Anderson Metropolitan Planning Organization
Columbus Metropolitan Planning Organization
Indiana Department of Transportation
Indianapolis Metropolitan Planning Organization

Air Quality Conformity Analysis

2009 Update to the Indianapolis 2030 Regional Transportation Plan and 2009-2012 Indianapolis Regional Transportation Improvement Program

Ozone Attainment Maintenance Area
Boone, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, and Shelby Counties

PM 2.5 Nonattainment Area
Hamilton, Hendricks, Johnson, Marion, and Morgan Counties

Spring 2009

Prepared by:

Indianapolis Metropolitan Planning Organization
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Hamilton, Hendricks, Johnson, Marion, and Morgan Counties

Adopted and Approved:
May 14, 2009, by the Madison County Council of Governments
May 20, 2009, by Indianapolis Regional Transportation Council and the Metropolitan Development Commission
May 21, 2009, by the Columbus Area Metropolitan Planning Organization
June 2, 2009, by the Federal Highway Administration

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Executive Summary

Since the Indianapolis 2030 Regional Transportation Plan, last updated in June of 2005 expires in June of 2009, an update is currently taking place. Any update of the plan has to be accompanied with an air quality conformity determination by FHWA/FTA under section 176(c) of the Clean Air Act of 1990. This update includes changes to the projects beyond the 2007 amendments and the 2005 update. There are no proposed amendments to regional plans or programs for the Anderson MPO or the Columbus MPO at this time.

Based on interagency consultation, it was agreed to conduct the following target years for analysis related to the 8-hour Ozone and PM 2.5 standard designation areas:

- 2010 (conformity attainment year)
- 2020 (intermediate year allowing no more than ten years between modeled years)
- 2030 (current horizon year of Regional Transportation Plan)

Indiana Department of Environmental Management (IDEM) has determined budgets for the 9-county region of Central Indiana for both 8-hour Ozone and Annual Fine PM 2.5 standard designations. To demonstrate conformity, forecast emissions must be below the most recent budget established by IDEM. In the absence of budgets for the target years, the plan must show conformity with the available baseline test values. For 8-hour ozone, the 2006 budget is used for the 2010 forecast, and the 2020 budget for 2020 and 2030 forecasts. For PM 2.5, the 2009 budget will be used for 2010, 2020, and 2030 forecasts.

8-hour Ozone Standard

In October 2007, the 9-County Central Indiana Air Quality Conformity Region was designated by the U.S. Environmental Protection Agency as **attainment maintenance area** under the 8-hour standard for ozone. The counties included in this designation are: **Boone, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, and Shelby.** The current analysis is based on the latest budgets available from IDEM. For 2006, the VOC budget is 54.32 tons per day, and 106.19 tons per day for NOx. For 2020, the VOC budget is 29.52 tons per day, and 35.69 tons per day for NOX. Table A shows the modeled outputs against the budgets.

Table A

Pollutant Ozone	2006		2010		2020		2030	
	Budget	Estimated	Budget	Forecast	Budget	Forecast	Budget	Forecast
VOC (tons/day)	54.32	N/A	54.32 (2006 budget)	47.88	29.52	26.65	29.52 (2020 budget)	23.57
NOx (tons/day)	106.19	N/A	106.19 (2006 budget)	86.76	35.69	33.91	35.69 (2020 budget)	23.82

Annual Fine PM 2.5 Standard

In April 2004, the EPA designated five counties as a **basic nonattainment area** under the annual standard for fine particulate matter (PM 2.5). The counties included in this designation are: **Hamilton, Hendricks, Johnson, Marion, and Morgan**. The current analysis is based on the latest budgets available from IDEM. The 2009 Budget has been be used for 2010, 2020, and 2030 forecasts. The PM 2.5 budget is 518.43 tons per year, and 28,537.23 tons per year for NOx. Table B shows the modeled outputs against the budgets.

Table B

Pollutant PM 2.5	2002 (Base Year Interim Test)		2009 (Expected Standard)		2010		2020		2030	
	Budget	Estimated	Budget	Forecast	Budget	Forecast	Budget	Forecast	Budget	Forecast
PM 2.5 (tons/year)	842.37	NA	518.43	NA	518.43 (2009 Budget)	414	518.43 (2009 Budget)	243.75	518.43 (2009 Budget)	223.5
NOx (tons/year)	47,815.51	NA	28,537.23	NA	28,537.23 (2009 Budget)	21,766.5	28,537.23 (2009 Budget)	8,678.4	28,537.23 (2009 Budget)	5,964.5

Conclusion

The modeling and analysis with respect to the 8-hour Ozone and Annual Fine PM 2.5 standard designations demonstrates that implementation of the updated plan will attain emissions levels of regulated pollutants and their precursors in future years within the prescribed budgets and hence conforms to federal air quality requirements.

Outline of the report

The first section deals with the background and the need for analysis. The second section defines certain technical terms used in this report. The next section deals with the pollutants under question. The fourth section deals with the geographic extents of the area of analysis. The fifth section deals with the target years for analysis and the list of projects accordingly. The sixth section deals with a brief history and review of air quality status and documents. Sections 7 and 8, deal with analysis for the 8-hour Ozone standard and the Annual Fine Particulate Matter 2.5 standard designations and outline the conformity findings. The ninth section deals with the compliance issues related to the federal regulations. The approval timeline is presented in the tenth section. The appendices are arranged sequentially henceforth.

1. Background and Need for Analysis

23 CFR 450.322 (c) mandates that the 20-year horizon transportation plan be updated at least every four years in non attainment and maintenance areas and at least every five years in attainment areas to confirm the transportation plans' validity. Any update to the regional transportation plan is to be accompanied by an air quality conformity determination from the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) under section 176(c) of the Clean Air Act of 1990. The need for conformity analysis is also triggered by amendments to the regional transportation plan, additions, removal, or a change in time period for any regionally significant project. Amended transportation plans and programs for jurisdictions within or partially within nonattainment areas must have a conformity finding from the U.S. DOT before they may be implemented.

Since the Indianapolis 2030 Regional Transportation Plan, last updated in June of 2005, expires in June of 2009, an update is underway. This update also includes changes beyond the 2007 amendments and the 2005 update. There are no proposed amendments to regional plans or programs for the Anderson MPO or the Columbus MPO at this time.

This update accomplishes two major tasks: It adjusts project schedules and scopes based on review by representatives from area jurisdictions (including INDOT's Major Moves program); and updates project costs and anticipated revenue sources, both in the project's year of expenditure (a SAFETEA-LU Act requirement). In accordance this document addresses two components of air quality: 8-hour Ozone standard and Annual Fine Particulate Matter 2.5 standard.

2. Definitions

Definitions as used by the CFR (93.101)

Applicable implementation plan is defined in section 302(q) of the CAA and means the portion (or portions) of the implementation plan, or most recent revision thereof, which has been approved under section 110, or promulgated under section 110(c), or promulgated or approved pursuant to regulations promulgated under section 301(d) and which implements the relevant requirements of the CAA.

CAA means the Clean Air Act, as amended (42 U.S.C. 7401 et seq.).

Clean data means air quality monitoring data determined by EPA to meet the requirements of 40 CFR part 58 that indicate attainment of the national ambient air quality standard.

Control strategy implementation plan revision is the implementation plan which contains specific strategies for controlling the emissions of and reducing ambient levels of pollutants in order to satisfy CAA requirements for demonstrations of reasonable further progress and attainment

Design concept means the type of facility identified by the project, e.g., freeway, expressway, arterial highway, grade-separated highway, reserved right-of-way rail transit, mixed-traffic rail transit, exclusive busway, etc.

Design scope means the design aspects which will affect the proposed facility's impact on regional emissions, usually as they relate to vehicle or person carrying capacity and control, e.g., number of lanes or tracks to be constructed or added, length of project, signalization, access control including

approximate number and location of interchanges, preferential treatment for high-occupancy vehicles, etc.

DOT means the United States Department of Transportation.

Donut areas are geographic areas outside a metropolitan planning area boundary, but inside the boundary of a nonattainment or maintenance area that contains any part of a metropolitan area(s). These areas are not isolated rural nonattainment and maintenance areas.

EPA means the Environmental Protection Agency.

FHWA means the Federal Highway Administration of DOT.

FHWA/FTA project, for the purpose of this subpart, is any highway or transit project which is proposed to receive funding assistance and approval through the Federal-Aid Highway program or the Federal mass transit program, or requires Federal Highway Administration (FHWA) or Federal Transit Administration (FTA) approval for some aspect of the project, such as connection to an interstate highway or deviation from applicable design standards on the interstate system.

Forecast period with respect to a transportation plan is the period covered by the transportation plan pursuant to 23 CFR part 450.

FTA means the Federal Transit Administration of DOT.

Highway project is an undertaking to implement or modify a highway facility or highway-related program. Such an undertaking consists of all required phases necessary for implementation.

Horizon year is a year for which the transportation plan describes the envisioned transportation system according to §93.106.

1-hour ozone NAAQS means the 1-hour ozone national ambient air quality standard codified at 40 CFR 50.9.

8-hour ozone NAAQS means the 8-hour ozone national ambient air quality standard codified at 40 CFR 50.10.

Lapse means that the conformity determination for a transportation plan or TIP has expired, and thus there is no currently conforming transportation plan and TIP.

Maintenance area means any geographic region of the United States previously designated nonattainment pursuant to the CAA Amendments of 1990 and subsequently redesignated to attainment subject to the requirement to develop a maintenance plan under section 175A of the CAA, as amended.

Maintenance plan means an implementation plan under section 175A of the CAA, as amended.

Metropolitan planning organization (MPO) means the policy board of an organization created as a result of the designation process in 23 U.S.C. 134(d).

Motor vehicle emissions budget is that portion of the total allowable emissions defined in the submitted or approved control strategy implementation plan revision or maintenance plan for a certain date for the purpose of meeting reasonable further progress milestones or demonstrating

attainment or maintenance of the NAAQS, for any criteria pollutant or its precursors, allocated to highway and transit vehicle use and emissions.

National ambient air quality standards (NAAQS) are those standards established pursuant to section 109 of the CAA.

NEPA means the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.)

Nonattainment area means any geographic region of the United States which has been designated as nonattainment under section 107 of the CAA for any pollutant for which a national ambient air quality standard exists.

Project means a highway project or transit project.

Regionally significant project means a transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sports complexes, etc., or transportation terminals as well as most terminals themselves) and would normally be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

Safety margin means the amount by which the total projected emissions from all sources of a given pollutant are less than the total emissions that would satisfy the applicable requirement for reasonable further progress, attainment, or maintenance.

Standard means a national ambient air quality standard.

Transit is mass transportation by bus, rail, or other conveyance which provides general or special service to the public on a regular and continuing basis. It does not include school buses or charter or sightseeing services.

Transit project is an undertaking to implement or modify a transit facility or transit-related program; purchase transit vehicles or equipment; or provide financial assistance for transit operations. It does not include actions that are solely within the jurisdiction of local transit agencies, such as changes in routes, schedules, or fares. It may consist of several phases.

Transportation control measure (TCM) is any measure that is specifically identified and committed to in the applicable implementation plan, including a substitute or additional TCM that is incorporated into the applicable SIP through the process established in CAA section 176(c)(8), that is either one of the types listed in CAA section 108, or any other measure for the purpose of reducing emissions or concentrations of air pollutants from transportation sources by reducing vehicle use or changing traffic flow or congestion conditions. Notwithstanding the first sentence of this definition, vehicle technology-based, fuel-based, and maintenance-based measures which control the emissions from vehicles under fixed traffic conditions are not TCMs for the purposes of this subpart.

Transportation improvement program (TIP) means a staged, multiyear, intermodal program of transportation projects covering a metropolitan planning area which is consistent with the metropolitan transportation plan, and developed pursuant to 23 CFR part 450. The TIP must be consistent with the mobile vehicle emissions budget(s) in the applicable implementation plan (40 CFR 51.430).

Transportation plan means the official intermodal metropolitan transportation plan that is developed through the metropolitan planning process for the metropolitan planning area, developed pursuant to 23 CFR part 450. The Transportation Plan must be consistent with the mobile vehicle emissions budget(s) in the applicable implementation plan (40 CFR 51.428).

Transportation project is a highway project or a transit project.

3. Pollutants for Analysis

The US Environmental Protection Agency (EPA) sets National Ambient Air Quality Standards (NAAQS) for six common air pollutants called "criteria" pollutants. These are: Carbon Monoxide (CO), Nitrogen Oxide (NOx), Ozone (O3), Lead (Pb), Particulate Matter (PM) and Sulfur Dioxide (SO2). The Clean Air Act, last amended in 1990, requires the EPA to set NAAQS for pollutants that cause adverse effects to public health and the environment.

The Clean Air Act established primary and secondary air quality standards. Primary standards protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. The primary standard is often referred to as the health standard. Secondary standards protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. Standards are reviewed periodically to ensure that they include the most recent scientific information.

Of the six criteria pollutants, Ozone and Particulate Matter are of particular interest for transportation planning purposes as motor vehicle exhaust is considered to be a significant source of these pollutants. This report will primarily focus on these two pollutants for analysis.

3.1. Ozone

Ground-level ozone is not emitted directly into the air, but forms through a reaction of nitrogen oxides (NOx) and volatile organic compounds (VOCs) in the presence of sunlight. The major sources of NOx and VOCs are: industrial facilities and electric utilities, motor vehicle exhaust, gasoline vapors, and chemical solvents. The standard set by the EPA for ozone is the 8-hour Ozone Standard. The current standard (last designated in 2008) is not to exceed 0.075 parts per million (ppm) calculated as a 3-year average of the fourth-highest **daily** maximum 8-hour average ozone concentrations measured at each monitor within an area over each year.

The SIPs for the 8-hour ozone standard were made available to the MPO in 2007. Accordingly, this conformity determination utilizes an interim methodology approved by the EPA and IDEM, as follows: Both nonattainment areas will utilize a “baseline test”, comparing emissions forecasts for relevant pollutants in 2010, 2020, and 2030 to those for 2002. Emissions forecasts for the latter years must not be greater that those for 2002 and the budgets. Budgets for the years 2006 and 2020 for 8-hour Ozone have been approved by the EPA and in the Federal Register Vol. 72, No. 202, October 19, 2007 (40 CFR parts 52 and 81).

3.2. Fine Particulate Matter 2.5 (PM 2.5)

Particulate matter (PM) is a complex mixture of extremely small particles and liquid droplets found in air. Particle pollution consists of dust, dirt, acids (such as nitrates and sulfates), organic chemicals, metals, and soot. PM has two categories: inhalable coarse particles, with diameters larger than 2.5 micrometers and smaller than 10 micrometers and fine particles, with diameters that

are 2.5 micrometers and smaller. Fine PM are directly emitted from sources such as forest fires, or they can form when gases emitted from power plants, industries and automobiles react in the air. The standard set by the EPA for PM 2.5 is the Annual Fine PM 2.5 Standard. The current standard (last designated in 2008) is not to exceed 15 micrograms/cubic-meter calculated as a 3-year arithmetic average concentration of **annual** PM from multiple community-oriented monitors.

The budgets, for the Annual Fine PM 2.5 made available to the MPO in 2008, can be found at *http://www.in.gov/idem/4657.htm*. These budgets have yet to be certified by the EPA, but will be utilized in this current analysis as it has been designated appropriate by the interagency consultation group (Appendix B). These budgets are based on the year 2002 (New SIP Inventory Year to which all other modeled years will be compared). Accordingly, this conformity determination utilizes an interim methodology approved by the EPA and IDEM, as follows: Both nonattainment areas will utilize a "baseline test", comparing emissions forecasts for relevant pollutants in 2010, 2020, and 2030 to those for 2002. Emissions forecasts for the latter years must not be greater that those for 2002 and the interim budgets.

Final approval of the update along with the amendments to the Indianapolis 2030 Regional Transportation Plan requires a *single* conformity finding from the U.S. Department of Transportation for Ozone attainment maintenance areas and PM 2.5 nonattainment areas and all affected planning jurisdictions. Contingent upon approval of this document, this conformity finding is expected in May 2009.

The ultimate objective of conformity analysis is to compare estimated emissions of selected pollutants and precursors to budgets jointly established by the EPA and the Indiana Department of Environmental Management (IDEM) and documented in a State Implementation Plan (SIP).

4. Geographic Area of Analysis

The Indianapolis Metropolitan Planning Area (MPA) consists of the area defined as urbanized in the year 2000 plus the contiguous area expected to be urbanized by 2030. It includes Marion County and portions of Hamilton, Boone, Hendricks, Morgan, Johnson, Shelby, and Hancock counties. It includes the towns of Arcadia, Atlanta, Avon, Bargersville, Brooklyn, Brownsburg, Cicero, Cumberland, Danville, Fishers, McCordsville, Mooresville, New Palestine, New Whiteland, Pittsboro, Plainfield, Speedway, Whiteland, and Zionsville, as well as the cities of Carmel, Beech Grove, Franklin, Greenwood, Indianapolis, Lawrence, Noblesville, Southport, and Westfield.

Modeling areas for transportation plans have historically been larger than the planning area itself, in order to take into consideration the influences on the transportation system of growth occurring beyond the planning area boundary. The 9-county region of Central Indiana is designated as the geographic area of analysis for both 8-hour ozone and Annual Fine PM 2.5. The counties are**: Boone, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, and Shelby.** The 9 County modeling area is made up of Traffic Analysis Zones (TAZs), which are the smallest geographically designated areas for analysis of transportation activity. Both the urbanized and rural areas are incorporated into the modeling area. This geographic area is also referred to as the **Central Indiana Air Quality Conformity Region**. An interagency group with representatives from the different stakeholders oversee the analysis in the geographic area. This group is called the Central Indiana Air Quality Conformity Interagency Consultation Group.

The Anderson, Columbus, and Indianapolis MPOs currently have transportation plans with a planning horizon of 2030, which meets the minimum 20-year planning horizon required of MPOs. Arm-in-arm with the transportation planning process, the three MPOs and INDOT have developed transportation improvement programs (TIPs) outlining projects scheduled for federal funding over the next three years (FY 2009-2012). The TIPs are consistent with the transportation plans that have undergone air quality modeling, and conformity findings are applicable to them as well. **Figure 1** shows the MPA along with the 9-county Central Indiana Air Quality Conformity Region.

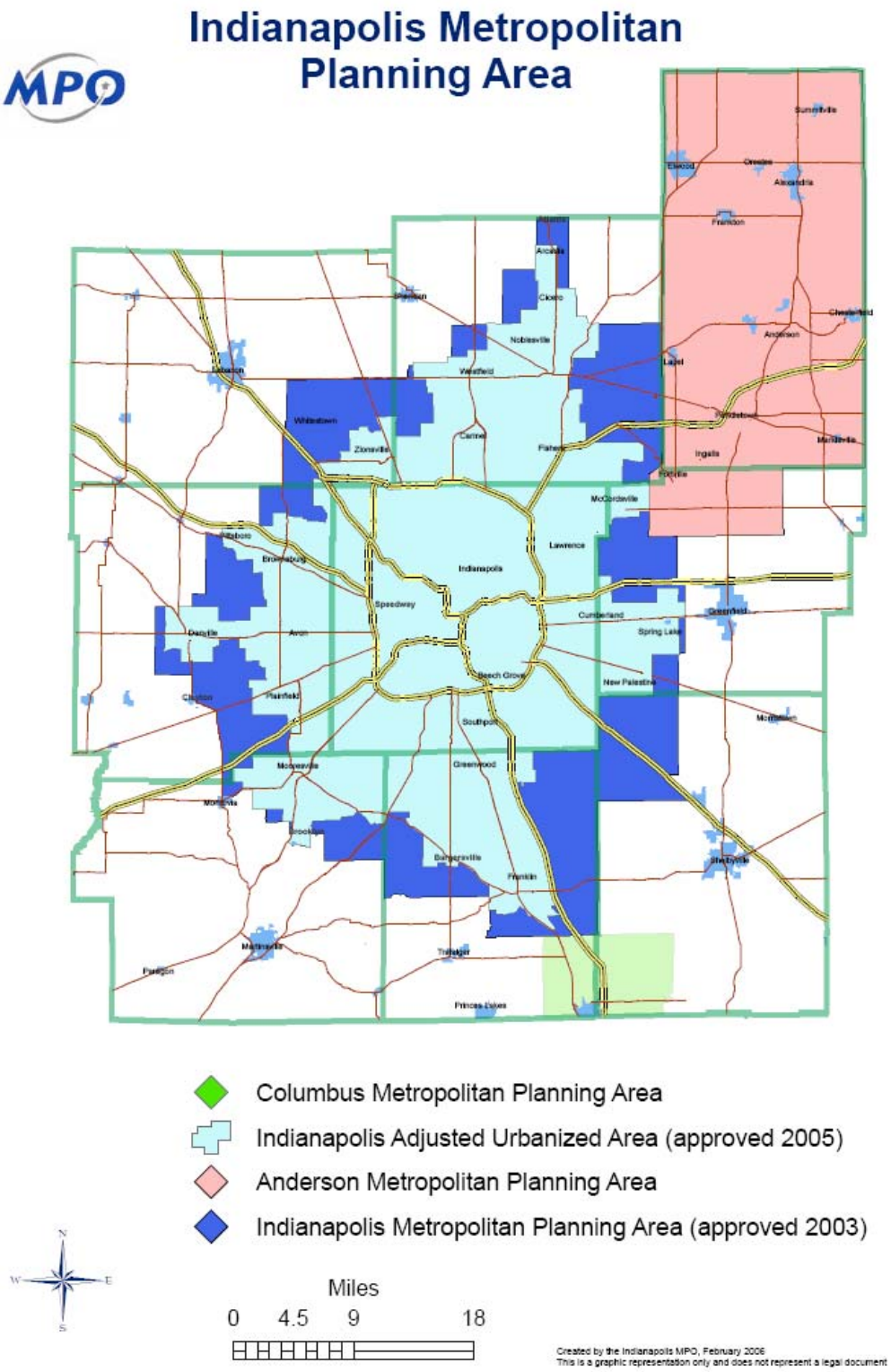


Figure 1: Central Indiana Air Quality Conformity Region including the Indianapolis Metropolitan Planning Area

5. Target Years for Analysis

Based on interagency consultation, it was agreed to conduct the following target years for analysis related to the Central Indiana Air Quality Conformity Region:

- 2010 (conformity attainment year)
- 2020 (intermediate year allowing no more than ten years between modeled years)
- 2030 (current horizon year of Regional Transportation Plan)

The plan periods reflect the air quality conformity analysis requirements. Hence, the following planning periods have been followed throughout the plan

2006 – 2010 **2011 – 2020** **2021 – 2030**

It should be noted that these time frames are based on Open-to-Traffic dates. In order to be included in an AQ Conformity Analysis, a project's full impact needs to be measured by a full year of traffic data before it is included in that time frame. Consequently, the following time periods correspond with the dates:

2006 – 2010 = Open to Traffic between January 1, 2005 to December 31, 2009
2011 – 2020 = Open to Traffic between 1/1/2010 to 12/31/2019
2021 – 2030 = Open to Traffic between 1/1/2020 to 12/31/2029

It was also agreed that in the absence of budgets for the target years the plan must show conformity with the available baseline test values. For this update, it is required to demonstrate that implementation of the updated plan will attain emissions levels of regulated pollutants and their precursors in future years within the prescribed budgets the forecast emissions below the most recent budget established by IDEM. For 8-hour ozone, the 2006 budget is used for the 2010 forecast, and the 2020 budget for 2020 and 2030 forecasts. For PM 2.5, the 2009 interim budget will be used for 2010, 2020, and 2030 forecasts.

5.1. List of Projects

A comprehensive list of projects included in this Air Quality Conformity Analysis of the 2030 Transportation Plan are presented in Appendix A.

6. History and Review of Air Quality Status and Documents

6.1. 1-hour Ozone Standard

In 1978, the consolidated City of Indianapolis and Marion County was designated as a nonattainment area for ozone per EPA's one hour standard. The City and IDEM submitted a "Maintenance Plan" on November 12, 1993 to revise the Indiana's State Implementation Plan (SIP) and redesignate Marion County as attainment for ozone per requirements in Section 110, Part D of the Clean Air Act of 1990. With EPA's approval of the revised SIP in 1995, the Marion County Maintenance Plan used 1996 as a base year and established a budget for mobile sources in the target year of 2006 to achieve continuing progress toward maintaining the ozone attainment status for Marion County. The Indianapolis MPO used this SIP budget alone for conformity analyses until June 2004. The one-hour designation was revoked effective June 15, 2005, and hence no conformity was determined henceforth.

6.2. 8- Hour Ozone Standard

In 2004, the 9-county central Indiana region was designated non-attainment for the 8-hour ozone designation. The section 107(d)(3)(E) of the CAA authorizes the EPA to redesignate an area to attainment of the NAAQS. Under the same, the IDEM submitted a request for redesignation and maintenance plan for ozone attainment in the 8-hour ozone basic non attainment area. This was approved by the EPA via the Federal Register Vol. 72, No. 202, October 19, 2007 (40 CFR parts 52 and 81). In accordance to this publication, the Central Indiana 9-County region was designated as attainment maintenance for the 8-hour ozone standard. This region includes the planning areas of the Indianapolis and Anderson MPOs, and a small portion of that of the Columbus MPO. A baseline test ensures that emissions estimates for all analysis years are less than those for the baseline year 2002. MPOs in the 9-County region received a conformity finding for 2030 Plans in June 2005 and this was found to be conforming in the amendments that followed in the years 2006 and 2007.

6.3. Annual Fine Particulate Matter (PM 2.5) Standard

In April 2004, the EPA designated a 5-County area in Central Indiana (Hamilton, Hendricks, Johnson, Marion, and Morgan Counties) as nonattainment for the annual PM 2.5 standard. This region includes much of the planning area of the Indianapolis MPO and very small portions of planning areas of the Anderson and Columbus MPOs. The emissions budget was determined through the development of the IDEM document, "Fine Particle Attainment Demonstration and Technical Support Document for Central Indiana", May 2008. Until the SIP for the annual PM 2.5 standard is complete (expected in 2009), conformity analyses will follow an interim *baseline test* as agreed upon in consultation with planning partners and regulatory agencies. Similar to that for the 8-hour ozone standard, the current analysis must ensure that emissions estimates for all analysis years are less than those for the baseline year 2002. MPOs overlapping the 5-County nonattainment area expect an initial conformity finding for 2030 Plans.

6.4. Previous Reports

This is the sixteenth report addressing the transportation air quality conformity requirements since 1995. The first three documents explain the technical details of transportation, air quality relationships and other related factors associated with the forecast of regional emissions. Reports four through six document analyses for the Indianapolis 2020 Transportation Plan and related Transportation Improvement Programs (TIPs). Reports seven through eleven address conformity analyses for the Indianapolis 2025 Regional Transportation Plan and TIPs. The twelfth addresses conformity for Indianapolis 2030 Regional Transportation Plans and associated TIPs within the 9-County ozone nonattainment area. The thirteenth addresses conformity for the 5-County PM 2.5 nonattainment area. The fourteenth and the fifteenth address the amendments made to the 2005 update of the Indianapolis 2030 regional transportation plan.

1) Technical Memorandum for Task 21 - Tools for Air Quality Conformity Analysis, 1995
2) Technical Memorandum for Task 36 - Air Quality Conformity, 1995
3) Air Quality Overview Report, 1996
4) Air Quality Conformity Reexamination Report, 1997
5) Air Quality Conformity Reexamination Report, 1998
6) Air Quality Conformity Reexamination Report, 1999
7) Air Quality Conformity Reexamination Report, May 2000
8) Air Quality Conformity Report, December 2000
9) Air Quality Conformity Analysis, February 2003
10) Air Quality Conformity Analysis (I-69), June 2003

11) Revised Air Quality Conformity Analysis, June 2004
12) Air Quality Conformity Analysis, June 2005
13) Air Quality Conformity Analysis, March 2005
14) Air Quality Conformity Analysis, May 2006
15) Air Quality Conformity Analysis, January 2007

7. 8-hour Ozone Standard

7.1. Current Designation

In October 2007, 9-county central Indiana region was designated by the U.S. Environmental Protection Agency as an **attainment maintenance area** under the 8-hour standard for ozone. The counties included in this designation are: **Boone, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, and Shelby.** Figure 2 shows the 8-hour Ozone Attainment Maintenance Area

As shown in the Figure 2 attainment maintenance area include at least a portion of the transportation planning jurisdictions of three metropolitan planning organizations and the Indiana Department of Transportation. Working closely with staff from regulatory agencies and planning jurisdictions, Indianapolis MPO staff, with the support of Anderson and Columbus MPOs assumed responsibility for modeling, analysis, and preparation of this document.

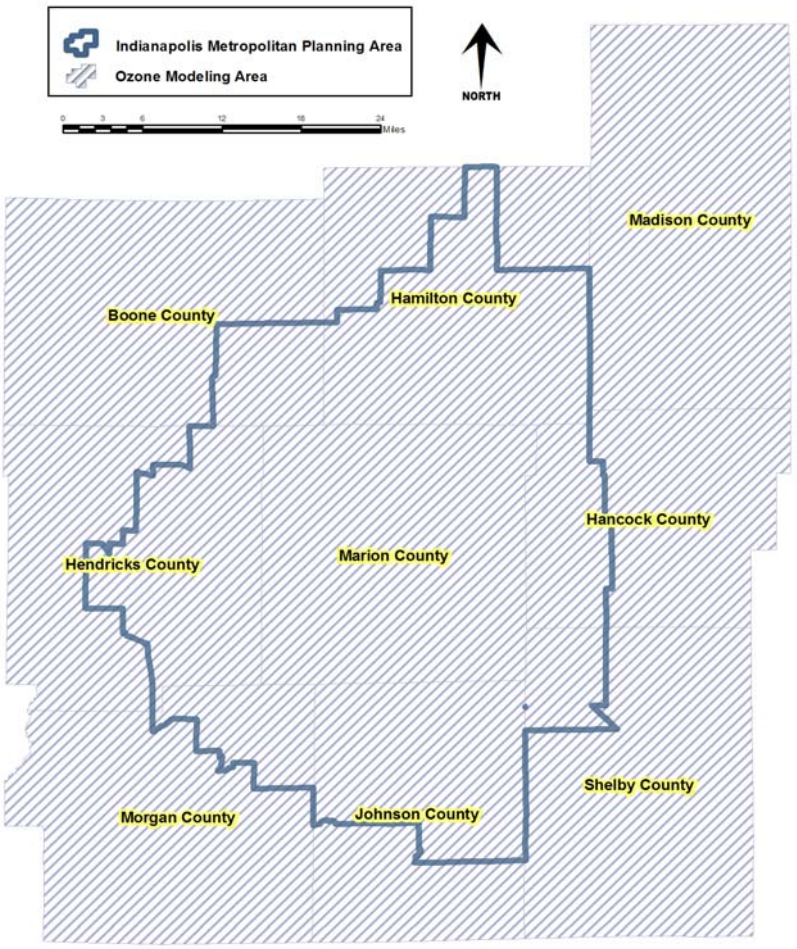


Figure 2: Ozone Attainment Maintenance Area

7.2. Analysis

Ground level ozone levels are highest in the summer, as heat catalyzes its formation from volatile organic compounds and nitrous oxide precursors. Since ozone is not directly emitted from vehicles, the mobile source emissions of VOCs and NOx are instead modeled. To obtain emissions forecasts for these precursors, environmental conditions for a typical July day are assumed throughout the modeling process. Consistent with federal requirements, mobile source emissions forecasts of ozone precursors, NOx and VOC, were modeled for 2006 (budget year), 2010, 2020, and 2030. As illustrated in Figure 3, emissions forecasts for future years are much lower than 2006 budget estimates depicted in Table 1.

Inputs and sample modeling results related to analysis of the 9 county ozone attainment maintenance area are included in Appendices D-1 through D-5.

Figure 3: Mobile Source Emission Forecasts for the Ozone Attainment Maintenance Area

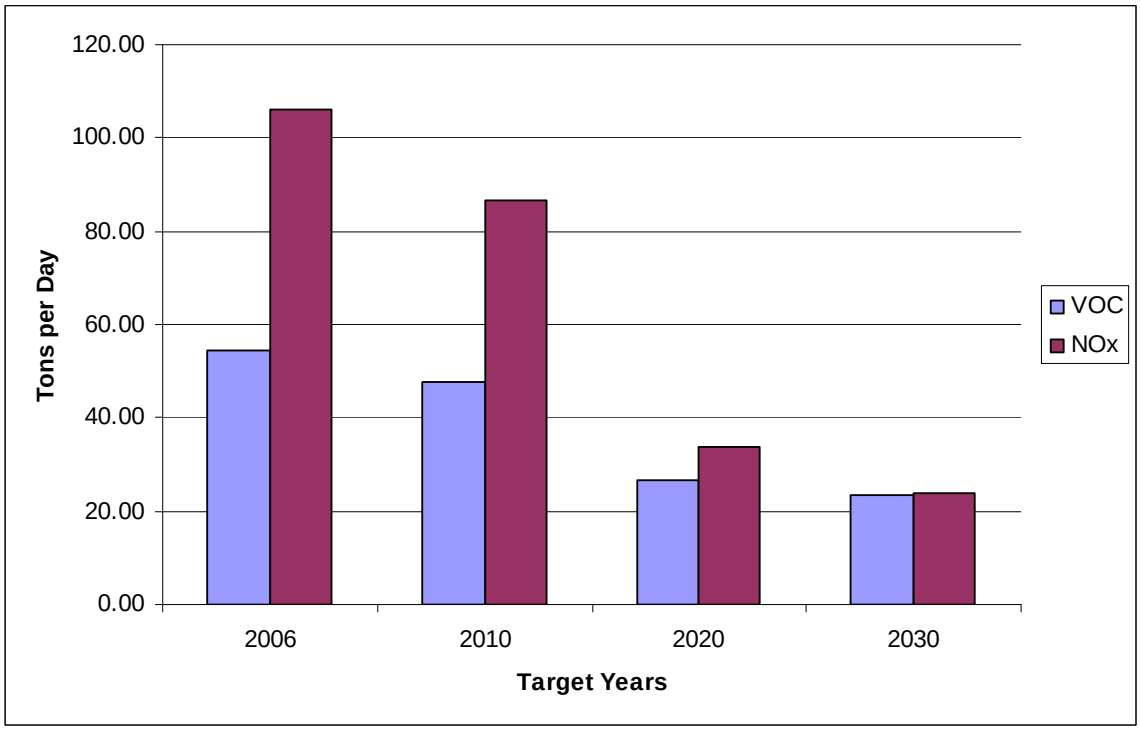


Table 1: Mobile Source Emission Forecasts for the Ozone Attainment Maintenance Area

	2006 (Budget)	2010	2020	2030
VOC (tpd)	54.32	47.88	26.65	23.57
NOx (tpd)	106.19	86.76	33.91	23.82

7.3. Technical Steps

The MOBILE 6.2 model outputs directly give the daily outputs of 8-hour ozone components VOC (in terms of Hydrocarbons) and Nitrous Oxides (NOx). These values are directly analyzed vis-à-vis the budgets.

The projects under the Anderson MPO and the Columbus MPO falling under the geographic area of analysis are modeled by the respective MPOs. Nevertheless, the emission factors used for the region are the same. Since the MOBILE 6.2 models the 9 county region, the Indianapolis MPO deducts the values for Madison county and re-adds the values based on the outputs given by the Anderson MPO. For example: the summer 2010 VOC value for the 9-county region is 46.93 tons/day (tpd, see appendix D-2). From 46.93 tpd the value for Madison county (2.76 tpd, appendix D-2) is deducted and a value if 44.17 tpd is arrived at. To this value (44.17 tpd) the summer 2010 VOC value from the Anderson MPO (3.81 tpd) is added and the final figure of 47.88 tpd (Table 1) results.

For a detailed account of these emissions and the model outputs kindly refer to the appendices. Appendix D outlines the modeling system in more detail. Appendices D-1 through D-5 provide records of MOBILE 6.2 inputs, outputs, and reports generated by EMIS for analysis of ozone.

- Appendix D-1 presents a sample (summer 2010) MOBILE 6.2 Input record for the 8-hour Ozone Standard.
- Appendix D-2 presents a sample (summer 2010) MOBILE 6.2 Output record for the 8-hour Ozone Standard
- Appendix D-3 presents a sample (summer 2010) emission report from MOBILE 6.2: EMIS, for 8-hour Ozone Standard.
- Appendix D-4 presents the emission factors for each of the analysis years 2010, 2020, & 2030 that the model, MOBILE 6.2: EMIS considers for the 8-hour Ozone Standard.
- Appendix D-5 presents the vehicle miles travelled (VMT) projections for the 8-hour Ozone Standard.

7.4. Summary and Conclusion

In the October 19, 2007, Federal Register, the U.S. Environmental Protection Agency (EPA) redesignated the Central Indiana ozone nonattainment area (which includes the Counties of Boone, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, and Shelby) as a maintenance area. The EPA also established emissions budgets for Volatile Organic Compounds (VOC) and Nitrous Oxides to be applied as a component of the Indiana State Implementation Plan (SIP). The budgets establish typical summer day emissions (in tons) for the analysis years of 2006 and 2020. For 2006, the VOC budget is 54.32 tons per day, and 106.19 tons per day for NOx. For 2020, the VOC budget is 29.52 tons per day, and 35.69 tons per day for NOX. Table 2 shows the modeled outputs against the budgets.

Table 2: Ozone- Budgets and Modeled Outputs for Target Years

Pollutant Ozone	2006		2010		2020		2030	
	Budget	Estimated	Budget	Forecast	Budget	Forecast	Budget	Forecast
VOC (tons/day)	54.32	N/A	54.32 (2006 budget)	47.88	29.52	26.65	29.52 (2020 budget)	23.57
NOx (tons/day)	106.19	N/A	106.19 (2006 budget)	86.76	35.69	33.91	35.69 (2020 budget)	23.82

Please note that the emissions budgets shown in gray in Table 2 above are based on the most recent year for which budgets have been determined. The forecast emissions must be below the most recent budget established by IDEM. For Ozone, the 2006 budget is used for the 2010 forecast, and the 2020 budget for 2020 and 2030 forecasts.

Conclusion

The modeling and analysis with respect to the 8-hour Ozone standard designation demonstrates that implementation of the updated plan will attain emissions levels of regulated pollutants (VOC and NOx) and their precursors in future years within the prescribed budgets and hence conforms to federal air quality requirements.

8. Annual Fine Particulate Matter 2.5 Standard

8.1. Current Designation

In April 2004, the EPA designated five counties as a **basic nonattainment area** under the annual standard for fine particulate matter (PM 2.5). The counties included in this designation are: **Hamilton, Hendricks, Johnson, Marion, and Morgan**. Figure 4 shows the PM 2.5 Nonattainment Area.

As shown in Figure 4, the nonattainment areas include at least a portion of the transportation planning jurisdictions of three metropolitan planning organizations and the Indiana Department of Transportation. Working closely with staff from regulatory agencies and planning jurisdictions, Indianapolis MPO staff with the support of Anderson, Columbus MPOs assumed responsibility for modeling, analysis, and preparation of this document.

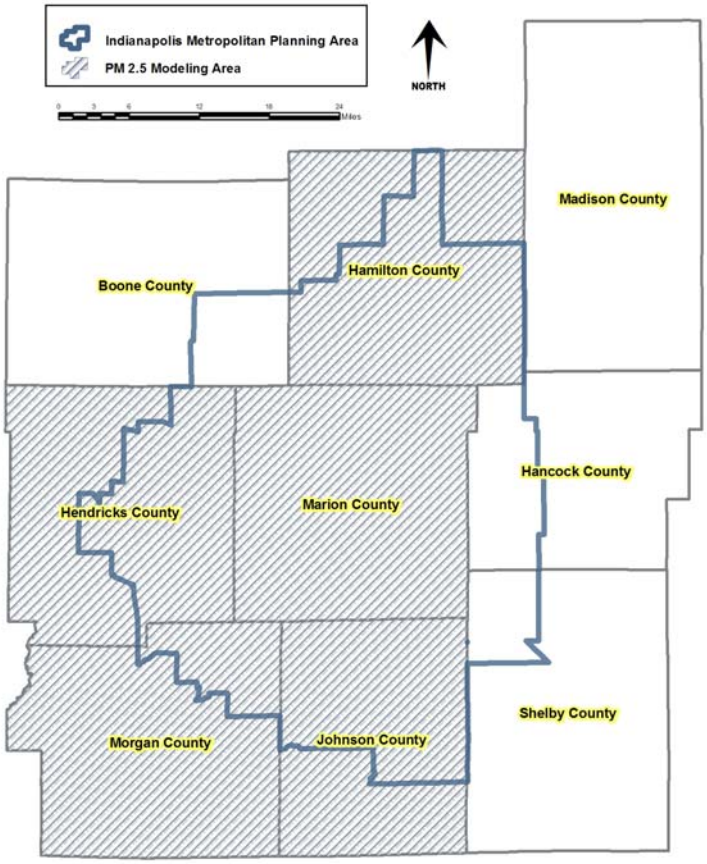


Figure 4: PM 2.5 Nonattainment Area

8.2. Analysis

Table 3 provides with mobile source emission forecasts for the 5-County PM 2.5 Nonattainment Area Figures 5a and 5b illustrate annual mobile source emissions forecasts of nitrous oxides and direct fine particulate matter in the 5-county nonattainment area for 2002 (baseline), 2009 (budget) 2010, 2020, and 2030. These annual values were converted from daily emissions forecasts from each of the four seasons (see section 8.3 for explanation). Inputs and sample modeling results related to analysis of the 5 county PM 2.5 nonattainment area are included in Appendices E-1 through E-5.

Table 3: Mobile Source Emission Forecasts for the PM 2.5 Nonattainment Area

Pollutant PM 2.5 (tons/year)	2002 Budget	2009 Budget	2010 Forecast	2020 Forecast	2030 Forecast
NOx	47,815.51	28,537.23	21,766.5	8,678.4	5,964
PM 2.5	842.37	518.43	414.00	243.75	223.50

Figure 5a: Mobile Source Emission Forecasts for NOx in the PM 2.5 Nonattainment Area

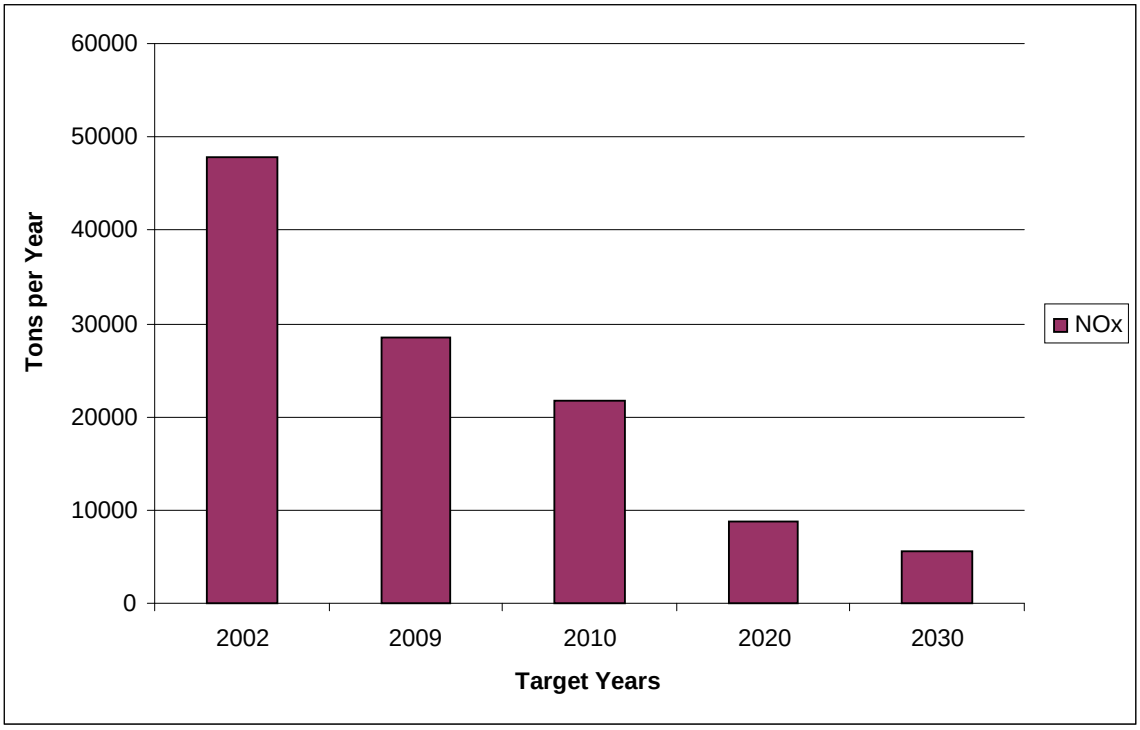
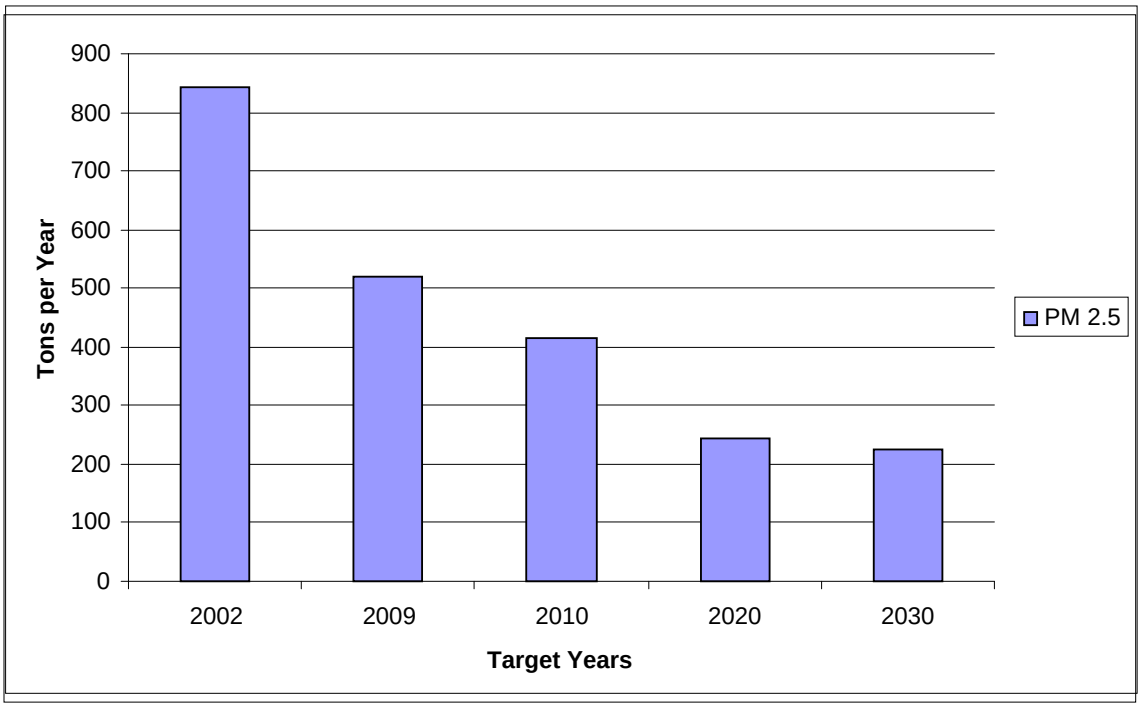


Figure 5b: Mobile Source Emission Forecasts for Direct PM 2.5 in the PM 2.5 Nonattainment Area



As previously explained, in order to forecast annual emissions of direct fine particulate matter and its precursor, NOx, daily emissions are first modeled for each of the four seasons. Figures 6a and 6b illustrate the seasonal variability of NOx and Direct PM 2.5 as modeled (Kindly note: these are daily values and not annualized).

Figure 6a: Daily Mobile Source Emissions Estimates for NOx by Season

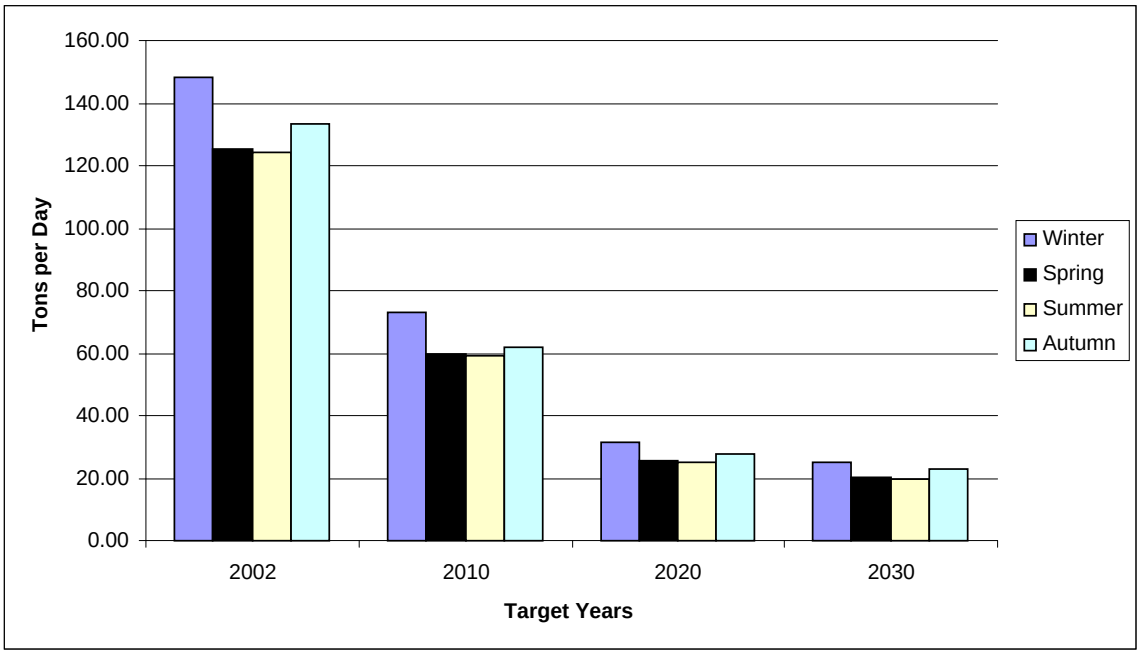
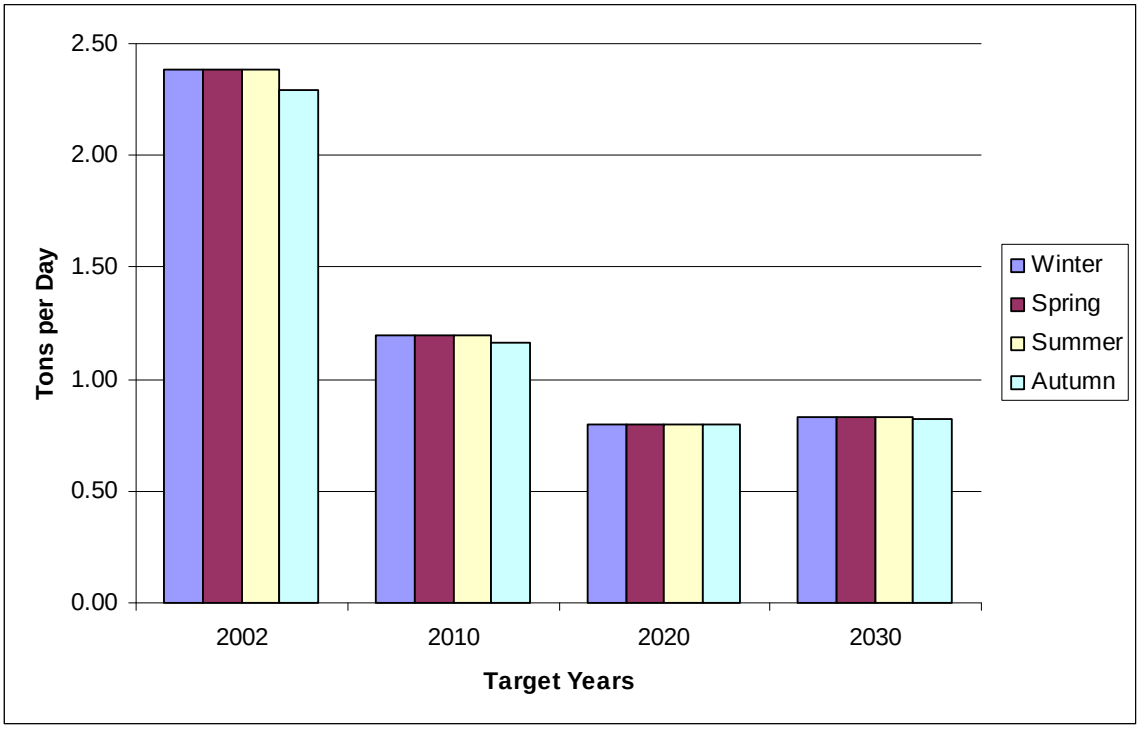


Figure 6b: Daily Mobile Source Emissions Estimates for Direct PM 2.5 by Season



8.3. Technical steps

Converting from Daily to Annual Emissions Estimates

The PM 2.5 pollutant is associated with an annual standard requiring annual emissions estimates, which presents a range of issues for modelers across the U.S. accustomed to modeling daily estimates.

The MOBILE 6.2 model only has the capability of estimating emissions on the basis of mass of pollutant per mile using one set of environmental inputs (temperature, humidity, etc.), which fluctuate with the seasons. For some pollutants, emission factors may vary significantly based on these inputs. While this is not the case for PM 2.5 directly emitted from tailpipes, it is certainly the case for NOx, a monitored precursor to PM 2.5. Since Central Indiana experiences significant climate change throughout the year, it would be inaccurate to assume that emissions of NOx would not vary by season. Thus, MOBILE 6.2 and EMIS were run four times using Central Indiana environmental inputs appropriate for each of the four seasons. The average of the resulting daily emissions estimates was multiplied by 365.25 to produce an annual estimate (see next page for details).

In some regions, seasonal changes in travel behavior due to tourism or an influx of part-time residents result in highly varied VMT throughout the year. Since the current analysis simply compares future emissions forecasts to the baseline year 2002, daily VMT was assumed to be the same throughout any given year. However, seasonal travel fluctuations may be accounted for in future conformity analyses.

Most of the variation in NOx can be explained by the negative affect of colder temperatures on engine efficiency. As shown, PM 2.5 directly emitted from tailpipes does not vary significantly by season.

After tabulating daily emissions for the 5 County area, their average is multiplied by 365.25 to derive an annual forecast (see Figure 6). Although this procedure may become more complex as budgets for the SIP are developed, the current methodology adequately meets federal requirements and was agreed upon by the Air Quality Consultation Group.

Figure 7: Example of Daily to Annual Conversion for NOx (2010 Value in Table 3)

Emissions by season (tons per day): Winter=**70.72**; Spring=**67.67**; Summer=**68.31**, Autumn=**83.52**

Avg. daily mobile source emission estimate for NOx = **(70.72+ 67.67+ 68.31+ 83.52)** $_{\text{tons per day}}$ **/ 4 = 72.555** $_{\text{tons per day}}$

Annual mobile source emissions estimate for NOx **= 72.555** $_{\text{tons per day}}$ *** 300** $_{\text{days per year}}$ **= 21766.5** $_{\text{tons per year}}$

For a detailed account of these emissions and the model output kindly refer to the appendices. Appendix D outlines the modeling system in more detail. Appendices E-1 through E-5 provide records of MOBILE 6.2 inputs, outputs, and reports generated by EMIS for analysis of Fine PM 2.5.

Appendix E-1 presents a sample (summer 2010) MOBILE 6.2 Input record for the Annual Fine PM 2.5 Standard.

Appendix E-2 presents a sample (summer 2010) MOBILE 6.2 Output record for the Annual Fine PM 2.5 Standard.

Appendix E-3 presents a sample (summer 2010) emission report from MOBILE 6.2: EMIS, for the Annual Fine PM 2.5 Standard.

Appendix E-4 presents the emission factors for each of the analysis years 2010, 2020, & 2030 that the model, MOBILE 6.2: EMIS considers for the Annual Fine PM 2.5 Standard.

Appendix E-5 presents the vehicle miles travelled (VMT) projections for Annual Fine PM 2.5 Standard.

8.4. Summary and Conclusion

On December 17, 2004, the U.S. EPA designated the Central Indiana area of Hamilton, Hendricks, Johnson, Marion, and Morgan counties as nonattainment of the annual standard for fine particles. The emissions budget was determined through the development of the IDEM document, “Fine Particle Attainment Demonstration and Technical Support Document for Central Indiana”, May 2008. Table 8.2 from that document contains the motor vehicle emission estimates for the base year of 2002 and the motor vehicle emission interim budget for 2009. Table 4 shows the modeled outputs against the budgets.

Table 4: PM 2.5 - Budgets and Modeled Outputs for Target Years

Pollutant PM 2.5	2002 (Base Year Interim Test)		2009 (Expected Standard)		2010		2020		2030	
	Budget	Estimated	Budget	Forecast	Budget	Forecast	Budget	Forecast	Budget	Forecast
PM 2.5 (tons/year)	842.37	NA	518.43	NA	518.43 (2009 Budget)	414	518.43 (2009 Budget)	243.75	518.43 (2009 Budget)	223.5
NOx (tons/year)	47,815.51	NA	28,537.23	NA	28,537.23 (2009 Budget)	21,766.5	28,537.23 (2009 Budget)	8,678.4	28,537.23 (2009 Budget)	5,964.5

Please note that the emissions budgets shown in gray in Table 4 above are based on the most recent year for which budgets have been determined. The forecast emissions must be below the most recent budget established by IDEM. Hence, for PM 2.5, the 2009 interim budget has been be used for 2010, 2020, and 2030 forecasts.

Conclusion

The modeling and analysis with respect to the Annual Fine PM 2.5 standard designation demonstrates that implementation of the updated plan will attain emissions levels of regulated pollutants (PM 2.5 and NOx) in future years within the prescribed budgets and hence conforms to federal air quality requirements.

9. Federal Regulations and Compliance

Required under section 176(c) of the Clean Air Act, as amended in 1990, the transportation conformity rule established the criteria and procedures by which the Federal Highway Administration, the Federal Transit Administration, and metropolitan planning organizations (MPOs) determine the conformity of federally funded or approved highway and transit plans, programs, and projects to state implementation plans (SIPs). Conformity ensures that transportation planning does not produce new air quality violations, worsen existing violations, or delay timely attainment of national ambient air quality standards. According to the Clean Air Act, federally supported activities must conform to the implementation plan's purpose of attaining and maintaining these standards. Rule guidelines for conformity were most recently amended in July 2004 (69 CFR 40004).

There must be a currently conforming transportation plan and currently conforming TIP at the time of project approval. The conformity criteria is satisfied if the current transportation plan and TIP have been found to conform to the applicable implementation plan by the MPO and DOT according to the procedures of EPA rules. Only one conforming transportation plan or TIP may exist in an area at any time; conformity determinations of a previous transportation plan or TIP expire once the current plan or TIP is found to conform by DOT. The conformity determination on a transportation plan or TIP will also lapse if conformity is not determined according to the EPA specified frequency requirements.

In accordance with the 23 CFR part 450 and 40 CFR 51.390, an interagency consultation group has to be constituted and public consultation will have to be taken up for the review of the projects and the air quality conformity results. The Indianapolis MPO has established Central Indiana Transportation Air Quality Conformity Protocol (this document can be found at http://www.indympo.org/Plans/Regional/Documents/Central_IN_TransportationAirQualityConformityProtocol.pdf) and the Interagency Consultation Group Conformity Consultation Guidance in August 2007 (this document can be found at http://www.indympo.org/Plans/Regional/Documents/InteragencyConsultationGroupConformityConsultationGuidance.pdf)Accordingly an interagency consultation group (Appendix B) has been formed and all the required procedures for the conformity have been taken up by the group. This conformity has followed all the steps mandated by the EPA.

Under 40 CFR 93.106 the transportation plans must specifically describe the transportation system envisioned for certain future years which shall be called horizon years.

(1) The agency or organization developing the transportation plan may choose any years to be horizon years, subject to the following restrictions:

(i) Horizon years may be no more than 10 years apart;

(ii) The first horizon year may be no more than 10 years from the base year used to validate the transportation demand planning model;

(iii) The attainment year must be a horizon year if it is in the timeframe of the transportation plan and conformity determination;

(iv) The last year of the transportation plan's forecast period must be a horizon year;

The base year for validation of the travel demand model is 2000. An interim "no greater than" year 2002 baseline test was originally used to establish an interim budget for the geographic area of analysis. A State Implementation Plan (SIP) established a 2006 and 2020 budget for the purpose of Ozone standard and a 2009 budget for the PM 2.5 standard. The base and horizon years used in developing the conformity analysis of the Indianapolis 2030 Regional Transportation Plan and additional projects in the donut area are:

- 2000: The validated base year for the transportation network
- 2002: Interim baseline budget
- 2010: Interim Year selected to be no more than ten years from model validation base year
- 2020: Year selected to be no more than ten years between analysis years and SIP Budget Year
- 2030: Final horizon year of the Transportation Plan

40 CFR 93.108 mandates that the transportation plans and TIPs must be fiscally constrained consistent with DOT's metropolitan planning regulations at 23 CFR part 450 in order to be found in conformity. In accordance to this, all the projects (Appendix A) in the geographic area of analysis are found to be fiscally constrained (please refer the 2009 update to the Indianapolis 2030 Regional Transportation Plan).

40 CFR 93.109 outlines the criteria and procedures for determining conformity of transportation plans, programs, and projects. Table 5 indicates the criteria and procedures in §§93.110 through 93.119 which apply for transportation plans, TIPs, and FHWA/FTA projects.

Table 5: Conformity Criteria

CFR Sections	Action Item	Remarks pertaining to the IMPO Transportation Plan and TIP
§93.110	Latest planning assumptions	The 2009 update has revisited the planning assumptions and found that the assumptions are still valid
§93.111	Latest emissions model	The most current model, MOBILE 6.2 is used for modeling
§93.112	Consultation	All the requirements under the consultation have been followed (see appendix B and C)
Transportation Plan:		
§93.113(b)	TCMs	Not applicable as the Transportation Plan is conforming
§93.118 or §93.119	Emissions budget and/or Interim emissions	
TIP:		
§93.113(c)	TCMs	Not applicable as the TIP is conforming
§93.118	Emissions budget and/or Interim emissions	The projects in the transportation plan and TIP are consistent with the motor vehicle emissions budget(s) in the applicable implementation plan as all the emissions of the pollutants or pollutant precursors are less than or equal to the motor vehicle emissions budget(s)

Project (From a Conforming Plan and TIP):		
§93.114	Currently conforming plan and TIP	The current plan is currently conforming in accordance to 93.104 and will lapse in June 2009, before which the conformity finding for this update is envisaged
§93.115	Project from a conforming plan and TIP	All the projects included in the conformity analysis come from the Plan and TIP in accordance to the section 93.106
§93.116	CO, PM_{10}, and $PM_{2.5}$hot-spots.	All the projects do not cause violations or increase frequency or severity of any existing CO, VOC, NOX or PM 2.5
§93.117	$PM_{10}$and $PM_{2.5}$control measures	All control measures for PM 2.5 have been addressed

In PM2.5 nonattainment areas the interim emissions tests must be satisfied as required by §93.119 for conformity determinations made if there is no approved motor vehicle emissions budget from an applicable implementation plan and no adequate motor vehicle emissions budget from a submitted control strategy implementation plan revision or maintenance plan.

Section 93.126 outlines the projects that are exempt from the requirement to determine conformity. Such projects may proceed toward implementation even in the absence of a conforming transportation plan and TIP. Section 93.127 outlines the projects exempt from regional emissions analyses requirements. The following projects are hence not modeled:

Exempt Projects

Safety

Railroad/highway crossing.

Projects that correct, improve, or eliminate a hazardous location or feature.

Safer non-Federal-aid system roads.

Shoulder improvements.

Increasing sight distance.

Highway Safety Improvement Program implementation.

Traffic control devices and operating assistance other than signalization projects.

Railroad/highway crossing warning devices.

Guardrails, median barriers, crash cushions.

Pavement resurfacing and/or rehabilitation.

Pavement marking.

Emergency relief (23 U.S.C. 125).

Fencing.

Skid treatments.

Safety roadside rest areas.

Adding medians.

Truck climbing lanes outside the urbanized area.

Lighting improvements.

Widening narrow pavements or reconstructing bridges (no additional travel lanes).

Emergency truck pullovers.

Mass Transit

Operating assistance to transit agencies.

Purchase of support vehicles.

Rehabilitation of transit vehicles[1] .

Purchase of office, shop, and operating equipment for existing facilities.

Purchase of operating equipment for vehicles (e.g., radios, fareboxes, lifts, etc.).

Construction or renovation of power, signal, and communications systems.

Construction of small passenger shelters and information kiosks.

Reconstruction or renovation of transit buildings and structures (e.g., rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures).

Rehabilitation or reconstruction of track structures, track, and trackbed in existing rights-of-way.

Purchase of new buses and rail cars to replace existing vehicles or for minor expansions of the fleet[1] .

Construction of new bus or rail storage/maintenance facilities categorically excluded in 23 CFR part 771.

Air Quality

Continuation of ride-sharing and van-pooling promotion activities at current levels.

Bicycle and pedestrian facilities.

Other

Specific activities which do not involve or lead directly to construction, such as:

Planning and technical studies.

Grants for training and research programs.

Planning activities conducted pursuant to titles 23 and 49 U.S.C.

Federal-aid systems revisions.

Engineering to assess social, economic, and environmental effects of the proposed action or alternatives to that action.

Noise attenuation.

Emergency or hardship advance land acquisitions (23 CFR 710.503).

Acquisition of scenic easements.

Plantings, landscaping, etc.

Sign removal.

Directional and informational signs.

Transportation enhancement activities (except rehabilitation and operation of historic transportation buildings, structures, or facilities).

Repair of damage caused by natural disasters, civil unrest, or terrorist acts, except projects involving substantial functional, locational or capacity changes.

Note: [1] In $PM_{10}$and $PM_{2.5}$nonattainment or maintenance areas, such projects are exempt only if they are in compliance with control measures in the applicable implementation plan.

[62 FR 43801, Aug. 15, 1997, as amended at 69 FR 40081, July 1, 2004; 71 FR 12510, Mar. 10, 2006; 73 FR 4441, Jan. 24, 2008]

Projects Exempt From Regional Emissions Analyses

Intersection channelization projects.

Intersection signalization projects at individual intersections.

Interchange reconfiguration projects.

Changes in vertical and horizontal alignment.

Truck size and weight inspection stations.

Bus terminals and transfer points.

Federal regulations governing air quality conformity require that for each of Ozone attainment maintenance area and PM 2.5 nonattainment area, certain time periods be analyzed to estimate emissions of relevant pollutants and precursors from mobile sources. For each analysis year modeled, the implementation of planned and programmed capacity enhancement projects is reflected using best planning assumptions. Table 6 summarizes current modeling requirements for each criteria pollutant.

Table 6: Summary of Modeling Requirements by Criteria Pollutant

Criteria Pollutant	Geographic Area	Pollutants and Precursors	Conformity Test	Analysis Years*
8-Hour Ozone	9 County Attainment Maintenance Area Boone, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, & Shelby	NOx & VOCs (precursors to ozone)	Baseline Test Emissions forecasts in future years must not exceed 2002	2002 2006 2010 2020 2030
Fine Particulate Matter (PM2.5)	5 County Nonattainment Area Hamilton, Hendricks, Johnson, Marion, Morgan	Direct PM 2.5 & NOx (precursor to PM 2.5)	Baseline Test Emissions forecasts in future years must not exceed 2002	2002 2009 2010 2020 2030
*The years shown in "Bold" are the baseline and budget years for the pollutant under consideration				

As shown in the preceding pages, all mobile source emissions forecasts are well below the 2002 estimates. Once updated as proposed, the Indianapolis 2030 Regional Transportation Plan and 2009-2012 Transportation Improvement Program will conform with federal requirements for all criteria pollutants.

10. Approval Timeline

In order to be eligible for conformity finding by the U.S. Department of Transportation, approval of the Plan Amendment and Air Quality Conformity Analysis will first be required from the three Metropolitan Planning Organizations within or overlapping the Ozone attainment maintenance area and PM 2.5 nonattainment areas. The approvals will be included for review on the Indianapolis MPO website, http://www.indympo.org/Pages/home.aspx

Indianapolis MPO- Indianapolis MPO will seek a recommendation for approval of the Plan Update and Air Quality Conformity Analysis by the Technical Committee and Policy Committee of the Indianapolis Regional Transportation Council (IRTC) via email vote in late **April early May,** 2009. In accordance with this recommendation, the Indianapolis Metropolitan Development Commission (MDC) will receive the proposed Plan Update and associated Air Quality Conformity Analysis for approval on **May 20, 2009.**

Anderson MPO- The Policy Board of the Madison County Council of Governments (the Anderson MPO) will receive the Plan Update/Amendment and Air Quality Conformity Analysis in April/May, 2009.

Columbus MPO- The Policy Board of the Columbus Area MPO will receive the Plan Update/Amendment and Air Quality Conformity Analysis in April/May, 2009.

U.S. Dept. of Transportation- After formal review following MPO approvals, the U.S. DOT will issue an official conformity finding for the Plan as amended/updated by **May/June 2009**

10.1. Public Review and Comment

Draft document of the 2009 Update to the Indianapolis 2030 Regional Transportation Plan and Air Quality Conformity Analysis will be available for download on the Indianapolis MPO website, http://www.indympo.org/Pages/home.aspx and this updated plan will also be available in Indianapolis-Marion County libraries for public review and comment between April 29, 2009, and May 13, 2009. Comments received after the draft is released on April 29 will be incorporated into this document.

To request a paper copy of either document, please contact Principal Planner - Stephanie Belch at the Indianapolis MPO:

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ph: (317) 327 7599
fax: (317) 327-5950
e-mail: sbelch@indygov.org

APPENDICES

Appendix A: List of Projects

The list below contains all capacity enhancement projects planned for 2006-2030 within the 9-County area covered by the Indianapolis Travel Demand Model. Projects are sorted by county, jurisdiction, year modeled for the current analysis (Model Year), and project ID #.

Indianapolis Metropolitan Planning Organization Projects

Following is the modified list of all the added-capacity projects in the cost-feasible Indianapolis 2030 Regional Transportation Plan. The list reflects the amendments as proposed above. Projects are sorted by funding type and funding period. All the projects are modeled for the air quality analysis.

URBAN TRANSPORTATION PROJECTS – WITH URBAN FUNDING					
2006-2010 URBAN PROJECTS					
Agency	County	MPO ID#	Facility	Location	Project Description
Carmel	Hamilton	6	116th St.	Range Line Rd. to College Ave.	W 2-ln. to 4-ln.
DPW	Marion	47.3	Brookville Rd.	Arlington Ave. to Hunter Rd.	W 2-ln. to 4-ln.div.
DPW	Marion	699	East St.	Mills Ave. to Southern Ave.	W 6-ln. to 7-ln. div.
DPW	Marion	59.2	Franklin Rd.	42nd to 38th	W 2-ln. to 4-ln. div.
DPW	Marion	65	Georgetown Rd.	56th St. to Lafayette Rd.	W 2-ln. to 4-ln. div.
DPW	Marion	75.2	Harding St.	Raymond St. to Hanna Ave.	W 2-ln. to 4-ln. div.
DPW	Marion	129.2	Shadeland Ave.	42nd St. to Pendleton Pike	W 2-ln. to 4-ln. div.
Fishers	Hamilton	35.1	96th St.	Village Way to Lantern Rd.	W 2-ln. to 4-ln. div.
Fishers	Hamilton	38	Allisonville Rd.	Shadow Lawn Dr. to 106th St.	W 2-ln. to 4-ln. div.
Fishers	Hamilton	40	Allisonville Rd.	Hamilton Hills Ln. to 96th St.	W 2-ln. to 4-ln. div.
Greenwood	Johnson	913	Graham Rd.	Main St. to Co Line Rd.	W 2-ln. to 5-ln.
Hamilton County	Hamilton	806	Olio Rd.	From 96th St to the Olio Rd bridge over Geist Reservoir.	W 2 to 4 ln. div.
2011-2020 URBAN PROJECTS					
Agency	County	MPO ID#	Facility	Location	Project Description
Carmel	Hamilton	306	116th St.	Keystone Ave. to Hazel Dell	W 2-ln. to 4-ln.
DPW	Marion	2	10th St.	Raceway Rd. to Tomahawk.	Reconst./W to 4-ln. div.
DPW	Marion	601	21st St.	Post Rd. to Mitthoeffer	W 2-ln. to 4-ln. div.
DPW	Marion	607	56th St.	Guion Rd. to Kessler	W 2-ln. to 4-ln. div.
DPW	Marion	54.2	Emerson Ave.	Shelbyville Rd. to I-65.	W 2-ln. to 4-ln. div.
DPW	Marion	63	Georgetown Rd.	86th St. to 62nd St.	W 2-ln. to 4-ln. div.
DPW	Marion	64	Georgetown Rd.	62nd St. to 56th St.	W 2-ln. to 4-ln. div.
DPW	Marion	152.2	Township Line Rd.	79th St. to 71st St. (WestLane Rd.)	New 4-ln. div. Roadway
Hamilton County	Hamilton	823	96th St.	Lantern Road to Cumberland Road	W 4 to 6 ln. div.
Hendricks County	Hendricks	627	CR 100N (10th St.)	Raceway Rd to CR 800 E	W 2-ln. to 4-ln.
Greenwood	Johnson	133.2	Smith Valley Rd.	Meridian (SR 135) to S. Emerson Ave. (north turn)	W 2-ln. to 4-ln. div.
Fishers	Hamilton	912.1	126th St.	SR 37 to Olio Rd.	W 2-ln. to 4-ln.
Hendricks County	Hendricks	116.2	Ronald Reagan Pkwy	CR 100 S to US 36	New 4 ln. roadway

Hendricks County	Hendricks	117	Ronald Reagan Pkwy	300N to US 136	New 4-ln. roadway
Hendricks County	Hendricks	115	Ronald Reagan Pkwy	CR 200 S to CR 100 S	New 4-ln. roadway
Plainfield	Hendricks	124.1	Perimeter Pkwy NE, Phase 1	From Dan Jones Road to US 40	W 2-ln. to 5-ln.
Plainfield	Hendricks	124.2	Perimeter Pkwy NE, Phase 2	SR 267 to Dan Jones Road	W 2-ln. to 5-ln.
DPW	Marion	27.1	79th St.	Fall Creek to Sunnyside	W 2-ln. to 4-ln. div.
Brownsburg	Hendricks	1006.1	Northfield Dr.	SR 267 to US 136	W 2-ln. to 4-ln.
2021-2030 URBAN PROJECTS					
Agency	County	MPO ID#	Facility	Location	Project Description
DPW	Marion	24	56th St.	Raceway Rd. to Dandy Trail Rd.	W 2-ln. to 4-ln. div.
DPW	Marion	25	56th St.	Dandy Trail Rd. to I-465	W 2-ln. to 4-ln. div.
DPW	Marion	608	71st St.	Georgetown Rd. to Michigan Rd.	W 2-ln. to 4-ln. div.
DPW	Marion	28	79th St.	Georgetown Rd. to Michigan Rd.	W 2-ln. to 4-ln. div.
DPW	Marion	29	79th St.	Michigan Rd. to Township Line Rd.	W 2-ln. to 4-ln. div.
DPW	Marion	152.1	Township Line Rd.	96th St. to 79th St.	W 2-ln. to 4-ln. div.
DPW	Marion	31	82nd St.	Hague Rd. to Fall Creek Rd.	W 2-ln. to 4-ln. div.
DPW	Marion	45	Bluff Rd.	West St. to Troy Ave.	W 2-ln. to 4-ln. div.
DPW	Marion	49.2	Cooper Rd.	Michigan Rd. to 62nd St.	New 2-ln. on 4-ln. div. ROW
DPW	Marion	50	County Line Rd.	SR 37 to Morgantown Rd.	W 2-ln. to 4-ln. div.
DPW	Marion	53	Dandy Trail Rd.	Crawfordsville Rd. to 34th St.	W 2-ln. to 4-ln. div.
DPW	Marion	67	Girls School Rd.	Rockville Rd. to 21st St.	W 2-ln. to 4-ln. div.
DPW	Marion	104.1	Mann Rd.	Kentucky Rd. to Southport Rd. (Phase 1 - KY Rd. to I-465)	W 2-ln. to 4-ln. div.
DPW	Marion	125	Post Rd.	Brookville Rd. (US 52) to I-74	W 2-ln. to 4-ln. div.
DPW	Marion	134	Southport Rd.	Mann Rd. to SR 37	W 2-ln. to 4-ln. div.
DPW	Marion	135	Southport Rd.	Bluff to Meridian Rd. (SR 135)	W 2-ln. to 4-ln. div.
DPW	Marion	136	Southport Rd.	Meridian Rd. (SR 135) to East (US 31)	W 2-ln. to 4-ln. div.
DPW	Marion	150	Thompson Rd.	High School Rd. to Mann Rd.	W 2-ln. to 4-ln. div.
URBAN TRANSPORTATION PROJECTS – WITH GROUP 3 URBAN FUNDING					
2011-2020 PROJECTS WITH GROUP 3 URBAN FUNDING					
Agency	County	MPO ID#	Facility	Location	Project Description
Boone County	Boone	1599	CR 400 S	CR 400 S from .478 mi E of CR500 E to .267 mi E of CR575E	New road construction; 4 lane divided.
URBAN TRANSPORTATION PROJECTS – WITH SPECIAL FUNDING					

2006-2010 PROJECTS WITH SPECIAL FUNDING					
Agency	County	MPO ID#	Facility	Location	Project Description
Carmel	Hamilton	304	Old Meridian Corridor	Pennsylvania St. to Guilford	W 2-ln. to 4-ln. div.
DPW	Marion	670	I-65 and I-70	Market Street Ramp removal, Interchange relocation to Washington street	Interchange Mod.
DPW	Marion	132	Six-Points-Camby Rd.	I-70 at Six Points to SR 67/ Ky. Ave.	New 4-ln. div.
Hamilton County	Hamilton	824	146th St.	SR 37 to I-69	New 4-ln. roadway
Noblesville	Hamilton	824.3	Boden Rd.	Greenfield Ave. to 146th St.	New 2-ln.
2011-2020 PROJECTS WITH SPECIAL FUNDING					
Agency	County	MPO ID#	Facility	Location	Project Description
Carmel	Hamilton	335	River Rd.	116th St. to 146th St.	Roadway reconstruction
Carmel	Hamilton	334	Range Line Rd.	136th St. to U.S. 31	W 2-ln. to 4-ln. div.
Hamilton County	Hamilton	824.2	146th St.	SR 37 to I-69	W 4-ln. to 6-ln.
URBAN/NON-URBAN TRANSPORTATION PROJECTS – WITH LOCAL FUNDING					
2006-2010 LOCAL PROJECTS					
Agency	County	MPO ID#	Facility	Location	Project Description
Brownsburg	Hendricks	1008	56th St.	Northfield Dr. to CR 900 E	W 2-ln. to 5-ln.
Carmel	Hamilton	675	Illinois Road	103rd to 106th	New 4-ln. div. Roadway
Carmel	Hamilton	675.2	Illinois Road	116th to 136th	New 4-ln. div. Roadway
Carmel	Hamilton	101	Keystone Ave.	96th St. to US 31	W 4-ln. div. to 4-ln. div. w/6 new Roundabouts /interchanges
Carmel	Hamilton	336	Veteran's Way	Executive Drive to City Center Drive	New 3-ln. roadway
Fishers	Hamilton	37.2	Allisonville Rd.	S. of 126th St. to Shadow Lawn Dr.	W 2-ln. to 4-ln. div.
Fishers	Hamilton	39	Allisonville Rd.	106th St. to Hamilton Hills Ln.	W 2-ln. to 4-ln. div.
Greenwood	Johnson	71	Main St.	Interstate 65 to Graham Rd.	W 2-ln. to 4-ln.
Hamilton County	Hamilton	33.1	96th St.	US 421 to Shelbourne Rd.	W 2-ln. to 4-ln., Int. Imprv
Hendricks County	Hendricks	1007	CR 600N/56th St.	CR 900 E to Raceway Rd	Reconst./W to 4-ln. div.
Plainfield	Hendricks	1004	Perimeter Pkwy SE	SR 267 E. to Perry Rd., N to Stafford Rd.	W 2-ln.to 5-ln.
Plainfield	Hendricks	1005	Perimeter Pkwy SW (Hadley Rd.)	SR 267 to Center St.	W 2-ln. to 4-ln.
Plainfield	Hendricks	1005.1	Perimeter Pkwy SW (Moon Rd.)	South approach at US 40 to Hadley Rd. (CR600S)	W 2-ln. to 5-ln.
Brownsburg	Hendricks	1006	Northfield Dr.	56th St. to .5 mi N. of 56th St.	W 2-ln. to 4-ln.

2011-2020 LOCAL PROJECTS					
Agency	County	MPO ID#	Facility	Location	Project Description
Greenwood	Johnson	1600	Worthsville Rd.	I-65 to US 31	W 2-ln. to 4-ln. divided
Carmel	Hamilton	151.1	Towne Rd.	116th St. to 131st St.	W 2-ln. to 4-ln.
Carmel	Hamilton	151.2	Towne Rd.	131st St. to 146th St.	W 2-ln. to 4-ln. div.
Carmel	Hamilton	10	131st St.	Keystone Ave. to Hazel Dell	Reconst./W to 4-ln. div.
Hamilton County	Hamilton	1003	146th St.	Hamilton/Boone Co Line to Springmill Rd.	W 2-ln. to 4-ln.
Plainfield	Hendricks	124	Perimeter Pkwy NW	Vestal Rd. to SR 267	W 2-ln. to 4-ln.
Plainfield	Hendricks	1005.2	Perimeter Pkwy SW (CR600S)	Center St. to Moon Road	W 2-ln. to 4-ln.
Carmel	Hamilton	675.1	Illinois Road	106th to 116th	New 4-ln. div. Roadway
2021-2030 LOCAL PROJECTS					
Agency	County	MPO ID#	Facility	Location	Project Description
Carmel	Hamilton	820	131st St.	Hazel Dell to River Ave.	W 2 to 4 ln. div.
Carmel	Hamilton	151.3	Towne Rd.	96th to 116th	W 2-ln. to 4-ln. div.
Carmel	Hamilton	811	Spring Mill Rd.	131st St. to 146th St.	W 2 to 4 ln. div.
Boone/Hendricks Counties	Boone/Hendricks	7500	Ronald Reagan Pkwy	56th St. in Hendricks Co. to SR 267/I-65 Interchange in Boone Co.	New Road

STATE TRANSPORTATION PROJECTS					
2006-2010 STATE PROJECTS					
County	MPO ID#	INDOT LRP ID#; /DES#.	Facility	Location	Project Description
Hamilton	615	138; 9133885	I-69	SR 238	Interchange Modification
Hamilton	17	105; 9901670	SR 32	Spring Mill Rd. (2.58 KM W of US 31) to US 31	W 2-ln. to 4-ln. div.
Hamilton	108.2	9015600	US 421 (Michigan Rd.)	.89 mi N of I-465 to 121st. St.	W 2-ln. to 4-ln. div.
Hancock	113; 701	150; 9706740	I-70 / Mt. Comfort Rd.	I-70 Interchange Mod. at Mount Comfort Rd. plus Mt. Comfort/McCordsville Rd. from CR W 300 S to I-70.	Int. Mod. @ I-70; and 2 to 4 lanes on Mt. Comfort Rd.
Hendricks	96	24; 0400563	I-74 (94-IDT-1126)	New Interchange on Ronald Reagan Parkway	Add Diamond Interchange
Hendricks	911	9608930	SR 267	.1 mi N. of I-74 to .5 mi N. of I-74	W 2-ln. to 5-ln.
Johnson	1201	282; 0300618	I-65	At Main St/Greenwood Rd Interchange from SB Exit Ramp to Sheek Rd	Interchange Mod.
Marion	210	166; 9706730	I-465 (Northwest)	West 71st St.	Int. Mod.
Marion	84	157; 0300371	I-465 (West)	Mainline from S of 34th St. to N of 56 St. + 38th St. interchange.	W 6 to 10 lanes

Marion	1200	157; 0300371	I-465 (West)	Interchange at Rockville Rd. (US 36)	Interchange Mod
Marion	1250	283; 0300621	I-65	Just south of the Main Street/Greenwood Road interchange(Extend SB left lane 0.5 mi)	W 4 to 5 lanes
Marion	141	243; 0201319	SR 37	0.45 mi S of Epler Ave. to Thompson Rd.	W 4-ln. div. to 6-ln. div.
Marion	141.1	243; 0201319	SR 37	Epler Ave. to Edgewood Rd.	W 4-ln. div. to 6-ln. div.
Marion	99	9502272	SR 67	HEN Co. Line to Thompson Rd.	Intersection Improvements
Marion	120	113; 9010095	US 36/SR 67 (Pendleton Pike)	0.18 mi west of I-465 to 0.22 mi east of Post road (Phase II)	W 4-ln. to 6-ln. div.
Marion	209	118; 9502830	US 40 (Washington St.)	'From 1.57 miles W Marion/Hancock COL at Grassy Crk to Buck Crk 0.260 E	W 4 to 5 lanes
Marion	154	119; 9502840	US 40 (Washington St.)	Franklin Rd. to Grassy Creek (1.57 mi W of MAR/HAN Co Line)	W 4-ln. div. to 7-ln. div.
Marion/Hancock	123.2	9633586	US 36/SR 67(Pendleton Pike)	MAR/HAN Co Line to 0.18 mi E of CR 750 N	W 2-ln. to 4-ln. div.
Marion/Hancock	123.1	9633586	US 36/SR 67 (Pendleton Pike)	Oaklandon Rd. to MAR/HAN Co Line	W 2-ln. to 4-ln. div.
Morgan	1510	440; 9902960	SR 144	Median CN 0.2 m E of SR 67 to Johnson Rd. (CR 400 E)	Median Construction; 2 to 3 lanes
2011-2020 STATE PROJECTS					
County	MPO ID#	INDOT LRP ID#; /DES#.	Facility	Location	Project Description
Boone	917	0400882	I-465	Interchange with I-865	Interchange Improvement
Boone	900	12; 0200904	I-65	.5 mi N. of SR 334 to US 52	W 4-ln. to 6 ln.
Boone	620	11; 0200903	I-65	I-865 Northwest Connector to 0.5 mi north of SR 334	W 4-ln. div. to 6-ln. div.
Boone	107	35; 0100842	US 421; Michigan Rd.	0.62 mi N of SR 334 to CR300S	W 2-ln. to 4-ln. div.
Hamilton	91	136; 0400308	I-69	0.5 mi S of 96th St. to .5 mi N of SR 37/116th St. + 2 int.	W 6-ln. div. to 10-ln. div.
Hamilton	17.2	101; 0500407	SR 32	US 31 to Moontown Rd.	W 2-ln. to 4-ln. div.
Hamilton	902	100; 0101380	SR 32	SR 37 to the East junction with SR 38	W 2-ln. to 5-ln.
Hamilton	903	102; 0500408	SR 32	Moontown Rd. to River Ave.	W 2-ln. to 5-ln.
Hamilton	105	96; 0710215	US 31 Fwy Upgrade	From 96th Street to 216th St. in Hamilton county including Interchange Mod. @ I-465/106th St., and 9 new interchanges/roundabouts at 116th, 131st, 136th, 146th, 151st, 161st, SR 32, 191st and SR 38.	W 4 ln. to 6 ln.
Hancock	612	141; 0200700	I-70	E. of Mt. Comfort Rd. to State Rd. 9	W 4-ln. div. to 6-ln. div.
Hancock	617.2	140; 0200699	I-70	MAR/HAN Co Line to E. of Mt. Comfort Rd.	W 4-ln. div. to 6-ln. div.

Hancock	47.5	120; 9700320	US 52 (Brookville Rd.)	MAR/HAN Co. line to CR 500W	W to 5-ln.
Marion	128.1	7; 0600246	US 36 (Rockville Rd.)	Transfer Drive to I-465	W 4-ln. to 6-ln. div.
Johnson	618.2	295; 0401037	I-65	0.5 mi S of Main Street to 0.5 mi S of Co. Line Rd +1 int.	W 6-ln. div. to 8-ln. div.
Johnson	106.1	314; 9803440	SR 135 (Meridian St.)	CR 700 N (Stones Crossing Rd.) to CR 850 N	W 2-ln. to 4-ln. div.
Johnson	106.2	31; 9902950	SR 135 (Meridian St.)	SR 144 to CR 700 N (Stones Crossing Rd.)	W 2-ln. to 4-ln. div.
Marion	1531	158; 0400283	I-465	From 0.5 Mile W. of I-69 Interchange to South End of Bridge Over Fall Creek	W 6 to 10 lanes
Marion	1532	160; 0400289	I-465	Fr 0.5 mi W of Keystone/SR 431 Interch to 0.5 mile W of Allisonville Rd Interch	W 6 to 10 lanes
Marion	1530	155; 0200003	I-465	0.5 mi north of 46th Street to 0.3 mi north of I-65 (West Leg)	W 6 to 8 lanes
Marion	1533	167; 9802810	I-465	At SR 37 (South Leg)	Interchange Mod.
Marion	1590	159	I-465 (North)	Allisonville Road to I-69	W 6-ln div to 10 ln. div
Marion	80.3	161; 0400304	I-465 (north/east)	0.35 m East of US 31 to 0.5 m W of Keystone/Interchange. 3 Phases.	W 6-ln. div. to 10-ln. div.
Marion	201	162; 0400881	I-465 (Northwest)	0.5 mi north of 86th St (West Leg) to US 421 (North Leg) + 1 Int	Int.Mod., W 6-ln. to 10-ln.
Marion	86	157; 0300371	I-465 (West)	Mainline from N of 21st St. to N of Sam Jones (Airport) Expressway; plus 10th St. and Washington St. Interchanges.	W 6 to 10 lanes
Marion	87	157; 0300371	I-465 (West)	Mainline from N of Sam Jones (Airport) Expressway to SE of Hanna Ave. plus I-70 and Sam Jones Expressway Interchanges.	W 6 to 10 lanes
Marion	85.1	157; 0300371	I-465 (West)	Mainline from S of 34th St. to N of US 136; plus I-74 Interchange and Mainline from N of US 136 to S of US 136; plus US 136 Interchange	W 6 to 10-lanes
Marion	618.1	122; 0300853	I-65	.5 mi S. of Co. Ln Rd. to .5 mi S. of Southport Rd.	W 6 to 8 lanes.
Marion	619	123; 0400909	I-65	I-465 South to Southport Rd.	W 6-ln. div. to 8-ln. div.
Marion	93	135; 0400305	I-69	0.5 mi S of I-465 to 0.5 mi S of 96th St + 2 int. at I-465 & at 86th St.	W 6-ln. div. to 12 ln. div.
Marion	617.1	140; 0200699	I-70	E. of Post Rd. to MAR/HAN Co Line	W 4-ln. div. to 6-ln. div.
Marion	97	152; 0100968	I-74	Post Rd.	Interchange Mod.
Marion	98	129; 9700340	Kentucky Ave. (SR 67)	I-465 to Thompson Rd.	W 4-ln. div. to 6-ln. div.
Marion	47.4	472	US 52 (Brookville Rd.)	Post Rd. to MAR/HAN Co. Line	W 2-ln. to 4-ln.
Marion	47.2	0	US 52 (Brookville Rd.)	Franklin Rd. to Post Rd. (94-IDT-1055)	W 2-ln. to 6-ln. div.
Marion	47.1	0	US 52 (Brookville	I-465 to Franklin Rd.	W 4-ln. to 6-ln. div.

			Rd.)		
Morgan	1520	245/0600730	SR 39	SR-37 to south end of new bridge over White River	New Road Construction
Morgan	1500	246; 0600731	SR 39	SR-39 from south bank of White River to SR-67	New Bridge Construction
Marion	606		75th St.	Shadeland to SR 37	W 2-ln. to 4-ln. div.
Marion	369.1		I-69	I-465 to MAR/JO Co Line	Add new 8-ln. freeway
Johnson	369.2		I-69	MAR/JO Co Line to SR 144	Add new 6-ln. freeway
Morgan	369.3		I-69	SR 144 to MPA Boundary	Add new 6-ln. freeway
2021-2030 STATE PROJECTS					
County	MPO ID#	INDOT LRP ID#; /DES#.	Facility	Location	Project Description
Hamilton	615.1	137; 0400356	I-69 (North)	.5 mi N of SR 37/116th St. to 0.5 mi N of SR 238 + 1 int.	W 4-ln. div. to 6-ln. div.
Hamilton	78.2	114; 0400361	SR 37 (Huntington Ave.)	SR 37 from I-69/116th St. to just N of SR 32/SR 38	W 4-ln. div. to 6-ln. div.
Hendricks/Marion	128.2	5; 0101115	US 36 (Rockville Rd.)	SR 267 to Transfer Drive.	W 4-ln. to 6-ln. div.
Johnson	89.2	286; 0300842	I-65	0.5 mi S of SR 44 to 0.5 mi S of Whiteland Rd. + 1 int.	W 4-ln. div. to 6-ln. div.
Johnson	89.1	285; 0300840	I-65 (outside UZA)	0.5 mi S.of Whiteland Rd. to 0.5 mi S of Main St.. + 1 int.	W 4-ln. div. to 6-ln. div.
Marion	623	164	I-465	I-65 South to US 40	W 6-ln. div. to 10-ln. div.
Marion	625	165	I-465	1.3 km E of SR 67 to I-65 South	W 6-ln. div. to 10-ln. div.
Marion	82	163; 0400885	I-465 (North)	W of US 31 to US 421 + US 421 I-change	W 6-ln. div. to 10-ln. div.
Marion	88.2	125; 0500413	I-65	Raymond St. to I 465 South	W 6 to 8-ln.
Marion	88.1	127; 9700400	I-65	Raymond St to I-70 South Split	W to 10-ln.
Marion	616	127; 0201047	I-65/I-70 inner loop east	Raymond St through the I-70 South Split to I-70 North Split (DES 9700400 & 0201047)	Add 1 ln. in each direction
Marion	1534	151; 9910300	I-70	1.1 km west of I-465 to Airport Expressway	W 6 to 8 lanes
Marion	613	143; 0400400	I-70	I-65 north split to I-465 east leg	W 8 to 12 lanes
Marion	95	144; 0500415	I-70	Interchange at German Church Rd.	Add Diamond Interchange

Following is the list of added-capacity projects which are listed illustrative in the Indianapolis 2030 Regional Transportation Plan. The list reflects the amendments as proposed above. These projects are not modeled for the air quality analysis as they are exempt. Projects are randomly sorted but state projects are all listed separately.

ILLUSTRATIVE TRANSPORTATION PROJECTS					
Agency	County	MPO ID#	Facility	Location	Project Description
DPW	Marion	104.2	Mann Rd.	Kentucky Rd. to Southport Rd. (Phase II: I-465 to Southport Road + 1 interchange @ I-465)	W 2-ln. to 4-ln. div.

DPW	Marion	19	38th St	Industrial Blvd. to Cold Springs	4-ln. divided to 6-ln. div.
DPW	Marion	41	Allisonville Rd.	96th St. to 86th St.	W 4-ln. div. to 6-ln. div.
DPW	Marion	42	Allisonville Rd.	82nd St. to Kessler Blvd.	W 2-ln. to 4-ln. div.
DPW	Marion	160	Zionsville Rd.	96th St. to 86th St.	W 2-ln. to 4-ln. div.
DPW	Marion	43	Allisonville Rd.	Kessler Blvd. to Fall Creek Pkwy	W 2-ln. to 4-ln. div.
DPW	Marion	56	Fall Creek Rd.	Hague Rd. to I-465 (Shadeland)	W 2-ln. to 4-ln. div.
DPW	Marion	100	Kessler Blvd.	Fall Creek Pkwy to SR 37	W 36ft. to 4-ln. div.
DPW	Marion	102.2	Lynhurst	Bradbury to Rockville Rd.	W 2-ln. to 4-ln. div.
DPW	Marion	127	Rockville Rd.	Lynhurst Drive to Washington St.	W 2-ln. to 4-ln. div.
DPW	Marion	815	75th Street	Binford to Allisonville Rd	W 2-ln to 4-ln
Fishers	Hamilton	912.2	126th St.	Allisonville Rd. to SR 37	W 2-ln. to 4-ln. div.
Fishers	Hamilton	37.1	Allisonville Rd.	141st St. to S. of 126th St.	W 2-ln. to 4-ln. div.
Fishers	Hamilton	36	Allisonville Rd.	146th St. to 141st St.	W 2-ln. to 4-ln. div.
Town of Zionsville	Boone	809	Zionsville Rd.	96th St. to SR 334	W 2 to 4 ln. div.
DPW	Marion	802	10th St.	I-465 to Country Club Rd.	W 4-ln. to 6-ln. div.
DPW	Marion	59.1	Franklin Rd.	38th St. to 21st St.	W 2-ln. to 4-ln. div.
DPW	Marion	60.2	Franklin Rd.	Southeastern Ave. to Stop 11 Rd.	W 2-ln. to 4-ln. div.
DPW	Marion	32	86th St.	Moore Rd. to I-465	W 2-ln. to 4-ln. div.
DPW	Marion	66.1	Georgetown Rd.	38th St. to 30th St.	4 -ln (35ft) to 4-ln. div.
DPW	Marion	111	Moller Rd.	30th St. to Lynhurst Drive	New 4-ln. divided
DPW	Marion	20	38th St.	Cold Springs Rd. to W.R.P.E.D.	4-ln. divided to 6-ln. div.
DPW	Marion	52	County Line Rd.	Five Points to Franklin Rd.	New 2-ln. on 4-ln. div. ROW
DPW	Marion	119.2	Payne Rd	79th St to 71st St	New 2-ln. on 4-ln. div. ROW
DPW	Marion	21	46th St	Pendleton Pike to Mitthoeffer Rd	W 2-ln. to 4-ln. div.
DPW	Marion	48	Camby Rd	Kentucky Ave to Mooresville Rd	W 2-ln. to 4-ln. div.
DPW	Marion	68	Girls School Rd	Crawfordsville Rd to 21st St (pt SR134)	W 2-ln. to 4-ln. div.
DPW	Marion	609	Highschool Rd	46th St to 56th St	W 2-ln. to 4-ln. div.
DPW	Marion	126.1	Reed Rd.	Realignment @46th St. to E.C.P.	New 2-ln. on 4-ln. div. ROW
DPW	Marion	44	Bluff Rd.	Thompson Rd. to SR 37	W 2-ln. to 4-ln. div.
Lawrence	Marion	43.2	56th St	Lee Rd to Pendelton Pike	Widen 2-ln. to 4-ln. div.
Town of Whiteland	Johnson	159.2	Whiteland Rd.	Center Rd. to U.S. 31	Widen 2-ln. to 4-ln. div.
Town of Whiteland	Johnson	159.3	Whiteland Rd.	U.S. 31 to Conrail RR	Widen 2-ln. to 4-ln. div.
Hamilton County	Hamilton	804	116th St	I-69 to Cumberland Ridge	Widen 4-ln. to 6-ln.

Hamilton County	Hamilton	805	Brooks School Rd	Fall Creek to 116th St	Widen 2-ln. to 4-ln.
Carmel	Hamilton	812	146th St	River Ave to Cumberland Rd	Widen 2-ln. to 4-ln.
Carmel	Hamilton	813	146th St	Oak Ridge to Grassy	Widen 2-ln. to 4-ln.
Hamilton County	Hamilton	814	Greenfield	Allisonville Rd. to Cumberland	Widen 2-ln. to 4-ln.
Hamilton County	Hamilton	816	Shelbourne Rd	96th St to 126th St	Widen 2-ln. to 4-ln.
Hamilton County	Hamilton	821	96th St	U.S. 431 to Allisonville Rd.	Widen 4-ln. to 6-ln.
Hamilton County	Hamilton	822	96th St	Allisonville Rd. to I-69	Widen 4-ln. to 6-ln.
Hamilton County	Hamilton	831	Allisonville Rd	146th to Greenfield	Widen 2-ln. to 4-ln.
Hamilton County	Hamilton	3.1	116th St.	Michigan Rd. to Shelborne Rd.	Reconst./widen to 4-ln. div.
Carmel	Hamilton	8	116th St.	Gray Rd. to River Ave.	Widen 2-ln. to 4-ln. div.
Hendricks County	Hendricks	22	56th St.	SR 267 to N/S Corridor	Reconst./widen to 4-ln. div.
Plainfield	Hendricks	124.3	Plainfield Circle Rd.	east side and NW side of town	New 2-ln. on 4-ln. div. ROW
Johnson County	Johnson	133.1	Smith Valley Rd.	Mann Rd. to SR 37	New 2-ln. on 4-ln. div. ROW
Johnson County	Johnson	158	E-W Corridor	SR 144 to Meridian Rd. (SR 135)	Widen 2-ln. to 4-ln. div.
Johnson County	Johnson	159.1	E-W Corridor	Meridian Rd. (SR 135) to Center Rd.	Widen 2-ln. to 4-ln. div.
Johnson County	Johnson	159.4	E-W Corridor	Conrail RR to I-65	Widen 2-ln. to 4-ln. div.
Johnson County	Johnson	159.5	E-W Corridor	I-65 to Franklin Rd.	Widen 2-ln. to 4-ln. div.
Town of Avon	Hendricks	648	CR 800E (Dan Jones Rd.)	CR 300S to CR 200N	Widen 2-ln. to 4-ln.
Plainfield	Hendricks	649	Dan Jones Rd.	U.S. 40 to CR 300s	Widen 2-ln. to 4-ln. div.
Town of Avon	Hendricks	660	CR 100S (Morris St.)	Raceway Rd. to SR 267	Widen 2-ln. to 4-ln.
Plainfield	Hendricks	661	Perimeter Parkway	SR 267 to Moon Rd. to U.S. 40	Widen 2-ln. to 4-ln. div.
Plainfield	Hendricks	662	Perry Rd.	SR 267 to Stafford	Widen 2-ln. to 4-ln. div.
Plainfield	Hendricks	663	Perimeter Parkway	SR 267 to CR 900E	Widen 2-ln. to 4-ln. div.
Plainfield	Hendricks	664	CR 550 S. (Reeves/Stanley)	SR 267 to Center St.	Widen 2-ln. to 3-ln.
Johnson County	Johnson	807	Franklin	Rocklane to CR 600 N	Widen 2-ln. to 4-ln.
Boone	Boone	809	Zionsville Rd	96th rd to SR 334	Widen 2-ln. to 4-ln.
Hendricks County	Hendricks	810	CR 1000 N	Lafayette Rd to SR 267	Widen 2-ln. to 4-ln.
DPW	Marion	137	Southport Rd.	Emerson Ave. to Franklin Rd.	W 2-ln. to 4-ln. div.
DPW	Marion	149	Thompson Rd.	Kentucky Ave. to High School Rd.	New 4-ln. div.
DPW	Marion	156	West St.	Raymond St. to Bluff Rd.	W 2-ln. to 4-ln. div.
DPW	Marion	148	Thompson Rd.	Mendenhall Rd. to Kentucky Ave.	W 2-ln. to 4-ln. div.
DPW	Marion	60.1	Franklin Rd.	Brookville Rd. (US 52) to Troy Ave.	W 2-ln. to 4-ln. div.
DPW	Marion	49.1	Camby Rd Extension	Mooresville Rd. to Mann Rd.	New 2 ln. on 4-ln. div. ROW

DPW	Marion	54.1	Emerson Ave.	I-465 to Thompson Rd.	W 4-ln. to 6-ln. div.

ILLUSTRATIVE STATE TRANSPORTATION PROJECTS					
County	MPO ID#	INDOT LRP ID#; /DES#.	Facility	Location	Project Description
Hamilton	905	115; 9133575	SR 37	2.38 mi N of SR 32 to 3.46 mi N of SR 32	W 2-ln. to 4-ln.
Hancock	904.2	111; 0101410	US 36/SR 67(Pendleton Pike)	0.49 mi E of SR 13 to SR 9 in Madison Co	W 2-ln. to 4-ln. div.
Hancock	904.1	110; 0101381	US 36/SR67	Mt. Comfort Rd., 0.33 mi W of SR 234, to .37 mi W of SR 13	W 2-ln. to 5-ln.
Hancock	630	0	US 52	Gem Rd. to 8.29 miles east of I-465	TSM Improvements
Hendricks/ Morgan	901	21; 0500293	I-70	US 231 to .5 mi W of SR 267	W 4-ln. to 6-ln.
Hendricks	94.1	23; 9910400	I-70	Six Points to .75 mi W of SR 267	W 6-ln. to 10-ln.
Hendricks	702	23; 9910400	I-70	At SR 267	Int. Mod.
Hendricks	140	0	SR 267	SR 67 to SR 267 S. of I-70	New 2-ln. on 4-ln. div. ROW
Hendricks	910	6; 0500295	US 36	Placeholder for US 36 Danville Connector	New 4 ln.
Johnson	907	313; 0500399	SR 135	SR 252 to SR 144	W 2-ln. to 4-ln.
Johnson	908	316; 0500397	SR 144	SR 37 to SR 135	W 2-ln. to 4-ln.
Johnson	909	317	SR 144	Johnson Rd (CR 400 E) to SR 37	W 2-ln. to 4-ln.
Johnson	8100	318; Frank5	SR 144	SR 135 to CR 200 N	W 2-ln. to 4-ln.
Johnson	8101	247; Frank1	SR 44	SR 144 at CR 200 N to SR 44 at Eastview Drive.	New road CN – 4 lanes
Marion	614	126; 0500414	I-65	I-70 north split to 38th St.	Add 1 ln. in each direction
Marion	624	148; 0500419	I-70	I-70 South split to Airport Expressway	W 6-ln. div. to 8-ln. div.
Marion	94.2	142; 0300562	I-70 (west)	Six Points to I-465	W 10-ln. to 14-ln. div.
Marion	674	25; 0500291	I-74	SR 267 to I-465	W 4-ln. div. to 6-ln. div.
Johnson	Nil	Nil	I-65	Interchange with Worthsville Road	New Interchange

ILLUSTRATIVE INDIANAPOLIS PUBLIC TRANSPORTATION CORPORATION TRANSIT PROJECTS					
County	MPO ID#	INDOT LRP ID#; /DES#.	Facility	Location	Project Description
Marion	Nil	Nil	Bus & Bus Facility	IndyGo	Fixed Route Replacement Buses
Marion	Nil	Nil	Bus & Bus Facility	IndyGo	Replacement Paratransit Buses
Marion	Nil	Nil	Bus & Bus Facility	IndyGo	Bus Facility Replacement
Marion	Nil	Nil	Bus & Bus Facility	IndyGo	Fixed Route Expansion Buses
Marion	Nil	Nil	Bus & Bus Facility	IndyGo	Expansion Paratransit Buses

Indianapolis Public Transportation Corporation Projects

Following is the final list of all the Transit projects included in the in the cost-feasible Indianapolis 2030 Long Range Transportation Plan on behalf of the Indianapolis Public Transportation Corporation (IndyGo). The list has been provided by IndyGo. Projects are sorted by funding period. Since the transit projects are exempt from the air quality analysis, they are not modeled.

2006-2010 IndyGo Projects					
County	Agency	Funding Period	Facility	Location	Project Description
Marion	IndyGo	2006-2010	Bus & Bus Facility	IndyGo	Downtown Transit Center(s)
Marion	IndyGo	2006-2010	Intermodal Facility	The Children's Museum	Intermodal Facility
Marion	IndyGo	2006-2010	Multimodal Facility	Ivy Tech Community College	Multimodal Facility

Anderson Metropolitan Planning Organization Projects

Following is the final list of all the added-capacity projects in the cost-feasible 2030 Long Range Transportation Plan for the Madison County Council of Governments (MCCOG or Anderson MPO). The list has been provided by MCCOG. Projects are sorted by funding period. All the projects are modeled for the air quality analysis.

2006-2010 MCCOG Projects				
County	INDOT LRP ID#; /DES#.	Facility	Location	Project Description
Madison	NIL	CR 400 South/67th Street	MLK Blvd. & CR 400 W.	Added Travel Lanes
Madison	9700420	I-69	Exit #34 at SR 67, Daleville	Interchange Modification
2011-2020 MCCOG Projects				
County	INDOT LRP ID#; /DES#.	Facility	Location	Project Description
Madison	NIL	Madison Ave.	29th to 53rd Streets	Added Travel Lanes
Madison	NIL	Main St.	38th to 46th Streets.	Added Travel Lanes
Madison	112; 0500042	US 36	From Fall Creek Bridge to SR 9 S. Junction	Added Travel Lanes
Madison	NIL	53rd St.	Columbus to Pendleton Ave.	Added Travel Lanes
Madison	NIL	Columbus Ave.	60th to 67th Streets.	Added Travel Lanes
Madison	NIL	Madison Ave.	53rd St. to Corporate Limits	Added Travel Lanes
Madison	NIL	Raible Ave.	W. 29th to 38th Streets	Added Travel Lanes
Madison	NIL	Rangeline Rd./CR 200 E.	SR 236 & CR 400 S.	Added Travel Lanes /Interchange improvements
Madison	NIL	W. Enterprise Dr. Corridor	CR 400 W. to SR 38	New Road Construction
Madison	NIL	W. Enterprise Dr. Corridor	SR 38 to CR 650 W.	New Road Construction
Madison	NIL	CR 400 South/67th Street	MLK Blvd. & Ridgeview Dr	Added Travel Lanes
Madison	NIL	38th St.	SR 9 to Rangeline Rd.	Add Travel Lanes/Sidewalks
Madison	NIL	Rangeline Rd./CR 200 E.	CR 400 S. & CR 500 S.	Added Travel Lanes
2021-2030 MCCOG Projects				

County	INDOT LRP ID#; /DES#.	Facility	Location	Project Description
Madison	NIL	Madison Ave.	Van Buskirk to Cross St.	Added Travel Lanes
Madison	NIL	Raible Ave.	North Shore to Cross St.	Added Travel Lanes
Madison	NIL	Enterprise Dr. Corridor	MLK Blvd. & Ridgeview Dr.	New Road Construction
Madison	NIL	Enterprise Dr. Corridor	Ridgeview Dr. & Madison Ave.	New Road Construction
Madison	NIL	Enterprise Dr. Corridor	Madison Ave. & Columbus Ave.	New Road Construction

Following is the list of added-capacity projects which are listed illustrative in the 2030 Regional Transportation Plan for the Madison County Council of Governments (MCCOG or Anderson MPO). The list has been provided by MCCOG. The list does not reflect in the amendments as proposed above. These projects are not modeled for the air quality analysis as they are exempt.

Illustrative MCCOG Projects				
County	INDOT LRP ID#; /DES#.	Facility	Location	Project Description
Madison	NIL 9706370	SR 9	SR 128 to SR 28	Median Construction
Madison	NIL 0014010	SR 9	I-69 Exit # 22 to Fall Creek Bridge	Median Construction
Madison	NIL	SR 13	from CR 300 S. to Madison/Hancock Line	Added Travel Lanes
Madison	NIL	SR 37	CR 400 N. to SR 28	Added Travel Lanes
Madison	134; 0300856	I-69	SR 238 to SR 9/SR 67	Added Travel Lanes
Madison	133; 0300846	I-69	SR 9/SR 67 to SR 67/SR 32	Added Travel Lanes
Madison	NIL	SR 28	SR 37 & Mad/Tipton County Line	Median Construction
Madison	NIL	SR 38	SR 67 to I-69/Pendleton By-Pass	New Road Construction
Madison	NIL	US 36	E. UAB Fortville to SR 9 S. Junction	Added Travel Lanes
Madison	NIL	SR 9	From US 36/SR 67 to SR 234	Added Travel Lanes
Madison	NIL	SR 37	SR 28 to CR 1900 N. (SR37 from SR 13 S jct to CR 1300N Madison Co)	Added Travel Lanes
Madison	NIL	SR 38	East of I-69 to Hamilton County Line	Added Travel Lanes

Columbus Area Metropolitan Planning Organization Projects

Following is the list of the added-capacity projects in the cost-feasible 2030 Long Range Transportation Plan for the Columbus Area Metropolitan Planning Organization (CAMPO) that fall under the 9-county analysis region. This list has been provided by CAMPO. These projects are not modeled for the air quality analysis since they are listed as illustrative (and are exempt).

CAMPO Projects in the 9-county Region						
Agency	County	MPO ID#	INDOT LRP ID#; /DES#.	Facility	Location	Project Description
INDOT	Johnson	89.3	287; 0300854	I-65	.05 mi S of SR 252 to 0.5 mi S of SR 44 + 1 int	W 4-ln. div. to 6-ln. div.
INDOT	Johnson/Bartholomew	Nil	0300862	I-65	0.05 m South of SR 252 to US 31	W 4-ln. div. to 6-ln. div.

Appendix B: Central Indiana Air Quality Conformity Interagency Consultation Group Members

Meetings and discussions to guide the Air Quality Conformity Process for the 5-County PM 2.5 nonattainment area have taken place since October 2008. The following agencies and individuals have been instrumental in reviewing the processes and procedures used to demonstrate Air Quality Conformity.

Federal Highway Administration
Larry Heil

Federal Transit Administration Region 5
Andy Minyo

Indiana Dept. of Environmental Management- Office of Air Quality
Shawn Seals, Brian Callahan

U.S. Environmental Protection Agency Region 5
Patricia Morris

Indianapolis Public Transportation Corporation / IndyGo
Mike Terry

Staff members representing the jurisdictions within or partially within the 5-County nonattainment area are:

Indiana Department of Transportation
Steve Smith, Randy Walter, Jay Mitchell, Frank Baukert, Laurence Brown

Indianapolis MPO
Philip Roth, Steve Cunningham, Andy Swenson, Stephanie Belch, Kiran Avadhanula, Catherine Kostyn,

Madison County Council of Governments (Anderson MPO)
Jerold Bridges, Bruce Burnett, Peter Mitchell

Columbus MPO
Kent Anderson

Appendix C: Central Indiana Air Quality Conformity Interagency Consultation Group – Meeting Minutes

Central Indiana Air Quality Interagency Conformity Group Meeting
October 21, 2008
1.30 p.m. - 3:00 p.m.
1825 City County Building
200 E. Washington Street
Indianapolis/Marion County, IN 46202

In person	Through Conference Call
Philip Roth- MPO	Jerry Bridges – MCCOG
Stephanie Belch - MPO	Steve Ruble – CAMPO
Andrew Swenson-MPO	Shawn Seals – IDEM
Catherine Kostyn - MPO	Larry Heil - FHWA
Kiran Avadhanula - MPO	Patricia Morris – EPA
Randy Walter - INDOT	
Jay Mitchell - INDOT	
Laurence Brown – INDOT	

Three issues were addressed:

1. Adding **the Locally Preferred Alternative (LPA)** for the Northeast Rapid Transit corridor to the Regional Plan;
2. How to meet the **July 2009 expiration date for the Regional Plan**;
3. Clarification of **the status of our transportation-related pollutants** (Ozone and Particulate Matter 2.5) for Central Indiana.

Our **non-attainment / maintenance status for Ozone and PM 2.5** has been changing the last few years due to changes in standards and requests from the State for attainment designations. Over the next few years, our status is likely to change again.

It was clarified that currently we are still an **Ozone Maintenance area** (all nine counties) for the 8-hour standard. This designation is likely to change by March 2010 with compliance deadline following 12 months after designation.

Five counties (Hamilton, Hendricks, Marion, Morgan, and Johnson) are **Non-attainment for PM 2.5** - This designation is likely to change by December 2008, with compliance deadline following 12 months after designation.

There is no action required until the designations are out. Nevertheless, proactive action is encouraged.

The last **Update to the Regional Plan was approved in June 2005**. Because Regional Plans must be updated every four years, our **Plan expires in June 2009.**

It was determined that the Indianapolis MPO needs to move forward with a Minor Update to the Regional Plan that reaffirms our Goals and Objectives and amends the project list. This will to maintain conformity for both the Regional Plan and the IRTIP.

The **Locally Preferred Alternative (LPA) for the northeast corridor rapid transit** was unanimously approved by the joint IRTC meeting last month. In order to move forward with the Environmental Impact Statement, the LPA needs to be amended into the Regional Plan as a conclusion to the Alternatives Analysis.

The following projects will be amended into the Regional Plan:

- * The LPA for the northeast corridor rapid transit; add to last time period 2021– 2030, full build-out.

  * It was determined at a meeting with FHWA and FTA on 10/30/08 that we should amend only PE and RW costs into the Regional Plan in the 2021 – 2030 Time Frame.

- * Interim I-69 improvements (added travel lane in each direction from 96th to 116th Streets, and Interchange Modification at 116th St.); 2009 Construction.

  * It was determined at a meeting with INDOT and FHWA on 10/30/08, that the I-69 projects can stay in the 2011 – 2020 Time Frame due to the fact that the beginning of the this time frame is, in fact, January 1, 2010, in order for an entire year of conformity data can be collected and analyzed for the 2011 – 2020 time frame. INDOT is planning the Opening the additional lanes no earlier than January 1, 2010.

- Projects listed as Illustrative in the 2009 – 2012 IRTIP;
- Other projects as necessary.

In order to do this by June 2009, the following timeline will be followed:

2009 Plan Amendment: Approval Timeline

Late November 2008	Re affirm Regional Plan Goals & Objectives, Travel Demand Modeling and Air Quality Conformity Analysis;
Late January 2009	Final Modeling and air quality conformity analysis completed, draft distributed for public comment;
February 2009	Amendment approval sought through IRTC;
April 2009	Submit Amendment and Analyses to FHWA for their approval with 30-day contingency built-in;
June 2009	Regional Plan Conformity Approval by FHWA.

Next Steps

The Central Indiana Air Quality Conformity Group will meet again in one month to confirm our timeline. We will also discuss the timeline for completing a full update to the Regional Plan to a horizon year of 2035 using a more accurate travel demand model using a new household survey.

Central Indiana Air Quality Interagency Conformity Group Meeting
March 31, 2009
9:00am – 10:30 am
1341 City County Building
200 E. Washington Street
Indianapolis, IN 46202

In person	Through Conference Call
Philip Roth- MPO	Kent Anderson – CAMPO
Stephanie Belch - MPO	Gale Ferris - IDEM
Kiran Avadhanula - MPO	Larry Heil – FHWA
Catherine Kostyn - MPO	Steve Smith – INDOT
	Randy Walter - INDOT
	Jay Mitchell - INDOT
	Laurence Brown – INDOT

Comments/Concerns/Questions on the Draft 2030 Update to Indianapolis Regional Transportation Plan (RTP) 2009 Update and Air Quality Conformity Analysis:

Emissions Analysis – page 41

Larry Heil, FHWA, started the meeting by commenting on the "title" of the document we're preparing. It should be kept consistent, and simple: "2030 Update" is what Larry prefers. Adding a date of the Update would be appropriate to distinguish between different updates over the life of the Plan, but call it an Update not an amendment. All concurred.

On the new page 41, (describing the emissions budgets for analysis years by pollutant), Table 1, it was suggested that we remove the 2006 column data from the Ozone table since the first analysis year will be 2010. Since there are set Budgets for 2006 and 2020, the 2010 Budget must be under the 2006 Budget, and the 2030 Forecast must be under the 2020 Budget. The MPO may leave the 2006 Budget column in the table for reference, but the Estimated budget will be not applicable (n/a) to this conformity analysis.

For PM 2.5, on the same new page 41, Table 2, the 2002 column data should be kept to show the base year interim test (our current standard). The 2009 Budget should be used for the 2010, 2020, and 2030 Forecasts. This covers the current standard (2002) and the expected standard (2009) to be approved by EPA within the next year or so, and shows conformity for the RTP for both standards.

Philip Roth asked whether using the word "Actual" in the tables was as accurate as using Modeled, Projected, or Forecast. All agreed Actual was not the best word and either of the suggestions were good. After looking at some IDEM documents, it was determined that they use Estimated for past years, and Projected for future years.

When writing the Resolution for approval (IRTC/MDC), state that the air quality analysis includes both the current PM 2.5 standard and the new expected standard. This will cover any TIP or Plan updates/amendments that may fall under the new standard without having to redo conformity.

Coordination with MCCOG and CAMPO

MCCOG is doing a Plan Update that will need to coincide with this AQ Conformity Analysis. We will also need to include any added-capacity projects from the townships in Johnson and Shelby counties that share jurisdiction with CAMPO and IMPO.

Financial Constraint

INDOT shared some concerns about our inflation rate of 8%; INDOT has been using 3.5%. The 8% increase is based on Indianapolis' Department of Public Works' (DPW) recent history of project cost.

INDOT also shared concern over the seemingly high Arterial Road and Street Fund rate increase of 2.5%; however, they didn't have a better figure to suggest.

Project List Questions

SR 39 projects: from 0.46 m N of SR 37 to Morgan St. in Martinsville (currently 06 – 10 Time Frame), and Morgan St. in Martinsville to SR 67 (11 – 20 Time Frame). INDOT will check to see if both projects should be in the 11 – 20 Time Frame.

US 31 Freeway, Hamilton County: INDOT provided us a more current DES #. It was discussed whether the MPO needed to list all the DES #'s associated with the project (12 DES #'s for construction projects at this time). It was determined that as long as we had the corridor listed, and the most recent DES # for the corridor, that would suffice.

Distinguishing the Documents

A discussion was held as to the documents we were producing related to this 2030 Update. It was decided that the 2030 Update Air Quality Conformity Analysis include all added-capacity projects in all 9 counties, and the inclusion of the conformity analysis itself. The 2030 Update will include the updated chapters of the Regional Transportation Plan (RTP), including the new project listing (MPA projects only), and demonstration of fiscal constraint, among other topics in the narrative of the RTP.

Clarification of Open to Traffic Dates

It was suggested that we explain the exact dates of the time/funding periods and how the Open to Traffic dates fall into those time/funding frames. Here's an example:

Time/Funding Period	Open to Traffic
2006 – 2010	1/1/05 to 12/31/09
2011 – 2020	1/1/10 to 12/31/19
2021 – 2030	1/1/20 to 12/31/29

The reason for the apparent difference is that a project will need to be open to traffic for one year before the affect of the facility on air quality can be measured.

Appendix D: Modeling System

Approved Emissions Model Inputs and Assumptions

The following emissions factors are addressed / considered when conducting emissions modeling.

1) General Info
   a) Approved Emissions Model Version
   b) Pollutant(s) being modeled
   c) Evaluation month or interpolation scheme for annual PM2.5 emissions, where applicable
2) External Parameters
   a) Temperatures (min, max)
      i) Source of data
      ii) Method of calculating
   b) Absolute humidity
      i) Source and Method
   c) Cloud Cover
   d) Altitude
   e) Other
3) Programs
   a) I/M program parameters
   b) Anti-tampering programs
   c) Fuel Programs
4) Vehicular Parameters
   a) Vehicle Registration Distribution
      i) Year of distribution data
      ii) Source / Method
   b) Diesel Fraction
   c) VMT Fractions (fleet mix)
   d) Other
5) VMT Parameters
   a) VMT Fraction
      i) Source / Method
   b) VMT by Facility
   c) VMT by Hour
6) Speed
   a) Average speed method
   b) Speed table method
   c) Speed bin method

Data Needs

1) Sample Approved Emissions Model Input Files
   a) All associated Input Files and external data files
2) Sample Approved Emissions Model output Files
3) Any data or peripheral software used in the process

Emissions Calculations

The EMIS air quality model was developed in response to the conformity requirements of the federal Clean Air Act Amendments and the requirements of the Intermodal Surface Transportation Efficiency Act (ISTEA), the Transportation Equity Act for the 21st Century (TEA-21), and the Safe, Accountable, Flexible, Efficient Transportation Equity Act- A Legacy for Users (SAFETEA-LU). It uses the U.S. Environmental Protection Agency's MOBILE 6.2 computer application and a custom-written FORTRAN application to estimate daily mobile source emissions associated with transportation alternatives.

The EMIS air quality program estimates daily mobile source emissions for Direct PM 2.5, exhaust NOx, and other precursors and pollutants (VOC, exhaust CO, and ammonia). This is now done separately for four seasons due to the need to convert daily PM 2.5 emissions estimates to annual estimates. EMIS also reports vehicle miles of travel (VMT) and vehicle hours of travel (VHT). Summaries are provided for all nine counties in the modeling area, and presented by HPMS code, area type and facility type.

EMIS reads daily VMT and average speeds from the travel model, and emission factors from the output of MOBILE 6.2. Emissions are calculated for each highway link using a "*link-based speed*" method, which involves multiplying the VMT (link length in miles X daily vehicles) by the emission factor in grams per vehicle mile, for the estimated speed reported from the travel model. Reading the vehicle trip table and estimating the intrazonal travel distance from the intrazonal travel time and the centroid connector speeds accounts for intrazonal travel. Separate sets of emissions factors are used for freeways, ramps, arterials and intrazonal/centroid connectors. EMIS then accumulates emissions by county, area type and facility type. An example of the EMIS output is provided in Appendix D and E.

The following emissions calculations are addressed / considered when conducting Transportation Demand Forecast Modeling.

1) Emission Analysis Process Description
    a. Link-by-link - generalized
    b. Evaporative or Cold Start Emissions removal
2) Emissions adjustments
    a. TCM – Transportation Control Measures
    b. Diesel Retrofits
3) Consistencies with SIP
    a. Assumptions
        i. New data available
        ii. Updates performed pursuant to conformity Latest Planning Assumptions guidance
4) Other

This section provides an overview of the EMIS procedure developed for the Indianapolis Metropolitan Planning Organization for use with MOBILE 6.2, an air quality modeling program mandated by the U.S. Environmental Protection Agency.

Emission Factors

MOBILE 6.2 is used to generate a lookup table of emission factors for arterial and freeway links in

5 mph speed increments, as well as emission rates for ramps and locals, and then emissions are calculated on a link-by-link basis. This involves using the AVERAGE SPEED command for freeways and arterials, and the VMT BY FACILITY command for centroid connectors and intrazonal trips, as described in *User's Guide to MOBILE6.1 and MOBILE6.2*[1].

The AVERAGE SPEED command is used to determine the emission factors for all travel on two types of facilities:

- Non-ramp Freeway- All VMT occurs on freeways, excluding freeway ramps
- Arterial - All VMT occurs on arterial/collector roadways

For each modeling year, unique emissions factors are derived for each freeway and arterial link based on estimated speed and facility type. Scenario records are generated beginning at 3.0 mph, then at 5.0 mph and increasing in 5 mph increments to 65.0 mph using the "AVERAGE SPEED" command. Each of the resulting 28 scenarios generates emission factors for Direct PM 2.5, NOx, and other precursors for the specified speed range and type of facility.

VMT BY FACILITY is used to generate emission factors for centroid connectors, intrazonal trips and freeway ramps. The centroid/intrazonal scenario uses a custom input file that specifies that all VMT occurs on local roads for all possible vehicle types. Similarly, the ramp scenario uses a custom input file that specifies that all VMT occurs on ramps for all possible vehicle types. This method does not require an estimate of average speed.

- Centroid connectors represent the local roads that lead from driveways and parking lots to roadways that are significant enough to appear in the network. So, while the connectors are idealized, the travel is real and the roadway type is "local."
- Intrazonal trips are trips that begin and end in the same TAZ without leaving that TAZ. Obviously they begin and end at different physical locations, but the detail of the trip is finer than the detail of the model. Nevertheless, the model assumes that these trips have an average distance, and that distance is one-half the distance from the zone centroid to the nearest centroid outside the zone (standard practice). It is generally held that most trips beginning and ending in the same TAZ travel on local roads.

A Fortran program called m6in.exe generates the required MOBILE 6.2 input files (see Appendix C). For PM 2.5 modeling, unique input files are generated for each of the four seasons. The process also uses a regional vehicle age distribution (Appendix G) to estimate change in the vehicle mix over time. EMIS reads the MOBILE 6.2 output files (Appendix D) to retrieve the emission factors used in the calculations. The factors for modeled speeds are interpolated between the five-mile per hour increments reported by MOBILE 6.2 to match the floating-point decimal speed reported by the travel model for each roadway link. The speed on each link is a function of the initial free-flow speed for the link as determined in model calibration, and the congested speed resulting from the model's capacity-restrained assignment process. EMIS calculates mobile source emissions (grams of PM 2.5, exhaust NOx, and others) for each link and accumulates these values for reporting (Appendix E).

Link-Based Speed

For explanatory purposes, a *"link-based speed"* method best describes the approach used to estimate daily mobile source emissions. First, emission factors (estimated grams of NOx, HC, and PM 2.5 emissions per vehicle mile) are generated for freeways and arterial streets by average travel speed from 3 mph to 65 mph. Estimated daily emissions are then calculated for

[1] User's Guide to Mobile 6.1 and 6.2. U.S. Environmental Protection Agency. EPA420-R-02-028. October 2002.

each individual link by multiplying the modeled vehicle miles traveled (VMT) by the relevant emission factor. The following hypothetical data illustrates an example link for which estimated direct emissions of fine particulate matter (PM 2.5) in winter of 2010 are 26.3 g/day:

County	Johnson
Facility Type	Arterial
Year	2010
Modeled vehicle miles traveled (VMT) per day	1,000 VMT
Modeled Average Speed	30 mph
Emission Factor for Direct PM 2.5 *(p. 68)*	0.0263 g/mi/day
Estimated daily emissions on link	1,000 VMT*0.0263 g/mi/day = **26.3** g/day

Emissions are summed for analysis by geographic area, facility type, and/or average speed.

EMIS acts as a "shell" application, running successive scenarios of the MOBILE 6.2 model using the latter's "AVERAGE SPEED" command. Scenario records are generated beginning at 3.0 mph, then at 5.0 mph and increasing in 5 mph increments to 65 mph. These scenarios are run for both Non-ramp freeway and Arterial facility types, resulting in 28 scenarios for each set of environmental inputs.

MOBILE 6.2's "VMT BY FACILITY" command is then used to generate emission factors for centroid connectors, intrazonal trips and freeway ramps. The centroid/intrazonal scenario uses a custom input file that specifies that all VMT occurs on local roads for all possible vehicle types. Similarly, the ramp scenario uses a custom input file that specifies that all VMT occurs on ramps for all possible vehicle types. This method does not require an estimate of average speed.

EMIS develops a consistent set of emissions factors by facility type and (for freeways and arterials) by speed. These emissions factors are expressed in grams per vehicle mile of travel. These factors are then applied to outputs from regional travel models, resulting in daily emissions estimates.

The Indianapolis MPO uses a validated speed capacity table to arrive at network speeds, which considers area type (e.g., Central Business District, Residential, Rural), facility type (e.g., Freeway, Arterial), lanes, and hourly capacity. Emissions factors are then applied to the travel model on a link-by-link basis. The Indianapolis MPO process matches by facility type, but interpolates between the two closest emissions factors based on speed.

Model Application

EMIS must be run from the Indianapolis Model TransCAD interface. Before EMIS can be run, a complete model application must have been run, and the resulting loads must have been attached to the network database using the "Get Hwy Loads..." menu selection. Then, "Run EMIS..." will run MOBILE 6.2, m6in, and EMIS. The report files, called EMIS.jul, EMIS.jlm, EMIS.wnt, EMIS.spr, EMIS.smr, and EMIS.atm, will be created in the current modeling folder[2].

EMIS automatically applies the emission factors output from the MOBILE 6.2 model to the VMT projections derived from the Indianapolis Travel Demand Model. However, the emissions factors are a stand-alone output, and can be manually applied to travel demand model outputs. For more information on the Indianapolis Travel Demand Model, see Chapters 3 and 4 in the Indianapolis 2030 Regional Transportation Plan Update approved in June 2005.

[2] EMIS.jul reports emissions forecasts for the 8-hour ozone standard based on climate inputs for a typical July day in Central Indiana. EMIS.wnt, EMIS.spr, EMIS.smr, and EMIS.atm are used for PM 2.5 emissions analysis, and report seasonal emissions forecasts based on climate inputs representing an average day in each season.

Appendix D-1: Sample MOBILE 6.2 Inputs, Ozone – Summer 2010

```
MOBILE6 INPUT FILE :
PARTICULATES
>Indy MPO 2010 Summer
RUN DATA
NO REFUELING       :
EXPRESS HC AS VOC  :
MIN/MAX TEMP       : 60.5  82.2
ABSOLUTE HUMIDITY  : 56.2
CLOUD COVER        : 0.66
SUNRISE/SUNSET     : 6 8
REG DIST           :c:\I98\m6\IN_grpPM.d
FUEL RVP           :  9.0


SCENARIO RECORD    : ~ 3.0 NON-RAMP
AVERAGE SPEED      :  3.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~ 5.0 NON-RAMP
AVERAGE SPEED      :  5.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~10.0 NON-RAMP
AVERAGE SPEED      : 10.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~15.0 NON-RAMP
AVERAGE SPEED      : 15.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~20.0 NON-RAMP
AVERAGE SPEED      : 20.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~25.0 NON-RAMP
AVERAGE SPEED      : 25.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~30.0 NON-RAMP
AVERAGE SPEED      : 30.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~35.0 NON-RAMP
AVERAGE SPEED      : 35.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~40.0 NON-RAMP
AVERAGE SPEED      : 40.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~45.0 NON-RAMP
AVERAGE SPEED      : 45.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00
```

```
SCENARIO RECORD    : ~50.0 NON-RAMP
AVERAGE SPEED      : 50.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~55.0 NON-RAMP
AVERAGE SPEED      : 55.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~60.0 NON-RAMP
AVERAGE SPEED      : 60.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~65.0 NON-RAMP
AVERAGE SPEED      : 65.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~ 3.0 ARTERIAL
AVERAGE SPEED      :  3.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~ 5.0 ARTERIAL
AVERAGE SPEED      :  5.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~10.0 ARTERIAL
AVERAGE SPEED      : 10.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~15.0 ARTERIAL
AVERAGE SPEED      : 15.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~20.0 ARTERIAL
AVERAGE SPEED      : 20.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~25.0 ARTERIAL
AVERAGE SPEED      : 25.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~30.0 ARTERIAL
AVERAGE SPEED      : 30.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~35.0 ARTERIAL
AVERAGE SPEED      : 35.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~40.0 ARTERIAL
AVERAGE SPEED      : 40.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~45.0 ARTERIAL
AVERAGE SPEED      : 45.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
```

```
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~50.0 ARTERIAL
AVERAGE SPEED      : 50.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~55.0 ARTERIAL
AVERAGE SPEED      : 55.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~60.0 ARTERIAL
AVERAGE SPEED      : 60.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~65.0 ARTERIAL
AVERAGE SPEED      : 65.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~VMT BY FACILITY
VMT BY FACILITY    : c:\I98\m6\fvmt.def
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~VMT BY FACILITY
VMT BY FACILITY    : c:\I98\m6\rmpvmt.def
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV
c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV
c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00
```

Appendix D-2: Sample MOBILE 6.2 Output, Ozone – Summer 2010

```
*************************************************************************
* MOBILE6.2 (31-Oct-2002)                                               *
* Input file: MOBILE6.IN (file 1, run 1).                               *
*************************************************************************

* # # # # # # # # # # # # # # # # # # # # # # # # # # #
* ~ 3.0 NON-RAMP
* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of  3.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

* Reading Ammonia (NH3) Basic Emission Rates
* from the external data file PMNH3BER.D

* Reading Ammonia (NH3) Sulfur Deterioration Rates
* from the external data file PMNH3SDR.D

                    Calendar Year:  2010
```

```
                     Month:  July
                  Altitude:  Low
          Minimum Temperature:  60.5 (F)
          Maximum Temperature:  82.2 (F)
            Absolute Humidity:   56. grains/lb
             Nominal Fuel RVP:   9.0 psi
                Weathered RVP:   8.9 psi
          Fuel Sulfur Content:   30. ppm

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

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	5.200	3.868	4.642	4.078	6.425	0.433	0.789	1.164	7.51	4.301
Composite CO :	25.92	24.06	27.51	24.99	40.40	3.149	2.115	7.288	90.11	24.651
Composite NOX :	1.078	1.165	1.633	1.292	1.656	0.673	0.916	11.130	1.15	2.048

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~ 5.0 NON-RAMP
* File 1, Run 1, Scenario 2.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of  5.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV
```

```
* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	2.415	1.937	2.396	2.062	3.319	0.402	0.731	1.066	5.63	2.156
Composite CO :	17.75	17.12	19.36	17.73	34.60	2.792	1.870	6.338	61.51	17.566
Composite NOX :	0.981	1.066	1.488	1.180	1.685	0.628	0.853	10.420	1.10	1.896

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~10.0 NON-RAMP
* File 1, Run 1, Scenario 3.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 10.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV
```

```
* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                 <6000     >6000     (All)
                        ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      1.286     1.059     1.324     1.131     1.877    0.330     0.596     0.837      3.49     1.195
     Composite CO  :     11.36     11.50     12.90     11.88     23.02     2.055     1.363     4.370     31.22    11.545
     Composite NOX :      0.690     0.762     1.077     0.848     1.770    0.524     0.711     8.807      1.04     1.488
  ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~15.0 NON-RAMP
* File 1, Run 1, Scenario 4.
* # # # # # # # # # # # # # # # # # # # # # # # # #
```

```
  M581 Warning:
            The user supplied freeway average speed of 15.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
                Minimum Temperature:  60.5 (F)
                Maximum Temperature:  82.2 (F)
                  Absolute Humidity:   56. grains/lb
                   Nominal Fuel RVP:   9.0 psi
                      Weathered RVP:   8.9 psi
                Fuel Sulfur Content:   30. ppm

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

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
             GVWR:                 <6000     >6000     (All)
                      ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 ---------------------------------------------------------------------------------------------------------------------
Composite Emission Factors (g/mi):
```

```
    Composite VOC :      1.001     0.805     1.009     0.860     1.392    0.278     0.498     0.672      2.77     0.919
    Composite CO  :      9.57      9.84     11.05     10.17     16.18     1.599     1.049     3.154     21.41     9.634
    Composite NOX :      0.551     0.618     0.883     0.690     1.855    0.453     0.614     7.704      1.05     1.268
  ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~20.0 NON-RAMP
* File 1, Run 1, Scenario 5.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 20.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

              Exhaust I/M Program:  No
                 Evap I/M Program:  No
```

```
                    ATP Program:  No
                Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 ---------------------------------------------------------------------------------------------------------------------
Composite Emission Factors (g/mi):
    Composite VOC :      0.876     0.688     0.875     0.739     1.099     0.240     0.426     0.551      2.43     0.790
    Composite CO  :      9.20      9.49     10.67      9.81     12.02     1.309     0.850     2.382     16.89     9.084
    Composite NOX :      0.558     0.627     0.893     0.699     1.941     0.405     0.549     6.966      1.11     1.217
 ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~25.0 NON-RAMP
* File 1, Run 1, Scenario 6.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 25.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                           Month:  July
                        Altitude:  Low
```

```
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.815	0.646	0.821	0.693	0.931	0.213	0.374	0.462	2.22	0.730
Composite CO :	9.02	9.33	10.47	9.64	9.43	1.122	0.722	1.882	14.12	8.782
Composite NOX :	0.561	0.633	0.898	0.705	2.026	0.375	0.508	6.502	1.18	1.186

```
* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~30.0 NON-RAMP
* File 1, Run 1, Scenario 7.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 30.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV
```

```
* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                 <6000     >6000     (All)
                        ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
    VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
   ---------------------------------------------------------------------------------------------------------------------
  Composite Emission Factors (g/mi):
      Composite VOC :      0.773     0.617     0.784     0.662     0.819     0.192     0.335     0.396      2.07     0.689
      Composite CO  :      8.90      9.22     10.35      9.52      7.82     1.000     0.638     1.557     12.12     8.587
      Composite NOX :      0.563     0.636     0.902     0.708     2.111     0.360     0.486     6.260      1.24     1.171
   ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~35.0 NON-RAMP
* File 1, Run 1, Scenario 8.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 35.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV
```

```
* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
             GVWR:                 <6000     >6000     (All)
                     ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :      0.736     0.590     0.748     0.633     0.741    0.177     0.306     0.347      1.94     0.653
    Composite CO  :      8.98      9.30     10.44      9.61      6.85     0.922     0.584     1.348     10.63     8.600
    Composite NOX :      0.561     0.636     0.901     0.708     2.197    0.357     0.482     6.211      1.29     1.170
  ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~40.0 NON-RAMP
* File 1, Run 1, Scenario 9.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 40.0
```

```
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.

 * Reading PM Gas Carbon ZML Levels
 * from the external data file C:\I98\M6\PMGZML.CSV

 * Reading PM Gas Carbon DR1 Levels
 * from the external data file C:\I98\M6\PMGDR1.CSV

 * Reading PM Gas Carbon DR2 Levels
 * from the external data file C:\I98\M6\PMGDR2.CSV

 * Reading PM Diesel Zero Mile Levels
 * from the external data file C:\I98\M6\PMDZML.CSV

 * Reading the First PM Deterioration Rates
 * from the external data file C:\I98\M6\PMDDR1.CSV

 * Reading the Second PM Deterioration Rates
 * from the external data file C:\I98\M6\PMDDR2.CSV
   M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                 <6000     >6000     (All)
                        ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
    VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
   ---------------------------------------------------------------------------------------------------------------------
  Composite Emission Factors (g/mi):
      Composite VOC :      0.711     0.574     0.727     0.616     0.685     0.165     0.284     0.311      1.86     0.630
      Composite CO  :      9.40      9.71     10.89     10.03      6.34     0.874     0.551     1.221      9.60     8.935
```

```
    Composite NOX :      0.568     0.644     0.910     0.717     2.282    0.366     0.495     6.351      1.33     1.191
  ------------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~45.0 NON-RAMP
* File 1, Run 1, Scenario 10.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 45.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.690	0.561	0.710	0.601	0.645	0.157	0.269	0.285	1.81	0.611
Composite CO :	9.82	10.12	11.34	10.45	6.19	0.850	0.535	1.158	8.95	9.290
Composite NOX :	0.578	0.656	0.923	0.729	2.368	0.388	0.525	6.694	1.35	1.233

```
* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~50.0 NON-RAMP
* File 1, Run 1, Scenario 11.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 50.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
```

```
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.670	0.547	0.692	0.586	0.614	0.151	0.258	0.267	1.79	0.594
Composite CO :	10.24	10.53	11.78	10.87	6.40	0.847	0.533	1.149	8.68	9.664
Composite NOX :	0.588	0.668	0.937	0.741	2.453	0.426	0.576	7.281	1.43	1.295

```
* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~55.0 NON-RAMP
* File 1, Run 1, Scenario 12.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 55.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
```

```
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.651	0.535	0.675	0.573	0.591	0.148	0.251	0.255	1.79	0.579
Composite CO :	10.67	10.94	12.23	11.29	6.98	0.864	0.544	1.193	8.68	10.057
Composite NOX :	0.599	0.681	0.951	0.754	2.538	0.483	0.656	8.180	1.59	1.384

```
* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~60.0 NON-RAMP
* File 1, Run 1, Scenario 13.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 60.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
            all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
```

```
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
             GVWR:                <6000     >6000     (All)
                      ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :      0.636     0.525     0.660     0.561     0.577     0.146     0.248     0.250      2.09     0.568
    Composite CO  :     11.09     11.36     12.68     11.72      8.05     0.902     0.571     1.297     15.26     10.508
    Composite NOX :      0.610     0.693     0.967     0.768     2.624     0.569     0.772     9.504      1.74     1.509
  ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~65.0 NON-RAMP
* File 1, Run 1, Scenario 14.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M581 Warning:
            The user supplied freeway average speed of 65.0
            will be used for all hours of the day. 100% of VMT
            has been assigned to the freeway roadway type for
```

```
            all hours of the day and all vehicle types.

 * Reading PM Gas Carbon ZML Levels
 * from the external data file C:\I98\M6\PMGZML.CSV

 * Reading PM Gas Carbon DR1 Levels
 * from the external data file C:\I98\M6\PMGDR1.CSV

 * Reading PM Gas Carbon DR2 Levels
 * from the external data file C:\I98\M6\PMGDR2.CSV

 * Reading PM Diesel Zero Mile Levels
 * from the external data file C:\I98\M6\PMDZML.CSV

 * Reading the First PM Deterioration Rates
 * from the external data file C:\I98\M6\PMDDR1.CSV

 * Reading the Second PM Deterioration Rates
 * from the external data file C:\I98\M6\PMDDR2.CSV
   M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
             GVWR:                 <6000     >6000     (All)
                      ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.624     0.516     0.647     0.551     0.572     0.146     0.248     0.250      2.38     0.560
     Composite CO  :     11.52     11.77     13.13     12.14      9.81     0.969     0.617     1.475     21.84    10.989
     Composite NOX :      0.621     0.706     0.982     0.781     2.709     0.693     0.943    11.437      1.90     1.685
  ---------------------------------------------------------------------------------------------------------------------
```

```
* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~ 3.0 ARTERIAL
* File 1, Run 1, Scenario 15.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of  3.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

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

```
               GVWR:               <6000     >6000     (All)
                        ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      5.200     3.868     4.642     4.078     6.425    0.433     0.789     1.164      7.51     4.301
     Composite CO  :     25.92     24.06     27.51     24.99     40.40     3.149     2.115     7.288     90.11    24.651
     Composite NOX :      1.078     1.165     1.633     1.292     1.656    0.673     0.916    10.469      1.15     1.993
  ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~ 5.0 ARTERIAL
* File 1, Run 1, Scenario 16.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of  5.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
```

```
                    Weathered RVP:   8.9 psi
                Fuel Sulfur Content:   30. ppm

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

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	2.415	1.938	2.396	2.062	3.319	0.402	0.731	1.066	5.63	2.156
Composite CO :	17.75	17.12	19.36	17.73	34.60	2.792	1.870	6.338	61.51	17.566
Composite NOX :	0.981	1.066	1.488	1.180	1.685	0.628	0.853	9.758	1.10	1.842

```
* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~10.0 ARTERIAL
* File 1, Run 1, Scenario 17.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 10.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
```

```
             there are no sales for vehicle class HDGV8b

                   Calendar Year:  2010
                           Month:  July
                        Altitude:  Low
             Minimum Temperature:  60.5 (F)
             Maximum Temperature:  82.2 (F)
               Absolute Humidity:   56. grains/lb
                  Nominal Fuel RVP:   9.0 psi
                     Weathered RVP:   8.9 psi
             Fuel Sulfur Content:   30. ppm

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

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	1.328	1.105	1.385	1.181	1.877	0.330	0.596	0.837	3.49	1.236
Composite CO :	12.09	12.17	13.65	12.57	23.02	2.055	1.363	4.370	31.22	12.164
Composite NOX :	0.799	0.879	1.230	0.974	1.770	0.524	0.711	8.145	1.04	1.538

```
* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~15.0 ARTERIAL
* File 1, Run 1, Scenario 18.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 15.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV
```

```
* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
             GVWR:                 <6000     >6000     (All)
                      ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :      1.053     0.860     1.082     0.920     1.392    0.278     0.498     0.672      2.77     0.969
    Composite CO  :     10.43     10.63     11.93     10.98     16.18     1.599     1.049     3.154     21.41    10.357
    Composite NOX :      0.687     0.763     1.073     0.847     1.855    0.453     0.614     7.043      1.05     1.343
  ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~20.0 ARTERIAL
* File 1, Run 1, Scenario 19.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 20.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.
```

```
* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.900     0.714     0.908     0.767     1.099    0.240     0.426     0.551      2.43     0.813
     Composite CO  :      9.53      9.80     11.00     10.13     12.02     1.309     0.850     2.382     16.89     9.364
     Composite NOX :      0.630     0.704     0.994     0.783     1.941    0.405     0.549     6.305      1.11     1.231
  ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # #
```

```
* ~25.0 ARTERIAL
* File 1, Run 1, Scenario 20.
* # # # # # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 25.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

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

```
   VMT Distribution:    0.3334    0.3944    0.1468             0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
  ------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.822     0.654     0.831     0.702     0.931     0.213     0.374     0.462      2.22     0.737
     Composite CO  :      9.10      9.40     10.56      9.71      9.43     1.122     0.722     1.882     14.12     8.848
     Composite NOX :      0.595     0.669     0.946     0.744     2.026     0.375     0.508     5.841      1.18     1.163
  ------------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~30.0 ARTERIAL
* File 1, Run 1, Scenario 21.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 30.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm
```

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

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                        ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.774     0.618     0.786     0.664     0.819     0.192     0.335     0.396      2.07     0.690
     Composite CO  :      8.91      9.23     10.37      9.54      7.82     1.000     0.638     1.557     12.12     8.599
     Composite NOX :      0.572     0.645     0.914     0.718     2.111     0.360     0.486     5.598      1.24     1.125
  ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~35.0 ARTERIAL
* File 1, Run 1, Scenario 22.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 35.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b
```

```
                  Calendar Year:  2010
                          Month:  July
                       Altitude:  Low
             Minimum Temperature:  60.5 (F)
             Maximum Temperature:  82.2 (F)
               Absolute Humidity:   56. grains/lb
                Nominal Fuel RVP:   9.0 psi
                   Weathered RVP:   8.9 psi
             Fuel Sulfur Content:   30. ppm

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

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.736	0.590	0.748	0.633	0.741	0.177	0.306	0.347	1.94	0.653
Composite CO :	8.98	9.30	10.44	9.61	6.85	0.922	0.584	1.348	10.63	8.600
Composite NOX :	0.561	0.636	0.901	0.708	2.197	0.357	0.482	5.549	1.29	1.115

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~40.0 ARTERIAL
* File 1, Run 1, Scenario 23.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 40.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV
```

```
* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
             there are no sales for vehicle class HDGV8b

                   Calendar Year:  2010
                           Month:  July
                        Altitude:  Low
             Minimum Temperature:  60.5 (F)
             Maximum Temperature:  82.2 (F)
               Absolute Humidity:   56. grains/lb
                Nominal Fuel RVP:   9.0 psi
                   Weathered RVP:   8.9 psi
             Fuel Sulfur Content:   30. ppm

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

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                      ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
    Composite VOC :      0.711     0.574     0.727     0.616     0.685     0.165     0.284     0.311      1.86     0.630
    Composite CO  :      9.40      9.71     10.89     10.03      6.34     0.874     0.551     1.221      9.60     8.935
    Composite NOX :      0.568     0.644     0.910     0.717     2.282     0.366     0.495     5.689      1.33     1.137
  ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~45.0 ARTERIAL
* File 1, Run 1, Scenario 24.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 45.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV
```

```
* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                      ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
  ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
     Composite VOC :      0.690     0.561     0.710     0.601     0.645    0.157     0.269     0.285      1.81     0.611
     Composite CO  :      9.82     10.12     11.34     10.45      6.19     0.850     0.535     1.158      8.95     9.290
     Composite NOX :      0.578     0.656     0.923     0.729     2.368    0.388     0.525     6.033      1.35     1.178
  ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~50.0 ARTERIAL
* File 1, Run 1, Scenario 25.
```

```
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 50.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
             GVWR:                 <6000     >6000     (All)
                      ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
 VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
-----------------------------------------------------------------------------------------------------------------------
```

```
 Composite Emission Factors (g/mi):
     Composite VOC :      0.670     0.547     0.692     0.586     0.614     0.151     0.258     0.267      1.79     0.594
     Composite CO  :     10.24     10.53     11.78     10.87      6.40     0.847     0.533     1.149      8.68     9.664
     Composite NOX :      0.588     0.668     0.937     0.741     2.453     0.426     0.576     6.619      1.43     1.240
  ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~55.0 ARTERIAL
* File 1, Run 1, Scenario 26.
* # # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 55.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

              Exhaust I/M Program:  No
```

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

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.651	0.535	0.675	0.573	0.591	0.148	0.251	0.255	1.79	0.579
Composite CO :	10.67	10.94	12.23	11.29	6.98	0.864	0.544	1.193	8.68	10.057
Composite NOX :	0.599	0.681	0.951	0.754	2.538	0.483	0.656	7.518	1.59	1.329

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~60.0 ARTERIAL
* File 1, Run 1, Scenario 27.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 60.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                           Month:  July
```

```
                    Altitude:  Low
             Minimum Temperature:  60.5 (F)
             Maximum Temperature:  82.2 (F)
               Absolute Humidity:   56. grains/lb
                Nominal Fuel RVP:   9.0 psi
                   Weathered RVP:   8.9 psi
             Fuel Sulfur Content:   30. ppm

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

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.636	0.525	0.660	0.561	0.577	0.146	0.248	0.250	2.09	0.568
Composite CO :	11.09	11.36	12.68	11.72	8.05	0.902	0.571	1.297	15.26	10.508
Composite NOX :	0.610	0.693	0.967	0.768	2.624	0.569	0.772	8.842	1.74	1.454

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~65.0 ARTERIAL
* File 1, Run 1, Scenario 28.
* # # # # # # # # # # # # # # # # # # # # # # # #
  M583 Warning:
            The user supplied arterial average speed of 65.0
            will be used for all hours of the day.  100% of VMT
            has been assigned to the arterial/collector roadway
            type for all hours of the day and all vehicle types.

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
```

```
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	0.624	0.516	0.647	0.551	0.572	0.146	0.248	0.250	2.38	0.560
Composite CO :	11.52	11.77	13.13	12.14	9.81	0.969	0.617	1.475	21.84	10.989
Composite NOX :	0.621	0.706	0.982	0.781	2.709	0.693	0.943	10.775	1.90	1.630

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~VMT BY FACILITY
* File 1, Run 1, Scenario 29.
* # # # # # # # # # # # # # # # # # # # # # # # #

* Reading Hourly Roadway VMT distribution from the following external
* data file: C:\I98\M6\FVMT.DEF

  Reading User Supplied ROADWAY VMT Factors

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
```

```
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Composite VOC :	1.106	0.907	1.136	0.969	1.563	0.298	0.535	0.735	3.00	1.025
Composite CO :	8.90	9.41	10.64	9.75	18.64	1.765	1.164	3.597	24.49	9.317
Composite NOX :	0.559	0.636	0.899	0.707	1.819	0.479	0.650	6.999	1.04	1.220

```
* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~VMT BY FACILITY
* File 1, Run 1, Scenario 30.
* # # # # # # # # # # # # # # # # # # # # # # # # #
```

```
* Reading Hourly Roadway VMT distribution from the following external
* data file: C:\I98\M6\RMPVMT.DEF

  Reading User Supplied ROADWAY VMT Factors

* Reading PM Gas Carbon ZML Levels
* from the external data file C:\I98\M6\PMGZML.CSV

* Reading PM Gas Carbon DR1 Levels
* from the external data file C:\I98\M6\PMGDR1.CSV

* Reading PM Gas Carbon DR2 Levels
* from the external data file C:\I98\M6\PMGDR2.CSV

* Reading PM Diesel Zero Mile Levels
* from the external data file C:\I98\M6\PMDZML.CSV

* Reading the First PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR1.CSV

* Reading the Second PM Deterioration Rates
* from the external data file C:\I98\M6\PMDDR2.CSV
  M 48 Warning:
              there are no sales for vehicle class HDGV8b

                    Calendar Year:  2010
                            Month:  July
                         Altitude:  Low
              Minimum Temperature:  60.5 (F)
              Maximum Temperature:  82.2 (F)
                Absolute Humidity:   56. grains/lb
                 Nominal Fuel RVP:   9.0 psi
                    Weathered RVP:   8.9 psi
              Fuel Sulfur Content:   30. ppm

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

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
             GVWR:                <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 ---------------------------------------------------------------------------------------------------------------------
Composite Emission Factors (g/mi):
    Composite VOC :      0.800     0.642     0.818     0.690     0.746     0.178     0.308     0.351      1.95     0.706
```

Composite CO :	12.50	12.16	13.48	12.52	6.91	0.927	0.587	1.361	10.66	11.350
Composite NOX :	0.670	0.738	1.047	0.822	2.190	0.356	0.482	5.256	1.29	1.188

Appendix D-3 Sample Emissions Report (from MOBILE 6.2: EMIS), Ozone – Summer 2010

The following pages contain a single emissions report for July of 2010, followed by a complete set of emissions factors used for analysis related to ozone. Although not required, emission factors and forecasts for carbon monoxide (CO), fine particulate matter (PM 2.5) and ammonia (NH3) are also included in the emissions report.

```
INDIANAPOLIS REGIONAL  TRAVEL DEMAND MODEL --
 EMISSION MODEL FOR MOBILE 6.2 -- PROGRAM DATE: 12NOV2004
  -  RUN TIME: 11:15:14  02APR09

  ** EMISSION FACTORS FROM MOBILE 6.2
 Road Class    Speed      HC      CO      NOx      PM      NH3
 +--------+--------+-------+-------+-------+-------+-------+
    Freeway        3  4.3010 24.6510  2.0480  0.0250  0.0927
    Freeway        5  2.1560 17.5660  1.8960  0.0250  0.0927
    Freeway       10  1.1950 11.5450  1.4880  0.0250  0.0927
    Freeway       15  0.9190  9.6340  1.2680  0.0250  0.0927
    Freeway       20  0.7900  9.0840  1.2170  0.0250  0.0927
    Freeway       25  0.7300  8.7820  1.1860  0.0250  0.0927
    Freeway       30  0.6890  8.5870  1.1710  0.0249  0.0927
    Freeway       35  0.6530  8.6000  1.1700  0.0249  0.0927
    Freeway       40  0.6300  8.9350  1.1910  0.0249  0.0927
    Freeway       45  0.6110  9.2900  1.2330  0.0249  0.0927
    Freeway       50  0.5940  9.6640  1.2950  0.0249  0.0927
    Freeway       55  0.5790 10.0570  1.3840  0.0249  0.0927
    Freeway       60  0.5680 10.5080  1.5090  0.0249  0.0927
    Freeway       65  0.5600 10.9890  1.6850  0.0249  0.0927
  Arterial        3  4.3010 24.6510  1.9930  0.0250  0.0927
  Arterial        5  2.1560 17.5660  1.8420  0.0250  0.0927
  Arterial       10  1.2360 12.1640  1.5380  0.0250  0.0927
  Arterial       15  0.9690 10.3570  1.3430  0.0250  0.0927
  Arterial       20  0.8130  9.3640  1.2310  0.0250  0.0927
  Arterial       25  0.7370  8.8480  1.1630  0.0250  0.0927
  Arterial       30  0.6900  8.5990  1.1250  0.0249  0.0927
  Arterial       35  0.6530  8.6000  1.1150  0.0249  0.0927
  Arterial       40  0.6300  8.9350  1.1370  0.0249  0.0927
  Arterial       45  0.6110  9.2900  1.1780  0.0249  0.0927
  Arterial       50  0.5940  9.6640  1.2400  0.0249  0.0927
  Arterial       55  0.5790 10.0570  1.3290  0.0249  0.0927
  Arterial       60  0.5680 10.5080  1.4540  0.0249  0.0927
  Arterial       65  0.5600 10.9890  1.6300  0.0249  0.0927
     Local        1  1.0250  9.3170  1.2200  0.0250  0.0927
     Ramps        1  0.7060 11.3500  1.1880  0.0249  0.0927
```

INDIANAPOLIS REGIONAL TRAVEL DEMAND MODEL --
EMISSION MODEL FOR MOBILE 6.2 -- PROGRAM DATE: 12NOV2004
- RUN TIME: 11:15:14 02APR09

EMISSIONS IN KILOGRAMS PER DAY
+++ ALTERNATIVE IS:10A
MOBILE6 INPUT FILE :
- -

Marion County

HPMS TYPE	VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------					
INTERSTATE (1)	189.	3327.	467.	8.	30.
OTH. PRINC. ART.(2)	107.	649.	56.	1.	3.
MINOR ARTERIAL (6)	204.	2533.	324.	7.	25.
CENCON & INTRAS (9)	22.	204.	27.	1.	2.
SUBTOTAL	521.	6713.	874.	16.	60.
-----URBAN------					
INTERSTATE (11)	6806.	107814.	14654.	277.	1032.
OTH.FWY & XWAY (12)	499.	6398.	828.	17.	65.
OTH. PRINC. ART.(14)	5450.	70816.	9148.	198.	738.
MINOR ARTERIAL (16)	5908.	75689.	9803.	213.	791.
CENCON & INTRAS (19)	2495.	22679.	2970.	61.	226.
SUBTOTAL	21159.	283396.	37401.	767.	2852.
---TOTAL---	21680.	290109.	38275.	783.	2913.
(TONS)	23.88	319.50	42.15	0.86	3.21

DAILY TRAVEL STATS
- -

Marion County

HPMS TYPE	DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------			
INTERSTATE (1)	325816.	5970.	54.57
OTH. PRINC. ART.(2)	29464.	8037.	3.67
MINOR ARTERIAL (6)	273473.	10503.	26.04
CENCON & INTRAS (9)	21857.	1093.	20.00
SUBTOTAL	650610.	25603.	25.41
-----URBAN------			
INTERSTATE (11)	11155268.	256561.	43.48
OTH.FWY & XWAY (12)	700828.	24939.	28.10
OTH. PRINC. ART.(14)	8070031.	314583.	25.65
MINOR ARTERIAL (16)	8538934.	286702.	29.78
CENCON & INTRAS (19)	2434240.	162298.	15.00
SUBTOTAL	30899320.	1045083.	29.57
TOTAL	31549936.	1070686.	29.47

Hamilton County

HPMS TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------						
INTERSTATE	(1)	256.	4316.	588.	11.	41.
OTH. PRINC. ART.	(2)	593.	8886.	1129.	24.	89.
MINOR ARTERIAL	(6)	354.	4783.	615.	14.	50.
CENCON & INTRAS	(9)	458.	4163.	545.	11.	41.
SUBTOTAL		1662.	22148.	2877.	60.	222.
-----URBAN------						
INTERSTATE	(11)	437.	6383.	866.	17.	64.
OTH.FWY & XWAY	(12)	723.	9321.	1207.	26.	96.
OTH. PRINC. ART.	(14)	898.	12102.	1559.	33.	125.
MINOR ARTERIAL	(16)	1236.	15863.	2048.	44.	164.
CENCON & INTRAS	(19)	728.	6615.	866.	18.	66.
SUBTOTAL		4023.	50284.	6546.	138.	514.
---TOTAL---		5684.	72431.	9423.	198.	736.
(TONS)		6.26	79.77	10.38	0.22	0.81

DAILY TRAVEL STATS

Hamilton County

HPMS TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------				
INTERSTATE	(1)	436956.	8322.	52.51
OTH. PRINC. ART.	(2)	963994.	22029.	43.76
MINOR ARTERIAL	(6)	543479.	15264.	35.61
CENCON & INTRAS	(9)	446807.	22340.	20.00
SUBTOTAL		2391236.	67955.	35.19
-----URBAN------				
INTERSTATE	(11)	694947.	17277.	40.22
OTH.FWY & XWAY	(12)	1034481.	35119.	29.46
OTH. PRINC. ART.	(14)	1344499.	40325.	33.34
MINOR ARTERIAL	(16)	1764721.	60040.	29.39
CENCON & INTRAS	(19)	709966.	46482.	15.27
SUBTOTAL		5548612.	199244.	27.85
TOTAL		7939848.	267198.	29.72

Johnson County

HPMS TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------						
INTERSTATE	(1)	383.	6819.	955.	17.	62.
OTH. PRINC. ART.	(2)	536.	8185.	1051.	22.	81.
MINOR ARTERIAL	(6)	139.	2021.	260.	6.	21.
CENCON & INTRAS	(9)	353.	3212.	421.	9.	32.
SUBTOTAL		1412.	20238.	2685.	52.	195.
-----URBAN------						
INTERSTATE	(11)	290.	4871.	668.	12.	46.
OTH.FWY & XWAY	(12)	86.	1281.	163.	3.	13.
OTH. PRINC. ART.	(14)	438.	6193.	791.	17.	64.
MINOR ARTERIAL	(16)	378.	5152.	663.	14.	54.
CENCON & INTRAS	(19)	313.	2844.	372.	8.	28.
SUBTOTAL		1506.	20341.	2657.	55.	204.
---TOTAL---		2918.	40579.	5343.	107.	400.
(TONS)		3.21	44.69	5.88	0.12	0.44

DAILY TRAVEL STATS

Johnson County

HPMS TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------				
INTERSTATE	(1)	666749.	11734.	56.82
OTH. PRINC. ART.	(2)	871809.	19880.	43.85
MINOR ARTERIAL	(6)	222547.	5461.	40.75
CENCON & INTRAS	(9)	344746.	17237.	20.00
SUBTOTAL		2105850.	54311.	38.77
-----URBAN------				
INTERSTATE	(11)	493580.	9554.	51.66
OTH.FWY & XWAY	(12)	139826.	3240.	43.16
OTH. PRINC. ART.	(14)	685642.	17816.	38.48
MINOR ARTERIAL	(16)	581697.	16186.	35.94
CENCON & INTRAS	(19)	305279.	20352.	15.00
SUBTOTAL		2206023.	67148.	32.85
TOTAL		4311872.	121460.	35.50

Hendricks County

HPMS TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------						
INTERSTATE	(1)	430.	8081.	1181.	19.	70.
OTH. PRINC. ART.	(2)	499.	7488.	953.	20.	75.
MINOR ARTERIAL	(6)	76.	1048.	135.	3.	11.
CENCON & INTRAS	(9)	357.	3241.	424.	9.	32.
SUBTOTAL		1362.	19859.	2693.	51.	188.
-----URBAN------						
INTERSTATE	(11)	281.	5141.	734.	12.	46.
OTH. PRINC. ART.	(14)	543.	7621.	975.	21.	79.
MINOR ARTERIAL	(16)	318.	4438.	568.	12.	46.
CENCON & INTRAS	(19)	216.	1968.	258.	5.	20.
SUBTOTAL		1358.	19168.	2535.	51.	190.
---TOTAL---		2721.	39026.	5228.	102.	379.
(TONS)		3.00	42.98	5.76	0.11	0.42

DAILY TRAVEL STATS

Hendricks County

HPMS TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------				
INTERSTATE	(1)	760067.	12401.	61.29
OTH. PRINC. ART.	(2)	806156.	18799.	42.88
MINOR ARTERIAL	(6)	119237.	3181.	37.48
CENCON & INTRAS	(9)	347840.	17392.	20.00
SUBTOTAL		2033301.	51773.	39.27
-----URBAN------				
INTERSTATE	(11)	493419.	8376.	58.91
OTH. PRINC. ART.	(14)	846875.	22306.	37.97
MINOR ARTERIAL	(16)	498943.	12924.	38.61
CENCON & INTRAS	(19)	211265.	14067.	15.02
SUBTOTAL		2050501.	57674.	35.55
TOTAL		4083803.	109447.	37.31

Hancock County

HPMS TYPE	VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------					
OTH. PRINC. ART.(2)	320.	4704.	600.	13.	47.
MINOR ARTERIAL (6)	93.	1288.	165.	4.	13.
CENCON & INTRAS (9)	181.	1645.	215.	4.	16.
SUBTOTAL	594.	7636.	980.	21.	77.
-----URBAN------					
INTERSTATE (11)	609.	10801.	1519.	26.	98.
OTH. PRINC. ART.(14)	408.	5703.	730.	16.	59.
MINOR ARTERIAL (16)	318.	4174.	539.	12.	44.
CENCON & INTRAS (19)	198.	1799.	236.	5.	18.
SUBTOTAL	1533.	22476.	3023.	59.	218.
---TOTAL---	2127.	30113.	4004.	79.	295.
(TONS)	2.34	33.16	4.41	0.09	0.33

DAILY TRAVEL STATS

Hancock County

HPMS TYPE	DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------			
OTH. PRINC. ART.(2)	510371.	12470.	40.93
MINOR ARTERIAL (6)	145254.	3815.	38.07
CENCON & INTRAS (9)	176566.	8828.	20.00
SUBTOTAL	832192.	25113.	33.14
-----URBAN------			
INTERSTATE (11)	1056902.	18754.	56.36
OTH. PRINC. ART.(14)	631585.	16997.	37.16
MINOR ARTERIAL (16)	471148.	14681.	32.09
CENCON & INTRAS (19)	193041.	12869.	15.00
SUBTOTAL	2352676.	63301.	37.17
TOTAL	3184868.	88414.	36.02

Shelby County

HPMS TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------						
INTERSTATE	(1)	543.	9955.	1427.	24.	88.
OTH. PRINC. ART.	(2)	291.	4359.	554.	12.	44.
MINOR ARTERIAL	(6)	11.	171.	22.	0.	2.
CENCON & INTRAS	(9)	159.	1445.	189.	4.	14.
SUBTOTAL		1004.	15930.	2192.	40.	148.
-----URBAN------						
INTERSTATE	(11)	266.	4887.	701.	12.	43.
OTH. PRINC. ART.	(14)	104.	1483.	190.	4.	15.
MINOR ARTERIAL	(16)	32.	443.	57.	1.	5.
CENCON & INTRAS	(19)	91.	835.	109.	2.	8.
SUBTOTAL		493.	7649.	1057.	19.	71.
---TOTAL---		1497.	23579.	3249.	59.	219.
(TONS)		1.65	25.97	3.58	0.06	0.24

DAILY TRAVEL STATS

Shelby County

HPMS TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------				
INTERSTATE	(1)	952767.	16081.	59.25
OTH. PRINC. ART.	(2)	469663.	10994.	42.72
MINOR ARTERIAL	(6)	18571.	437.	42.53
CENCON & INTRAS	(9)	155084.	7754.	20.00
SUBTOTAL		1596085.	35266.	45.26
-----URBAN------				
INTERSTATE	(11)	466596.	7832.	59.58
OTH. PRINC. ART.	(14)	164042.	4228.	38.80
MINOR ARTERIAL	(16)	49975.	1285.	38.89
CENCON & INTRAS	(19)	89727.	5892.	15.23
SUBTOTAL		770340.	19237.	40.05
TOTAL		2366425.	54503.	43.42

Boone County

HPMS TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------						
INTERSTATE	(1)	767.	13748.	1945.	33.	124.
OTH. PRINC. ART.	(2)	451.	6880.	874.	18.	69.
MINOR ARTERIAL	(6)	97.	1330.	171.	4.	14.
CENCON & INTRAS	(9)	270.	2455.	321.	7.	24.
SUBTOTAL		1585.	24413.	3311.	62.	231.
-----URBAN------						
OTH. PRINC. ART.	(14)	129.	1739.	224.	5.	18.
MINOR ARTERIAL	(16)	44.	573.	74.	2.	6.
CENCON & INTRAS	(19)	49.	443.	58.	1.	4.
SUBTOTAL		222.	2755.	356.	8.	28.
---TOTAL---		1807.	27168.	3667.	70.	259.
(TONS)		1.99	29.92	4.04	0.08	0.29

DAILY TRAVEL STATS

Boone County

HPMS TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------				
INTERSTATE	(1)	1335845.	23334.	57.25
OTH. PRINC. ART.	(2)	739038.	16363.	45.17
MINOR ARTERIAL	(6)	150675.	4062.	37.09
CENCON & INTRAS	(9)	263447.	13172.	20.00
SUBTOTAL		2489006.	56931.	43.72
-----URBAN------				
OTH. PRINC. ART.	(14)	193387.	5744.	33.67
MINOR ARTERIAL	(16)	64976.	2073.	31.35
CENCON & INTRAS	(19)	47505.	3167.	15.00
SUBTOTAL		305869.	10984.	27.85
TOTAL		2794875.	67915.	41.15

Morgan County

HPMS TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------						
INTERSTATE	(1)	214.	4016.	587.	9.	35.
OTH. PRINC. ART.	(2)	835.	12744.	1648.	34.	125.
MINOR ARTERIAL	(6)	78.	1081.	138.	3.	11.
CENCON & INTRAS	(9)	338.	3077.	403.	8.	31.
SUBTOTAL		1465.	20918.	2776.	54.	202.
-----URBAN------						
OTH. PRINC. ART.	(14)	155.	2484.	325.	6.	24.
MINOR ARTERIAL	(16)	23.	327.	42.	1.	3.
CENCON & INTRAS	(19)	30.	274.	36.	1.	3.
SUBTOTAL		208.	3084.	403.	8.	30.
---TOTAL---		1673.	24002.	3179.	62.	232.
(TONS)		1.84	26.43	3.50	0.07	0.26

DAILY TRAVEL STATS

Morgan County

HPMS TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------				
INTERSTATE	(1)	377608.	6157.	61.33
OTH. PRINC. ART.	(2)	1347577.	31642.	42.59
MINOR ARTERIAL	(6)	122023.	3147.	38.77
CENCON & INTRAS	(9)	330215.	16511.	20.00
SUBTOTAL		2177423.	57457.	37.90
-----URBAN------				
OTH. PRINC. ART.	(14)	258039.	5400.	47.79
MINOR ARTERIAL	(16)	36655.	925.	39.62
CENCON & INTRAS	(19)	29374.	1958.	15.00
SUBTOTAL		324068.	8283.	39.12
TOTAL		2501491.	65741.	38.05

Madison County

HPMS TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------						
INTERSTATE	(1)	527.	9068.	1253.	23.	84.
OTH. PRINC. ART.	(2)	630.	9526.	1211.	26.	95.
MINOR ARTERIAL	(6)	10.	143.	18.	0.	1.
CENCON & INTRAS	(9)	327.	3049.	399.	8.	30.
SUBTOTAL		1494.	21786.	2881.	57.	211.
-----URBAN------						
INTERSTATE	(11)	136.	2381.	330.	6.	22.
OTH. PRINC. ART.	(14)	601.	8417.	1078.	23.	87.
CENCON & INTRAS	(19)	280.	2542.	333.	7.	25.
SUBTOTAL		1016.	13340.	1740.	36.	134.
---TOTAL---		2510.	35126.	4621.	93.	345.
(TONS)		2.76	38.69	5.09	0.10	0.38

DAILY TRAVEL STATS

Madison County

HPMS TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------				
INTERSTATE	(1)	904797.	16754.	54.01
OTH. PRINC. ART.	(2)	1024175.	23300.	43.96
MINOR ARTERIAL	(6)	15982.	399.	40.02
CENCON & INTRAS	(9)	326859.	15760.	20.74
SUBTOTAL		2271813.	56213.	40.41
-----URBAN------				
INTERSTATE	(11)	235276.	4225.	55.68
OTH. PRINC. ART.	(14)	936710.	24831.	37.72
CENCON & INTRAS	(19)	272860.	18191.	15.00
SUBTOTAL		1444845.	47247.	30.58
TOTAL		3716661.	103460.	35.92

Total Model Area

HPMS TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------						
INTERSTATE	(1)	3309.	59330.	8403.	143.	534.
OTH. PRINC. ART.	(2)	4262.	63421.	8076.	168.	627.
MINOR ARTERIAL	(6)	1063.	14399.	1847.	40.	149.
CENCON & INTRAS	(9)	2465.	22490.	2944.	60.	224.
SUBTOTAL		11099.	159639.	21270.	412.	1534.
-----URBAN------						
INTERSTATE	(11)	8826.	142278.	19472.	363.	1351.
OTH.FWY & XWAY	(12)	1309.	16999.	2197.	47.	174.
OTH. PRINC. ART.	(14)	8726.	116559.	15020.	324.	1207.
MINOR ARTERIAL	(16)	8258.	106658.	13793.	299.	1113.
CENCON & INTRAS	(19)	4399.	39999.	5237.	107.	398.
SUBTOTAL		31517.	422493.	55719.	1141.	4243.
---TOTAL---		42617.	582132.	76989.	1553.	5777.
(TONS)		46.93	641.11	84.79	1.71	6.36

DAILY TRAVEL STATS

Total Model Area

HPMS TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------				
INTERSTATE	(1)	5760607.	100754.	57.18
OTH. PRINC. ART.	(2)	6762250.	163513.	41.36
MINOR ARTERIAL	(6)	1611241.	46269.	34.82
CENCON & INTRAS	(9)	2413420.	120088.	20.10
SUBTOTAL		16547518.	430623.	38.43
-----URBAN------				
INTERSTATE	(11)	14595988.	322580.	45.25
OTH.FWY & XWAY	(12)	1875135.	63299.	29.62
OTH. PRINC. ART.	(14)	13130802.	452230.	29.04
MINOR ARTERIAL	(16)	12007047.	394815.	30.41
CENCON & INTRAS	(19)	4293262.	285277.	15.05
SUBTOTAL		45902288.	1518198.	30.23
TOTAL		62449768.	1948820.	32.04

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 INDIANAPOLIS REGIONAL  TRAVEL DEMAND MODEL --
 EMISSION MODEL FOR MOBILE 6.2 -- PROGRAM DATE: 12NOV2004
  -  RUN TIME: 11:15:14  02APR09

 EMISSIONS IN KILOGRAMS PER DAY
 +++ ALTERNATIVE IS:10A
MOBILE6 INPUT FILE :
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - -
Marion County
                          VOC  EXHST   EXHST   TOTAL
 AREA TYPE                HC     CO     NOx   PM2.5     NH3
_____________________________________________________________________________

CBD              (1)   1054.  14076.   1846.     39.    144.
CDB FRINGE       (2)   9927. 132962.  17459.    365.   1358.
RESIDENTIAL      (3)  10161. 136040.  18050.    362.   1348.
RURAL            (5)    538.   7031.    919.     17.     63.
---TOTAL---           21680. 290109.  38275.    783.   2913.
 (TONS)                23.88  319.50   42.15    0.86    3.21
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - -
Marion County
                          VOC  EXHST   EXHST   TOTAL
 FACILITY                 HC     CO     NOx   PM2.5     NH3
_____________________________________________________________________________

FREEWAY          (1)   6801. 108031.  14796.    279.   1037.
EXPRESSWAY       (2)    499.   6398.    828.     17.     65.
2-WAY ART w/prk  (3)   6142.  78473.  10162.    220.    819.
ONE-WAY ARTERIAL (4)    600.   7873.   1018.     22.     83.
CENTROID CONNECT (5)   2516.  22872.   2995.     61.    228.
2-WAY ART wo/prk (6)   4927.  63352.   8152.    176.    656.
FREEWAY RAMPS    (7)    193.   3110.    326.      7.     25.
---TOTAL---           21680. 290109.  38275.    783.   2913.
 (TONS)                23.88  319.50   42.15    0.86    3.21

 DAILY TRAVEL STATS
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Marion County
                          DAILY       DAILY  AVERAGE
       AREA TYPE            VMT         VHT    SPEED
_____________________________________________________________________________

CBD              (1)    1554519.      48868.   31.81
CDB FRINGE       (2)   14650606.     453046.   32.34
RESIDENTIAL      (3)   14665021.     542688.   27.02
RURAL            (5)     679752.      26084.   26.06
TOTAL                  31549936.    1070686.   29.47
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
Marion County
                          DAILY       DAILY  AVERAGE
   FACILITY TYPE          VMT         VHT    SPEED
_____________________________________________________________________________
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FREEWAY	(1)	11207099.	246995.	45.37
EXPRESSWAY	(2)	700828.	24939.	28.10
2-WAY ART w/prk	(3)	8835519.	299927.	29.46
ONE-WAY ARTERIAL	(4)	896001.	27277.	32.85
CENTROID CONNECT	(5)	2454906.	163351.	15.03
2-WAY ART wo/prk	(6)	7181566.	292661.	24.54
FREEWAY RAMPS	(7)	273991.	15536.	17.64
TOTAL		31549936.	1070686.	29.47

Hamilton County

AREA TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
CDB FRINGE	(2)	200.	2974.	402.	8.	29.
RESIDENTIAL	(3)	3532.	43518.	5655.	120.	447.
SUBURBAN CBD	(4)	267.	3438.	443.	9.	35.
RURAL	(5)	1686.	22501.	2922.	61.	225.
---TOTAL---		5684.	72431.	9423.	198.	736.
(TONS)		6.26	79.77	10.38	0.22	0.81

Hamilton County

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
FREEWAY	(1)	693.	10699.	1454.	28.	105.
EXPRESSWAY	(2)	960.	12927.	1665.	35.	132.
2-WAY ART w/prk	(3)	1430.	18352.	2371.	51.	190.
ONE-WAY ARTERIAL	(4)	1.	8.	1.	0.	0.
CENTROID CONNECT	(5)	1186.	10778.	1411.	29.	107.
2-WAY ART wo/prk	(6)	1415.	19668.	2521.	54.	202.
---TOTAL---		5684.	72431.	9423.	198.	736.
(TONS)		6.26	79.77	10.38	0.22	0.81

DAILY TRAVEL STATS

Hamilton County

AREA TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
CDB FRINGE	(2)	308583.	8388.	36.79
RESIDENTIAL	(3)	4821433.	177261.	27.20
SUBURBAN CBD	(4)	380038.	12705.	29.91
RURAL	(5)	2429795.	68845.	35.29
TOTAL		7939848.	267198.	29.72

Hamilton County

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED

FREEWAY	(1)	1131904.	25599.	44.22
EXPRESSWAY	(2)	1422385.	43732.	32.53
2-WAY ART w/prk	(3)	2052852.	68950.	29.77
ONE-WAY ARTERIAL	(4)	839.	19.	45.00
CENTROID CONNECT	(5)	1156772.	68822.	16.81
2-WAY ART wo/prk	(6)	2175098.	60077.	36.21
TOTAL		7939848.	267198.	29.72

Johnson County

AREA TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
CDB FRINGE	(2)	132.	1727.	222.	5.	18.
RESIDENTIAL	(3)	1236.	16869.	2211.	45.	169.
SUBURBAN CBD	(4)	138.	1745.	225.	5.	18.
RURAL	(5)	1412.	20238.	2685.	52.	195.
---TOTAL---		2918.	40579.	5343.	107.	400.
(TONS)		3.21	44.69	5.88	0.12	0.44

Johnson County

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
FREEWAY	(1)	674.	11690.	1623.	29.	108.
EXPRESSWAY	(2)	138.	2161.	278.	6.	21.
2-WAY ART w/prk	(3)	518.	7173.	922.	20.	75.
CENTROID CONNECT	(5)	666.	6056.	793.	16.	60.
2-WAY ART wo/prk	(6)	922.	13498.	1726.	37.	136.
---TOTAL---		2918.	40579.	5343.	107.	400.
(TONS)		3.21	44.69	5.88	0.12	0.44

DAILY TRAVEL STATS

Johnson County

AREA TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
CDB FRINGE	(2)	194410.	5994.	32.43
RESIDENTIAL	(3)	1818054.	54608.	33.29
SUBURBAN CBD	(4)	193559.	6546.	29.57
RURAL	(5)	2105850.	54311.	38.77
TOTAL		4311872.	121460.	35.50

Johnson County

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
FREEWAY	(1)	1160329.	21288.	54.51
EXPRESSWAY	(2)	227945.	4868.	46.82

2-WAY ART w/prk	(3)	804244.	21647.	37.15	
CENTROID CONNECT	(5)	650024.	37589.	17.29	
2-WAY ART wo/prk	(6)	1469331.	36067.	40.74	
TOTAL		4311872.	121460.	35.50	

Hendricks County

AREA TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
RESIDENTIAL	(3)	1358.	19168.	2535.	51.	190.
RURAL	(5)	1362.	19859.	2693.	51.	188.
---TOTAL---		2721.	39026.	5228.	102.	379.
(TONS)		3.00	42.98	5.76	0.11	0.42

Hendricks County

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
FREEWAY	(1)	712.	13222.	1915.	31.	116.
2-WAY ART w/prk	(3)	352.	4869.	624.	14.	51.
CENTROID CONNECT	(5)	573.	5206.	682.	14.	52.
2-WAY ART wo/prk	(6)	1084.	15730.	2008.	43.	160.
---TOTAL---		2721.	39026.	5228.	102.	379.
(TONS)		3.00	42.98	5.76	0.11	0.42

DAILY TRAVEL STATS

Hendricks County

AREA TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
RESIDENTIAL	(3)	2050501.	57674.	35.55
RURAL	(5)	2033301.	51773.	39.27
TOTAL		4083803.	109447.	37.31

Hendricks County

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
FREEWAY	(1)	1253486.	20778.	60.33
2-WAY ART w/prk	(3)	550406.	14506.	37.94
CENTROID CONNECT	(5)	558711.	31450.	17.77
2-WAY ART wo/prk	(6)	1721200.	42713.	40.30
TOTAL		4083803.	109447.	37.31

Hancock County

		VOC	EXHST	EXHST	TOTAL

AREA TYPE		HC	CO	NOx	PM2.5	NH3
RESIDENTIAL	(3)	1510.	22160.	2983.	58.	215.
SUBURBAN CBD	(4)	23.	316.	40.	1.	3.
RURAL	(5)	594.	7636.	980.	21.	77.
---TOTAL---		2127.	30113.	4004.	79.	295.
(TONS)		2.34	33.16	4.41	0.09	0.33

Hancock County

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
FREEWAY	(1)	609.	10801.	1519.	26.	98.
2-WAY ART w/prk	(3)	411.	5461.	704.	15.	57.
CENTROID CONNECT	(5)	379.	3444.	451.	9.	34.
2-WAY ART wo/prk	(6)	728.	10407.	1330.	28.	106.
---TOTAL---		2127.	30113.	4004.	79.	295.
(TONS)		2.34	33.16	4.41	0.09	0.33

DAILY TRAVEL STATS

Hancock County

AREA TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
RESIDENTIAL	(3)	2318272.	62324.	37.20
SUBURBAN CBD	(4)	34404.	977.	35.20
RURAL	(5)	832192.	25113.	33.14
TOTAL		3184868.	88414.	36.02

Hancock County

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
FREEWAY	(1)	1056902.	18754.	56.36
2-WAY ART w/prk	(3)	616402.	18497.	33.33
CENTROID CONNECT	(5)	369608.	21698.	17.03
2-WAY ART wo/prk	(6)	1141955.	29466.	38.75
TOTAL		3184868.	88414.	36.02

Shelby County

AREA TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
RESIDENTIAL	(3)	486.	7559.	1045.	19.	70.
SUBURBAN CBD	(4)	7.	90.	12.	0.	1.
RURAL	(5)	1004.	15930.	2192.	40.	148.
---TOTAL---		1497.	23579.	3249.	59.	219.

(TONS)		1.65	25.97	3.58	0.06	0.24

Shelby County

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
FREEWAY	(1)	809.	14842.	2128.	35.	132.
2-WAY ART w/prk	(3)	46.	655.	84.	2.	7.
CENTROID CONNECT	(5)	249.	2261.	296.	6.	22.
2-WAY ART wo/prk	(6)	394.	5820.	741.	16.	59.
---TOTAL---		1497.	23579.	3249.	59.	219.
(TONS)		1.65	25.97	3.58	0.06	0.24

DAILY TRAVEL STATS

Shelby County

AREA TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
RESIDENTIAL	(3)	760350.	18963.	40.10
SUBURBAN CBD	(4)	9989.	273.	36.56
RURAL	(5)	1596085.	35266.	45.26
TOTAL		2366425.	54503.	43.42

Shelby County

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
FREEWAY	(1)	1419363.	23913.	59.36
2-WAY ART w/prk	(3)	72779.	1810.	40.21
CENTROID CONNECT	(5)	242687.	13594.	17.85
2-WAY ART wo/prk	(6)	631595.	15185.	41.59
TOTAL		2366425.	54503.	43.42

Boone County

AREA TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
RESIDENTIAL	(3)	217.	2692.	348.	7.	28.
SUBURBAN CBD	(4)	4.	63.	8.	0.	1.
RURAL	(5)	1585.	24413.	3311.	62.	231.
---TOTAL---		1807.	27168.	3667.	70.	259.
(TONS)		1.99	29.92	4.04	0.08	0.29

Boone County

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3

FREEWAY	(1)	767.	13748.	1945.	33.	124.
2-WAY ART w/prk	(3)	141.	1903.	245.	5.	20.
CENTROID CONNECT	(5)	319.	2897.	379.	8.	29.
2-WAY ART wo/prk	(6)	580.	8620.	1098.	23.	86.
---TOTAL---		1807.	27168.	3667.	70.	259.
(TONS)		1.99	29.92	4.04	0.08	0.29

DAILY TRAVEL STATS

Boone County

AREA TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
RESIDENTIAL	(3)	299101.	10804.	27.68
SUBURBAN CBD	(4)	6767.	179.	37.73
RURAL	(5)	2489006.	56931.	43.72
TOTAL		2794875.	67915.	41.15

Boone County

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
FREEWAY	(1)	1335845.	23334.	57.25
2-WAY ART w/prk	(3)	215652.	6135.	35.15
CENTROID CONNECT	(5)	310952.	16339.	19.03
2-WAY ART wo/prk	(6)	932425.	22106.	42.18
TOTAL		2794875.	67915.	41.15

Morgan County

AREA TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
RESIDENTIAL	(3)	197.	2913.	381.	8.	28.
SUBURBAN CBD	(4)	1.	18.	2.	0.	0.
RURAL	(5)	1475.	21071.	2795.	55.	203.
---TOTAL---		1673.	24002.	3179.	62.	232.
(TONS)		1.84	26.43	3.50	0.07	0.26

Morgan County

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
FREEWAY	(1)	214.	4016.	587.	9.	35.
EXPRESSWAY	(2)	79.	1436.	196.	3.	13.
2-WAY ART w/prk	(3)	101.	1408.	180.	4.	15.
CENTROID CONNECT	(5)	369.	3350.	439.	9.	33.
2-WAY ART wo/prk	(6)	911.	13792.	1777.	37.	136.
---TOTAL---		1673.	24002.	3179.	62.	232.

(TONS)	1.84	26.43	3.50	0.07	0.26

DAILY TRAVEL STATS

Morgan County

AREA TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
RESIDENTIAL	(3)	305619.	7865.	38.86
SUBURBAN CBD	(4)	1942.	52.	37.17
RURAL	(5)	2193930.	57823.	37.94
TOTAL		2501491.	65741.	38.05

Morgan County

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
FREEWAY	(1)	377608.	6157.	61.33
EXPRESSWAY	(2)	138128.	2352.	58.74
2-WAY ART w/prk	(3)	158678.	4072.	38.96
CENTROID CONNECT	(5)	359589.	18469.	19.47
2-WAY ART wo/prk	(6)	1467487.	34690.	42.30
TOTAL		2501491.	65741.	38.05

Madison County

AREA TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
RESIDENTIAL	(3)	977.	12786.	1670.	34.	128.
SUBURBAN CBD	(4)	39.	555.	71.	2.	6.
RURAL	(5)	1494.	21786.	2881.	57.	211.
---TOTAL---		2510.	35126.	4621.	93.	345.
(TONS)		2.76	38.69	5.09	0.10	0.38

Madison County

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
FREEWAY	(1)	663.	11448.	1583.	28.	106.
2-WAY ART w/prk	(3)	10.	143.	18.	0.	1.
CENTROID CONNECT	(5)	594.	5402.	707.	14.	54.
2-WAY ART wo/prk	(6)	1243.	18133.	2313.	49.	184.
---TOTAL---		2510.	35126.	4621.	93.	345.
(TONS)		2.76	38.69	5.09	0.10	0.38

DAILY TRAVEL STATS

Madison County

		DAILY	DAILY	AVERAGE

AREA TYPE		VMT	VHT	SPEED
RESIDENTIAL	(3)	1383529.	45664.	30.30
SUBURBAN CBD	(4)	61316.	1583.	38.75
RURAL	(5)	2271813.	56213.	40.41
TOTAL		3716661.	103460.	35.92

Madison County

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
FREEWAY	(1)	1140073.	20979.	54.34
2-WAY ART w/prk	(3)	15982.	399.	40.02
CENTROID CONNECT	(5)	579773.	33536.	17.29
2-WAY ART wo/prk	(6)	1980830.	48545.	40.80
TOTAL		3716661.	103460.	35.92

Total Model Area

AREA TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
CBD	(1)	1054.	14076.	1846.	39.	144.
CDB FRINGE	(2)	10259.	137663.	18084.	378.	1404.
RESIDENTIAL	(3)	19675.	263704.	34878.	705.	2623.
SUBURBAN CBD	(4)	479.	6225.	801.	17.	64.
RURAL	(5)	11150.	160465.	21380.	414.	1542.
---TOTAL---		42617.	582132.	76989.	1553.	5777.
(TONS)		46.93	641.11	84.79	1.71	6.36

Total Model Area

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
FREEWAY	(1)	11941.	198498.	27549.	500.	1860.
EXPRESSWAY	(2)	1676.	22922.	2967.	62.	231.
2-WAY ART w/prk	(3)	9151.	118437.	15309.	332.	1235.
ONE-WAY ARTERIAL	(4)	601.	7880.	1019.	22.	83.
CENTROID CONNECT	(5)	6850.	62266.	8153.	167.	620.
2-WAY ART wo/prk	(6)	12204.	169020.	21666.	463.	1724.
FREEWAY RAMPS	(7)	193.	3110.	326.	7.	25.
---TOTAL---		42617.	582132.	76989.	1553.	5777.
(TONS)		46.93	641.11	84.79	1.71	6.36

DAILY TRAVEL STATS

Total Model Area

AREA TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED

CBD	(1)	1554519.	48868.	31.81
CDB FRINGE	(2)	15153600.	467429.	32.42
RESIDENTIAL	(3)	28421888.	977853.	29.07
SUBURBAN CBD	(4)	688016.	22315.	30.83
RURAL	(5)	16631728.	432360.	38.47
TOTAL		62449768.	1948820.	32.04

Total Model Area

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
FREEWAY	(1)	20082610.	407798.	49.25
EXPRESSWAY	(2)	2489286.	75891.	32.80
2-WAY ART w/prk	(3)	13322515.	435943.	30.56
ONE-WAY ARTERIAL	(4)	896840.	27296.	32.86
CENTROID CONNECT	(5)	6683036.	404848.	16.51
2-WAY ART wo/prk	(6)	18701466.	581512.	32.16
FREEWAY RAMPS	(7)	273991.	15536.	17.64
TOTAL		62449768.	1948820.	32.04

Appendix D-4 Emission Factors (from MOBILE 6.2: EMIS), Ozone

Summer 2010

Road Class	Speed	HC	CO	NOx	PM	NH3
Freeway	3	4.3010	24.6510	2.0480	0.0250	0.0927
Freeway	5	2.1560	17.5660	1.8960	0.0250	0.0927
Freeway	10	1.1950	11.5450	1.4880	0.0250	0.0927
Freeway	15	0.9190	9.6340	1.2680	0.0250	0.0927
Freeway	20	0.7900	9.0840	1.2170	0.0250	0.0927
Freeway	25	0.7300	8.7820	1.1860	0.0250	0.0927
Freeway	30	0.6890	8.5870	1.1710	0.0249	0.0927
Freeway	35	0.6530	8.6000	1.1700	0.0249	0.0927
Freeway	40	0.6300	8.9350	1.1910	0.0249	0.0927
Freeway	45	0.6110	9.2900	1.2330	0.0249	0.0927
Freeway	50	0.5940	9.6640	1.2950	0.0249	0.0927
Freeway	55	0.5790	10.0570	1.3840	0.0249	0.0927
Freeway	60	0.5680	10.5080	1.5090	0.0249	0.0927
Freeway	65	0.5600	10.9890	1.6850	0.0249	0.0927
Arterial	3	4.3010	24.6510	1.9930	0.0250	0.0927
Arterial	5	2.1560	17.5660	1.8420	0.0250	0.0927
Arterial	10	1.2360	12.1640	1.5380	0.0250	0.0927
Arterial	15	0.9690	10.3570	1.3430	0.0250	0.0927
Arterial	20	0.8130	9.3640	1.2310	0.0250	0.0927
Arterial	25	0.7370	8.8480	1.1630	0.0250	0.0927
Arterial	30	0.6900	8.5990	1.1250	0.0249	0.0927
Arterial	35	0.6530	8.6000	1.1150	0.0249	0.0927
Arterial	40	0.6300	8.9350	1.1370	0.0249	0.0927
Arterial	45	0.6110	9.2900	1.1780	0.0249	0.0927
Arterial	50	0.5940	9.6640	1.2400	0.0249	0.0927
Arterial	55	0.5790	10.0570	1.3290	0.0249	0.0927
Arterial	60	0.5680	10.5080	1.4540	0.0249	0.0927
Arterial	65	0.5600	10.9890	1.6300	0.0249	0.0927
Local	1	1.0250	9.3170	1.2200	0.0250	0.0927
Ramps	1	0.7060	11.3500	1.1880	0.0249	0.0927

Summer 2020

Road Class	Speed	HC	CO	NOx	PM	NH3
Freeway	3	2.2860	18.8820	0.7770	0.0141	0.0928
Freeway	5	1.1980	13.5270	0.7160	0.0141	0.0928
Freeway	10	0.6700	8.9110	0.5410	0.0141	0.0928
Freeway	15	0.5040	7.4270	0.4520	0.0141	0.0928
Freeway	20	0.4220	7.0030	0.4410	0.0141	0.0928
Freeway	25	0.3910	6.7750	0.4350	0.0140	0.0928
Freeway	30	0.3680	6.6260	0.4320	0.0140	0.0928
Freeway	35	0.3490	6.6300	0.4320	0.0140	0.0928
Freeway	40	0.3370	6.8900	0.4400	0.0140	0.0928
Freeway	45	0.3270	7.1640	0.4530	0.0140	0.0928
Freeway	50	0.3190	7.4520	0.4720	0.0140	0.0928
Freeway	55	0.3120	7.7550	0.4990	0.0140	0.0928
Freeway	60	0.3090	8.1060	0.5340	0.0140	0.0928
Freeway	65	0.3060	8.4790	0.5820	0.0140	0.0928
Arterial	3	2.2860	18.8820	0.7680	0.0141	0.0928
Arterial	5	1.1980	13.5270	0.7070	0.0141	0.0928
Arterial	10	0.6980	9.4110	0.5860	0.0141	0.0928
Arterial	15	0.5380	8.0150	0.5090	0.0141	0.0928
Arterial	20	0.4380	7.2330	0.4670	0.0141	0.0928
Arterial	25	0.3960	6.8300	0.4420	0.0140	0.0928
Arterial	30	0.3700	6.6350	0.4270	0.0140	0.0928
Arterial	35	0.3490	6.6300	0.4220	0.0140	0.0928
Arterial	40	0.3370	6.8900	0.4300	0.0140	0.0928
Arterial	45	0.3270	7.1640	0.4440	0.0140	0.0928
Arterial	50	0.3190	7.4520	0.4630	0.0140	0.0928
Arterial	55	0.3120	7.7550	0.4890	0.0140	0.0928
Arterial	60	0.3090	8.1060	0.5240	0.0140	0.0928
Arterial	65	0.3060	8.4790	0.5720	0.0140	0.0928
Local	1	0.5790	7.4110	0.4520	0.0141	0.0928
Ramps	1	0.3730	8.4430	0.4690	0.0140	0.0928

Summer 2030

Road Class	Speed	HC	CO	NOx	PM	NH3
Freeway	3	2.1700	17.7920	0.5620	0.0128	0.0928
Freeway	5	1.1190	12.7510	0.5150	0.0128	0.0928
Freeway	10	0.6150	8.3990	0.3740	0.0128	0.0928
Freeway	15	0.4580	7.0000	0.3050	0.0128	0.0928
Freeway	20	0.3800	6.5990	0.3030	0.0128	0.0928
Freeway	25	0.3500	6.3850	0.3020	0.0128	0.0928
Freeway	30	0.3290	6.2450	0.3020	0.0128	0.0928
Freeway	35	0.3110	6.2480	0.3020	0.0128	0.0928
Freeway	40	0.3000	6.4930	0.3070	0.0128	0.0928
Freeway	45	0.2910	6.7520	0.3150	0.0128	0.0928
Freeway	50	0.2830	7.0240	0.3260	0.0128	0.0928
Freeway	55	0.2760	7.3090	0.3390	0.0128	0.0928
Freeway	60	0.2730	7.6420	0.3560	0.0128	0.0928
Freeway	65	0.2710	7.9960	0.3780	0.0128	0.0928
Arterial	3	2.1700	17.7920	0.5620	0.0128	0.0928
Arterial	5	1.1190	12.7510	0.5150	0.0128	0.0928
Arterial	10	0.6410	8.8730	0.4230	0.0128	0.0928
Arterial	15	0.4890	7.5570	0.3660	0.0128	0.0928
Arterial	20	0.3950	6.8180	0.3360	0.0128	0.0928
Arterial	25	0.3550	6.4370	0.3170	0.0128	0.0928
Arterial	30	0.3300	6.2540	0.3060	0.0128	0.0928
Arterial	35	0.3110	6.2480	0.3020	0.0128	0.0928
Arterial	40	0.3000	6.4930	0.3070	0.0128	0.0928
Arterial	45	0.2910	6.7520	0.3150	0.0128	0.0928
Arterial	50	0.2830	7.0240	0.3260	0.0128	0.0928
Arterial	55	0.2760	7.3090	0.3390	0.0128	0.0928
Arterial	60	0.2730	7.6420	0.3560	0.0128	0.0928
Arterial	65	0.2710	7.9960	0.3780	0.0128	0.0928
Local	1	0.5300	6.9940	0.3150	0.0128	0.0928
Ramps	1	0.3330	7.9830	0.3480	0.0128	0.0928

Appendix D-5: VMT Forecasts, Ozone

Between 2002 and 2030, daily VMT in the nine-county area is projected to increase by over 45.69% from 45.2 million to 65.8 million. Forecasts for daily vehicle miles traveled (VMT) from the 9-County Travel Demand Model are shown in Figure 8 and Table 8 below.

Figure 8: VMT Forecast for 9 County ozone attainment maintenance area

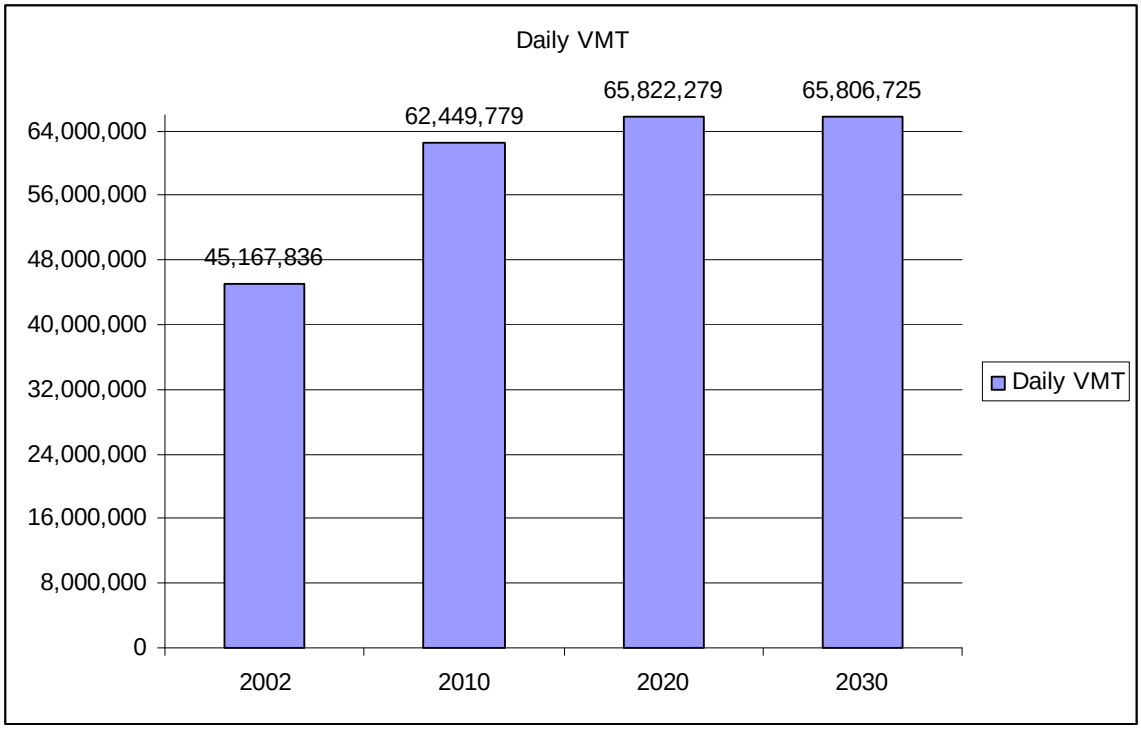

Table 8: VMT Forecast for 9 County Ozone attainment maintenance area

VMT	2002	2010	2020	2030
Marion County	25,391,794	31549936	32658234	32839422
Hamilton County	5,440,560	7939848	8573409	8505969
Johnson County	3,219,087	4311872	4641118	4625127
Hendricks County	2,766,892	4083803	4265794	4230366
Hancock County	2,246,186	3184868	3333902	3319631
Shelby County	1,888,037	2366425	2619074	2595052
Boone County	2,209,657	2794875	3055024	3045081
Morgan County	2,005,623	2501491	2715251	2683731
Madison County	3,575,852	3716661	3960473	3962346
Total Model Area	45,167,836	62,449,779	65,822,279	65,806,725

Appendix E-1: Sample MOBILE 6.2 Input Record, PM 2.5 – Summer 2010

```
MOBILE6 INPUT FILE :
PARTICULATES
>Indy MPO 2010 Summer
RUN DATA
NO REFUELING       :
EXPRESS HC AS VOC  :
MIN/MAX TEMP       : 60.5  82.2
ABSOLUTE HUMIDITY  : 56.2
CLOUD COVER        : 0.66
SUNRISE/SUNSET     : 6 8
REG DIST           :c:\I98\m6\IN_grpPM.d
FUEL RVP           :  9.0


SCENARIO RECORD    : ~ 3.0 NON-RAMP
AVERAGE SPEED      :  3.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~ 5.0 NON-RAMP
AVERAGE SPEED      :  5.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~10.0 NON-RAMP
AVERAGE SPEED      : 10.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~15.0 NON-RAMP
AVERAGE SPEED      : 15.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~20.0 NON-RAMP
AVERAGE SPEED      : 20.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~25.0 NON-RAMP
AVERAGE SPEED      : 25.0 NON-RAMP
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV           c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV
```

c:\I98\m6\PMDZML.CSV c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE   :   2.50
DIESEL SULFUR   :   15.00

SCENARIO RECORD   : ~30.0 NON-RAMP
AVERAGE SPEED   : 30.0 NON-RAMP
CALENDAR YEAR   : 2010
EVALUATION MONTH   : 7
PARTICULATE EF   : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE   :   2.50
DIESEL SULFUR   :   15.00

SCENARIO RECORD   : ~35.0 NON-RAMP
AVERAGE SPEED   : 35.0 NON-RAMP
CALENDAR YEAR   : 2010
EVALUATION MONTH   : 7
PARTICULATE EF   : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE   :   2.50
DIESEL SULFUR   :   15.00

SCENARIO RECORD   : ~40.0 NON-RAMP
AVERAGE SPEED   : 40.0 NON-RAMP
CALENDAR YEAR   : 2010
EVALUATION MONTH   : 7
PARTICULATE EF   : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE   :   2.50
DIESEL SULFUR   :   15.00

SCENARIO RECORD   : ~45.0 NON-RAMP
AVERAGE SPEED   : 45.0 NON-RAMP
CALENDAR YEAR   : 2010
EVALUATION MONTH   : 7
PARTICULATE EF   : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE   :   2.50
DIESEL SULFUR   :   15.00

SCENARIO RECORD   : ~50.0 NON-RAMP
AVERAGE SPEED   : 50.0 NON-RAMP
CALENDAR YEAR   : 2010
EVALUATION MONTH   : 7
PARTICULATE EF   : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE   :   2.50
DIESEL SULFUR   :   15.00

SCENARIO RECORD   : ~55.0 NON-RAMP
AVERAGE SPEED   : 55.0 NON-RAMP
CALENDAR YEAR   : 2010
EVALUATION MONTH   : 7
PARTICULATE EF   : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE   :   2.50
DIESEL SULFUR   :   15.00

SCENARIO RECORD   : ~60.0 NON-RAMP
AVERAGE SPEED   : 60.0 NON-RAMP
CALENDAR YEAR   : 2010
EVALUATION MONTH   : 7
PARTICULATE EF   : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE   :   2.50
DIESEL SULFUR   :   15.00

SCENARIO RECORD   : ~65.0 NON-RAMP
AVERAGE SPEED   : 65.0 NON-RAMP
CALENDAR YEAR   : 2010
EVALUATION MONTH   : 7
PARTICULATE EF   : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV

```
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~ 3.0 ARTERIAL
AVERAGE SPEED      :  3.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~ 5.0 ARTERIAL
AVERAGE SPEED      :  5.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~10.0 ARTERIAL
AVERAGE SPEED      : 10.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~15.0 ARTERIAL
AVERAGE SPEED      : 15.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~20.0 ARTERIAL
AVERAGE SPEED      : 20.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~25.0 ARTERIAL
AVERAGE SPEED      : 25.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~30.0 ARTERIAL
AVERAGE SPEED      : 30.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~35.0 ARTERIAL
AVERAGE SPEED      : 35.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
```

```
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~40.0 ARTERIAL
AVERAGE SPEED      : 40.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~45.0 ARTERIAL
AVERAGE SPEED      : 45.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~50.0 ARTERIAL
AVERAGE SPEED      : 50.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~55.0 ARTERIAL
AVERAGE SPEED      : 55.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~60.0 ARTERIAL
AVERAGE SPEED      : 60.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~65.0 ARTERIAL
AVERAGE SPEED      : 65.0 ARTERIAL
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~VMT BY FACILITY
VMT BY FACILITY    : c:\I98\m6\fvmt.def
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00


SCENARIO RECORD    : ~VMT BY FACILITY
VMT BY FACILITY    : c:\I98\m6\rmpvmt.def
CALENDAR YEAR      : 2010
EVALUATION MONTH   : 7
PARTICULATE EF     : c:\I98\m6\PMGZML.CSV c:\I98\m6\PMGDR1.CSV c:\I98\m6\PMGDR2.CSV c:\I98\m6\PMDZML.CSV
c:\I98\m6\PMDDR1.CSV c:\I98\m6\PMDDR2.CSV
PARTICLE SIZE      :    2.50
DIESEL SULFUR      :   15.00
```

In order to model emissions estimates for the annual PM 2.5 standard, the MOBILE 6.2 model was run to obtain daily emissions estimates for each of four seasons. Resulting emissions estimates were averaged and multiplied by 365.25 days to derive annual emissions estimates. Seasonal inputs were the same for all analysis years except as noted in the table below.

MOBILE 6.2 Inputs *(same for all analysis years except where noted)*

Parameter	Winter	Spring	Summer	Autumn
Month (only '1' and '7' may be used)	1	7	7	1 (+1yr.)
Min Temp (F)	23.7	50.9	60.5	33.4
Max Temp (F)	41.7	72.7	82.2	52.1
Humidity	22	58.2	56.2	29.9
Cloud Cover	0.46	0.6	0.66	0.47
Sunrise (hour of day)	8	6	6	7
Sunset (hour of day)	6	7	8	6
RVP (avg. for season)	12	10	9	12
Diesel Sulfur (ppm)*	15	15	15	15

** For 2002, 318 ppm was used for all seasons, instead of 15ppm.*

Appendix E-2: Sample MOBILE 6.2 Output, PM 2.5– Summer 2010

```
************************************************************************
* MOBILE6.2 (31-Oct-2002)                                              *
* Input file: MOBILE6.IN (file 1, run 1).                              *
************************************************************************

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~ 3.0 NON-RAMP
* File 1, Run 1, Scenario 1.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
                                   Month:  July
                 Gasoline Fuel Sulfur Content:   30. ppm
                   Diesel Fuel Sulfur Content:   15. ppm
                         Particle Size Cutoff:  2.50 Microns
                             Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
             GVWR:                 <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
              Lead:    0.0000    0.0000    0.0000    0.0000    0.0000    ------    ------    ------    0.0000    0.0000
             GASPM:    0.0036    0.0035    0.0037    0.0036    0.0329    ------    ------    ------    0.0142    0.0044
           ECARBON:    ------    ------    ------    ------    ------    0.0374    0.0163    0.0976    ------    0.0081
           OCARBON:    ------    ------    ------    ------    ------    0.0106    0.0234    0.0496    ------    0.0042
               SO4:    0.0005    0.0006    0.0006    0.0006    0.0012    0.0002    0.0003    0.0009    0.0002    0.0006
  Total Exhaust PM:    0.0041    0.0041    0.0043    0.0042    0.0341    0.0482    0.0400    0.1482    0.0144    0.0173
             Brake:    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053
              Tire:    0.0020    0.0020    0.0020    0.0020    0.0022    0.0020    0.0020    0.0065    0.0010    0.0024
          Total PM:    0.0114    0.0115    0.0116    0.0115    0.0416    0.0555    0.0474    0.1600    0.0207    0.0250
               SO2:    0.0067    0.0088    0.0115    0.0095    0.0168    0.0029    0.0056    0.0132    0.0033    0.0091
               NH3:    0.1017    0.1016    0.1012    0.1015    0.0451    0.0068    0.0068    0.0270    0.0113    0.0927
 ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~ 5.0 NON-RAMP
* File 1, Run 1, Scenario 2.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
```

```
                                Month:  July
               Gasoline Fuel Sulfur Content:   30. ppm
                 Diesel Fuel Sulfur Content:   15. ppm
                       Particle Size Cutoff:  2.50 Microns
                           Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                      ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 -------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
               Lead:    0.0000    0.0000    0.0000    0.0000    0.0000    ------    ------    ------    0.0000    0.0000
             GASPM:    0.0036    0.0035    0.0037    0.0036    0.0329    ------    ------    ------    0.0142    0.0044
           ECARBON:    ------    ------    ------    ------    ------    0.0374    0.0163    0.0976    ------    0.0081
           OCARBON:    ------    ------    ------    ------    ------    0.0106    0.0234    0.0496    ------    0.0042
               SO4:    0.0005    0.0006    0.0006    0.0006    0.0012    0.0002    0.0003    0.0009    0.0002    0.0006
  Total Exhaust PM:    0.0041    0.0041    0.0043    0.0042    0.0341    0.0482    0.0400    0.1482    0.0144    0.0173
             Brake:    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053
              Tire:    0.0020    0.0020    0.0020    0.0020    0.0022    0.0020    0.0020    0.0065    0.0010    0.0024
          Total PM:    0.0114    0.0115    0.0116    0.0115    0.0416    0.0555    0.0474    0.1600    0.0207    0.0250
               SO2:    0.0067    0.0088    0.0115    0.0095    0.0168    0.0029    0.0056    0.0132    0.0033    0.0091
               NH3:    0.1017    0.1016    0.1012    0.1015    0.0451    0.0068    0.0068    0.0270    0.0113    0.0927
 -------------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~10.0 NON-RAMP
* File 1, Run 1, Scenario 3.
* # # # # # # # # # # # # # # # # # # # # # # # #

                           Calendar Year:  2010
                                Month:  July
               Gasoline Fuel Sulfur Content:   30. ppm
                 Diesel Fuel Sulfur Content:   15. ppm
                       Particle Size Cutoff:  2.50 Microns
                           Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                      ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 -------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
               Lead:    0.0000    0.0000    0.0000    0.0000    0.0000    ------    ------    ------    0.0000    0.0000
             GASPM:    0.0036    0.0035    0.0037    0.0036    0.0329    ------    ------    ------    0.0142    0.0044
           ECARBON:    ------    ------    ------    ------    ------    0.0374    0.0163    0.0976    ------    0.0081
           OCARBON:    ------    ------    ------    ------    ------    0.0106    0.0234    0.0496    ------    0.0042
```

SO4:	0.0005	0.0006	0.0006	0.0006	0.0012	0.0002	0.0003	0.0009	0.0002	0.0006
Total Exhaust PM:	0.0041	0.0041	0.0043	0.0042	0.0341	0.0482	0.0400	0.1482	0.0144	0.0173
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0114	0.0115	0.0116	0.0115	0.0416	0.0555	0.0474	0.1600	0.0207	0.0250
SO2:	0.0067	0.0088	0.0115	0.0095	0.0168	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~15.0 NON-RAMP
* File 1, Run 1, Scenario 4.
* # # # # # # # # # # # # # # # # # # # # # # # #

                          Calendar Year:  2010
                                 Month:  July
              Gasoline Fuel Sulfur Content:   30. ppm
                Diesel Fuel Sulfur Content:   15. ppm
                     Particle Size Cutoff:  2.50 Microns
                         Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0036	0.0035	0.0037	0.0036	0.0329	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0005	0.0006	0.0006	0.0006	0.0012	0.0002	0.0003	0.0009	0.0002	0.0006
Total Exhaust PM:	0.0041	0.0041	0.0043	0.0042	0.0341	0.0482	0.0400	0.1482	0.0144	0.0173
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0114	0.0115	0.0116	0.0115	0.0416	0.0555	0.0474	0.1600	0.0207	0.0250
SO2:	0.0067	0.0088	0.0115	0.0095	0.0168	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~20.0 NON-RAMP
* File 1, Run 1, Scenario 5.
* # # # # # # # # # # # # # # # # # # # # # # # #

                          Calendar Year:  2010
                                 Month:  July
```

```
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                        Particle Size Cutoff:  2.50 Microns
                            Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 -------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
               Lead:    0.0000    0.0000    0.0000    0.0000    0.0000    ------    ------    ------    0.0000    0.0000
             GASPM:     0.0036    0.0035    0.0037    0.0036    0.0329    ------    ------    ------    0.0142    0.0044
           ECARBON:     ------    ------    ------    ------    ------    0.0374    0.0163    0.0976    ------    0.0081
           OCARBON:     ------    ------    ------    ------    ------    0.0106    0.0234    0.0496    ------    0.0042
               SO4:     0.0005    0.0006    0.0006    0.0006    0.0012    0.0002    0.0003    0.0009    0.0002    0.0006
  Total Exhaust PM:     0.0041    0.0041    0.0043    0.0042    0.0341    0.0482    0.0400    0.1482    0.0144    0.0173
             Brake:     0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053
              Tire:     0.0020    0.0020    0.0020    0.0020    0.0022    0.0020    0.0020    0.0065    0.0010    0.0024
          Total PM:     0.0114    0.0115    0.0116    0.0115    0.0416    0.0555    0.0474    0.1600    0.0207    0.0250
               SO2:     0.0067    0.0088    0.0115    0.0095    0.0167    0.0029    0.0056    0.0132    0.0033    0.0091
               NH3:     0.1017    0.1016    0.1012    0.1015    0.0451    0.0068    0.0068    0.0270    0.0113    0.0927
 -------------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~25.0 NON-RAMP
* File 1, Run 1, Scenario 6.
* # # # # # # # # # # # # # # # # # # # # # # # #

                           Calendar Year:  2010
                                   Month:  July
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                        Particle Size Cutoff:  2.50 Microns
                            Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 -------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
               Lead:    0.0000    0.0000    0.0000    0.0000    0.0000    ------    ------    ------    0.0000    0.0000
             GASPM:     0.0037    0.0036    0.0037    0.0036    0.0328    ------    ------    ------    0.0142    0.0044
           ECARBON:     ------    ------    ------    ------    ------    0.0374    0.0163    0.0976    ------    0.0081
           OCARBON:     ------    ------    ------    ------    ------    0.0106    0.0234    0.0496    ------    0.0042
               SO4:     0.0004    0.0005    0.0005    0.0005    0.0014    0.0002    0.0003    0.0009    0.0001    0.0006
```

```
   Total Exhaust PM:    0.0041    0.0041    0.0043    0.0042    0.0342    0.0482    0.0400    0.1482    0.0143    0.0173
             Brake:    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053
              Tire:    0.0020    0.0020    0.0020    0.0020    0.0022    0.0020    0.0020    0.0065    0.0010    0.0024
          Total PM:    0.0114    0.0115    0.0116    0.0115    0.0417    0.0555    0.0474    0.1600    0.0207    0.0250
               SO2:    0.0068    0.0088    0.0115    0.0095    0.0167    0.0029    0.0056    0.0132    0.0033    0.0091
               NH3:    0.1017    0.1016    0.1012    0.1015    0.0451    0.0068    0.0068    0.0270    0.0113    0.0927
 ------------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~30.0 NON-RAMP
* File 1, Run 1, Scenario 7.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
                                    Month:  July
               Gasoline Fuel Sulfur Content:   30. ppm
                 Diesel Fuel Sulfur Content:   15. ppm
                       Particle Size Cutoff:  2.50 Microns
                           Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
             GVWR:                 <6000     >6000     (All)
                      ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 ------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
              Lead:    0.0000    0.0000    0.0000    0.0000    0.0000    ------    ------    ------    0.0000    0.0000
            GASPM:    0.0037    0.0036    0.0037    0.0036    0.0327    ------    ------    ------    0.0142    0.0044
          ECARBON:    ------    ------    ------    ------    ------    0.0374    0.0163    0.0976    ------    0.0081
          OCARBON:    ------    ------    ------    ------    ------    0.0106    0.0234    0.0496    ------    0.0042
               SO4:    0.0003    0.0005    0.0005    0.0005    0.0015    0.0002    0.0003    0.0009    0.0001    0.0005
   Total Exhaust PM:    0.0040    0.0041    0.0042    0.0041    0.0343    0.0482    0.0400    0.1482    0.0143    0.0172
             Brake:    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053
              Tire:    0.0020    0.0020    0.0020    0.0020    0.0022    0.0020    0.0020    0.0065    0.0010    0.0024
          Total PM:    0.0114    0.0114    0.0116    0.0115    0.0418    0.0555    0.0474    0.1600    0.0206    0.0249
               SO2:    0.0068    0.0088    0.0115    0.0095    0.0166    0.0029    0.0056    0.0132    0.0033    0.0091
               NH3:    0.1017    0.1016    0.1012    0.1015    0.0451    0.0068    0.0068    0.0270    0.0113    0.0927
 ------------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~35.0 NON-RAMP
* File 1, Run 1, Scenario 8.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
                                    Month:  July
               Gasoline Fuel Sulfur Content:   30. ppm
```

Diesel Fuel Sulfur Content: 15. ppm
Particle Size Cutoff: 2.50 Microns
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0038	0.0036	0.0038	0.0037	0.0326	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0002	0.0004	0.0004	0.0004	0.0017	0.0002	0.0003	0.0009	0.0001	0.0004
Total Exhaust PM:	0.0040	0.0041	0.0042	0.0041	0.0343	0.0482	0.0400	0.1482	0.0143	0.0172
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0113	0.0114	0.0116	0.0115	0.0418	0.0555	0.0474	0.1600	0.0206	0.0249
SO2:	0.0068	0.0088	0.0115	0.0095	0.0166	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~40.0 NON-RAMP
* File 1, Run 1, Scenario 9.
* # # # # # # # # # # # # # # # # # # # # # # # #
```

Calendar Year: 2010
Month: July
Gasoline Fuel Sulfur Content: 30. ppm
Diesel Fuel Sulfur Content: 15. ppm
Particle Size Cutoff: 2.50 Microns
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0038	0.0036	0.0038	0.0037	0.0326	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0002	0.0004	0.0004	0.0004	0.0017	0.0002	0.0003	0.0009	0.0001	0.0004
Total Exhaust PM:	0.0040	0.0041	0.0042	0.0041	0.0343	0.0482	0.0400	0.1482	0.0143	0.0172

```
             Brake:    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053
              Tire:    0.0020    0.0020    0.0020    0.0020    0.0022    0.0020    0.0020    0.0065    0.0010    0.0024
          Total PM:    0.0113    0.0114    0.0116    0.0115    0.0418    0.0555    0.0474    0.1600    0.0206    0.0249
               SO2:    0.0068    0.0088    0.0115    0.0095    0.0166    0.0029    0.0056    0.0132    0.0033    0.0091
               NH3:    0.1017    0.1016    0.1012    0.1015    0.0451    0.0068    0.0068    0.0270    0.0113    0.0927
 ------------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~45.0 NON-RAMP
* File 1, Run 1, Scenario 10.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
                                    Month:  July
             Gasoline Fuel Sulfur Content:   30. ppm
               Diesel Fuel Sulfur Content:   15. ppm
                     Particle Size Cutoff:  2.50 Microns
                        Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                     ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 ------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
              Lead:    0.0000    0.0000    0.0000    0.0000    0.0000    ------    ------    ------    0.0000    0.0000
             GASPM:    0.0038    0.0036    0.0038    0.0037    0.0326    ------    ------    ------    0.0142    0.0044
           ECARBON:    ------    ------    ------    ------    ------    0.0374    0.0163    0.0976    ------    0.0081
           OCARBON:    ------    ------    ------    ------    ------    0.0106    0.0234    0.0496    ------    0.0042
               SO4:    0.0002    0.0004    0.0004    0.0004    0.0017    0.0002    0.0003    0.0009    0.0001    0.0004
  Total Exhaust PM:    0.0040    0.0041    0.0042    0.0041    0.0343    0.0482    0.0400    0.1482    0.0143    0.0172
             Brake:    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053
              Tire:    0.0020    0.0020    0.0020    0.0020    0.0022    0.0020    0.0020    0.0065    0.0010    0.0024
          Total PM:    0.0113    0.0114    0.0116    0.0115    0.0418    0.0555    0.0474    0.1600    0.0206    0.0249
               SO2:    0.0068    0.0088    0.0115    0.0095    0.0166    0.0029    0.0056    0.0132    0.0033    0.0091
               NH3:    0.1017    0.1016    0.1012    0.1015    0.0451    0.0068    0.0068    0.0270    0.0113    0.0927
 ------------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~50.0 NON-RAMP
* File 1, Run 1, Scenario 11.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
                                    Month:  July
             Gasoline Fuel Sulfur Content:   30. ppm
               Diesel Fuel Sulfur Content:   15. ppm
```

```
                    Particle Size Cutoff:  2.50 Microns
                        Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                 <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 -------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
               Lead:    0.0000    0.0000    0.0000    0.0000    0.0000    ------    ------    ------    0.0000    0.0000
             GASPM:    0.0038    0.0036    0.0038    0.0037    0.0326    ------    ------    ------    0.0142    0.0044
           ECARBON:    ------    ------    ------    ------    ------    0.0374    0.0163    0.0976    ------    0.0081
           OCARBON:    ------    ------    ------    ------    ------    0.0106    0.0234    0.0496    ------    0.0042
               SO4:    0.0002    0.0004    0.0004    0.0004    0.0017    0.0002    0.0003    0.0009    0.0001    0.0004
  Total Exhaust PM:    0.0040    0.0041    0.0042    0.0041    0.0343    0.0482    0.0400    0.1482    0.0143    0.0172
             Brake:    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053
              Tire:    0.0020    0.0020    0.0020    0.0020    0.0022    0.0020    0.0020    0.0065    0.0010    0.0024
          Total PM:    0.0113    0.0114    0.0116    0.0115    0.0418    0.0555    0.0474    0.1600    0.0206    0.0249
               SO2:    0.0068    0.0088    0.0115    0.0095    0.0166    0.0029    0.0056    0.0132    0.0033    0.0091
               NH3:    0.1017    0.1016    0.1012    0.1015    0.0451    0.0068    0.0068    0.0270    0.0113    0.0927
 -------------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~55.0 NON-RAMP
* File 1, Run 1, Scenario 12.
* # # # # # # # # # # # # # # # # # # # # # # # #

                         Calendar Year:  2010
                                 Month:  July
              Gasoline Fuel Sulfur Content:   30. ppm
                Diesel Fuel Sulfur Content:   15. ppm
                    Particle Size Cutoff:  2.50 Microns
                        Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                 <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
  VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 -------------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
               Lead:    0.0000    0.0000    0.0000    0.0000    0.0000    ------    ------    ------    0.0000    0.0000
             GASPM:    0.0038    0.0036    0.0038    0.0037    0.0326    ------    ------    ------    0.0142    0.0044
           ECARBON:    ------    ------    ------    ------    ------    0.0374    0.0163    0.0976    ------    0.0081
           OCARBON:    ------    ------    ------    ------    ------    0.0106    0.0234    0.0496    ------    0.0042
               SO4:    0.0002    0.0004    0.0004    0.0004    0.0017    0.0002    0.0003    0.0009    0.0001    0.0004
  Total Exhaust PM:    0.0040    0.0041    0.0042    0.0041    0.0343    0.0482    0.0400    0.1482    0.0143    0.0172
             Brake:    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053
```

Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0113	0.0114	0.0116	0.0115	0.0418	0.0555	0.0474	0.1600	0.0206	0.0249
SO2:	0.0068	0.0088	0.0115	0.0095	0.0166	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~60.0 NON-RAMP
* File 1, Run 1, Scenario 13.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
                                    Month:  July
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                        Particle Size Cutoff:  2.50 Microns
                           Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0038	0.0036	0.0038	0.0037	0.0326	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0002	0.0004	0.0004	0.0004	0.0017	0.0002	0.0003	0.0009	0.0001	0.0004
Total Exhaust PM:	0.0040	0.0041	0.0042	0.0041	0.0343	0.0482	0.0400	0.1482	0.0143	0.0172
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0113	0.0114	0.0116	0.0115	0.0418	0.0555	0.0474	0.1600	0.0206	0.0249
SO2:	0.0068	0.0088	0.0115	0.0095	0.0166	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~65.0 NON-RAMP
* File 1, Run 1, Scenario 14.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
                                    Month:  July
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                        Particle Size Cutoff:  2.50 Microns
```

Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0038	0.0036	0.0038	0.0037	0.0326	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0002	0.0004	0.0004	0.0004	0.0017	0.0002	0.0003	0.0009	0.0001	0.0004
Total Exhaust PM:	0.0040	0.0041	0.0042	0.0041	0.0343	0.0482	0.0400	0.1482	0.0143	0.0172
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0113	0.0114	0.0116	0.0115	0.0418	0.0555	0.0474	0.1600	0.0206	0.0249
SO2:	0.0068	0.0088	0.0115	0.0095	0.0166	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # # #
* ~ 3.0 ARTERIAL
* File 1, Run 1, Scenario 15.
* # # # # # # # # # # # # # # # # # # # # # # # # #
```

Calendar Year: 2010
Month: July
Gasoline Fuel Sulfur Content: 30. ppm
Diesel Fuel Sulfur Content: 15. ppm
Particle Size Cutoff: 2.50 Microns
Reformulated Gas: No

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0036	0.0035	0.0037	0.0036	0.0329	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0005	0.0006	0.0006	0.0006	0.0012	0.0002	0.0003	0.0009	0.0002	0.0006
Total Exhaust PM:	0.0041	0.0041	0.0043	0.0042	0.0341	0.0482	0.0400	0.1482	0.0144	0.0173
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024

Total PM:	0.0114	0.0115	0.0116	0.0115	0.0416	0.0555	0.0474	0.1600	0.0207	0.0250
SO2:	0.0067	0.0088	0.0115	0.0095	0.0168	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~ 5.0 ARTERIAL
* File 1, Run 1, Scenario 16.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
                                    Month:  July
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                        Particle Size Cutoff:  2.50 Microns
                            Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0036	0.0035	0.0037	0.0036	0.0329	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0005	0.0006	0.0006	0.0006	0.0012	0.0002	0.0003	0.0009	0.0002	0.0006
Total Exhaust PM:	0.0041	0.0041	0.0043	0.0042	0.0341	0.0482	0.0400	0.1482	0.0144	0.0173
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0114	0.0115	0.0116	0.0115	0.0416	0.0555	0.0474	0.1600	0.0207	0.0250
SO2:	0.0067	0.0088	0.0115	0.0095	0.0168	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~10.0 ARTERIAL
* File 1, Run 1, Scenario 17.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
                                    Month:  July
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                        Particle Size Cutoff:  2.50 Microns
                            Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0036	0.0035	0.0037	0.0036	0.0329	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0005	0.0006	0.0006	0.0006	0.0012	0.0002	0.0003	0.0009	0.0002	0.0006
Total Exhaust PM:	0.0041	0.0041	0.0043	0.0042	0.0341	0.0482	0.0400	0.1482	0.0144	0.0173
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0114	0.0115	0.0116	0.0115	0.0416	0.0555	0.0474	0.1600	0.0207	0.0250
SO2:	0.0067	0.0088	0.0115	0.0095	0.0168	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~15.0 ARTERIAL
* File 1, Run 1, Scenario 18.
* # # # # # # # # # # # # # # # # # # # # # # # #

                          Calendar Year:  2010
                                 Month:  July
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                       Particle Size Cutoff:  2.50 Microns
                          Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0036	0.0035	0.0037	0.0036	0.0329	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0005	0.0006	0.0006	0.0006	0.0012	0.0002	0.0003	0.0009	0.0002	0.0006
Total Exhaust PM:	0.0041	0.0041	0.0043	0.0042	0.0341	0.0482	0.0400	0.1482	0.0144	0.0173
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0114	0.0115	0.0116	0.0115	0.0416	0.0555	0.0474	0.1600	0.0207	0.0250

```
                SO2:    0.0067    0.0088    0.0115    0.0095    0.0168    0.0029    0.0056    0.0132    0.0033    0.0091
                NH3:    0.1017    0.1016    0.1012    0.1015    0.0451    0.0068    0.0068    0.0270    0.0113    0.0927
 ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~20.0 ARTERIAL
* File 1, Run 1, Scenario 19.
* # # # # # # # # # # # # # # # # # # # # # # # #

                              Calendar Year:  2010
                                      Month:  July
                 Gasoline Fuel Sulfur Content:   30. ppm
                   Diesel Fuel Sulfur Content:   15. ppm
                         Particle Size Cutoff:  2.50 Microns
                             Reformulated Gas:  No

       Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
                GVWR:                <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
    VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
                Lead:    0.0000    0.0000    0.0000    0.0000    0.0000    ------    ------    ------    0.0000    0.0000
              GASPM:    0.0036    0.0035    0.0037    0.0036    0.0329    ------    ------    ------    0.0142    0.0044
            ECARBON:    ------    ------    ------    ------    ------    0.0374    0.0163    0.0976    ------    0.0081
            OCARBON:    ------    ------    ------    ------    ------    0.0106    0.0234    0.0496    ------    0.0042
                SO4:    0.0005    0.0006    0.0006    0.0006    0.0012    0.0002    0.0003    0.0009    0.0002    0.0006
   Total Exhaust PM:    0.0041    0.0041    0.0043    0.0042    0.0341    0.0482    0.0400    0.1482    0.0144    0.0173
              Brake:    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053
               Tire:    0.0020    0.0020    0.0020    0.0020    0.0022    0.0020    0.0020    0.0065    0.0010    0.0024
           Total PM:    0.0114    0.0115    0.0116    0.0115    0.0416    0.0555    0.0474    0.1600    0.0207    0.0250
                SO2:    0.0067    0.0088    0.0115    0.0095    0.0167    0.0029    0.0056    0.0132    0.0033    0.0091
                NH3:    0.1017    0.1016    0.1012    0.1015    0.0451    0.0068    0.0068    0.0270    0.0113    0.0927
 ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # # # #
* ~25.0 ARTERIAL
* File 1, Run 1, Scenario 20.
* # # # # # # # # # # # # # # # # # # # # # # # #

                              Calendar Year:  2010
                                      Month:  July
                 Gasoline Fuel Sulfur Content:   30. ppm
                   Diesel Fuel Sulfur Content:   15. ppm
                         Particle Size Cutoff:  2.50 Microns
                             Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0037	0.0036	0.0037	0.0036	0.0328	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0004	0.0005	0.0005	0.0005	0.0014	0.0002	0.0003	0.0009	0.0001	0.0006
Total Exhaust PM:	0.0041	0.0041	0.0043	0.0042	0.0342	0.0482	0.0400	0.1482	0.0143	0.0173
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0114	0.0115	0.0116	0.0115	0.0417	0.0555	0.0474	0.1600	0.0207	0.0250
SO2:	0.0068	0.0088	0.0115	0.0095	0.0167	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~30.0 ARTERIAL
* File 1, Run 1, Scenario 21.
* # # # # # # # # # # # # # # # # # # # # # # # #

                          Calendar Year:  2010
                                 Month:  July
              Gasoline Fuel Sulfur Content:   30. ppm
                Diesel Fuel Sulfur Content:   15. ppm
                     Particle Size Cutoff:  2.50 Microns
                        Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0037	0.0036	0.0037	0.0036	0.0327	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0003	0.0005	0.0005	0.0005	0.0015	0.0002	0.0003	0.0009	0.0001	0.0005
Total Exhaust PM:	0.0040	0.0041	0.0042	0.0041	0.0343	0.0482	0.0400	0.1482	0.0143	0.0172
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0114	0.0114	0.0116	0.0115	0.0418	0.0555	0.0474	0.1600	0.0206	0.0249
SO2:	0.0068	0.0088	0.0115	0.0095	0.0166	0.0029	0.0056	0.0132	0.0033	0.0091

```
               NH3:    0.1017    0.1016    0.1012    0.1015    0.0451    0.0068    0.0068    0.0270    0.0113    0.0927
 ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # #
* ~35.0 ARTERIAL
* File 1, Run 1, Scenario 22.
* # # # # # # # # # # # # # # # # # # # # # #

                             Calendar Year:  2010
                                     Month:  July
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                         Particle Size Cutoff:  2.50 Microns
                             Reformulated Gas:  No

      Vehicle Type:      LDGV    LDGT12    LDGT34      LDGT      HDGV      LDDV      LDDT      HDDV        MC   All Veh
              GVWR:                <6000     >6000     (All)
                       ------    ------    ------    ------    ------    ------    ------    ------    ------    ------
   VMT Distribution:    0.3334    0.3944    0.1468              0.0347    0.0003    0.0022    0.0830    0.0052    1.0000
 ---------------------------------------------------------------------------------------------------------------------
 Composite Emission Factors (g/mi):
               Lead:    0.0000    0.0000    0.0000    0.0000    0.0000    ------    ------    ------    0.0000    0.0000
              GASPM:    0.0038    0.0036    0.0038    0.0037    0.0326    ------    ------    ------    0.0142    0.0044
            ECARBON:    ------    ------    ------    ------    ------    0.0374    0.0163    0.0976    ------    0.0081
            OCARBON:    ------    ------    ------    ------    ------    0.0106    0.0234    0.0496    ------    0.0042
                SO4:    0.0002    0.0004    0.0004    0.0004    0.0017    0.0002    0.0003    0.0009    0.0001    0.0004
   Total Exhaust PM:    0.0040    0.0041    0.0042    0.0041    0.0343    0.0482    0.0400    0.1482    0.0143    0.0172
             Brake:    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053    0.0053
              Tire:    0.0020    0.0020    0.0020    0.0020    0.0022    0.0020    0.0020    0.0065    0.0010    0.0024
          Total PM:    0.0113    0.0114    0.0116    0.0115    0.0418    0.0555    0.0474    0.1600    0.0206    0.0249
               SO2:    0.0068    0.0088    0.0115    0.0095    0.0166    0.0029    0.0056    0.0132    0.0033    0.0091
               NH3:    0.1017    0.1016    0.1012    0.1015    0.0451    0.0068    0.0068    0.0270    0.0113    0.0927
 ---------------------------------------------------------------------------------------------------------------------

* # # # # # # # # # # # # # # # # # # # # # #
* ~40.0 ARTERIAL
* File 1, Run 1, Scenario 23.
* # # # # # # # # # # # # # # # # # # # # # #

                             Calendar Year:  2010
                                     Month:  July
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                         Particle Size Cutoff:  2.50 Microns
                             Reformulated Gas:  No

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

GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0038	0.0036	0.0038	0.0037	0.0326	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0002	0.0004	0.0004	0.0004	0.0017	0.0002	0.0003	0.0009	0.0001	0.0004
Total Exhaust PM:	0.0040	0.0041	0.0042	0.0041	0.0343	0.0482	0.0400	0.1482	0.0143	0.0172
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0113	0.0114	0.0116	0.0115	0.0418	0.0555	0.0474	0.1600	0.0206	0.0249
SO2:	0.0068	0.0088	0.0115	0.0095	0.0166	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~45.0 ARTERIAL
* File 1, Run 1, Scenario 24.
* # # # # # # # # # # # # # # # # # # # # # # # #

                          Calendar Year:  2010
                                 Month:  July
              Gasoline Fuel Sulfur Content:   30. ppm
                Diesel Fuel Sulfur Content:   15. ppm
                     Particle Size Cutoff:  2.50 Microns
                        Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0038	0.0036	0.0038	0.0037	0.0326	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0002	0.0004	0.0004	0.0004	0.0017	0.0002	0.0003	0.0009	0.0001	0.0004
Total Exhaust PM:	0.0040	0.0041	0.0042	0.0041	0.0343	0.0482	0.0400	0.1482	0.0143	0.0172
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0113	0.0114	0.0116	0.0115	0.0418	0.0555	0.0474	0.1600	0.0206	0.0249
SO2:	0.0068	0.0088	0.0115	0.0095	0.0166	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~50.0 ARTERIAL
* File 1, Run 1, Scenario 25.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
                                    Month:  July
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                        Particle Size Cutoff:  2.50 Microns
                            Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0038	0.0036	0.0038	0.0037	0.0326	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0002	0.0004	0.0004	0.0004	0.0017	0.0002	0.0003	0.0009	0.0001	0.0004
Total Exhaust PM:	0.0040	0.0041	0.0042	0.0041	0.0343	0.0482	0.0400	0.1482	0.0143	0.0172
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0113	0.0114	0.0116	0.0115	0.0418	0.0555	0.0474	0.1600	0.0206	0.0249
SO2:	0.0068	0.0088	0.0115	0.0095	0.0166	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~55.0 ARTERIAL
* File 1, Run 1, Scenario 26.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
                                    Month:  July
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                        Particle Size Cutoff:  2.50 Microns
                            Reformulated Gas:  No
```

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

VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0038	0.0036	0.0038	0.0037	0.0326	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0002	0.0004	0.0004	0.0004	0.0017	0.0002	0.0003	0.0009	0.0001	0.0004
Total Exhaust PM:	0.0040	0.0041	0.0042	0.0041	0.0343	0.0482	0.0400	0.1482	0.0143	0.0172
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0113	0.0114	0.0116	0.0115	0.0418	0.0555	0.0474	0.1600	0.0206	0.0249
SO2:	0.0068	0.0088	0.0115	0.0095	0.0166	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~60.0 ARTERIAL
* File 1, Run 1, Scenario 27.
* # # # # # # # # # # # # # # # # # # # # # # # #

                          Calendar Year:  2010
                                  Month:  July
              Gasoline Fuel Sulfur Content:   30. ppm
                Diesel Fuel Sulfur Content:   15. ppm
                     Particle Size Cutoff:  2.50 Microns
                        Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0038	0.0036	0.0038	0.0037	0.0326	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0002	0.0004	0.0004	0.0004	0.0017	0.0002	0.0003	0.0009	0.0001	0.0004
Total Exhaust PM:	0.0040	0.0041	0.0042	0.0041	0.0343	0.0482	0.0400	0.1482	0.0143	0.0172
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0113	0.0114	0.0116	0.0115	0.0418	0.0555	0.0474	0.1600	0.0206	0.0249
SO2:	0.0068	0.0088	0.0115	0.0095	0.0166	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~65.0 ARTERIAL
* File 1, Run 1, Scenario 28.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
                                    Month:  July
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                         Particle Size Cutoff:  2.50 Microns
                             Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0038	0.0036	0.0038	0.0037	0.0326	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0002	0.0004	0.0004	0.0004	0.0017	0.0002	0.0003	0.0009	0.0001	0.0004
Total Exhaust PM:	0.0040	0.0041	0.0042	0.0041	0.0343	0.0482	0.0400	0.1482	0.0143	0.0172
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0113	0.0114	0.0116	0.0115	0.0418	0.0555	0.0474	0.1600	0.0206	0.0249
SO2:	0.0068	0.0088	0.0115	0.0095	0.0166	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~VMT BY FACILITY
* File 1, Run 1, Scenario 29.
* # # # # # # # # # # # # # # # # # # # # # # # #

                            Calendar Year:  2010
                                    Month:  July
                Gasoline Fuel Sulfur Content:   30. ppm
                  Diesel Fuel Sulfur Content:   15. ppm
                         Particle Size Cutoff:  2.50 Microns
                             Reformulated Gas:  No
```

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

VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0036	0.0035	0.0037	0.0036	0.0329	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0005	0.0006	0.0006	0.0006	0.0012	0.0002	0.0003	0.0009	0.0002	0.0006
Total Exhaust PM:	0.0041	0.0041	0.0043	0.0042	0.0341	0.0482	0.0400	0.1482	0.0144	0.0173
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0114	0.0115	0.0116	0.0115	0.0416	0.0555	0.0474	0.1600	0.0207	0.0250
SO2:	0.0067	0.0088	0.0115	0.0095	0.0168	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

```
* # # # # # # # # # # # # # # # # # # # # # # # #
* ~VMT BY FACILITY
* File 1, Run 1, Scenario 30.
* # # # # # # # # # # # # # # # # # # # # # # # #

                          Calendar Year:  2010
                                  Month:  July
              Gasoline Fuel Sulfur Content:   30. ppm
                Diesel Fuel Sulfur Content:   15. ppm
                     Particle Size Cutoff:  2.50 Microns
                         Reformulated Gas:  No
```

Vehicle Type:	LDGV	LDGT12	LDGT34	LDGT	HDGV	LDDV	LDDT	HDDV	MC	All Veh
GVWR:		<6000	>6000	(All)						
VMT Distribution:	0.3334	0.3944	0.1468		0.0347	0.0003	0.0022	0.0830	0.0052	1.0000
Composite Emission Factors (g/mi):										
Lead:	0.0000	0.0000	0.0000	0.0000	0.0000	------	------	------	0.0000	0.0000
GASPM:	0.0038	0.0036	0.0038	0.0037	0.0326	------	------	------	0.0142	0.0044
ECARBON:	------	------	------	------	------	0.0374	0.0163	0.0976	------	0.0081
OCARBON:	------	------	------	------	------	0.0106	0.0234	0.0496	------	0.0042
SO4:	0.0002	0.0004	0.0004	0.0004	0.0017	0.0002	0.0003	0.0009	0.0001	0.0004
Total Exhaust PM:	0.0040	0.0041	0.0042	0.0041	0.0343	0.0482	0.0400	0.1482	0.0143	0.0172
Brake:	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053	0.0053
Tire:	0.0020	0.0020	0.0020	0.0020	0.0022	0.0020	0.0020	0.0065	0.0010	0.0024
Total PM:	0.0113	0.0114	0.0116	0.0115	0.0418	0.0555	0.0474	0.1600	0.0206	0.0249
SO2:	0.0068	0.0088	0.0115	0.0095	0.0166	0.0029	0.0056	0.0132	0.0033	0.0091
NH3:	0.1017	0.1016	0.1012	0.1015	0.0451	0.0068	0.0068	0.0270	0.0113	0.0927

Appendix E-3: Sample Emission Report (from MOBILE 6.2: EMIS), PM 2.5 – Summer 2010

The following pages contain a single emissions report for July of 2010, followed by a complete set of emissions factors used for analysis related to ozone. Although not required, emission factors and forecasts for carbon monoxide (CO), fine particulate matter (PM 2.5) and ammonia (NH3) are also included in the emissions report.

```
INDIANAPOLIS REGIONAL  TRAVEL DEMAND MODEL --
 EMISSION MODEL FOR MOBILE 6.2 -- PROGRAM DATE: 12NOV2004
  -  RUN TIME: 11:15:14  02APR09

  ** EMISSION FACTORS FROM MOBILE 6.2
 Road Class    Speed      HC      CO      NOx      PM      NH3
 +--------+--------+-------+-------+-------+-------+-------+
    Freeway        3  4.3010 24.6510  2.0480  0.0250  0.0927
    Freeway        5  2.1560 17.5660  1.8960  0.0250  0.0927
    Freeway       10  1.1950 11.5450  1.4880  0.0250  0.0927
    Freeway       15  0.9190  9.6340  1.2680  0.0250  0.0927
    Freeway       20  0.7900  9.0840  1.2170  0.0250  0.0927
    Freeway       25  0.7300  8.7820  1.1860  0.0250  0.0927
    Freeway       30  0.6890  8.5870  1.1710  0.0249  0.0927
    Freeway       35  0.6530  8.6000  1.1700  0.0249  0.0927
    Freeway       40  0.6300  8.9350  1.1910  0.0249  0.0927
    Freeway       45  0.6110  9.2900  1.2330  0.0249  0.0927
    Freeway       50  0.5940  9.6640  1.2950  0.0249  0.0927
    Freeway       55  0.5790 10.0570  1.3840  0.0249  0.0927
    Freeway       60  0.5680 10.5080  1.5090  0.0249  0.0927
    Freeway       65  0.5600 10.9890  1.6850  0.0249  0.0927
  Arterial        3  4.3010 24.6510  1.9930  0.0250  0.0927
  Arterial        5  2.1560 17.5660  1.8420  0.0250  0.0927
  Arterial       10  1.2360 12.1640  1.5380  0.0250  0.0927
  Arterial       15  0.9690 10.3570  1.3430  0.0250  0.0927
  Arterial       20  0.8130  9.3640  1.2310  0.0250  0.0927
  Arterial       25  0.7370  8.8480  1.1630  0.0250  0.0927
  Arterial       30  0.6900  8.5990  1.1250  0.0249  0.0927
  Arterial       35  0.6530  8.6000  1.1150  0.0249  0.0927
  Arterial       40  0.6300  8.9350  1.1370  0.0249  0.0927
  Arterial       45  0.6110  9.2900  1.1780  0.0249  0.0927
  Arterial       50  0.5940  9.6640  1.2400  0.0249  0.0927
  Arterial       55  0.5790 10.0570  1.3290  0.0249  0.0927
  Arterial       60  0.5680 10.5080  1.4540  0.0249  0.0927
  Arterial       65  0.5600 10.9890  1.6300  0.0249  0.0927
     Local        1  1.0250  9.3170  1.2200  0.0250  0.0927
     Ramps        1  0.7060 11.3500  1.1880  0.0249  0.0927
```

INDIANAPOLIS REGIONAL TRAVEL DEMAND MODEL --
EMISSION MODEL FOR MOBILE 6.2 -- PROGRAM DATE: 12NOV2004
- RUN TIME: 11:15:14 02APR09

EMISSIONS IN KILOGRAMS PER DAY
+++ ALTERNATIVE IS:10A
MOBILE6 INPUT FILE :
- -

Marion County

HPMS TYPE	VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------					
INTERSTATE (1)	189.	3327.	467.	8.	30.
OTH. PRINC. ART.(2)	107.	649.	56.	1.	3.
MINOR ARTERIAL (6)	204.	2533.	324.	7.	25.
CENCON & INTRAS (9)	22.	204.	27.	1.	2.
SUBTOTAL	521.	6713.	874.	16.	60.
-----URBAN------					
INTERSTATE (11)	6806.	107814.	14654.	277.	1032.
OTH.FWY & XWAY (12)	499.	6398.	828.	17.	65.
OTH. PRINC. ART.(14)	5450.	70816.	9148.	198.	738.
MINOR ARTERIAL (16)	5908.	75689.	9803.	213.	791.
CENCON & INTRAS (19)	2495.	22679.	2970.	61.	226.
SUBTOTAL	21159.	283396.	37401.	767.	2852.
---TOTAL---	21680.	290109.	38275.	783.	2913.
(TONS)	23.88	319.50	42.15	0.86	3.21

DAILY TRAVEL STATS
- -

Marion County

HPMS TYPE	DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------			
INTERSTATE (1)	325816.	5970.	54.57
OTH. PRINC. ART.(2)	29464.	8037.	3.67
MINOR ARTERIAL (6)	273473.	10503.	26.04
CENCON & INTRAS (9)	21857.	1093.	20.00
SUBTOTAL	650610.	25603.	25.41
-----URBAN------			
INTERSTATE (11)	11155268.	256561.	43.48
OTH.FWY & XWAY (12)	700828.	24939.	28.10
OTH. PRINC. ART.(14)	8070031.	314583.	25.65
MINOR ARTERIAL (16)	8538934.	286702.	29.78
CENCON & INTRAS (19)	2434240.	162298.	15.00
SUBTOTAL	30899320.	1045083.	29.57
TOTAL	31549936.	1070686.	29.47

Hamilton County

HPMS TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------						
INTERSTATE	(1)	256.	4316.	588.	11.	41.
OTH. PRINC. ART.	(2)	593.	8886.	1129.	24.	89.
MINOR ARTERIAL	(6)	354.	4783.	615.	14.	50.
CENCON & INTRAS	(9)	458.	4163.	545.	11.	41.
SUBTOTAL		1662.	22148.	2877.	60.	222.
-----URBAN------						
INTERSTATE	(11)	437.	6383.	866.	17.	64.
OTH.FWY & XWAY	(12)	723.	9321.	1207.	26.	96.
OTH. PRINC. ART.	(14)	898.	12102.	1559.	33.	125.
MINOR ARTERIAL	(16)	1236.	15863.	2048.	44.	164.
CENCON & INTRAS	(19)	728.	6615.	866.	18.	66.
SUBTOTAL		4023.	50284.	6546.	138.	514.
---TOTAL---		5684.	72431.	9423.	198.	736.
(TONS)		6.26	79.77	10.38	0.22	0.81

DAILY TRAVEL STATS

Hamilton County

HPMS TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------				
INTERSTATE	(1)	436956.	8322.	52.51
OTH. PRINC. ART.	(2)	963994.	22029.	43.76
MINOR ARTERIAL	(6)	543479.	15264.	35.61
CENCON & INTRAS	(9)	446807.	22340.	20.00
SUBTOTAL		2391236.	67955.	35.19
-----URBAN------				
INTERSTATE	(11)	694947.	17277.	40.22
OTH.FWY & XWAY	(12)	1034481.	35119.	29.46
OTH. PRINC. ART.	(14)	1344499.	40325.	33.34
MINOR ARTERIAL	(16)	1764721.	60040.	29.39
CENCON & INTRAS	(19)	709966.	46482.	15.27
SUBTOTAL		5548612.	199244.	27.85
TOTAL		7939848.	267198.	29.72

Johnson County

HPMS TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------						
INTERSTATE	(1)	383.	6819.	955.	17.	62.
OTH. PRINC. ART.	(2)	536.	8185.	1051.	22.	81.
MINOR ARTERIAL	(6)	139.	2021.	260.	6.	21.
CENCON & INTRAS	(9)	353.	3212.	421.	9.	32.
SUBTOTAL		1412.	20238.	2685.	52.	195.
-----URBAN------						
INTERSTATE	(11)	290.	4871.	668.	12.	46.
OTH.FWY & XWAY	(12)	86.	1281.	163.	3.	13.
OTH. PRINC. ART.	(14)	438.	6193.	791.	17.	64.
MINOR ARTERIAL	(16)	378.	5152.	663.	14.	54.
CENCON & INTRAS	(19)	313.	2844.	372.	8.	28.
SUBTOTAL		1506.	20341.	2657.	55.	204.
---TOTAL---		2918.	40579.	5343.	107.	400.
(TONS)		3.21	44.69	5.88	0.12	0.44

DAILY TRAVEL STATS

Johnson County

HPMS TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------				
INTERSTATE	(1)	666749.	11734.	56.82
OTH. PRINC. ART.	(2)	871809.	19880.	43.85
MINOR ARTERIAL	(6)	222547.	5461.	40.75
CENCON & INTRAS	(9)	344746.	17237.	20.00
SUBTOTAL		2105850.	54311.	38.77
-----URBAN------				
INTERSTATE	(11)	493580.	9554.	51.66
OTH.FWY & XWAY	(12)	139826.	3240.	43.16
OTH. PRINC. ART.	(14)	685642.	17816.	38.48
MINOR ARTERIAL	(16)	581697.	16186.	35.94
CENCON & INTRAS	(19)	305279.	20352.	15.00
SUBTOTAL		2206023.	67148.	32.85
TOTAL		4311872.	121460.	35.50

Hendricks County

HPMS TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------						
INTERSTATE	(1)	430.	8081.	1181.	19.	70.
OTH. PRINC. ART.	(2)	499.	7488.	953.	20.	75.
MINOR ARTERIAL	(6)	76.	1048.	135.	3.	11.
CENCON & INTRAS	(9)	357.	3241.	424.	9.	32.
SUBTOTAL		1362.	19859.	2693.	51.	188.
-----URBAN------						
INTERSTATE	(11)	281.	5141.	734.	12.	46.
OTH. PRINC. ART.	(14)	543.	7621.	975.	21.	79.
MINOR ARTERIAL	(16)	318.	4438.	568.	12.	46.
CENCON & INTRAS	(19)	216.	1968.	258.	5.	20.
SUBTOTAL		1358.	19168.	2535.	51.	190.
---TOTAL---		2721.	39026.	5228.	102.	379.
(TONS)		3.00	42.98	5.76	0.11	0.42

DAILY TRAVEL STATS

Hendricks County

HPMS TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------				
INTERSTATE	(1)	760067.	12401.	61.29
OTH. PRINC. ART.	(2)	806156.	18799.	42.88
MINOR ARTERIAL	(6)	119237.	3181.	37.48
CENCON & INTRAS	(9)	347840.	17392.	20.00
SUBTOTAL		2033301.	51773.	39.27
-----URBAN------				
INTERSTATE	(11)	493419.	8376.	58.91
OTH. PRINC. ART.	(14)	846875.	22306.	37.97
MINOR ARTERIAL	(16)	498943.	12924.	38.61
CENCON & INTRAS	(19)	211265.	14067.	15.02
SUBTOTAL		2050501.	57674.	35.55
TOTAL		4083803.	109447.	37.31

Morgan County

HPMS TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
-----RURAL------						
INTERSTATE	(1)	214.	4016.	587.	9.	35.
OTH. PRINC. ART.	(2)	835.	12744.	1648.	34.	125.
MINOR ARTERIAL	(6)	78.	1081.	138.	3.	11.
CENCON & INTRAS	(9)	338.	3077.	403.	8.	31.
SUBTOTAL		1465.	20918.	2776.	54.	202.
-----URBAN------						
OTH. PRINC. ART.	(14)	155.	2484.	325.	6.	24.
MINOR ARTERIAL	(16)	23.	327.	42.	1.	3.
CENCON & INTRAS	(19)	30.	274.	36.	1.	3.
SUBTOTAL		208.	3084.	403.	8.	30.
---TOTAL---		1673.	24002.	3179.	62.	232.
(TONS)		1.84	26.43	3.50	0.07	0.26

DAILY TRAVEL STATS

Morgan County

HPMS TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
-----RURAL------				
INTERSTATE	(1)	377608.	6157.	61.33
OTH. PRINC. ART.	(2)	1347577.	31642.	42.59
MINOR ARTERIAL	(6)	122023.	3147.	38.77
CENCON & INTRAS	(9)	330215.	16511.	20.00
SUBTOTAL		2177423.	57457.	37.90
-----URBAN------				
OTH. PRINC. ART.	(14)	258039.	5400.	47.79
MINOR ARTERIAL	(16)	36655.	925.	39.62
CENCON & INTRAS	(19)	29374.	1958.	15.00
SUBTOTAL		324068.	8283.	39.12
TOTAL		2501491.	65741.	38.05

INDIANAPOLIS REGIONAL TRAVEL DEMAND MODEL --
EMISSION MODEL FOR MOBILE 6.2 -- PROGRAM DATE: 12NOV2004
- RUN TIME: 11:15:14 02APR09

EMISSIONS IN KILOGRAMS PER DAY
+++ ALTERNATIVE IS:10A
MOBILE6 INPUT FILE :

Marion County

AREA TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
CBD	(1)	1054.	14076.	1846.	39.	144.
CDB FRINGE	(2)	9927.	132962.	17459.	365.	1358.
RESIDENTIAL	(3)	10161.	136040.	18050.	362.	1348.
RURAL	(5)	538.	7031.	919.	17.	63.
---TOTAL---		21680.	290109.	38275.	783.	2913.
(TONS)		23.88	319.50	42.15	0.86	3.21

Marion County

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
FREEWAY	(1)	6801.	108031.	14796.	279.	1037.
EXPRESSWAY	(2)	499.	6398.	828.	17.	65.
2-WAY ART w/prk	(3)	6142.	78473.	10162.	220.	819.
ONE-WAY ARTERIAL	(4)	600.	7873.	1018.	22.	83.
CENTROID CONNECT	(5)	2516.	22872.	2995.	61.	228.
2-WAY ART wo/prk	(6)	4927.	63352.	8152.	176.	656.
FREEWAY RAMPS	(7)	193.	3110.	326.	7.	25.
---TOTAL---		21680.	290109.	38275.	783.	2913.
(TONS)		23.88	319.50	42.15	0.86	3.21

DAILY TRAVEL STATS

Marion County

AREA TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
CBD	(1)	1554519.	48868.	31.81
CDB FRINGE	(2)	14650606.	453046.	32.34
RESIDENTIAL	(3)	14665021.	542688.	27.02
RURAL	(5)	679752.	26084.	26.06
TOTAL		31549936.	1070686.	29.47

Marion County

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
FREEWAY	(1)	11207099.	246995.	45.37

EXPRESSWAY	(2)	700828.	24939.	28.10
2-WAY ART w/prk	(3)	8835519.	299927.	29.46
ONE-WAY ARTERIAL	(4)	896001.	27277.	32.85
CENTROID CONNECT	(5)	2454906.	163351.	15.03
2-WAY ART wo/prk	(6)	7181566.	292661.	24.54
FREEWAY RAMPS	(7)	273991.	15536.	17.64
TOTAL		31549936.	1070686.	29.47

Hamilton County

AREA TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
CDB FRINGE	(2)	200.	2974.	402.	8.	29.
RESIDENTIAL	(3)	3532.	43518.	5655.	120.	447.
SUBURBAN CBD	(4)	267.	3438.	443.	9.	35.
RURAL	(5)	1686.	22501.	2922.	61.	225.
---TOTAL---		5684.	72431.	9423.	198.	736.
(TONS)		6.26	79.77	10.38	0.22	0.81

Hamilton County

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
FREEWAY	(1)	693.	10699.	1454.	28.	105.
EXPRESSWAY	(2)	960.	12927.	1665.	35.	132.
2-WAY ART w/prk	(3)	1430.	18352.	2371.	51.	190.
ONE-WAY ARTERIAL	(4)	1.	8.	1.	0.	0.
CENTROID CONNECT	(5)	1186.	10778.	1411.	29.	107.
2-WAY ART wo/prk	(6)	1415.	19668.	2521.	54.	202.
---TOTAL---		5684.	72431.	9423.	198.	736.
(TONS)		6.26	79.77	10.38	0.22	0.81

DAILY TRAVEL STATS

Hamilton County

AREA TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
CDB FRINGE	(2)	308583.	8388.	36.79
RESIDENTIAL	(3)	4821433.	177261.	27.20
SUBURBAN CBD	(4)	380038.	12705.	29.91
RURAL	(5)	2429795.	68845.	35.29
TOTAL		7939848.	267198.	29.72

Hamilton County

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
FREEWAY	(1)	1131904.	25599.	44.22

EXPRESSWAY	(2)	1422385.	43732.	32.53	
2-WAY ART w/prk	(3)	2052852.	68950.	29.77	
ONE-WAY ARTERIAL	(4)	839.	19.	45.00	
CENTROID CONNECT	(5)	1156772.	68822.	16.81	
2-WAY ART wo/prk	(6)	2175098.	60077.	36.21	
TOTAL		7939848.	267198.	29.72	

Johnson County

AREA TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
CDB FRINGE	(2)	132.	1727.	222.	5.	18.
RESIDENTIAL	(3)	1236.	16869.	2211.	45.	169.
SUBURBAN CBD	(4)	138.	1745.	225.	5.	18.
RURAL	(5)	1412.	20238.	2685.	52.	195.
---TOTAL---		2918.	40579.	5343.	107.	400.
(TONS)		3.21	44.69	5.88	0.12	0.44

Johnson County

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
FREEWAY	(1)	674.	11690.	1623.	29.	108.
EXPRESSWAY	(2)	138.	2161.	278.	6.	21.
2-WAY ART w/prk	(3)	518.	7173.	922.	20.	75.
CENTROID CONNECT	(5)	666.	6056.	793.	16.	60.
2-WAY ART wo/prk	(6)	922.	13498.	1726.	37.	136.
---TOTAL---		2918.	40579.	5343.	107.	400.
(TONS)		3.21	44.69	5.88	0.12	0.44

DAILY TRAVEL STATS

Johnson County

AREA TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
CDB FRINGE	(2)	194410.	5994.	32.43
RESIDENTIAL	(3)	1818054.	54608.	33.29
SUBURBAN CBD	(4)	193559.	6546.	29.57
RURAL	(5)	2105850.	54311.	38.77
TOTAL		4311872.	121460.	35.50

Johnson County

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
FREEWAY	(1)	1160329.	21288.	54.51
EXPRESSWAY	(2)	227945.	4868.	46.82
2-WAY ART w/prk	(3)	804244.	21647.	37.15

CENTROID CONNECT	(5)	650024.	37589.	17.29		
2-WAY ART wo/prk	(6)	1469331.	36067.	40.74		
TOTAL		4311872.	121460.	35.50		

Hendricks County

AREA TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
RESIDENTIAL	(3)	1358.	19168.	2535.	51.	190.
RURAL	(5)	1362.	19859.	2693.	51.	188.
---TOTAL---		2721.	39026.	5228.	102.	379.
(TONS)		3.00	42.98	5.76	0.11	0.42

Hendricks County

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
FREEWAY	(1)	712.	13222.	1915.	31.	116.
2-WAY ART w/prk	(3)	352.	4869.	624.	14.	51.
CENTROID CONNECT	(5)	573.	5206.	682.	14.	52.
2-WAY ART wo/prk	(6)	1084.	15730.	2008.	43.	160.
---TOTAL---		2721.	39026.	5228.	102.	379.
(TONS)		3.00	42.98	5.76	0.11	0.42

DAILY TRAVEL STATS

Hendricks County

AREA TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
RESIDENTIAL	(3)	2050501.	57674.	35.55
RURAL	(5)	2033301.	51773.	39.27
TOTAL		4083803.	109447.	37.31

Hendricks County

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
FREEWAY	(1)	1253486.	20778.	60.33
2-WAY ART w/prk	(3)	550406.	14506.	37.94
CENTROID CONNECT	(5)	558711.	31450.	17.77
2-WAY ART wo/prk	(6)	1721200.	42713.	40.30
TOTAL		4083803.	109447.	37.31

Morgan County

AREA TYPE		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3

RESIDENTIAL	(3)	197.	2913.	381.	8.	28.
SUBURBAN CBD	(4)	1.	18.	2.	0.	0.
RURAL	(5)	1475.	21071.	2795.	55.	203.
---TOTAL---		1673.	24002.	3179.	62.	232.
(TONS)		1.84	26.43	3.50	0.07	0.26

Morgan County

FACILITY		VOC HC	EXHST CO	EXHST NOx	TOTAL PM2.5	NH3
FREEWAY	(1)	214.	4016.	587.	9.	35.
EXPRESSWAY	(2)	79.	1436.	196.	3.	13.
2-WAY ART w/prk	(3)	101.	1408.	180.	4.	15.
CENTROID CONNECT	(5)	369.	3350.	439.	9.	33.
2-WAY ART wo/prk	(6)	911.	13792.	1777.	37.	136.
---TOTAL---		1673.	24002.	3179.	62.	232.
(TONS)		1.84	26.43	3.50	0.07	0.26

DAILY TRAVEL STATS

Morgan County

AREA TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
RESIDENTIAL	(3)	305619.	7865.	38.86
SUBURBAN CBD	(4)	1942.	52.	37.17
RURAL	(5)	2193930.	57823.	37.94
TOTAL		2501491.	65741.	38.05

Morgan County

FACILITY TYPE		DAILY VMT	DAILY VHT	AVERAGE SPEED
FREEWAY	(1)	377608.	6157.	61.33
EXPRESSWAY	(2)	138128.	2352.	58.74
2-WAY ART w/prk	(3)	158678.	4072.	38.96
CENTROID CONNECT	(5)	359589.	18469.	19.47
2-WAY ART wo/prk	(6)	1467487.	34690.	42.30
TOTAL		2501491.	65741.	38.05

Appendix E-4: Emission Factors (from MOBILE 6.2: EMIS), PM 2.5

Summer 2010

Road Class	Speed	HC	CO	NOx	PM	NH3
Freeway	3	4.3010	24.6510	2.0480	0.0250	0.0927
Freeway	5	2.1560	17.5660	1.8960	0.0250	0.0927
Freeway	10	1.1950	11.5450	1.4880	0.0250	0.0927
Freeway	15	0.9190	9.6340	1.2680	0.0250	0.0927
Freeway	20	0.7900	9.0840	1.2170	0.0250	0.0927
Freeway	25	0.7300	8.7820	1.1860	0.0250	0.0927
Freeway	30	0.6890	8.5870	1.1710	0.0249	0.0927
Freeway	35	0.6530	8.6000	1.1700	0.0249	0.0927
Freeway	40	0.6300	8.9350	1.1910	0.0249	0.0927
Freeway	45	0.6110	9.2900	1.2330	0.0249	0.0927
Freeway	50	0.5940	9.6640	1.2950	0.0249	0.0927
Freeway	55	0.5790	10.0570	1.3840	0.0249	0.0927
Freeway	60	0.5680	10.5080	1.5090	0.0249	0.0927
Freeway	65	0.5600	10.9890	1.6850	0.0249	0.0927
Arterial	3	4.3010	24.6510	1.9930	0.0250	0.0927
Arterial	5	2.1560	17.5660	1.8420	0.0250	0.0927
Arterial	10	1.2360	12.1640	1.5380	0.0250	0.0927
Arterial	15	0.9690	10.3570	1.3430	0.0250	0.0927
Arterial	20	0.8130	9.3640	1.2310	0.0250	0.0927
Arterial	25	0.7370	8.8480	1.1630	0.0250	0.0927
Arterial	30	0.6900	8.5990	1.1250	0.0249	0.0927
Arterial	35	0.6530	8.6000	1.1150	0.0249	0.0927
Arterial	40	0.6300	8.9350	1.1370	0.0249	0.0927
Arterial	45	0.6110	9.2900	1.1780	0.0249	0.0927
Arterial	50	0.5940	9.6640	1.2400	0.0249	0.0927
Arterial	55	0.5790	10.0570	1.3290	0.0249	0.0927
Arterial	60	0.5680	10.5080	1.4540	0.0249	0.0927
Arterial	65	0.5600	10.9890	1.6300	0.0249	0.0927
Local	1	1.0250	9.3170	1.2200	0.0250	0.0927
Ramps	1	0.7060	11.3500	1.1880	0.0249	0.0927

Summer 2020

Road Class	Speed	HC	CO	NOx	PM	NH3
Freeway	3	2.2860	18.8820	0.7770	0.0141	0.0928
Freeway	5	1.1980	13.5270	0.7160	0.0141	0.0928
Freeway	10	0.6700	8.9110	0.5410	0.0141	0.0928
Freeway	15	0.5040	7.4270	0.4520	0.0141	0.0928
Freeway	20	0.4220	7.0030	0.4410	0.0141	0.0928
Freeway	25	0.3910	6.7750	0.4350	0.0140	0.0928
Freeway	30	0.3680	6.6260	0.4320	0.0140	0.0928
Freeway	35	0.3490	6.6300	0.4320	0.0140	0.0928
Freeway	40	0.3370	6.8900	0.4400	0.0140	0.0928
Freeway	45	0.3270	7.1640	0.4530	0.0140	0.0928
Freeway	50	0.3190	7.4520	0.4720	0.0140	0.0928
Freeway	55	0.3120	7.7550	0.4990	0.0140	0.0928
Freeway	60	0.3090	8.1060	0.5340	0.0140	0.0928
Freeway	65	0.3060	8.4790	0.5820	0.0140	0.0928
Arterial	3	2.2860	18.8820	0.7680	0.0141	0.0928
Arterial	5	1.1980	13.5270	0.7070	0.0141	0.0928
Arterial	10	0.6980	9.4110	0.5860	0.0141	0.0928
Arterial	15	0.5380	8.0150	0.5090	0.0141	0.0928
Arterial	20	0.4380	7.2330	0.4670	0.0141	0.0928
Arterial	25	0.3960	6.8300	0.4420	0.0140	0.0928
Arterial	30	0.3700	6.6350	0.4270	0.0140	0.0928
Arterial	35	0.3490	6.6300	0.4220	0.0140	0.0928
Arterial	40	0.3370	6.8900	0.4300	0.0140	0.0928
Arterial	45	0.3270	7.1640	0.4440	0.0140	0.0928
Arterial	50	0.3190	7.4520	0.4630	0.0140	0.0928
Arterial	55	0.3120	7.7550	0.4890	0.0140	0.0928
Arterial	60	0.3090	8.1060	0.5240	0.0140	0.0928
Arterial	65	0.3060	8.4790	0.5720	0.0140	0.0928
Local	1	0.5790	7.4110	0.4520	0.0141	0.0928
Ramps	1	0.3730	8.4430	0.4690	0.0140	0.0928

Summer 2030

Road Class	Speed	HC	CO	NOx	PM	NH3
Freeway	3	2.1700	17.7920	0.5620	0.0128	0.0928
Freeway	5	1.1190	12.7510	0.5150	0.0128	0.0928
Freeway	10	0.6150	8.3990	0.3740	0.0128	0.0928
Freeway	15	0.4580	7.0000	0.3050	0.0128	0.0928
Freeway	20	0.3800	6.5990	0.3030	0.0128	0.0928
Freeway	25	0.3500	6.3850	0.3020	0.0128	0.0928
Freeway	30	0.3290	6.2450	0.3020	0.0128	0.0928
Freeway	35	0.3110	6.2480	0.3020	0.0128	0.0928
Freeway	40	0.3000	6.4930	0.3070	0.0128	0.0928
Freeway	45	0.2910	6.7520	0.3150	0.0128	0.0928
Freeway	50	0.2830	7.0240	0.3260	0.0128	0.0928
Freeway	55	0.2760	7.3090	0.3390	0.0128	0.0928
Freeway	60	0.2730	7.6420	0.3560	0.0128	0.0928
Freeway	65	0.2710	7.9960	0.3780	0.0128	0.0928
Arterial	3	2.1700	17.7920	0.5620	0.0128	0.0928
Arterial	5	1.1190	12.7510	0.5150	0.0128	0.0928
Arterial	10	0.6410	8.8730	0.4230	0.0128	0.0928
Arterial	15	0.4890	7.5570	0.3660	0.0128	0.0928
Arterial	20	0.3950	6.8180	0.3360	0.0128	0.0928
Arterial	25	0.3550	6.4370	0.3170	0.0128	0.0928
Arterial	30	0.3300	6.2540	0.3060	0.0128	0.0928
Arterial	35	0.3110	6.2480	0.3020	0.0128	0.0928
Arterial	40	0.3000	6.4930	0.3070	0.0128	0.0928
Arterial	45	0.2910	6.7520	0.3150	0.0128	0.0928
Arterial	50	0.2830	7.0240	0.3260	0.0128	0.0928
Arterial	55	0.2760	7.3090	0.3390	0.0128	0.0928
Arterial	60	0.2730	7.6420	0.3560	0.0128	0.0928
Arterial	65	0.2710	7.9960	0.3780	0.0128	0.0928
Local	1	0.5300	6.9940	0.3150	0.0128	0.0928
Ramps	1	0.3330	7.9830	0.3480	0.0128	0.0928

Appendix E-5: VMT Forecasts, PM 2.5

Between 2002 and 2030, daily VMT in the five-county area is projected to increase by nearly 36.22% from 38.8 million to 52.9 million. Forecasts for daily vehicle miles traveled (VMT) were extracted from the 9-County Travel Demand Model and are shown in Figure 7 and Table 7 below.

Figure 7: Daily VMT Forecasts in PM 2.5 nonattainment area

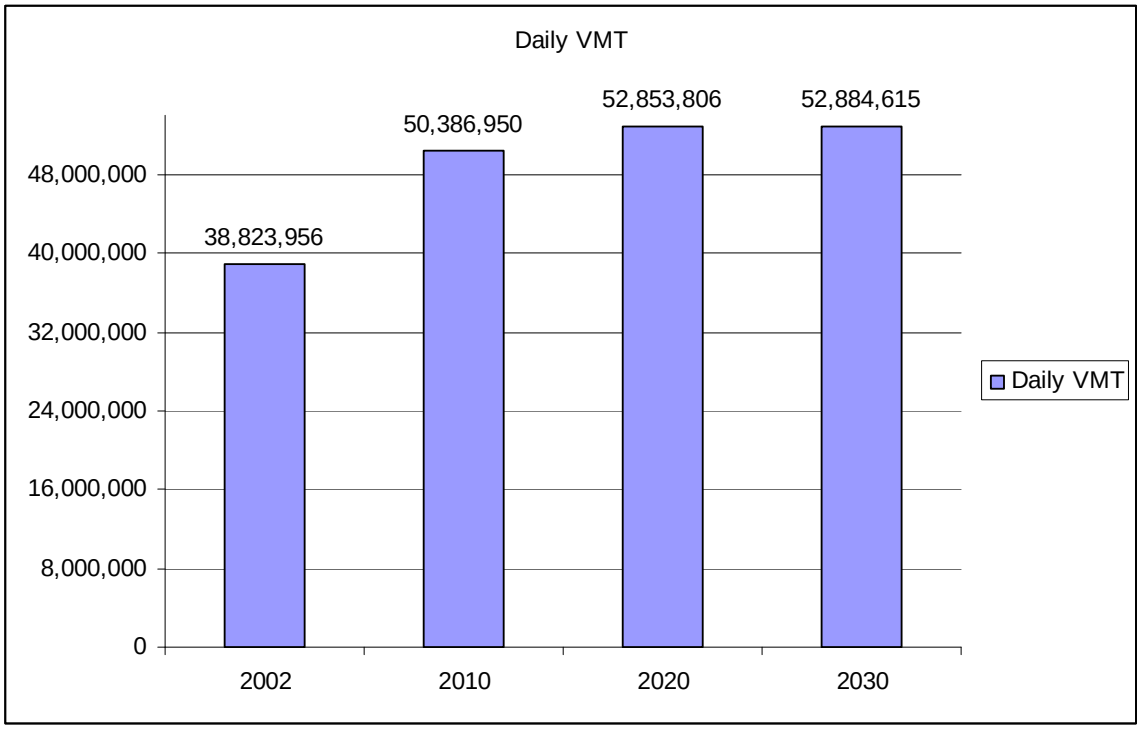

Table 7: Daily VMT by County for PM 2.5 nonattainment area

VMT	2002	2010	2020	2030
Marion County	25,391,794	31549936	32658234	32839422
Hamilton County	5,440,560	7939848	8573409	8505969
Johnson County	3,219,087	4311872	4641118	4625127
Hendricks County	2,766,892	4083803	4265794	4230366
Morgan County	2,005,623	2501491	2715251	2683731
Total Model Area (5 County Region)	38,823,956	50,386,950	52,853,806	52,884,615