REQUEST FOR REDESIGNATION AND MAINTENANCE PLAN FOR OZONE ATTAINMENT IN THE 8-HOUR OZONE BASIC NONATTAINMENT AREA

Jackson County, Indiana

Developed By:
The Indiana Department of Environmental Management

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MAINTENANCE PLAN FOR OZONE ATTAINMENT
IN THE 8-HOUR OZONE BASIC
NONATTAINMENT AREA

JACKSON COUNTY, INDIANA

1.0 INTRODUCTION

This document is intended to support Indiana's request that Jackson County, Indiana, be redesignated from nonattainment to attainment of the 8-hour ozone standard. This county has recorded three (3) years of complete, quality assured ambient air quality monitoring data for the years 2002 – 2004 demonstrating attainment with the 8-hour ozone standard.

Section 107 of the Clean Air Act (CAA) establishes specific requirements to be met in order for an area to be considered for redesignation including:

(a) A determination that the area has attained the 8-hour ozone standard.
(b) An approved State Implementation Plan (SIP) for the area under Section 110(k).
(c) A determination that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the SIP and other federal requirements.
(d) A fully approved maintenance plan under Section 175(A).
(e) A determination that all Section 110 and Part D requirements have been met.

This document addresses each of those requirements. It also provides additional information to support continued compliance with the 8-hour ozone standard.

1.1 Background

The Clean Air Act Amendments of 1990 (CAAA) required areas failing to meet the National Ambient Air Quality Standard (NAAQS) for ozone to develop SIPs to expeditiously attain and maintain the standard. In 1997 the United States Environmental Protection Agency (U.S. EPA) revised the air quality standard for ozone replacing the 1979 1-hour standard with an 8-hour ozone standard set at 0.08 parts per million (ppm). The standard was challenged legally and upheld by the U.S. Supreme Court in February of 2001. The U.S. EPA designated areas that attain or do not attain the 8-hour ozone standard on April 15, 2004, with an effective date of June 15, 2004.

At the time of the 1990 CAAA, there were no monitors in Jackson County. The City of Indianapolis placed an air monitoring site into operation in Jackson County on April 3, 2000. On April 15, 2004, U.S. EPA designated Jackson County Basic nonattainment and subject to the new 8-hour ozone requirements, including development of a plan to reduce volatile organic

compounds (VOC) and oxides of nitrogen (NO_x) emissions and a demonstration that the area will meet the 8-Hour ozone standard for ozone by June 15, 2009.

Jackson County has never previously been subject to nonattainment area rulemakings.

1.2 Geographical Description

Jackson County is located in South Central Indiana and includes the Towns of Seymour and Brownstown. Lawrence and Monroe Counties are to the west of Jackson, Brown and Bartholomew Counties are to the north, Washington and Scott Counties are to the south, and Jennings County is to the east of Jackson County. This area is shown in Figure 3.1.

1.3 Status of Air Quality

Ozone monitoring data for the most recent three (3) years, 2002 through 2004, demonstrates that air quality has met the NAAQS for ozone in Jackson County. This fact, accompanied by the decreases in emission levels discussed in Section 4.0, justifies a redesignation to attainment for the subject area based on Section 107(d) (3) (E) of the CAAA.

2.0 REQUIREMENTS FOR REDESIGNATION

2.1 General

Section 110 and Part D of the CAAA lists a number of requirements that must be met by nonattainment areas prior to consideration for redesignation to attainment. In addition, U.S. EPA has published detailed guidance in a document entitled *Procedures for Processing Requests to Redesignate Areas to Attainment*, issued September 4, 1992, to Regional Air Directors. This document is hereafter referred to as "Redesignation Guidance". This Request for Redesignation and Maintenance Plan is based on the Redesignation Guidance, supplemented with additional guidance received from staff of the Regulation Development Section of U.S. EPA Region V.

The subsections below refer in greater detail to the requirements listed in Section 1.0 of this document. Each subsection describes how the requirement has been met. The pertinent sections of the CAAA are referenced where appropriate.

2.2 Ozone Monitoring 107(d)(3)(E)(i)

1) A demonstration that the NAAQS for ozone, as published in 40 CFR 50.4, have been attained. Ozone monitoring data must show that violations of the ambient standard are no longer occurring.

2) Ambient monitoring data quality assured in accordance with 40 CFR 58.10, recorded in the Aerometric Information and Retrieval System (AIRS) data base, and available for public view.

3) A showing that the three-year average of the fourth highest values, based on data from all monitoring sites in the area or its affected downwind environs, are below 0.085 parts per million (ppm). This showing must rely on three (3) complete, consecutive calendar years of quality assured data.

4) A commitment that, once redesignated, the State will continue to operate an appropriate monitoring network to verify the maintenance of the attainment status.

2.3 Emission Inventory 107(d)(3)(E)(iii)

1) A comprehensive emission inventory of the precursors of ozone completed for the base year.

2) A projection of the emission inventory for a year at least 10 years following redesignation.

3) A demonstration that the projected level of emissions is sufficient to maintain the ozone standard.

4) A demonstration that improvement in air quality between the year violations occurred and attainment was achieved is based on permanent and enforceable emission reductions and not on temporary adverse economic conditions or unusually favorable meteorology.

5) Provisions for future annual updates of the inventory to enable tracking of the emission levels including an annual emission statement from major sources.

2.4 Modeling Demonstration

While no modeling is required for redesignating ozone nonattainment areas, IDEM has relied upon it extensively to determine necessary controls for this area.

2.5 Controls and Regulations 107(d)(3)(E)(ii) & 107(d)(3)(E)(v)

1) A U.S. EPA approved SIP control strategy that includes Reasonably Available Control Technology (RACT) requirements for existing stationary sources covered by Control Technology Guidelines (CTG) and non-CTG RACT for all major sources.

2) Evidence that control measures required in past ozone SIP revisions have been fully implemented.

3) Acceptable provisions to provide for new source review.

4) Assurances that existing controls will remain in effect after redesignation, unless the State demonstrates through photochemical modeling that the standard can be maintained without one (1) or more controls.

5) If appropriate, a commitment to adopt a requirement that all transportation plans conform with, and are consistent with, the SIP.

2.6 Corrective Actions for Potential Future Violations of the Standard

1) A commitment to submit a revised plan eight (8) years after redesignation.

2) A commitment to expeditiously enact and implement additional contingency control measures in response to exceeding specified predetermined levels (triggers) or in the event that future violations of the ambient standard occurs.

3) A list of potential contingency measures that would be implemented in such an event.

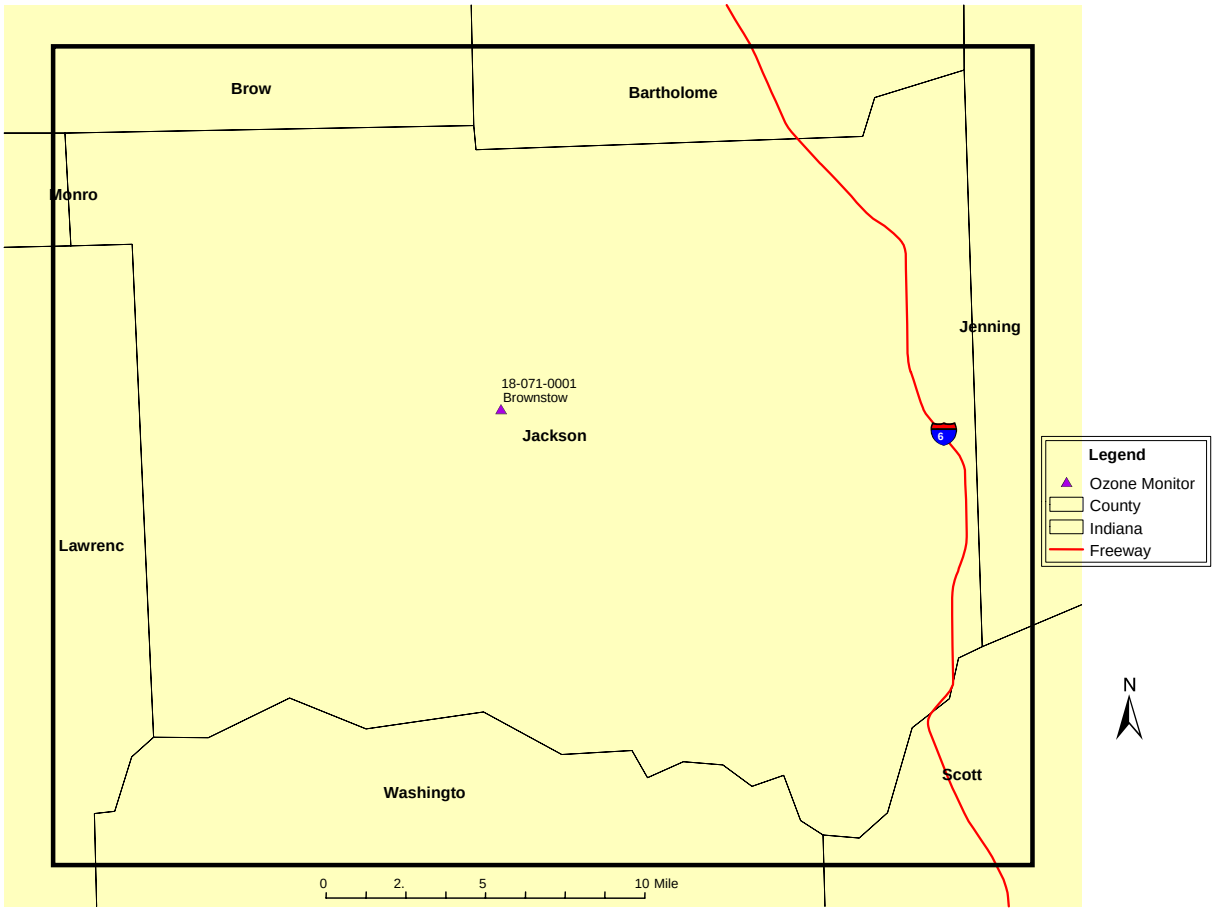
4) A list of VOC and NO_x sources potentially subject to future controls.

3.0 OZONE MONITORING

3.1 Ozone Monitoring Network

There is one (1) monitor measuring ozone concentrations in this nonattainment area. This monitor is currently operated by the City of Indianapolis' Office of Environmental Services (OES). A listing of the four (4) highest readings from 2002 through 2004 is shown in Table 3.1 and was retrieved from the U.S. EPA's Air Quality System (AQS). The location of the monitoring site for this nonattainment area is shown in Figure 3.1.

Figure 3.1 - Jackson County Nonattainment Area



3.2 Ambient Ozone Monitoring Data

The following information is taken from U.S. EPA's "Guideline on Data Handling Conventions for the 8-Hour Ozone National Ambient Air Quality Standard (NAAQS)," EPA-454/R-98-017, December 1998.

Three (3) complete years of ozone monitoring data are required to demonstrate attainment at a monitoring site. The 8-hour primary and secondary ozone ambient air quality standards are met at an ambient air quality monitoring site when the three-year average of the annual fourth-highest daily maximum 8-hour average ozone concentration is less than or equal to 0.08 ppm (i.e. the site is said to be in attainment). Three (3) significant digits must be carried in the computations. Because the third decimal digit, in ppm, is rounded, 0.084 ppm is the largest concentration that is less than, or equal to 0.08 ppm. Therefore, for the purposes of this request, the 8-hour standard is considered to be 0.085 ppm. Values below 0.085 ppm meet the standard, values equal to, or greater than, 0.085 ppm exceed the standard. These data handling procedures

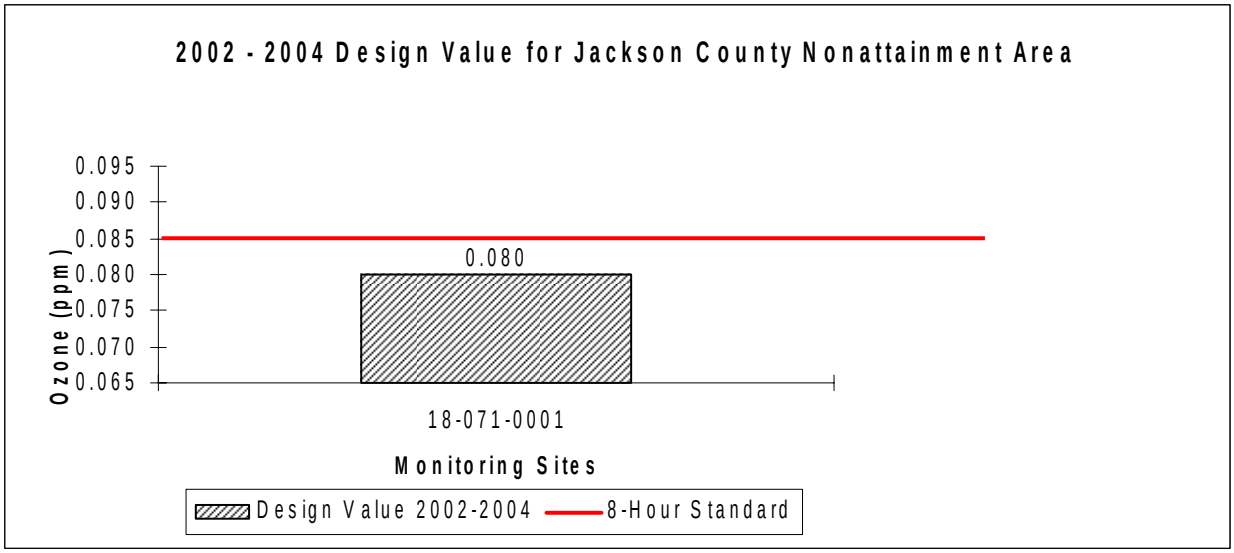
are applied on an individual basis at each monitor in the area. Since Jackson County has only one (1) monitor9ing site, the area is in compliance with the 8-hour ozone NAAQS if, and only if, this monitoring site meets the NAAQS. The three (3) year average of the annual fourth highest daily maximum 8-hour average ozone concentration is also called the site's design value. The air quality design value for the area is the highest design value among all sites in the area, which in this case is the design value for the one (1) monitoring site in Jackson County. Table 3.1 shows the monitoring data for the most recent years, 2000 - 2004, at the nonattainment area site.

Table 3.1 - Monitoring Data for Jackson County 2000 – 2004

					1ST	2ND	3RD	4TH	2002-2004
SITE ID	COUNTY	ADDRESS	YEAR	%OBS	8-HR	8-HR	8-HR	8-HR	AVERAGE
18-071-0001	Jackson	225 W & 300 N, BROWNSTOWN	2000	99	**0.091**	**0.091**	**0.090**	**0.082**	
18-071-0001	Jackson	225 W & 300 N, BROWNSTOWN	2001	100	**0.087**	**0.085**	**0.084**	**0.084**	
18-071-0001	Jackson	225 W & 300 N, BROWNSTOWN	2002	100	**0.094**	**0.093**	**0.091**	**0.090**	
18-071-0001	Jackson	225 W & 300 N, BROWNSTOWN	2003	100	**0.084**	**0.082**	**0.082**	**0.082**	
18-071-0001	Jackson	225 W & 300 N, BROWNSTOWN	2004	98	**0.076**	**0.070**	**0.069**	**0.067**	**0.080**

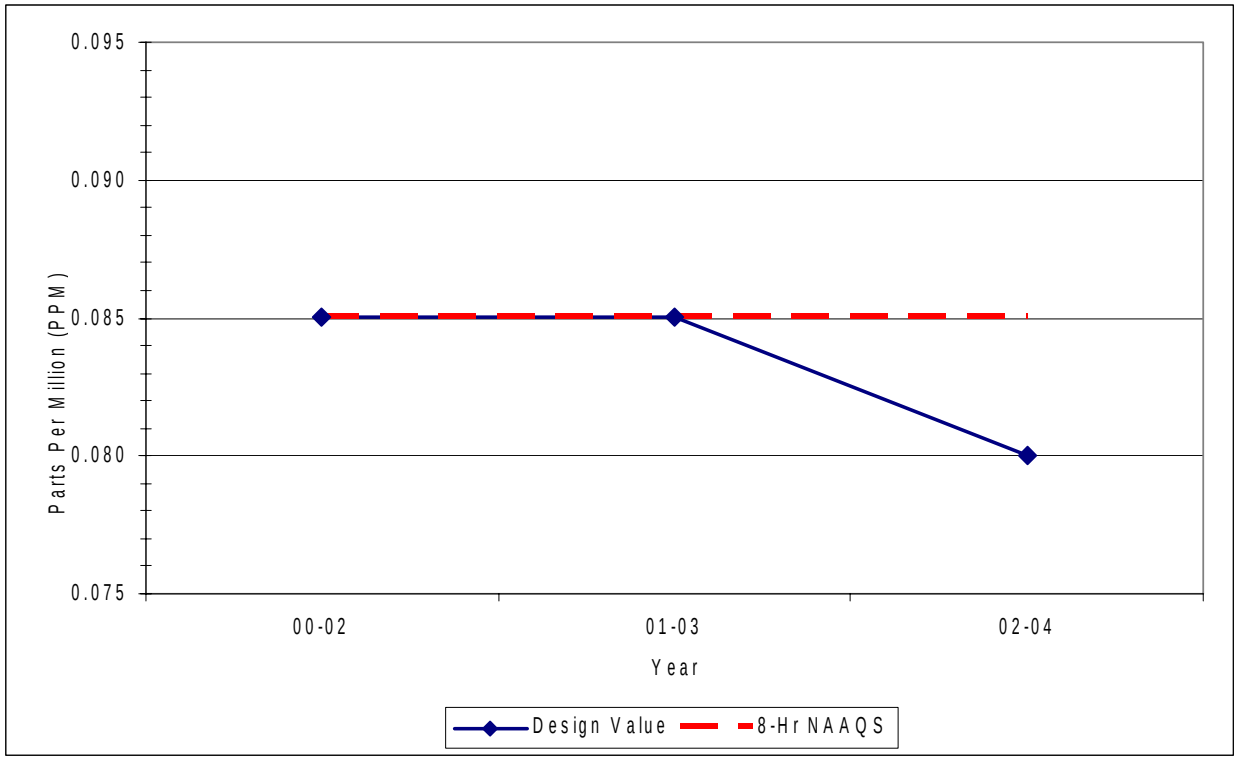
The graph below visually demonstrates the design value for this nonattainment area.

Graph 3.1 - 2002 – 2004 Design Value for Jackson County Nonattainment Area



The design value calculated for the Jackson County area demonstrates that the NAAQS for ozone has been attained.

Graph 3.2 - Trends in Jackson County, Indiana 8-hour Design Values, 2000 through 2004*



* Although monitoring data exists for years 2000 and 2001, Design Values are defined as the three year average of the annual fourth highest daily reading per monitor; hence Design Values for Jackson County only exist for 2000-2002, 2001-2003 and 2002-2004.

The above graph shows the trend in design values for the region over the past several years. A comprehensive list of the site's design values is in Appendix A. The area's design value has trended downward, as emissions have declined due to such factors as the Acid Rain program, cleaner automobiles and fuels on both regional and local scales. U.S. EPA's rule to control nitrogen oxides from specific source categories (40 CFR Parts 51, 72, 75 and 96, published on October 17, 1998 and referred to as the "NO_x SIP Call") has significantly reduced emissions from large electric generating units (EGUs), industrial boilers, and cement kilns. Indiana's NO_x Rule was adopted on June 6, 2001 (326 IAC 10-3 and 10-4). An analysis of meteorological conditions and monitoring values is in Section 7.0 and supports the conclusion that attainment of the standard as of 2004 is not the result of unusually favorable meteorological conditions. It is expected that this downward trend will continue as the above programs continue and the U.S. EPA Clean Air Interstate Rule is implemented.

3.3 Quality Assurance

IDEM has quality assured all data shown in Appendix A in accordance with 40 CFR 58.10 and the Indiana Quality Assurance Manual. IDEM has recorded the data in the Aerometric Information Retrieval System (AIRS) database and, thus, they are available to the public.

3.4 Continued Monitoring

Indiana commits to continue monitoring ozone levels at the site indicated in Table 3.1 and Appendix A. IDEM will consult with U.S. EPA Region V staff prior to making changes to the existing monitoring network, should changes become necessary in the future. IDEM will continue to quality assure the monitoring data to meet the requirements of 40 CFR 58. Connection to a central station and updates to the IDEM website[1] will provide real time availability of the data and knowledge of any exceedances. IDEM will enter all data into AIRS on a timely basis in accordance with federal guidelines.

4.0 EMISSION INVENTORY

Jackson County is a predominantly rural county with low population density and an extremely modest emissions inventory. The Jackson County nonattainment is affected by overwhelming transport, heavily affected by upwind power plant emissions. Therefore, regional emissions reductions affect ozone levels in Jackson County far more so than emission reductions within the county itself. Graphs 4.2 and 4.3 demonstrate the most relevant regional reduction in NO_x that is attributable to the lowered ozone concentrations in Jackson County. Because of the significance of regional emissions reductions, Section 4.0 summarizes both regional and local emissions information.

U.S. EPA's Redesignation Guidance requires the submittal of a comprehensive inventory of ozone precursor emissions (VOC and NO_x) representative of the year when the area achieves attainment of the ozone air quality standard. Indiana must also demonstrate that the improvement in air quality between the year that violations occurred and the year that attainment was achieved is based on permanent and enforceable emission reductions. Other emissions inventory related requirements include a projection of the emission inventory to a year at least ten (10) years following redesignation, a demonstration that the projected level of emissions is sufficient to maintain the ozone standard, and a commitment to provide future updates of the inventory to enable tracking of emission levels during the ten (10) year maintenance period.

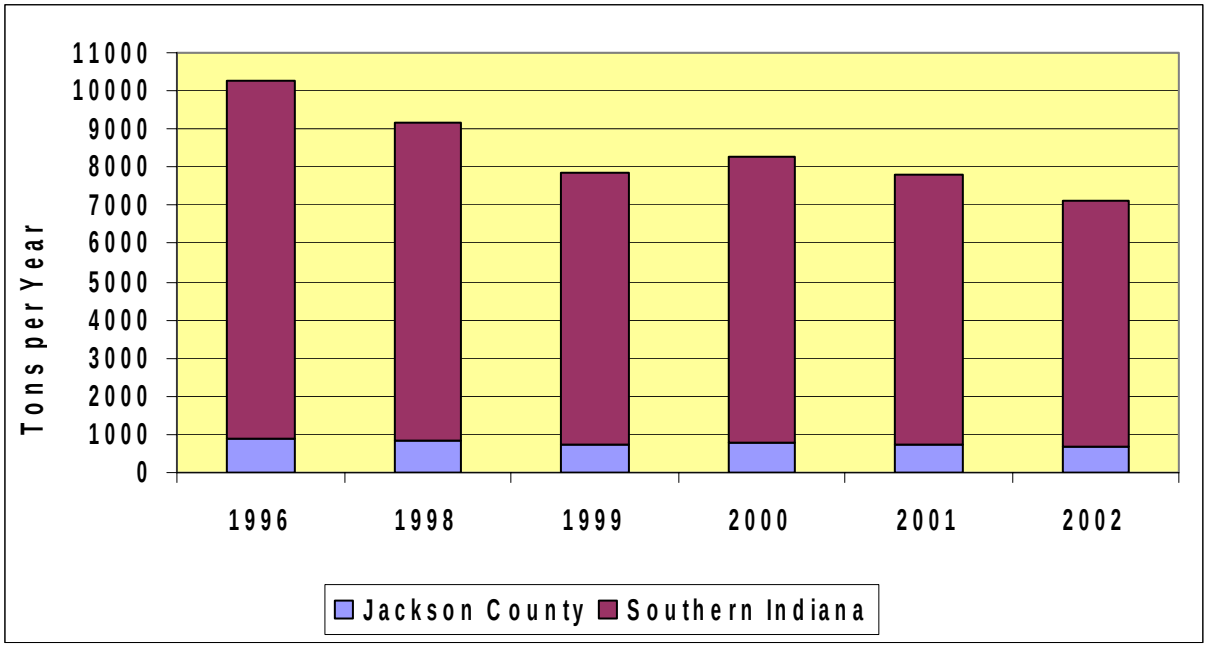
The following subsections address each of these requirements.

1 www.in.gov/idem/

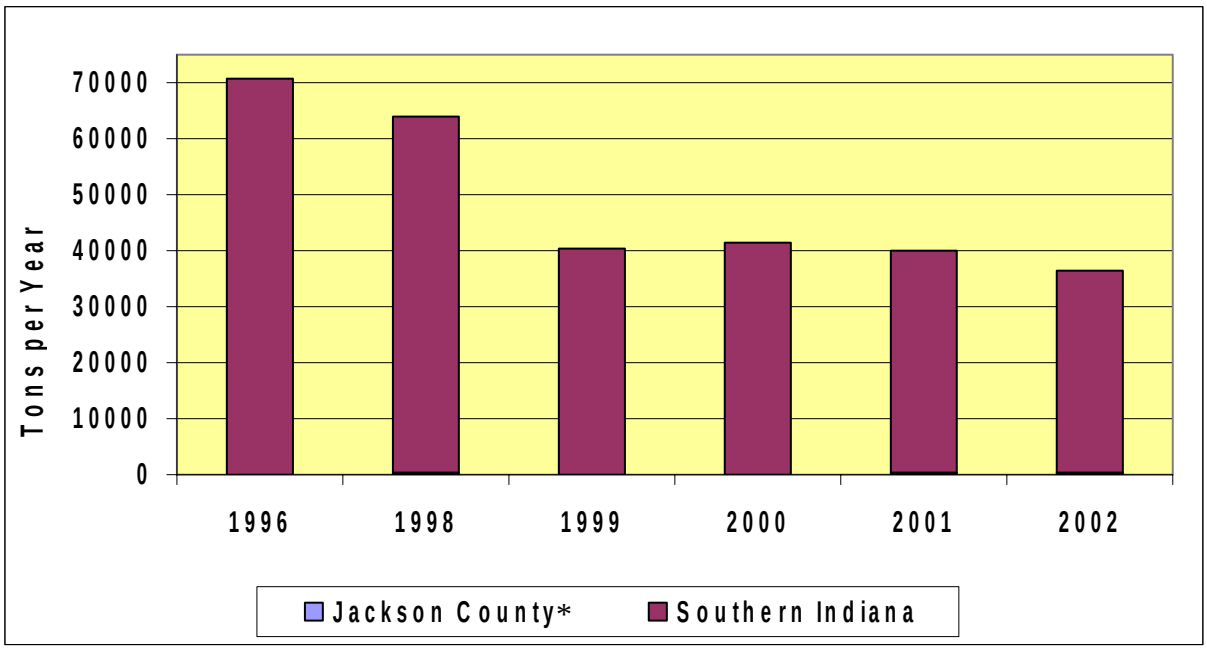
4.1 Emission Trends

Graphs 4.1 and 4.2 show the trends in point source emissions of VOC and NO_x, respectively, that correspond to the years of monitored values used in this report. To better illustrate emissions that impact ozone formation at the monitoring sites, these graphs include the Jackson County nonattainment area emissions and the emissions from an additional six (6) upwind counties (Washington, Scott, Jefferson, Harrison, Floyd and Clark) in the south central portion of Indiana. The point source data are taken from Indiana's annual emissions reporting program. Data later than 2002 are not available for all sources. Jackson County is predominantly a rural county and is strongly impacted by regional transport of ozone. Ozone precursor emissions in Jackson County are less likely to impact attainment and maintenance of the 8-hour ozone standard than upwind precursor emissions.

Graph 4.1 - Southern Indiana VOC Point Source Emissions 1996 – 2002



Graph 4.2 - Southern Indiana NO_x Point Source Emissions 1996 – 2002



* Note: Jackson County Total NO_x from point sources for the years 1996 through 2002 average less than 175 tons per year and are thereby not viewable in Graph 4.1 based on the appropriate scale.

Graph 4.3 shows the trend in regional NO_x emissions from 1997-2004 from Electric Generating Units (EGUs) for the Jackson County area, including Floyd and Jefferson counties. While ozone and precursors are transported into this region from outside areas, this information does provide some indication of the impact from Indiana sources near the nonattainment area. The emissions are decreasing substantially in response to national programs affecting all EGUs, including the Acid Rain program and the NO_x SIP Call. Other sectors of the inventory also impact ozone formation, but large regional sources such as EGUs have a substantial impact on the formation of ozone. This area has two EGUs that impact the nonattainment area. It should be noted that there are no power plants located in Jackson County.

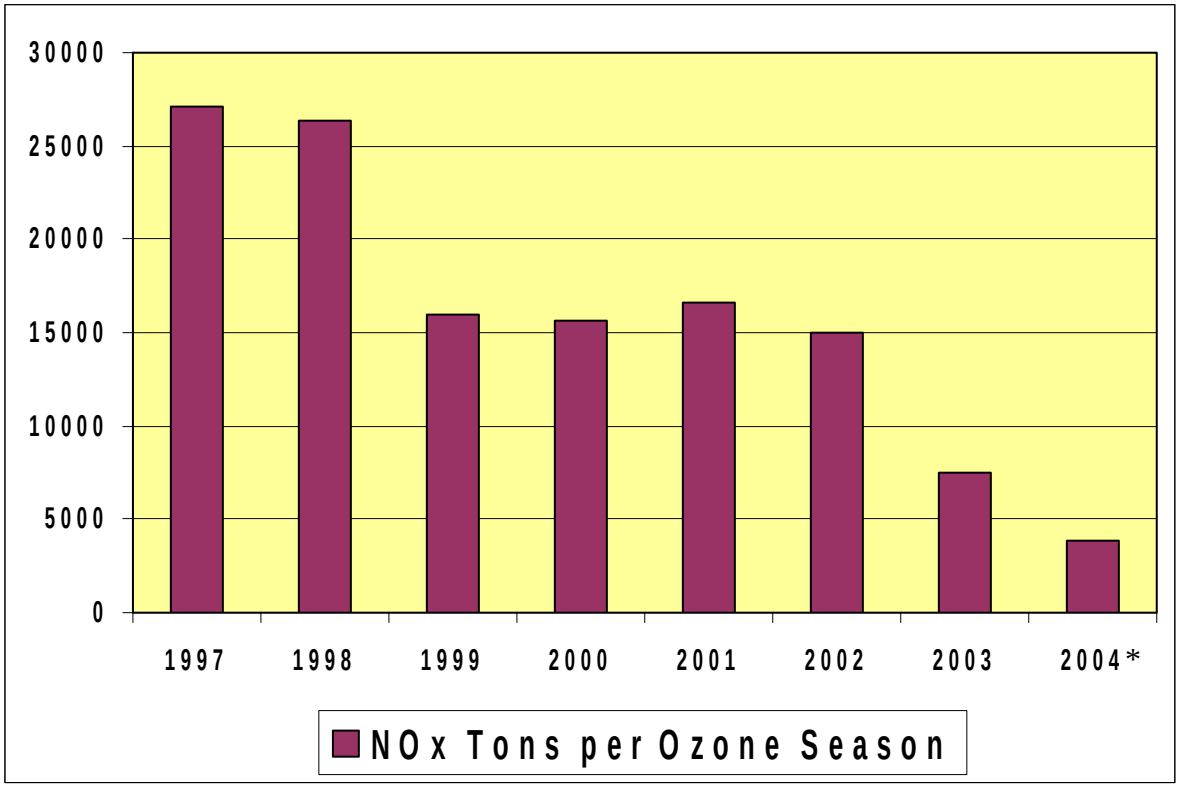
These data were taken from U.S. EPA's Clean Air Markets database[2]. Data are available sooner for these units than other point sources in the inventory because of the NO_x SIP Call budget and trading program requirements. Information from 2003 is significant because some EGUs started operation of their NO_x SIP Call controls that year in order to generate Early Reduction Credits for their future year NO_x budgets. The first season of the NO_x SIP Call trading program began May 31, 2004.

As part of the NO_x SIP Call, the states were required to adopt into their rules a budget for all large EGUs. Indiana's budget is adopted at 326 IAC 10-4. The budget represents a state-wide cap on NO_x emissions. Although each unit is allocated emissions based upon historic heat input, utilities can meet this budget by over-controlling certain units or purchasing credits from the

2 www.epa.gov/airmarkets

market to account overages at other units. Power plants upwind of Jackson County have accounted for the majority of the NO_x reductions depicted in the graph below. Such power plants include, but are not limited to, Cinergy-Gallagher and IKEC-Clifty Creek. To summarize, NO_x emissions have substantially decreased over the years represented on these graphs. These emissions, capped by the state rule, should remain at least this low through the maintenance period covered by this request.

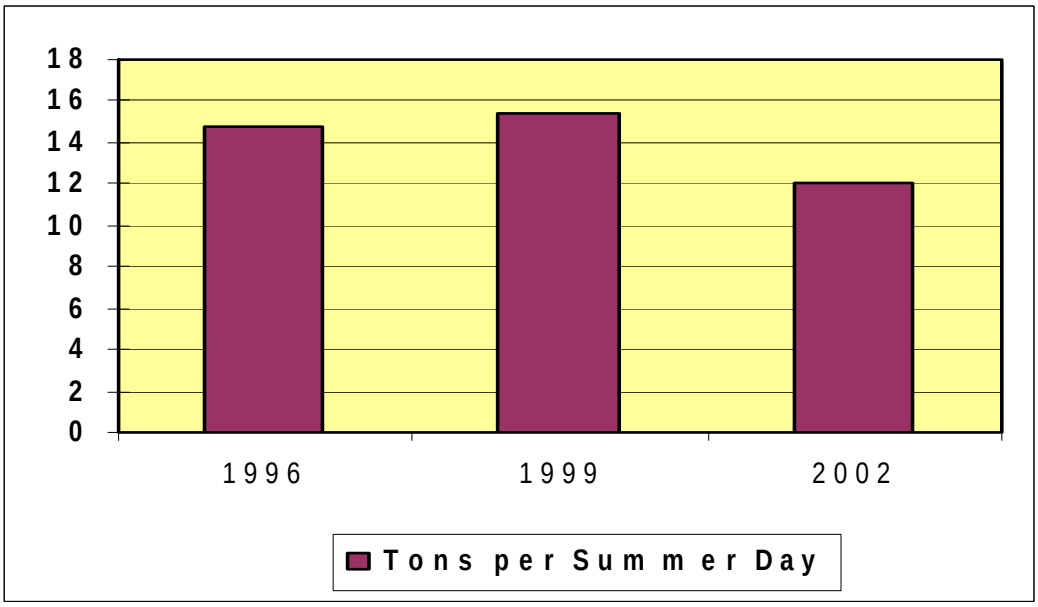
Graph 4.3 – NO_x Emissions from Southern Indiana Electric Generating Units Located Upwind of Jackson County



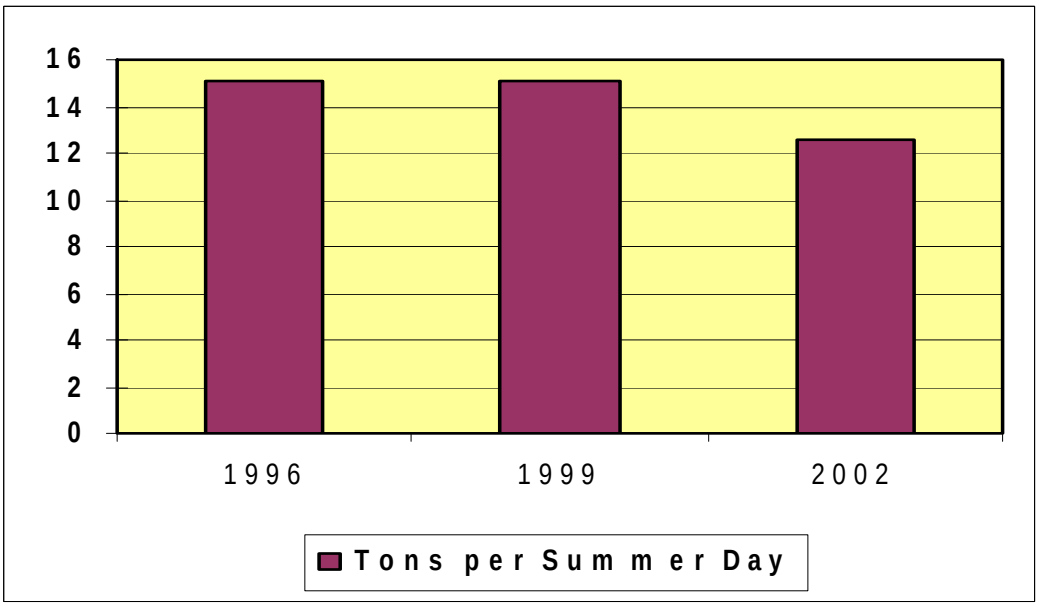
* Represents Budget Cap, not actual emissions.

Periodic inventories, which include emissions from all sectors, mobile, area, non-road, and point sources, are prepared every three (3) years. Graphs 4.4 and 4.5 show the generally downward trends for the total emissions for all anthropogenic source categories in these years, which also roughly follow the years of monitored trends discussed in Section 3. Graphs and data tables of emissions from each source category for Jackson County are available in Appendix B.

Graph 4.4 - VOC Emissions Trends, 1996 - 2002, All Sources in Jackson County



Graph 4.5 - NOx Emissions Trends, 1996 - 2002, All Sources in Jackson County



4.2 Base Year Inventory

IDEM prepared a comprehensive inventory for Jackson County, including area, mobile, and point sources for precursors of ozone (volatile organic compounds and nitrogen oxides) for base year 2002.

- Area sources were taken from the Indiana 2002 periodic inventory submitted to U.S. EPA. These projections were made from the US Department of Commerce Bureau of Economic Analysis (BEA) growth factors, with some updated local information.
- Mobile source emissions for 1996, 1999 and 2002 were generated by applying Highway Performance Monitoring System (HPMS) to emission factors generated by MOBILE6.
- Point source information for 1996 and 1999 was compiled from IDEM's 1996 and 1999 annual emissions statement database. Point source information for the 2002 analysis was compiled from IDEM's 2002 annual emissions statement database and the 2002 U.S. EPA Air Markets acid rain database.
- Biogenic emissions are not included in these summaries.
- Nonroad emissions for the 1996 and 1999 analysis were generated by U.S. EPA and are part of the National Emissions Inventory (NEI). The 2002 emissions were generated by IDEM utilizing the new nonroad estimation model provided by U.S. EPA. To address concerns about the accuracy of some of the categories in U.S. EPA's Nonroad emissions model, the Midwest Regional Planning Organization, the Lake Michigan Air Directors Consortium (LADCO), contracted with two (2) companies to review the base data and make recommendations. One of the contractors also estimated emissions for two (2) nonroad categories not included in U.S. EPA's Nonroad model. Emissions were estimated for commercial marine vessels and railroads. Recreational motorboat population and spatial surrogates (used to assign emissions to each county) were significantly updated. The populations for the construction equipment category was reviewed and updated based upon surveys completed in the Midwest and the temporal allocation for agricultural sources was also updated.

Appendix B contains detailed information for these emissions.

4.3 Emission Projections

In consultation with the U.S. EPA, IDEM selected the year 2015 as the maintenance year for this redesignation request. This document contains projected emissions inventories for 2010 and 2015.

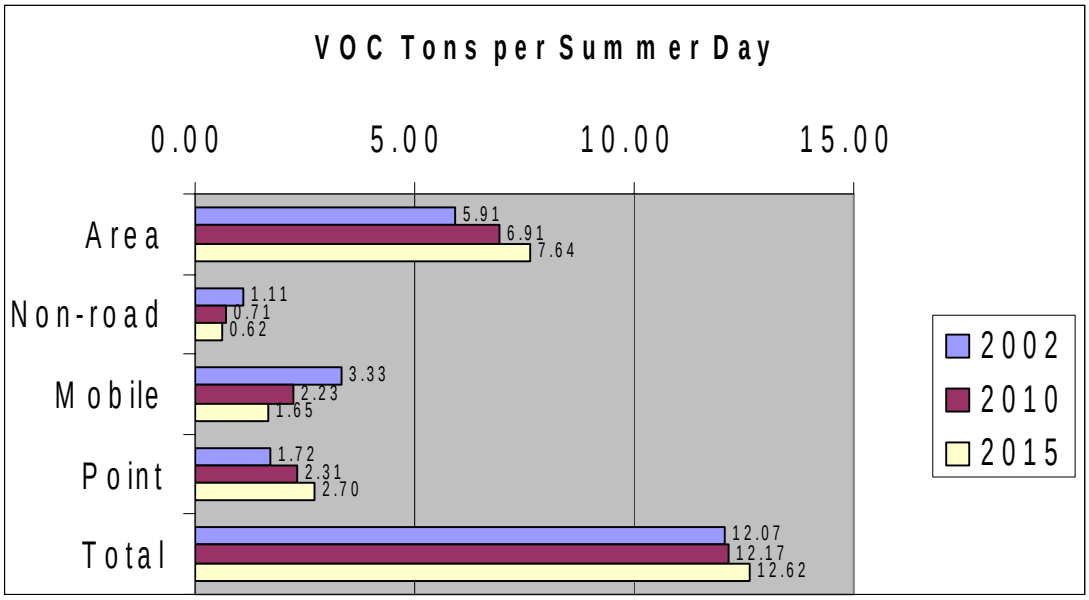
IDEM performed emission projections for Jackson County using the following approaches:

- Mobile source emission projections are based on the U.S. EPA MOBILE6 model. The analysis is described in more detail in Section 5. All projections were made in accordance with "Procedures for Preparing Emissions Projections"; U.S. EPA-45/4-91-019.
- Emissions inventories are required to be projected to future dates to assess the influence growth and future controls will have. The Midwest Regional Planning Organization has

developed growth and control files for Point, Area, and Nonroad categories. These files were used to develop the future year emissions estimates used in this document. This was done so that the inventories used for redesignation are consistent with modeling performed in the future.

The detailed inventory information for Jackson County for 2010 and 2015 is in Appendix C. Emission trends are an important gauge for continued compliance with the ozone standard. Therefore, IDEM performed an initial comparison of the inventories for the base year and maintenance years for Jackson County. Graphs 4.6 and 4.7 visually compare the 2002 estimated emissions with the 2010 and 2015 projected emission for Jackson County. Mobile Source emission inventories are described in Section 5. In addition to the Midwest RPO's estimates, point source emissions were projected based upon the statewide EGU NO_x budgets from the Indiana NO_x rule.

Graph 4.6 - Comparison of 2002 Estimated and 2010 and 2015 Projected VOC Emissions for Jackson County



Graph 4.7 - Comparison of 2002 Estimated and 2010 and 2015 Projected NO_x Emissions for Jackson County

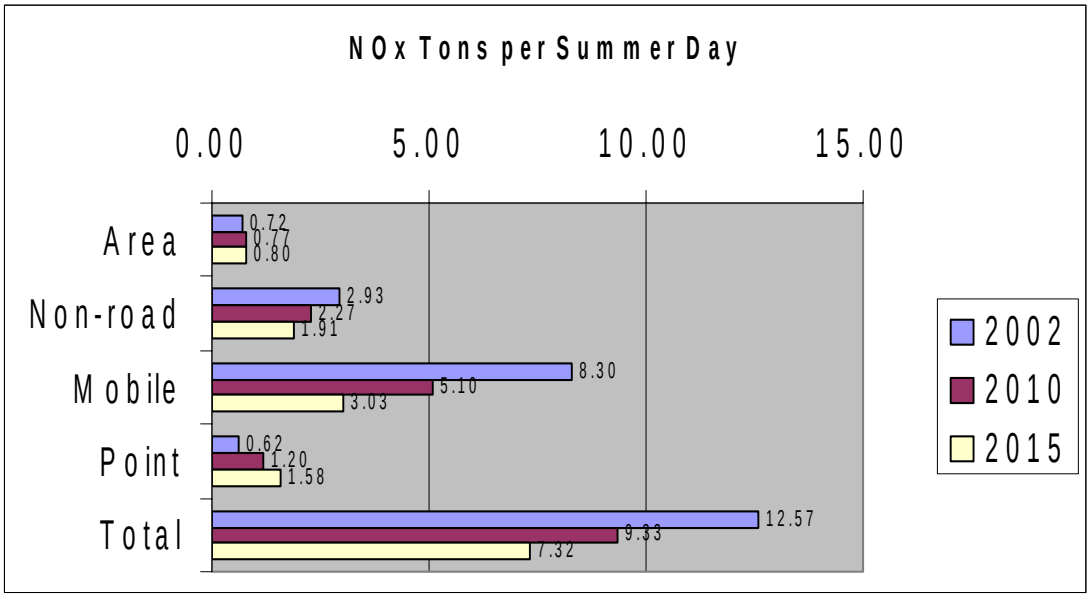


TABLE 4.1 - Comparison of 2002 Estimated and 2015 Projected Emission Estimates in Tons per Summer Day for Jackson County.

	2002	2015	Change
VOC	12.07	12.62	**0.55** (4.56%)
NO_x	12.57	7.32	**-5.25** (41.77%)

VOC emissions within the nonattainment area are projected to increase by 0.55 tons from 2002 to 2015. Area source emissions, and to a lesser extent point sources, show an increase due to anticipated population growth in this area. However, since this area is affected by overwhelming transport from upwind counties, county emission trends are not predictive of the area's likelihood of maintaining compliance with the ozone standard. Instead it is regional emission reductions that have resulted in the county's air quality improvement, and will ensure air quality meets the ozone standard in the future. Cleaner vehicles and fuels, as well as the Clean Air Interstate Rule, will improve air quality even further in the future. LADCO modeling results for these recent rules are detailed in Section 7.2 and demonstrate that Jackson County will remain in compliance with the standard in the future, despite the modest increase in VOC emission projections.

NO_x emissions in the nonattainment area are projected to decrease by 41.77% from 2002 to 2015. In 2002, mobile source NO_x emissions were in excess of 8 tons per summer day. However, by 2015 mobile source NO_x emissions are projected to be approximately 3 tons per day (a 62% decrease). This is a result of the implementation of federal rules covering Tier II Motor Vehicle

Emission Standards and Gasoline Sulfur Control Requirements[4], and the Highway Heavy-Duty Engine and Ultra Low Sulfur Diesel Fuel Rule[5]. Further, due to the implementation of the NO_x SIP Call across the eastern United States, NO_x and ozone levels entering this area will also be decreased. The Clean Air Interstate Rule (CAIR), issued in March 2005 and to begin implementation in 2010, will reduce regional EGU NO_x emissions by approximately another 15% in 2015. Since CAIR is a regional cap and trade program, it cannot be predicted at this time what effect this will have on EGU units located in the South Central Indiana Counties, and so potential reductions are not included in Graph 4.7 or Table 4.1. There are no EGU units located in Jackson County.

4.4 Demonstration of Maintenance

Ambient air quality data from the Jackson County monitoring site indicates that air quality met the NAAQS for ozone in 2004. U.S. EPA's Redesignation Guidance (Page 9) states "A state may generally demonstrate maintenance of the NAAQS by either showing that future emissions of a pollutant or its precursors will not exceed the level of the attainment inventory, or by modeling to show that the future mix of sources and emissions rates will not cause a violation of the NAAQS**."** NO_x emissions in Jackson County will be substantially reduced, while VOC emissions will increase slightly. The NO_x SIP rule will result in major reductions of EGU emissions (see Section 6.3) Therefore, air quality should meet the NAAQS ozone standard through the projected year 2015. Section 7.0 further discusses the implications of these emissions trends and provides an analysis to support these conclusions.

In Indiana, major point sources in all counties are required to submit air emissions information once every three (3) years or annually, if VOC potential to emit is greater than two hundred fifty (250) tons or NO_x greater than two thousand five hundred (2500) tons, in accordance with the Emission Statement Rule, 326 IAC 2-6. IDEM prepares a new periodic inventory for all ozone precursor emission sectors every three (3) years. These ozone precursor inventories will be prepared for 2005, 2008, and 2011, as necessary, to comply with the inventory reporting requirements established in the CAAA. Emissions information will be compared to the 2002 base year and the 2015 projected maintenance year inventories to assess emission trends, as necessary, to assure continued compliance with the ozone standard.

4.5 Permanent and Enforceable Emissions Reductions

Permanent and enforceable regional reductions of volatile organic compounds and oxides of nitrogen have contributed to Jackson County's attainment of the 8-hour ozone standard. Some of

4 http://www.epa.gov/fedrgstr/EPA-AIR/2000/February/Day-10/a19a.htm

5 http://www.epa.gov/fedrgstr/EPA-AIR/1997/October/Day-21/a27494.htm

these reductions were due to the application of state-wide Reasonably Available Control Technology (RACT) rules for VOC and some due to the application of tighter federal standards on new vehicles. Also, Title IV of the Clean Air Act and the NO_x SIP Call required the reduction of oxides of nitrogen from utility sources. Section 6.0 identifies these reductions along with an explanation of their status.

4.6 Provisions for Future Updates

As required by Section 175A(b) of the CAAA, Indiana commits to submit to the Administrator, eight (8) years after redesignation, an additional revision of this SIP. The revision will contain Indiana's plan for maintaining the national primary ozone air quality standard for ten (10) years beyond the first 10-year period after redesignation.

5.0 TRANSPORTATION CONFORMITY BUDGETS

The following is a summary of the more detailed discussion in Appendix D regarding the mobile source emissions analysis.

5.1 On-Road Emission Estimations

Nonattainment areas most commonly incorporate urban areas. Urban area transportation planning is the responsibility of an urban area planning agency referred to as a Metropolitan Planning Organization (MPO). MPOs commonly maintain a Travel Demand Forecasting Model (TDFM) that provides computer simulation of current and projected traffic. As a general rule, the TDFM is used to calculate travel statistics and emissions for future years. Jackson County, however, is a rural county and is not in the jurisdiction of an MPO. Commonly, if there is no model to use for traffic forecasting, Highway Performance Monitoring System (HMPS) data is used in its place. This is a national program that requires state Departments of Transportation (DOTs) to collect traffic counts throughout the state on a regular basis under a certain regulated method. HPMS data collected and provided by the Indiana Department of Transportation (INDOT) on a by-county basis was used for this analysis.

5.2 Overview

Broadly described, MOBILE6 is used to determine “emission factors”, which are the average emissions per mile (grams/mile) for different road facility types. MOBILE6 describes road facility types as Freeway, Arterial, Local or Ramp. Vehicle speeds also affect the emission factor values. Other factors also affect the emission factors such as air temperature, humidity, age of the vehicle fleet and the types of vehicles on the roads. These data are estimated using the best available information to create emission factors for the appropriate ozone precursors, NO_x and VOC. After emission factors are determined, the emission factor(s) must be multiplied by the vehicle miles traveled (VMT) to ultimately determine the quantity of vehicle emissions. This VMT information comes, in this case, from HPMS data. HPMS data is provided for 13 different

roadway facility types.

IDEM analyzed these separately for each HPMS facility type. That is, for each HPMS facility type, the daily vehicle miles traveled (VMT), vehicle fleet type and average speed were determined. These data were the input files used by MOBILE6 to create emission factors for each facility type. The products of the VMT data and emission factors are the total daily emissions. The sum of all 13 facility types provides the total emissions for the county.

5.3 Emission Estimations

Table 5.1 contains the results of the emissions analysis for the appropriate years.

Table 5.1 – Jackson County Emission Estimations for On-Road Mobile Sources

	2002	2010	2015	2015 Margin of Safety
VMT (miles/day)	1,845,103	2,361,182	2,612,614	
VOC (tons/day)	3.33	2.23	1.65	0%
NOx (tons/day)	8.30	5.10	3.03	5%

5.4 Motor Vehicle Emission Budget

Table 5.2 contains the motor vehicle emissions budget for the Greene County ozone nonattainment area for the year 2015.

Table 5.2 – Jackson County Mobile Vehicle Emission Budgets

2015	Tons per Day
VOC	1.65
NOx	3.18

The mobile vehicle emissions budget includes the emission estimates calculated for 2015, and a margin of safety for NO_x in 2015. Margins of safety are used to accommodate the wide array of assumptions that are factored into the calculation process. Since assumptions (model inputs, land use, census data, population characteristics) change over time, it is necessary to have a margin of safety that will accommodate the impact of refined assumptions in the conformity process. This budget results in the 2015 total emissions for NO_x. This budget is still below the base year emissions shown in Graphs 4.6 and 4.7.

All methodologies, latest planning assumptions and the safety margins were determined through the interagency consultation process described in 40 CFR 93.105 and 326 IAC 19-2-1.

6.0 CONTROL MEASURES AND REGULATIONS

This section provides specific information on the control measures implemented in Jackson County, including CAAA requirements and additional state or local measures implemented beyond CAAA requirements.

6.1 Reasonably Available Control Technology (RACT)

As required by Section 172 of the CAAA, Indiana in the mid-1990s promulgated rules requiring RACT for emissions of VOCs. There were no specific rules required by the CAA, such as RACT for existing sources, for this county beyond state-wide rules. State-wide RACT rules have applied to new sources locating in Indiana since that time if they exceed certain applicability thresholds. The Indiana rules are found in 326 IAC 8. The following is a listing of applicable rules:

326 IAC 8-1-6	New Facilities: General Reduction Requirements (BART)
326 IAC 8-2	Surface Coating Emission Limitations
326 IAC 8-3	Solvent Degreasing Operation
326 IAC 8-4	Petroleum Sources
326 IAC 8-5	Miscellaneous Operation
326 IAC 8-6	Organic Solvent Emission Limitations

6.2 Implementation of Past SIP Revisions

This nonattainment area was not required to develop an Attainment Demonstration SIP for the one-hour NAAQS. Similarly, since the area was only recently designated nonattainment for ozone and the area has now attained the standard, no Attainment Demonstration SIP has been required to bring the area into attainment for the 8-hour ozone NAAQS. Therefore, this requirement does not apply. Emissions of VOCs are regulated by applicable statewide provisions of 326 IAC 8.

6.3 Nitrogen Oxides (NO_x) Rule

The U.S. EPA NO_x SIP Call required twenty-two (22) states to pass rules that cap NO_x emissions and result in significant emission reductions from large EGUs, industrial boilers, and cement kilns in the eastern United States. Indiana adopted this rule in 2001. As illustrated in Table 6.1, the 2004 – 2009 NO_x emissions cap of 43,654 tons per ozone season represents a potential reduction of nearly 62% compared to the 2002 actual NO_x emissions from affected EGU's state-wide.

The other states have also adopted these rules. The result is that significant reductions of ozone will occur upwind and within the Jackson County because of the number of large electric utilities located in southern Indiana, Illinois, Kentucky, and Tennessee. U.S. EPA and IDEM have performed modeling that indicated this area would attain the 8-hour ozone standard with the

implementation of the NO_x SIP Call. Controls for EGUs formally commenced on May 31, 2004. From Graph 4.3, " NOx Emissions from Southern Indiana Electric Generating Units Located Upwind of Jackson County," it can be seen that emissions covered by this program have been generally trending downward since 1998 with larger reductions occurring in 2003 and 2004. Table 6.1, compiled from data taken from the U.S. EPA Clean Air Markets website, quantifies the gradual NO_x reductions that have occurred in Indiana as a result of Title IV of the Clean Air Act Amendments and the beginning of the NO_x SIP Call Rule. This cap will stay in place through 2008, at which time the CAIR program will supersede it.

Further, U.S. EPA has recently published Phase II of the NO_x SIP Call, which establishes a budget for large (greater than 1 ton per day emissions) stationary internal combustion engines. This rule will decrease emissions state-wide from natural gas compressor stations by four thousand two hundred and sixty-three (4,263) tons during the ozone season. OAQ is on track to finalize this rule in mid-2005. Implementation of this rule will be in 2007.

TABLE 6.1 - Trends in EGU Ozone Season NO_x Emissions State-Wide in Indiana

Year	NO_x Emissions, tons/ozone season	NO_x Emission Rate, lbs/MMBtu
1997	152,834	0.557
1998	159,931	0.540
1999	149,827	0.502
2000	133,881	0.476
2001	136,121	0.481
2002	114,082	0.409
2003	99,967	0.342
Cap 2004-2009	43,654	0.150

6.4 Measures Beyond Clean Air Act Requirements

Reductions in ozone precursor emissions have occurred, or are anticipated to occur, as a result of local and federal control programs. These additional control measures include:

Tier II Emission Standards for Vehicles and Gasoline Sulfur Standards

In February 2000, U.S. EPA finalized a federal rule to significantly reduce emissions from cars and light trucks, including sport utility vehicles (SUVs). Under this proposal, automakers will be required to sell cleaner cars, and refineries will be required to make cleaner, lower sulfur gasoline. This rule will apply nationwide. The federal rules are being phased in between 2004 and 2009. U.S. EPA has estimated that NO_x emission reductions will be approximately seventy-seven percent (77%) for passenger cars, eighty-six percent (86%) for smaller SUVs, light trucks, and minivans, and sixty-five to ninety-five percent (65-95%) reductions for larger SUVs, vans, and heavier trucks. VOC emission reductions will be approximately twelve percent (12%) for passenger cars,

eighteen percent (18%) for smaller SUVs, light trucks, and minivans, and fifteen percent (15%) for larger SUVs, vans, and heavier trucks.

Heavy-Duty Diesel Engines

In July 2000, U.S. EPA issued a final rule for Highway Heavy Duty Engines, a program which includes low-sulfur diesel fuel standards, which is being phased in from 2004 through 2007. This rule applies to heavy-duty gasoline and diesel trucks and buses. This rule will result in a forty percent (40%) reduction in NO_x from diesel trucks and buses, a large sector of the mobile sources NO_x inventory.

Clean Air Nonroad Diesel Rule

In May 2004, U.S. EPA issued the Clean Air Nonroad Diesel Rule. This rule applies to diesel engines used in industries such as construction, agriculture, and mining. It also contains a cleaner fuel standard, similar to the highway diesel program. The new standards will cut emissions from nonroad diesel engines by over ninety percent (90%). Nonroad diesel equipment, as described in this rule, currently accounts for forty-seven (47) percent of diesel particulate matter (PM) and twenty-five percent (25%) of nitrogen oxides (NO_x) from mobile sources nationwide. Sulfur levels will be reduced in nonroad diesel fuel by ninety-nine percent (99%) from current levels, from approximately three-thousand (3,000) parts per million (ppm) now to (fifteen) 15 ppm in 2010. New engine standards take effect, based on engine horsepower, starting in 2008.

Together, these rules will substantially reduce local and regional sources of ozone precursors. The modeling analyses discussed in Section 7 include these rules and show the expected ozone concentrations expected to result from the implementation of these rules.

6.5 Controls to Remain in Effect

Indiana commits to maintaining the aforementioned control measures following redesignation. Indiana hereby commits that any changes to its rules or emission limits applicable to VOC and/or NO_x sources, as required for maintenance of the ozone standard in Jackson County, will be submitted to U.S. EPA for approval as a SIP revision.

Indiana, through IDEM's Office of Air Quality and its Office of Enforcement, has the legal authority and necessary resources to actively enforce any violations of its rules or permit provisions. After redesignation, IDEM will continue enforcing all rules that relate to the emission of ozone precursors in Jackson County.

6.6 New Source Review Provisions

Indiana has a longstanding and fully implemented New Source Review (NSR) procedure. This is addressed in rule 326 IAC 2. The rule includes provisions for the Prevention of Significant

Deterioration (PSD) permitting program in 326 IAC 2-2. Indiana's PSD program was conditionally approved on March 3, 2003 (68 FR 9892) and received final approval on May 20, 2004 (69 FR 29071) by U.S. EPA as part of its SIP.

Any facility that is not listed in the 2002 emission inventory, or for the closing of which credit was taken in demonstrating attainment, will not be allowed to construct, reopen, modify, or reconstruct without meeting any applicable permit rule requirement. The review process will be identical to that used for new sources. Once the area is redesignated, OAQ will implement NSR through the PSD program which requires an air quality analysis to evaluate whether the new source will threaten the NAAQS.

7.0 MODELING

7.1 Summary of Modeling Results for National Emission Control Strategies in Final Rulemakings

Although U.S. EPA's redesignation guidance does not require modeling for ozone nonattainment areas seeking redesignation, extensive modeling has been performed covering the South Central Indiana region to determine the effect of national emission control strategies on ozone levels. The modeling analyses show that Jackson County is significantly impacted by ozone and ozone precursor transport, and regional NO_x reductions are an effective way to attain the 8-hour standard in this area.

U.S. EPA Modeling Analysis for HDE Final Rulemaking

U.S. EPA conducted modeling for Tier II vehicles and low-sulfur fuels. This analysis was performed in 2000 to support final rulemaking for the Heavy Duty Engine (HDE) and Vehicle Standards and Highway Diesel Fuel Rule and its expected impact on ozone levels. "Technical Support Document for the Heavy Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements: Air Quality Modeling Analyses" (U.S. EPA420-R-00-028) was referenced for support of this ozone redesignation for Jackson County. Base year emissions from 1996 were modeled for three (3) ozone episodes: June 12-24, 1995; July 5-15, 1995; and August 7-21, 1995. Results of this modeling show that ozone decreases from these fuel emission control measures, as well as the proposed NO_x SIP call, would be substantial in Jackson County.

Relative reduction factors (RRF) were calculated for each of the monitors in operation and having a complete three (3) year design value for 1996. Monitors without a complete three (3) year design value, such as Jackson County, were not evaluated in the modeling. However, for a conservative approach, the highest RRF calculated throughout the state (0.9246 at the Valparaiso monitor in Porter County) was used for the Brownstown monitor located in Jackson County. The resulting future year design value was calculated as shown below in Table 7.1. The conservative estimate of the modeled future year design value for the Jackson County of seventy-eight and six tenths (78.6) ppb shows it will attain the 8-hour ozone NAAQS of eighty-five (85) ppb.

Table 7.1 - Modeling Results from U.S. EPA Heavy Duty Diesel

Monitor ID	Monitor Name	County	Design Value (ppb)	Modeled Relative Reduction Factor (RRFs)	Future Design Value (ppb)
			2001-2003	2007 Base	2007
180710001	Brownstown	Jackson	**85**	**0.9246 a**	**78.6**

[a] Indicates the maximum calculated RRF throughout the state (modeled at Valparaiso)

LADCO Modeling Analysis for 8-Hour Ozone Standard Assessment

LADCO, the Midwest Regional Planning Organization, performed modeling to evaluate the effect of the NO_x SIP call and Tier II / Low Sulfur Rule for future-year 2007 ozone in the Lake Michigan area. This modeling was originally designed to assess the 1-hour ozone standard. Further analysis was conducted and documented in the LADCO's White Paper "8-Hour Ozone Assessment", dated May 2, 2001. Base year design values used were the average of the design values for the three (3) year periods (1994-1996, 1995-1997, 1996-1998). Base year emissions were taken from 1996 and four (4) ozone episodes were evaluated: June 22-28, 1991; July 14-21, 1991; June 13-25, 1995; and July 7-18, 1995.

While modeling results were not calculated for Jackson County, the average decrease in ozone from the basecase modeling run with modeling runs that applied emission controls required by the Clean Air Act, NO_x SIP Call and Tier II / low-sulfur requirements was nine (9) ppb. This average is for nonattainment areas in northwest, north-central, central, southwest and southern Indiana. Monitors located in or near urban areas showed a slightly lower average ozone decrease of eight (8) ppb while upwind monitors or monitors located in rural areas showed an average ozone decrease of eleven (11) ppb. Southern Indiana averaged higher ozone decreases as compared to Central and Northern Indiana due to the number of power plants located near the Ohio River. Therefore, anticipated ozone decreases from LADCO's modeling analysis would be approximately eight to eleven (8-11) ppb in the Jackson County area. These anticipated ozone decreases in each of the 2001 – 2003 design values for Jackson County would bring the future year 2007 design value below the 8-hour ozone NAAQS of eighty-five (85) ppb.

7.2 Summary of Modeling Results to Support Recent Rulemakings

U.S. EPA Modeling for Clean Air Interstate Rules (CAIR) of 2005

On March 10, 2005, the U.S. EPA promulgated the Clean Air Interstate Rules (CAIR). NO_x emissions will be cut from 4.5 million tons in 2003 to a cap of 1.5 million tons by 2009 and 1.3 million tons in 2015 in twenty-eight (28) eastern states and the District of Columbia.

U.S. EPA has performed modeling to support the associated emission reductions. The modeling was based on 1999 – 2003 design values. Future year modeling was conducted for Jackson County and the future year design values for 2010 and 2015 were evaluated for attainment of the 8-hour ozone NAAQS, as shown in Table 7.2. Results of the CAIR modeling show that Jackson

County will continue to attain the 8-hour ozone NAAQS in 2010. With further reductions projected in CAIR for 2015, the design value continues to decrease.

Table 7.2 - Modeling Results from U.S. EPA Clean Air Rules of 2005

County	Design Value (ppb)	Future Design Value (ppb)	Future Design Value (ppb)	Future Design Value (ppb)	Future Design Value (ppb)
	1999-2003	2010 w/out CAIR	2010 with CAIR	2015 w/out CAIR	2015 with CAIR
Jackson	**85**	**71.7**	**71.4**	**68.6**	**66.6**

LADCO modeling for Clean Air Interstate Rule

LADCO conducted modeling to determine the impact of the final CAIR in the Midwest. The modeling was based on 2000 – 2004 design values for Jackson County. Future year modeling for 2009 was conducted and the future year design values were determined, as shown below in Table 7.3. Results of the CAIR modeling show Jackson County will continue to attain the 8-hour Ozone NAAQS.

Table 7.3 - Modeling Results from LADCO for the final CAIR for Jackson County

Monitor ID	Monitor Name	County	Design Value (ppb)	Modeled Relative Reduction Factor (RRFs)	Future Design Value (ppb)
			2000-2004	2009 Base	2009
180710001	**Brownstown**	**Jackson**	**83.3**	**0.889**	**74.1**

7.3 Summary of Existing Modeling Results

U.S. EPA and LADCO modeling for future year design values have consistently shown that existing national emission control measures will bring Jackson County into attainment of the 8-hour ozone NAAQS. Proposed rulemakings to be implemented in the next several years will provide even greater assurance that air quality will continue to meet the standard into the future. Modeling support for the NO_x SIP Call, Heavy Duty Engine and Highway Diesel Fuel and Tier II / Low Sulfur Fuel has shown that future year design values for Jackson County will attain the ozone standard with modeled future year design values well below 85 ppb. U.S. EPA has modeled basecase future years with existing emission controls only and shown that Jackson County will attain the 8-hour ozone NAAQS without proposed additional national emission control strategies. Additional national emission controls, such as CAIR, will even further enhance air quality and increase the margin of safety over time.

7.4 Temperature Analysis for Jackson County

Meteorological conditions are one of the most important factors that influence ozone development and transport. A temperature analysis has been conducted to determine how the temperatures during the ozone conducive months of May, June, July, August and September for the years 1996 through 2004 compare to normal temperatures for the Central Indiana area for the years 1971 through 2000. Complete climatological data is not available for Jackson County; therefore the Indianapolis National Weather Service Office, Indianapolis Climate Data was used. Available normal maximum temperatures by summer months from 1971-2000 for the Indianapolis, Central Indiana area are as follows:

May – 73.5^{o} F
June – 82.1^{o} F
July – 85.6^{o} F
August – 83.7^{o} F
September – 77.4^{o} F
May - September – 80.5^{o} F

Indianapolis' monthly maximum temperatures were compiled for the previous none (9) years (1996 – 2004) to determine the average maximum monthly temperatures in Central Indiana. This analysis was made to find how the temperatures during the summer months compared to normal summer month temperatures throughout central, west-central, south-central and east-central Indiana. Overall, the temperatures during the 1998, 1999 and 2002 summer months of May, June, July, August, and September were 1% to 2% higher while temperatures during the 1996, 1997, 2000, 2001, 2003 and 2004 summer months were 1% to 3% lower than the normal temperatures. Table 7.6 shows the average temperatures in Central Indiana for each of the past nine (9) years and the percent difference from normal for each year.

Table 7.4 - Analysis of Maximum Temperatures for Central Indiana

(Percent Change from Maximum Temperature (^{o}F) Normals (1971 – 2000)

	Normal	1996		1997		1998		1999	
	Max	Max	%	Max	%	Max	%	Max	%
May	73.5	70	-5	66.9	-9	76.4	+4	75.1	+2
June	82.1	80.9	-1	77.6	-5	80.3	-2	82.3	0
July	85.6	82.9	-3	86.2	+1	84.0	-2	89.2	+4
August	83.7	84.1	0	80.8	-3	84.5	+1	83.3	0
September	77.4	75.5	-2	77.1	+1	83.0	+7	81.2	+5
AVERAGE	**80.5**	**78.7**	**-2**	**77.7**	**-3**	**81.6**	**+1**	**82.2**	**+2**

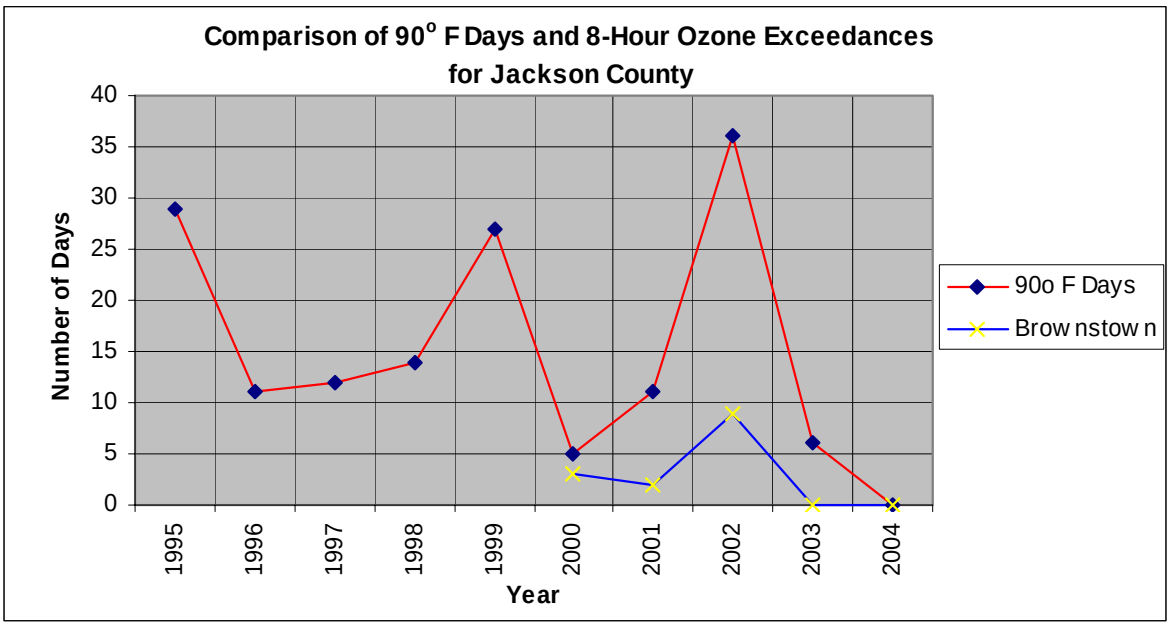
	2000		2001		2002		2003		2004	
	Max	%	Max	%	Max	%	Max	%	Max	%
May	74.9	+2	74.6	+1	70.4	-4	70.3	-4	76.2	+4
June	80.2	-2	79.5	-3	83.6	+2	78.0	-5	81.7	-2
July	82.4	-4	83.9	-2	88.2	+3	83.4	-3	81.6	-5
August	82.6	-1	85.2	+2	86.7	+4	83.9	0	78.9	-6
September	75.5	-2	75.4	-3	82.1	+6	74.2	-4	79.4	+2
AVERAGE	**79.1**	**-2**	**79.7**	**-1**	**82.2**	**+2**	**80.0**	**-3**	**79.4**	**-2**

The number of days with temperatures of 90^{o} F and higher were calculated and compared to the normal number of days from 1971 through 2000 as well as the number of days with 8-hour ozone exceedances. Table 7.4 shows a table of the comparison of 8-hour ozone exceedances and temperatures while Graph 7.1 shows the correlation graphically.

Table 7.5 - Comparison of Days with 90^{o} F and 8-hour Ozone Exceedance Days

Number of Days with Temperatures of 90^{o} F and higher											
	Normal	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
# of 90^{o} F days	**14.9**	**29**	**11**	**12**	**14**	**27**	**5**	**11**	**36**	**6**	**0**
Number of 8-Hour Exceedance Days at Jackson County ozone monitor											
Monitor	County	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Brownstown	Jackson	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**3**	**2**	**9**	**0**	**0**

Graph 7.1 - Comparison of Days with 90° F and 8-hour Ozone Exceedance Days



As can be seen, a greater number of ozone exceedance days per year correlate with a greater number of 90° F days per year. However, years with a lesser number of 90° F days still yield 8-hour ozone exceedance days.

7.5 Summary of Meteorological Conditions

The analysis of the departure from normal of the maximum temperatures during the summer months show variation of the average maximum temperatures from -3% to 2 %. The analysis shows that 10 or more of days with temperatures of 90° F and higher occurred in 1995, 1996, 1997, 1998, 1999, 2001 and 2002. The number of 8-hour ozone exceedance days for those years, especially those with more monitoring data, shows a greater correlation to the number of higher temperature days. However, the years with a lesser number of 90° F days still yielded 8-hour ozone exceedance days. There does not appear to be any abnormal temperature swings or recent summers with excessively warmer or cooler than normal temperatures over the past decade.

In 2002, there were thirty-six (36) 90° F and higher days and nine (9) 8-hour ozone exceedance days. In 2003, there were six (6) 90° F and higher days and zero (0) 8-hour ozone exceedance days. In 2004, there were zero (0) 90° F and higher days and (0) 8-hour ozone exceedances. The lower values correspond to lowered local and regional ozone precursor emissions. This is why U.S. EPA developed the 8-hour ozone standard as a 4th high ozone value averaged over 3 years to account for variations in temperature.

8.0 CORRECTIVE ACTIONS

8.1 Commitment to Revise Plan

As noted in Section 4.5 above, Indiana hereby commits to review its Maintenance Plan eight (8) years after redesignation, as required by Section 175(A) of the CAAA.

8.2 Commitment for Contingency Measures

Indiana hereby commits to adopt and implement expeditiously necessary corrective actions in the following circumstances:

Warning Level Response

A Warning Level Response shall be prompted whenever an annual (1-year) fourth high monitored value of 88 ppb occurs in a single season within the maintenance area. A Warning Level Response will consist of a study to determine whether the ozone value indicates a trend toward higher ozone values or whether emissions appear to be increasing. The study will evaluate whether the trend if any, is likely to continue and, if so, the control measures necessary to reverse the trend taking into consideration ease and timing for implementation, as well as economic and social considerations. The study, including the applicable recommended next steps, shall be completed within twelve (12) months from the close of the most recent ozone season (September 30).

Should it be determined through the Warning Level study that action is necessary to reverse the noted trend, the procedures for control selection and implementation outlined under "Action Level Response" shall be followed.

Action Level Response

An Action Level Response shall be prompted whenever a two (2) year average fourth high monitored value of 85 ppb occurs within the maintenance area. In the event that the Action Level is triggered and is not due to an exceptional event, malfunction, or noncompliance with a permit condition or rule requirement, IDEM will determine additional control measures needed to assure future attainment of NAAQS for ozone. In this case, measures that can be implemented in a short time will be selected in order to be in place within eighteen (18) months from the close of the ozone season that prompted the Action Level.

Control Measure Selection and Implementation

Adoption of any additional control measures is subject to the necessary administrative and legal process. This process will include publication of notices, an opportunity for public hearing, and other measures required by Indiana law for rulemaking by state environmental boards.

If a new measure/control is already promulgated and scheduled to be implemented at the federal or state level, and that measure/control is determined to be sufficient to address the upward trend in air quality, additional local measures may be unnecessary. Furthermore, Indiana will submit to U.S. EPA an analysis to demonstrate the proposed measures are adequate to return the area to attainment.

8.3 List of Contingency Measures

Contingency measures to be considered will be selected from a comprehensive list of measures deemed appropriate and effective at the time the selection is made. Listed below are example measures that may be considered. The selection of measures will be based upon cost-effectiveness, emission reduction potential, economic and social considerations or other factors that IDEM deems appropriate. IDEM will solicit input from all interested and affected persons in the maintenance area prior to selecting appropriate contingency measures. All of the listed contingency measures are potentially effective or proven methods of obtaining significant reductions of ozone precursor emissions. Because it is not possible at this time to determine what control measure will be appropriate at an unspecified time in the future, the list of contingency measures outlined below is not comprehensive. It is likely that only a few of these measures would be required.

1) Lower-Reid vapor pressure gasoline program.

2) Broader geographic applicability of existing measures.

3) Tighten RACT on existing sources covered by U.S. EPA Control Technique Guidelines issued in response to the 1990 CAAA.

4) Apply RACT to smaller existing sources.

5) A modern vehicle inspection/maintenance program.

6) One or more transportation control measures sufficient to achieve at least half a percent (0.5%) reduction in actual area wide VOC emissions. Transportation measures will be selected from the following, based upon the factors listed above after consultation with affected local governments:

a) Trip reduction programs, including, but not limited to, employer-based transportation management plans, area wide rideshare programs, work schedule changes, and telecommuting.

b) Transit improvements.

c) Traffic flow improvements.

d) Other new or innovative transportation measures not yet in widespread use that affects state and local governments deemed appropriate.

7) Alternative fuel and diesel retrofit programs for fleet vehicle operations.

8) Controls on consumer products consistent with those adopted elsewhere in the United States.

9) Require VOC or NO_x emission offsets for new and modified major sources.

10) Require VOC or NO_x emission offsets for new and modified minor sources.

11) Increase the ratio of emission offsets required for new sources.

12) Require VOC or NO_x controls on new minor sources (less than 100 tons).

No contingency measure shall be implemented without providing the opportunity for full public participation during which the relative costs and benefits of individual measures, at the time they are under consideration, can be fully evaluated.

9.0 PUBLIC PARTICIPATION

Indiana published notification for a public hearing and solicitation for public comment concerning the draft Redesignation Petition and Maintenance Plan in The Indianapolis Star and the Tribune, Seymour, Indiana on July 15, 2005.

A public hearing to receive comments on the redesignation request was conducted on August 15, 2005 at the City County Chambers, Seymour, Indiana. The public comment period closed on August 19, 2005. No comments were received during the public comment period. Appendix E includes a copy of the public notice, certifications of publication, and the transcript from the public hearing.

10.0 CONCLUSIONS

The Jackson County basic nonattainment area has attained the NAAQS standard and complied with the applicable provisions of the 1990 Amendments to the Clean Air Act regarding redesignation of moderate ozone nonattainment areas. Documentation to that effect is contained herein. IDEM has prepared a State Implementation and Maintenance Plan that meets the requirement of Section 110 (a) (1) of the 1990 Clean Air Act.

Indiana has performed an analysis that shows the air quality improvements are due to permanent and enforceable measures. In addition, significant regional NO_x reductions will ensure continued compliance (maintenance) with the standard and that all CAAA requirements necessary for redesignation have been met.

Based on this presentation, the Jackson County ozone basic nonattainment area meets the requirements for redesignation under the CAA and U.S. EPA guidance. Furthermore, because this area is subject to significant transport of pollutants, significant regional NO_x reductions will ensure continued compliance (maintenance) with the standards with an increasing margin of safety.

The State of Indiana hereby requests that the Jackson County ozone basic nonattainment area be redesignated to attainment simultaneously with U.S. EPA approval of the Indiana State Implementation and Maintenance Plan provisions contained herein.

Appendix A

U.S. EPA Air Quality System (AQS) and Local Monitoring Data

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Appendix B

2002 Baseline Emissions Inventories

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Appendix C

2010 and 2015 Projected Emission Inventories

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Appendix D

Mobile Input and Output and Calculation Files

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Appendix E

Public Participation Process

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