CRITERIA POLLUTANTS

Air Quality Trend Analysis Report
(1980-2010)

SOUTHWEST INDIANA

Indiana Department of Environmental Management

Office of Air Quality

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Table of Contents

Introduction 1

Improvements in Air Quality 6

National Controls.....6

Regional Controls.....8

State Emission Reduction Initiatives 11

Local Controls 11

Southwest Indiana Emission Inventory Data 12

Top Ten Emission Sources 13

Air Quality Trends.....15

Air Monitoring and Emissions Data 15

Carbon Monoxide (CO) 15

Fine Particles ($PM_{2.5}$) 20

Lead... 30

Nitrogen Dioxide (NO_2).....33

Ozone.....39

Particulate Matter (PM_{10}).....48

Sulfur Dioxide (SO_2) 53

Total Suspended Particulate (TSP).....61

Future of Air Quality 64

Conclusions.....64

Figures

Figure 1: Map of Southwest Indiana Counties and Monitors 2

Figure 2: Map of Southwest Indiana Top Ten Sources 14

Tables

Table 1: Southwest Indiana County Population Information 3

Table 2: Southwest Indiana Vehicle Miles Traveled (VMT) Information 4

Table 3: 2009 Southwest Indiana Commuting Patterns 5

Table 4: Southwest Indiana Top Ten Sources Data (Tons per Year) 13

Table 5: Southwest Indiana 1-Hour CO 2nd High Value Monitoring Data Summary 17

Table 6: Southwest Indiana 8-Hour CO 2nd High Value Monitoring Data Summary 18

Table 7: Southwest Indiana Annual Arithmetic Mean $PM_{2.5}$ Monitoring Data Summary 22

Table 8: Southwest Indiana Annual $PM_{2.5}$ Three-Year Design Value Monitoring Data Summary 23

Table 9: Southwest Indiana 24-Hour 98th Percentile Value $PM_{2.5}$ Monitoring Data Summary 24

Table 10: Southwest Indiana 24-Hour $PM_{2.5}$ Three-Year Design Value Monitoring Data Summary 25

Table 11: Southwest Indiana Lead Quarterly Average Monitoring Data Summary 31

Table 12: Southwest Indiana Lead Three-Month Rolling Average Monitoring Data Summary 32

Table 13: Southwest Indiana Annual Arithmetic Mean NO_2 Values Monitoring Data Summary 35

Table 14: Southwest Indiana 1-Hour NO_2 98th Percentile Values Monitoring Data Summary 36

Table 15: Southwest Indiana 1-Hour Three-Year Design Value NO_2 Monitoring Data Summary 37

Table 16: Southwest Indiana 1-Hour Ozone Annual 4^{th} High Value Monitoring Data Summary 40

Table 17: Southwest Indiana 1-Hour Ozone 4^{th} High Value in Three-Year Period Monitoring Data Summary 42

Table 18: Southwest Indiana 8-Hour Ozone 4^{th} High Values Monitoring Data Summary.....43

Table 19: Southwest Indiana 8-Hour Ozone Three-Year Design Value Monitoring Data Summary.....44

Table 20: Southwest Indiana Annual Arithmetic Mean PM_{10} Values Monitoring Data Summary 50

Table 21: Southwest Indiana 24-Hour PM_{10} 2^{nd} High Values Monitoring Data Summary.....51

Table 22: Southwest Indiana Annual Arithmetic Mean SO_2 Values Monitoring Data Summary 55

Table 23: Southwest Indiana 24-Hour SO_2 2^{nd} High Values Monitoring Data Summary.....56

Table 24: Southwest Indiana 1-Hour 99^{th} Percentile SO_2 Monitoring Data Summary.....57

Table 25: Southwest Indiana 1-Hour SO_2 Three-Year Design Values Monitoring Data Summary.....58

Table 26: Southwest Indiana Annual Geometric Mean TSP Values 62

Table 27: Southwest Indiana 24-Hour TSP 2^{nd} High Values 63

Graphs

Graph 1: Southwest Indiana 1-Hour CO 2nd High Values....16

Graph 2: Southwest Indiana 8-Hour CO 2nd High Values....17

Graph 3: Southwest Indiana CO Emissions....18

Graph 4: Southwest Indiana Annual Arithmetic Mean $PM_{2.5}$ Values....22

Graph 5: Southwest Indiana Annual $PM_{2.5}$ Three-Year Design Values....23

Graph 6: Southwest Indiana 24-Hour $PM_{2.5}$ 98th Percentile Values....24

Graph 7: Southwest Indiana 24-Hour $PM_{2.5}$ Three-Year Design Values....25

Graph 8: Southwest Indiana $PM_{2.5}$ Emissions....27

Graph 9: Southwest Indiana SO_2 Emissions....28

Graph 10: Southwest Indiana NO_x Emissions....29

Graph 11: Southwest Indiana Lead Highest Annual Quarterly Values....31

Graph 12: Southwest Three-Month Rolling Average Values....32

Graph 13: Southwest Indiana Annual Arithmetic Mean NO_2 Values....35

Graph 14: Southwest Indiana 1-Hour NO_2 98th Percentile Values....36

Graph 15: Southwest Indiana 1-Hour NO_2 Three-Year Design Values....37

Graph 16: Southwest Indiana NO_x Emissions....38

Graph 17: Southwest Indiana 1-Hour Ozone 4th Highest Value in Three-Year Period…….....42

Graph 18: Southwest Indiana 8-Hour Ozone 4th High Values....43

Graph 19: Southwest Indiana 8-Hour Ozone Three-Year Design Values....44

Graph 20: Southwest Indiana NO_x Emissions....46

Graph 21: Southwest Indiana VOC Emissions....47

Graph 22: Southwest Indiana Annual Arithmetic Mean PM_{10} Values 49

Graph 23: Southwest Indiana 24-Hour 2nd High PM_{10} Values 50

Graph 24: Southwest Indiana PM_{10} Emissions.....52

Graph 25: Southwest Indiana Annual Arithmetic Mean SO_2 Values.....54

Graph 26: Southwest Indiana 24-Hour SO_2 2nd High Values.....55

Graph 27: Southwest Indiana 1-Hour SO_2 99th Percentile Values.....57

Graph 28: Southwest Indiana 1-Hour SO_2 Three-Year Design Values 58

Graph 29: Southwest Indiana SO_2 Emissions 59

Graph 30: Southwest Indiana Annual Geometric Mean TSP Values 62

Graph 31: Southwest Indiana 24-Hour 2nd High TSP Values 63

Charts

Chart 1: Southwest Indiana CO Emissions 19

Chart 2: Southwest Indiana $PM_{2.5}$ Emissions 27

Chart 3: Southwest Indiana SO_2 Emissions 28

Chart 4: Southwest Indiana NO_x Emissions 29

Chart 5: Southwest Indiana NO_x Emissions 38

Chart 6: Southwest Indiana NO_x Emissions 46

Chart 7: Southwest Indiana VOC Emissions 47

Chart 8: Southwest Indiana PM_{10} Emissions.....52

Chart 9: Southwest Indiana SO_2 Emissions 60

Appendix

Southwest Indiana County-Specific Emissions Inventory Data (1980-2009)…….A1- A11

Acronyms/Abbreviation List

CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CO	carbon monoxide
CSAPR	Cross-State Air Pollution Rule
D.C.	District of Columbia
EGUs	electric generating units
FR	Federal Register
I	interstate
IAC	Indiana Administrative Code
IDEM	Indiana Department of Environmental Management
MWe	megawatt electrical
NAAQS	National Ambient Air Quality Standard
NEI	National Emissions Inventory
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSR	New Source Review
$PM_{2.5}$	particulate matter less than or equal to 2.5 µg/m^3 or fine particles
PM_{10}	particulate matter less than or equal to 10 µg/m^3 or particulate matter
ppb	parts per billion
ppm	parts per million
RACT	Reasonably Available Control Technology

SIP	State Implementation Plan
SO_2	sulfur dioxide
SUVs	sport utility vehicles
TSP	total suspended particulate
U.S. EPA	United States Environmental Protection Agency
$\mu g/m^3$	micrograms per cubic meter
VOC	volatile organic compound
VMT	vehicle miles traveled

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Introduction

The Southwest Indiana area is composed of eleven counties. The counties represented in the area shown in Figure 1 are: Daviess, Dubois, Gibson, Knox, Martin, Perry, Pike, Posey, Spencer, Vanderburgh, and Warrick. Two major interstates pass through the Southwest Indiana area, Interstate (I)-64 through Perry, Posey, Spencer, Vanderburgh, and Warrick counties. Interstate (I)-164, in Vanderburgh County, is only 21 miles in length and wraps around the east side of the City of Evansville.

There are currently 19 criteria pollutant monitoring sites in Southwest Indiana collecting data for carbon monoxide (CO), fine particles ($PM_{2.5}$), nitrogen dioxide (NO_2), ozone, particulate matter (PM_{10}), and sulfur dioxide (SO_2). The map in Figure 1 reflects only the monitors that are currently in operation. Monitoring data for the years 2000 through 2010 for Southwest Indiana are included in the tables for each regulated criteria pollutant, if available. Monitoring data prior to the year 2000 are available upon request. Trend graphs of historical data for the years 1980 through 2010 are also provided.

The largest emission sources within the Southwest Indiana area include Indiana Michigan Power - Rockport and Indianapolis Power Light - Petersburg Generating Station. Emission trend graphs and pie charts are included for the precursors for each regulated criteria pollutant. Emission information by county is available upon request.

Figure 1: Map of Southwest Indiana Counties and Monitors

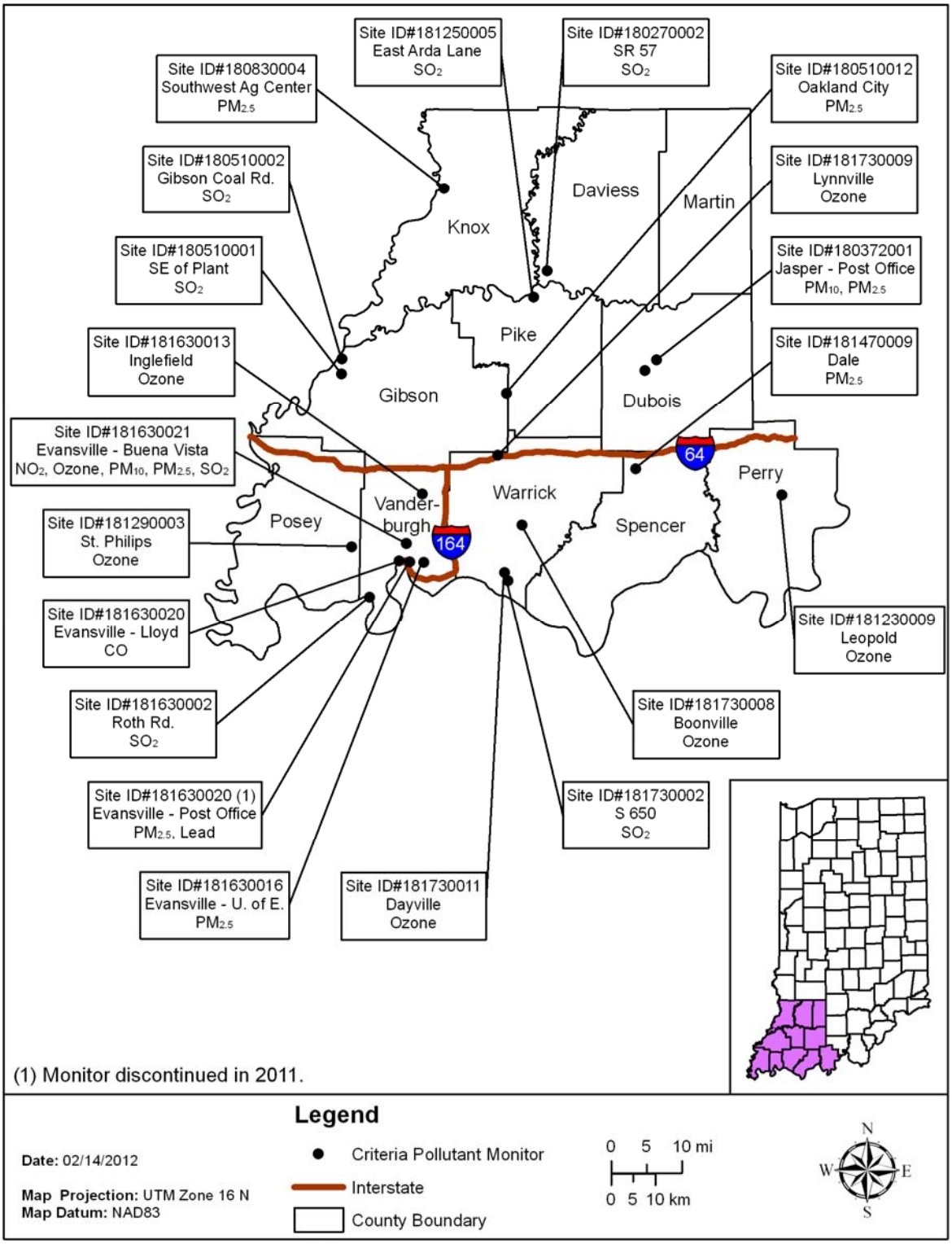


Table 1: Southwest Indiana County Population Information

COUNTY	COUNTY SEAT	LARGEST CITY	2010 NUMBER OF HOUSE-HOLDS	1980 POPU-LATION	1990 POPU-LATION	2000 POPU-LATION	2010 POPU-LATION	POPULATION PERCENT DIFFERENCE BETWEEN 1980 AND 2010
DAVIESS	WASHINGTON	WASHINGTON	12,471	27,836	27,533	29,820	31,648	14%
DUBOIS	JASPER	JASPER	17,384	34,238	36,616	39,674	41,889	22%
GIBSON	PRINCETON	PRINCETON	14,645	33,156	31,913	32,500	33,503	1%
KNOX	VINCENNESS	VINCENNESS	17,038	41,838	39,884	39,256	38,440	-8%
MARTIN	SHOALS	LOOGOOTEE	4,786	11,001	10,369	10,369	10,334	-6%
PERRY	TELL CITY	TELL CITY	8,495	19,346	19,107	18,899	19,338	0%
PIKE	PETERSBURG	PETERSBURG	5,735	13,465	12,509	12,837	12,845	-5%
POSEY	MOUNT VERNON	MOUNT VERNON	11,207	26,414	25,968	27,061	25,910	-2%
SPENCER	ROCKPORT	SANTA CLAUS	8,872	19,361	19,490	20,391	20,952	8%
VANDERBURGH	EVANSVILLE	EVANSVILLE	83,003	167,515	165,058	171,922	179,703	7%
WARRICK	BOONVILLE	BOONVILLE	24,203	41,474	44,920	52,383	59,689	44%

Table 1 shows that Warrick County has had the highest percent growth in population between 1980 and 2010, increasing by 44%. Not all counties had increases in population between 1980 and 2010. An increase or decrease in population within the counties in the Southwest Indiana area can largely be attributed to changes in the job market and the location of jobs in the Southwest Indiana area. Changes in population size, age, and distribution affect environmental issues ranging from basic needs such as food and water to atmospheric changes such as an increase in emissions from vehicle miles traveled (VMT), area sources, and the demand for electricity. Generally, increases or decreases in population will result in higher or lower area source and mobile emissions. Examples of area sources that increase with higher populations include household paints, lawnmowers, and consumer solvents. In addition, higher or lower population figures indicate a secondary effect on increasing or decreasing VMT if the change in population occurs away from the employment centers.

Table 2: Southwest Indiana Vehicle Miles Traveled (VMT) Information

COUNTY	2010 NUMBER OF ROADWAY MILES	2009 NUMBER OF REGISTERED VEHICLES	Back Casted 1980 DAILY VMT	2010 DAILY VMT	PERCENT DIFFERENCE BEWTEEN 1992 AND 2010 DAILY VMT
DAVIESS	999	31,873	688,406	838,000	22%
DUBOIS	962	51,170	902,077	1,204,000	33%
GIBSON	1,245	38,085	1,028,300	1,406,000	37%
KNOX	1,209	40,637	1,315,137	1,265,000	-4%
MARTIN	480	12,590	421,209	365,000	-13%
PERRY	695	21,525	644,799	692,000	7%
PIKE	691	16,250	446,435	503,000	13%
POSEY	886	32,784	871,283	943,000	8%
SPENCER	2,066	26,166	725,381	889,000	23%
VANDERBURGH	1,232	167,853	1,695,209	3,976,000	135%
WARRICK	987	64,118	903,119	1,588,000	76%

Table 2 illustrates that Vanderburgh and Warrick counties had the highest increase in daily VMT since 1980. The daily VMT for 9 of the 11 counties in the Southwest Indiana area have increased over time. Daily VMT data are only available as far back as 1992, prior to that year data were not collected in a comparable manner. However, the annual change between 1992 and 2010 was applied for the years 1980 to 1992 to approximate the VMT for 1980. The United States Environmental Protection Agency (U.S. EPA) estimates that motor vehicle exhaust is a major source of emissions of CO, $PM_{2.5}$, and ozone precursors (volatile organic compounds (VOCs) and nitrogen oxides (NO_x)). Generally, increases in VMT result in subsequent increases in emissions of CO, VOCs, and NO_x from mobile sources. These increases in VMT also result in increased evaporative emissions from more gasoline and diesel consumption. Each of these factors may be somewhat offset by fleet turn-over where newer, cleaner vehicles replace older, more polluting ones.

Table 3: 2009 Southwest Indiana Commuting Patterns

COUNTY	NUMBER WHO LIVE AND WORK IN THE COUNTY	NUMBER WHO LIVE IN COUNTY BUT WORK OUTSIDE THE COUNTY	NUMBER OF PEOPLE WHO LIVE IN ANOTHER COUNTY OR STATE BUT WORK IN COUNTY	TOP COUNTY OR STATE SENDING WORKERS INTO COUNTY	NUMBER OF PEOPLE FROM TOP COUNTY OR STATE SENDING WORKERS INTO COUNTY	TOP COUNTY OR STATE RECEIVING WORKERS FROM COUNTY	NUMBER OF PEOPLE FROM TOP COUNTY OR STATE RECEIVING WORKERS FROM COUNTY
DAVIESS	16,822	2,465	1,788	KNOX	402	MARTIN	644
DUBOIS	28,591	1,924	6,815	SPENCER	1,549	SPENCER	461
GIBSON	18,098	4,339	6,106	VANDERBURGH	1,673	VANDERBURGH	2,876
KNOX	21,464	2,241	3,562	ILLINOIS	1,436	GIBSON	416
MARTIN	5,161	1,705	3,512	LAWRENCE	806	DUBOIS	629
PERRY	9,497	2,816	1,340	SPENCER	544	DUBOIS	935
PIKE	5,625	3,088	1,062	GIBSON	193	DUBOIS	1,378
POSEY	11,728	6,166	2,415	VANDERBURGH	1,106	VANDERBURGH	5,316
SPENCER	9,510	4,781	2,106	PERRY	576	DUBOIS	1,549
VANDERBURGH	105,670	7,210	28,313	WARRICK	14,601	GIBSON	2,030
WARRICK	22,872	17,483	3,774	VANDERBURGH	2,030	VANDERBURGH	14,601

Information in Table 3 from 2009 demonstrates that the largest workforce in Southwest Indiana is found in Vanderburgh County. Commuting patterns in Southwest Indiana center on the City of Evansville in Vanderburgh County. Since Vanderburgh County has the highest population and the highest commuting pattern to and from the county, emissions within Vanderburgh County are expected to be higher than surrounding counties in the Southwest Indiana area. The Southwest Indiana area commuting patterns reflect that of many urban areas around the country. The largest employment county is Vanderburgh County and many of those workers commute from the outlying counties. This type of commuting pattern results in longer trips from the place of residence to the employer. Longer commutes result in increased emissions.

Improvements in Air Quality

Indiana's air quality has improved significantly over the last 30 years. The majority of air quality improvements in Southwest Indiana have stemmed from the national, regional, and local controls outlined below. These programs have been or are being implemented and have reduced monitored ambient air quality values in Southwest Indiana and across the state.

National Controls

Acid Rain Program

Congress created the Acid Rain Program under Title IV of the 1990 Clean Air Act (CAA). The overall goal of the program is to achieve significant environmental and public health benefits through reduction in emissions of SO_2 and NO_x, the primary causes of acid rain. To achieve this goal at the lowest cost to the public, this program employs both traditional and innovative, market-based approaches to controlling air pollution. Specifically, the program seeks to limit, or "cap," SO_2 emissions from power plants at 8.95 million tons annually starting in 2010, authorizes those plants to trade SO_2 allowances, and while not establishing a NO_x trading program, reduces NO_x emission rates. In addition, the program encourages energy efficiency and pollution prevention.

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 duty trucks, including sport utility vehicles (SUVs). This rule requires automakers to produce cleaner cars, and refineries to make cleaner, lower sulfur gasoline. This rule was phased in between 2004 and 2009 and resulted in a 77% decrease in NO_x emissions from passenger cars, an 86% decrease from smaller SUVs, light duty trucks, and minivans, and a 65% decrease from larger SUVs, vans, and heavier duty trucks. This rule also resulted in a 12% decrease in VOC emissions from passenger cars, an 18% decrease from smaller SUVs, light duty trucks, and minivans, and a 15% decrease from larger SUVs, vans, and heavier duty trucks.

Heavy-Duty Diesel Engines

In July 2000, U.S. EPA issued a final rule for Highway Heavy-Duty Engines, a program that includes low-sulfur diesel fuel standards. This rule applies to heavy-duty gasoline and diesel trucks and buses. This rule was phased in from 2004 through 2007 and resulted in a 40% decrease in NO_x emissions from diesel trucks and buses.

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 engine standards for nonroad engines took effect in 2008 and resulted in a 90% decrease in SO_2 emissions from nonroad diesel engines. Sulfur levels were also reduced in nonroad diesel fuel by 99.5% from approximately 3,000 parts per million (ppm) to 15 ppm.

Nonroad Spark-Ignition Engines and Recreational Engine Standards

This standard, effective in July 2003, regulates NO_x, VOCs, and CO for groups of previously unregulated nonroad engines. This standard applies to all new engines sold in the United States and imported after the standards went into effect. The standard applies to large spark-ignition engines (forklifts and airport ground service equipment), recreational vehicles (off-highway motorcycles and all terrain vehicles), and recreational marine diesel engines. When all of the nonroad spark-ignition engines and recreational engine standards are fully implemented, an overall 72% reduction in VOC, 80% reduction in NO_x, and 56% reduction in CO emissions are expected by 2020.

Regional Controls

Nitrogen Oxides (NO_x) Rule

On October 27, 1998, U.S. EPA published the NO_x State Implementation Plan (SIP) Call in the Federal Register (FR), which required 22 states to adopt rules that would result in significant emission reductions from large electric generating units (EGUs)[1], industrial boilers, and cement kilns in the eastern United States (63 FR 57356). The Indiana rule was adopted in 2001 at 326 Indiana Administrative Code (IAC) 10-1. Beginning in 2004, this rule accounted for a reduction of approximately 31% of all NO_x emissions statewide compared to previous uncontrolled years.

Twenty-one other states also adopted this rule. The result is that significant reductions have occurred within Indiana and regionally due to the number of affected units within the region. The historical trend charts show that air quality has improved due to the decreased emissions resulting from this program.

On April 21, 2004, U.S. EPA published Phase II of the NO_x SIP Call that established a budget for large (emissions of greater than one ton per day) stationary internal combustion engines (69 FR 21604). In Indiana, the rule decreased NO_x emissions statewide from natural gas compressor stations by 4,263 tons during May through September. The Indiana Phase II NO_x SIP Call rule became effective in 2006 and implementation began in 2007 (326 IAC 10-4).

Clean Air Interstate Rule (CAIR)

On May 12, 2005, the U.S. EPA published the following regulation: "Rule to Reduce Interstate Transport of Fine Particulate Matter and Ozone (CAIR); Revisions to Acid Rain Program; Revisions to the NO_x SIP Call; Final Rule" (70 FR 25162). This rule established the requirement for states to adopt rules limiting the emissions of NO_x and SO_2 and provided a model rule for the states to use in developing their rules in order to meet federal requirements. The purpose of CAIR was to reduce interstate transport of $PM_{2.5}$, SO_2, and ozone precursors (NO_x).

Generally, CAIR applied to any stationary, fossil fuel-fired boiler or stationary, fossil fuel-fired combustion turbine, or a generator with a nameplate capacity of more than 25 megawatt electrical (MWe) for sale. This rule provided annual state caps for NO_x and SO_2 in two phases, with Phase I caps for NO_x and SO_2 starting in 2009 and 2010,

[1] An EGU is a fossil fuel fired stationary boiler, combustion turbine, or combined cycle system that sells any amount of electricity produced.

respectively. Phase II caps were to become effective in 2015. U.S. EPA allowed limits to be met through a cap and trade program if a state chose to participate in the program.

In response to U.S. EPA's rulemaking, Indiana adopted a state rule in 2006 based on the model federal rule (326 IAC 24-1). IDEM's rule includes annual and seasonal NO_x trading programs and an annual SO_2 trading program. This rule required compliance effective January 1, 2009.

SO_2 emissions from power plants in the 28 eastern states and the District of Columbia (D.C.) covered by CAIR were to be cut by 4.3 million tons from 2003 levels by 2010 and by 5.4 million tons from 2003 levels by 2015. NO_x emissions were to be cut by 1.7 million tons by 2009 and reduced by an additional 1.3 million tons by 2015. The D.C. Circuit court's vacatur of CAIR in July 2008, and subsequent remand without vacatur of CAIR in December 2008, directed U.S. EPA to revise or replace CAIR in order to address the deficiencies identified outlined by the court. As of May 2012, CAIR remains in effect.

Cross-State Air Pollution Rule (CSAPR)

On August 8, 2011, U.S. EPA published a rule that helps states reduce air pollution and meet CAA standards. The Cross-State Air Pollution Rule (CSAPR) replaces U.S. EPA's 2005 CAIR, and responds to the court's concerns (76 FR 48208).

CSAPR requires 27 states in the eastern half of the United States to significantly reduce power plant emissions that cross state lines and contribute to ground-level ozone and fine particle pollution in other states.

On December 30, 2011, the U.S. Court of Appeals for the D.C. Circuit stayed CSAPR prior to implementation pending resolution of a challenge to the rule. The court ordered U.S. EPA to continue the administration of CAIR pending resolution of the current appeal. This required U.S. EPA to reinstate 2012 CAIR allowances which had been removed from the allowance tracking system as part of the transition to CSPAR. The federal rule is on hold pending resolution of the litigation.

Reasonably Available Control Technology (RACT) and other State VOC Rules

As required by Section 172 of the CAA, Indiana has promulgated several rules requiring Reasonably Available Control Technology (RACT) for emissions of VOCs since the mid 1990's. In addition, other statewide rules for controlling VOCs have also been promulgated. The Indiana rules are found in 326 IAC 8. The following is a listing of statewide rules that assist with the reduction of VOCs in Southwest Indiana:

326 IAC 8-1-6	Best Available Control Technology (BACT) for Non- Specific Sources
326 IAC 8-2	Surface Coating Emission Limitations
326 IAC 8-3	Organic Solvent Degreasing Operations
326 IAC 8-4	Petroleum Sources
326 IAC 8-5	Miscellaneous Operation
326 IAC 8-6	Organic Solvent Emission Limitations
326 IAC 8-8.1	Municipal Solid Waste Landfills
326 IAC 8-10	Automobile Refinishing
326 IAC 8-14	Architectural and Industrial Maintenance Coatings
326 IAC 8-15	Standards for Consumer and Commercial Products

New Source Review (NSR) Provisions

Indiana has a longstanding and fully implemented NSR program. This is addressed in 326 IAC 2. The rule includes provisions for the Prevention of Significant Deterioration permitting program in 326 IAC 2-2, and emission offset requirements for nonattainment areas in 326 IAC 2-3 for new and modified sources.

State Emission Reduction Initiatives

Outdoor Hydronic Heater Rule

Rule 326 IAC 4-3, effective May 18, 2011, regulates the use of outdoor hydronic heaters (also referred to as outdoor wood boilers or outdoor wood furnaces) designed to burn wood or other approved renewable solid fuels and establishes a particulate emission limit for new units. The rule also includes a fuel use restriction, stack height requirements, and a limited summertime operating ban for existing units.

Reinforced Plastic Composites Fabricating and Boat Manufacturing Industries Rule

Rules 326 IAC 20-48, effective August 23, 2004 and 326 IAC 20-56, effective April 1, 2006, regulate styrene emissions from the boat manufacturing and fiberglass reinforced plastic industries. The state rules implement the federal NESHAP for each of these source categories with additional requirements that were carried over from the Indiana state styrene rule (326 IAC 20-25) adopted in 2000 and now repealed.

Local Controls

Local control measures that have helped reduce motor vehicle emission and other types of emission values in the Southwest Indiana area are outlined below and include:

The Evansville Environmental Protection Agency (Evansville EPA) has worked with the community to identify and implement a number of locally enforceable control measures via ordinance. These ordinances address the following subjects:

County	City	Subject
Chapter 8.12	Section 3.30.214	Burning Regulations
Chapter 19.08	Section 3.30.248	Gasoline Dispensing Regulations
Chapter 19.12	Section 3.30.249	Automobile Refinishing
Chapter 19.16	Section 3.30.250	Pollution Prevention and Education Program

Southwest Indiana Emission Inventory Data

Emission trend graphs and pie charts for each criteria pollutant are included in this report. Emission trend graphs and pie charts for any precursors that lead to the formation of a criteria pollutant are also included. Indiana's emission inventory data are available for 1980 through 2009 for CO, $PM_{2.5}$, NO_2, PM_{10}, SO_2, and VOC. These emission estimates are reflective of U.S. EPA methodologies found in the National Emissions Inventory (NEI) Air Pollutant Emissions Trends Data. Some of the fluctuations found in the trends inventory are due to U.S. EPA not incorporating state reported data until after the submission of the 1996 Periodic Emission Inventory[1]. Further, U.S. EPA acknowledges that changes over time may be attributable to changes in how inventories were compiled[2].

The emissions have been broken down into contributions from the following individual source categories: point sources (including electric generating units (EGUs)), area sources, onroad sources, and nonroad sources. There are twelve EGU facilities in the Southwest Indiana area, eight of which are top ten emitters in the area. Emissions data for each county in Southwest Indiana are available upon request.

Point Sources

Point sources include major and minor sources, including EGUs that report emissions through Indiana's emission reporting program. Examples include steel mills, manufacturing plants, surface coating operations, and industrial and commercial boilers.

Area Sources

Area sources are a collection of similar emission units within a geographic area that collectively represent individual sources that are small and numerous and have not been inventoried as a specific point, mobile, or biogenic source. Some of these sources include activities, such as dry cleaning, vehicle refueling, and solvent usage.

[11] http://www.epa.gov/ttn/chief/trends/trends98/trends98.pdf
[2] http://www.epa.gov/air/airtrends/2007/report/particlepollution.pdf

Onroad Sources

Onroad sources include cars and light and heavy duty trucks.

Nonroad Sources

Nonroad sources typically include construction equipment, recreational boating, outdoor power equipment, recreational vehicles, farm machinery, lawn care equipment, and logging equipment.

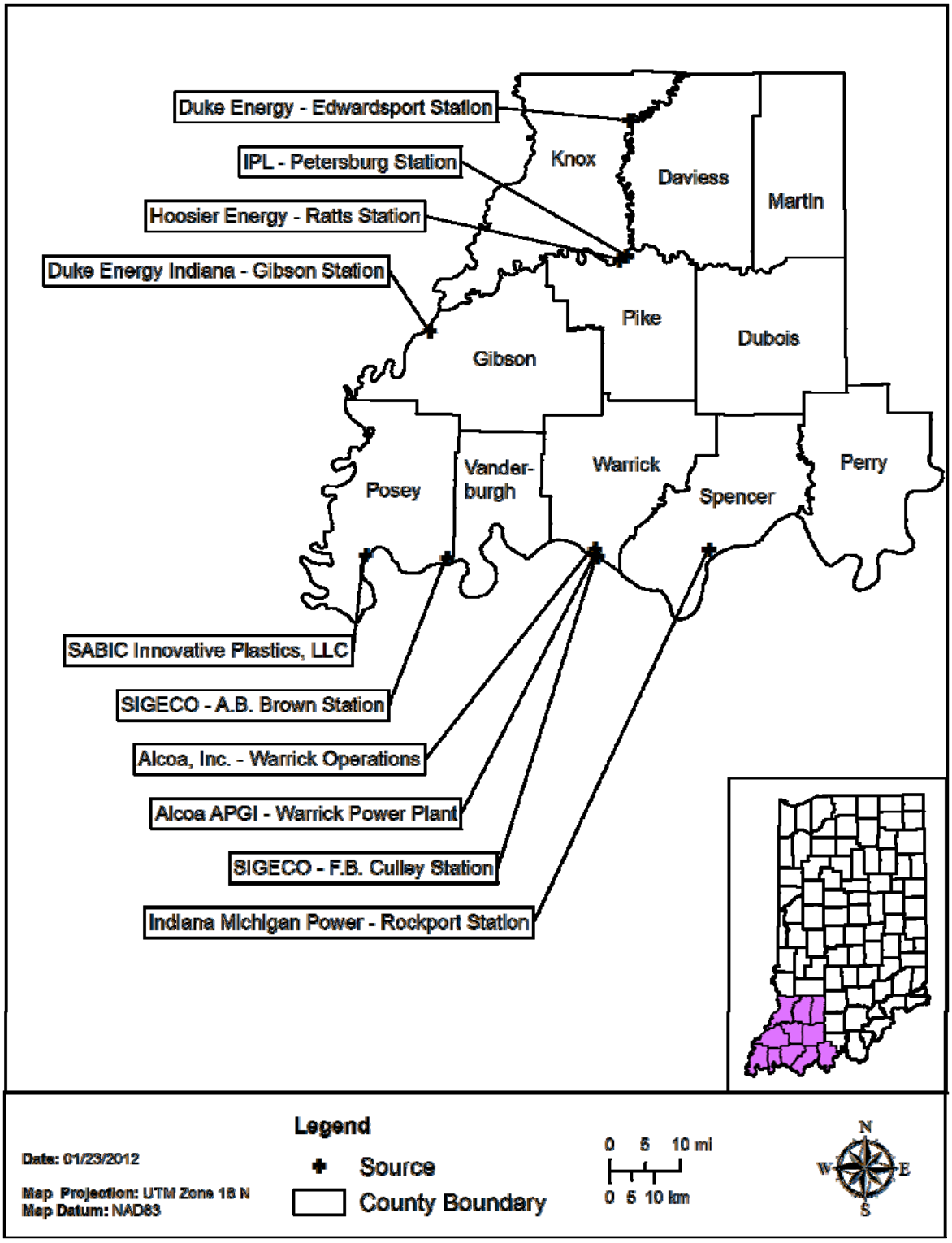
Top Ten Emission Sources

Table 4 represents the top ten sources in tons per year of emissions for the Southwest Indiana area. The top 3 sources on this list that have a large impact on emissions in the Southwest Indiana area are EGUs, but with the regional controls explained previously, the emissions from the EGUs have been reduced over time and will continue to be reduced. Other large facilities in the Southwest Indiana area include an aluminum smelting and manufacturing facility, plastics manufacturing facility, and an iron foundry. Air quality in the Southwest Indiana area is partially influenced by the emissions from these top ten point sources, but as new control measures are adopted, these emissions will continue to decrease. Figure 2 shows the location of these sources within the Southwest Indiana area.

Table 4: Southwest Indiana Top Ten Sources Data (Tons per Year)

INVENTORY YEAR	COUNTY	FACILITY NAME	CO	NO_x	PM_{10}	$PM_{2.5}$	SO_2	VOC	TOTAL
2010	SPENCER	INDIANA MICHIGAN POWER-ROCKPORT	2,394.9	27,468.9	303.2	122.0	45,693.0	287.0	76,269.0
2010	PIKE	IPL PETERSBURG GENERATING STATION	1,395.2	11,206.8	688.8	185.4	29,845.6	167.2	43,489.0
2010	GIBSON	DUKE ENERGY INDIANA - GIBSON	2,323.9	12,018.5	796.2	214.7	21,874.0	278.6	37,505.9
2010	WARRICK	ALCOA INC. - WARRICK OPERATIONS	23,251.5	208.5	679.5	663.9	3,899.3	932.8	29,635.4
2010	PIKE	HOOSIER ENERGY - RATTS	163.3	1,860.1	147.4	36.4	21,308.0	19.6	23,534.6
2010	WARRICK	ALCOA APGI - WARRICK POWER PLANT	632.8	9,395.4	1,312.0	1,078.1	4,365.2	57.2	16,840.7
2010	POSEY	SABIC INNOVATIVE PLASTICS	470.8	1,990.2	122.6	97.8	5,516.0	346.7	8,543.9
2010	POSEY	SIGECO - A. B. BROWN	265.3	1,612.6	162.5	42.4	5,291.7	31.7	7,406.3
2010	WARRICK	SIGECO - F.B.CULLEY	233.9	2,390.6	154.6	43.5	3,776.1	28.2	6,626.9
2010	KNOX	DUKE ENERGY INDIANA - EDWARDSPORT	20.9	571.9	22.0	8.8	3,516.5	2.5	4,142.7

Figure 2: Map of Southwest Indiana Top Ten Sources



Air Quality Trends

An area meets the standard when the monitoring values for a regulated criteria pollutant meet the applicable National Ambient Air Quality Standards (NAAQS). All counties in the Southwest Indiana area meet the historic NAAQS. New 1-hour NAAQS were introduced in 2010 for NO_2 and SO_2. The 1-hour NO_2 monitoring data in Southwest Indiana, as well as elsewhere in the state, are well below the new 1-hour NO_2 NAAQS. There are three counties with monitor violations of the new 1-hour SO_2 NAAQS in Southwest Indiana at the close of 2010. States are required to develop SIPs to show attainment of the 1-hour SO_2 NAAQS by 2017.

Air Monitoring and Emissions Data

All counties in the Southwest Indiana area have an ambient air quality monitor located within the county boundaries except Martin County. Monitoring data for the years 2000 through 2010 for Southwest Indiana are included in the tables in this report for each criteria pollutant, if available. Monitoring data prior to the year 2000 are available upon request. A historical trend graph of all available data for the years 1980 through 2010 is also provided. The data were obtained from the U.S. EPA's Air Quality System.

Emission trend graphs and pie charts for the criteria pollutants and precursors that lead to the formation of a criteria pollutant are outlined in this report. Indiana's emission inventory data are available for 1980 through 2009 for CO, $PM_{2.5}$, NO_x, PM_{10}, SO_2, and VOC. The data were obtained from the U.S. EPA's National Emissions Inventory (NEI). An appendix is attached that includes county-specific emissions data for each county from 1980 through 2009.

Carbon Monoxide (CO)

There is one monitoring site within Southwest Indiana, located in Vanderburgh County that measures CO levels. The trend data shown in Graphs 1 and 2 reflect the 2nd highest concentration for 1-hour and 8-hour CO. The 2nd high values are not the highest monitored concentration at a given monitoring location, rather the 2nd highest measured value. These values (2nd highs) are used to determine attainment of the

primary 1-hour CO standard at 35 ppm and the primary 8-hour CO standard at 9 ppm. The primary 1-hour and primary 8-hour CO standards were first established in April 1971. There are no secondary standards for 1-hour or 8-hour CO. While there are occasional spikes in the monitoring values for both 1-hour and 8-hour CO concentrations, a downward trend over time can be seen in Graphs 1 and 2. Monitoring values have historically been below both the 1-hour and the 8-hour primary CO standards. CO monitoring data fluctuated between the years of 1986 and 2005 due to variability in the motor vehicle fleet. CO correlates closely with vehicle traffic and emissions from motor vehicles, which can lead to variability in the data.

The data shown in Tables 5 and 6 reflect the 2nd highest concentration values for 1-hour and 8-hour CO from 2000 to 2010. Historical data prior to the year 2000 are available upon request for both 1-hour and 8-hour CO. Monitoring data in Table 5 are compared to the primary 1-hour CO standard of 35 ppm. Attainment is determined by evaluating the 2nd highest 1-hour high concentration. Monitoring data in Table 6 are compared to the primary 8-hour CO standard of 9 ppm. Attainment is determined by evaluating the 2nd highest 8-hour concentration. There are no monitor violations in the Southwest Indiana area for the 1-hour or 8-hour CO reflected.

Graph 1: Southwest Indiana 1-Hour CO 2nd High Values

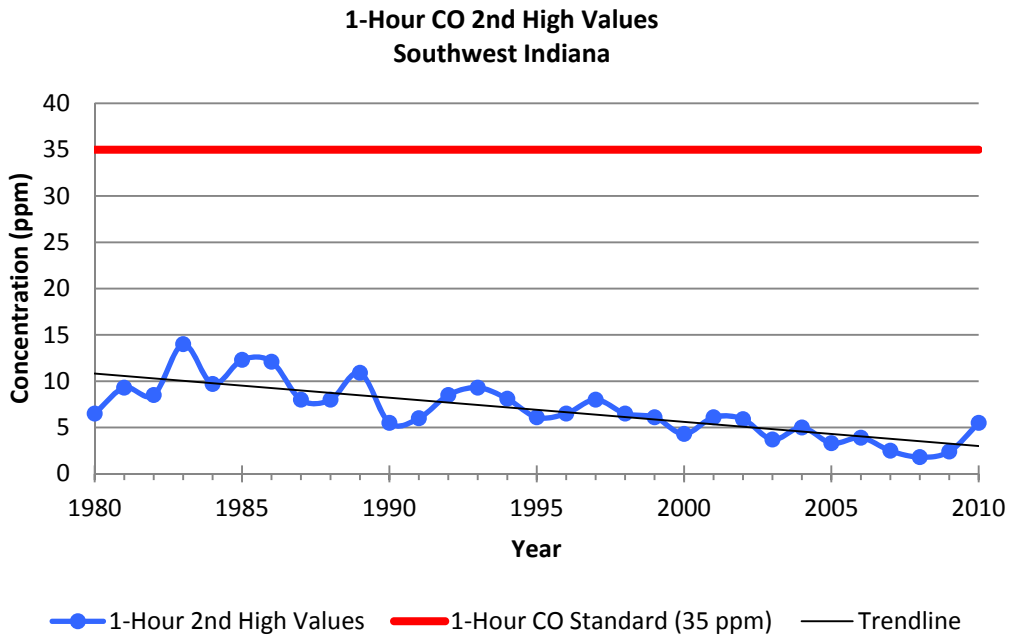


Table 5: Southwest Indiana 1-Hour CO 2nd High Value Monitoring Data Summary

County	Site #	Site Name	1-Hour 2nd High Value (ppm)										
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Vanderburgh	181630015	Evansville-Water Pumping Station	4.3	6.1	5.9	3.7							
Vanderburgh	181630019	Evansville-3013 N 1st Ave				3.5	5.0	3.3	3.9	2.5	1.8	2.4	
Vanderburgh	181630022	Evansville-10 S 11st St										2.4	5.5
			Highlighted red numbers are above the 1-hour CO standard of 35 ppm										

Graph 2: Southwest Indiana 8-Hour CO 2nd High Values

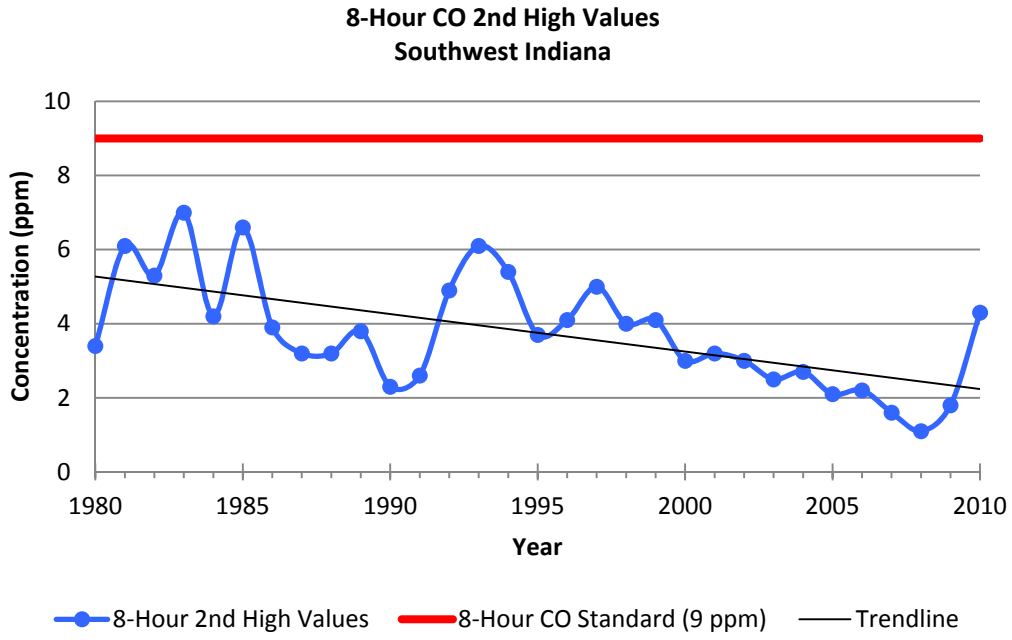


Table 6: Southwest Indiana 8-Hour CO 2nd High Value Monitoring Data Summary

County	Site #	Site Name	8-Hour 2nd High Value (ppm)										
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Vanderburgh	181630015	Evansville-Water Pumping Station	3.0	3.2	3.0	2.5							
Vanderburgh	181630019	Evansville-3013 N 1st Ave				1.9	2.7	2.1	2.2	1.6	1.1	1.7	
Vanderburgh	181630022	Evansville-10 S 11st St										1.8	4.3
			Highlighted red numbers are above the 8-hour CO standard of 9 ppm										

U.S. EPA's NEI contains emissions information for CO which is used for Graph 3 and Chart 1. Graph 3 illustrates the emissions trend for CO in Southwest Indiana and Chart 1 shows how the average emissions are distributed among the different source categories.

Graph 3: Southwest Indiana CO Emissions

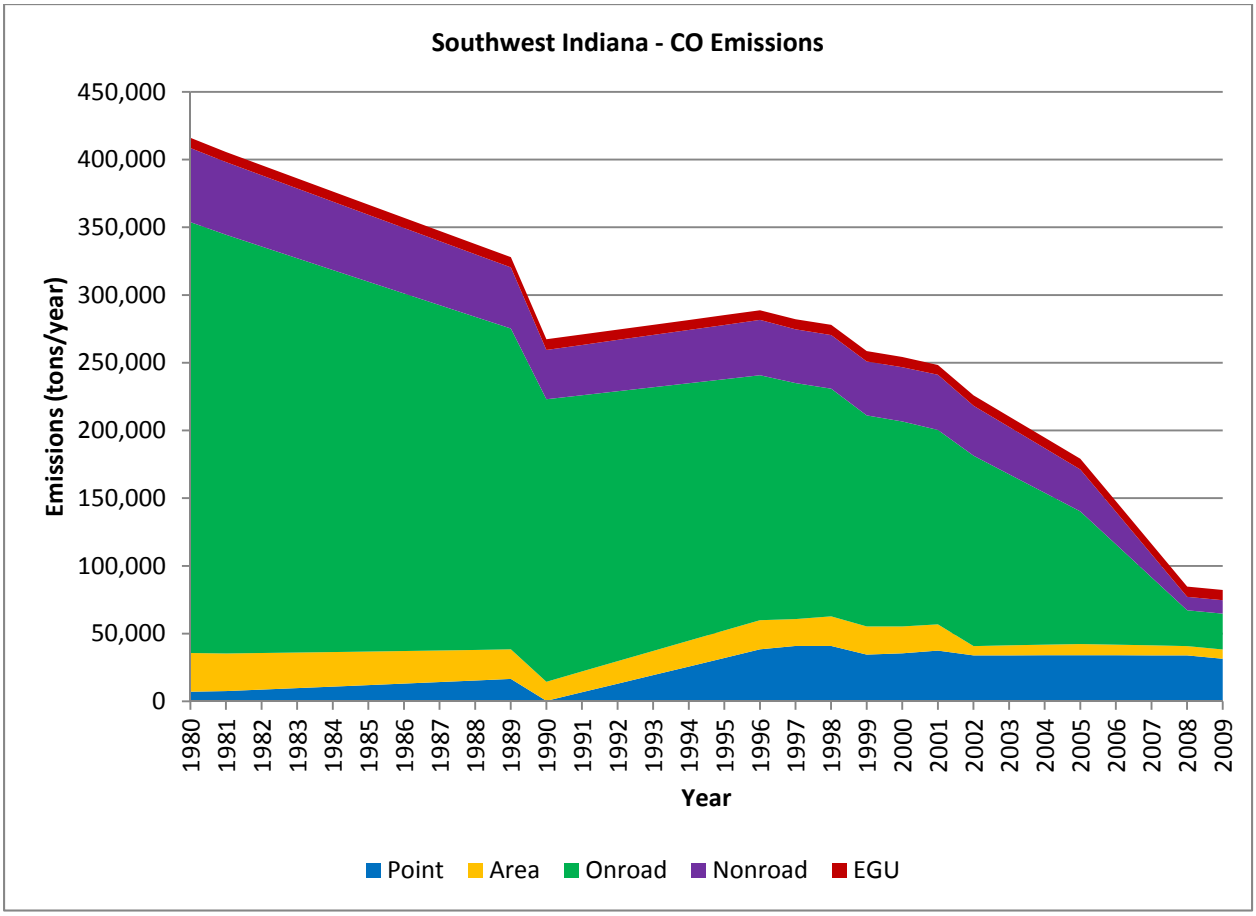
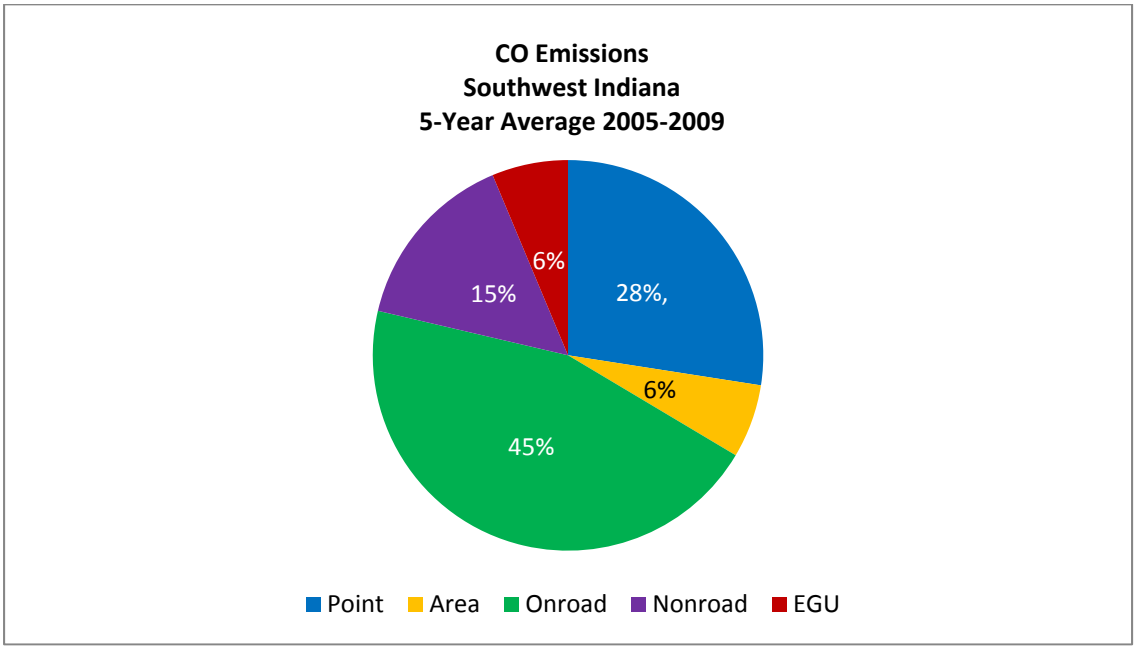


Chart 1: Southwest Indiana CO Emissions



National controls have led to a decrease in CO emissions in the Southwest Indiana area over time. As Graph 3 illustrates, CO emissions have decreased by 80% within the Southwest Indiana area since 1980. This trend is true throughout Indiana and the upper Midwest. CO is a component of motor vehicle exhaust, which the U.S. EPA estimates to be the primary source of CO emissions. Levels of CO have generally declined since the mid-1980s, primarily due to stricter emission standards for onroad and nonroad engines.

For information on CO standards, sources, health effects, and programs to reduce CO, please see www.epa.gov/airqualilty/carbonmonoxide.

Fine Particles ($PM_{2.5}$)

There are six monitors within Southwest Indiana, two in Vanderburgh County and one each in Dubois, Gibson, Knox, and Spencer counties currently measuring $PM_{2.5}$ levels. The Evansville–Post Office monitoring site was discontinued in early-2011. The trend data in Graphs 4 and 6 reflect the annual arithmetic mean (the method used to derive the central tendency of the monitoring values) for annual $PM_{2.5}$ and the 98^{th} percentile (the method used to determine the value below which a certain percent of monitored observations fall) for 24-hour $PM_{2.5}$ for each year in the Southwest Indiana area for the years 2000 through 2010. The annual arithmetic mean values for annual $PM_{2.5}$ and 98^{th} percentile values for 24-hour $PM_{2.5}$ are not used to compare to the primary and secondary annual or 24-hour $PM_{2.5}$ standards. A three-year average, also known as the design value, is used to compare to both the primary and secondary annual $PM_{2.5}$ standards of 15.0 micrograms per cubic meter ($\mu g/m^3$), as well as the primary and secondary 24-hour $PM_{2.5}$ standards of 35 $\mu g/m^3$, but the annual arithmetic mean and 98^{th} percentile for each year do provide a good indication of annual and 24-hour $PM_{2.5}$ trends over time. The primary and secondary 24-hour $PM_{2.5}$ standards were first established in July 1997 of 65 $\mu g/m^3$. U.S. EPA revised the primary and secondary 24-hour $PM_{2.5}$ standards and lowered them to 35 $\mu g/m^3$ in October 2006.

For both annual and 24-hour $PM_{2.5}$, the secondary standard is the same as the primary standard. Attainment of the annual primary and secondary $PM_{2.5}$ standards is determined by evaluating the design value of the annual arithmetic mean from a single monitor, which must be less than or equal to 15.0 $\mu g/m^3$. An exceedance of the annual $PM_{2.5}$ standards occurs when an annual arithmetic mean value is equal to or greater than 15.0 $\mu g/m^3$. A violation of the annual $PM_{2.5}$ standards occurs when the design value of the annual arithmetic mean value is equal to or greater than 15.05 $\mu g/m^3$. A monitor can exceed the annual $PM_{2.5}$ standards without being in violation. Attainment of the 24-hour $PM_{2.5}$ standards is determined by evaluating the design value of the 98^{th} percentile of the 24-hour concentrations at each population-oriented monitor within an area, which must not exceed 35 $\mu g/m^3$. An exceedance of the 24-hour $PM_{2.5}$ standards occurs when the 98^{th} percentile is equal to or greater than 35 $\mu g/m^3$. A violation of the 24-hour $PM_{2.5}$ standards occurs when the design value of the 98^{th} percentile is equal to or greater than 35.5 $\mu g/m^3$. A monitor can exceed the 24-hour $PM_{2.5}$ standards without being in violation.

The trend data in Graph 5 reflect the three-year design value of the annual arithmetic mean for annual $PM_{2.5}$ for each year in the Southwest Indiana area for the years 2000 through 2010. The trend data in Graph 7 reflect the three-year design value of the 98th percentile values for 24-hour $PM_{2.5}$ for each year in the Southwest Indiana area for the years 2000 through 2010.

While there is some variability in the monitor values for both annual $PM_{2.5}$ and 24-hour $PM_{2.5}$, a downward trend over time can be seen in Graphs 4 and 5. The design value of the annual arithmetic mean is used for comparison to the primary and secondary annual $PM_{2.5}$ standards at 15.0 µg/m^3; therefore, the one-year values shown in Graph 4 are not a true comparison to the annual $PM_{2.5}$ standards and the values in the years that are above the red line are not a violation of the primary and secondary annual $PM_{2.5}$ standards. The values in Graph 4 reflect the annual arithmetic mean and the highest value from all of the monitors in the Southwest Indiana area are plotted on the graph for each year.

The design value of the 98th percentile is used for comparison to the 24-hour $PM_{2.5}$ standards; therefore, the one-year values shown in Graph 6 are not a true comparison to the 24-hour $PM_{2.5}$ standards and the values in the years that are above the red line are not a violation of the primary and secondary 24-hour $PM_{2.5}$ standards. The values in Graph 6 reflect the 98th percentile and the highest value from all of the monitors in the Southwest Indiana area is plotted on the graph for each year.

The data in Tables 7, 8, 9, and 10 are from the monitoring sites that measured annual and 24-hour $PM_{2.5}$ from 2000 to 2010. Statewide monitoring for $PM_{2.5}$ began in 2000; all available data for both annual and 24-hour $PM_{2.5}$ for the Southwest Indiana area are shown in the tables. Monitoring data for both annual and 24-hour $PM_{2.5}$ show a downward trend over time.

Monitoring data in Table 7 show the annual arithmetic mean for annual $PM_{2.5}$ for the years 2000 through 2010. Monitoring data in Table 8 show the design value of the annual arithmetic mean for annual $PM_{2.5}$ for the years 2000 through 2010, which are compared to the primary and secondary annual $PM_{2.5}$ standards of 15.0 µg/m^3. Monitoring data in Table 9 show the 98th percentile for 24-hour $PM_{2.5}$ for the years 2000 through 2010. Monitoring data in Table 10 show the design value of the 98th percentile for 24-hour $PM_{2.5}$ for the years 2000 through 2010, which are compared to the primary and secondary 24-hour $PM_{2.5}$ standards of 35 µg/m^3.

Graph 4: Southwest Indiana Annual Arithmetic Mean $PM_{2.5}$ Values

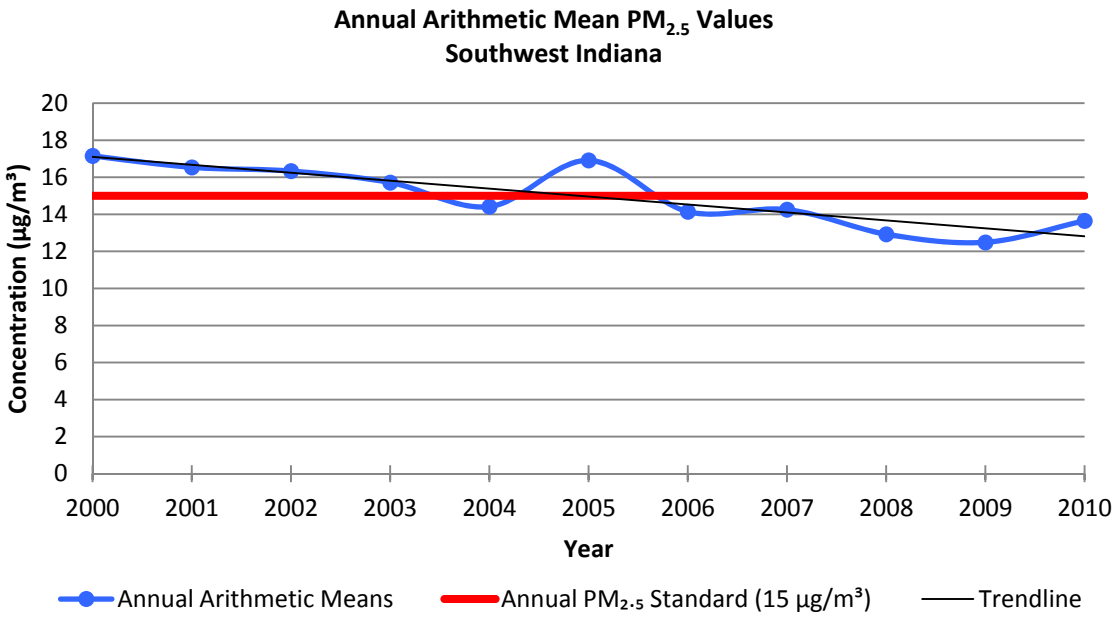


Table 7: Southwest Indiana Annual Arithmetic Mean $PM_{2.5}$ Monitoring Data Summary

County	Site #	Site Name	Annual Arithmetic Mean (µg/m³)										
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Dubois	180372001	Jasper - Post Office	17.16	16.54	16.34	15.72	14.42	16.92	13.54	14.26	12.93	12.49	13.65
Gibson	180510012	Oakland City									11.33	11.00	12.17
Knox	180830004	Southwest Ag Center	13.87	13.39	14.20	13.96	12.62	15.66	13.20	13.79	11.58	11.41	12.34
Spencer	181470009	Dale	16.32	14.52	14.06	14.63	12.16	16.76	12.78	14.13	12.03	11.77	12.99
Vanderburgh	181630006	Evansville - Civic Center	16.17	15.45	15.36	14.93	13.23	16.49	13.72	13.91	12.58	11.98	
Vanderburgh	181630006/20	Evansville Combined (Civic Center & Post Office)										12.32	
Vanderburgh	181630020	Evansville - Post Office										12.28	13.40
Vanderburgh	181630012	Evansville - Mill Rd	16.17	15.15	15.27	15.27	13.46	16.29	14.05	14.23	12.70	12.16	
Vanderburgh	181630012/21	Evansville Combined (Mill Rd & Buena Vista)										12.28	
Vanderburgh	181630021	Evansville - Buena Vista										12.41	12.83
Vanderburgh	181630016	Evansville - Univ of Evansville	15.70	16.16	15.24	15.09	13.68	16.67	14.15	14.21	12.53	12.49	13.40

Graph 5: Southwest Indiana Annual $PM_{2.5}$ Three-Year Design Values

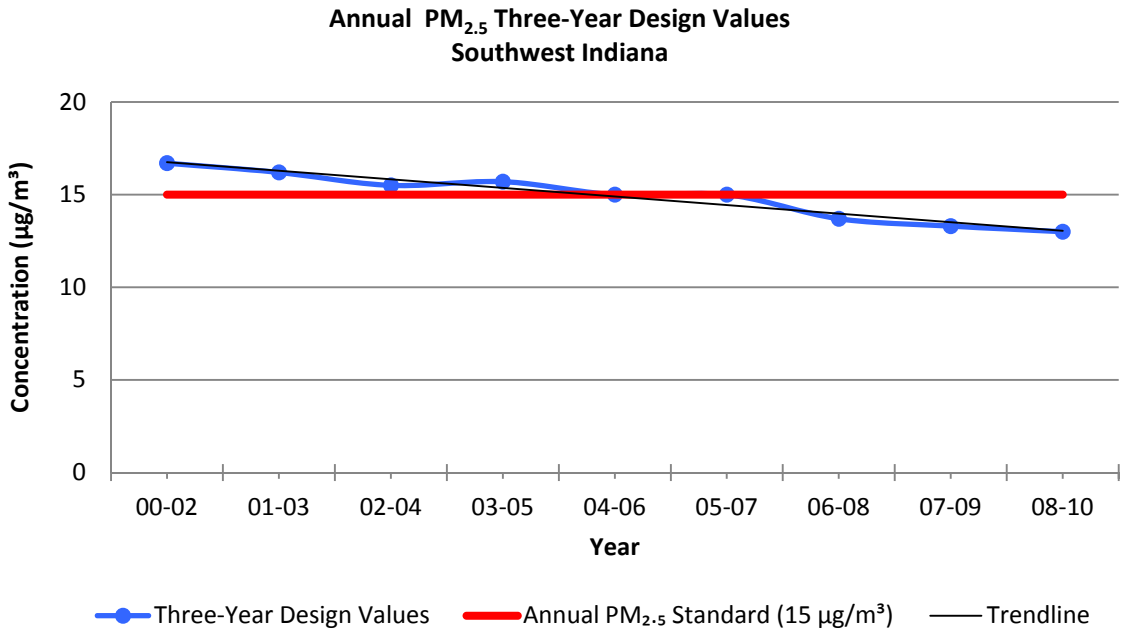


Table 8: Southwest Indiana Annual $PM_{2.5}$ Three-Year Design Value Monitoring Data Summary

County	Site #	Site Name	Three-Year Design Value (µg/m³)								
			00-02	01-03	02-04	03-05	04-06	05-07	06-08	07-09	08-10
Dubois	180372001	Jasper - Post Office	16.7	16.2	15.5	15.7	15.0	14.9	13.6	13.3	13.0
Gibson	180510012	Oakland City							11.3	11.2	11.5
Knox	180830004	Southwest Ag Center	13.8	13.9	13.6	14.1	13.8	14.2	12.9	12.3	11.8
Spencer	181470009	Dale	15.0	14.4	13.6	14.5	13.9	14.6	13.0	12.6	12.3
Vanderburgh	181630006	Evansville - Civic Center	15.7	15.2	14.5	14.9	14.5	14.7	13.4	12.8	
Vanderburgh	181630006/20	Evansville Combined (Civic Center & Post Office)								12.9	12.8
Vanderburgh	181630020	Evansville - Post Office								12.3	12.9
Vanderburgh	181630012	Evansville - Mill Rd	15.5	15.2	14.7	15.0	14.6	14.9	13.7	13.0	
Vanderburgh	181630012/21	Evansville Combined (Mill Rd & Buena Vista)								13.1	12.6
Vanderburgh	181630021	Evansville - Buena Vista								12.4	12.6
Vanderburgh	181630016	Evansville - Univ of Evansville	15.7	15.5	14.7	15.1	14.8	15.0	13.6	13.1	12.8
			Red highlighted numbers are above the annual $PM_{2.5}$ standard of 15.0 µg/m³								

Graph 6: Southwest Indiana 24-Hour $PM_{2.5}$ 98th Percentile Values

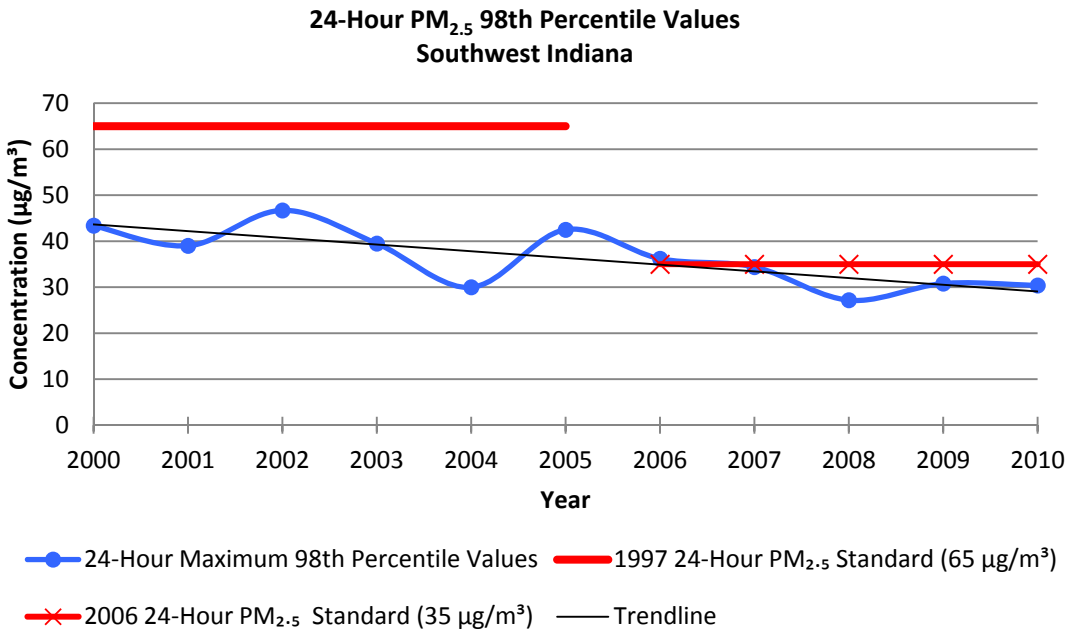


Table 9: Southwest Indiana 24-Hour 98th Percentile Value $PM_{2.5}$ Monitoring Data Summary

County	Site #	Site Name	Daily 98th Percentile Values (µg/m³)										
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Dubois	180372001	Jasper - Post Office	40.0	39.0	36.3	39.5	30.0	41.2	31.6	32.0	27.2	24.7	27.2
Gibson	180510012	Oakland City									25.4	23.7	25.8
Knox	180830004	Southwest Ag Center	34.5	33.0	38.6	34.8	29.9	41.8	36.2	30.9	23.5	23.1	27.6
Spencer	181470009	Dale	43.4	28.2	27.8	34.6	25.2	39.7	27.7	31.4	22.9	24.3	26.7
Vanderburgh	181630006	Evansville - Civic Center	37.3	36.4	46.7	34.5	28.3	42.5	30.5	33.6	27.2	21.9	
Vanderburgh	181630006/20	Evansville Combined (Civic Center & Post Office)										26.2	
Vanderburgh	181630020	Evansville - Post Office										30.8	26.4
Vanderburgh	181630012	Evansville - Mill Rd	34.3	34.2	44.9	34.1	27.6	41.5	27.9	29.9	24.7	25.1	
Vanderburgh	181630012/21	Evansville Combined (Mill Rd & Buena Vista)										27.7	
Vanderburgh	181630021	Evansville - Buena Vista										27.7	30.4
Vanderburgh	181630016	Evansville - Univ of Evansville	33.5	37.9	46.2	35.9	28.3	37.0	29.5	31.5	26.5	25.5	29.2

Graph 7: Southwest Indiana 24-Hour $PM_{2.5}$ Three-Year Design Values

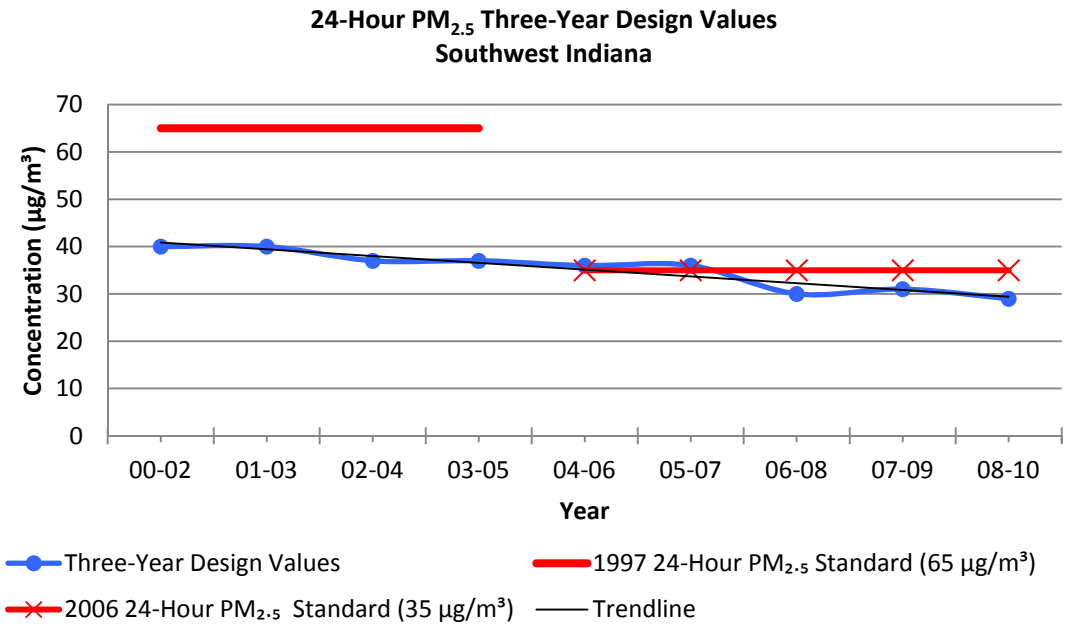


Table 10: Southwest Indiana 24-Hour $PM_{2.5}$ Three-Year Design Value Monitoring Data Summary

County	Site #	Site Name	Three-Year Design Value (µg/m³)								
			00-02	01-03	02-04	03-05	04-06	05-07	06-08	07-09	08-10
Dubois	180372001	Jasper - Post Office	38	38	35	37	34	35	30	28	26
Gibson	180510012	Oakland City							25	25	25
Knox	180830004	Southwest Ag Center	35	35	34	36	36	36	30	26	25
Spencer	181470009	Dale	33	30	29	33	31	33	27	26	25
Vanderburgh	181630006	Evansville - Civic Center	40	39	37	35	34	36	30	28	
Vanderburgh	181630006/20	Evansville Combined (Civic Center & Post Office)								29	27
Vanderburgh	181630020	Evansville - Post Office								31	29
Vanderburgh	181630012	Evansville - Mill Rd	38	38	36	34	32	33	28	27	
Vanderburgh	181630012/21	Evansville Combined (Mill Rd & Buena Vista)								27	28
Vanderburgh	181630021	Evansville - Buena Vista								28	27
Vanderburgh	181630016	Evansville - Univ of Evansville	39	40	37	34	32	33	29	28	27

Prior to 2006, highlighted red numbers are above the 24-hour $PM_{2.5}$ standard of 65 µg/m³

Beginning in 2006, highlighted red numbers are above the 24-hour $PM_{2.5}$ standard of 35.0 µg/m³

Tables 7, 8, 9, and 10 demonstrate that the annual and 24-hour $PM_{2.5}$ values for the Southwest Indiana area correlate with each other over time, meaning that when one monitoring site trends upward or downward, the other sites do also. Annual $PM_{2.5}$ values in Southwest Indiana had been above the primary and secondary annual $PM_{2.5}$ standards until the end of 2005, but have remained below the standards since then. 24-hour $PM_{2.5}$ values in Southwest Indiana had been above the primary and secondary 24-hour $PM_{2.5}$ standards until the end of 2007, but have remained below since then. The Jasper –Post office site in Dubois County has historically registered the highest $PM_{2.5}$ values in Southwest Indiana. This is expected since it is downwind from some of the larger $PM_{2.5}$ emitters in the Southwest Indiana area.

While fluctuations in monitoring data are shown in Graphs 4, 5, 6, and 7, monitoring data for both annual $PM_{2.5}$ and 24-hour $PM_{2.5}$ indicate a downward trend over time. $PM_{2.5}$ is influenced by meteorology (wind speed, temperature, stagnant air, etc.). Meteorological conditions can have an episodic effect on $PM_{2.5}$ concentrations as seen in 2005 (Graphs 4, 5, 6, and 7), when three of the four quarters of the year had high $PM_{2.5}$ values which drove the annual $PM_{2.5}$ values higher for the year. The annual value is calculated from the average of the year's four quarterly averages. A quarterly average is the average of all available data from the respective quarter. The upper Midwest experienced several episodes of unusually high $PM_{2.5}$ concentrations in 2005 caused by unusual confluences of meteorological factors. Several times during 2005 high pressure systems were held in place by jet streams which lead to a persistent, highly stable atmosphere with calm winds. Atmospheric mixing was suppressed and pollutants that form $PM_{2.5}$ were trapped near the surface and high values were measured. The longest and most wide spread episode happened during the first week of February 2005 which lasted for nine days and affected the upper Midwest and southern Ontario where daily $PM_{2.5}$ values exceeded 70 $\mu g/m^3$.

$PM_{2.5}$ is emitted directly into the air, but is also created by a chemical reaction between SO_2 and NO_x. U.S. EPA's NEI contains emissions information for $PM_{2.5}$, SO_2, and NO_x and is used for Graphs 8, 9, and 10 and Charts 2, 3, and 4. Graphs 8, 9, and 10 illustrate the emissions trend for $PM_{2.5}$ and its precursors (SO_2 and NO_x) in Southwest Indiana. Charts 2, 3, and 4 show how the average emissions are distributed among the different source categories.

Graph 8: Southwest Indiana $PM_{2.5}$ Emissions

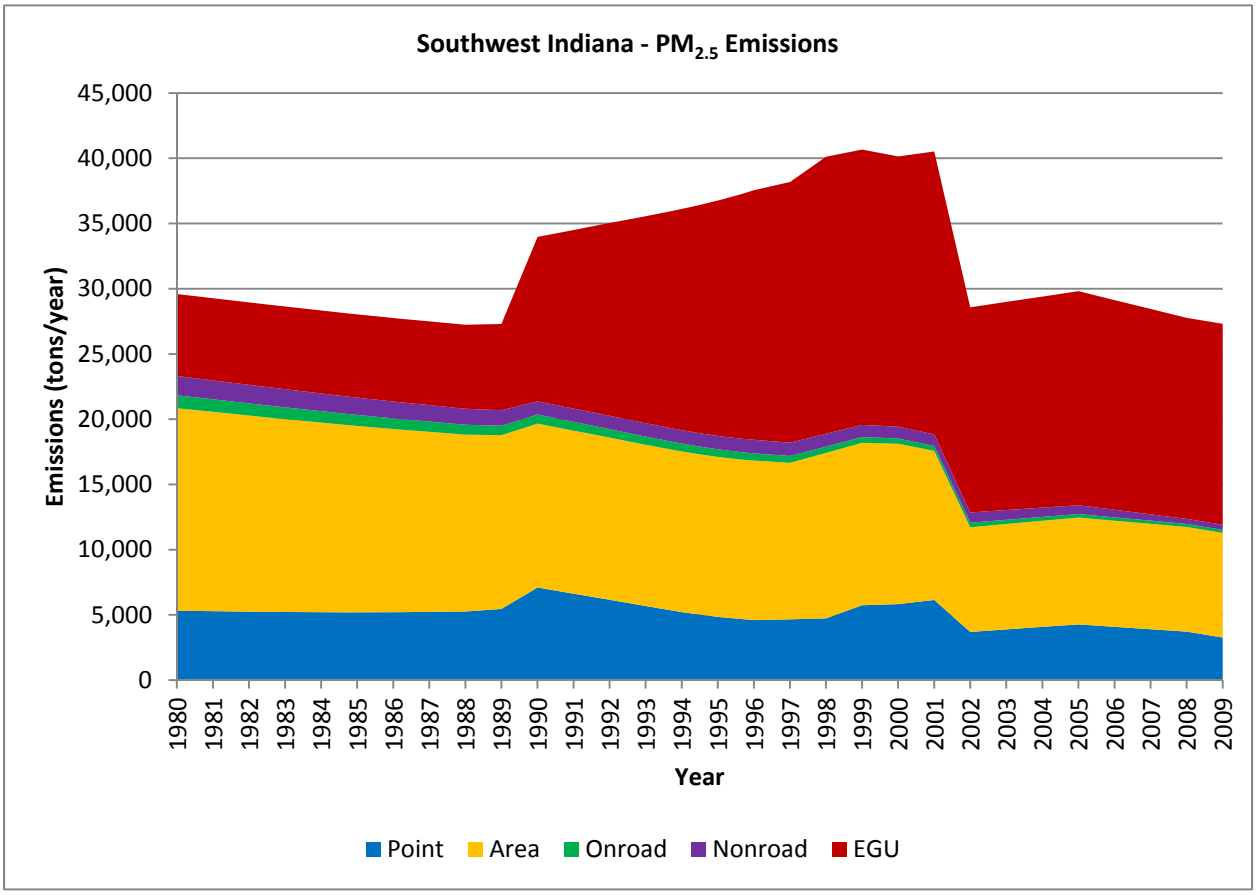
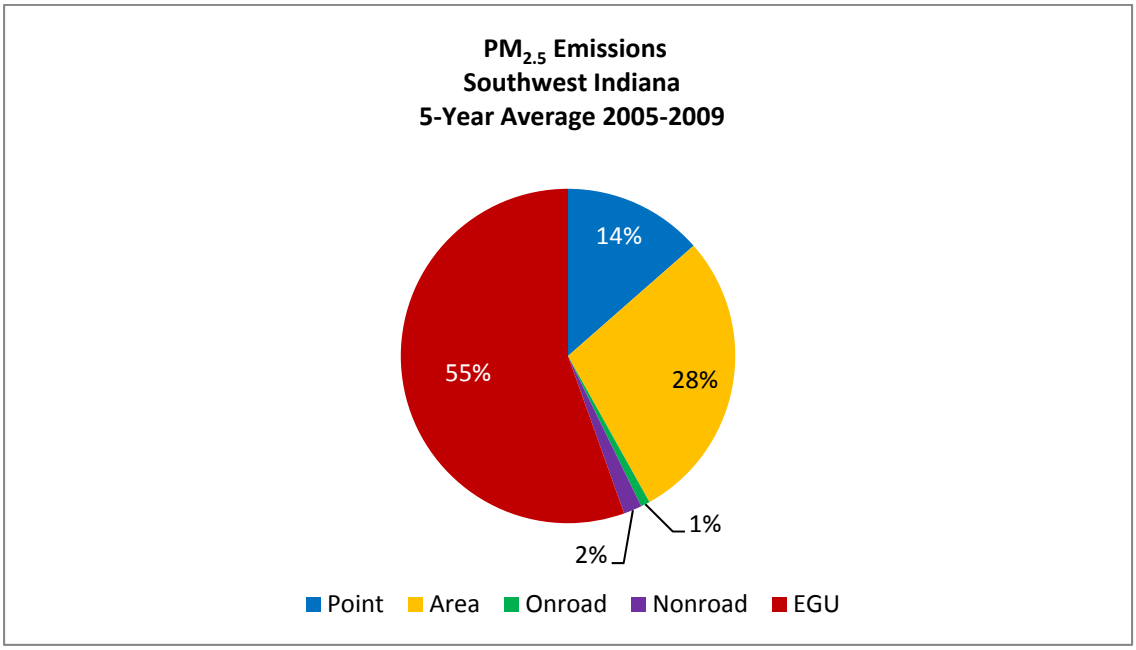


Chart 2: Southwest Indiana $PM_{2.5}$ Emissions



Graph 9: Southwest Indiana SO_2 Emissions

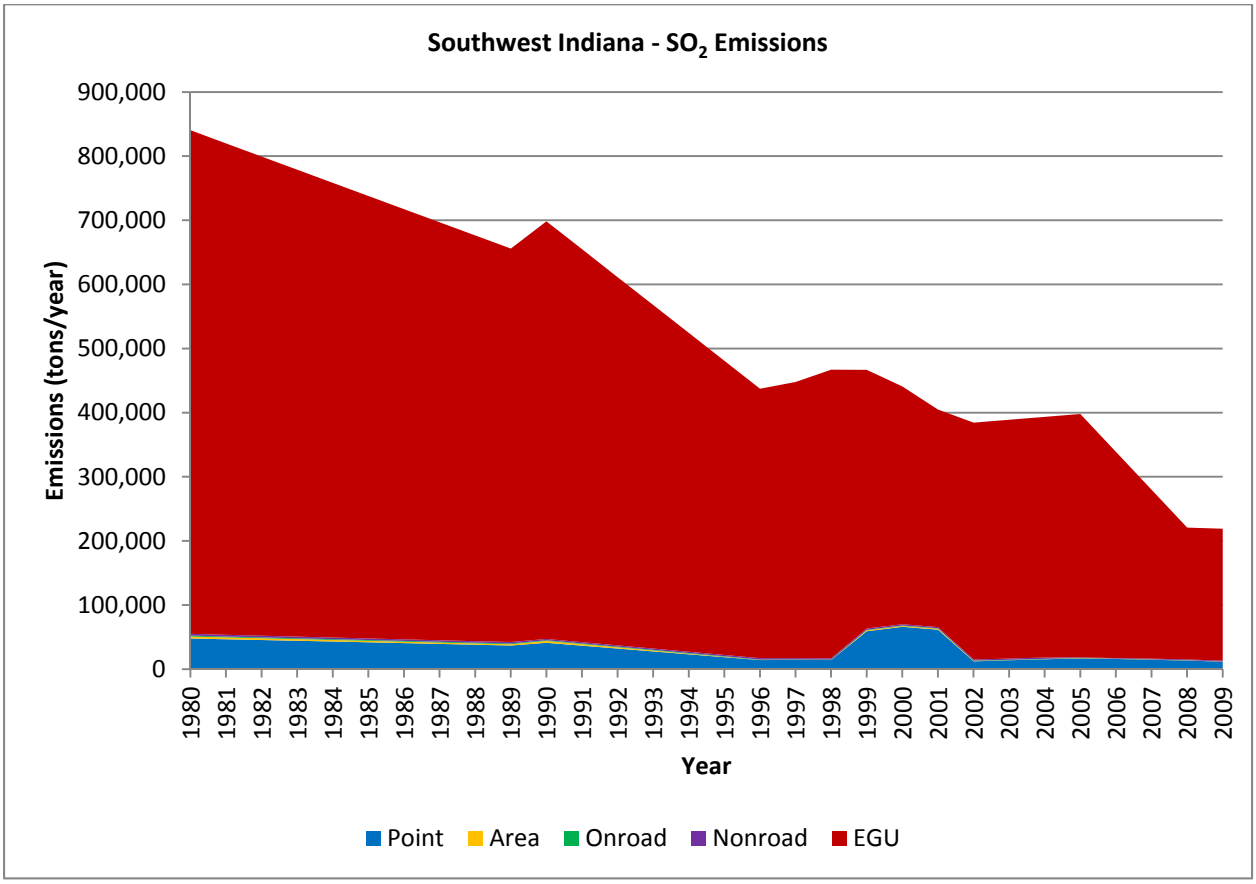
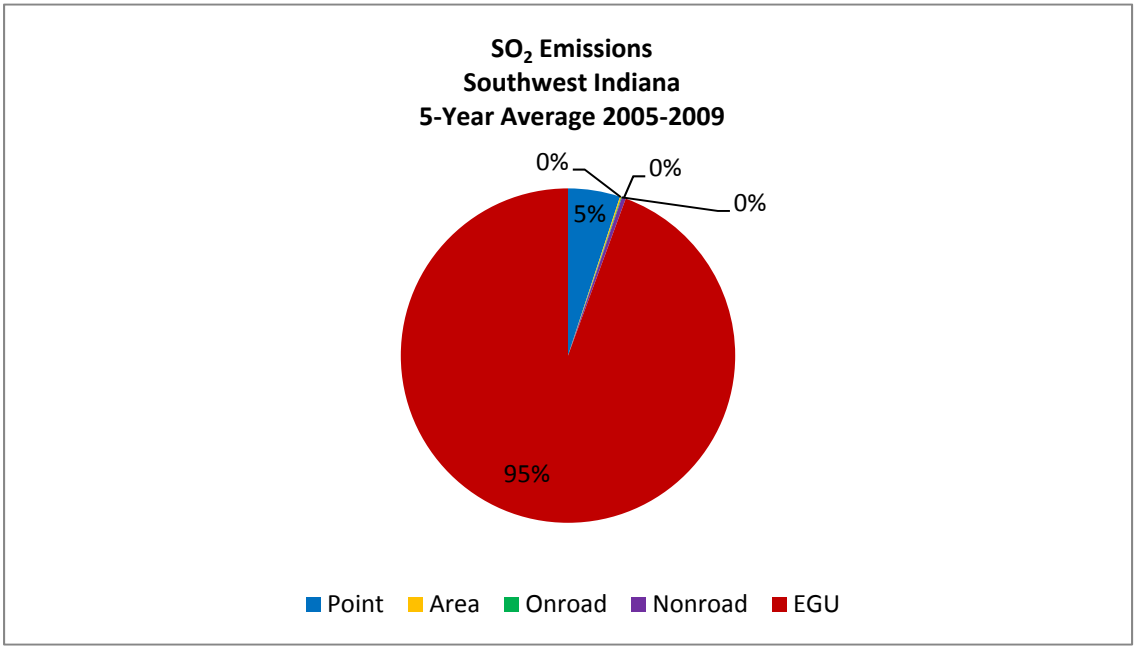


Chart 3: Southwest Indiana SO_2 Emissions



Graph 10: Southwest Indiana NO_x Emissions

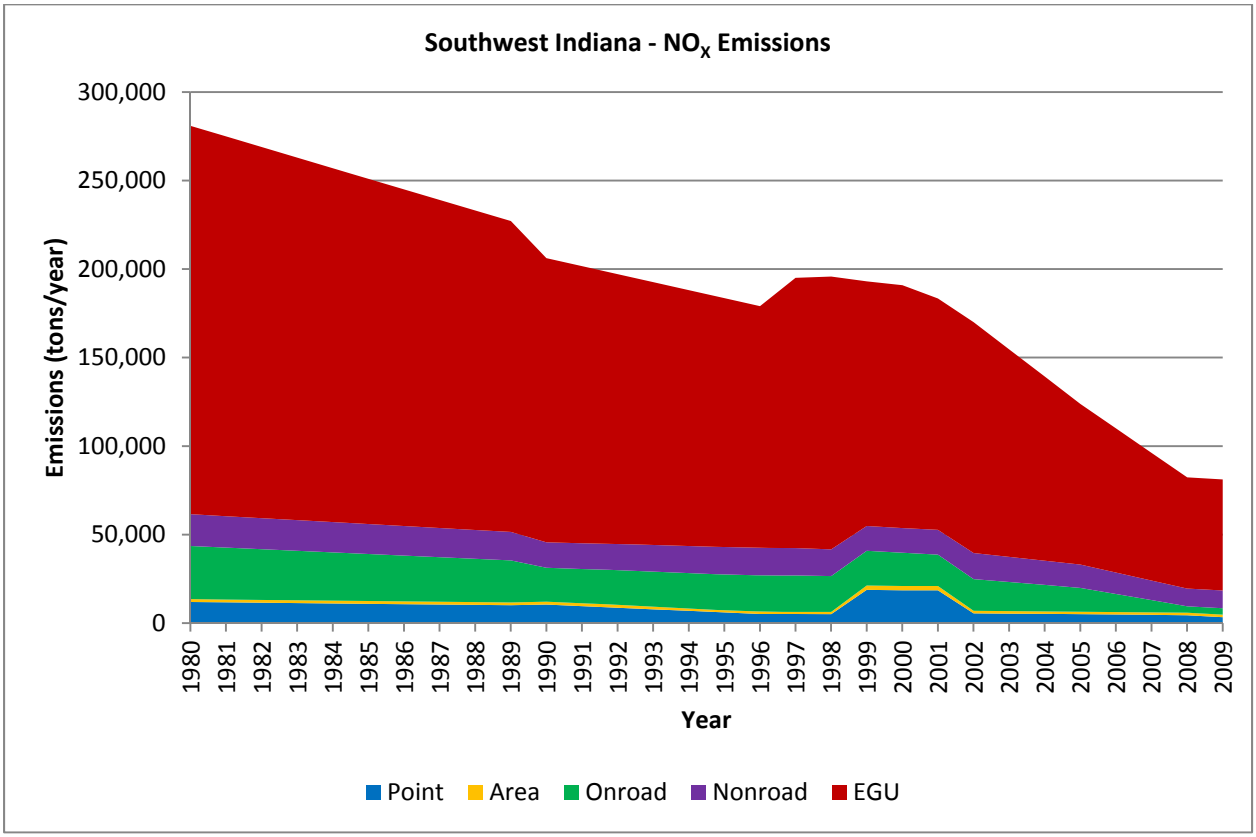
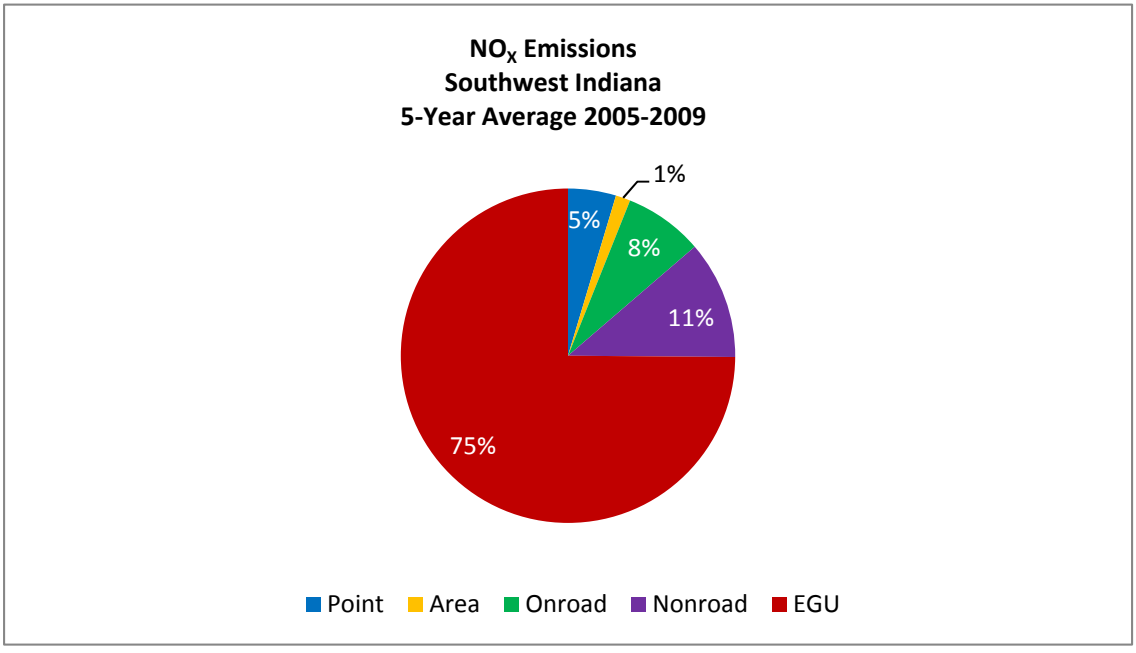


Chart 4: Southwest Indiana NO_x Emissions



National controls, such as engine and fuel standards, as well as regional controls, such as the NO_x SIP Call, have led to a decrease in $PM_{2.5}$ values over time. As Graphs 8, 9, and 10 illustrate, $PM_{2.5}$, SO_2, and NO_x emissions have decreased by 8%, 74%, and 71%, respectively, within the Southwest Indiana area since 1980. This trend is true for the key precursors of $PM_{2.5}$ throughout Indiana and the upper Midwest.

Nationally, average SO_2 concentrations have decreased by more than 70% since 1980 due to the implementation of the Acid Rain Program. Reductions in Indiana for SO_2 are primarily attributable to the implementation of the Acid Rain Program, as well as federal engine and fuel standards for onroad and nonroad vehicles and equipment.

For information on $PM_{2.5}$ standards, sources, health effects, and programs to reduce $PM_{2.5}$, please see www.epa.gov/air/particlepollution.

Lead

There are no monitoring sites within the Southwest Indiana area currently measuring lead levels. The Evansville–Post Office monitoring site was discontinued in early-2011. The primary and secondary lead standards were first established in October 1978 at 1.5 $\mu g/m^3$. Attainment was determined by evaluating each calendar quarter arithmetic average, which must not exceed 1.5 $\mu g/m^3$ over a three-year period. U.S. EPA replaced the primary and secondary 1978 lead standards with new primary and secondary lead standards of 0.15 $\mu g/m^3$ in October 2008. Attainment of the primary and secondary 2008 lead standards is determined by evaluating the rolling three-month average. Any three consecutive monthly averages (January-March, February-April, March-May, etc.) must not exceed 0.15 $\mu g/m^3$ within a three-year period. The trend data in Graph 11 reflect the highest annual quarterly arithmetic mean. The trend data in Graph 12 show the highest three-month rolling average. Lead values in the Southwest Indiana area have been steady over time and are well below both the 1978 and 2008 lead standards.

The data in Tables 11 and 12 are for the monitors that measured lead from 2000 to 2010. Historical lead data prior to the year 2000 are available upon request. Monitoring data in Table 11 are compared to the primary and secondary 1978 lead standards which were 1.5 $\mu g/m^3$. Monitoring data in Table 12 are compared to the primary and secondary 2008 lead standards.

Graph 11: Southwest Indiana Lead Highest Annual Quarterly Values

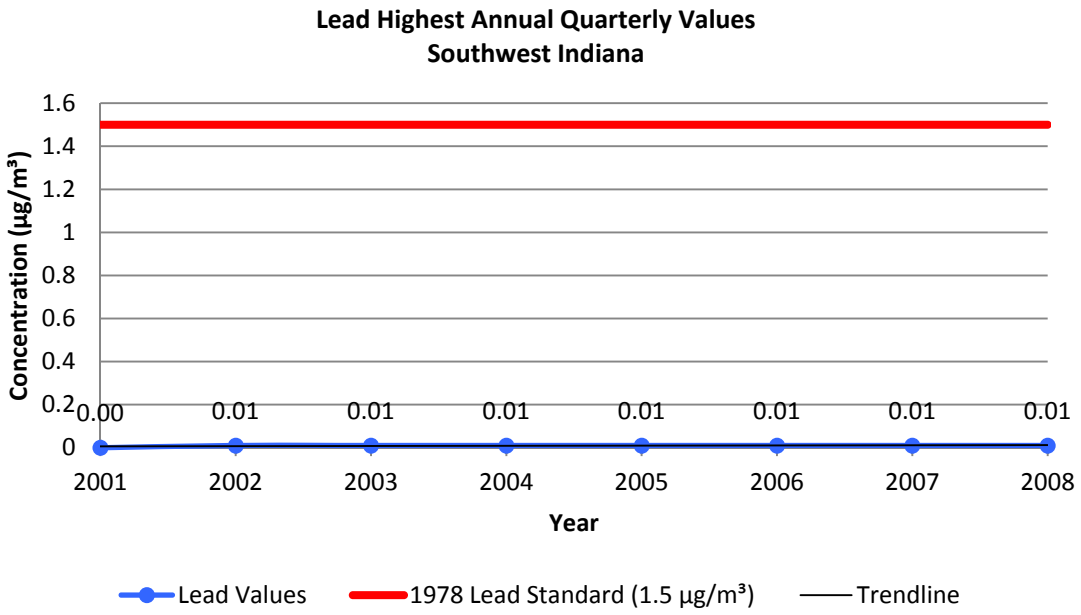


Table 11: Southwest Indiana Lead Quarterly Average Monitoring Data Summary

County	Site #	Site Name	Quarterly Average (µg/m³)											
			1Q 2000	2Q 2000	3Q 2000	4Q 2000	1Q 2001	2Q 2001	3Q 2001	4Q 2001	1Q 2002	2Q 2002	3Q 2002	4Q 2002
Vanderburgh	181630006/20	Evansville-Civic Center/Post Office							0.00	0.00	0.00	0.00	0.01	0.01
County	**Site #**	**Site Name**	**1Q 2003**	**2Q 2003**	**3Q 2003**	**4Q 2003**	**1Q 2004**	**2Q 2004**	**3Q 2004**	**4Q 2004**	**1Q 2005**	**2Q 2005**	**3Q 2005**	**4Q 2005**
Vanderburgh	181630006/20	Evansville-Civic Center/Post Office	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01
County	**Site #**	**Site Name**	**1Q 2006**	**2Q 2006**	**3Q 2006**	**4Q 2006**	**1Q 2007**	**2Q 2007**	**3Q 2007**	**4Q 2007**	**1Q 2008**	**2Q 2008**	**3Q 2008**	**4Q 2008**
Vanderburgh	181630006/20	Evansville-Civic Center/Post Office	0.01	0.01	0.01	0.00	0.00			0.01	0.00	0.00	0.01	0.01

Highlighted red numbers are over the 1978 lead standard of 1.5 µg/m³

*The monitor at the Evansville Civic Center was moved to the Evansville Post Office in 2009. These two sites are considered to measure the same air mass, thus the data are combined.

Graph 12: Southwest Three-Month Rolling Average Values

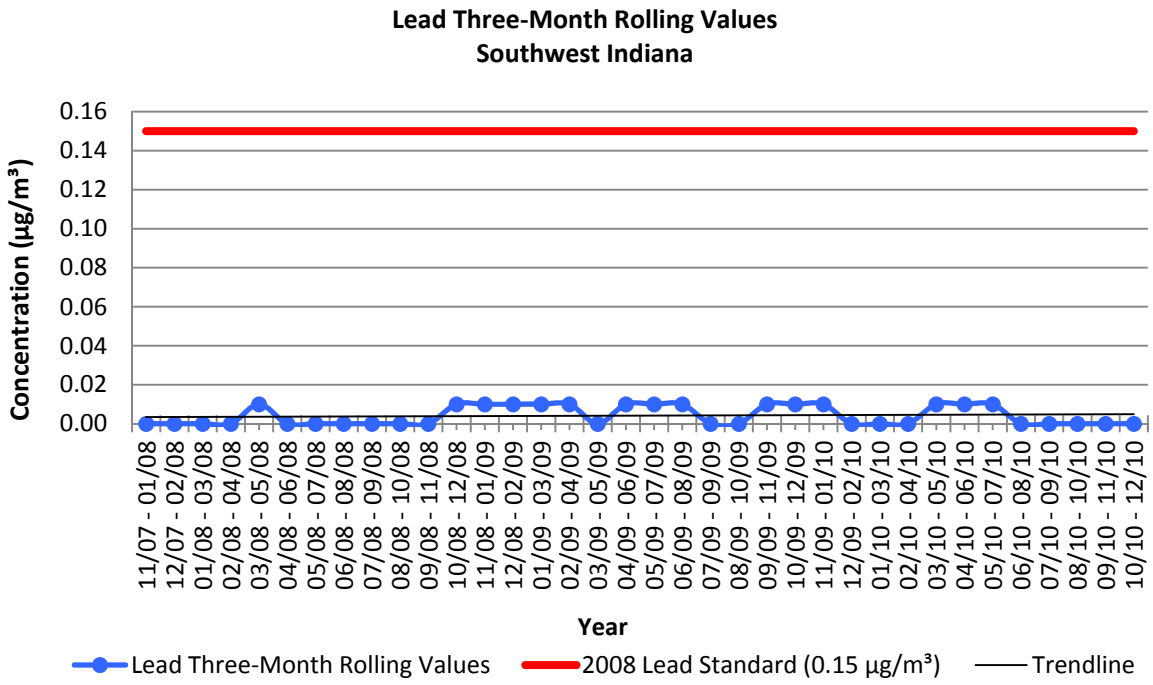


Table 12: Southwest Indiana Lead Three-Month Rolling Average Monitoring Data Summary

County	Site #	Site Name	Three-Month Averages (µg/m^3)											
			11/07-01/08	**12/07-02/08**	**01/08-03/08**	**02/08-04/08**	**03/08-05/08**	**04/08-06/08**	**05/08-07/08**	**06/08-08/08**	**07/08-09/08**	**08/08-10/08**	**09/08-11/08**	**10/08-12/08**
Vanderburgh*	181630006/20	Evansville-Civic Center/Post Office	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01
County	**Site #**	**Site Name**	**11/08-01/09**	**12/08-02/09**	**01/09-03/09**	**02/09-04/09**	**03/09-05/09**	**04/09-06/09**	**05/09-07/09**	**06/09-08/09**	**07/09-09/09**	**08/09-10/09**	**09/09-11/09**	**10/09-12/09**
Vanderburgh*	181630006/20	Evansville-Civic Center/Post Office	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.00	0.00	0.01	0.01
County	**Site #**	**Site Name**	**11/09-01/10**	**12/09-02/10**	**01/10-03/10**	**02/10-04/10**	**03/10-05/10**	**04/10-06/10**	**05/10-07/10**	**06/10-08/10**	**07/10-09/10**	**08/10-10/10**	**09/10-11/10**	**10/10-12/10**
Vanderburgh*	181630006/20	Evansville-Civic Center/Post Office	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00

Highlighted red numbers are rolling three-month averages above the 2008 Lead standard of 0.15 µg/m^3

*The monitor at the Evansville Civic Center was moved to the Evansville Post Office in 2009. These two sites are considered to measure the same air mass, thus the data are combined.

Historically, the majority of lead emissions came from motor vehicle fuels. As a result of U.S. EPA's regulatory efforts to remove lead from motor vehicle gasoline, emissions of lead from the transportation sector declined by 95% between 1980 and 1999, and levels of lead in the air decreased by 94% between 1980 and 1999. As can be seen in Graphs 11 and 12, lead levels in Southwest Indiana are well below the current standard and will continue to do so as new federal controls are adopted.

For information on lead standards, sources, health effects, and programs to reduce lead, please see www.epa.gov/air/lead.

Nitrogen Dioxide (NO_2)

There is one monitoring site within the Southwest Indiana area, located in Vanderburgh County that measures NO_2 levels. The trend data in Graph 13 reflect the annual arithmetic mean NO_2 values. The annual arithmetic mean is used to compare to the primary and secondary annual NO_2 standards at 53 parts per billion (ppb). The secondary annual NO_2 standard is the same as the primary NO_2 standard. Attainment of the annual NO_2 standards is determined by evaluating the annual arithmetic mean concentration in a calendar year, which must be less than or equal to 53 ppb. U.S. EPA added a primary 1-hour NO_2 standard in February 2010 at 100 ppb. Attainment of the 1-hour NO_2 standard is determined by evaluating the design value of the 98th percentile of the daily maximum 1-hour averages at each monitor within an area, which must not exceed 100 ppb averaged over a three-year period.

The trend data in Graph 14 show the 98th percentile of the 1-hour NO_2 values, which are provided for reference purposes only, because they were collected prior to the implementation of the current standard. The design value of the 98th percentile is used for comparison to the primary 1-hour NO_2 standard; therefore, the one-year values shown in Graph 14 are not a true comparison to the primary 1-hour NO_2 standard. The values in Graph 14 reflect the highest 98th percentile from all of the monitors in the Southwest Indiana area which is plotted on the graph for each year. The 1-hour NO_2 standard at 100 ppb is only listed for the year 2010 on this graph since it was not established until February 2010. Attainment of the primary 1-hour NO_2 standard is determined by evaluating the design value of the 98th percentile values of the daily maximum 1-hour averages at each monitor within an area, which must not exceed 100 ppb averaged over a three-year period. An exceedance of the primary 1-hour NO_2 standard occurs when a 98th percentile value is equal to or greater than 100 ppb. A

violation of the primary 1-hour NO_2 standard occurs when the three-year design value of the 98th percentile is equal to or greater than 100 ppb. A monitor can exceed the standard without being in violation.

NO_2 data are presented from 2000 to 2010 in this report; however, historical monitoring data for annual NO_2 for all monitors in Southwest Indiana are available upon request. Monitoring data for annual NO_2 show a downward trend over time and the monitor values for Southwest Indiana have historically been below the primary and secondary annual NO_2 standards. While fluctuations in monitoring data are shown in Graphs 13, 14, and 15, monitoring data for both annual and 1-hour NO_2 indicate a downward trend over time. NO_2 monitors are located in close proximity to major sources in the area and data fluctuate based on variability in facility operations and meteorology

The data in Tables 13, 14, and 15 are from the monitoring sites that measured NO_2 from 2000 to 2010. Historical data prior to the year 2000 are available upon request for both annual and 1-hour NO_2. Monitoring data in Table 13 are compared to the primary and secondary annual NO_2 standards at 53 ppb. Monitoring data in Table 14 show the 98th percentile of the 1-hour NO_2 values for the years 2000 through 2010. Monitoring data in Table 15 are compared to the primary 1-hour NO_2 standard at 100 ppb. The 1-hour NO_2 data prior to 2010 was not compared to any standard and the 98th percentile values and the design values from 2000 to 2007 are included for reference purposes only. NO_2 values in Southwest Indiana are well below both the annual and 1-hour NO_2 standards.

Graph 13: Southwest Indiana Annual Arithmetic Mean NO_2 Values

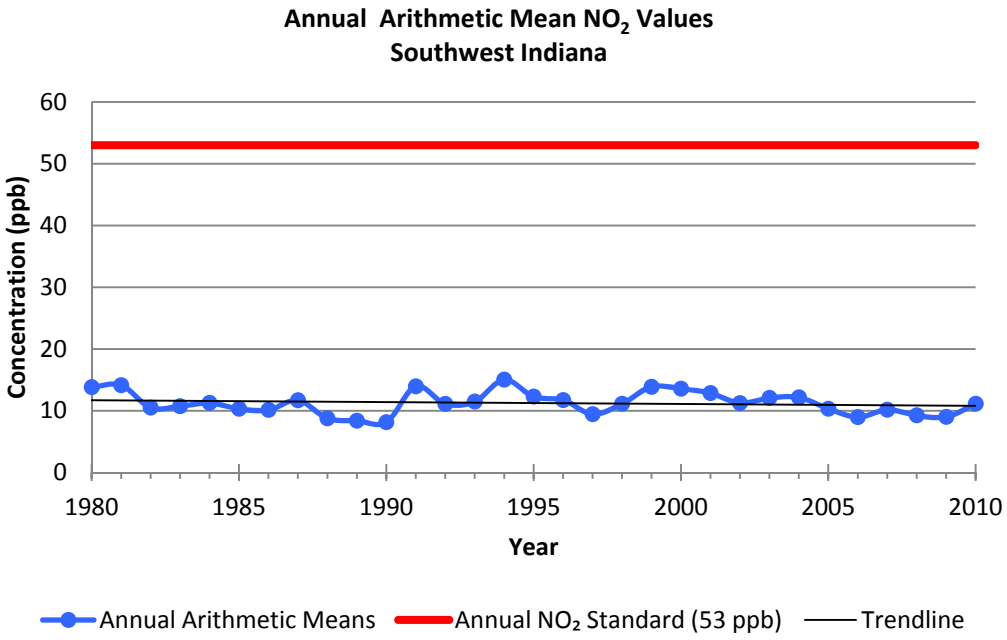


Table 13: Southwest Indiana Annual Arithmetic Mean NO_2 Values Monitoring Data Summary

County	Site #	Site Name	Annual Mean (ppb)										
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Gibson	180510010	Princeton-CR 550 S	10	10	9	9	9						
Spencer	181470008	CR 750 N	7	6									
Vanderburgh	181630012	Evansville-W Mill Rd	14	13	11	12	12	10	9	10	9		
Vanderburgh	181630021	Evansville-Buena Vista										9	11

Highlighted red numbers are above the annual NO_2 standard of 53 ppb

The 2009 annual mean value is West Mill's 6 months mean of 8 and Buena Vista's 6 months mean of 9 averaged together. The Buena Vista monitor replaced the West Mill Road monitor in June 2009

Graph 14: Southwest Indiana 1-Hour NO_2 98th Percentile Values

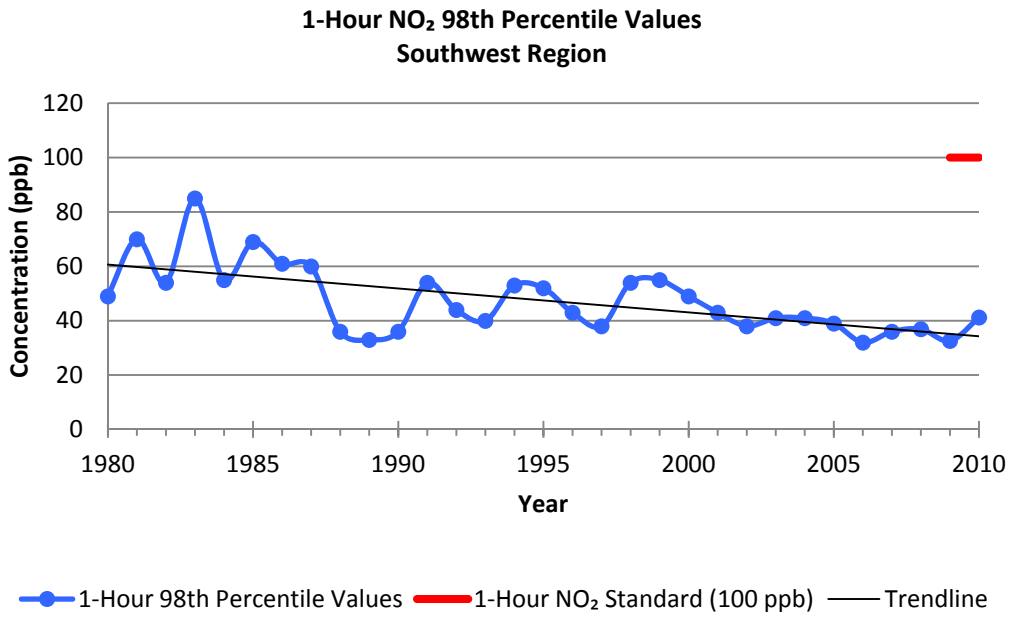


Table 14: Southwest Indiana 1-Hour NO_2 98th Percentile Values Monitoring Data Summary

County	Site #	Site Name	Daily 98th Percentile Values (ppb)										
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Gibson	180510010	Princeton-CR 550 S	37	41	38	41	41						
Spencer	181470008	CR 750 N	40	40									
Vanderburgh	181630012	Evansville-W Mill Rd	49	43	36	39	41	39	32	36	37		
Vanderburgh	181630021	Evansville-Buena Vista										32[1]	41

[1]The 98th percentile for 2009 was calculated by using the first 6 months of data from the West Mill Rd monitor and the last 6 months of data from the Buena Vista monitor.

Graph 15: Southwest Indiana 1-Hour NO_2 Three-Year Design Values

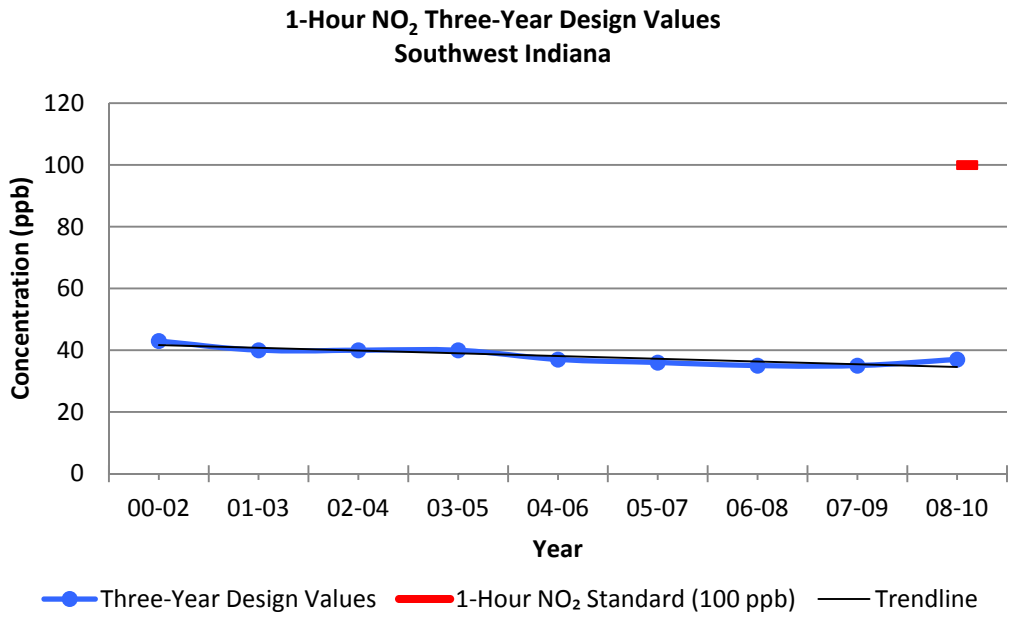


Table 15: Southwest Indiana 1-Hour Three-Year Design Value NO_2 Monitoring Data Summary

County	Site #	Site Name	Three-Year Design Value (ppb)								
			00-02	01-03	02-04	03-05	04-06	05-07	06-08	07-09	08-10
Gibson	180510010	Princeton-CR 550 S	39	40	40	41	41				
Spencer	181470008	CR 750 N	40	40							
Vanderburgh	181630012	Evansville-W Mill Rd	43	39	39	40	37	36	35		
Vanderburgh	181630021	Evansville-Buena Vista								35 [1]	37 [2]

Highlighted red numbers are above the 1-hour NO_2 standard of 100 ppb

[1] The 3 year daily site design value is calculated by using the West Mill Road monitor for 2007 through 2008 and the combination of the West Mill Road monitor and the Buena Vista monitor for 2009.

[2] The 3 year daily site design value is calculated by using the West Mill Road monitor for 2008, the combination of the West Mill Road monitor and the Buena Vista monitor for 2009, and the Buena Vista monitor for all of 2010.

U.S. EPA's NEI contains emissions information for NO_x and is used for Graph 16 and Chart 5. NO_x emissions data are used as a surrogate for NO_2 in conjunction with the NO_2 NAAQS. Graph 16 illustrates the emission trends for NO_x in Southwest Indiana and Chart 5 shows how the average emissions are distributed among the different source categories.

Graph 16: Southwest Indiana NO_x Emissions

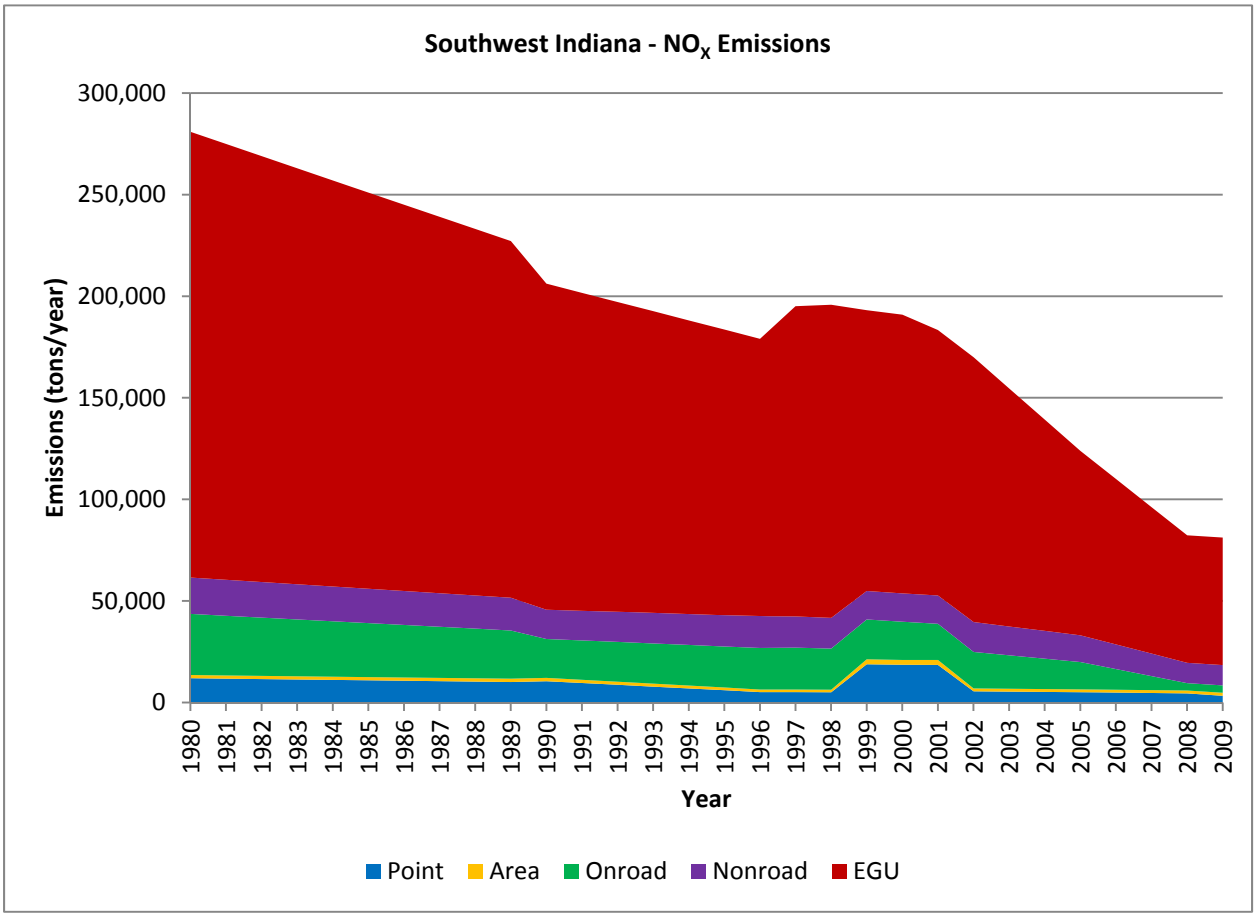
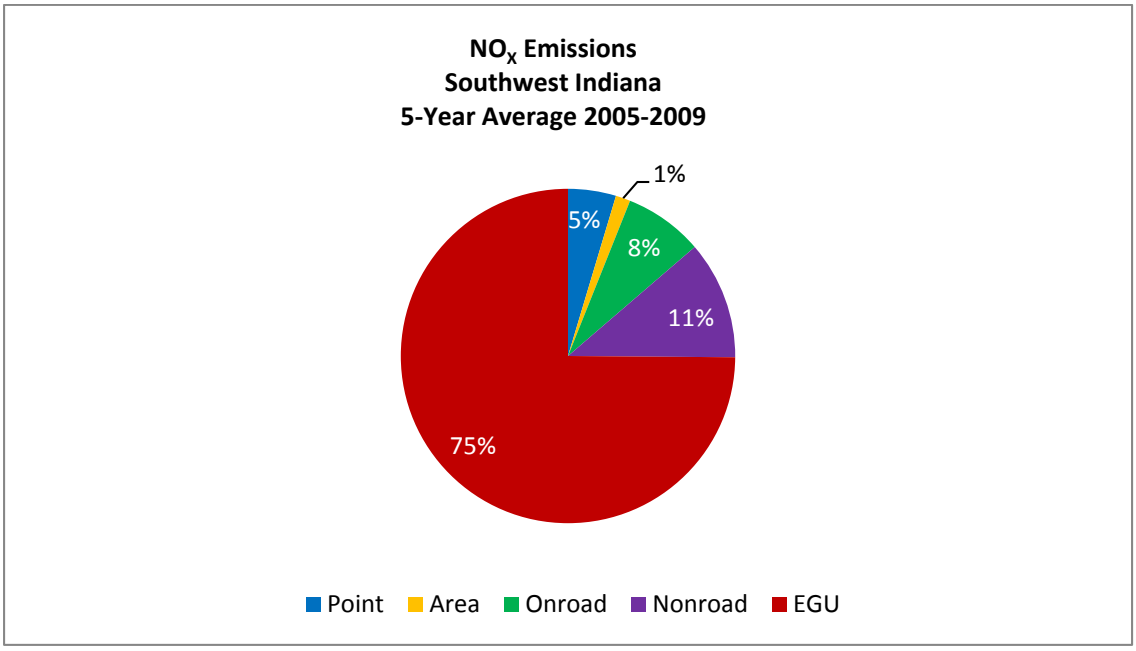


Chart 5: Southwest Indiana NO_x Emissions



National and regional controls, such as the Acid Rain Program, engine and fuel standards, and the NO_x SIP Call have led to a decrease in NO_2 values over time. As Graph 16 illustrates, NO_2 emissions have decreased by 71% within the Southwest Indiana area since 1980. This trend is true throughout Indiana and the upper Midwest. According to U.S. EPA, average NO_2 concentrations have decreased by more than 40% nationally since 1980.

For information on NO_2 standards, sources, health effects, and programs to reduce NO_2, please see www.epa.gov/airquality/nitrogenoxides/.

Ozone

There are seven monitoring sites within Southwest Indiana, one each located in Perry and Posey counties, two in Vanderburgh County, and three in Warrick County, that measure ozone levels. Primary and secondary ozone 1-hour ozone standards were first established in April 1979 at 0.12 ppm. Based on U.S. EPA's published data guidelines, values above 0.124 ppm were deemed to be in violation of the standard. The trend data in Graph 17 reflect the 4th highest monitored concentration for 1-hour ozone within a given three-year period from all of the monitors in the Southwest Indiana area is plotted on the graph for each year. These values were used to determine attainment of the primary and secondary 1-hour ozone standards before they were revoked in June 2005.

In July 1997, U.S. EPA established the primary and secondary 8-hour ozone standards at 0.08 ppm. Based on the U.S. EPA's data handling guidelines, values above 0.084 ppm were deemed to be in violation of the standard. U.S. EPA lowered the primary and secondary 8-hour ozone standards to 0.075 ppm in March 2008. Attainment of the primary and secondary 8-hour ozone standards is determined by evaluating the design value of the 4th highest 8-hour ozone concentration measured at each monitor within an area over each year, which must not exceed 0.075 ppm. An exceedance of the standards occurs when an 8-hour ozone value is equal to or greater than 0.075 ppm. A violation of the standards occurs when the design value of the three-year average of the 4th highest 8-hour ozone value is equal to or greater than 0.076 ppm. A monitor can exceed the standards without being in violation.

The trend data in Graph 18 reflect the 4th high and the highest 4th high concentration for 8-hour ozone from all of the monitors in the Southwest Indiana area for each year. The design value of the three-year average of the 4th highest 8-hour ozone values is used for comparison to the 8-hour ozone standard; therefore, the one-year values in Graph 18 are not a true comparison to the primary and secondary 8-hour ozone standards. The values in Graph 19 reflect the design value of the three-year average of the 4th highest 8-hour ozone values from the monitors for each year.

The data in Tables 16 and 17 are from all of the monitoring sites in the Southwest Indiana area that measured 1-hour ozone from 2000 through 2010. Monitoring data in Table 16 show the four highest annual concentrations for 1-hour ozone for the years 2000 through 2010. Monitoring data in Table 17 show the 4th highest concentration for 1-hour ozone in a three year period for the years 2000 through 2010. The data in Tables 18 and 19 are from all of the monitoring sites in the Southwest Indiana area that measured 8-hour ozone from 2000 through 2010. Monitoring data in Table 18 show the 4th highest concentration for 8-hour ozone in a three-year period for the years 2000 through 2010. Monitoring data in Table 19 show the design value of the three-year average of the 4th highest 8-hour ozone values for the years 2000 through 2010, which are compared to the primary and secondary 8-hour ozone standards at 0.08 ppm.

Table 16: Southwest Indiana 1-Hour Ozone Annual 4th High Value Monitoring Data Summary

			1-Hour Ozone Value (ppm)											
County	Site #	Site Name	1st High 2000	2nd High 2000	3rd High 2000	4th High 2000	1st High 2001	2nd High 2001	3rd High 2001	4th High 2001	1st High 2002	2nd High 2002	3rd High 2002	4th High 2002
Gibson	180510011	Princeton	0.077	0.076	0.076	0.073	0.082	0.077	0.076	0.074	0.091	0.091	0.089	0.088
Perry	181230009	Leopold												
Posey	181290003	St. Phillips	0.116	0.097	0.094	0.093	0.093	0.093	0.090	0.089	0.121	0.109	0.108	0.107
Vanderburgh	181630012/21	Buena Vista	0.098	0.093	0.091	0.088	0.091	0.087	0.087	0.085	0.118	0.112	0.109	0.105
Vanderburgh	181630013	Inglefield	0.088	0.084	0.082	0.081	0.089	0.089	0.083	0.080	0.107	0.107	0.102	0.096
Warrick	181730002	Yankeetown	0.088	0.086	0.085	0.085	0.097	0.095	0.091	0.091	0.132	0.110	0.106	0.105
Warrick	181730008	Boonville	0.084	0.083	0.083	0.081	0.096	0.091	0.091	0.089	0.117	0.109	0.108	0.104
Warrick	181730009	Lynnville	0.094	0.089	0.088	0.085	0.096	0.090	0.087	0.084	0.107	0.104	0.102	0.101
Warrick	181730011	Dayville												

County	Site #	Site Name	1st High 2003	2nd High 2003	3rd High 2003	4th High 2003	1st High 2004	2nd High 2004	3rd High 2004	4th High 2004	1st High 2005	2nd High 2005	3rd High 2005	4th High 2005
Gibson	180510011	Princeton	0.095	0.090	0.089	0.084	0.086	0.085	0.083	0.082				
Perry	181230009	Leopold					0.088	0.087	0.086	0.084	0.107	0.100	0.098	0.098
Posey	181290003	St. Phillips	0.105	0.089	0.089	0.088	0.081	0.078	0.076	0.076	0.092	0.091	0.090	0.089
Vanderburgh	181630012/21	Buena Vista	0.098	0.095	0.091	0.090	0.093	0.080	0.078	0.078	0.100	0.094	0.091	0.091
Vanderburgh	181630013	Inglefield	0.092	0.090	0.082	0.082	0.070	0.069	0.066	0.063	0.064	0.064	0.062	0.061
Warrick	181730002	Yankeetown	0.119	0.096	0.095	0.092	0.085	0.085	0.082	0.081				
Warrick	181730008	Boonville	0.105	0.104	0.096	0.084	0.095	0.084	0.083	0.080	0.108	0.093	0.091	0.091
Warrick	181730009	Lynnville	0.101	0.101	0.096	0.085	0.080	0.077	0.076	0.074	0.093	0.091	0.090	0.085
Warrick	181730011	Dayville									0.093	0.090	0.086	0.083

County	Site #	Site Name	1st High 2006	2nd High 2006	3rd High 2006	4th High 2006	1st High 2007	2nd High 2007	3rd High 2007	4th High 2007	1st High 2008	2nd High 2008	3rd High 2008	4th High 2008
Gibson	180510011	Princeton												
Perry	181230009	Leopold	0.102	0.092	0.090	0.088	0.100	0.098	0.092	0.092	0.091	0.086	0.083	0.081
Posey	181290003	St. Phillips	0.090	0.073	0.071	0.066	0.093	0.093	0.092	0.090	0.087	0.085	0.079	0.079
Vanderburgh	181630012/21	Buena Vista	0.092	0.091	0.084	0.082	0.102	0.096	0.094	0.092	0.097	0.090	0.084	0.083
Vanderburgh	181630013	Inglefield	0.108	0.096	0.089	0.089	0.107	0.099	0.098	0.096	0.088	0.087	0.083	0.078
Warrick	181730002	Yankeetown												
Warrick	181730008	Boonville	0.103	0.100	0.096	0.095	0.098	0.095	0.092	0.091	0.088	0.083	0.082	0.079
Warrick	181730009	Lynnville	0.084	0.082	0.082	0.081	0.093	0.092	0.091	0.088	0.083	0.072	0.070	0.070
Warrick	181730011	Dayville	0.091	0.089	0.088	0.084	0.091	0.090	0.087	0.086	0.074	0.070	0.067	0.067

County	Site #	Site Name	1st High 2009	2nd High 2009	3rd High 2009	4th High 2009	1st High 2010	2nd High 2010	3rd High 2010	4th High 2010
Gibson	180510011	Princeton								
Perry	181230009	Leopold	0.085	0.081	0.075	0.073	0.095	0.092	0.091	0.089
Posey	181290003	St. Phillips	0.087	0.081	0.079	0.075	0.087	0.080	0.077	0.077
Vanderburgh	181630012/21	Buena Vista	0.071	0.071	0.071	0.066	0.078	0.074	0.072	0.070
Vanderburgh	181630013	Inglefield	0.090	0.082	0.079	0.076	0.092	0.083	0.079	0.077
Warrick	181730002	Yankeetown								
Warrick	181730008	Boonville	0.078	0.072	0.072	0.072	0.091	0.086	0.084	0.080
Warrick	181730009	Lynnville	0.080	0.075	0.074	0.070	0.081	0.080	0.078	0.077
Warrick	181730011	Dayville	0.073	0.068	0.067	0.066	0.088	0.084	0.081	0.081

Graph 17: Southwest Indiana 1-Hour Ozone 4th Highest Value in Three-Year Period

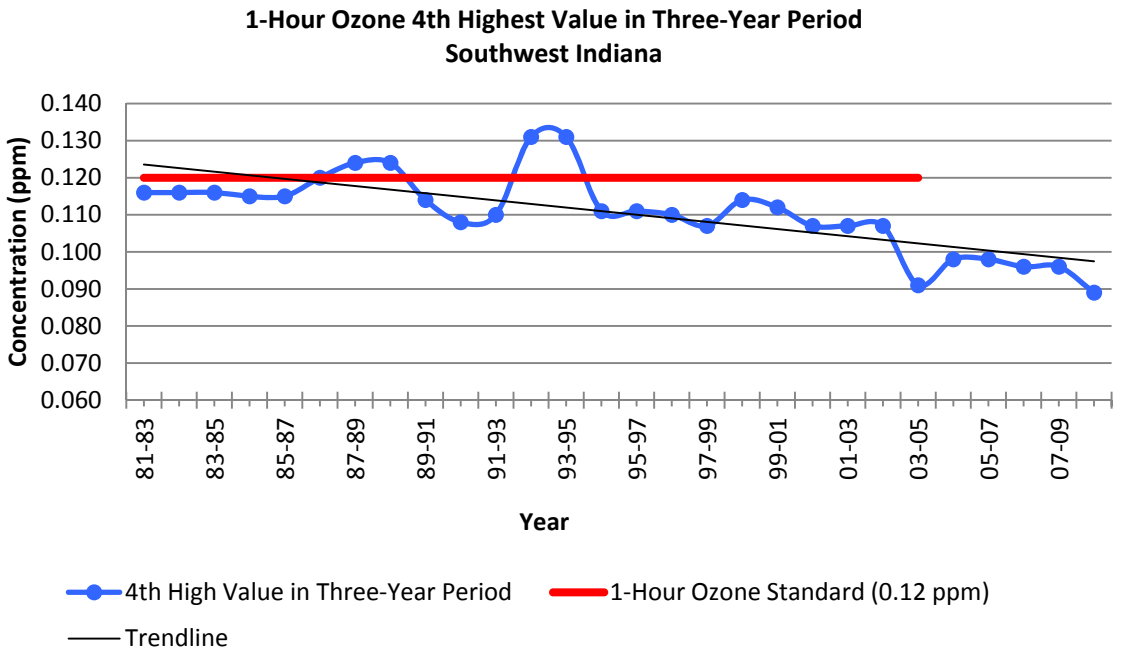


Table 17: Southwest Indiana 1-Hour Ozone 4th High Value in Three-Year Period Monitoring Data Summary

County	Site #	Site Name	4th High Value in Three-Year Period (ppm)								
			00-02	01-03	02-04	03-05	04-06	05-07	06-08	07-09	08-10
Gibson	180510011	Princeton	0.088	0.088	0.088						
Perry	181230009	Leopold					0.098	0.098	0.092	0.092	0.089
Posey	181290003	St. Phillips	0.107	0.107	0.107	0.089	0.089	0.090	0.090	0.090	0.079
Vanderburgh*	181630012/21	Buena Vista	0.105	0.105	0.105	0.091	0.091	0.092	0.092	0.092	0.083
Vanderburgh	181630013	Inglefield	0.096	0.096	0.096	0.082	0.089	0.096	0.096	0.096	0.078
Warrick	181730002	Yankeetown	0.105	0.105	0.105						
Warrick	181730008	Boonville	0.104	0.104	0.104	0.091	0.095	0.095	0.095	0.091	0.080
Warrick	181730009	Lynnville	0.101	0.101	0.101	0.085	0.085	0.088	0.088	0.088	0.077
Warrick	181730011	Dayville						0.086	0.086	0.086	0.081

*Vanderburgh County - Evansville ozone monitor was moved from Mill Road to Buena Vista on July 10, 2010. The 2008-2010 value is calculated from both monitoring sites.

Graph 18: Southwest Indiana 8-Hour Ozone 4th High Values

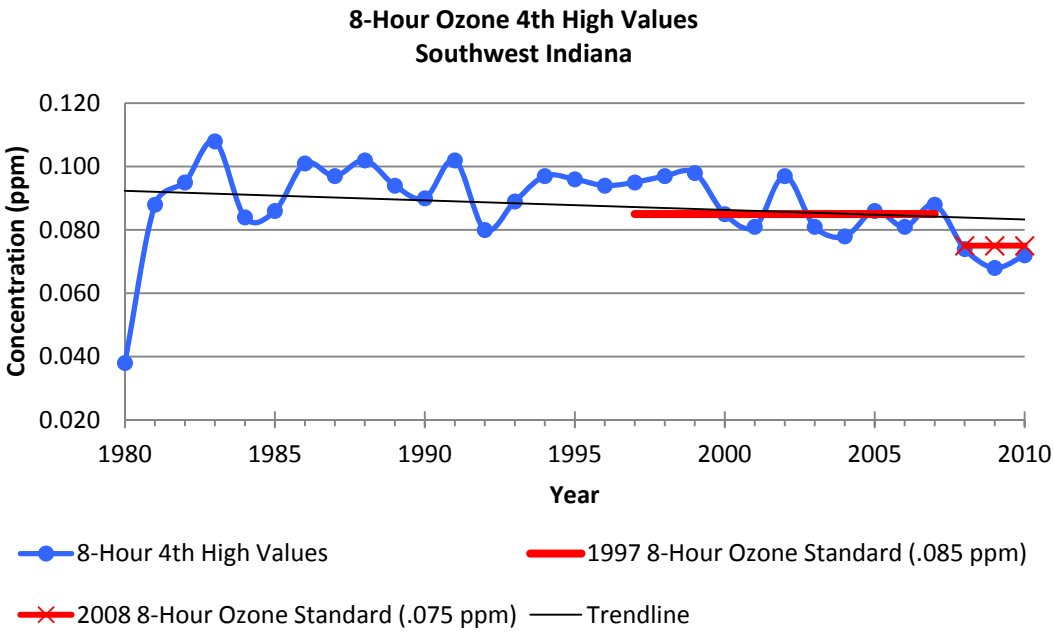


Table 18: Southwest Indiana 8-Hour Ozone 4th High Values Monitoring Data Summary

County	Site #	Site Name	4th Highest Ozone Value (ppm)										
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Perry	181230009	Leopold					0.078	0.086	0.079	0.080	0.073	0.065	0.072
Posey	181290003	St. Phillips	0.085	0.079	0.097	0.077	0.071	0.077	0.058	0.080	0.069	0.067	0.069
Vanderburgh	181630012/21	Buena Vista	0.081	0.073	0.095	0.081	0.072	0.080	0.075	0.085	0.074	0.061	0.064
Vanderburgh	181630013	Inglefield	0.075	0.072	0.086	0.075	0.058	0.056	0.081	0.088	0.072	0.068	0.071
Warrick	181730002	Yankeetown	0.077	0.081	0.094	0.082	0.074						
Warrick	181730008	Boonville	0.073	0.078	0.091	0.076	0.073	0.080	0.078	0.083	0.071	0.064	0.071
Warrick	181730009	Lynnville	0.077	0.075	0.090	0.078	0.066	0.076	0.070	0.080	0.064	0.064	0.070
Warrick	181730011	Dayville						0.077	0.078	0.076	0.060	0.057	0.070

Graph 19: Southwest Indiana 8-Hour Ozone Three-Year Design Values

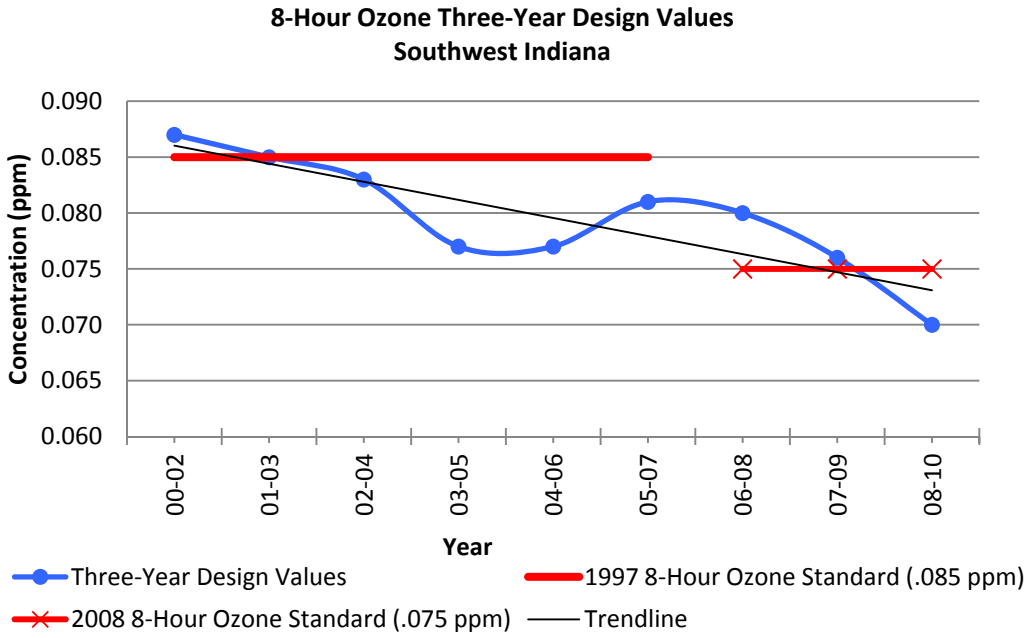


Table 19: Southwest Indiana 8-Hour Ozone Three-Year Design Value Monitoring Data Summary

County	Site #	Site Name	Three-Year Design Value (ppm)								
			00-02	01-03	02-04	03-05	04-06	05-07	06-08	07-09	08-10
Perry	181230009	Leopold					0.081	0.081	0.077	0.072	0.070
Posey	181290003	St. Phillips	0.087	0.084	0.081	0.075	0.068	0.071	0.069	0.072	0.068
Vanderburgh*	181630012/21	Buena Vista	0.083	0.083	0.082	0.077	0.075	0.080	0.078	0.073	0.066
Vanderburgh	181630013	Inglefield	0.077	0.077	0.073	0.063	0.065	0.075	0.080	0.076	0.070
Warrick	181730002	Yankeetown	0.084	0.085	0.083						
Warrick	181730008	Boonville	0.080	0.081	0.080	0.076	0.077	0.080	0.077	0.072	0.068
Warrick	181730009	Lynnville	0.080	0.081	0.078	0.073	0.070	0.075	0.071	0.069	0.066
Warrick	181730011	Dayville				0.077	0.077	0.077	0.071	0.064	0.062

Prior to 2008, highlighted red numbers are above the 8-hour O_3 standard of 0.085 ppm

Beginning in 2008, highlighted red numbers are above the 8-hour O_3 standard of 0.075 ppm

*Vanderburgh County - Evansville ozone monitor was moved from Mill Road to Buena Vista on July 10, 2010. The 2008-2010 Design Value is calculated from both monitoring sites.

While fluctuations in monitoring data can be seen in Graphs 17, 18, and 19, monitoring data for both 1-hour and 8-hour ozone indicate a downward trend over time. Because ozone is formed by the secondary reaction of precursor pollutants, it is heavily influenced by meteorology (wind speed, temperature, stagnant air, etc.) and during an ozone season when peak meteorology conditions exist it is not unusual to see an increase in ozone. The high spikes in ozone in 1983, 1988, 1995, 2002, 2005, and 2007 shown in Graph 18 can be traced back to high temperatures and stagnant weather conditions during the ozone seasons of those years.

Tables 16, 17, 18, and 19 demonstrate that the 1-hour and 8-hour ozone values for the Southwest Indiana area correlate with each other over time, meaning that when one monitoring site trends upward or downward, the others do as well. Monitor values for 1-hour and 8-hour ozone in Southwest Indiana were in violation of the 1-hour and 8-hour ozone standards, but are now below the standards. The Inglefield 8-hour ozone monitoring site has historically registered the highest 8-hour ozone values in Southwest Indiana. This is expected since it is downwind of the core metropolitan area. Downwind monitors are usually the last to attain the standard because ozone and ozone precursors from the most densely populated areas and emission sources have more time for photochemical reactions to build to peak levels.

Ozone is not emitted directly into the air, but is created in the lower atmosphere by a chemical reaction between NO_x and VOC in the presence of sunlight. U.S. EPA's NEI contains emissions information for NO_x and VOC and is used the following graphs and charts. Graphs 20 and 21 illustrate the emissions trend for the ozone precursors in Southwest Indiana and Charts 6 and 7 show how the average emissions are distributed among the different source categories.

Graph 20: Southwest Indiana NO_x Emissions

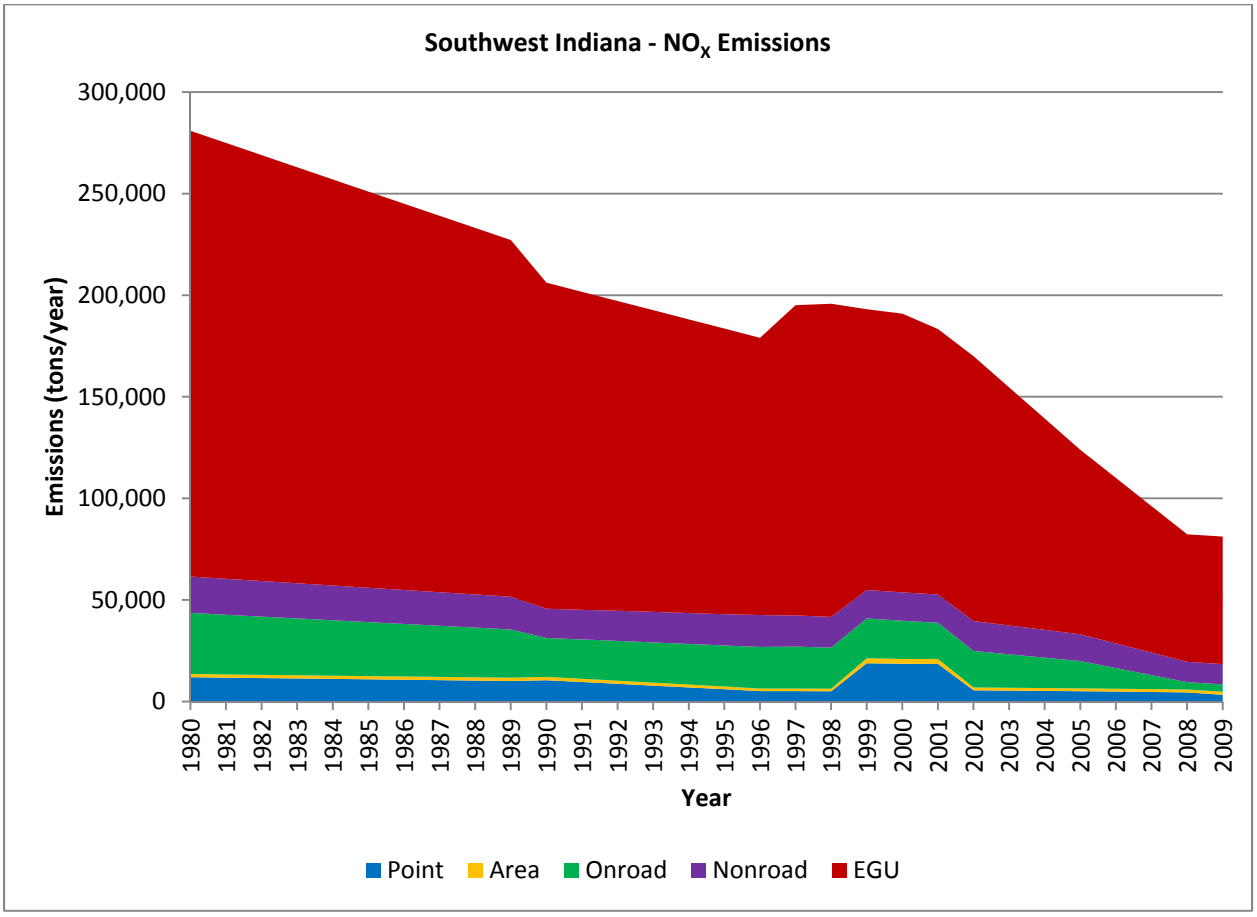
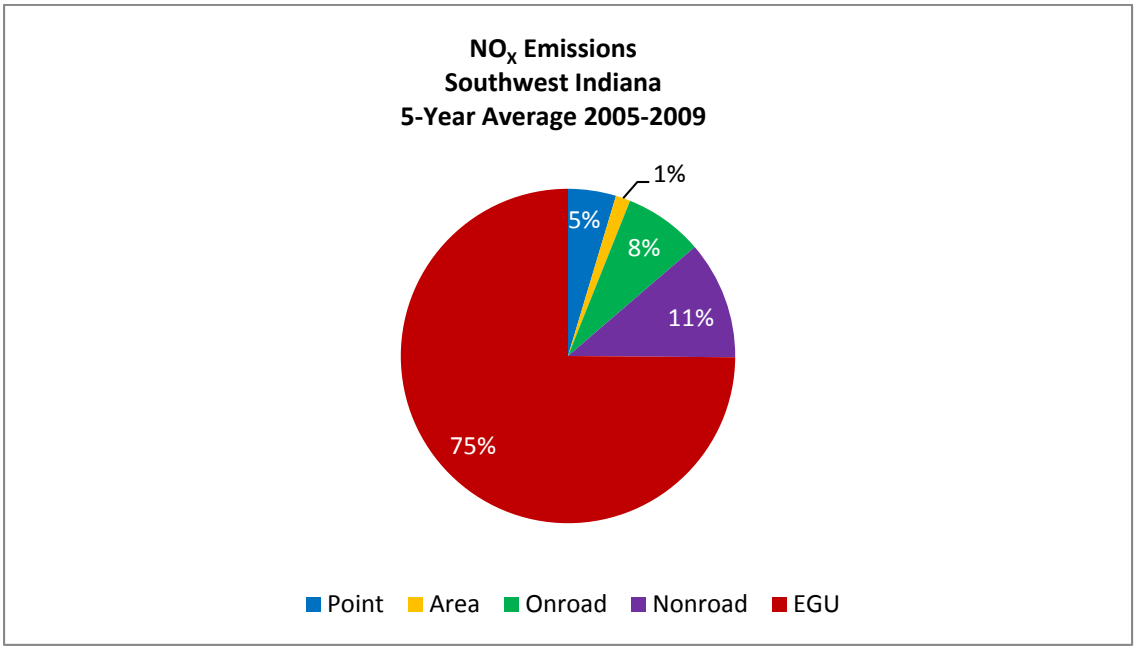


Chart 6: Southwest Indiana NO_x Emissions



Graph 21: Southwest Indiana VOC Emissions

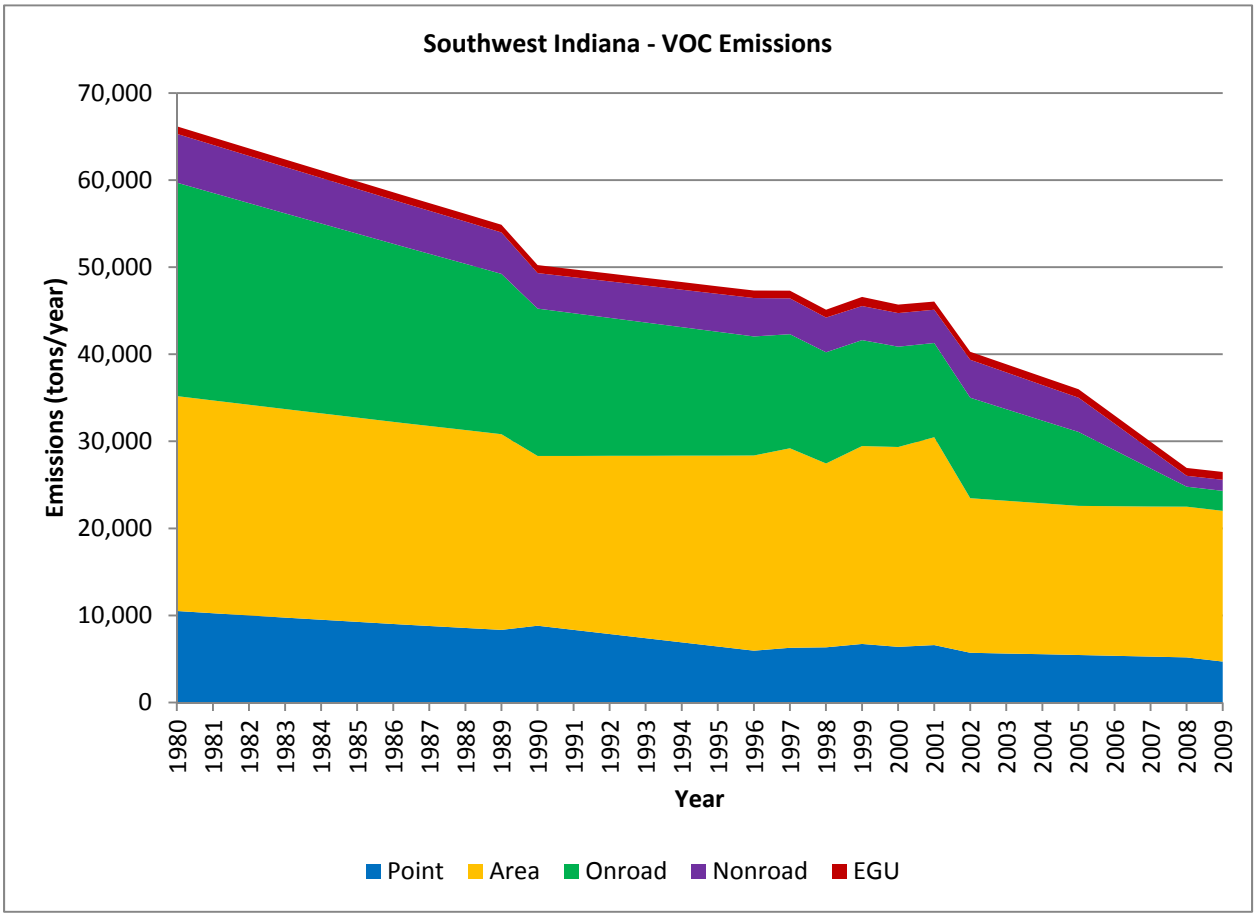
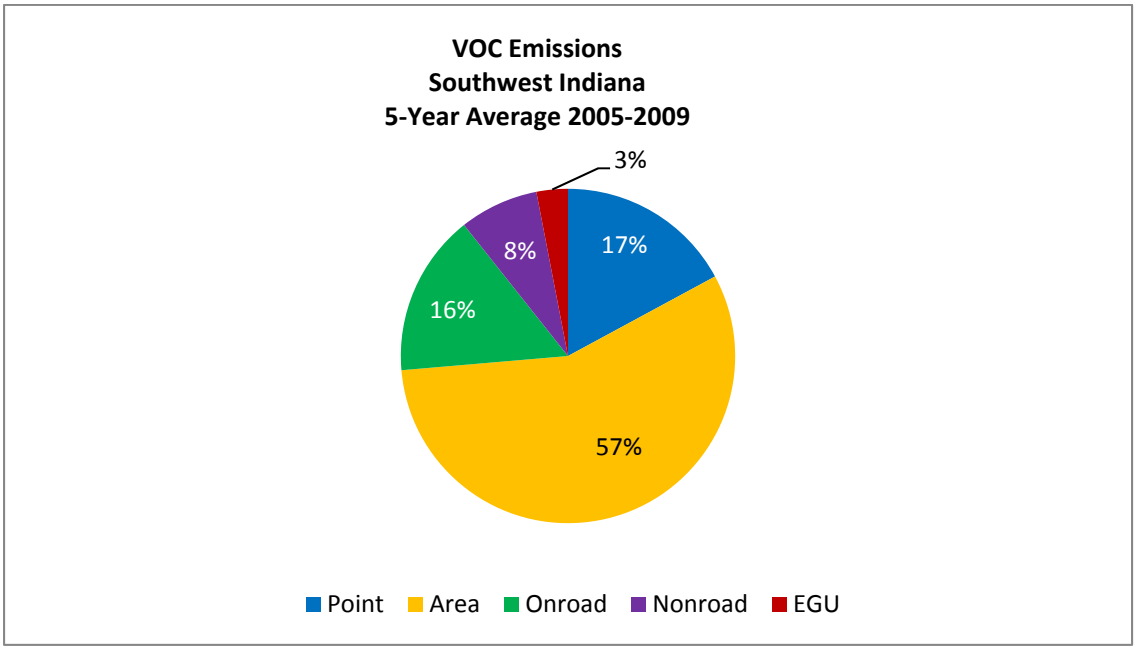


Chart 7: Southwest Indiana VOC Emissions



National controls, such as engine and fuel standards, as well as regional controls, such as the NO_x SIP Call, have led to a decrease in ozone precursor emissions over time. As Graphs 20 and 21 illustrate, NO_x and VOC emissions have decreased by 71% and 60%, respectively, within the Southwest Indiana area since 1980. This trend is true for the key precursors of ozone throughout Indiana and the upper Midwest. Reductions in NO_x and VOC emissions are also attributable to the implementation of the federal engine and fuel standards for onroad and nonroad vehicles and equipment, the NO_x SIP Call beginning in 2004, and to local controls that were necessary in reducing emissions in the Southwest Indiana area. Nationally, average ozone levels declined in the 1980's, leveled off in the 1990's, and showed a notable decline after 2004 with the implementation of the NO_x SIP Call.

For information on ozone standards, sources, health effects, and programs to reduce ozone, please see www.epa.gov/air/ozonepollution.

Particulate Matter (PM_{10})

Currently there are two monitoring sites, one each located in Dubois and Vanderburgh counties that measure PM_{10} data in Southwest Indiana. The trend data in Graph 22 reflect the annual arithmetic mean which is used to compare to the primary and secondary annual PM_{10} standards of 50 $\mu g/m^3$. The highest value from all of the monitors in the Southwest Indiana area is plotted on the graph for each year. The annual PM_{10} standard was revoked in October 2006. The trend data in Graph 23 reflect the 2nd highest 24-hour PM_{10} concentration, which is used to compare to the primary and secondary 24-hour PM_{10} standards of 150 $\mu g/m^3$. Attainment of the primary and secondary 24-hour PM_{10} standards is determined by evaluating the 2nd highest 24-hour concentrations and is attained when the number of days per year with a 24-hour average above 150 $\mu g/m^3$ is equal to or less than 1 per year in a three-year period. The highest 2nd high concentration from all of the monitors in the Southwest Indiana area is plotted on the graph for each year.

While there is some variability in the monitoring data for both the annual and 24-hour PM_{10} values, a downward trend over time is demonstrated in Graphs 22 and 23. The monitoring data in Southwest Indiana have been below both the primary and secondary annual PM_{10} standards, as well as the primary and secondary 24-hour PM_{10} standards. PM_{10} monitors are located in close proximity to major sources in the area and data will fluctuate based on variability in facility operations and meteorology.

The data shown in Tables 20 and 21 include the monitoring sites that measured annual and 24-hour PM_{10} from 2000 through 2010. Monitoring data for both annual and 24-hour PM_{10} prior to the year 2000 are available upon request. Monitoring data in Table 20 are compared to the primary and secondary annual PM_{10} standards of 50 $\mu g/m^3$ and show that the Southwest Indiana area has always been below the standards. Monitoring data in Table 21 are compared to the primary and secondary 24-hour PM_{10} standards of 150 $\mu g/m^3$ and show that the Southwest Indiana area has always been below the standards.

Graph 22: Southwest Indiana Annual Arithmetic Mean PM_{10} Values

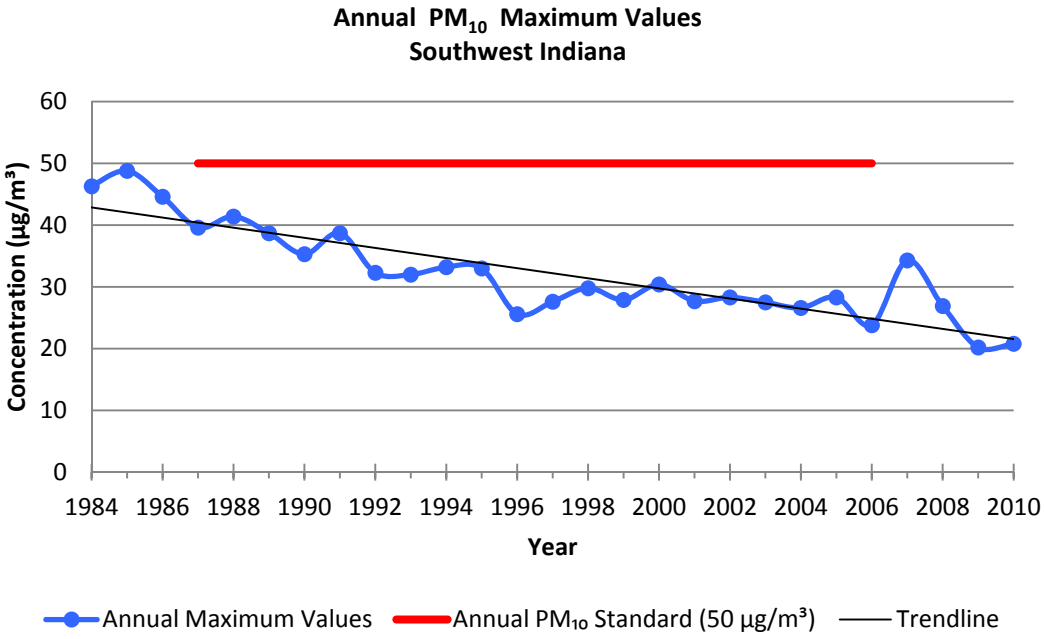


Table 20: Southwest Indiana Annual Arithmetic Mean PM_{10} Values Monitoring Data Summary

County	Site #	Site Name	Annual Arithmetic Mean (µg/m³)										
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Daviess	180270004	Washington	23.0	19.9	18.5	18.8							
Dubois	180372001	Jasper - Post Office	26.0	22.5	19.2	20.2	19.4	25.6	19.1	24.8	18.8	17.8	20.8
Perry	181230006	Tell City - Old Brush Fork Rd	30.4	26.1	28.3	24.9	26.6	28.1	23.8	34.3	26.9	13.6	
Perry	181230006	Tell City - Waupaca Foundry	26.8	24.2	21.9	23.2	20.4	25.9	23.8	27.0	21.8	14.5	
Vanderburgh	181630006	Evansville - Civic Center	27.4	24.8	24.6	24.8	22.8	28.3	22.7	25.0	21.0		
Vanderburgh	181630012	Evansville - Mill Rd				26.3	22.1	27.0	23.3	25.2	18.7	15.3	
Vanderburgh	181630014	Evansville - Illinois St	18.5	27.7	26.7	27.5							
Vanderburgh	181630021	Evansville - Buena Vista										20.2	19.8

Highlighted red numbers are over the annual PM_{10} standard of 50 µg/m³

Graph 23: Southwest Indiana 24-Hour 2nd High PM_{10} Values

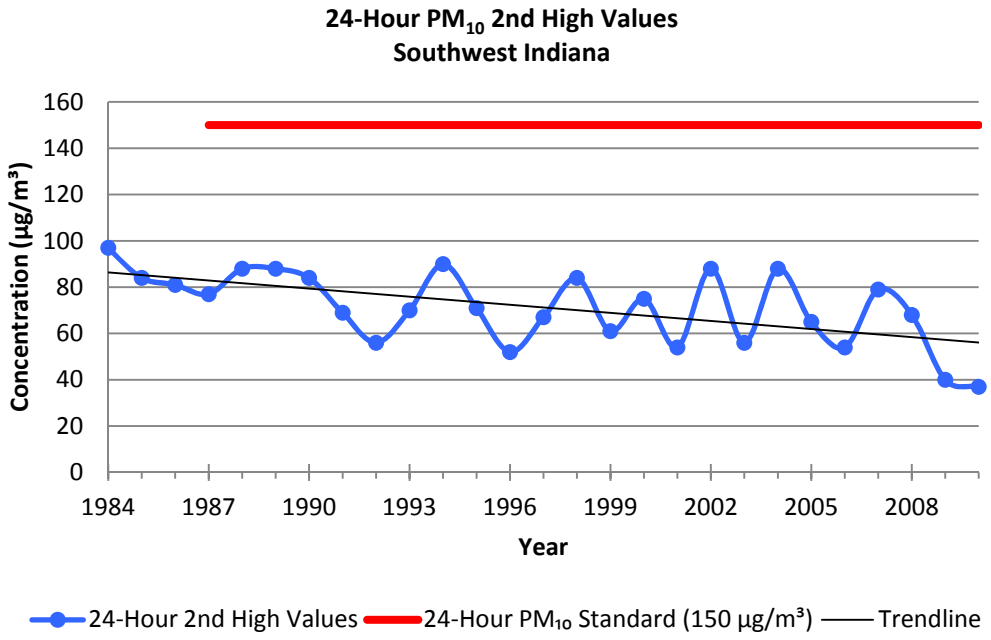


Table 21: Southwest Indiana 24-Hour PM_{10} 2nd High Values Monitoring Data Summary

County	Site #	Site Name	24-Hour 2nd High Value (µg/m³)										
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Daviess	180270004	Washington	60	46	36	29							
Dubois	180372001	Jasper - Post Office	62	44	37	43	41	55	34	48	35	36	36
Perry	181230006	Tell City - Old Brush Fork Rd	75	54	88	56	88	65	54	79	68	17	
Perry	181230006	Tell City - Waupaca Foundry	68	52	46	49	42	49	48	54	42	21	
Vanderburgh	181630006	Evansville - Civic Center	68	54	50	48	42	58	52	51	45		
Vanderburgh	181630012	Evansville - Mill Rd				47	42	55	52	48	37	25	
Vanderburgh	181630014	Evansville - Illinois St	66	54	50	44							
Vanderburgh	181630021	Evansville - Buena Vista										40	37
			Highlighted red numbers are over the 24-hour PM_{10} standard of 150 µg/m³										

Tables 20 and 21 demonstrate that the annual and 24-hour PM_{10} values for the Southwest Indiana area correlate with each other over time, meaning that when one monitoring site trends upward or downward, the other sites do also.

U.S. EPA's NEI contains emissions information for PM_{10} and is used in Graph 24 and Chart 8. Graph 24 illustrates the emissions trend for PM_{10} in Southwest Indiana and Chart 8 shows how the average emissions are distributed among the different source categories.

Graph 24: Southwest Indiana PM_{10} Emissions

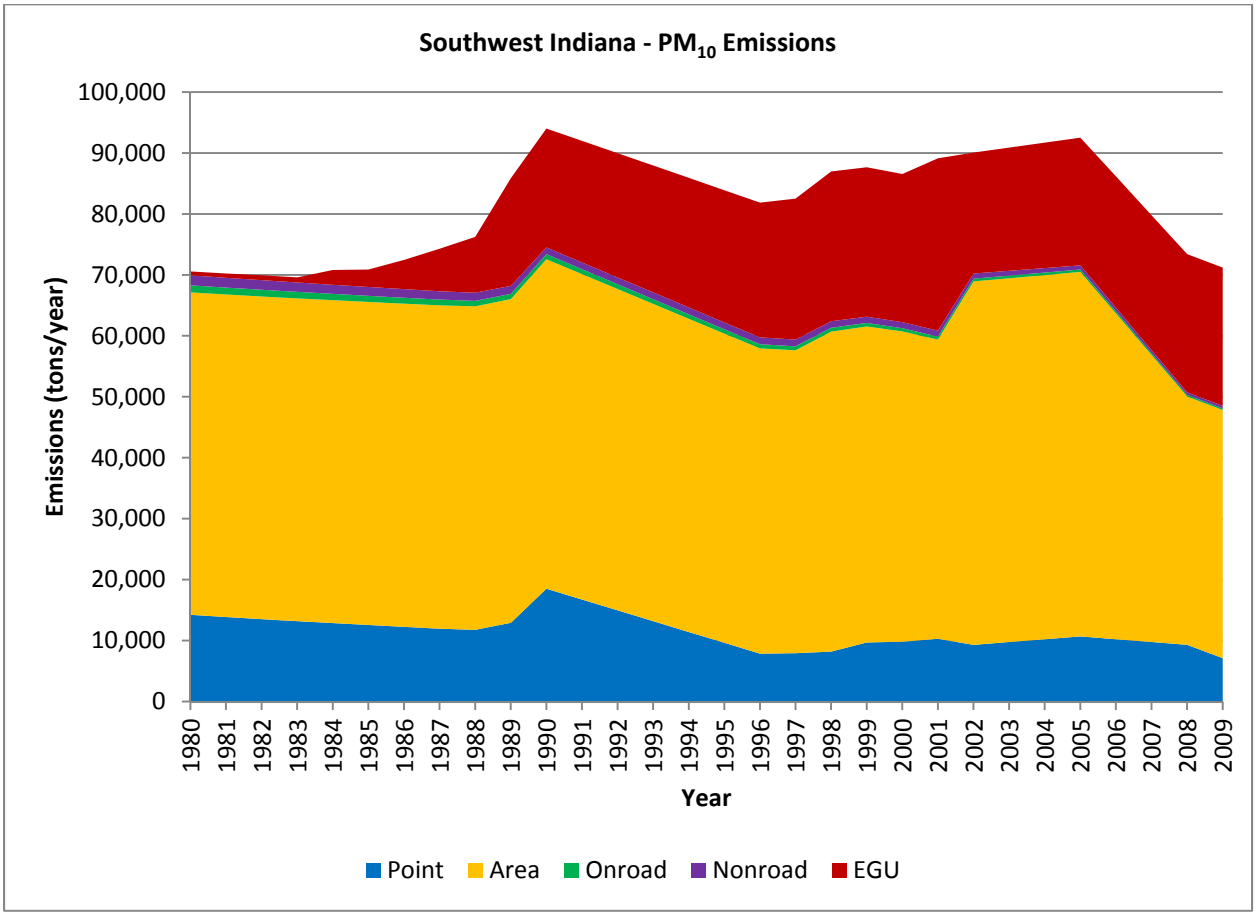
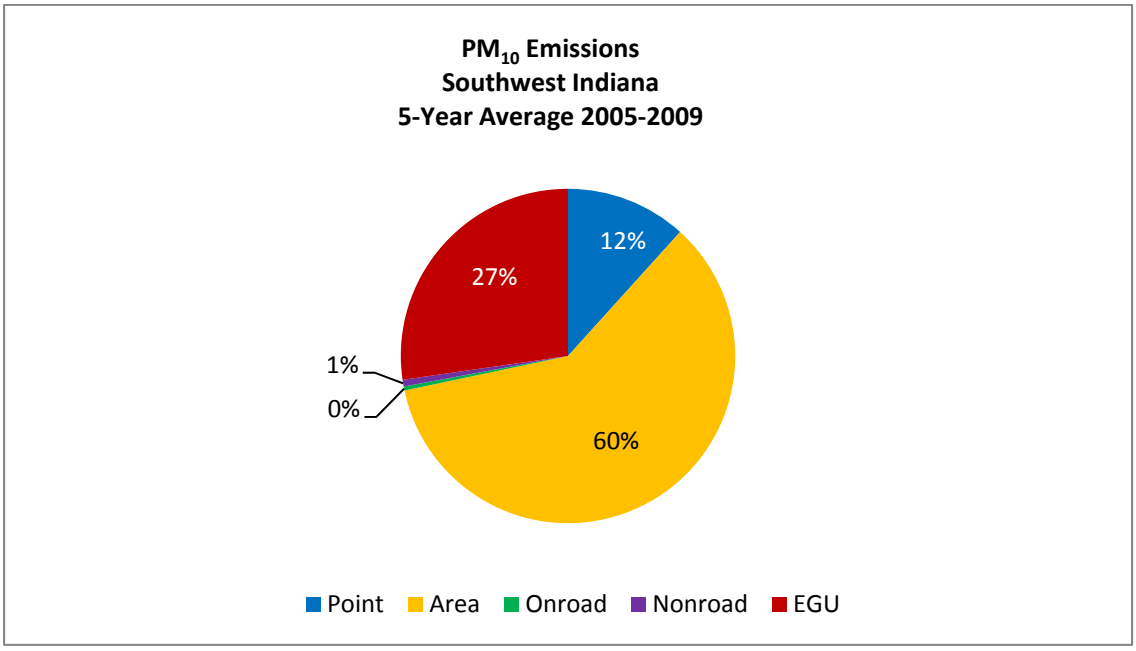


Chart 8: Southwest Indiana PM_{10} Emissions



National controls, such as engine and fuel standards, as well as regional controls, such as the NO_x SIP Call, have led to a decrease in PM_{10} values over time. As Graph 24 illustrates, total PM_{10} emissions in the Southwest Indiana area have decreased by 1% since 1980.

Sulfur Dioxide (SO_2)

Seven monitoring sites within Southwest Indiana measure SO_2 levels, one each in Daviess, Pike, and Warrick counties, and two in Gibson and Vanderburgh counties. The trend data in Graph 25 reflect the annual arithmetic mean which was used to compare to the primary annual SO_2 standard at 0.03 ppm. Attainment of the primary annual SO_2 standard was determined by evaluating the annual arithmetic mean which could not exceed the standard. U.S. EPA revoked the primary annual SO_2 standard in June 2010 and replaced it with a 1-hour SO_2 standard. The highest annual arithmetic mean from all of the monitors in the Southwest Indiana area is plotted on Graph 25 for each year.

The trend data in Graph 26 reflect the 2nd highest 24-hour SO_2 concentrations, which were used to compare to the primary 24-hour SO_2 standard at 0.14 ppm. Attainment of the primary 24-hour SO_2 standard was determined by evaluating the 2nd highest 24-hour concentration, which could not exceed the standard. U.S. EPA revoked the primary 24-hour SO_2 standard in June 2010 and replaced it with a 1-hour SO_2 standard. The highest of the 2nd high 24-hour values from all of the monitors in the Southwest Indiana area is plotted on Graph 26 for each year. The trend data in Graph 27 show the 99th percentile of the 1-hour SO_2 values, which are provided for reference purposes only, because they were collected prior to the implementation of the current standard. The design value of the 99th percentile is used for comparison to the primary 1-hour SO_2 standard; therefore, the one-year values shown in Graph 27 are not a true comparison to the primary 1-hour SO_2 standard. The values in Graph 27 reflect the highest 99th percentile from all of the monitors in the Southwest Indiana area which is plotted on the graph for each year. The 1-hour SO_2 standard at 75 ppb is only listed for the year 2010 on this graph since it was not established until June 2010. Attainment of the primary 1-hour SO_2 standard is determined by evaluating the design value of the 99th percentile values of the daily maximum 1-hour averages at each monitor within an area, which must not exceed 75 ppb averaged over a three-year period. The values in Graph 28 reflect the design value of the 99th percentile of the daily maximum 1-hour average values for the years 2000 through 2010 from all of the monitors in the Southwest

Indiana area is plotted on the graph for each year. An exceedance of the primary 1-hour SO_2 standard occurs when a 99th percentile value is equal to or greater than 75 ppb. A violation of the primary 1-hour SO_2 standard occurs when the three-year design value of the 99th percentile is equal to or greater than 75.5 ppb. A monitor can exceed the standard without being in violation.

The data in Tables 22, 23, 24, and 25 include the monitoring sites that measured annual, 24-hour, and 1-hour SO_2 from 2000 through 2010. Monitoring data for SO_2 prior to the year 2000 are available upon request. Monitoring data for all graphs display a downward trend over time. The monitor values for Southwest Indiana have always been historically below the primary annual and 24-hour SO_2 standards.

Monitoring data in Table 22 show the annual arithmetic mean for the years 2000 through 2010 which were compared to the primary annual SO_2 standard of 0.03 ppm. Monitoring data in Table 23 show the 2nd highest 24-hour value for the years 2000 through 2010 which was compared to the primary 24-hour SO_2 standard of 0.14 ppm.

Monitoring data in Table 24 show the 1-hour 99th percentile values for the years 2000 through 2010. Monitoring data in Table 25 show the design value of the 99th percentile for the years 2000 through 2010 which are compared to the new primary 1-hour SO_2 standard at 75 ppb. In Tables 22, 23, and 25 values above the standards have been highlighted. The 1-hour SO_2 data prior to the 2008-2010 design value were not compared to any standard and the 99th percentile and design values from 2000 to 2007 are included for reference purposes only.

Graph 25: Southwest Indiana Annual Arithmetic Mean SO_2 Values

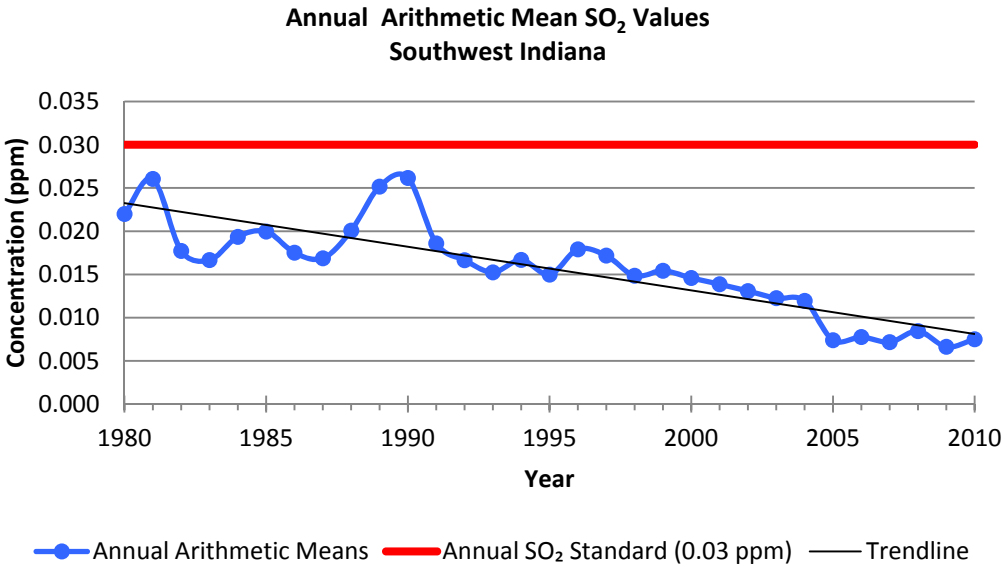


Table 22: Southwest Indiana Annual Arithmetic Mean SO_2 Values Monitoring Data Summary

County	Site ID	Site Name	Annual Arithmetic Mean (ppm)										
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Daviess	180270002	West off of SR 57	0.007	0.007	0.006	0.007	0.006	0.007	0.006	0.005	0.005	0.004	0.005
Gibson	180510001	E - SE of Plant	0.005	0.003	0.002	0.003	0.003	0.004	0.004	0.004	0.003	0.004	0.003
Gibson	180510002	Gibson Coal Rd	0.006	0.006	0.006	0.007	0.007	0.006	0.008	0.006	0.004	0.005	0.004
Perry	181230006	Tell City - Old Brushy Fork Rd	0.004	0.007	0.007	0.006	0.006						
Perry	181230007	Tell City - Waupaca Foundry	0.007	0.007	0.007	0.006	0.007						
Pike	181250005	E Arda Lane	0.008	0.012	0.010	0.008	0.007	0.007	0.007	0.007	0.008	0.007	0.008
Spencer	181470002	Highway 245	0.008	0.006									
Vanderburgh	181630012/21	Evansville - Buena Vista	0.004	0.003	0.003	0.003	0.004	0.004	0.003	0.003	0.004	0.002	0.002
Vanderburgh	181631002	Roth Rd	0.003	0.003	0.003	0.003	0.004	0.005	0.001	0.001	0.003	0.000	0.001
Warrick	181730002	200 Yards S of S 650 & 1/4 Mile E of W 400	0.015	0.014	0.013	0.012	0.012	0.006	0.007	0.003	0.003	0.003	0.002

Highlighted red numbers are above the annual SO_2 standard of 0.03 ppm

Graph 26: Southwest Indiana 24-Hour SO_2 2nd High Values

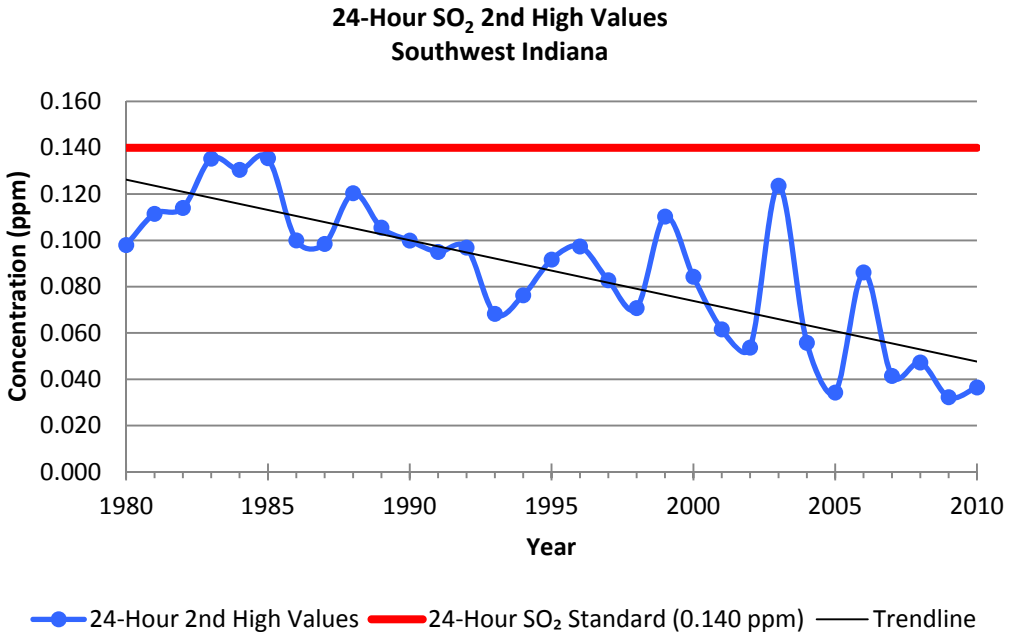


Table 23: Southwest Indiana 24-Hour SO_2 2nd High Values Monitoring Data Summary

County	Site ID	Site Name	2nd High Value (ppm)										
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Daviess	180270002	West off of SR 57	0.035	0.030	0.032	0.034	0.039	0.026	0.036	0.025	0.036	0.026	0.026
Gibson	180510001	E - SE of Plant	0.019	0.032	0.015	0.027	0.023	0.025	0.020	0.020	0.012	0.015	0.013
Gibson	180510002	Gibson Coal Rd	0.070	0.062	0.054	0.124	0.048	0.030	0.086	0.042	0.019	0.023	0.021
Perry	181230006	Tell City - Old Brushy Fork Rd	0.021	0.038	0.036	0.036	0.026						
Perry	181230007	Tell City - Waupaca Foundry	0.030	0.040	0.034	0.033	0.028						
Pike	181250005	E Arda Lane	0.029	0.053	0.050	0.069	0.033	0.027	0.029	0.037	0.047	0.032	0.037
Spencer	181470002	Highway 245	0.028	0.023									
Vanderburgh	181630012/21	Evansville - Buena Vista	0.020	0.025	0.017	0.026	0.018	0.017	0.015	0.016	0.012	0.006	0.005
Vanderburgh	181631002	Roth Rd	0.010	0.010	0.010	0.024	0.022	0.023	0.009	0.018	0.013	0.004	0.007
Warrick	181730002	200 Yards S of S 650 & 1/4 Mile E of W 400	0.084	0.053	0.054	0.065	0.056	0.034	0.038	0.026	0.024	0.012	0.008

Highlighted red numbers are over the 24-hour SO_2 standard of 0.14 ppm

Graph 27: Southwest Indiana 1-Hour SO_2 99th Percentile Values

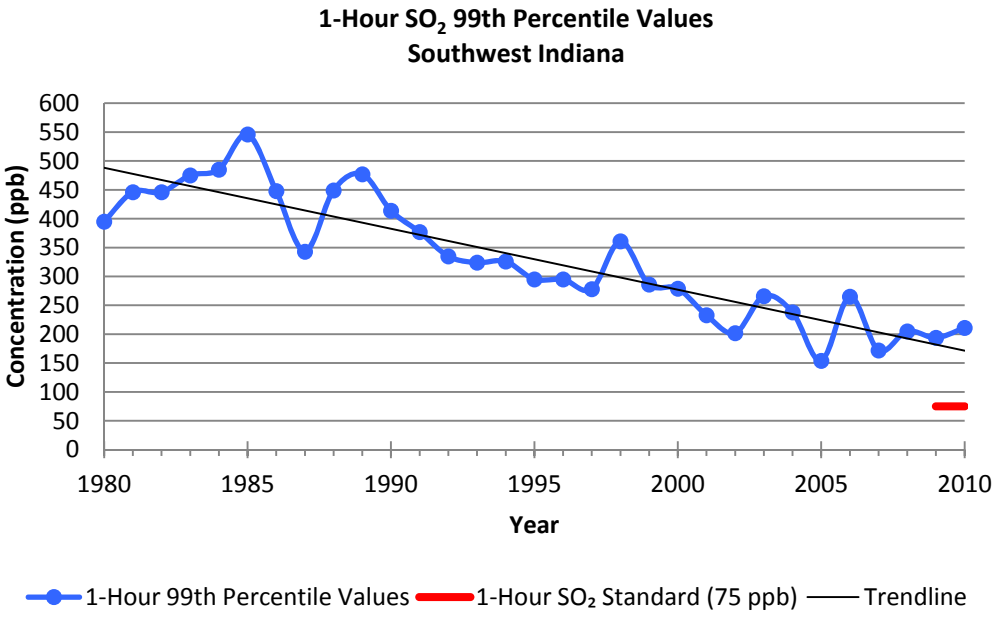


Table 24: Southwest Indiana 1-Hour 99th Percentile SO_2 Monitoring Data Summary

County	Site ID	Site Name	99th Percentile Values (ppb)										
			2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Daviess	180270002	West off of SR 57	120	119	119	107	131	91	135	112	122	138	115
Gibson	180510001	E - SE of Plant	103	106	86	82	135	122	101	103	56	44	45
Gibson	180510002	Gibson Coal Rd	279	203	194	266	226	154	265	136	90	65	74
Perry	181230006	Tell City - Old Brushy Fork Rd	124	201	157	147	147						
Perry	181230007	Tell City - Waupaca	125	178	148	179	123						
Pike	181250005	E Arda Lane	107	155	130	183	151	119	161	172	205	194	211
Spencer	181470002	Highway 245	86	78									
Vanderburgh	181630012/21	Evansville - Buena Vista	97	82	64	85	72	66	67	69	41	17 [1]	19
Vanderburgh	181631002	Roth Rd	33	33	33	45	79	60	21	27	43	14	18
Warrick	181730002	200 Yards S of S 650 & 1/4 Mile E of W 400	253	233	202	217	238	143	199	103	111	38	18

[1] The 4th high value for 2009 was found by using the first 6 months of data from West Mill Rd (163-0012) and the last 6 months of data from Buena Vista (163-

Graph 28: Southwest Indiana 1-Hour SO_2 Three-Year Design Values

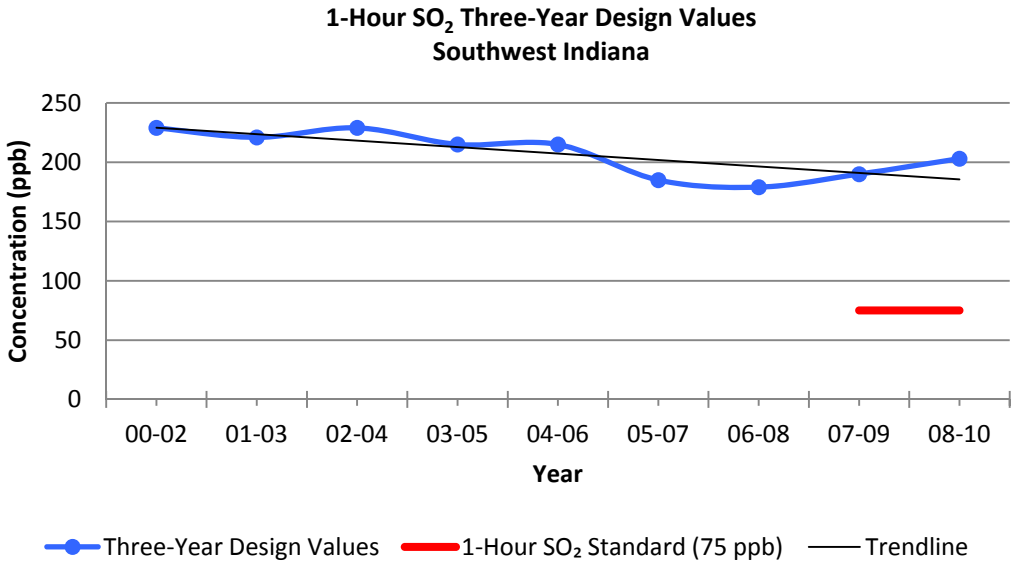


Table 25: Southwest Indiana 1-Hour SO_2 Three-Year Design Values Monitoring Data Summary

County	Site ID	Site Name	Three-Year Design Value (ppb)								
			00-02	01-03	02-04	03-05	04-06	05-07	06-08	07-09	08-10
Daviess	180270002	West off of SR 57	119	115	119	110	119	113	123	124	125
Gibson	180510001	E - SE of Plant	98	91	101	113	119	109	87	66	48
Gibson	180510002	Gibson Coal Rd	225	221	229	215	215	185	164	97	76
Perry	181230006	Tell City - Old Brushy	161	168	150	147	147				
Perry	181230007	Tell City - Waupaca	150	168	150	151	123				
Pike	181250005	E Arda Lane	131	156	155	151	144	151	179	190	203
Spencer	181470002	Highway 245	82	78							
Vanderburgh	181630012/21	Evansville - Buena	81	77	74	74	68	67	59	43 [2]	26 [3]
Vanderburgh	181631002	Roth Rd	33	37	52	61	53	36	30	28	25
Warrick	181730002	200 Yards S of S 650 & 1/4 Mile E of	229	217	219	199	193	148	138	84	56

Beginning in 2010, highlighted red numbers are above the 1-hour SO_2 standard of 75 ppb

[2] The (07-09) 3-yr design value of the 4th high value was calculated by using West Mill Rd (163-0012) for 2007, 2008 and West Mill Rd and Buena Vista (163-0021) for 2009

[3] The (08-10) 3-yr design value of the 4th high value was calculated by using West Mill Rd (163-0012) for 2008, West Mill Rd and Buena Vista (163-0021) for 2009 and Buena Vista for all of 2010

As shown in Graphs 25 and 26, both annual and 24-hour SO_2 values for the Southwest Indiana area have historically been below their respective standards. In addition, monitoring data shown in Graph 27 indicate a downward trend in 1-hour SO_2 monitoring values over time. SO_2 monitors are located in close proximity to major sources in the area and data will fluctuate based on variability in facility operations and meteorology.

While 1-hour SO_2 values illustrated in Graph 27 for the Southwest Indiana area have been trending downward over time, the area's three-year design value in Graph 28 is currently over the new 1-hour primary standard. It is expected that 1-hour, 24-hour, and annual SO_2 values will continue to decline in the Southwest Indiana area in the future and the area will comply with the 1-hour primary SO_2 standard when CSAPR or equivalent replacement rule is implemented.

U.S. EPA's NEI contains emissions information for SO_2 and is used in Graph 29 and Chart 9. Graph 29 illustrates the emissions trend for SO_2 in Southwest Indiana and Chart 9 shows how the average emissions are distributed among the different source categories.

Graph 29: Southwest Indiana SO_2 Emissions

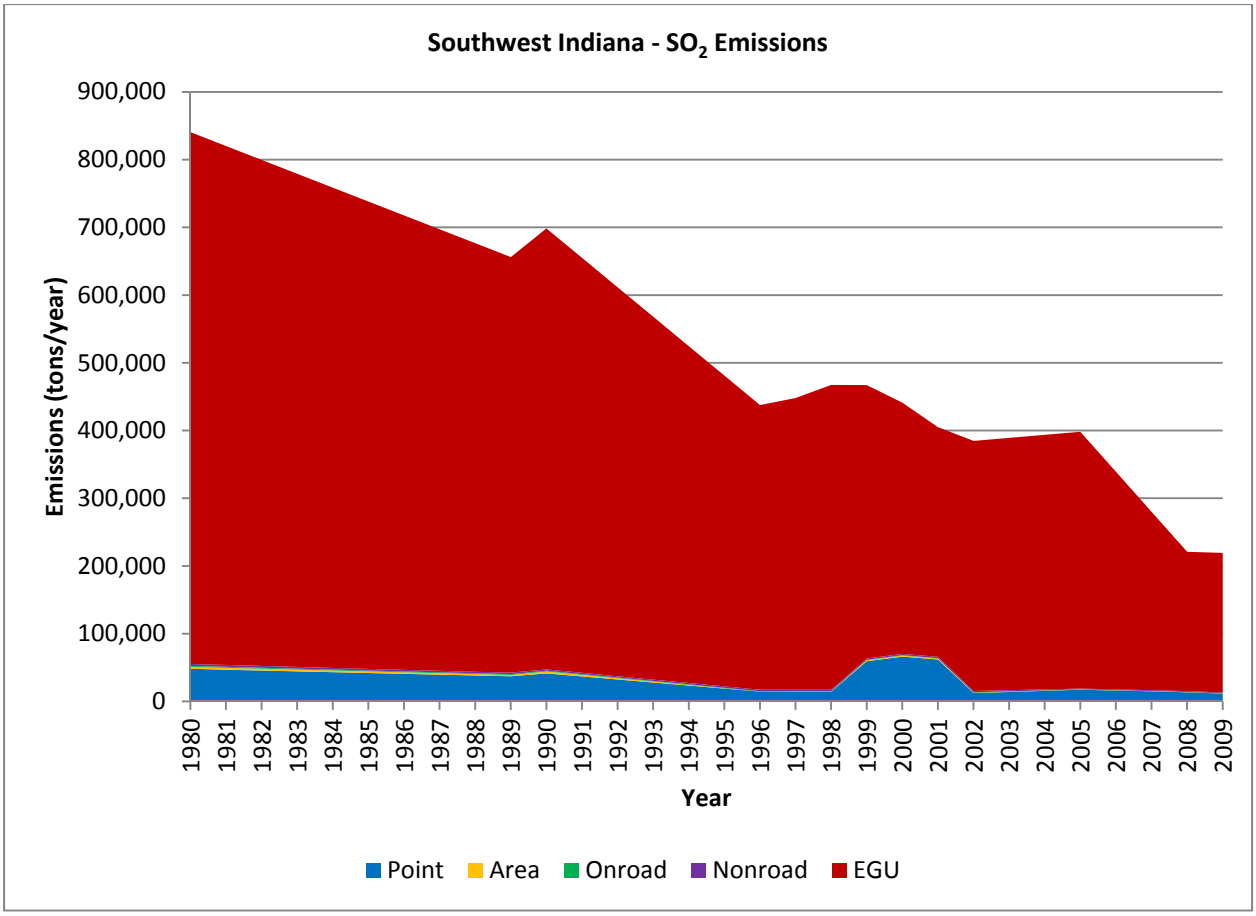
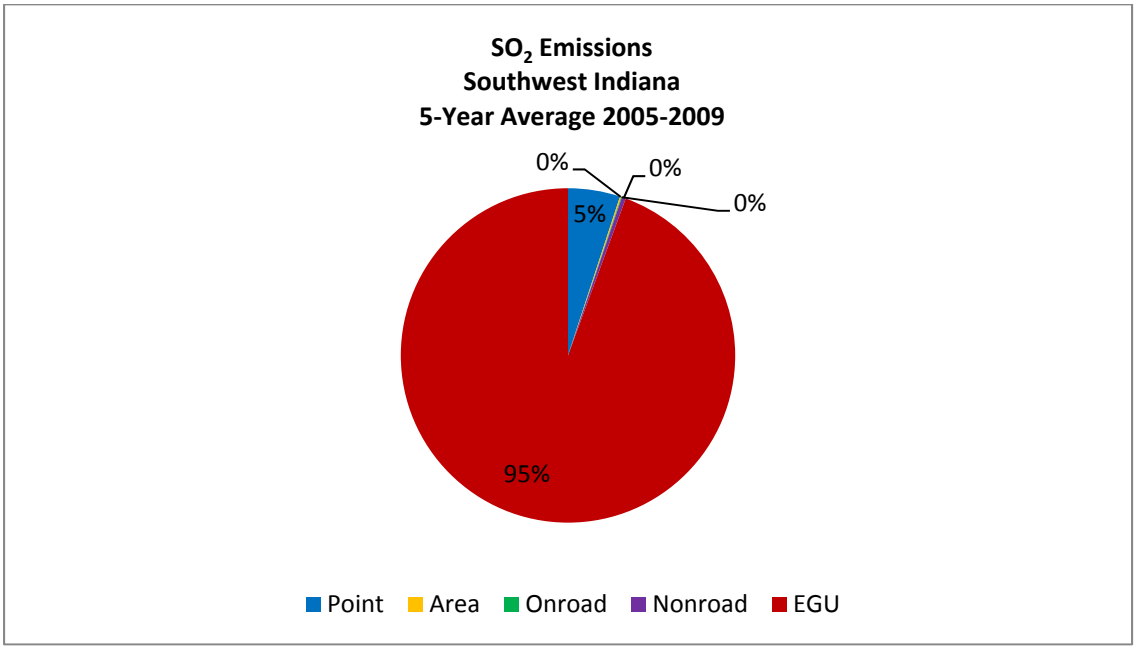


Chart 9: Southwest Indiana SO_2 Emissions



National and regional controls, such as the Acid Rain Program, engine and fuel standards, and the NO_x SIP Call have led to a decrease in SO_2 values over time. As Graph 29 illustrates, SO_2 emissions have decreased by 74% within the Southwest Indiana area since 1980. This trend is true throughout Indiana and the upper Midwest. Nationally, average SO_2 concentrations have decreased by more than 70% since 1980 due to implementation of the Acid Rain Program.

For information on SO_2 standards, sources, health effects, and programs to reduce SO_2, please see www.epa.gov/air/sulfurdioxide.

Total Suspended Particulate (TSP)

All available TSP data for Southwest Indiana are from monitors that were located in Dubois and Vanderburgh counties. The trend data in Graph 30 reflect the annual geometric mean values, which were used to compare to the primary and secondary annual TSP standards of 75 µg/m^3. The highest annual geometric mean from all of the monitors in the Southwest Indiana area is plotted on the graph for each year. The trend data in Graph 31 reflect the 2nd highest 24-hour TSP concentrations which were used to compare to the primary 24-hour TSP standard of 260 µg/m^3. The highest 2nd high 24-hour value from all of the monitors in the Southwest Indiana area is plotted on the graph for each year.

Both the primary and secondary annual TSP standards, as well as the primary and secondary 24-hour TSP standards, were revoked in 1987. TSP monitoring sites were discontinued across Indiana in 1995 because TSP was replaced by PM_{10}. Monitoring data for both annual and 24-hour TSP show a downward trend over time. Annual TSP monitoring values violated the primary and secondary annual TSP standards in 1980 and 1981, but afterwards remained below the annual TSP standards for the Southwest Indiana area. While occasional spikes can be seen in the 24-hour TSP values, the monitor values for Southwest Indiana have been below the primary and secondary 24-hour TSP standards. TSP monitors were located in close proximity to major sources in the area and data fluctuate based on variability in facility operations and meteorology.

The data in Tables 26 and 27 are from the monitoring sites that measured annual and 24-hour $PM_{2.5}$ from 1980 through 1988. All available data for both annual and 24-hour TSP for the Southwest Indiana area are shown in the tables. Monitoring data for both annual and 24-hour TSP show a downward trend over time.

Monitoring data in Table 26 show the annual geometric mean for annual TSP for the years 1980 through 1988 which are compared to the primary and secondary annual $PM_{2.5}$ standards of 75 µg/m^3. Monitoring data in Table 27 show the 2nd highest 24-hour TSP concentrations for the years 1980 through 1988, which are compared to the primary 24-hour TSP standard of 260 µg/m^3.

Graph 30: Southwest Indiana Annual Geometric Mean TSP Values

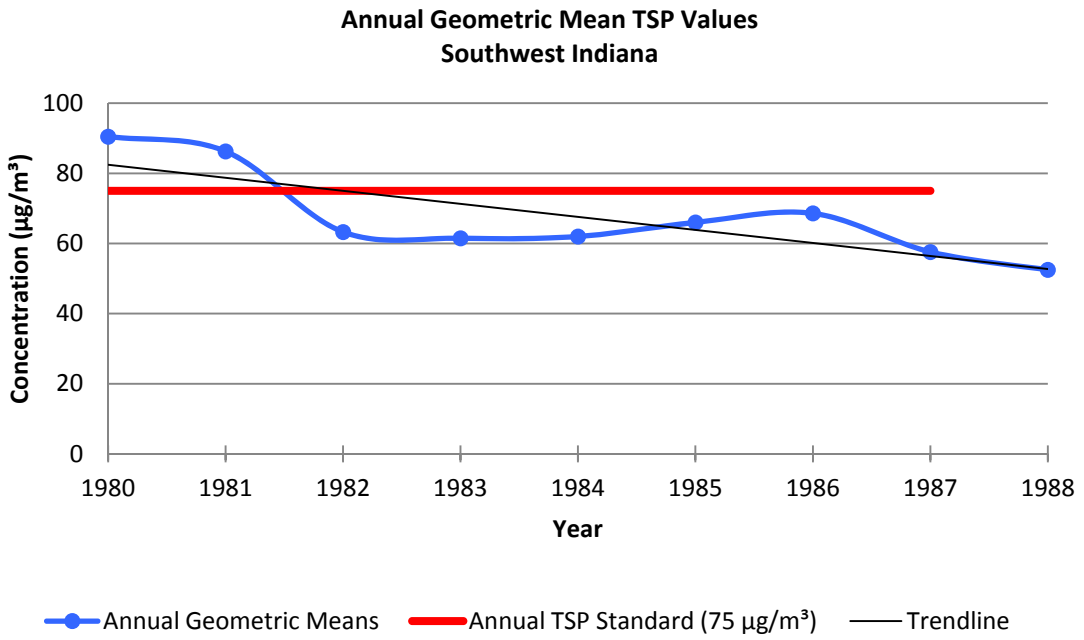


Table 26: Southwest Indiana Annual Geometric Mean TSP Values

County	Site #	Site Name	Annual Geometric Mean (µg/m³)											
			1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Dubois	180372001	Jasper Post Office	91	83	60	62	62	62	56	58	45			
Vanderburgh	181630006	NW Martin Luther King Junior Blvd	56	66	51	52	50	52	55	50	50			
Vanderburgh	181630010	University of Evansville	60	61	45	44	43	47	47	51	46			
Vanderburgh	181630011	N. St. Joseph Avenue	77	86	63	61	59							
Vanderburgh	181630012	W. Mill Road	63	61	47	42	44	44	45	44	43			
Vanderburgh	181630014	W. Illinois Street					56	66	69	57	53			
			Highlighted red numbers are above the Annual TSP Standard of 75 µg/m³											

Graph 31: Southwest Indiana 24-Hour 2nd High TSP Values

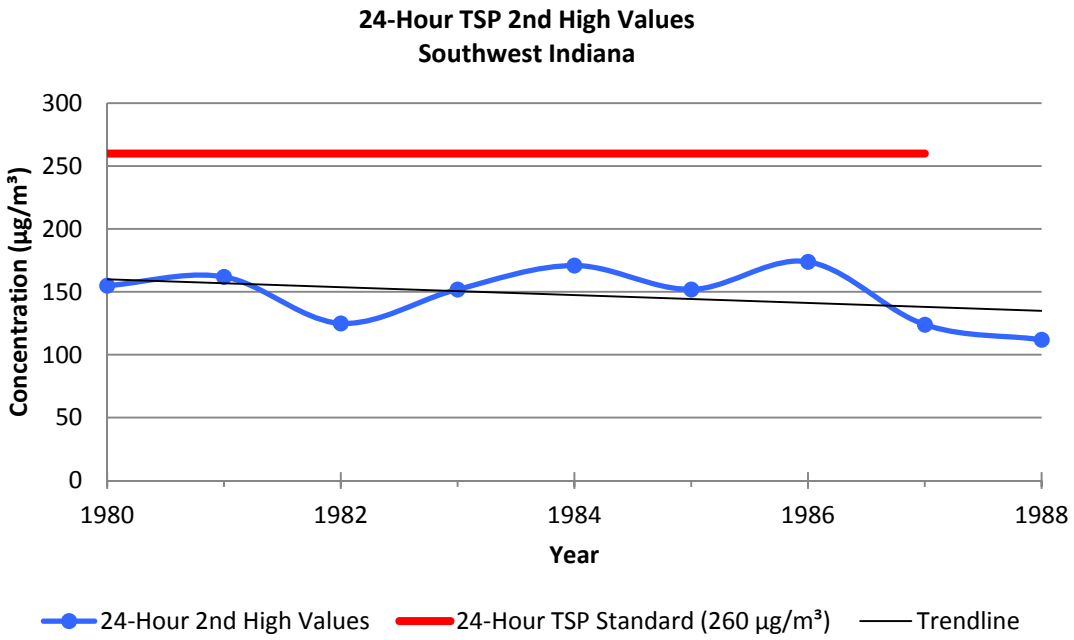


Table 27: Southwest Indiana 24-Hour TSP 2nd High Values

County	Site #	Site Name	2nd High Values (µg/m³)											
			1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Dubois	180372001	Jasper Post Office	155	137	117	152	171	129	114	124	68			
Vanderburgh	181630006	NW Martin Luther King Junior Blvd	75	105	117	118	135	116	112	116	112			
Vanderburgh	181630010	University of Evansville	141	121	116	110	104	94	114	107	103			
Vanderburgh	181630011	N. St. Joseph Avenue	145	162	125	116	136							
Vanderburgh	181630012	W. Mill Road	111	100	98	82	104	92	90	94	85			
Vanderburgh	181630014	W. Illinois Street					130	152	174	115	105			

Highlighted red numbers are above the 24-Hour TSP Standard of 260 µg/m³

Future of Air Quality

U.S. EPA is required by the CAA to review each criteria pollutant standard to evaluate whether it adequately protects public health. If a criteria pollutant standard is lowered in the future, the Southwest Indiana area may monitor violations of the new standard simply because the standard could be set lower than current monitored values. However, as new air programs are implemented in the future, the Southwest Indiana area will continue to see declines in monitor and emission values, which will help it meet the threshold for any new criteria pollutant standards that are implemented.

Conclusions

Although overall population and VMT has been on the increase over time, the Southwest Indiana area's monitored air quality and emission values have been trending downward and will continue to improve into the future. The overall decrease in emissions in the Southwest Indiana area can be attributed to a variety of clean air programs put in place nationally (i.e. the Acid Rain Program, Tier II Emission Standards for Vehicles and Gasoline Sulfur Standards, Heavy-Duty Diesel Engine Program, and the Clean Air Nonroad Diesel Rule), regionally (i.e. the NO_x SIP Call, CAIR, and state rules), and locally through local ordinances (i.e. open burning regulations, outdoor wood-fired heating devices, and vehicle or engine operations) over the past 30 years. It is expected that this downward trend will continue as existing clean air programs continue and new programs such as CSAPR and recently adopted state rules are implemented (e.g. the Outdoor Hydronic Heater Rule, the Consumer and Commercial Products Rule, the Architectural and Industrial Maintenance Coatings Rule, the Automobile Refinishing Operations Rule, and the Stage I Vapor Recovery Rule).

Appendix

Southwest Indiana County-Specific Emission Inventory Data

(1980-2009)

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Daviess County Emissions (Tons per Year)

Year	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC
1980	20,195.60	2,084.71	1,425.23	4,574.20	772.29	2,432.56
1981	19,694.74	2,057.88	1,411.01	4,625.68	750.10	2,419.93
1982	19,193.89	2,031.05	1,396.79	4,677.15	727.91	2,407.31
1983	18,693.03	2,004.22	1,382.57	4,728.63	705.91	2,394.68
1984	18,192.18	1,977.39	1,368.35	4,780.11	684.06	2,382.06
1985	17,691.37	1,950.56	1,354.13	4,831.58	662.21	2,369.43
1986	17,190.67	1,923.73	1,339.91	4,883.06	640.36	2,356.81
1987	16,689.98	1,896.90	1,325.69	4,934.54	618.51	2,344.19
1988	16,189.29	1,870.07	1,311.47	4,986.02	596.66	2,331.56
1989	15,688.60	1,843.24	1,297.25	5,057.04	574.81	2,318.94
1990	13,705.12	1,638.73	1,295.12	5,409.29	923.38	2,104.24
1991	13,560.32	1,651.97	1,289.31	5,433.40	784.38	2,147.93
1992	13,415.52	1,665.20	1,283.50	5,457.52	645.39	2,191.61
1993	13,270.72	1,678.44	1,277.68	5,481.64	506.40	2,235.30
1994	13,125.92	1,691.68	1,271.87	5,505.75	367.40	2,278.99
1995	12,981.12	1,704.91	1,266.05	5,529.87	228.41	2,322.67
1996	12,836.32	1,718.15	1,260.24	5,553.99	89.41	2,366.36
1997	12,348.04	1,709.60	1,045.57	4,522.12	91.00	2,355.54
1998	11,982.42	1,668.33	1,061.52	4,607.76	91.82	2,311.35
1999	11,291.25	1,627.66	1,073.53	4,721.04	328.11	2,236.45
2000	11,340.65	1,621.41	1,084.84	4,721.05	326.25	2,254.03
2001	10,752.57	1,541.86	1,030.81	4,593.39	327.81	2,236.96
2002	10,963.54	1,822.42	1,140.70	6,945.34	331.69	2,613.96
2003	10,181.12	1,760.97	1,147.96	6,957.40	329.20	2,583.37
2004	9,398.70	1,699.53	1,155.22	6,969.46	326.71	2,552.77
2005	8,616.27	1,638.08	1,162.48	6,981.52	324.22	2,522.18
2006	6,731.21	1,355.33	1,142.14	6,406.05	301.27	2,299.41
2007	4,846.15	1,072.58	1,121.81	5,830.58	278.32	2,076.64
2008	2,961.09	789.83	1,101.47	5,255.11	255.37	1,853.88
2009	2,954.13	780.02	1,078.58	5,152.69	226.27	1,816.26
%Change 1980 to 2009	-85.37%	-62.58%	-24.32%	12.65%	-70.70%	-25.34%

Dubois County Emissions (Tons per Year)

Year	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC
1980	36,334.51	9,195.27	3,076.23	5,253.83	2,354.47	7,109.21
1981	35,374.26	8,953.05	3,065.92	5,283.56	2,350.55	7,039.25
1982	34,414.01	8,710.82	3,055.61	5,331.69	2,346.63	6,969.29
1983	33,453.77	8,468.60	3,045.30	5,379.81	2,342.70	6,899.34
1984	32,493.52	8,226.38	3,035.00	5,427.94	2,338.78	6,829.38
1985	31,533.27	7,984.15	3,024.69	5,476.07	2,334.86	6,759.43
1986	30,573.02	7,741.93	3,014.38	5,524.20	2,330.93	6,689.47
1987	29,612.77	7,499.71	3,004.07	5,572.33	2,327.01	6,619.52
1988	28,652.53	7,257.49	2,993.76	5,620.45	2,323.08	6,549.56
1989	27,692.43	7,015.26	2,983.45	6,181.11	2,319.16	6,479.61
1990	25,661.13	6,827.42	2,849.87	5,712.52	4,022.45	6,657.57
1991	24,864.26	6,497.10	2,800.38	5,852.51	3,569.34	6,472.24
1992	24,067.40	6,166.77	2,750.90	5,992.50	3,116.24	6,286.91
1993	23,270.54	5,836.45	2,701.41	6,132.49	2,663.13	6,101.58
1994	22,473.67	5,506.13	2,651.93	6,272.48	2,210.02	5,916.25
1995	21,676.81	5,175.80	2,602.44	6,412.47	1,756.92	5,730.92
1996	20,879.94	4,845.48	2,552.95	6,552.46	1,303.81	5,545.59
1997	20,168.95	4,763.00	2,587.90	6,874.86	1,024.39	5,656.28
1998	19,552.56	4,658.84	2,639.95	7,082.08	1,207.97	4,586.49
1999	18,813.65	5,512.12	2,632.59	7,186.38	1,278.85	6,536.83
2000	18,315.86	5,494.92	2,656.96	7,176.88	1,147.65	6,350.54
2001	17,927.64	5,664.90	2,654.97	7,118.80	1,694.29	6,675.87
2002	17,920.49	3,816.99	1,485.40	6,979.09	2,164.39	6,079.53
2003	16,527.73	3,498.19	1,482.41	6,959.26	1,989.23	5,783.76
2004	15,134.97	3,179.39	1,479.42	6,939.44	1,814.06	5,488.00
2005	13,742.21	2,860.59	1,476.43	6,919.61	1,638.90	5,192.23
2006	10,812.67	2,590.88	1,465.93	6,326.67	2,605.60	5,056.17
2007	7,883.14	2,321.17	1,455.42	5,733.74	3,572.30	4,920.12
2008	4,953.60	2,051.46	1,444.91	5,140.80	4,539.00	4,784.06
2009	4,998.68	2,088.22	1,442.46	5,048.37	4,539.00	4,742.86
%Change 1980 to 2009	-79.23%	-77.29%	-53.11%	-3.91%	92.78%	-33.29%

Gibson County Emissions (Tons per Year)

Year	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC
1980	38,355.86	90,517.16	4,559.10	8,076.67	321,879.53	4,825.51
1981	37,300.02	88,132.99	4,506.16	8,044.62	313,708.13	4,770.14
1982	36,244.18	85,748.83	4,453.23	8,012.58	305,536.73	4,714.77
1983	35,188.35	83,364.66	4,400.29	7,980.53	297,365.33	4,659.39
1984	34,132.51	80,980.49	4,347.35	9,171.42	289,193.93	4,604.02
1985	33,076.67	78,596.32	4,294.41	9,139.38	281,022.53	4,548.82
1986	32,020.83	76,212.16	4,241.47	10,643.53	272,851.13	4,493.83
1987	30,965.00	73,827.99	4,188.54	12,147.67	264,679.73	4,438.83
1988	29,909.16	71,443.82	4,135.60	13,651.82	256,508.33	4,383.83
1989	28,856.14	69,059.65	4,082.66	15,209.59	248,336.93	4,328.84
1990	29,102.56	65,645.46	9,314.73	18,479.79	272,787.37	4,211.53
1991	27,524.38	62,661.32	9,412.63	18,046.33	253,358.74	4,163.48
1992	25,946.20	59,677.17	9,510.52	17,612.86	233,930.12	4,115.42
1993	24,368.02	56,693.03	9,608.41	17,179.40	214,501.50	4,067.37
1994	22,789.84	53,708.88	9,706.31	16,745.94	195,072.87	4,019.32
1995	21,211.66	50,724.73	9,855.63	16,312.48	175,644.25	3,971.26
1996	19,633.48	47,740.59	10,028.70	15,879.01	156,215.62	3,923.21
1997	19,138.66	53,950.49	10,563.06	16,701.90	152,998.91	3,943.27
1998	18,669.70	50,538.30	10,821.48	16,980.65	169,674.91	3,868.98
1999	17,797.45	52,447.04	10,134.09	16,795.52	159,372.59	3,674.00
2000	17,722.90	50,764.71	11,115.10	17,676.02	171,970.79	3,679.31
2001	17,132.17	46,937.68	10,202.52	16,733.00	148,809.06	3,686.09
2002	17,036.58	40,934.61	6,265.85	13,412.18	127,933.67	3,830.92
2003	15,984.82	38,189.37	6,467.04	13,582.38	136,891.94	3,824.17
2004	14,933.05	35,444.14	6,668.22	13,752.57	145,850.20	3,817.43
2005	13,881.29	32,698.90	6,869.41	13,922.77	154,808.47	3,810.68
2006	11,233.19	26,413.66	6,334.74	13,061.57	126,739.99	3,437.36
2007	8,585.08	20,128.42	5,800.07	12,200.36	98,671.51	3,064.05
2008	5,936.98	13,843.18	5,265.40	11,339.16	70,603.03	2,690.73
2009	5,925.13	13,768.16	5,217.29	11,234.91	70,611.20	2,608.17
%Change 1980 to 2009	-77.16%	-84.79%	14.44%	39.10%	-78.06%	-45.95%

Knox County Emissions (Tons per Year)

Year	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC
1980	37,438.29	5,814.47	1,903.43	5,880.76	9,553.55	4,974.90
1981	36,362.58	5,728.00	1,882.92	5,947.71	9,452.96	4,897.77
1982	35,286.88	5,641.53	1,862.42	6,014.66	9,352.36	4,820.63
1983	34,211.17	5,555.06	1,841.92	6,081.62	9,251.77	4,743.50
1984	33,135.46	5,468.59	1,821.42	6,148.57	9,151.17	4,666.36
1985	32,059.75	5,382.12	1,800.91	6,229.37	9,050.58	4,589.23
1986	30,984.05	5,295.65	1,780.41	6,296.32	8,949.99	4,512.09
1987	29,908.34	5,209.18	1,760.20	6,568.54	8,849.39	4,434.96
1988	28,832.63	5,122.71	1,741.07	6,846.80	8,748.80	4,357.83
1989	27,756.93	5,036.24	1,870.91	7,119.58	8,648.20	4,280.69
1990	25,162.76	3,913.56	1,866.36	7,582.75	5,665.42	4,036.89
1991	24,379.41	4,010.45	1,888.68	7,455.16	6,144.98	3,992.22
1992	23,596.06	4,107.35	1,911.00	7,327.57	6,624.54	3,947.56
1993	22,812.71	4,204.24	1,933.32	7,199.97	7,104.10	3,902.89
1994	22,029.35	4,301.13	1,955.64	7,072.38	7,583.65	3,858.22
1995	21,246.00	4,398.03	1,979.23	6,944.78	8,063.21	3,813.56
1996	20,462.65	4,494.92	2,002.86	6,817.19	8,542.77	3,768.89
1997	19,618.84	5,328.32	2,272.09	7,421.34	10,736.52	3,729.36
1998	19,002.15	4,922.95	2,189.13	7,417.66	9,500.91	3,613.74
1999	18,001.40	5,676.46	2,159.93	7,420.60	11,585.53	3,629.89
2000	17,904.19	5,586.60	2,229.51	7,389.38	11,067.13	3,613.70
2001	17,355.54	5,252.97	2,017.00	7,082.65	9,403.33	3,617.69
2002	15,378.52	4,460.39	1,656.52	9,034.11	8,485.46	3,532.93
2003	14,043.42	4,235.06	1,624.78	8,996.80	8,130.19	3,396.81
2004	12,708.33	4,009.72	1,593.04	8,959.49	7,774.93	3,260.69
2005	11,373.23	3,784.39	1,561.30	8,922.18	7,419.66	3,124.57
2006	8,693.77	2,987.63	1,488.53	8,154.44	5,604.95	2,868.61
2007	6,014.31	2,190.88	1,415.77	7,386.70	3,790.24	2,612.66
2008	3,334.85	1,394.12	1,343.00	6,618.96	1,975.52	2,356.70
2009	3,296.37	1,394.12	1,343.00	6,618.96	1,975.52	2,187.47
%Change 1980 to 2009	-86.03%	-76.02%	-29.44%	12.55%	-79.32%	-56.03%

Martin County Emissions (Tons per Year)

Year	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC
1980	8,875.12	2,520.59	856.40	2,056.40	16,680.63	1,346.38
1981	8,649.72	2,442.83	844.73	2,063.83	15,962.32	1,324.87
1982	8,424.32	2,365.08	833.06	2,071.26	15,244.02	1,303.36
1983	8,198.92	2,287.33	821.40	2,078.69	14,525.71	1,281.85
1984	7,973.52	2,209.58	809.73	2,086.12	13,807.40	1,260.34
1985	7,748.12	2,131.83	798.06	2,093.55	13,089.10	1,238.83
1986	7,522.72	2,054.07	786.42	2,100.98	12,370.79	1,217.32
1987	7,297.32	1,976.72	780.66	2,108.47	11,652.49	1,195.81
1988	7,071.92	1,900.46	774.91	2,124.84	10,934.18	1,174.30
1989	6,846.52	1,824.20	769.15	2,141.21	10,215.87	1,152.79
1990	6,636.63	2,428.06	893.26	2,437.48	16,078.71	1,072.61
1991	6,375.13	2,142.47	828.36	2,327.15	13,408.80	1,068.78
1992	6,113.64	1,856.88	763.45	2,216.81	10,738.90	1,064.96
1993	5,852.14	1,571.29	698.54	2,106.48	8,068.99	1,061.13
1994	5,590.64	1,285.70	633.63	1,996.14	5,399.08	1,057.30
1995	5,329.15	1,000.11	592.05	1,885.81	2,729.18	1,053.48
1996	5,067.65	714.52	550.96	1,775.47	59.27	1,049.65
1997	4,704.56	701.30	542.29	1,806.17	58.49	1,015.12
1998	4,817.46	687.29	574.83	1,878.48	54.41	1,003.87
1999	4,693.72	829.18	685.36	2,072.24	109.28	895.00
2000	4,620.58	816.58	679.97	2,027.70	108.44	891.07
2001	4,451.16	797.23	654.35	1,976.79	110.17	885.78
2002	4,625.61	917.88	448.23	2,270.62	113.83	923.90
2003	4,344.38	893.22	466.08	2,272.40	111.95	904.89
2004	4,063.14	868.55	483.92	2,274.18	110.07	885.89
2005	3,781.91	843.89	501.77	2,275.96	108.19	866.89
2006	3,035.11	733.50	483.28	1,955.23	98.73	786.04
2007	2,288.30	623.12	464.78	1,634.49	89.27	705.19
2008	1,541.50	512.73	446.28	1,313.76	79.82	624.34
2009	1,551.04	512.73	446.28	1,313.76	79.82	631.29
%Change 1980 to 2009	-82.52%	-79.66%	-47.89%	-36.11%	-99.52%	-53.11%

Perry County Emissions (Tons per Year)

Year	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC
1980	22,298.05	3,810.98	1,095.59	3,921.43	951.07	3,109.35
1981	21,715.76	3,764.79	1,069.89	3,840.74	927.09	3,037.98
1982	21,133.46	3,718.60	1,044.20	3,760.06	903.11	2,966.60
1983	20,551.17	3,672.42	1,018.51	3,679.38	879.13	2,895.23
1984	19,968.88	3,626.23	992.82	3,598.70	855.15	2,831.46
1985	19,386.58	3,580.04	967.12	3,518.02	831.17	2,767.95
1986	18,804.29	3,533.86	941.43	3,437.34	810.24	2,704.44
1987	18,222.00	3,487.67	915.74	3,356.65	791.27	2,640.93
1988	17,639.70	3,441.48	890.05	3,275.97	772.31	2,577.42
1989	17,057.41	3,395.30	864.36	3,225.97	753.35	2,513.92
1990	15,495.77	3,052.23	903.42	3,575.74	943.40	2,460.47
1991	15,119.75	3,076.67	852.70	3,341.82	846.39	2,387.99
1992	14,743.72	3,101.10	801.98	3,107.89	749.37	2,315.51
1993	14,367.70	3,125.54	751.26	2,873.96	652.36	2,243.03
1994	13,991.68	3,149.97	700.88	2,640.03	555.35	2,170.54
1995	13,615.65	3,174.40	671.47	2,406.11	458.33	2,098.06
1996	13,239.63	3,198.84	642.67	2,172.18	361.32	2,025.58
1997	12,613.34	3,181.09	627.43	2,193.92	363.40	1,989.19
1998	12,399.47	3,135.54	667.03	2,372.52	365.08	1,847.40
1999	12,961.52	3,171.65	799.40	2,596.26	761.21	2,021.13
2000	12,677.34	3,111.86	796.05	2,541.25	772.13	1,983.45
2001	12,735.23	3,102.41	754.87	2,448.39	788.87	2,017.74
2002	12,597.44	3,328.93	580.22	2,567.75	621.28	2,023.13
2003	11,895.98	3,118.97	587.16	2,588.13	534.92	1,963.16
2004	11,194.52	2,909.01	594.10	2,608.52	448.56	1,903.19
2005	10,493.05	2,699.04	601.05	2,628.90	362.20	1,843.22
2006	8,568.68	2,490.17	587.96	2,245.73	412.04	1,653.14
2007	6,644.30	2,281.29	574.87	1,862.55	461.88	1,463.07
2008	4,719.93	2,072.41	561.78	1,479.38	511.71	1,272.99
2009	4,575.94	2,061.07	540.74	1,423.68	478.16	1,204.31
%Change 1980 to 2009	-79.48%	-45.92%	-50.64%	-63.69%	-49.72%	-61.27%

Pike County Emissions (Tons per Year)

Year	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC
1980	14,065.23	40,120.27	1,224.52	2,681.84	170,329.82	1,670.77
1981	13,716.75	39,328.38	1,215.31	2,697.68	165,404.81	1,650.53
1982	13,368.27	38,536.58	1,206.09	2,774.68	160,479.81	1,630.30
1983	13,019.79	37,744.79	1,196.88	2,790.52	155,554.80	1,610.06
1984	12,671.32	36,953.00	1,187.67	3,135.13	150,629.79	1,589.82
1985	12,322.84	36,161.21	1,178.45	3,479.74	145,704.79	1,569.59
1986	11,974.36	35,369.42	1,169.24	3,824.35	140,779.78	1,549.35
1987	11,625.88	34,577.63	1,160.03	4,168.96	135,855.03	1,529.11
1988	11,277.41	33,785.84	1,150.81	4,513.57	130,930.29	1,508.88
1989	10,943.82	32,994.05	1,141.82	4,859.79	126,005.55	1,488.64
1990	9,536.89	31,430.60	2,135.91	5,414.25	138,193.40	1,311.38
1991	9,471.68	30,613.11	2,309.34	5,491.64	128,581.34	1,332.90
1992	9,406.48	29,795.61	2,482.76	5,569.03	118,969.27	1,354.41
1993	9,341.27	28,978.12	2,656.19	5,646.42	109,357.21	1,375.93
1994	9,276.06	28,160.62	2,829.61	5,723.82	99,745.14	1,397.45
1995	9,210.86	27,343.12	3,003.04	5,801.21	90,133.08	1,418.96
1996	9,145.65	26,525.63	3,176.47	5,878.60	80,521.01	1,440.48
1997	8,810.46	24,835.52	3,486.36	6,372.48	62,987.82	1,422.70
1998	8,768.80	28,859.26	3,682.61	6,631.50	68,999.51	1,433.69
1999	8,463.49	25,151.48	3,441.01	6,426.14	67,580.92	1,435.38
2000	8,086.13	28,268.44	3,846.28	6,803.09	65,307.50	1,393.77
2001	7,811.92	28,567.26	3,733.27	6,780.57	63,626.09	1,381.40
2002	6,791.14	25,136.69	2,949.42	6,511.52	65,285.36	1,307.47
2003	6,520.67	23,087.73	2,855.98	6,418.07	61,140.65	1,308.92
2004	6,250.20	21,038.76	2,762.54	6,324.63	56,995.95	1,310.38
2005	5,979.73	18,989.80	2,669.09	6,231.19	52,851.24	1,311.84
2006	4,992.21	17,772.36	2,743.04	5,963.23	47,783.73	1,179.79
2007	4,004.70	16,554.93	2,816.99	5,695.26	42,716.22	1,047.74
2008	3,017.18	15,337.50	2,890.94	5,427.30	37,648.71	915.69
2009	3,016.87	15,308.79	2,864.92	5,352.95	37,653.58	906.15
%Change 1980 to 2009	-78.55%	-61.84%	133.96%	99.60%	-77.89%	-45.76%

Posey County Emissions (Tons per Year)

Year	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC
1980	38,259.49	18,562.03	2,487.29	12,400.07	26,290.60	7,994.30
1981	37,539.87	18,272.57	2,447.09	12,155.71	25,882.80	7,790.09
1982	36,820.26	17,983.12	2,406.88	11,917.29	25,475.01	7,585.89
1983	36,100.64	17,694.09	2,366.67	11,672.93	25,067.21	7,381.95
1984	35,381.02	17,413.06	2,334.80	11,455.87	24,659.41	7,179.30
1985	34,661.40	17,132.03	2,302.92	11,294.73	24,251.62	6,976.64
1986	33,941.78	16,851.01	2,271.04	11,111.30	23,843.82	6,773.99
1987	33,222.16	16,569.98	2,239.17	10,961.56	23,470.78	6,571.33
1988	32,502.55	16,288.96	2,207.29	10,928.76	23,102.23	6,368.68
1989	31,795.04	16,007.93	2,346.46	10,895.95	22,733.67	6,166.03
1990	20,409.81	14,456.46	2,922.24	13,878.38	20,067.46	5,847.75
1991	22,861.30	14,338.13	2,838.16	12,839.82	20,188.72	5,652.26
1992	25,312.79	14,219.80	2,754.07	11,801.26	20,309.98	5,456.78
1993	27,764.28	14,101.47	2,669.99	10,762.70	20,431.25	5,261.30
1994	30,215.76	13,983.14	2,585.90	9,724.13	20,552.51	5,065.81
1995	32,667.25	13,864.81	2,505.63	8,685.57	20,673.77	4,870.33
1996	35,118.74	13,746.48	2,444.56	7,647.01	20,795.03	4,674.84
1997	35,407.06	14,450.15	2,490.90	7,678.94	25,109.01	4,747.20
1998	35,037.01	13,723.54	2,542.16	8,014.78	24,183.04	4,685.04
1999	26,077.24	15,924.86	2,494.72	7,931.84	22,079.96	4,690.35
2000	25,874.74	14,395.86	2,417.51	7,692.72	17,610.83	4,405.47
2001	25,668.35	14,866.20	2,405.83	7,640.00	18,714.76	4,439.53
2002	24,565.46	14,944.47	1,968.79	9,132.62	14,165.61	3,712.89
2003	22,975.10	13,883.97	1,900.29	8,971.97	15,655.22	3,521.50
2004	21,384.73	12,823.48	1,831.78	8,811.31	17,144.82	3,330.10
2005	19,794.37	11,762.99	1,763.28	8,650.66	18,634.43	3,138.71
2006	17,310.11	10,093.19	1,826.71	8,107.45	16,917.01	2,913.64
2007	14,825.84	8,423.38	1,890.14	7,564.24	15,199.59	2,688.58
2008	12,341.58	6,753.58	1,953.58	7,021.03	13,482.17	2,463.51
2009	10,895.82	5,736.23	1,812.06	6,680.52	11,688.68	2,452.54
%Change 1980 to 2009	-71.52%	-69.10%	-27.15%	-46.13%	-55.54%	-69.32%

Spencer County Emissions (Tons per Year)

Year	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC
1980	32,700.29	40,967.77	2,271.06	5,240.03	69,754.28	4,279.36
1981	31,818.34	40,552.25	2,238.31	5,214.98	69,218.96	4,190.42
1982	30,936.38	40,136.72	2,205.55	5,189.94	68,683.63	4,101.48
1983	30,054.42	39,721.20	2,172.80	5,164.89	68,148.31	4,012.84
1984	29,172.46	39,305.68	2,140.04	5,139.85	67,612.98	3,924.32
1985	28,290.50	38,892.51	2,107.29	5,114.80	67,077.65	3,835.79
1986	27,408.54	38,480.96	2,074.53	5,089.76	66,542.33	3,747.27
1987	26,526.58	38,069.42	2,041.78	5,064.71	66,007.00	3,658.75
1988	25,648.62	37,657.87	2,009.02	5,039.67	65,471.68	3,570.23
1989	24,770.69	37,246.32	1,976.27	6,092.97	64,936.35	3,481.71
1990	23,271.35	28,847.60	1,908.59	6,168.52	54,772.84	3,379.53
1991	22,465.21	30,155.76	1,938.69	6,049.61	56,809.08	3,282.16
1992	21,659.08	31,463.92	1,968.78	5,930.69	58,845.32	3,184.79
1993	20,852.95	32,772.08	1,998.88	5,811.77	60,881.57	3,087.43
1994	20,046.81	34,080.24	2,034.02	5,692.85	62,917.81	2,990.06
1995	19,240.68	35,388.40	2,069.33	5,573.93	64,954.05	2,892.69
1996	18,434.54	36,696.56	2,106.37	5,455.02	66,990.29	2,795.32
1997	17,810.13	41,076.11	2,070.76	5,392.06	66,014.42	2,773.88
1998	17,379.86	42,750.27	2,253.81	5,977.17	67,820.73	2,664.36
1999	16,369.83	41,587.38	3,063.29	7,341.95	67,452.10	2,647.91
2000	15,923.85	40,530.56	3,105.04	7,402.47	64,000.44	2,629.89
2001	15,952.17	38,521.22	5,282.08	12,463.97	57,983.55	2,676.06
2002	14,698.23	37,558.82	1,757.73	6,215.47	53,720.62	2,365.90
2003	13,733.80	32,993.44	1,758.93	6,217.74	58,313.17	2,299.11
2004	12,769.36	28,428.06	1,760.14	6,220.00	62,905.72	2,232.32
2005	11,804.93	23,862.68	1,761.35	6,222.27	67,498.27	2,165.53
2006	9,611.49	24,060.20	3,184.30	8,428.17	57,115.59	1,960.52
2007	7,418.04	24,257.71	4,607.25	10,634.06	46,732.91	1,755.51
2008	5,224.60	24,455.23	6,030.21	12,839.96	36,350.23	1,550.50
2009	5,211.73	24,378.28	5,936.83	12,588.04	36,347.53	1,501.88
%Change 1980 to 2009	-84.06%	-40.49%	161.41%	140.23%	-47.89%	-64.90%

Vanderburgh County Emissions (Tons per Year)

Year	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC
1980	120,641.49	12,380.24	4,737.45	13,426.52	9,517.34	22,468.66
1981	117,409.00	12,160.96	4,688.29	13,317.46	9,187.44	21,922.07
1982	114,176.52	11,941.68	4,639.13	13,208.40	8,857.54	21,375.49
1983	110,944.03	11,722.41	4,589.97	13,099.34	8,527.64	20,828.90
1984	107,711.55	11,503.13	4,540.80	12,990.29	8,197.75	20,282.31
1985	104,479.07	11,283.86	4,491.64	12,881.23	7,867.85	19,735.72
1986	101,246.58	11,064.58	4,442.48	12,772.17	7,537.95	19,189.13
1987	98,014.10	10,845.30	4,393.32	12,663.12	7,208.05	18,642.54
1988	94,781.62	10,626.03	4,344.16	12,554.06	6,878.15	18,095.95
1989	91,549.13	10,406.75	4,295.00	13,102.12	6,548.25	17,549.36
1990	69,247.97	8,239.78	4,272.56	12,628.20	8,844.62	15,038.06
1991	70,962.06	8,471.97	4,251.63	12,303.19	7,760.76	14,982.68
1992	72,676.14	8,704.17	4,230.70	11,978.18	6,676.89	14,927.31
1993	74,390.23	8,936.36	4,209.77	11,653.18	5,593.03	14,871.94
1994	76,104.32	9,168.55	4,189.23	11,328.17	4,509.16	14,816.56
1995	77,818.40	9,400.75	4,194.93	11,003.16	3,425.29	14,761.18
1996	79,532.49	9,632.94	4,201.53	10,678.15	2,341.43	14,705.81
1997	76,534.68	9,740.74	4,019.82	10,087.60	2,379.38	14,646.94
1998	76,372.72	9,701.94	4,438.47	11,703.68	2,396.12	14,183.08
1999	72,410.46	10,119.08	4,013.88	10,130.99	1,399.75	13,791.90
2000	70,111.28	9,930.68	3,916.30	9,997.82	1,392.87	13,545.65
2001	65,917.14	9,537.88	3,720.55	9,563.36	1,421.46	13,426.78
2002	53,880.26	8,504.06	1,991.72	10,532.04	2,141.42	9,660.26
2003	48,433.21	7,922.03	1,983.96	10,522.57	2,057.82	9,196.27
2004	42,986.16	7,339.99	1,976.19	10,513.10	1,974.21	8,732.27
2005	37,539.11	6,757.96	1,968.43	10,503.64	1,890.60	8,268.27
2006	28,856.52	5,705.79	1,941.44	9,509.45	1,869.63	7,472.64
2007	20,173.93	4,653.62	1,914.46	8,515.26	1,848.67	6,677.01
2008	11,491.34	3,601.45	1,887.48	7,521.08	1,827.70	5,881.38
2009	11,482.93	3,590.39	1,807.07	7,423.46	1,797.62	5,918.48
%Change 1980 to 2009	-90.48%	-71.00%	-61.86%	-44.71%	-81.11%	-73.66%

Warrick County Emissions (Tons per Year)

Year	CO	NO_x	$PM_{2.5}$	PM_{10}	SO_2	VOC
1980	46,880.32	54,995.77	5,973.19	7,090.29	212,633.57	5,980.93
1981	46,040.48	53,591.78	5,919.64	7,043.50	207,345.85	5,881.41
1982	45,895.03	52,187.78	5,866.09	6,996.71	202,058.13	5,781.89
1983	45,749.58	50,783.78	5,812.54	6,949.93	196,770.41	5,682.37
1984	45,604.13	49,379.78	5,758.99	6,903.14	191,482.69	5,582.84
1985	45,458.68	47,975.79	5,721.17	6,856.35	186,194.97	5,483.32
1986	45,313.23	46,571.79	5,711.83	6,809.57	180,907.25	5,383.80
1987	45,200.78	45,167.79	5,702.49	6,774.66	175,619.52	5,298.88
1988	45,098.30	43,763.80	5,695.01	6,727.88	170,331.80	5,216.88
1989	44,995.83	42,359.80	5,687.53	12,013.79	165,044.08	5,134.88
1990	29,113.74	39,762.27	5,617.13	12,756.94	176,195.98	4,130.21
1991	33,324.41	38,100.85	6,101.97	12,876.69	163,560.27	4,280.73
1992	37,535.09	36,439.44	6,586.81	12,996.44	150,924.55	4,431.25
1993	41,745.76	34,778.02	7,071.65	13,116.19	138,288.84	4,581.78
1994	45,956.43	33,116.60	7,556.49	13,235.94	125,653.13	4,732.30
1995	50,167.11	31,455.19	8,041.34	13,355.69	113,017.41	4,882.82
1996	54,377.78	29,793.77	8,590.91	13,475.44	100,381.70	5,033.34
1997	54,952.96	35,393.71	8,480.74	13,479.81	126,228.65	5,044.51
1998	54,013.53	35,177.58	9,258.75	14,333.59	123,006.90	4,936.71
1999	51,752.81	31,126.93	10,178.74	15,064.00	135,131.51	5,046.91
2000	51,638.78	30,478.94	8,303.41	13,136.50	107,391.24	4,965.93
2001	52,671.78	28,646.49	8,076.70	12,755.71	102,203.24	5,020.44
2002	47,426.55	28,629.17	8,345.02	16,497.83	109,699.36	4,256.16
2003	45,665.32	25,105.55	8,726.11	17,427.79	103,992.78	4,087.13
2004	43,904.10	21,581.92	9,107.19	18,357.74	98,286.21	3,918.09
2005	42,142.87	18,058.29	9,488.28	19,287.69	92,579.63	3,749.05
2006	37,851.84	15,898.95	7,943.19	16,014.75	79,647.39	3,355.47
2007	33,560.80	13,739.61	6,398.11	12,741.80	66,715.15	2,961.88
2008	29,269.77	11,580.28	4,853.02	9,468.85	53,782.92	2,568.30
2009	28,366.74	11,635.40	4,839.90	8,393.05	53,782.92	2,522.08
%Change 1980 to 2009	-39.49%	-78.84%	-18.97%	18.37%	-74.71%	-57.83%