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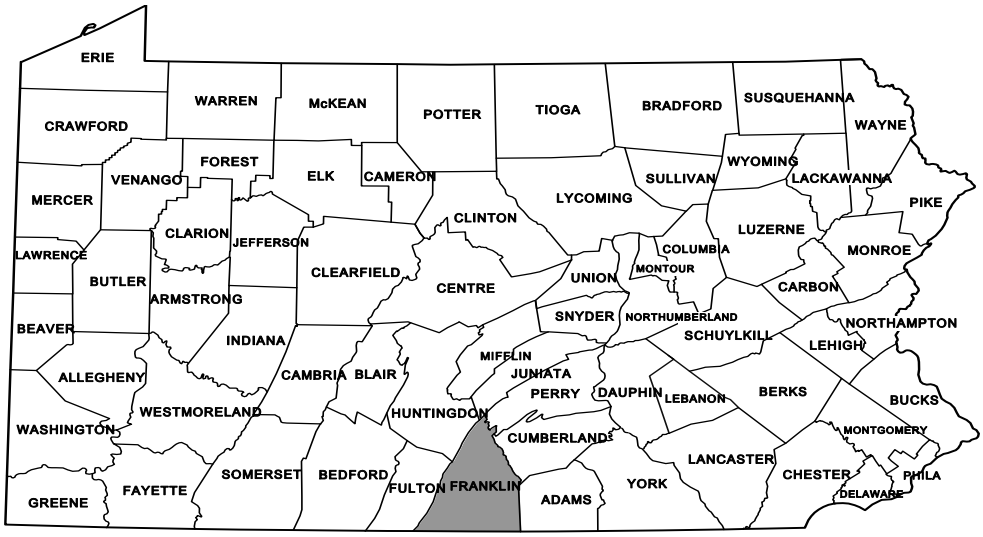
AIR QUALITY
CONFORMITY ANALYSIS REPORT
FOR THE
FRANKLIN COUNTY OZONE MAINTENANCE AREA
(1997 8-hour Ozone NAAQS)

VOLUME I - EXECUTIVE SUMMARY

Long Range Transportation Plan



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PLANNING PARTNER APPROVAL:

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1. INTRODUCTION

This document provides an analysis of the air quality implications of the current Franklin County Transportation Improvement Program (TIP) and the updated 2013-2032 Long Range Transportation Plan (LRTP). The analysis demonstrates transportation conformity to the 1997 8-hour ozone National Ambient Air Quality Standards (NAAQS).

This document replaces the previous approved conformity demonstration of the TIP and LRTP and ensures that the findings meet all current ozone criteria established by the U.S. Environmental Protection Agency (EPA). A new conformity determination has been completed to provide a regional forecast of emissions based on planned air quality significant projects and the latest available planning assumptions.

Vehicular emissions contribute to ozone violations. The Clean Air 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.

Effective July 27, 2007, EPA approved a State Implementation Plan (SIP) revision redesignating the Franklin County ozone nonattainment area as attainment for the 1997 8-hour ozone standard. In conjunction with its redesignation request, the Pennsylvania Department of Environmental Protection (DEP) submitted a SIP revision consisting of a maintenance plan for Franklin County that provides for continued attainment of the 1997 8-hour ozone NAAQS for at least 10 years after the redesignation. EPA approved the adequacy determination for motor vehicle emission budgets (MVEBs) that are identified in the maintenance plan for purposes of transportation conformity. Based on the approved maintenance plan MVEBs for Franklin County, transportation conformity for the 1997 8-hour ozone standard must demonstrate that future year emissions are no greater than the established 2009 and 2018 emission budgets.

Pollutants subject to conformity determination in ozone nonattainment and maintenance areas include volatile organic compounds (VOC) and nitrous oxides (NO_x).

On March 12, 2008, EPA revised its NAAQS for ozone by strengthening the standard to 0.075 parts per million (ppm). EPA has established (77 FR 30088) air quality designations for the 2008 ozone standards. The rule also provides for the revocation of the 1997 ozone NAAQS for transportation conformity purposes to occur 1 year after the effective date of the designations for the 2008 ozone NAAQS (July 20, 2012). Franklin County is classified as an attainment area under the 2008 ozone NAAQS, and is not required to make conformity determination to this NAAQS.

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 1997 8-hour ozone NAAQS. Pollutants addressed include VOC and NOx.

Transportation conformity for ozone includes a demonstration that emission forecasts do not exceed the emission budgets for applicable pollutants and/or precursors established in the maintenance plan. Ozone analyses are for emissions during a summer day.

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

1.2 Coverage

This report considers the impact of emissions within Franklin County. Chambersburg was one of 36 new urbanized areas nationwide identified by the 2010 U.S. Census, and therefore the Franklin County MPO transitioned from RPO to MPO status by resolution adopted in May 2013. Franklin County is not part of an urban metropolitan planning organization (MPO)

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. VOC and 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 MOVES emission model. MOVES is the state-of-the-art upgrade to EPA's modeling tools and is the current official model for estimating emissions from highway vehicles. It replaces the previous MOBILE6.2 model. EPA announced the release of MOVES2010 in March 2010 (75 FR 9411), and released a minor revision as MOVES2010a in September 2010. In April 2012, EPA released MOVES2010b to allow MOVES users to benefit from several improvements to general model performance. MOVES2010b does not affect the criteria pollutant emissions results of MOVES2010a and therefore is not considered a new model. MOVES is required for new regional emissions analyses for transportation conformity determinations that began after March 2, 2013 (77 FR 11394). 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. Other projects are noted as "Not Significant", and include those projects which are not exempt by definition, but whose air quality impacts are too small to quantify through current modeling practice. All decisions on project significance were made using the guidelines in the report, "PennDOT Project Review & Classification Guidelines for Regional Air Quality Conformity," dated April 2009.

This conformity test was conducted under the requirements of 40 CFR Parts 51 and 93. For ozone, forecast emissions are demonstrated to be no greater than the Franklin County 2009 and 2018 emission budgets in the maintenance plan. Ozone emissions are analyzed for a summer weekday.

Analysis years are 2018, 2025, 2030 and 2040. The 2018 analysis year is an emission budget year established in the ozone maintenance plan. The 2040 year is a horizon year. 2025 and 2030 are interim years to ensure there are not more than 10 years between any two analysis years.

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.

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. This conformity analysis uses 2008 related data as some of the 2010 data assumptions are currently being developed for future conformity usage. Examples of key tools and input data are presented below:

- MOVES2010a is used to determine emissions for the region.
- Roadway Traffic Data – Uses Pennsylvania Department of Transportation's (PennDOT) 2008 Roadway Management System (RMS) data.
- VMT growth rates based on PennDOT's VMT forecasting system. Growth rates based on historic Highway Performance Monitoring System (HPMS) VMT and socioeconomic forecasts by county.
- HPMS Adjustments – Missing local roadway VMT is reconciled to the 2008 HPMS to ensure consistency. These adjustments are carried forward to future years.
- Seasonal Adjustments – The seasonal factors to reflect summer weekday conditions have been developed from data contained in the document, *2008 Pennsylvania Traffic Data*, prepared by PennDOT's Bureau of Planning and Research (BPR).
- Vehicle Mix Patterns – Vehicle mix patterns have been developed for the county based on 2008 PennDOT RMS truck percentages, 2008 transit data from National Transit Database (NTD) and 2008 school bus registration data

- Vehicle Age Distribution – Updated 2008 vehicle age data was prepared from the state motor vehicle registration database. The registration data download is based on MOBILE6.2 vehicle categories. The data was converted to the required 13 source types using the EPA convertor spreadsheets provided with the MOVES2010a emission model.
- Source Type Population – State 2008 vehicle registration data was used to estimate vehicle population for light-duty vehicles and school buses. For transit buses, data from PennDOT and the NTD was used. For all other heavy-duty vehicles, PPSUITE calculates vehicle population based on the analysis year VMT for each source type and default MOVES2010a ratios of VMT and source type population

1.5 Document Contents

The conformity analysis for Franklin 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 3 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 TIP and LRTP is 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) developed during the analysis, and presenting the implications of these results.

The fourth section of this report discusses the "financial constraints" of the TIP and LRTP.

Section five discusses the public participation process of the conformity analysis. This process includes the advertisements of availability of the TIP and LRTP, accompanying conformity documents, and 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 TIP and LRTP to the applicable SIP.

Volume II of this report contains the technical data used to conduct the conformity determination. Key variables, such as vehicle miles traveled (VMT), source type population (VPOP), vehicle hours traveled (VHT), average speed, and daily VOC and NO_X emissions (ozone) are shown. In addition, sample MOVES driver files for both the main program [.mrs] and the county data manager [.xml] are shown. Copies of Volume II are available from PennDOT's Air Quality Section upon request.

2. SUMMARY

As required by the CAAA, a study of vehicle emissions was performed for the Franklin County 1997 8-hour ozone maintenance area. State and federal emissions control measures are included in the analysis for the relevant analysis year.

The study compared the ozone emission forecasts for VOC and NO_x to the Franklin County 2009 and 2018 MVEBs established in the maintenance plan. The future emission projections include the implementation of the TIP and LRTP. These projects 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 2018, 2025, 2030, and 2040 analysis years, the VOC and NOx emissions are less than the 2018 budgets.

3. ANALYSIS

This study used a set of computer programs and databases to estimate vehicle miles of travel and operating speeds, and to subsequently calculate total emissions. The programs rely on a variety of input factors, which are discussed in more detail below.

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.

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 reported HPMS VMT totals.

The 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. The latest planning assumptions regarding population growth, employment growth, and land use trends have been considered in the analyses to as great an extent possible.

The vehicle population was forecast considering the growth from three different sources; household, population and VMT growth. The forecast household and population were estimated from the Woods and Poole data "2010 State Profile."

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 improvement projects.

Other input parameters include information regarding vehicle types using the roads and environmental factors. , 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 data used for recent inventory and SIP development.

This conformity analysis, performed according to the Final Conformity Rules for ozone, indicates that future year emission estimates, including the impacts of planned projects, are less than the MVEBs in the maintenance plan.

3.1 Background

National Ambient Air Quality Standards (NAAQS) have been established by the EPA for a number of pollutants considered harmful to public health and the environment. Franklin County is in maintenance for ozone for the 1997 8-hour ozone NAAQS.

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 1997 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). On March 12, 2008, EPA revised its NAAQS for ozone by strengthening the standard to 0.075 parts per million (ppm). This revised 2008 8-hour ozone NAAQS is calculated in the same manner as the 1997 ozone NAAQS. Franklin County is in attainment of the 2008 NAAQS.

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 NOx. Both 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, 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 regional NO_x emissions could lead to an increase in ozone concentrations, 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, and 45% of the oxides of nitrogen emissions from

man-made sources. For VOCs, emissions generally decrease with an increase in vehicle speed. This trend is most dramatic for VOC at low speeds. However, VOC exhibits a slight increase in emission rates as vehicles travel above 40 miles per hour (mph).

For NO_x, however, the emissions rate is a more gradual decline with increasing speed up to approximately 25 mph. 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 reduce 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 mix of strategies that reduce the NOx increases.

Emission Control Strategies:

Recognizing the contribution of transportation sources to air pollution, the federal government initiated a vehicular 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 diesel vehicles. Increasing VMT, however, tends to counteract a portion of reductions from cleaner vehicles and fuels. Current federal vehicle emissions control and fuel programs are incorporated into the MOVES2010a software. These include the National Program standards covering model year vehicles through 2016. Modifications were made to default emission rates, as per EPA's instructions, to reflect the early implementation of the National Low Emission Vehicle Program (NLEV) program and the implementation of the Pennsylvania Clean Vehicle Program (a variant of the California Low Emission Vehicle (CA LEVII) Program).

Franklin County does not include an emission test as part of the regional inspection and maintenance (I/M) program. The program includes a visual inspection as part of the annual safety inspection.

The Pennsylvania Clean Vehicles (PCV) Program, adopted in 1998, incorporated the 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. Beginning with MY 2008, "new" passenger cars and light-duty trucks with a gross vehicle weight rating (GVWR) of 8,500 pounds or less that are sold or leased and titled in Pennsylvania must be certified by the California Air Resources Board (CARB) or be certified for sale in all 50 states. For this program, a "new" vehicle is a qualified vehicle with an odometer reading less than 7,500 miles. DEP and PennDOT worked with the automobile manufacturers, dealers and other interested business partners and finalized procedures for complying with these new requirements. DEP focuses on outreach to manufacturers and dealers on what they can offer for sale and how to certify that the vehicles are compliant. PennDOT's ensures procedures for title and registrations include these certifications of compliance or that the vehicle owner qualifies for an exemption to the requirements. In all cases, DEP uses information obtained during PennDOT's title and registration process to oversee and audit, as needed, certain vehicle title transactions to determine compliance to the program.

The impacts of this program are modeled for all analysis years beyond 2008 using the same instructions and tools as downloaded for the early NLEV analysis. EPA provided input files to reflect state programs similar to the CAL LEVII program. Modifications to those files were made to reflect a 2008 program start date for Pennsylvania.

3.2 Transportation Program

The complete TIP and LRTP for Franklin County is included in Volume II, for highways.

Detailed assessments were only performed for those new projects 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 TIP and LRTP list, have been excluded from consideration since they are not expected to significantly alter the volume or speed of traffic.

The following TIP/LRTP air quality significant highway projects are included in this analysis.

Franklin County:

1. **Washington Township Boulevard** - The "Relief road" (Washington Township Boulevard) project will provide the capacity alternative for Route 16 at Waynesboro. Project area begins at Route 316 and ends at

Old Forge Road. Project includes construction of new local road to relieve traffic congestion and improve safety on SR 16. Length of the entire project is approximately 4.4 miles, connecting route 16 east to west of Waynesboro and is either an existing, partially, or fully constructed roadway. Approximately, 1.6 miles of new alignment is proposed to be constructed to connect the existing sections of Washington Boulevard.

2. **I-81/ New Guilford Springs Road Interchange** - The proposed I-81 interchange at Guilford Springs Road will provide solution to mobility and safety issues associated with the commercial and industrial development in the area. Southbound I-81 access ramps at Guilford Springs Road will reduce traffic volumes at the existing I-81/SR 316 interchange, SR 11, and local streets in the Guilford Township. In addition to the construction of two ramps, improvements include two new traffic signals on Guilford Springs Road, new turning lanes at four existing intersections, and geometry improvements at Bowman Road intersection.

There are no air quality significant transit TIP/LRTP projects in the region.

3.3 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 weekday. 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 area; instead, state traffic databases are used to calculate regional VMT and speeds.

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 2008 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.

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, and were also disaggregated to hourly volumes within the day to support detailed speed estimation.

VMT forecast growth rates are based on PennDOT's study, "Statistical Evaluation of Projected Traffic Growth, Traffic Growth Forecasting System: Final Report, March 14, 2005". As part of that study, a statewide traffic growth forecasting system was developed that incorporates traffic data from PennDOT's Traffic Information System and socioeconomic forecasts. That forecasting system is maintained by the PennDOT BPR and is updated on a periodic basis. This system was last updated in December of 2009 to develop new statistical relationships between historic VMT growth and population (thru 2008). 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, socioeconomic 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 Transportation-Air Quality Work Group (which includes EPA, Federal Highway Administration (FHWA), Federal Transit Administration (FTA) and representatives from larger MPOs within the state).

Speeds were calculated for base 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 future analysis years for ozone precursors. The roadways affected by the TIP/LRTP projects listed were further analyzed to determine operational changes, which may result from implementation of each program. 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 MOVES computer model. The emission factors (expressed in grams per vehicle mile) derived by the model were then multiplied by the appropriate VMT for each road type / setting / time period to calculate the total emissions (in tons per day). As may be applicable to specific projects, off-system adjustments were made using the Congestion Mitigation and Air Quality (CMAQ) methodologies and the PAQONE emissions model. These adjustments, if any, are listed in Volume II.

3.4 Other Parameters

Moves includes a variety of input data which characterize the environmental setting, the vehicle fleet, the condition of emission controls, and the volatility of gasoline. A set of sample driver files has been provided in Volume II, Appendix B, of this document. Separate runs of the program were performed for each year and improvement scenario, as described in Section 3.6, to produce summer weekday VOC and NOx.

The sample input file specifies options and key data locations for the run A combination of national default data assumptions and site-specific data were determined through the interagency consultation process.

MOVES 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. DEP includes refueling emissions as area sources, not as part of the 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 analysis 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 utilized information from recent statewide inventories and SIPs conducted by DEP.

3.5 Transportation Control Measures

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

3.6 Emissions

The results of the computer modeling are used to demonstrate conformity for ozone. Emission forecasts are compared against Franklin County 2009 and 2018 MVEBs established in the area's

maintenance plan. Emissions are produced for the following analysis scenarios:

1- Budget Year – 2018 summer traffic volumes and the base highway network, plus those AQ significant projects that are scheduled for completion by 2018. This year is an emission budget year established in the maintenance plan.

2- Interim Year – 2025 summer traffic volumes and the base highway network, plus those AQ significant projects that are scheduled for completion by 2025. This year is included to ensure that no analysis year is more than 10 years apart.

   Interim Year – 2030 summer traffic volumes and the base highway network, plus those AQ significant projects that are scheduled for completion by 2030. This year is included to ensure that no analysis year is more than 10 years apart.

3- Horizon End Year – 2040 summer traffic volumes and the base highway network, plus those AQ significant projects that are scheduled for completion by end of Plan. This year satisfies the conformity requirement for at least a 20-year horizon.

Based on this analysis and the summary emission tables provided at the end of this report, the conformity results for the 1997 8-hour ozone standard are described below.

Ozone Conformity Test Results:

Results for Franklin County indicate that forecasted 2018, 2025, 2030 and 2040 emissions are lower than the Franklin County 2018 VOC and NOx emission budgets. The decreases reflected in the historic 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 and mobile.

The TIP and LRTP 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.

3.7 Discussion

This analysis demonstrates that the forecast summer day VOC and NO_X satisfy the applicable conformity tests for the ozone standards. Therefore, implementation of the TIP and LRTP as defined in the analysis will not adversely affect air quality goals.

4. FINANCIAL CONSTRAINT

The Planning Regulations, Sections 450.322 (b) (11) and 450.324 (e) require the TIP and LRTP 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. Franklin County, in conjunction with PennDOT, has developed an estimate of the cost to maintain and operate the existing roads and bridges in Franklin County and have compared that with the estimated revenues and maintenance needs of the new roads.

5. PUBLIC PARTICIPATION

The TIP has 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 Transportation Improvement Program (TIP) and Long Range Transportation Plan (LRTP) conform with the applicable State Implementation Plan (SIP), or other tests as defined in the EPA's Final Conformity Rule, before the TIP and LRTP are adopted. No Federal agency may approve, accept, or fund a TIP/LRTP or its component projects unless each has been found to conform to the SIP. Under the Clean Air 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 must be found to conform before the transportation plan is approved by the MPO or accepted by US DOT.

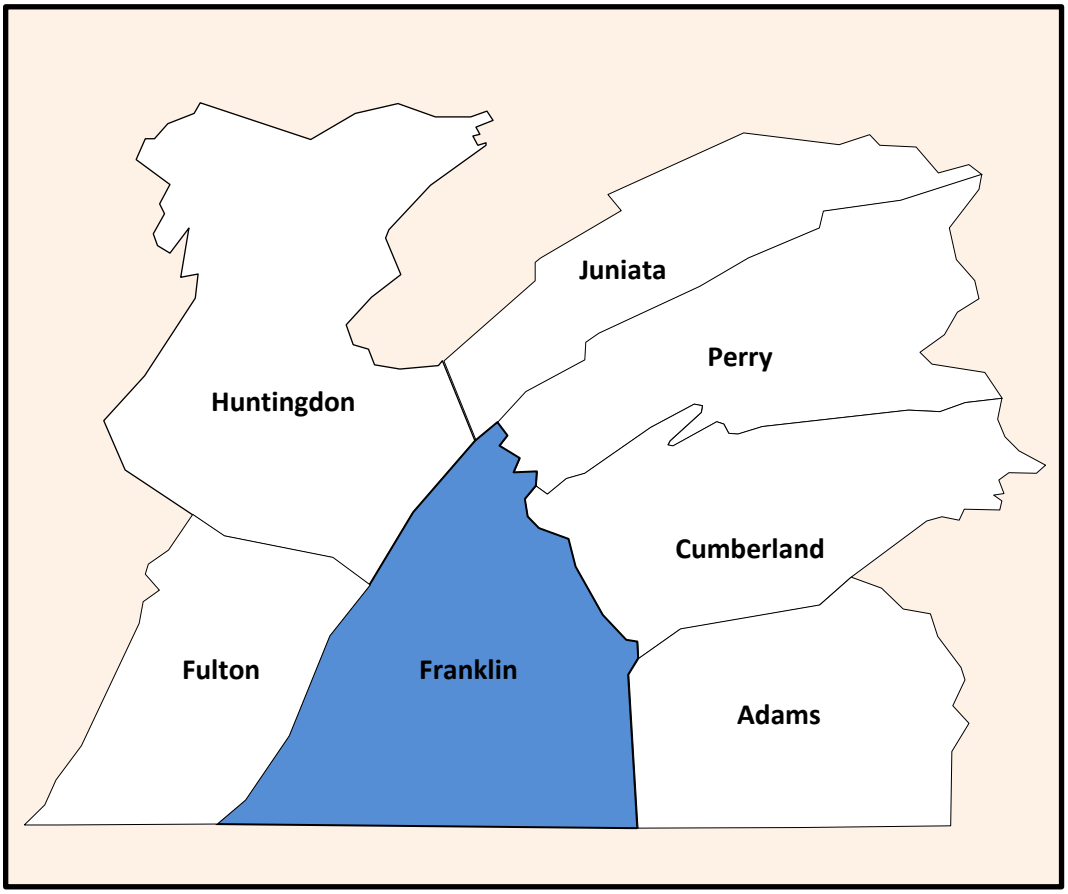
As specified under the first item, the most recent estimates of highway emissions for Franklin County have been developed as a part of this study. The results confirm that the forecast ozone precursors, VOC and NO_X, are not higher than the Franklin County 2009 and 2018 emission budgets established in the 1997 8-hour ozone maintenance plan. Consequently, the overall precursor emissions will be reduced, satisfying the third criterion.

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

Therefore, the TIP and LRTP for Franklin County are found to satisfy the regional transportation conformity requirements for the 1997 8-hour ozone standard for the Franklin County 1997 8-hour ozone maintenance area under the Clean Air Act.

MAPS

Franklin Ozone Maintenance Area



TABLES

TABLE 1
OZONE Conformity
Summary of Total Highway Vehicle Miles Traveled (VMT)
Average Summer Weekday
Franklin County Ozone Maintenance Area

	2018	2025	2030	2040
Franklin	**4,967,910**	**5,633,768**	**6,156,224**	**7,413,161**

TABLE 2
OZONE Conformity
Summary of Total Highway VOC Emissions (tons/day)
Average Summer Weekday
Franklin County Ozone Maintenance Area

	2018	2025	2030	2040
Franklin	**2.53**	**1.94**	**1.79**	**1.98**
Emission Budget	**5.10** *(2018 Budget)*	***Same as 2018***	***Same as 2018***	***Same as 2018***

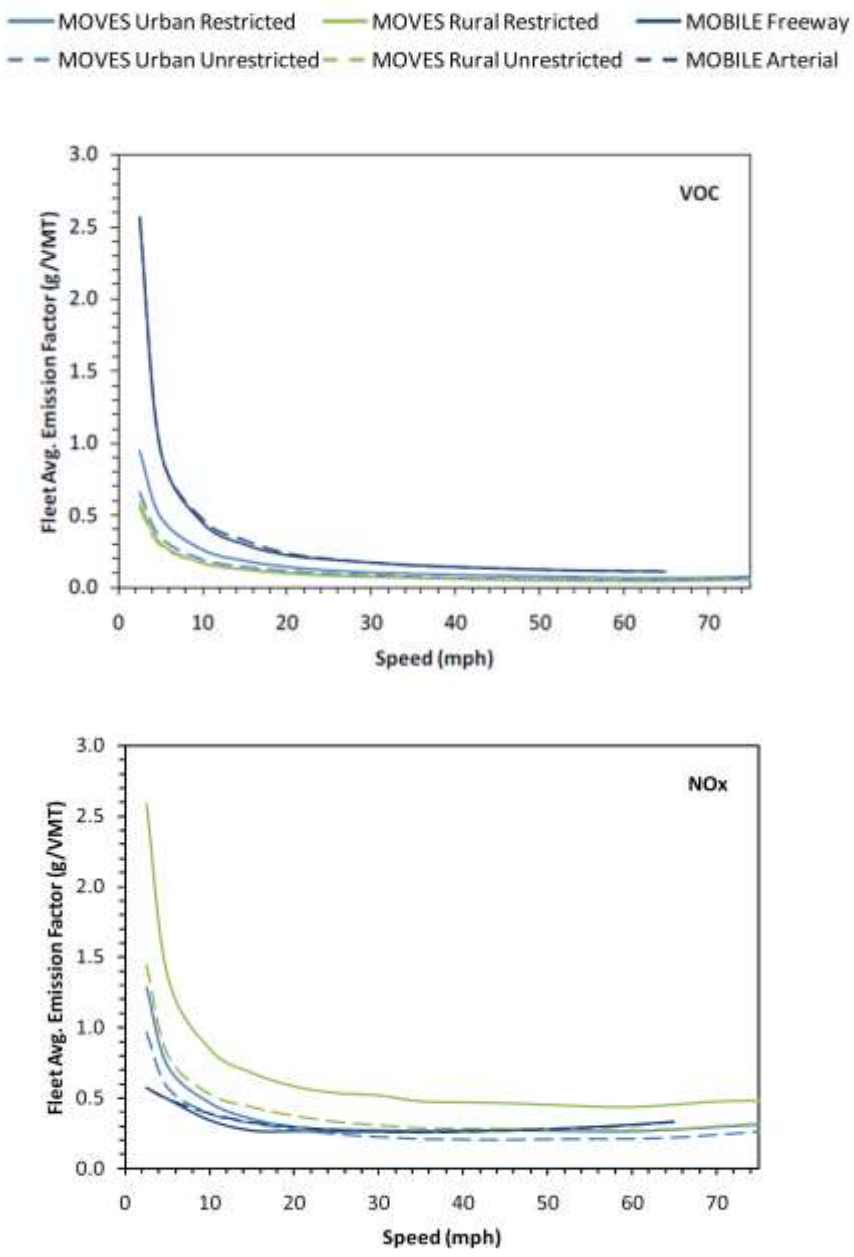
TABLE 3
OZONE Conformity
Summary of Total Highway NO_X Emissions (tons/day)
Average Summer Weekday
Franklin County Ozone Maintenance Area

	2018	2025	2030	2040
Franklin	**5.61**	**3.83**	**3.48**	**4.01**
Emission Budget	**6.70** *(2018 Budget)*	***Same as 2018***	***Same as 2018***	***Same as 2018***

* All analysis years are lower than applicable budget years.

CHARTS

MOVES Emission Factor vs. Speed Variances (VOC and NOx)



Source : http://www.epa.gov/ttnchie1/conference/ei19/session6/claggett2.pdf