMPre_%%sm.N.L'; StM PM Local Rates (Winter, Spring, Summer, Fall)
j19PMRAT='_m6Sub_%%_m6PMPre_%%we.N.L'; Wash PM Local Rates (Winter, Spring, Summer, Fall)
j20PMRAT='_m6Sub_%%_m6PMPre_%%cl.N.L'; Clk PM Local Rates (Winter, Spring, Summer, Fall)
j21PMRAT='_m6Sub_%%_m6PMPre_%%cl.N.L'; " PM Local Rates (Winter, Spring, Summer, Fall)
j22PMRAT='_m6Sub_%%_m6PMPre_%%cl.N.L'; " PM Local Rates (Winter, Spring, Summer, Fall)
j23PMRAT='_m6Sub_%%_m6PMPre_%%cl.N.L'; " PM Local Rates (Winter, Spring, Summer, Fall)
j24PMRAT='_m6Sub_%%_m6PMPre_%%sp.N.L'; Spts PM Local Rates (Winter, Spring, Summer, Fall)
j25PMRAT='_m6Sub_%%_m6PMPre_%%sp.N.L'; " PM Local Rates (Winter, Spring, Summer, Fall)
j26PMRAT='_m6Sub_%%_m6PMPre_%%sp.N.L'; " PM Local Rates (Winter, Spring, Summer, Fall)
j27PMRAT='_m6Sub_%%_m6PMPre_%%sp.N.L'; " PM Local Rates (Winter, Spring, Summer, Fall)
;-----
run pgm=matrix
;-----
zones=27
;
; Read in the Juris. level input file

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

ZDATI[1]=@JurBVMFile@,
    Z=1-5, ; Juris. Index 1-27
    BaseNetVMT = 6- 15, ; Base Year Network-based VMT
    BaseLclVMT = 26- 35, ; Base Year Local VMT
    UrbVMTpct = 36- 45, ; Urbanized Area Pct ('23.211' means 23.211%)
    RurVMTpct = 46- 55 ; Rural Area Pct

ZDATI[2]=@JurFVMTFile@,
    Z=1-5, ; Juris. Index 1-27
    FutrNetVMT = 21- 30 ; Future Year Network-based VMT

; Set up arrays

ARRAY,

J_VMT_Bas = 27, ; Juris. Base Yr Network VMT Total
J_VMT_Fut = 27, ; Juris. Future Yr Network VMT Total

J_VMTL_Bs = 27, ; Juris. Base Yr Local VMT Total

J_VMTL_Fu = 27, ; Juris. Future Yr Local VMT Total
J_VMTL_FuSeason = 27, ; Juris. Future Yr Local VMT Adjusted to Season/Month

J_Urbpct = 27, ; Daily Juris. Base Yr Local VMT Total
J_Rurpct = 27, ; Daily Juris. Future Yr Local VMT Total

J_VMTL_BsU = 27, ; Daily Juris. Base Yr Local VMT in Urbanized Area
J_VMTL_FuU = 27, ; Daily Juris. Future Yr Local VMT in Urbanized Area

J_VMTL_BsR = 27, ; Daily Juris. Base Yr Local VMT in Rural Area
J_VMTL_FuR = 27, ; Daily Juris. Future Yr Local VMT in Rural Area

J_PMg = 27, ; Daily Juris. PM Total EMISSIONS GMS

J_NXg_Urb = 27, ; Daily Juris. NX Total EMISSIONS GMS
J_NXg_Rural = 27, ; Daily Juris. NX Total EMISSIONS GMS

J_NXt_Urb = 27, ; Daily Juris. NX Urban EMISSIONS in TONS
J_NXt_Rural = 27, ; Daily Juris. NX Rural EMISSIONS in TONS

J_PMt = 27, ; Daily Juris. PM TOTAL EMISSIONS in TONS
J_PMt_S = 27, ; Seasonal Juris. PM TOTAL EMISSIONS in TONS
J_PMt_Total = 27, ; Daily Juris. PM TOTAL EMISSIONS in TONS
J_NXt_Total = 27, ; Daily Juris. NX TOTAL EMISSIONS in TONS
J_NXt_TotalS = 27 ; Seasonal Juris. NX TOTAL EMISSIONS in TONS

; End of Array declaration

; Establish the rural Arterial Nx emissions rates, by speeds
; Source: E Lucas (June 2005)
;
LOOKUP NAME=RASpdDst, ; Generalized VMT Distribution of Rural Arterial
Traffic by Speed
    LOOKUP[1]=1, RESULT=2, ; VMT Pct of Total Jurisdictional VMT
    INTERPOLATE = N,LIST=T,FAIL=0,0,0,
;; Speed VMT% (e.g '1.123' means 1.123 %)
R= " 5 0.000 ",
    " 6 0.000 ",
    " 7 0.000 ",
    " 8 0.000 ",
    " 9 0.000 ",
    " 10 0.425 ",
    " 11 0.717 ",
    " 12 1.013 ",
    " 13 0.604 ",
    " 14 2.911 ",
    " 15 6.228 ",
    " 16 8.626 ",
    " 17 6.614 ",
    " 18 3.586 ",
    " 19 2.718 ",

```

```

" 20 3.768 ",
" 21 6.460 ",
" 22 8.409 ",
" 23 11.493 ",
" 24 7.206 ",
" 25 7.229 ",
" 26 5.543 ",
" 27 5.465 ",
" 28 5.674 ",
" 29 4.710 ",
" 30 0.600 ",
" 31 0.000 ",
" 32 0.000 ",
" 33 0.000 ",
" 34 0.000 ",
" 35 0.000 ",
" 36 0.000 ",
" 37 0.000 ",
" 38 0.000 ",
" 39 0.000 ",
" 40 0.000 ",
" 41 0.000 ",
" 42 0.000 ",
" 43 0.000 ",
" 44 0.000 ",
" 45 0.000 "

;; Sum 100.000%

;-----
; Now read Mobile6 based Local/Urbanized & Arterial/Rural Emissions rates:
;-----
; Local Running Rates:
;-----
LOOKUP NAME=J01L, ;
    LOOKUP[1]=1, RESULT=2, ; Local Urbanized Nx Rate (gm/trip) Winter
    LOOKUP[2]=1, RESULT=3, ; Local Urbanized Nx Rate (gm/trip) Spring
    LOOKUP[3]=1, RESULT=4, ; Local Urbanized Nx Rate (gm/trip) Summer
    LOOKUP[4]=1, RESULT=5, ; Local Urbanized Nx Rate (gm/trip) Fall
    INTERPOLATE = N,LIST=T,file=@J01L_RAT@

LOOKUP NAME=J02L, ;
    LOOKUP[1]=1, RESULT=2, ; Local Urbanized Nx Rate (gm/trip) Winter
    LOOKUP[2]=1, RESULT=3, ; Local Urbanized Nx Rate (gm/trip) Spring
    LOOKUP[3]=1, RESULT=4, ; Local Urbanized Nx Rate (gm/trip) Summer
    LOOKUP[4]=1, RESULT=5, ; Local Urbanized Nx Rate (gm/trip) Fall
    INTERPOLATE = N,LIST=T,file=@J02L_RAT@

LOOKUP NAME=J03L, ;
    LOOKUP[1]=1, RESULT=2, ; Local Urbanized Nx Rate (gm/trip) Winter
    LOOKUP[2]=1, RESULT=3, ; Local Urbanized Nx Rate (gm/trip) Spring
    LOOKUP[3]=1, RESULT=4, ; Local Urbanized Nx Rate (gm/trip) Summer
    LOOKUP[4]=1, RESULT=5, ; Local Urbanized Nx Rate (gm/trip) Fall
    INTERPOLATE = N,LIST=T,file=@J03L_RAT@

LOOKUP NAME=J04L, ;
    LOOKUP[1]=1, RESULT=2, ; Local Urbanized Nx Rate (gm/trip) Winter
    LOOKUP[2]=1, RESULT=3, ; Local Urbanized Nx Rate (gm/trip) Spring
    LOOKUP[3]=1, RESULT=4, ; Local Urbanized Nx Rate (gm/trip) Summer
    LOOKUP[4]=1, RESULT=5, ; Local Urbanized Nx Rate (gm/trip) Fall
    INTERPOLATE = N,LIST=T,file=@J04L_RAT@

LOOKUP NAME=J05L, ;
    LOOKUP[1]=1, RESULT=2, ; Local Urbanized Nx Rate (gm/trip) Winter
    LOOKUP[2]=1, RESULT=3, ; Local Urbanized Nx Rate (gm/trip) Spring
    LOOKUP[3]=1, RESULT=4, ; Local Urbanized Nx Rate (gm/trip) Summer
    LOOKUP[4]=1, RESULT=5, ; Local Urbanized Nx Rate (gm/trip) Fall
    INTERPOLATE = N,LIST=T,file=@J05L_RAT@

LOOKUP NAME=J06L, ;
    LOOKUP[1]=1, RESULT=2, ; Local Urbanized Nx Rate (gm/trip) Winter

```









### Attachment 3: Post Processor Batch File & TP+ Scripts

```
LOOKUP[1]=1, RESULT=6, ; Local PM Rate (gm/trip) Winter
LOOKUP[2]=1, RESULT=7, ; Local PM Rate (gm/trip) Spring
LOOKUP[3]=1, RESULT=8, ; Local PM Rate (gm/trip) Summer
LOOKUP[4]=1, RESULT=9, ; Local PM Rate (gm/trip) Fall
INTERPOLATE = N,LIST=T,file=@J25PMRAT@

LOOKUP NAME=J26PM, ;
LOOKUP[1]=1, RESULT=6, ; Local PM Rate (gm/trip) Winter
LOOKUP[2]=1, RESULT=7, ; Local PM Rate (gm/trip) Spring
LOOKUP[3]=1, RESULT=8, ; Local PM Rate (gm/trip) Summer
LOOKUP[4]=1, RESULT=9, ; Local PM Rate (gm/trip) Fall
INTERPOLATE = N,LIST=T,file=@J26PMRAT@

LOOKUP NAME=J27PM, ;
LOOKUP[1]=1, RESULT=6, ; Local PM Rate (gm/trip) Winter
LOOKUP[2]=1, RESULT=7, ; Local PM Rate (gm/trip) Spring
LOOKUP[3]=1, RESULT=8, ; Local PM Rate (gm/trip) Summer
LOOKUP[4]=1, RESULT=9, ; Local PM Rate (gm/trip) Fall
INTERPOLATE = N,LIST=T,file=@J27PMRAT@

;-----
; End of Rural Arterial Running Emission Rate Lookups
;-----

; = = = = =
; = = = = =
; Now make all jurisdiction level; computations
; = = = = =
; = = = = =

J_VMT_Bas[i] = BaseNetVMT[i] ; Juris. Base Yr Network VMT Total
J_VMT_Fut[i] = FutrNetVMT[i] ; Juris. Future Yr Network VMT Total
;
; Note the future VMT file has data for all jurisdictions, but the
; Base VMT file contains data for jurisdictions in the MSA - for now
; we will let base VMT control the computation - emissions will be computed only where
; base VMT exists ...
;
IF (J_VMT_BAS[i] = 0 )
  J_VMT_Fut[i] = 0
ENDIF

J_VMTL_Bs[i] = BaseLclVMT[i] ; Juris. Base Yr Local VMT Total
J_Urbpct[i] = UrbVMTpct[i] ; urban percent of local vmt
J_Rurpct[i] = RurVMTpct[i] ; rural percent of local vmt

;
; Calculate Network VMT growth rate
; and apply same to the Base year local VMT to get Future year local VMT
;
IF (J_VMT_Bas[i] = 0)
  _VMTGrowth = 0
ELSE
  _VMTGrowth = J_VMT_Fut[i] / J_VMT_Bas[i]
ENDIF

J_VMTL_Fu[i] = J_VMTL_Bs[i] * _VMTGrowth ; Juris. Future Yr Local VMT Total (AAWDT)

J_VMTL_FuSeason[i] = J_VMTL_Fu[i] * %SeasonFtr% ; Juris. Future Yr Local VMT Adjusted to Season

J_VMTL_FuU[i] = J_VMTL_FuSeason[i] * UrbVMTpct[i]/100.0 ; Juris. Future Yr Local VMT in Urbanized Area
J_VMTL_FuR[i] = J_VMTL_FuSeason[i] * RurVMTpct[i]/100.0 ; Juris. Future Yr Local VMT in Rural Area

;
;
; Now compute juris.level Nx, PM EMISSIONS Rates (gm/mi)
; Jurisdictional rates are in various files so rates will be applied in a series of conditional loops.
; Urban PM,Nx emission rates are based on single juris. factor
; Rural Nx Rates based on jurisdictional speed curves; VMT apportioned among various speeds based on global speed profile
;
```

### Attachment 3: Post Processor Batch File & TP+ Scripts

---

```
IF      (i = 1)
  J_PMG[i]   = J01PM(@Rno@,35) * J_VMTL_FuU[i]           ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J01L(@Rno@,13) * J_VMTL_FuU[i]         ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c      = J01RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c                    ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDLLOOP

ELSEIF  (i = 2)
  J_PMG[i]   = J02PM(@Rno@,35) * J_VMTL_FuU[i]           ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J02L(@Rno@,13) * J_VMTL_FuU[i]         ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c      = J02RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c                    ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDLLOOP

ELSEIF  (i = 3)
  J_PMG[i]   = J03PM(@Rno@,35) * J_VMTL_FuU[i]           ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J03L(@Rno@,13) * J_VMTL_FuU[i]         ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c      = J03RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c                    ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDLLOOP

ELSEIF  (i = 4)
  J_PMG[i]   = J04PM(@Rno@,35) * J_VMTL_FuU[i]           ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J04L(@Rno@,13) * J_VMTL_FuU[i]         ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c      = J04RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c                    ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDLLOOP

ELSEIF  (i = 5)
  J_PMG[i]   = J05PM(@Rno@,35) * J_VMTL_FuU[i]           ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J05L(@Rno@,13) * J_VMTL_FuU[i]         ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c      = J05RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c                    ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDLLOOP

ELSEIF  (i = 6)
  J_PMG[i]   = J06PM(@Rno@,35) * J_VMTL_FuU[i]           ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J06L(@Rno@,13) * J_VMTL_FuU[i]         ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c      = J06RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c                    ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDLLOOP

ELSEIF  (i = 7)
  J_PMG[i]   = J07PM(@Rno@,35) * J_VMTL_FuU[i]           ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J07L(@Rno@,13) * J_VMTL_FuU[i]         ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c      = J07RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c                    ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDLLOOP

ELSEIF  (i = 8)
  J_PMG[i]   = J08PM(@Rno@,35) * J_VMTL_FuU[i]           ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J08L(@Rno@,13) * J_VMTL_FuU[i]         ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c      = J08RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c                    ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDLLOOP
```

### Attachment 3: Post Processor Batch File & TP+ Scripts

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```
ELSEIF (i = 9)
  J_PMG[i] = J09PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J09L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J09RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =10)
  J_PMG[i] = J10PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J10L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J10RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =11)
  J_PMG[i] = J11PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J11L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J11RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =12)
  J_PMG[i] = J12PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J12L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J12RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =13)
  J_PMG[i] = J13PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J13L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J13RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =14)
  J_PMG[i] = J14PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J14L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J14RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =15)
  J_PMG[i] = J15PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J15L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J15RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =16)
  J_PMG[i] = J16PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J16L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J16RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP
```

### Attachment 3: Post Processor Batch File & TP+ Scripts

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```
ELSEIF (i =17)
  J_PMG[i] = J17PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J17L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J17RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =18)
  J_PMG[i] = J18PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J18L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J18RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =19)
  J_PMG[i] = J19PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J19L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J19RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =20)
  J_PMG[i] = J20PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J20L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J20RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =21)
  J_PMG[i] = J21PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J21L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J21RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =22)
  J_PMG[i] = J22PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J22L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J22RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =23)
  J_PMG[i] = J23PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J23L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J23RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP

ELSEIF (i =24)
  J_PMG[i] = J24PM(@Rno@,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J24L(@Rno@,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J24RA(@Rno@,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDOLOOP
```

### Attachment 3: Post Processor Batch File & TP+ Scripts

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ELSEIF (i =25)
  J_PMG[i] = J25PM(@Rno,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J25L(@Rno,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J25RA(@Rno,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDLLOOP

ELSEIF (i =26)
  J_PMG[i] = J26PM(@Rno,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J26L(@Rno,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J26RA(@Rno,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDLLOOP

ELSEIF (i =27)
  J_PMG[i] = J27PM(@Rno,35) * J_VMTL_FuU[i] ; Juris. PM Local Urban EMISSIONS (gm/mi)
  J_NXg_Urb[i] = J27L(@Rno,13) * J_VMTL_FuU[i] ; Juris. NX Local Urban EMISSIONS (gm/mi)

  LOOP k=1,45
    _c = J27RA(@Rno,k) * J_VMTL_FuR[i] * (RASpdDst(1,k) / 100.0) ; Rural emiss calculation at jur, speed level (temp)
    J_NXg_Rural[i]= J_NXg_Rural[i] + _c ; Juris. Nx Local Rural EMISSIONS (gm/mi)
  ENDLLOOP

ENDIF
;;;

J_PMt[i] = (ROUND(J_PMG[i] /@GMperTN@ *1000.0))/1000.0 ; Daily Juris. PM Local Urban EMISSIONS in TONS
J_PMt_S[i] = J_PMt[i] *@Sdays@ ; Seasonal Juris PM Local Urban EMISSIONS in TONS

J_NXt_Urb[i] = (ROUND(J_NXg_Urb[i] /@GMperTN@*1000.0))/1000.0 ; Daily Juris Nx Local Urban EMISSIONS in TONS
J_NXt_Rural[i] = (ROUND(J_NXg_Rural[i] /@GMperTN@*1000.0))/1000.0 ; Daily Juris Nx Local Urban EMISSIONS in TONS

J_NXt_Total[i] = J_NXt_Urb[i] + J_NXt_Rural[i] ; Daily Juris Nx Local Emissions in Tons
J_NXt_TotalS[i] = J_NXt_Total[i] * @Sdays@ ; Seasonal Juris Nx Local Emissions in Tons

;
;=====
; Now lets summarize and list out when all done =
;
;=====
;
IF (I=ZONES) ; ALL DONE WITH ZONE LOOP

; Get Regional Totals:

loop k=1,27
  T_VMT_Bas = T_VMT_Bas + J_VMT_Bas[k]
  T_VMT_Fut = T_VMT_Fut + J_VMT_Fut[k]
  T_VMTL_Bs = T_VMTL_Bs + J_VMTL_Bs[k]

  T_VMTL_Fu = T_VMTL_Fu + J_VMTL_Fu[k]
  T_VMTL_FuSeason = T_VMTL_FuSeason + J_VMTL_FuSeason[k]
  T_VMTL_FuU = T_VMTL_FuU + J_VMTL_FuU[k]
  T_VMTL_FuR = T_VMTL_FuR + J_VMTL_FuR[k]

  T_PMG = T_PMG + J_PMG[k]
  T_NXg_Urb = T_NXg_Urb + J_NXg_Urb[k]

  T_NXg_Rural = T_NXg_Rural + J_NXg_Rural[k]

  IF (T_VMTL_FuU = 0 )
    T_NX_UrbRATE = 0
    T_PM_RATE = 0
  ELSE
    T_PM_RATE = T_PMG/ (T_VMTL_FuU + T_VMTL_FuR)
    T_NX_UrbRATE = T_NXg_Urb / T_VMTL_FuU
  ENDIF

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

IF ( T_VMTL_FuR = 0 )
  T_NX_RurRATE = 0
ELSE
  T_NX_RurRATE = T_NXg_Rural/ T_VMTL_FuR
ENDIF

T_NXt_Urb = T_NXt_Urb + J_NXt_Urb[k]
T_NXt_Rural = T_NXt_Rural + J_NXt_Rural[k]

T_PMt_Total = T_PMt_Total + J_PMt[k]
T_NXt_Total = T_NXt_Total + J_NXt_Total[k]

endloop
T_PMt_Totals = T_PMt_Total * @Sdays@
T_NXt_Totals = T_NXt_Total * @Sdays@

Print list = ' --- Local Emissions Summary --- ',File = Local.txt
Print form=10.0 list = 'Year:','%_Year_%', '/ Season:','%_Season_%', '/ Seasonal VMT Factor:','%_SeasonPtr_%', '/ No. of Days:','%_SeasonDays_%' file=Local.TXT
;
;
Print list = ' ',File = Local.txt
Print list = ' VMT Summary: ',File = Local.txt
Print list = ' ',File = Local.txt
Print list = ' Base Future Seasonal Adj ',File = Local.txt
Print list = ' Jur AAWDT AAWDT Base Est. Future Est. Future Urb Rur Urban Rural ',File = Local.txt
Print list = ' No. Network VMT Network VMT Local VMT Local VMT Local VMT Local VMT ',File = Local.txt
Print list = '-----|-----|-----|-----|-----|-----|-----|-----|-----|',File = Local.txt
loop k=1,27
IF (k= 1) _jur = str(k,3,0) + ' *DC '
IF (k= 2) _jur = str(k,3,0) + ' *Mtg '
IF (k= 3) _jur = str(k,3,0) + ' *PG '
IF (k= 4) _jur = str(k,3,0) + ' How '
IF (k= 5) _jur = str(k,3,0) + ' AAr '
IF (k= 6) _jur = str(k,3,0) + ' Car '
IF (k= 7) _jur = str(k,3,0) + ' BaltX'
IF (k= 8) _jur = str(k,3,0) + ' Cal '
IF (k= 9) _jur = str(k,3,0) + ' *Chs '
IF (k=10) _jur = str(k,3,0) + ' *Frd '
IF (k=11) _jur = str(k,3,0) + ' FrdX '
IF (k=12) _jur = str(k,3,0) + ' *Arl '
IF (k=13) _jur = str(k,3,0) + ' *Ffx '
IF (k=14) _jur = str(k,3,0) + ' *Ldn '
IF (k=15) _jur = str(k,3,0) + ' *PW '
IF (k=16) _jur = str(k,3,0) + ' Sta '
IF (k=17) _jur = str(k,3,0) + ' *Alx '
IF (k=18) _jur = str(k,3,0) + ' StM '
IF (k=19) _jur = str(k,3,0) + ' WaCoX'
IF (k=20) _jur = str(k,3,0) + ' Clk '
IF (k=21) _jur = str(k,3,0) + ' Fau '
IF (k=22) _jur = str(k,3,0) + ' Jeff '
IF (k=23) _jur = str(k,3,0) + ' WestX'
IF (k=24) _jur = str(k,3,0) + ' Spots'
IF (k=25) _jur = str(k,3,0) + ' KGeo '
IF (k=26) _jur = str(k,3,0) + ' Fbrg '
IF (k=27) _jur = str(k,3,0) + ' SouX '

Print form=13.0csv list = _jur,
J_VMT_Bas[k], J_VMT_Fut[k], J_VMTL_Bs[k],
J_VMTL_Fu[k],J_VMTL_FuSeason[k], J_UrbPct[k](8.2), J_RurPct[k](8.2), J_VMTL_FuU[k], J_VMTL_FuR[k],File = Local.txt
endloop

Print form=10.0 list = '-----|-----|-----|-----|-----|-----|-----|-----|-----|',File = Local.txt
Print list = ' ', file= local.txt
Print form= 13.0csv list = 'Total ',
T_VMT_Bas, T_VMT_Fut, T_VMTL_Bs,
T_VMTL_Fu,T_VMTL_FuSeason, ' ', T_VMTL_FuU, T_VMTL_FuR, ,File = Local.txt
Print list = ' ', file=Local.txt

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

```

Print list = '
Print form=13.3 list = '          ', file=Local.txt
;=====
;=====
Print list = '          ',File = Local.txt
Print list = '          PM Summary:          ',File = Local.txt
Print list = '          Daily      Daily      Seasonal ',File = Local.txt
Print list = '          Jur        Local      Local      Local      ',File = Local.txt
Print list = '          No.          PM(gm)    PM(Tn)    PM(Tn)    ',File = Local.txt
Print list = '-----||-----||-----||-----||',File = Local.txt
loop k=1,27
IF (k= 1) _jur = str(k,3,0) + ' *DC '
IF (k= 2) _jur = str(k,3,0) + ' *Mtg '
IF (k= 3) _jur = str(k,3,0) + ' *PG '
IF (k= 4) _jur = str(k,3,0) + ' How '
IF (k= 5) _jur = str(k,3,0) + ' AAr '
IF (k= 6) _jur = str(k,3,0) + ' Car '
IF (k= 7) _jur = str(k,3,0) + ' BaltX'
IF (k= 8) _jur = str(k,3,0) + ' Cal '
IF (k= 9) _jur = str(k,3,0) + ' *Chs '
IF (k=10) _jur = str(k,3,0) + ' *Frd '
IF (k=11) _jur = str(k,3,0) + ' *FrdX '
IF (k=12) _jur = str(k,3,0) + ' *Arl '
IF (k=13) _jur = str(k,3,0) + ' *Ffx '
IF (k=14) _jur = str(k,3,0) + ' *Ldn '
IF (k=15) _jur = str(k,3,0) + ' *PW '
IF (k=16) _jur = str(k,3,0) + ' Sta '
IF (k=17) _jur = str(k,3,0) + ' *Alx '
IF (k=18) _jur = str(k,3,0) + ' StM '
IF (k=19) _jur = str(k,3,0) + ' WaCoX'
IF (k=20) _jur = str(k,3,0) + ' Clk '
IF (k=21) _jur = str(k,3,0) + ' Fau '
IF (k=22) _jur = str(k,3,0) + ' Jeff '
IF (k=23) _jur = str(k,3,0) + ' WestX'
IF (k=24) _jur = str(k,3,0) + ' Spots'
IF (k=25) _jur = str(k,3,0) + ' KGeo '
IF (k=26) _jur = str(k,3,0) + ' Fbrg '
IF (k=27) _jur = str(k,3,0) + ' SouX '

Print form=13.0csv list = _jur,
                        J_PMG[k],
                        J_PMT[k](13.3), J_PMT_S[k](13.3),File = Local.txt
endloop

Print form=10.0 list = '-----||-----||-----||-----||',File = Local.txt
Print list = '          ', file= local.txt
Print form= 13.0csv list = 'Total          ',
                        T_PMG,
                        T_PMT_Total(13.3),T_PMT_Totals(13.3),File = Local.txt
Print list = '          ', file=Local.txt
Print list = '
Print form=13.3 list = 'Avg Rate: ',T_PM_RATE          ', file=Local.txt
;=====
;=====
Print form=10.0 list = '          ',File = Local.txt
Print form=10.0 list = '          Nx Summary:          ',File = Local.txt
Print form=10.0 list = '          ',File = Local.txt
Print list = '          ',File = Local.txt
Print form=10.0 list = '          Daily      Daily      Daily      Daily      Daily      ',File = Local.txt
Print form=10.0 list = '          Jur        Local      Local      Local      Local      Total Local      Total Local      ',File = Local.txt
Print form=10.0 list = '          No.          Urban Nx(gm) Rural Nx(gm) Urban Nx(Tn) Rural Nx(Tn)      Total Local      Total Local      ',File = Local.txt
Print form=10.0 list = '-----||-----||-----||-----||-----||-----||',File = Local.txt
loop k=1,27
IF (k= 1) _jur = str(k,3,0) + ' *DC '
IF (k= 2) _jur = str(k,3,0) + ' *Mtg '
IF (k= 3) _jur = str(k,3,0) + ' *PG '
IF (k= 4) _jur = str(k,3,0) + ' How '
IF (k= 5) _jur = str(k,3,0) + ' AAr '
IF (k= 6) _jur = str(k,3,0) + ' Car '

```

### Attachment 3: Post Processor Batch File & TP+ Scripts

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```
IF (k= 7) _jur = str(k,3,0) + ' BaltX'
IF (k= 8) _jur = str(k,3,0) + ' Cal '
IF (k= 9) _jur = str(k,3,0) + ' *Chs '
IF (k=10) _jur = str(k,3,0) + ' *FrD '
IF (k=11) _jur = str(k,3,0) + ' FrdX '
IF (k=12) _jur = str(k,3,0) + ' *Arl '
IF (k=13) _jur = str(k,3,0) + ' *Ffx '
IF (k=14) _jur = str(k,3,0) + ' *Ldn '
IF (k=15) _jur = str(k,3,0) + ' *PW '
IF (k=16) _jur = str(k,3,0) + ' Sta '
IF (k=17) _jur = str(k,3,0) + ' *Alx '
IF (k=18) _jur = str(k,3,0) + ' StM '
IF (k=19) _jur = str(k,3,0) + ' WaCoX'
IF (k=20) _jur = str(k,3,0) + ' Clk '
IF (k=21) _jur = str(k,3,0) + ' Fau '
IF (k=22) _jur = str(k,3,0) + ' Jeff'
IF (k=23) _jur = str(k,3,0) + ' WestX'
IF (k=24) _jur = str(k,3,0) + ' Spots'
IF (k=25) _jur = str(k,3,0) + ' KGeo '
IF (k=26) _jur = str(k,3,0) + ' Fbrg '
IF (k=27) _jur = str(k,3,0) + ' SouX '

Print form=13.0csv list = _jur,
                        J_NXg_Urb[k],
                        J_NXg_Rural[k],
                        J_NXt_Urb[k](13.3),
                        J_NXt_Rural[k](13.3),
                        J_NXt_Total[k](13.3), J_NXt_Totals[k](13.3),File = Local.txt
endloop

Print form=10.0 list = '-----|-----|-----|-----|-----|-----|-----|',File = Local.txt
Print list = ' ', file= local.txt
Print form= 13.0csv list = 'Total ',
                        T_NXg_Urb,
                        T_NXg_Rural,
                        T_NXt_Urb(13.3),
                        T_NXt_Rural(13.3),
                        T_NXt_Total(13.3),T_NXt_Totals(13.3),File = Local.txt
Print list = ' ', file=Local.txt
Print list = ' ', file=Local.txt
Print form=13.3 list = 'Avg Rate: ',T_NX_UrbRATE, T_NX_RurRATE , file=Local.txt

ENDIF
ENDRUN
*copy tppl*.PRN LOCAL_Seasonal_Nx.RPT
```

---

## Attachment 4

### Example Post Processor Output Listings

2002_strt_skr.txt .....	4-1
2002_running.txt.....	4-3
2002_local.txt .....	4-7



Attachment 4: Example Post Processor Output Listings

**2002 strt skr.txt**

Total Starting Nox Emissions (gms) By Jurisdiction  
Year: 2002 Season/Month: Winter

Juris	Daily Nx(gms)	Daily Trip Starts	Nx Rate (gm/trip)	Daily Nx(tns)	90-Day Nx(tns)
1 DC	1,835,004	1,579,036	1.162	2.023	182.07
2 MTG	3,357,551	3,041,982	1.104	3.701	333.09
3 PG	2,898,105	2,431,074	1.192	3.195	287.55
4 HOW	912,622	765,029	1.193	1.006	90.54
5 AAR	1,922,501	1,606,350	1.197	2.119	190.71
6 CAR	534,394	443,488	1.205	0.589	53.01
7 BalX	531,839	442,371	1.202	0.586	52.74
8 CAL	292,644	222,802	1.313	0.323	29.07
9 CHS	481,639	383,131	1.257	0.531	47.79
10 FRD	884,603	692,135	1.278	0.975	87.75
11 FrdX	18,927	15,333	1.234	0.021	1.89
12 ARL	849,999	757,715	1.122	0.937	84.33
13 FFX	3,831,802	3,500,817	1.095	4.224	380.16
14 LDN	717,141	665,124	1.078	0.791	71.19
15 PW	1,038,519	902,700	1.150	1.145	103.05
16 STA	305,107	252,272	1.209	0.336	30.24
17 ALX	512,390	469,312	1.092	0.565	50.85
18 STM	365,230	276,851	1.319	0.403	36.27
19 WasX	54,817	44,822	1.223	0.060	5.40
20 CLK	50,393	46,937	1.074	0.056	5.04
21 FAU	164,039	149,715	1.096	0.181	16.29
22 JEF	164,480	150,875	1.090	0.181	16.29
23 VaWX	87,786	76,664	1.145	0.097	8.73
24 SPT	300,212	246,131	1.220	0.331	29.79
25 KG	65,994	53,889	1.225	0.073	6.57
26 FBG	139,138	115,755	1.202	0.153	13.77
27 VaSX	90,522	75,410	1.200	0.100	9.00
TOTAL	22,407,397	19,407,721	1.155	24.702	2223.18

MSA TOTALS:  
MSA definition: DC,MTG,PG,ARL,ALX,FFX,LDN,PW,FRD,& CHS

MSA Seasonal Daily TRIP STARTS: 14,423,027  
MSA Seasonal Daily TRIP STOPS : 14,422,302

MSA Seasonal Daily NX Start Emissions(Tons): 18.087  
MSA Seasonal 90-Day NX Start Emissions(Tons): 1,627.830

Total Starting Nox Emissions (gms) By Jurisdiction  
Year: 2002 Season/Month: Spring

Juris	Daily Nx(gms)	Daily Trip Starts	Nx Rate (gm/trip)	Daily Nx(tns)	92-Day Nx(tns)
1 DC	1,565,898	1,579,036	0.992	1.726	158.79
2 MTG	2,835,004	3,041,982	0.932	3.125	287.50
3 PG	2,484,283	2,431,074	1.022	2.738	251.90
4 HOW	782,811	765,029	1.023	0.863	79.40
5 AAR	1,650,498	1,606,350	1.027	1.819	167.35
6 CAR	458,563	443,488	1.034	0.505	46.46
7 BalX	455,313	442,371	1.029	0.502	46.18
8 CAL	249,471	222,802	1.120	0.275	25.30
9 CHS	410,644	383,131	1.072	0.453	41.68
10 FRD	752,173	692,135	1.087	0.829	76.27
11 FrdX	16,114	15,333	1.051	0.018	1.66
12 ARL	717,032	757,715	0.946	0.790	72.68
13 FFX	3,237,759	3,500,817	0.925	3.569	328.35
14 LDN	605,304	665,124	0.910	0.667	61.36
15 PW	884,021	902,700	0.979	0.974	89.61
16 STA	260,830	252,272	1.034	0.288	26.50

## Attachment 4: Example Post Processor Output Listings

17	ALX	427,662	469,312	0.911	0.471	43.33
18	STM	311,181	276,851	1.124	0.343	31.56
19	WasX	46,637	44,822	1.041	0.051	4.69
20	CLK	42,503	46,937	0.906	0.047	4.32
21	FAU	138,701	149,715	0.926	0.153	14.08
22	JEF	138,826	150,875	0.920	0.153	14.08
23	VaWX	74,423	76,664	0.971	0.082	7.54
24	SPT	256,859	246,131	1.044	0.283	26.04
25	KG	56,451	53,889	1.048	0.062	5.70
26	FBG	118,984	115,755	1.028	0.131	12.05
27	VaSX	77,337	75,410	1.026	0.085	7.82
TOTAL		19,055,285	19,407,721	0.982	21.002	1932.18

### MSA TOTALS:

MSA definition: DC,MTG,PG,ARL,ALX,FFX,LDN,PW,FRD,& CHS

MSA Seasonal Daily TRIP STARTS: 14,423,027  
 MSA Seasonal Daily TRIP STOPS : 14,422,302

MSA Seasonal Daily NX Start Emissions(Tons): 15.342  
 MSA Seasonal 92-Day NX Start Emissions(Tons): 1,411.464

Total Starting Nox Emissions (gms) By Jurisdiction  
 Year: 2002 Season/Month: Summer

Juris	Daily Nx(gms)	Daily Trip Starts	Nx Rate (gm/trip)	Daily Nx(tns)	92-Day Nx(tns)	
1	DC	1,416,016	1,579,036	0.897	1.561	143.61
2	MTG	2,560,203	3,041,982	0.842	2.822	259.62
3	PG	2,241,662	2,431,074	0.922	2.471	227.33
4	HOW	706,214	765,029	0.923	0.778	71.58
5	AAR	1,488,971	1,606,350	0.927	1.641	150.97
6	CAR	413,376	443,488	0.932	0.456	41.95
7	BalX	410,635	442,371	0.928	0.453	41.68
8	CAL	222,151	222,802	0.997	0.245	22.54
9	CHS	367,763	383,131	0.960	0.405	37.26
10	FRD	669,874	692,135	0.968	0.738	67.90
11	FrdX	14,444	15,333	0.942	0.016	1.47
12	ARL	648,941	757,715	0.856	0.715	65.78
13	FFX	2,929,193	3,500,817	0.837	3.229	297.07
14	LDN	546,616	665,124	0.822	0.603	55.48
15	PW	798,169	902,700	0.884	0.880	80.96
16	STA	234,765	252,272	0.931	0.259	23.83
17	ALX	387,287	469,312	0.825	0.427	39.28
18	STM	276,816	276,851	1.000	0.305	28.06
19	WasX	41,877	44,822	0.934	0.046	4.23
20	CLK	38,363	46,937	0.817	0.042	3.86
21	FAU	125,202	149,715	0.836	0.138	12.70
22	JEF	125,153	150,875	0.830	0.138	12.70
23	VaWX	67,163	76,664	0.876	0.074	6.81
24	SPT	231,092	246,131	0.939	0.255	23.46
25	KG	50,758	53,889	0.942	0.056	5.15
26	FBG	107,055	115,755	0.925	0.118	10.86
27	VaSX	69,679	75,410	0.924	0.077	7.08
TOTAL		17,189,440	19,407,721	0.886	18.948	1743.22

### MSA TOTALS:

MSA definition: DC,MTG,PG,ARL,ALX,FFX,LDN,PW,FRD,& CHS

MSA Seasonal Daily TRIP STARTS: 14,423,027  
 MSA Seasonal Daily TRIP STOPS : 14,422,302

MSA Seasonal Daily NX Start Emissions(Tons): 13.851  
 MSA Seasonal 91-Day NX Start Emissions(Tons): 1,274.292

Total Starting Nox Emissions (gms) By Jurisdiction  
 Year: 2002 Season/Month: Fall

Daily Daily Nx Rate Daily 91-Day

## Attachment 4: Example Post Processor Output Listings

Juris	Nx(gms)	Trip Starts	(gm/trip)	Nx(tns)	Nx(tns)
1 DC	1,615,878	1,579,036	1.023	1.781	162.07
2 MTG	2,939,743	3,041,982	0.966	3.241	294.93
3 PG	2,545,914	2,431,074	1.047	2.806	255.35
4 HOW	801,364	765,029	1.047	0.883	80.35
5 AAR	1,688,306	1,606,350	1.051	1.861	169.35
6 CAR	469,093	443,488	1.058	0.517	47.05
7 BalX	467,581	442,371	1.057	0.515	46.86
8 CAL	255,115	222,802	1.145	0.281	25.57
9 CHS	420,864	383,131	1.098	0.464	42.22
10 FRD	769,667	692,135	1.112	0.848	77.17
11 FrdX	16,569	15,333	1.081	0.018	1.64
12 ARL	753,304	757,715	0.994	0.830	75.53
13 FFX	3,389,215	3,500,817	0.968	3.736	339.98
14 LDN	635,675	665,124	0.956	0.701	63.79
15 PW	923,773	902,700	1.023	1.018	92.64
16 STA	271,966	252,272	1.078	0.300	27.30
17 ALX	454,357	469,312	0.968	0.501	45.59
18 STM	318,190	276,851	1.149	0.351	31.94
19 WasX	48,069	44,822	1.072	0.053	4.82
20 CLK	44,719	46,937	0.953	0.049	4.46
21 FAU	145,749	149,715	0.974	0.161	14.65
22 JEF	145,697	150,875	0.966	0.161	14.65
23 VaWX	77,740	76,664	1.014	0.086	7.83
24 SPT	267,735	246,131	1.088	0.295	26.84
25 KG	58,745	53,889	1.090	0.065	5.92
26 FBG	123,950	115,755	1.071	0.137	12.47
27 VaSX	80,254	75,410	1.064	0.088	8.01
TOTAL	19,729,231	19,407,721	1.017	21.747	1978.98

MSA TOTALS:

MSA definition: DC,MTG,PG,ARL,ALX,FFX,LDN,PW,FRD,& CHS

MSA Seasonal Daily TRIP STARTS: 14,423,027  
 MSA Seasonal Daily TRIP STOPS : 14,422,302

MSA Seasonal Daily NX Start Emissions(Tons): 15.926  
 MSA Seasonal 91-Day NX Start Emissions(Tons): 1,449.266

## 2002 running.txt

Running Emission Results

Year: 2002 Season/Month: Winter  
 Season/Month Factor Applied to Modeled AAWDT VMT: 0.9028  
 No. of Days in the Season: 90

Juris	Daily VMT	Daily PM(gms)	Daily NX(gms)	Daily PM g/mi	Daily Nx g/mi	Daily PM Tons	Daily Nx Tons	Seasonal Nx Tons	Seasonal PM Tons
1 *DC	8,032,977	292,664	16,323,185	0.036	2.032	0.323	17.993	1619.37	29.07
2 *Mtg	18,236,812	672,123	36,903,007	0.037	2.024	0.741	40.679	3661.11	66.69
3 *PG	19,659,563	753,709	42,385,087	0.038	2.156	0.831	46.722	4204.98	74.79
4 How	9,164,158	353,285	21,537,857	0.039	2.350	0.389	23.741	2136.69	35.01
5 AAr	12,748,781	492,918	29,330,882	0.039	2.301	0.543	32.332	2909.88	48.87
6 Car	2,633,063	101,818	4,901,239	0.039	1.861	0.112	5.403	486.27	10.08
7 BaltX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
8 Cal	1,158,043	47,992	2,176,304	0.041	1.879	0.053	2.399	215.91	4.77
9 *Chs	2,138,937	87,863	3,987,435	0.041	1.864	0.097	4.395	395.55	8.73
10 *Frd	7,394,844	285,946	17,444,207	0.039	2.359	0.315	19.229	1730.61	28.35
11 FrdX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
12 *Ar1	4,052,479	144,478	8,412,505	0.036	2.076	0.159	9.273	834.57	14.31
13 *FFx	24,004,670	838,957	49,473,559	0.035	2.061	0.925	54.535	4908.15	83.25
14 *Ldn	4,538,548	161,617	9,311,219	0.036	2.052	0.178	10.264	923.76	16.02
15 *PW	7,000,249	253,034	14,728,692	0.036	2.104	0.279	16.236	1461.24	25.11
16 Sta	3,552,882	133,538	8,842,909	0.038	2.489	0.147	9.748	877.32	13.23
17 *Alx	2,000,175	70,490	3,988,889	0.035	1.994	0.078	4.397	395.73	7.02
18 StM	1,482,076	61,832	2,951,716	0.042	1.992	0.068	3.254	292.86	6.12

### Attachment 4: Example Post Processor Output Listings

19	WaCoX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
20	Clk	714,291	27,320	1,315,547	0.038	1.842	0.030	1.450	130.50	2.70
21	Fau	2,338,942	89,126	4,984,183	0.038	2.131	0.098	5.494	494.46	8.82
22	Jeff	1,118,717	43,164	2,160,726	0.039	1.931	0.048	2.382	214.38	4.32
23	WestX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
24	Spots	1,659,568	62,625	3,982,767	0.038	2.400	0.069	4.390	395.10	6.21
25	KGeo	605,337	23,033	1,161,776	0.038	1.919	0.025	1.281	115.29	2.25
26	Fbrg	341,292	12,865	744,404	0.038	2.181	0.014	0.821	73.89	1.26
27	SouX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00

Total 134,576,402 5,010,397 287,048,094 0.037 2.133 5.522 316.418 28477.62 496.98  
 Note: \* indicates MSA

MSA definition: DC,MTG,PG,ARL,ALX,FFX,LDN,PW,FRD,& CHS  
 MSA Seasonal Daily VMT 97,059,254  
 MSA Seasonal Daily PM Running Emissions(Tons): 3.926  
 MSA Seasonal Daily NX Running Emissions(Tons): 223.723  
 MSA Seasonal 90-Day NX Running Emissions(Tons): 20,135.07  
 MSA Seasonal 90-Day PM Running Emissions(Tons): 353.34  
 Note: Approximate Unadjusted VMT for the modeled Region is: 149,066,000Running Emission Results  
 Year: 2002 Season/Month: Spring  
 Season/Month Factor Applied to Modeled AAWDT VMT: 0.9570  
 No. of Days in the Season: 92

Juris	Daily VMT	Daily PM(gms)	Daily NX(gms)	Daily PM g/mi	Daily Nx g/mi	Daily PM Tons	Daily Nx Tons	Seasonal Nx Tons	Seasonal PM Tons
1 *DC	8,515,241	284,822	15,230,819	0.033	1.789	0.314	16.789	1544.59	28.89
2 *Mtg	19,331,669	654,700	34,336,548	0.034	1.776	0.722	37.850	3482.20	66.42
3 *PG	20,839,836	738,159	39,835,458	0.035	1.912	0.814	43.911	4039.81	74.89
4 How	9,714,333	346,238	20,356,362	0.036	2.095	0.382	22.439	2064.39	35.14
5 AAr	13,514,160	483,273	27,697,868	0.036	2.050	0.533	30.532	2808.94	49.04
6 Car	2,791,141	99,788	4,596,741	0.036	1.647	0.110	5.067	466.16	10.12
7 BaltX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
8 Cal	1,227,566	47,096	2,035,144	0.038	1.658	0.052	2.243	206.36	4.78
9 *Chs	2,267,349	86,188	3,728,527	0.038	1.644	0.095	4.110	378.12	8.74
10 *Frd	7,838,797	278,300	16,366,674	0.036	2.088	0.307	18.041	1659.77	28.24
11 FrdX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
12 *Arl	4,295,771	141,397	7,845,717	0.033	1.826	0.156	8.648	795.62	14.35
13 *PFx	25,445,799	824,021	46,319,565	0.032	1.820	0.908	51.059	4697.43	83.54
14 *Ldn	4,811,021	158,706	8,679,992	0.033	1.804	0.175	9.568	880.26	16.10
15 *PW	7,420,511	248,738	13,803,793	0.034	1.860	0.274	15.216	1399.87	25.21
16 Sta	3,766,180	131,055	8,319,673	0.035	2.209	0.144	9.171	843.73	13.25
17 *Alx	2,120,256	68,927	3,698,949	0.033	1.745	0.076	4.077	375.08	6.99
18 StM	1,571,053	60,690	2,754,099	0.039	1.753	0.067	3.036	279.31	6.16
19 WaCoX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
20 Clk	757,174	26,616	1,216,483	0.035	1.607	0.029	1.341	123.37	2.67
21 Fau	2,479,362	86,924	4,661,591	0.035	1.880	0.096	5.139	472.79	8.83
22 Jeff	1,185,880	42,009	2,005,524	0.035	1.691	0.046	2.211	203.41	4.23
23 WestX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
24 Spots	1,759,201	61,464	3,751,848	0.035	2.133	0.068	4.136	380.51	6.26
25 KGeo	641,679	22,604	1,081,875	0.035	1.686	0.025	1.193	109.76	2.30
26 Fbrg	361,781	12,626	696,731	0.035	1.926	0.014	0.768	70.66	1.29
27 SouX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00

Total 142,655,760 4,904,341 269,019,982 0.034 1.886 5.407 296.545 27282.14 497.44  
 Note: \* indicates MSA

MSA definition: DC,MTG,PG,ARL,ALX,FFX,LDN,PW,FRD,& CHS  
 MSA Seasonal Daily VMT 102,886,250  
 MSA Seasonal Daily PM Running Emissions(Tons): 3.841  
 MSA Seasonal Daily NX Running Emissions(Tons): 209.269  
 MSA Seasonal 92-Day NX Running Emissions(Tons): 19,252.75  
 MSA Seasonal 92-Day PM Running Emissions(Tons): 353.37  
 Note: Approximate Unadjusted VMT for the modeled Region is: 149,066,000Running Emission Results  
 Year: 2002 Season/Month: Summer  
 Season/Month Factor Applied to Modeled AAWDT VMT: 0.9984  
 No. of Days in the Season: 92

Juris	Daily VMT	Daily PM(gms)	Daily NX(gms)	Daily PM g/mi	Daily Nx g/mi	Daily PM Tons	Daily Nx Tons	Seasonal Nx Tons	Seasonal PM Tons
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Attachment 4: Example Post Processor Output Listings

1	*DC	8,883,613	297,494	15,756,637	0.033	1.774	0.328	17.369	1597.95	30.18
2	*Mtg	20,167,960	684,897	35,299,244	0.034	1.750	0.755	38.911	3579.81	69.46
3	*PG	21,741,370	772,021	40,748,323	0.036	1.874	0.851	44.917	4132.36	78.29
4	How	10,134,576	362,206	20,734,393	0.036	2.046	0.399	22.856	2102.75	36.71
5	AAr	14,098,785	505,563	28,232,871	0.036	2.003	0.557	31.121	2863.13	51.24
6	Car	2,911,886	104,379	4,714,549	0.036	1.619	0.115	5.197	478.12	10.58
7	BaltX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
8	Cal	1,280,671	49,147	2,082,978	0.038	1.626	0.054	2.296	211.23	4.97
9	*Chs	2,365,435	89,950	3,823,699	0.038	1.616	0.099	4.215	387.78	9.11
10	*FrD	8,177,904	290,429	16,684,019	0.036	2.040	0.320	18.391	1691.97	29.44
11	FrDx	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
12	*Arl	4,481,607	147,866	8,058,482	0.033	1.798	0.163	8.883	817.24	15.00
13	*FFx	26,546,591	862,123	47,562,728	0.032	1.792	0.950	52.429	4823.47	87.40
14	*Ldn	5,019,148	166,043	8,912,691	0.033	1.776	0.183	9.825	903.90	16.84
15	*PW	7,741,525	260,234	14,127,736	0.034	1.825	0.287	15.573	1432.72	26.40
16	Sta	3,929,106	137,102	8,449,311	0.035	2.150	0.151	9.314	856.89	13.89
17	*Alx	2,211,979	72,013	3,818,532	0.033	1.726	0.079	4.209	387.23	7.27
18	StM	1,639,017	63,322	2,815,241	0.039	1.718	0.070	3.103	285.48	6.44
19	WaCoX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
20	Clk	789,929	27,781	1,245,686	0.035	1.577	0.031	1.373	126.32	2.85
21	Fau	2,586,619	90,756	4,769,331	0.035	1.844	0.100	5.257	483.64	9.20
22	Jeff	1,237,181	43,837	2,053,226	0.035	1.660	0.048	2.263	208.20	4.42
23	WestX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
24	Spots	1,835,305	64,304	3,826,728	0.035	2.085	0.071	4.218	388.06	6.53
25	KGeo	669,438	23,643	1,106,212	0.035	1.652	0.026	1.219	112.15	2.39
26	Fbrg	377,432	13,209	712,372	0.035	1.887	0.015	0.785	72.22	1.38
27	SouX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00

Total 148,827,075 5,128,317 275,534,990 0.034 1.851 5.652 303.724 27942.61 519.98  
 Note: \* indicates MSA

MSA definition: DC,MTG,PG,ARL,ALX,FFX,LDN,PW,FRD,& CHS

MSA Seasonal Daily VMT 107,337,131  
 MSA Seasonal Daily PM Running Emissions(Tons): 4.015  
 MSA Seasonal Daily NX Running Emissions(Tons): 214.722  
 MSA Seasonal 92-Day NX Running Emissions(Tons): 19,754.42  
 MSA Seasonal 92-Day PM Running Emissions(Tons): 369.38

Note: Approximate Unadjusted VMT for the modeled Region is: 149,066,000Running Emission Results

Year: 2002 Season/Month: Fall

Season/Month Factor Applied to Modeled AAWDT VMT: 0.9445

No. of Days in the Season: 91

Juris	Daily VMT	Daily PM(gms)	Daily NX(gms)	Daily PM g/mi	Daily Nx g/mi	Daily PM Tons	Daily Nx Tons	Seasonal Nx Tons	Seasonal PM Tons	
1	*DC	8,404,016	283,765	15,165,107	0.034	1.805	0.313	16.717	1521.25	28.48
2	*Mtg	19,079,165	657,990	34,375,055	0.034	1.802	0.725	37.892	3448.17	65.97
3	*PG	20,567,631	728,460	39,464,682	0.035	1.919	0.803	43.502	3958.68	73.07
4	How	9,587,447	341,340	20,081,627	0.036	2.095	0.376	22.136	2014.38	34.22
5	AAr	13,337,643	475,836	27,347,326	0.036	2.050	0.525	30.145	2743.20	47.78
6	Car	2,754,683	98,379	4,571,159	0.036	1.659	0.108	5.039	458.55	9.83
7	BaltX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
8	Cal	1,211,532	46,693	2,024,722	0.039	1.671	0.051	2.232	203.11	4.64
9	*Chs	2,237,733	85,102	3,705,778	0.038	1.656	0.094	4.085	371.74	8.55
10	*FrD	7,736,409	280,375	16,344,767	0.036	2.113	0.309	18.017	1639.55	28.12
11	FrDx	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
12	*Arl	4,239,663	141,566	7,810,100	0.033	1.842	0.156	8.609	783.42	14.20
13	*FFx	25,113,436	825,742	46,098,433	0.033	1.836	0.910	50.815	4624.16	82.81
14	*Ldn	4,748,182	159,358	8,674,179	0.034	1.827	0.176	9.562	870.14	16.02
15	*PW	7,323,588	248,050	13,739,628	0.034	1.876	0.273	15.145	1378.20	24.84
16	Sta	3,716,988	130,535	8,241,147	0.035	2.217	0.144	9.084	826.64	13.10
17	*Alx	2,092,563	69,268	3,706,790	0.033	1.771	0.076	4.086	371.83	6.92
18	StM	1,550,532	60,194	2,737,287	0.039	1.765	0.066	3.017	274.55	6.01
19	WaCoX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
20	Clk	747,284	26,830	1,220,248	0.036	1.633	0.030	1.345	122.40	2.73
21	Fau	2,446,977	87,447	4,645,922	0.036	1.899	0.096	5.121	466.01	8.74
22	Jeff	1,170,390	42,364	2,007,579	0.036	1.715	0.047	2.213	201.38	4.28
23	WestX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00
24	Spots	1,736,224	61,191	3,714,795	0.035	2.140	0.067	4.095	372.64	6.10
25	KGeo	633,298	22,488	1,077,512	0.036	1.701	0.025	1.188	108.11	2.28
26	Fbrg	357,056	12,572	691,900	0.035	1.938	0.014	0.763	69.43	1.27
27	SouX	0	0	0	0.000	0.000	0.000	0.000	0.00	0.00

## Attachment 4: Example Post Processor Output Listings

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Total           140,792,441    4,885,545   267,445,743    0.035    1.900    5.384    294.808   26827.53    489.94  
Note: \* indicates MSA

MSA definition: DC,MTG,PG,ARL,ALX,FFX,LDN,PW,FRD,& CHS  
MSA Seasonal Daily VMT           101,542,386  
MSA Seasonal Daily PM Running Emissions(Tons):           3.835  
MSA Seasonal Daily NX Running Emissions(Tons):           208.430  
MSA Seasonal 91-Day NX Running Emissions(Tons):        18,967.13  
MSA Seasonal 91-Day PM Running Emissions(Tons):        348.99  
Note: Approximate Unadjusted VMT for the modeled Region is: 149,066,000

Attachment 4: Example Post Processor Output Listings

**2002 local.txt**

--- Local Emissions Summary ---  
 Year: 2002/ Season: Winter/ Seasonal VMT Factor: 0.9028/ No. of Days: 90

VMT Summary:

Jur No.	Base		Future		Seasonal Adj		Urb Pct	Rur Pct	Urban		Rural	
	AAWDT Network	VMT	AAWDT Network	VMT	Base Local	Est. Future Local			Est. Future Local	VMT	Local VMT	
1 *DC	8,883,000		8,898,000		1,510,000	1,512,550	1,365,530	100.00	0.00	1,365,530		0
2 *Mtg	19,636,000		20,200,000		1,404,000	1,444,327	1,303,938	91.00	9.00	1,186,584		117,354
3 *PG	21,321,000		21,776,000		1,299,000	1,326,721	1,197,764	93.00	7.00	1,113,920		83,843
4 How	0		0		0	0	0	0.00	0.00	0		0
5 AAr	0		0		0	0	0	0.00	0.00	0		0
6 Car	0		0		0	0	0	0.00	0.00	0		0
7 BaltX	0		0		0	0	0	0.00	0.00	0		0
8 Cal	0		0		0	0	0	0.00	0.00	0		0
9 *Chs	2,308,000		2,369,000		259,000	265,845	240,005	35.00	65.00	84,002		156,003
10 *Frd	7,893,000		8,191,000		609,000	631,993	570,563	38.00	62.00	216,814		353,749
11 FrdX	0		0		0	0	0	0.00	0.00	0		0
12 *Arl	4,312,000		4,489,000		243,000	252,975	228,386	100.00	0.00	228,386		0
13 *FFx	25,747,000		26,589,000		2,127,000	2,196,559	1,983,053	100.00	0.00	1,983,053		0
14 *Ldn	4,438,000		5,027,000		674,000	763,452	689,244	55.00	45.00	379,084		310,160
15 *PW	7,109,000		7,754,000		877,000	956,570	863,592	66.00	34.00	569,970		293,621
16 Sta	0		0		0	0	0	0.00	0.00	0		0
17 *Alx	2,170,000		2,216,000		453,000	462,603	417,638	100.00	0.00	417,638		0
18 StM	0		0		0	0	0	0.00	0.00	0		0
19 WaCoX	0		0		0	0	0	0.00	0.00	0		0
20 Clk	0		0		0	0	0	0.00	0.00	0		0
21 Fau	0		0		0	0	0	0.00	0.00	0		0
22 Jeff	0		0		0	0	0	0.00	0.00	0		0
23 WestX	0		0		0	0	0	0.00	0.00	0		0
24 Spots	0		0		0	0	0	0.00	0.00	0		0
25 KGeo	0		0		0	0	0	0.00	0.00	0		0
26 Fbrg	0		0		0	0	0	0.00	0.00	0		0
27 SouX	0		0		0	0	0	0.00	0.00	0		0
Total	103,817,000		107,509,000		9,455,000	9,813,594	8,859,713			7,544,981		1,314,731

PM Summary:

Jur No.	Daily Local PM (gm)	Daily Local PM (Tn)	Seasonal Local PM (Tn)
1 *DC	28,130	0.031	2.790
2 *Mtg	24,562	0.027	2.430
3 *PG	23,949	0.026	2.340
4 How	0	0.000	0.000
5 AAr	0	0.000	0.000
6 Car	0	0.000	0.000
7 BaltX	0	0.000	0.000
8 Cal	0	0.000	0.000
9 *Chs	1,856	0.002	0.180
10 *Frd	4,662	0.005	0.450
11 FrdX	0	0.000	0.000
12 *Arl	4,842	0.005	0.450
13 *FFx	41,248	0.045	4.050
14 *Ldn	8,150	0.009	0.810
15 *PW	12,368	0.014	1.260
16 Sta	0	0.000	0.000
17 *Alx	8,645	0.010	0.900
18 StM	0	0.000	0.000

Attachment 4: Example Post Processor Output Listings

19	WaCoX	0	0.000	0.000
20	Clk	0	0.000	0.000
21	Fau	0	0.000	0.000
22	Jeff	0	0.000	0.000
23	WestX	0	0.000	0.000
24	Spots	0	0.000	0.000
25	KGeo	0	0.000	0.000
26	Fbrg	0	0.000	0.000
27	SouX	0	0.000	0.000

Total 158,412 0.174 15.660

Avg Rate: 0.018

Nx Summary:

Jur No.	Daily Local Urban Nx(gm)	Daily Local Rural Nx(gm)	Daily Local Urban Nx(Tn)	Daily Local Rural Nx(Tn)	Daily Total Local Nx(Tn)	Seasonal Total Local Nx(Tn)	
1	*DC	1,502,083	0	1.656	0.000	1.656	149.040
2	*Mtg	1,273,204	149,967	1.403	0.165	1.568	141.120
3	*PG	1,272,097	113,428	1.402	0.125	1.527	137.430
4	How	0	0	0.000	0.000	0.000	0.000
5	AAr	0	0	0.000	0.000	0.000	0.000
6	Car	0	0	0.000	0.000	0.000	0.000
7	BaltX	0	0	0.000	0.000	0.000	0.000
8	Cal	0	0	0.000	0.000	0.000	0.000
9	*Chs	96,518	211,823	0.106	0.233	0.339	30.510
10	*Frd	246,517	475,648	0.272	0.524	0.796	71.640
11	FrdX	0	0	0.000	0.000	0.000	0.000
12	*Arl	248,712	0	0.274	0.000	0.274	24.660
13	*Ffx	2,121,867	0	2.339	0.000	2.339	210.510
14	*Ldn	443,149	428,470	0.488	0.472	0.960	86.400
15	*PW	630,387	385,449	0.695	0.425	1.120	100.800
16	Sta	0	0	0.000	0.000	0.000	0.000
17	*Alx	433,090	0	0.477	0.000	0.477	42.930
18	StM	0	0	0.000	0.000	0.000	0.000
19	WaCoX	0	0	0.000	0.000	0.000	0.000
20	Clk	0	0	0.000	0.000	0.000	0.000
21	Fau	0	0	0.000	0.000	0.000	0.000
22	Jeff	0	0	0.000	0.000	0.000	0.000
23	WestX	0	0	0.000	0.000	0.000	0.000
24	Spots	0	0	0.000	0.000	0.000	0.000
25	KGeo	0	0	0.000	0.000	0.000	0.000
26	Fbrg	0	0	0.000	0.000	0.000	0.000
27	SouX	0	0	0.000	0.000	0.000	0.000

Total 8,267,626 1,764,784 9.112 1.944 11.056 995.040

Avg Rate: 1.096 1.342 --- Local Emissions Summary ---  
 Year: 2002/ Season: Spring/ Seasonal VMT Factor: 0.9570/ No. of Days: 92

VMT Summary:

Jur No.	Base AAWDT Network VMT	Future AAWDT Network VMT	Base Local VMT	Est. Future Local VMT	Seasonal Adj Est. Future Local VMT	Urb Pct	Rur Pct	Urban Local VMT	Rural Local VMT	
1	*DC	8,883,000	8,898,000	1,510,000	1,512,550	1,447,510	100.00	0.00	1,447,510	0
2	*Mtg	19,636,000	20,200,000	1,404,000	1,444,327	1,382,221	91.00	9.00	1,257,821	124,400
3	*PG	21,321,000	21,776,000	1,299,000	1,326,721	1,269,672	93.00	7.00	1,180,795	88,877
4	How	0	0	0	0	0	0.00	0.00	0	0
5	AAr	0	0	0	0	0	0.00	0.00	0	0
6	Car	0	0	0	0	0	0.00	0.00	0	0
7	BaltX	0	0	0	0	0	0.00	0.00	0	0
8	Cal	0	0	0	0	0	0.00	0.00	0	0
9	*Chs	2,308,000	2,369,000	259,000	265,845	254,414	35.00	65.00	89,045	165,369
10	*Frd	7,893,000	8,191,000	609,000	631,993	604,817	38.00	62.00	229,830	374,987

Attachment 4: Example Post Processor Output Listings

11	FrDX	0	0	0	0	0	0.00	0.00	0	0
12	*Arl	4,312,000	4,489,000	243,000	252,975	242,097	100.00	0.00	242,097	0
13	*Ffx	25,747,000	26,589,000	2,127,000	2,196,559	2,102,107	100.00	0.00	2,102,107	0
14	*Ldn	4,438,000	5,027,000	674,000	763,452	730,623	55.00	45.00	401,843	328,780
15	*PW	7,109,000	7,754,000	877,000	956,570	915,438	66.00	34.00	604,189	311,249
16	Sta	0	0	0	0	0	0.00	0.00	0	0
17	*Alx	2,170,000	2,216,000	453,000	462,603	442,711	100.00	0.00	442,711	0
18	StM	0	0	0	0	0	0.00	0.00	0	0
19	WaCoX	0	0	0	0	0	0.00	0.00	0	0
20	Clk	0	0	0	0	0	0.00	0.00	0	0
21	Fau	0	0	0	0	0	0.00	0.00	0	0
22	Jeff	0	0	0	0	0	0.00	0.00	0	0
23	WestX	0	0	0	0	0	0.00	0.00	0	0
24	Spots	0	0	0	0	0	0.00	0.00	0	0
25	KGeo	0	0	0	0	0	0.00	0.00	0	0
26	Fbrg	0	0	0	0	0	0.00	0.00	0	0
27	SouX	0	0	0	0	0	0.00	0.00	0	0
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Total		103,817,000	107,509,000	9,455,000	9,813,594	9,391,610			7,997,948	1,393,662

PM Summary:

Jur No.	Daily Local PM(gm)	Daily Local PM(Tn)	Seasonal Local PM(Tn)	
1	*DC	26,345	0.029	2.668
2	*Mtg	23,144	0.026	2.392
3	*PG	22,553	0.025	2.300
4	How	0	0.000	0.000
5	AAr	0	0.000	0.000
6	Car	0	0.000	0.000
7	BaltX	0	0.000	0.000
8	Cal	0	0.000	0.000
9	*Chs	1,754	0.002	0.184
10	*FrD	4,413	0.005	0.460
11	FrDX	0	0.000	0.000
12	*Arl	4,600	0.005	0.460
13	*Ffx	39,099	0.043	3.956
14	*Ldn	7,756	0.009	0.828
15	*PW	11,782	0.013	1.196
16	Sta	0	0.000	0.000
17	*Alx	8,146	0.009	0.828
18	StM	0	0.000	0.000
19	WaCoX	0	0.000	0.000
20	Clk	0	0.000	0.000
21	Fau	0	0.000	0.000
22	Jeff	0	0.000	0.000
23	WestX	0	0.000	0.000
24	Spots	0	0.000	0.000
25	KGeo	0	0.000	0.000
26	Fbrg	0	0.000	0.000
27	SouX	0	0.000	0.000
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Total	149,591	0.166	15.272	

Avg Rate: 0.016

Nx Summary:

Jur No.	Daily Local Urban Nx(gm)	Daily Local Rural Nx(gm)	Daily Local Urban Nx(Tn)	Daily Local Rural Nx(Tn)	Daily Total Local Nx(Tn)	Seasonal Total Local Nx(Tn)	
1	*DC	1,341,842	0	1.479	0.000	1.479	136.068
2	*Mtg	1,125,750	130,759	1.241	0.144	1.385	127.420

Attachment 4: Example Post Processor Output Listings

3 *PG	1,140,648	100,546	1.257	0.111	1.368	125.856
4 How	0	0	0.000	0.000	0.000	0.000
5 AAr	0	0	0.000	0.000	0.000	0.000
6 Car	0	0	0.000	0.000	0.000	0.000
7 BaltX	0	0	0.000	0.000	0.000	0.000
8 Cal	0	0	0.000	0.000	0.000	0.000
9 *Chs	86,106	186,872	0.095	0.206	0.301	27.692
10 *Frd	219,948	419,286	0.242	0.462	0.704	64.768
11 FrdX	0	0	0.000	0.000	0.000	0.000
12 *Arl	220,792	0	0.243	0.000	0.243	22.356
13 *FFx	1,885,590	0	2.079	0.000	2.079	191.268
14 *Ldn	392,199	374,270	0.432	0.413	0.845	77.740
15 *PW	563,104	339,898	0.621	0.375	0.996	91.632
16 Sta	0	0	0.000	0.000	0.000	0.000
17 *Alx	377,190	0	0.416	0.000	0.416	38.272
18 StM	0	0	0.000	0.000	0.000	0.000
19 WaCoX	0	0	0.000	0.000	0.000	0.000
20 Clk	0	0	0.000	0.000	0.000	0.000
21 Fau	0	0	0.000	0.000	0.000	0.000
22 Jeff	0	0	0.000	0.000	0.000	0.000
23 WestX	0	0	0.000	0.000	0.000	0.000
24 Spots	0	0	0.000	0.000	0.000	0.000
25 KGeo	0	0	0.000	0.000	0.000	0.000
26 Fbrg	0	0	0.000	0.000	0.000	0.000
27 SouX	0	0	0.000	0.000	0.000	0.000
Total	7,353,168	1,551,630	8.105	1.711	9.816	903.072

Avg Rate: 0.919 1.113 --- Local Emissions Summary ---  
 Year: 2002/ Season: Summer/ Seasonal VMT Factor: 0.9984/ No. of Days: 92

VMT Summary:

Jur No.	Base		Future		Seasonal Adj		Urb Pct	Rur Pct	Urban		Rural	
	AAWDT	VMT	AAWDT	VMT	Local VMT	Est. Future Local VMT			Est. Future Local VMT	Local VMT	Local VMT	
1 *DC	8,883,000	8,898,000	1,510,000	1,512,550	1,510,130	100.00	0.00	1,510,130	0			
2 *Mtg	19,636,000	20,200,000	1,404,000	1,444,327	1,442,016	91.00	9.00	1,312,234	129,781			
3 *PG	21,321,000	21,776,000	1,299,000	1,326,721	1,324,599	93.00	7.00	1,231,877	92,722			
4 How	0	0	0	0	0	0.00	0.00	0	0			
5 AAr	0	0	0	0	0	0.00	0.00	0	0			
6 Car	0	0	0	0	0	0.00	0.00	0	0			
7 BaltX	0	0	0	0	0	0.00	0.00	0	0			
8 Cal	0	0	0	0	0	0.00	0.00	0	0			
9 *Chs	2,308,000	2,369,000	259,000	265,845	265,420	35.00	65.00	92,897	172,523			
10 *Frd	7,893,000	8,191,000	609,000	631,993	630,982	38.00	62.00	239,773	391,209			
11 FrdX	0	0	0	0	0	0.00	0.00	0	0			
12 *Arl	4,312,000	4,489,000	243,000	252,975	252,570	100.00	0.00	252,570	0			
13 *FFx	25,747,000	26,589,000	2,127,000	2,196,559	2,193,044	100.00	0.00	2,193,044	0			
14 *Ldn	4,438,000	5,027,000	674,000	763,452	762,230	55.00	45.00	419,227	343,004			
15 *PW	7,109,000	7,754,000	877,000	956,570	955,040	66.00	34.00	630,326	324,714			
16 Sta	0	0	0	0	0	0.00	0.00	0	0			
17 *Alx	2,170,000	2,216,000	453,000	462,603	461,863	100.00	0.00	461,863	0			
18 StM	0	0	0	0	0	0.00	0.00	0	0			
19 WaCoX	0	0	0	0	0	0.00	0.00	0	0			
20 Clk	0	0	0	0	0	0.00	0.00	0	0			
21 Fau	0	0	0	0	0	0.00	0.00	0	0			
22 Jeff	0	0	0	0	0	0.00	0.00	0	0			
23 WestX	0	0	0	0	0	0.00	0.00	0	0			
24 Spots	0	0	0	0	0	0.00	0.00	0	0			
25 KGeo	0	0	0	0	0	0.00	0.00	0	0			
26 Fbrg	0	0	0	0	0	0.00	0.00	0	0			
27 SouX	0	0	0	0	0	0.00	0.00	0	0			
Total	103,817,000	107,509,000	9,455,000	9,813,594	9,797,892			8,343,940	1,453,952			

PM Summary:

Attachment 4: Example Post Processor Output Listings

Jur No.	Daily Local PM(gm)	Daily Local PM(Tn)	Seasonal Local PM(Tn)
1 *DC	27,484	0.030	2.760
2 *Mtg	24,145	0.027	2.484
3 *PG	23,529	0.026	2.392
4 How	0	0.000	0.000
5 AAr	0	0.000	0.000
6 Car	0	0.000	0.000
7 BaltX	0	0.000	0.000
8 Cal	0	0.000	0.000
9 *Chs	1,830	0.002	0.184
10 *Frd	4,604	0.005	0.460
11 FrdX	0	0.000	0.000
12 *Arl	4,799	0.005	0.460
13 *FFx	40,791	0.045	4.140
14 *Ldn	8,133	0.009	0.828
15 *PW	12,354	0.014	1.288
16 Sta	0	0.000	0.000
17 *Alx	8,498	0.009	0.828
18 StM	0	0.000	0.000
19 WaCoX	0	0.000	0.000
20 Clk	0	0.000	0.000
21 Fau	0	0.000	0.000
22 Jeff	0	0.000	0.000
23 WestX	0	0.000	0.000
24 Spots	0	0.000	0.000
25 KGeo	0	0.000	0.000
26 Fbrg	0	0.000	0.000
27 SouX	0	0.000	0.000
Total	156,167	0.172	15.824
Avg Rate:	0.016		

Nx Summary:

Jur No.	Daily Local Urban Nx(gm)	Daily Local Rural Nx(gm)	Daily Local Urban Nx(Tn)	Daily Local Rural Nx(Tn)	Daily Total Local Nx(Tn)	Seasonal Total Local Nx(Tn)
1 *DC	1,425,562	0	1.571	0.000	1.571	144.532
2 *Mtg	1,196,758	136,236	1.319	0.150	1.469	135.148
3 *PG	1,208,471	104,394	1.332	0.115	1.447	133.124
4 How	0	0	0.000	0.000	0.000	0.000
5 AAr	0	0	0.000	0.000	0.000	0.000
6 Car	0	0	0.000	0.000	0.000	0.000
7 BaltX	0	0	0.000	0.000	0.000	0.000
8 Cal	0	0	0.000	0.000	0.000	0.000
9 *Chs	91,132	193,824	0.100	0.214	0.314	28.888
10 *Frd	232,820	434,761	0.257	0.479	0.736	67.712
11 FrdX	0	0	0.000	0.000	0.000	0.000
12 *Arl	234,385	0	0.258	0.000	0.258	23.736
13 *FFx	2,006,636	0	2.212	0.000	2.212	203.504
14 *Ldn	415,453	388,718	0.458	0.428	0.886	81.512
15 *PW	597,549	353,633	0.659	0.390	1.049	96.508
16 Sta	0	0	0.000	0.000	0.000	0.000
17 *Alx	401,359	0	0.442	0.000	0.442	40.664
18 StM	0	0	0.000	0.000	0.000	0.000
19 WaCoX	0	0	0.000	0.000	0.000	0.000
20 Clk	0	0	0.000	0.000	0.000	0.000
21 Fau	0	0	0.000	0.000	0.000	0.000
22 Jeff	0	0	0.000	0.000	0.000	0.000
23 WestX	0	0	0.000	0.000	0.000	0.000
24 Spots	0	0	0.000	0.000	0.000	0.000
25 KGeo	0	0	0.000	0.000	0.000	0.000
26 Fbrg	0	0	0.000	0.000	0.000	0.000

Attachment 4: Example Post Processor Output Listings

27	SouX	0	0	0.000	0.000	0.000	0.000
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Total		7,810,125	1,611,566	8.608	1.776	10.384	955.328

Avg Rate: 0.936 1.108 --- Local Emissions Summary ---  
 Year: 2002/ Season: Fall/ Seasonal VMT Factor: 0.9445/ No. of Days: 91

VMT Summary:

Jur No.	Base AAWDT		Future AAWDT		Base		Est. Future		Seasonal Adj Est. Future		Urb Pct	Rur Pct	Urban		Rural	
	Network	VMT	Network	VMT	Local	VMT	Local	VMT	Local	VMT			Local	VMT	Local	VMT
1	*DC	8,883,000	8,898,000	1,510,000	1,512,550	1,428,603	100.00	0.00	1,428,603	0	0	1,428,603	0			
2	*Mtg	19,636,000	20,200,000	1,404,000	1,444,327	1,364,167	91.00	9.00	1,241,392	122,775						
3	*PG	21,321,000	21,776,000	1,299,000	1,326,721	1,253,088	93.00	7.00	1,165,372	87,716						
4	How	0	0	0	0	0	0.00	0.00	0	0						
5	AAr	0	0	0	0	0	0.00	0.00	0	0						
6	Car	0	0	0	0	0	0.00	0.00	0	0						
7	BaltX	0	0	0	0	0	0.00	0.00	0	0						
8	Cal	0	0	0	0	0	0.00	0.00	0	0						
9	*Chs	2,308,000	2,369,000	259,000	265,845	251,091	35.00	65.00	87,882	163,209						
10	*Frd	7,893,000	8,191,000	609,000	631,993	596,917	38.00	62.00	226,829	370,089						
11	FrdX	0	0	0	0	0	0.00	0.00	0	0						
12	*Arl	4,312,000	4,489,000	243,000	252,975	238,935	100.00	0.00	238,935	0						
13	*FFx	25,747,000	26,589,000	2,127,000	2,196,559	2,074,650	100.00	0.00	2,074,650	0						
14	*Ldn	4,438,000	5,027,000	674,000	763,452	721,080	55.00	45.00	396,594	324,486						
15	*PW	7,109,000	7,754,000	877,000	956,570	903,481	66.00	34.00	596,297	307,183						
16	Sta	0	0	0	0	0	0.00	0.00	0	0						
17	*Alx	2,170,000	2,216,000	453,000	462,603	436,928	100.00	0.00	436,928	0						
18	StM	0	0	0	0	0	0.00	0.00	0	0						
19	WaCoX	0	0	0	0	0	0.00	0.00	0	0						
20	Clk	0	0	0	0	0	0.00	0.00	0	0						
21	Fau	0	0	0	0	0	0.00	0.00	0	0						
22	Jeff	0	0	0	0	0	0.00	0.00	0	0						
23	WestX	0	0	0	0	0	0.00	0.00	0	0						
24	Spots	0	0	0	0	0	0.00	0.00	0	0						
25	KGeo	0	0	0	0	0	0.00	0.00	0	0						
26	Fbrg	0	0	0	0	0	0.00	0.00	0	0						
27	SouX	0	0	0	0	0	0.00	0.00	0	0						
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Total		103,817,000	107,509,000	9,455,000	9,813,594	9,268,940			7,893,481	1,375,458						

PM Summary:

Jur No.	Daily Local PM (gm)	Daily Local PM (Tn)	Seasonal Local PM (Tn)	
1	*DC	27,715	0.031	2.821
2	*Mtg	24,455	0.027	2.457
3	*PG	23,541	0.026	2.366
4	How	0	0.000	0.000
5	AAr	0	0.000	0.000
6	Car	0	0.000	0.000
7	BaltX	0	0.000	0.000
8	Cal	0	0.000	0.000
9	*Chs	1,846	0.002	0.182
10	*Frd	4,650	0.005	0.455
11	FrdX	0	0.000	0.000
12	*Arl	4,803	0.005	0.455
13	*FFx	41,078	0.045	4.095
14	*Ldn	8,091	0.009	0.819
15	*PW	12,164	0.013	1.183
16	Sta	0	0.000	0.000
17	*Alx	8,607	0.009	0.819
18	StM	0	0.000	0.000

Attachment 4: Example Post Processor Output Listings

19	WaCoX	0	0.000	0.000
20	Clk	0	0.000	0.000
21	Fau	0	0.000	0.000
22	Jeff	0	0.000	0.000
23	WestX	0	0.000	0.000
24	Spots	0	0.000	0.000
25	KGeo	0	0.000	0.000
26	Fbrg	0	0.000	0.000
27	SouX	0	0.000	0.000

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Total	156,949	0.172	15.652
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Avg Rate: 0.017

Nx Summary:

Jur No.	Daily Local Urban Nx(gm)	Daily Local Rural Nx(gm)	Daily Local Urban Nx(Tn)	Daily Local Rural Nx(Tn)	Daily Total Local Nx(Tn)	Seasonal Total Local Nx(Tn)	
1	*DC	1,395,745	0	1.539	0.000	1.539	140.049
2	*Mtg	1,186,770	138,220	1.308	0.152	1.460	132.860
3	*PG	1,179,357	104,413	1.300	0.115	1.415	128.765
4	How	0	0	0.000	0.000	0.000	0.000
5	AAr	0	0	0.000	0.000	0.000	0.000
6	Car	0	0	0.000	0.000	0.000	0.000
7	BaltX	0	0	0.000	0.000	0.000	0.000
8	Cal	0	0	0.000	0.000	0.000	0.000
9	*Chs	89,552	194,767	0.099	0.215	0.314	28.574
10	*Frd	229,777	439,369	0.253	0.484	0.737	67.067
11	FrdX	0	0	0.000	0.000	0.000	0.000
12	*Arl	231,767	0	0.255	0.000	0.255	23.205
13	*Ffx	1,985,440	0	2.189	0.000	2.189	199.199
14	*Ldn	408,492	390,790	0.450	0.431	0.881	80.171
15	*PW	585,564	354,373	0.645	0.391	1.036	94.276
16	Sta	0	0	0.000	0.000	0.000	0.000
17	*Alx	404,596	0	0.446	0.000	0.446	40.586
18	StM	0	0	0.000	0.000	0.000	0.000
19	WaCoX	0	0	0.000	0.000	0.000	0.000
20	Clk	0	0	0.000	0.000	0.000	0.000
21	Fau	0	0	0.000	0.000	0.000	0.000
22	Jeff	0	0	0.000	0.000	0.000	0.000
23	WestX	0	0	0.000	0.000	0.000	0.000
24	Spots	0	0	0.000	0.000	0.000	0.000
25	KGeo	0	0	0.000	0.000	0.000	0.000
26	Fbrg	0	0	0.000	0.000	0.000	0.000
27	SouX	0	0	0.000	0.000	0.000	0.000

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Total	7,697,059	1,621,933	8.484	1.788	10.272	934.752
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Avg Rate: 0.975 1.179

# **ATTACHMENT D**

**D1. Transit Bus**

**D2. School Bus**

# MEMORANDUM

November 15, 2005

**To:** Air Quality Conformity File

**From:** Daivamani Sivasailam

**Subject:** Transit Bus Emissions for PM 2.5 Conformity Assessment of the 2005 CLRP and FY 2006 – FY 2011 TIP

This memo discusses the development of direct fine particles (PM 2.5), and NOx precursors emissions estimates for transit buses for the conformity analysis years.

## **Approach**

This effort pivots from previously collected transit data (survey and emissions estimation are described in the 8-hour Ozone and Winter CO conformity assessment report), where the data were analyzed on a daily basis, annual statistics were also available from that effort and were applied in the PM 2.5 assessment.

The annual VMT from the survey was divided by the number of service days for each provider to calculate a daily VMT for the 2002 base year. Using the appropriate emissions factor, based on the average operating speed for each provider and the season, staff calculated the daily direct PM 2.5 and NOx precursor emissions for transit buses for each season. From the daily estimates, seasonal total, based on the number of days per season and the annual total emissions were estimated. The following table shows year 2002 estimation of transit bus emissions. Similar methods were used to estimate emissions for 2010, 2020 and 2030 analysis years.

## 2002 TRANSIT BUS CHARACTERISTICS / EMISSIONS (PM 2.5 - FALL)

Jurisdiction	Operator	2002 Weekday VMT	2002 Annual VMT	2002 Daily VMT	Remove Stafford/ Calvert	Average Speed	PM 2.5			NOx		
							factors (g/mile)	emissions (grams)	emissions (tons)	factors (g/mile)	emissions (grams)	emissions (tons)
District of Columbia	Metrobus	50,552	18,451,480	50,552	50,552	10	0.8176	41331	0.0456	24.0030	1213400	1.3375
District of Columbia	MTA Commuter buses	2,510	916,150	2,510	2,510	45	0.8176	2052	0.0023	17.5280	43995	0.0485
District of Columbia	Peter Pan / Trailways	200	50,000	137	137	55	0.8176	112	0.0001	22.0800	3025	0.0033
District of Columbia	Carolina Trailways	20	5,000	14	14	55	0.8176	11	0.0000	22.0800	302	0.0003
District of Columbia	Capitol Trailways	100	25,000	68	68	55	0.8176	56	0.0001	22.0800	1512	0.0017
District of Columbia	Martz / Grey Line sightseeing	500	125,000	342	342	55	0.8176	280	0.0003	22.0800	7562	0.0083
District of Columbia	New World Tours	100	25,000	83	83	20	0.8176	68	0.0001	18.3610	1530	0.0017
District of Columbia	Georgetown U. shuttle	100	25,000	83	83	15	0.8176	68	0.0001	20.6230	1719	0.0019
District of Columbia	American U. shuttle	83	30,000	100	100	20	0.8176	82	0.0001	18.3610	1836	0.0020
District of Columbia	George Washington U shuttle	100	25,000	83	83	15	0.8176	68	0.0001	20.6230	1719	0.0019
District of Columbia	EPA Shuttle	200	50,000	200	200	15	0.8176	164	0.0002	20.6230	4125	0.0045
District of Columbia	USDOT Shuttle	200	50,000	200	200	15	0.8176	164	0.0002	20.6230	4125	0.0045
District of Columbia	Gallaudet Shuttle	100	25,000	83	83	15	0.8176	68	0.0001	20.6230	1719	0.0019
District of Columbia	Metro Access - paratransit	5,000	1,250,000	3,425	3,425	15	0.8176	2800	0.0031	20.6230	70627	0.0779
Maryland	Corridor Transit (CTC)	1,265	459,130	1,837	1,837	18	0.8176	1502	0.0017	19.1150	35105	0.0387
Maryland	Peter Pan / Trailways	1,800	450,000	1,233	1,233	55	0.8176	1008	0.0011	22.0800	27222	0.0300
Maryland	Carolina Trailways	225	56,250	154	154	55	0.8176	126	0.0001	22.0800	3403	0.0038
Maryland	Capitol Trailways	400	100,000	274	274	55	0.8176	224	0.0002	22.0800	6049	0.0067
Maryland	Martz / Grey Line sightseeing	2,250	562,500	1,541	1,541	55	0.8176	1260	0.0014	22.0800	34027	0.0375
Maryland	New World Tours	100	25,000	68	68	20	0.8176	56	0.0001	18.3610	1258	0.0014
Montgomery	Metrobus	17,262	6,300,630	17,262	17,262	15	0.8176	14113	0.0156	20.6230	355994	0.3924
Montgomery	MTA Commuter buses	2,180	795,700	3,183	3,183	45	0.8176	2602	0.0029	17.5280	55788	0.0615
Montgomery	Mont. Co. Ride-On	35,616	13,000,000	35,616	35,616	15	0.8176	29120	0.0321	20.6230	734518	0.8097
Prince George's	Metrobus	24,660	9,000,900	24,660	24,660	15	0.8176	20162	0.0222	20.6230	508563	0.5606
Prince George's	MTA Commuter buses	6,840	2,496,600	9,986	9,986	45	0.8176	8165	0.0090	17.5280	175042	0.1930
Prince George's	PG Co. The Bus	9,723	2,460,000	6,740	6,740	15	0.8176	5510	0.0061	20.6230	138993	0.1532
Prince George's	ShuttleUM (U. of MD)	1,864	652,482	2,175	2,175	11	0.8176	1778	0.0020	23.0810	50200	0.0553
Prince George's	P.G. Co. paratransit	3,000	750,000	2,055	2,055	15	0.8176	1680	0.0019	20.6230	42376	0.0467
Frederick	MTA Commuter buses	370	135,050	540	540	45	0.8176	442	0.0005	17.5280	9469	0.0104
Frederick	Fredrick Co. TransIT	3,082	847,666	2,322	2,322	12	0.8176	1899	0.0021	22.3130	51819	0.0571
Charles	MTA Commuter buses	2,290	572,500	2,290	2,290	45	0.8176	1872	0.0021	17.5280	40139	0.0442
Virginia	Metrobus	30,825	11,251,125	30,825	30,825	15	0.8176	25203	0.0278	20.6230	635704	0.7007
Virginia	Lee Coaches	70	17,500	70	49	45	0.8176	40	0.0000	17.5280	859	0.0009
Virginia	Brooks Transit	750	187,500	750	750	45	0.8176	613	0.0007	17.5280	13146	0.0145

## 2002 TRANSIT BUS CHARACTERISTICS / EMISSIONS (PM 2.5 - FALL)

Jurisdiction	Operator	2002 Weekday VMT	2002 Annual VMT	2002 Daily VMT	Remove Stafford/ Calvert	Average Speed	PM 2.5			NOx		
							factors (g/mile)	emissions (grams)	emissions (tons)	factors (g/mile)	emissions (grams)	emissions (tons)
Virginia	Quicks Commuter Service	1,320	330,000	1,320	924	45	0.8176	755	0.0008	17.5280	16196	0.0179
Virginia	National Coach Works	1,650	412,500	1,650	1,155	45	0.8176	944	0.0010	17.5280	20245	0.0223
Virginia	Greyhound / Trailways (VA)	5,000	1,250,000	3,425	2,397	55	0.8176	1960	0.0022	22.0800	52932	0.0583
Virginia	Carolina Trailways	225	56,250	154	108	55	0.8176	88	0.0001	22.0800	2382	0.0026
Virginia	Martz / Grey Line sightseeing	2,250	562,500	1,541	1,079	55	0.8176	882	0.0010	22.0800	23819	0.0263
Virginia	New World Tours	185	67,525	185	130	20	0.8176	106	0.0001	18.3610	2378	0.0026
Alexandria	Alexandria DASH	3,454	1,215,746	3,331	3,331	13	0.8176	2723	0.0030	21.6630	72155	0.0795
Alexandria	Old Town "trolley" buses	300	75,000	205	205	20	0.8176	168	0.0002	18.3610	3773	0.0042
Alexandria	Alexandria DOT-paratransit	924	231,033	633	633	15	0.8176	518	0.0006	20.6230	13054	0.0144
Arlington	Arlington Co. ART	794	289,800	794	794	16	0.8176	649	0.0007	20.0580	15926	0.0176
Arlington	Crystal City Express	96	24,000	80	80	15	0.8176	65	0.0001	20.6230	1650	0.0018
Arlington	Skyline Crystal Express	144	36,000	120	120	15	0.8176	98	0.0001	20.6230	2475	0.0027
Arlington	Arlington STAR-paratransit	3,245	811,271	2,223	2,223	15	0.8176	1817	0.0020	20.6230	45838	0.0505
Fairfax	Fairfax Connector	18,036	6,348,531	17,393	17,393	15	0.8176	14221	0.0157	20.6230	358701	0.3954
Fairfax	Washington Flyer Coach Service	1,370	500,000	1,370	1,370	65	0.8176	1120	0.0012	32.0620	43921	0.0484
Fairfax	Fairfax Co. Fastran- paratransit	11,427	2,845,372	7,796	7,796	15	0.8176	6374	0.0070	20.6230	160767	0.1772
Fairfax	City of Fairfax CUE	1,483	522,000	1,430	1,430	15	0.8176	1169	0.0013	20.6230	29494	0.0325
Fairfax	City of Ffx, City Wheels- paratransit.	100	25,000	68	68	15	0.8176	56	0.0001	20.6230	1413	0.0016
Fairfax	City of Falls Ch. Fare Wheels- paratransit	100	25,000	68	68	15	0.8176	56	0.0001	20.6230	1413	0.0016
Prince William	PRTC Omnalink	4,038	1,009,500	4,038	4,038	15	0.8176	3301	0.0036	20.6230	83276	0.0918
Prince William	PRTC OmniRide	5,700	1,425,000	5,700	5,700	27	0.8176	4660	0.0051	16.6090	94671	0.1044
Loudoun	Loudoun Transportation Assc.	4,532	1,132,884	4,532	4,532	15	0.8176	3705	0.0041	20.6230	93454	0.1030
Loudoun	Loudoun Commuter Service	1,866	671,600	2,686	2,686	25	0.8176	2196	0.0024	16.9400	45508	0.0502
Loudoun	Loudoun Transit (LCTA)- paratransit	100	25,000	68	68	15	0.8176	56	0.0001	20.6230	1413	0.0016
<b>TOTAL</b>		272,676	91,064,675	262,274	259,771			212389	0.2341		5463717	6.0227

## Notes:

- 1) Used WMATA percent VMT by jurisdiction from FY03-08 AQC, Appendix I (page I-3)
- 2) Assumed average freeway speed of 55 mph where higher than 55 speed limit is available, and 45 mph where speed limit is 55

November 15, 2005

**Memorandum**

To: Air Quality Conformity Files

From: Daivamani Sivasailam  
Principal Transportation Engineer

Subject: PM 2.5 Emissions Inventory of School Buses

This memorandum outlines the procedure that staff followed to develop the fine particulate matter (PM 2.5) emissions inventory from the school bus fleet in the region as part of the conformity analysis of the 2005 Constrained Long Range Plan (CLRP) and FY 2006- FY 2011 Transportation Improvement Program (TIP).

In calendar 2001, staff compiled annual vehicle miles of travel (VMT) from the school systems in the region; this annual VMT was used to develop the 2002 base year emissions inventory. As the first step, the daily VMT by school system was estimated by dividing the annual VMT by number of days the different school systems operate, which varies from 190 days to 220 days. The average operating speed of the buses was also obtained from the 2001 survey; and speeds vary from a low of 14 mph to a high of 30 mph. Using the emissions rates for the appropriate speed and season, and the daily VMT, staff estimated direct PM 2.5 and NOx precursor emissions for each of the school systems. Using the daily emissions and the number of days the school buses operate each season, the emissions for the four seasons were estimated. As a final step the annual emissions for direct PM 2.5 and NOx precursors, were estimated by adding up the emissions for the four seasons.

Similarly, emissions inventories for 2010, 2020, and 2030 were estimated assuming a 0.5% growth rate per year applied to the VMT reported in the base year. The following two pages show the tables depicting the daily and seasonal emissions inventories for 2002 base year.

FY2006-2011 TIP / 2005 CLRP AIR QUALITY CONFORMITY ANALYSIS  
**2002 SCHOOL BUS CHARACTERISTICS / EMISSIONS**  
**(PM 2.5)**

Jurisdiction	2002 Weekday VMT	2002 Annual VMT	Average Speed	WINTER						SPRING					
				PM 2.5			NOx			PM 2.5			NOx		
				factors (g/mile)	emissions (grams)	emissions (tons)	factors (g/mile)	emissions (grams)	emissions (tons)	factors (g/mile)	emissions (grams)	emissions (tons)	factors (g/mile)	emissions (grams)	emissions (tons)
District of Columbia	12,696	2,800,000	14	0.6640	8430	0.0093	13.9310	176868	0.1950	0.6389	8111	0.0089	13.7990	175192	0.1931
Montgomery	100,000	19,000,000	30	0.6640	66400	0.0732	10.9410	1094100	1.2060	0.6389	63890	0.0704	10.8150	1081500	1.1921
Prince George's	129,967	21,000,000	30	0.6640	86298	0.0951	10.9410	1421969	1.5675	0.6389	83036	0.0915	10.8150	1405593	1.5494
Frederick	33,684	6,400,000	30	0.6640	22366	0.0247	10.9410	368539	0.4062	0.6389	21521	0.0237	10.8150	364295	0.4016
Charles	20,801	3,950,000	30	0.6640	13812	0.0152	10.9410	227584	0.2509	0.6389	13290	0.0146	10.8150	224963	0.2480
Alexandria	2,028	446,264	25	0.6640	1347	0.0015	11.3790	23077	0.0254	0.6389	1296	0.0014	11.2530	22821	0.0252
Arlington	2,600	571,986	25	0.6640	1726	0.0019	11.3790	29585	0.0326	0.6389	1661	0.0018	11.2530	29258	0.0323
Fairfax	96,524	18,200,000	30	0.6640	64092	0.0706	10.9410	1056069	1.1641	0.6389	61669	0.0680	10.8150	1043907	1.1507
Prince William	36,114	6,900,000	30	0.6640	23980	0.0264	10.9410	395123	0.4355	0.6389	23073	0.0254	10.8150	390573	0.4305
Loudoun	28,347	6,100,000	30	0.6640	18822	0.0207	10.9410	310145	0.3419	0.6389	18111	0.0200	10.8150	306573	0.3379
<b>TOTAL</b>	462,761	85,368,250			307273	0.3387		5103059	5.6252		295658	0.3259		5044674	5.5608

FY2006-2011 TIP / 2005 CLRP AIR QUALITY CONFORMITY ANALYSIS  
**2002 SCHOOL BUS CHARACTERISTICS / EMISSIONS**  
**(PM 2.5)**

Jurisdiction	2002 Weekday VMT	2002 Annual VMT	Average Speed	SUMMER						FALL					
				PM 2.5			NOx			PM 2.5			NOx		
				factors (g/mile)	emissions (grams)	emissions (tons)	factors (g/mile)	emissions (grams)	emissions (tons)	factors (g/mile)	emissions (grams)	emissions (tons)	factors (g/mile)	emissions (grams)	emissions (tons)
District of Columbia	12,696	2,800,000	14	0.6397	8122	0.0090	13.7970	175167	0.1931	0.5581	7086	0.0078	13.6730	173592	0.1914
Montgomery	100,000	19,000,000	30	0.6397	63970	0.0705	10.8130	1081300	1.1919	0.5581	55810	0.0615	10.6610	1066100	1.1752
Prince George's	129,967	21,000,000	30	0.6397	83140	0.0916	10.8130	1405333	1.5491	0.5581	72535	0.0800	10.6610	1385578	1.5273
Frederick	33,684	6,400,000	30	0.6397	21548	0.0238	10.8130	364227	0.4015	0.5581	18799	0.0207	10.6610	359107	0.3958
Charles	20,801	3,950,000	30	0.6397	13306	0.0147	10.8130	224921	0.2479	0.5581	11609	0.0128	10.6610	221759	0.2444
Alexandria	2,028	446,264	25	0.6397	1297	0.0014	11.2510	22817	0.0252	0.5581	1132	0.0012	11.1060	22523	0.0248
Arlington	2,600	571,986	25	0.6397	1663	0.0018	11.2510	29253	0.0322	0.5581	1451	0.0016	11.1060	28876	0.0318
Fairfax	96,524	18,200,000	30	0.6397	61746	0.0681	10.8130	1043714	1.1505	0.5581	53870	0.0594	10.6610	1029042	1.1343
Prince William	36,114	6,900,000	30	0.6397	23102	0.0255	10.8130	390501	0.4305	0.5581	20155	0.0222	10.6610	385011	0.4244
Loudoun	28,347	6,100,000	30	0.6397	18134	0.0200	10.8130	306516	0.3379	0.5581	15820	0.0174	10.6610	302207	0.3331
<b>TOTAL</b>	462,761	85,368,250			296028	0.3263		5043749	5.5598		258267	0.2847		4973797	5.4827

Jurisdiction	Winter		Spring		Summer		Fall		Annual	
	PM	NOx								
District of Columbia	0.539	11.308	0.519	11.201	0.358	7.724	0.453	11.098	1.869	41.331
Montgomery	4.245	69.950	4.085	69.145	2.821	47.677	3.568	68.160	14.719	254.932
Prince George's	5.517	90.912	5.309	89.865	3.666	61.965	4.637	88.586	19.129	331.328
Frederick	1.430	23.562	1.376	23.291	0.950	16.060	1.202	22.959	4.958	85.872
Charles	0.883	14.550	0.850	14.383	0.587	9.917	0.742	14.178	3.062	53.028
Alexandria	0.086	1.475	0.083	1.459	0.057	1.006	0.072	1.440	0.298	5.380
Arlington	0.110	1.892	0.106	1.871	0.073	1.290	0.093	1.846	0.383	6.898
Fairfax	4.098	67.519	3.943	66.741	2.723	46.020	3.444	65.791	14.207	246.071
Prince William	1.533	25.262	1.475	24.971	1.019	17.218	1.289	24.615	5.316	92.066
Loudoun	1.203	19.829	1.158	19.600	0.800	13.515	1.011	19.321	4.172	72.266
<b>Total</b>	<b>19.645</b>	<b>326.259</b>	<b>18.903</b>	<b>322.526</b>	<b>13.053</b>	<b>222.391</b>	<b>16.512</b>	<b>317.995</b>	<b>68.113</b>	<b>1189.172</b>

## Assumptions

Number of days = 214

3 seasons with 58 days and Summer with 40 days

Winter	58
Spring	58
Summer	40
Fall	58

# **ATTACHMENT E**

# Memorandum

**To:** Air Quality Files

**From:** Eulalie G. Lucas  
Transportation Engineer

**Date:** 11/16/2005

**Re:** Auto Access to Transit Emissions Calculations: PM2.5 and NOx Precursor

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## **Introduction:**

The Environmental Protection Agency (EPA) in 2004 designated the District of Columbia, four counties in Maryland and five in northern Virginia as the Washington Metropolitan non-attainment area due to violation of health standards for fine particles PM2.5. Non-attainment areas were given one year from April 2005 to demonstrate conformity or face a lapse. In response to this federal requirement COG/TPB staff calculated PM2.5 direct and NOx precursor emission estimates associated with travel from the region's 2005 Constrained Long Range Plan (CLRP) and the FY2006-2011 Transportation Improvement Plan (TIP). Procedures used for these calculations required changes to the approach used in ozone season emission estimates since these emissions are reported on an annual not daily basis. The following paragraphs describe these procedures and updates and serve as documentation for PM2.5 and NOx emissions associated with travel to transit and park and ride lots in the PM2.5 non-attainment area.

## **Vehicle Mix and travel data:**

VMT Mix percent associated with auto access to transit includes only passenger cars and light duty trucks, (not heavy duty trucks as with network VMT mix percents), used by commuters to access transit and park and ride lots. Because travel estimates to transit and 'park and ride' lots reflect commuting traffic only, the conversion from daily to annual reporting included only five days per week unlike network travel where staff assumed seven days.

## **Methodology:**

The procedure used in the calculation of emissions associated with auto access to transit is an off-line process like transit and school bus emissions calculations. The approach is very simple: it involves the application of an emissions rate to each of the various components of travel, i.e., start up, running (35 mph for arterials and 45 mph for freeways) and hot soak. For trips originating outside the MSA, only those miles within the MSA are used in the calculation. Forecasting for 'out years' is based on growth trends for total internal modeled transit trips applied to the MWCOG/DTP 2002 Park and Ride Utilization inventory data.

Separate emissions rates are applied by components of a trip cycle, i.e., a start up rate for trip origins, a running rate for the running component, and a hot soak rate for trip destinations. These three rates represent an average of the ten composite rates for jurisdictions in the non-attainment area and for all light duty vehicle types (HDD fractions were zeroed out of the VMT Mix). This

adjustment was made based on the assumption that heavy duty vehicles such as tractor trailers are not used by commuters for trips to and from transit locations or to park and ride lots.

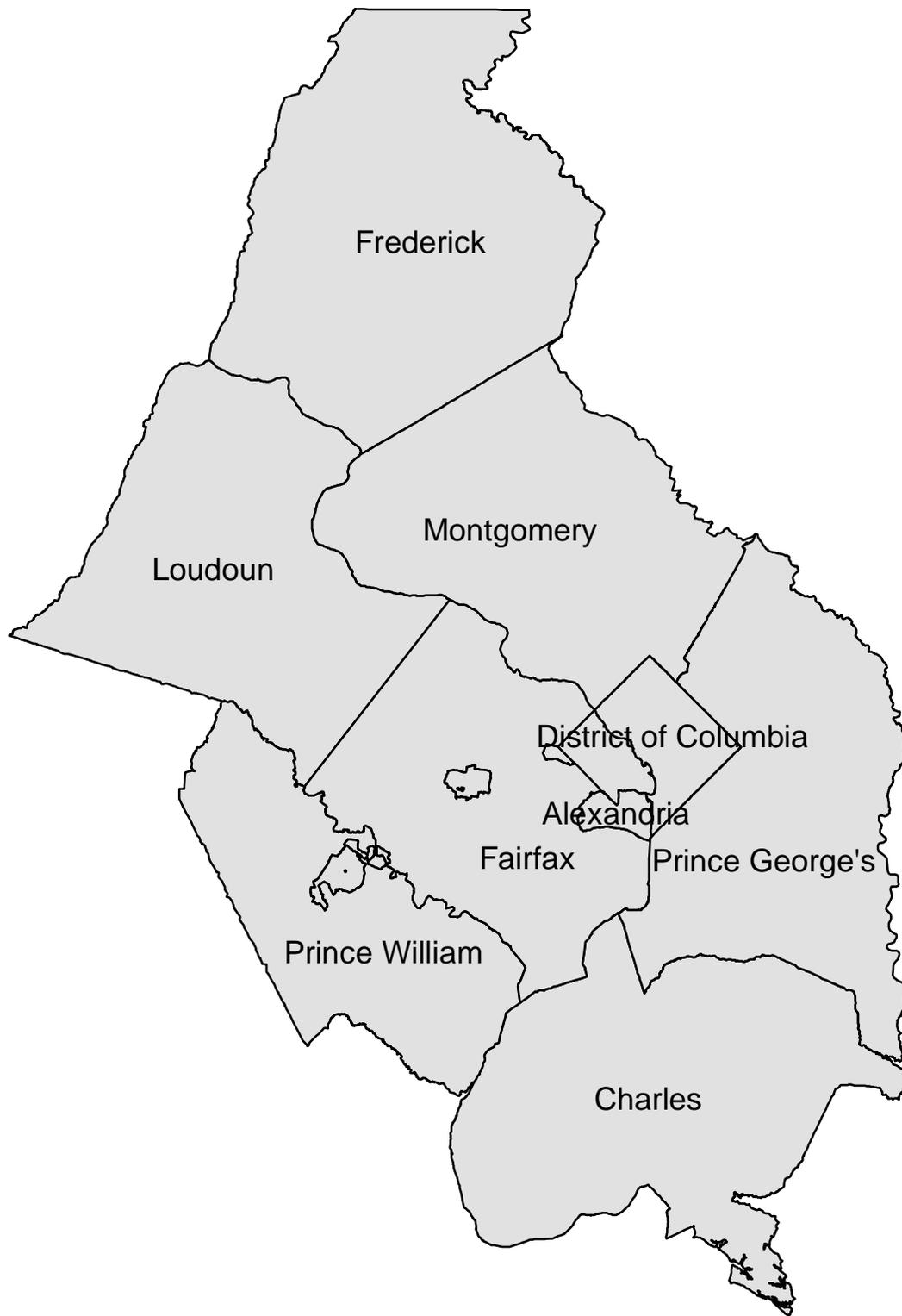
**Updates:**

The travel demand data used for the PM2.5 analysis are consistent with the 2005 CLRP ozone season analysis: travel demand model runs used Version 2.1D #50; the land activity forecasts are from Co-operative Forecasts Round 7; and the Mobile emissions were generated from Mobile model version 6.2. The seasonal adjustments in the table below were applied (see Mike Clifford and Daivamani Sivasailmani’s memo dated May 5<sup>th</sup>, 2005) to convert AAWDT travel demand to AWDT for each season of the year; travel days and emissions were then developed for each season according to the number of commuting days in each season of the year. The table below lists these percents; also included is a map of the non-attainment area.

Results for 2002 for the winter season are shown in Exhibits 1 and 2; the other analysis years 2002, 2020 and 2030 are available in the full technical report.

<b>Season</b>	<b>Adjustment Factor AAWDT to AWDT season</b>	<b>Number of Commuting Days Per Season</b>
Winter	.97	65
Spring	1.02	66
Summer	1.05	66
Fall	1.00	65

# Washington DC-Maryland-Virginia PM 2.5 Nonattainment Area



**Exhibit 1**  
**Winter**  
**2002 NOx Precursor**  
**AUTO ACCESS TO TRANSIT**  
**FY2006-2011 TIP AND 2005 CLRP AIR QUALITY CONFORMITY**

LOCATION	OUTSIDE MSA (%)	INSIDE MSA	2002		AVERAGE TRIP LENGTH	2002 VMT	ARTERIAL		FREEWAY		E M I S S I O N S		COLD START Rate (gm/mile)	RUNNING		Total Running Emission (tons/day)	TOTAL (tons/day)
			OUTSIDE MSA	Total			%	VMT	Adj.Art VMT	FREEWAY VMT	Arterial Rate (gm/mile)	Freeway Rate (gm/mile)					
													1.7666	1.0072	1.0635		
										Wk Days = 65							
										Seasonal adj = 0.97							
<b>COMMUTER RAIL LOTS</b>																	
BRUNSWICK 25%	25	305	102	407	7.5	3,053	57	43	1,740	1,688	1,313	1,273	0.0014	0.0037	0.0030	0.0067	0.0081
PT OF ROCKS 25%	25	204	68	272	7.5	2,040	57	43	1,163	1,128	877	851	0.0009	0.0025	0.0020	0.0045	0.0054
DICKERSON	0	15	0	15	7.5	113	57	43	64	62	48	47	0.0001	0.0001	0.0001	0.0002	0.0003
BARNESVILLE	0	46	0	46	7.5	345	57	43	197	191	148	144	0.0002	0.0004	0.0003	0.0008	0.0009
GERMANTOWN	0	386	0	386	7.5	2,895	57	43	1,650	1,601	1,245	1,208	0.0015	0.0036	0.0028	0.0064	0.0079
MET GROVE	0	352	0	352	7.5	2,640	57	43	1,505	1,460	1,135	1,101	0.0014	0.0032	0.0026	0.0058	0.0072
WAS GROVE	0	15	0	15	7.5	113	57	43	64	62	48	47	0.0001	0.0001	0.0001	0.0002	0.0003
GARRETT PARK	0	22	0	22	7.5	165	57	43	94	91	71	69	0.0001	0.0002	0.0002	0.0004	0.0004
BOWIE 50%	50	188	188	375	7.5	2,813	57	43	1,603	1,555	1,209	1,173	0.0011	0.0035	0.0028	0.0062	0.0073
SEABROOK 15%	15	224	40	264	7.5	1,980	57	43	1,129	1,095	851	826	0.0010	0.0024	0.0019	0.0044	0.0053
KENSINGTON	0	45	0	45	7.5	338	57	43	192	187	145	141	0.0002	0.0004	0.0003	0.0007	0.0009
LAUREL 30%	30	209	90	299	7.5	2,243	57	43	1,278	1,240	964	935	0.0010	0.0028	0.0022	0.0049	0.0059
GAITHESBURG	0	280	0	280	7.5	2,100	57	43	1,197	1,161	903	876	0.0011	0.0026	0.0021	0.0046	0.0057
BERWYN HEIGHTS	0	30	0	30	4.5	135	57	43	77	75	58	56	0.0001	0.0002	0.0001	0.0003	0.0004
RIVERDALE	0	65	0	65	4.5	293	57	43	167	162	126	122	0.0003	0.0004	0.0003	0.0006	0.0009
<b>METRO RAIL LOTS</b>																	
ADDISON ROAD	40	791	527	1318	7.5	9,885	57	43	5,634	5,465	4,251	4,123	0.0041	0.0121	0.0097	0.0218	0.0259
ARCHIVES	0	12	0	12	4.5	54	57	43	31	30	23	23	0.0000	0.0001	0.0001	0.0001	0.0002
ARLING	0	10	0	10	4.5	45	57	43	26	25	19	19	0.0000	0.0001	0.0000	0.0001	0.0001
BALLSTON	0	1175	0	1175	4.5	5,288	57	43	3,014	2,923	2,274	2,205	0.0046	0.0065	0.0052	0.0117	0.0162
BENN RD	0	520	0	520	4.5	2,340	57	43	1,334	1,294	1,006	976	0.0020	0.0029	0.0023	0.0052	0.0072
BETH	0	395	0	395	4.5	1,778	57	43	1,013	983	764	741	0.0015	0.0022	0.0017	0.0039	0.0055
BRADD RD	0	10	0	10	4.5	45	57	43	26	25	19	19	0.0000	0.0001	0.0000	0.0001	0.0001
BROOKLAND	0	27	0	27	4.5	122	57	43	69	67	52	51	0.0001	0.0001	0.0001	0.0003	0.0004
CHEVERLY	0	557	0	557	4.5	2,507	57	43	1,429	1,386	1,078	1,045	0.0022	0.0031	0.0025	0.0055	0.0077
CLARENDON	0	554	0	554	4.5	2,493	57	43	1,421	1,378	1,072	1,040	0.0022	0.0031	0.0024	0.0055	0.0077
CLEVELAND PK	0	366	0	366	4.5	1,647	57	43	939	911	708	687	0.0014	0.0020	0.0016	0.0036	0.0051
COURT HOUSE	0	256	0	256	4.5	1,152	57	43	657	637	495	480	0.0010	0.0014	0.0011	0.0025	0.0035
CRYSTAL CITY	0	347	0	347	4.5	1,562	57	43	890	863	671	651	0.0014	0.0019	0.0015	0.0034	0.0048
DEANWOOD	0	194	0	194	4.5	873	57	43	498	483	375	364	0.0008	0.0011	0.0009	0.0019	0.0027
DUN LORING 10	10	1220	136	1355	4.5	6,098	57	43	3,476	3,371	2,622	2,543	0.0050	0.0075	0.0060	0.0134	0.0185
DUPONT CIRCLE	0	165	0	165	4.5	743	57	43	423	411	319	310	0.0006	0.0009	0.0007	0.0016	0.0023
EASTERN MKT	0	178	0	178	4.5	801	57	43	457	443	344	334	0.0007	0.0010	0.0008	0.0018	0.0025
EAST FALLS CH	0	442	0	442	4.5	1,989	57	43	1,134	1,100	855	830	0.0017	0.0024	0.0019	0.0044	0.0061
EIS	0	352	0	352	4.5	1,584	57	43	903	876	681	661	0.0014	0.0019	0.0015	0.0035	0.0049
FARRAGUT NORTH	0	102	0	102	4.5	459	57	43	262	254	197	191	0.0004	0.0006	0.0004	0.0010	0.0014
FARRAGUT WEST	0	221	0	221	4.5	995	57	43	567	550	428	415	0.0009	0.0012	0.0010	0.0022	0.0031
FEDERAL CENTER	0	75	0	75	4.5	338	57	43	192	187	145	141	0.0003	0.0004	0.0003	0.0007	0.0010
FEDERAL TRI	0	54	0	54	4.5	243	57	43	139	134	104	101	0.0002	0.0003	0.0002	0.0005	0.0007
FOGGY	0	102	0	102	4.5	459	57	43	262	254	197	191	0.0004	0.0006	0.0004	0.0010	0.0014
FORT TROTTER	0	445	0	445	4.5	2,003	57	43	1,141	1,107	861	835	0.0017	0.0025	0.0020	0.0044	0.0061
FRH HEIGHTS	0	679	0	679	4.5	3,056	57	43	1,742	1,689	1,314	1,274	0.0026	0.0038	0.0030	0.0067	0.0094
GALLERY PLACE	0	124	0	124	4.5	558	57	43	318	309	240	233	0.0005	0.0007	0.0005	0.0012	0.0017
GROSVENOR	0	716	0	716	4.5	3,222	57	43	1,837	1,781	1,385	1,344	0.0028	0.0040	0.0032	0.0071	0.0099

**Exhibit 1**  
**Winter**  
**2002 NOx Precursor**  
**AUTO ACCESS TO TRANSIT**  
**FY2006-2011 TIP AND 2005 CLRP AIR QUALITY CONFORMITY**

HUNT NORTH 40	40	1873	1249	3122	7.5	23,415	57	43	13,347	12,946	10,068	9,766	0.0097	0.0287	0.0229	0.0516	0.0614
JUD SQUARE	0	110	0	110	4.5	495	57	43	282	274	213	206	0.0004	0.0006	0.0005	0.0011	0.0015
KING ST	0	30	0	30	4.5	135	57	43	77	75	58	56	0.0001	0.0002	0.0001	0.0003	0.0004
						0											
						0											
LANDOVER 25%	25	1410	470	1880	7.5	14,100	57	43	8,037	7,796	6,063	5,881	0.0064	0.0173	0.0138	0.0311	0.0375
L'ENFANT PLAZA	0	296	0	296	4.5	1,332	57	43	759	736	573	556	0.0012	0.0016	0.0013	0.0029	0.0041
MCPHERSON SQ	0	52	0	52	4.5	234	57	43	133	129	101	98	0.0002	0.0003	0.0002	0.0005	0.0007
MEDICAL CENTER	0	14	0	14	4.5	63	57	43	36	35	27	26	0.0001	0.0001	0.0001	0.0001	0.0002
METRO CENTER	0	177	0	177	4.5	797	57	43	454	440	342	332	0.0007	0.0010	0.0008	0.0018	0.0024
MINNES	0	353	0	353	4.5	1,589	57	43	905	878	683	663	0.0014	0.0020	0.0016	0.0035	0.0049
NAT AIR	0	87	0	87	4.5	392	57	43	223	216	168	163	0.0003	0.0005	0.0004	0.0009	0.0012
NEW CARROL 50	50	1049	1049	2097	7.5	15,728	57	43	8,965	8,696	6,763	6,560	0.0061	0.0193	0.0154	0.0347	0.0408
PRNTAGON	0	561	0	561	4.5	2,525	57	43	1,439	1,396	1,086	1,053	0.0022	0.0031	0.0025	0.0056	0.0078
PENTAGON CITY	0	381	0	381	4.5	1,715	57	43	977	948	737	715	0.0015	0.0021	0.0017	0.0038	0.0053
POTOMAC AVE	0	533	0	533	4.5	2,399	57	43	1,367	1,326	1,031	1,000	0.0021	0.0029	0.0023	0.0053	0.0074
ROCKVILLE	0	667	0	667	4.5	3,002	57	43	1,711	1,660	1,291	1,252	0.0026	0.0037	0.0029	0.0066	0.0092
ROSSLYN	0	356	0	356	4.5	1,602	57	43	913	886	689	668	0.0014	0.0020	0.0016	0.0035	0.0049
SHADY GROVE 10	10	3903	434	4337	7.5	32,528	57	43	18,541	17,984	13,987	13,567	0.0160	0.0399	0.0318	0.0717	0.0878
SILVER SPRING	0	44	0	44	4.5	198	57	43	113	109	85	83	0.0002	0.0002	0.0002	0.0004	0.0006
SMITH MALL	0	120	0	120	4.5	540	57	43	308	299	232	225	0.0005	0.0007	0.0005	0.0012	0.0017
STADIUM ARM	0	976	0	976	4.5	4,392	57	43	2,503	2,428	1,889	1,832	0.0038	0.0054	0.0043	0.0097	0.0135
TAKOMA PK	0	146	0	146	4.5	657	57	43	374	363	283	274	0.0006	0.0008	0.0006	0.0014	0.0020
TENLEYTON	0	17	0	17	4.5	77	57	43	44	42	33	32	0.0001	0.0001	0.0001	0.0002	0.0002
TWINBROOK	0	1136	0	1136	4.5	5,112	57	43	2,914	2,826	2,198	2,132	0.0044	0.0063	0.0050	0.0113	0.0157
UNION STAT	0	378	0	378	4.5	1,701	57	43	970	940	731	709	0.0015	0.0021	0.0017	0.0038	0.0052
VAN NESS	0	343	0	343	4.5	1,544	57	43	890	853	664	644	0.0013	0.0019	0.0015	0.0034	0.0047
VIENNA 25%	25	2798	933	3731	7.5	27,983	57	43	15,950	15,472	12,032	11,672	0.0127	0.0344	0.0274	0.0617	0.0744
VA SQUARE	0	642	0	642	4.5	2,889	57	43	1,647	1,597	1,242	1,205	0.0025	0.0035	0.0028	0.0064	0.0089
WEST FALLS CHUR	0	2183	0	2183	4.5	9,824	57	43	5,599	5,431	4,224	4,097	0.0085	0.0121	0.0096	0.0217	0.0302
WHITE FLINT	0	1633	0	1633	4.5	7,349	57	43	4,189	4,063	3,160	3,065	0.0064	0.0090	0.0072	0.0162	0.0226
WOODLEY	0	68	0	68	4.5	306	57	43	174	169	132	128	0.0003	0.0004	0.0003	0.0007	0.0009
RHODE ISLAND 30%	30	266	114	380	7.5	2,850	57	43	1,625	1,576	1,226	1,189	0.0013	0.0035	0.0028	0.0063	0.0075
BUS & CAR POOL LOTS																	
CARTER BARRON	0	798	0	798	4.5	3,591	57	43	2,047	1,985	1,544	1,498	0.0031	0.0044	0.0035	0.0079	0.0110
PG PLAZA	0	47	0	47	4.5	212	57	43	121	117	91	88	0.0002	0.0003	0.0002	0.0005	0.0006
PENN MAR SHOPP.	0	100	0	100	4.5	450	57	43	257	249	194	188	0.0004	0.0006	0.0004	0.0010	0.0014
CAP PLAZA	0	100	0	100	4.5	450	57	43	257	249	194	188	0.0004	0.0006	0.0004	0.0010	0.0014
EASTOVER	0	100	0	100	4.5	450	57	43	257	249	194	188	0.0004	0.0006	0.0004	0.0010	0.0014
FOUR MILE RUN	0	28	0	28	4.5	126	57	43	72	70	54	53	0.0001	0.0002	0.0001	0.0003	0.0004
SPRINGFIELD MALL	0	580	0	580	4.5	2,610	57	43	1,488	1,443	1,122	1,089	0.0023	0.0032	0.0026	0.0058	0.0080
SPRINGFIELD METH	0	48	0	48	4.5	216	57	43	123	119	93	90	0.0002	0.0003	0.0002	0.0005	0.0007
FRED ARMORY	0	33	0	33	7.5	248	57	43	141	137	106	103	0.0001	0.0003	0.0002	0.0005	0.0007
MYERSVILLE	0	65	0	65	7.5	488	57	43	278	270	210	203	0.0003	0.0006	0.0005	0.0011	0.0013
ROSEMONT	0	45	0	45	7.5	338	57	43	192	187	145	141	0.0002	0.0004	0.0003	0.0007	0.0009
URBANA	0	193	0	193	7.5	1,448	57	43	825	800	622	604	0.0008	0.0018	0.0014	0.0032	0.0039
JEFFERSON	0	40	0	40	7.5	300	57	43	171	166	129	125	0.0002	0.0004	0.0003	0.0007	0.0008
NORBECK RD	0	248	0	248	7.5	1,860	57	43	1,060	1,028	800	776	0.0010	0.0023	0.0018	0.0041	0.0051

**Exhibit 1  
Winter  
2002 NOx Precursor  
AUTO ACCESS TO TRANSIT  
FY2006-2011 TIP AND 2005 CLRP AIR QUALITY CONFORMITY**

MONTROSE RD	0	650	0	650	7.5	4,875	57	43	2,779	2,695	2,096	2,033	0.0025	0.0060	0.0048	0.0108	0.0133
BRIGG CHENNY 5	50	215	215	430	7.5	3,225	57	43	1,838	1,783	1,387	1,345	0.0013	0.0040	0.0032	0.0071	0.0084
COMUS ROAD	0	30	0	30	7.5	225	57	43	128	124	97	94	0.0001	0.0003	0.0002	0.0005	0.0006
LAKEFOREST MALL	0	300	0	300	7.5	2,250	57	43	1,283	1,244	968	938	0.0012	0.0028	0.0022	0.0050	0.0061
BURTONSVILLE	0	500	0	500	7.5	3,750	57	43	2,138	2,073	1,613	1,564	0.0019	0.0046	0.0037	0.0083	0.0102
FORCEY MEM.	0	200	0	200	7.5	1,500	57	43	855	829	645	626	0.0008	0.0018	0.0015	0.0033	0.0041
TECH ROAD	0	155	0	155	7.5	1,163	57	43	663	643	500	485	0.0006	0.0014	0.0011	0.0026	0.0032
BELTWAY	0	265	0	265	7.5	1,988	57	43	1,133	1,099	855	829	0.0010	0.0024	0.0019	0.0044	0.0054
LAUREL VAN DUSE	0	62	0	62	7.5	465	57	43	265	257	200	194	0.0002	0.0006	0.0005	0.0010	0.0013
ACCOKEEK	0	450	0	450	7.5	3,375	57	43	1,924	1,866	1,451	1,408	0.0018	0.0041	0.0033	0.0074	0.0092
ABC DRIVE IN	0	100	0	100	7.5	750	57	43	428	415	323	313	0.0004	0.0009	0.0007	0.0017	0.0020
BOWIE 20%	20	526	131	657	7.5	4,928	57	43	2,809	2,724	2,119	2,055	0.0023	0.0060	0.0048	0.0109	0.0132
CLINTON 50%	50	212	212	424	7.5	3,180	57	43	1,813	1,758	1,367	1,326	0.0012	0.0039	0.0031	0.0070	0.0083
OXON HILL 20%	20	519	130	649	7.5	4,868	57	43	2,774	2,691	2,093	2,030	0.0023	0.0060	0.0048	0.0107	0.0130
EQUESTRIAN CENT	50	150	150	300	7.5	2,250	57	43	1,283	1,244	968	938	0.0009	0.0028	0.0022	0.0050	0.0058
BOWIE MARKET PL	0	50	0	50	7.5	375	57	43	214	207	161	156	0.0002	0.0005	0.0004	0.0008	0.0010
FT WASHINGTON	0	412	0	412	7.5	3,090	57	43	1,761	1,708	1,329	1,289	0.0016	0.0038	0.0030	0.0068	0.0084
MONTPELIER REC #	0	70	0	70	7.5	525	57	43	299	290	226	219	0.0003	0.0006	0.0005	0.0012	0.0014
RESTON	0	1547	0	1547	7.5	11,603	57	43	6,613	6,415	4,989	4,839	0.0060	0.0142	0.0113	0.0256	0.0316
GREENBRIAR	0	55	0	55	7.5	413	57	43	235	228	177	172	0.0002	0.0005	0.0004	0.0009	0.0011
FAIR OAKS	0	150	0	150	7.5	1,125	57	43	641	622	484	469	0.0006	0.0014	0.0011	0.0025	0.0031
ROLLING VALLEY	0	628	0	628	7.5	4,710	57	43	2,685	2,604	2,025	1,965	0.0024	0.0058	0.0046	0.0104	0.0128
SPRINGFIELD PLAZ	0	230	0	230	7.5	1,725	57	43	983	954	742	719	0.0009	0.0021	0.0017	0.0038	0.0047
FAIRLANES BOWL	0	35	0	35	7.5	263	57	43	150	145	113	109	0.0001	0.0003	0.0003	0.0006	0.0007
NOTTOWAY PARK	0	14	0	14	7.5	105	57	43	60	58	45	44	0.0001	0.0001	0.0001	0.0002	0.0003
HORNER RD	0	2397	0	2397	7.5	17,978	57	43	10,247	9,940	7,730	7,498	0.0093	0.0221	0.0176	0.0397	0.0490
LAKE RIDGE	0	555	0	555	7.5	4,163	57	43	2,373	2,301	1,790	1,736	0.0022	0.0051	0.0041	0.0092	0.0113
MINNIEVILLE RD 4	40	336	224	560	7.5	4,200	57	43	2,394	2,322	1,806	1,752	0.0017	0.0052	0.0041	0.0093	0.0110
GORDON BLVD	0	156	0	156	7.5	1,170	57	43	667	647	503	488	0.0006	0.0014	0.0011	0.0026	0.0032
HILLENDALE	0	248	0	248	7.5	1,860	57	43	1,060	1,028	800	776	0.0010	0.0023	0.0018	0.0041	0.0051
POTOMAC MILLS	0	946	0	946	7.5	7,095	57	43	4,044	3,923	3,051	2,959	0.0037	0.0087	0.0069	0.0156	0.0193
<b>List of new lots to be added in Conformity Document list</b>																	
<b>PARK-AND-RIDE LOTS - MARYLAND</b>																	
<b>PARK-AND-RIDE LOTS - MARYLAND</b>																	
<b>CHARLES COUNTY</b>																	
301 Park & Ride	25	287	96	383	7.5	2,873	57	43	1,637	1,588	1,235	1,198	0.0013	0.0035	0.0028	0.0063	0.0076
Charles County Gove	25	26	9	35	7.5	263	57	43	150	145	113	109	0.0001	0.0003	0.0003	0.0006	0.0007
Food Lion Shopping C	25	38	13	50	7.5	375	57	43	214	207	161	156	0.0002	0.0005	0.0004	0.0008	0.0010
La Plata Armory	25	15	5	20	7.5	150	57	43	86	83	65	63	0.0001	0.0002	0.0001	0.0003	0.0004
Laurel Springs Regio	25	38	13	50	7.5	375	57	43	214	207	161	156	0.0002	0.0005	0.0004	0.0008	0.0010
Life Wesleyan Church	25	38	13	50	7.5	375	57	43	214	207	161	156	0.0002	0.0005	0.0004	0.0008	0.0010
Mattawoman-Beantov	25	435	145	580	7.5	4,350	57	43	2,480	2,405	1,871	1,814	0.0020	0.0053	0.0043	0.0096	0.0116
Smallwood Village	25	75	25	100	7.5	750	57	43	428	415	323	313	0.0003	0.0009	0.0007	0.0017	0.0020
St. Charles Towne	25	263	88	350	7.5	2,625	57	43	1,496	1,451	1,129	1,095	0.0012	0.0032	0.0026	0.0058	0.0070
<b>PARK-AND-RIDE LOTS - MARYLAND</b>																	
<b>FREDERICK COUNTY</b>																	
Frederick (north)	25	123	41	164	7.5	1,230	57	43	701	680	529	513	0.0006	0.0015	0.0012	0.0027	0.0033
Frederick (south)	25	173	58	230	7.5	1,725	57	43	983	954	742	719	0.0006	0.0021	0.0017	0.0038	0.0046
Monacacy Marcst	25	600	200	800	7.5	6,000	57	43	3,420	3,317	2,580	2,503	0.0027	0.0074	0.0059	0.0132	0.0160

**Exhibit 1**  
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**FY2006-2011 TIP AND 2005 CLRP AIR QUALITY CONFORMITY**

<b>PARK-AND-RIDE LOTS - MARYLAND</b>																	
<b>MONTGOMERY COUNTY</b>																	
Colesville	0	190	0	190	7.5	1,425	57	43	812	788	613	594	0.0007	0.0017	0.0014	0.0031	0.0039
Damascus	50	0	0		7.5	0	57	43	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000
Gaithersburg	50	259	259	517	7.5	3,878	57	43	2,210	2,144	1,667	1,617	0.0015	0.0048	0.0038	0.0086	0.0101
Gaithersburg	50	175	175	350	7.5	2,625	57	43	1,496	1,451	1,129	1,095	0.0010	0.0032	0.0026	0.0058	0.0068
Germantown Town	50	0	0		7.5	0	57	43	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000
Greencastle	50	75	75	150	7.5	1,125	57	43	641	622	484	469	0.0004	0.0014	0.0011	0.0025	0.0029
Milestone Shopping	50	88	88	175	7.5	1,313	57	43	748	726	564	547	0.0005	0.0016	0.0013	0.0029	0.0034
<b>PARK-AND-RIDE LOTS - MAYLAND</b>																	
<b>PRINCE GEORGE'S COUNTY</b>																	
Hampton Mall	0	100	0	100	4.5	450	57	43	257	249	194	188	0.0004	0.0006	0.0004	0.0010	0.0014
Laurel (south)	25	513	171	684	7.5	5,130	57	43	2,924	2,836	2,206	2,140	0.0023	0.0063	0.0050	0.0113	0.0136
<b>PARK-AND-RIDE LOTS - VIRGINIA</b>																	
<b>ARLINGTON COUNTY</b>																	
Ballston Public Parkir	25	375	125	500	7.5	3,750	57	43	2,138	2,073	1,613	1,564	0.0017	0.0046	0.0037	0.0083	0.0100
Washington-Lee	50	178	178	356	7.5	2,670	57	43	1,522	1,476	1,148	1,114	0.0010	0.0033	0.0026	0.0059	0.0069
<b>PARK-AND-RIDE LOTS - VIRGINIA</b>																	
<b>FAIRFAX COUNTY</b>																	
American Legion	50	50	50	100	7.5	750	57	43	428	415	323	313	0.0003	0.0009	0.0007	0.0017	0.0019
Canterbury Woods P	50	17	17	34	7.5	255	57	43	145	141	110	106	0.0001	0.0003	0.0002	0.0006	0.0007
Centreville	50	185	185	370	7.5	2,775	57	43	1,582	1,534	1,193	1,157	0.0011	0.0034	0.0027	0.0061	0.0072
Centreville United Me	50	74	74	147	7.5	1,103	57	43	628	610	474	460	0.0004	0.0014	0.0011	0.0024	0.0029
Fairfax County Gover	50	85	85	170	7.5	1,275	57	43	727	705	548	532	0.0005	0.0016	0.0012	0.0028	0.0033
Greenbriar Park	50	28	28	55	7.5	413	57	43	235	228	177	172	0.0002	0.0005	0.0004	0.0009	0.0011
Herndon-Monroe	50	873	873	1,745	7.5	13,088	57	43	7,460	7,236	5,628	5,459	0.0051	0.0161	0.0128	0.0289	0.0340
Michael's	50	100	100	200	7.5	1,500	57	43	855	829	645	626	0.0006	0.0018	0.0015	0.0033	0.0039
Parkwood Baptist	50	9	9	18	7.5	135	57	43	77	75	58	56	0.0001	0.0002	0.0001	0.0003	0.0004
South Run District Pk	50	170	170	340	7.5	2,550	57	43	1,454	1,410	1,097	1,064	0.0010	0.0031	0.0025	0.0056	0.0066
St Paul Chung Catho	50	50	50	100	7.5	750	57	43	428	415	323	313	0.0003	0.0009	0.0007	0.0017	0.0019
Stringfellow Rd	50	181	181	361	7.5	2,708	57	43	1,543	1,497	1,164	1,129	0.0011	0.0033	0.0026	0.0060	0.0070
Sully Station	50	70	70	140	7.5	1,050	57	43	599	581	452	438	0.0004	0.0013	0.0010	0.0023	0.0027
Sydenstricker Rd	50	84	84	167	7.5	1,253	57	43	714	693	539	522	0.0005	0.0015	0.0012	0.0028	0.0033
Wakefield Chapel Pk	50	25	25	50	7.5	375	57	43	214	207	161	156	0.0001	0.0005	0.0004	0.0008	0.0010
<b>PARK-AND-RIDE LOTS - VIRGINIA</b>																	
<b>LOUDOUN COUNTY</b>																	
Ashburn Farm	50	10	10	20	7.5	150	57	43	86	83	65	63	0.0001	0.0002	0.0001	0.0003	0.0004
Ashburn Village	50	20	20	40	7.5	300	57	43	171	166	129	125	0.0001	0.0004	0.0003	0.0007	0.0008
Cascades	50	28	28	55	7.5	413	57	43	235	228	177	172	0.0002	0.0005	0.0004	0.0009	0.0011
Dulles North Transi	50	375	375	750	7.5	5,625	57	43	3,206	3,110	2,419	2,346	0.0022	0.0069	0.0055	0.0124	0.0146
Hamilton	50	25	25	50	7.5	375	57	43	214	207	161	156	0.0001	0.0005	0.0004	0.0008	0.0010
Innovation Avenue	50	38	38	75	7.5	563	57	43	321	311	242	235	0.0002	0.0007	0.0006	0.0012	0.0015
Leesburg	50	25	25	50	7.5	375	57	43	214	207	161	156	0.0001	0.0005	0.0004	0.0008	0.0010
Leesburg Kohls	50	600	600	1200	7.5	9,000	57	43	5,130	4,976	3,870	3,754	0.0035	0.0110	0.0088	0.0199	0.0234
Purcellville	50	18	18	35	7.5	263	57	43	150	145	113	109	0.0001	0.0003	0.0003	0.0006	0.0007
Sterling Park SC	50	23	23	45	7.5	338	57	43	192	187	145	141	0.0001	0.0004	0.0003	0.0007	0.0009
Sterling Shaw Rd	50	24	24	48	7.5	360	57	43	205	199	155	150	0.0001	0.0004	0.0004	0.0008	0.0009

**Exhibit 1**  
**Winter**  
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<b>PARK-AND-RIDE LOTS - VIRGINIA</b>																	
<b>PRINCE WILLIAM COUNTY</b>																	
Brittany	50	48	48	95	7.5	713	57	43	406	394	306	297	0.0003	0.0009	0.0007	0.0016	0.0018
Dale City	50	294	294	587	7.5	4,403	57	43	2,509	2,434	1,893	1,836	0.0017	0.0054	0.0043	0.0097	0.0114
Harbor Drive	50	100	100	200	7.5	1,500	57	43	855	829	645	626	0.0006	0.0018	0.0015	0.0033	0.0039
Lindendale	50	108	108	216	7.5	1,620	57	43	923	896	697	676	0.0006	0.0020	0.0016	0.0036	0.0042
Montclair	50	25	25	50	7.5	375	57	43	214	207	161	156	0.0001	0.0005	0.0004	0.0008	0.0010
PRTC Transit Center	50	93	93	185	7.5	1,388	57	43	791	767	597	579	0.0005	0.0017	0.0014	0.0031	0.0036
Tackett's Mill	50	85	85	169	7.5	1,268	57	43	722	701	545	529	0.0005	0.0016	0.0012	0.0028	0.0033
Triangle	50	15	15	29	7.5	218	57	43	124	120	94	91	0.0001	0.0003	0.0002	0.0005	0.0006
I-95 / Rt 123	50	282	282	563	7.5	4,223	57	43	2,407	2,335	1,816	1,761	0.0016	0.0052	0.0041	0.0093	0.0110
US 1 / VA 234	50	137	137	274	7.5	2,055	57	43	1,171	1,136	884	857	0.0008	0.0025	0.0020	0.0045	0.0053
<b>MARC TRAIN COMMUTER LOTS</b>																	
College Park	25	431	144	574	7.5	4,305	57	43	2,454	2,380	1,851	1,796	0.0020	0.0053	0.0042	0.0095	0.0115
Frederick	0	0	0	0	7.5	0	57	43	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000
Greenbelt	60	1346	2018	3364	7.5	25,230	57	43	14,381	13,950	10,848	10,523	0.0092	0.0310	0.0247	0.0556	0.0648
Harpers Ferry	0	98	0	98	7.5	735	57	43	419	406	316	307	0.0004	0.0009	0.0007	0.0016	0.0020
Muirkirk	60	260	390	650	7.5	4,875	57	43	2,779	2,695	2,096	2,033	0.0018	0.0060	0.0048	0.0108	0.0125
Seabrook	0	264	0	264	4.5	1,188	57	43	677	657	511	496	0.0010	0.0015	0.0012	0.0026	0.0036
Silver Spring	0	0	0	0	4.5	0	57	43	0	0	0	0	0.0000	0.0000	0.0000	0.0000	0.0000
Union Station	0	781	0	781	7.5	5,858	57	43	3,339	3,239	2,519	2,443	0.0030	0.0072	0.0057	0.0129	0.0160
<b>VIRGINIA RAILWAY EXPRESS COMMUTER LOTS</b>																	
Backlick Road	50	110	110	220	7.5	1,650	57	43	941	912	710	688	0.0006	0.0020	0.0016	0.0036	0.0043
Brook Run	50	198	198	396	7.5	2,970	57	43	1,693	1,642	1,277	1,239	0.0012	0.0036	0.0029	0.0066	0.0077
Brooke	50	150	150	300	7.5	2,250	57	43	1,283	1,244	968	938	0.0009	0.0028	0.0022	0.0050	0.0058
Burke Center	50	275	275	550	7.5	4,125	57	43	2,351	2,281	1,774	1,721	0.0016	0.0051	0.0040	0.0091	0.0107
Franconia/Springfield	50	1900	1900	3800	7.5	28,500	57	43	16,245	15,758	12,255	11,887	0.0111	0.0350	0.0279	0.0629	0.0740
Leeland Road	50	326	326	652	7.5	4,890	57	43	2,787	2,704	2,103	2,040	0.0019	0.0060	0.0048	0.0108	0.0127
Lorton	50	100	100	200	7.5	1,500	57	43	855	829	645	626	0.0006	0.0018	0.0015	0.0033	0.0039
Manassas	50	187	187	374	7.5	2,805	57	43	1,599	1,551	1,206	1,170	0.0011	0.0034	0.0027	0.0062	0.0073
Manassas Park	50	150	150	300	7.5	2,250	57	43	1,283	1,244	968	938	0.0009	0.0028	0.0022	0.0050	0.0058
Quantico	50	109	109	217	7.5	1,628	57	43	928	900	700	679	0.0006	0.0020	0.0016	0.0036	0.0042
Rippon	50	150	150	300	7.5	2,250	57	43	1,283	1,244	968	938	0.0009	0.0028	0.0022	0.0050	0.0058
Rolling Road	50	185	185	370	7.5	2,775	57	43	1,582	1,534	1,193	1,157	0.0011	0.0034	0.0027	0.0061	0.0072
Woodbridge	50	294	294	588	7.5	4,410	57	43	2,514	2,438	1,896	1,839	0.0017	0.0054	0.0043	0.0097	0.0114
<b>METRO RAIL PARKING LOTS</b>																	
Anacostia	25	861	287	1148	7.5	8,610	57	43	4,908	4,760	3,702	3,591	0.0039	0.0106	0.0084	0.0190	0.0229
Branch Avenue	50	1611	1611	3222	7.5	24,165	57	43	13,774	13,361	10,391	10,079	0.0094	0.0297	0.0236	0.0533	0.0627
Capitol Heights	50	194	194	387	7.5	2,903	57	43	1,654	1,605	1,248	1,211	0.0011	0.0036	0.0028	0.0064	0.0075
College Park	25	465	155	620	7.5	4,650	57	43	2,651	2,571	2,000	1,940	0.0021	0.0057	0.0045	0.0103	0.0124
Congress Heights	0	66	0	66	4.5	297	57	43	169	164	128	124	0.0003	0.0004	0.0003	0.0007	0.0009
Deanwood	0	194	0	194	7.5	1,455	57	43	829	804	626	607	0.0008	0.0018	0.0014	0.0032	0.0040
East Falls Church	50	221	221	442	7.5	3,315	57	43	1,890	1,833	1,425	1,383	0.0013	0.0041	0.0032	0.0073	0.0086
Forest Glen	50	329	329	658	7.5	4,935	57	43	2,813	2,729	2,122	2,058	0.0019	0.0061	0.0048	0.0109	0.0128
Franconia - Springfield	50	1987	1987	3973	4.5	17,879	57	43	10,191	9,885	7,688	7,457	0.0116	0.0219	0.0175	0.0394	0.0510
Glenmont	50	925	925	1850	4.5	8,325	57	43	4,745	4,603	3,580	3,472	0.0054	0.0102	0.0081	0.0184	0.0238
Greenbelt	50	1783	1783	3565	7.5	26,738	57	43	15,240	14,783	11,497	11,152	0.0104	0.0328	0.0261	0.0590	0.0694
Naylor Road	50	216	216	431	7.5	3,233	57	43	1,843	1,787	1,390	1,348	0.0013	0.0040	0.0032	0.0071	0.0084
Prince George's Plaza	25	927	309	1236	7.5	9,270	57	43	5,284	5,125	3,986	3,867	0.0042	0.0114	0.0091	0.0204	0.0247
Southern Avenue	50	1090	1090	2180	4.5	9,810	57	43	5,592	5,424	4,218	4,092	0.0064	0.0120	0.0096	0.0216	0.0280
Suitland	50	1033	1033	2065	4.5	9,293	57	43	5,297	5,138	3,996	3,876	0.0060	0.0114	0.0091	0.0205	0.0265
Van Dorn Street	50	204	204	407	4.5	1,832	57	43	1,044	1,013	788	764	0.0012	0.0022	0.0018	0.0040	0.0052
West Hyattsville	25	453	151	604	7.5	4,530	57	43	2,582	2,505	1,948	1,889	0.0021	0.0056	0.0044	0.0100	0.0120
Wheaton	25	759	253	1012	7.5	7,590	57	43	4,326	4,197	3,264	3,166	0.0034	0.0093	0.0074	0.0167	0.0202
				108,749		715,007							0.3651	0.8778	0.6992	1.5771	1.9421

Seasonal Total (tons/season) = 126.24

Bold figures: New numbers taken from P & R directory  
 Figures in bracket: Carry forward figures from conformity doc.

**Exhibit 2**  
**WINTER**  
**2002 PM AIR QUALITY EMISSIONS INVENTORY**  
**AUTO ACCESS TO TRANSIT**  
**FY2006-2011 TIP AND 2005 CLR P AIR QUALITY CONFORMITY**

LOCATION	OUTSIDE MSA (%)	2002			AVERAGE TRIP LENGTH	2002 VMT	ADJ	RUNNING	TOTAL  (tons/day)
		INSIDE MSA	OUTSIDE MSA	Total			WINTER	Rate (gm/mile)	
							VMT	(gm/day)	
						Wk Days =	65		
						Seasonal adj =	0.97	0.0169	
<b>COMMUTER RAIL LOTS</b>									
BRUNSWICK 25%	25	305	102	407	7.5	3,053	2,961	50	0.0001
PT OF ROCKS 25%	25	204	68	272	7.5	2,040	1,979	33	0.0000
DICKERSON	0	15	0	15	7.5	113	109	2	0.0000
BARNESVILLE	0	46	0	46	7.5	345	335	6	0.0000
GERMANTOWN	0	386	0	386	7.5	2,895	2,808	47	0.0001
MET GROVE	0	352	0	352	7.5	2,640	2,561	43	0.0000
WAS GROVE	0	15	0	15	7.5	113	109	2	0.0000
GARRETT PARK	0	22	0	22	7.5	165	160	3	0.0000
BOWIE 50%	50	188	188	375	7.5	2,813	2,728	46	0.0001
SEABROOK 15%	15	224	40	264	7.5	1,980	1,921	32	0.0000
KENSINGTON	0	45	0	45	7.5	338	327	6	0.0000
LAUREL 30%	30	209	90	299	7.5	2,243	2,175	37	0.0000
GAITHESBURG	0	280	0	280	7.5	2,100	2,037	34	0.0000
BERWYN HEIGHTS	0	30	0	30	4.5	135	131	2	0.0000
RIVERDALE	0	65	0	65	4.5	293	284	5	0.0000
<b>METRO RAIL LOTS</b>									
ADDISON ROAD 40%	40	791	527	1318	7.5	9,885	9,588	162	0.0002
ARCHIVES	0	12	0	12	4.5	54	52	1	0.0000
ARLING	0	10	0	10	4.5	45	44	1	0.0000
BALLSTON	0	1175	0	1175	4.5	5,288	5,129	87	0.0001
BENN.RD	0	520	0	520	4.5	2,340	2,270	38	0.0000
BETH	0	395	0	395	4.5	1,778	1,724	29	0.0000
BRADD RD	0	10	0	10	4.5	45	44	1	0.0000
BROOKLAND	0	27	0	27	4.5	122	118	2	0.0000
CHEVERLY	0	557	0	557	4.5	2,507	2,431	41	0.0000
CLARENDON	0	554	0	554	4.5	2,493	2,418	41	0.0000
CLEVELAND PK	0	366	0	366	4.5	1,647	1,598	27	0.0000
COURT HOUSE	0	256	0	256	4.5	1,152	1,117	19	0.0000
CRYSTAL CITY	0	347	0	347	4.5	1,562	1,515	26	0.0000
DEANWOOD	0	194	0	194	4.5	873	847	14	0.0000
DUN LORING 10%	10	1220	136	1355	4.5	6,098	5,915	100	0.0001
DUPONT CIRCLE	0	165	0	165	4.5	743	720	12	0.0000
EASTERN MKT	0	178	0	178	4.5	801	777	13	0.0000
EAST FALLS CH	0	442	0	442	4.5	1,989	1,929	33	0.0000
EIS	0	352	0	352	4.5	1,584	1,536	26	0.0000
FARRAGUT NORTH	0	102	0	102	4.5	459	445	8	0.0000
FARRAGUT WEST	0	221	0	221	4.5	995	965	16	0.0000
FEDERAL CENTER	0	75	0	75	4.5	338	327	6	0.0000
FEDERAL TRI	0	54	0	54	4.5	243	236	4	0.0000
FOGGY	0	102	0	102	4.5	459	445	8	0.0000
FORT TROTTEEN	0	445	0	445	4.5	2,003	1,942	33	0.0000
FRH.HEIGHTS	0	679	0	679	4.5	3,056	2,964	50	0.0001
GALLERY PLACE	0	124	0	124	4.5	558	541	9	0.0000
GROSVENOR	0	716	0	716	4.5	3,222	3,125	53	0.0001
HUNT NORTH 40%	40	1873	1249	3122	7.5	23,415	22,713	384	0.0004
JUD SQUARE	0	110	0	110	4.5	495	480	8	0.0000
KING ST	0	30	0	30	4.5	135	131	2	0.0000
<b>LANDOVER 25%</b>									
L'ENFANT PLAZA	0	296	0	296	4.5	1,332	1,292	22	0.0000
MCPHERSON SQ	0	52	0	52	4.5	234	227	4	0.0000
MEDICAL CENTER	0	14	0	14	4.5	63	61	1	0.0000
METRO CENTER	0	177	0	177	4.5	797	773	13	0.0000
MINNES	0	353	0	353	4.5	1,589	1,541	26	0.0000
NAT AIR	0	87	0	87	4.5	392	380	6	0.0000
NEW CARROL 50%	50	1049	1049	2097	7.5	15,728	15,256	258	0.0003
PRNTAGON	0	561	0	561	4.5	2,525	2,449	41	0.0000

**Exhibit 2**  
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**AUTO ACCESS TO TRANSIT**  
**FY2006-2011 TIP AND 2005 CLRP AIR QUALITY CONFORMITY**

LOCATION	2002				AVERAGE TRIP LENGTH	2002 VMT	ADJ	RUNNING	TOTAL
	OUTSIDE MSA (%)	INSIDE MSA	OUTSIDE MSA	Total			WINTER	Rate (gm/mile)	(tons/day)
							VMT		
						Wk Days = 65	0.0169		
						Seasonal adj = 0.97			
<b>COMMUTER RAIL LOTS</b>									
PENTAGON CITY	0	381	0	381	4.5	1,715	1,663	28	0.0000
POTOMAC AVE	0	533	0	533	4.5	2,399	2,327	39	0.0000
ROCKVILLE	0	667	0	667	4.5	3,002	2,911	49	0.0001
ROSSLYN	0	356	0	356	4.5	1,602	1,554	26	0.0000
SHADY GROVE 10%	10	3903	434	4337	7.5	32,528	31,552	533	0.0006
SILVER SPRING	0	44	0	44	4.5	196	192	3	0.0000
SMITH MALL	0	120	0	120	4.5	540	524	9	0.0000
STADIUM ARM	0	976	0	976	4.5	4,392	4,260	72	0.0001
TAKOMA PK	0	146	0	146	4.5	657	637	11	0.0000
TENLEYTON	0	17	0	17	4.5	77	74	1	0.0000
TWINBROOK	0	1136	0	1136	4.5	5,112	4,959	84	0.0001
UNION STAT	0	378	0	378	4.5	1,701	1,650	28	0.0000
VAN NESS	0	343	0	343	4.5	1,544	1,497	25	0.0000
VIENNA 25%	25	2798	933	3731	7.5	27,983	27,143	459	0.0005
VA SQUARE	0	642	0	642	4.5	2,889	2,802	47	0.0001
WEST FALLS CHURCH	0	2183	0	2183	4.5	9,824	9,529	161	0.0002
WHITE FLINT	0	1633	0	1633	4.5	7,349	7,128	120	0.0001
WOODLEY	0	68	0	68	4.5	306	297	5	0.0000
RHODE ISLAND 30%	30	266	114	380	7.5	2,850	2,765	47	0.0001
<b>BUS &amp; CAR POOL LOTS</b>									
CARTER BARRON	0	798	0	798	4.5	3,591	3,483	59	0.0001
PG PLAZA	0	47	0	47	4.5	212	205	3	0.0000
PENN MAR SHOPP.	0	100	0	100	4.5	450	437	7	0.0000
CAP PLAZA	0	100	0	100	4.5	450	437	7	0.0000
EASTOVER	0	100	0	100	4.5	450	437	7	0.0000
FOUR MILE RUN	0	28	0	28	4.5	126	122	2	0.0000
SPRINGFIELD MALL	0	580	0	580	4.5	2,610	2,532	43	0.0000
SPRINGFIELD METH CH	0	48	0	48	4.5	216	210	4	0.0000
FRED ARMORY	0	33	0	33	7.5	248	240	4	0.0000
MYERSVILLE	0	65	0	65	7.5	488	473	8	0.0000
ROSEMONT	0	45	0	45	7.5	338	327	6	0.0000
URBANA	0	193	0	193	7.5	1,448	1,404	24	0.0000
JEFFERSON	0	40	0	40	7.5	300	291	5	0.0000
NORBECK RD	0	248	0	248	7.5	1,860	1,804	30	0.0000
MONTROSE RD	0	650	0	650	7.5	4,875	4,729	80	0.0001
BRIGG CHENNY 50%	50	215	215	430	7.5	3,225	3,128	53	0.0001
COMUS ROAD	0	30	0	30	7.5	225	218	4	0.0000
LAKEFOREST MALL	0	300	0	300	7.5	2,250	2,183	37	0.0000
BURTONSVILLE	0	500	0	500	7.5	3,750	3,638	61	0.0001
FORCEY MEM.	0	200	0	200	7.5	1,500	1,455	25	0.0000
TECH ROAD	0	155	0	155	7.5	1,163	1,128	19	0.0000
BELTWAY	0	265	0	265	7.5	1,988	1,928	33	0.0000
LAUREL VAN DUSEN	0	62	0	62	7.5	465	451	8	0.0000
ACCOKEEK	0	450	0	450	7.5	3,375	3,274	55	0.0001
ABC DRIVE IN	0	100	0	100	7.5	750	728	12	0.0000
BOWIE 20%	20	526	131	657	7.5	4,928	4,780	81	0.0001
CLINTON 50%	50	212	212	424	7.5	3,180	3,085	52	0.0001
OXON HILL 20%	20	519	130	649	7.5	4,868	4,721	80	0.0001
EQUESTRIAN CENTER 50%	50	150	150	300	7.5	2,250	2,183	37	0.0000
BOWIE MARKET PLACE	0	50	0	50	7.5	375	364	6	0.0000
FT WASHINGTON	0	412	0	412	7.5	3,090	2,997	51	0.0001
MONTPELIER REC PARK	0	70	0	70	7.5	525	509	9	0.0000
RESTON	0	1547	0	1547	7.5	11,603	11,254	190	0.0002
GREENBRIAR	0	55	0	55	7.5	413	400	7	0.0000
FAIR OAKS	0	150	0	150	7.5	1,125	1,091	18	0.0000
ROLLING VALLEY	0	628	0	628	7.5	4,710	4,569	77	0.0001
SPRINGFIELD PLAZA	0	230	0	230	7.5	1,725	1,673	28	0.0000
FAIRLANES BOWL	0	35	0	35	7.5	263	255	4	0.0000
NOTTOWAY PARK	0	14	0	14	7.5	105	102	2	0.0000
HORNER RD	0	2397	0	2397	7.5	17,978	17,438	295	0.0003
LAKE RIDGE	0	555	0	555	7.5	4,163	4,038	68	0.0001
MINNIEVILLE RD 40%	40	336	224	560	7.5	4,200	4,074	69	0.0001
GORDON BLVD	0	156	0	156	7.5	1,170	1,135	19	0.0000
HILLEDALE	0	248	0	248	7.5	1,860	1,804	30	0.0000
POTOMAC MILLS	0	946	0	946	7.5	7,095	6,882	116	0.0001

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**AUTO ACCESS TO TRANSIT**  
**FY2006-2011 TIP AND 2005 CLRP AIR QUALITY CONFORMITY**

LOCATION	2002			Total	AVERAGE TRIP LENGTH	2002 VMT	ADJ	RUNNING	TOTAL (tons/day)
	OUTSIDE MSA (%)	INSIDE MSA	OUTSIDE MSA				WINTER VMT	Rate (gm/mile)	
							Wk Days = 65	0.0169	
							Seasonal adj = 0.97		
<b>COMMUTER RAIL LOTS</b>									
<b>List of new lots to be added in Conformity Document list</b>									
<b>PARK-AND-RIDE LOTS - MARYLAND</b>									
<b>PARK-AND-RIDE LOTS - MARYLAND</b>									
						0	0	0	0.0000
<b>CHARLES COUNTY</b>									
301 Park & Ride	25	287	96	383	7.5	2,873	2,786	47	0.0001
Charles County Government Bldg	25	26	9	35	7.5	263	255	4	0.0000
Food Lion Shopping Center	25	38	13	50	7.5	375	364	6	0.0000
La Plata Armory	25	15	5	20	7.5	150	146	2	0.0000
Laurel Springs Regional Park	25	38	13	50	7.5	375	364	6	0.0000
Life Wesleyan Church	25	38	13	50	7.5	375	364	6	0.0000
Mattawoman-Beantown Rd	25	435	145	580	7.5	4,350	4,220	71	0.0001
Smallwood Village	25	75	25	100	7.5	750	728	12	0.0000
St. Charles Towne	25	263	88	350	7.5	2,625	2,546	43	0.0000
<b>PARK-AND-RIDE LOTS - MARYLAND</b>									
<b>FREDERICK COUNTY</b>									
Frederick (north)	25	123	41	164	7.5	1,230	1,193	20	0.0000
Frederick (south)	25	173	58	230	7.5	1,725	1,673	28	0.0000
Monacacy Marcsat	25	600	200	800	7.5	6,000	5,820	98	0.0001
<b>PARK-AND-RIDE LOTS - MARYLAND</b>									
<b>MONTGOMERY COUNTY</b>									
Colesville	0	190	0	190	7.5	1,425	1,382	23	0.0000
Damascus	50	0	0	0	7.5	0	0	0	0.0000
Gaithersburg	50	259	259	517	7.5	3,878	3,761	64	0.0001
Gaithersburg	50	175	175	350	7.5	2,625	2,546	43	0.0000
Germantown Town	50	0	0	0	7.5	0	0	0	0.0000
Greencastle	50	75	75	150	7.5	1,125	1,091	18	0.0000
Milestone Shopping	50	88	88	175	7.5	1,313	1,273	22	0.0000
<b>PARK-AND-RIDE LOTS - MARYLAND</b>									
<b>PRINCE GEORGE'S COUNTY</b>									
Hampton Mall	0	100	0	100	4.5	450	437	7	0.0000
Laurel (south)	25	513	171	684	7.5	5,130	4,976	84	0.0001
<b>PARK-AND-RIDE LOTS - VIRGINIA</b>									
<b>ARLINGTON COUNTY</b>									
Ballston Public Parking Garage	25	375	125	500	7.5	3,750	3,638	61	0.0001
Washington-Lee	50	178	178	356	7.5	2,670	2,590	44	0.0000
<b>PARK-AND-RIDE LOTS - VIRGINIA</b>									
<b>FAIRFAX COUNTY</b>									
American Legion	50	50	50	100	7.5	750	728	12	0.0000
Canterbury Woods Pk	50	17	17	34	7.5	255	247	4	0.0000
Centreville	50	185	185	370	7.5	2,775	2,692	45	0.0001
Centreville United Methodist Ch	50	74	74	147	7.5	1,103	1,069	18	0.0000
Fairfax County Government Ce	50	85	85	170	7.5	1,275	1,237	21	0.0000
Greenbriar Park	50	28	28	55	7.5	413	400	7	0.0000
Herdon-Monroe	50	873	873	1,745	7.5	13,088	12,695	215	0.0002
Michael's	50	100	100	200	7.5	1,500	1,455	25	0.0000
Parkwood Baptist	50	9	9	18	7.5	135	131	2	0.0000
South Run District Pk	50	170	170	340	7.5	2,550	2,474	42	0.0000
St Paul Chung Catholic Church	50	50	50	100	7.5	750	728	12	0.0000
Stringfellow Rd	50	181	181	361	7.5	2,708	2,626	44	0.0000
Sully Station	50	70	70	140	7.5	1,050	1,019	17	0.0000
Sydenstricker Rd	50	84	84	167	7.5	1,253	1,215	21	0.0000
Wakefield Chapel Pk	50	25	25	50	7.5	375	364	6	0.0000

**Exhibit 2**  
**WINTER**  
**2002 PM AIR QUALITY EMISSIONS INVENTORY**  
**AUTO ACCESS TO TRANSIT**  
**FY2006-2011 TIP AND 2005 CLRP AIR QUALITY CONFORMITY**

LOCATION	2002				AVERAGE TRIP LENGTH	2002 VMT	ADJ	RUNNING	TOTAL
	OUTSIDE MSA (%)	INSIDE MSA	OUTSIDE MSA	Total			WINTER VMT	Rate (gm/mile)	
							Wk Days =	65	
							Seasonal adj =	0.97	
<b>COMMUTER RAIL LOTS</b>									
<b>PARK-AND-RIDE LOTS - VIRGINIA</b>									
<b>LOUDOUN COUNTY</b>									
Ashburn Farm	50	10	10	20	7.5	150	146	2	0.0000
Ashburn Village	50	20	20	40	7.5	300	291	5	0.0000
Cascades	50	28	28	55	7.5	413	400	7	0.0000
Dulles North Transit	50	375	375	750	7.5	5,625	5,456	92	0.0001
Hamilton	50	25	25	50	7.5	375	364	6	0.0000
Innovation Avenue	50	38	38	75	7.5	563	546	9	0.0000
Leesburg	50	25	25	50	7.5	375	364	6	0.0000
Leesburg Kohls	50	600	600	1200	7.5	9,000	8,730	148	0.0002
Purcellville	50	18	18	35	7.5	263	255	4	0.0000
Sterling Park SC	50	23	23	45	7.5	338	327	6	0.0000
Sterling Shaw Rd	50	24	24	48	7.5	360	349	6	0.0000
<b>PARK-AND-RIDE LOTS - VIRGINIA</b>									
<b>PRINCE WILLIAM COUNTY</b>									
Brittany	50	48	48	95	7.5	713	691	12	0.0000
Dale City	50	294	294	587	7.5	4,403	4,270	72	0.0001
Harbor Drive	50	100	100	200	7.5	1,500	1,455	25	0.0000
Lindendale	50	108	108	216	7.5	1,620	1,571	27	0.0000
Montclair	50	25	25	50	7.5	375	364	6	0.0000
PRTC Transit Center	50	93	93	185	7.5	1,389	1,346	23	0.0000
Tackett's Mill	50	85	85	169	7.5	1,268	1,229	21	0.0000
Triangle	50	15	15	29	7.5	218	211	4	0.0000
I-95 / Rt 123	50	282	282	563	7.5	4,223	4,096	69	0.0001
US 1 / VA 234	50	137	137	274	7.5	2,055	1,993	34	0.0000
<b>MARC TRAIN COMMUTER LOTS</b>									
College Park	25	431	144	574	7.5	4,305	4,176	71	0.0001
Frederick	0	0	0	0	7.5	0	0	0	0.0000
Greenbelt	60	1346	2018	3364	7.5	25,230	24,473	414	0.0005
Harpers Ferry		98	0	98	7.5	735	713	12	0.0000
Muirkirk	60	260	390	650	7.5	4,875	4,729	80	0.0001
Seabrook	0	264	0	264	4.5	1,188	1,152	19	0.0000
Silver Spring	0	0	0	0	4.5	0	0	0	0.0000
Union Station	0	781	0	781	7.5	5,858	5,682	96	0.0001
<b>VIRGINIA RAILWAY EXPRESS COMMUTER LOTS</b>									
Backlick Road	50	110	110	220	7.5	1,650	1,601	27	0.0000
Broad Run	50	198	198	396	7.5	2,970	2,881	49	0.0001
Brooke	50	150	150	300	7.5	2,250	2,183	37	0.0000
Burke Center	50	275	275	550	7.5	4,125	4,001	68	0.0001
Franconia/Springfield (operated)	50	1900	1900	3800	7.5	28,500	27,645	467	0.0005
Leeland Road	50	326	326	652	7.5	4,890	4,743	80	0.0001
Lorton	50	100	100	200	7.5	1,500	1,455	25	0.0000
Manassas	50	187	187	374	7.5	2,805	2,721	46	0.0001
Manassas Park	50	150	150	300	7.5	2,250	2,183	37	0.0000
Quantico	50	109	109	217	7.5	1,628	1,579	27	0.0000
Rippon	50	150	150	300	7.5	2,250	2,183	37	0.0000
Rolling Road	50	185	185	370	7.5	2,775	2,692	45	0.0001
Woodbridge	50	294	294	588	7.5	4,410	4,278	72	0.0001
<b>METRORAIL PARKING LOTS</b>									
Anacostia	25	861	287	1148	7.5	8,610	8,352	141	0.0002
Branch Avenue	50	1611	1611	3222	7.5	24,165	23,440	396	0.0004
Capitol Heights	50	194	194	387	7.5	2,903	2,815	48	0.0001
College Park	25	465	155	620	7.5	4,650	4,511	76	0.0001
Congress Heights	0	66	0	66	4.5	297	288	5	0.0000
Deanwood	0	194	0	194	7.5	1,455	1,411	24	0.0000
East Falls Church	50	221	221	442	7.5	3,315	3,216	54	0.0001
Forest Glen	50	329	329	658	7.5	4,935	4,787	81	0.0001
Franconia - Springfield	50	1987	1987	3973	4.5	17,879	17,342	293	0.0003
Glenmont	50	925	925	1850	4.5	8,325	8,075	136	0.0002
Greenbelt	50	1783	1783	3565	7.5	26,738	25,935	438	0.0005
Naylor Road	50	216	216	431	7.5	3,233	3,136	53	0.0001
Prince George's Plaza	25	927	309	1236	7.5	9,270	8,992	152	0.0002
Southern Avenue	50	1090	1090	2180	4.5	9,810	9,516	161	0.0002
Sutland	50	1033	1033	2065	4.5	9,293	9,014	152	0.0002
Van Dom Street	50	204	204	407	4.5	1,832	1,777	30	0.0000
West Hyattsville	25	453	151	604	7.5	4,530	4,394	74	0.0001
Wheaton	25	759	253	1012	7.5	7,590	7,362	124	0.0001
				108,749		715,007		11,721.1016	0.0129
							Seasonal Total (tons/season)		0.8398

Bold figures: New numbers taken from P & R directory  
 Figures in bracket: Carry forward figures from conformity doc.