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March 12, 2009

Mr. A. Stanley Meiburg
Acting Regional Administrator
U.S. EPA, Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, Georgia 30303

Dear Mr. Meiburg:

In accordance with Section 107 (d)(1)(A) of the Clean Air Act (CAA), each state is to submit to U.S. EPA, within one year following promulgation of a new or revised National Ambient Air Quality Standard (NAAQS), a list of all areas in the state, recommending designations for each as attainment, nonattainment, or unclassifiable with respect to a new or revised standard for a pollutant.

In a letter dated December 19, 2008, Kentucky was notified that proposed boundary designations were due March 12, 2009, for the new 8-hour ozone standard, which reduced the standard from 0.08 ppm to 0.075 ppm.

To assist in this review, U.S. EPA provided a guidance attachment in its December 4, 2008, "Area Designations for the 2008 Revised Ozone National Ambient Air Quality Standard" memorandum. The attachment provided nine factors U.S. EPA recommended as a framework for area-specific analyses to support nonattainment area boundary recommendations and final boundary determinations. Analyses of these factors were used to evaluate whether an area should be designated as attainment (meeting the standard), nonattainment (not meeting the standard), or unclassifiable (area cannot be classified as meeting or not meeting the standard on the basis of available information). If states wish to differ from U.S. EPA's presumptive, then those nine criteria must be addressed to provide arguments for exclusion, or inclusion.

After analyzing the air quality data using the nine factors listed above, Kentucky submits the following designation recommendations for those counties projected to be nonattainment under the new 8-Hour Ozone standard. Supporting documentation, based on U.S. EPA's guidance criteria is enclosed.

County	Current Status	Projected Status With Revised U.S. EPA Standard*
Kenton	Nonattainment	Nonattainment
Daviess	Unclassifiable/Attainment	Nonattainment
Hancock	Unclassifiable/Attainment	Nonattainment
Henderson	Unclassifiable/Attainment	Nonattainment
Greenup	Unclassifiable/Attainment	Nonattainment
Jefferson	Unclassifiable/Attainment	Nonattainment
Hardin	Unclassifiable/Attainment	Nonattainment
Christian	Attainment	Nonattainment
Simpson	Unclassifiable/Attainment	Nonattainment
Rest of State	Unclassifiable/Attainment	Unclassifiable/Attainment

**This status is based upon an application of the revised, more stringent standard promulgated by EPA and assumes there will be no improvements in air quality. However, the state will be working with these counties to achieve attainment by final implementation.*

Kentucky wishes to comply with the CAA and cooperate with U.S. EPA to improve and preserve air quality for the citizens of the commonwealth. However, these recommendations are being made with great reservation, since eventual outcomes of requirements for these areas are still being debated on a national level. If you have any questions or comments concerning this matter, please contact John S. Lyons of the Division for Air Quality at (502) 564-3999.

Sincerely yours,

Leonard K. Peters
Secretary

Enclosures
c: Beverly Banister
Dick Schutt

Commonwealth of Kentucky Boundary Recommendations

8-Hour Ozone Standard

March 2009

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Introduction

The U.S. Environmental Protection Agency (EPA) revised the ozone NAAQS on March 12, 2008 (73 FR 16436; March 27, 2008). The new primary ozone standard was lowered from 0.08 parts per million (ppm) to a level of 0.075 ppm based on numerous epidemiological studies conducted during the past decade in which many of the health effects associated with ozone exposure were identified. These studies showed health effects at and below the level of the 0.08 ppm standard, which was promulgated in 1997.

Section 107 (d)(1)(A) of the Clean Air Act (CAA) requires the Governor of each state to submit to EPA, within one year following promulgation of a new or revised NAAQS, a list of all areas in the state, recommending designations for each as "attainment," "nonattainment," or "unclassifiable" with respect to the new or revised standard.

The U.S. EPA provided an attachment in their December 4, 2008 "Area Designations for the 2008 Revised Ozone National Ambient Air Quality Standard" memorandum. The attachment provided nine factors EPA recommended as a framework for area-specific analyses to support nonattainment area boundary recommendations and final boundary determinations. Analysis of these factors were used to evaluate whether an area should be designated as attainment (meeting the standard), or nonattainment (not meeting the standard). If states wish to differ from EPA's presumptive then those nine criteria must be addressed to provide arguments for exclusion, or inclusion.

The information in this document outlines areas in violation of the standard or that may be potentially impacted by another area in violation. It compares those areas based on EPA's nine criteria listed below.

- Air quality data
- Emissions data
- Population density and degree of urbanization
- Traffic and commuting patterns
- Growth rates and patterns
- Meteorology
- Geography/topography
- Jurisdictional boundaries
- Level of control of emissions sources

Kentucky has ozone monitors in 29 counties. Ten (10) of those counties have monitoring data in violation of the 8-hour standard based on 2006-2008 monitoring data.

-- Kenton	-- Henderson	-- Oldham	-- Simpson
-- Daviess	-- Greenup	-- Hardin	
-- Hancock	-- Jefferson	-- Christian	

The Kentucky Division for Air Quality utilized the 2005 National Emissions Inventory (NEI) data to compare point, area, mobile, and nonroad emissions throughout Kentucky and surrounding areas. These are provided in tons per year (tpy).

In some instances, in order to provide further documentation on a specific area, back trajectory modeling using NOAAs HYSPLIT Trajectory Model has been included.

After analyzing all of the data that has been gathered, the Kentucky Division for Air Quality has decided to recommend the following counties as nonattainment: Christian, Daviess, Greenup, Hancock, Hardin, Henderson, Jefferson, Kenton, and Simpson.

The counties of Boone, Boyd, Bracken, Bullitt, Campbell, Gallatin, Grant, Henry, Larue, McLean, Meade, Nelson, Oldham, Pendleton, Shelby, Spencer, Trigg, Trimble, and Webster are all recommended to be designated as attainment for the 8-hour ozone standard. The remaining Kentucky counties are recommended to be designated as attainment/unclassifiable.

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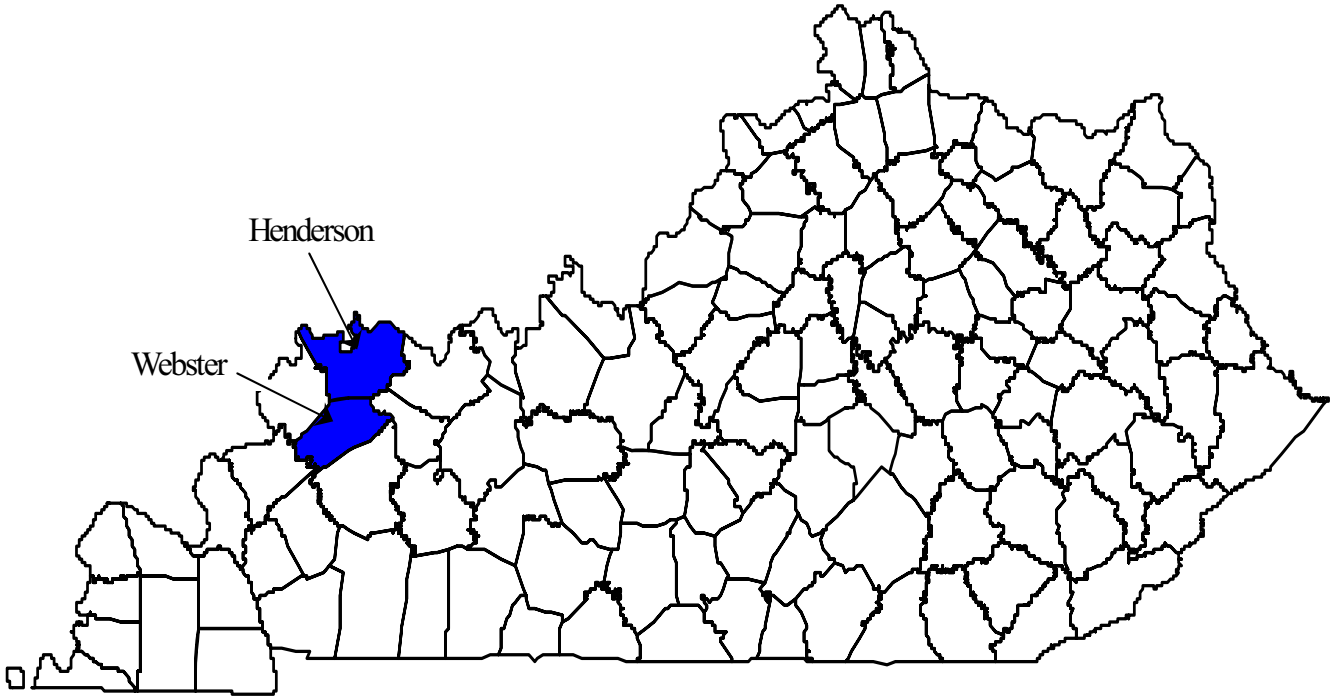
Evansville, IN-KY, MSA



The Evansville, Indiana-Kentucky, Metropolitan Statistical Area (MSA) is ranked 133rd in size among the MSAs within the United States. This MSA encompasses six counties, Gibson, Posey, Vanderburgh, and Warrick Counties, Indiana, and Henderson and Webster Counties, Kentucky.

HENDERSON, KENTUCKY

Henderson County is part of the Evansville, Indiana-Kentucky, Metropolitan Statistical Area (MSA) and is located to the west of Daviess County, Kentucky, to the northwest of McLean County, Kentucky, to the north of Webster County, Kentucky, and to the northeast of Union County, Kentucky. Additionally it is located to the southeast of Posey County, Indiana, to the south of Vanderburgh County, Indiana, and to the southwest of Dubois County, Indiana.

Geography/Topography

Henderson County covers a total land area of 440 square miles and is located in northwestern Kentucky, where the banks of the Ohio River form the northern boundary of the county. It is part of the Western Kentucky Coal Field Region.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Owensboro air monitoring site in Daviess County for the period 2006-2008 shows that the majority of the time the wind in the area came from the southeast and typically at 4-7 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 88˚F, the average low was 66˚F. The average precipitation for the same period was 5.4 inches.

Planning

The authority for air quality planning in the Henderson County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Henderson County is performed by the Owensboro Metropolitan Planning Organization and the Evansville Metropolitan Planning Organization.

Air Monitoring

The Henderson County ozone monitor (21-101-0014) shows the 3-year average (2006-2008) of the annual 98th percentile of the 8-hour average is 0.077 parts per million, which does not achieve the 8-hour ozone National Ambient Air Quality Standard (NAAQS – 0.075 ppm).

Data indicates a violation of the 8-hour ozone NAAQS in 2006-2008 for one of the three ozone monitors in Warrick, IN (18-173-0008) and for the two ozone monitors in Vanderburgh County, Indiana (18-163-0012) and (18-163-00013).

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The monitoring information for 2008 is complete and the latest available for Henderson County, Kentucky and the monitors of concern in Indiana. (See table 1)

Population

Based on projections to 2006 from the 2000 census data, there are 45,666 persons living in Henderson County. (See table 3) That represents approximately 104 persons per square mile. The population of Henderson County is approximately 41% rural with 59.2% of the people living in incorporated areas. The largest city is Henderson, the county seat of Henderson County.

Henderson County's population from 2000 through 2006 *increased* by approximately 1.9% (44,829 to 45,666). The population in the county is expected to *increase* overall by 4.1% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Evansville, IN-KY MSA, Henderson County represents approximately 13.0% of the total population in the MSA and 76.4% of the Kentucky portion of the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory (NEI). (See tables 4 and 5)

Point Sources

Point source VOC emissions from Henderson County were estimated at 426.28 tpy in 2005, which represents approximately 9.6% of the total 4442.39 tpy of the overall VOC point source emissions from the Evansville, IN-KY MSA. (See chart EVA-1)

Point source NO_x emissions from Henderson County were estimated at 781.04 tpy in 2005, which represents approximately 1.2% of the total 64971.04 tpy of the overall NO_x point source emissions from the Evansville, IN-KY MSA. (See chart EVA-7)

Major point sources located within Henderson County are subject to New Source Review (NSR), non-Control Technology Guidance (CTG) Reasonable Available Control Technology (RACT) requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

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Onroad Mobile

Onroad mobile source VOC emissions from Henderson County were estimated at 773.66 tpy in 2005, which represents approximately 13.1% of the total 5912.99 tpy of the overall VOC onroad mobile source emissions from the Evansville, IN-KY MSA. (See chart EVA-3)

Onroad mobile source NO_x emissions from Henderson County were estimated at 1008.21 tpy in 2005, which represents approximately 10.9% of the total 9219.13 tpy of the overall NO_x onroad mobile source emissions from the Evansville, IN-KY MSA. (See chart EVA-9)

Based on 2006 information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Henderson County is 40.4% and classified as high. The commuting traffic from Henderson County into other counties is high at 44.5%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Henderson County were estimated at 754.14 tpy in 2005, which represents approximately 25.3% of the total 2978.57 tpy of the overall VOC nonroad mobile source emissions from the Evansville, IN-KY MSA. (See chart EVA-4)

Nonroad mobile source NO_x emissions from Henderson County were estimated at 2889.27 tpy in 2005, which represents approximately 27.8% of the total 10394.50 tpy of the overall NO_x nonroad mobile source emissions from the Evansville, IN-KY MSA. (See chart EVA-10)

Although Henderson County appears to contribute a disproportionate quantity of nonroad mobile source emissions in the Evansville, IN-KY MSA, these emissions are due predominately to underway emissions from marine traffic along the Ohio River, and should not be used to make a determination.

Area Sources

Area source VOC emissions from Henderson County were estimated at 1226.29 tpy in 2005, which represents approximately 12.6% of the total 9710.30 tpy of the overall VOC area source emissions from the Evansville, IN-KY MSA. (See chart EVA-2)

Area source NO_x emissions from Henderson County were estimated at 350.51 tpy in 2005, which represents approximately 20% of the total 1754.95 tpy of the overall NO_x area source emissions from the Evansville, IN-KY MSA. (See chart EVA-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky and Indiana area of evaluation was performed using the 2005 NEI data.

Charts EVA-5 and EVA-6 provide a comparison of VOC emissions across the entire region.

Charts EVA-11 and EVA-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006 – 2008 monitoring period, the Henderson County ozone monitor shows an 8-hour annual design value of 0.077 parts per million, which does not achieve the National Ambient Air Quality Standard (NAAQS).

In the Evansville, IN-KY MSA, Henderson County contributes approximately:

- 13.8% of total VOC emissions (25561.46 tpy)
- 5.8% of total NOx emissions (121,192.07 tpy)

See charts EVA-6 for VOC, EVA-12 for NO_x.

Based on data analysis, the pollutants of most concern regarding ozone formation are VOC and NO_x. Henderson County does not contribute a high concentration percentage for either of these precursors. These smaller percentage concentrations do not indicate a significant impact from Henderson County on the violating monitors. See annual wind roses included in Figure 1.

Several 48-hour back trajectory HYSPLITS for Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Henderson County and therefore does not affect the violating Indiana monitors.

The monitoring and emissions data and other documentation presented indicate that Henderson County, Kentucky, does not contribute a significant amount of emissions that contribute to ozone formation in the Evansville, IN-KY MSA.

However, based on the monitoring data showing a violation, Henderson County should be designated nonattainment for the 8-hour ozone standard.

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WEBSTER COUNTY, KENTUCKY

Webster County is part of the Evansville, Indiana-Kentucky, Metropolitan Statistical Area (MSA). Webster is located within the Western Kentucky Coal Field region. The Green River forms the northeastern boundary of the county, while the Tradewater River forms the county's southwestern boundary.

Geography/Topography

Webster County has a land area of 334 square miles. Dixon, the county seat of Webster County is located 128 miles northwest of Nashville, Tennessee; 148 miles southwest of Louisville, Kentucky; and 203 miles southeast of St. Louis, Missouri. Webster County is located south of Vanderburgh County, Indiana, and southwest of Dubois County, Indiana.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Owensboro air monitoring site in Daviess County for the period 2006-2008 shows that the majority of the time the wind in the area came from the southeast and typically at 4-7 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 88˚F, the average low was 66˚F. The average precipitation for the same period was 5.4 inches.

Planning

The authority for air quality planning in the Webster County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Webster County is performed by the Green River Area Development District (GRADD) in partnership with the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006 – 2008 monitoring period, there were no ozone monitors located in Webster County.

The Henderson County ozone monitor (21-101-0014) shows the 3-year average (2006-2008) of the annual 98th percentile of the 8-hour average is 0.077 parts per million, which does not achieve the 8-hour ozone National Ambient Air Quality Standard (NAAQS – 0.075 ppm).

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Data indicates a violation of the 8-hour ozone NAAQS in 2006-2008 for one of the three ozone monitors in Warrick, IN (18-173-0008) and for the two ozone monitors in Vanderburgh County, Indiana (18-163-0012) and (18-163-00013).
The monitoring information for 2008 is complete and the latest available for Henderson County, Kentucky and the monitors of concern in Indiana. (See table 1)

Population

Based on projections to 2006 from the 2000 census data, there are 14,083 persons living in Webster County. (See table 3) That represents approximately 42 persons per square mile. The population of Webster County is approximately 79% rural with 21.2% of the people living in incorporated areas. The largest city in Webster County is Providence.

Webster County's population from 2000 through 2006 *decreased* by approximately -0.3% (14,120 to 14,083). The population in the county is expected to *increase* overall by 1.2% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Evansville, IN-KY, MSA, Webster County represents approximately 4.0% of the total population in the MSA and 23.6% of the Kentucky portion of the area. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory (NEI). (See tables 4 and 5)

Point Sources

Point source VOC emissions from Webster County were estimated at 160.24 tpy in 2005, which represents approximately 3.6% of the total 4442.39 tpy of the overall VOC point source emissions from the Evansville, IN-KY MSA. (See chart EVA-1)

Point source NO_x emissions from Webster County were estimated at 11049.55 tpy in 2005, which represents approximately 17% of the total 64971.04 tpy of the overall NO_x point source emissions from the Evansville, IN-KY MSA. (See chart EVA-7)

Major point sources located within Webster County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

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Onroad Mobile

Onroad mobile source VOC emissions from Webster County were estimated at 192.67 tpy in 2005, which represents approximately 3.3% of the total 5912.99 tpy of the overall VOC onroad mobile source emissions from the Evansville, IN-KY MSA. (See chart EVA-3)

Onroad mobile source NO_x emissions from Webster County were estimated at 302.11 tpy in 2005, which represents approximately 3.3% of the total 9219.13 tpy of the overall NO_x onroad mobile source emissions from the Evansville, IN-KY MSA. (See chart EVA-9)

Based on 2006 information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Webster County is 55.3% and classified as significant. The commuting traffic from Webster County into other counties is significant at 73.2%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Webster County were estimated at 108.90 tpy in 2005, which represents approximately 3.7% of the total 2978.57 tpy of the overall VOC nonroad mobile source emissions from the Evansville, IN-KY MSA. (See chart EVA-4)

Nonroad mobile source NO_x emissions from Webster County were estimated at 620.42 tpy in 2005, which represents approximately 6.0% of the total 10394.50 tpy of the overall NO_x nonroad mobile source emissions from the Evansville, IN-KY MSA. (See chart EVA-10)

Area Sources

Area source VOC emissions from Webster County were estimated at 434.30 tpy in 2005, which represents approximately 4.5% of the total 9710.30 tpy of the overall VOC area source emissions from the Evansville, IN-KY MSA. (See chart EVA-2)

Area source NO_x emissions from Webster County were estimated at 59.65 tpy in 2005, which represents approximately 3.4% of the total 1754.95 tpy of the overall NO_x area source emissions from the Evansville, IN-KY MSA. (See chart EVA-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky and Indiana area of evaluation was performed using the 2005 NEI data.

Charts EVA-5 and EVA-6 provide a comparison of VOC emissions across the entire region.

Charts EVA-11 and EVA-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006 – 2008 monitoring period, there were no ozone monitors located in Webster County.

In the Evansville, IN-KY MSA, Webster County contributes approximately:

- 3.9% of total VOC emissions (25,561.46 tpy)
- 13.9% of total NOx emissions (121,192.07 tpy)

See charts EVA-6 for VOC, EVA-12 for NO_x.

Based on data analysis, the pollutants of most concern regarding ozone formation are VOC and NO_x. Webster County does not contribute a high concentration percentage for either of these precursors. These smaller percentage concentrations do not indicate a significant impact from Webster County on the violating monitors. See annual wind roses included in Figure 1.

Several 48-hour back trajectory HYSPLITS for Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Webster County and therefore does not affect the violating monitors.

The monitoring and emissions data and other documentation presented indicate that Webster County, Kentucky, does not contribute a significant amount of emissions that contribute to ozone formation in the Evansville, IN-KY MSA.

Therefore, Webster County should be designated attainment for the 8-hour ozone standard.

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Figure 1
Kentucky Area Wind Rose Patterns
2006-2008

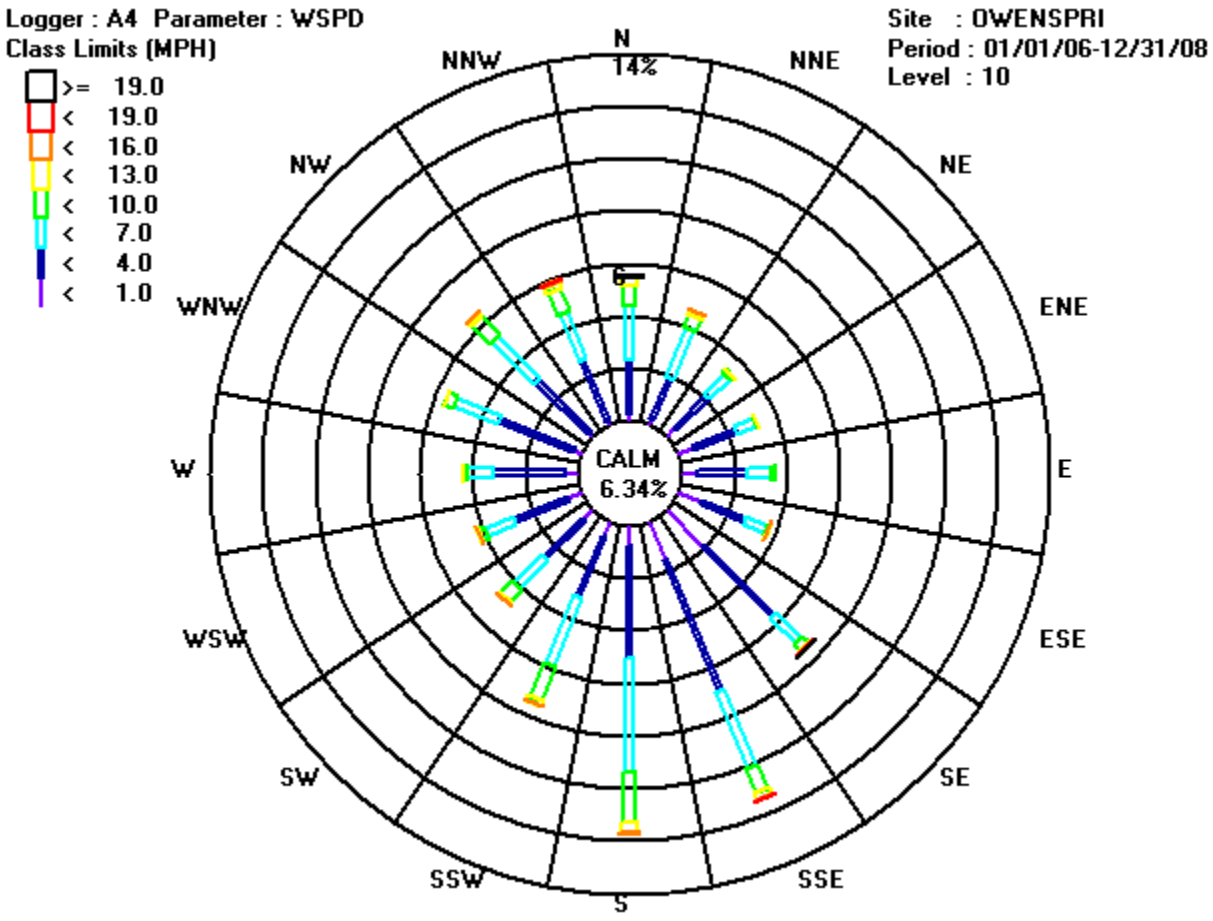

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Table 1
Evansville, IN-KY Area of Influence
3-year Average* of Annual 8-hour for Ozone
(parts per million)

Monitor	2006	2007	2008	3-year Average
Kentucky County				
Henderson 21-101-0014	0.074	0.083	0.074	0.077
Webster	-	-	-	n/a
Indiana County				
Vanderburgh 18-163-0012	0.075	0.085	0.074	0.078
Vanderburgh 18-163-0013	0.081	0.088	0.072	0.080
Warrick 18-173-0008	0.078	0.083	0.071	0.077
Warrick 18-173-0009	0.070	0.080	0.064	0.071
Warrick 18-173-0011	0.078	0.076	0.060	0.071
Posey 18-129-0003	0.058	0.081	0.069	0.069
Gibson	-	-	-	n/a

* NAAQS 8-hour (3 year average of the 4th max value). 0.08ppm

N/A indicates no monitor data for that county.

Table 2
Kentucky Portion of the Evansville, IN-KY MSA
Population Growth Data

County	Census 2000	2006*	%Growth 2000-2006	2015*	%Growth 2000 - 2015
Henderson	44,829	45,666	1.9%	46,655	4.1%
Webster	14,120	14,083	-0.3%	14,291	1.2%

*U.S. Census Bureau projections to July 1, 2006 and 2015

Table 3
Evansville, IN-KY MSA
2006 Estimated Population Data

	2006*	% of Total	
Kentucky County		of KY Portion	of MSA
Henderson	45,666	76.4%	13.0%
Webster	14,083	23.6%	4.0%
KY Total	59,749	-	17.1%
Indiana County		of IN Portion	
Gibson	33,396	11.5%	9.53%
Posey	26,765	9.21%	7.64%
Vanderburgh	173,356	59.7%	49.5%
Warrick	57,090	19.6%	16.3%
IN Total	290,607	-	82.9%
MSA Total	350,356		

*U.S. Census Bureau estimated for 2006.

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Table 4
2005 NEI Evansville, IN-KY MSA
Total VOC Emissions
(tons per year)

County	VOC				
	Point	Area	Mobile	Nonroad	Total
Henderson	426.28	1226.29	773.66	754.14	**3180.37**
Webster	160.24	434.30	192.67	108.90	**896.10**
KY Total	**586.52**	**1660.59**	**966.32**	**863.04**	**4076.47**
Gibson, IN	1321.04	1305.52	694.09	490.26	**3810.91**
Posey, IN	1061.84	1039.58	750.80	286.79	**3139.00**
Vanderburgh, IN	851.99	4112.23	2357.55	946.85	**8268.63**
Warrick, IN	621.01	1592.39	1144.23	391.63	**3749.25**
IN Total	**3855.87**	**8049.72**	**4946.67**	**2115.53**	**18967.79**
Total Emissions	**4442.39**	**9710.30**	**5912.99**	**2978.57**	**23044.26**

Table 5
2005 NEI Evansville, IN-KY MSA
Total NO_x Emissions
(tons per year)

County	NOx				
	Point	Area	Mobile	Nonroad	Total
Henderson	781.04	350.51	1008.21	2889.27	**5029.02**
Webster	11049.55	59.65	302.11	620.42	**12031.73**
KY Total	**11830.59**	**410.15**	**1310.31**	**3509.69**	**17060.75**
Gibson, IN	30367.73	181.10	1071.19	1079.04	**32699.05**
Posey, IN	8095.89	115.42	1508.68	2043.21	**11763.19**
Vanderburgh, IN	198.48	870.97	3184.82	2503.89	**6758.17**
Warrick, IN	14478.36	177.30	2144.13	1258.68	**18058.46**
IN Total	**53140.45**	**1344.79**	**7908.81**	**6884.81**	**69278.87**
Total Emissions	**64971.04**	**1754.95**	**9219.13**	**10394.50**	**86339.62**

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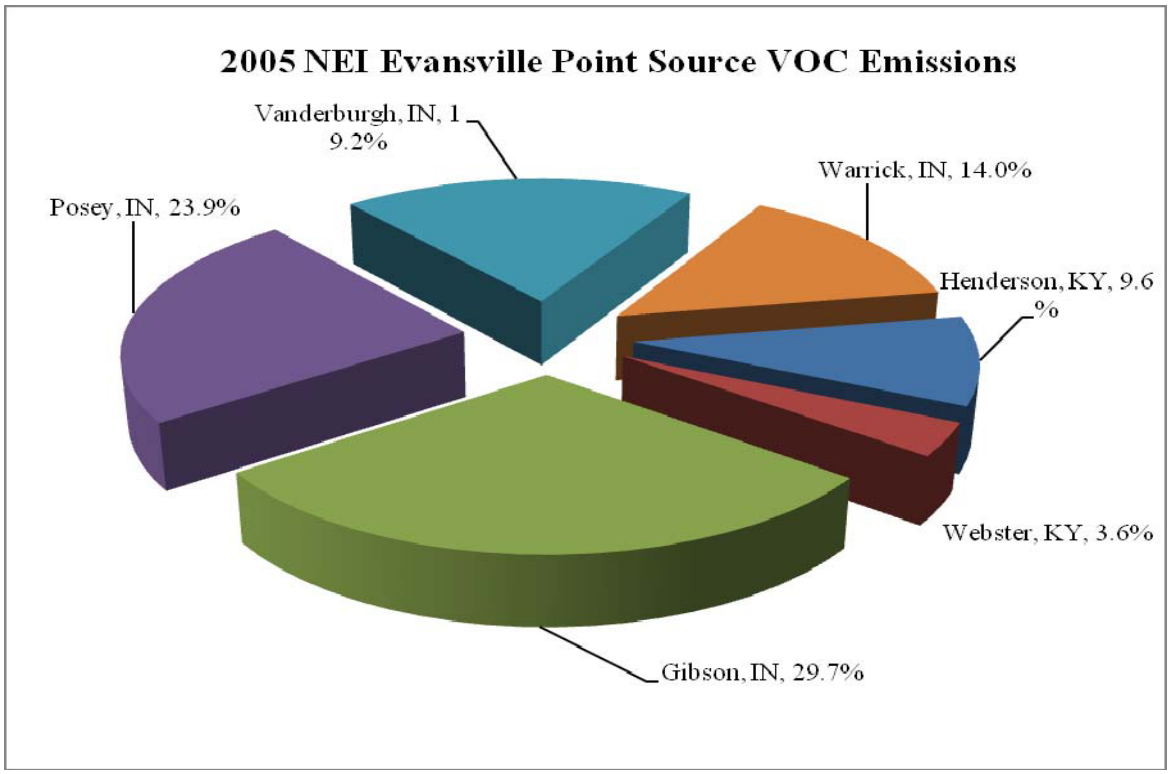
EVA-1



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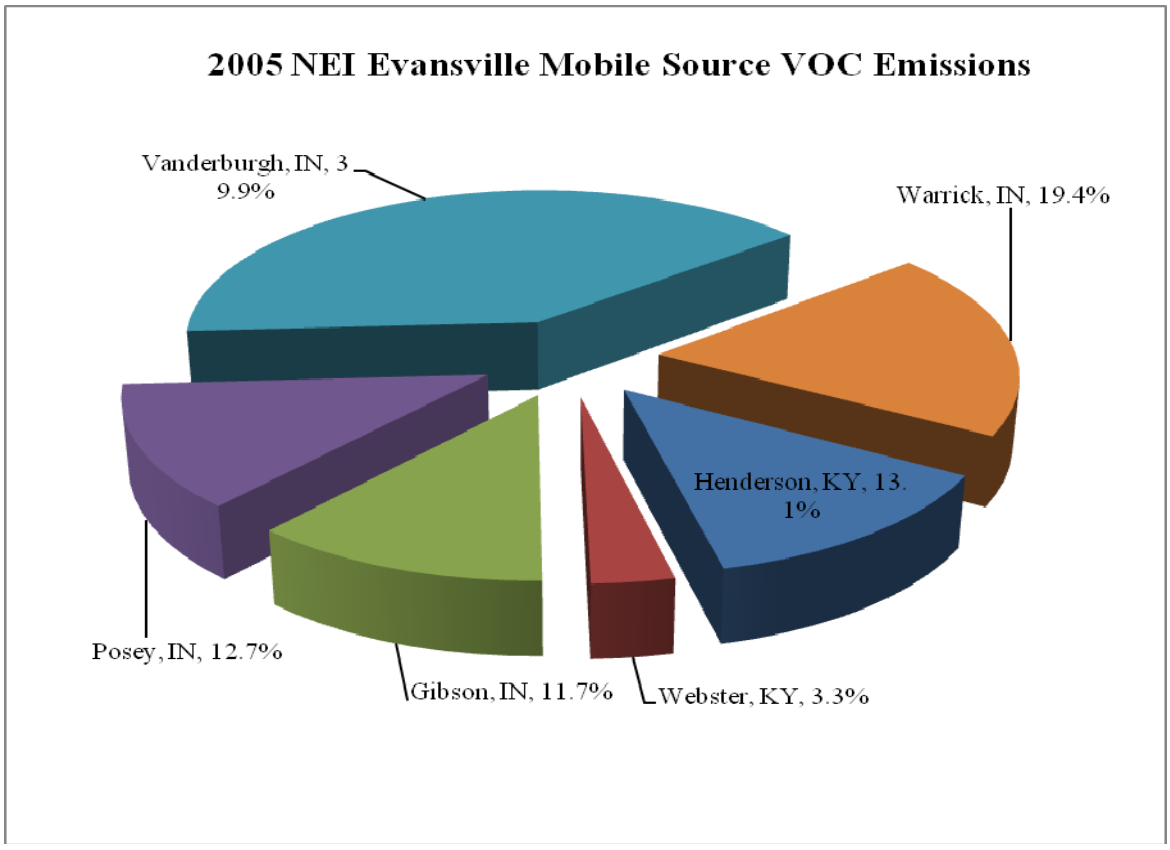

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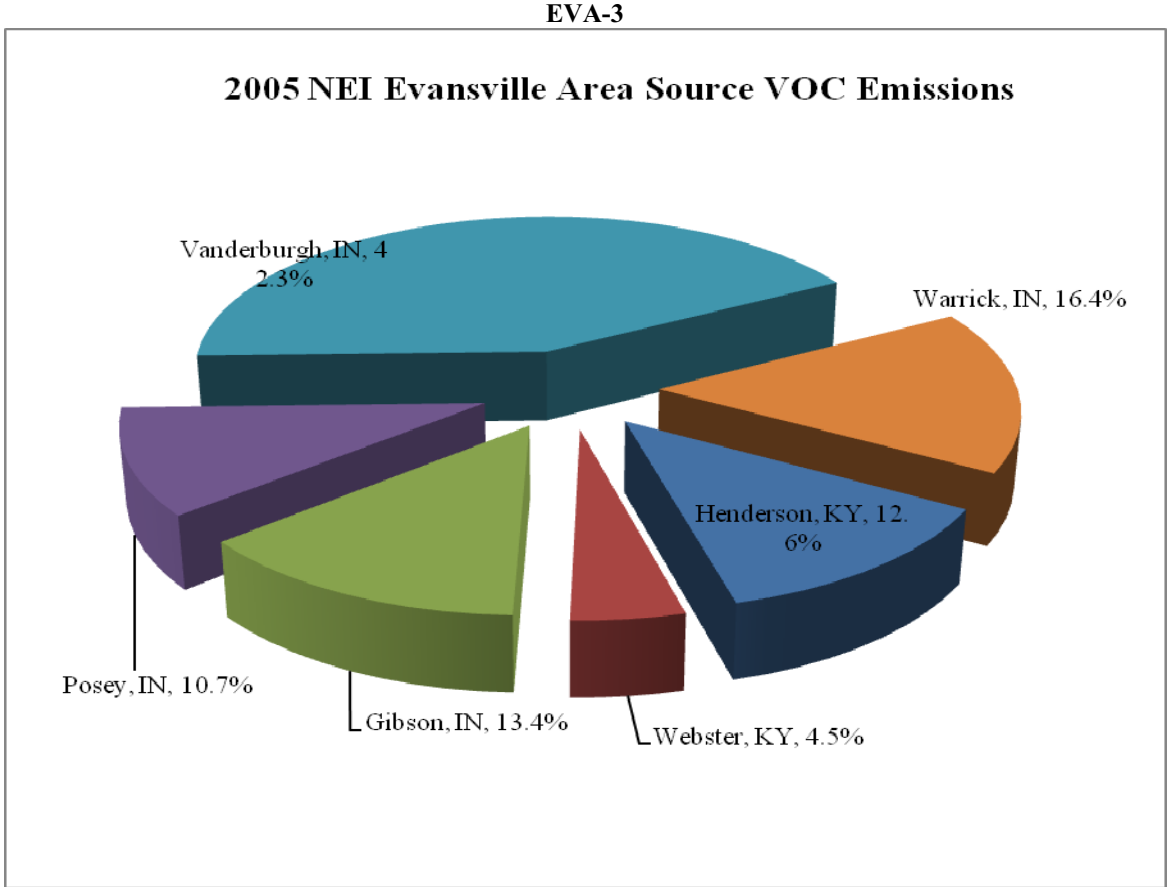
EVA-3



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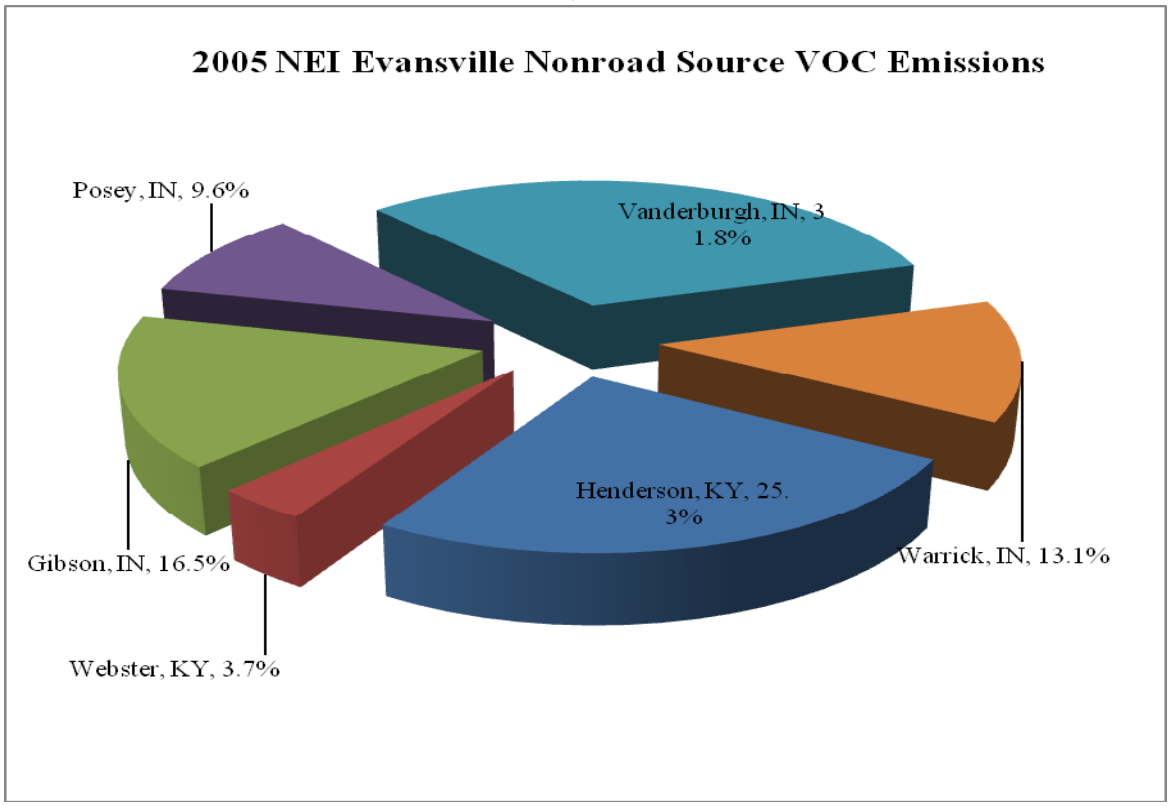

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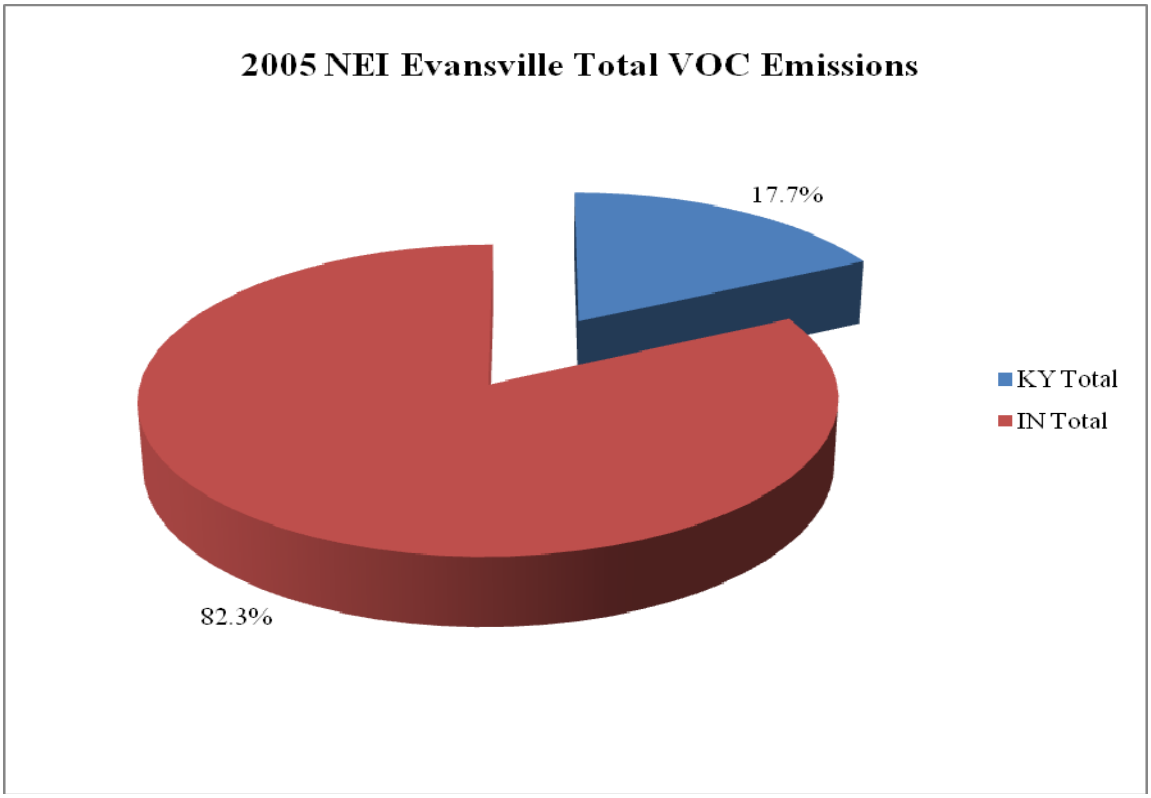
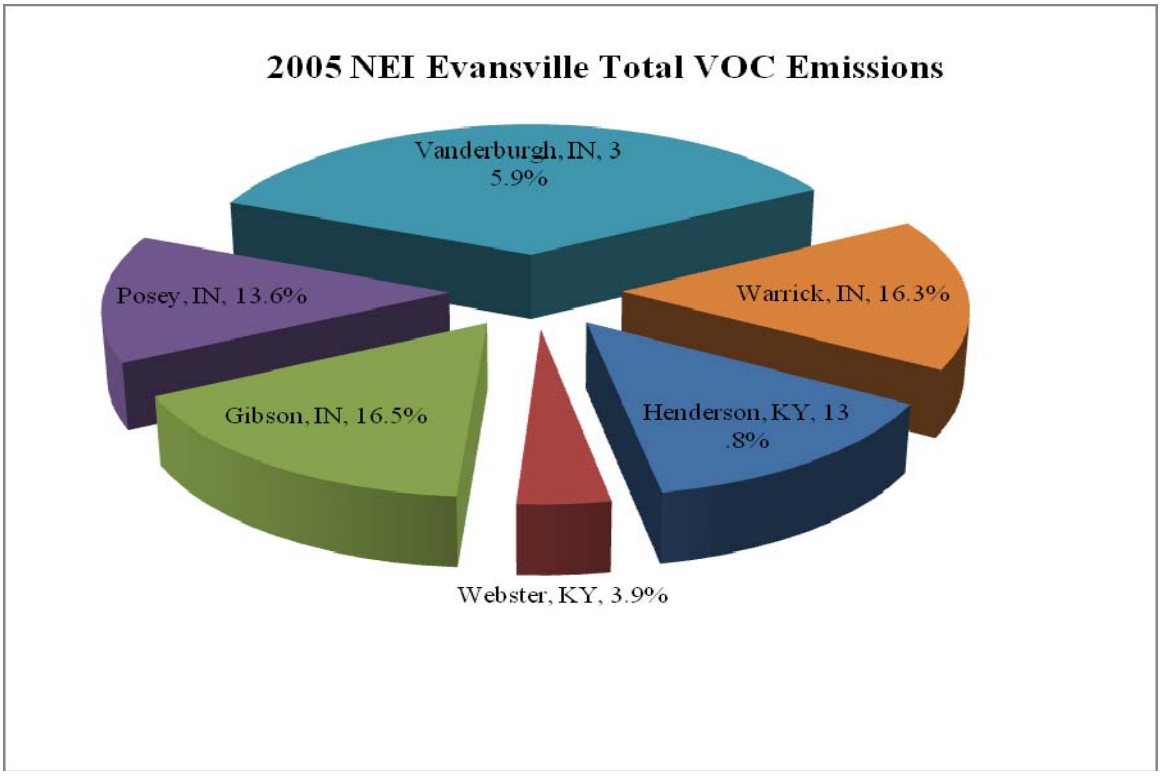
EVA-5



EVA-6



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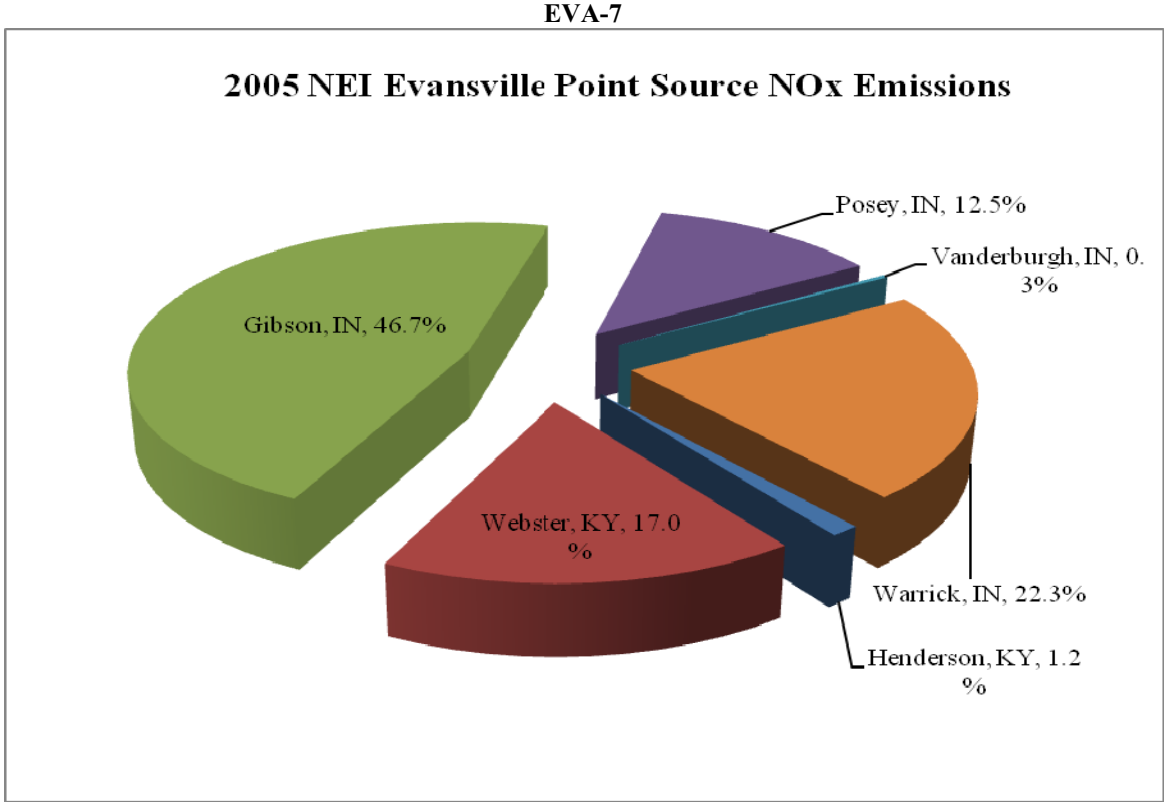

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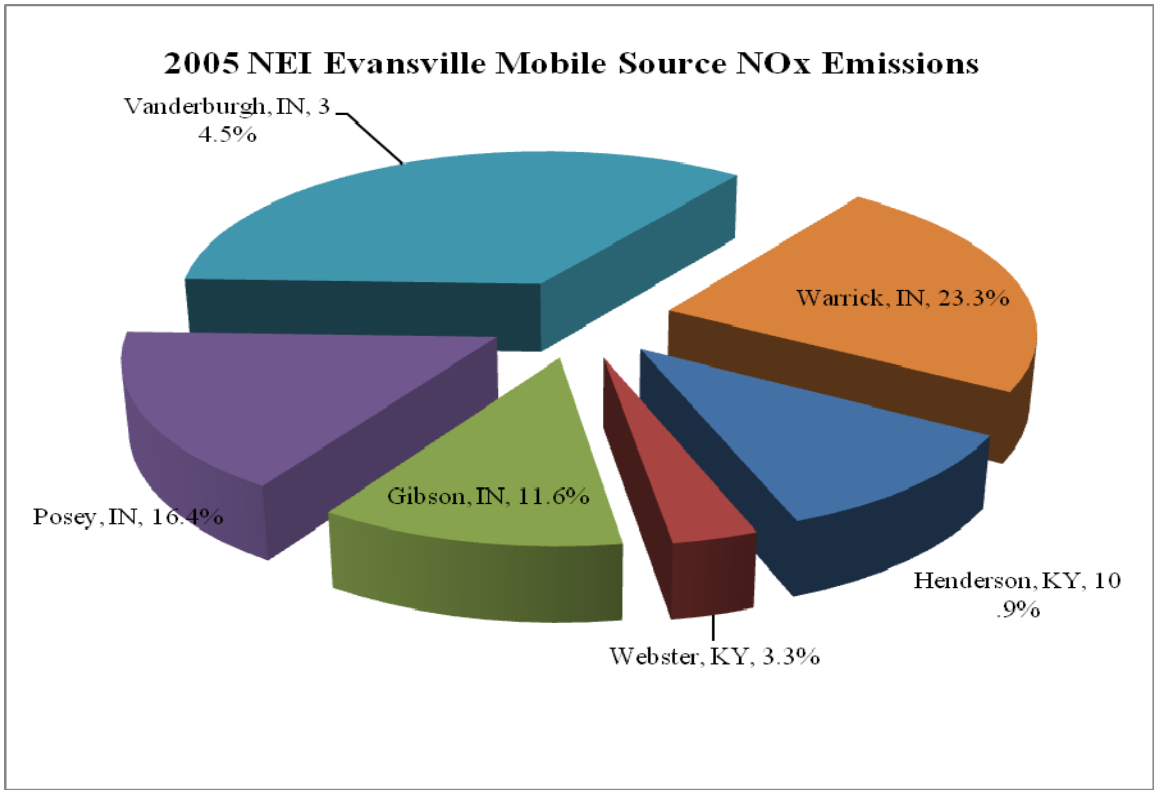

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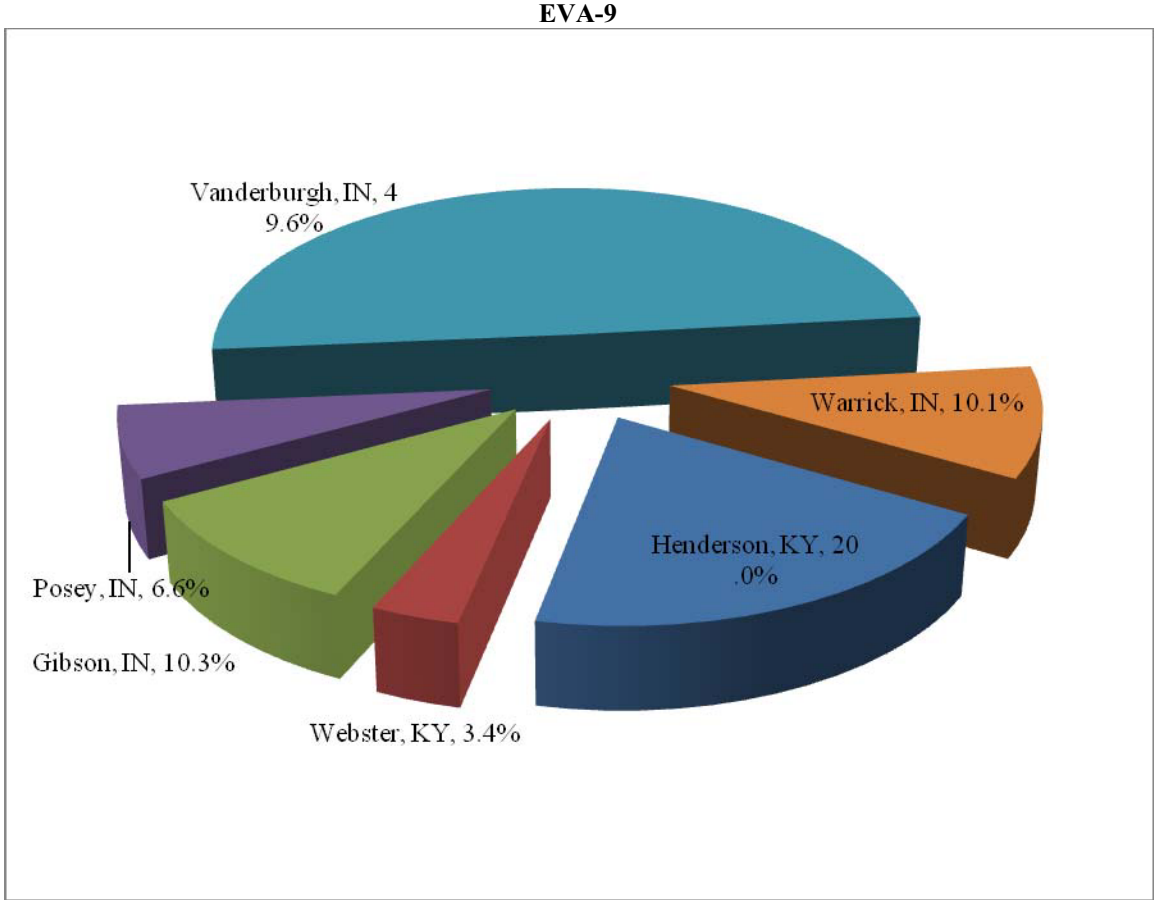

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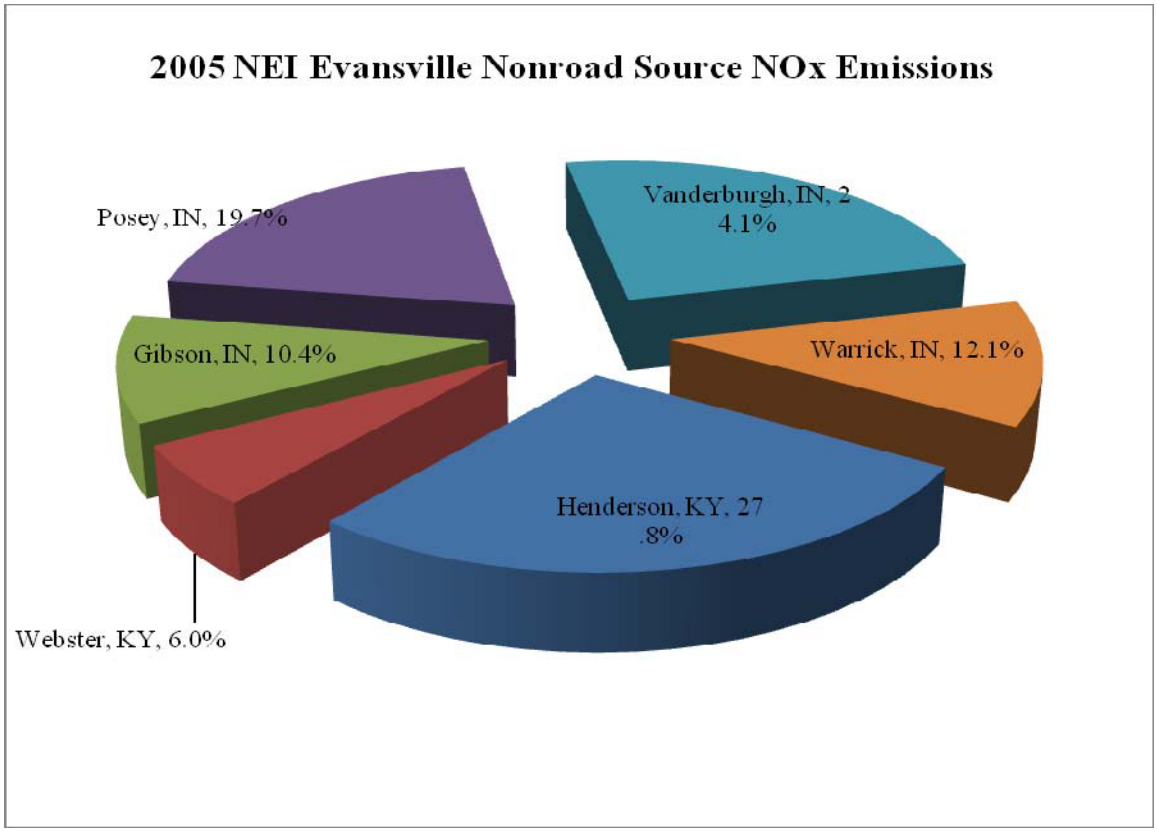

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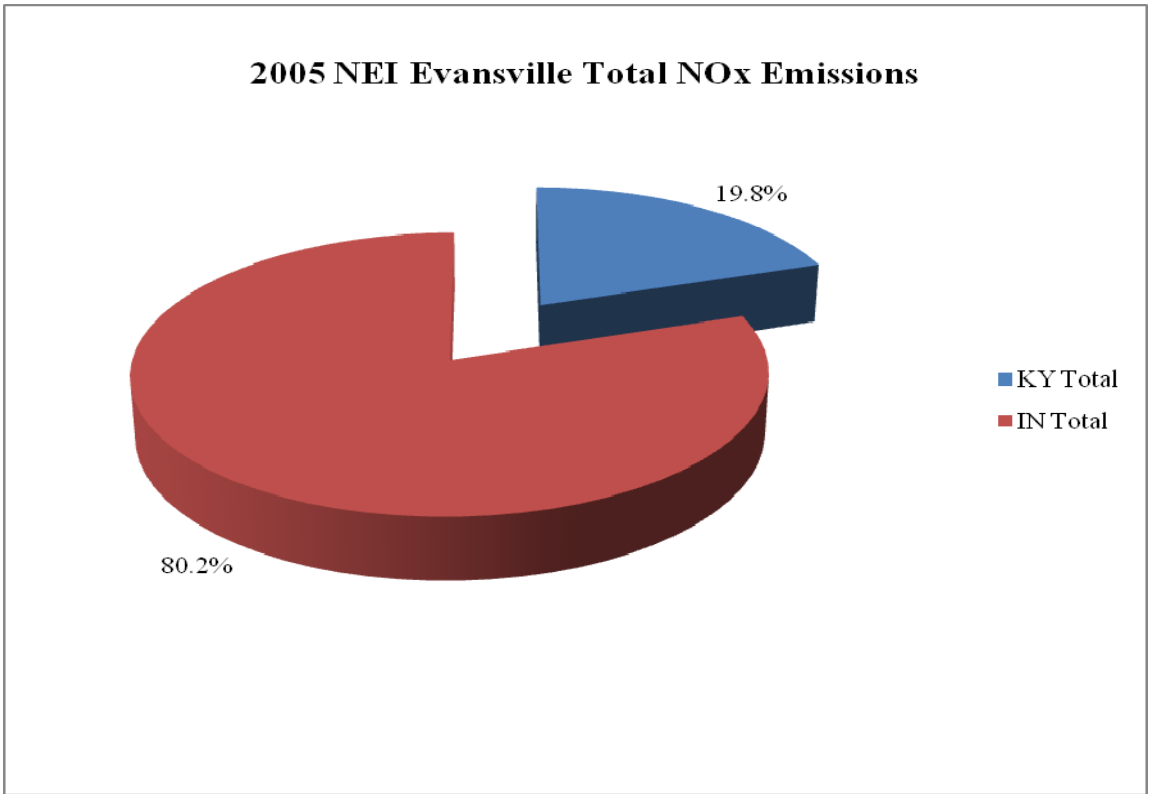

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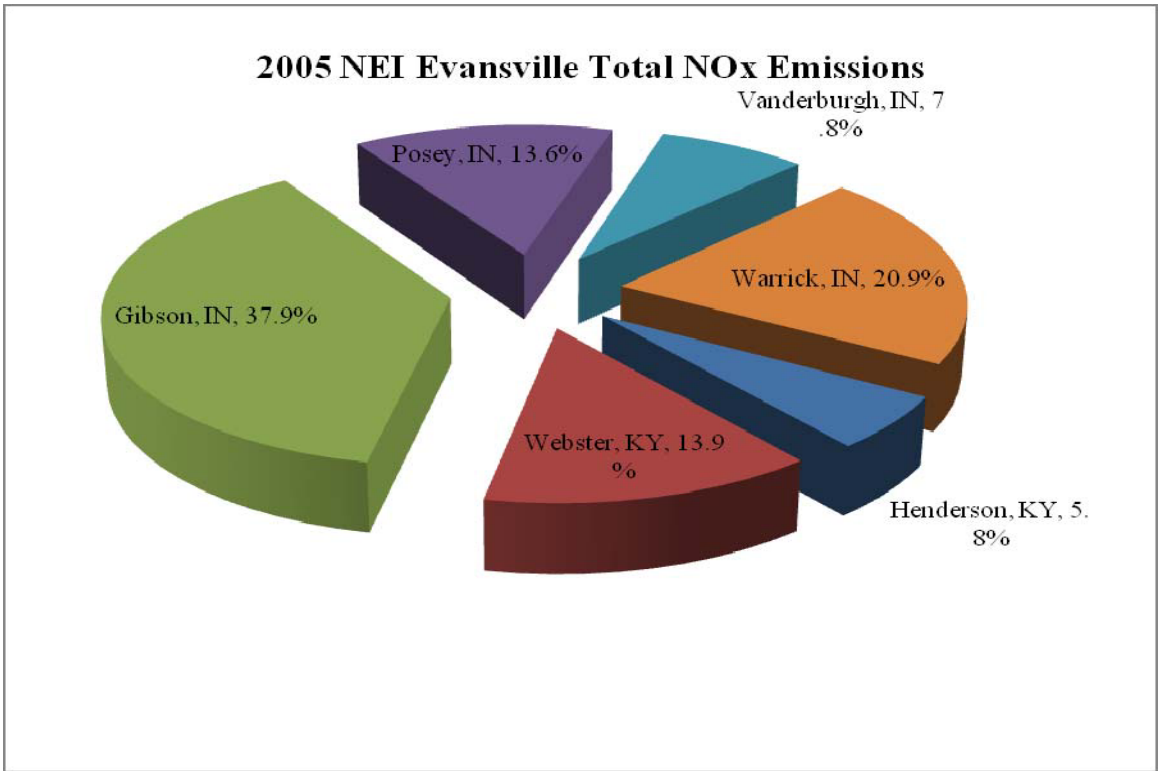

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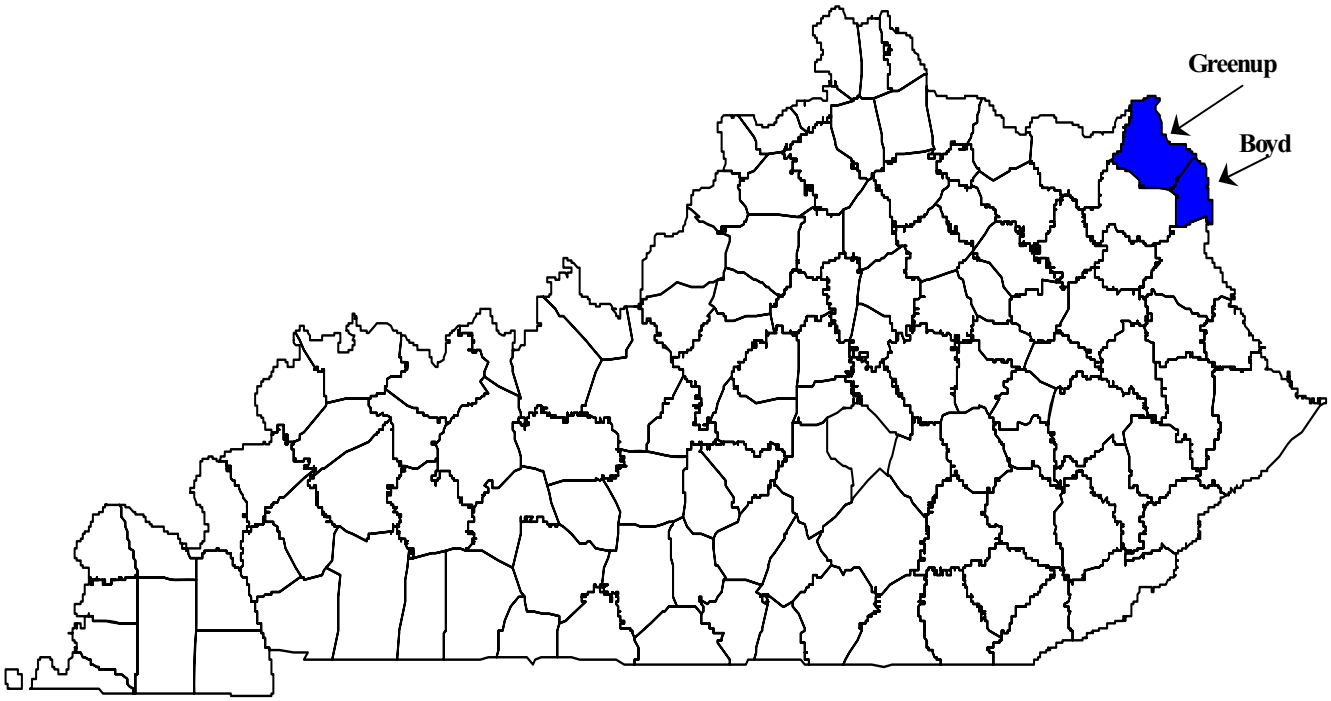
Huntington-Ashland, WV-KY-OH, MSA



The Huntington-Ashland WV-KY-OH Metropolitan Statistical Area (MSA) is ranked 160th in size among the MSAs within the United States. This MSA encompasses five counties, Boyd, Greenup Counties, Kentucky, Cabell and Wayne Counties, West Virginia, and Lawrence County, Ohio.

BOYD, KENTUCKY

Boyd County is part of the Huntington-Ashland, WV-KY-OH, MSA. The county seat of Boyd County is Catlettsburg and its largest city is Ashland. Ashland is located 67 miles west of Charleston, West Virginia; 195 miles east of Louisville, Kentucky; 146 miles southeast of Cincinnati, Ohio; and 271 miles northeast of Knoxville, Tennessee. Boyd County is located west of Cabell County, West Virginia.

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Geography/Topography

Boyd County covers a total land area of 160 square miles at the northeastern edge of Kentucky. It is situated along the Ohio River and Big Sandy River in the Appalachian foothills and is part of the Eastern Kentucky Coal Field Region.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Ashland air monitoring site in Boyd County for the period 2006-2008 shows that the majority of the time the wind in the area came from the south/southwest, and typically at less than one mile per hour (See figure 1) According to the Huntington, West Virginia, Weather Station, the average high temperature for July for the area from 2006 through 2008 was 86°F and the average low was 65°F. The average precipitation for the same period was 3.34 inches.

Planning

The authority for air quality planning in the Boyd County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Boyd County is performed by the FIVCO Area Development District.

Air Monitoring

The Boyd County ozone monitor (21-019-0017) shows the 3-year average (2006-2008) of the annual fourth-highest daily maximum 8-hour average ozone concentration is 0.0747 parts per million, which achieves the 8-hour ozone National Ambient Air Quality Standard (NAAQS - 0.075 ppm).

However, because preliminary data indicates violations of the 8-hour ozone NAAQS in 2006-2008 for the monitors in Greenup County, KY (21-089-0007), Cabell County, WV (54-011-0006), and Lawrence County, OH (39-087-0006), information for Boyd County is being presented in this document.

The monitoring information for 2008 is complete and the latest available for Boyd County, Kentucky. (See table 1)

Population

Based on projections to 2006 from the 2000 census data, there are 49,371 persons living in Boyd County. (See table 3) That represents approximately 309 persons per square mile. The population of Boyd County is approximately 25.7% rural with 74.3% of the people living in incorporated areas. The largest city in Boyd County is Ashland.

Boyd County's population from 2000 through 2006 *decreased* by approximately 0.8% (49,752 to 49,371). The population in the county is expected to decrease overall by 1.0% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Huntington-Ashland, WV-KY-OH, MSA, Boyd County represents approximately 17.3% of the total population. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory. (See tables 4 and 5)

Point Sources

Point source VOC emissions from Boyd County were estimated at 2751.95 tpy in 2005, which represents approximately 80.8% of the total 3406.15 tpy of the overall VOC point source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-1)

Point source NO_x emissions from Boyd County were estimated at 5109.31 tpy in 2005, which represents approximately 56.7% of the total 9006.64 tpy of the overall NO_x point source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-7)

Major point sources located within Boyd County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

In response to the USEPA's CAIR, the KYDAQ developed rules to implement CAIR. Under the rule, Kentucky has emission caps as follows:

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- Annual NOx: 83,205 tons for 2009-2014 and
  69,337 tons for 2015 and each year thereafter;
- Ozone season NOx: 36,109 tons for 2009-2014 and
  30,651 tons for 2015 and each year thereafter;
- Annual SO_2: 188,773 tons for 2010-2014 and
  132,141 tons for 2015 and each year thereafter.

The State's NOx allocations have been distributed based on allocation methodologies in 401 KAR 52:210 and 220. The USEPA will determine the SO_2 allocations, which are based on the acid rain program. For the most part the rules follow the USEPA's model rule. This rule does not preclude the DAQ from adopting additional emission reduction requirements for covered sources if necessary to attain or maintain an ambient air quality standard.

The KYDAQ CAIR regulations became effective February 2, 2007 and was approved to Kentucky's SIP published October 4, 2007 (72 FR 56623) and effective December 3, 2007.

Additionally, Catlettsburg Refining, LLC, in Boyd County applied for a revised permit in September 2003 for equipment changes and removal under the Refinery Modernization Project. The project involved the installation of new equipment and upgrading of existing equipment. This allowed the refinery to produce cleaner-burning transportation fuels, to improve yields, to utilize a wider range of purchased feed materials, and to reduce fixed and operating costs. In addition, the project will substantially reduce emissions of nitrogen oxides and sulfur dioxide from the refining operations.

Onroad Mobile

Onroad mobile source VOC emissions from Boyd County were estimated at 900.14 tpy in 2005, which represents approximately 18.8% of the total 4787.73 tpy of the overall VOC onroad mobile source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-3)

Onroad mobile source NO_x emissions from Boyd County were estimated at 1394.01 tpy in 2005, which represents approximately 20.6% of the total 6772.87 tpy of the overall NO_x onroad mobile source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-9)

Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Boyd County is 53.7% and classified as significant. The commuting traffic from Boyd County into other counties is high at 35%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

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Nonroad Sources

Nonroad mobile source VOC emissions from Boyd County were estimated at 202.34 tpy in 2005, which represents approximately 10.6% of the total 1909.47 tpy of the overall VOC nonroad mobile source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-4)

Nonroad mobile source NO_x emissions from Boyd County were estimated at 1263.38 tpy in 2005, which represents approximately 12.7% of the total 9912.26 tpy of the overall NO_x nonroad mobile source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-10)

Area Sources

Area source VOC emissions from Boyd County were estimated at 1384.82 tpy in 2005, which represents approximately 13.4% of the total 10346.91 tpy of the overall VOC area source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-2)

Area source NO_x emissions from Boyd County were estimated at 272.77 tpy in 2005, which represents approximately 15.4% of the total 1770.34 tpy of the overall NO_x area source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky MSA was performed using the 2005 NEI data.

Charts HUN-5 and HUN-6 provide a comparison of VOC emissions across the entire region.

Charts HUN-11 and HUN-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

Boyd County, based on 2006-2008 ozone monitoring and emissions data, is meeting the 8-hour ozone standard with a 3-year average of .074 parts per million (ppm).

In the Huntington-Ashland, WV-KY-OH MSA, Boyd County contributes approximately:

- 25.6% of total VOC emissions (20,450.26 tpy)
- 29.3% of total NOx emissions (27,462.11 tpy)

See charts HUN-6 for VOC and HUN-12 for NO_x.

Based on data analysis, the pollutants of most concern regarding ozone formation are VOC and NO_x. Boyd County contributes a relatively moderate portion of the area's VOC and NO_x emissions.

Predominant wind patterns do not indicate an impact from Boyd County on the violating monitors. See annual wind roses included in Figure 1. Several 48-hour back trajectory HYSPLITS have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Boyd County and therefore does not affect the violating monitors.

Since the monitor in Boyd County does not show a violation of the 8-hr ozone standard, and the level of total emissions provide a relatively moderate contribution of precursors, Boyd County should be designated attainment for the 8-hour ozone standard.

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GREENUP COUNTY, KENTUCKY

Greenup County is part of the Huntington-Ashland, WV-KY-OH, MSA. Greenup, the county seat of Greenup County, is located 89 miles west of Charleston, West Virginia; 192 miles east of Louisville, Kentucky; 123 miles southeast of Cincinnati, Ohio; and 268 miles northeast of Knoxville, Tennessee. Greenup County is located west of Cabell County, West Virginia.

Geography/Topography

Greenup County has a land area of 346 square miles. Greenup County is situated on the Ohio River in the Appalachian foothills and is part of the Eastern Kentucky Coal Field Region.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Boyd County, Kentucky air monitoring site for the period 2006-2008 shows that the majority of the time the wind in the area came from the south/southwest, and typically at less than one mile per hour. (See figure 1) According to the Huntington, West Virginia, Weather Station, the average high temperature for July for the area from 2006 through 2008 was 86°F and the average low was 65°F. The average precipitation for the same period was 3.34 inches.

Planning

The authority for air quality planning in the Greenup County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Greenup County is performed by the FIVCO Area Development District.

Air Monitoring

The Greenup County ozone monitor (21-089-0007) shows the 3-year average (2006-2008) of the annual fourth-highest daily maximum 8-hour average ozone concentration is 0.076 parts per million, which does not achieve the 8-hour ozone National Ambient Air Quality Standard (NAAQS - 0.075 ppm).

The monitoring information for 2008 is complete and the latest available for Greenup County, Kentucky (See table 1).

Population

Based on projections to 2006 from the 2000 census data, there are 37,374 persons living in Greenup County. (See table 3) That represents approximately 108 persons

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per square mile. The population of Greenup County is approximately 38.7% rural with 61.3% of the people living in incorporated areas. The largest city in Greenup County is Flatwoods.

Greenup County's population from 2000 through 2006 increased by approximately 1.3% (36,891 to 37,374). The population in the county is expected to increase overall by 0.3% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Huntington-Ashland, WV-KY-OH MSA, Greenup County represents approximately 13.1% of the total population. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory. (See tables 4 and 5)

Point Sources

Point source VOC emissions from Greenup County were estimated at 146.23 tpy in 2005, which represents approximately 4.3% of the total 3406.15 tpy of the overall VOC point source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-1)

Point source NO_x emissions from Greenup County were estimated at 861.37 tpy in 2005, which represents approximately 9.6% of the total 9006.64 tpy of the overall NO_x point source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-7)

Major point sources located within Greenup County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

Onroad Mobile

Onroad mobile source VOC emissions from Greenup County were estimated at 593.40 tpy in 2005, which represents approximately 12.4% of the total 4787.73 tpy of the overall VOC onroad mobile source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-3)

Onroad mobile source NO_x emissions from Greenup County were estimated at 755.05 tpy in 2005, which represents approximately 11.1% of the total 6772.87 tpy of the

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overall NO_x onroad mobile source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-9)

Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Greenup County is 48.2% and classified as high. The commuting traffic from Greenup County into other counties is significant at 67.1%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Greenup County were estimated at 315.61 tpy in 2005, which represents approximately 16.5% of the total 1909.47 tpy of the overall VOC nonroad mobile source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-4)

Nonroad mobile source NO_x emissions from Greenup County were estimated at 2068.67 tpy in 2005, which represents approximately 20.9% of the total 9912.26 tpy of the overall NO_x nonroad mobile source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-10)

Area Sources

Area source VOC emissions from Greenup County were estimated at 1345.87 tpy in 2005, which represents approximately 13.0% of the total 10,346.91 tpy of the overall VOC area source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-2)

Area source NO_x emissions from Greenup County were estimated at 144.68 tpy in 2005, which represents approximately 8.2% of the total 1770.34 tpy of the overall NO_x area source emissions from the Huntington-Ashland, WV-KY-OH MSA. (See chart HUN-8)

Comparison of Total Emissions

A comparison of total emissions across the entire area of evaluation was performed using the 2005 NEI data.

Charts HUN-5 and HUN-6 provide a comparison of VOC emissions across the entire region.

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Charts HUN-11 and HUN-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

Greenup County, based on 2006-2008 ozone monitoring and emissions data, is not meeting the 8-hour ozone standard with a 3-year average of 0.076 parts per million (ppm).

In the Huntington-Ashland, WV-KY-OH MSA, Greenup County contributes approximately:

- 11.7% of total VOC emissions (20,450.26 tpy)
- 13.9% of total NOx emissions (27,462.11 tpy)

See charts HUN-6 for VOC and HUN-12 for NO_x.

Based on data analysis, the pollutants of most concern regarding ozone formation are VOC and NO_x. Greenup County does not contribute a high concentration percentage for either of these precursors.

Predominant wind patterns do not indicate an impact from Greenup County on the violating monitors. See annual wind roses included in Figure 1.

The emissions data and other documentation presented indicate that Greenup County, Kentucky, does not contribute a significant amount of ozone or emissions that contribute to ozone formation in the Huntington-Ashland, WV-KY-OH MSA.

However, based on monitoring data showing a violation, Greenup County should be designated nonattainment for the 8-hour ozone standard.

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Figure 1

Kentucky Area Wind Rose Patterns

2006-2008

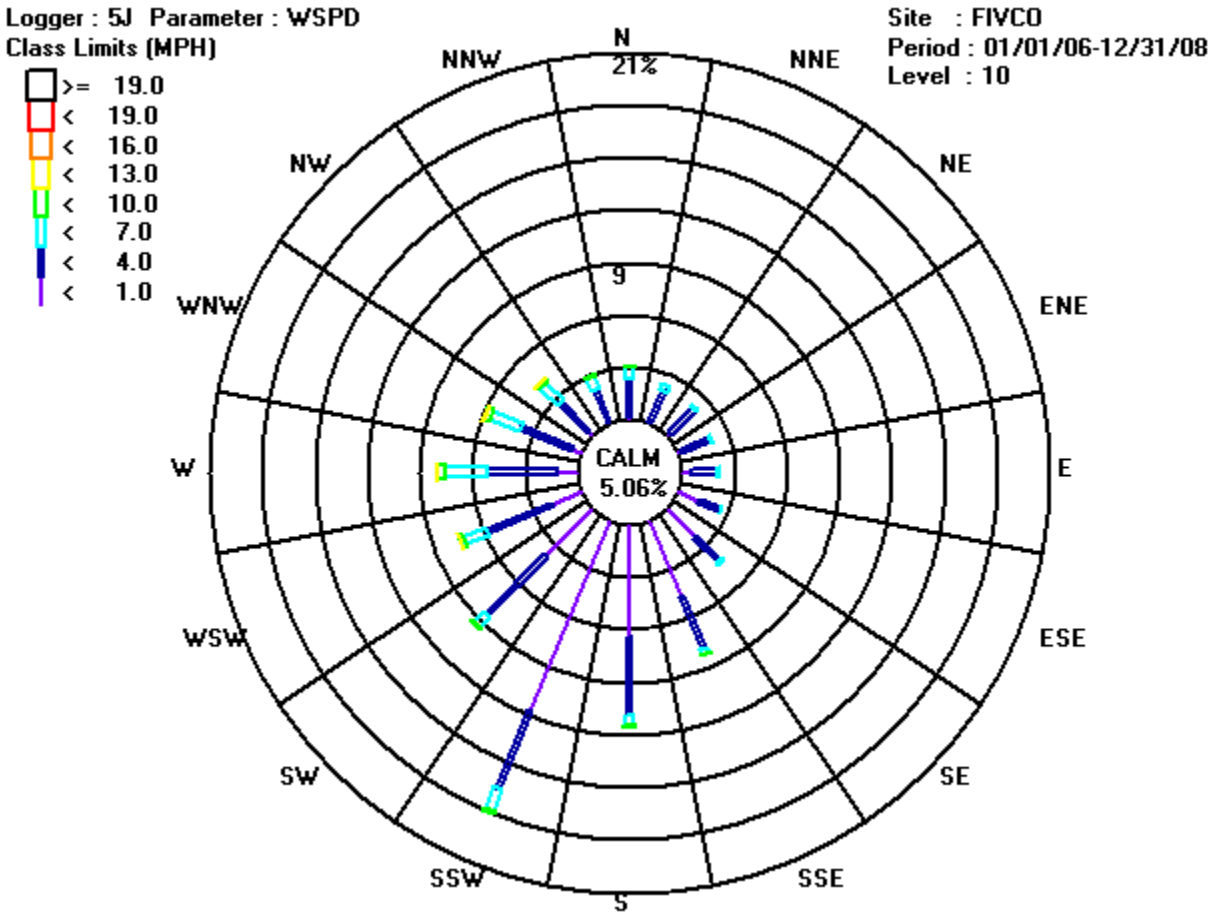

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Table 1
Kentucky portion of the Huntington-Ashland, WV-KY-OH MSA
3-year Average* of 8-hour for ozone
(parts per million)

Monitor	2006	2007	2008	3-year Average
Kentucky County				
Boyd	.079	.072	.073	.074
Greenup	.077	.079	.074	.076

*NAAQS 8-hour (3 year average of the 4th max value). 0.08ppm

Table 2
Kentucky Portion of the Huntington-Ashland, WV-KY-OH MSA
Population Growth Data

County	Census 2000	2006*	%Growth 2000-2006	2015*	%Growth 2000 - 2015
Boyd	49,752	49,371	-0.8	49,266	-1.0
Greenup	36,891	37,374	1.3	37,005	0.3

*U.S. Census Bureau projections to July 1, 2006 and 2015

Table 3
Huntington-Ashland, WV-KY-OH MSA
2006 Estimated Population Data

	2006*	% of Total	
Kentucky County		of KY Portion	of MSA
Boyd	49,371	56.9%	17.3%
Greenup	37,374	43.1%	13.1 %
KY Total	86,745	-	30.4%
Ohio County		of OH Portion	
Lawrence	63,179	100%	22.1%
OH Total	63,179	-	22.1%
West Virginia County		of WV Portion	
Cabell	93,904	69.3%	32.9%
Wayne	41,647	30.7%	14.6%
WV Total	135,551	-	47.5%
MSA Total	285,475		

*U.S. Census Bureau estimated for 2006.

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Table 4
2005 NEI Huntington-Ashland, WV-KY-OH MSA
Total VOC Emissions
(tons per year)

County	VOC				
	Point	Area	Mobile	Nonroad	Total
Boyd	2751.95	1384.82	900.14	202.34	5239.25
Greenup	146.23	1345.87	593.40	315.61	2401.12
KY Total	**2898.18**	**2730.69**	**1493.55**	**517.96**	**7640.37**
Lawrence, OH	70.92	2147.58	1194.65	190.73	3603.87
OH Total	**70.92**	**2147.58**	**1194.65**	**190.73**	**3603.87**
Cabell, WV	227.98	2679.57	1515.86	848.51	**5271.93**
Wayne, WV	209.07	2789.07	583.67	352.28	**3934.10**
WV Total	**437.06**	**5468.65**	**2099.53**	**1200.79**	**9206.02**
Total Emissions	**3406.15**	**10346.91**	**4787.73**	**1909.47**	**20450.26**

Table 5
2005 NEI Huntington-Ashland, WV-KY-OH MSA
Total NO_x Emissions
(tons per year)

County	NOx				
	Point	Area	Mobile	Nonroad	Total
Boyd	7045.88	38.95	1212.95	3319.05	11616.83
Greenup	920.84	36.36	965.32	2449.63	4372.15
Lawrence	14766.02	84.79	784.82	726.43	16362.06
KY Total	**22732.74**	**160.10**	**2963.09**	**6495.12**	**32351.04**
Lawrence, OH	0.00	215.84	2309.33	1037.34	3562.51
OH Total	**0.00**	**215.84**	**2309.33**	**1037.34**	**3562.51**
Cabell, WV	246.54	716.32	2987.76	1957.64	5908.26
Wayne, WV	3326.35	174.29	1089.34	3049.67	7639.65
WV Total	**3572.89**	**890.61**	**4077.10**	**5007.31**	**13547.91**
Total Emissions	**26305.63**	**1266.54**	**9349.52**	**12539.76**	**49461.46**

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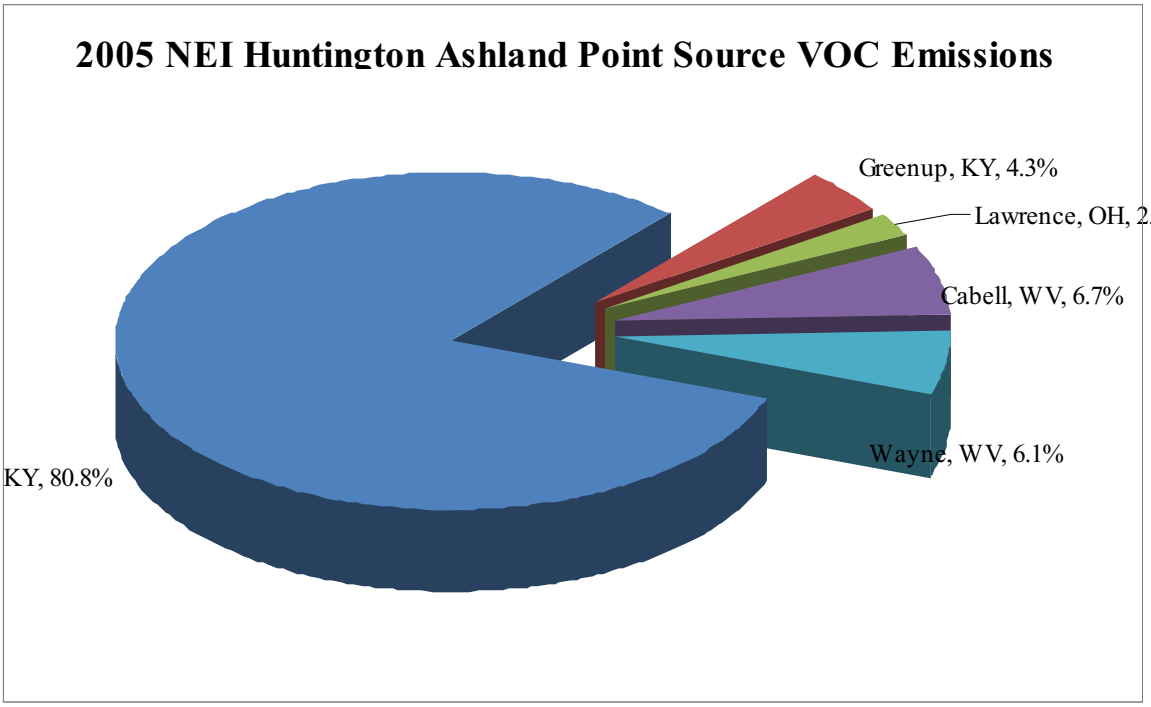
HUN-1



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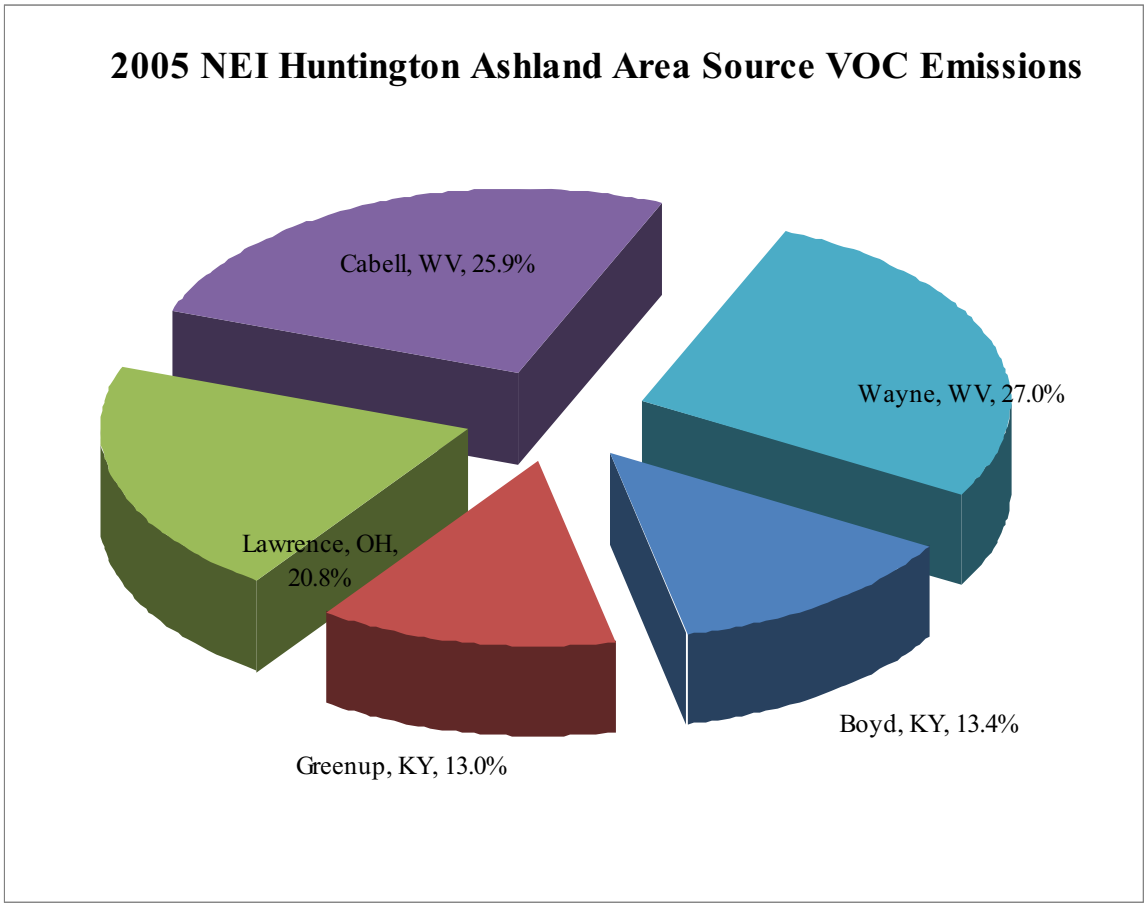

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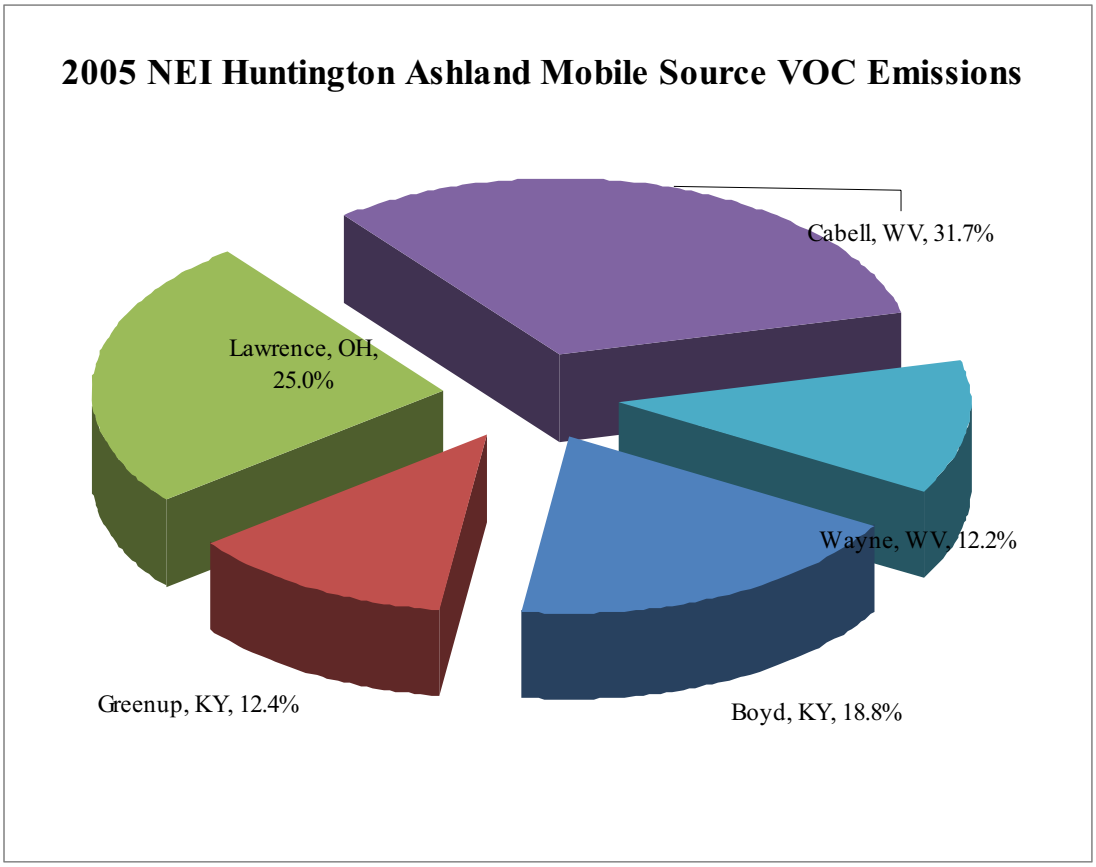

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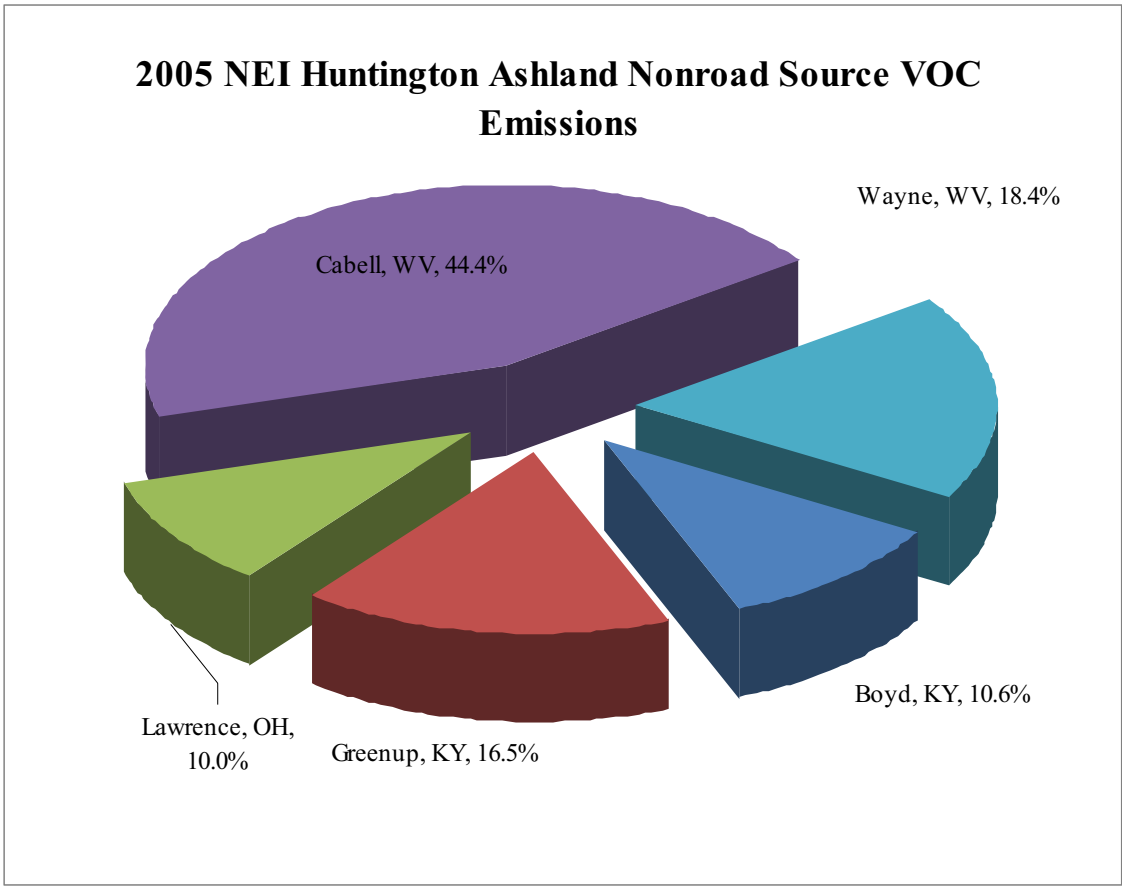

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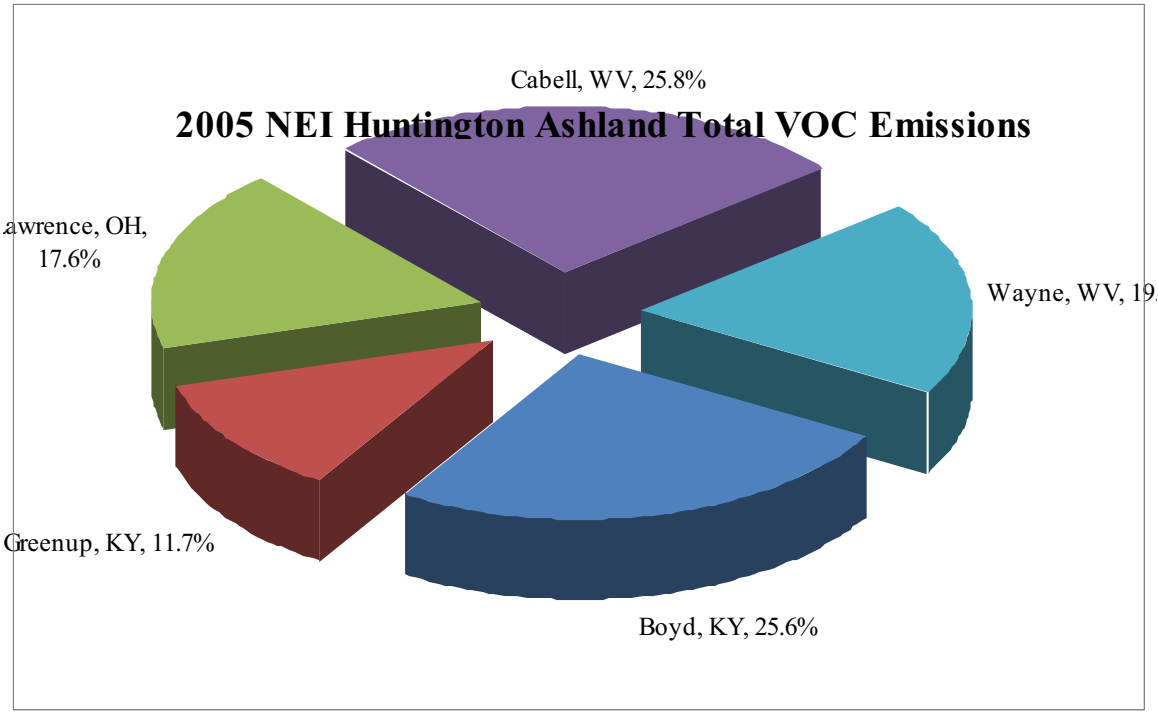

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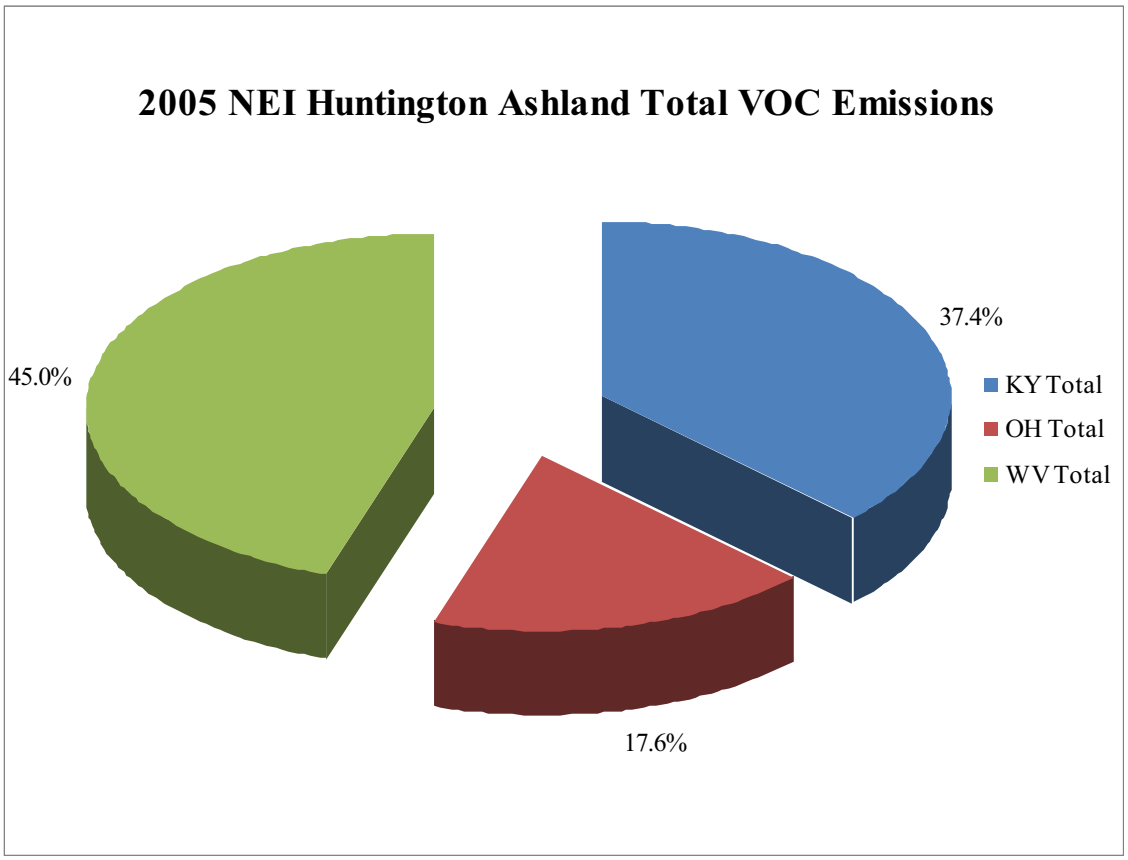

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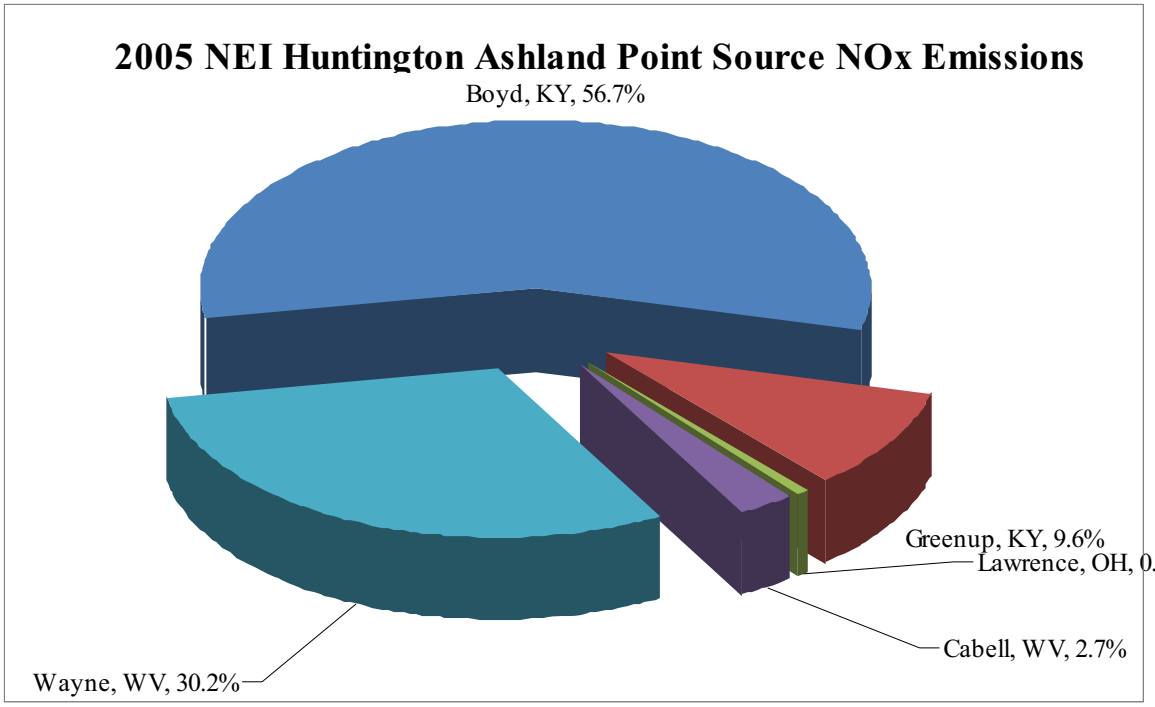

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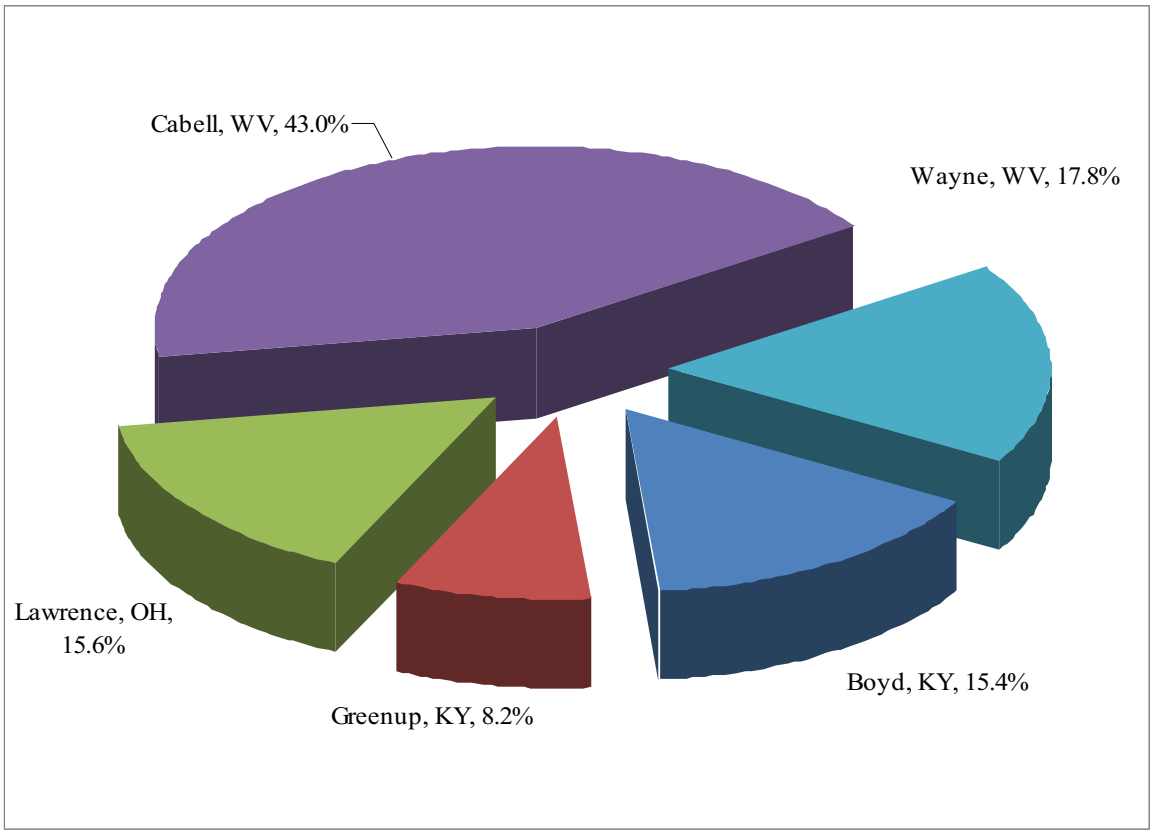

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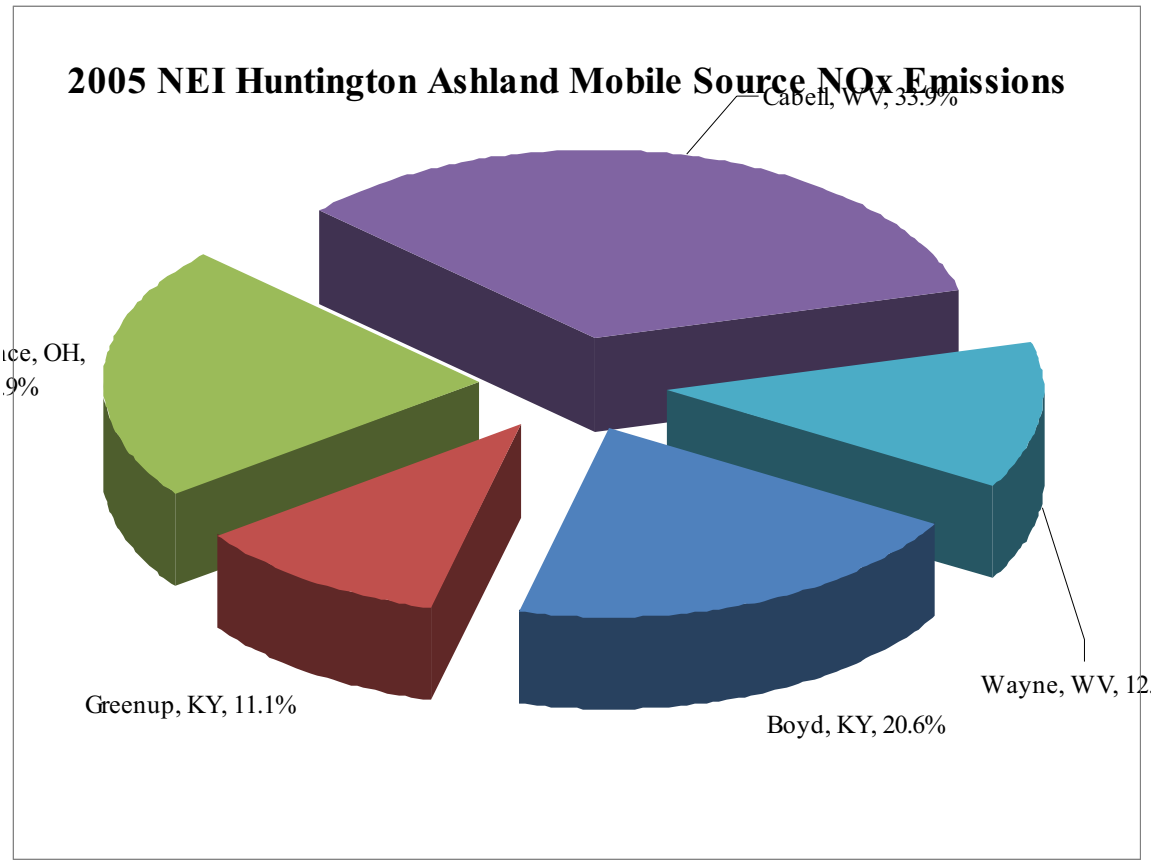
HUN-9



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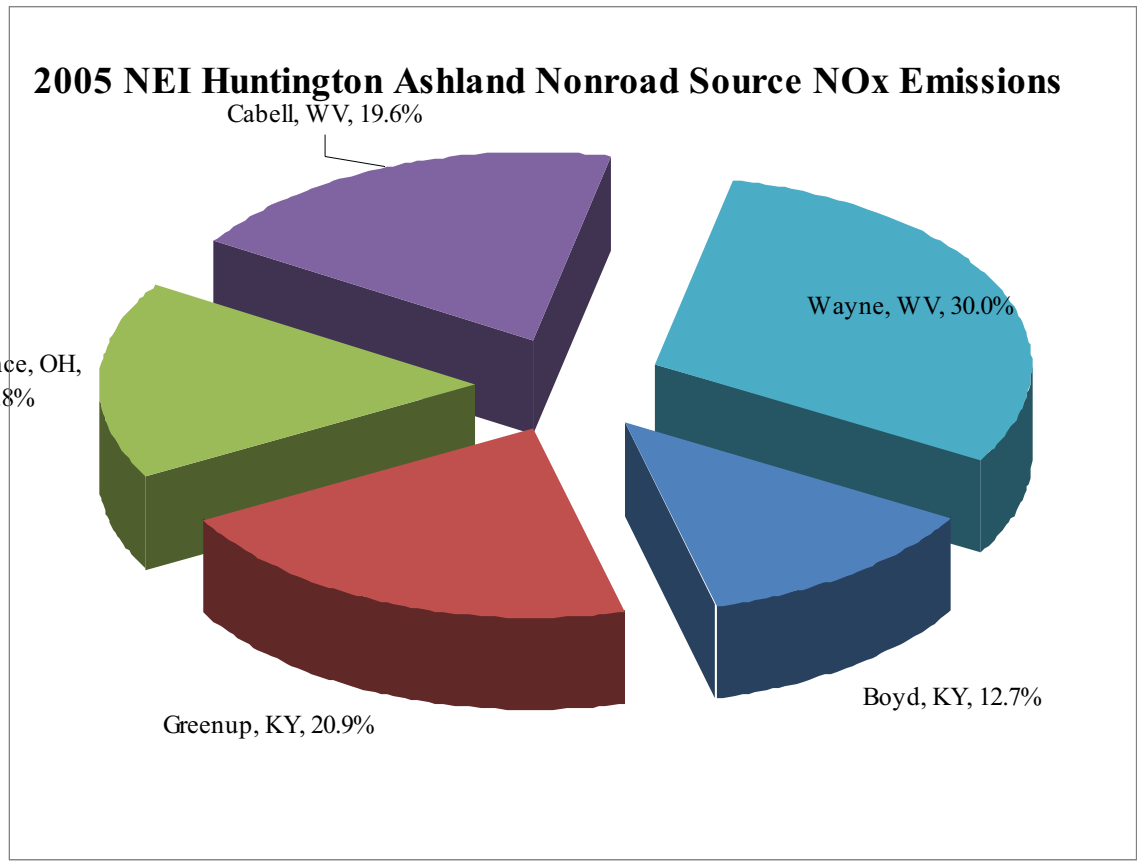

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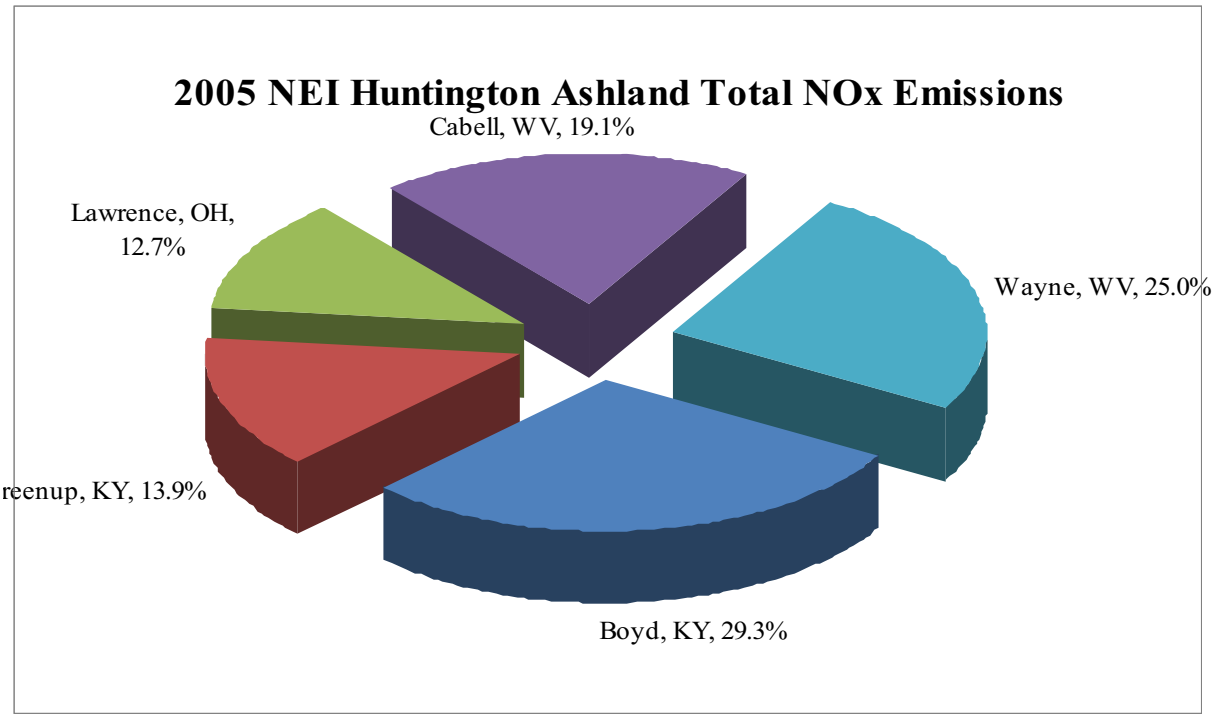

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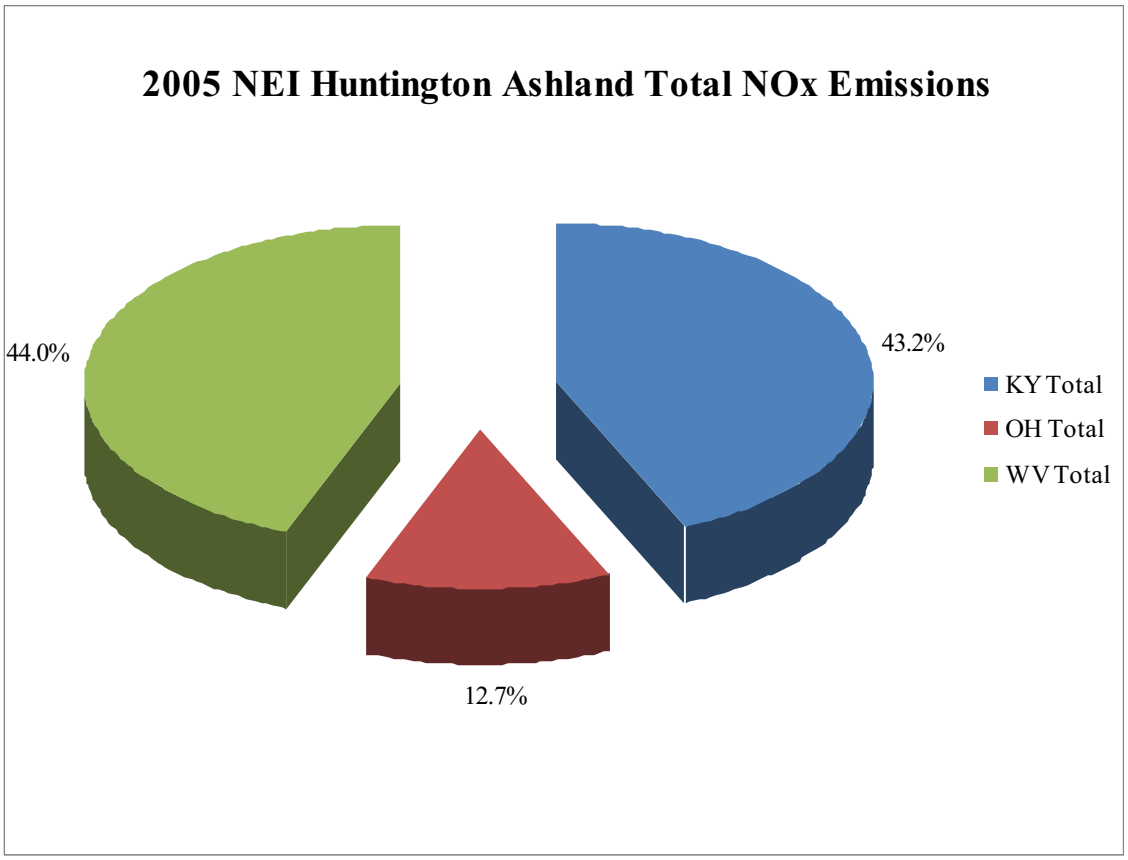

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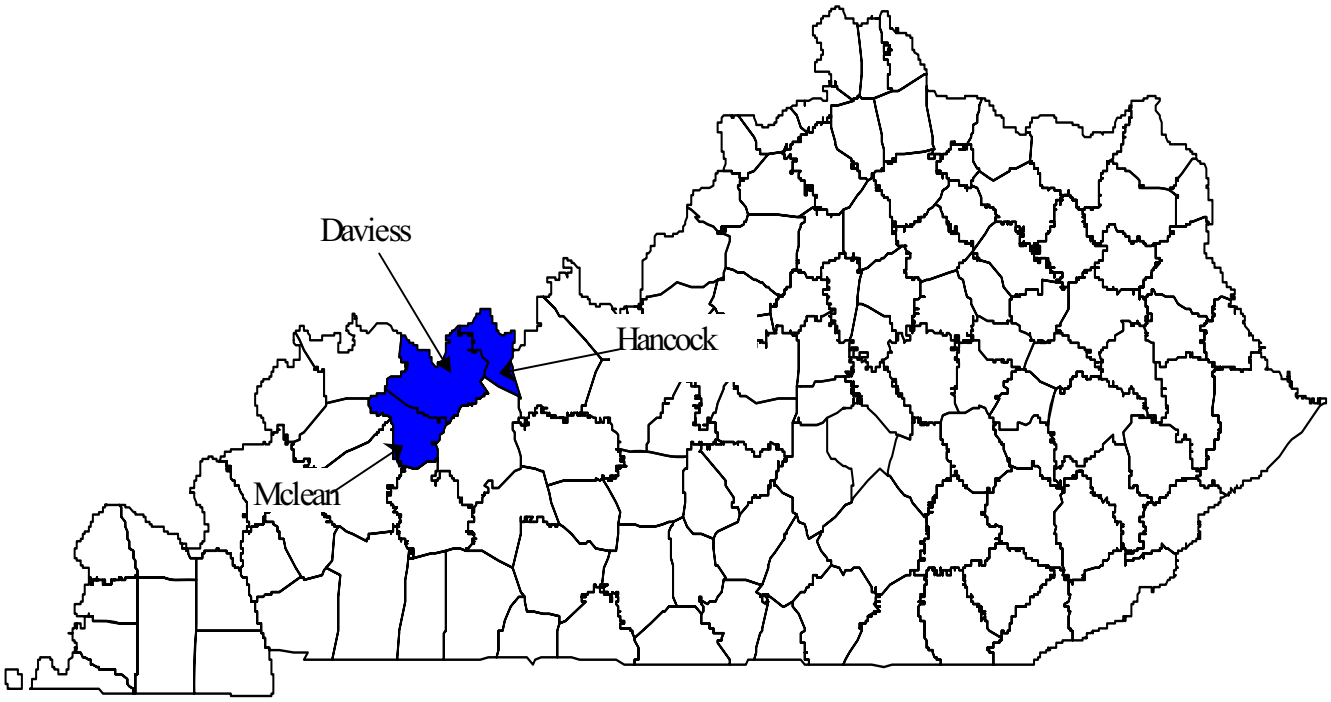
Owensboro, KY, MSA



The Owensboro, Kentucky Metropolitan Statistical Area (MSA) is ranked 341st in size among the MSAs within the United States. This MSA encompasses three counties, Daviess, Hancock, and McLean Counties, Kentucky.

DAVIESS, KENTUCKY

Daviess County is part of the Owensboro, Kentucky, Metropolitan Statistical Area (MSA). Owensboro, the county seat of Daviess County, is located 40 miles southeast of Evansville, Indiana; 107 miles southwest of Louisville, Kentucky; 133 miles north of Nashville, Tennessee; and 205 miles southeast of St. Louis, Missouri. Daviess County is located southeast of Vanderburgh County, Indiana, and south-southwest of Dubois County, Indiana.

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Geography/Topography

Daviess County covers a total land area of 462 square miles in the Western Coal Field Region of Kentucky. The Ohio River forms the northern boundary of the county and the Green River flows along part of the western border.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Owensboro air monitoring site in Daviess County for the period 2006-2008 shows that the majority of the time the wind in the area came from the southeast , and typically at 4-7 miles per hour (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 88°F and the average low was 66°F. The average precipitation for the same period was 5.4 inches.

Planning

The authority for air quality planning in the Daviess County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Daviess County is performed by the Owensboro Metropolitan Planning Organization.

Air Monitoring

The Daviess County ozone monitor (21-059-0005) shows the 3-year average (2006-2008) of the annual 98th percentile of the 8-hour average is 0.078 parts per million, which does not achieve the 8-hour ozone National Ambient Air Quality Standard (NAAQS - 0.075 parts per million).

There is an additional ozone monitor (21-091-0012) in Hancock County, Kentucky, which shows an annual average design value of 0.076 parts per million.

The monitoring information for 2008 is complete and is the latest available for Daviess County, Kentucky. (See table 1)

Population

Based on projections to 2006 from the 2000 census data, there are 93,613 persons living in Daviess County. (See table 3) That represents approximately 203 persons per square mile. The population of Daviess County is approximately 26.2% rural with 73.8% of the people living in incorporated areas. The largest city in Daviess County is Owensboro.

Daviess County's population from 2000 through 2006 *increased* by approximately 2.3% (91,549 to 93,613). The population in the county is expected to increase overall by 6.1% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Owensboro, KY MSA, Daviess County represents approximately 83.5% of the total population in the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory (NEI). (See tables 4 and 5)

Point Sources

Point source VOC emissions from Daviess County were estimated at 2514.01 tpy in 2005, which represents approximately 82.5% of the total 3045.57 tpy of the overall VOC point source emissions from the Owensboro, KY MSA. (See chart OWE-1)

Point source NO_x emissions from Daviess County were estimated at 8185.33 tpy in 2005, which represents approximately 59.6% of the total 13736.87 tpy of the overall NO_x point source emissions from the Owensboro, KY MSA. (See chart OWE-6)

Major point sources located within Daviess County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

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Onroad Mobile

Onroad mobile source VOC emissions from Daviess County were estimated at 1216.68 tpy in 2005, which represents approximately 82.9% of the total 1467.23 tpy of the overall VOC onroad mobile source emissions from the Owensboro, KY MSA. (See chart OWE-3)

Onroad mobile source NO_x emissions from Daviess County were estimated at 1534.94 tpy in 2005, which represents approximately 79.6% of the total 1928.71 tpy of the overall NO_x onroad mobile source emissions from the Owensboro, KY MSA. (See chart OWE-8)

Based on 2006 information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Daviess County is 29.7% and classified as minimal. The commuting traffic from Daviess County into other counties is minimal at 27.9%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Daviess County were estimated at 833.96 tpy in 2005, which represents approximately 71.4% of the total 1168.76 tpy of the overall VOC nonroad mobile source emissions from the Owensboro, KY MSA. (See chart OWE-4)

Nonroad mobile source NO_x emissions from Daviess County were estimated at 1507.39 tpy in 2005, which represents approximately 38.4% of the total 3929.17 tpy of the overall NO_x nonroad mobile source emissions from the Owensboro, KY MSA. (See chart OWE-9)

Area Sources

Area source VOC emissions from Daviess County were estimated at 1917.91 tpy in 2005, which represents approximately 80.6% of the total 2380.62 tpy of the overall VOC area source emissions from the Owensboro, KY MSA. (See chart OWE-2)

Area source NO_x emissions from Daviess County were estimated at 477.60 tpy in 2005, which represents approximately 79.5% of the total 600.66 tpy of the overall NO_x area source emissions from the Owensboro, KY MSA. (See chart OWE-7)

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Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky area of evaluation was performed using the 2005 NEI data.

Chart OWE-5 provides a comparison of VOC emissions across the entire region.

Chart OWE-10 provides a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

Daviess County, based on 2006 – 2008 ozone monitoring and emissions data, is not meeting the 8-hour ozone standard with a 3-year average of 0.078 parts per million.

In the Owensboro, KY MSA, Daviess County contributes approximately:

- 80.4% of total VOC emissions (6599.10 tpy)
- 58.0% of total NOx emissions (13797.57 tpy)

See charts OWE-5 for VOC, OWE-10 for NO_x.

Based on data analysis, the pollutants of most concern regarding ozone formation are VOC and NO_x. Daviess County contributes a relatively large portion of the area's VOC and NO_x emissions.

Based on the monitoring and emissions data, Daviess County should be designated nonattainment for the 8-hour ozone standard.

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HANCOCK COUNTY, KENTUCKY

Hancock County is part of the Owensboro, Kentucky, Metropolitan Statistical Area (MSA). Hancock County is located along the Ohio River at the edge of the Western Kentucky Coal Field region.

Geography/Topography

Hancock County has a land area of 188 square miles. Hawesville, the county seat of Hancock County is located 156 miles north of Nashville, Tennessee; 75 miles southwest of Louisville, Kentucky; and 224 miles southeast of St. Louis, Missouri. Hancock County is located southeast of Vanderburgh County, Indiana, and south of Dubois County, Indiana.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Daviess County, Kentucky air monitoring site for the period 2006-2008 shows that the majority of the time the wind in the area came from the southeast, and typically at 4-7 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 88°F and the average low was 66°F. The average precipitation for the same period was 5.4 inches.

Planning

The authority for air quality planning in the Hancock County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Hancock County is performed by the Green River Area Development District (GRADD) in partnership with the Kentucky Transportation Cabinet.

Air Monitoring

The Daviess County ozone monitor (21-059-0005) shows the 3-year average (2006-2008) of the annual 98th percentile of the 8-hour average is 0.078 parts per million, which does not achieve the 8-hour ozone National Ambient Air Quality Standard (NAAQS - 0.075 parts per million).

There is an additional ozone monitor (21-091-0012) in Hancock County, Kentucky, which shows an annual average design value of 0.076 parts per million.

The monitoring information for 2008 is complete and is the latest available for Hancock County, Kentucky. (See table 1)

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Population

Based on projections to 2006 from the 2000 census data, there are 8,636 persons living in Hancock County. (See table 3) That represents approximately 46 persons per square mile. The population of Hancock County is approximately 89.1% rural with 11.0% of the people living in incorporated areas. The largest city in Hancock County is Lewisport.

Hancock County's population from 2000 through 2006 increased by approximately 2.9% (8,392 to 8,636). The population in the county is expected to increase overall by 4.1% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Owensboro, KY, MSA, Hancock County represents approximately 7.7% of the total population in the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory (NEI). (See tables 4 and 5)

Point Sources

Point source VOC emissions from Hancock County were estimated at 529.23 tpy in 2005, which represents approximately 17.4% of the total 3045.57 tpy of the overall VOC point source emissions from the Owensboro, KY MSA. (See chart OWE-1)

Point source NO_x emissions from Hancock County were estimated at 5545.51 tpy in 2005, which represents approximately 40.4% of the total 13736.87 tpy of the overall NO_x point source emissions from the Owensboro, KY MSA. (See chart OWE-6)

Major point sources located within Hancock County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

Onroad Mobile

Onroad mobile source VOC emissions from Hancock County were estimated at 110.13 tpy in 2005, which represents approximately 7.5% of the total 1467.23 tpy of the overall VOC onroad mobile source emissions from the Owensboro, KY MSA. (See chart OWE-3)

Onroad mobile source NO_x emissions from Hancock County were estimated at 172.51 tpy in 2005, which represents approximately 8.9% of the total 1928.71 tpy of the overall NO_x onroad mobile source emissions from the Owensboro, KY MSA. (See chart OWE-8)

Based on 2006 information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Hancock County is 63.7% and classified as significant. The commuting traffic from Hancock County into other counties is significant at 56.4%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Hancock County were estimated at 255.17 tpy in 2005, which represents approximately 21.8% of the total 1168.76 tpy of the overall VOC nonroad mobile source emissions from the Owensboro, KY MSA. (See chart OWE-4)

Nonroad mobile source NO_x emissions from Hancock County were estimated at 2198.68 tpy in 2005, which represents approximately 56.0% of the total 3929.17 tpy of the overall NO_x nonroad mobile source emissions from the Owensboro, KY MSA. (See chart OWE-9)

Area Sources

Area source VOC emissions from Hancock County were estimated at 275.43 tpy in 2005, which represents approximately 11.6% of the total 2380.62 tpy of the overall VOC area source emissions from the Owensboro, KY MSA. (See chart OWE-2)

Area source NO_x emissions from Hancock County were estimated at 97.20 tpy in 2005, which represents approximately 16.2% of the total 600.66 tpy of the overall NO_x area source emissions from the Owensboro, KY MSA. (See chart OWE-7)

Comparison of Total Emissions

A comparison of total emissions across the entire area of evaluation was performed using the 2005 NEI data.

Chart OWE-5 provides a comparison of VOC emissions across the entire region.

Chart OWE-10 provides a comparison of NO_x emissions across the entire region.

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Conclusion and Recommendation

Hancock County, based on 2006 – 2008 ozone monitoring and emissions data, is not meeting the 8-hour ozone standard with a 3-year average of 0.076 parts per million.

In the Owensboro, KY MSA, Hancock County contributes approximately:

- 14.5% of total VOC emissions (2058.36 tpy)
- 39.7% of total NOx emissions (11,962.17 tpy)

See charts OWE-5 for VOC, OWE-10 for NO_x.

Based on data analysis, the pollutants of most concern regarding ozone formation are VOC and NO_x. Hancock County does not contribute a relatively large portion of the area's VOC or NO_x emissions.

The 48-hour back trajectory HYSPLITS for Indiana and Kentucky have been included in a separate section for all days in 2006-2008 when the 24-hour ambient monitoring concentration for ozone exceeded 0.075 parts per million. Based on the wind directions indicated by these HYSPLITS on violating days at the Indiana monitors, it does not appear that emissions in Hancock County had an impact on the monitor violations in Vanderburgh or Dubois County, Indiana.

The substantial geographical distance between Hancock County and the two violating monitors in Indiana precludes Hancock County from having a significant impact on these monitors.

The emissions data and other documentation presented indicate that Hancock County, Kentucky, does contribute a significant amount of emissions that contribute to ozone formation in the Owensboro, KY, MSA.

However, based on the monitoring data showing a violation, Hancock County should be designated nonattainment for the 8-hour ozone standard.

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MCLEAN COUNTY, KENTUCKY

McLean County is part of the Owensboro, Kentucky, Metropolitan Statistical Area (MSA). McLean County is located in the Western Kentucky Coal Field Region.

Geography/Topography

McLean County has a land area of 254 square miles. Calhoun, the county seat of McLean County, is located 21 miles south of Owensboro, Kentucky; 55 miles southeast of Evansville, Indiana; 125 miles southwest of Louisville, Kentucky; and 142 miles north of Nashville, Tennessee. McLean County is located southeast of Vanderburgh County, Indiana, and southwest of Dubois County, Indiana.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Daviess County, Kentucky air monitoring site for the period 2006-2008 shows that the majority of the time the wind in the area came from the southeast, and typically at 4-7 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 88°F and the average low was 66°F. The average precipitation for the same period was 5.4 inches.

Planning

The authority for air quality planning in the McLean County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for McLean County is performed by the Green River Area Development District (GRADD) in partnership with the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006 – 2008 monitoring period, there were no ozone monitors located in McLean County.

The Daviess County ozone monitor (21-059-0005) shows the 3-year average (2006-2008) of the annual 98^{th} percentile of the 8-hour average is 0.078 parts per million, which does not achieve the 8-hour ozone National Ambient Air Quality Standard (NAAQS - 0.075 parts per million).

There is an additional ozone monitor (21-091-0012) in Hancock County, Kentucky, which shows an annual average design value of 0.076 parts per million.

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The monitoring information for 2008 is complete and is the latest available. (See table 1)

Population

Based on projections to 2006 from the 2000 census data, there are 9,844 persons living in McLean County. (See table 3) That represents approximately 39 persons per square mile. The population of McLean County is approximately 100% rural with 0% of the people living in incorporated areas. The largest cities in McLean County are Calhoun and Livermore.

McLean County's population from 2000 through 2006 decreased by approximately 0.9% (9,934 to 9,844). The population in the county is expected to increase overall by 1.3% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Owensboro, KY, MSA, McLean County represents approximately 8.8% of the total population in the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory (NEI). (See tables 4 and 5)

Point Sources

Point source VOC emissions from McLean County were estimated at 2.33 tpy in 2005, which represents approximately 0.1% of the total 3045.57 tpy of the overall VOC point source emissions from the Owensboro, KY MSA. (See chart OWE-1)

Point source NO_x emissions from McLean County were estimated at 6.02 tpy in 2005, which represents approximately zero percent of the total 13736.87 tpy of the overall NO_x point source emissions from the Owensboro, KY MSA. (See chart OWE-6)

Major point sources located within McLean County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

Onroad Mobile

Onroad mobile source VOC emissions from McLean County were estimated at 140.42 tpy in 2005, which represents approximately 9.6% of the total 1467.23 tpy of the

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overall VOC onroad mobile source emissions from the Owensboro, KY MSA. (See chart OWE-3)

Onroad mobile source NO_x emissions from McLean County were estimated at 221.26 tpy in 2005, which represents approximately 11.5% of the total 1928.71 tpy of the overall NO_x onroad mobile source emissions from the Owensboro, KY MSA. (See chart OWE-8)

Based on 2006 information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into McLean County is 52.8% and classified as significant. The commuting traffic from McLean County into other counties is significant at 74.4%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from McLean County were estimated at 79.63 tpy in 2005, which represents approximately 6.8% of the total 1168.76 tpy of the overall VOC nonroad mobile source emissions from the Owensboro, KY MSA. (See chart OWE-4)

Nonroad mobile source NO_x emissions from McLean County were estimated at 223.09 tpy in 2005, which represents approximately 5.7% of the total 3929.17 tpy of the overall NO_x nonroad mobile source emissions from the Owensboro, KY MSA. (See chart OWE-9)

Area Sources

Area source VOC emissions from McLean County were estimated at 187.29 tpy in 2005, which represents approximately 7.9% of the total 2380.62 tpy of the overall VOC area source emissions from the Owensboro, KY MSA. (See chart OWE-2)

Area source NO_x emissions from McLean County were estimated at 25.86 tpy in 2005, which represents approximately 4.3% of the total 600.66 tpy of the overall NO_x area source emissions from the Owensboro, KY MSA. (See chart OWE-7)

Comparison of Total Emissions

A comparison of total emissions across the area of evaluation was performed using the 2005 NEI data.

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Chart OWE-5 provides a comparison of VOC emissions across the entire region.

Chart OWE-10 provides a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006 – 2008 monitoring period, there were no ozone monitors located in McLean County.

In the Owensboro, KY MSA, McLean County contributes approximately:

- 5.1% of total VOC emissions (660.62 tpy)
- 2.4% of total NOx emissions (793.88 tpy)

See charts OWE-5 for VOC, OWE-10 for NO_x.

Based on data analysis, the pollutants of most concern regarding ozone formation are VOC and NO_x. McLean County does not contribute a high concentration percentage for either of these precursors. These smaller percentage concentrations do not indicate a significant impact from McLean County on the violating monitors.

Several 48-hour back trajectory HYSPLITS for Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by McLean County and therefore does not affect the violating monitors.

The emissions data and other documentation presented indicate that McLean County, Kentucky, does not contribute a significant amount of emissions that contribute to ozone formation in the Owensboro, KY, MSA.

Therefore, McLean County should be designated attainment for the 8-hour ozone standard.

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Figure 1
Kentucky Area Wind Rose Patterns
2006-2008

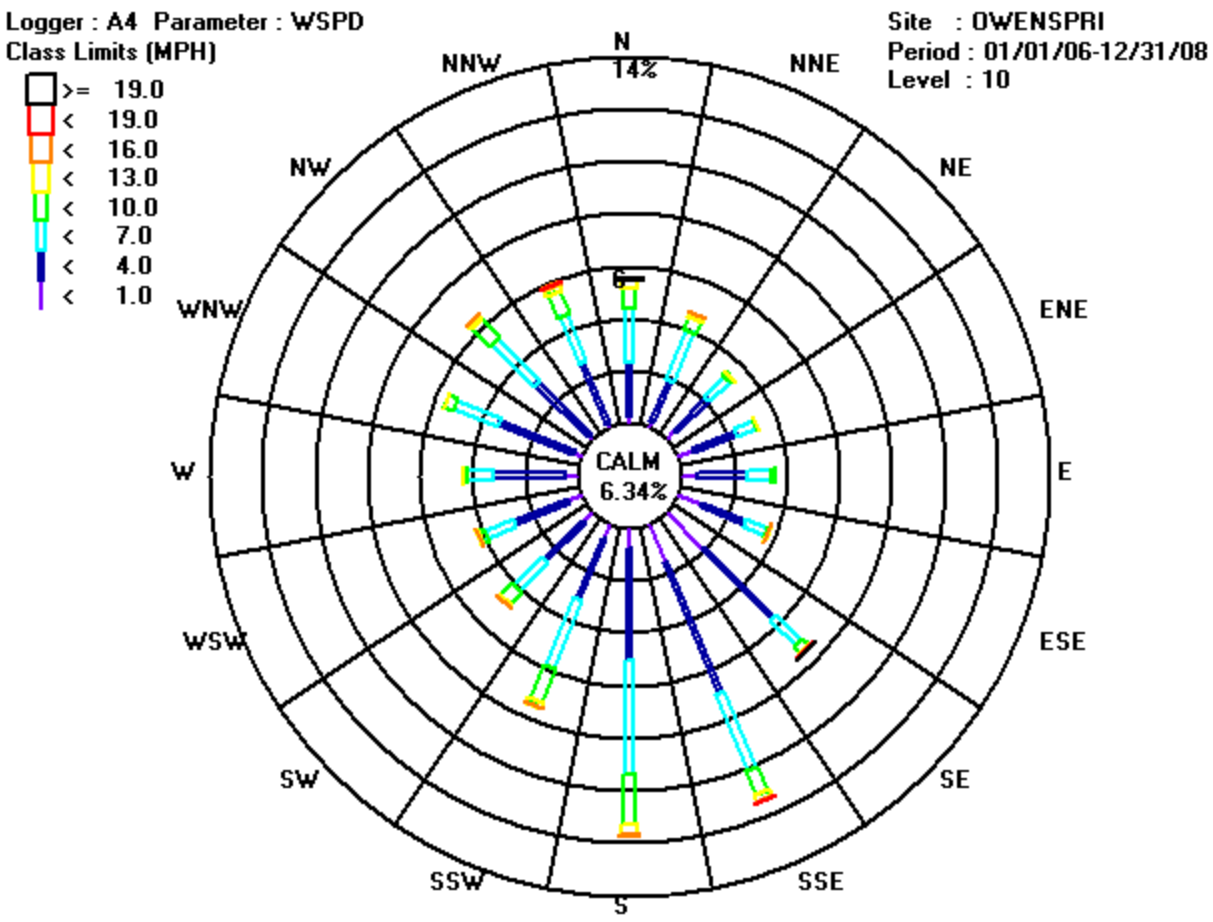

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Table 1
Owensboro, KY Area of Influence
3-year Average* of Annual 8-hour for Ozone
(parts per million)

Monitor	2006	2007	2008	3-year Average
Kentucky County				
Daviess 21-059-0005	0.075	0.086	0.072	0.078
Hancock	0.076	0.081	0.072	0.076
McLean	N/A	N/A	N/A	N/A
Indiana County				
Dubois 18-037-0004	N/A	33.6	35.2	N/A
Dubois 18-037-0005	N/A	32.2	36.2	N/A
Dubois 18-037-2001	41.2	31.6	34.7	35.8
Vanderburgh 18-163-0006	42.5	30.5	34.4	35.8
Vanderburgh 18-163-0012	41.5	27.9	29.9	33.1
Vanderburgh 18-163-0016	37.0	29.5	31.5	32.7

* NAAQS 8-hour (3 year average of the 4th max value). 0.08ppm

N/A indicates no monitor data for that county.

Table 2
Kentucky Portion of the Owensboro, KY MSA
Population Growth Data

County	Census 2000	2006*	%Growth 2000-2006	2015*	%Growth 2000 - 2015
Daviess	91,549	93,613	2.3	97,166	6.1
Hancock	8,392	8,636	2.9	8,734	4.1
McLean	9,934	9,844	-0.9	10,058	1.3

*U.S. Census Bureau projections to July 1, 2006 and 2015

Table 3
Owensboro, KY MSA
2006 Estimated Population Data

Kentucky County	2006*	% of Total MSA
Daviess	93,613	83.5%
Hancock	8,636	7.7%
McLean	9,844	8.8%
Total	112,093	100%

*U.S. Census Bureau estimated for 2006.

Table 4
2005 NEI Owensboro, KY MSA
Total VOC Emissions
(tons per year)

County	VOC				
	Point	Area	Mobile	Nonroad	Total
Daviess	2514.01	1917.91	1216.68	833.96	**6482.56**
Hancock	529.23	275.43	110.13	255.17	**1169.96**
McLean	2.33	187.29	140.42	79.63	**409.67**
Total Emissions	**3045.57**	**2380.62**	**1467.23**	**1168.76**	**8062.19**

Table 5
2005 NEI Owensboro, KY MSA
Total NO_x Emissions
(tons per year)

County	NOx				
	Point	Area	Mobile	Nonroad	Total
Daviess	8185.33	477.60	1534.94	1507.39	**11705.27**
Hancock	5545.51	97.20	172.51	2198.68	**8013.90**
McLean	6.02	25.86	221.26	223.09	**476.23**
Total Emissions	**13736.87**	**600.66**	**1928.71**	**3929.17**	**20195.40**

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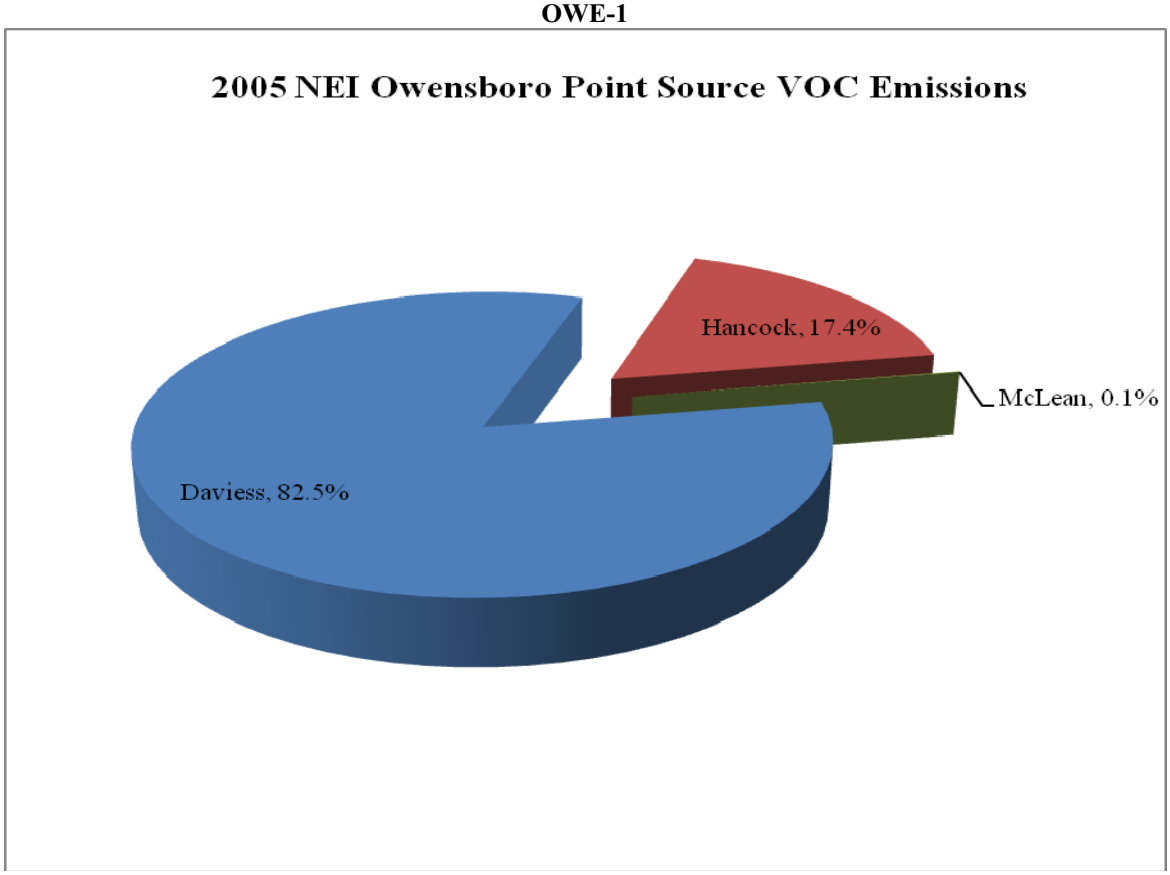

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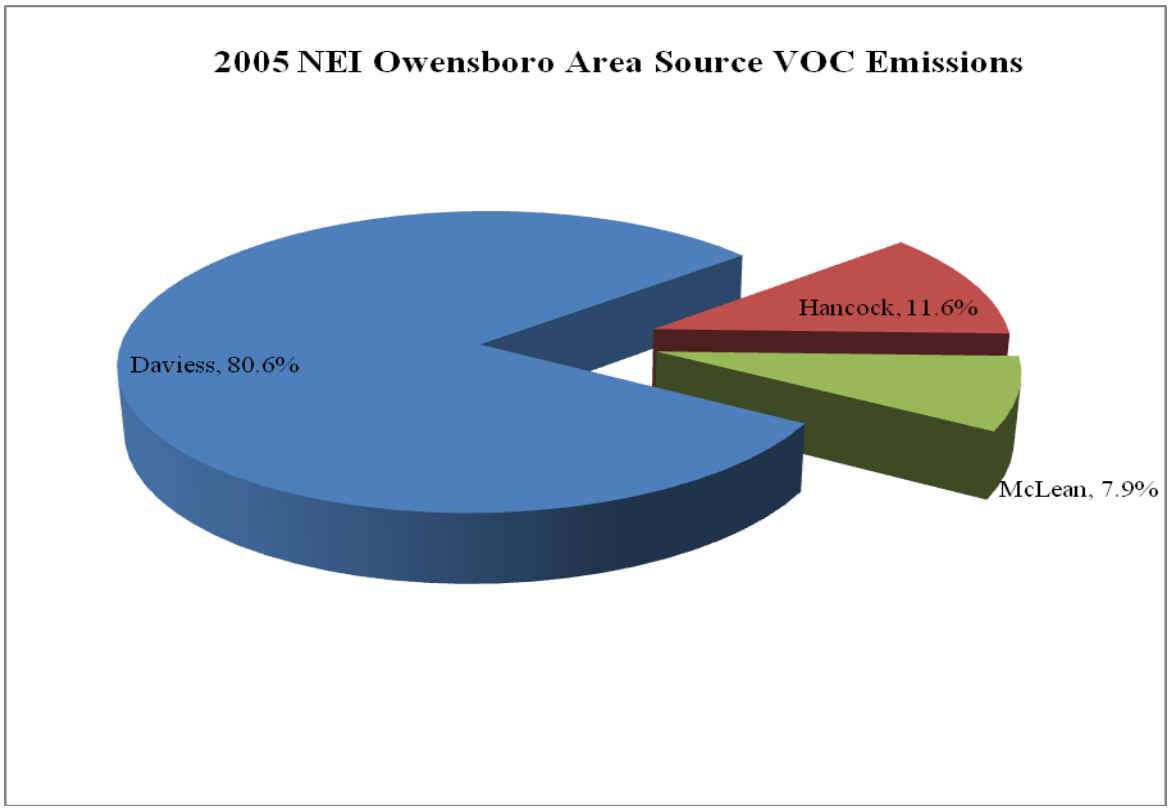

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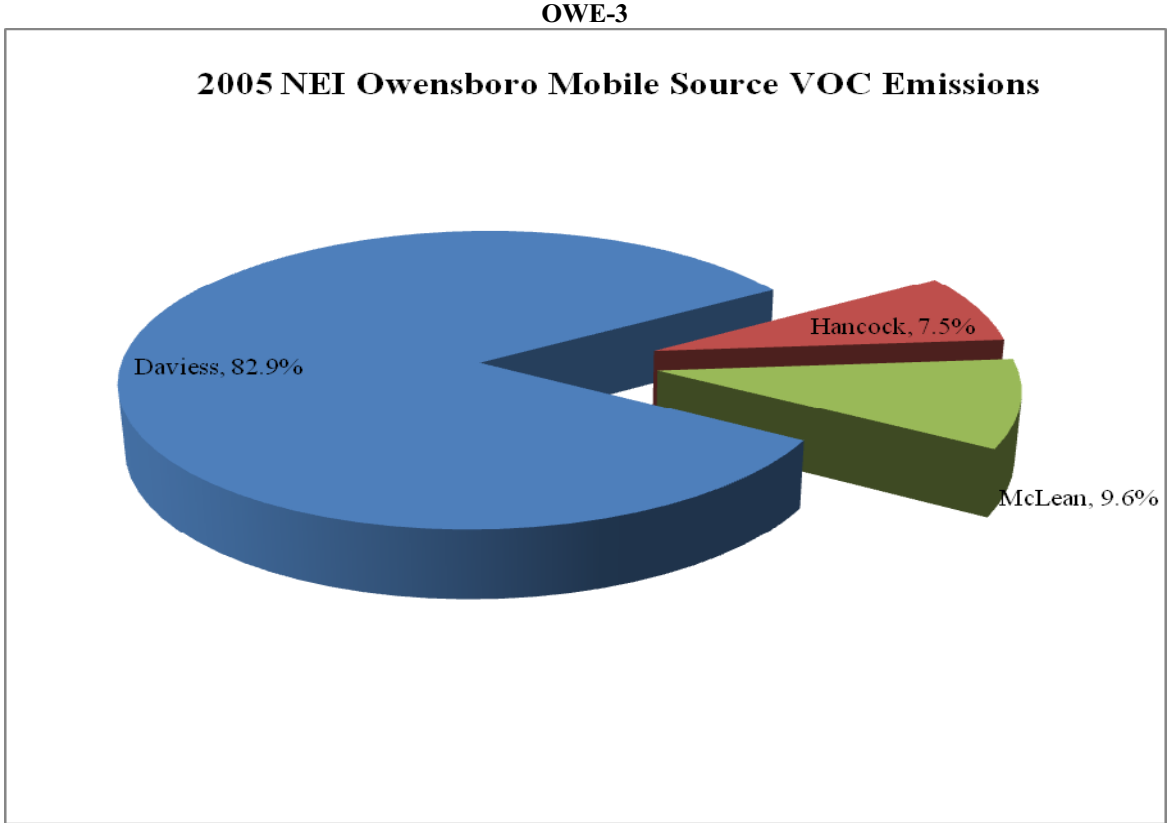

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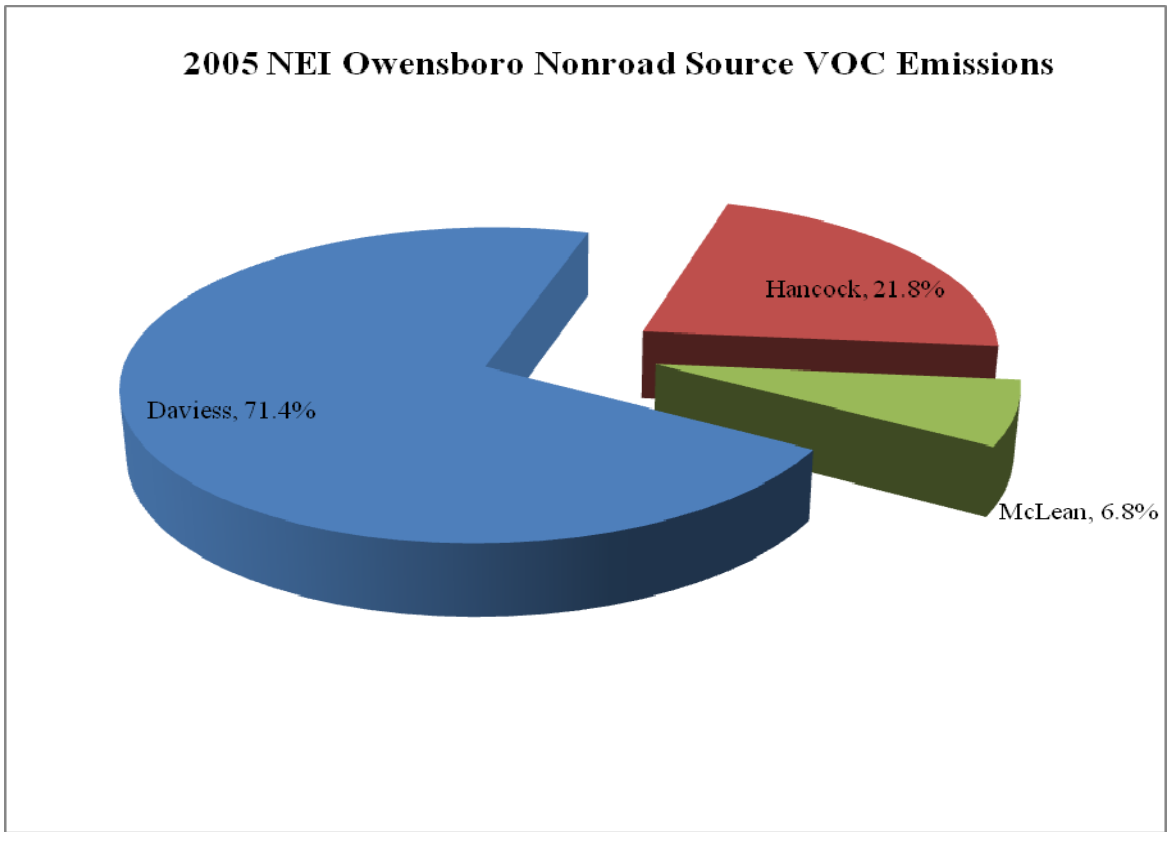

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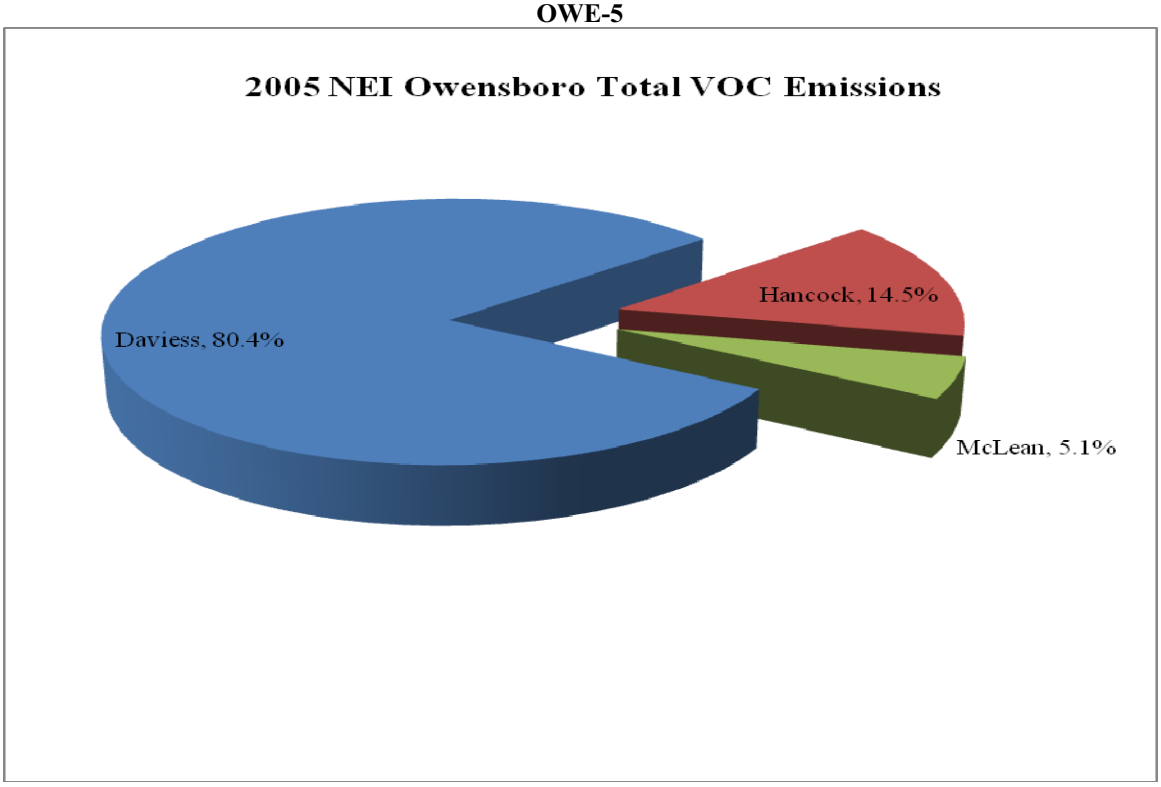
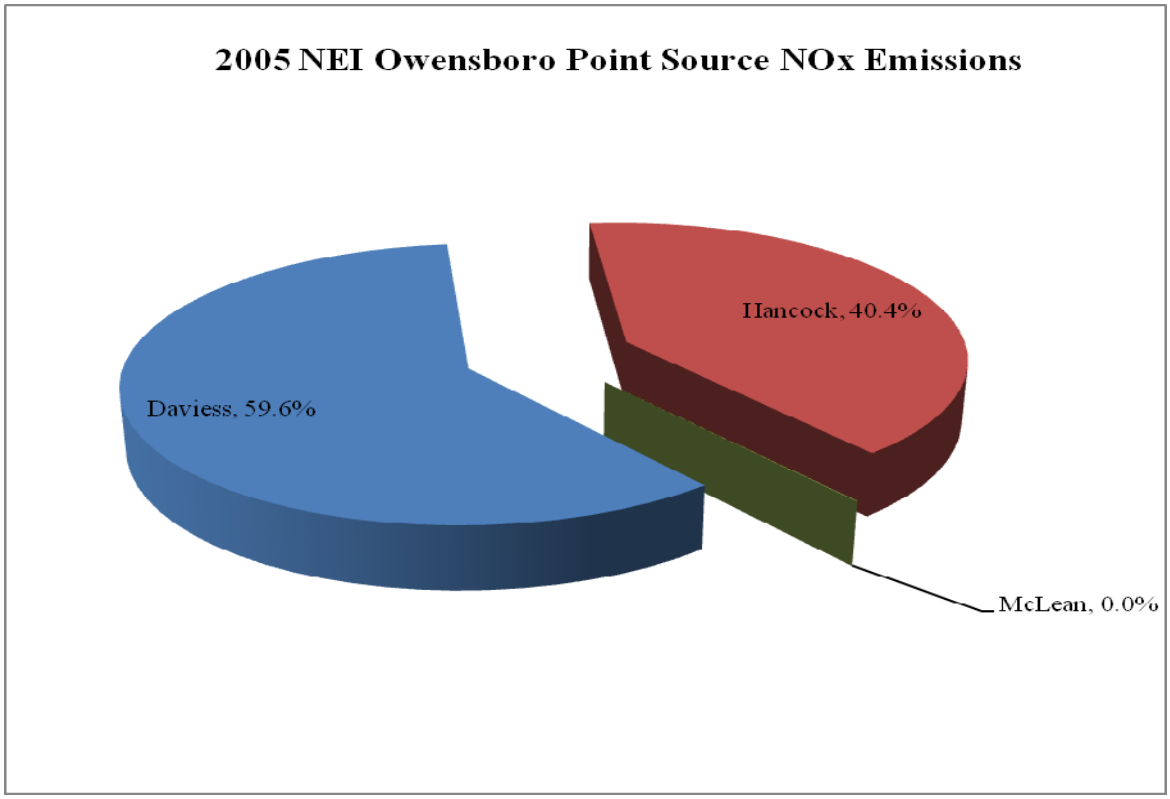


OWE-6



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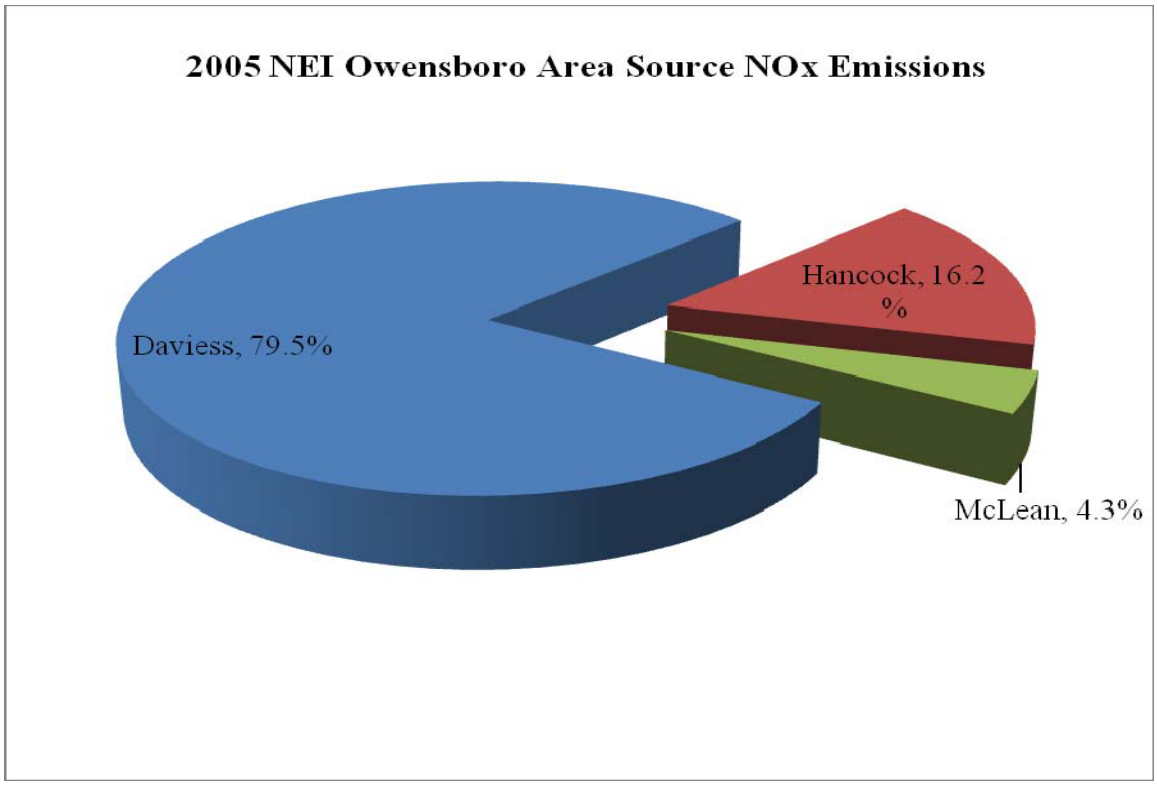
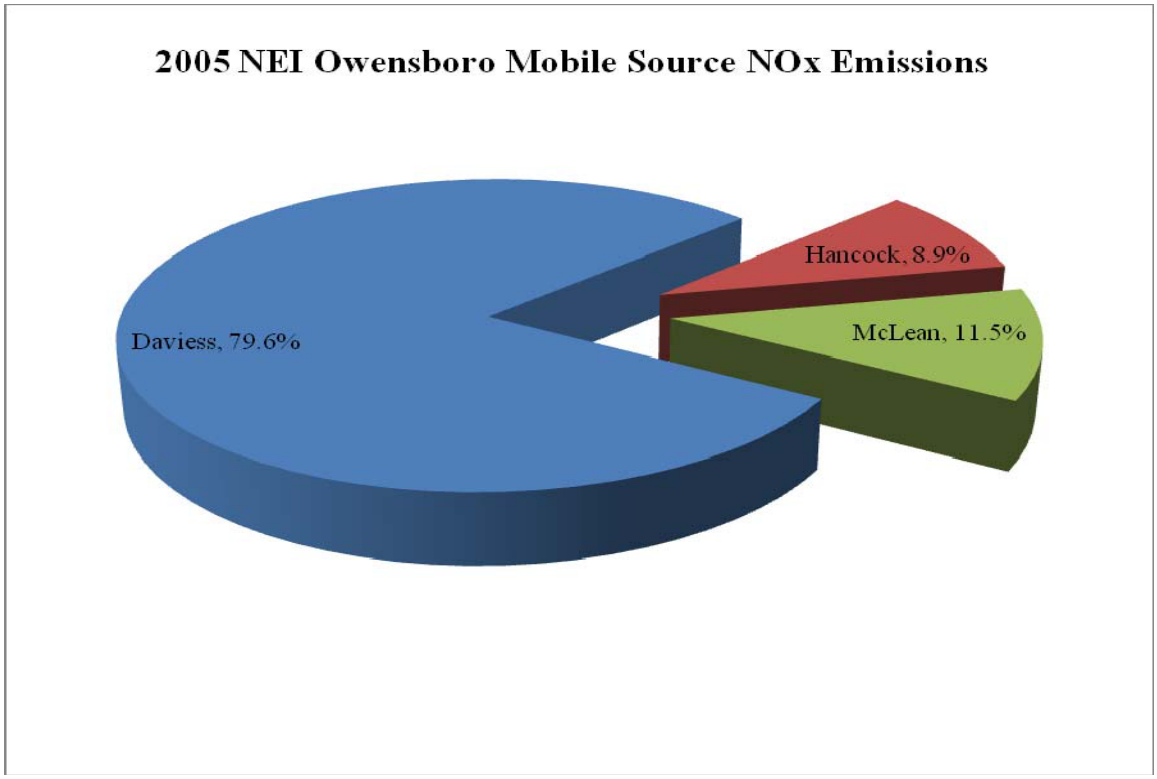
OWE-7



OWE-8



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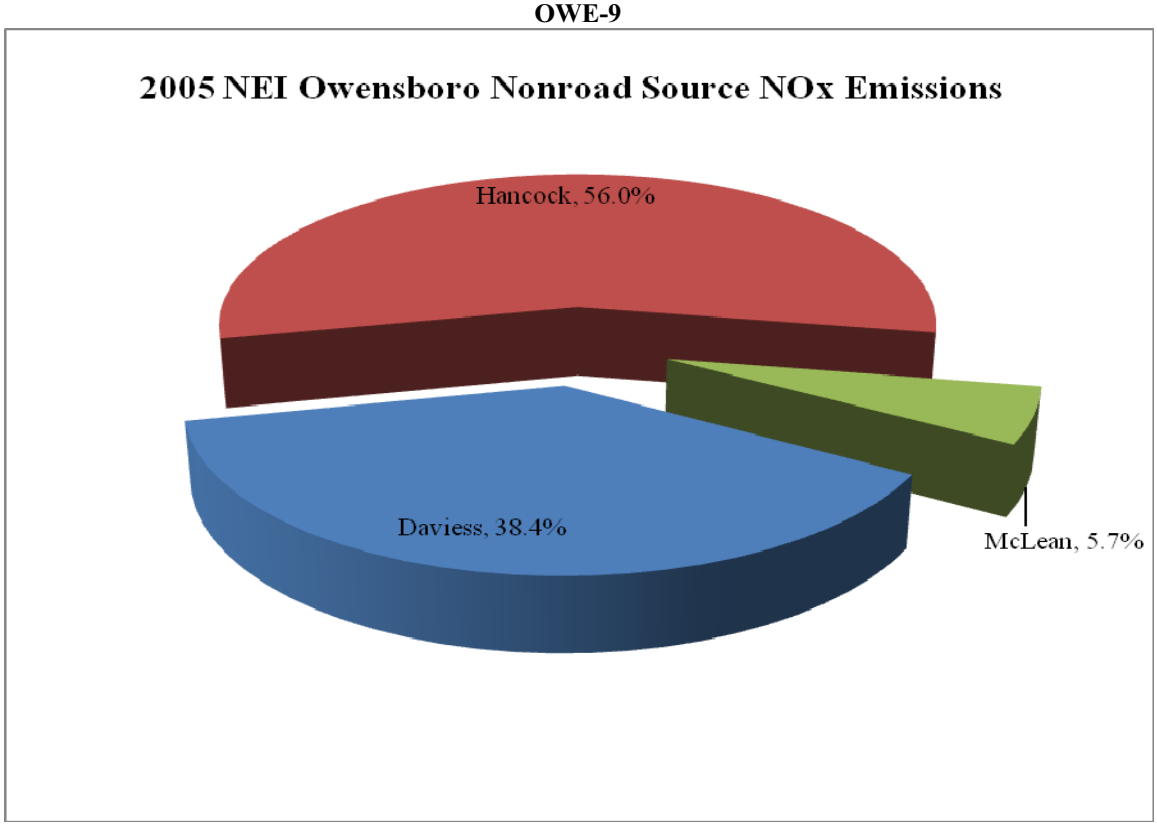
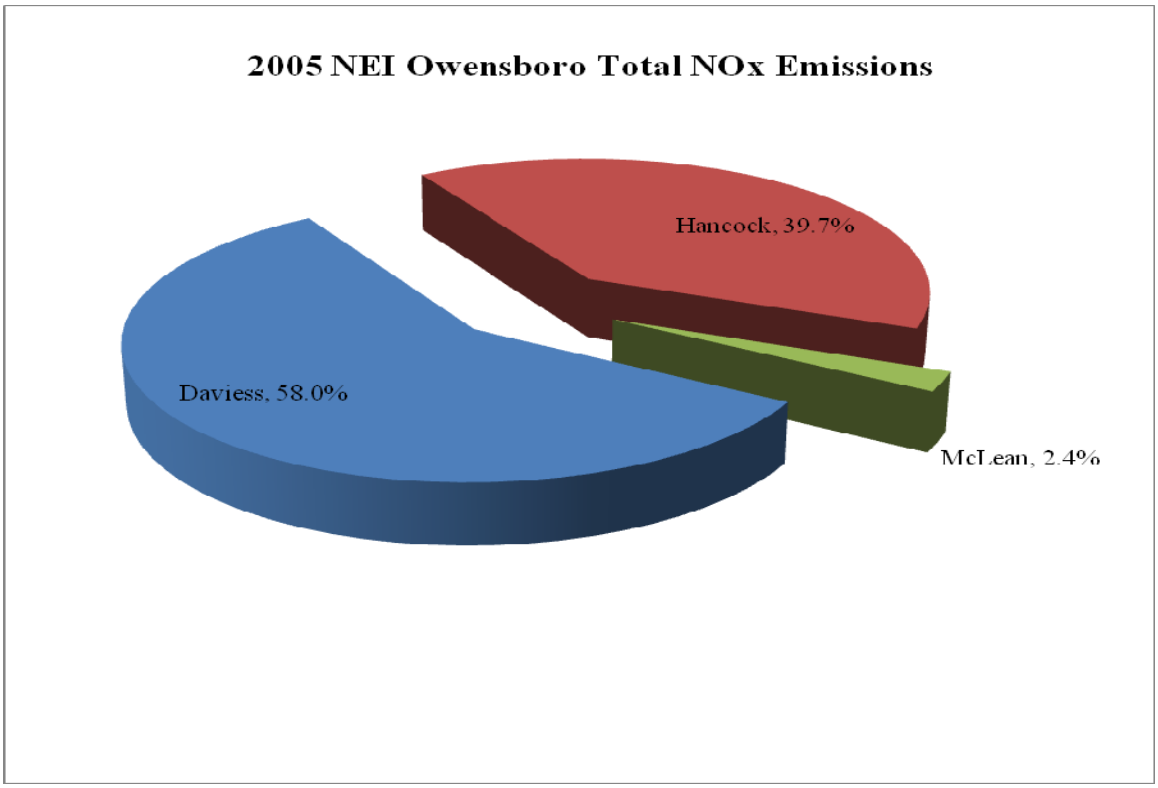
OWE-9



OWE-10



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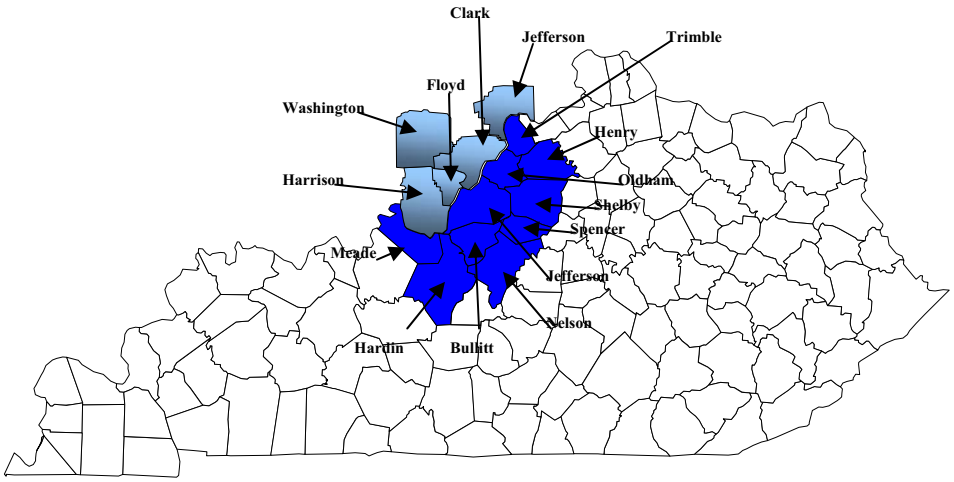
Louisville Area of Evaluation, KY-IN



The Louisville area of evaluation includes the Louisville, KY Metropolitan Statistical Area (MSA), which is ranked the 42nd largest MSA in the United States. This MSA encompasses thirteen counties, Clark, Floyd, Harrison, and Washington Counties, Indiana and Bullitt, Henry, Jefferson, Meade, Nelson, Oldham, Shelby, Spencer, and Trimble Counties, Kentucky.

The Louisville area of evaluation for the purposes of proposing boundary designations for the new 8-hour ozone National Ambient Air Quality Standard will also include the following: Hardin County, Kentucky and Jefferson County, Indiana.

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BULLITT COUNTY, KENTUCKY

Bullitt County is part of the Louisville, KY-IN Metropolitan Statistical Area (MSA) and is on the I-65 South interstate corridor. It is located directly south of Jefferson County, southwest of Spencer County, northwest of Nelson County, and northeast of Hardin County.

Geography/Topography

Bullitt County has a land area of 299 square miles. The Ohio River touches the western county border. The county is geographically at the junction of the Outer Bluegrass and the Knobs Regions in north central Kentucky. The county is divided by the north-south I-65 interstate corridor.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Bullitt County air monitoring site for the period 2006-2008 shows that the majority of the time the wind in the area came from the south/southwest, and typically at 1-4 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 87°F and the average low was 67°F. The average precipitation for the same period was 5.29 inches.

Planning

The authority for air quality planning in the Bullitt County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Bullitt County is performed by the Kentuckiana Regional Planning and Development Agency (KIPDA) and the Kentucky Transportation Cabinet.

Air Monitoring

The Bullitt County ozone monitor (21-029-0006) shows the 3-year average (2006-2008) of the annual fourth-highest daily maximum 8-hour average ozone concentration is 0.0727 parts per million, which achieves the 8-hour ozone National Ambient Air Quality Standard (NAAQS - 0.075 ppm).

However, because ozone monitors in Jefferson County and Oldham County, Kentucky, and Clark County and Floyd County, Indiana have 8-hour ozone average values exceeding the NAAQS, information for Bullitt County is being presented in this document.

The monitoring information for 2008 is complete and the latest available for Bullitt County, Kentucky. (See table 1)

Population

Based on projections to 2006 from the 2000 census data, there are 72,851 persons living in Bullitt County. (See table 3) That represents approximately 243 persons per square mile. The population of Bullitt County is approximately 35.4% rural with 64.6% of the people living in incorporated areas. The largest cities in Bullitt County are Mt. Washington and Shepherdsville.

Bullitt County's population from 2000 through 2006 increased by approximately 19% (61,236 to 72,851). The population in the county is expected to increase overall by 27.7% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Louisville area, Bullitt County represents approximately 5.4% of the total population in the area of evaluation and 6.8% of the Kentucky portion of the area. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 NEI modeling inventories. (See tables 4 and 5)

Point Sources

Point source VOC emissions from Bullitt County were estimated at 3020.47 tpy in 2005, which represents approximately 14.7% of the total 20,541.86 tpy of the overall VOC point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-1)

Point source NO_x emissions from Bullitt County were estimated at 221.70 tpy in 2005, which represents 0.6% of the total 36,070.82 tpy of the overall NO_x point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-7)

Major point sources located within Bullitt County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

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Onroad Mobile

Onroad mobile source VOC emissions from Bullitt County were estimated at 1051.30 tpy in 2005, which represents approximately 5.9% of the total 17,805.14 tpy of the overall VOC onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-3)

Onroad mobile source NO_x emissions from Bullitt County were estimated at 2039.60 tpy in 2005, which represents approximately 5.9% of the total 34,517.20 tpy of the overall NO_x onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-9)

Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Bullitt County is 55.0% and classified as significant. The commuting traffic from Bullitt County into other counties is significant at 79.6%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Bullitt County were estimated at 546.18 tpy in 2005, which represents approximately 7.8% of the total 7032.77 tpy of the overall VOC nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-4)

Nonroad mobile source NO_x emissions from Bullitt County were estimated at 611.41 tpy in 2005, which represents approximately 3% of the total 20,658.44 tpy of the overall NO_x nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-10)

Area Sources

Area source VOC emissions from Bullitt County were estimated at 1549.01 tpy in 2005, which represents approximately 4.8% of the total 32,332.19 tpy of the overall VOC area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-2)

Area source NO_x emissions from Bullitt County were estimated at 276.08 tpy in 2005, which represents approximately 5.1% of the total 5448.93 tpy of the overall NO_x area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky and Indiana area of evaluation was performed using the 2005 NEI Emission Inventory data.

Charts Lou-5 and Lou-6 provide a comparison of VOC emissions across the entire region.

Charts Lou-11 and Lou-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

Bullitt County, based on 2006-2008 ozone monitoring data, is meeting the 8-hour ozone standard with a 3-year average of 0.072 parts per million.

In the Louisville area of evaluation, KY-IN, Bullitt County contributes approximately:

- 7.9% of total VOC emissions (77,711.97 tpy)
- 3.3% of total NOx emissions (96,695.39 tpy)

See charts Lou-6 for VOC and Lou-12 for NO_x.

Bullitt County contributes a relatively very small portion of the area's NOx emissions (3.3%) and VOC emissions (7.9%).

Several 48-hour back trajectory HYSPLITS for Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Bullitt County and therefore does not affect the violating monitors.

The monitoring and emissions data and other documentation presented indicate that Bullitt County, Kentucky, does not contribute a significant amount of emissions that contribute to ozone formation in the Louisville area of evaluation, KY-IN.

Therefore, Bullitt County should be designated attainment for the 8-hour ozone standard.

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OLDHAM COUNTY, KENTUCKY

Oldham County is part of the Louisville, Kentucky-Indiana Metropolitan Statistical Area (MSA) and is on the I-71 North-South interstate corridor. It is located to the northeast of Jefferson County, to the southwest of Trimble County, to the west of Henry County, and to the northwest of Shelby County. It is also to the southeast of Clark County, Indiana.

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Geography/Topography

Oldham County has a land area of 189 square miles. The Ohio River forms the northwestern boundary of the county. The county geographically is in the Outer Bluegrass Region.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Bullitt County air monitoring site for the period 2006-2008 shows that the majority of the time the wind in the area came from the south/southwest, and typically at 1-4 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 87°F and the average low was 67°F. The average precipitation for the same period was 5.29 inches.

Planning

The authority for air quality planning in the Oldham County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Oldham County is performed by the Kentuckiana Regional Planning and Development Agency (KIPDA) and the Kentucky Transportation Cabinet.

Air Monitoring

The Oldham County ozone monitor (21-185-0004) shows the 3-year average (2006-2008) of the annual fourth-highest daily maximum 8-hour average ozone concentration is 0.081 parts per million, which does not achieve the 8-hour ozone National Ambient Air Quality Standard (NAAQS - 0.075 ppm).

The monitoring information for 2008 is complete and the latest available for Oldham County, Kentucky. (See table 1)

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Population

Based on projections to 2006 from the 2000 census data, there are 55,285 persons living in Oldham County. (See table 3) That represents approximately 292 persons per square mile. The population of Oldham County is approximately 34.8% rural with 65.2% of the people living in incorporated areas. The largest cities in Oldham County are LaGrange and Crestwood.

Oldham County's population from 2000 through 2006 increased by approximately 18.6% (46,178 to 55,285). The population in the county is expected to increase overall by 37.5% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Louisville area, Oldham County represents approximately 4.1% of the total population in the area of evaluation and 5.1% of the Kentucky portion of the area. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 NEI modeling inventories. (See tables 4 and 5)

Point Source

Point source VOC emissions from Oldham County were estimated at 74.46 tpy in 2005, which represents approximately 2.3% of the total 20,541.986 tpy of the overall VOC point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-1)

Point source NO_x emissions from Oldham County were estimated at 39.96 tpy in 2005, which represents approximately 0.1% of the total 36,070.82 tpy of the overall NO_x point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-7)

Major point sources located within Oldham County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

Onroad Mobile

Onroad mobile source VOC emissions from Oldham County were estimated at 695.27 tons per year in 2005, which represents approximately 3.9% of the total 17,805.14 of the overall

VOC onroad mobile source emissions from the Louisville area of evaluation. (See chart Lou-3)

Onroad mobile source NO_x emissions from Oldham County were estimated at 1128.14 tpy in 2005, which represents approximately 3.3% of the total 34,617.20 tpy of the overall NO_x onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-9)

Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Oldham County is 58.1% and classified as significant. The commuting traffic from Oldham County into other counties is significant at 76.0%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Mobile

Nonroad mobile source VOC emissions from Oldham County were estimated at 396.34 tpy in 2005, which represents approximately 5.6% of the total 7032.77 tpy of the overall VOC nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-4)

Nonroad mobile source NO_x emissions from Oldham County were estimated at 1734.25 tpy in 2005, which represents approximately 8.4% of the total 20,658.44 tpy of the overall NO_x nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-10)

Area Sources

Area source VOC emissions from Oldham County were estimated at 624.82 tpy in 2005, which represents approximately 1.9% of the total 32,332.19 tpy of the overall VOC area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-2)

Area source NO_x emissions from Oldham County were estimated at 142.70 tpy in 2005, which represents approximately 2.6% of the total 5448.93 tpy of the overall NO_x area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky and Indiana area of evaluation was performed using the 2005 NEI Emission Inventory data.

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Charts Lou-5 and Lou-6 provide a comparison of VOC emissions across the entire region.

Charts Lou-11 and Lou-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

Oldham County, based on 2006-2008 ozone monitoring data, is not meeting the 8-hour ozone standard with a 3-year average of 0.0813 parts per million.

In the Louisville area of evaluation, KY-IN, Oldham County contributes approximately:

- 3.0% of total VOC emissions (77,711.97 tpy)
- 2.6% of total NOx emissions (96,695.39 tpy)

See charts Lou-6 for VOC and Lou-12 for NO_x.

Oldham County contributes a very small portion of the area's NOx emissions (3%) and VOC emissions (2.6%).

Several 48-hour back trajectory HYSPLITS for the Oldham County monitor have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is impacted by Jefferson County and the Gallagher Power Station in Indiana, and therefore emissions from Oldham County do not affect the violating monitor.

The emissions data and other documentation presented indicate that Oldham County, Kentucky, does not contribute a significant amount of emissions that contribute to ozone formation in the Louisville area of evaluation.

Based on the emissions data and an analysis of the back trajectories, Oldham County should be designated attainment for the 8-hour ozone standard.

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JEFFERSON COUNTY, KENTUCKY

Jefferson County is part of the Louisville, Kentucky-Indiana Metropolitan Statistical Area (MSA) and is located at the intersection of the I-65 North-South, I-71 North-South, and I-64 East-West interstate corridors in central Kentucky.

Geography/Topography

Jefferson County has a land area of 385 square miles and is the central county in the Kentucky portion of the Louisville MSA. The Ohio River forms the northern border of Jefferson County. It is located to the southwest of Oldham, to the west of Shelby County, to the northwest of Spencer County, and to the north of Bullitt County. It is also to the south of Clark County, Indiana, to the southeast of Floyd County, Indiana, and to the east of Harrison County, Indiana.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Bullitt County air monitoring site for the period 2006-2008 shows that the majority of the time the wind in the area came from the south/southwest, and typically at 1-4 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 87°F and the average low was 67°F. The average precipitation for the same period was 5.29 inches.

Planning

The authority for air quality planning in the Jefferson County resides with the Louisville Metro Air Pollution Control District, while the Kentucky Environmental and Public Cabinet provides oversight. Transportation planning for Jefferson County is performed by the Kentuckiana Regional Planning and Development Agency (KIPDA).

Air Monitoring

For the 2006-2008 monitoring period, Jefferson County had three ozone monitors, two of which had values exceeding the 8-hour ozone National Ambient Air Quality Standard (NAAQS - 0.075 ppm). The 3-year average (2006-2008) of the annual fourth-highest daily maximum 8-hour average ozone concentration at monitors 21-111-0051, 21-111-0027, and 21-111-1021 was 0.0790 ppm, 0.0773 ppm, and 0.0713 ppm, respectively.

A violation of the 8-hour ozone NAAQS for 2006-2008 was additionally documented in Clark County and Floyd County, Indiana.

The monitoring information for 2008 is complete and the latest available for Jefferson County, Kentucky. (See table 1)

Population

Based on projections to 2006 from the 2000 census data, there are 701,500 persons living in Jefferson County. (See table3) That represents approximately 1822 persons per square mile. The population of Jefferson County is approximately 1.9% rural with 98.2% of the people living in incorporated areas. The largest city in Jefferson County is Louisville.

Jefferson County's population from 2000 through 2006 increased by approximately 1.1% (693,604 to 701,500). The population in the county is expected to increase overall by 4.4% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Louisville area, Jefferson County represents approximately 51.9% of the total population in the area of evaluation and 65.1% of the Kentucky portion of the area. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 NEI modeling inventories. (See tables 4 and 5)

Point Sources

Point source VOC emissions from Jefferson County were estimated at 8832.04 tpy in 2005, which represents approximately 43% of the total 20,541.86 tpy of the overall VOC point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-1)

Point source NO_x emissions from Jefferson County were estimated at 25,008.46 tpy in 2005, which represents approximately 69.3% of the total 36,070.82 tpy of the overall NO_x point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-7)

Major point sources located within Jefferson County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

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Onroad Mobile

Onroad mobile source VOC emissions from Jefferson County were estimated at 9891.07 tpy in 2005, which represents approximately 55.6% of the total 17,805.14 tpy of the overall VOC onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-3)

Onroad mobile source NO_x emissions from Jefferson County were estimated at 20,329.75 tpy in 2005, which represents approximately 58.9% of the total 34,517.20 tpy of the overall NO_x onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-9)

Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Jefferson County is 32.7% and classified as high. The commuting traffic from Jefferson County into other counties is minimal at 16.1%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Mobile

Nonroad mobile source VOC emissions from Jefferson County were estimated at 3254.28 tpy in 2005, which represents approximately 46.3% of the total 7032.77 tpy of the overall VOC nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-4)

Nonroad mobile source NO_x emissions from Jefferson County were estimated at 9265.81 tpy in 2005, which represents approximately 58.9% of the total 20,658.44 tpy of the overall NO_x nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-10)

Area Sources

Area source VOC emissions from Jefferson County were estimated at 18,969.49 tpy 2005, which represents approximately 58.7% of the total 32,332.19 tpy of the overall VOC area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-2)

Area source NO_x emissions from Jefferson County were estimated at 3350.00 tpy in 2005, which represents approximately 61.5% of the total 5448.93 tpy of the overall NO_x area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky and Indiana area of evaluation was performed using the 2005 NEI Emission Inventory data.

Charts Lou-5 and Lou-6 provide a comparison of VOC emissions across the entire region.

Charts Lou-11 and Lou-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

Jefferson County, based on 2006-2008 ozone monitoring data, is not meeting the 8-hour ozone standard, as previously noted on page 10.

In the Louisville area of evaluation, KY-IN, Jefferson County contributes approximately:

- 52.7% of total VOC emissions (77,711.97 tpy)
- 59.9% of total NOx emissions (96,695.39 tpy)

See charts Lou-6 for VOC and Lou-12 for NO_x.

Jefferson County contributes a relatively large portion of the area's NOx emissions (52.7%) and the VOC emissions (59.9%).

The monitoring and other documentation presented indicate that Jefferson County should be designated nonattainment for the 8-hour ozone standard.

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HENRY COUNTY, KENTUCKY

Henry County is part of the Louisville, Kentucky-Indiana Metropolitan Statistical Area (MSA) and is on the I-71 North-South interstate corridor. It is located to the north of Shelby County, to the south of Carroll County, to the east of Oldham County, to the west of Owen County, and to the northwest of Franklin County.

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Geography/Topography

Henry County has a land area of 289 square miles and is the northeastern-most county in the entire area of evaluation. The Kentucky River forms the eastern county line. The county geographically is in the Outer Bluegrass Region.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Bullitt County air monitoring site for the period 2006-2008 shows that the majority of the time the wind in the area came from the south/southwest, and typically at 1-4 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 87°F and the average low was 67°F. The average precipitation for the same period was 5.29 inches.

Planning

The authority for air quality planning in the Henry County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Henry County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006-2008 monitoring period, there were no ozone monitors located in Henry County.

However, because ozone monitors in Jefferson County and Oldham County, Kentucky, and Clark County and Floyd County, Indiana have 8-hour ozone average values exceeding the NAAQS, information for Henry County is being presented in this document.

The monitoring information for 2008 is complete and the latest available. (See table 1)

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Population

Based on projections to 2006 from the 2000 census data, there are 16,025 persons living in Henry County. (See table 3) That represents approximately 55 persons per square mile. The population of Henry County is approximately 100% rural. The largest cities in Henry County are Eminence and New Castle.

Henry County's population from 2000 through 2006 increased by approximately 6.4% (15,060 to 16,025). The population in the county is expected to increase overall by 17.4% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Louisville area, Henry County represents approximately 1.2% of the total population in the area of evaluation and 1.5% of the Kentucky portion of the area. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 NEI modeling inventories. (See tables 4 and 5)

Point Sources

Point source VOC emissions from Henry County were estimated at 53.33 tpy in 2005, which represents approximately 0.3% of the total 20,541.86 tpy of the overall VOC point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-1)

Point source NO_x emissions from Henry County were estimated at 8.48 tpy in 2005, which represents approximately zero percent of the total 36,070.82 tpy of the overall NO_x point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-7)

Major point sources located within Henry County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

Onroad Mobile

Onroad mobile source VOC emissions from Henry County were estimated at 361.97 tpy in 2005, which represents approximately 2% of the total 17,805.14 tpy of the overall VOC onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-3)

Onroad mobile source NO_x emissions from Henry County were estimated at 904.67 tpy in 2005, which represents approximately 2.6% of the total 34,517.20 tpy of the overall NO_x onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-9)

Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Henry County is 46.1% and classified as high. The commuting traffic from Henry County into other counties is significant at 74.8%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Mobile

Nonroad mobile source VOC emissions from Henry County were estimated at 95.10 tpy in 2005, which represents approximately 1.4% of the total 7032.77 tpy of the overall VOC nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-4)

Nonroad mobile source NO_x emissions from Henry County were estimated at 344.50 tpy in 2005, which represents approximately 1.7% of the total 20,658.44 tpy of the overall NO_x nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-10)

Area Sources

Area source VOC emissions from Henry County were estimated at 727.12 tpy 2005, which represents approximately 2.2% of the total 32,332.19 tpy of the overall VOC area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-2)

Area source NO_x emissions from Henry County were estimated at 62.86 tpy in 2005, which represents approximately 1.2% of the total 5448.93 tpy of the overall NO_x area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky and Indiana area of evaluation was performed using the 2005 NEI Emission Inventory data.

Charts Lou-5 and Lou-6 provide a comparison of VOC emissions across the entire region.

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Charts Lou-11 and Lou-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006-2008 monitoring period, there were no ozone monitors located in Henry County.

In the Louisville area of evaluation, KY-IN, Henry County contributes approximately:

- 1.6% of total VOC emissions (77,711.97 tpy)
- 1.4% of total NOx emissions (96,695.39 tpy)

See charts Lou-6 for VOC and Lou-12 for NO_x.

Several 48-hour back trajectory HYSPLITS for Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Henry County and therefore does not affect the violating monitors.

The emissions data and other documentation presented indicate that Henry County, Kentucky, does not contribute a significant amount of emissions that contribute to ozone formation in the Louisville area of evaluation.

Therefore, Henry County should be designated attainment for the 8-hour ozone standard.

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MEADE COUNTY, KENTUCKY

Meade County is part of the Louisville, Kentucky-Indiana Metropolitan Statistical Area (MSA) and includes the Fort Knox Military Reservation in the eastern portion of the county. It is located to the northwest of Hardin County, to the northeast of Breckinridge County, and directly to the south of Harrison County, Indiana, across the Ohio River.

Geography/Topography

Meade County has a land area of 308 square miles and is the western-most county in the entire area of evaluation. The Ohio River forms the northern county boundary. The county geographically is in the Outer Bluegrass Region.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Bullitt County air monitoring site for the period 2006-2008 shows that the majority of the time the wind in the area came from the south/southwest, and typically at 1-4 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 87°F and the average low was 67°F. The average precipitation for the same period was 5.29 inches.

Planning

The authority for air quality planning in the Meade County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Meade County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006-2008 monitoring period, there were no ozone monitors located in Meade County.

However, because ozone monitors in Jefferson County and Oldham County, Kentucky, and Clark County and Floyd County, Indiana have 8-hour ozone average values exceeding the NAAQS, information for Meade County is being presented in this document.

The monitoring information for 2008 is complete and the latest available. (See table 1)

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Population

Based on projections to 2006 from the 2000 census data, there are 27,994 persons living in Meade County. (See table 3) That represents approximately 91 persons per square mile. The population of Meade County is approximately 83% rural with 17% of the people living in incorporated areas. The largest cities in Meade County are Brandenburg and Muldraugh.

Meade County's population from 2000 through 2006 increased by approximately 6.2% (26,349 to 27,994). The population in the county is expected to increase overall by 16.3% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Louisville area, Meade County represents approximately 2.1% of the total population in the area of evaluation and 2.6% of the Kentucky portion of the area. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 NEI modeling inventories. (See tables 4 and 5)

Point Sources

Point source VOC emissions from Meade County were estimated at 282.84 tpy in 2005, which represents approximately 1.4% of the total 20,541.86 tpy of the overall VOC point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-1)

Point source NO_x emissions from Meade County were estimated at 106.73 tpy in 2005, which represents approximately 0.3% of the total 36,070.82 tpy of the overall NO_x point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-7)

Major point sources located within Meade County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

Onroad Mobile

Onroad mobile source VOC emissions from Meade County were estimated at 398.23 tpy in 2005, which represents approximately 2.2% of the total 17,805.14 tpy of the overall VOC

onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-3)

Onroad mobile source NO_x emissions from Meade County were estimated at 634.26 tpy in 2005, which represents approximately 1.8% of the total 34,517.20 tpy of the overall NO_x onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-9)

Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Meade County is 35.7% and classified as high. The commuting traffic from Meade County into other counties is significant at 74.6%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Mobile

Nonroad mobile source VOC emissions from Meade County were estimated at 568.43 tpy in 2005, which represents approximately 8.1% of the total 7032.77 tpy of the overall VOC nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-4)

Nonroad mobile source NO_x emissions from Meade County were estimated at 2224.89 tpy in 2005, which represents approximately 10.8% of the total 20,658.44 tpy of the overall NO_x nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-10)

Area Sources

Area source VOC emissions from Meade County were estimated at 1146.88 tpy 2005, which represents approximately 3.5% of the total 32,332.19 tpy of the overall VOC area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-2)

Area source NO_x emissions from Meade County were estimated at 62.35 tpy in 2005, which represents approximately 1.1% of the total 5448.93 tpy of the overall NO_x area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-8)

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Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky and Indiana area of evaluation was performed using the 2005 NEI Emission Inventory data.

Charts Lou-5 and Lou-6 provide a comparison of VOC emissions across the entire region.

Charts Lou-11 and Lou-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006-2008 monitoring period, there were no ozone monitors located in Meade County.

In the Louisville area of evaluation, KY-IN, Meade County contributes approximately:

- 3.1% of total VOC emissions (77,711.97 tpy)
- 10.8% of total NOx emissions (96,695.39 tpy)

See charts Lou-6 for VOC and Lou-12 for NO_x.

Several 48-hour back trajectory HYSPLITS for Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Meade County and therefore does not affect the violating monitors.

The emissions data and other documentation presented indicate that Meade County, Kentucky, does not contribute a significant amount of emissions that contribute to ozone formation in the Louisville area of evaluation.

Therefore, Meade County should be designated attainment for the 8-hour ozone standard.

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NELSON COUNTY, KENTUCKY

Nelson County is part of the Louisville, Kentucky-Indiana Metropolitan Statistical Area (MSA) and is divided in half east-west by the Blue Grass Parkway. It is located to the east of Hardin County, to the west of Washington County, to the southeast of Bullitt County, and to the southwest of Spencer County. It is also northeast of Larue County and northwest of Marion County.

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Geography/Topography

Nelson County has a land area of 423 square miles and is the southeastern-most county in the entire area of evaluation. Taylorsville Lake forms the northeastern county corner, and Knobs State Forest is located in the western portion of the county. The county geographically is in the Outer Bluegrass Region.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Bullitt County air monitoring site for the period 2006-2008 shows that the majority of the time the wind in the area came from the south/southwest, and typically at 1-4 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 87°F and the average low was 67°F. The average precipitation for the same period was 5.29 inches.

Planning

The authority for air quality planning in the Nelson County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Nelson County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006-2008 monitoring period, there were no ozone monitors located in Nelson County.

However, because ozone monitors in Jefferson County and Oldham County, Kentucky, and Clark County and Floyd County, Indiana have 8-hour ozone average values exceeding the NAAQS, information for Nelson County is being presented in this document.

The monitoring information for 2008 is complete and the latest available. (See table 1)

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Population

Based on projections to 2006 from the 2000 census data, there are 42,102 persons living in Nelson County. (See table 3) That represents approximately 100 persons per square mile. The population of Nelson County is approximately 62.6% rural with 37.4% of the people living in incorporated areas. The largest cities in Nelson County are Bardstown and Bloomfield.

Nelson County's population from 2000 through 2006 increased by approximately 12.3% (37,477 to 42,102). The population in the county is expected to increase overall by 29.7% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Louisville area, Nelson County represents approximately 3.1% of the total population in the area of evaluation and 3.9% of the Kentucky portion of the area. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 NEI modeling inventories. (See tables 4 and 5)

Point Sources

Point source VOC emissions from Nelson County were estimated at 5846.32 tpy in 2005, which represents approximately 28.5% of the total 20,541.86 tpy of the overall VOC point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-1) The large VOC emissions are due to bourbon distilleries in the county.

Point source NO_x emissions from Nelson County were estimated at 183.76 tpy in 2005, which represents approximately 0.5% of the total 36,070.82 tpy of the overall NO_x point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-7)

Major point sources located within Nelson County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

Onroad Mobile

Onroad mobile source VOC emissions from Nelson County were estimated at 664.52 tpy in 2005, which represents approximately 3.7% of the total 17,805.14 tpy of the overall VOC

onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-3)

Onroad mobile source NO_x emissions from Nelson County were estimated at 941.03 tpy in 2005, which represents approximately 2.7% of the total 34,517.2 tpy of the overall NO_x onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-9)

Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Nelson County is 36.6% and classified as high. The commuting traffic from Nelson County into other counties is significant at 54.1%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Mobile

Nonroad mobile source VOC emissions from Nelson County were estimated at 151.53 tpy in 2005, which represents approximately 2.2% of the total 7032.77 tpy of the overall VOC nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-4)

Nonroad mobile source NO_x emissions from Nelson County were estimated at 418.85 tpy in 2005, which represents approximately 2% of the total 20,658.44 tpy of the overall NO_x nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-10)

Area Sources

Area source VOC emissions from Nelson County were estimated at 989.99 tpy 2005, which represents approximately 3.1% of the total 32,332.19 tpy of the overall VOC area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-2)

Area source NO_x emissions from Nelson County were estimated at 200.32 tpy in 2005, which represents approximately 3.7% of the total 5448.93 tpy of the overall NO_x area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-8)

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Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky and Indiana area of evaluation was performed using the 2005 NEI Emission Inventory data.

Charts Lou-5 and Lou-6 provide a comparison of VOC emissions across the entire region.

Charts Lou-11 and Lou-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006-2008 monitoring period, there were no ozone monitors located in Nelson County.

In the Louisville area of evaluation, KY-IN, Nelson County contributes approximately:

- 9.8% of total VOC emissions (77,711.97 tpy)
- 1.8% of total NOx emissions (96,695.39 tpy)

See charts Lou-6 for VOC and Lou-12 for NO_x.

Several 48-hour back trajectory HYSPLITS for Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Nelson County and therefore does not affect the violating monitors.

The emissions data and other documentation presented indicate that Nelson County, Kentucky, does not contribute a significant amount of emissions that contribute to ozone formation in the Louisville area of evaluation.

Therefore, Nelson County should be designated attainment for the 8-hour ozone standard.

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SHELBY COUNTY, KENTUCKY

Shelby County is part of the Louisville, Kentucky-Indiana Metropolitan Statistical Area (MSA) and is divided east-west by Interstate Highway 64. It is located to the east of Jefferson County, to the west of Franklin County, to the southeast of Oldham County, and to the south of Henry County. It is also northeast of Spencer County and northwest of Anderson County.

US EPA ARCHIVE DOCUMENT

Geography/Topography

Shelby County has a land area of 384 square miles and Guist Creek Lake State Park is located in the center of the county. The county geographically is in the Outer Bluegrass Region.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Bullitt County air monitoring site for the period 2006-2008 shows that the majority of the time the wind in the area came from the south/southwest, and typically at 1-4 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 87°F and the average low was 67°F. The average precipitation for the same period was 5.29 inches.

Planning

The authority for air quality planning in the Shelby County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Shelby County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006-2008 monitoring period, there were no ozone monitors located in Shelby County.

However, because ozone monitors in Jefferson County and Oldham County, Kentucky, and Clark County and Floyd County, Indiana have 8-hour ozone average values exceeding the NAAQS, information for Shelby County is being presented in this document.

The monitoring information for 2008 is complete and the latest available. (See table 1)

US EPA ARCHIVE DOCUMENT

Population

Based on projections to 2006 from the 2000 census data, there are 39,717 persons living in Shelby County. (See table 3) That represents approximately 103 persons per square mile. The population of Shelby County is approximately 60% rural with 40% of the people living in incorporated areas. The largest cities in Shelby County are Shelbyville and Simpsonville.

Shelby County's population from 2000 through 2006 increased by approximately 19.1% (33,337 to 39,717). The population in the county is expected to increase overall by 34.6% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Louisville area, Shelby County represents approximately 2.9% of the total population in the area of evaluation and 3.7% of the Kentucky portion of the area. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 NEI modeling inventories. (See tables 4 and 5)

Point Sources

Point source VOC emissions from Shelby County were estimated at 325.03 tpy in 2005, which represents approximately 1.6% of the total 20,541.86 tpy of the overall VOC point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-1)

Point source NO_x emissions from Shelby County were estimated at 66.69 tpy in 2005, which represents approximately 0.2% of the total 36,070.82 tpy of the overall NO_x point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-7)

Major point sources located within Shelby County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

Onroad Mobile

Onroad mobile source VOC emissions from Shelby County were estimated at 797.81 tpy in 2005, which represents approximately 4.5% of the total 17,805.14 tpy of the overall VOC

onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-3)

Onroad mobile source NO_x emissions from Shelby County were estimated at 1703.90 tpy in 2005, which represents approximately 4.9% of the total 34,517.20 tpy of the overall NO_x onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-9)

Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Shelby County is 51.2% and classified as significant. The commuting traffic from Shelby County into other counties is significant at 61.9%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Mobile

Nonroad mobile source VOC emissions from Shelby County were estimated at 384.42 tpy in 2005, which represents approximately 5.5% of the total 7032.77 tpy of the overall VOC nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-4)

Nonroad mobile source NO_x emissions from Shelby County were estimated at 663.53 tpy in 2005, which represents approximately 3.2% of the total 20,658.44 tpy of the overall NO_x nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-10)

Area Sources

Area source VOC emissions from Shelby County were estimated at 923.95 tpy 2005, which represents approximately 2.9% of the total 32,332.19 tpy of the overall VOC area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-2)

Area source NO_x emissions from Shelby County were estimated at 232.23 tpy in 2005, which represents approximately 4.3% of the total 5448.93 tpy of the overall NO_x area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky and Indiana area of evaluation was performed using the 2005 NEI Emission Inventory data.

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Charts Lou-5 and Lou-6 provide a comparison of VOC emissions across the entire region.

Charts Lou-11 and Lou-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006-2008 monitoring period, there were no ozone monitors located in Shelby County.

In the Louisville area of evaluation, KY-IN, Shelby County contributes approximately:

- 3.1% of total VOC emissions (77,711.97 tpy)
- 2.8% of total NOx emissions (96,695.39 tpy)

See charts Lou-6 for VOC and Lou-12 for NO_x.

Several 48-hour back trajectory HYSPLITS for Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Shelby County and therefore does not affect the violating monitors.

The emissions data and other documentation presented indicate that Shelby County, Kentucky, does not contribute a significant amount of emissions that contribute to ozone formation in the Louisville area of evaluation.

Therefore, Shelby County should be designated attainment for the 8-hour ozone standard.

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SPENCER COUNTY, KENTUCKY

Spencer County is part of the Louisville, Kentucky-Indiana Metropolitan Statistical Area (MSA) and is divided in half north-south Highway 55. It is located to the west of Anderson County, to the east of Bullitt County, to the southeast of Jefferson County, and to the southwest of Shelby County. It is also north of Nelson County.

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Geography/Topography

Spencer County has a land area of 186 square miles and Taylorsville Lake crisscrosses much of the eastern portion of the county. The East Fork of Cox Creek forms a portion of the southwestern county boundary. The county geographically is in the Outer Bluegrass Region.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Bullitt County air monitoring site for the period 2006-2008 shows that the majority of the time the wind in the area came from the south/southwest, and typically at 1-4 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 87°F and the average low was 67°F. The average precipitation for the same period was 5.29 inches.

Planning

The authority for air quality planning in the Spencer County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Spencer County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006-2008 monitoring period, there were no ozone monitors located in Spencer County.

However, because ozone monitors in Jefferson County and Oldham County, Kentucky, and Clark County and Floyd County, Indiana have 8-hour ozone average values exceeding the NAAQS, information for Spencer County is being presented in this document.

The monitoring information for 2008 is complete and the latest available. (See table 1)

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Population

Based on projections to 2006 from the 2000 census data, there are 16,475 persons living in Spencer County. (See table 3) That represents approximately 89 persons per square mile. The population of Spencer County is approximately 100% rural. The largest city in Spencer County is Taylorsville.

Spencer County's population from 2000 through 2006 increased by approximately 40% (11,766 to 16,475). The population in the county is expected to increase overall by 39.3% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Louisville area, Spencer County represents approximately 1.2% of the total population in the area of evaluation and 1.5% of the Kentucky portion of the area. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 NEI modeling inventories. (See tables 4 and 5)

Point Sources

Point source VOC emissions from Spencer County were estimated at zero tpy in 2005, which represents no contribution to the total 20,541.86 tpy of the overall VOC point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-1)

Point source NO_x emissions from Spencer County were estimated at zero tpy in 2005, which represents no contribution to the total 36,070.82 tpy of the overall NO_x point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-7)

Major point sources located within Spencer County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

Onroad Mobile

Onroad mobile source VOC emissions from Spencer County were estimated at 170.74 tpy in 2005, which represents approximately 1% of the total 17,805.14 tpy of the overall VOC

onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-3)

Onroad mobile source NO_x emissions from Spencer County were estimated at 255.25 tpy in 2005, which represents approximately 0.7% of the total 34,517.20 tpy of the overall NO_x onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-9)

Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Spencer County is 45.0% and classified as high. The commuting traffic from Spencer County into other counties is significant at 86.8%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Mobile

Nonroad mobile source VOC emissions from Spencer County were estimated at 152.42 tpy in 2005, which represents approximately 2.2% of the total 7032.77 tpy of the overall VOC nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See hart Lou-4)

Nonroad mobile source NO_x emissions from Spencer County were estimated at 126.84 tpy in 2005, which represents approximately 0.6% of the total 20,658.44 tpy of the overall NO_x nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-10)

Area Sources

Area source VOC emissions from Spencer County were estimated at 268.39 tpy 2005, which represents approximately 0.8% of the total 32,332.19 tpy of the overall VOC area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-2)

Area source NO_x emissions from Spencer County were estimated at 36.21 tpy in 2005, which represents approximately 0.7% of the total 5448.93 tpy of the overall NO_x area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky and Indiana area of evaluation was performed using the 2005 NEI Emission Inventory data.

US EPA ARCHIVE DOCUMENT

Charts Lou-5 and Lou-6 provide a comparison of VOC emissions across the entire region.

Charts Lou-11 and Lou-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006-2008 monitoring period, there were no ozone monitors located in Spencer County.

In the Louisville area of evaluation, KY-IN, Spencer County contributes approximately:

- 0.8% of total VOC emissions (77,711.97 tpy)
- 0.4% of total NOx emissions (96,695.39 tpy)

See charts Lou-6 for VOC and Lou-12 for NO_x.

Several 48-hour back trajectory HYSPLITS for Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Spencer County and therefore does not affect the violating monitors.

The emissions data and other documentation presented indicate that Spencer County, Kentucky, does not contribute a significant amount of emissions that contribute to ozone formation in the Louisville area of evaluation.

Therefore, Spencer County should be designated attainment for the 8-hour ozone standard.

US EPA ARCHIVE DOCUMENT

TRIMBLE COUNTY, KENTUCKY

Trimble County is part of the Louisville, Kentucky-Indiana Metropolitan Statistical Area (MSA) and is divided north-south by Highway 421. It is located to the west of Carroll County, to the northwest of Henry County, and to the northeast of Oldham County. It is also to the east of Clark County, Indiana directly across the Ohio River.

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Geography/Topography

Trimble County has a land area of 149 square miles and the Little Kentucky River winds across the southeastern portion of the county. The Ohio River, with Indiana across the river, forms the north and west boundaries of the county. The county geographically is in the Outer Bluegrass Region.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Bullitt County air monitoring site for the period 2006-2008 shows that the majority of the time the wind in the area came from the south/southwest, and typically at 1-4 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 87°F and the average low was 67°F. The average precipitation for the same period was 5.29 inches.

Planning

The authority for air quality planning in the Trimble County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Trimble County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006-2008 monitoring period, there were no ozone monitors located in Trimble County.

However, because ozone monitors in Jefferson County and Oldham County, Kentucky, and Clark County and Floyd County, Indiana have 8-hour ozone average values exceeding the NAAQS, information for Trimble County is being presented in this document.

The monitoring information for 2008 is complete and the latest available. (See table 1)

US EPA ARCHIVE DOCUMENT

Population

Based on projections to 2006 from the 2000 census data, there are 9,074 persons living in Trimble County. (See table 3) That represents approximately 61 persons per square mile. The population of Trimble County is approximately 94.1% rural with 5.9% of the people living in incorporated areas. The largest cities in Trimble County are Bedford and Milton.

Trimble County's population from 2000 through 2006 increased by approximately 11.7% (8,125 to 9,07). The population in the county is expected to increase overall by 40.7% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Louisville area, Trimble County represents approximately 0.7% of the total population in the area of evaluation and 0.8% of the Kentucky portion of the area. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 NEI modeling inventories. (See tables 4 and 5)

Point Sources

Point source VOC emissions from Trimble County were estimated at 79.21 tpy in 2005, which represents approximately 0.4% of the total 20,541.86 tpy of the overall VOC point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-1)

Point source NO_x emissions from Trimble County were estimated at 3409.01 tpy in 2005, which represents approximately 9.5% of the total 36,070.82 tpy of the overall NO_x point source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-7)

Major point sources located within Trimble County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

Onroad Mobile

Onroad mobile source VOC emissions from Trimble County were estimated at 104.90 tpy in 2005, which represents approximately 0.6% of the total 17,805.14 tpy of the overall VOC onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-3)

Onroad mobile source NO_x emissions from Trimble County were estimated at 174.71 tpy in 2005, which represents approximately 0.5% of the total 34,517.20 tpy of the overall NO_x onroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-9)

Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Trimble County is 52.5% and classified as significant. The commuting traffic from Trimble County into other counties is significant at 84.4%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Mobile

Nonroad mobile source VOC emissions from Trimble County were estimated at 207.35 tpy in 2005, which represents approximately 2.9% of the total 7032.77 tpy of the overall VOC nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-4)

Nonroad mobile source NO_x emissions from Trimble County were estimated at 1341.60 tpy in 2005, which represents approximately 6.5% of the total 20,658.44 tpy of the overall NO_x nonroad mobile source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-10)

Area Sources

Area source VOC emissions from Trimble County were estimated at 133.37 tpy 2005, which represents approximately 0.4% of the total 32332.19 tpy of the overall VOC area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-2)

Area source NO_x emissions from Trimble County were estimated at 14.61 tpy in 2005, which represents approximately 0.3% of the total 5448.93 tpy of the overall NO_x area source emissions from the Louisville area of evaluation, KY-IN. (See chart Lou-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky and Indiana area of evaluation was performed using the 2005 NEI Emission Inventory data.

Charts Lou-5 and Lou-6 provide a comparison of VOC emissions across the entire region.

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Charts Lou-11 and Lou-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006-2008 monitoring period, there were no ozone monitors located in Trimble County.

In the Louisville area of evaluation, KY-IN, Trimble County contributes approximately:

- 0.7% of total VOC emissions (77,711.97 tpy)
- 5.1% of total NOx emissions (96,695.39 tpy)

See charts Lou-6 for VOC and Lou-12 for NO_x..

Several 48-hour back trajectory HYSPLITS for Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Trimble County and therefore does not affect the violating monitors.

The emissions data and other documentation presented indicate that Trimble County, Kentucky, does not contribute a significant amount of emissions that contribute to ozone formation in the Louisville area of evaluation, KY-IN.

Therefore, Trimble County should be designated attainment for the 8-hour ozone standard.

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Figure 1

Louisville Area of Evaluation
Wind Rose Patterns

2006-2008

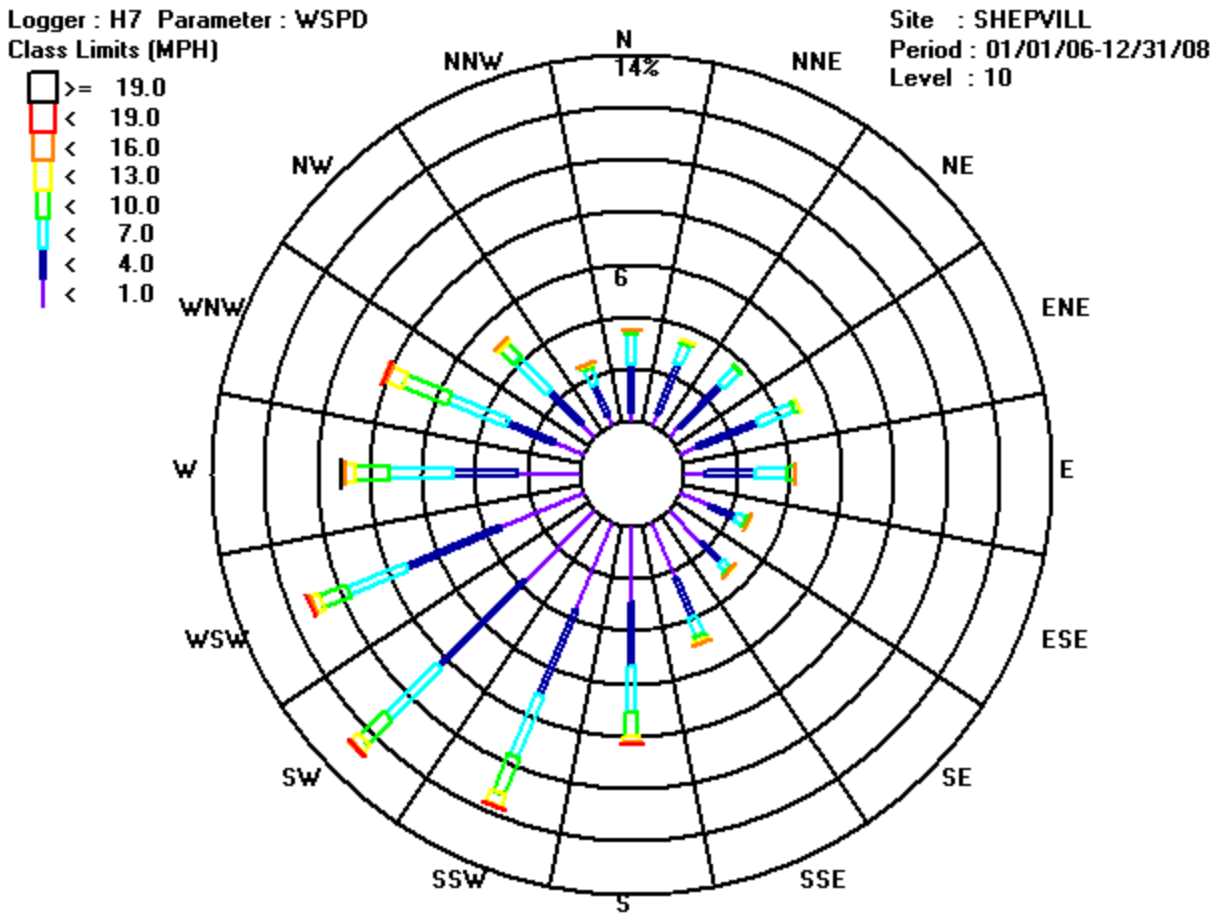

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Table 1

Louisville Area of Evaluation
3-year Average* of 8-hour for Ozone
(parts per million)

Monitor	2006	2007	2008	3-year Average
Kentucky				
Bullitt	.071	.078	.069	.072
Henry	-	-	-	n/a
Jefferson				
21-111-0027	.074	.086	.072	.077
21-111-0051	.077	.085	.075	.079
21-111-0021	.067	.079	.068	.071
Meade	-	-	-	n/a
Nelson	-	-	-	n/a
Oldham	.083	.084	.077	.081
Shelby	-	-	-	n/a
Spencer	-	-	-	n/a
Trimble	-	-	-	n/a
Indiana				
Clark	.079	.090	.075	.081
Floyd	.076	.082	.075	.077
Jefferson	-	-	-	n/a
Harrison	-	-	-	n/a
Washington	-	-	-	n/a

*NAAQS 8-hour (3 year average of the 4th max value). 0.08ppm

n/a indicates no monitor data for that county.

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Table 2
Kentucky Portion of the Area of Evaluation
Population Growth Data

County	Census 2000	2006*	%Growth 2000-2006	2015*	%Growth 2000 - 2015
Bullitt	61,236	72,851	19.0%	78,222	27.7%
Henry	15,060	16,025	6.4%	17,675	17.4%
Jefferson	693,604	701,500	1.1%	724,447	4.4%
Meade	26,349	27,994	6.2%	30,636	16.3%
Nelson	37,477	42,102	12.3%	48,601	29.7%
Oldham	46,178	55,285	18.6%	63,516	37.5%
Shelby	33,337	39,717	19.1%	44,882	34.6%
Spencer	11,766	16,475	40.0%	22,943	39.3%
Trimble	8,125	9,074	11.7%	11,434	40.7%

*U.S. Census Bureau projections to July 1, 2006 and 2015

Table 3
Area of Evaluation
2006 Estimated Population Data

	2006*	% of Total	
Kentucky		of KY Portion	of Area
Bullitt	72,851	7.4%	5.8%
Henry	16,025	1.6%	1.3%
Jefferson	701,500	71.5%	55.9%
Meade	27,994	2.9%	2.2%
Nelson	42,102	4.3%	3.4%
Oldham	55,285	5.6%	4.4%
Shelby	39,717	4.0%	3.2%
Spencer	16,475	1.7%	1.3%
Trimble	9,074	0.9%	0.7%
KY TOTAL	981,023		79.7%
Indiana		of IN Portion	of Area
Clark	103,569	37.8%	8.3%
Floyd	72,570	26.5%	5.8%
Harrison	36,992	13.5%	2.9%
Jefferson	32,668	11.9%	2.6%
Washington	28,062	10.2%	2.2%
IN TOTAL	273,861		21.8%
Total Estimated Population	1,254,884		

*U.S. Census Bureau estimated for 2006.

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Table 4

2005 NEI Louisville Area of Evaluation
Total VOC Emissions
(tons per year)

County	VOC				
	Point	Area	Mobile	Nonroad	Total
KENTUCKY					
Bullitt	3020.47	1549.01	1051.30	546.18	**6166.96**
Henry	53.33	727.12	361.97	95.10	**1237.52**
Jefferson	8832.04	18969.49	9891.07	3254.28	**40946.88**
Meade	282.84	1146.88	398.23	568.43	**2396.38**
Nelson	5846.32	989.99	664.52	151.53	**7652.36**
Oldham	74.46	624.82	695.27	396.34	**1790.88**
Shelby	325.03	923.95	797.81	384.42	**2431.21**
Spencer	0.00	268.39	170.74	152.42	**591.55**
Trimble	79.21	133.37	104.90	207.35	**524.83**
KY Total	**18513.71**	**25332.99**	**14135.82**	**5756.05**	**63738.57**
INDIANA					
Clark, IN	1298.86	2789.57	1521.45	572.84	**6182.72**
Floyd, IN	230.11	1781.93	973.96	360.15	**3346.15**
Harrison, IN	257.79	1244.54	707.72	208.83	**2418.87**
Washington, IN	241.40	1183.16	466.20	134.90	**2025.65**
IN Total	**2028.15**	**6999.20**	**3669.33**	**1276.72**	**13973.39**
Total Emissions	20541.86	32332.19	17805.14	7032.77	77711.97

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Table 5

2005 NEI Louisville Area of Evaluation
Total NO_x Emissions
(tons per year)

County	NOX				
	Point	Area	Mobile	Nonroad	Total
KENTUCKY					
Bullitt	221.70	276.08	2039.60	611.41	**3148.79**
Henry	8.48	62.86	904.67	344.50	**1320.52**
Jefferson	25008.46	3350.00	20329.75	9265.81	**57954.02**
Meade	106.73	62.35	634.26	2224.89	**3028.23**
Nelson	183.76	200.32	941.03	418.85	**1743.96**
Oldham	39.96	142.70	1128.14	1734.25	**3045.05**
Shelby	66.69	232.23	1703.90	663.53	**2666.35**
Spencer	0.00	36.21	255.25	126.84	**418.30**
Trimble	3409.01	14.61	174.71	1341.60	**4939.93**
KY Total	**29044.78**	**4377.35**	**28111.33**	**16731.68**	**78265.13**
INDIANA					
Clark, IN	1698.46	433.53	2637.87	979.95	**5749.80**
Floyd, IN	5315.83	336.46	1624.75	869.41	**8146.43**
Harrison, IN	9.87	167.14	1500.30	1497.04	**3174.35**
Washington, IN	1.89	134.45	642.97	580.37	**1359.67**
IN Total	**7026.04**	**1071.58**	**6405.88**	**3926.77**	**18430.26**
Total Emissions	36070.82	5448.93	34517.21	20658.45	96695.39

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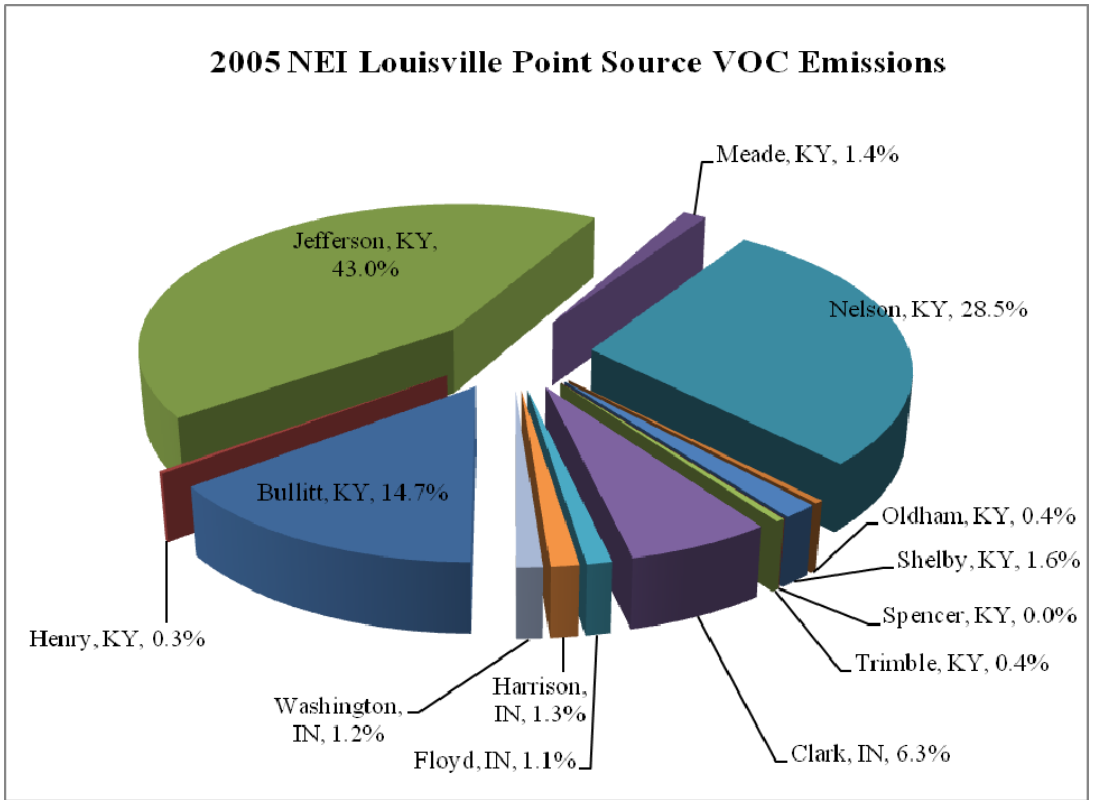
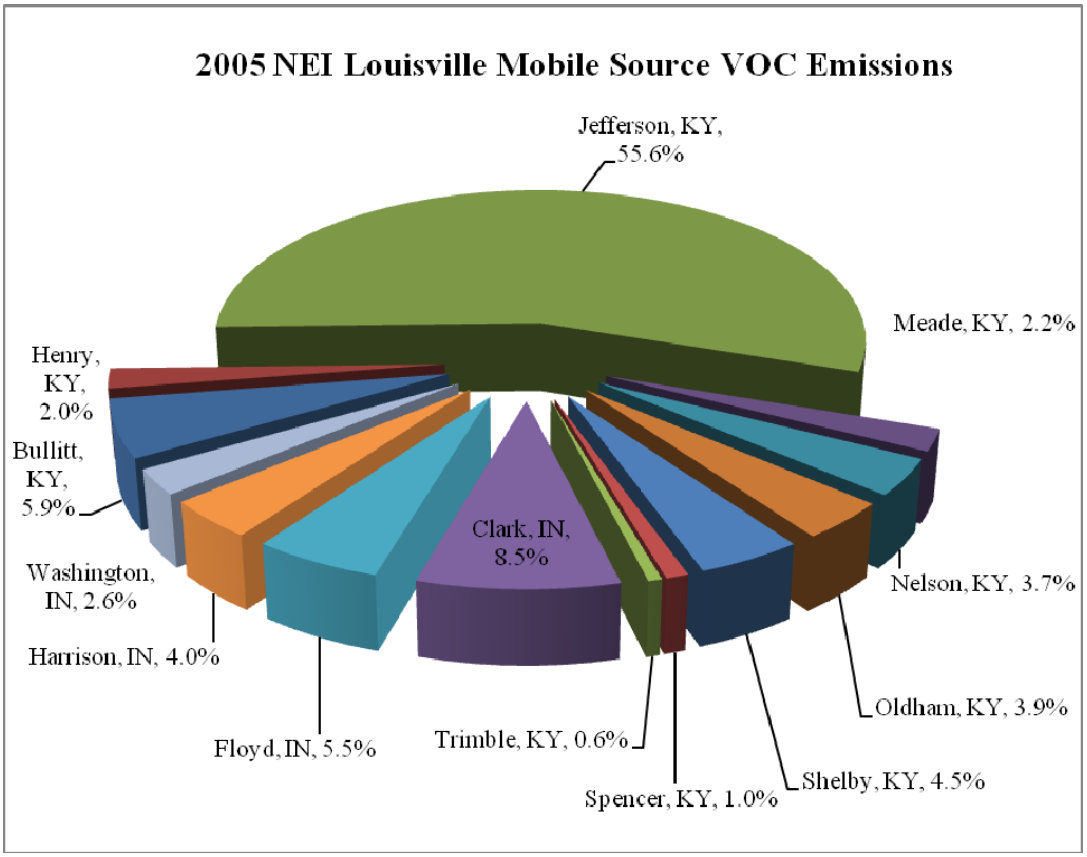
Lou-1



Lou-2



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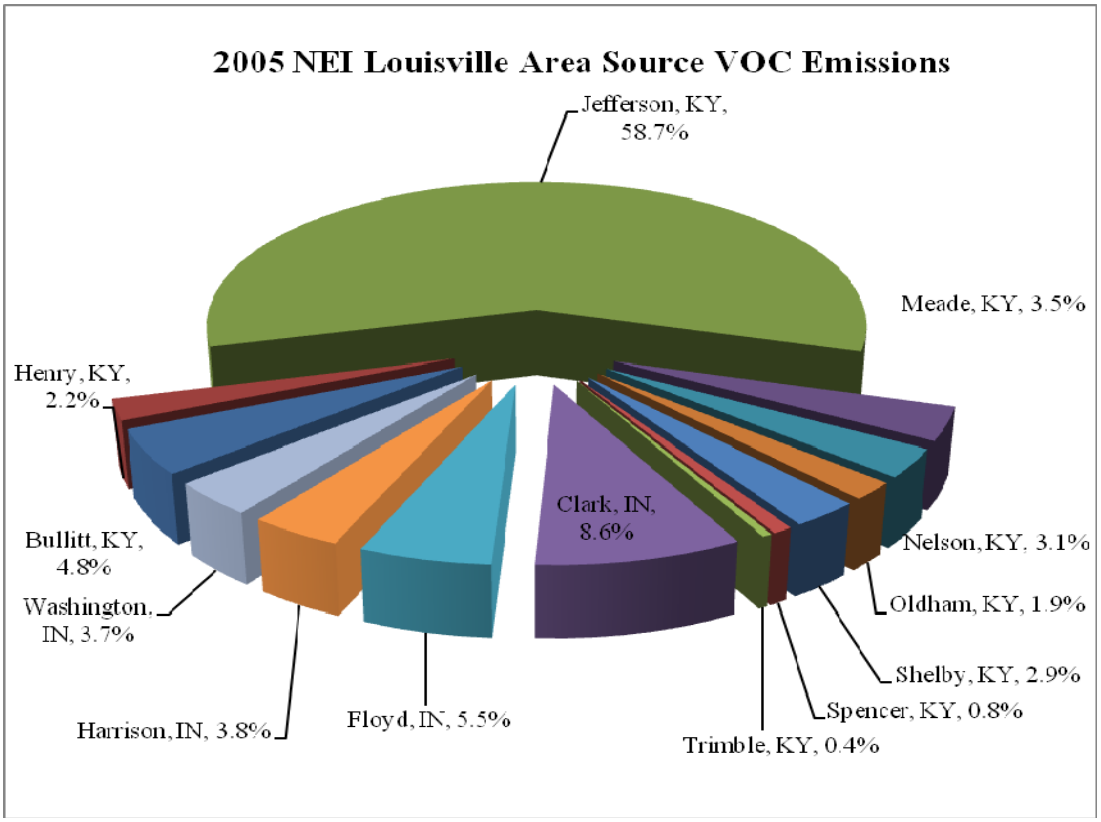

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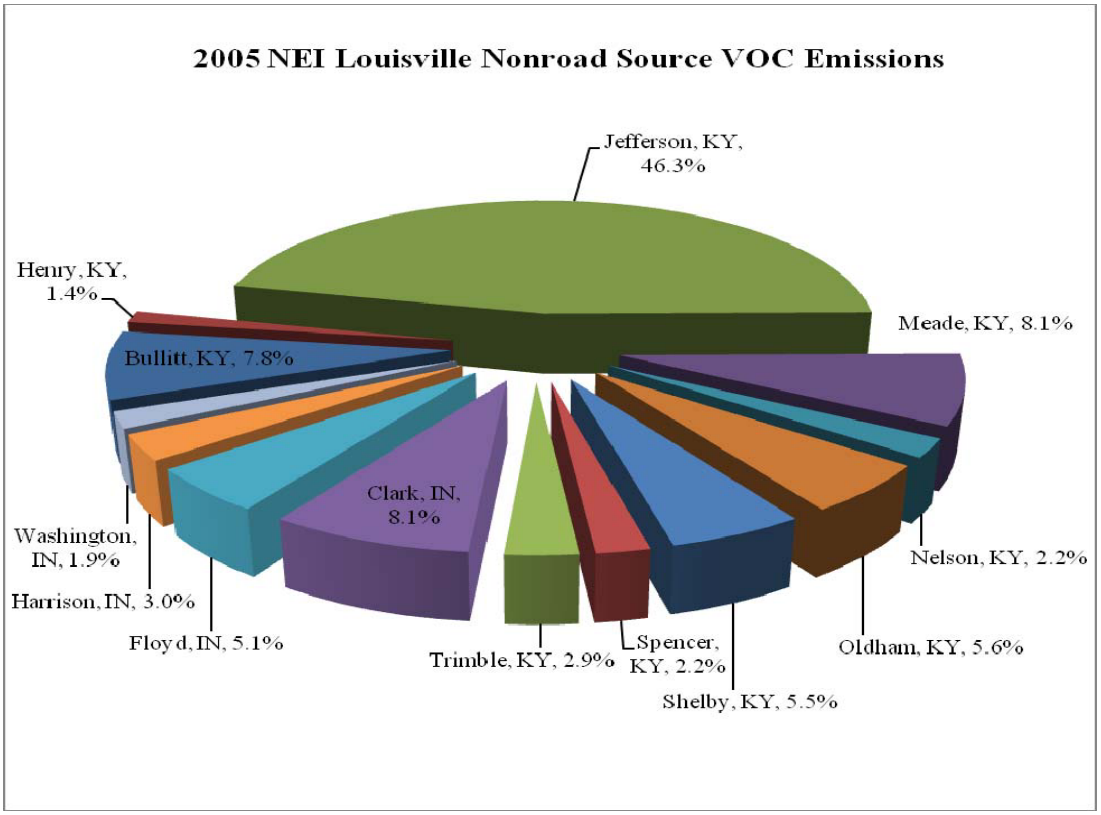

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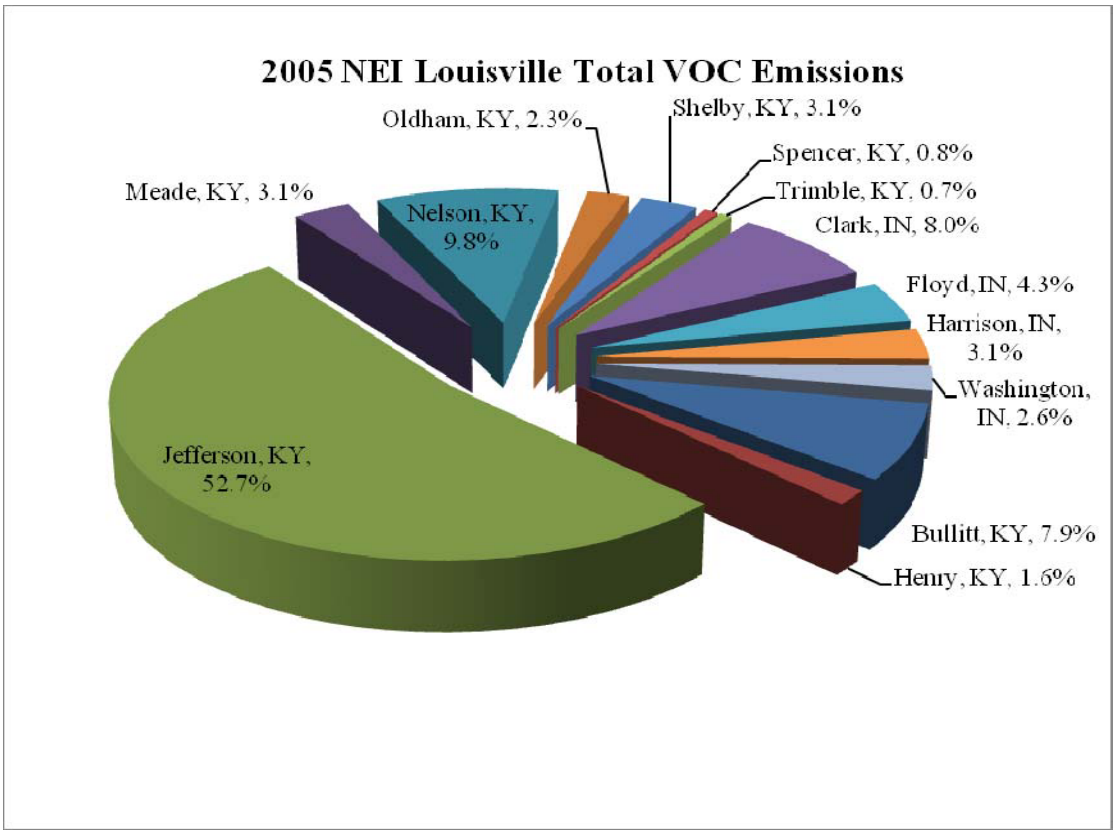
Lou-5



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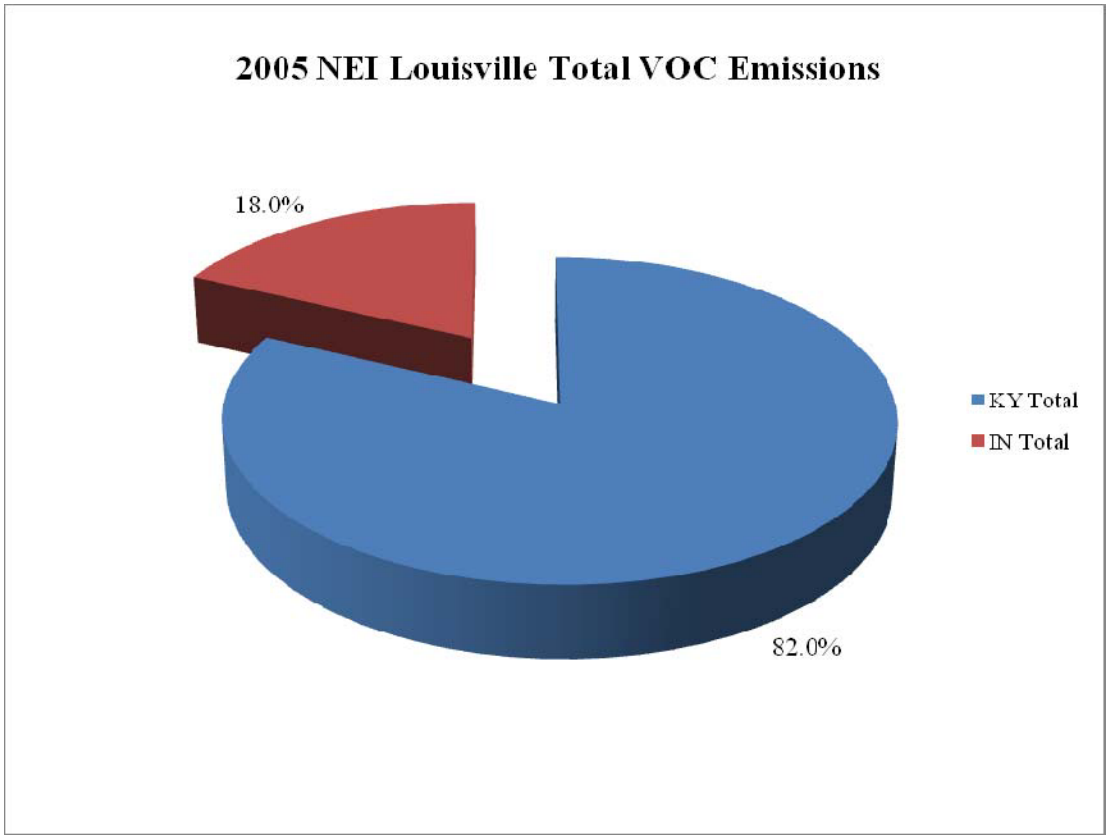

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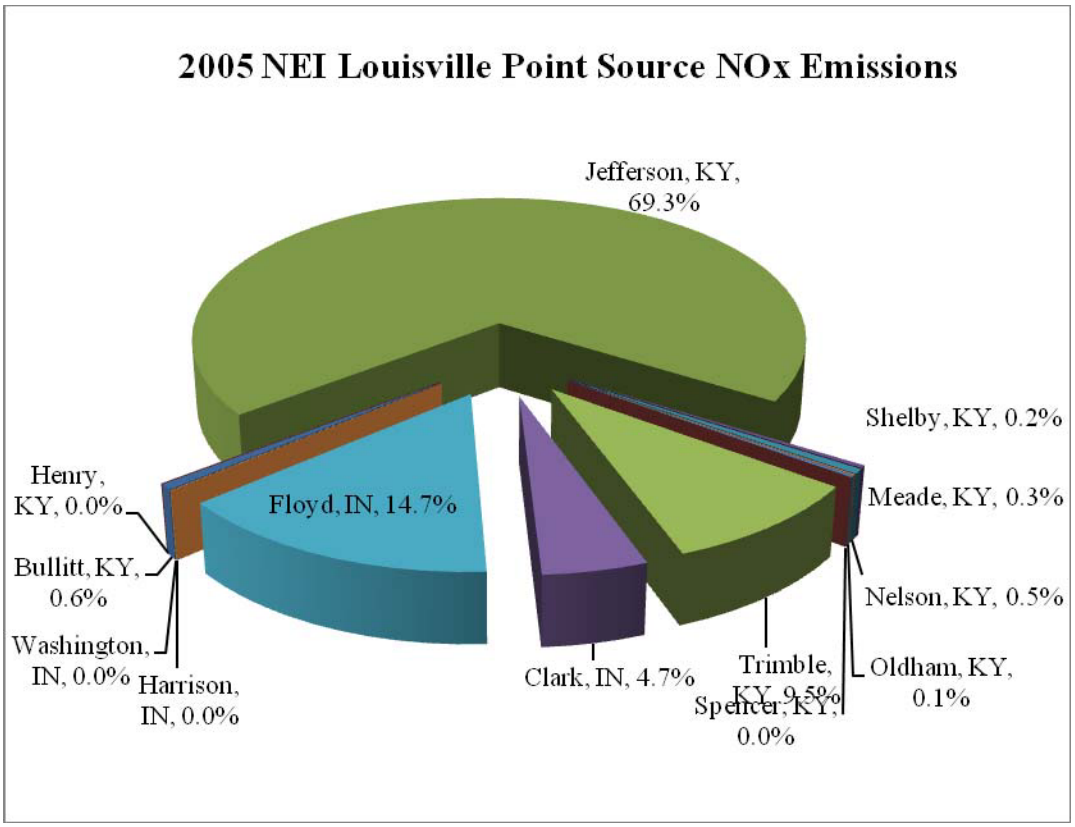
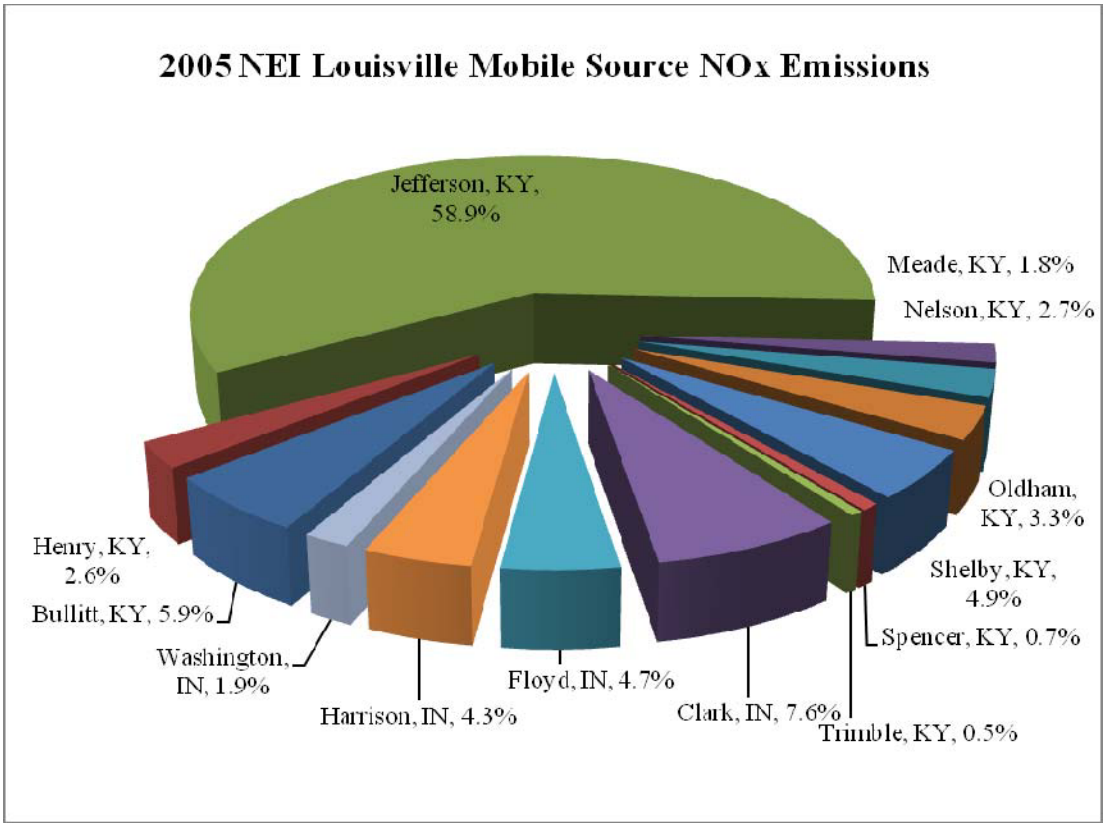


Lou-8



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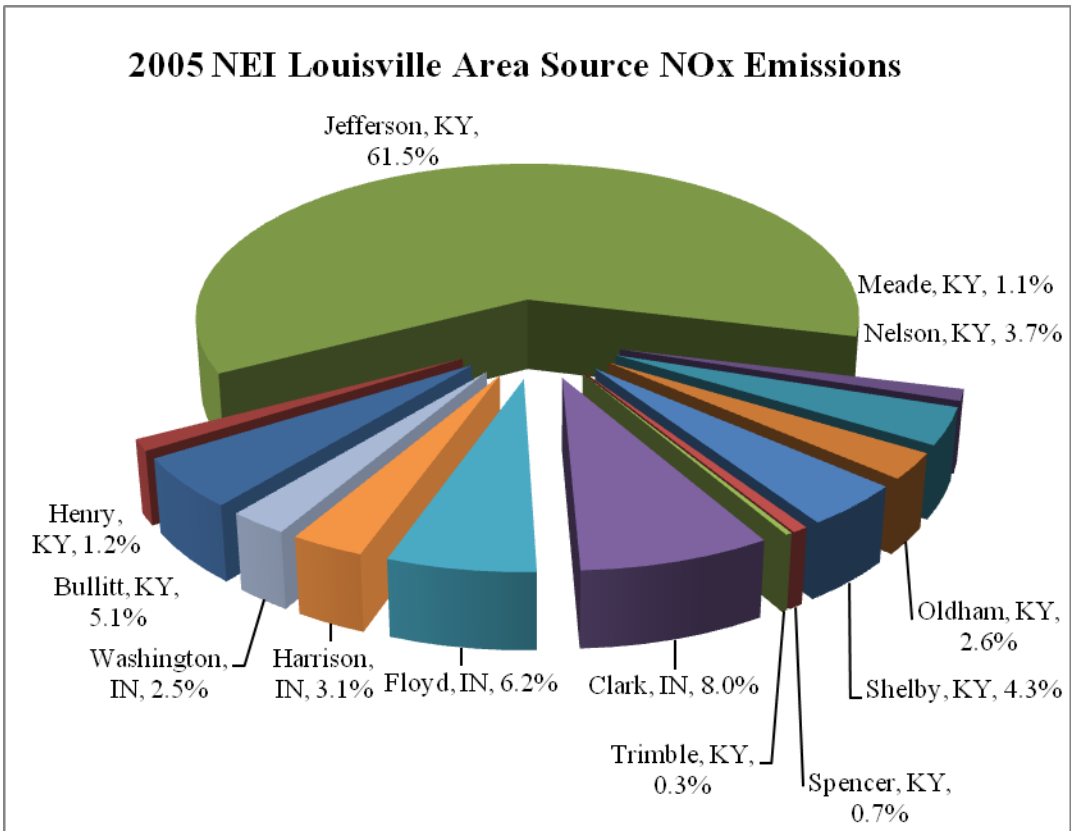
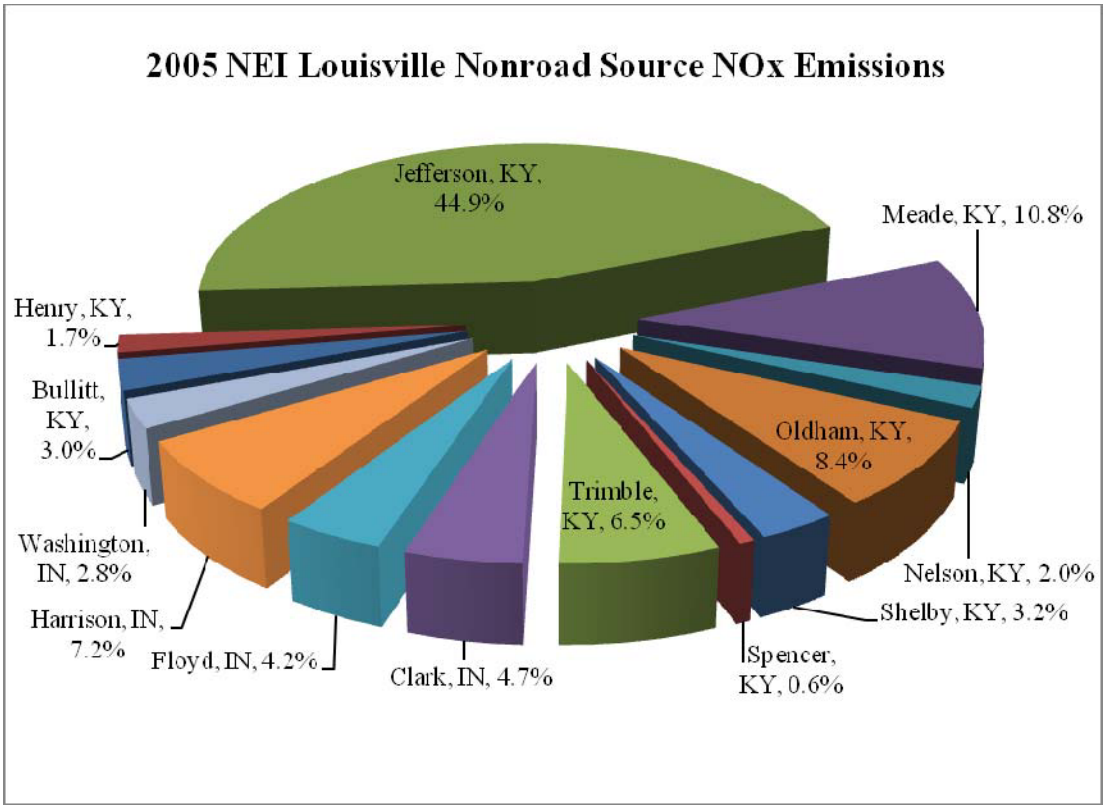
Lou-9



Lou-10



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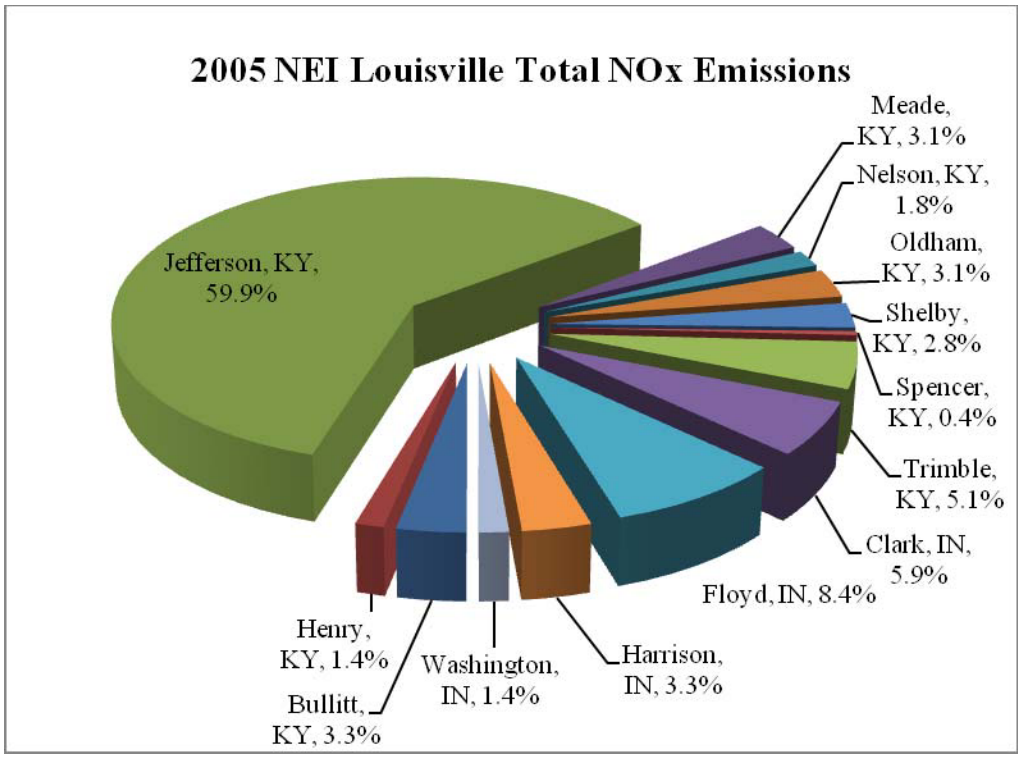
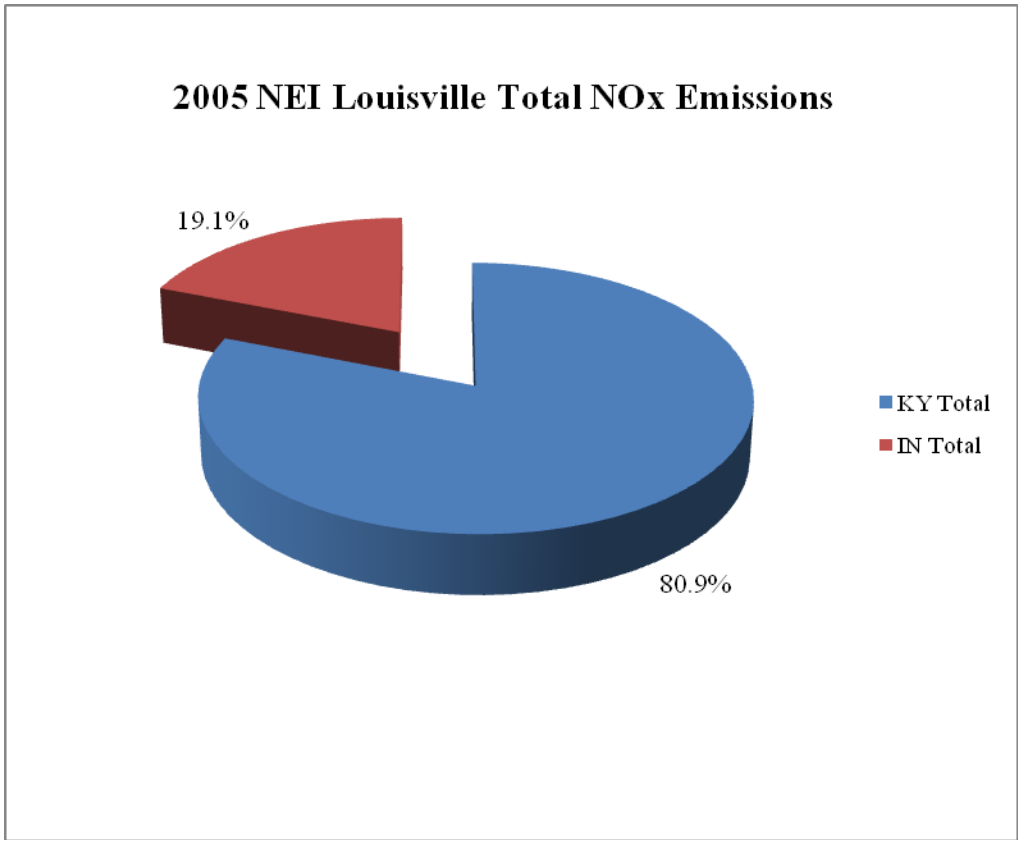
Lou-11



Lou-12



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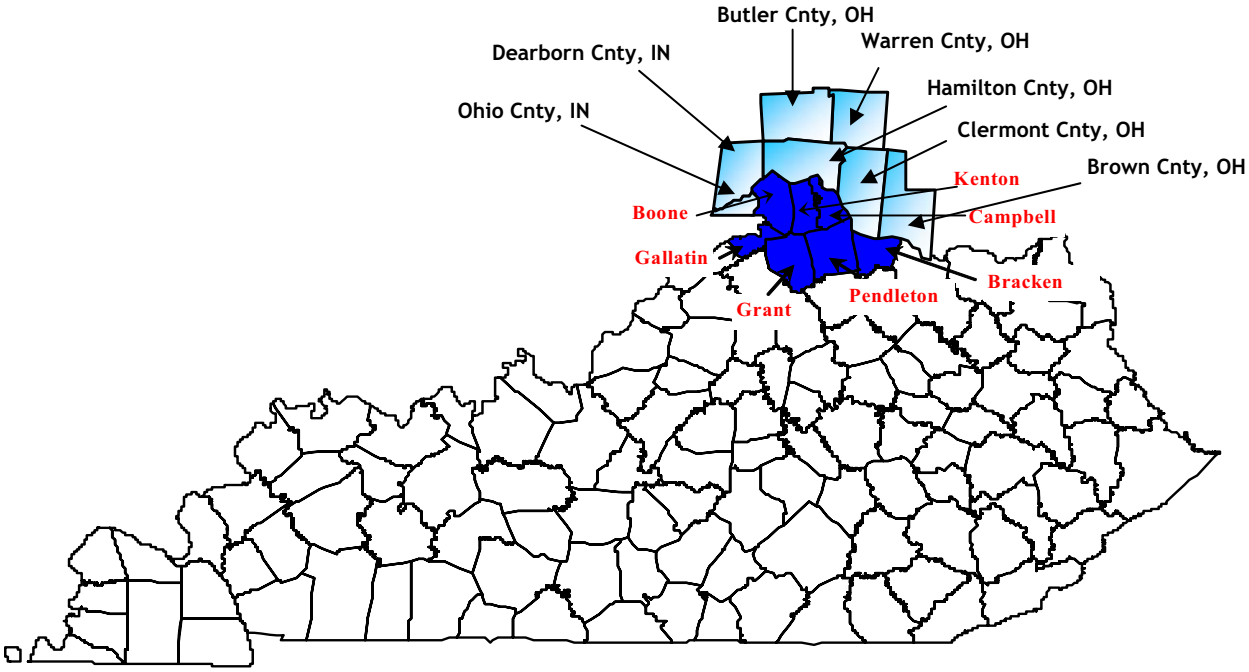
Kentucky Portion of the Cincinnati-Middletown, OH-KY-IN MSA



The Cincinnati-Middletown Metropolitan Statistical Area (MSA) is ranked as being the 24th largest MSA in the United States. This MSA encompasses three states and thirteen counties. It includes Dearborn, Franklin, and Ohio Counties in Indiana; Brown, Butler, Clermont, Hamilton, and Warren Counties in Ohio; and Boone, Bracken, Campbell, Gallatin, Grant, Kenton, and Pendleton Counties in Kentucky.

This is the northern most geographic region of Kentucky and the apex of an industrial triangle anchored by Louisville on the southwest and Lexington on the southeast. Within the triangle are more than a third of the state's population and nearly one-half of its manufacturing jobs. The interstate highway system places these three metropolitan areas within 100 miles from each other.

BOONE COUNTY, KENTUCKY

Boone County is part of the Cincinnati-Middletown, OH-KY-IN Metropolitan Statistical Area (MSA) and is located to the west of Kenton County, Kentucky, to the north of Grant County, Kentucky, to the northeast of Gallatin County, Kentucky, and to the southwest of Cincinnati, Ohio.

Geography/Topography

Boone County has a land area of 246 square miles and is located on the banks of the Ohio River in the tri-state area of Kentucky, Ohio and Indiana. The Cincinnati/Northern Kentucky International Airport, located in Boone County, provides commercial and airline service.

Meteorological Information

Wind speed and wind direction data from the Kenton County air monitoring site for the period 2006-2008 shows the majority of the time the wind in the area came from the west southwest and typically from 4-7 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 86°F, the average low was 65°F. The average precipitation for the same period was 2.7 inches.

Planning

The authority for air quality planning in the Boone County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Boone County is performed by the Ohio, Kentucky, Indiana Regional Council of Governments (OKI).

Air Monitoring

The Boone County ozone monitor (21-015-0003) shows the 3-year average (2006-2008) of the annual fourth-highest daily maximum 8-hour average ozone concentration is 0.0710 parts per million, which achieves the 8-hour ozone National Ambient Air Quality Standard (NAAQS - 0.075 ppm).

However, because preliminary data indicates violations of the 8-hour ozone NAAQS in 2006-2008 for the monitors in Kenton County, KY (21-117-0007), Butler County, OH (39-017-0004) (39-017-1004), Clermont County, OH (39-025-0022), Clinton County, OH (39-027-1002), Hamilton County, OH (39-061-0006) (39-061-0010) (39-061-0040), and Warren County, OH (39-165-0006), information for Boone County is being presented in this document.

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The monitoring information for 2008 is complete and the latest available for Boone County, Kentucky. (See table 1)

Population

Based on projections to 2006 from the 2000 census data, there are 110,080 persons living in Boone County. (See table 3) That represents approximately 447 persons per square mile. The population of Boone County is approximately 25% rural with the remaining 75% living in incorporated areas. The largest cities in Boone County are Florence and Union.

Boone County's population from 2000 through 2006 increased by approximately 28% (85,991 to 110,080). The population in the county is expected to increase overall by 63.5% between 2000 and 2015. (See table 2)

For the entire Cincinnati-Middletown, OH-KY-IN MSA, Boone County represents approximately 5.2% of the total population in the MSA and 26.9% of the Kentucky portion of the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory (NEI). (See tables 4 and 5)

Point Sources

Point source VOC emissions from Boone County were estimated at 1233.88 tpy in 2005, which represents approximately 19.9% of the total 6187.22 tpy of the overall VOC point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-1)

Point source NO_x emissions from Boone County were estimated at 5108.60 tpy in 2005, which represents approximately 7.2% of the total 70819.24 tpy of the overall NO_x point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-7)

Major point sources located within Boone County are subject to New Source Review (NSR), CTG RACT and non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and

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practical." Additionally, any controls imposed as a result of previous nonattainment designations are required to remain in Boone County.

Onroad Mobile

Onroad mobile source VOC emissions from Boone County were estimated at 1186.76 tpy in 2005, which represents approximately 4.2% of the total 28193.31 tpy of the overall VOC onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-3)

Onroad mobile source NO_x emissions from Boone County were estimated at 2467.86 tpy in 2005, which represents approximately 5.5% of the total 44982.90 tpy of the overall NO_x onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-9)

Based on 2006 information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Boone County is 68.5% and classified as significant, and the commuting traffic from Boone County into other counties is high at 47%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Boone County were estimated at 1231.38 tpy in 2005, which represents approximately 10.6% of the total 11569.21 tpy of the overall VOC Nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-4)

Nonroad mobile source NO_x emissions from Boone County were estimated at 2488.45 tpy in 2005, which represents approximately 7.8% of the total 31996.68 tpy of the overall NO_x nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-10)

Area Sources

Area source VOC emissions from Boone County were estimated at 2322.45 tpy in 2005, which represents approximately 5.0% of the total 46322.12 tpy of the overall VOC area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-2)

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Area source NO_x emissions from Boone County were estimated at 587.14 tpy in 2005, which represents approximately 8.3% of the total 7106.38 tpy of the overall NO_x area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Ohio, Kentucky, and Indiana MSA was performed using the 2005 NEI data.

Charts NKY-5 and NKY-6 provide a comparison of VOC emissions across the entire region.

Charts NKY-11 and NKY-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

Boone County, based on 2006-2008 ozone monitoring and emissions data, is meeting the 8-hour ozone standard with a 3-year average of 0.071 parts per million.

Within the Cincinnati-Middletown, OH-KY-IN MSA, Boone County contributes approximately:

- 6.5% of the total VOC emissions
- 6.9% of the total NO_x emissions

See charts NKY-6 for VOC, NKY-12 for NO_x

Based on data analysis, the pollutants of most concern regarding ozone formation are VOC and NO_x. Boone County contributes a relatively small portion of the area's VOC and NOx emissions.

This relatively small contribution is in spite of the fact that the majority of these two precursors are primarily from the East Bend Station of the Duke Power Plant near Rabbit Hash, Kentucky. This electric-generating unit has installed necessary control equipment to meet the requirements of their permit for SO_2, NO_x, and particulate, which includes wet lime slurry to control emissions of SO_2 and a modified furnace design to reduce emissions of NO_x. Making Boone County nonattainment for the 8-hour ozone standard would garner no additional controls for this facility.

Several 48-hour back trajectory HYSPLITS for Ohio and Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS

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show that for the majority of the time the air column is not impacted by Boone County and therefore does not affect the violating monitor.

The emissions from Boone do not significantly contribute to the ozone violations of the 8-hour standard in the MSA.

Therefore, based on the monitoring and emission data, Boone County is providing a negligible contribution to ozone levels in the area and should be designated attainment for the 8-hour ozone standard.

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BRACKEN COUNTY, KENTUCKY

Bracken County is part of the Cincinnati-Middletown, OH-KY-IN Metropolitan Statistical Area (MSA) and is located directly between Pendleton County to the west and Mason County to the east. Robertson County is to the south. Clermont and Brown Counties, Ohio are directly to the north across the Ohio River.

Geography/Topography

Bracken County has a land area of 203 square miles and is located on the banks of the Ohio River in the tri-state area of Kentucky, Ohio and Indiana. The Ohio River forms the northern boundary of the county. The North Fork of the Licking River forms the southern boundary.

Meteorological Information

Wind speed and wind direction data collected by the Division for the period 2006-2008 shows that the majority of the time the wind in the area came from the west southwest and typically from 4-7 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 86°F, the average low was 65°F. The average precipitation for the same period was 2.68 inches.

Planning

The authority for air quality planning in the Bracken County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Bracken County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006 – 2008 monitoring period, there were no ozone monitors located in Bracken County.

However, because preliminary data indicates violations of the 8-hour ozone NAAQS in 2006-2008 for the monitors in Kenton County, KY (21-117-0007), Butler County, OH (39-017-0004) (39-017-1004), Clermont County, OH (39-025-0022), Clinton County, OH (39-027-1002), Hamilton County, OH (39-061-0006) (39-061-0010) (39-061-0040), and Warren County, OH (39-165-0006), information for Bracken County is being presented in this document.

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The monitoring information for 2008 is complete and the latest available for Kentucky. (See table 1)

Population

Based on projections to 2006 from the 2000 census data, there are 8,655 persons living in Bracken County. (See table 3) That represents approximately 43 persons per square mile. The population of Bracken County is approximately 100% rural with few people living in incorporated areas. The largest cities in Bracken County are Augusta and Brooksville.

Bracken County's population from 2000 through 2006 increased by approximately 4.5% (8,279 to 8,655). The population in the county is expected to increase overall by 10.8% between 2000 and 2015. (See table 2)

For the entire Cincinnati-Middletown, OH-KY-IN MSA, Bracken County represents approximately 0.4% of the total population in the MSA and 2.1% of the Kentucky portion of the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory (NEI). (See tables 4 and 5)

Point Sources

Point source VOC emissions from Bracken County were estimated at 13.48 tpy in 2005, which represents approximately 0.2% of the total 6187.22 tpy of the overall VOC point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-1)

Point source NO_x emissions from Bracken County were estimated at 4.75 tpy in 2005, which represents slightly greater than zero percent of the total 70819.24 tpy of the overall NO_x point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-7)

Major point sources located within Bracken County are subject to New Source Review (NSR), CTG RACT and non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical." Additionally, any controls imposed as a result of previous nonattainment designations are required to remain in Boone County.

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Onroad Mobile

Onroad mobile source VOC emissions from Bracken County were estimated at 126.35 tpy in 2005, which represents approximately 0.4% of the total 28193.31 tpy of the overall VOC onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-3)

Onroad mobile source NO_x emissions from Bracken County were estimated at 196.19 tpy in 2005, which represents approximately 0.4% of the total 44982.90 tpy of the overall NO_x onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-9)

Based on 2006 information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Bracken County is 34% and classified as high, and the commuting traffic from Bracken County into other counties is significant at 67%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Bracken County were estimated at 148.96 tpy in 2005, which represents approximately 1.3% of the total 11569.21 tpy of the overall VOC Nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-4)

Nonroad mobile source NO_x emissions from Bracken County were estimated at 270.64 tpy in 2005, which represents approximately 0.8% of the total 31996.68 tpy of the overall NO_x nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-10)

Area Sources

Area source VOC emissions from Bracken County were estimated at 160.08 tpy in 2005, which represents approximately 0.3% of the total 46322.12 tpy of the overall VOC area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-2)

Area source NO_x emissions from Bracken County were estimated at 21.66 tpy in 2005, which represents approximately 0.3% of the total 7106.38 tpy of the

overall NO_x area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Ohio, Kentucky, and Indiana MSA was performed using the 2005 NEI data.

Charts NKY-5 and NKY-6 provide a comparison of VOC emissions across the entire region.

Charts NKY-11 and NKY-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006 – 2008 monitoring period, there were no ozone monitors located in Bracken County.

Within the Cincinnati-Middletown, OH-KY-IN MSA, Bracken County contributes approximately:

- 0.5% of the total VOC emissions
- 0.3% of the total NO_x emissions

See charts NKY-6 for VOC, NKY-12 for NO_x.

Several 48-hour back trajectory HYSPLITS for Ohio and Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Boone County and therefore does not affect the violating monitor.

The emissions from Bracken County compared to the remainder of the MSA are negligible and do not significantly contribute to the 8-hour ozone standard in the MSA.

Therefore, based on the monitoring and emission data, Bracken County is providing a negligible contribution to ozone levels in the area and should be designated attainment for the 8-hour ozone standard.

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CAMPBELL COUNTY, KENTUCKY

Campbell County is part of the Cincinnati-Middletown, OH-KY-IN Metropolitan Statistical Area (MSA) and is located to the east of Kenton County, Kentucky, to the north of Pendleton County, Kentucky, and to the southeast of Cincinnati, Ohio.

Geography/Topography

Campbell County has a land area of 151 square miles and is located on the banks of the Ohio River in the tri-state area of Kentucky, Ohio and Indiana. The I-275 belt line surrounds the Cincinnati-Northern Kentucky Area, traversing, Boone, Kenton, and Campbell Counties. Interstate 471 extends from I-275 in Campbell county north across the Ohio River to I-71.

Meteorological Information

Wind speed and wind direction information collected by the Division for the period 2006–2008 shows the majority of the time the wind in the area came from the west southwest and typically from 4-7 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 86°F, the average low was 65°F. The average precipitation for the same period was 2.7 inches.

Planning

The authority for air quality planning in the Campbell County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Campbell County is performed by the Ohio, Kentucky, Indiana Regional Council of Governments (OKI).

Air Monitoring

A three-year-average is not available for the Campbell County ozone monitor. No data was collected for the majority of 2006, as the Division was asked by the property owner to vacate the site. A new Campbell County site was established August 1, 2007.

The Boone County ozone monitor (21-015-0003) shows the 3-year average (2006-2008) of the annual fourth-highest daily maximum 8-hour average ozone concentration is 0.0710 parts per million, which achieves the 8-hour ozone National Ambient Air Quality Standard (NAAQS - 0.075 ppm).

However, because preliminary data indicates violations of the 8-hour ozone NAAQS in 2006-2008 for the monitors in Kenton County, KY (21-117-0007), Butler County, OH (39-017-0004) (39-017-1004), Clermont County, OH (39-025-0022), Clinton County, OH (39-027-1002), Hamilton County, OH (39-061-0006) (39-061-0010) (39-061-0040), and Warren County, OH (39-165-0006), information for Campbell County is being presented in this document.

The monitoring information for 2008 is complete and the latest available for Kentucky. (See table 1)

Population

Based on projections to 2006 from the 2000 census data, there are 86,866 persons living in Campbell County. (See table 3) That represents approximately 575 persons per square mile. The population of Campbell County is approximately 15.7% rural with the remaining 84.3% living in incorporated areas. The largest cities in Campbell County are Newport and Ft. Thomas.

Campbell County's population from 2000 through 2006 *decreased* by approximately 2.0% (88,616 to 86,866). The population in the county is generally expected to increase overall by 8.1% between 2000 and 2015. (See table 2)

For the entire Cincinnati-Middletown, OH-KY-IN MSA, Campbell County represents approximately 4.1% of the total population in the MSA and 21.3% of the Kentucky portion of the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory (NEI). (See tables 4 and 5)

Point Sources

Point source VOC emissions from Campbell County were estimated at 160.80 tpy in 2005, which represents approximately 2.6% of the total 6187.22 tpy of the overall VOC point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-1)

Point source NO_x emissions from Campbell County were estimated at 66.97 tpy in 2005, which represents approximately 0.1% of the total 70819.24 tpy of the overall NO_x point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-7)

Major point sources located within Campbell County are subject to New Source Review (NSR), CTG RACT and non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources

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are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical." Additionally, any controls imposed as a result of previous nonattainment designations are required to remain in Boone County.

Onroad Mobile

Onroad mobile source VOC emissions from Campbell County were estimated at 1144.84 tpy in 2005, which represents approximately 4.1% of the total 28193.31 tpy of the overall VOC onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-3)

Onroad mobile source NO_x emissions from Campbell County were estimated at 1945.18 tpy in 2005, which represents approximately 4.3% of the total 44982.90 tpy of the overall NO_x onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-9)

Based on information obtained from the Kentucky Transportation Cabinet on July 23, 2007, commuting traffic from other counties into Campbell County is 42.5% and classified as high, and the commuting traffic from Campbell County into other counties is significant at 63.9%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Campbell County were estimated at 404.06 tpy in 2005, which represents approximately 3.5% of the total 11569.21 tpy of the overall VOC Nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-4)

Nonroad mobile source NO_x emissions from Campbell County were estimated at 1777.01 tpy in 2005, which represents approximately 5.6% of the total 31996.68 tpy of the overall NO_x nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-10)

Area Sources

Area source VOC emissions from Campbell County were estimated at 1312.94 tpy in 2005, which represents approximately 2.8% of the total 46322.12 tpy of

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the overall VOC area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-2)

Area source NO_x emissions from Campbell County were estimated at 284.52 tpy in 2005, which represents approximately 4.0% of the total 7106.38 tpy of the overall NO_x area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Ohio, Kentucky, and Indiana MSA was performed using the 2005 NEI data.

Charts NKY-5 and NKY-6 provide a comparison of VOC emissions across the entire region.

Charts NKY-11 and NKY-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

A three-year-average is not available for the Campbell County ozone monitor. No data was collected for the majority of 2006, as the Division was asked by the property owner to vacate the site. A new Campbell County site was established August 1, 2007.

Within the Cincinnati-Middletown, OH-KY-IN MSA, Campbell County contributes approximately:

- 3.3% of the total VOC emissions
- 2.6% of the total NO_x emissions

See charts NKY-6 for VOC, NKY-12 for NO_x.

Based on data analysis, the pollutants of most concern regarding ozone formation are VOC and NO_x. Campbell County contributes a relatively very small portion of the area's VOC and NOx emissions.

Several 48-hour back trajectory HYSPLITS for Ohio and Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Boone County and therefore does not affect the violating monitor.

The emissions from Campbell County compared to the remainder of the MSA are negligible and do not significantly contribute to the ozone violations of the 8-hour standard in the MSA.

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Therefore, based on the monitoring and emissions, data Campbell County should be designated attainment for the 8-hour ozone standard.

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KENTON COUNTY, KENTUCKY

Kenton County is part of the Cincinnati-Middletown, OH-KY-IN Metropolitan Statistical Area (MSA) and is located to the west of Campbell County, Kentucky, to the east of Boone County, Kentucky, and to the south of Cincinnati, Ohio.

Geography/Topography

Kenton County has a land area of 162 square miles and is located on the banks of the Ohio River in the tri-state area of Kentucky, Ohio and Indiana.

Meteorological Information

Wind speed and wind direction data collected by the Division for the period 2006-2008 shows that the majority of the time the wind in the area came from the west southwest and typically from 4-7 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 86°F, the average low was 65°F. The average precipitation for the same period was 2.7 inches.

Planning

The authority for air quality planning in the Kenton County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Kenton County is performed by the Ohio, Kentucky, Indiana Regional Council of Governments (OKI).

Air Monitoring

The ozone monitor in Kenton County shows the 3-year average (2006-2008) of the annual 98th percentile of the 8-hour average is 0.078 parts per million, which does not achieve the ozone annual National Ambient Air Quality Standard (NAAQS – 0.075 ppm).

Also, preliminary data indicates violations of the 8-hour ozone NAAQS in 2006-2008 for the monitors in Butler County, OH (39-017-0004) (39-017-1004), Clermont County, OH (39-025-0022), Clinton County, OH (39-027-1002), Hamilton County, OH (39-061-0006) (39-061-0010) (39-061-0040), and Warren County, OH (39-165-0006), information for Kenton County is being presented in this document.

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The monitoring information for 2008 is complete for Kenton County, Kentucky and is the latest available. (See table 1)

Population

Based on projections to 2006 from the 2000 census data, there are 154,911 persons living in Kenton County. That represents approximately 956 persons per square mile. The population of Kenton County is approximately 7% rural with the remaining 93% living in incorporated areas. The largest cities in Kenton County are Covington and Independence.

Kenton County's population from 2000 through 2006 increased by approximately 2.3% (151,464 to 154,911). The population in the county is further expected to increase overall by 5% between 2000 and 2015. (See table 2)

For the entire Cincinnati-Middletown MSA, Kenton County represents approximately 7.4% of the total population in the MSA and 37.9% of the Kentucky portion of the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory (NEI). (See tables 4 and 5)

Point Source

Point source VOC emissions from Kenton County were estimated at 252.61 tpy in 2005, which represents approximately 4.1% of the total 6187.22 tpy of the overall VOC point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-1)

Point source NO_x emissions from Kenton County were estimated at 34.29 tpy in 2005, which represents slightly greater than zero percent of the total 70819.24 tpy of the overall NO_x point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-7)

Major point sources located within Kenton County are subject to New Source Review (NSR), CTG RACT and non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical." Additionally, any controls imposed as a result of previous nonattainment designations are required to remain in Boone County.

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Onroad Mobile

Onroad mobile source VOC emissions from Kenton County were estimated at 1899.24 tpy in 2005, which represents approximately 6.7% of the total 28193.31 tpy of the overall VOC onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-3)

Onroad mobile source NO_x emissions from Kenton County were estimated at 3266.24 tpy in 2005, which represents approximately 7.3% of the total 44982.90 tpy of the overall NO_x onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-9)

Based on 2006 information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Kenton County is 57.8% and classified as significant, and the commuting traffic from Kenton County into other counties is significant at 54.8%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Kenton County were estimated at 641.83 tpy in 2005, which represents approximately 5.5% of the total 11569.21 tpy of the overall VOC Nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-4)

Nonroad mobile source NO_x emissions from Kenton County were estimated at 2402.39 tpy in 2005, which represents approximately 7.5% of the total 31996.68 tpy of the overall NO_x nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-10)

Area Sources

Area source VOC emissions from Kenton County were estimated at 2788.86 tpy in 2005, which represents approximately 6.0% of the total 46322.12 tpy of the overall VOC area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-2)

Area source NO_x emissions from Kenton County were estimated at 543.70 tpy in 2005, which represents approximately 7.7% of the total 7106.38 tpy of the overall NO_x area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-8)

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Comparison of Total Emissions

A comparison of total emissions across the entire Ohio, Kentucky, and Indiana MSA was performed using the 2005 NEI data.

Charts NKY-5 and NKY-6 provide a comparison of VOC emissions across the entire region.

Charts NKY-11 and NKY-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006 – 2008 monitoring period, the Kenton County ozone monitor shows an 8-hour annual design value of 0.078 parts per million, which does not achieve the National Ambient Air Quality Standard (NAAQS) and should be classified as a county in nonattainment.

Within the Cincinnati-Middletown, OH-KY-IN MSA, Kenton County contributes approximately:

- 6.1% of the total VOC emissions
- 4.0% of the total NO_x emissions

See charts NKY-6 for VOC, NKY-12 for NO_x.

Based on data analysis, the pollutants of most concern regarding ozone formation are VOC and NO_x. Kenton County contributes a relatively very small portion of the area's VOC and NOx emissions.

The emissions from Kenton County compared to the remainder of the MSA are negligible and do not significantly contribute to the violations of the 8-hour ozone standard in the MSA.

Based on the monitoring data showing a violation, Kenton County should be designated nonattainment for the 8-hour ozone standard.

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GALLATIN COUNTY, KENTUCKY

Gallatin County is part of the Cincinnati-Middletown, OH-KY-IN Metropolitan Statistical Area (MSA) and is located to the southwest of Boone County, Kentucky, and to the northwest of Owen and Grant Counties, Kentucky.

Geography/Topography

Gallatin County has a land area of 98 square miles and is located on the banks of the Ohio River in the tri-state area of Kentucky, Ohio and Indiana.

Meteorological Information

Wind speed and wind direction data collected by the Division for the period 2006-2008 shows that the majority of the time the wind in the area came from the west southwest and typically from 4-7 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 86°F, the average low was 65°F. The average precipitation for the same period was 2.7 inches.

Planning

The authority for air quality planning in the Gallatin County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Gallatin County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006 – 2008 monitoring period, there were no ozone monitors located in Gallatin County.

However, because preliminary data indicates violations of the 8-hour ozone NAAQS in 2006-2008 for the monitors in Kenton County, KY (21-117-0007), Butler County, OH (39-017-0004) (39-017-1004), Clermont County, OH (39-025-0022), Clinton County, OH (39-027-1002), Hamilton County, OH (39-061-0006) (39-061-0010) (39-061-0040), and Warren County, OH (39-165-0006), information for Gallatin County is being presented in this document.

The monitoring information for 2008 is complete and the latest available for Kentucky. (See table 1)

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Population

Based on projections to 2006 from the 2000 census data, there are 8,153 persons living in Gallatin County. (See table 3) That represents approximately 83 persons per square mile. The population of Gallatin County is approximately 100% rural with few people living in incorporated areas. The largest cities in Gallatin County are Warsaw and Glencoe.

Gallatin County's population from 2000 through 2006 increased by approximately 3.6% (7,870 to 8,153). The population in the county is expected to increase overall by 28.8% between 2000 and 2015. (See table 2)

For the entire Cincinnati-Middletown, OH-KY-IN MSA, Gallatin County represents less than 0.4% of the total population in the MSA and 2% of the Kentucky portion of the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory (NEI). (See tables 4 and 5)

Point Sources

Point source VOC emissions from Gallatin County were estimated at 111.37 tpy in 2005, which represents approximately 1.8% of the total 6187.22 tpy of the overall VOC point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-1)

Point source NO_x emissions from Gallatin County were estimated at 208.31 tpy in 2005, which represents approximately 0.3% of the total 70819.24 tpy of the overall NO_x point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-7)

Major point sources located within Gallatin County are subject to New Source Review (NSR), CTG RACT and non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical." Additionally, any controls imposed as a result of previous nonattainment designations are required to remain in Boone County.

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Onroad Mobile

Onroad mobile source VOC emissions from Gallatin County were estimated at 348.21 tpy in 2005, which represents approximately 1.2% of the total 28193.31 tpy of the overall VOC onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-3)

Onroad mobile source NO_x emissions from Gallatin County were estimated at 977.12 tpy in 2005, which represents approximately 2.2% of the total 44982.90 tpy of the overall NO_x onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-9)

Based on 2006 information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Gallatin County is 80.2% and classified as significant, and the commuting traffic from Gallatin County into other counties is significant at 73.4%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Gallatin County were estimated at 151.13 tpy in 2005, which represents approximately 1.3% of the total 11569.21 tpy of the overall VOC Nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-4)

Nonroad mobile source NO_x emissions from Gallatin County were estimated at 916.15 tpy in 2005, which represents approximately 2.9% of the total 31996.68 tpy of the overall NO_x nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-10)

Area Sources

Area source VOC emissions from Gallatin County were estimated at 208.69 tpy in 2005, which represents approximately 0.5% of the total 46322.12 tpy of the overall VOC area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-2)

Area source NO_x emissions from Gallatin County were estimated at 22.06 tpy in 2005, which represents approximately 0.3% of the total 7106.38 tpy of the overall NO_x area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Ohio, Kentucky, and Indiana MSA was performed using the 2005 NEI data.

Charts NKY-5 and NKY-6 provide a comparison of VOC emissions across the entire region.

Charts NKY-11 and NKY-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006 – 2008 monitoring period, there were no ozone monitors located in Gallatin County.

Within the Cincinnati-Middletown, OH-KY-IN MSA, Gallatin County contributes approximately:

- 0.9% of the total VOC emissions
- 1.4% of the total NO_x emissions

See charts NKY-6 for VOC, NKY-12 for NO_x.

Several 48-hour back trajectory HYSPLITS for Ohio and Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Boone County and therefore does not affect the violating monitor.

The emissions from Gallatin County compared to the remainder of the MSA are negligible and do not significantly contribute to the violations of the 8-hour ozone standard in the MSA.

Therefore, based on the monitoring and emissions data, Gallatin County should be designated attainment for the 8-hour ozone standard.

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GRANT COUNTY, KENTUCKY

Grant County is part of the Cincinnati-Middletown, OH-KY-IN Metropolitan Statistical Area (MSA) and is located to the southeast of Gallatin County, Kentucky, to the west of Pendleton County, Kentucky, and directly north of Scott County, Kentucky.

Geography/Topography

Grant County has a land area of 259 square miles and is located in the tri-state area of Kentucky, Ohio and Indiana. This north central section of Kentucky is the Outer Blue Grass Region.

Meteorological Information

Wind speed and wind direction data collected by the Division for the period 2006-2008 shows that the majority of the time the wind in the area came from the west southwest and typically from 4-7 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 86°F, the average low was 65°F. The average precipitation for the same period was 2.7 inches.

Planning

The authority for air quality planning in the Grant County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Grant County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006 – 2008 monitoring period, there were no ozone monitors located in Grant County.

However, because preliminary data indicates violations of the 8-hour ozone NAAQS in 2006-2008 for the monitors in Kenton County, KY (21-117-0007), Butler County, OH (39-017-0004) (39-017-1004), Clermont County, OH (39-025-0022), Clinton County, OH (39-027-1002), Hamilton County, OH (39-061-0006) (39-061-0010) (39-061-0040), and Warren County, OH (39-165-0006), information for Grant County is being presented in this document.

The monitoring information for 2008 is complete and the latest available for Kentucky. (See table 1)

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Population

Based on projections to 2006 from the 2000 census data, there are 24,769 persons living in Grant County. That represents approximately 96 persons per square mile. The population of Grant County is approximately 78% rural with the remaining 22% living in incorporated areas. The largest cities in Grant County are Williamstown and Crittenden. (See table 3)

Grant County's population from 2000 through 2006 increased by approximately 10.7% (22,384 to 24,769). The population in the county is expected to increase overall by 40.6% between 2000 and 2015. (See table 2)

For the entire Cincinnati-Middletown MSA, Grant County represents approximately 1.2% of the total population in the MSA and 6% of the Kentucky portion of the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory (NEI). (See tables 4 and 5)

Point Sources

Point source VOC emissions from Grant County were estimated at 42.40 tpy in 2005, which represents slightly greater than zero percent of the total 6187.22 tpy of the overall VOC point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-1)

Point source NO_x emissions from Grant County were estimated at 25.88 tpy in 2005, which represents slightly greater than zero percent of the total 70819.24 tpy of the overall NO_x point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-7)

Major point sources located within Grant County are subject to New Source Review (NSR), CTG RACT and non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical." Additionally, any controls imposed as a result of previous nonattainment designations are required to remain in Boone County.

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Onroad Mobile

Onroad mobile source VOC emissions from Grant County were estimated at 547.97 tpy in 2005, which represents approximately 1.9% of the total 28193.31 tpy of the overall VOC onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-3)

Onroad mobile source NO_x emissions from Grant County were estimated at 1435.85 tpy in 2005, which represents approximately 3.2% of the total 44982.90 tpy of the overall NO_x onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-9)

Based on 2006 information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Grant County is 41.8% and classified as High, and the commuting traffic from Grant County into other counties is significant at 69.1%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Grant County were estimated at 299.02 tpy in 2005, which represents approximately 2.6% of the total 11569.21 tpy of the overall VOC Nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-4)

Nonroad mobile source NO_x emissions from Grant County were estimated at 1194.84 tpy in 2005, which represents approximately 3.7% of the total 31996.68 tpy of the overall NO_x nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-10)

Area Sources

Area source VOC emissions from Grant County were estimated at 558.90 tpy in 2005, which represents approximately 1.2% of the total 46322.12 tpy of the overall VOC area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-2)

Area source NO_x emissions from Grant County were estimated at 96.83 tpy in 2005, which represents approximately 1.4% of the total 7106.38 tpy of the overall NO_x area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Ohio, Kentucky, and Indiana MSA was performed using the 2005 NEI data.

Charts NKY-5 and NKY-6 provide a comparison of VOC emissions across the entire region.

Charts NKY-11 and NKY-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006 – 2008 monitoring period, there were no ozone monitors located in Grant County.

Within the Cincinnati-Middletown, OH-KY-IN MSA, Grant County contributes approximately:

- 1.6% of the total VOC emissions
- 1.8% of the total NO_x emissions

See charts NKY-6 for VOC, NKY-12 for NO_x.

Several 48-hour back trajectory HYSPLITS for Ohio and Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Boone County and therefore does not affect the violating monitor.

The emissions from Grant County compared to the remainder of the MSA are negligible and do not significantly contribute to the violations of the 8-hour ozone standard in the MSA.

Therefore, based on the monitoring and emissions data Grant County should be designated attainment for the 8-hour ozone standard.

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PENDLETON COUNTY, KENTUCKY

Pendleton County is part of the Cincinnati-Middletown, OH-KY-IN Metropolitan Statistical Area (MSA) and is located directly south of Kenton and Campbell Counties, Kentucky, and to the east of Grant County, Kentucky.

Geography/Topography

Pendleton County has a land area of 280 square miles and is located on the banks of the Ohio River in the tri-state area of Kentucky, Ohio and Indiana. The Licking River flows northward through the central area of the county.

Meteorological Information

Wind speed and wind direction data collected by the Division for the period 2006-2008 shows that the majority of the time the wind in the area came from the west southwest and typically from 4-7 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 86°F, the average low was 65°F. The average precipitation for the same period was 2.7 inches.

Planning

The authority for air quality planning in the Pendleton County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Pendleton County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006 – 2008 monitoring period, there were no ozone monitors located in Pendleton County.

However, because preliminary data indicates violations of the 8-hour ozone NAAQS in 2006-2008 for the monitors in Kenton County, KY (21-117-0007), Butler County, OH (39-017-0004) (39-017-1004), Clermont County, OH (39-025-0022), Clinton County, OH (39-027-1002), Hamilton County, OH (39-061-0006) (39-061-0010) (39-061-0040), and Warren County, OH (39-165-0006), information for Pendleton County is being presented in this document.

The monitoring information for 2008 is complete and the latest available for Kentucky. (See table 1)

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Population

Based on projections to 2006 from the 2000 census data, there are 15,334 persons living in Pendleton County. (See table 3) That represents approximately 55 persons per square mile. The population of Pendleton County is approximately 100% rural with few people living in incorporated areas. The largest cities in Pendleton County are Falmouth and Butler.

Pendleton County's population from 2000 through 2006 increased by approximately 6.6% (14,390 to 15,334). The population in the county is expected to increase overall by 20.7% between 2000 and 2015. (See table 2)

For the entire Cincinnati-Middletown, OH-KY-IN MSA, Pendleton County represents approximately 0.7% of the total population in the MSA and 3.8% of the Kentucky portion of the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory. (See tables 4 and 5)

Point Sources

Point source VOC emissions from Pendleton County were estimated at 83.41 tpy in 2005, which represents approximately 1.3% of the total 6187.22 tpy of the overall VOC point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-1)

Point source NO_x emissions from Pendleton County were estimated at 1836.68 tpy in 2005, which represents approximately 2.6% of the total 70819.24 tpy of the overall NO_x point source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-7)

Major point sources located within Pendleton County are subject to New Source Review (NSR), CTG RACT and non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical." Additionally, any controls imposed as a result of previous nonattainment designations are required to remain in Boone County.

Onroad Mobile

Onroad mobile source VOC emissions from Pendleton County were estimated at 258.41 tpy in 2005, which represents approximately 0.9% of the total 28193.31

tpy of the overall VOC onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-3)

Onroad mobile source NO_x emissions from Pendleton County were estimated at 407.40 tpy in 2005, which represents approximately 0.9% of the total 44982.90 tpy of the overall NO_x onroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-9)

Based on 2006 information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Pendleton County is 45.1% and classified as high, and the commuting traffic from Pendleton County into other counties is significant at 63.1%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Pendleton County were estimated at 101.47 tpy in 2005, which represents approximately 0.9% of the total 11569.21 tpy of the overall VOC Nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-4)

Nonroad mobile source NO_x emissions from Pendleton County were estimated at 1191.26 tpy in 2005, which represents approximately 3.7% of the total 31996.68 tpy of the overall NO_x nonroad mobile source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-10)

Area Sources

Area source VOC emissions from Pendleton County were estimated at 305.52 tpy in 2005, which represents approximately 0.7% of the total 46322.12 tpy of the overall VOC area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-2)

Area source NO_x emissions from Pendleton County were estimated at 51.62 tpy in 2005, which represents approximately 0.7% of the total 7106.38 tpy of the overall NO_x area source emissions from the Cincinnati-Middletown, OH-KY-IN MSA. (See chart NKY-8)

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Comparison of Total Emissions

A comparison of total emissions across the entire Ohio, Kentucky, and Indiana MSA was performed using the 2005 NEI data.

Charts NKY-5 and NKY-6 provide a comparison of VOC emissions across the entire region.

Charts NKY-11 and NKY-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006 – 2008 monitoring period, there were no ozone monitors located in Pendleton County.

Within the Cincinnati-Middletown, OH-KY-IN MSA, Pendleton County contributes approximately:

- 0.8% of the total VOC emissions
- 2.3% of the total NO_x emissions

See charts NKY-6 for VOC, NKY-12 for NO_x.

Several 48-hour back trajectory HYSPLITS for Ohio and Kentucky have been included in a separate section for days in 2006-2008 when the 8-hour ambient monitoring concentration for ozone had their highest readings. These HYSPLITS show that for the majority of the time the air column is not impacted by Boone County and therefore does not affect the violating monitor.

The emissions from Pendleton County compared to the remainder of the MSA are negligible and do not significantly contribute to the violations of the 8-hour ozone in the MSA.

Therefore, based on the monitoring and emissions data Pendleton County should be designated attainment for the 8-hour ozone standard in the MSA.

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Figure 1
Northern Kentucky Area
Wind Rose Patterns 2006-2008

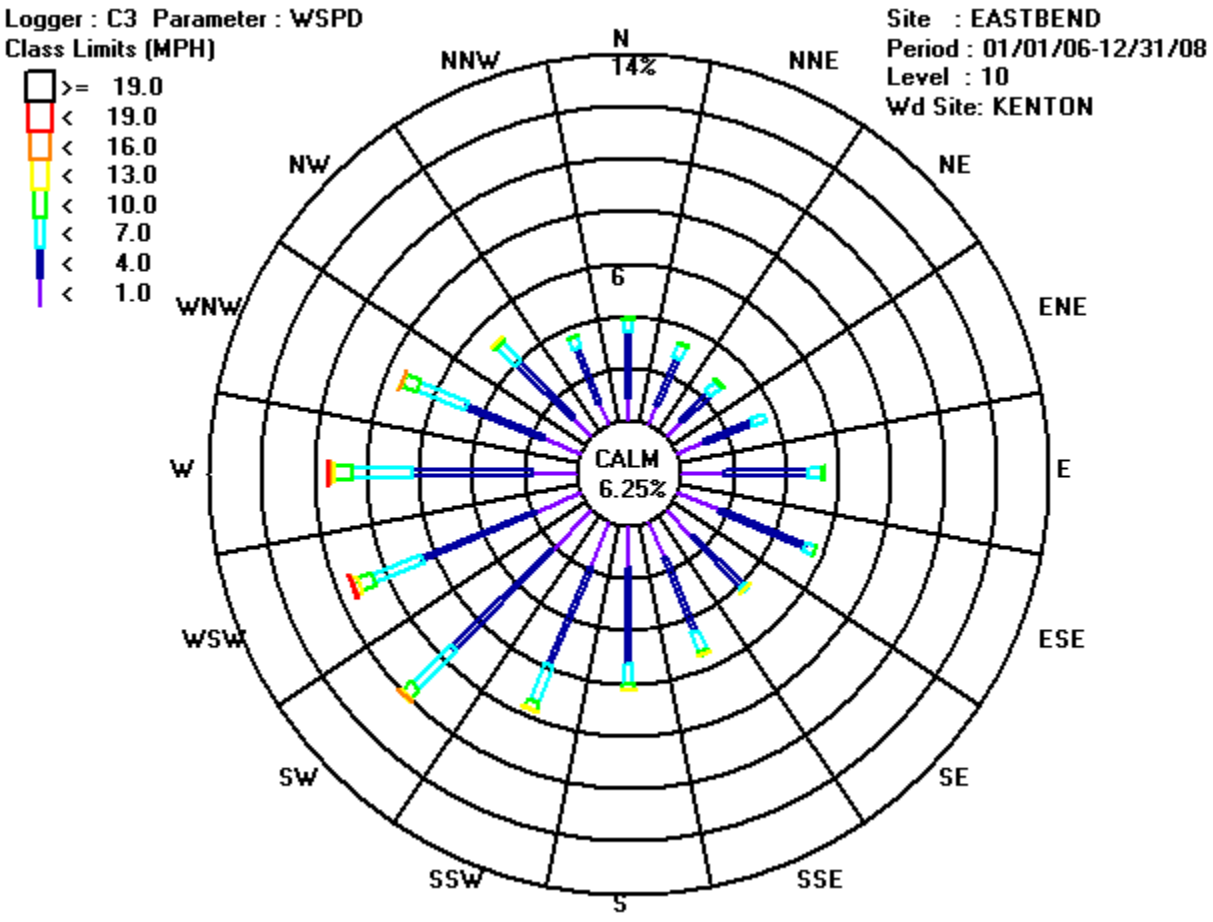

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Table 1
3-year Average* of Annual 8-hour for Ozone
(parts per million)

Monitor	2006	2007	2008	3-year Average
Kentucky				
Boone (21-015-0003)	0.071	0.078	0.064	0.071
Bracken	-	-	-	n/a
Campbell (21-037-0003)	n/a	0.086	0.075	n/a
Gallatin	-	-	-	n/a
Grant	-	-	-	n/a
Kenton 21-117-0007	0.075	0.085	0.073	0.078
Pendleton	-	-	-	n/a
Ohio				
Brown	-	-	-	n/a
Butler (39-017-0004)	0.079	0.091	0.071	0.080
Butler (39-017-1004)	0.076	0.091	0.079	0.082
Clermont (39-025-0022)	0.077	0.086	0.071	0.078
Clinton (39-027-1002)	0.081	0.082	0.076	0.080
Hamilton (39-061-0006)	0.081	0.089	0.086	0.085
Hamilton (39-061-0010)	0.081	0.086	0.077	0.081
Hamilton (39-061-0040)	0.078	0.086	0.080	0.81
Warren (39-165-0006)	0.086	0.088	0.082	0.085
Indiana				
Dearborn	-	-	-	n/a
Franklin	-	-	-	n/a
Ohio	-	-	-	n/a

*NAAQS 8-hour (3 year average of the 4th max value). 0.08ppm
N/A indicates no monitor data for that county.

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Table 2
Northern Kentucky Area Population Growth Data

County	Census 2000	2006*	%Growth 2000-2006	2015*	%Growth 2000 - 2015
Boone	85,991	110,080	28.0%	140,577	63.5%
Bracken	8,279	8,655	4.5%	9,169	10.8%
Campbell	88,616	86,866	-2.0%	95,828	8.1%
Gallatin	7,870	8,153	3.6%	10,135	28.8%
Grant	22,384	24,769	10.7%	31,476	40.6%
Kenton	151,464	154,911	2.3%	158,966	5.0%
Pendleton	14,390	15,334	6.6%	17,363	20.7%

*U.S. Census Bureau projections to July 1, 2006 and 2015.

Table 3
2006 Cincinnati-Middletown, OH-KY-IN MSA Population

MSA Estimated Population	2006*	% of Total	
Kentucky		of KY Portion	of MSA
Boone County	110,080	26.9%	5.2%
Bracken County	8,655	2.1%	0.4%
Campbell County	86,866	21.3%	4.1%
Gallatin County	8,153	2.0%	0.4%
Grant County	24,769	6.0%	1.2%
Kenton County	154,911	37.9%	7.4%
Pendleton County	15,334	3.8%	0.7%
KY Total	408,768	100%	19.4%
Ohio		of OH Portion	
Brown County	44,423	2.7%	2.1%
Butler	354,992	21.9%	16.9%
Clermont County	192,706	11.9%	9.2%
Hamilton County	822,596	50.9%	39.0%
Warren County	201,871	12.5%	9.6%
OH Total	1,616,588	99.9%	76.8%
Indiana		of IN Portion	
Dearborn County	49,663	63.0%	2.4%
Franklin County	23,373	29.6%	1.1%
Ohio County	5,826	7.4%	0.3%
IN Total	78,862	100%	3.8%
Total Estimated Population	2,104,218	100%	100%

*U.S. Census Bureau estimated for 2006.

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Table 4
2005 NEI Cincinnati-Middletown, OH-KY-IN MSA
Total VOC Emissions
(tons per year)

County	VOC				
	Point	Area	Mobile	Nonroad	Total
INDIANA					
Dearborn	1203.59	1224.65	971.32	230.29	**3629.86**
Franklin	1.96	858.97	493.61	279.57	**1634.11**
Ohio	0.00	186.72	101.97	46.73	**335.42**
IN Total	**1205.55**	**2270.35**	**1566.90**	**556.59**	**5599.39**
KENTUCKY					
Boone	1233.88	2322.45	1186.76	1231.38	**5974.46**
Bracken	13.48	160.08	126.35	148.96	**448.87**
Campbell	160.80	1312.94	1144.84	404.06	**3022.63**
Gallatin	111.37	208.69	348.21	151.13	**819.39**
Grant	42.40	558.90	547.97	299.02	**1448.28**
Kenton	252.61	2788.86	1899.24	641.83	**5582.54**
Pendleton	83.41	305.52	258.41	101.47	**748.82**
KY Total	**1897.93**	**7657.44**	**5511.78**	**2977.85**	**18044.99**
OHIO					
Brown	35.35	1022.30	775.72	160.36	**1993.73**
Butler	1480.34	5638.85	4352.23	1637.03	**13108.44**
Clermont	262.06	3359.68	2423.89	1021.66	**7067.30**
Hamilton	1115.44	22548.23	11386.75	4063.54	**39113.96**
Warren	190.55	3825.28	2176.05	1152.18	**7344.05**
OH Total	**3083.74**	**36394.34**	**21114.63**	**8034.77**	**68627.48**
Total Emissions	**6187.22**	**46322.12**	**28193.31**	**11569.21**	**92271.86**

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Table 5
2005 NEI Cincinnati-Middletown, OH-KY-IN MSA
Total NO_x Emissions
(tons per year)

County	NOx				
	Point	Area	Mobile	Nonroad	Total
INDIANA					
Dearborn	10029.91	174.81	1865.32	1180.86	**13250.91**
Franklin	5.49	77.67	847.39	292.71	**1223.27**
Ohio	0.00	11.86	149.88	389.52	**551.26**
IN Total	**10035.41**	**264.34**	**2862.59**	**1863.10**	**15025.44**
KENTUCKY					
Boone	5108.60	587.14	2467.86	2488.45	**10652.05**
Bracken	4.75	21.66	196.19	270.64	**493.24**
Campbell	66.97	284.52	1945.18	1777.01	**4073.68**
Gallatin	208.31	22.06	977.12	916.15	**2123.64**
Grant	25.88	96.83	1435.85	1194.84	**2753.40**
Kenton	34.29	543.70	3266.24	2402.39	**6246.62**
Pendleton	1836.68	51.62	407.40	1191.26	**3486.97**
KY Total	**7285.47**	**1607.54**	**10695.83**	**10240.75**	**29829.60**
OHIO					
Brown	1.70	181.56	1052.27	1172.18	**2407.71**
Butler	5810.57	834.65	6228.41	3665.75	**16539.38**
Clermont	28341.56	666.23	3695.56	2703.04	**35406.39**
Hamilton	18312.88	2892.75	16706.18	10414.87	**48326.67**
Warren	1031.65	659.31	3742.05	1937.00	**7370.02**
OH Total	**53498.36**	**5234.50**	**31424.48**	**19892.84**	**110050.17**
Total Emissions	**70819.24**	**7106.38**	**44982.90**	**31996.68**	**154905.21**

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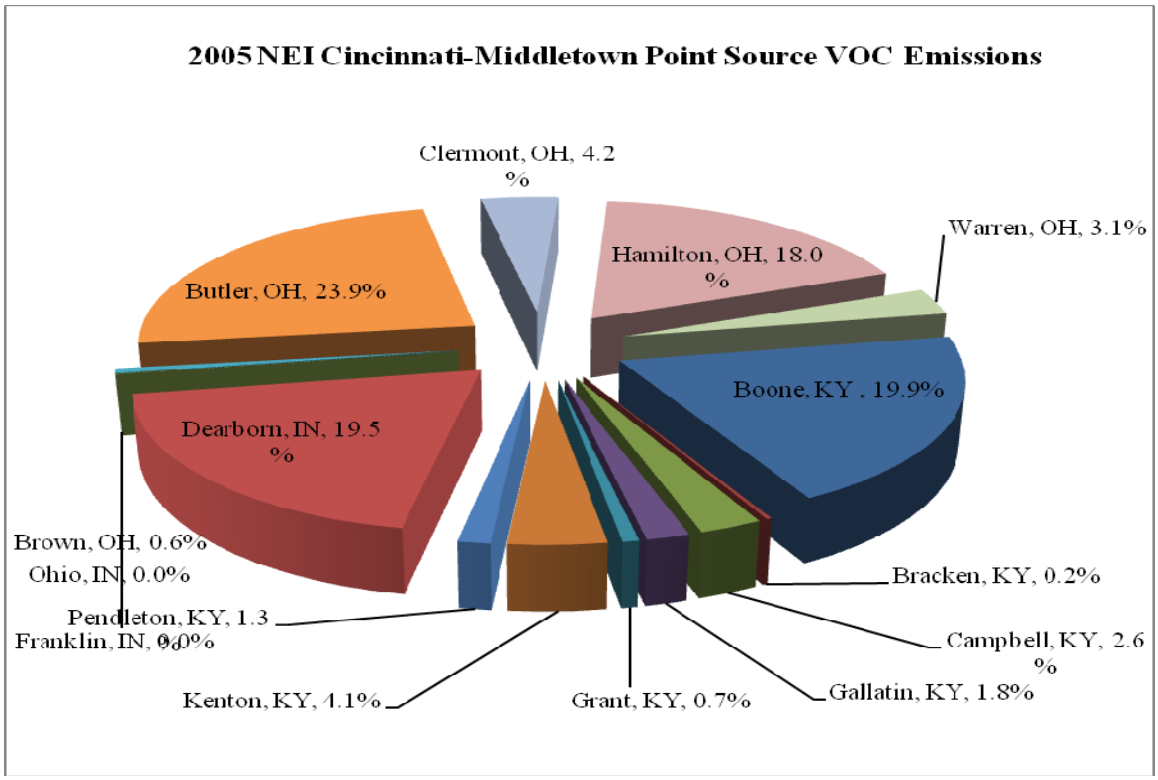
NKY-1



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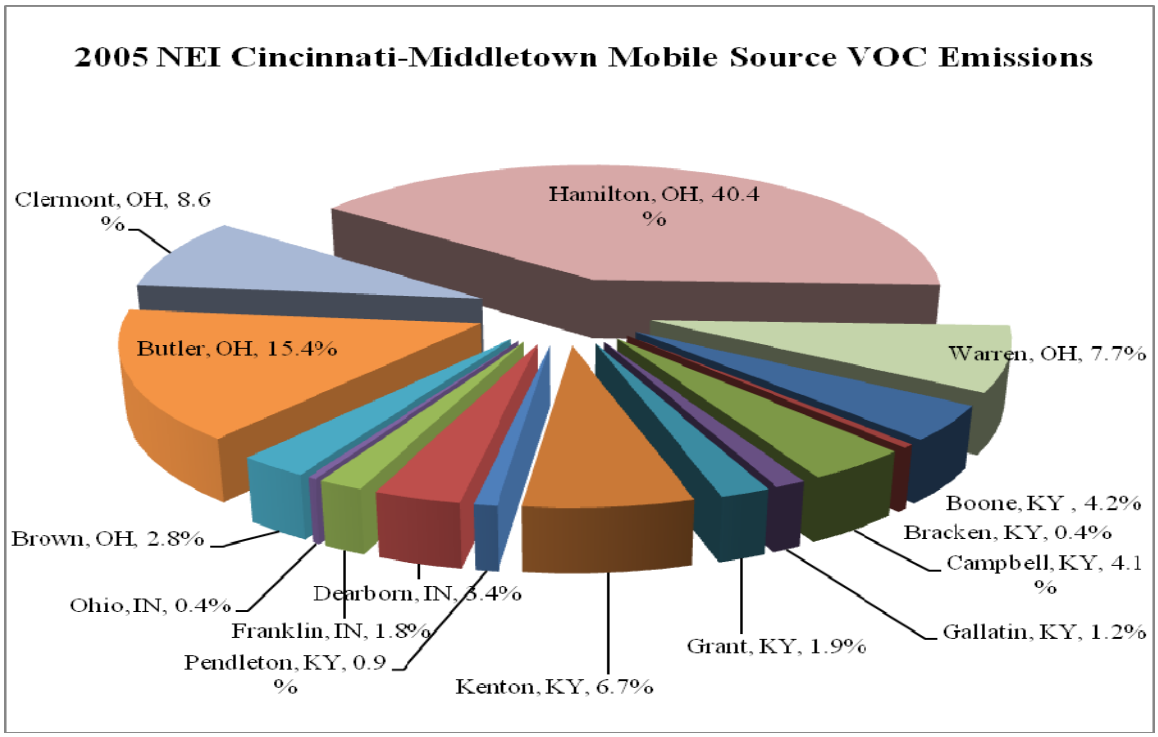

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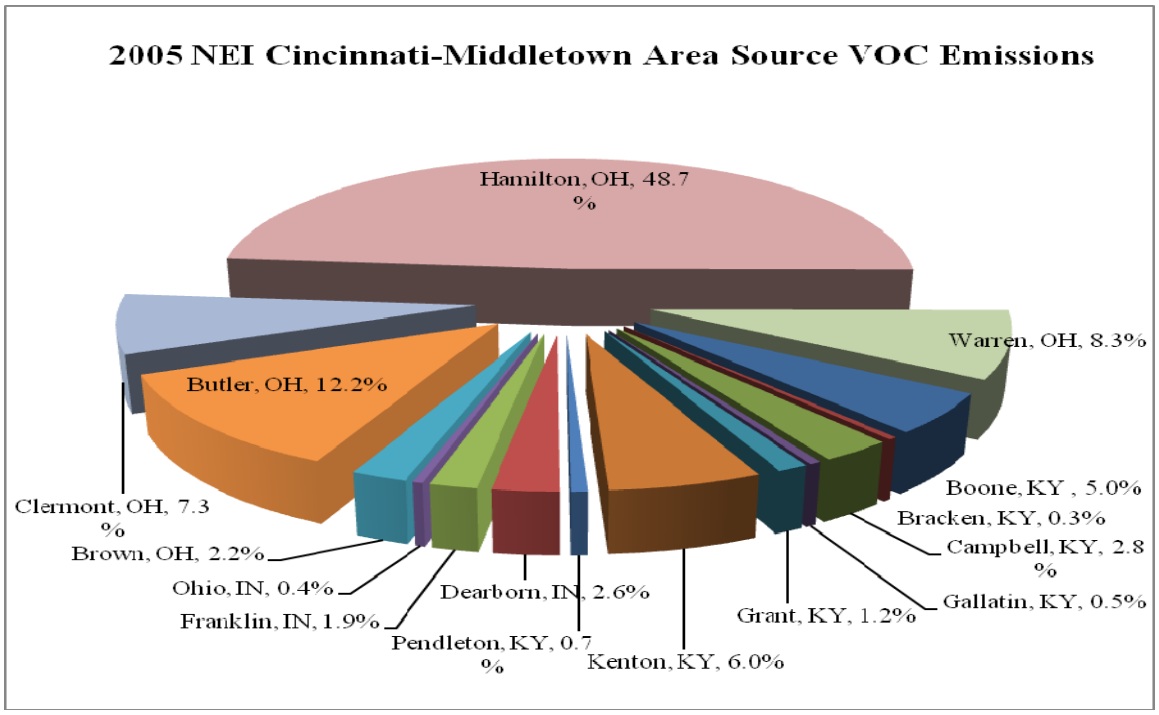

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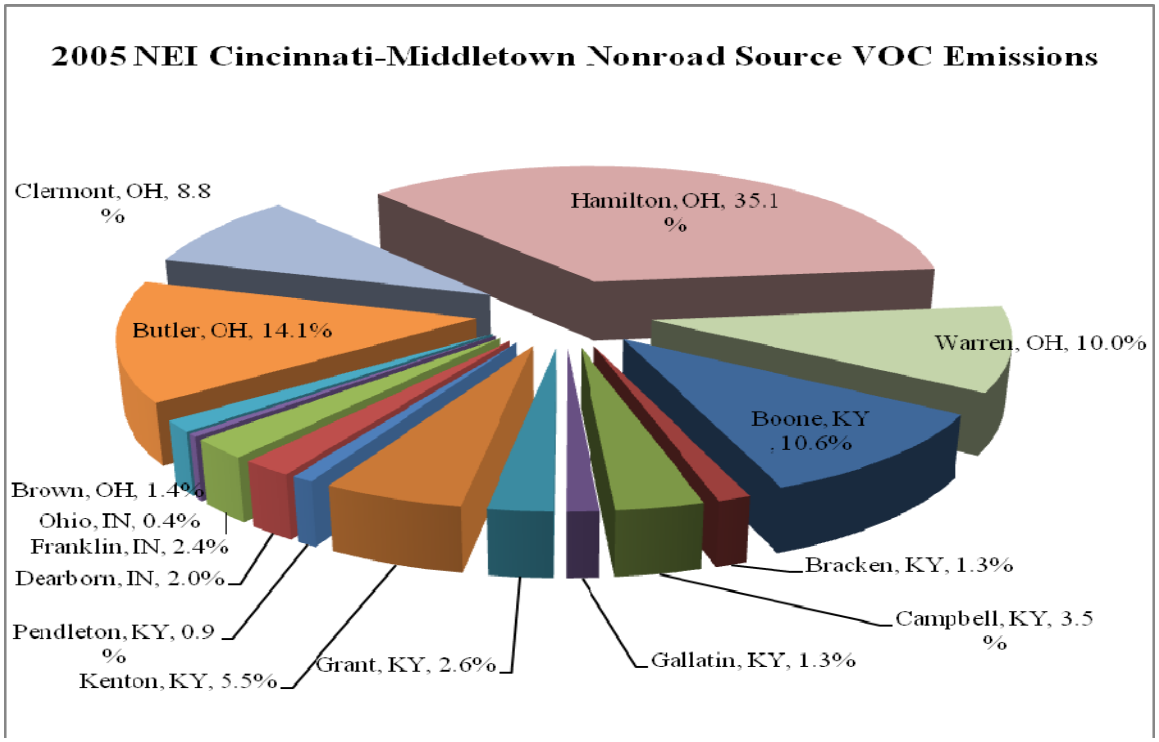

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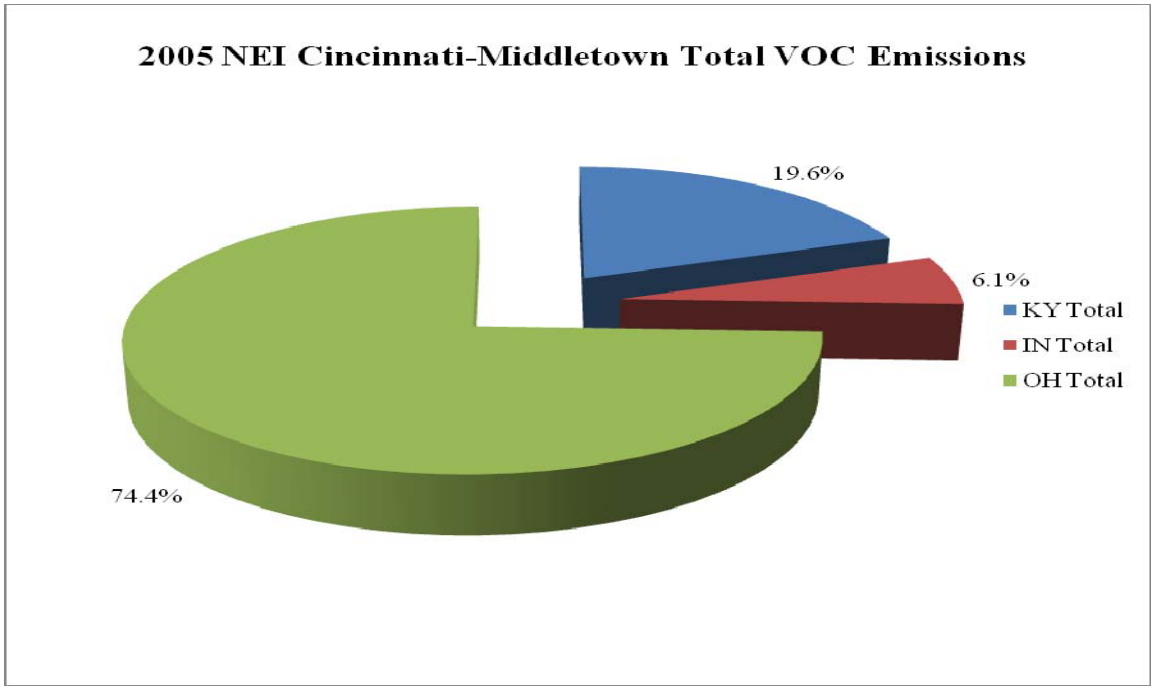

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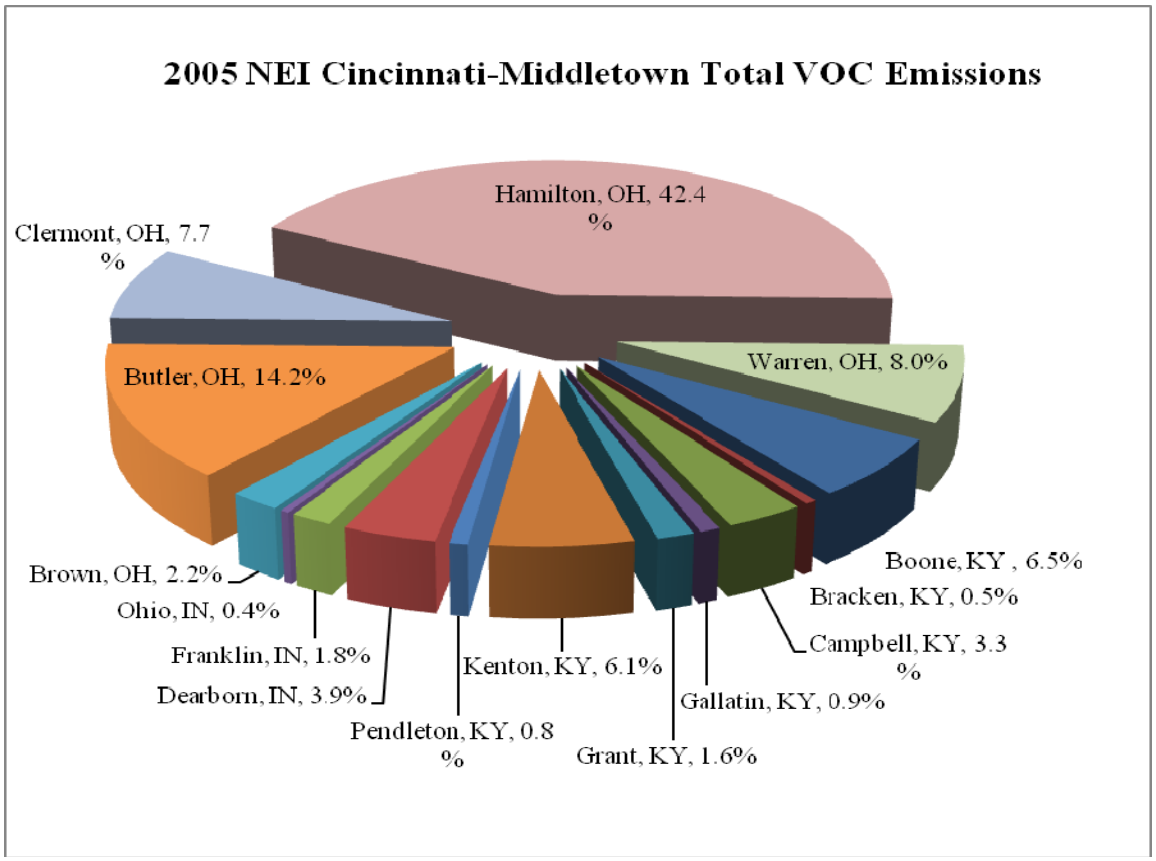

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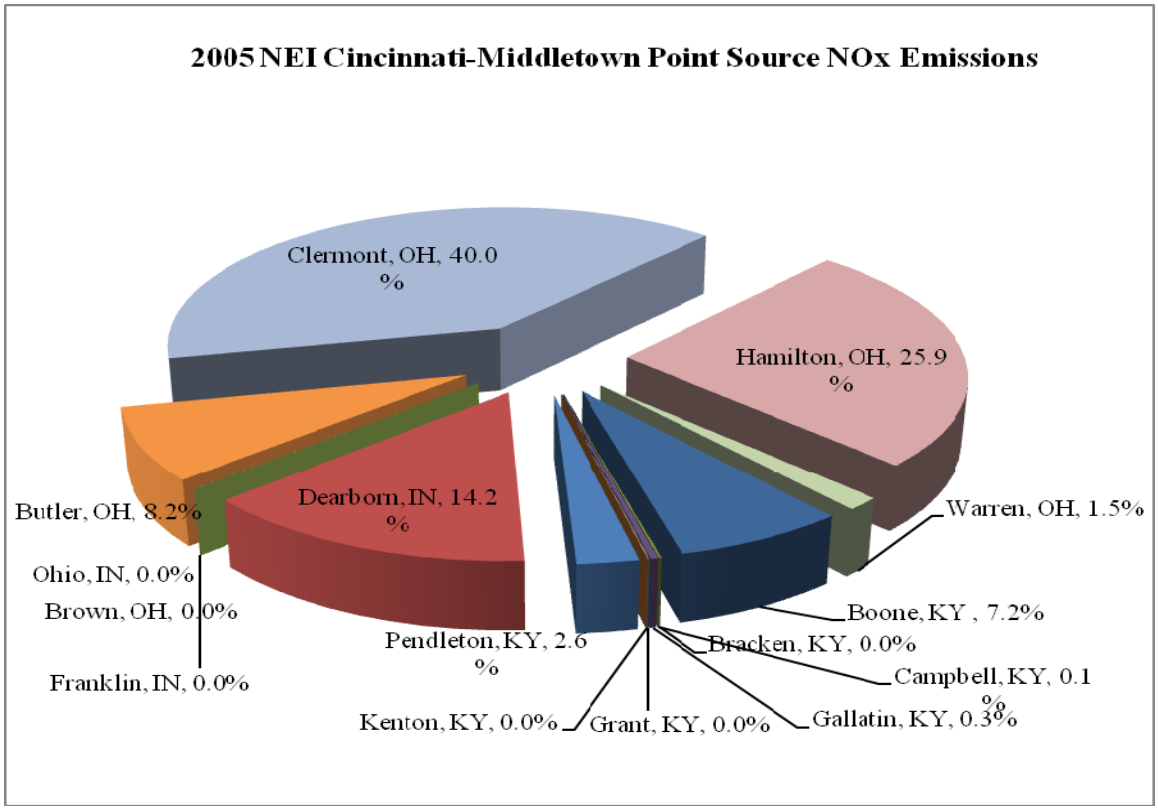
NKY-7



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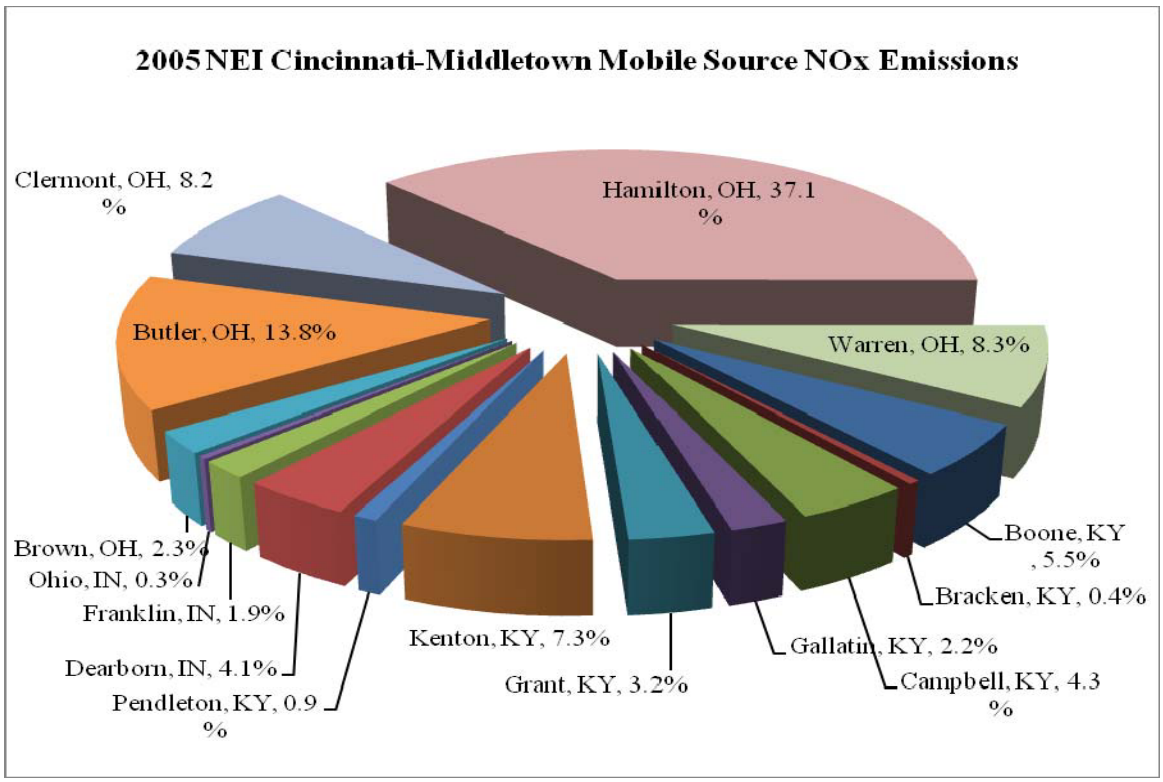

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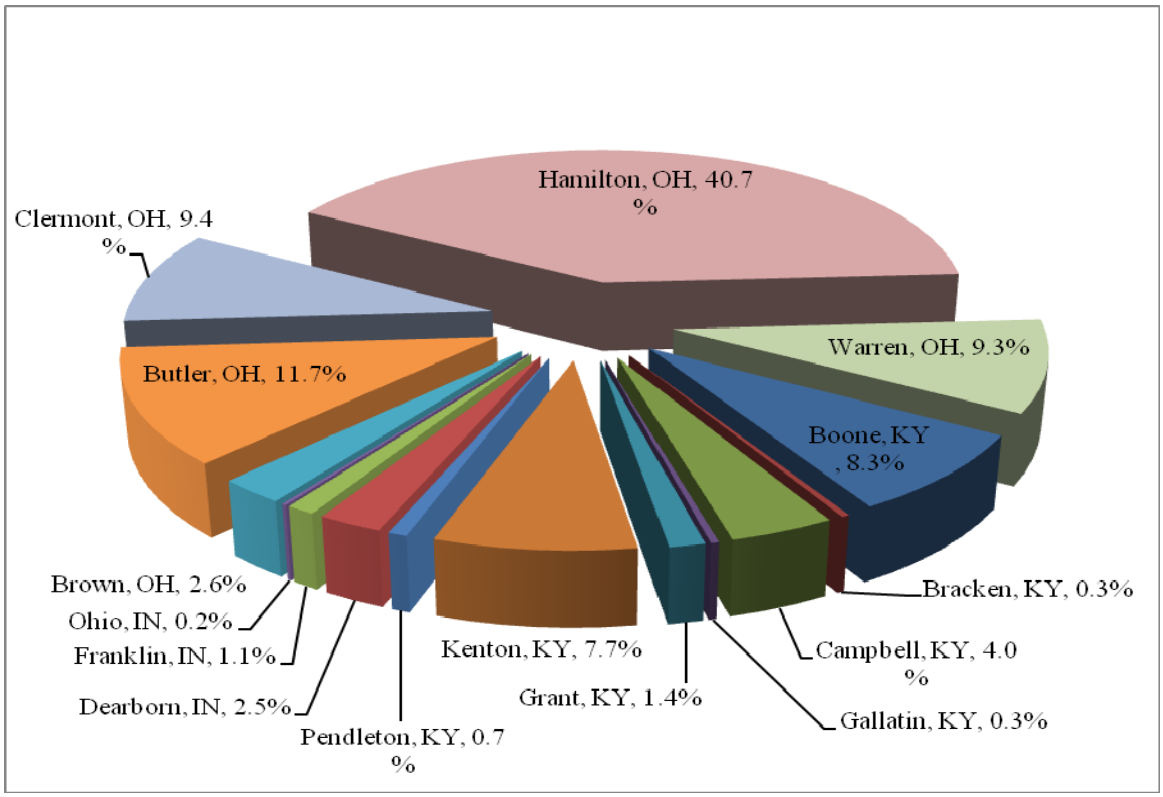
NKY-9



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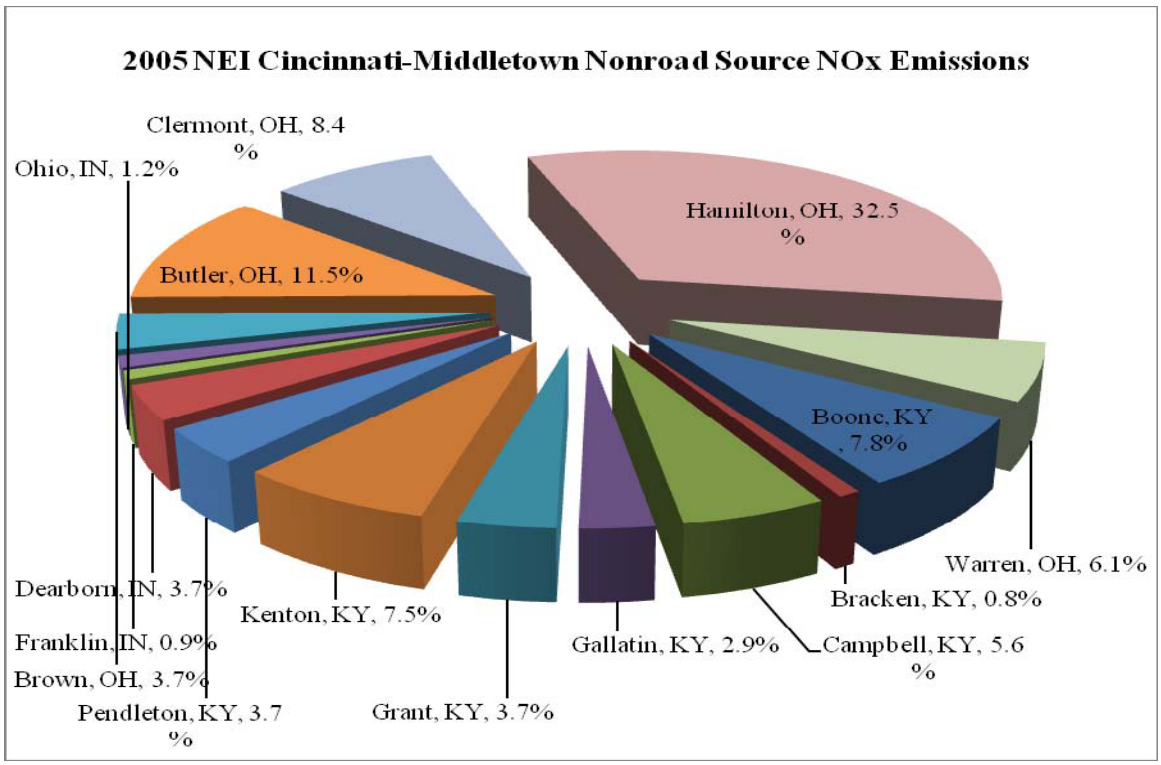

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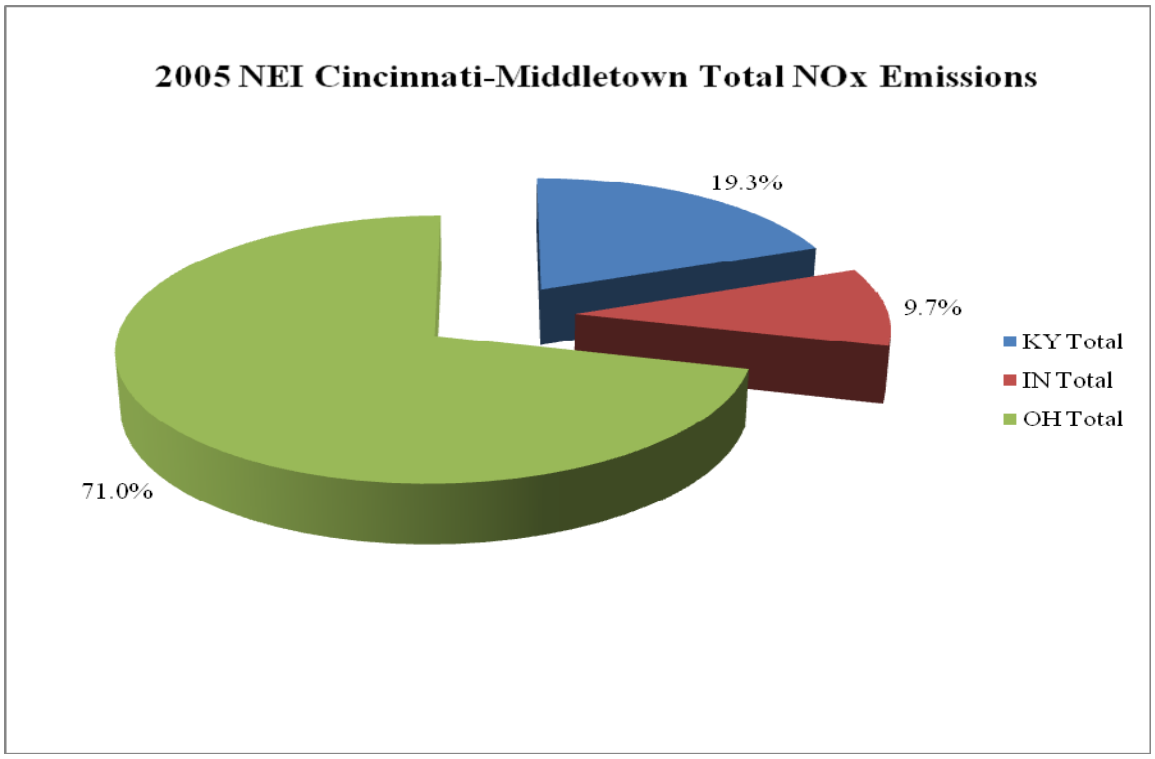
NKY-11



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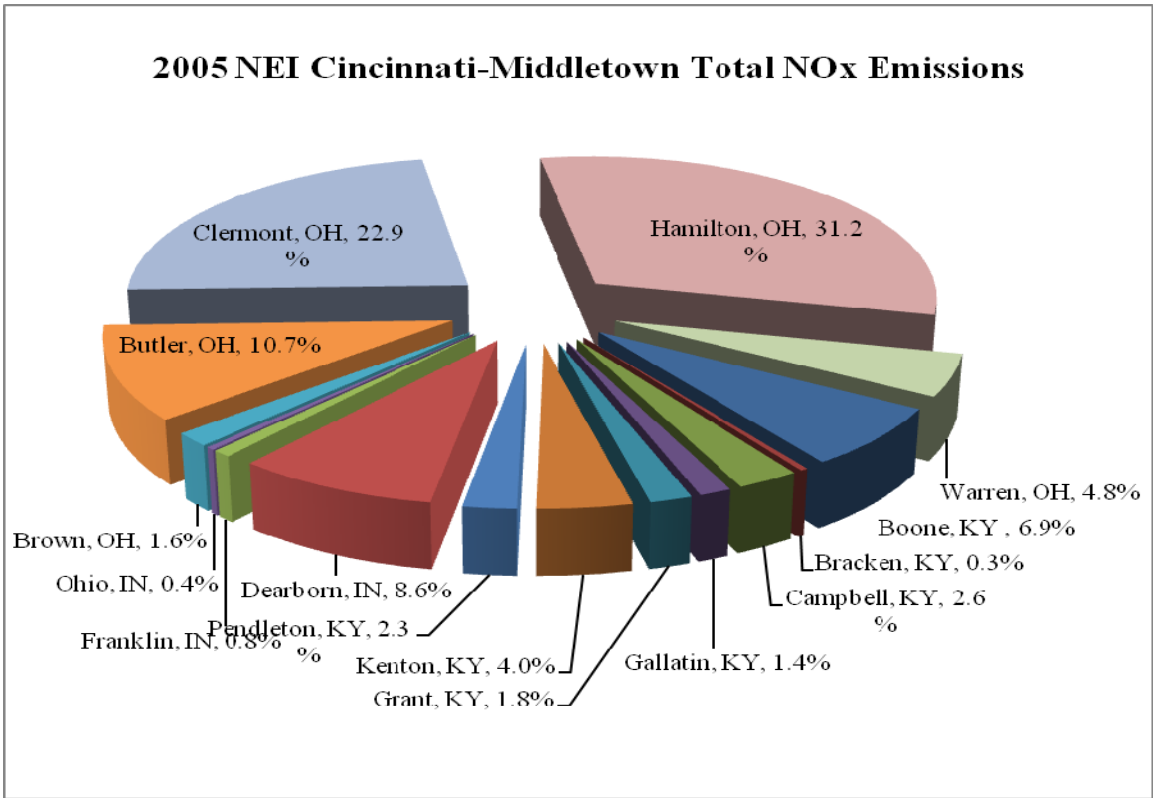

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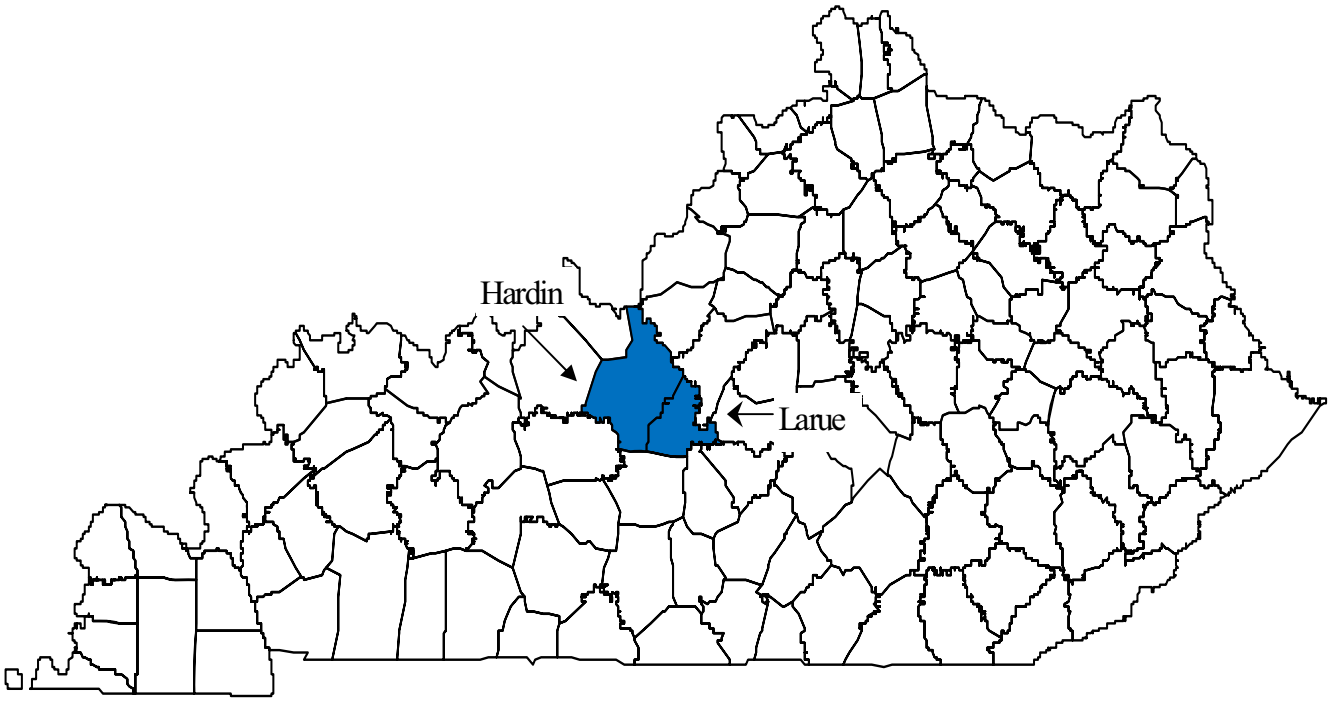
Elizabethtown, KY, MSA



The Elizabethtown, Kentucky Metropolitan Statistical Area (MSA) is ranked 354th in size among the MSAs within the United States. This MSA encompasses two counties, Hardin and Larue Counties, Kentucky.

HARDIN, KENTUCKY

Hardin County is part of the Elizabethtown, Kentucky, Metropolitan Statistical Area (MSA). Elizabethtown, the county seat of Hardin County, is located 44 miles south of Louisville, Kentucky; 131 miles northeast of Nashville, Tennessee; and 141 miles southwest of Cincinnati, Ohio.

Geography/Topography

Hardin County covers a total land area of 628 square miles and is located primarily in Kentucky's Mississippian Plateaus Region, an area of gently rolling plains and uplands. The topography of the county is diverse, ranging from limestone plains in the eastern and central portions of the county, to steep high ridges further west.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Shepherdsville air monitoring site in adjacent Bullitt County for the period 2006-2008 shows that the majority of the time the wind in the area came from the south/southwest , and typically at 1-4 miles per hour (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 87°F and the average low was 65°F. The average precipitation for the same period was 3.92 inches.

Planning

The authority for air quality planning in the Hardin County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Hardin County is performed by the Radcliff/Elizabethtown Metropolitan Planning Organization.

Air Monitoring

The Hardin County ozone monitor (21-093-0006) shows the 3-year average (2006-2008) of the annual fourth-highest daily maximum 8-hour average ozone concentration is 0.077 parts per million, which does not achieve the 8-hour ozone National Ambient Air Quality Standard (NAAQS - 0.075 ppm).

The monitoring information for 2008 is complete and the latest available for Hardin County, Kentucky. (See table 1)

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Population

Based on projections to 2006 from the 2000 census data, there are 97,087 persons living in Hardin County. (See table 3) That represents approximately 155 persons per square mile. The population of Hardin County is approximately 36.3% rural with 63.7% of the people living in incorporated areas. The largest city in Hardin County is Elizabethtown.

Hardin County's population from 2000 through 2006 *increased* by approximately 3.1% (94,170 to 97,087). The population in the county is expected to increase overall by 15.2% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Elizabethtown, KY MSA, Hardin County represents approximately 87.6% of the total population in the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory. (See tables 4 and 5)

Point Sources

Point source VOC emissions from Hardin County were estimated at 332.59 tpy in 2005, which represents approximately 90.3% of the total 368.50 tpy of the overall VOC point source emissions from the Elizabethtown, KY MSA. (See chart ELI-1)

Point source NO_x emissions from Hardin County were estimated at 69.36 tpy in 2005, which represents approximately 32.9% of the total 210.80 tpy of the overall NO_x point source emissions from the Elizabethtown, KY MSA. (See chart ELI-6)

Major point sources located within Hardin County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

Onroad Mobile

Onroad mobile source VOC emissions from Hardin County were estimated at 883.31 tpy in 2005, which represents approximately 78.7% of the total 1122.59 tpy of the overall VOC onroad mobile source emissions from the Elizabethtown, KY MSA. (See chart ELI-3)

Onroad mobile source NO_x emissions from Hardin County were estimated at 1973.34 tpy in 2005, which represents approximately 80.4% of the total 2454.07 tpy of the overall NO_x onroad mobile source emissions from the Elizabethtown, KY MSA. (See chart ELI-8)

Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Hardin County is 39.9% and classified as high. The commuting traffic from Hardin County into other counties is high at 39.5%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Hardin County were estimated at 702.83 tpy in 2005, which represents approximately 93.1% of the total 755.09 tpy of the overall VOC nonroad mobile source emissions from the Elizabethtown, KY MSA. (See chart ELI-4)

Nonroad mobile source NO_x emissions from Hardin County were estimated at 1976.66 tpy in 2005, which represents approximately 93.6% of the total 2111.71 tpy of the overall NO_x nonroad mobile source emissions from the Elizabethtown, KY MSA. (See chart ELI-9)

Area Sources

Area source VOC emissions from Hardin County were estimated at 4758.41 tpy in 2005, which represents approximately 95.0% of the total 5007.06 tpy of the overall VOC area source emissions from the Elizabethtown, KY MSA. (See chart ELI-2)

Area source NO_x emissions from Hardin County were estimated at 587.21 tpy in 2005, which represents approximately 92.6% of the total 634.30 tpy of the overall NO_x area source emissions from the Elizabethtown, KY MSA. (See chart ELI-7)

Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky area of evaluation was performed using the 2005 NEI data.

Chart ELI-5 provides a comparison of VOC emissions across the entire region.

Chart ELI-10 provides a comparison of NO_x emissions across the entire region.

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Conclusion and Recommendation

Hardin County, based on 2006-2008 ozone monitoring and emissions data, is not meeting the 8-hour ozone standard with a 3-year average of 35.1 micrograms per cubic meter.

In the Elizabethtown, KY MSA, Hardin County contributes approximately:

- 92.1% of total VOC emissions
- 85.1% of total NOx emissions

See charts ELI-5 for VOC and ELI-10 for NO_x.

Based on data analysis, the pollutants of most concern regarding 8-hour ozone formation are VOC and NO_x. Hardin County contributes a relatively large portion of the area's VOC and NO_x emissions.

Based on the monitoring and emissions data, Hardin County should be designated nonattainment for the 8-hour ozone standard.

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LARUE COUNTY, KENTUCKY

Larue County is part of the Elizabethtown, Kentucky, Metropolitan Statistical Area (MSA). Hodgenville, the county seat of Larue County, is located 56 miles south of Louisville, Kentucky, and 140 miles northeast of Nashville, Tennessee.

Geography/Topography

Larue County, with a generally low, rolling topography, has a land area of 263 square miles. It is located in south-central Kentucky's Mississippian Plateaus Region.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Shepherdsville air monitoring site in Bullitt County for the period 2006-2008 shows that the majority of the time the wind in the area came from the south/southwest , and typically at 1-4 miles per hour (See figure 1) According to the Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 87°F and the average low was 65°F. The average precipitation for the same period was 3.92 inches.

Planning

The authority for air quality planning in the Larue County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Larue County is performed by the Lincoln Trail Area Development District (LTADD) in partnership with the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006-2008 monitoring period, there were no ozone monitors located in Larue County.

The Hardin County ozone monitor (21-093-0006) is the monitor in closest proximity to Larue County and it shows the 3-year average (2006-2008) of the annual fourth-highest daily maximum 8-hour average ozone concentration is 0.0770 parts per million, which does not achieve the 8-hour ozone National Ambient Air Quality Standard (NAAQS - 0.075 ppm).

The monitoring information for 2008 is complete and the latest available for Hardin County, Kentucky. (See table 1).

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Population

Based on projections to 2006 from the 2000 census data, there are 13,791 persons living in Larue County. (See table 3) That represents approximately 52 persons per square mile. The population of Larue County is approximately 76.7% rural with 23.3% of the people living in incorporated areas. The largest city in Larue County is Hodgenville.

Larue County's population from 2000 through 2006 increased by approximately 3.1% (13,373 to 13,791). The population in the county is expected to increase overall by 6.0% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Elizabethtown, KY, MSA, Larue County represents approximately 12.4% of the total population in the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory. (See tables 4 and 5)

Point Sources

Point source VOC emissions from Larue County were estimated at 35.91 tpy in 2005, which represents approximately 9.7% of the total 368.50 tpy of the overall VOC point source emissions from the Elizabethtown, KY MSA. (See chart ELI-1)

Point source NO_x emissions from Larue County were estimated at 141.44 tpy in 2005, which represents approximately 67.1% of the total 210.80 tpy of the overall NO_x point source emissions from the Elizabethtown, KY MSA. (See chart ELI-6)

Major point sources located within Larue County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

Onroad Mobile

Onroad mobile source VOC emissions from Larue County were estimated at 239.28 tpy in 2005, which represents approximately 21.3% of the total 11122.59 tpy of the overall VOC onroad mobile source emissions from the Elizabethtown, KY MSA. (See chart ELI-3)

Onroad mobile source NO_x emissions from Larue County were estimated at 480.73 tpy in 2005, which represents approximately 19.6% of the total 2454.07 tpy of the overall NO_x onroad mobile source emissions from the Elizabethtown, KY MSA. (See chart ELI-8)

Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Larue County is 44.9% and classified as high. The commuting traffic from Larue County into other counties is significant at 74.5%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Larue County were estimated at 52.26 tpy in 2005, which represents approximately 6.9% of the total 755.09 tpy of the overall VOC nonroad mobile source emissions from the Elizabethtown, KY MSA. (See chart ELI-4)

Nonroad mobile source NO_x emissions from Larue County were estimated at 135.05 tpy in 2005, which represents approximately 6.4% of the total 2111.71 tpy of the overall NO_x nonroad mobile source emissions from the Elizabethtown, KY MSA. (See chart ELI-9)

Area Sources

Area source VOC emissions from Larue County were estimated at 248.66 tpy in 2005, which represents approximately 5.0% of the total 5007.06 tpy of the overall VOC area source emissions from the Elizabethtown, KY MSA. (See chart ELI-2)

Area source NO_x emissions from Larue County were estimated at 47.09 tpy in 2005, which represents approximately 7.4% of the total 634.30 tpy of the overall NO_x area source emissions from the Elizabethtown, KY MSA. (See chart ELI-7)

Comparison of Total Emissions

A comparison of total emissions across the entire area of evaluation was performed using the 2005 NEI data.

Chart ELI-5 provides a comparison of VOC emissions across the entire region.

Chart ELI-10 provides a comparison of NO_x emissions across the entire region.

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Conclusion and Recommendation

For the 2006-2008 monitoring period, there were no ozone monitors located in Larue County.

In the Elizabethtown, KY MSA, Larue County contributes approximately:

- 7.9% of total VOC emissions
- 14.9% of total NOx emissions

See charts ELI-5 for VOC and ELI-10 for NO_x.

Based on data analysis, the pollutants of most concern regarding 8-hour ozone formation are VOC and NOx. Larue County contributes a relatively small portion of the area's VOC and NOx emissions.

Predominant wind patterns do not indicate an impact from Larue County on the violating monitors. See annual wind roses included in Figure 1.

The emissions data and other documentation presented indicate that Larue County, Kentucky, does not contribute a significant amount of ozone or emissions that contribute to ozone formation in the Elizabethtown, KY, MSA.

Therefore, Larue County should be designated attainment for the 8-hour ozone standard.

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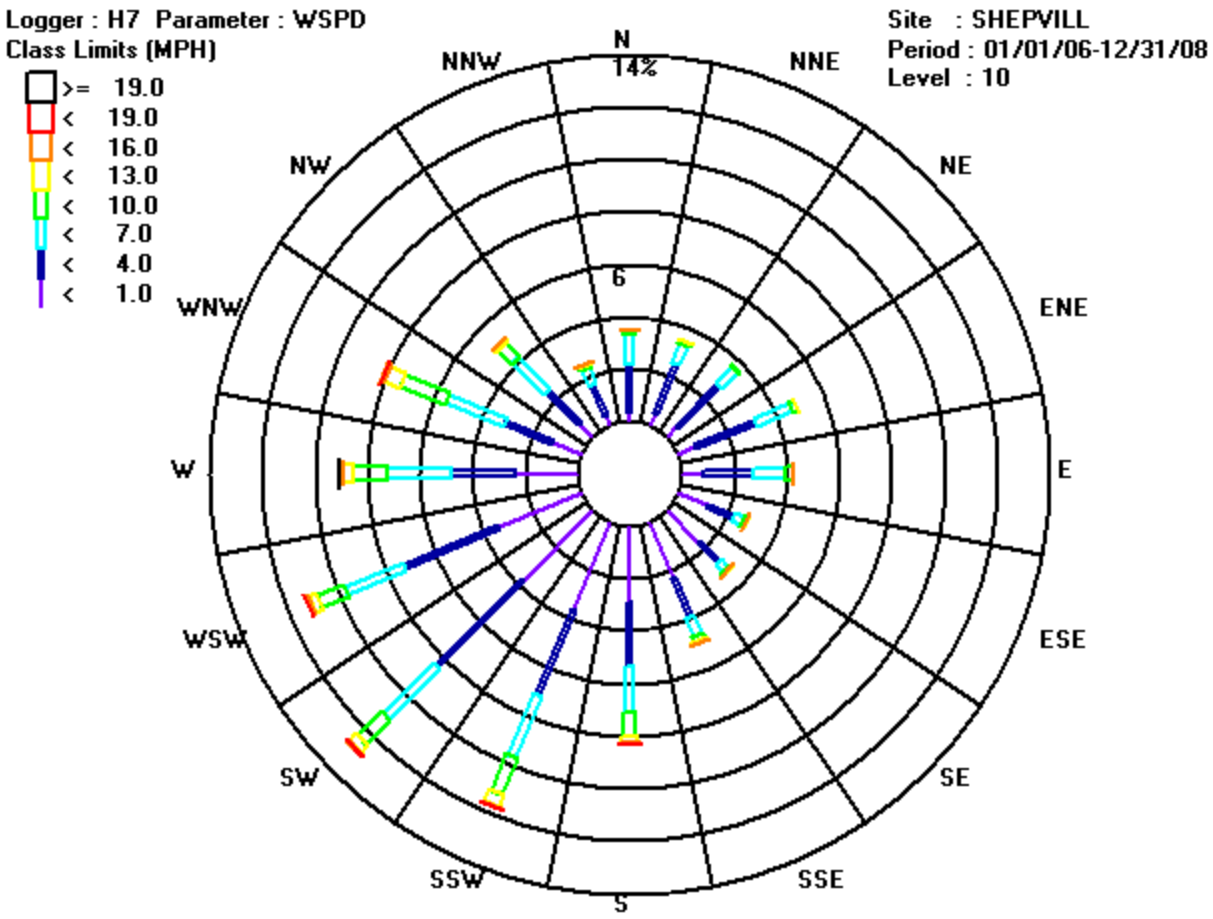
Figure 1

Kentucky Area Wind Rose Patterns



2006-2008

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Table 1
Elizabethtown, KY MSA
3-year Average* of 8-hour Ozone
(parts per million)

Monitor	2006	2007	2008	3-year Average
Kentucky County				
Hardin 21-093-0006	0.074	0.083	0.074	0.077
Larue	n/a	n/a	n/a	n/a

*NAAQS 8-hour (3 year average of the 4th max value). 0.08ppm
N/A indicates no monitor data for that county.

Table 2
Kentucky Portion of the Elizabethtown, KY MSA
Population Growth Data

County	Census 2000	2006*	%Growth 2000-2006	2015*	%Growth 2000 - 2015
Hardin	94,170	97,087	3.1	108,505	15.2
Larue	13,373	13,791	3.1	14,170	6.0

*U.S. Census Bureau projections to July 1, 2006 and 2015

Table 3
Elizabethtown, KY MSA
2006 Estimated Population Data

Kentucky County	2006*	% of Total MSA
Hardin	97,087	87.6%
Larue	13,791	12.4%
Total	110,878	100%

*U.S. Census Bureau estimated for 2006.

Table 4
2005 NEI Elizabethtown, KY MSA
Total VOC Emissions
(tons per year)

County	VOC				
	Point	Area	Mobile	Nonroad	Total
KENTUCKY					
Hardin	332.59	4758.41	883.31	702.83	**6677.14**
Larue	35.91	248.66	239.28	52.26	**576.11**
Total Emissions	**368.50**	**5007.06**	**1122.59**	**755.09**	**7253.25**

Table 5
2005 NEI Elizabethtown, KY MSA
Total NO_x Emissions
(tons per year)

County	NOx				
	Point	Area	Mobile	Nonroad	Total
KENTUCKY					
Hardin	69.36	587.21	1973.34	1976.66	**4606.56**
Larue	141.44	47.09	480.73	135.05	**804.31**
Total Emissions	**210.80**	**634.30**	**2454.07**	**2111.71**	**5410.87**

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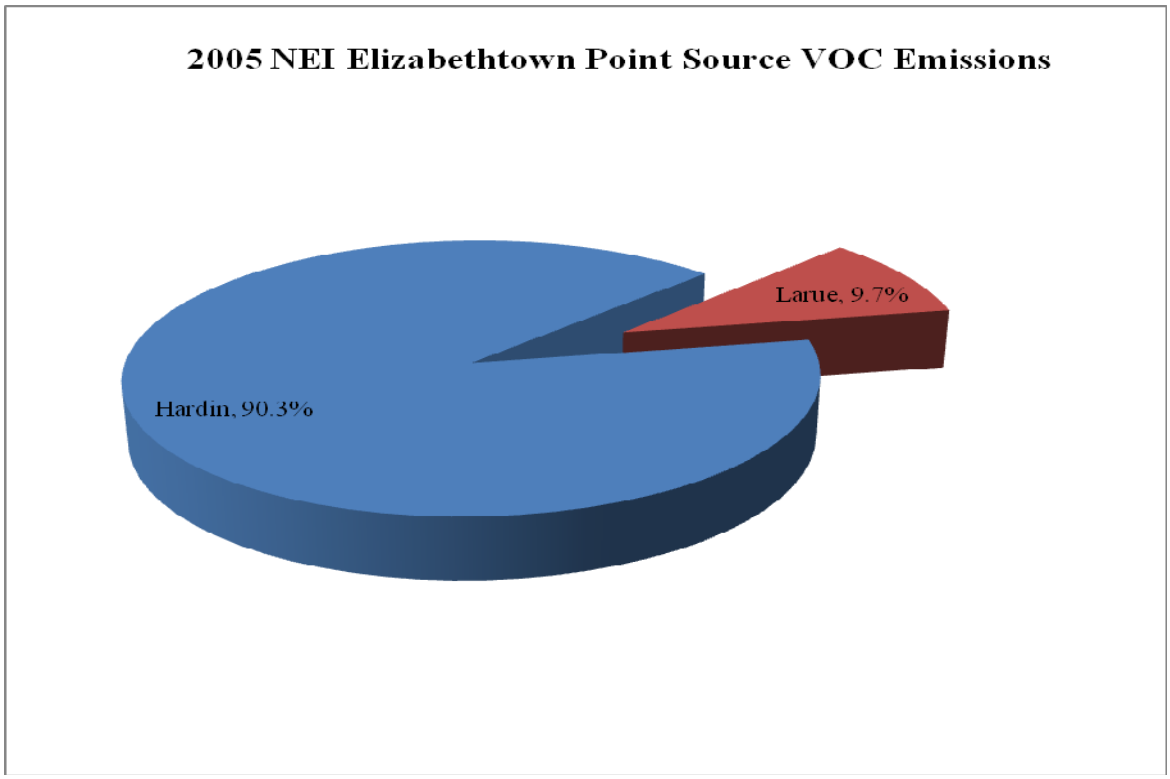
ELI-1



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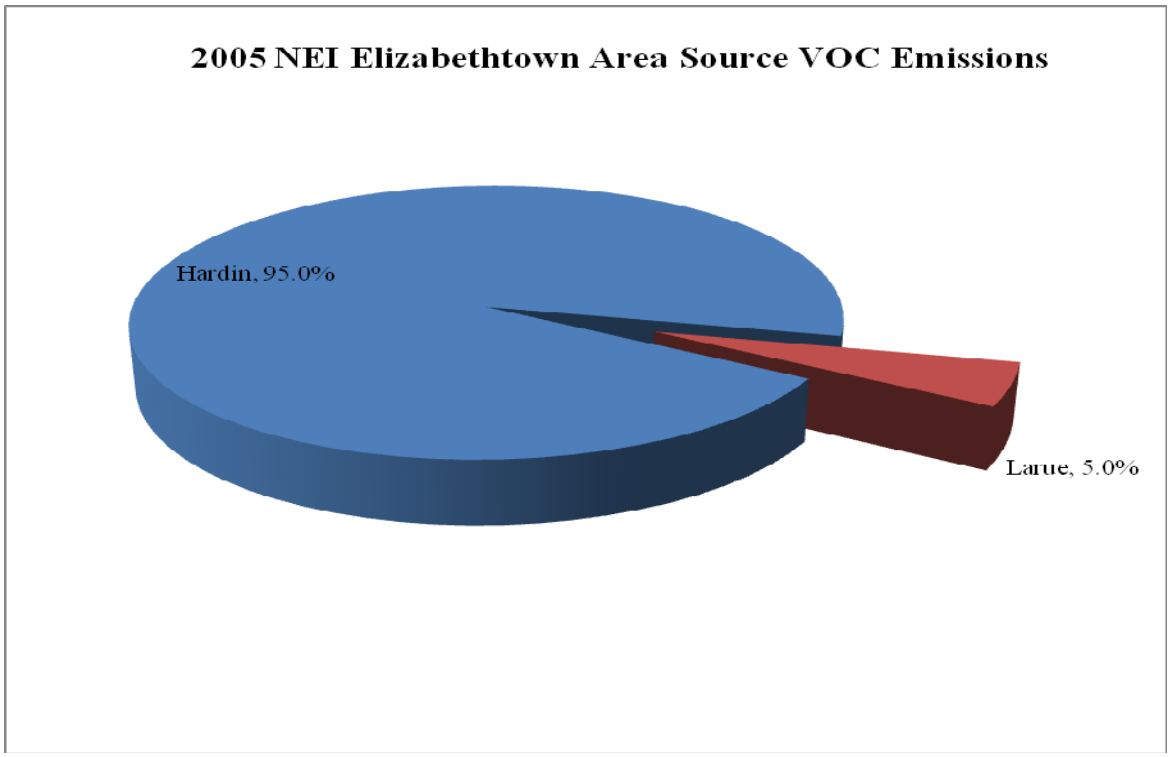

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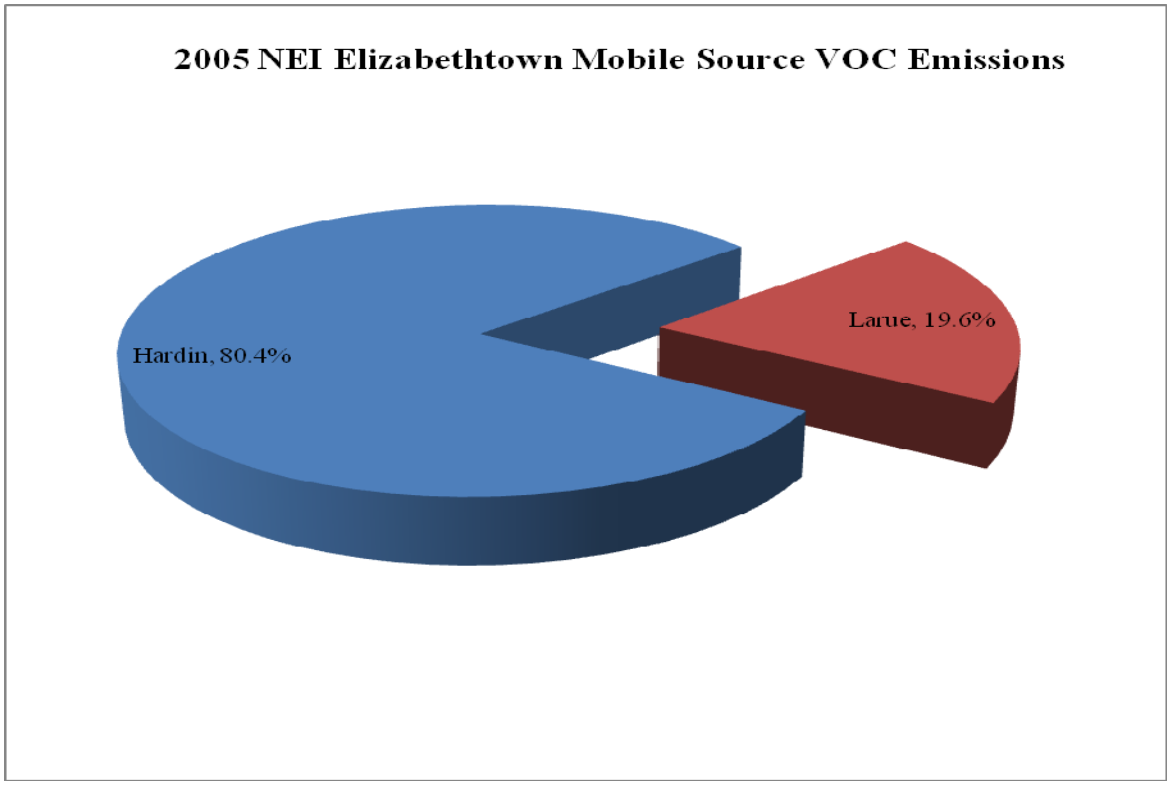

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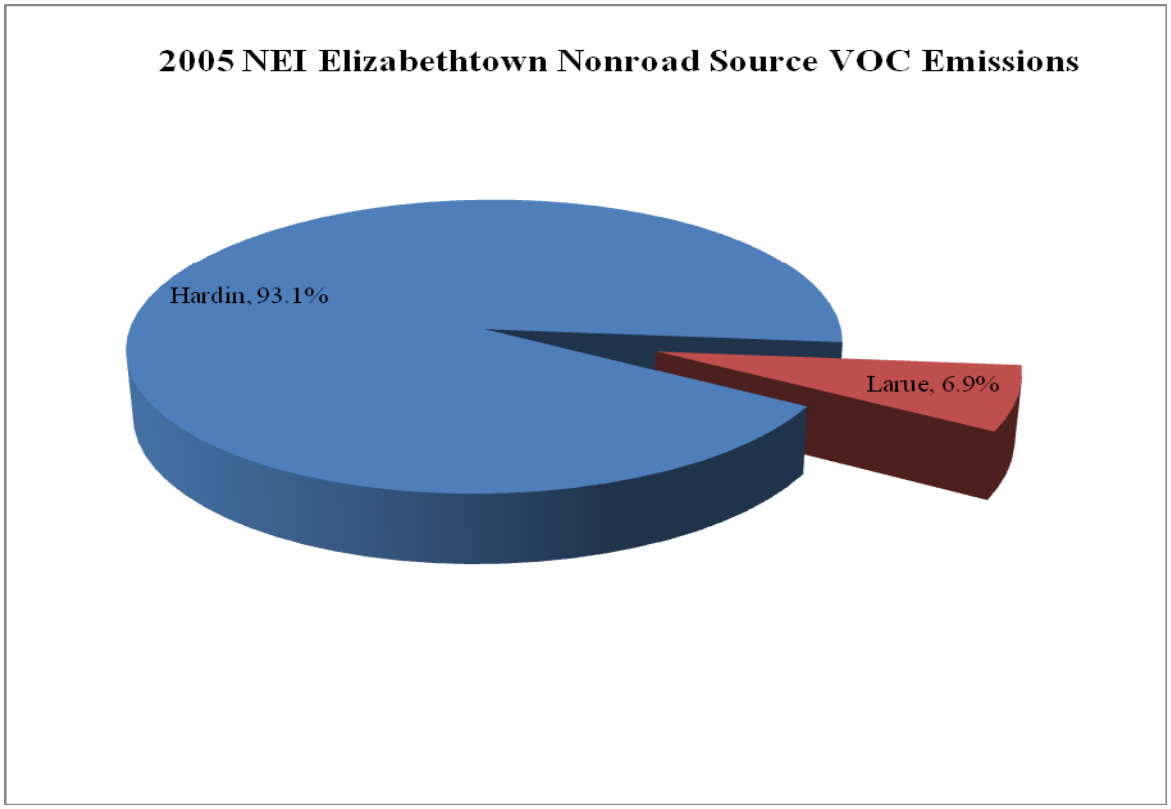

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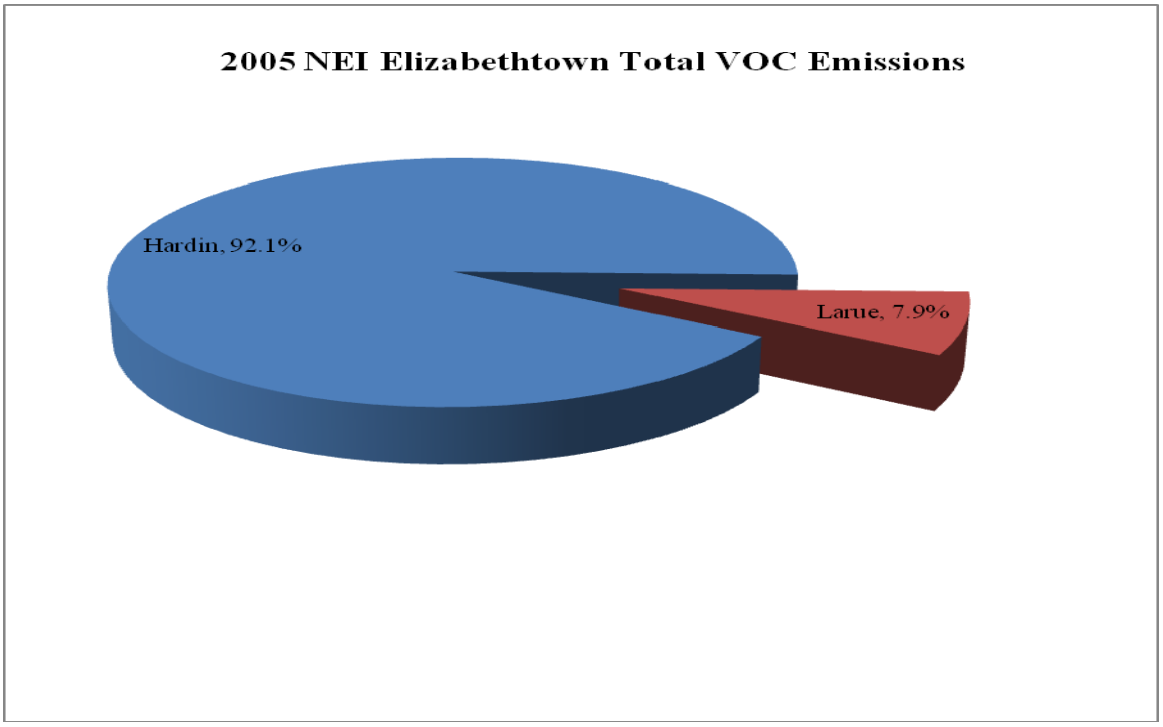

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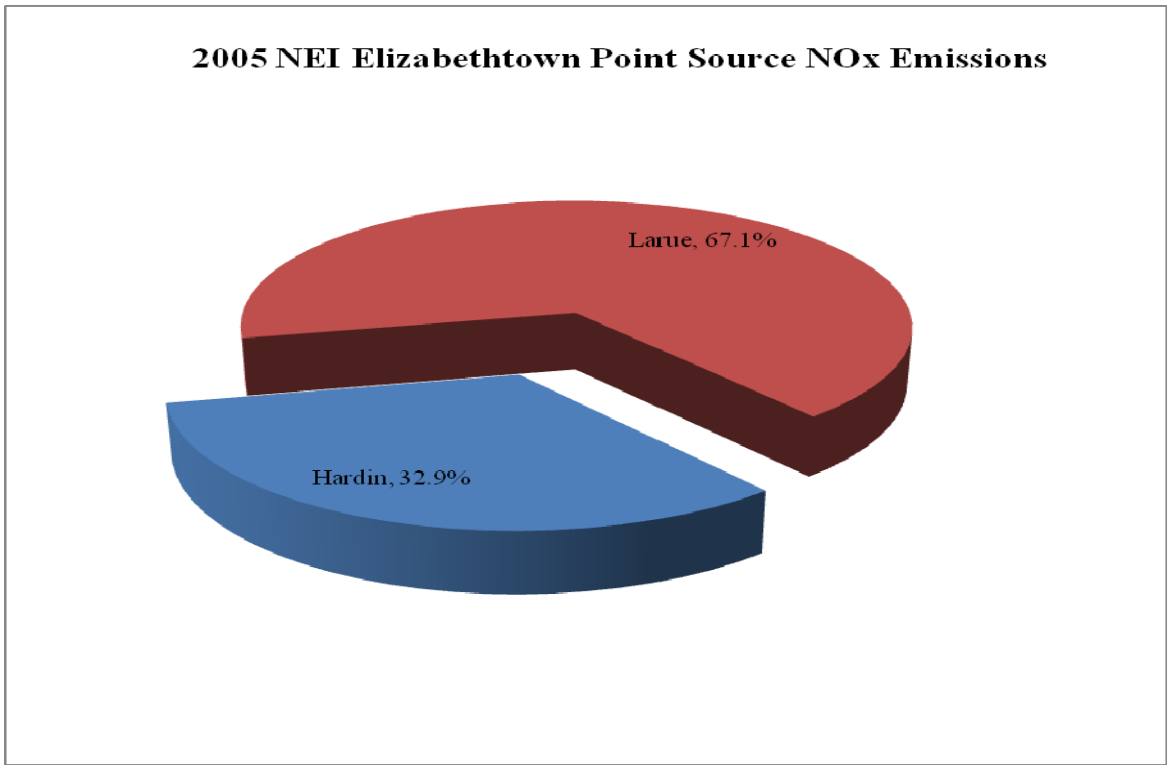

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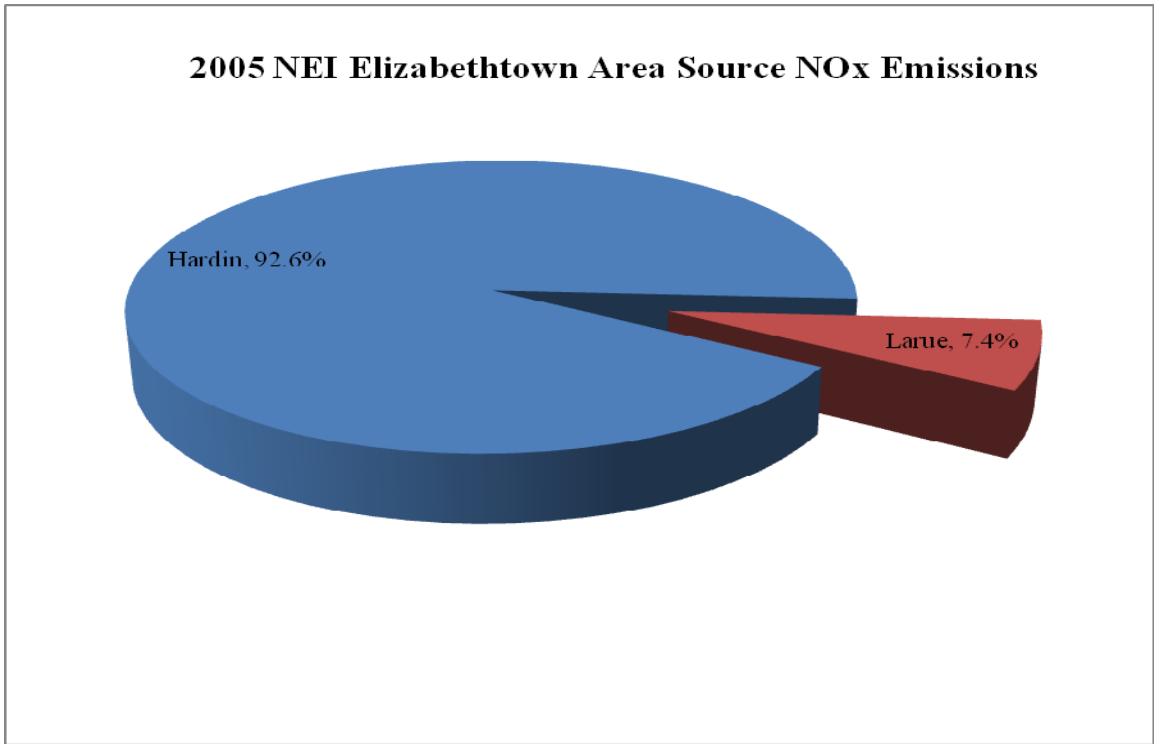
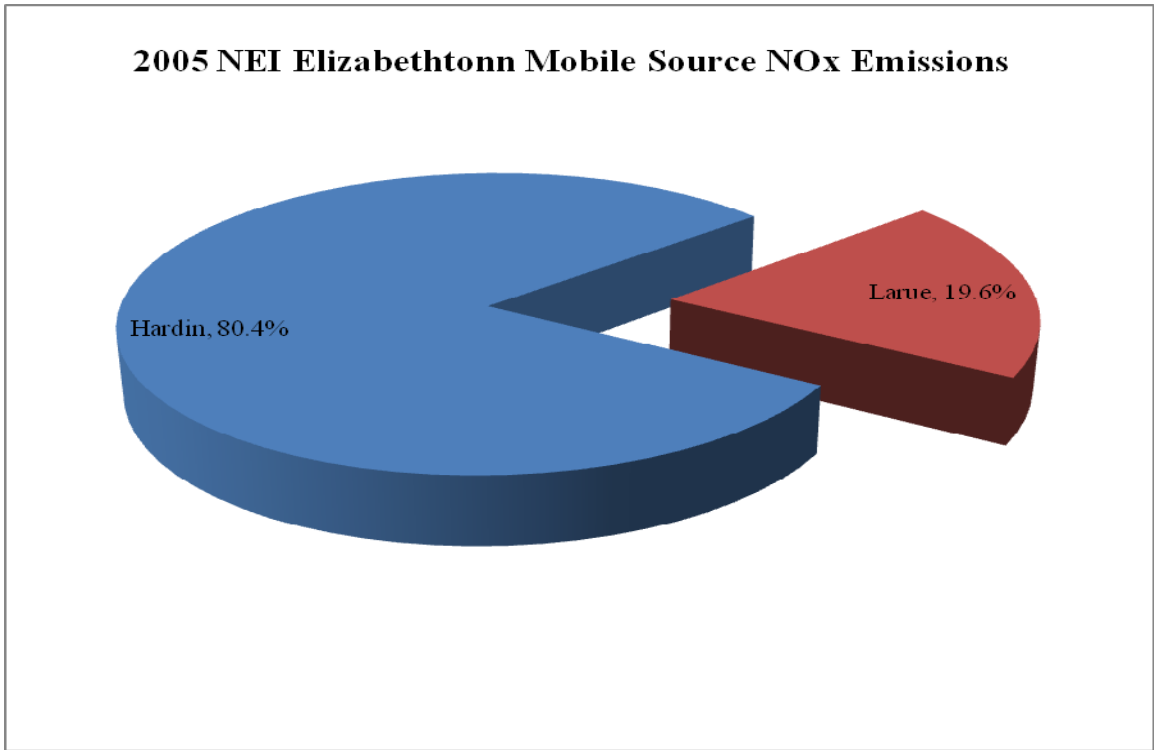
ELI-7



ELI-8



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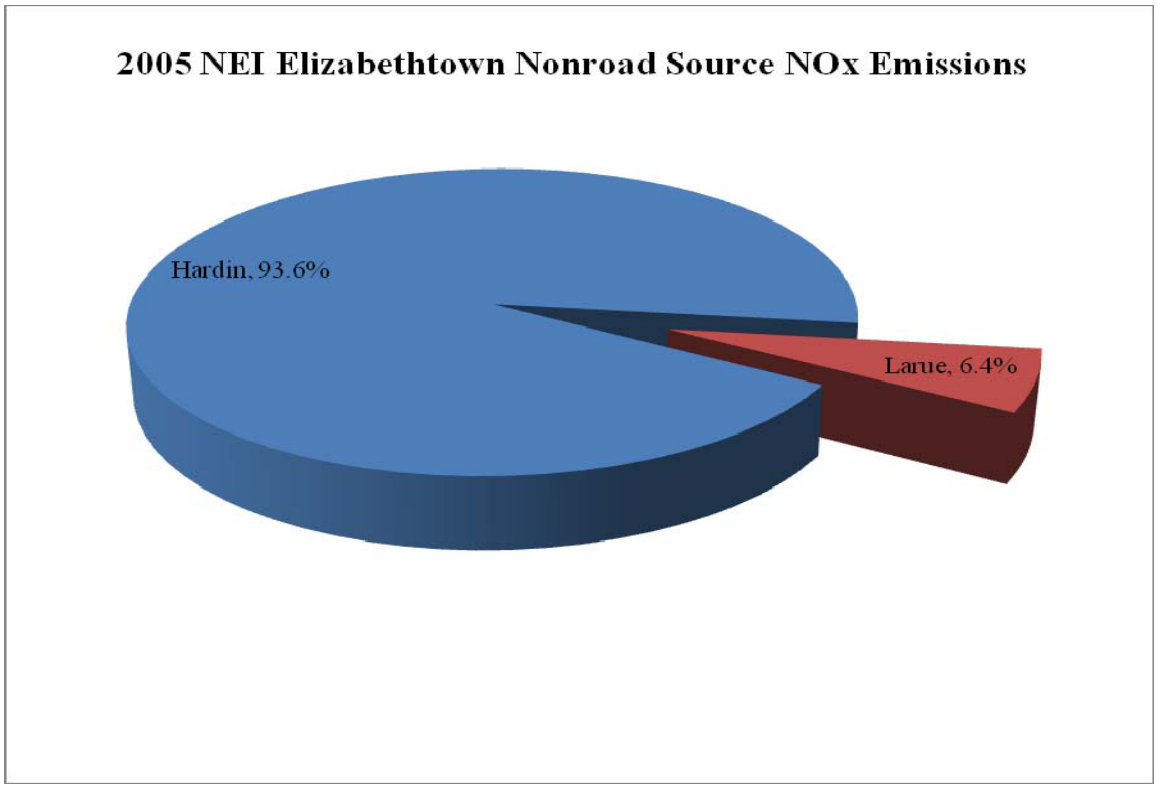
ELI-9



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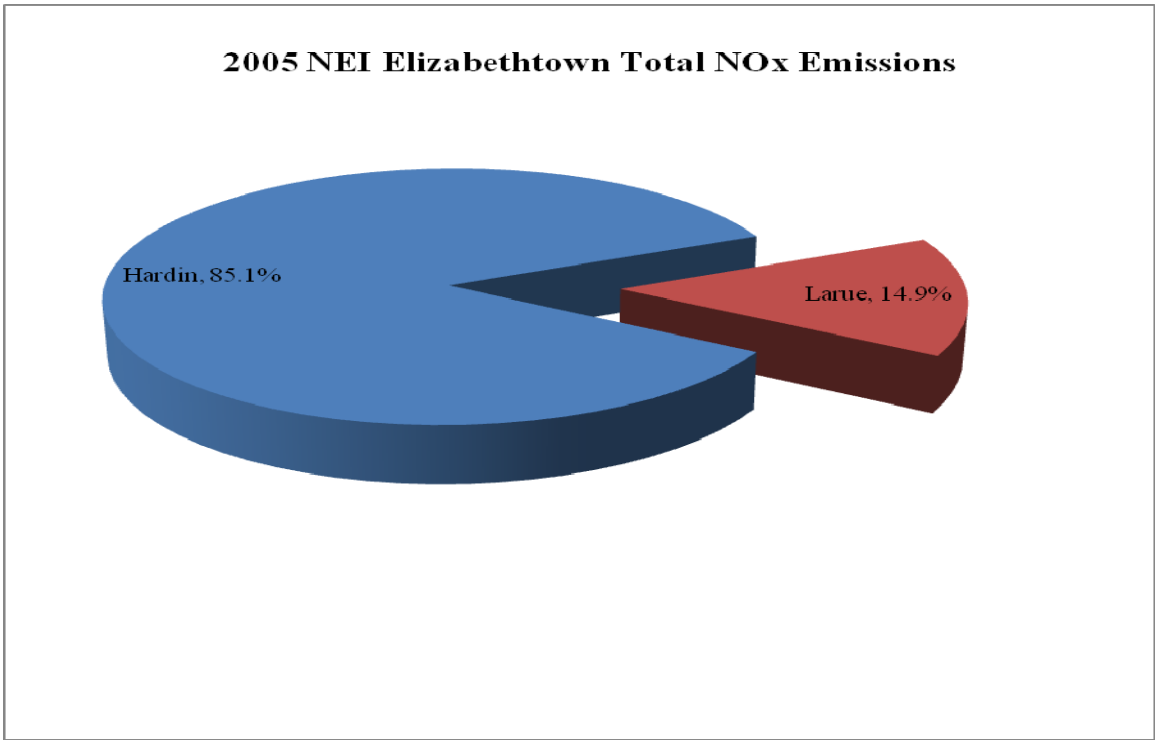

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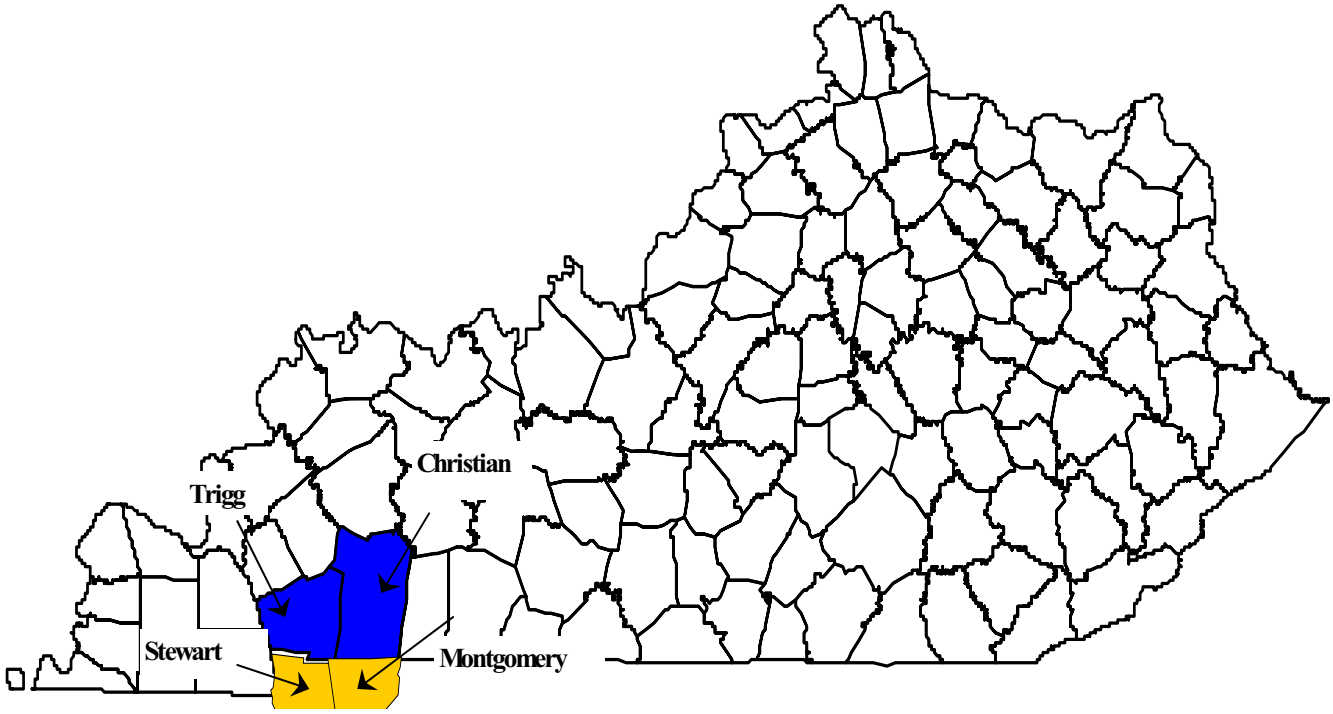
Clarksville, TN-KY, MSA



The Clarksville, Tennessee-Kentucky, Metropolitan Statistical Area (MSA) is ranked 175th in size among the MSAs within the United States. This MSA encompasses four counties, Montgomery and Stewart Counties, Tennessee, and Christian and Trigg Counties, Kentucky.

CHRISTIAN, KENTUCKY

Christian County is part of the Clarksville, Tennessee-Kentucky, Metropolitan Statistical Area (MSA) and is on the I-24 East-West interstate corridor. It is located directly south of Hopkins County, southwest of Muhlenberg County, southeast of Caldwell County, west of Todd County, and east of Trigg County. It is also directly north of Montgomery County, Tennessee, and north east of Stewart County, Tennessee.

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Geography/Topography

Christian County has a land area of 721 square miles. The Pennyrile Forest State Resort Park comprises the northwest corner of the county, and the Fort Campbell Military Reservation comprises the southwest county boundary. The south west corner of the county is also divided east-west by I-24 interstate corridor.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Franklin air monitoring site in Warren County for the period 2006-2008 shows that the majority of the time the wind in the area came from the southeast, and typically at less than 4 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 90°F and the average low was 67°F. The average precipitation for the same period was 3.56 inches.

Planning

The authority for air quality planning in the Christian County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for a small portion of southeastern Christian County is performed by the Clarksville Urbanized Area Metropolitan Planning Organization (CUAMPO) and the Kentucky Transportation Cabinet. The Kentucky Transportation Cabinet provides transportation planning for the majority of the county.

Air Monitoring

The Christian County ozone monitor (21-047-0006) shows the 3-year average (2006-2008) of the annual 98^{th} percentile of the 8-average is 0.078 parts per millions, which does not achieve the 8-hour ozone National Ambient Air Quality Standard (NAAQS – 0.075 parts per million).

The monitoring information for 2008 is complete and the latest available for Christian County, Kentucky. (See table 1)

Population

Based on projections to 2006 from the 2000 census data, there are 66,989 persons living in Christian County. (See table 3) That represents approximately 93 persons per square mile. The population of Christian County is approximately 72.6% rural with 27.4% of the people living in incorporated areas. The largest cities in Christian County are Hopkinsville and Oak Grove.

Christian County's population from 2000 through 2006 *decreased* by approximately 7.9% (72,265 to 66,989). The population in the county is expected to increase overall by 16.4% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Clarksville, TN-KY MSA, Christian County represents approximately 27.4% of the total population in the MSA and 83.3% of the Kentucky portion of the MSA. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory (NEI). (See tables 4 and 5)

Point Sources

Point source VOC emissions from Christian County were estimated at 415.15 tpy in 2005, which represents approximately 35.4% of the total 1174.26 tpy of the overall VOC point source emissions from the Clarksville, TN-KY MSA. (See chart CLK-1)

Point source NO_x emissions from Christian County were estimated at 108.85 tpy in 2005, which represents approximately 0.4% of the total 27520.28 tpy of the overall NO_x point source emissions from the Clarksville, TN-KY MSA. (See chart CLK-7)

Major point sources located within Christian County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

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Onroad Mobile

Onroad mobile source VOC emissions from Christian County were estimated at 1434.85 tpy in 2005, which represents approximately 28.6% of the total 5017.64 tpy of the overall VOC onroad mobile source emissions from the Clarksville, TN-KY MSA. (See chart CLK-3)

Onroad mobile source NO_x emissions from Christian County were estimated at 2514.19 tpy in 2005, which represents approximately 33.6% of the total 7476.84 tpy of the overall NO_x onroad mobile source emissions from the Clarksville, TN-KY MSA. (See chart CLK-9)

Based on 2006 information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Christian County is 39.6% and classified as high. The commuting traffic from Christian County into other counties is high at 33.9%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Christian County were estimated at 291.22 tpy in 2005, which represents approximately 11.1% of the total 2635.21 tpy of the overall VOC nonroad mobile source emissions from the Clarksville, TN-KY MSA. (See chart CLK-4)

Nonroad mobile source NO_x emissions from Christian County were estimated at 1024.91 tpy in 2005, which represents approximately 29.6% of the total 3464.57 tpy of the overall NO_x nonroad mobile source emissions from the Clarksville, TN-KY MSA. (See chart CLK-10)

Area Sources

Area source VOC emissions from Christian County were estimated at 1702.60 tpy in 2005, which represents approximately 14.0% of the total 12149.74 tpy of the overall VOC area source emissions from the Clarksville, TN-KY MSA. (See chart CLK-2)

Area source NO_x emissions from Christian County were estimated at 314.30 tpy in 2005, which represents approximately 23.6% of the total 1334.00 tpy of the overall NO_x area source emissions from the Clarksville, TN-KY MSA. (See chart CLK-8)

Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky and Tennessee area of evaluation was performed using the 2005 NEI data.

Charts CLK-5 and CLK-6 provide a comparison of VOC emissions across the entire region.

Charts CLK-11 and CLK-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

Christian County, based on 2006 – 2008 ozone monitoring and emissions data, is meeting the 8-hour ozone standard with a 3-year average of 0.078 parts per million.

In the Clarksville, TN-KY MSA, Christian County contributes approximately:

- 18.3% of total VOC emissions (18,853 tpy)
- 10.0% of total NOx emissions (64,973 tpy)

See charts CLK-6 for VOC, CLK-12 for NO_x.

The majority of precursors, NO_x and VOC, are from Stewart County, TN. Regional proportional comparisons are depicted in CLK-7 and CLK-12 for NO_x and CLK-13 and CLK-18 for VOC. These comparisons show major contributions from Stewart County, and the largest point source in Stewart County is Tennessee Valley Authority's Cumberland Fossil Plant located on the shores of Barkley Reservoir on the Cumberland River near Cumberland City.

The monitoring and emissions data and other documentation presented indicate that Christian County, Kentucky, does not contribute a significant amount of emissions that contribute to ozone formation in the Clarksville, TN-KY MSA.

However, based on the monitoring data showing a violation, Christian County should be designated nonattainment for the 8-hour ozone standard.

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TRIGG COUNTY, KENTUCKY

Trigg County is part of the Clarksville, Tennessee-Kentucky, Metropolitan Statistical Area (MSA) and is divided east-west by Interstate Highway 24. It is located to the east of Marshall and Calloway Counties, to the west of Christian County, to the southeast of Lyon County, and to the south of Caldwell County. It is also directly to the north of Stewart County, Tennessee.

Geography/Topography

Trigg County has a land area of 443 square miles and Fort Campbell Military Reservation forms much of the southeastern corner of the county. Lake Barley and its watershed comprise much of the central portion, extending from the northwest border to the state line on the southern county boundary. The larger Kentucky Lake forms the southwestern county boundary.

Meteorological Information

Wind speed and wind direction data collected by the Division from the Franklin, Kentucky air monitoring site for the period 2006-2008 shows that the majority of the time the wind in the area came from the southeast, and typically at less than 4 miles per hour. (See figure 1) According to the University of Kentucky Agricultural Weather Center, the average high temperature for July for the area from 2006 through 2008 was 90°F and the average low was 67°F. The average precipitation for the same period was 3.56 inches.

Planning

The authority for air quality planning in the Trigg County area resides with the Kentucky Energy and Environment Cabinet. Transportation planning for Trigg County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2006 – 2008 monitoring period, there were no ozone monitors located in Trigg County.

The Christian County ozone monitor (21-047-0006) shows the 3-year average (2006-2008) of the annual 98th percentile of the 8-average is 0.078 parts per millions, which does not achieve the 8-hour ozone National Ambient Air Quality Standard (NAAQS – 0.075 parts per million).

The monitoring information for 2008 is complete and the latest. (See table 1)

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Population

Based on projections to 2006 from the 2000 census data, there are 13,399 persons living in Trigg County. (See table 3) That represents approximately 30 persons per square mile. The population of Trigg County is approximately 78.9% rural with 21.1% of the people living in incorporated areas. The largest city in Trigg County is Cadiz.

Trigg County's population from 2000 through 2006 increased by approximately 6.4% (12,597 to 13,399). The population in the county is expected to increase overall by 17.4% between 2000 and 2015. (See table 2)

Based on 2006 population data for the Clarksville, TN-KY, MSA, Trigg County represents approximately 5.6% of the total population in the MSA and 16.7% of the Kentucky portion of the area. (See table 3)

Air Emissions

The emissions presented in this document are in tons per year (tpy) from the 2005 National Emissions Inventory (NEI). (See tables 4 and 5)

Point Sources

Point source VOC emissions from Trigg County were estimated at 18.19 tpy in 2005, which represents approximately 1.5% of the total 1174.26 tpy of the overall VOC point source emissions from the Clarksville, TN-KY MSA. (See chart CLK-1)

Point source NO_x emissions from Trigg County were estimated at 3.17 tpy in 2005, which represents nearly zero percent of the total 27520.28 tpy of the overall NO_x point source emissions from the Clarksville, TN-KY MSA. (See chart CLK-7)

Major point sources located within Trigg County are subject to New Source Review (NSR), non-CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants (HAPS), and New Source Performance Standards (NSPS). Sources are also subject to applicable requirements imposed by the Clean Air Interstate Rule (CAIR), and the NOx SIP Call. Also 401 KAR 50:012 applies to sources statewide, requiring that "all major air contaminant sources shall as a minimum apply control procedures that are reasonable, available, and practical."

Onroad Mobile

Onroad mobile source VOC emissions from Trigg County were estimated at 322.95 tpy in 2005, which represents approximately 6.4% of the total 5017.64 tpy of the overall VOC onroad mobile source emissions from the Clarksville, TN-KY MSA. (See chart CLK-3)

Onroad mobile source NO_x emissions from Trigg County were estimated at 835.25 tpy in 2005, which represents approximately 11.2% of the total 7476.84 tpy of the overall NO_x onroad mobile source emissions from the Clarksville, TN-KY MSA. (See chart CLK-9)

Based on 2006 information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Trigg County is 40.1% and classified as high. The commuting traffic from Trigg County into other counties is high at 50%.

Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Nonroad Sources

Nonroad mobile source VOC emissions from Trigg County were estimated at 800.98 tpy in 2005, which represents approximately 30.4% of the total 2635.21 tpy of the overall VOC nonroad mobile source emissions from the Clarksville, TN-KY MSA. (See chart CLK-4)

Nonroad mobile source NO_x emissions from Trigg County were estimated at 379.89 tpy in 2005, which represents approximately 11.0% of the total 3464.57 tpy of the overall NO_x nonroad mobile source emissions from the Clarksville, TN-KY MSA. (See chart CLK-10)

Area Sources

Area source VOC emissions from Trigg County were estimated at 4454.65 tpy in 2005, which represents approximately 36.7% of the total 12149.74 tpy of the overall VOC area source emissions from the Clarksville, TN-KY MSA. (See chart CLK-2)

Area source NO_x emissions from Trigg County were estimated at 359.11 tpy in 2005, which represents approximately 26.9% of the total 1334 tpy of the overall NO_x area source emissions from the Clarksville, TN-KY MSA. (See chart CLK-8)

These elevated area source numbers are due to a fire event that occurred in Trigg County in 2005.

Comparison of Total Emissions

A comparison of total emissions across the entire Kentucky and Tennessee area of evaluation was performed using the 2005 NEI data.

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Charts CLK-5 and CLK-6 provide a comparison of VOC emissions across the entire region.

Charts CLK-11 and CLK-12 provide a comparison of NO_x emissions across the entire region.

Conclusion and Recommendation

For the 2006 – 2008 monitoring period, there were no ozone monitors located in Trigg County.

In the Clarksville, TN-KY MSA, Trigg County contributes approximately:

- 26.7% of total VOC emissions (18,853 tpy)
- 4.0% of total NOx emissions (64,973 tpy)

See charts CLK-6 for VOC, CLK-12 for NO_x.

The emissions data and other documentation presented indicate that Trigg County, Kentucky, does not contribute a significant amount of emissions that contribute to ozone formation in the Clarksville, TN-KY, MSA.

Therefore, Trigg County should be designated attainment for the ozone 8-hour standard.

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Figure 1
Kentucky Area Wind Rose Patterns
2006-2008

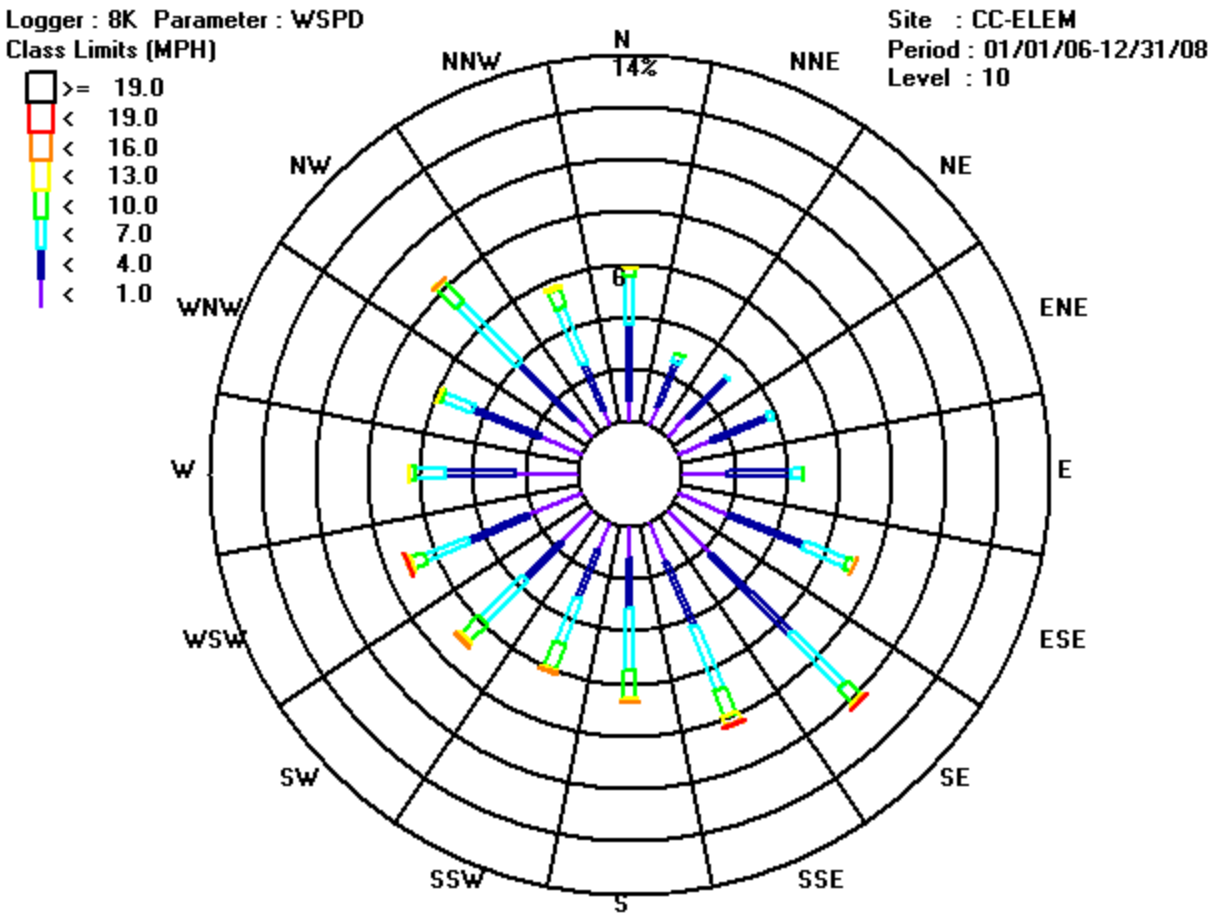

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Table 1
Clarksville, TN-KY MSA
3-year Average* of Annual 8-hour for ozone
(parts per million)

Monitor	2006	2007	2008	3-year Average
Kentucky County				
Christian 21-047-0006	0.076	0.089	0.069	0.078
Trigg 21-221-0013	n/a	0.078	0.071	n/a
Tennessee County				
Montgomery	-	-	-	n/a
Stewart	-	-	-	n/a

* NAAQS 8-hour (3 year average of the 4th max value). 0.08ppm

N/A indicates no monitor data for that county.

Table 2
Kentucky Portion of the Clarksville, TN-KY MSA
Population Growth Data

County	Census 2000	2006*	%Growth 2000-2006	2015*	%Growth 2000 - 2015
Christian	72,265	66,989	-7.9%	84,144	16.4%
Trigg	12,597	13,399	6.4%	14,789	17.4%

*U.S. Census Bureau projections to July 1, 2006 and 2015

Table 3
Clarksville, TN-KY MSA
2006 Estimated Population Data

	2006*	% of Total	
Kentucky County		of KY Portion	of MSA
Christian	66,989	83.3%	27.9%
Trigg	13,399	16.7%	5.6%
KY Total	80,388	-	33.4%
Tennessee County			
Montgomery	147,114	91.9%	61.2%
Stewart	12,998	8.1%	5.4%
TN Total	160,112	-	66.6%
MSA Total	240,500		

*U.S. Census Bureau estimated for 2006.

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Table 4
2005 NEI Clarksville, TN-KY MSA
Total VOC Emissions
(tons per year)

County	VOC				
	Point	Area	Mobile	Nonroad	Total
Christian	415.15	1702.60	1434.85	291.22	**3843.82**
Trigg	18.19	4454.65	322.95	800.98	**5596.77**
KY Total	**433.33**	**6157.25**	**1757.80**	**1092.21**	**9440.59**
Montgomery, TN	542.16	2826.77	3005.23	706.90	**7081.06**
Stewart, TN	198.76	3165.71	254.62	836.10	**4455.20**
TN Total	**740.93**	**5992.48**	**3259.85**	**1543.00**	**11536.26**
Total Emissions	**1174.26**	**12149.74**	**5017.64**	**2635.21**	**20976.85**

Table 5
2005 NEI Clarksville, TN-KY MSA
Total NO_x Emissions
(tons per year)

County	NOx				
	Point	Area	Mobile	Nonroad	Total
Christian	108.85	314.30	2514.19	1024.91	**3962.24**
Trigg	3.17	359.11	835.25	379.89	**1577.42**
KY Total	**112.01**	**673.40**	**3349.44**	**1404.80**	**5539.66**
Montgomery, TN	142.42	425.01	3815.64	1093.79	**5476.86**
Stewart, TN	27265.84	235.59	311.75	965.98	**28779.16**
TN Total	**27408.26**	**660.60**	**4127.39**	**2059.77**	**34256.02**
Total Emissions	**27520.28**	**1334.00**	**7476.84**	**3464.57**	**39795.68**

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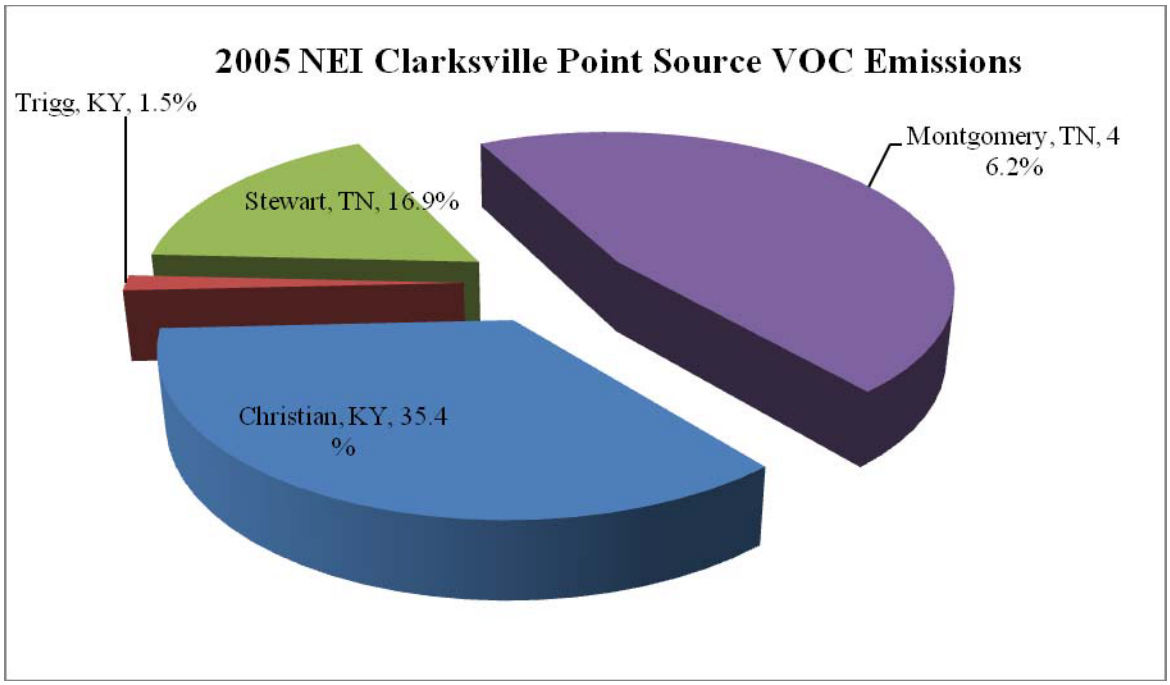
CLK-1



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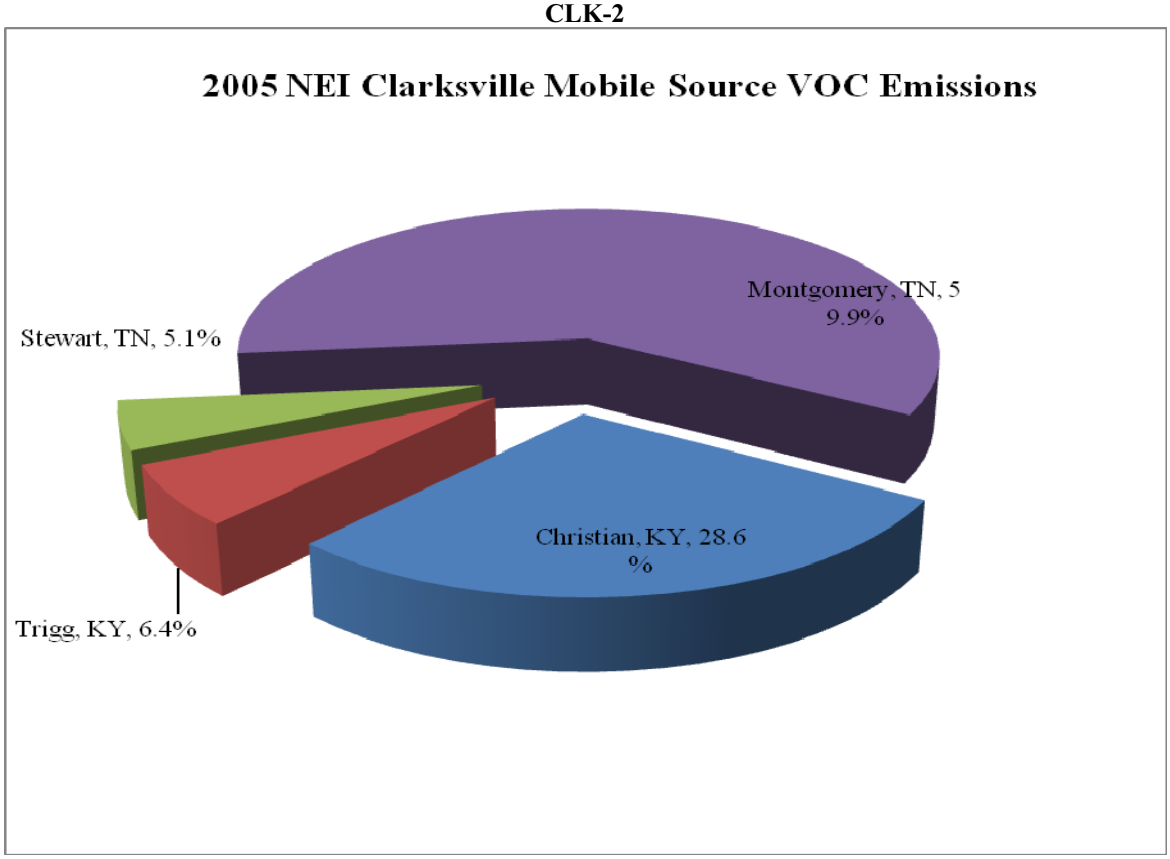

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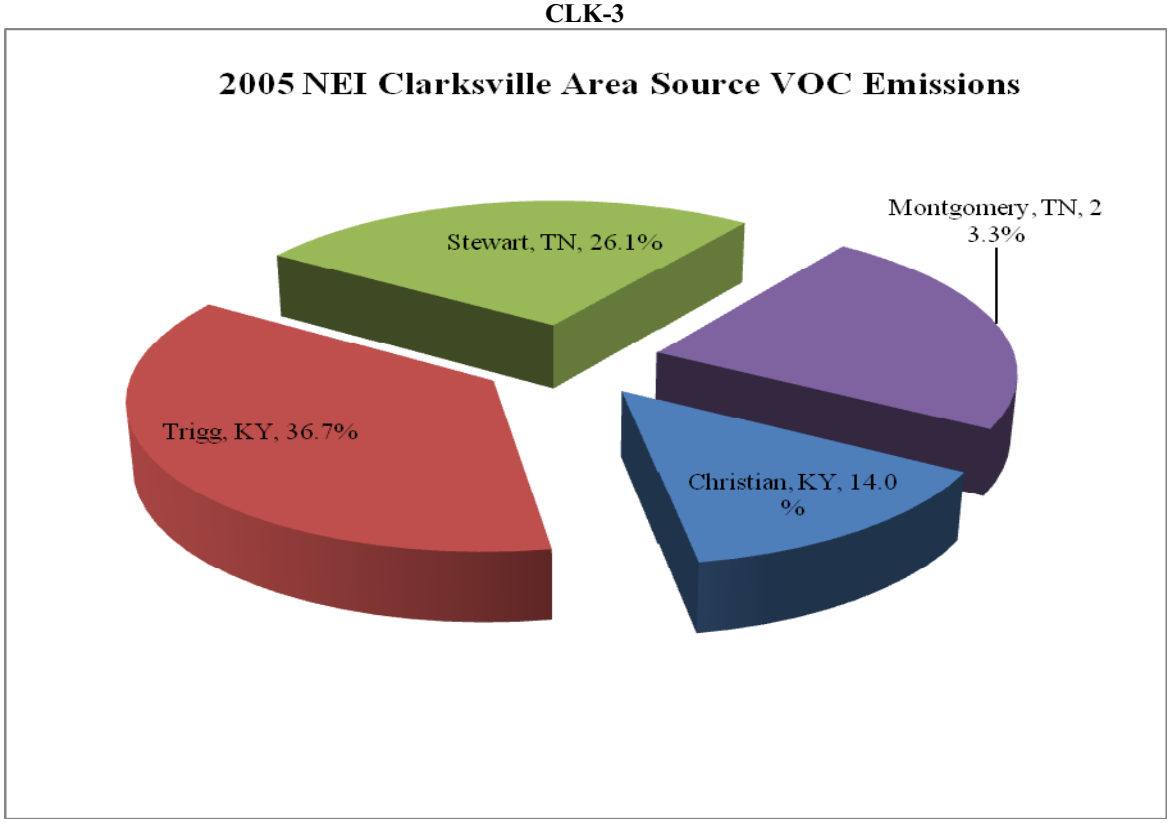

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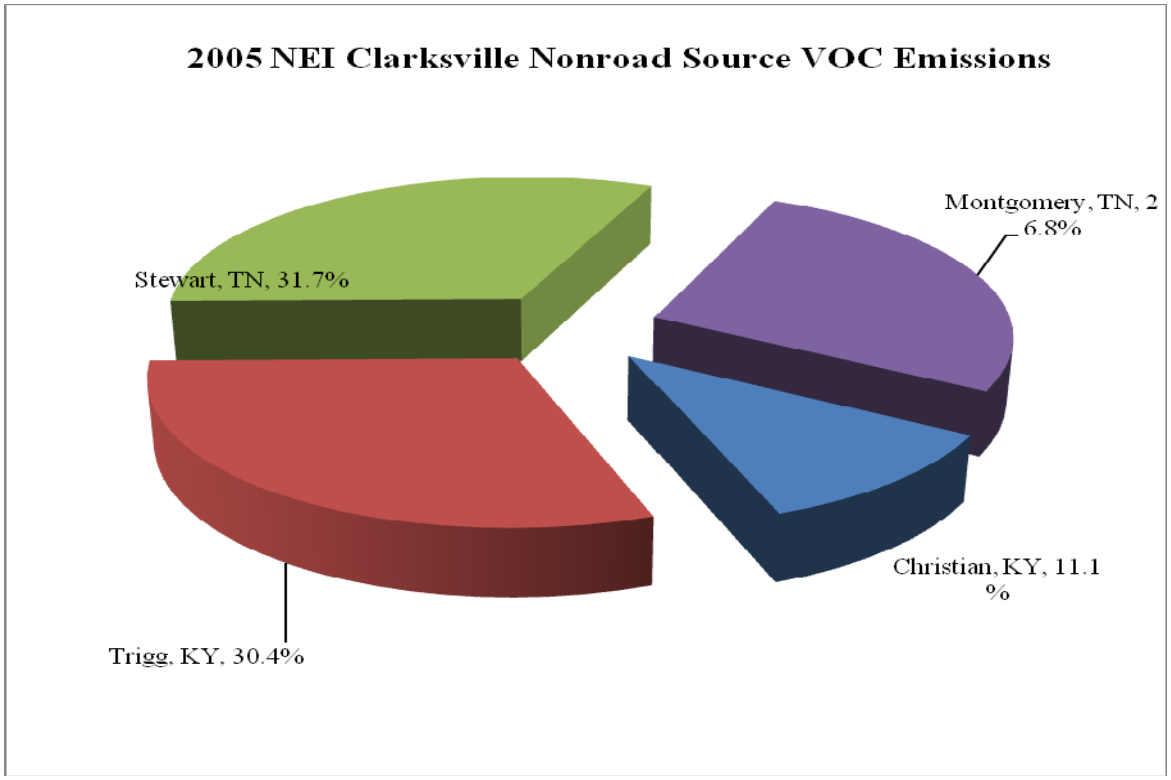

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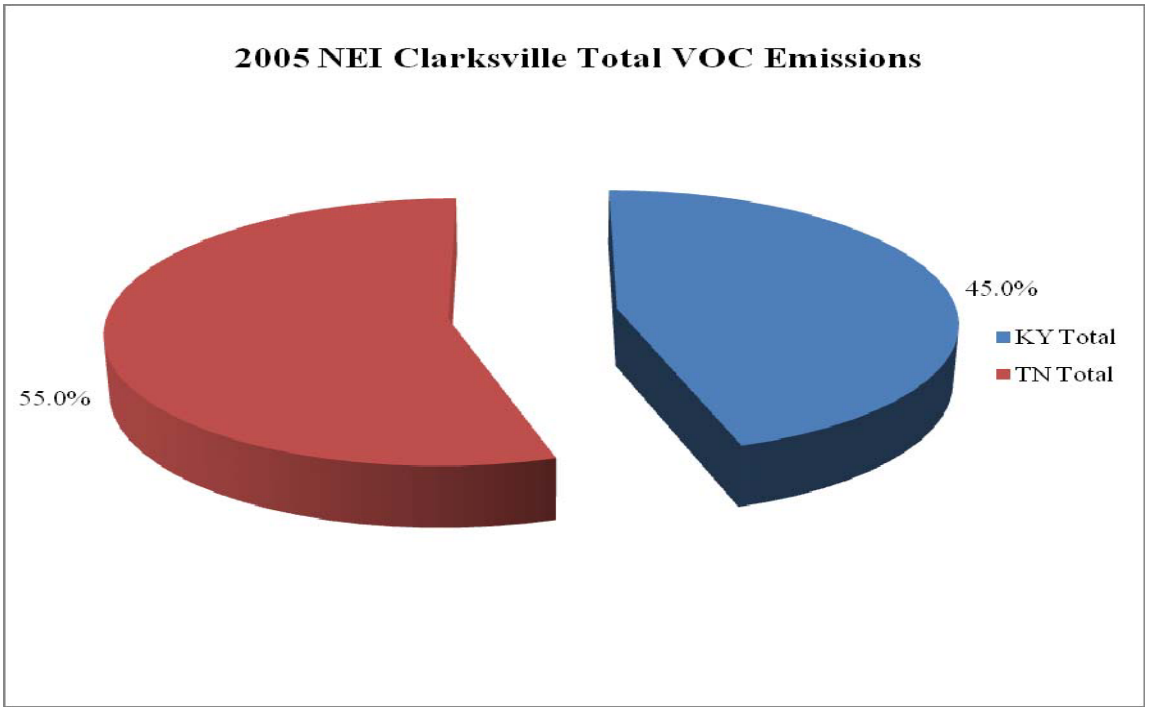

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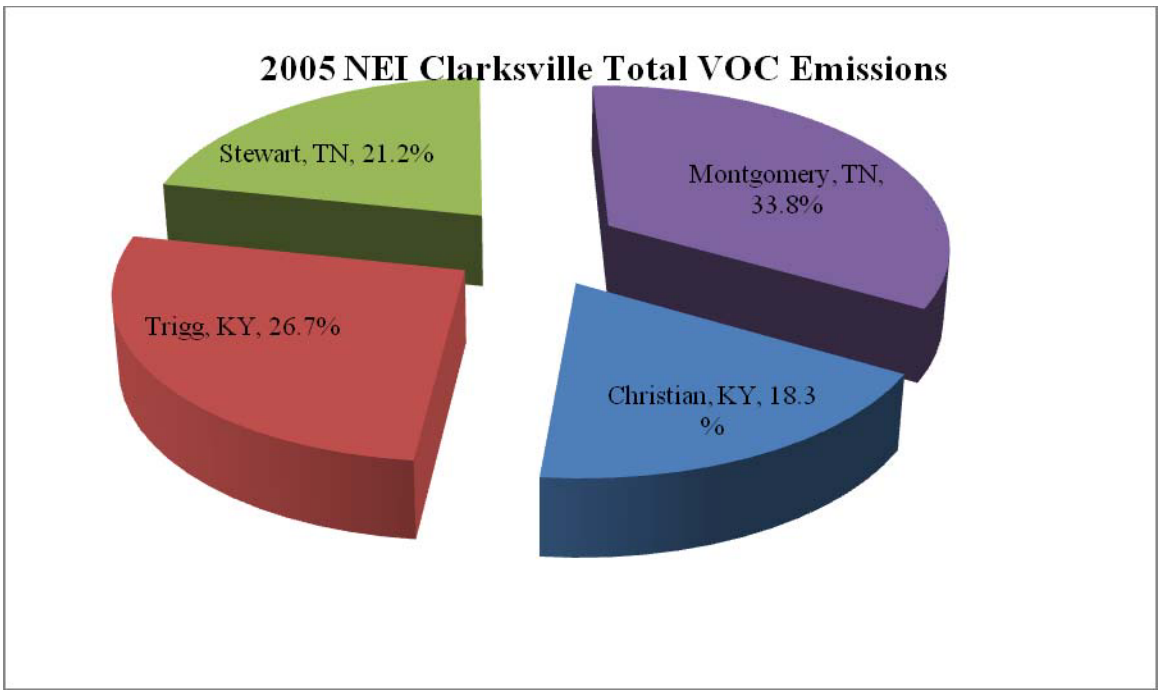

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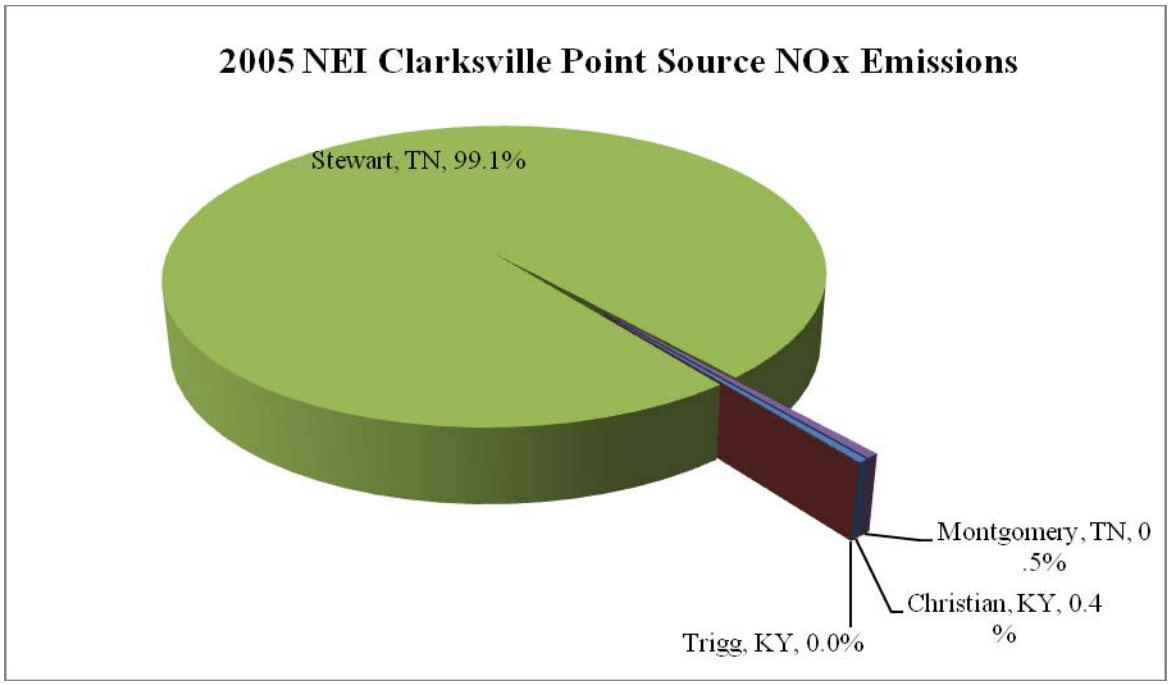

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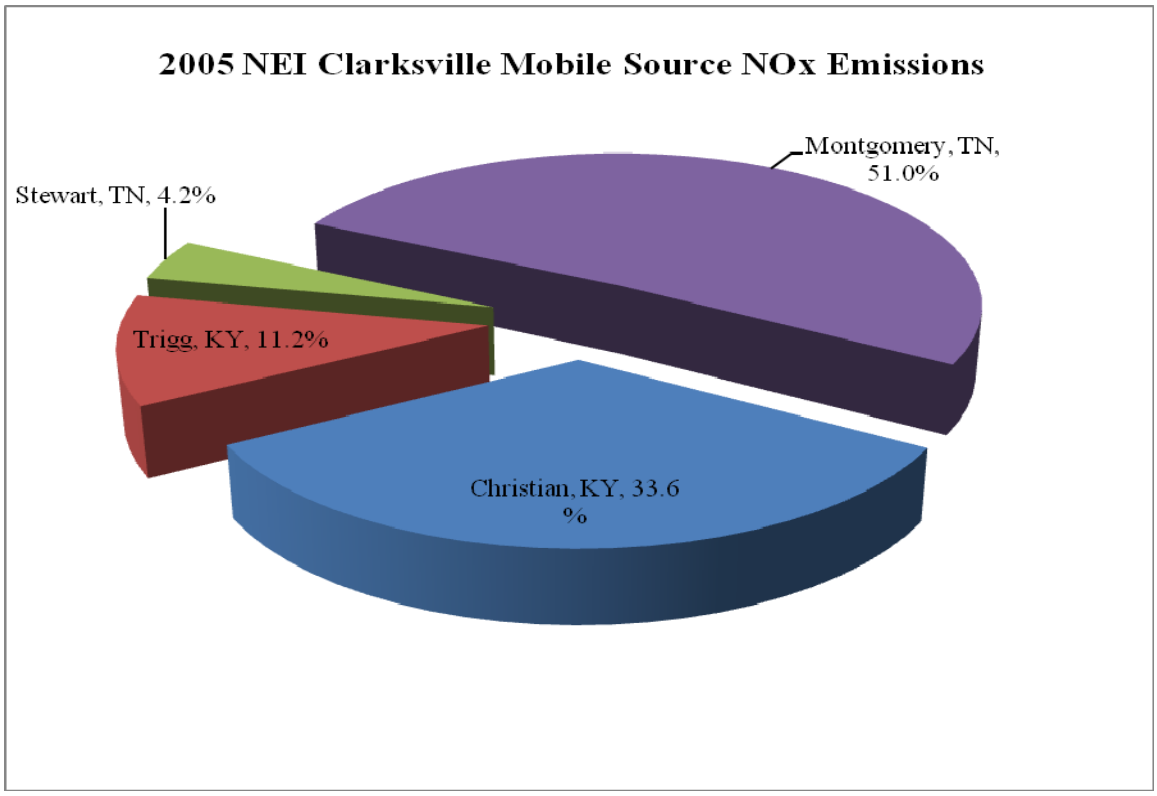

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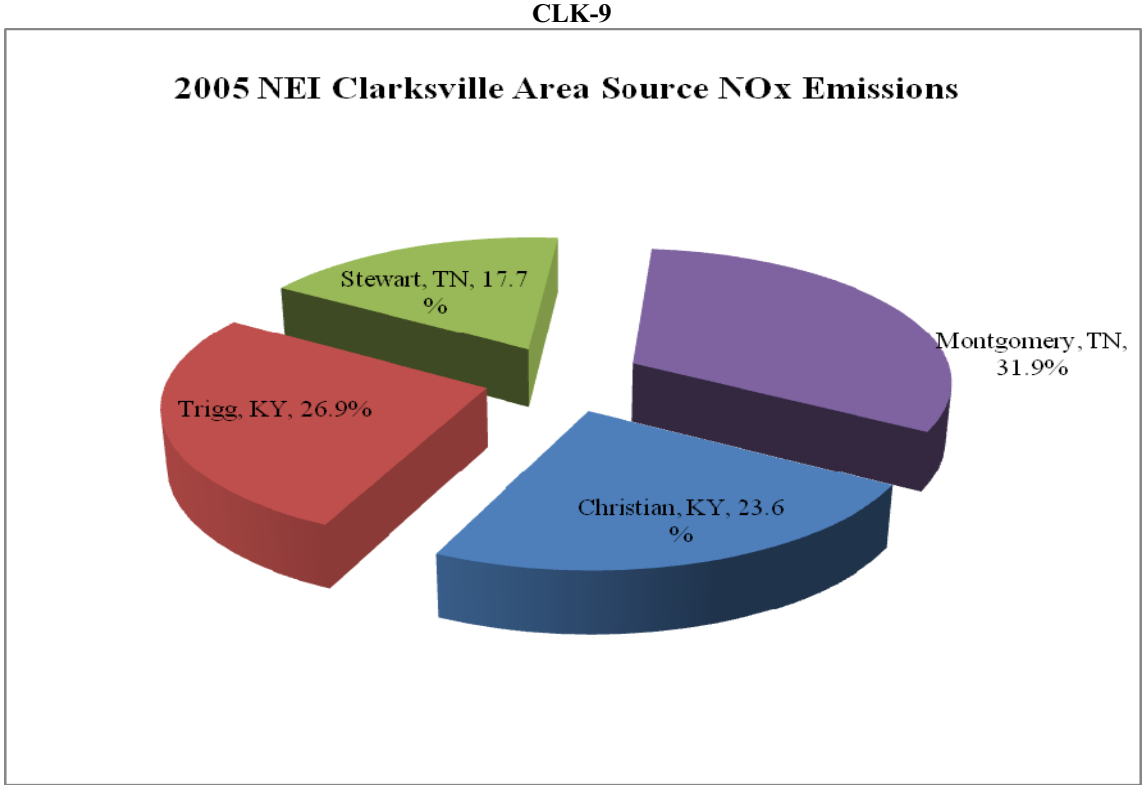

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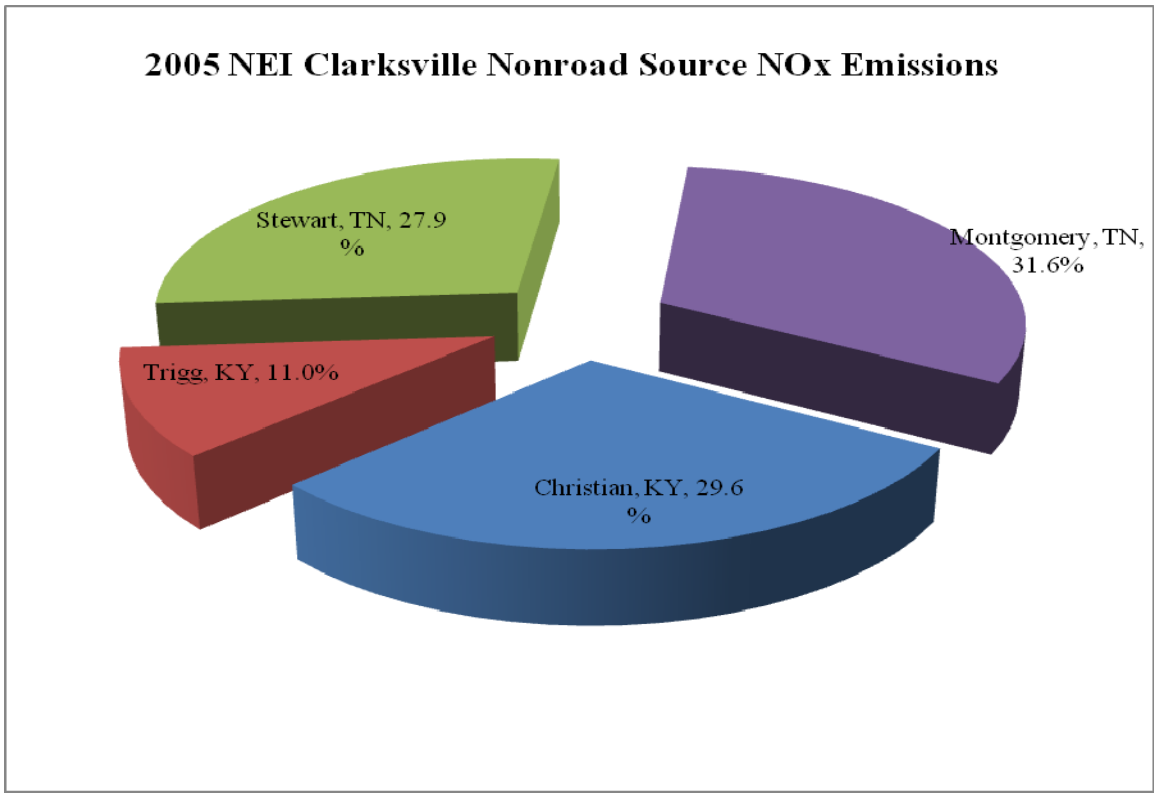

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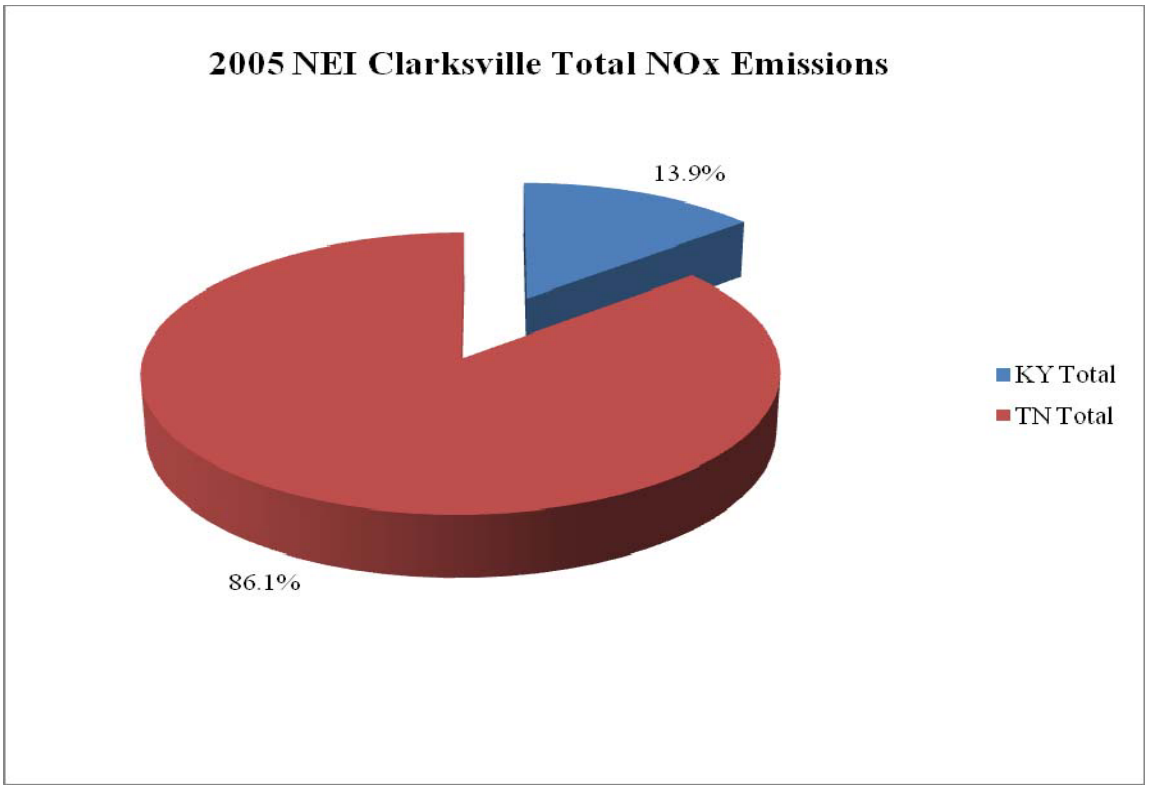

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