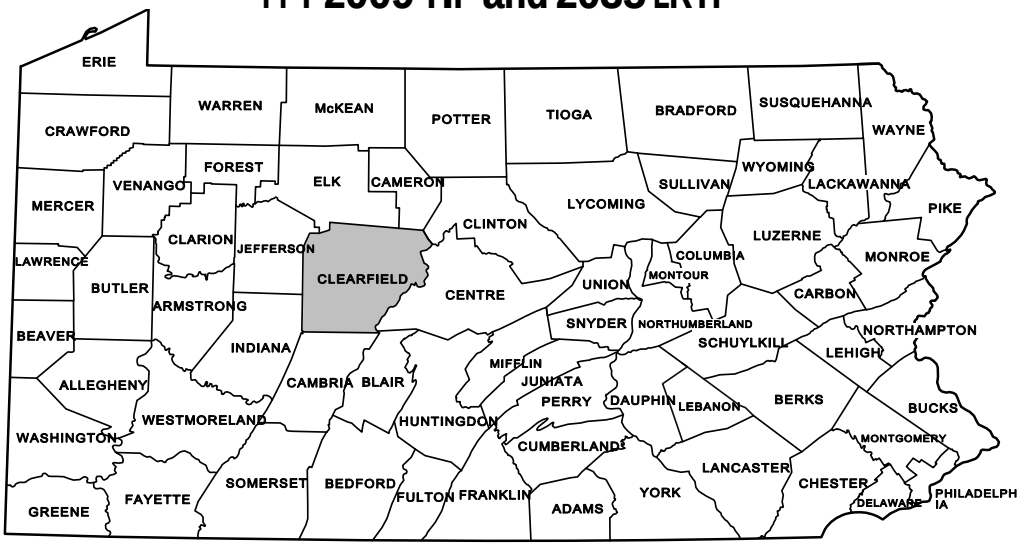
APPENDIX B

Conformity Determination
Clearfield-Indiana 8-Hour Ozone Nonattainment Area

AIR QUALITY
CONFORMITY ANALYSIS REPORT
FOR THE CLEARFIELD COUNTY Portion of the
CLEARFIELD-INDIANA OZONE NONATTAINMENT AREA
(8-hour Ozone NAAQS)

VOLUME I - EXECUTIVE SUMMARY

FFY 2009 TIP and 2035 LRTP



Prepared by:
Pennsylvania Department of Transportation

PUBLIC REVIEW AND PLANNING PARTNER APPROVAL:

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1. INTRODUCTION

This document provides an analysis of the air quality implications of the North Central Pennsylvania Rural Planning Organization's (RPO) FFY 2009-2012 Transportation Improvement Program (TIP) and 2035 Regional Transportation Plan (LRP). The analysis demonstrates transportation conformity to the 8-hour ozone National Ambient Air Quality Standards (NAAQS)**.**

This document replaces the previous approved conformity demonstration of the TIP and LRP and ensures that the findings meet all current ozone criteria established by the U.S. Environmental Protection Agency (EPA).

Since vehicular emissions contribute to ozone violations, the Act requires transportation planners in nonattainment and maintenance areas to consider the air quality impacts of their proposed plans, programs, and projects. These activities, if subject to federal involvement, must be shown to conform based on the requirements for each pollutant.

Clearfield County is included in the Clearfield-Indiana 8-hour ozone nonattainment area and must make a conformity determination for ozone precursors. An affirmative conformity determination by the Southwestern Pennsylvania Commission (SPC) and the North Central Pennsylvania RPO for their respective portions of the Clearfield-Indiana County 8-hour ozone nonattainment area is necessary to demonstrate conformity; thereby allowing the TIP/LRPs in each county to be approved by U.S. DOT.

In an attempt to reduce harmful emissions nationwide, the Clean Air Act Amendments (CAAA) of 1990 classified certain metropolitan areas as nonattainment if they did not comply with federal air quality standards under the 1-hour ozone standard. Clearfield County was originally designated as an *attainment* area under the 1 hour ozone NAAQS.

Effective June 15, 2004, the United States Environmental Protection Agency (US EPA) finalized ground-level ozone designations under the 8-hour ozone NAAQS. The standard replaced the pre-existing 1-hour ozone NAAQS and the 1-hour ozone NAAQS was withdrawn on June 15, 2005. Clearfield County is designated as a *Basic ozone* nonattainment area under the 8-hour standard.

The Clearfield-Indiana ozone nonattainment area does not have any motor vehicle emissions budgets (MVEB) in a state implementation plan (SIP) under the prior 1 hour or current 8 hour ozone NAAQS. Prior to ozone MVEBs in a SIP being ruled "adequate" or approved by EPA, the nonattainment area must meet the "Interim Rule" conformity test requirements. Transportation conformity for the 8-hour ozone standard must demonstrate either [a] that future year emissions are not greater than the 2002 baseline or [b] that the future year build condition emissions are not greater than no-build condition emissions. The interim conformity tests will be utilized until a SIP is submitted and the motor vehicle emissions budgets in that SIP are ruled "adequate" or are approved. Attainment of the new federal ozone standards is required by 2009.

1.1 Purpose

The CAAA directs the EPA to implement regulations providing for reductions in pollutant emissions. This conformity demonstration is based on the current final conformity guidance, 40 CFR Parts 51 and 93 as revised, and adheres to all requirements in the 8-hour ozone NAAQS. Pollutants addressed include volatile organic compounds (VOC) and nitrogen oxides (NOx).

Transportation conformity for the 8-hour ozone standard includes an emissions test utilizing one of the two 'interim period' conformity tests. Through the interagency consultation process, the region has selected the test to ensure that emissions in future years is not greater than those in 2002. Analyses are for emissions during a *summer day*. As the ozone nonattainment area includes Clearfield and Indiana Counties, the North Central Pennsylvania RPO and Southwestern Pennsylvania Commission (MPO) make this determination for their respective regions.

This report evaluates the Highway and Transit Transportation Improvement Program (TIP) and the Long Range Regional Transportation Plan (LRP) for Clearfield County. It presents the most recent estimates of highway mobile source emissions for the region, including consideration of significant projects on the TIP and LRP. It provides the basis for determining if the conformity criteria have been satisfied for both ozone and fine particulates.

1.2 Coverage

This report considers the impact of emissions within the Clearfield County area.

Ozone is a secondary pollutant; it is not directly discharged into the atmosphere. Instead, it is produced by the reaction of several precursor chemical compounds in the presence of sunlight. Volatile organic compounds (VOC) and nitrogen oxides (NO_x) are primary reactants. VOCs are alternately classified as non-methane hydrocarbons (NMHC), since methane is less reactive and therefore not considered. Under the EPA conformity regulations, both VOC and NOx must be analyzed for regional transportation conformity.

1.3 Analysis Overview

Emissions from highway vehicles within the area have been analyzed using EPA's MOBILE6.2, the agency's currently approved computer model. The modeling procedures are described in more detail later in this report.

Certain projects were excluded if it was determined that they would not impact regional emissions (e.g., reconstructing bridges, resurfacing projects, etc.) in accordance with 40 CFR Parts 51 and 93. These projects are noted as "Exempt" (X) in Volume II, Appendices A and B. Other projects are noted as "Not Significant" (NS), and include those projects which are not exempt by definition, but whose air quality impacts are too small to quantify through current modeling practice.

A conformity test comparing the emissions in the 2002 base year with certain future years was conducted for Clearfield County. Emissions tests were conducted for the 2002, 2009, 2018, 2025, and 2035 analysis years. These analysis and horizon years are in accordance with 40 CFR Part 93, Subpart A, Sections 93.106(a)(1) and 93.119(g). All analyses are for a summer day.

The North Central Pennsylvania RPO and Southwestern Pennsylvania Commission have conducted the same emissions tests for the same analysis/horizon years for their respective portions of the Clearfield-Indiana 8-hour ozone nonattainment area.

1.4 Analysis Limitations

The Final Conformity Rule asserts that the conformity process must include an evaluation of proposed capital facility investments. This is required to assure that such expenditures, which are typically irreversible, are not made without consideration of air quality consequences and that CAAA requirements are being implemented.

In order to proceed with its planned projects, each MPO must adopt a conformity resolution. This study has proceeded with reasonable assumptions and the best available data to provide a valid comparison within these limitations, applying the same assumptions to each of the milestone scenarios within any given year. A reasonable effort has been extended to provide an evaluation of future year emissions compared to pollutant levels in the base year 2002.

The planning assumptions used for this conformity submission have been updated as compared to past submissions. Many of the traffic related assumptions are updated on a "triennial" basis to satisfy EPA's latest planning assumption requirements. The last update was based on 2005 data and future efforts will be required in the preparation of 2008 related data. Examples of key tools and input data are presented below:

- MOBILE6.2 is used to determine emission factors for the region.
- Roadway Traffic Data – Uses PENNDOT's 2005 Roadway Management System (RMS) data.
- VMT growth rates based on PENNDOT's VMT forecasting system. Growth rates based on historic HPMS VMT through 2005 and socioeconomic forecasts by county.
- HPMS Adjustments – Missing local roadway VMT is reconciled to the 2005 HPMS to ensure consistency. These adjustments are carried forward to future years.
- Vehicle Mix Patterns – Vehicle mix patterns have been developed for the county based on 2005 PENNDOT RMS truck percentages.
- Vehicle Fleet Ages – Updated 2005 vehicle fleet age data was prepared from the state motor vehicle registration database.

1.5 Document Contents

The conformity analysis for Clearfield County is divided into two volumes. Volume I is the executive summary of the analysis. It consists of six sub-sections:

Section one provides introductory material and defines the purpose of the report. Further, it describes the scope of the study: its geographical coverage, the time frame considered, and the pollutant emissions analyzed. The limitations of the

study, primarily related to constraints affecting the analysis, are also presented here.

Section two provides a summary of the analysis. This information is also presented in graphic form in Tables 1 through 6 at the end of this report.

A more detailed discussion of the analysis is presented in section three. It provides an overview of the study process and background information on the relation between vehicular emissions and ozone. The Long Range Plan and Transportation Improvement Programs are discussed, with a focus on projects that might significantly affect emissions. Traffic and other parameters used in the modeling process are presented and discussed. This section also includes a discussion of the emission tables (Tables 2, 3, 5, 6) developed during the analysis, and presenting the implications of these results.

The fourth section of this report discusses the "financial constraints" of the Long Range Plan and Transportation Improvement Programs.

Section five discusses the public participation process of the conformity analysis. This process includes the advertisements of availability of the LRP/TIP and accompanying conformity documents, as well as any comments received and associated responses.

The sixth section concludes this report by summarizing the results of the analysis and stating a conclusion regarding the conformity of the Long Range Plan and Transportation Improvement Programs to the applicable State Implementation Plan, and the Clean Air Act, as amended.

Volume II of this report contains the technical data used to conduct the conformity determination. Key variables, such as vehicle miles traveled (VMT), vehicle hours traveled (VHT), average speed, and daily VOC and NO_X emissions (ozone) are shown. In addition, the LRP/TIP for the region, MOBILE6.2 set-up files, and other variables are shown. Copies of Volume II are available from PENNDOT's Air Quality Section upon request.

2. SUMMARY

As required by the Clean Air Act Amendments of 1990 (CAAA), a study of vehicle emissions was performed for the Clearfield County portion of the Clearfield-Indiana County 8-hour ozone nonattainment area. State and federal emissions control measures are included in the analysis for the relevant analysis year.

The study compared the 2002 baseline emissions of VOC and NO_x to emissions that are forecast to result from implementation of the TIP and LRP.

Projects included in the analysis are listed in Section 3.3. The regional evaluation of the projects indicates an overall increase in mobility and a decrease in VOC and NO_X emissions.

For the Clearfield County portion of the Clearfield-Indiana County nonattainment area, five projects on the Federal Fiscal Year (FFY) 2009-2012 TIP and 2035 LRP will have an impact on air quality. The regional evaluation of the TIP/LRP indicates a lower level of VOC and NO_X emissions in future years compared to the 8-hour ozone NAAQS base year of 2002.

To further address VOC and NO_x reductions in the later years after the TIP (LRP years), strategies such as reduction in VMT, speed changes, smoothness of traffic flows, use of alternative fuels, changes in vehicle technology, and other factors will be key to further reducing vehicular emissions. Some of these have been mandated by the CAAA.

3. ANALYSIS

This section of the report presents the premises for the analysis, background information supporting the modeling, and the results of the analyses.

3.1 Overview

This study used a set of computer programs and databases to estimate vehicle miles of travel and operating speeds, and to subsequently calculate emission factors and total emissions. These programs provide a comparison of vehicular emissions for the 2002 base year versus future years. The programs rely on a variety of input factors, which are discussed in more detail below. A travel demand model does not exist in this region.

Key traffic parameters include daily vehicle miles of travel (DVMT), average speeds, and vehicle type mix. These input factors are calculated by the PPSUITE Post Processor for Air Quality computer program from highway databases containing traffic volumes and descriptions of physical characteristics. In addition, roads are categorized into six functional classifications (Interstate, Other Principal Arterials,

Minor Arterials, Major Collectors, Minor Collectors and Local Roads) in three settings: urbanized area, small urban area, and rural area.

The existing DVMT was determined for each roadway class/setting by multiplying the length of road by the number of vehicles using the road per day. Additional adjustments to VMT included:

- Seasonal adjustments to reflect summer weekday conditions.
- Adjustments of daily VMT to align with 2005 HPMS.

The 2005 VMT was then projected to the future years by applying local growth factors derived from both historic traffic volume growth trends and trip-end growth, as related to past and future projected population and employment growth. Using the latest planning assumptions, population growth, employment growth, and land use trends have been considered in the analyses to as great an extent possible.

Speed data was calculated, using the post processing software, for each highway segment and hour of the day, based on the roadway's capacity and traffic volume. Thus, average speeds reflect physical highway conditions, the effects of traffic signals, and congestion caused by traffic volume. For future conditions, congestion (and thereby speed) is affected by traffic growth and other changes in physical conditions due to LRP and/or TIP improvement projects.

Other input parameters include information regarding vehicle types using the roads and environmental factors. Since local data provides a useful distinction for this comparative analysis, county-specific data was used to describe the vehicle fleet on the highway. The environmental factors used in this analysis (e.g., ambient temperatures) were established based on historic records for peak ozone events within the county (ozone).

This conformity analysis, performed according to the Final Conformity Rules for ozone, indicates that future year emission estimates, including the impacts of planned TIP and LRP projects, are less than emissions in the 2002 (baseline) year for the Clearfield County portion of the Clearfield-Indiana County nonattainment area. Documentation has also been provided to summarize the results produced for Indiana County to illustrate that the nonattainment area, as a whole, meets the conformity test.

3.2 Background

National Ambient Air Quality Standards (NAAQS) have been established by EPA for a number of pollutants considered harmful to public health and the environment. The Clearfield-Indiana area (Clearfield and Indiana Counties) is nonattainment for the ozone criteria pollutant.

Ozone is a strong irritant to the eyes and upper respiratory system. It hampers breathing and damages crops and rubberized materials. It is the main component of smog. A region is in nonattainment of the 8 hour ozone standard if the 3 year average of the individual fourth highest air quality monitor readings, averaged over 8 hours throughout the day, exceeds the NAAQS of 0.08 parts per million (ppm).

Ozone is formed by chemical reactions occurring under specific atmospheric conditions. Two of the important classes of compounds in these reactions are hydrocarbons (including VOC) and oxides of nitrogen. Both of these are components of vehicular exhaust. Additionally, the hydrocarbons may be produced by evaporation from vehicle fuel system components, and by displacement of vapors in the gas tank during refueling. By controlling these emissions, ozone formation can be controlled.

The actual reactions occurring in the atmosphere are complex and the subject of ongoing research. However, it is known that the formation of ground level ozone is a photochemical oxidation process activated by sunlight. Higher ozone concentrations are associated with warm temperatures, and high pressure systems involving temperature inversions and low wind speeds. Under these stagnant conditions, emissions and ozone tend to accumulate rather than disperse.

The role that each component plays in formation of ozone is also complex. Increases in NO_x could lead to an increase in ozone, depending on the time of suspension in the atmosphere and its transport to other polluted areas. Reductions in NO_x emissions may achieve regional ozone reductions. On the other hand, reductions in VOC are often most important for local ozone reduction.

Transportation accounts for significant portions of man-made emissions. On average, mobile sources contribute approximately 36% of the hydrocarbons, 45% of the oxides of nitrogen, and 78% of the carbon

monoxide emissions from man-made sources. For VOCs, the rate of emissions (expressed in grams per mile for motor vehicles) generally decreases with an increase of vehicle speed. This trend is most dramatic for VOC and CO at low speeds. However, both VOC and CO exhibit a slight increase in emission rates as vehicles travel above 40 miles per hour.

For NO_x, however, the emissions rate is a more gradual decline with increasing speed up to approximately 25 miles per hour. Above that speed, vehicle NO_x emissions increase gradually. At 40 mph, the NO_x emissions begin to increase rapidly, due, in part, to the higher engine temperatures associated with higher speeds. Thus, while increasing speeds generally reduces VOC emissions, increasing speeds may cause NO_x emissions increases (see Chart 1). There is no simple way to solve both issues without producing an overall LRP and TIP with a mix of strategies that reduce the NOx increases.

Emission Control Strategies:

Recognizing the contribution of transportation sources to air pollution, the federal government initiated an emission control program in 1968. These requirements are periodically revised, based on the effectiveness of existing controls in meeting pollutions challenges. In addition, cleaner burning fuels have decreased emissions rates of gasoline powered cars, and to some extent, diesel vehicles. Additional new federal vehicle and fuel control programs are planned for the period 2004-2010. Increasing VMT, however, tends to counteract a portion of reductions from cleaner vehicles and fuels.

In order to assure that emission controls are working properly, vehicle inspection and maintenance (I/M) programs have been adopted in some nonattainment areas. These programs have the added benefit of improving the fuel efficiency of vehicles on the road. The Pennsylvania inspection and maintenance (I/M) program was upgraded and expanded throughout the state with a phase-in period starting in September 2003 and fully implemented by June 2004.

The program requirements vary by region and include on-board diagnostics (OBD) technology that uses the vehicle's computer for model years 1996 and newer to identify potential engine and exhaust system problems that could effect emissions. The program, named PAOBDII, is implemented by Region, as follows:

- Philadelphia Region - Bucks, Chester, Delaware, Montgomery and Philadelphia Counties,
- Pittsburgh Region - Allegheny, Beaver, Washington and Westmoreland Counties,
- South Central and Lehigh Valley Region - Berks, Cumberland, Dauphin, Lancaster, Lebanon, Lehigh, Northampton and York Counties.

Other elements of the Pennsylvania I/M program include a gas cap test and visual inspections of subject vehicles in the North Region (Blair, Cambria, Centre, Erie, Lackawanna, Luzerne, Lycoming, and Mercer Counties), and a visual inspection as part of the annual safety inspection in the other 42 counties.

Exact tests vary by Region and vehicle type and model year. The program is in accord with CAA requirements and EPA regulations. The upgraded I/M program was modeled for all projected analysis years beyond 2004.

The Pennsylvania Clean Vehicles Program adopted in 1998 incorporated the California Low Emission Vehicle Program (CA LEV II) by reference although it allowed automakers to comply with the NLEV program as an alternative to this Pennsylvania program until MY 2006. Pennsylvania has proposed rulemaking to delay compliance with the Pennsylvania Clean Vehicles Program until model year 2008. For this submission, emissions are estimated based on compliance with the Pennsylvania Clean Vehicles Program according to the methodology described in section 7.4.1 of "Technical Guidance on the Use of MOBILE6.2 for Emissions Inventory Preparation" published by EPA's Office of Transportation and Air Quality (OTAQ) in January 2002. In order to provide conservative estimates of emissions, we assume that vehicles sold in Pennsylvania comply with the Pennsylvania Clean Vehicles Program in model year 2008 and beyond.

3.3 Long Range Plan/Transportation Improvement Program

The complete Transportation Improvement Program and Long Range Plan for Clearfield County are included in Volume II, Appendix A, for highways, and Volume II, Appendix B, for transit service projects.

Detailed assessments were only performed for those projects on the LRP and TIP which may have a significant effect on emissions in accordance with 40 CFR Parts 51 and 93. Essentially, only those projects

which would increase capacity or significantly impact vehicular speeds were considered. Projects such as bridge replacements and roadway restoration projects, which constitute the majority of the LRP/TIP list, have been excluded from consideration since they are not expected to significantly alter the volume or speed of traffic.

The following LRP/TIP AQ significant highway projects are included in this analysis.

Clearfield County:

1. SR 219 Intersection with SR 830 - This 1.73 mile project involves the addition of a turn lane on SR 219 at its intersection with SR 830, replacing a bridge and possible realignment of the roadway. The project is located in Sandy Township.

2. Main Street/Dixon and Hospital Avenue – This 1.67 mile project involves realigning Hospital Avenue to the west of the intersection of South Main Street opposite Dixon Avenue. The project is located in the City of Dubois.

The following list of LRP/TIP AQ significant transit projects is included in this analysis.

Clearfield County:

1. Transit Bus Replacement – This project involves replacing 2 medium duty buses for DuFast Transit.

2. Transit Bus Replacement – This project involves replacing 2 heavy duty buses for DuFast Transit.

3. Transit Bus Service – This project involves new express bus service.

3.4 Traffic Parameters

Traffic parameters within the emissions modeling provide the basis for the conformity emission test comparisons. For ozone, data is compiled for an average summer day. The following summarizes the data sources, compilation and processing to produce VMT, speeds and emissions by pollutant / precursor. There is no travel demand model for this nonattainment area.

Emission factors vary with average speed and vehicle type mix. Daily emissions are calculated by multiplying the emission factor (expressed in grams per vehicle mile) and traffic volumes (expressed in daily vehicle miles of travel for ozone).

Annual Average Daily Traffic (AADT) volumes on individual roadway segments were generated from 2005 PENNDOT HPMS and Roadway Management System (RMS) databases. Actual traffic counts are completed at thousands of sites around the state at least once every three years. Separate from the HPMS, there are 60 permanent counting stations, which provide data on growth trends and periodic fluctuations in traffic volumes (e.g., seasonal variations). Adjustment factors developed from these permanent station records are applied to the HPMS data.

Individual roadway segments are designated within RMS to one of the six (6) functional classifications and to one of the three settings. RMS also records the length of roadway for each segment, the number of lanes, and the traffic volume. A computerized tabulation of daily vehicle miles of travel (DVMT) for each roadway class and setting is generated by multiplying the ADT and the length for each segment, and summing the products. In addition, PENNDOT has developed temporal variation data, which describe both the hourly variation of traffic volumes within a day, the daily variation within a week, and the monthly variation over the year. The AADT volumes were adjusted to reflect average summer weekday conditions in the peak ozone season, and were also disaggregated to hourly volumes within the day to support detailed speed estimation.

VMT forecast growth rates are based on PENNDOT's VMT forecasting system as documented in the report "Statistical Evaluation of Projected Traffic Growth, Traffic Growth Forecasting System: Final Report, March 14, 2005". The resulting forecasting system includes the development of VMT forecasts and growth rates for four functional classifications in each Pennsylvania county: urban interstate, urban non-interstate, rural interstate, and rural non-interstate. The forecasts use statistical relationships based on historic HPMS VMT trends and future county socioeconomic projections from Woods and Poole Economics, Inc. The statistical models incorporate historical VMT trends, socio and economic data (households, mean household income), and a relative measure of transportation capacity (lane miles per capita). The

results of the study have been shared between PENNDOT, DEP, and other Interagency Consultation Group members, including the PA Conformity Work Group (which includes EPA, FHWA, FTA and representatives from larger MPOs within the state).

Speeds were calculated for 2005 and future years by the PPSUITE post processor computer system, and were validated against data from PENNDOT's ongoing speed monitoring program. The PPSUITE software contains procedures to calculate the capacity of each highway segment, giving consideration to the physical attributes of the highway (functional class, number of lanes, geographic setting), the effects of traffic congestion are then accounted for by comparing traffic volumes to this capacity for each hour of the day, and calculating the speeds which will result.

Speeds are forecast by adjusting the link attributes to reflect future physical improvements, changing the traffic volumes to reflect growth or other actions, and recalculating capacities and speeds. This approach has proven to be appropriately sensitive to the variety of factors, which affect congestion and speed.

The traffic data was developed using the projection process described above. Conditions were evaluated for the years 2002, 2009, 2018, 2025 and 2035 for ozone precursors. The roadways affected by the LRP/TIP projects listed were further analyzed to determine operational changes, which may result from implementation of the LRP/TIPs. In this way, emission characteristics were developed for the region.

The traffic data serves as the regional population, employment, travel, and congestion estimates required by the CAAA, and uses the area's latest planning assumptions. Travel, represented by DVMT, reflects population and employment trends. The speed estimation procedure serves as a measure of congestion, and is consistent with on-going, established monitoring programs. The estimates were coordinated with other data resources, such as the local planning departments. The RMS and HPMS data are available in published formats.

With supplemental analysis performed by PPSUITE, both speed and vehicle type mix data were used in application of the MOBILE6.2 computer model. The emission factors (expressed in grams per vehicle mile) derived by the model were then multiplied by the appropriate VMT for each functional class / setting / time period to calculate the total emissions (in kilograms per day). Off-system adjustments were made using the Congestion Mitigation and Air Quality (CMAQ) methodologies and the PAQONE emissions model developed by the consulting firm of Michael Baker Jr., Inc. for PENNDOT.

3.5 Other Parameters

MOBILE6.2 includes a variety of input parameters which characterize the environmental setting, the vehicle fleet, the condition of emission controls, and the volatility of gasoline. A set of sample input files has been provided in Volume II, Appendix C, of this document. Separate runs of the program were performed for each year and improvement scenario, as described in Section 3.7, to produce summer weekday VOC and NOx.

The sample input file shows a number of the parameters indicate use of MOBILE6.2 default or uncorrected values. A combination of default assumptions and site-specific data were determined through the interagency consultation process. For all data, assumptions were applied uniformly to the baseline, TIP and LRP cases, providing an unbiased comparison.

MOBILE6.2 allows a calculation for refueling losses. This analysis is used for estimating the effectiveness of vapor recovery systems at fueling stations, where such equipment exists. The PA Department of Environmental Protection (DEP) treats emissions in the area source, not mobile source, category. Therefore the emissions from refueling have not been calculated for this conformity analysis.

Emissions from fuel evaporation from vehicles depend on the age of the vehicle, fuel used, length of time the vehicle was operating, and whether the engine was cold or hot when it was started. The effect of the start condition also varies with the emissions control system on the particular vehicle. This study used national average percentages for fuel evaporation from highway motor vehicles.

Minimum and maximum temperature and humidity data in the local area parameter and scenario records have been developed from historic temperature records in 14 regions across the state (see Volume II, Appendix C3). These temperatures represent conditions occurring during "worst case" ozone events between 1999 and 2002.

An in-use Reid vapor pressure (RVP) of 8.7 pounds per square inch (see Volume II, Appendix C4) has been used for all analysis summer weekday analysis scenarios.

3.6 Transportation Control Measures

No Transportation Control Measures (TCMs) have been adopted for the Clearfield County area because existing and planned emissions controls are sufficient for attainment and maintenance purposes.

3.7 Emissions

The results of the computer modeling show future improvements in emissions when compared to the 8-hour ozone 2002 base year emissions in kilograms per summer day, for both TIP and LRP conditions. Emissions are produced for the following analysis scenarios.

1- Base Network - 2002 summer traffic volumes and the base highway network. This year is included as the base year emission totals.

2- 8-hr Attainment Year – 2009 summer traffic volumes and the base highway network, plus those AQ significant projects that are scheduled for completion by 2009. The attainment year must be modeled for ozone conformity analyses.

3- Long-Range Plan Future Networks – 2018, 2025 and 2035 summer traffic volumes and the base highway network, plus those AQ significant projects that are scheduled for completion by those years. The end of the LRP (2035) is a required ozone analysis year. The remaining years 2018 and 2025 are included to ensure that no analysis years are more than 10 years apart.

Based on this analysis and the summary emission tables provided at the end of this report, the conformity results for the 8-hour ozone standard are described below.

Ozone Conformity Test Results:

Emissions of VOC and NOx in the Clearfield County portion of the Clearfield-Indiana County nonattainment area are lower in each future year analyzed with TIP/LRP implementation than the 2002 baseline emissions. Additional documentation regarding Indiana County results has been provided to also indicate that the entire Clearfield-Indiana nonattainment area, as a whole, satisfies the above conformity test. The decreases reflected in the trend may change in future years beyond the study horizon. These issues must be addressed in the state's air quality implementation planning, considering all sources: stationary, area and mobile.

The TIP and LRP are expected to provide a favorable increase in travel speeds, which reduces the VOC emission rates. The favorable mix of projects contributes to a reduction in NO_X emissions.

3.8 Discussion

This analysis demonstrates lower VOC and NO_x daily ozone precursor emissions than the 2002 base year levels with the implementation of the TIP and LRP. Therefore, implementation of the LRP and TIP, as defined in the study, will not adversely affect air quality

Further measures directed at reducing vehicle trips may become increasingly important in future transportation plans and programs. Transit and intermodal alternatives may serve as a means for achieving these reductions. The current plan and program present several appropriate means of achieving this. Additionally, transit and intermodal alternatives can be incorporated into preliminary engineering for highway projects.

4. FINANCIAL CONSTRAINT

The Planning Regulations, Sections 450.322 (b) (11) and 450.324 (e) require the LRP and the TIP to be financially constrained while the existing transportation system is being adequately operated and maintained. Only projects for which construction and operating funds are reasonably expected to be available are included. The North Central Pennsylvania Rural Planning Organization (RPO), in conjunction with PENNDOT, has developed an estimate of the cost to maintain and operate the existing roads and bridges in Clearfield County and have compared that with the estimated revenues and maintenance needs of the new roads.

5. PUBLIC PARTICIPATION

This LRP and TIP have undergone the public participation requirements and the comment and response requirements set forth in the Final Conformity Rule, the Final Statewide/Metropolitan Planning Rule, and Pennsylvania's Conformity SIP. A public meeting was held, pursuant to public notice, on ___(date)_____. The documentation of the public notice for the hearings, comments, and the responses to comments can be found in Volume II, Appendix C.

6. CONFORMITY STATEMENT

The Clean Air Act Amendments of 1990 (CAAA) require that a Metropolitan Planning Organization (MPO) determine that a Long Range Plan (LRP) and Transportation Improvement Program (TIP) conform with the applicable State Implementation Plan (SIP), or other tests as defined in the EPA's Conformity Rule, before the LRP and TIP are adopted. No Federal agency may approve, accept, or fund a LRP/TIP or its component projects unless the LRP/TIP have been found to conform to the SIP. Under the Act, conformity is determined by applying three criteria; that "the transportation plans and programs--

(i) Are consistent with the most recent estimates of mobile source emissions;

(ii) Provide for the expeditious implementation of transportation control measures in the applicable implementation plan; and

(iii) With respect to ozone and carbon monoxide non-attainment areas, contribute to annual emissions reductions consistent with sections 182(b)(1) and 187(a)(7)"

Each new transportation plan and TIP must be found to conform before the transportation plan/TIP are approved by the MPO/ RPO or accepted by DOT.

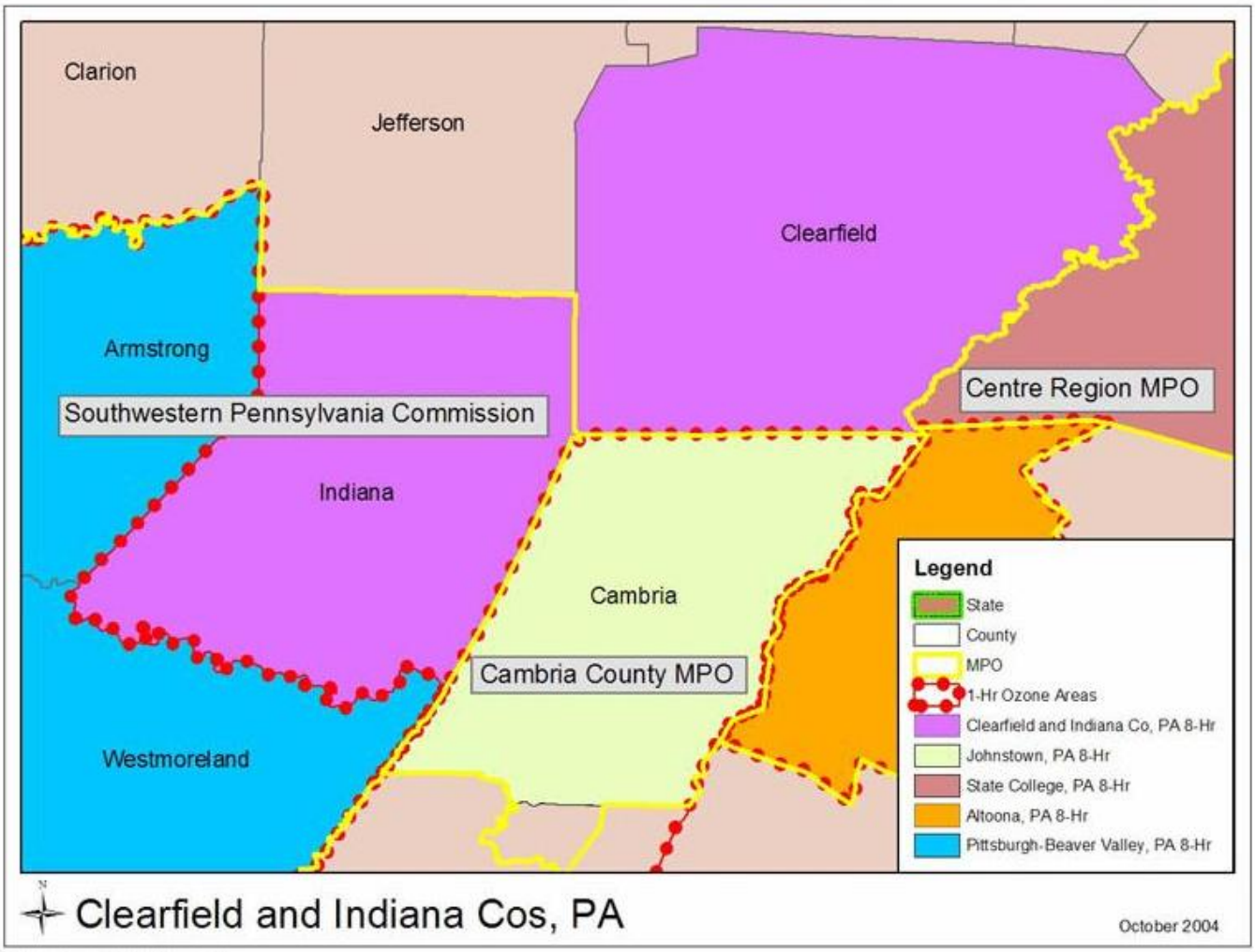
As specified under the first item, the most recent estimates of highway emissions for Clearfield County have been developed as a part of this study. The analyses indicate that emissions of ozone precursors will be less in all milestone years than they were in 2002. The overall precursor emissions will be reduced, satisfying the third criterion.

Clearfield County was not considered to be nonattainment for ozone (prior to the CAAA of 1990) and has not submitted a SIP including TCMs under the 1990 CAA Amendments. No transportation control measures for this area exist in a state implementation plan. Consequently, the second criterion (above) is not applicable.

Therefore, the Long Range Plan and Transportation Improvement Programs for the Clearfield County area are found to satisfy the regional transportation conformity requirements for the 8 hour ozone standard for the Clearfield County portion of the Clearfield-Indiana County 8-hour ozone nonattainment area under the U.S. Clean Air Act.

MAPS

Clearfield and Indiana Counties, PA 8-hour Ozone Map



TABLES

TABLE 1

Summary of Total Highway Vehicle Miles Traveled (VMT)

Average Summer Weekday

Clearfield County portion of the Clearfield-Indiana Ozone Nonattainment Area

	2002	2009	2018	2025	2035
Baseline	3,401,801	---NA---	---NA---	---NA---	---NA---
TIP / LRP Years	---NA---	3,748,251	4,261,505	4,749,629	5,566,743

TABLE 2

Summary of Total Highway VOC Emissions (kg/day)

Average Summer Weekday

Clearfield County portion of the Clearfield-Indiana Ozone Nonattainment Area

	2002	2009	2018	2025	2035
Baseline	5,564	---NA---	---NA---	---NA---	---NA---
TIP / LRP Years	---NA---	3,159	1,936	1,672	1,862

TABLE 3

Summary of Total Highway NO_X Emissions (kg/day)

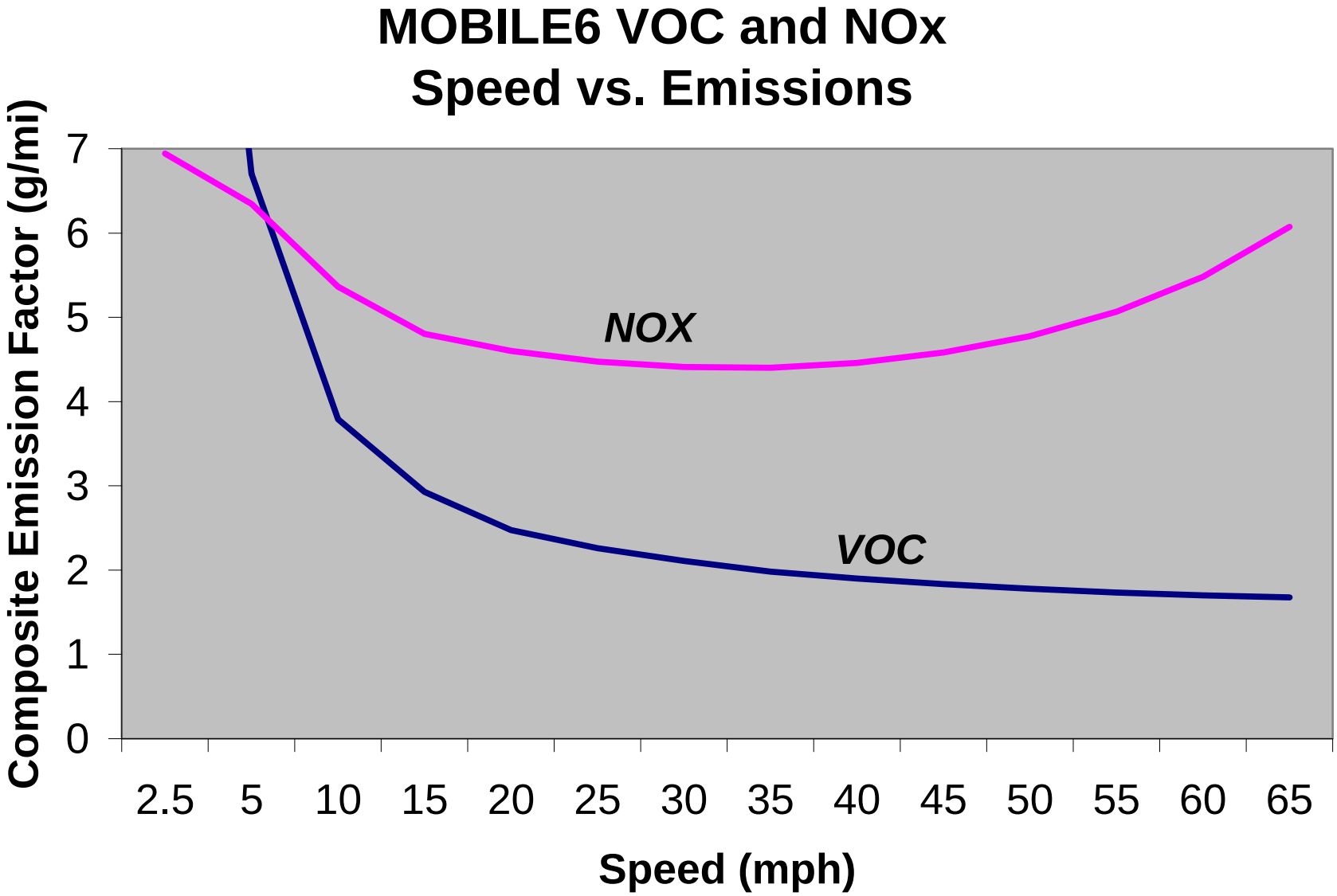
Average Summer Weekday

Clearfield County portion of the Clearfield-Indiana Ozone Nonattainment Area

	2002	2009	2018	2025	2035
Baseline	15,869	---NA---	---NA---	---NA---	---NA---
TIP / LRP Years	---NA---	9,705	3,963	2,617	2,267

All emissions shown in kilograms per day, as calculated for a day representing "worst case" ozone conditions. All future year emissions are below the 2002 baseline condition.

CHARTS


MOBILE6 VOC and NOx
Speed vs. Emissions
Composite Emission Factor (g/mi)
0
1
2
3
4
5
6
7
NOX
VOC
2.5
5
10
15
20
25
30
35
40
45
50
55
60
65
Speed (mph)