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February 20, 2004

Mr. James I. Palmer, Jr.
Regional Administrator
U.S. EPA, Region 4
Atlanta Federal Center
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-8960

Dear Mr. Palmer:

On May 21, 2003, you notified Kentucky's Governor that proposed boundary designations under the new PM_{2.5} fine particulate standard were due by February 15, 2004. At that time, EPA recommended that states use 2000-2002 fine particulate monitoring data to make those recommendations. Your office transmitted guidance dated April 1, 2003, from Jeffrey Holmstead setting presumptive nonattainment boundaries and offering states an opportunity to address several factors in assessing whether to exclude portions of metropolitan areas from nonattainment designation.

EPA has yet to release draft implementation guidance on what the potential impacts may be for areas designated as nonattainment under the new fine particulate standard. States will be faced with many challenges implementing this standard. Having no clear guidance on implementation issues associated with these designations impedes our ability to explain potential impacts of the designations to our local communities.

Nonetheless, section 107 of the Clean Air Act requires states to propose designations for areas within their respective boundaries, as attainment or nonattainment areas. In order to comply with those provisions in the Act, Kentucky offers the following designation recommendations under the PM_{2.5} standard. Supporting documentation, based on EPA's guidance criteria is enclosed.

James. I. Palmer
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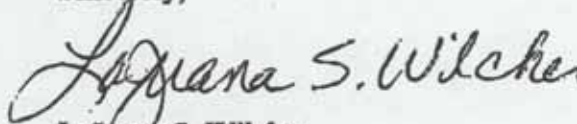
<u>Designation</u>	<u>County</u>
Nonattainment	Jefferson
Nonattainment	Fayette
Defer Designation	Boyd
Attainment	Rest of State

You will note that Kentucky has chosen to defer designation of Boyd County as either attainment or nonattainment for PM_{2.5}. This is due to the significant variations in the ambient monitoring data, the substantial decline in emissions within Boyd County, and the current anticipated improvements in air quality in the tri state metropolitan statistical area over the next two years. As these improvements will be achieved well before any control plans might conceivably be implemented, it appears premature to make a determination for Boyd County at this time. Jefferson and Fayette Counties are designated as nonattainment, and all remaining counties are designated as attainment.

Kentucky wishes to comply with the Act and cooperate with U.S. EPA to improve and preserve air quality for the citizens of the Commonwealth. We remain concerned about the environmental and economic impacts of implementation of this standard, since implementation requirements for these areas are still being debated on a national level. Therefore, I urge EPA to complete its implementation guidelines as quickly and judiciously as possible.

Please call me if you have any questions or would like to discuss in greater detail.

Sincerely,

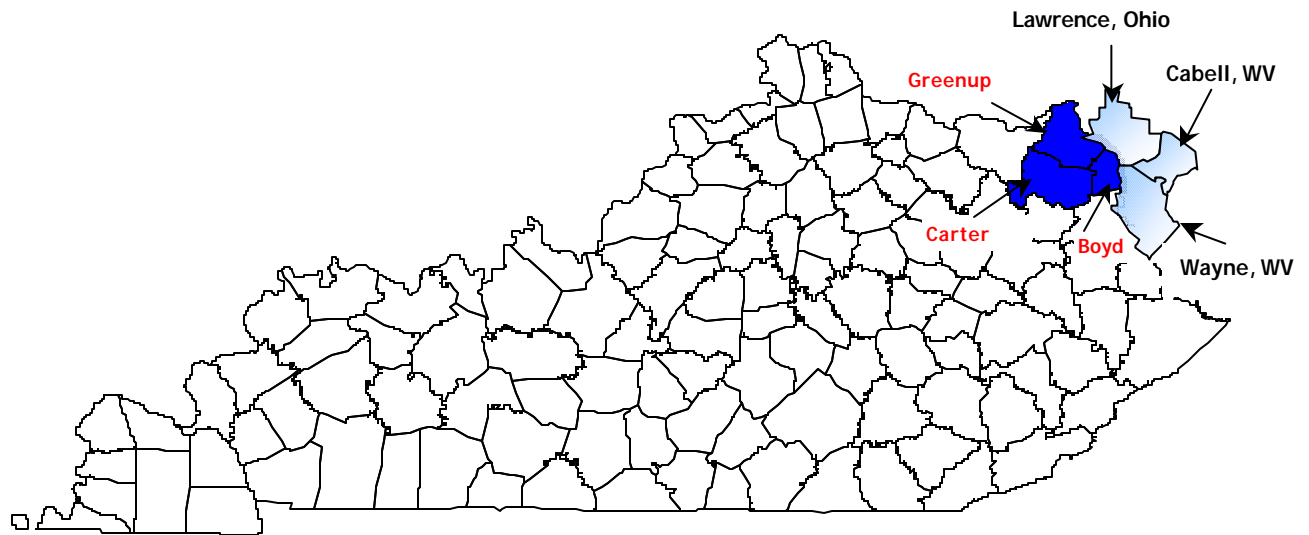


Lajuana S. Wilcher
Secretary

Enclosure

c: Kay Prince
John Lyons
Lona Brewer

Kentucky Portion of the Huntington-Ashland, WV-KY-OH MSA



The Huntington-Ashland Metropolitan Statistical Area (MSA) encompasses three states and six counties. It includes Lawrence County in Ohio, Cabell and Wayne Counties in West Virginia, and Boyd, Greenup, and Carter Counties in Kentucky. In 2001, this MSA was listed as the 128th largest MSA within the United States.

BOYD COUNTY, KENTUCKY

Boyd County is part of the Huntington-Ashland Metropolitan Statistical Area (MSA) and is located to the south-southeast of Greenup County, Kentucky, and to the east-northeast of Carter County, Kentucky, and north of Lawrence County, Kentucky.

Geography/Topography

Boyd County has a land area of 160 square miles and is located on the banks of the Ohio River in the Appalachian foothills of the tri-state area of Kentucky, Ohio and West Virginia. Although part of the Eastern Kentucky Coal Field Region, the topography of this area is less rugged than that of other eastern Kentucky counties.

Meteorological Information

Due to the close proximity of Huntington, West Virginia, meteorological data from Huntington was used for this Kentucky area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Huntington-Ashland area came from the southwest and typically from 4-6 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 85°F and the mean low was 65°F. The mean precipitation for the same period was 4.5 inches.

Planning

The authority for air quality planning in the Ashland area resides with the Kentucky Environmental and Public Protection Cabinet. Transportation planning for Boyd County is performed by FIVCO in conjunction with the Kentucky Transportation Cabinet.

Air Monitoring

For the 2001 - 2003 monitoring period, the PM_{2.5} monitor (21-019-0017) in Ashland, Boyd County, shows an annual average design value of 14.9 micrograms per cubic meter, which would be in attainment of the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS) (15 micrograms per cubic meter). However, because the Cabell County, West Virginia, and Lawrence County, Ohio, PM_{2.5} monitors have a probable PM_{2.5} design value exceeding the annual PM_{2.5} standard, information for Boyd County is being presented in this document. The monitoring information for 2003 is complete for the Kentucky counties. However, the 2003 monitoring data reported for the West Virginia and Ohio counties is the latest available and is not complete through December 2003. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 49,603 persons living in Boyd County. (See table 1-C) That represents approximately 310 persons per square mile. The population of Boyd County is approximately 25.7% rural with the remaining 74.3% living in incorporated areas. The largest cities in Boyd County are Ashland and Catlettsburg. (See table 1-C)

Boyd County's population from 1990 through 2000 decreased by approximately 2.7% (51,150 to 49,752). The population is further expected to decrease by an additional 3.2% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the entire Huntington-Ashland WV-KY-OH MSA, Boyd County represents approximately 16% of the total 2002 population in the MSA and 44% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

With the exception of SO_x point source emissions for Lawrence County, Ohio, the emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). The division discovered a discrepancy in the 1999 NEI for SO_x point source emissions from that county and confirmed what the appropriate emissions should have been. In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles. Ammonia (NH₃) emissions, which are an important PM_{2.5} emissions precursor, are also provided in this document.

Point Sources (Industry)

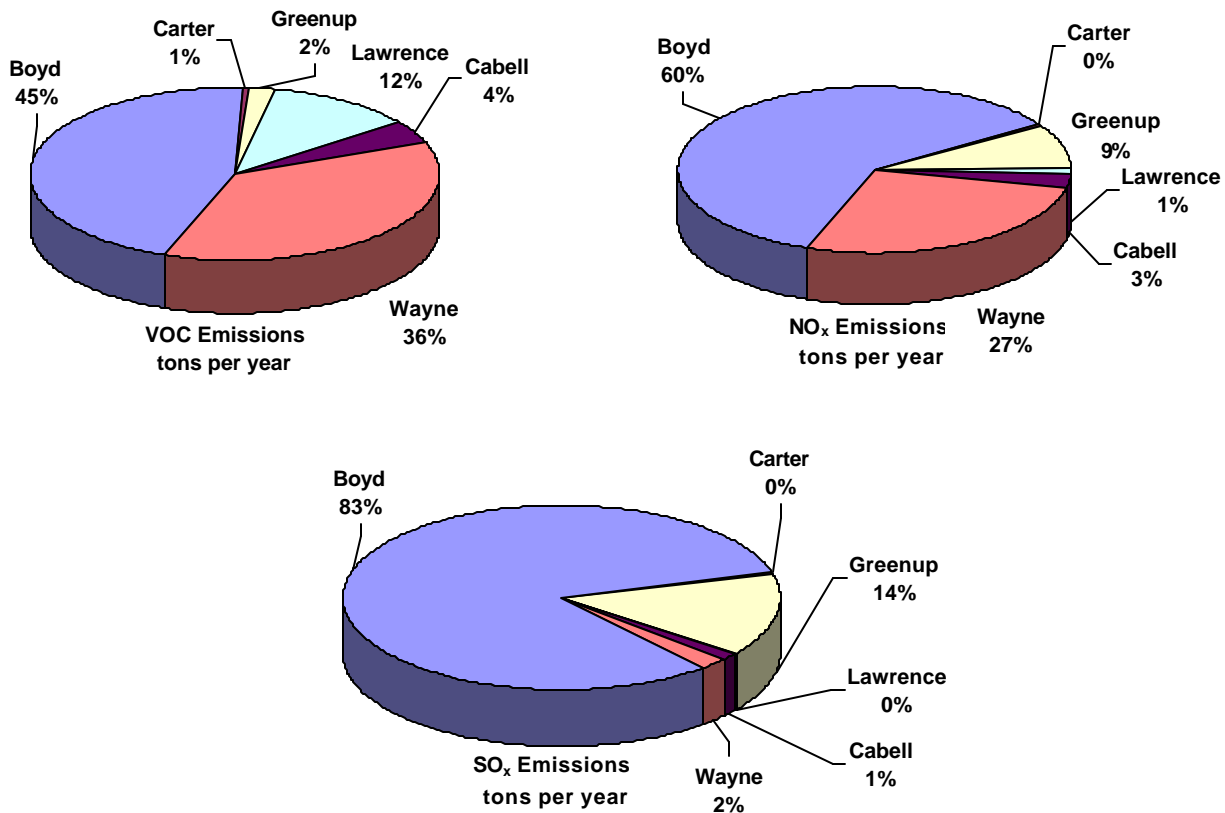
Point source VOC emissions from Boyd County were estimated at 2,696 tons per year (tpy) in 1999, which represents approximately 45% of the total 6,001 tpy overall VOC point source emissions from the Huntington-Ashland area. Point source NO_x emissions from Boyd County were estimated at 7,725 tpy in 1999, which represents approximately 60% of the total 12,825 tpy overall NO_x point source emissions from the Huntington-Ashland area. (See table 1-D)

Point source SO_x emissions from Boyd County were estimated at 10,440 tons per year in 1999, which represents approximately 83% of the total 12,769 tpy overall SO_x point source emissions from the Huntington-Ashland area. (See table 1-E)

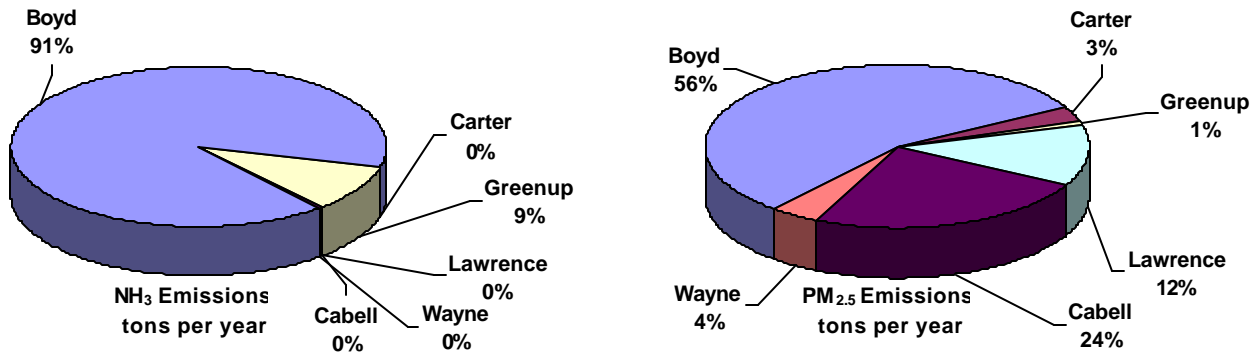
Point source NH₃ emissions from Boyd County were estimated at 349 tpy in 1999, which represents approximately 91% of the total 386 tpy overall NH₃ point source emissions from the Huntington-Ashland area. (See table 1-F)

Point source PM_{2.5} emissions from Boyd County were estimated at 1,131 tons per year (tpy) in 1999, which represents approximately 56% of the total 2,021 tpy overall PM_{2.5} point source emissions from the Huntington-Ashland area. (See table 1-G)

1999 NEI Huntington-Ashland MSA Point Source Emissions (tons per year)



1999 NEI Huntington-Ashland MSA Point Source Emissions (continued)



Point sources located within Boyd County are subject to PSD requirements (except for SO₂ where NSR applies for the southern portion of Boyd County), CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

Onroad Mobile

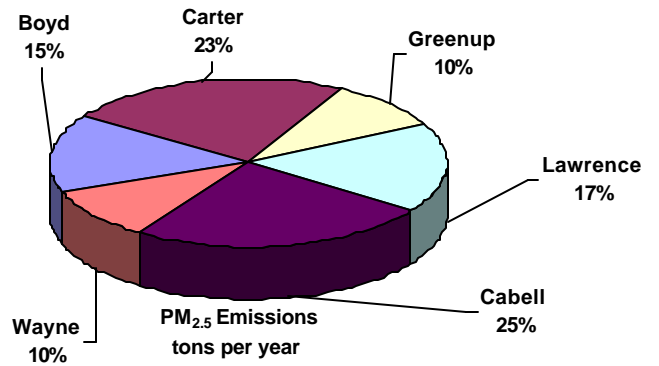
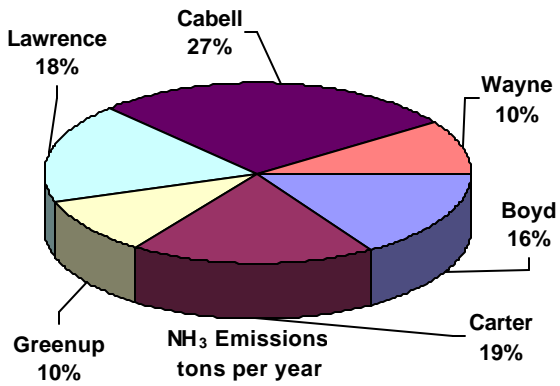
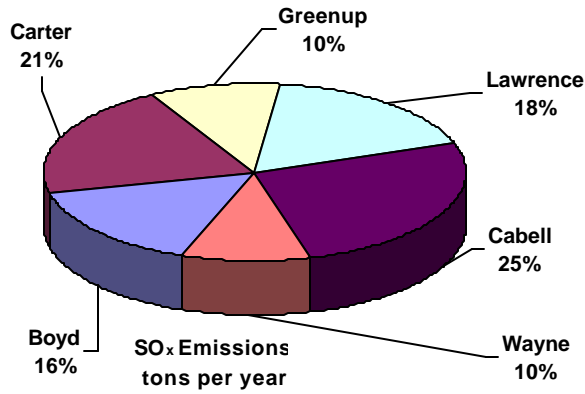
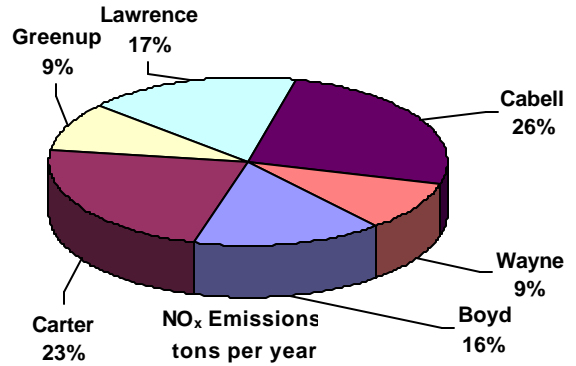
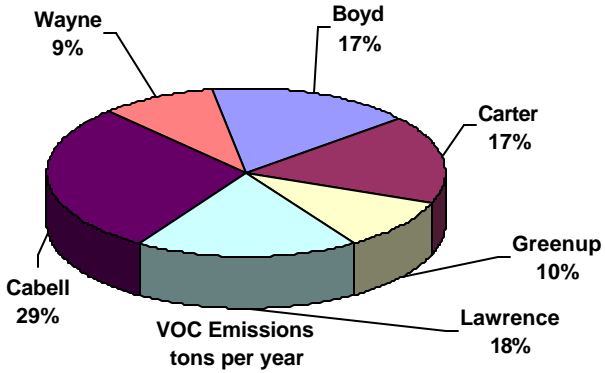
Onroad mobile source VOC emissions from Boyd County were estimated at 1,235 tons per year (tpy) in 1999, which represents approximately 17% of the total 7,364 tpy of overall VOC onroad mobile source emissions from the Huntington-Ashland area. Onroad mobile source NO_x emissions from Boyd County were estimated at 1,849 tpy in 1999, which represents approximately 16% of the total 11,833 tpy of overall NO_x onroad mobile source emissions from the Huntington-Ashland area. (See table 1-D)

Onroad mobile source SO_x emissions from Boyd County were estimated at 67 tons per year (tpy) in 1999, which represents approximately 16% of the total 430 tpy overall SO_x mobile source emissions from the Huntington-Ashland area. (See table 1-E)

Onroad mobile source NH₃ emissions from Boyd County were estimated at 54 tpy in 1999, which represents approximately 16% of the total 336 tpy overall NH₃ onroad mobile source emissions from the Huntington-Ashland area. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Boyd County were estimated at 40 tons per year in 1999, which represents approximately 15% of the total 266 tpy overall PM_{2.5} onroad mobile source emissions from the Huntington-Ashland area. (See table 1-G)

1999 NEI Huntington-Ashland MSA Onroad Mobile Source Emissions (tons per year)



Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Boyd County is 46.3% and classified as high, and the commuting traffic from Boyd County into other counties is minimal at 27.7%.

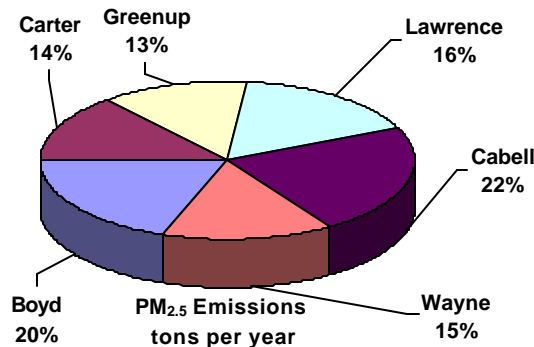
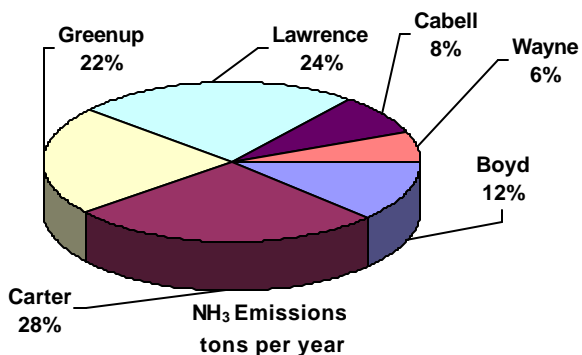
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

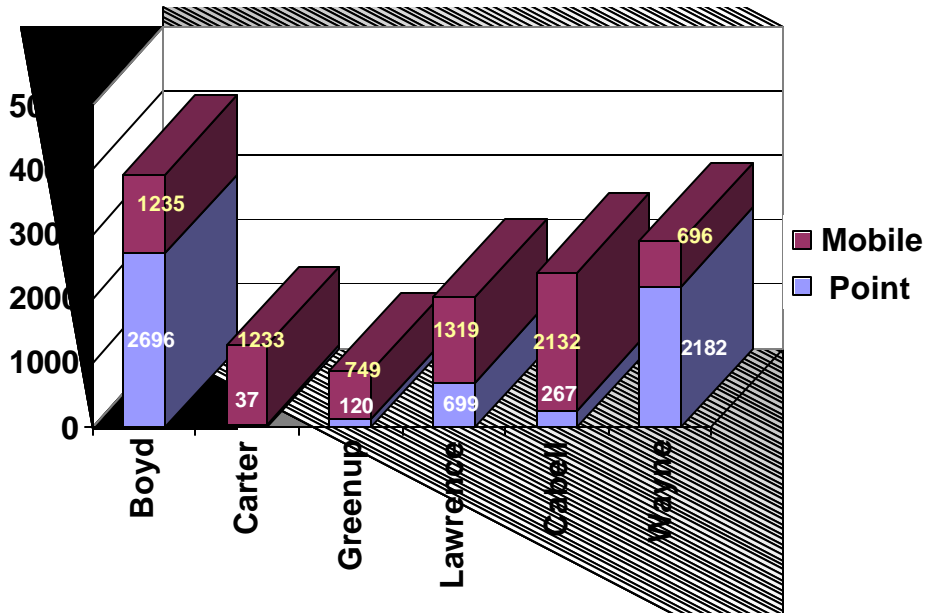
Area source NH₃ emissions from Boyd County were estimated at 157 tpy in 1999, which represents approximately 12% of the total 1,294 tpy of overall NH₃ area source emissions from the Huntington-Ashland area. (See table 1-F)

Area source PM_{2.5} emissions from Boyd County were estimated at 935 tpy in 1999, which represents approximately 20% of the total 4,749 tpy of overall PM_{2.5} area source emissions from the Huntington-Ashland area. (See table 1-G)

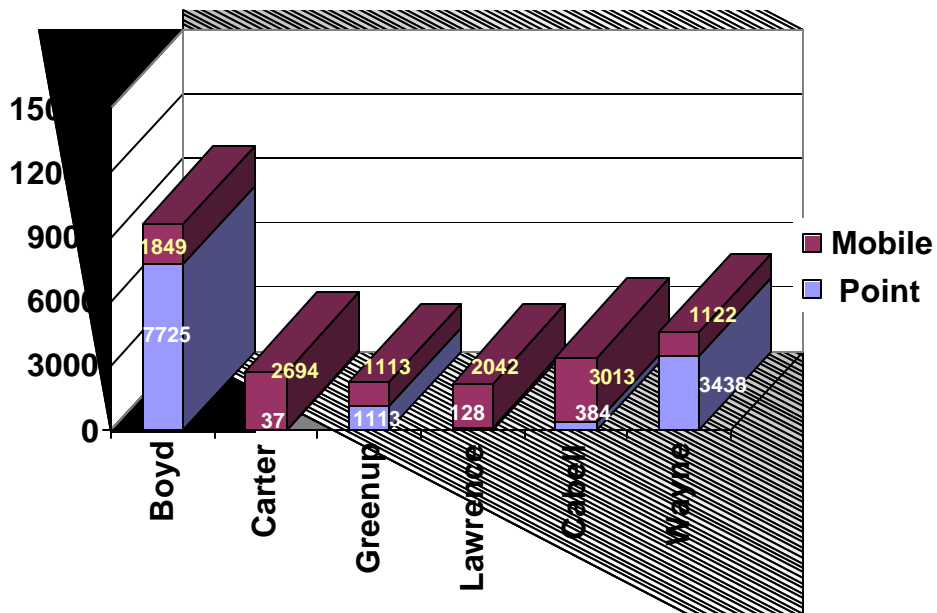
1999 NEI Huntington-Ashland MSA Area Source Emissions (tons per year)



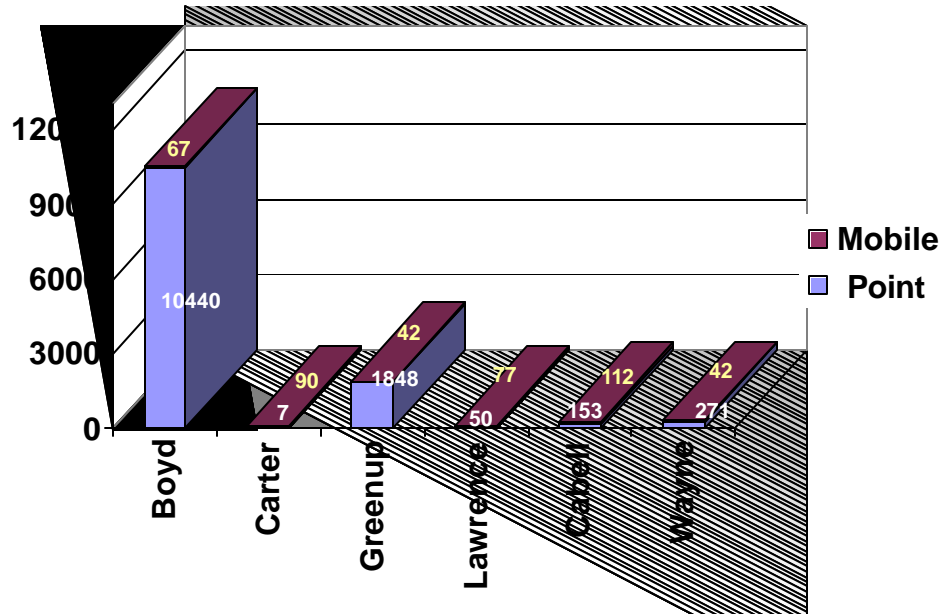
1999 NEI VOC Contribution (tons per year)



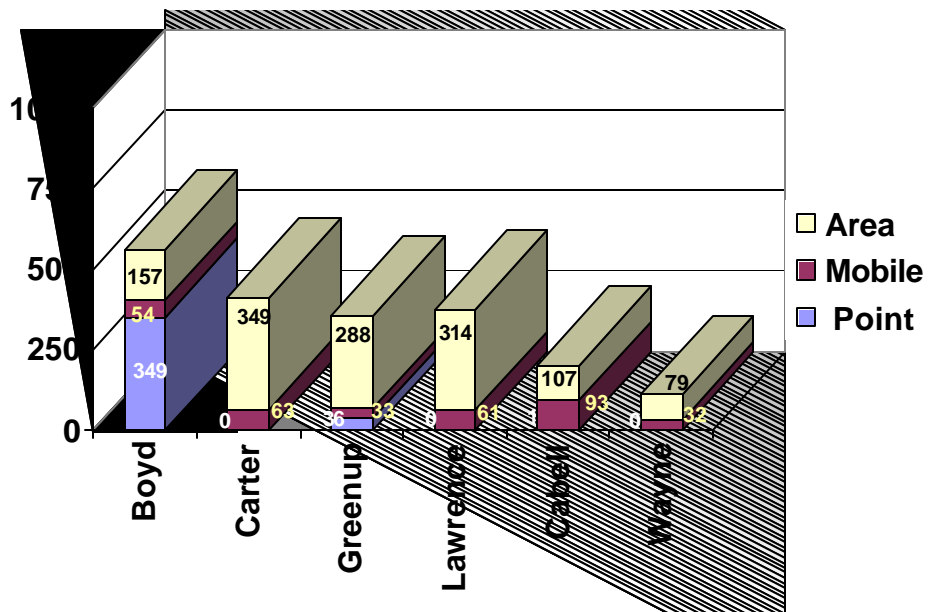
1999 NEI NO_x Contribution (tons per year)



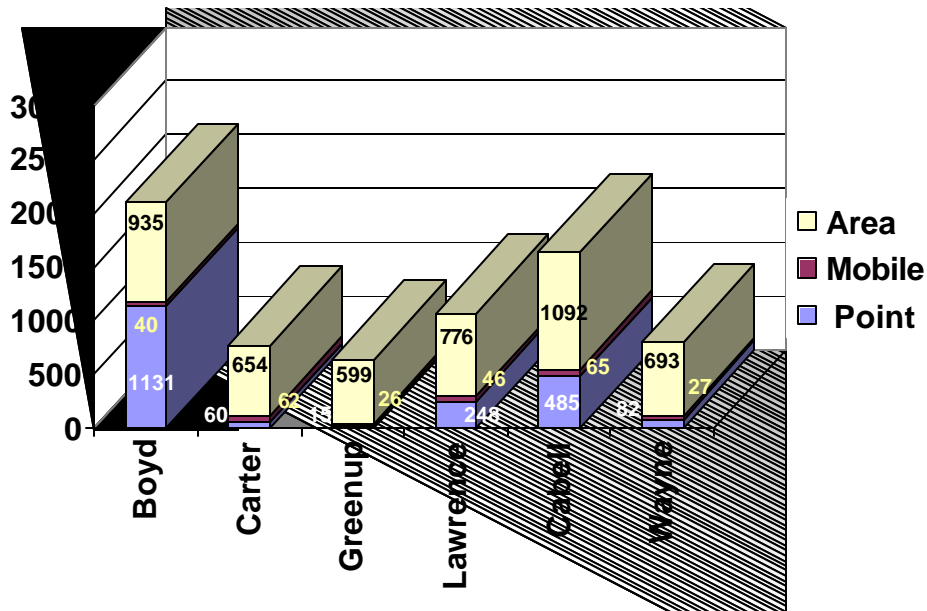
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

Monitoring Data

Boyd County, based on 2001 - 2003 PM_{2.5} monitoring data, is in compliance with the annual PM_{2.5} standard with an annual average for that period of 14.9 micrograms per cubic meter. Trends in monitoring data show annual averages have continued to decline over the last three years. Monitors in both Lawrence County Ohio and Cabell County, West Virginia, continue to show violations of the standard. However, those monitors also show a trend in annual averages declining over the last three years. (See table 1-A)

If annual averages continue to decline at the rate seen over the last three years, both monitors showing a violation based on 2001-2003 monitoring data will come back into compliance by the end of the 2005 monitoring season. If PM_{2.5} annual averages remain unchanged from 2003 to 2004, or continue to decline at the rate documented to date, the monitor in Lawrence County, Ohio, will be in compliance with the standard at the end of 2004. With steadily declining values, this appears to be a possibility.

Emissions Data

Emissions data from the 1999 NEI show that Boyd County contributes approximately 79% of total SO_x emissions, 38% of total NO_x emissions, 30% of total PM_{2.5} emissions, and 29% of total VOC emissions in the six county area.

A separate review of 2002 emissions data shows that Boyd County point source emissions of precursor pollutants have decreased or remained steady from 1999 levels. NO_x emissions had decreased by 10%, SO₂ emissions had declined by 7%, and PM remained relatively unchanged.

It is anticipated that emissions of PM_{2.5}, SO_x, and NO_x will decrease substantially within Boyd County over the next two years. These anticipated emission decreases are due to source modernization and new controls being implemented at two major sources in Boyd County.

The Marathon-Ashland Refinery will be substantially modifying their facility. The facility modifications are anticipated to be complete by the end of 2005, and result in substantial emission decreases at the facility. SO₂ emissions are anticipated to decrease by 25%. A 17% decrease in NO_x emissions and an 11% decrease in particulate emissions are also anticipated due to these modifications. Based on 2002 emissions data, this would mean an approximate reduction of 1,571 tons per year of SO₂, a 761 ton per year reduction in NO_x, and a 32 ton per year reduction in particulate matter.

Calgon Carbon Corporation, in May of 2003, shut down two of their activator lines. The shutdown of these two units in May of 2003 resulted in SO₂ emissions being reduced from this facility by approximately 187 tons in 2003. Before these lines can be reactivated, scrubbers, with SO₂ and PM control efficiencies of 90% will be required to be installed on these units, thereby continuing the emission reductions already being seen in the area. If brought back into operation, these units will have controls in place to reduce emissions of SO₂ from these two lines to approximately 32 tons per year. Modifications of operations at this facility will be part of the attainment and maintenance demonstration scheduled to be submitted to U.S. EPA later in 2004 in response to the SO₂ nonattainment issue in Boyd County.

The above mentioned emissions reductions will substantially lower the contributions of both particulate matter and PM_{2.5} precursor emissions from Boyd County. Controls already installed, or those slated for completion within the upcoming months, will be in place before any control strategies relating to the fine particulate standard may be required.

Monitoring data trends show a continuing reduction in fine particulate levels in the region. Kentucky believes this is due to the substantial emission reductions occurring in Boyd County. More recent 2002 and 2003 emissions data support this conclusion and provide further documentation that improvements in air quality are anticipated to continue over the region within the next two years. It is for the reasons presented above that Kentucky believes that any proposed designation should be deferred at this time.

CARTER COUNTY, KENTUCKY

Carter County is part of the Huntington-Ashland Metropolitan Statistical Area (MSA) and is located to the southwest of Greenup County, Kentucky, to the west of Boyd County, to the northwest of Lawrence County, to the north of Elliott County, to the northeast of Rowan County, and to the southeast of Lewis County, in Kentucky.

Geography/Topography

Carter County has a land area of 410 square miles and is located in the Appalachian foothills of the tri-state area of Kentucky, Ohio and West Virginia. Although part of the Eastern Kentucky Coal Field Region, the topography of this area is less rugged than that of other eastern Kentucky counties.

Meteorological Information

Due to the close proximity of Huntington, West Virginia, meteorological data from Huntington was used for this Kentucky area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Ashland area came from the west/southwest and typically from 46 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 85°F and the mean low was 65°F. The mean precipitation for the same period was 4.5 inches.

Planning

The authority for air quality planning in the Ashland area resides with the Kentucky Environmental and Public Protection Cabinet. Transportation planning for Carter County is by FIVCO in conjunction with the Kentucky Transportation Cabinet.

Air Monitoring

For the 2001 - 2003 monitoring period, the PM_{2.5} monitor (21-043-0500) in Grayson Lake, Carter County, shows a annual average design value of 12.1 micrograms per cubic meter, which would be classified as a county in attainment of the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS). The Boyd County monitor to the east is also attaining the standard. However, because the Cabell County, West Virginia, and Lawrence County, Ohio, PM_{2.5} monitors have a probable PM_{2.5} design value exceeding the annual PM_{2.5} standard, information for Carter County is being presented in this document. The monitoring information for 2003 is complete for the Kentucky counties. However, the 2003 monitoring data reported for the West Virginia and Ohio counties is the latest available and may not be complete through December 2003. (See table 1-A)

Population

Based on projections to 2002 from 2000 census data, there are approximately 27,055 persons living in Carter County. (See table 1-C) That represents approximately 66 persons per square mile. The population of Carter County is approximately 82.2% rural with the remaining 17.8% living in incorporated areas. The largest cities in Carter County are Grayson and Olive Hill.

Carter County's population from 1990 through 2000 increased by approximately 10.5% (24,340 to 26,889). The population is further expected to increase by an additional 9.4% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the entire Huntington-Ashland MSA, Carter County represents approximately 8% of the total 2002 population in the MSA and 24% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles. Ammonia (NH₃) emissions, which are an important PM_{2.5} emissions precursor, are also provided in this document.

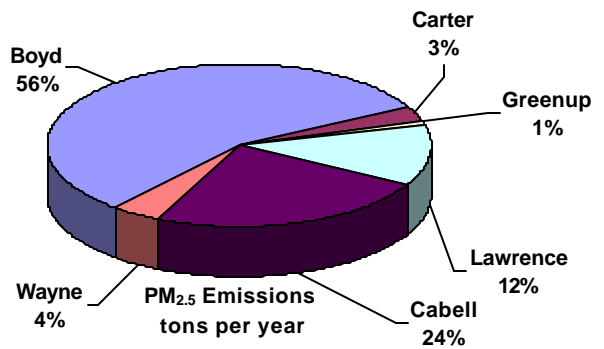
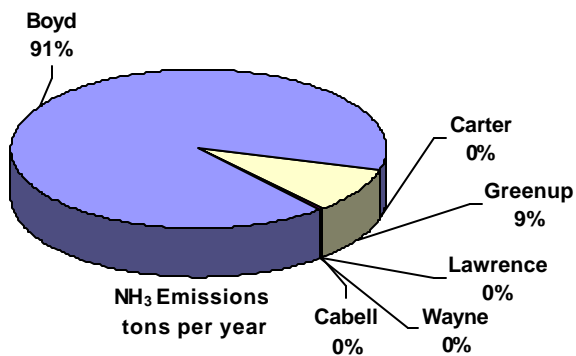
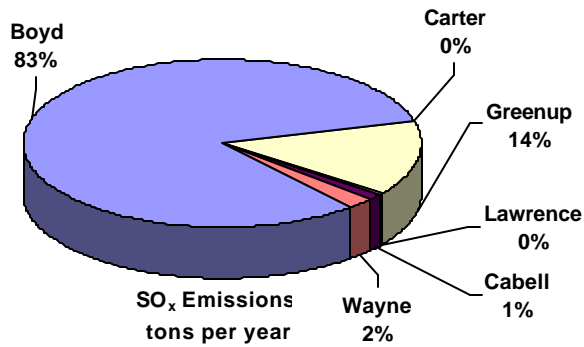
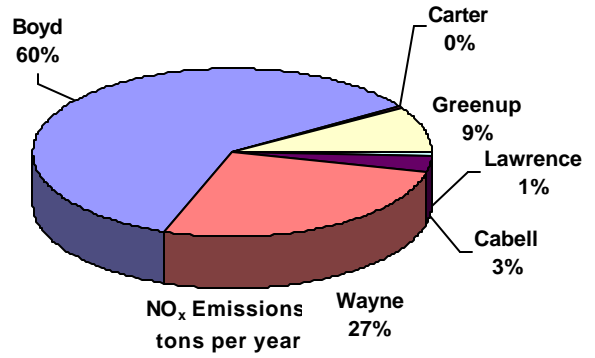
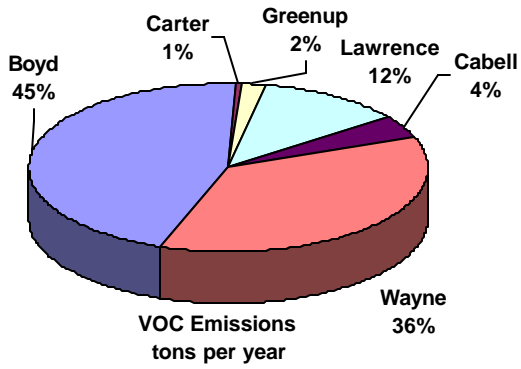
Point Sources

Point source VOC emissions from Carter County were estimated at 37 tons per year (tpy) in 1999, which represents approximately 1% of the total 6,001 tpy overall VOC point source emissions from the Huntington-Ashland area. Point source NO_x emissions from Carter County were estimated at 37 tpy in 1999, which represents less than 1% of the total 12,825 tpy overall NO_x point source emissions from the Huntington-Ashland area. (See table 1-D)

Point source SO_x emissions from Carter County were estimated at 7 tons per year in 1999, which represents less than 1% of the total 12,769 tpy overall SO_x point source emissions from the Huntington-Ashland area. (See table 1-E)

Point source NH₃ emissions from Carter County were estimated at 0 tpy in 1999. (See table 1-F) Point source PM_{2.5} emissions from Carter County were estimated at 60 tons per year (tpy) in 1999, which represents approximately 3% of the total 2,021 tpy overall PM_{2.5} point source emissions from the Huntington-Ashland area. (See table 1-G)

1999 NEI Huntington-Ashland MSA Point Source Emissions (tons per year)



Point sources located within Carter County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

Onroad Mobile

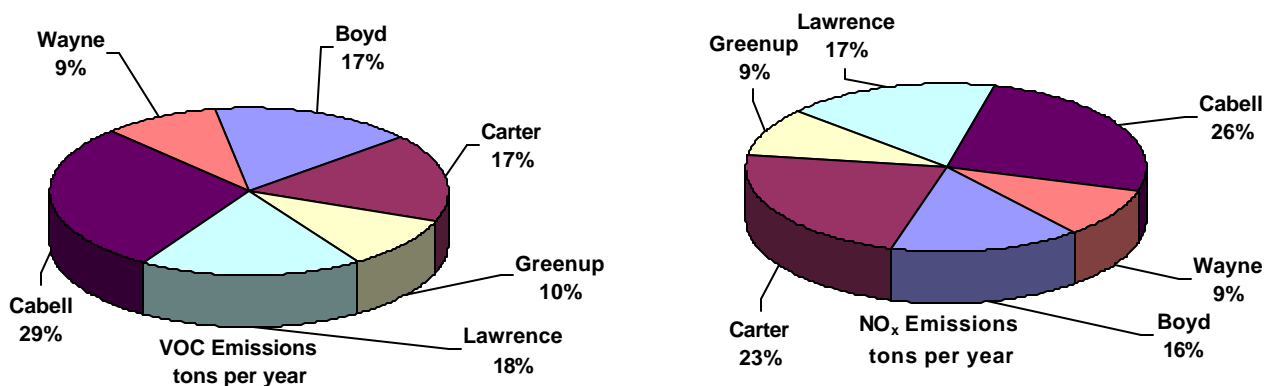
Onroad mobile source VOC emissions from Carter County were estimated at 1,233 tons per year in 1999, which represents approximately 17% of the total 7,364 tpy of overall VOC onroad mobile source emissions from the Huntington-Ashland area. Onroad mobile source NO_x emissions from Carter County were estimated at 2,694 tpy in 1999, which represents approximately 23% of the total 11,833 tpy of overall NO_x onroad mobile source emissions from the Huntington-Ashland area. (See table 1-D)

Onroad mobile source SO_x emissions from Carter County were estimated at 90 tons per year (tpy) in 1999, which represents approximately 21% of the total 430 tpy overall SO_x onroad mobile source emissions from the Huntington-Ashland area. (See table 1-E)

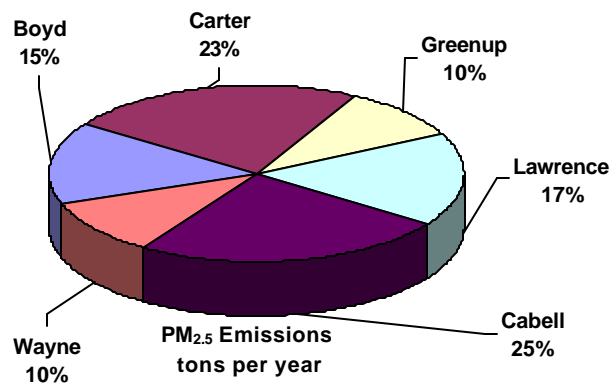
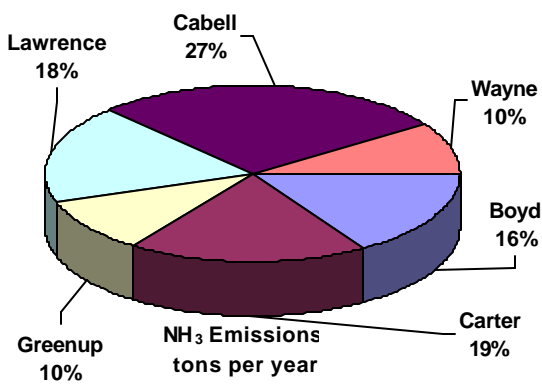
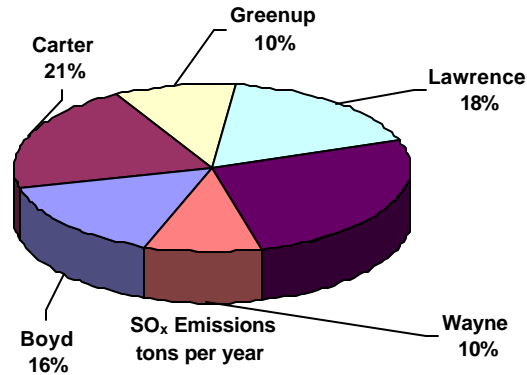
Onroad mobile source NH₃ emissions from Carter County were estimated at 63 tpy in 1999, which represents approximately 19% of the total 336 tpy overall NH₃ onroad mobile source emissions from the Huntington-Ashland area. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Carter County were estimated at 62 tons per year in 1999, which represents approximately 23% of the total 266 tpy overall PM_{2.5} onroad mobile source emissions from the Huntington-Ashland area. (See table 1-G)

1999 NEI Huntington-Ashland MSA Onroad Mobile Source Emissions (tons per year)



1999 NEI Huntington-Ashland MSA Onroad Mobile Source Emissions (continued)



Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Carter County is 21% and classified as minimal, and the commuting traffic from Carter County into other counties is high at 45%.

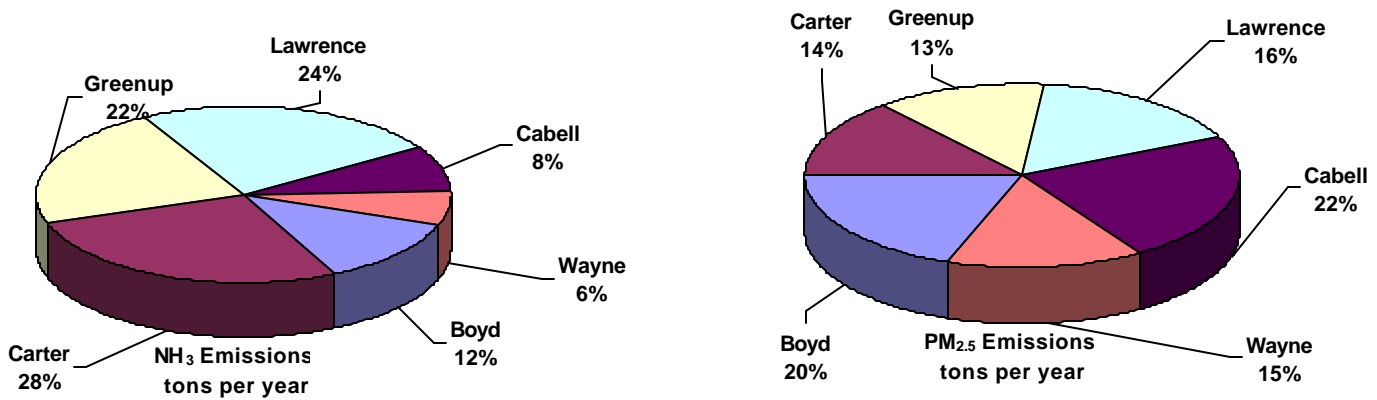
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

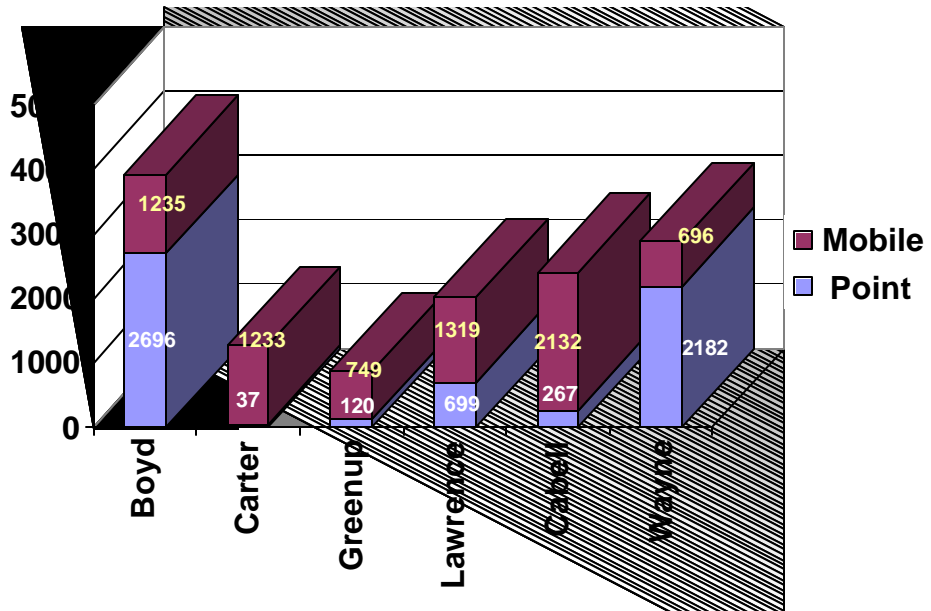
Area source NH_3 emissions from Carter County were estimated at 349 tpy in 1999, which represents approximately 28% of the total 1,294 tpy of overall NH_3 area source emissions from the Huntington-Ashland area. (See table 1-F)

Area source $\text{PM}_{2.5}$ emissions from Carter County were estimated at 654 tpy in 1999, which represents approximately 14% of the total 4,749 tpy of overall $\text{PM}_{2.5}$ area source emissions from the Huntington-Ashland area. (See table 1-G)

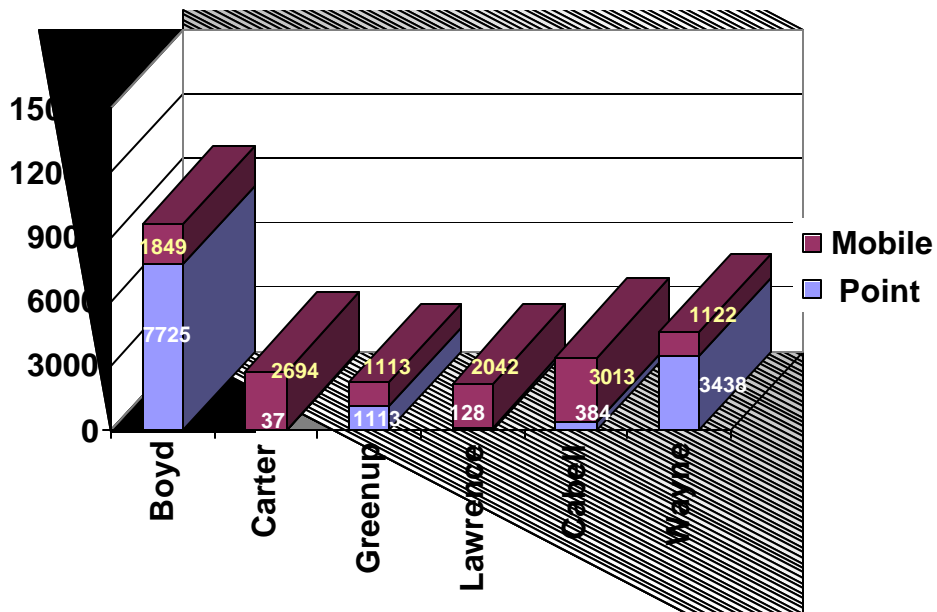
1999 NEI Huntington-Ashland MSA Area Source Emissions (tons per year)



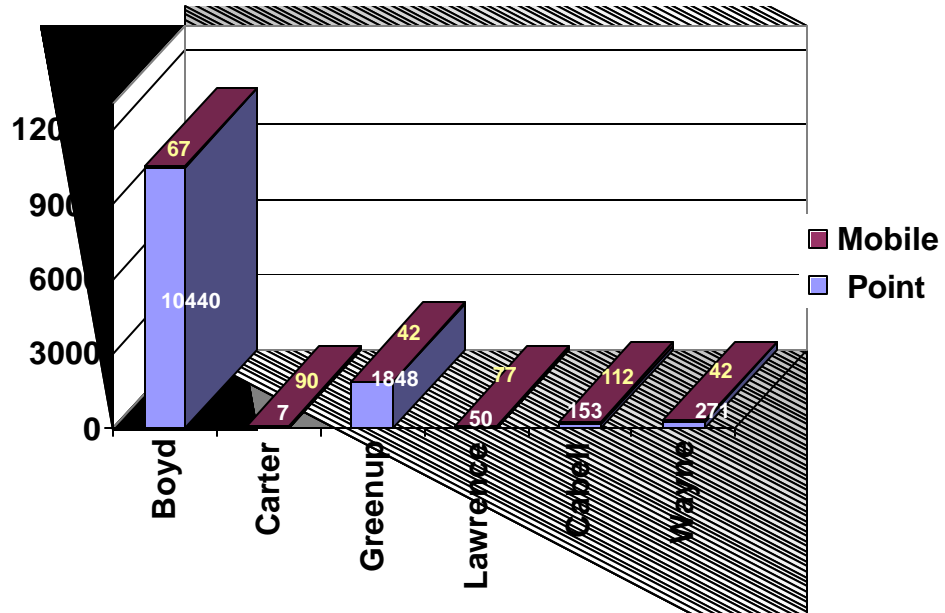
1999 NEI VOC Contribution (tons per year)



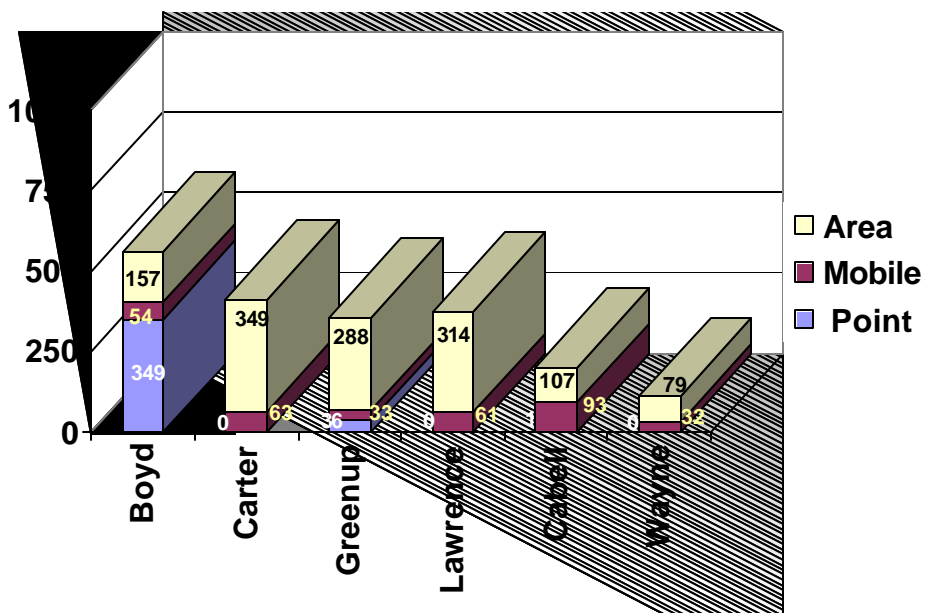
1999 NEI NO_x Contribution (tons per year)



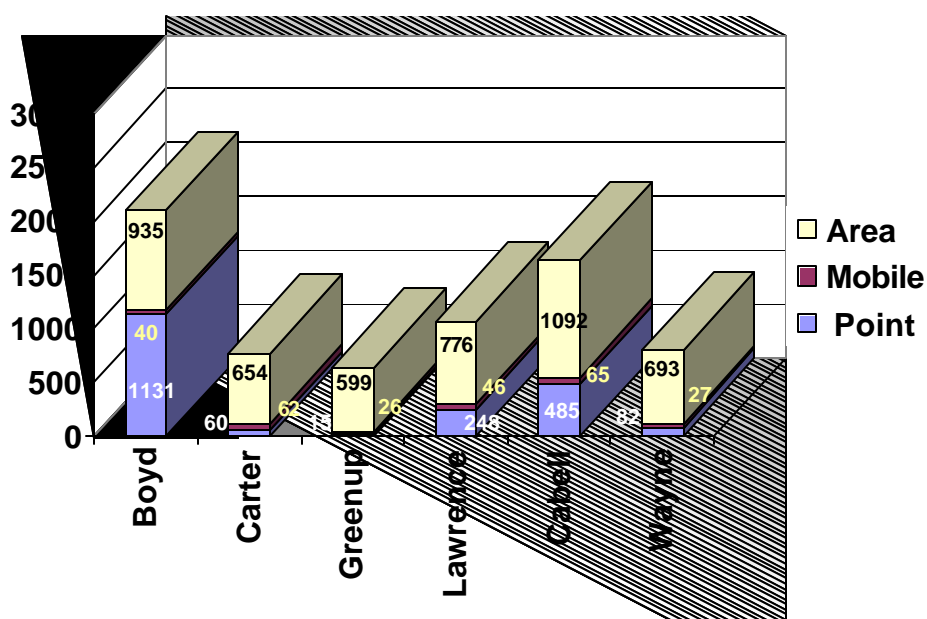
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

Carter County, based on 2001 - 2003 PM_{2.5} monitoring data, is in compliance with the annual PM_{2.5} standard with an average annual design value of 12.1 micrograms per cubic meter.

The emissions from Carter do not contribute significantly to the PM_{2.5} violations in West Virginia. Carter County contributes approximately 20% of the total NH₃ emissions, 11% of the total NO_x and PM_{2.5} emissions, 9% of the total VOC emissions, and less than 1% of the total SO_x emissions in the total metropolitan area.

Therefore, based on the monitoring and emissions data Carter County should be designated attainment for the PM_{2.5} standard.

Greenup County, Kentucky

Greenup County is part of the Huntington-Ashland Metropolitan Statistical Area (MSA) and is located to the north-northwest of Boyd County, north-northeast Carter County, and east of Lewis County, Kentucky.

Geography/Topography

Greenup County has a land area of 346 square miles and is located in the Appalachian foothills of the tri-state area of Kentucky, Ohio and West Virginia. Although part of the Eastern Kentucky Coal Field Region, the topography of this area is less rugged than that of other eastern Kentucky counties. Greenup County is bordered by the Ohio River on its northeastern border.

Meteorological Information

Due to the close proximity of Huntington, West Virginia, meteorological data from Huntington was used for this Kentucky area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Huntington-Ashland area came from the southwest and typically from 4-6 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 85°F and the mean low was 65°F. The mean precipitation for the same period was 4.5 inches.

Planning

The authority for air quality planning in Ashland area resides with the Kentucky Natural Environmental and Public Protection Cabinet. Transportation planning for Greenup County is performed by FIVCO in conjunction with the Kentucky Transportation Cabinet.

Air Monitoring

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Greenup County. The Boyd County PM_{2.5} monitor to the southeast shows an average annual design value of 14.9 micrograms per cubic meter, which shows attainment of the PM_{2.5} annual National Ambient Air Quality Standards (NAAQS). However, because the Cabell County, West Virginia, and Lawrence County, Ohio, PM_{2.5} monitors have a probable PM_{2.5} design value exceeding the annual PM_{2.5} standard, information for Greenup County is being presented in this document. The monitoring information for 2003 is complete for the Kentucky counties. However, the 2003 monitoring data reported for the West Virginia and Ohio counties is the latest available and may not be complete through December 2003. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are approximately 36,761 persons living in Greenup County. That represents approximately 106 persons per square mile. The population of Greenup County is approximately 38.7% rural with the remaining 61.3% living in incorporated areas. There are eight incorporated cities in Greenup County with the largest being Flatwoods, Raceland, Russell, and Worthington.

Greenup County's population from 1990 through 2000 increased by approximately 0.4% (36,742 to 36,891). The population was further expected to increase by an additional 0.3% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the entire Huntington-Ashland WV-KY-OH MSA, Greenup County represents approximately 12% of the total 2002 population in the MSA and 32% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5}, is directly emitted from a stack or an open source and includes filterable and condensable particles. Ammonia (NH₃) emissions, which are an important PM_{2.5} emissions precursor, are also provided in this document.

Point Sources

Point source VOC emissions from Greenup County were estimated at 120 tons per year (tpy) in 1999, which represents approximately 2% of the total 6,001 tpy overall VOC point source emissions from the Huntington-Ashland area. Point source NO_x emissions from Greenup County were estimated at 1,113 tpy in 1999, which represents approximately 9% of the total 12,825 tpy overall NO_x point source emissions from the Huntington-Ashland area. (See table 1-D)

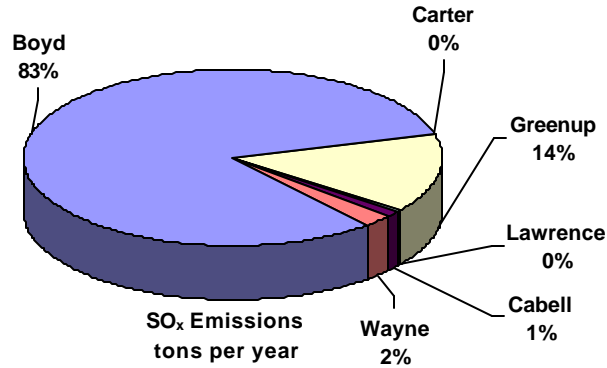
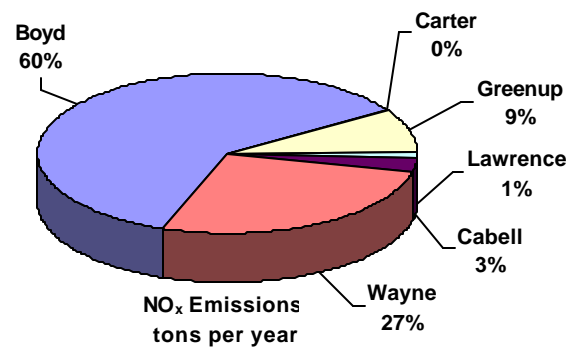
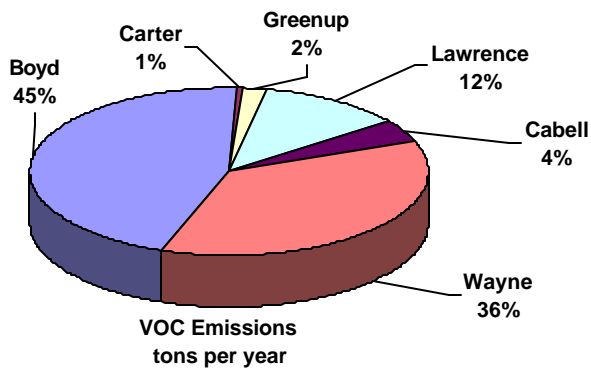
Point source SO_x emissions from Greenup County were estimated at 1,848 tons per year (tpy) in 1999, which represents approximately 14% of the total 12,769 tpy overall SO_x point source emissions from the Huntington-Ashland area. (See table 1-E)

Point source NH₃ emissions from Greenup County were estimated at 36 tpy in 1999, which represents approximately 9% of the total 386 tpy overall NH₃ point source emissions from the Huntington-Ashland area. (See table 1-F)

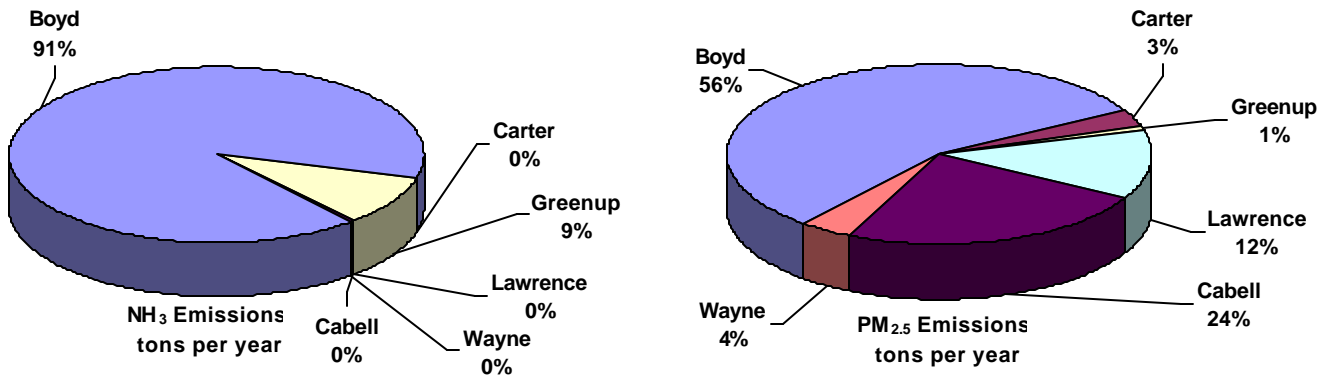
Point source PM_{2.5} emissions from Greenup County were estimated at 15 tons per year (tpy) in 1999, which represents approximately 1% of the total 2,021 tpy overall PM_{2.5} point source emissions from the Huntington-Ashland area. (See table 1-G)

Point sources located within Greenup County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

1999 NEI Huntington-Ashland MSA Point Source Emissions (tons per year)



1999 NEI Huntington-Ashland MSA Point Source Emissions (continued)



Onroad Mobile

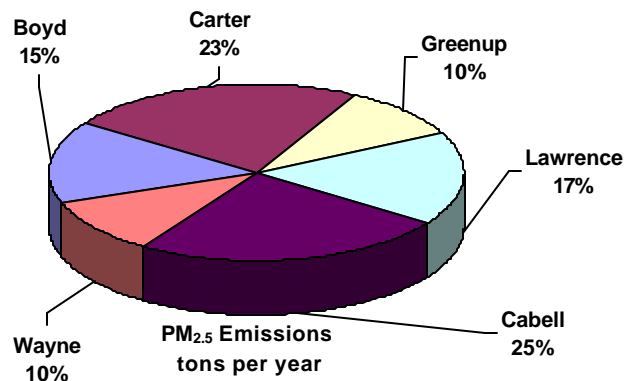
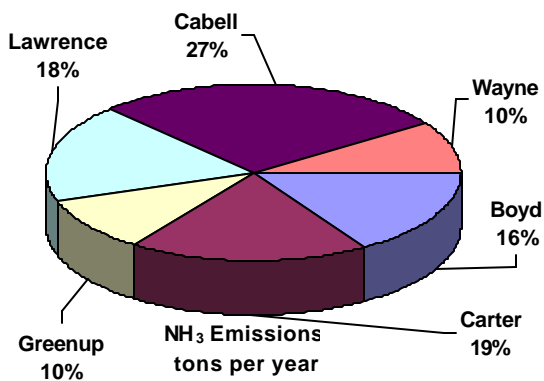
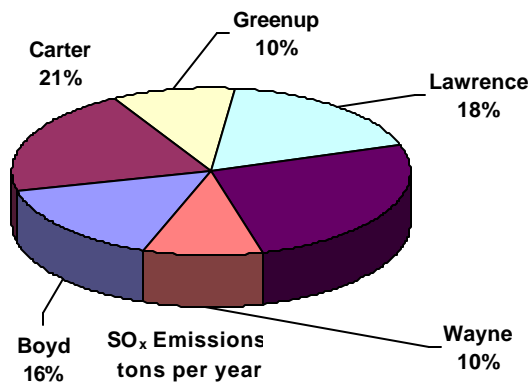
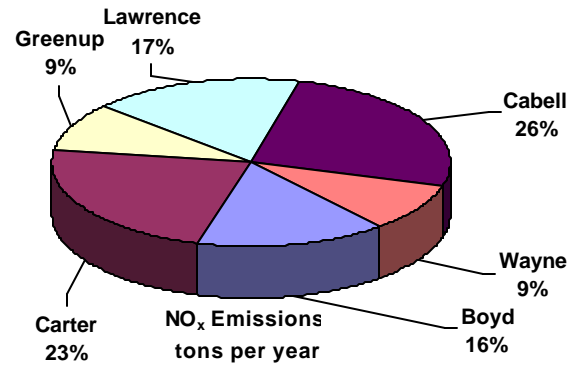
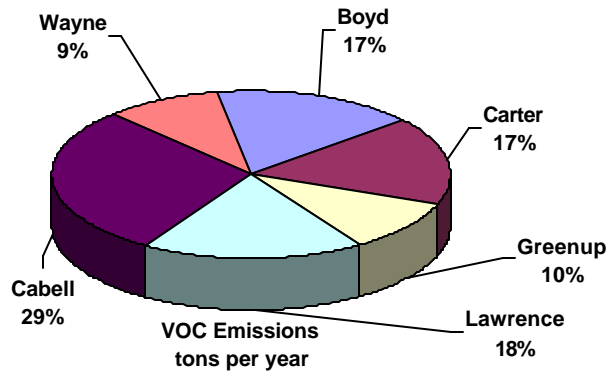
Onroad mobile source VOC emissions from Greenup County were estimated at 749 tons per year (tpy) in 1999, which represents approximately 10% of the total 7,364 tpy of overall VOC onroad mobile source emissions from the Huntington-Ashland area. Onroad mobile source NO_x emissions from Greenup County were estimated at 1,113 tpy in 1999, which represents approximately 9% of the total 11,833 tpy of overall NO_x onroad mobile source emissions from the Huntington-Ashland area. (See table 1-D)

Onroad mobile source SO_x emissions from Greenup County were estimated at 42 tons per year (tpy) in 1999, which represents approximately 10% of the total 430 tpy overall SO_x onroad mobile source emissions from the Huntington-Ashland area. (See table 1-E)

Onroad mobile source NH₃ emissions from Greenup County were estimated at 33 tpy in 1999, which represents approximately 10% of the total 336 tpy overall NH₃ onroad mobile source emissions from the Huntington-Ashland area. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Greenup County were estimated at 26 tons per year (tpy) in 1999, which represents approximately 10% of the total 266 tpy overall PM_{2.5} onroad mobile source emissions from the Huntington-Ashland area. (See table 1-G)

1999 NEI Huntington-Ashland MSA Onroad Mobile Source Emissions (tons per year)



Based on information obtained from the Kentucky Transportation Cabinet, Commuting traffic from other counties into Greenup County is 38% and classified high, and the commuting traffic from Greenup County into other counties is significant at 57%.

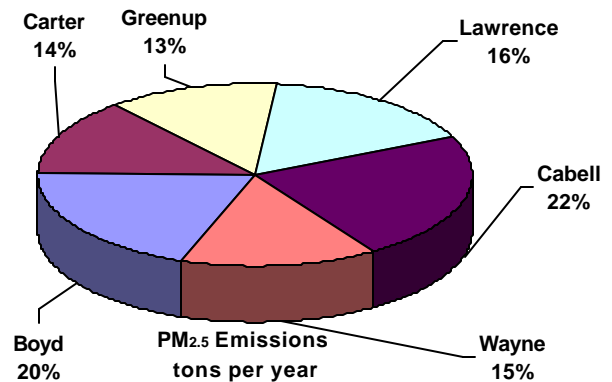
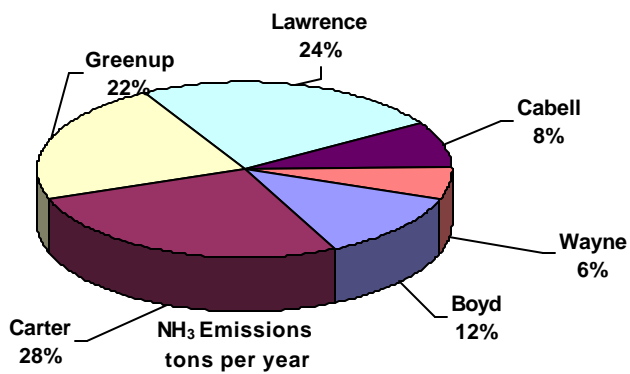
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

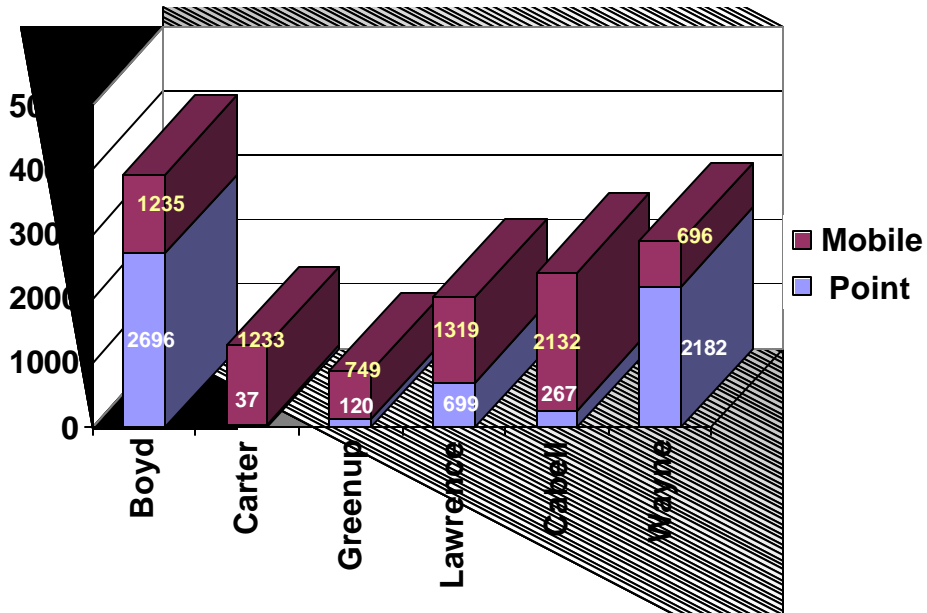
Area source NH₃ emissions from Greenup County were estimated at 288 tpy in 1999, which represents approximately 22% of the total 1,294 tpy of overall NH₃ area source emissions from the Huntington-Ashland area. (See table 1-F)

Area source PM_{2.5} emissions from Greenup County were estimated at 599 tpy in 1999, which represents approximately 13% of the total 4,749 tpy of overall PM_{2.5} area source emissions from the Huntington-Ashland area. (See table 1-G)

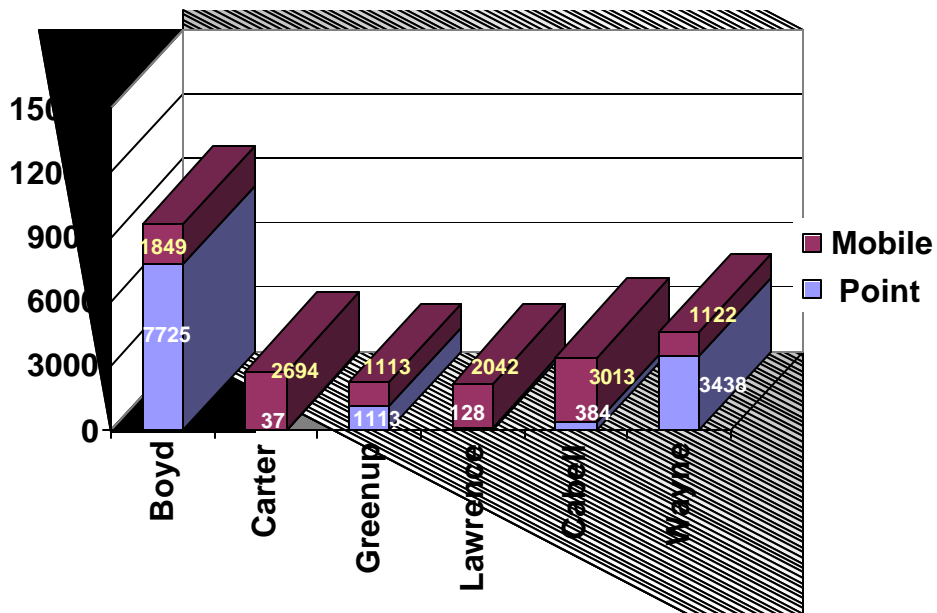
1999 NEI Huntington-Ashland MSA Area Source Emissions (tons per year)



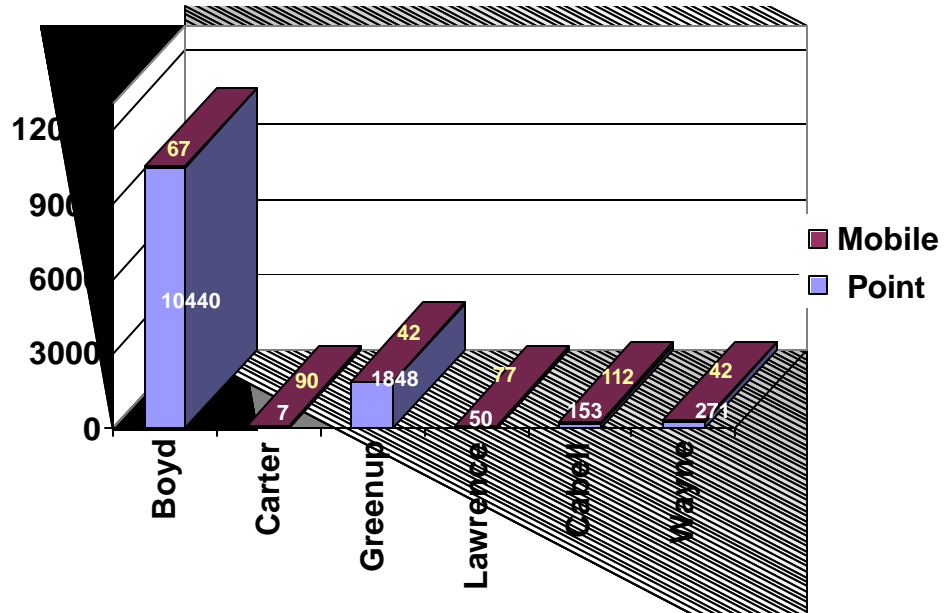
1999 NEI VOC Contribution (tons per year)



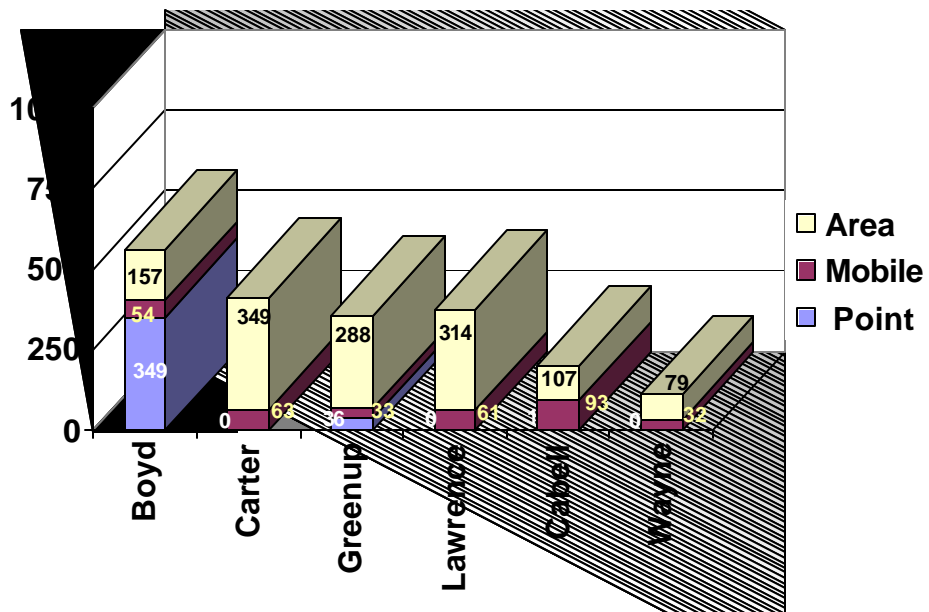
1999 NEI NO_x Contribution (tons per year)



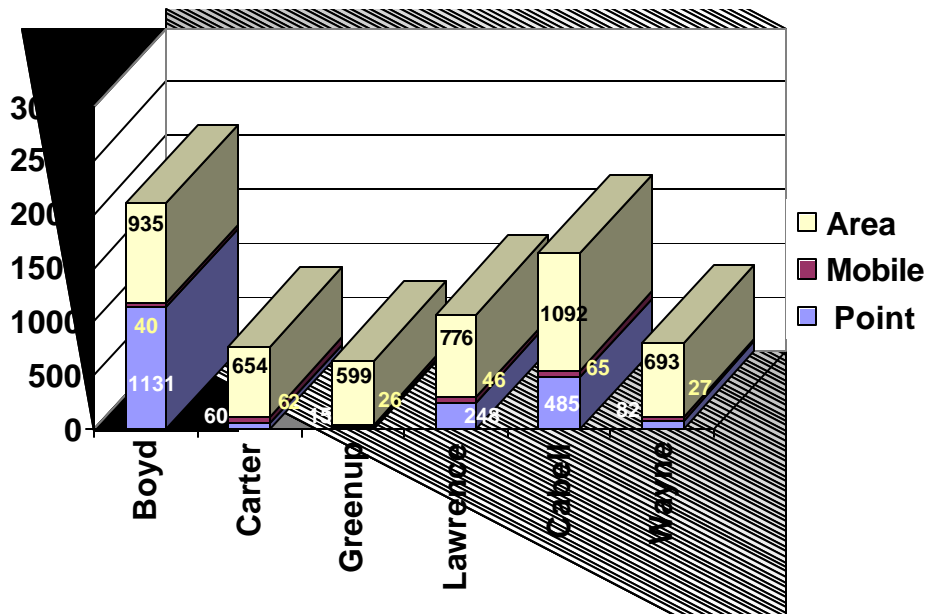
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

There is not a PM_{2.5} monitor located in Greenup County. Monitors in both Boyd County and Carter County, Kentucky, are showing averages below the annual fine particulate standard. However, monitors in both Lawrence County, Ohio, and Cabell County, West Virginia, are showing values above the fine particulate standard for the 2001-2003 period. A detailed review of monitoring data for the area shows that annual averages at all monitoring sites within the metropolitan area have been declining over the last three years, therefore, air quality is improving in the area.

A review of 1999 NEI data shows that Greenup County contributes approximately 17% of the NH₃ emissions, 14% of SO_x emissions, 9% of both NO_x and PM_{2.5} and 7% of VOC emissions in the total MSA.

A separate review of 2002 Division for Air Quality emissions data shows that point source emissions of precursor pollutants in Greenup County have decreased or remained basically the same from 1999 levels. A reduction of 17% in NO_x emissions and 5% in SO₂ emissions were seen, while particulate matter emissions in the county remained basically the same.

Greenup County's contribution of most pollutants is less than any other county in the MSA except Carter County. Both PM_{2.5} monitors in Kentucky are showing averages below the annual standard and monitors in both West Virginia and Ohio are showing steady improvements in fine particulate levels. (See figure 1- E)

Therefore, based on monitoring and emissions information presented in this document, Greenup County should be designated as attainment for the PM_{2.5} standard.

Huntington-Ashland, WV-KY-OH MSA

Figure 1-A

Wind Rose Patterns

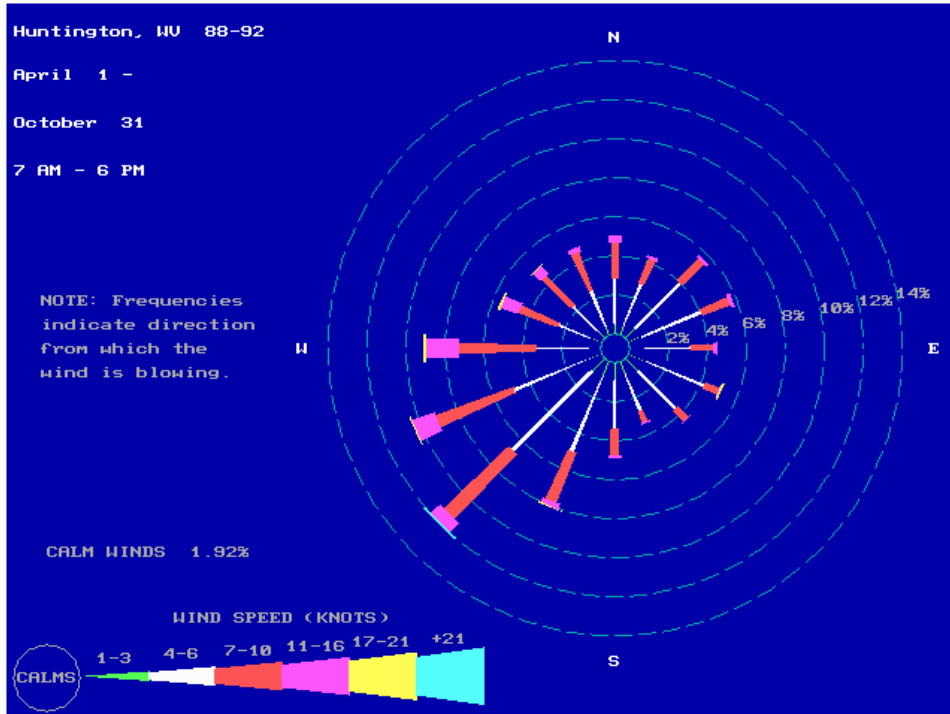


Figure 1-A-1

Ashland -Huntington MSA Map

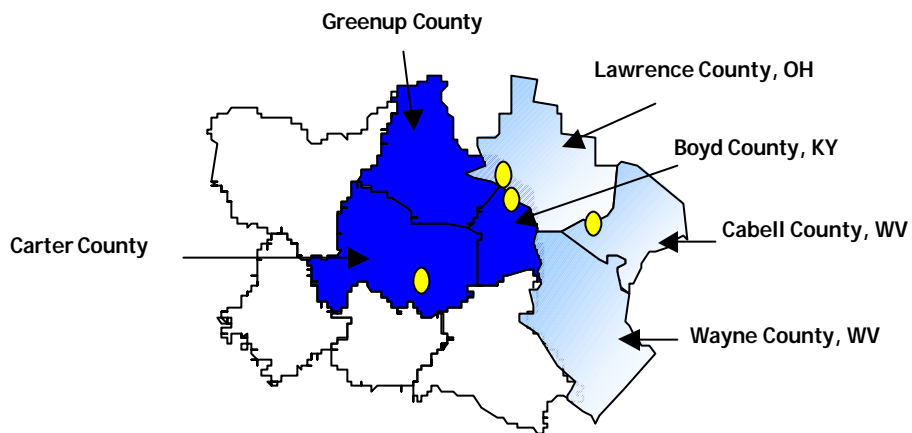


Figure 1-B
1999 NEI Huntington-Ashland MSA
VOC and NO_x Emissions
 (tons per year)

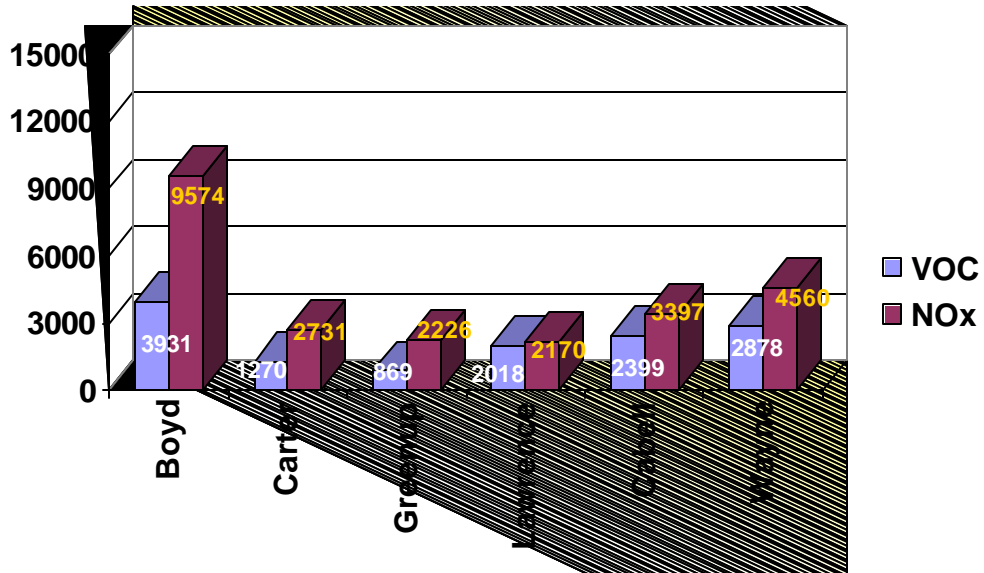


Figure 1-C
1999 NEI Huntington-Ashland MSA
SO_x Emissions
 (tons per year)

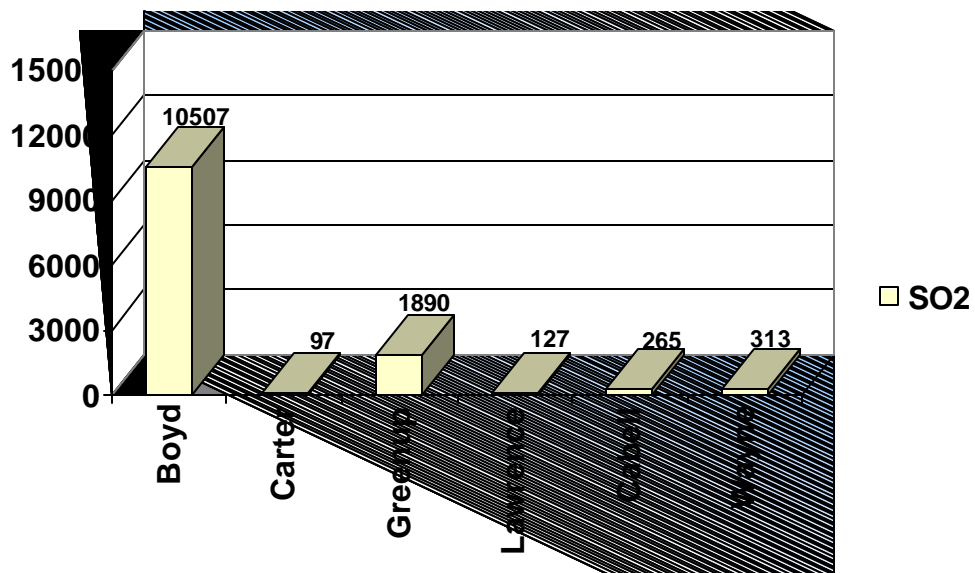


Figure 1-D
1999 Huntington-Ashland MSA
NH₃ and PM_{2.5} Emissions
(tons per year)

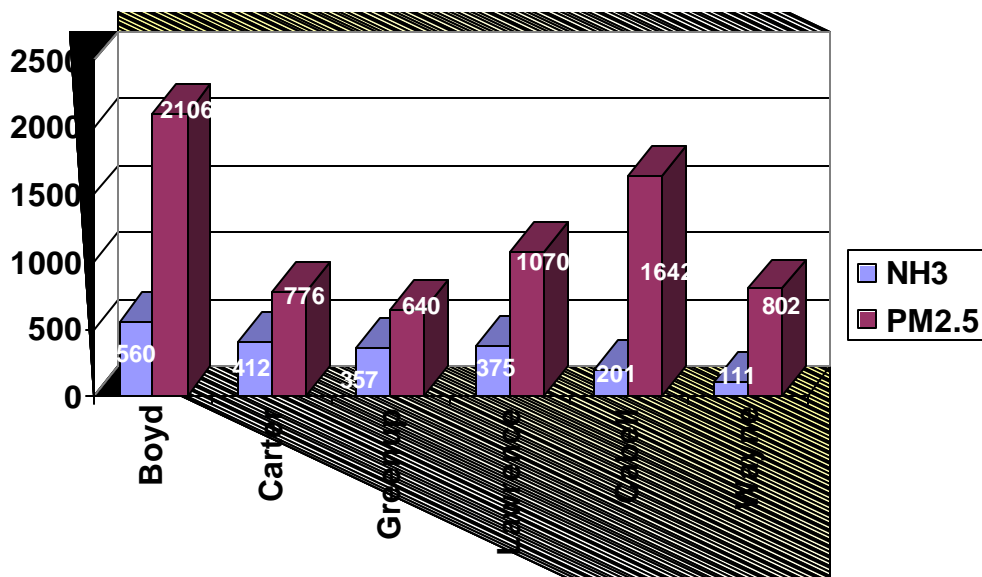
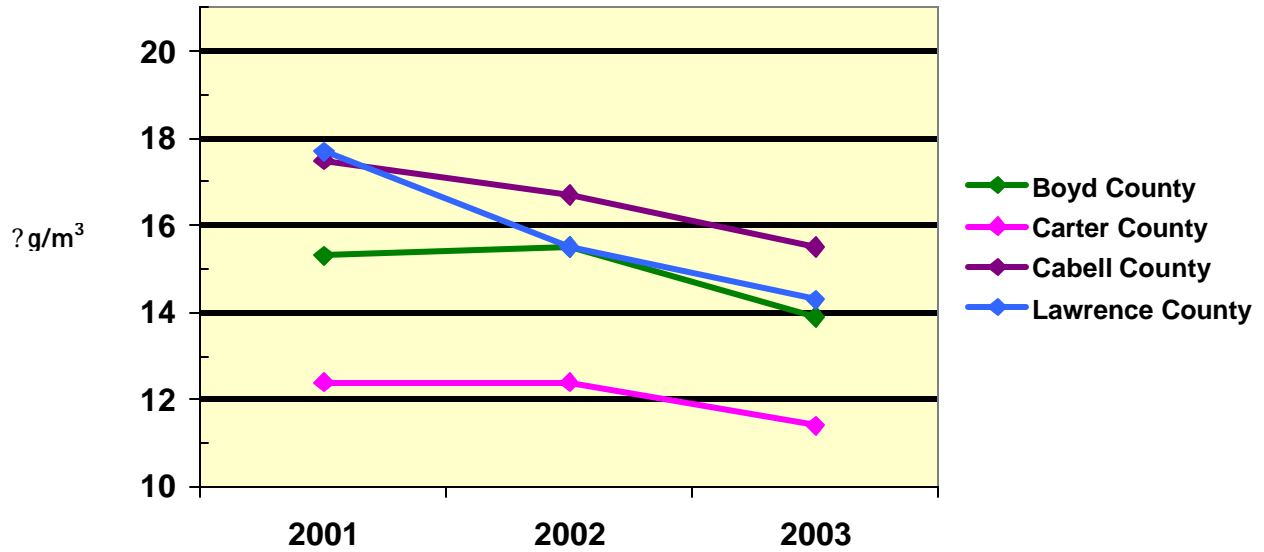


Table 1-A
Average Annual Design Values for PM_{2.5}
(micrograms per cubic meter)

County	2001	2002	2003*	Design Value
Kentucky				
Boyd	15.3	15.5	13.9	14.9
Carter	12.4	12.4	11.4	12.1
Greenup				N/A
West Virginia				
Cabell	17.5	16.7	15.5	16.6
Wayne				N/A
Ohio				
Lawrence	17.7	15.5	14.3	15.8

The monitoring information for 2003 is complete for the Kentucky counties. However, the 2003 monitoring data reported for West Virginia and Ohio counties is the latest available and may not be complete through December 2003.

**Figure 1-E
Air Monitoring Trends**



**Table 1-B
Ashland Area Population
Growth Data**

County	1990	2000	%Growth 1990 - 2000	2010	%Growth 2000 - 2010
Boyd	51,150	49,752	-2.7%	48,148	-3.2%
Carter	24,340	26,889	10.5%	29,406	9.4%
Greenup	36,742	36,891	0.4%	36,989	0.3%

**Table 1-C
2002 Estimated Huntington-Ashland WV-KY-OH MSA
Population**

Kentucky	Estimated Population	% of Total
Boyd County	49,603	16%
Carter County	27,055	8%
Greenup County	36,761	12%
Ohio		
Lawrence County	62,172	20%
West Virginia		
Cabell County	95,266	30%
Wayne County	42,382	14%
Total Estimated Population	313,239	

Table 1-D
1999 NEI Huntington-Ashland WV-KY-OH MSA
VOC and NO_x Emissions
 (tons per year)

County	VOC			NO _x		
	Point	Mobile	Total	Point	Mobile	Total
Boyd	2,696	1,235	3,931	7,725	1,849	9,574
Carter	37	1,233	1,270	37	2,694	2,731
Greenup	120	749	869	1,113	1,113	2,226
Lawrence	699	1,319	2,018	128	2,042	2,170
Cabell	267	2,132	2,399	384	3,013	3,397
Wayne	2,182	696	2,878	3,438	1,122	4,560
Total Emissions	6,001	7,364	13,365	12,825	11,833	24,658

Table 1-E
1999 NEI Huntington-Ashland WV-KY-OH MSA
SO_x Emissions
 (tons per year)

County	SO _x		
	Point	Mobile	Total
Boyd	10,440	67	10,507
Carter	7	90	97
Greenup	1,848	42	1,890
Lawrence	50	77	127
Cabell	153	112	265
Wayne	271	42	313
Total Emissions	12,769	430	13,199

Point source SO_x emissions for Lawrence County, Ohio were obtained from Ohio EPA instead of the 1999 NEI.

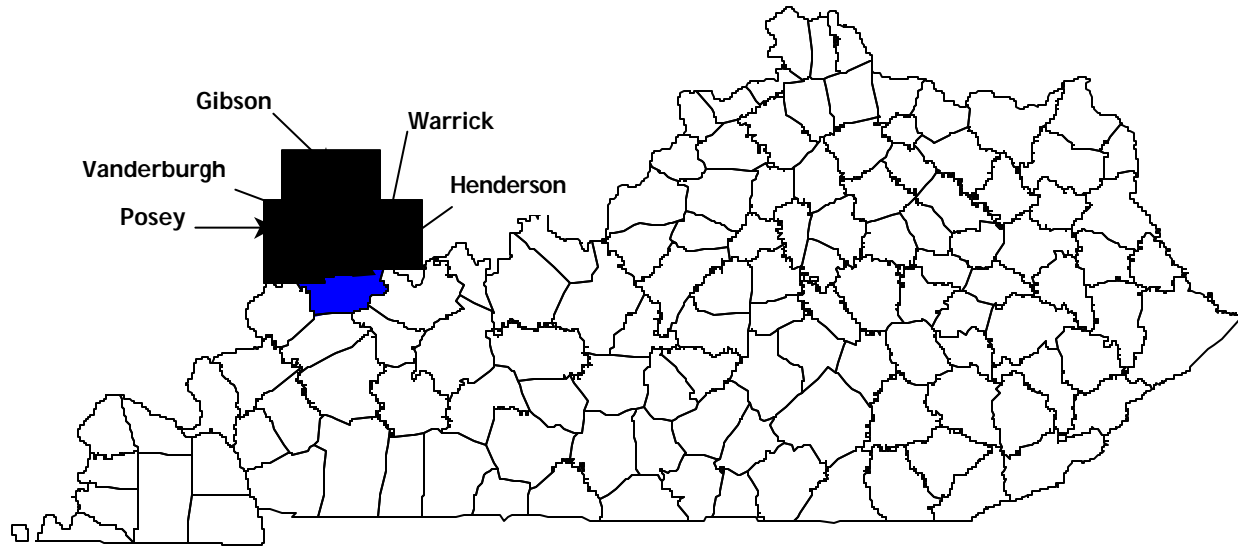
Table 1-F
1999 NEI Huntington-Ashland WV-KY-OH MSA
NH₃ Emissions
 (tons per year)

County	NH ₃			Total
	Area	Point	Mobile	
Boyd	157	349	54	560
Carter	349	0	63	412
Greenup	288	36	33	357
Lawrence	314	0	61	375
Cabell	107	1	93	201
Wayne	79	0	32	111
Total Emissions	1,294	386	336	2,016

Table 1-G
1999 NEI Huntington-Ashland WV-KY-OH MSA
PM_{2.5} Emissions
 (tons per year)

County	PM _{2.5}			Total
	Area	Point	Mobile	
Boyd	935	1,131	40	2,106
Carter	654	60	62	776
Greenup	599	15	26	640
Lawrence	776	248	46	1,070
Cabell	1,092	485	65	1,642
Wayne	693	82	27	802
Total Emissions	4,749	2,021	266	7,036

Kentucky Portion of the Evansville-Henderson, IN-KY MSA



The Evansville-Henderson, Indiana-Kentucky MSA, (Metropolitan Statistical Area) encompasses two states and four counties. It includes Henderson County in Kentucky and Posey, Vanderburgh, and Warrick Counties in Indiana. Gibson County, Indiana, which is not in the Evansville-Henderson MSA, was also included in this document for study purposes. In 2001, this MSA was listed as the 133rd largest MSA within the United States.

HENDERSON COUNTY, KENTUCKY

Henderson County is part of the Evansville-Henderson, 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 Warrick County, Indiana, and to the far south of Gibson County, Indiana.

Geography/Topography

Henderson County has a 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

Due to the close proximity of Evansville, Indiana, meteorological data from Evansville was used for this Kentucky area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Henderson County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 89°F, the mean low was 68°F. The mean precipitation for the same period was 3.8 inches.

Planning

The authority for air quality planning in the Henderson County area resides with the Kentucky Environmental and Public Protection Cabinet. Transportation planning for all of Henderson County is performed by the Evansville Urban Transportation Study (EUTS), which is the Metropolitan Planning Organization and the Kentucky Transportation Cabinet.

Air Monitoring

For the 2001 - 2003 monitoring period, the PM_{2.5} monitor (21-101-0006) in Henderson County, Kentucky, shows an average annual design value of 14.1 micrograms per cubic meter, which would be classified as a county in attainment of the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS). However, because there are three PM_{2.5} monitors in Vanderburgh County, Indiana, each with a probable exceedence of the annual PM_{2.5} standard, Henderson County information is being presented in this document. The monitoring information for 2003 is complete for Henderson County, Kentucky. However, the 2003 monitoring data reported for the Vanderburgh County, Indiana, is the latest available and is not be complete through December 2003. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 44,995 persons living in Henderson County. (See table 1-C) That represents approximately 102 persons per square mile. The population of Henderson County is approximately 40.8% rural with the remaining 59.2% living in incorporated areas. The largest city in Henderson County is Henderson.

Henderson County's population from 1990 through 2000 increased by approximately 4.1% (43,044 to 44,829). The population is further expected to increase by an additional 3.3% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the Evansville-Henderson study area, Henderson County represents approximately 13.6% of the total 2002 population in the MSA area and 100% of the Kentucky portion of the MSA area. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5}, is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Sources

Point source VOC emissions from Henderson County were estimated at 603 tons per year in 1999, which represents approximately 10% of the total 5,826 tpy overall VOC point source emissions from the Evansville-Henderson study area. Point source NO_x emissions from Henderson County were estimated at 482 tpy in 1999, which represents approximately 1% of the total 88,763 tpy overall NO_x point source emissions from the Evansville-Henderson study area. (See table 1-D)

Point source SO_x emissions from Henderson County were estimated at 4,887 tons per year in 1999, which represents approximately 2% of the total 321,009 tpy overall SO_x point source emissions from the Evansville-Henderson study area. (See table 1-E)

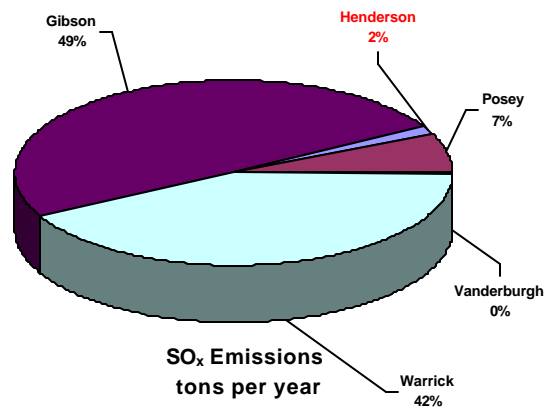
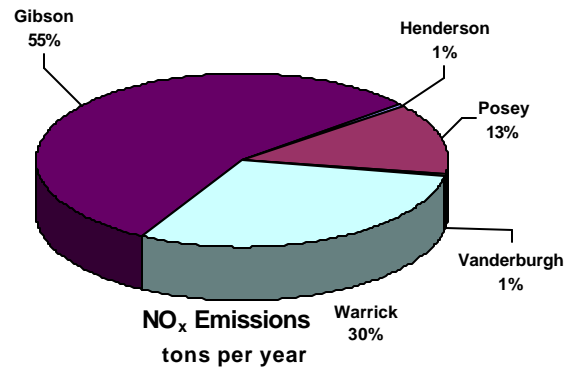
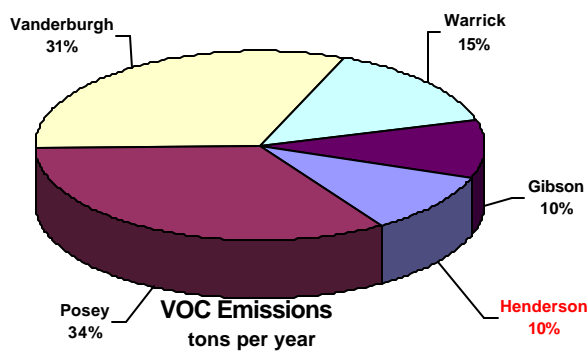
Point source NH₃ emissions from Henderson County were estimated at 0 tpy in 1999, which represents 0% of the total 70 tpy overall NH₃ point source emissions from the Evansville-Henderson study area. (See table 1-F)

Point source PM_{2.5} emissions from Henderson County were estimated at 416 tons per year in 1999, which represents approximately 8% of the total 5,460 tpy overall PM_{2.5} point source emissions from the Evansville-Henderson study area. (See table 1-G)

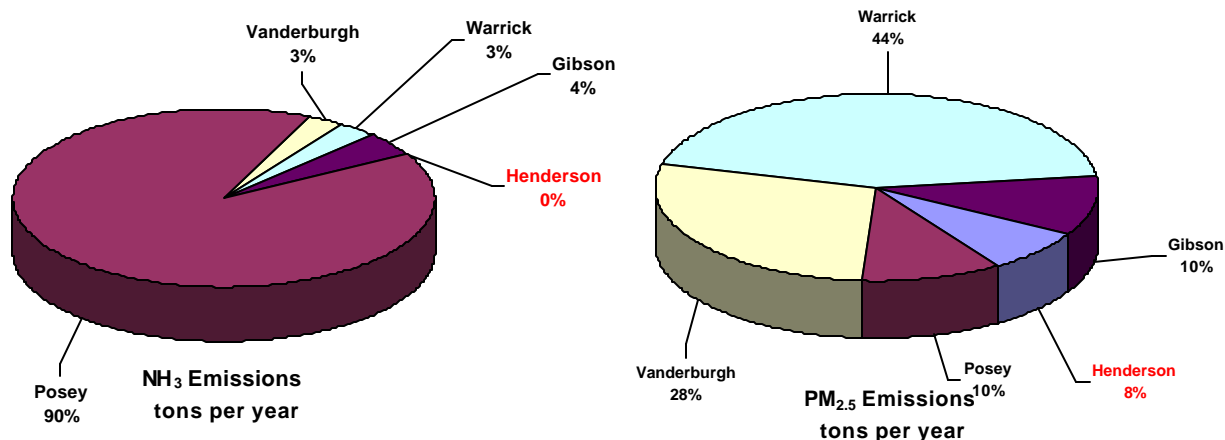
Point sources located within Henderson County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements

for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

1999 NEI Evansville-Henderson Study Area Point Source Emissions (tons per year)



1999 NEI Evansville-Henderson Study Area Point Source Emissions (continued)



Onroad Mobile Emissions

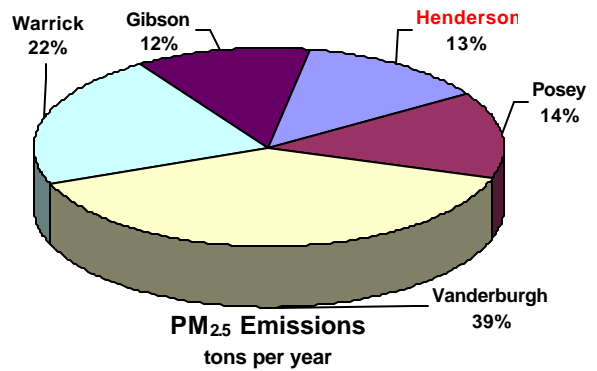
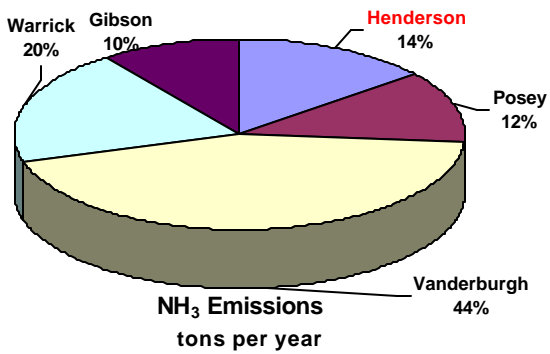
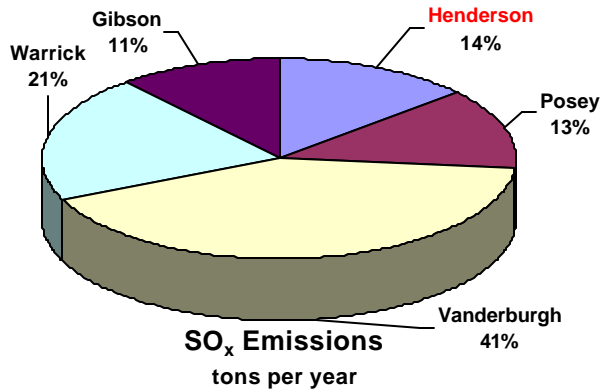
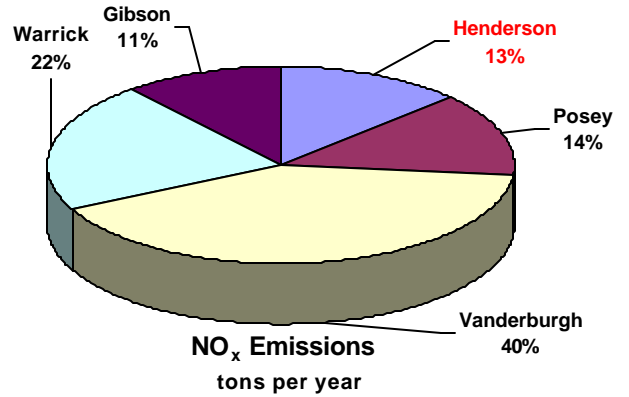
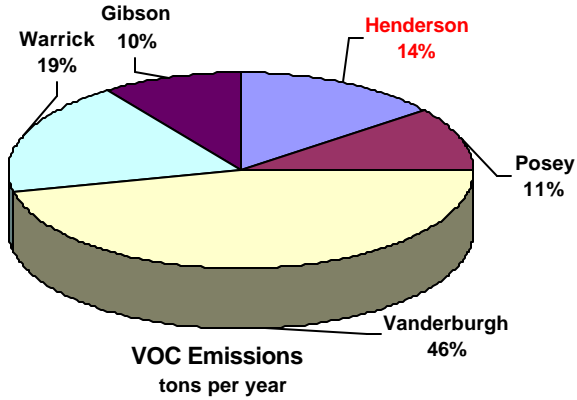
Onroad mobile source VOC emissions from Henderson County were estimated at 1,293 tons per year in 1999, which represents approximately 14% of the total 8,970 tpy of overall VOC onroad mobile source emissions from the Evansville-Henderson study area. Onroad mobile source NO_x emissions from Henderson County were estimated at 1,771 tpy in 1999, which represents approximately 13% of the total 13,650 tpy of overall NO_x onroad mobile source emissions from the Evansville-Henderson study area. (See table 1-D)

Onroad mobile source SO_x emissions from Henderson County were estimated at 68 tons per year (tpy) in 1999, which represents approximately 14% of the total 497 tpy overall SO_x onroad mobile source emissions from the Evansville-Henderson study area. (See table 1-E)

Onroad mobile source NH₃ emissions from Henderson County were estimated at 56 tpy in 1999, which represents approximately 14% of the total 396 tpy overall NH₃ onroad mobile source emissions from the Evansville-Henderson study area. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Henderson County were estimated at 39 tons per year (tpy) in 1999, which represents approximately 13% of the total 301 tpy overall PM_{2.5} onroad mobile source emissions from the Evansville-Henderson study area. (See table 1-G)

1999 NEI Evansville-Henderson County Study Area Onroad Mobile Source Emissions (tons per year)



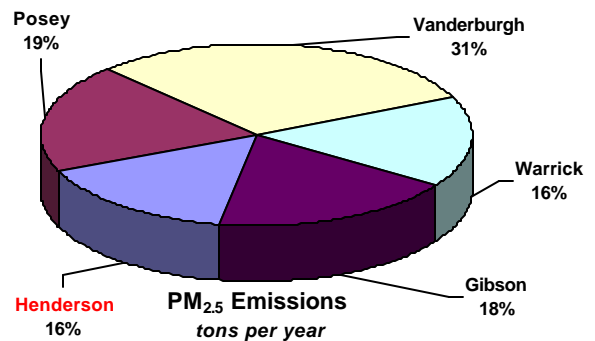
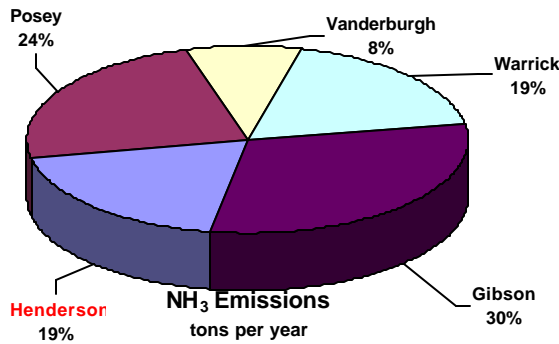
Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Henderson County is 28.6% and classified as minimal, and the commuting traffic from Henderson County into other counties is minimal at 26.3%.

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

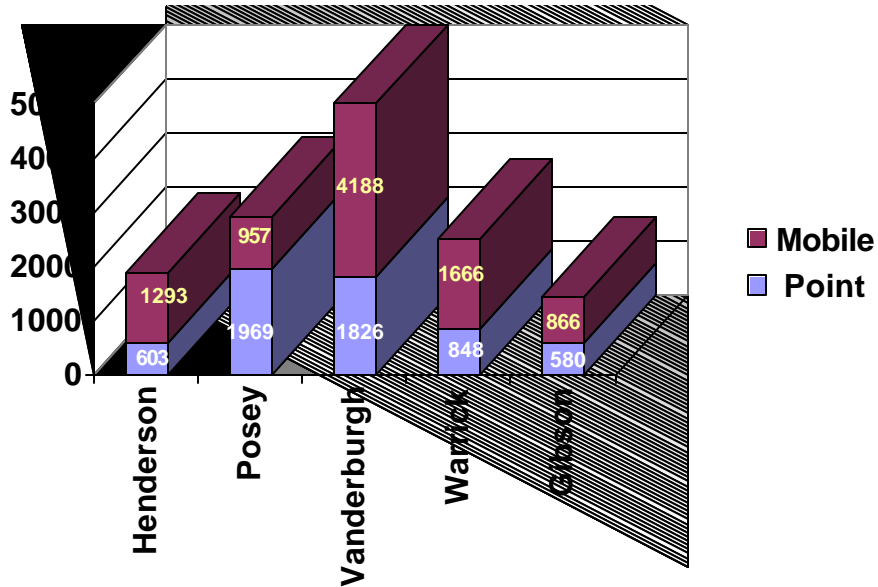
Area source NH₃ emissions from Henderson County were estimated at 665 tpy in 1999, which represents approximately 19% of the total 3,530 tpy of overall NH₃ area source emissions from the Evansville-Henderson study area. (See table 1-F)

Area source PM_{2.5} emissions from Henderson County were estimated at 1,120 tpy in 1999, which represents approximately 16% of the total 7,153 tpy of overall PM_{2.5} area source emissions from the Evansville-Henderson study area. (See table 1-G)

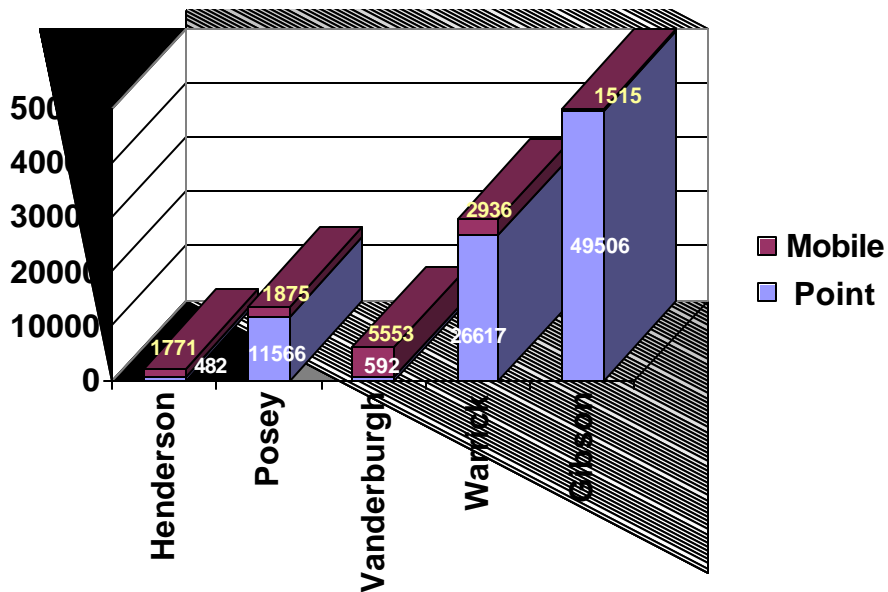
1999 NEI Evansville-Henderson County Study Area Area Source Emissions (tons per year)



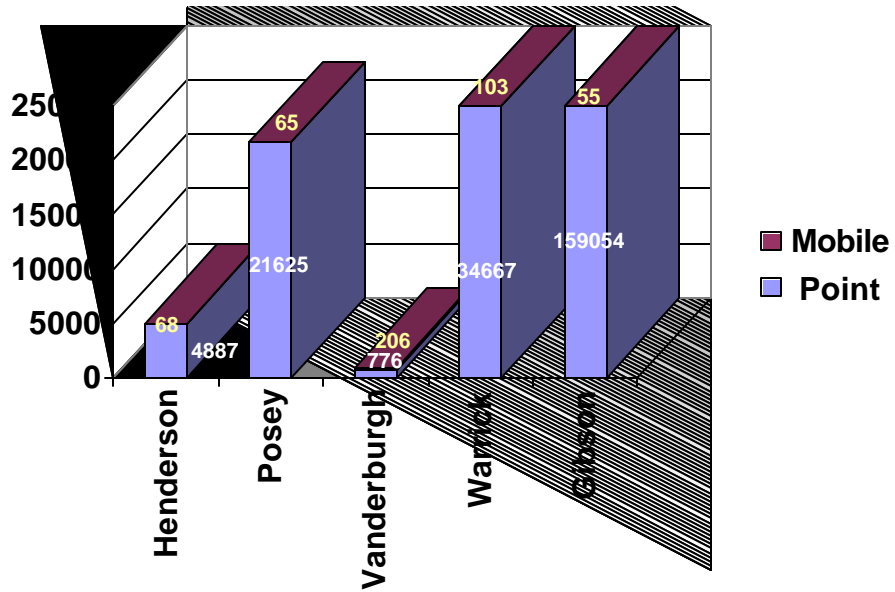
1999 NEI VOC Contribution (tons per year)



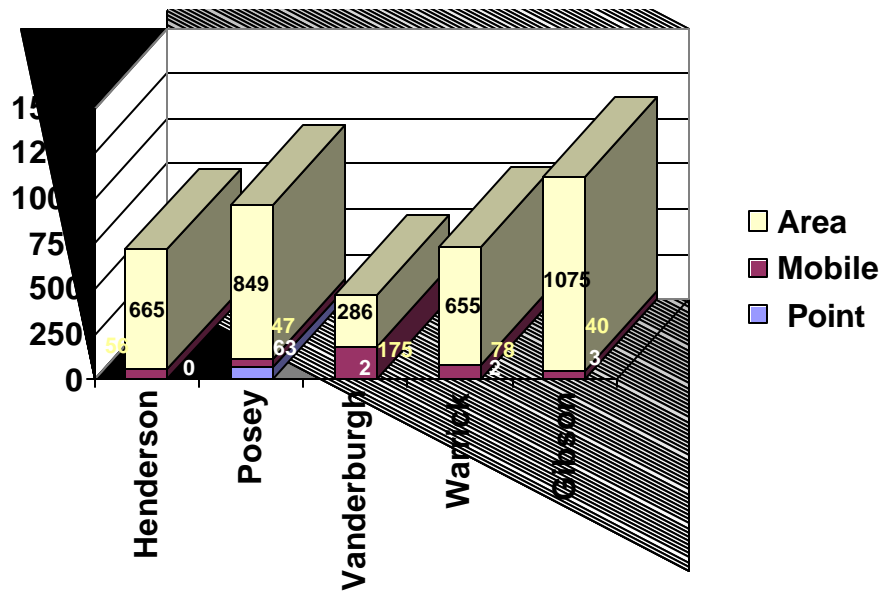
1999 NEI NO_x Contribution (tons per year)



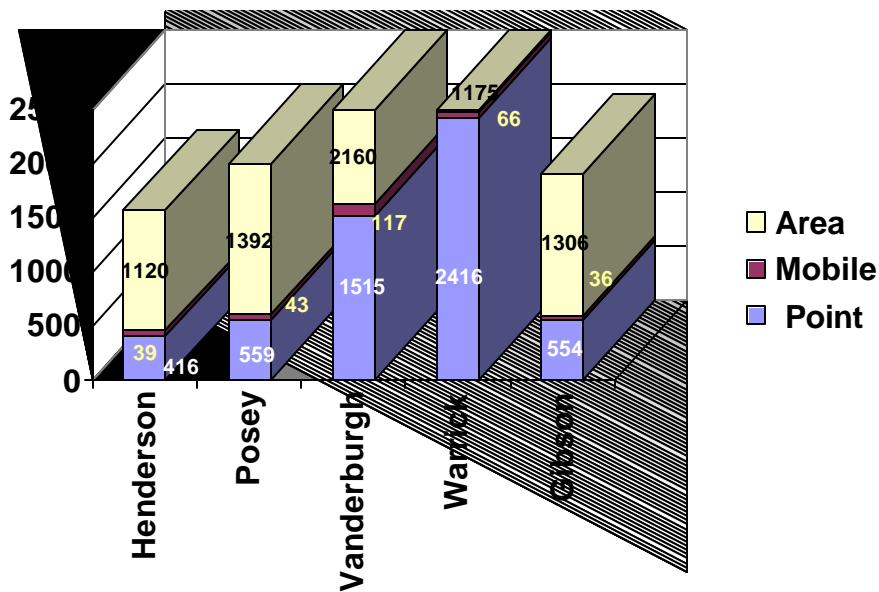
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

Henderson County, based on 2001 - 2003 PM_{2.5} monitoring data, is meeting the annual PM_{2.5} standard with an annual average of 14.1 micrograms per cubic meter. The monitoring and emissions data and other documentation presented indicate that Henderson County, Kentucky, does not contribute a significant amount of PM_{2.5} or those emissions that contribute to PM_{2.5} formation in the Evansville-Henderson area. Predominant wind patterns would typically have Henderson County emissions moving away from violating monitors in Indiana.

Henderson County contributes approximately 13% of total VOC emissions, 2% of the total NO_x emissions, 2% of the total SO_x emissions, 12% of the total PM_{2.5} emissions, and 18% of the total NH₃ emissions in the study area.

Therefore, Henderson County should be designated attainment for the PM_{2.5} standard.

Henderson County, Kentucky

Figure 1-A Wind Rose Patterns

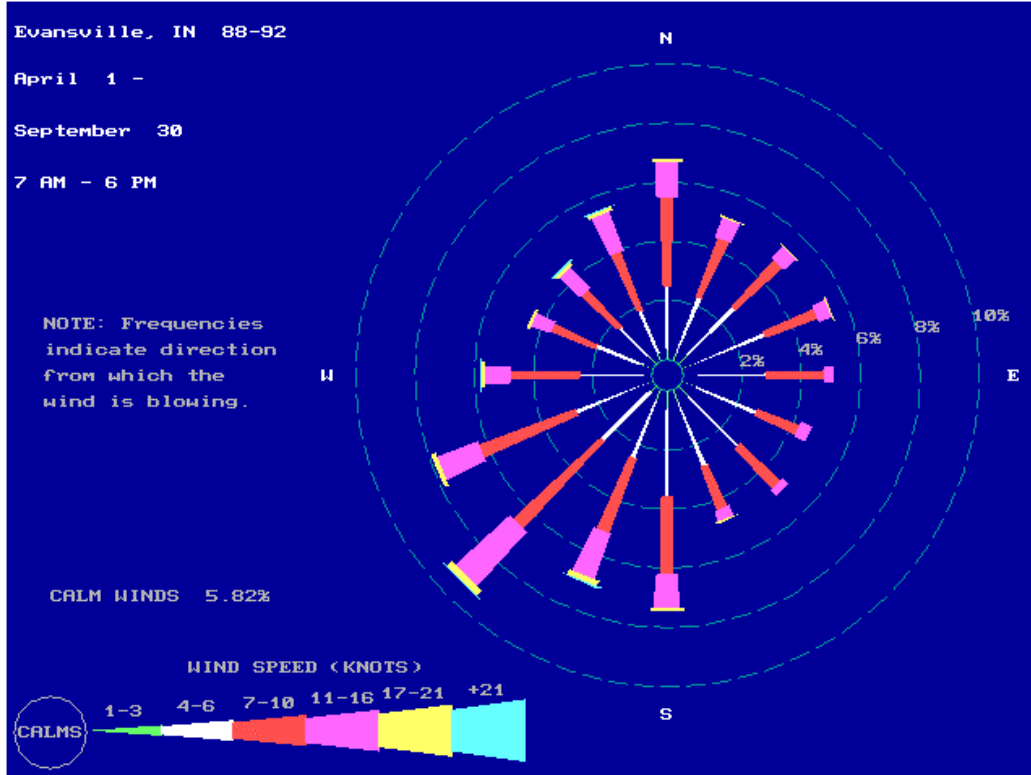


Figure 1-B 1999 NEI Evansville-Henderson MSA VOC and NO_x Emissions (tons per year)

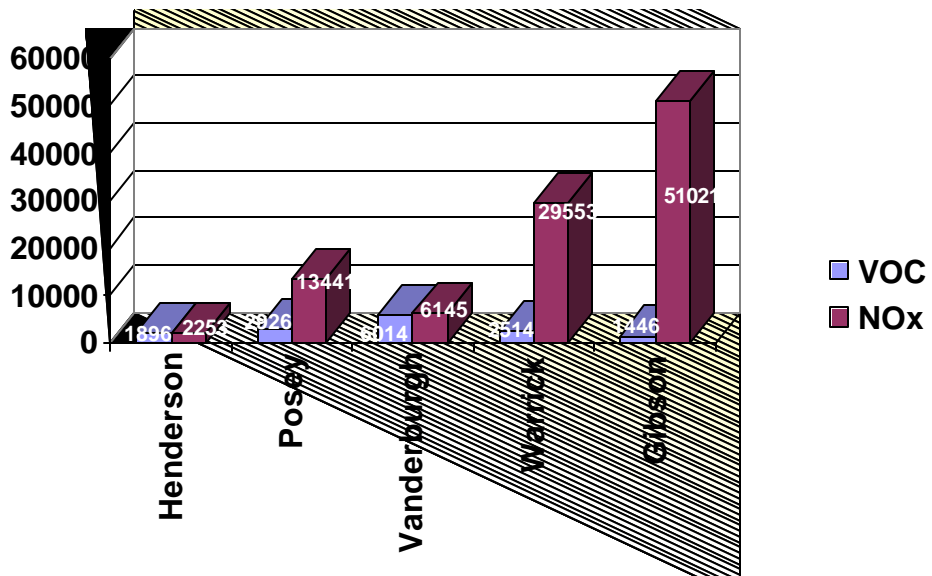


Figure 1-C
1999 NEI Evansville-Henderson MSA
SO_x Emissions
 (tons per year)

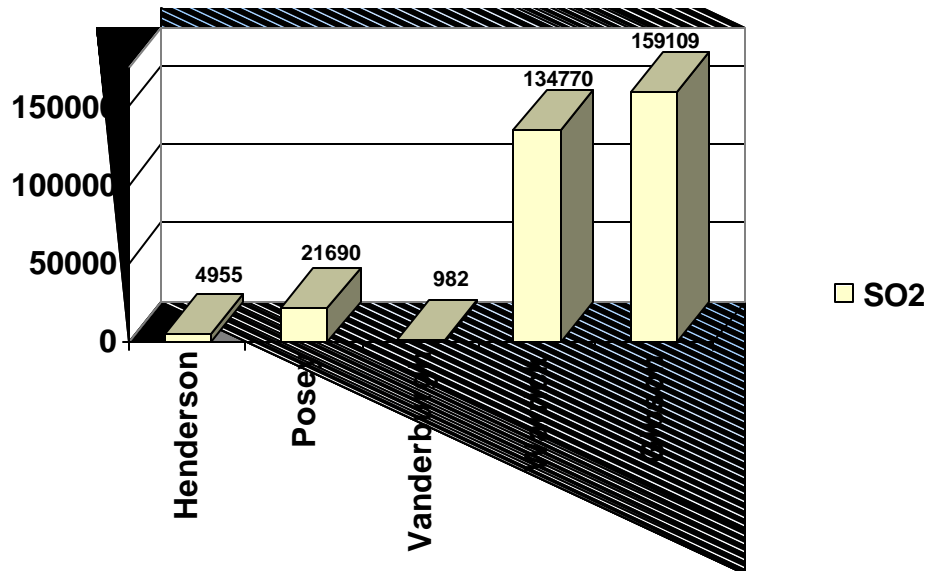


Figure 1-D
1999 Evansville-Henderson MSA
NH₃ and PM_{2.5} Emissions
 (tons per year)

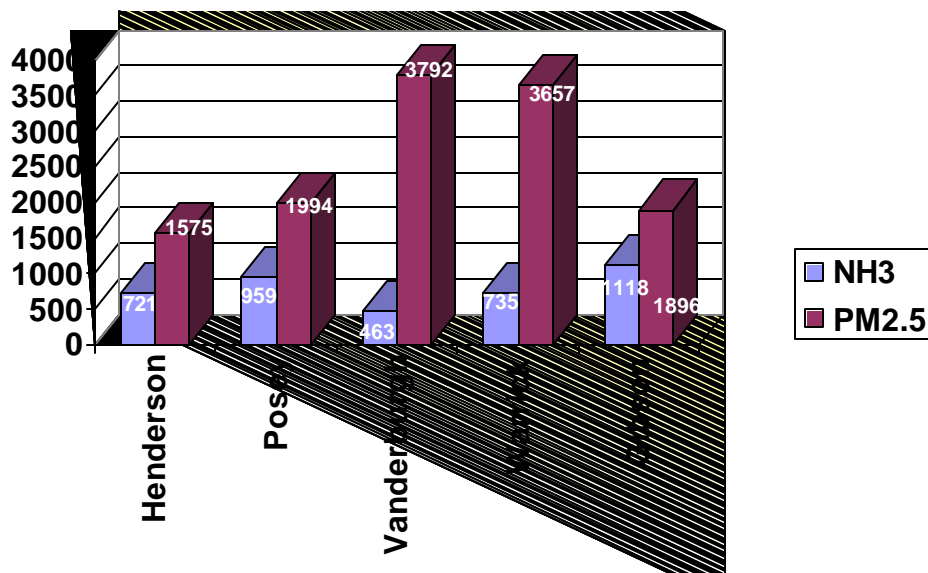


Table 1-A
Average Annual Design Values for PM_{2.5}
 (micrograms per cubic meter)

County	2001	2002	2003*	Design Value
Kentucky				
Henderson	14.2	14.2	13.8	14.1
Webster				N/A
Indiana				
Gibson				N/A
Posey				N/A
Vanderburgh	16.2	15.2	16.6	16.0
Warrick				N/A

*The monitoring information for 2003 is complete for Henderson County, Kentucky. However, the 2003 monitoring data reported for the Vanderburgh County, Indiana, is the latest available and may not be complete through December 2003.

Table 1-B
Evansville-Henderson MSA Population
Growth Data

County	1990	2000	%Growth 1990 - 2000	2010	%Growth 2000 - 2010
Kentucky					
Henderson	43,044	44,829	4.1%	46,303	3.3%
Indiana					
Gibson	31,913	32,500	1.8%	32,904	1.2%
Posey	25,968	27,061	4.2%	26,605	-1.7%
Warrick	44,920	52,383	16.6%	56,631	8.1%
Vanderburgh	165,058	171,922	4.2%	174,355	1.4%

**Table 1-C
2002 Estimated Evansville-Henderson MSA
Population**

Kentucky		Estimated Population
Henderson County		44,995
Indiana		Estimated Population
Gibson County		32,590
Posey County		26,990
Vanderburgh County		171,744
Warrick County		53,624
Total Estimated MSA Population		329,943

**Table 1-D
1999 NEI Evansville-Henderson MSA
VOC and NO_x Emissions
(tons per year)**

County	VOC			NO_x		
	Point	Mobile	Total	Point	Mobile	Total
Gibson	580	866	1,446	49,506	1,515	51,021
Posey	1,969	957	2,926	11,566	1,875	13,441
Vanderburgh	1,826	4,188	6,014	592	5,553	6,145
Warrick	848	1,666	2,514	26,617	2,936	29,553
Henderson	603	1,293	1,896	482	1,771	2,253
Total Emissions	5,826	8,970	14,796	88,763	13,650	102,413

**Table 1-E
1999 NEI Evansville-Henderson MSA
SO_x Emissions
(tons per year)**

County	SO_x		
	Point	Mobile	Total
Gibson	159,054	55	159,109
Posey	21,625	65	21,690
Vanderburgh	776	206	982
Warrick	134,667	103	134,770
Henderson	4,887	68	4,955
Total Emissions	321,009	497	321,506

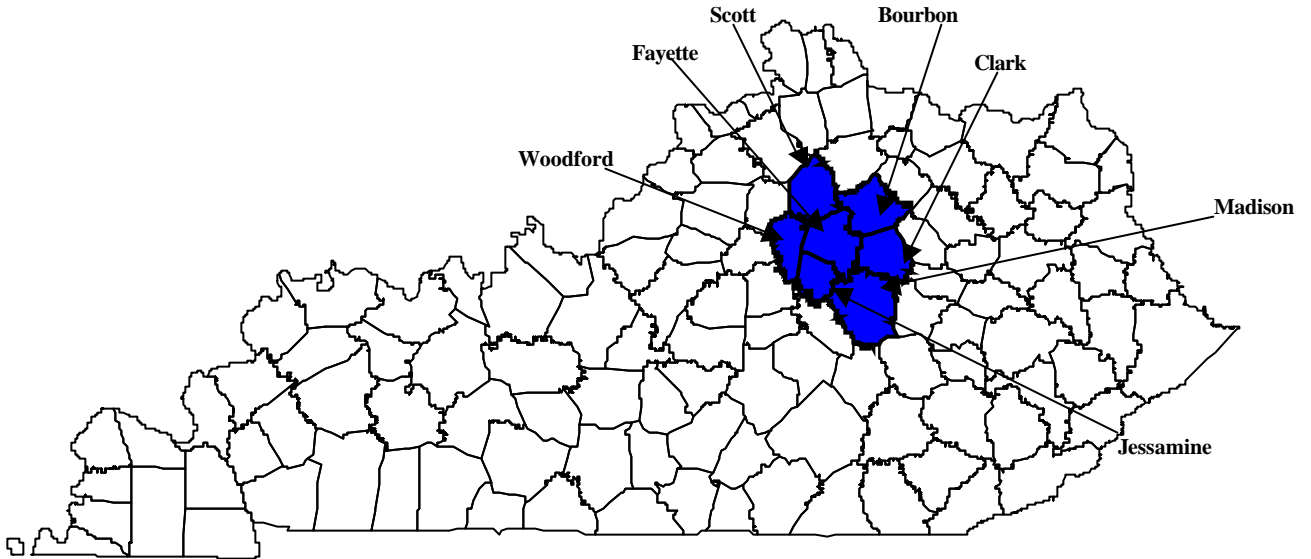
Table 1-F
1999 NEI Evansville-Henderson MSA
NH₃ Emissions
(tons per year)

County	NH ₃			Total
	Area	Point	Mobile	
Gibson	1,075	3	40	1,118
Posey	849	63	47	959
Vanderburgh	286	2	175	463
Warrick	655	2	78	735
Henderson	665	0	56	721
Total Emissions	3,530	70	396	3,996

Table 1-G
1999 NEI Evansville-Henderson MSA
PM_{2.5} Emissions
(tons per year)

County	PM _{2.5}			Total
	Area	Point	Mobile	
Gibson	1,306	554	36	1,896
Posey	1,392	559	43	1,994
Vanderburgh	2,160	1,515	117	3,792
Warrick	1,175	2,416	66	3,657
Henderson	1,120	416	39	1,575
Total Emissions	7,153	5,460	301	12,914

Lexington, Kentucky MSA



The Lexington, Kentucky Metropolitan Statistical Area (MSA) encompasses Fayette, Bourbon, Clark, Jessamine, Madison, Scott, and Woodford Counties in Kentucky. In 2001, the MSA was listed as being the 86th largest within the United States.

FAYETTE COUNTY, KENTUCKY

Fayette County is located in the Lexington, Kentucky Metropolitan Statistical Area (MSA) and is located to the east of Woodford County, to the northeast of Jessamine County, to the northwest of Madison County, to the west of Clark County, to the southeast of Scott County, and to the southwest of Bourbon County.

Geography/Topography

Fayette County has a land area of 284 square miles and is located in the heart of central Kentucky's Bluegrass Region. Lexington is the state's second largest urban area. The urbanized area is surrounded by a scenic countryside of world famous horse farms and gently rolling terrain. Interstate 75, a major north-south corridor, and Interstate 64, a major east-west route, intersect north and east of downtown Lexington.

Meteorological Information

Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Fayette County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 86°F and the mean low was 66°F. The mean precipitation for the same period was 4.8 inches.

Planning

The authority for air quality planning in the Fayette County area resides with the Kentucky Environmental and Public Protection Cabinet. Transportation planning for all of Fayette County is performed by the Lexington Area Metropolitan Planning Organization (LAMPO).

Air Monitoring

For the 2001 - 2003 monitoring period, the PM_{2.5} monitor (21-067-0014) at South Limestone in Fayette County, Kentucky, shows an annual average design value of 15.6 micrograms per cubic meter, which exceeds the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS) and would be classified as a county in nonattainment. There is an additional PM_{2.5} monitor (21-067-0012) at Newtown Pike in Fayette County, Kentucky, which shows an annual average design value of 14.9 micrograms per cubic meter, which is in attainment of the standard. The monitoring information for 2003 is complete for all counties in the Lexington MSA. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 263,618 persons living in Fayette County. (See table 1-C) That represents approximately 928 persons per square mile. The population of Fayette County is approximately 4% rural with the remaining 96% living in incorporated areas. The largest city in Fayette County is Lexington.

Fayette County's population from 1990 through 2000 increased by approximately 15.6% (225,366 to 260,512). The population is further expected to increase by an additional 13.5% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the Lexington MSA, Fayette County represents approximately 53.8% of the total 2002 population in the MSA area. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5}, is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Sources

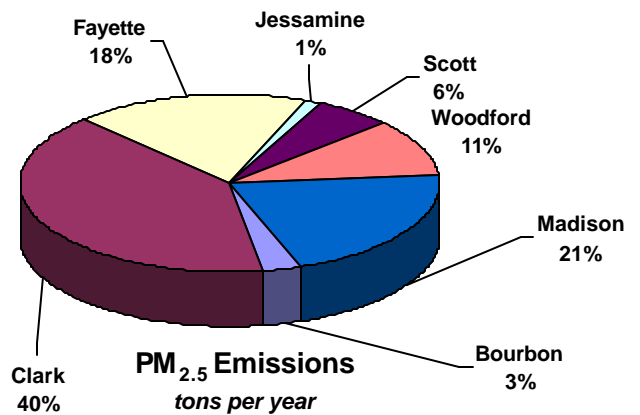
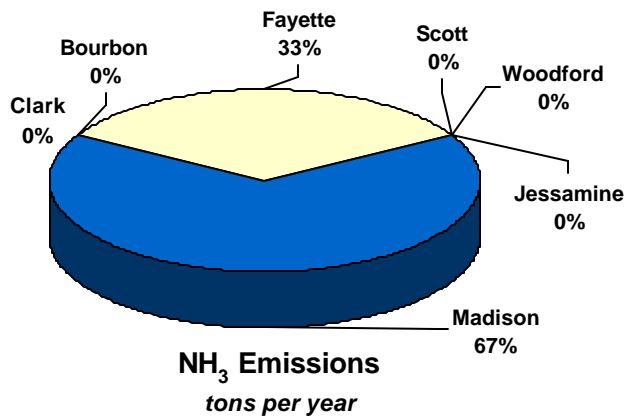
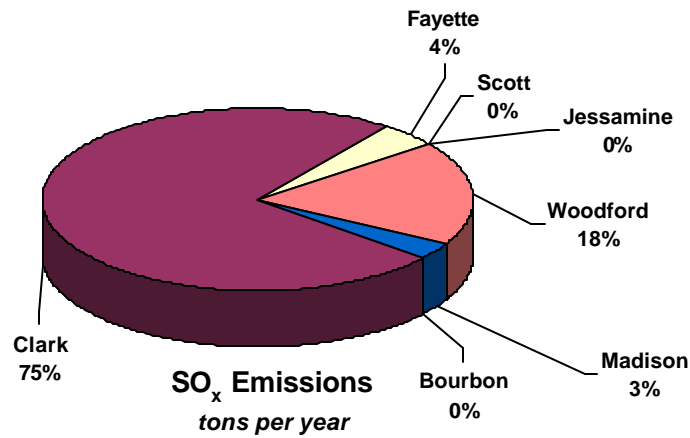
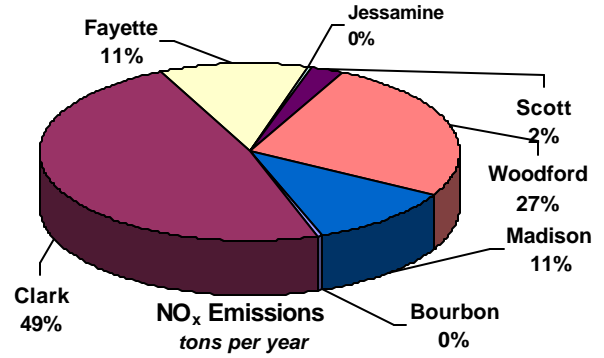
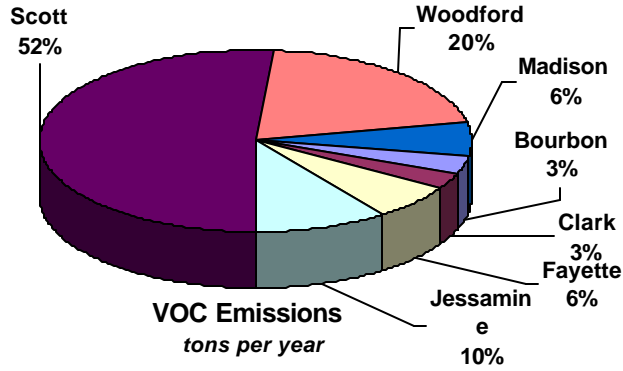
Point source VOC emissions from Fayette County were estimated at 431 tons per year in 1999, which represents approximately 6% of the total 6,719 tpy overall VOC point source emissions from the Lexington MSA. Point source NO_x emissions from Fayette County were estimated at 875 tpy in 1999, which represents 11% of the total 7,641 tpy overall NO_x point source emissions from the Lexington MSA. (See table 1-D)

Point source SO_x emissions from Fayette County were estimated at 541 tons per year in 1999, which represents approximately 4% of the total 12,210 tpy overall SO_x point source emissions from the Lexington MSA. (See table 1-E)

Point source NH₃ emissions from Fayette County were estimated at 1 tpy in 1999, which represents 33.3% of the total 3 tpy overall NH₃ point source emissions from the Lexington MSA. (See table 1-F)

Point source PM_{2.5} emissions from Fayette County were estimated at 104 tons per year in 1999, which represents approximately 18% of the total 582 tpy overall PM_{2.5} point source emissions from the Lexington MSA. (See table 1-G)

1999 NEI Lexington MSA Point Source Emissions (tons per year)



Point sources located within Fayette County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

Onroad Mobile

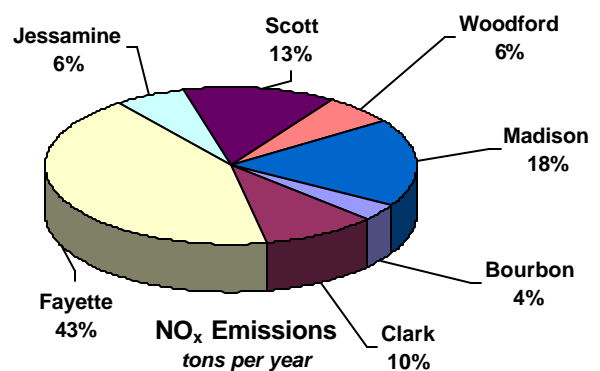
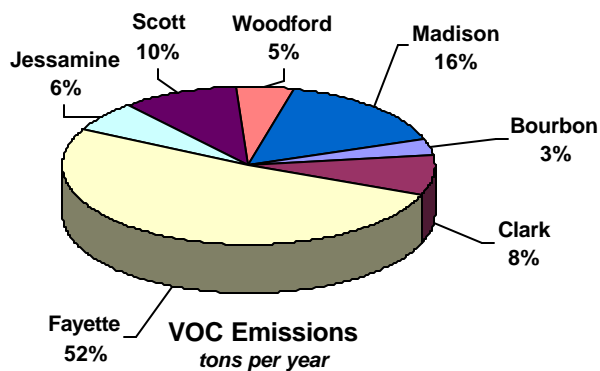
Onroad mobile source VOC emissions from Fayette County were estimated at 6,549 tons per year in 1999, which represents approximately 52% of the total 12,736 tpy of overall VOC onroad mobile source emissions from the Lexington MSA. Onroad mobile source NO_x emissions from Fayette County were estimated at 7,769 tpy in 1999, which represents approximately 43% of the total 18,194 tpy of overall NO_x onroad mobile source emissions from the Lexington MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Fayette County were estimated at 302 tons per year in 1999, which represents approximately 46% of the total 675 tpy overall SO_x onroad mobile source emissions from the Lexington MSA. (See table 1-E)

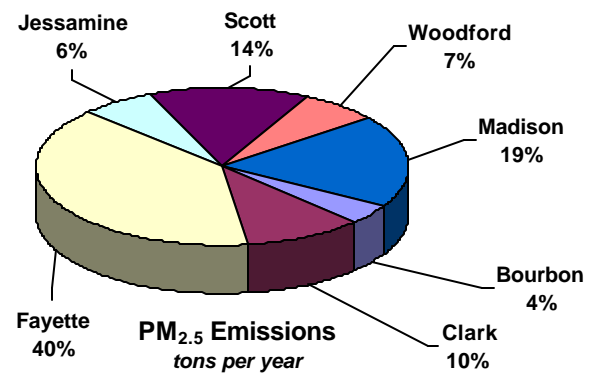
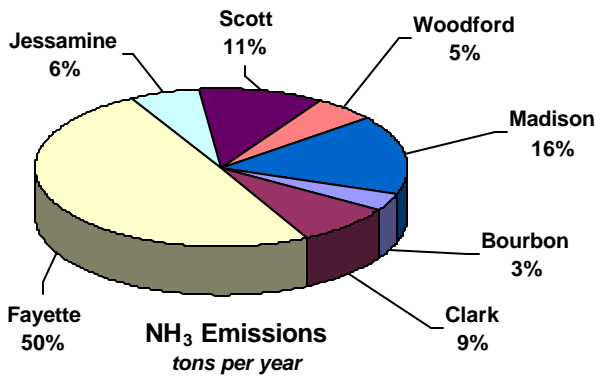
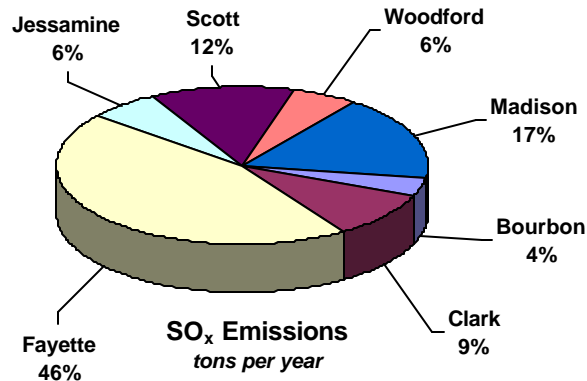
Onroad mobile source NH₃ emissions from Fayette County were estimated at 278 tpy in 1999, which represents approximately 50% of the total 564 tpy overall NH₃ onroad mobile source emissions from the Lexington MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Fayette County were estimated at 153 tons per year (tpy) in 1999, which represents approximately 40% of the total 388 tpy overall PM_{2.5} onroad mobile source emissions from the Lexington MSA. (See table 1-G)

**1999 NEI Lexington MSA
Onroad Mobile Source Emissions
(tons per year)**



1999 NEI Lexington MSA Onroad Mobile Source Emissions (continued)



Based on information received from the Kentucky Transportation Cabinet, commuting traffic from other counties into Fayette County is 29.6% and classified as minimal, and the commuting traffic from Fayette County into other counties is minimal at 14.0%.

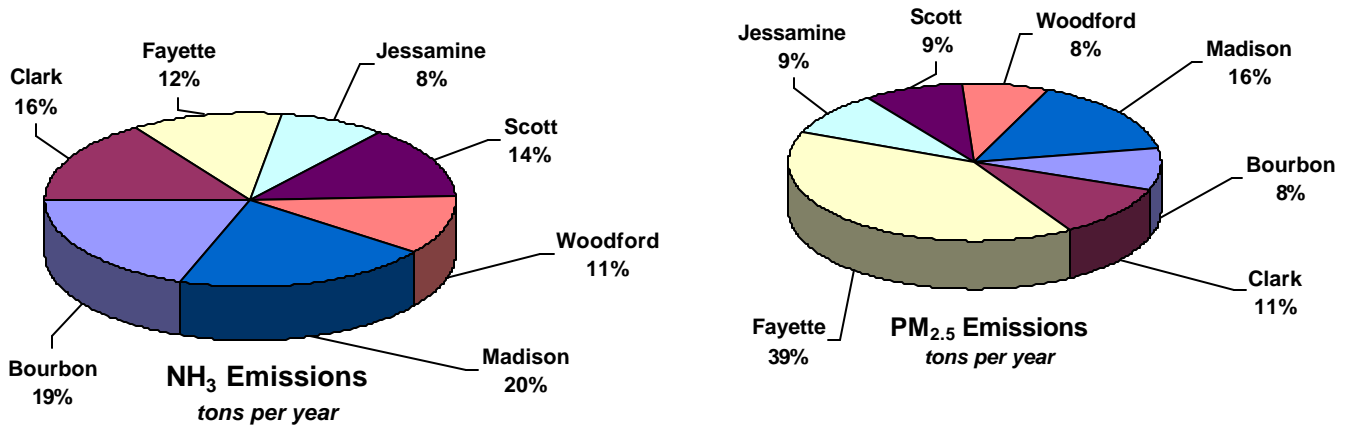
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

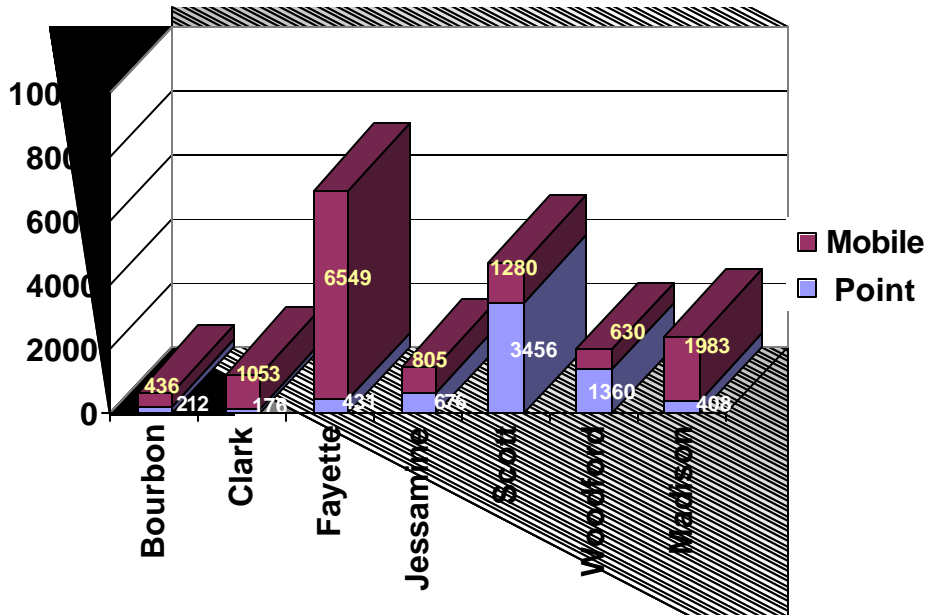
Area source NH_3 emissions from Fayette County were estimated at 994 tpy in 1999, which represents approximately 12% of the total 8,281 tpy of overall NH_3 area source emissions from the Lexington MSA. (See table 1-F)

Area source $\text{PM}_{2.5}$ emissions from Fayette County were estimated at 2,390 tpy in 1999, which represents approximately 39% of the total 6,009 tpy of overall $\text{PM}_{2.5}$ area source emissions from the Lexington MSA. (See table 1-G)

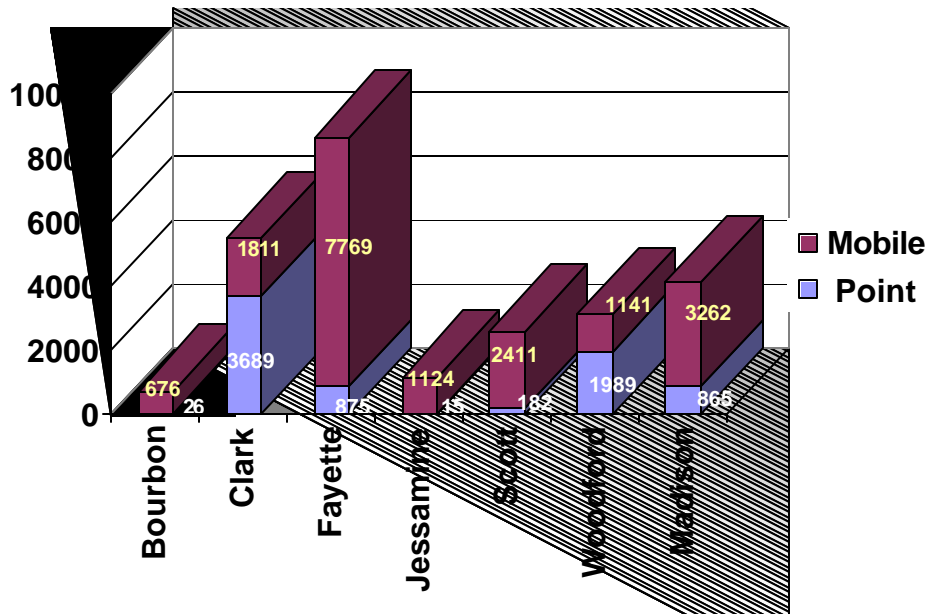
1999 NEI Lexington MSA Area Source Emissions (tons per year)



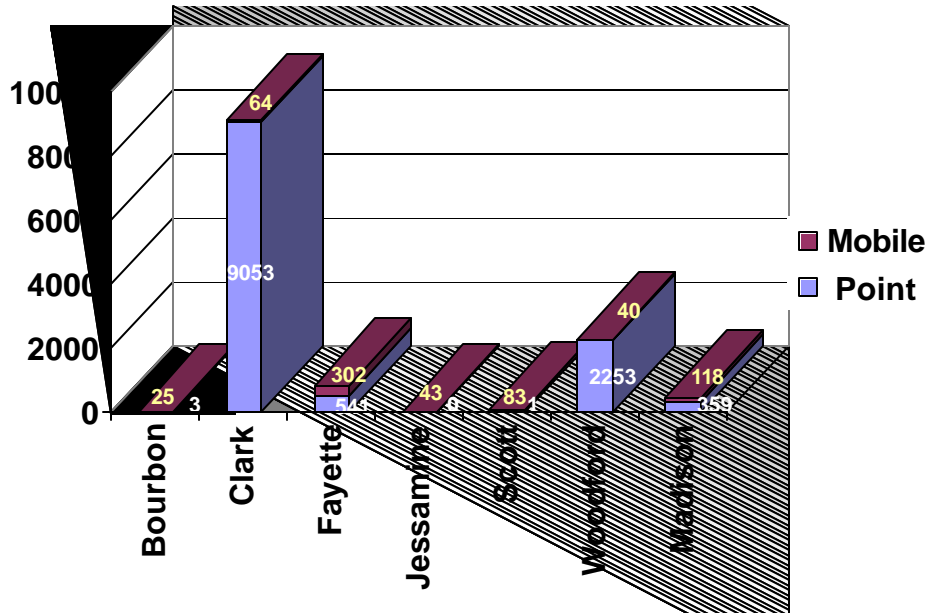
1999 NEI VOC Contribution (tons per year)



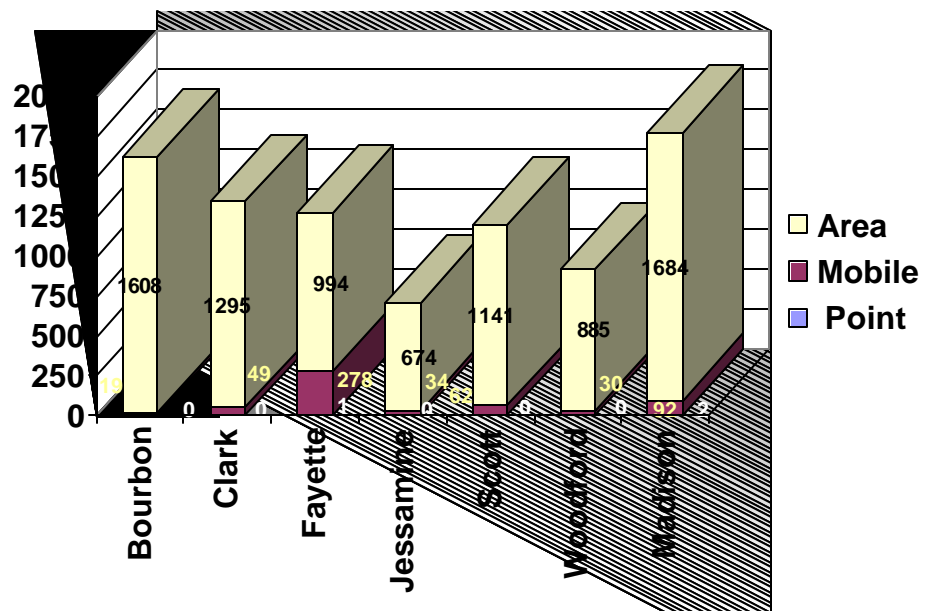
1999 NEI NO_x Contribution (tons per year)



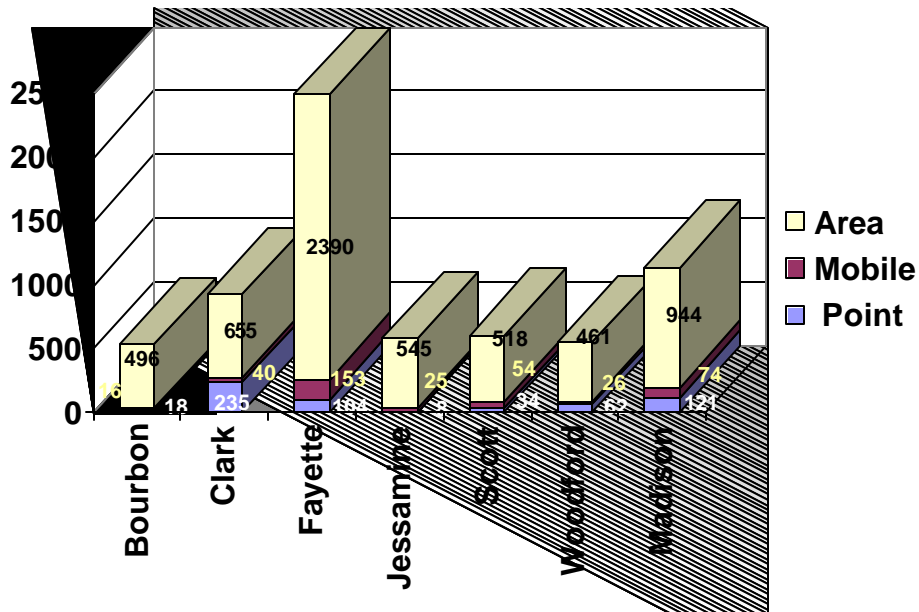
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

Fayette County, based on 2001 - 2003 PM_{2.5} monitoring data, is not meeting the annual PM_{2.5} standard with annual design value of 15.6 micrograms per cubic meter at the Limestone monitoring location. However, it is important to note that the Newtown Pike monitoring station is showing attainment and that both monitoring locations within Fayette County continue to show declining yearly average values. The other monitor in the MSA, located in Madison County, is also showing improvements in air quality and is meeting the standard with a design value of 13.4 micrograms per cubic meter.

Additionally, final compliance with the NO_x SIP Call is mandated by May 2004, with additional regional reductions such as the recently proposed interstate transport rule on the horizon.

The above documentation is important in determining the overall impact this standard will have on the region. However, based on the monitoring data presented at the Limestone location, Fayette County should be designated nonattainment for the PM_{2.5} standard.

BOURBON COUNTY, KENTUCKY

Bourbon County is part of the Lexington-Fayette County, Kentucky Metropolitan Statistical Area (MSA). It is located southeast of Harrison County, southwest of Nicholas County, east of Scott County, west of Bath County, northwest of Montgomery County, northeast of Fayette County, and directly north of Clark County.

Geography/Topography

Bourbon County has a land area of 291 square miles and is located in the heart of central Kentucky's Bluegrass Region, an area famous for its many beautiful horse farms and gently-rolling topography.

Meteorological Information

Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Bourbon County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 86°F and the mean low was 66°F. The mean precipitation for the same period was 4.8 inches.

Planning

The authority for air quality planning in the Bourbon County area resides with the Kentucky Environmental and Public Protection Cabinet. Transportation planning for all of Bourbon County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Bourbon County. However, because the PM_{2.5} monitor (21-067-0014) at South Limestone in Fayette County, Kentucky, shows an annual average design value of 15.6 micrograms per cubic meter, which exceeds the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS) and would be classified as a county in nonattainment, information for Bourbon County is being presented in this document. The PM_{2.5} monitor (21-067-0012) at Newtown Pike in Fayette County, Kentucky, shows an annual average design value of 14.9 micrograms

per cubic meter, which is in attainment of the standard. The monitoring information for 2003 is complete for all counties in the Lexington MSA. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 19,576 persons living in Bourbon County. (See table 1-C) That represents approximately 67 persons per square mile. The population of Bourbon County is approximately 45.2% rural with the remaining 54.9% living in incorporated areas. The largest city in Bourbon County is Paris.

Bourbon County's population from 1990 through 2000 increased by approximately 0.6% (19,236 to 19,360). The population is expected to decrease by approximately -0.1% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the Lexington MSA, Bourbon County represents approximately 4.0% of the total 2002 population in the MSA area. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Sources

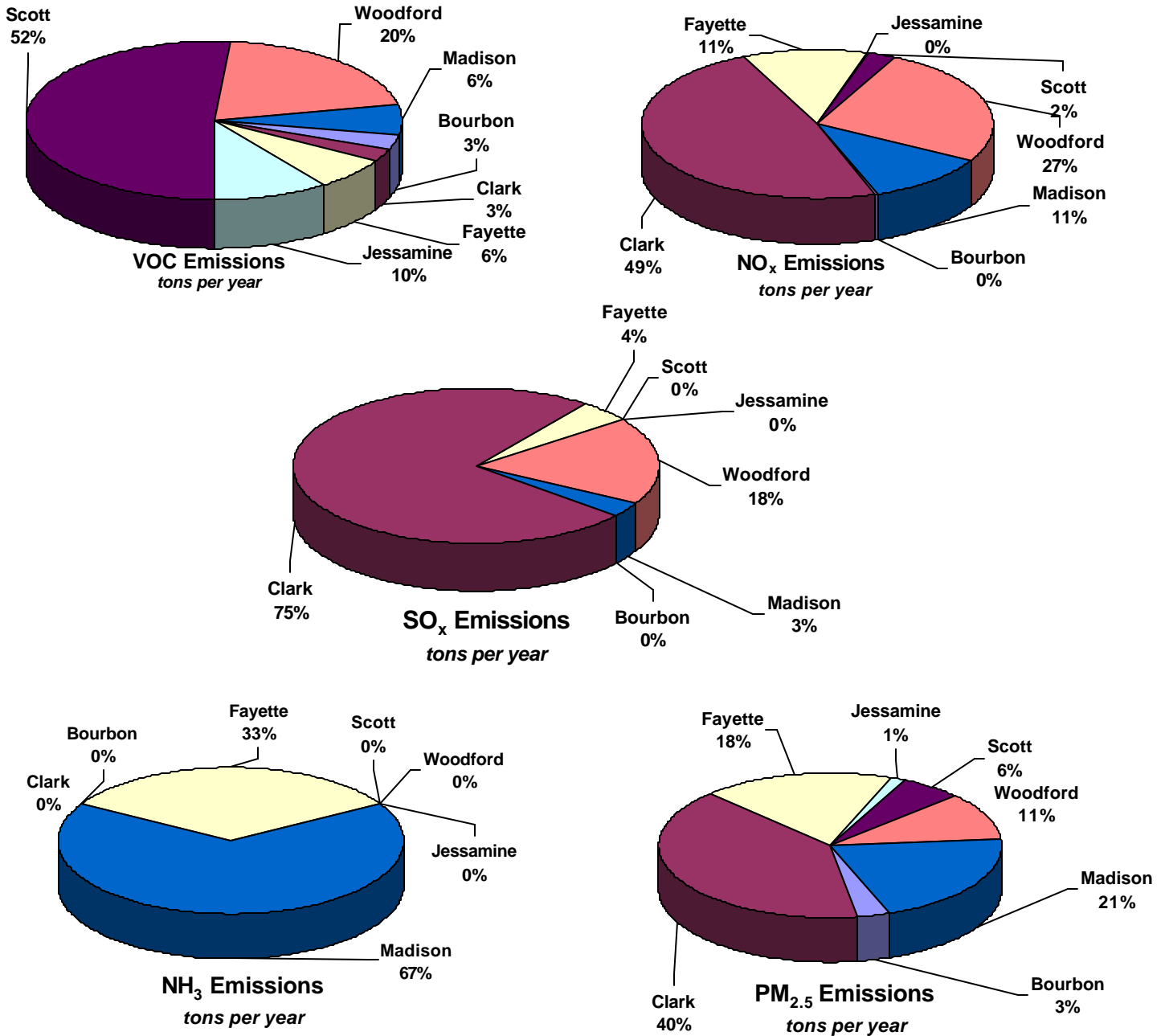
Point source VOC emissions from Bourbon County were estimated at 212 tons per year (tpy) in 1999, which represents approximately 3% of the total 6,719 tpy overall VOC point source emissions from the Lexington MSA. Point source NO_x emissions from Bourbon County were estimated at 26 tpy in 1999, which represents less than 1% of the total 7,641 tpy overall NO_x point source emissions from the Lexington MSA. (See table 1-D)

Point source SO_x emissions from Bourbon County were estimated at 3 tons per year in 1999, which represents less than 1% of the total 12,210 tpy overall SO_x point source emissions from the Lexington MSA. (See table 1-E)

Point source NH₃ emissions from Bourbon County were estimated at 0 tpy in 1999. (See table 1-F)

Point source PM_{2.5} emissions from Bourbon County were estimated at 18 tons per year (tpy) in 1999, which represents approximately 3% of the total 582 tpy overall PM_{2.5} point source emissions from the Lexington MSA. (See table 1-G)

1999 NEI Lexington MSA Point Source Emissions (tons per year)



Point sources located within Bourbon County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

Onroad Mobile

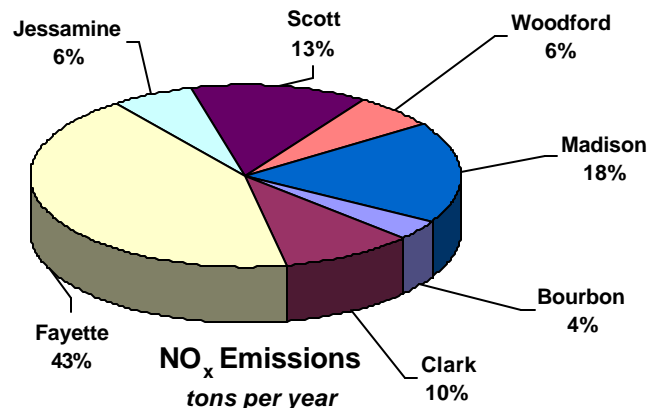
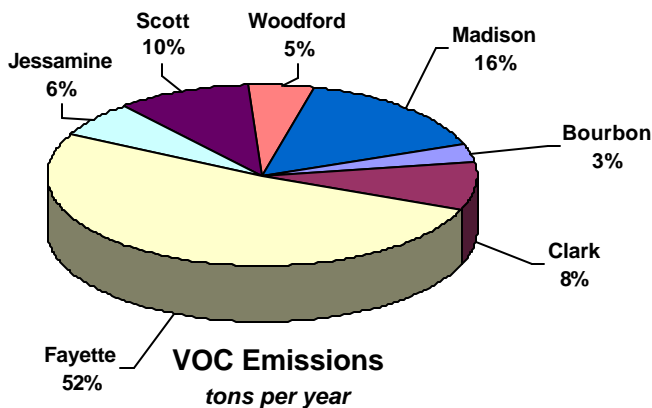
Onroad mobile source VOC emissions from Bourbon County were estimated at 436 tons per year in 1999, which represents approximately 3% of the total 12,736 tpy of overall VOC onroad mobile source emissions from the Lexington MSA. Onroad mobile source NO_x emissions from Bourbon County were estimated at 676 tpy in 1999, which represents approximately 4% of the total 18,194 tpy of overall NO_x onroad mobile source emissions from the Lexington MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Bourbon County were estimated at 25 tons per year in 1999, which represents approximately 4% of the total 675 tpy overall SO_x onroad mobile source emissions from the Lexington MSA. (See table 1-E)

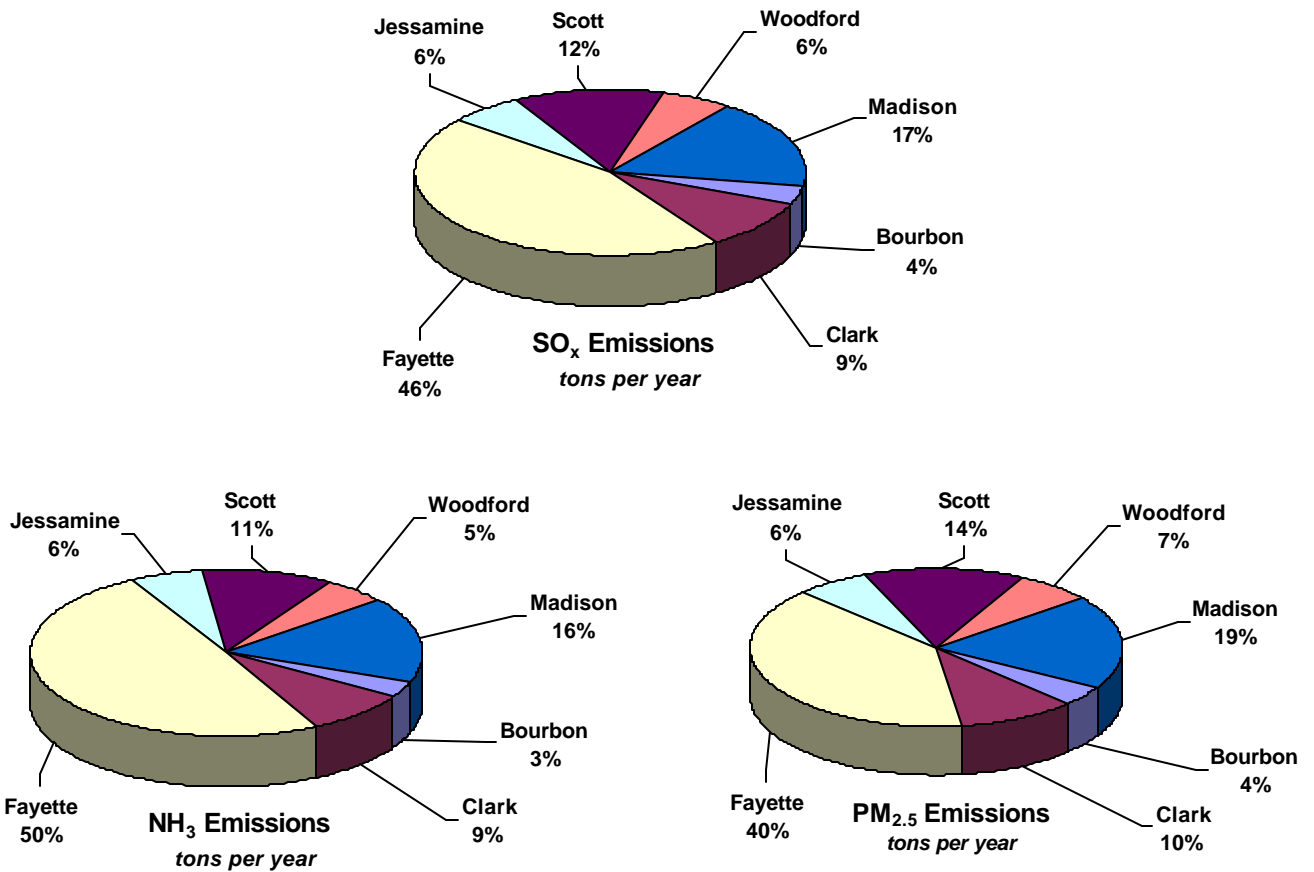
Onroad mobile source NH₃ emissions from Bourbon County were estimated at 19 tpy in 1999, which represents approximately 3% of the total 564 tpy overall NH₃ onroad mobile source emissions from the Lexington MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Bourbon County were estimated at 16 tons per year (tpy) in 1999, which represents approximately 4% of the total 388 tpy overall PM_{2.5} onroad mobile source emissions from the Lexington MSA. (See table 1-G)

1999 NEI Lexington MSA Onroad Mobile Source Emissions (tons per year)



1999 NEI Lexington MSA Onroad Mobile Source Emissions (continued)



Based on information received from the Kentucky Transportation Cabinet, commuting traffic from other counties into Bourbon County is 35.3% and classified as high, and the commuting traffic from Bourbon County into other counties is high at 47.7%.

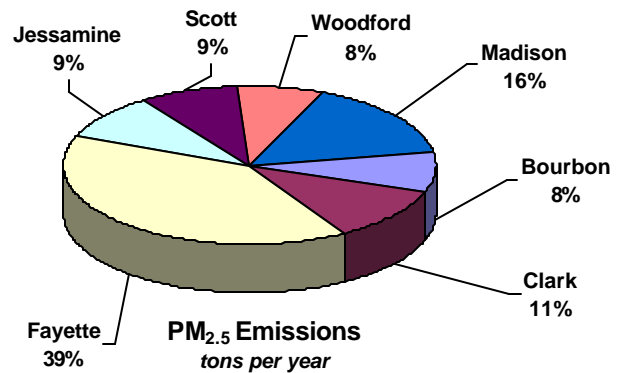
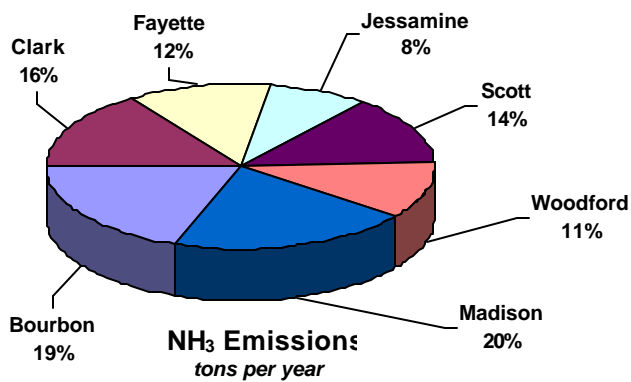
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

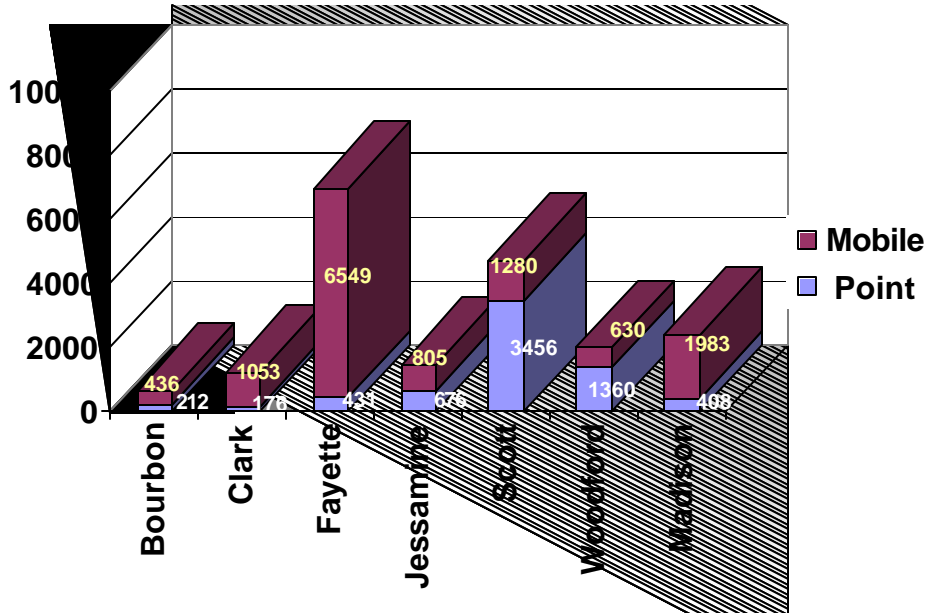
Area source NH₃ emissions from Bourbon County were estimated at 1,608 tpy in 1999, which represents approximately 19% of the total 8,281 tpy of overall NH₃ area source emissions from the Lexington MSA. (See table 1-F)

Area source PM_{2.5} emissions from Bourbon County were estimated at 496 tpy in 1999, which represents approximately 8% of the total 6,009 tpy of overall PM_{2.5} area source emissions from the Lexington MSA. (See table 1-G)

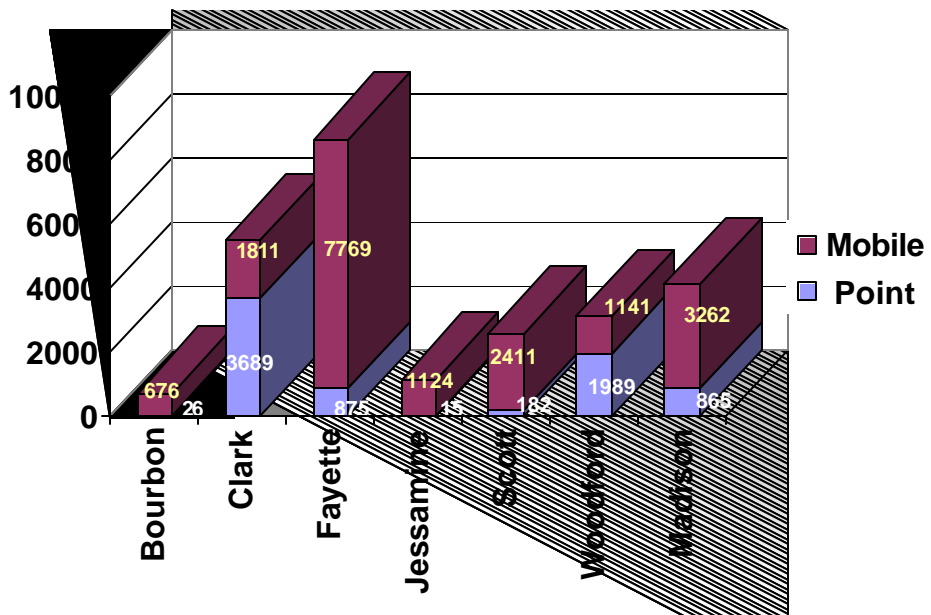
1999 NEI Lexington MSA Area Source Emissions (tons per year)



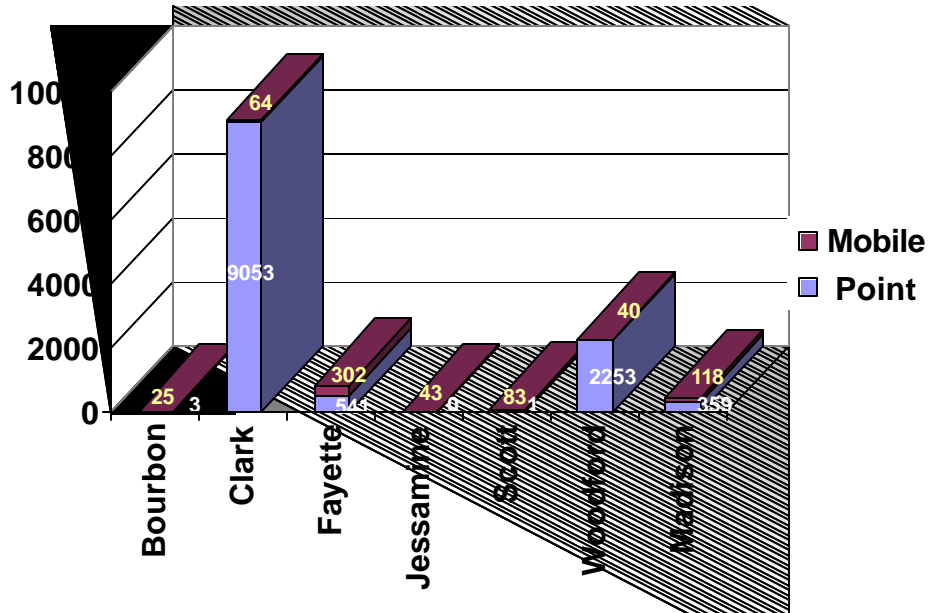
1999 NEI VOC Contribution (tons per year)



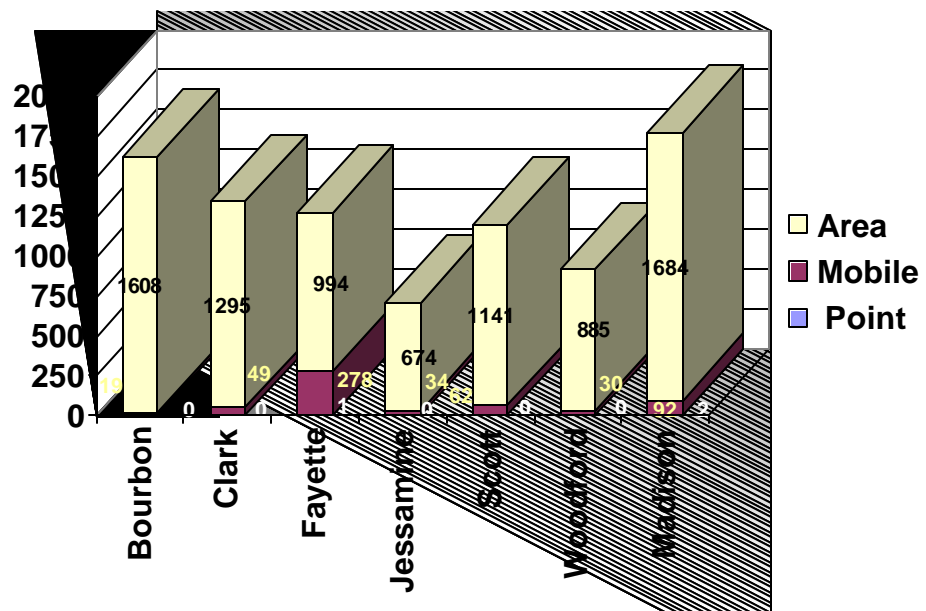
1999 NEI NO_x Contribution (tons per year)



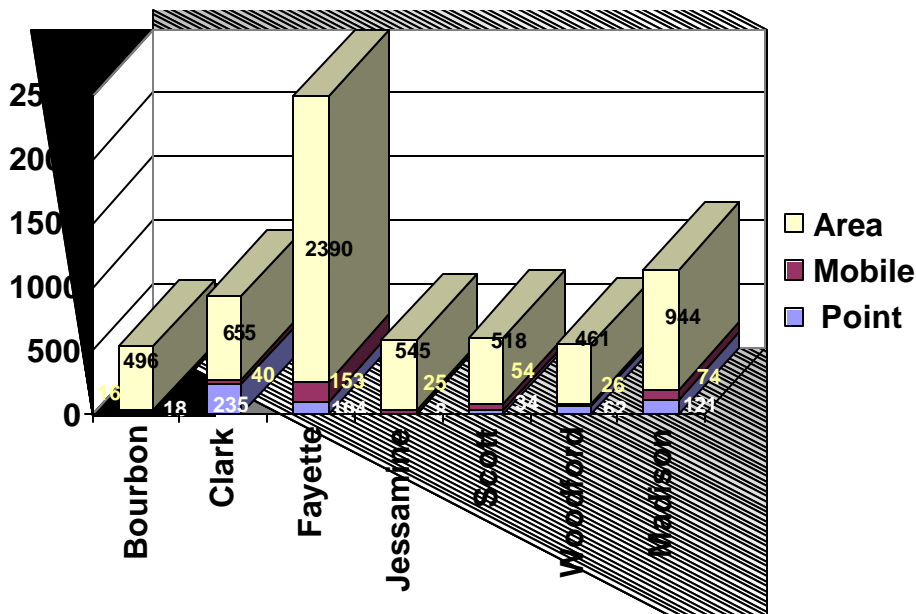
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

The emissions data and other documentation presented indicate that Bourbon County, Kentucky, does not contribute a significant amount of emissions that contribute to PM_{2.5} formation in the Lexington-Fayette MSA.

Bourbon County contributes approximately 3% of the total VOC emissions, 3% of the total NO_x emissions, less than 1% of the total SO_x emissions, 8% of the total PM_{2.5} emissions and 18% of the total NH₃ emissions in the area. Predominant wind patterns would typically have the small amounts of total emissions from Bourbon County moving away from the violating monitor in Fayette County. (See Figure 1-A)

Therefore, Bourbon County should be designated attainment for the PM_{2.5} standard.

CLARK COUNTY, KENTUCKY

Clark County is part of the Lexington-Fayette County, Kentucky Metropolitan Statistical Area (MSA) and is on the I-64 east-west interstate corridor. It is located southwest of Montgomery County, northwest of Powell County, north northwest of Estill County, north of Madison County, east of Fayette County, and south of Bourbon County.

Geography/Topography

Clark County has a land area of 254 square miles and is located in the Blue Grass Region of central Kentucky, an area famous for its many beautiful horse farms and gently-rolling topography.

Meteorological Information

Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Clark County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 86°F and the mean low was 66°F. The mean precipitation for the same period was 4.8 inches.

Planning

The authority for air quality planning in the Clark County area resides with the Kentucky Environmental and Public Protection Cabinet. Transportation planning for all of Clark County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Clark County. However, because one of two PM_{2.5} monitors located in Fayette County, (21-067-0014) at South Limestone in Fayette County, Kentucky, shows an annual average design value of 15.6 micrograms per cubic meter, which exceeds the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS) and would be classified as a county in nonattainment, information for Clark County is being presented in this document. The monitoring information for 2001 - 2003 is complete for all counties in the Lexington MSA. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 33,726 persons living in Clark County. (See table 1-C) That represents approximately 133 persons per square mile. The population of Clark County is approximately 33.4% rural with the remaining 66.6% living in incorporated areas. The largest city in Clark County is Winchester.

Clark County's population from 1990 through 2000 increased by approximately 12.4% (29,496 to 33,144). The population is expected to further increase by approximately 11.4% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the Lexington MSA, Clark County represents approximately 6.9% of the total 2002 population in the MSA area. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Sources

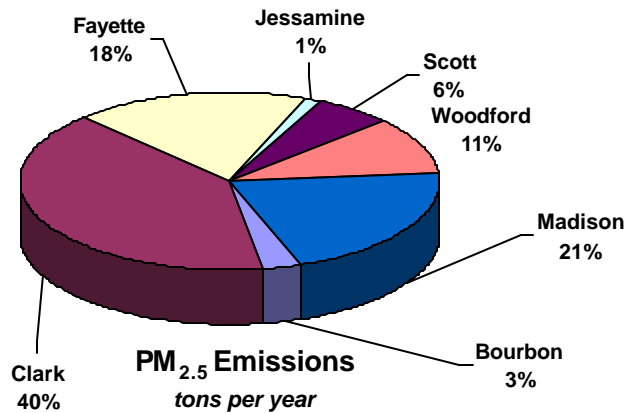
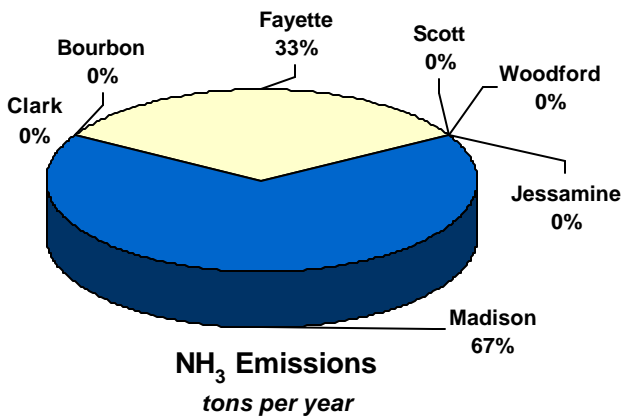
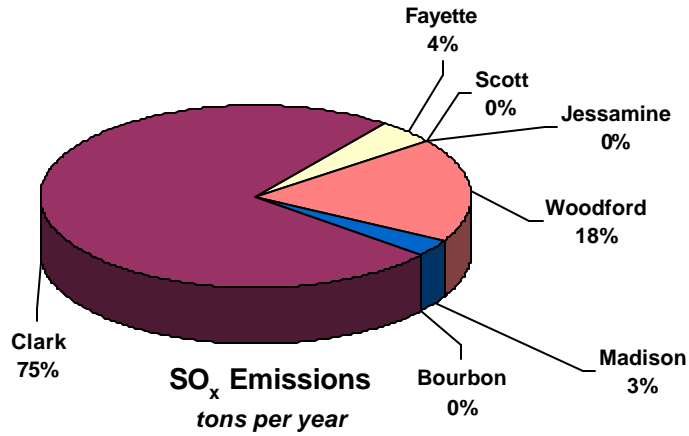
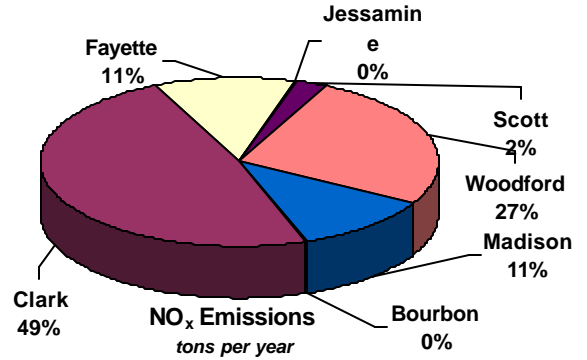
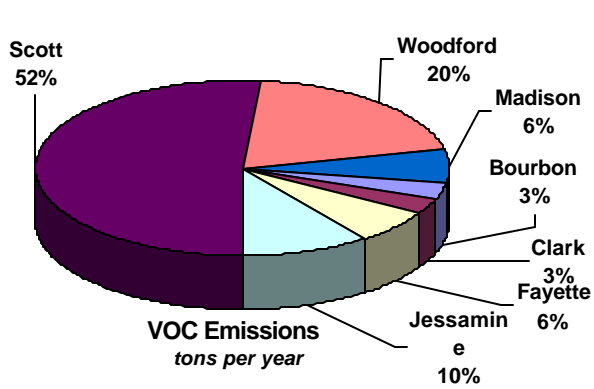
Point source VOC emissions from Clark County were estimated at 176 tons per year (tpy) in 1999, which represents approximately 3% of the total 6,719 tpy overall VOC point source emissions from the Lexington MSA. Point source NO_x emissions from Clark County were estimated at 3,689 tpy in 1999, which represents approximately 49% of the total 7,641 tpy overall NO_x point source emissions from the Lexington MSA. (See table 1-D)

Point source SO_x emissions from Clark County were estimated at 9,053 tons per year in 1999, which represents approximately 75% of the total 12,210 tpy overall SO_x point source emissions from the Lexington MSA. (See table 1-E)

Point source NH₃ emissions from Clark County were estimated at 0 tpy in 1999. (See table 1-F)

Point source PM_{2.5} emissions from Clark County were estimated at 235 tons per year in 1999, which represents approximately 40% of the total 582 tpy overall PM_{2.5} point source emissions from the Lexington MSA. (See table 1- G)

1999 NEI Lexington Area Point Source Emissions (tons per year)



Point sources located within Clark County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

Onroad Mobile

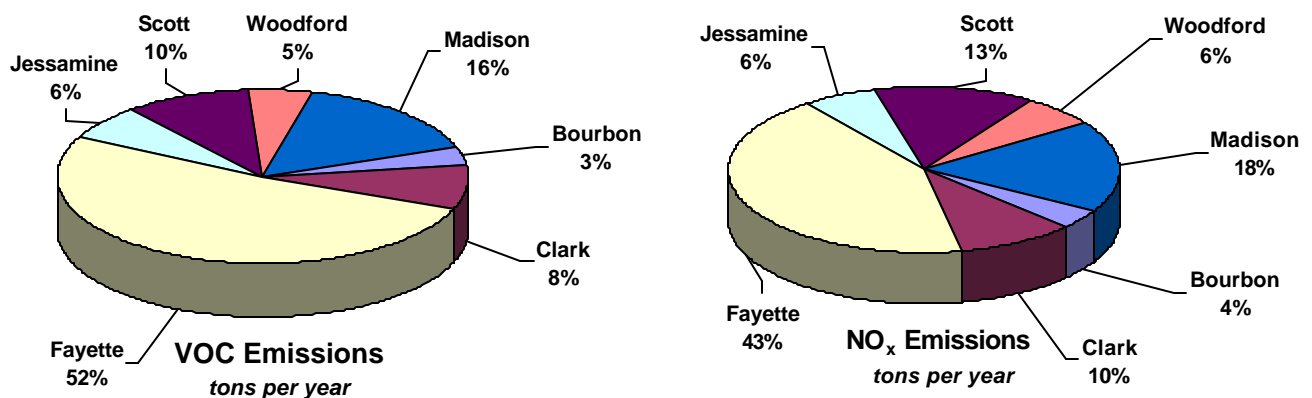
Onroad mobile source VOC emissions from Clark County were estimated at 1,053 tons per year (tpy) in 1999, which represents approximately 8% of the total 12,736 tpy of overall VOC onroad mobile source emissions from the Lexington MSA. Onroad mobile source NO_x emissions from Clark County were estimated at 1,811 tpy in 1999, which represents approximately 10% of the total 18,194 tpy of overall NO_x onroad mobile source emissions from the Lexington MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Clark County were estimated at 64 tons per year (tpy) in 1999, which represents approximately 9% of the total 675 tpy overall SO_x onroad mobile source emissions from the Lexington MSA. (See table 1-E)

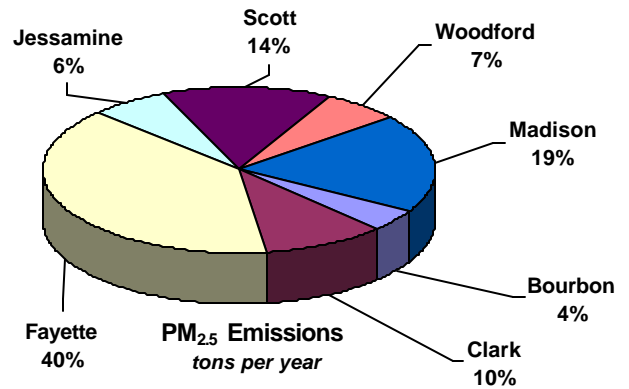
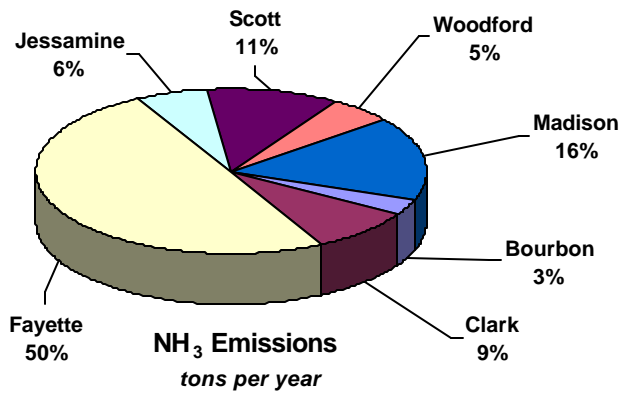
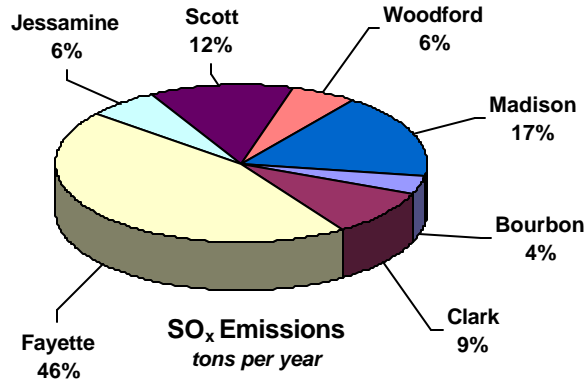
Onroad mobile source NH₃ emissions from Clark County were estimated at 49 tpy in 1999, which represents approximately 9% of the total 564 tpy overall NH₃ onroad mobile source emissions from the Lexington MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Clark County were estimated at 40 tons per year (tpy) in 1999, which represents approximately 10% of the total 388 tpy overall PM_{2.5} onroad mobile source emissions from the Lexington MSA. (See table 1-G)

**1999 NEI Lexington MSA
Onroad Mobile Source Emissions
(tons per year)**



1999 NEI Lexington MSA Onroad Mobile Source Emissions (continued)



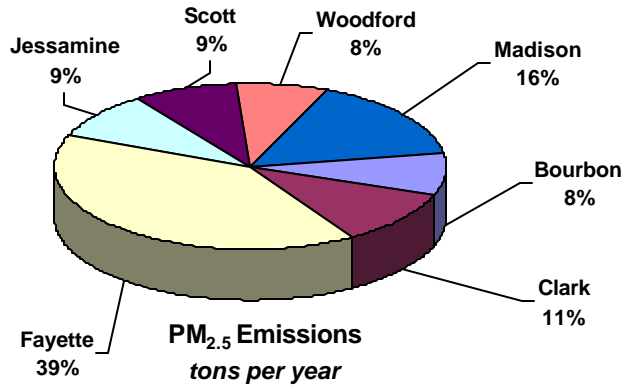
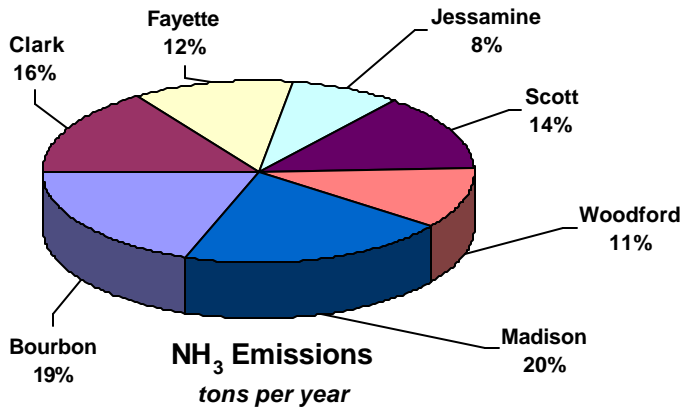
Based on information received from the Kentucky Transportation Cabinet, commuting traffic from other counties into Clark County is 40.6% and classified as high, and the commuting traffic from Clark County into other counties is high at 45.2%.

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

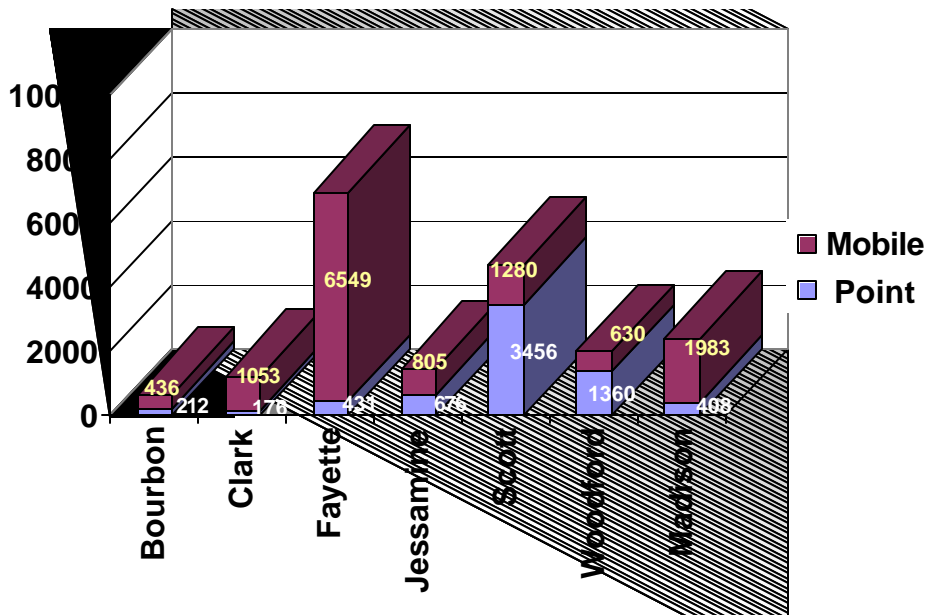
Area source NH₃ emissions from Clark County were estimated at 1,295 tpy in 1999, which represents approximately 16% of the total 8,281 tpy of overall NH₃ area source emissions from the Lexington MSA. (See table 1-F)

Area source PM_{2.5} emissions from Clark County were estimated at 655 tpy in 1999, which represents approximately 11% of the total 6,009 tpy of overall PM_{2.5} area source emissions from the Lexington MSA. (See table 1-G)

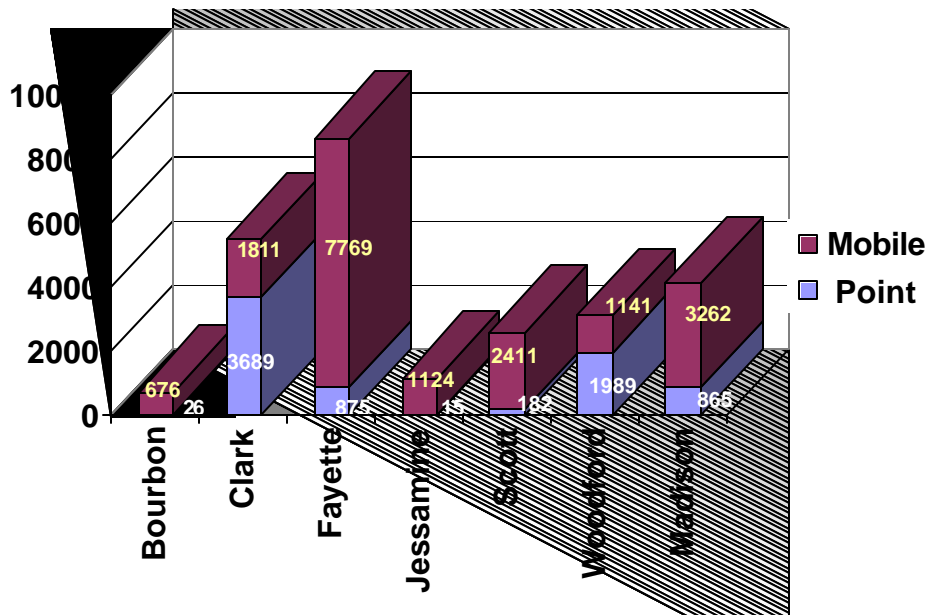
1999 NEI Lexington MSA Area Source Emissions (tons per year)



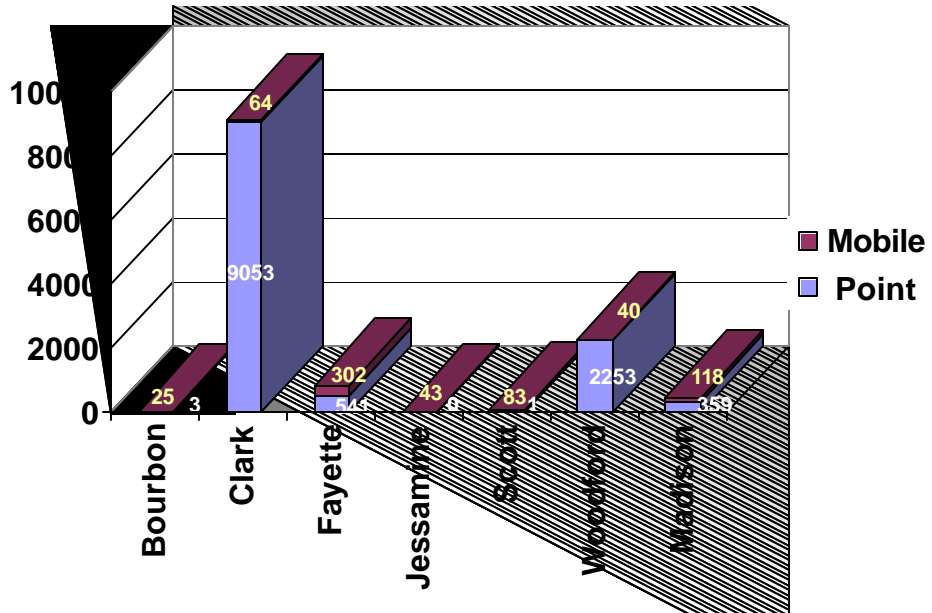
1999 NEI VOC Contribution (tons per year)



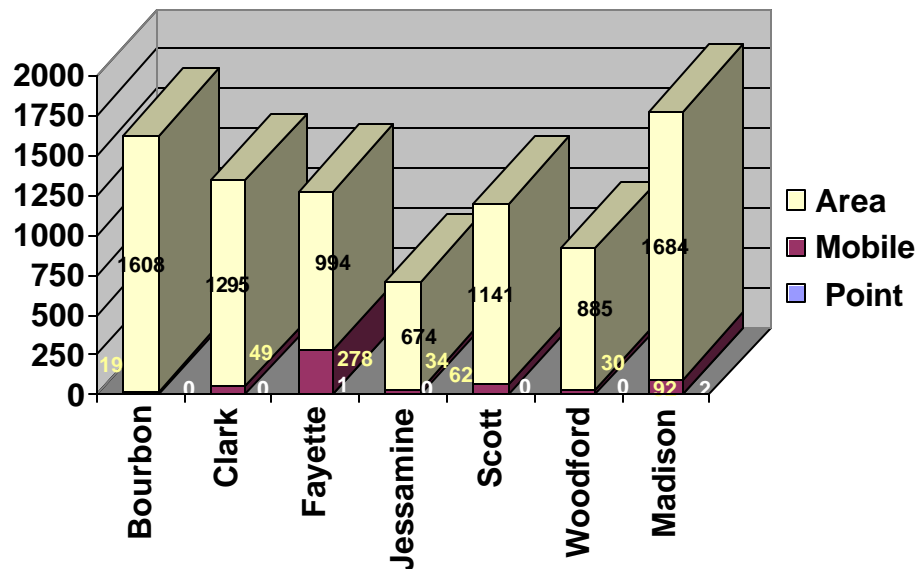
1999 NEI NO_x Contribution (tons per year)



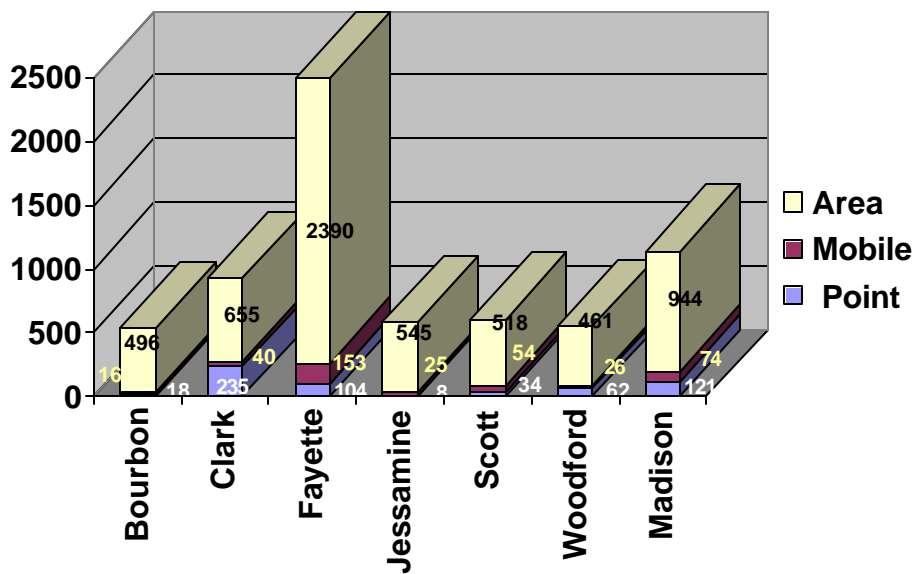
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

Clark County contributes approximately 6% VOC emissions, 21% of the total NO_x emissions, 71% of the total SO_x emissions and 13% of the total PM_{2.5} emissions and 15% of the total NH₃ emissions in the area. However, predominant wind patterns would typically have Clark County emissions moving away from the violating monitor in Fayette County. (See Figure 1-A)

The emissions data and other documentation presented indicate that Clark County, Kentucky, does not contribute a significant amount of emissions that contribute to PM_{2.5} formation contributing to a violation of the monitor located at the Limestone monitoring site in the Lexington-Fayette MSA.

Therefore, Clark County should be designated attainment for the PM_{2.5} standard.

JESSAMINE COUNTY, KENTUCKY

Jessamine County is part of the Lexington-Fayette County, Kentucky Metropolitan Statistical Area (MSA). It is located southwest of Fayette County, northwest of Madison County, north of Garrard County, northeast of Mercer County, and southeast of Woodford County.

Geography/Topography

Jessamine County has a land area of 173 square miles and is located in the Blue Grass Region of central Kentucky. The terrain ranges from rolling hills in the northern and central portions of the county, to steeper hills in the southern portions. The Kentucky River, forms the southern boundary of the county, winding through a deeply entrenched gorge where cliff-lined walls rise vertically 400 feet or more.

Meteorological Information

Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Jessamine County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 86°F and the mean low was 66°F. The mean precipitation for the same period was 4.8 inches.

Planning

The authority for air quality planning in the Jessamine County area resides with the Kentucky Environmental and Public Protection Cabinet. Transportation planning for all of Jessamine County is performed by the Lexington Area Metropolitan Organization (LAMPO).

Air Monitoring

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Jessamine County. However, because one of two PM_{2.5} monitors located in Fayette County, (21-067-0014) at South Limestone, shows an annual average design value of 15.6 micrograms per cubic meter, which exceeds the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS) and would be classified as a county in nonattainment, information for Jessamine County is being presented in this document. The monitoring information for 2001 - 2003 is complete for all counties in the Lexington MSA. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 40,740 persons living in Jessamine County. (See table 1-C) That represents approximately 235 persons per square mile. The population of Jessamine County is approximately 30.6% rural with the remaining 69.4% living in incorporated areas. The largest city in Jessamine County is Nicholasville.

Jessamine County's population from 1990 through 2000 increased by approximately 28% (30,508 to 39,041). The population is expected to further increase by approximately 23.2% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the Lexington MSA, Jessamine County represents approximately 8.3% of the total 2002 population in the MSA area. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Sources

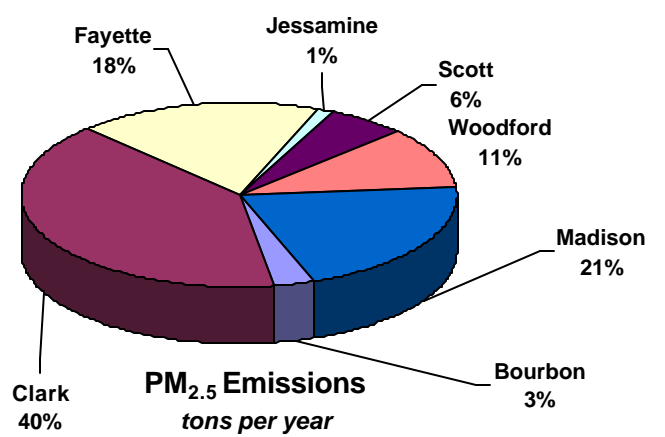
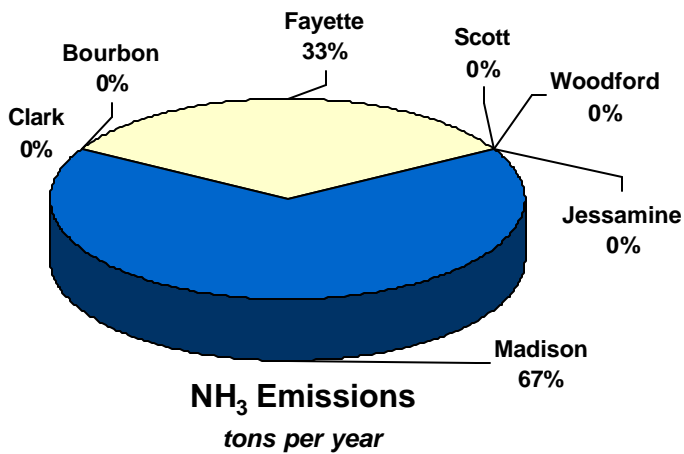
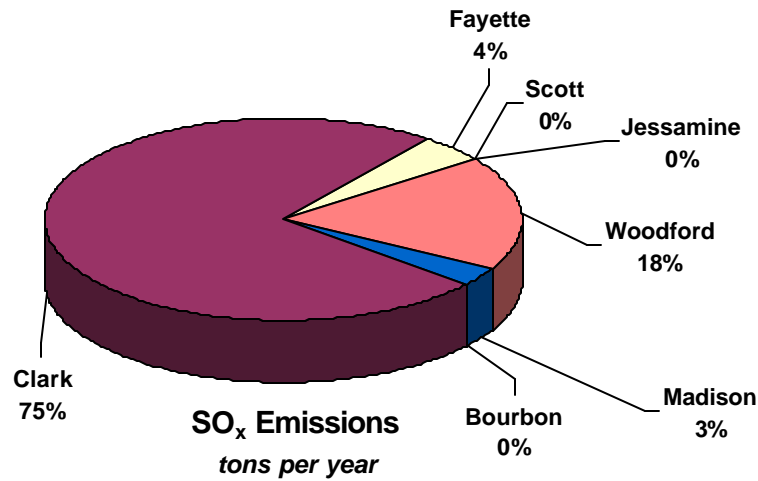
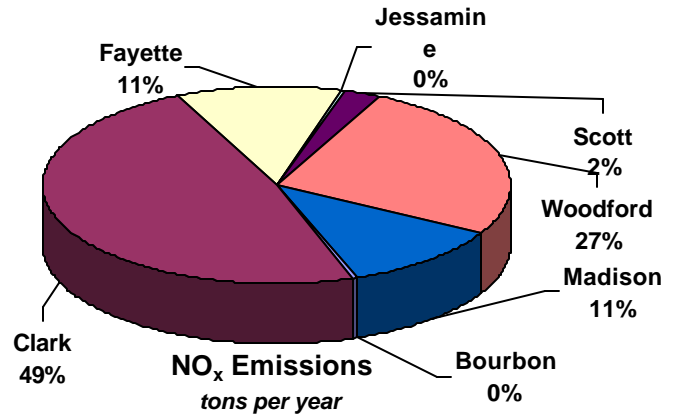
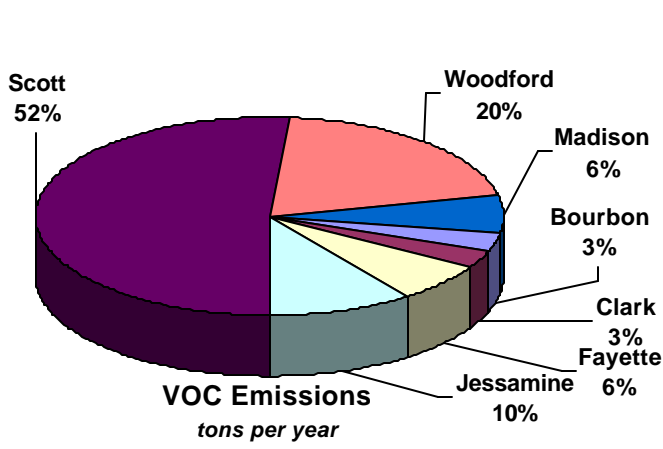
Point source VOC emissions from Jessamine County were estimated at 676 tons per year in 1999, which represents approximately 10% of the total 6,719 tpy overall VOC point source emissions from the Lexington MSA. Point source NO_x emissions from Jessamine County were estimated at 15 tpy in 1999, which represents less than 1% of the total 7,641 tpy overall NO_x point source emissions from the Lexington MSA. (See table 1-D)

Point source SO_x emissions from Jessamine County were estimated at 0 tons per year in 1999. (See table 1-E)

Point source NH₃ emissions from Jessamine County were estimated at 0 tpy in 1999. (See table 1-F)

Point source PM_{2.5} emissions from Jessamine County were estimated at 8 tons per year in 1999, which represents approximately 1% of the total 582 tpy overall PM_{2.5} point source emissions from the Lexington MSA. (See table 1- G)

1999 NEI Lexington Area Point Source Emissions (tons per year)



Point sources located within Jessamine County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

Onroad Mobile

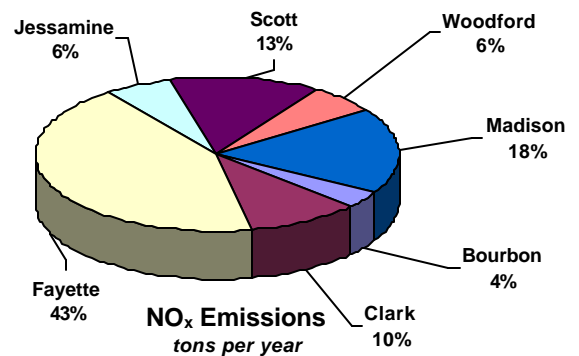
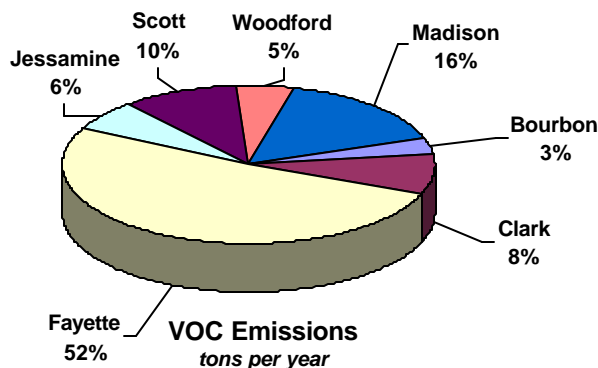
Onroad mobile source VOC emissions from Jessamine County were estimated at 805 tons per year (tpy) in 1999, which represents approximately 6% of the total 12,736 tpy of overall VOC onroad mobile source emissions from the Lexington MSA. Onroad mobile source NO_x emissions from Jessamine County were estimated at 1,124 tpy in 1999, which represents approximately 6% of the total 18,194 tpy of overall NO_x onroad mobile source emissions from the Lexington MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Jessamine County were estimated at 43 tons per year in 1999, which represents approximately 6% of the total 675 tpy overall SO_x onroad mobile source emissions from the Lexington MSA. (See table 1-E)

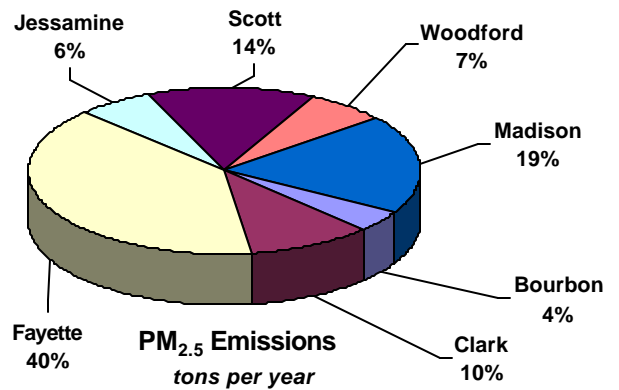
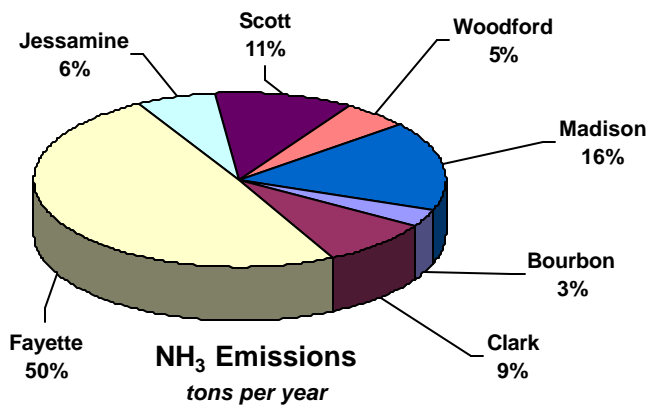
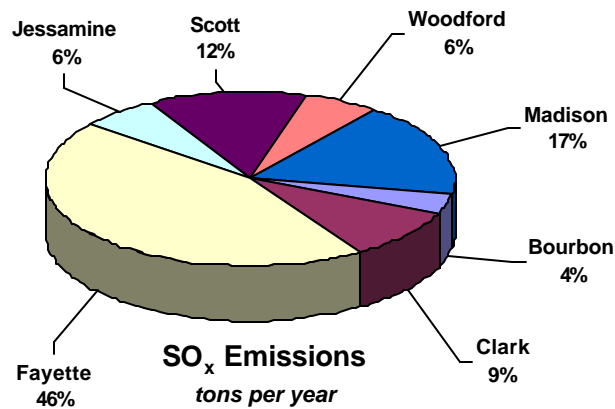
Onroad mobile source NH₃ emissions from Jessamine County were estimated at 34 tpy in 1999, which represents approximately 6% of the total 564 tpy overall NH₃ onroad mobile source emissions from the Lexington MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Jessamine County were estimated at 25 tons per year (tpy) in 1999, which represents approximately 6% of the total 388 tpy overall PM_{2.5} onroad mobile source emissions from the Lexington MSA. (See table 1-G)

**1999 NEI Lexington MSA
Onroad Mobile Source Emissions
(tons per year)**



1999 NEI Lexington MSA Onroad Mobile Source Emissions (continued)



Based on information received from the Kentucky Transportation Cabinet, commuting traffic from other counties into Jessamine County is 40.8% and classified as high, and the commuting traffic from Jessamine County into other counties is significant at 53.8%.

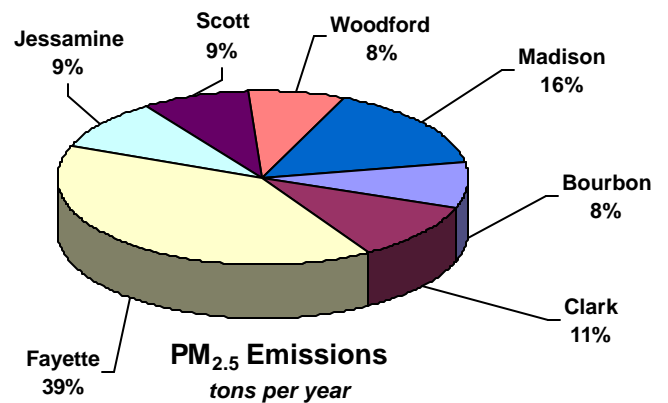
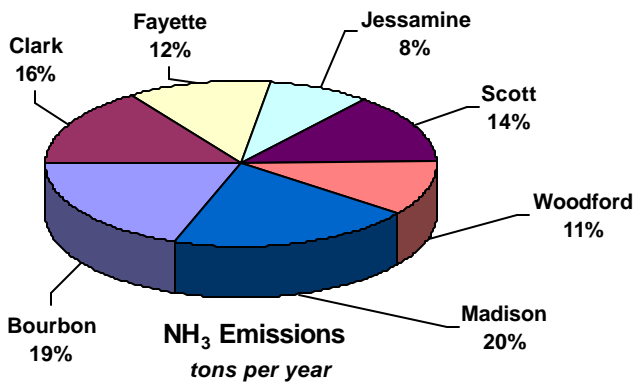
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

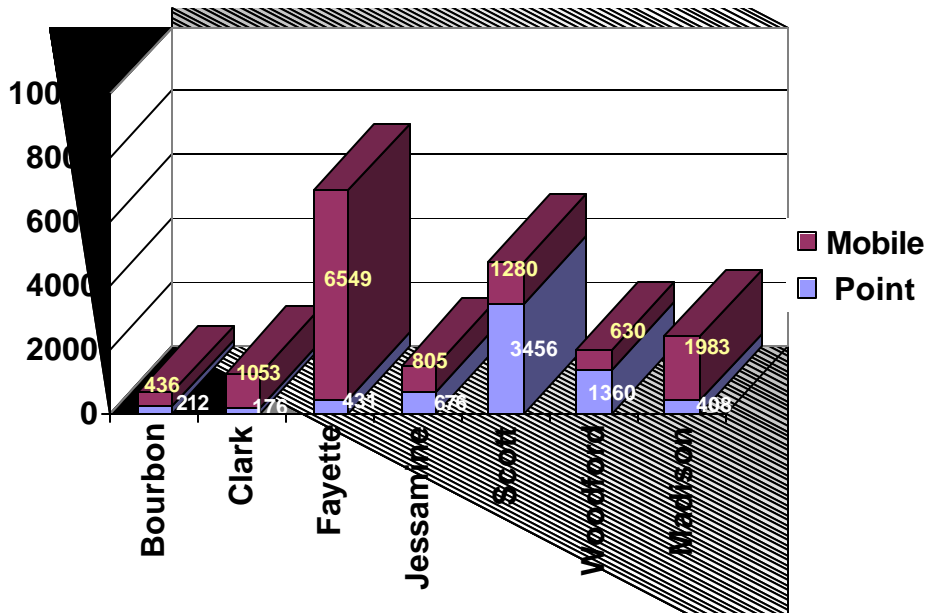
Area source NH_3 emissions from Jessamine County were estimated at 674 tpy in 1999, which represents approximately 8% of the total 8,281 tpy of overall NH_3 area source emissions from the Lexington MSA. (See table 1-F)

Area source $\text{PM}_{2.5}$ emissions from Jessamine County were estimated at 545 tpy in 1999, which represents approximately 9% of the total 6,009 tpy of overall $\text{PM}_{2.5}$ area source emissions from the Lexington MSA. (See table 1-G)

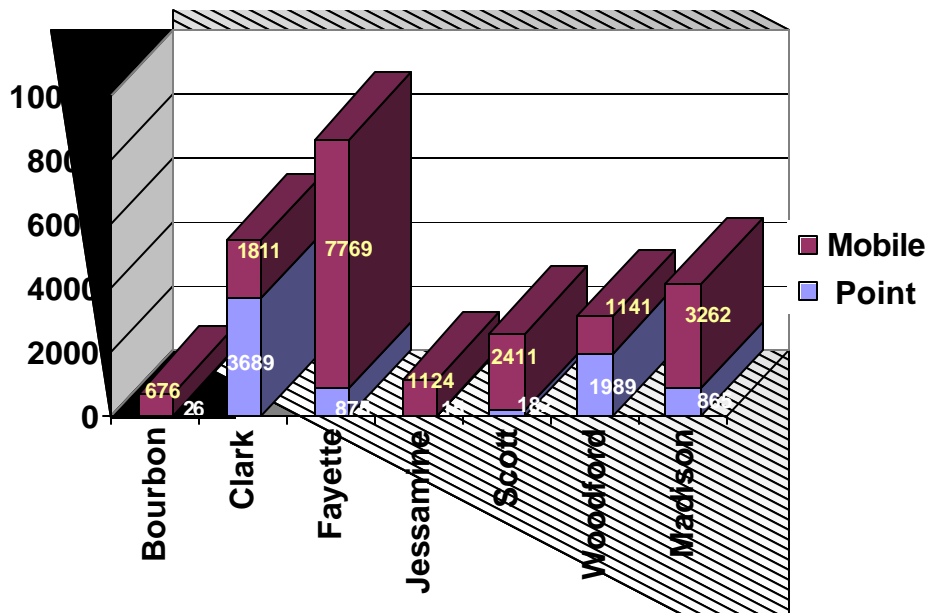
1999 NEI Lexington MSA Area Source Emissions (tons per year)



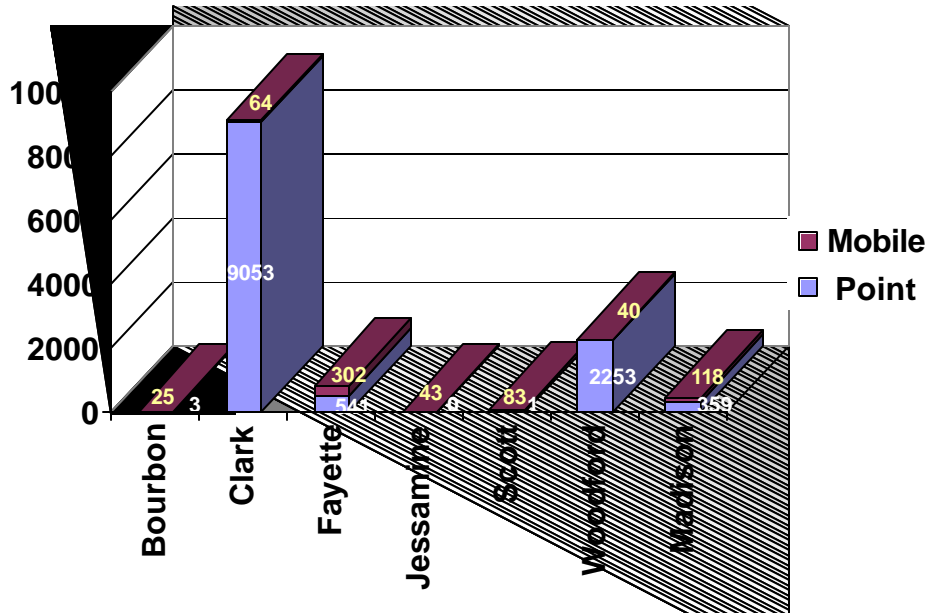
1999 NEI VOC Contribution (tons per year)



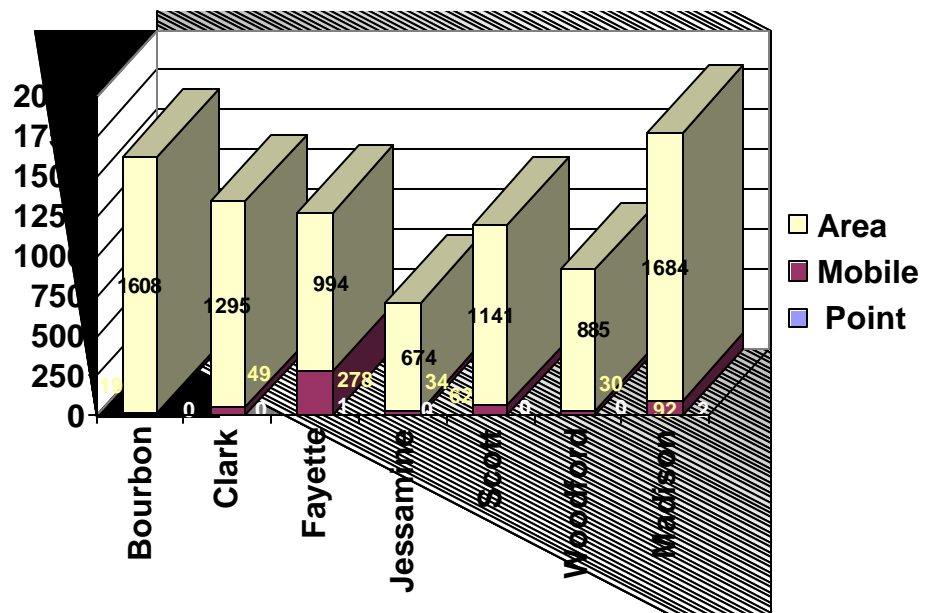
1999 NEI NO_x Contribution (tons per year)



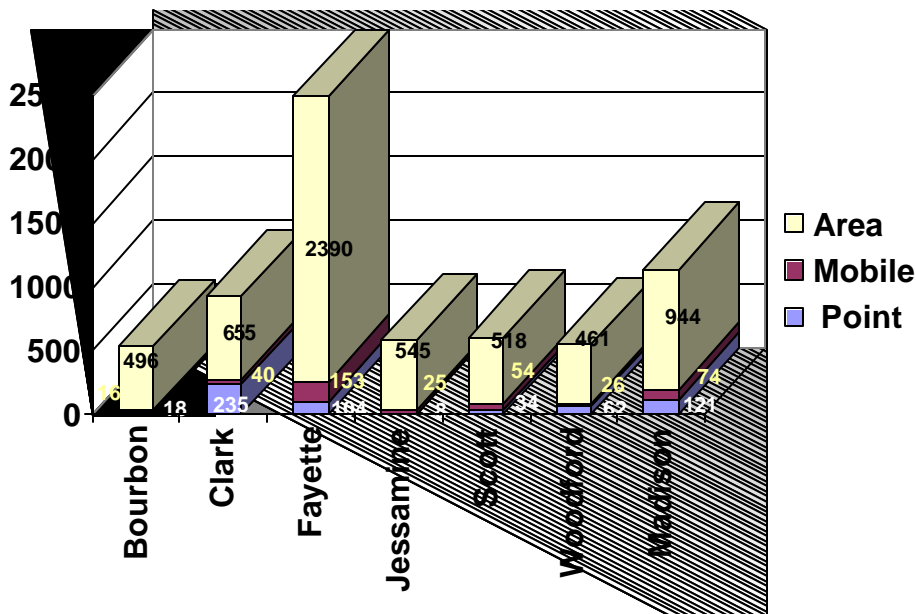
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

The emissions data and other documentation presented indicate that Jessamine County does not contribute a significant amount of PM_{2.5} or emissions that contribute to PM_{2.5} formation in the Lexington-Fayette MSA.

Jessamine County contributes approximately 7.6% of VOC emissions, 4% of the total NO_x emissions, less than 1% of the total SO_x emissions and 8% of the total PM_{2.5} emissions and 8% of the total NH₃ emissions in the area.

Therefore, Jessamine County should be designated attainment for the PM_{2.5} standard.

MADISON COUNTY, KENTUCKY

Madison County is part of the Lexington, Kentucky Metropolitan Statistical Area (MSA). It is located southwest of Clark County, west of Estill County, northwest of Jackson County, north of Rockcastle County, northeast of Garrard County, east of Jessamine County, and southeast of Fayette County.

Geography/Topography

Madison County has a land area of 440 square miles and is located in the central Kentucky's Blue Grass Region, an area famous for its many beautiful horse farms and gently-rolling topography.

Meteorological Information

Due to the close proximity of Lexington, Kentucky, meteorological data from Lexington was used for the Madison county area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Madison County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 86°F and the mean low was 66°F. The mean precipitation for the same period was 4.8 inches.

Planning

The authority for air quality planning in the Madison County area resides with the Kentucky Environmental and Public Protection Cabinet. Transportation planning for all of Madison County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2001 - 2003 monitoring period, the PM_{2.5} monitor (21-151-0003) at Richmond, Madison County, Kentucky, shows an annual average design value of 13.4 micrograms per cubic meter, which achieves the National Ambient Air Quality Standards (NAAQS) and would be classified as a county in attainment. The PM_{2.5} monitor (21-067-0012) at Newtown Pike in Fayette County, Kentucky, shows an annual average design value of 14.9 micrograms per cubic meter, which is in attainment of the standard.

However, because the PM_{2.5} monitor (21-067-0014) at South Limestone in Fayette County, Kentucky, shows an annual average design value of 15.6 micrograms per cubic meter, which exceeds the PM_{2.5} annual National Ambient

Air Quality Standard (NAAQS) and would be classified as a county in nonattainment, information for Madison County is being presented in this document. The monitoring information for 2003 is complete for all counties in the Lexington MSA. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 73,334 persons living in Madison County. (See table 1-C) That represents approximately 167 persons per square mile. The population of Madison County is approximately 41.4% rural with the remaining 58.6% living in incorporated areas. The largest city in Madison County is Richmond.

Madison County's population from 1990 through 2000 increased by approximately 23.2% (57,508 to 70,872). The population is expected to increase by approximately 18.0% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the Lexington MSA, Madison County represents approximately 15.0% of the total 2002 population in the MSA area. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Sources

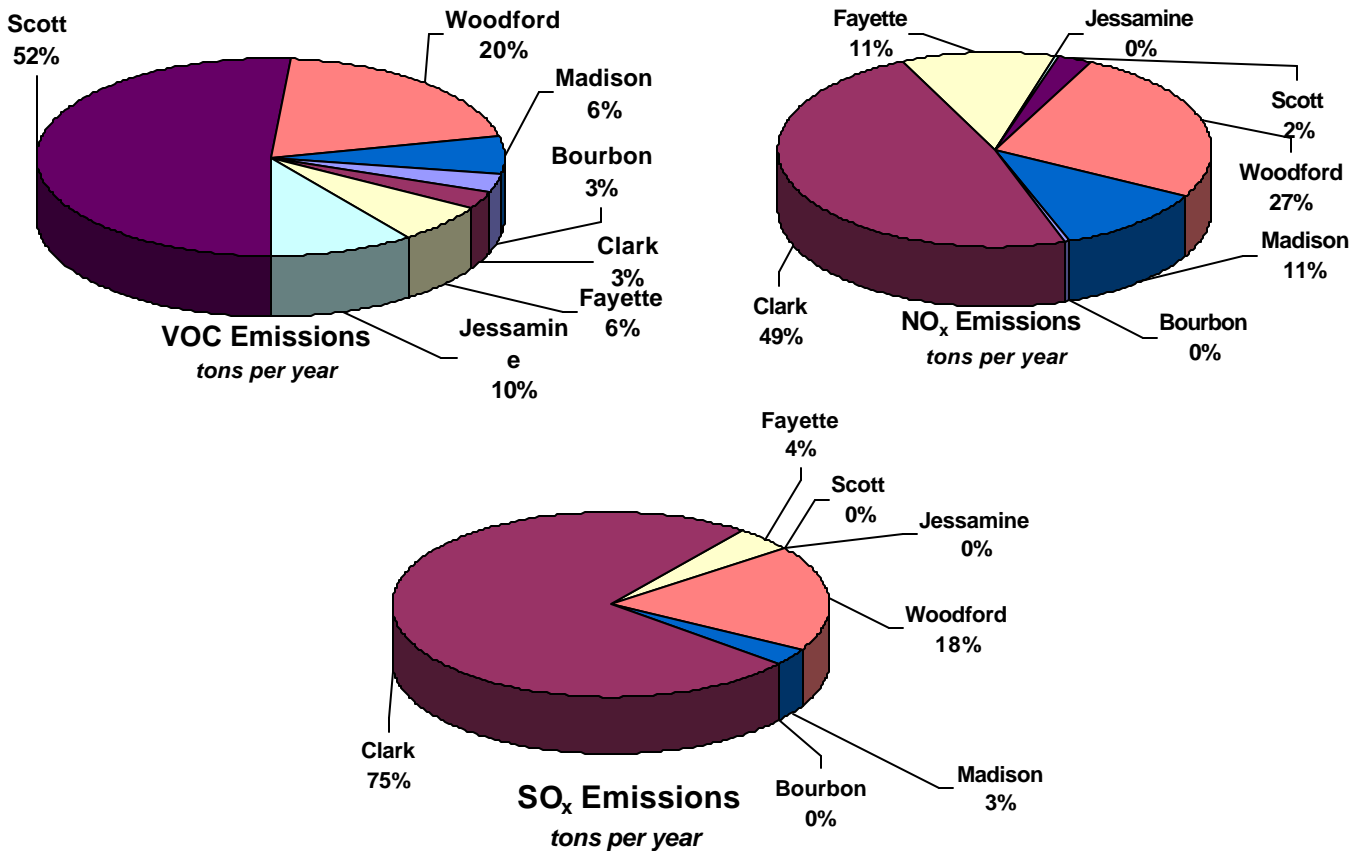
Point source VOC emissions from Madison County were estimated at 408 tons per year (tpy) in 1999, which represents approximately 6% of the total 6,719 tpy overall VOC point source emissions from the Lexington MSA. Point source NO_x emissions from Madison County were estimated at 865 tpy in 1999, which represents approximately 11% of the total 7,641 tpy overall NO_x point source emissions from the Lexington MSA. (See table 1-D)

Point source SO_x emissions from Madison County were estimated at 359 tons per year in 1999, which represents approximately 3% of the total 12,210 tpy overall SO_x point source emissions from the Lexington MSA. (See table 1-E)

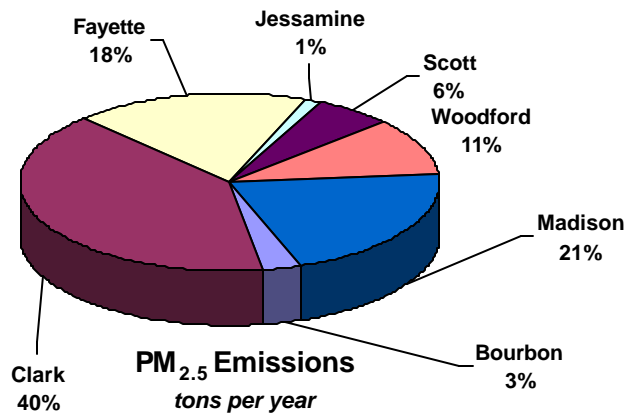
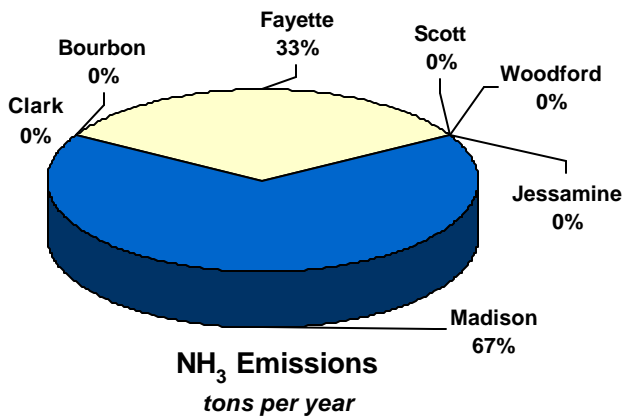
Point source NH₃ emissions from Madison County were estimated at 2 tpy in 1999, which represents 67% of the total 3 tpy overall NH₃ point source emissions from the Lexington MSA. (See table 1-F)

Point source PM_{2.5} emissions from Madison County were estimated at 121 tons per year (tpy) in 1999, which represents approximately 21% of the total 582 tpy overall PM_{2.5} point source emissions from the Lexington MSA. (See table 1- G)

1999 NEI Lexington Area Point Source Emissions (tons per year)



1999 NEI Lexington Area Point Source Emissions (continued)



Point sources located within Madison County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

Onroad Mobile

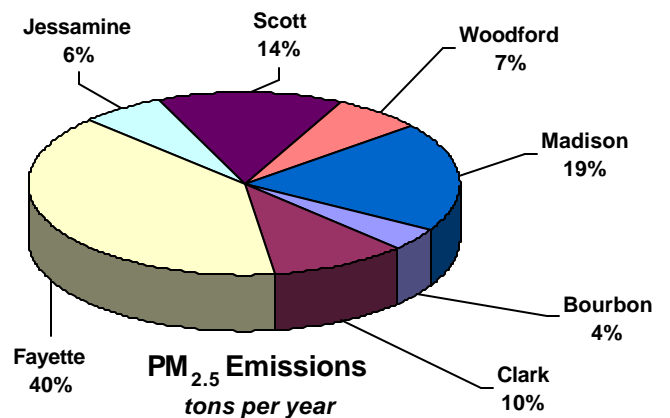
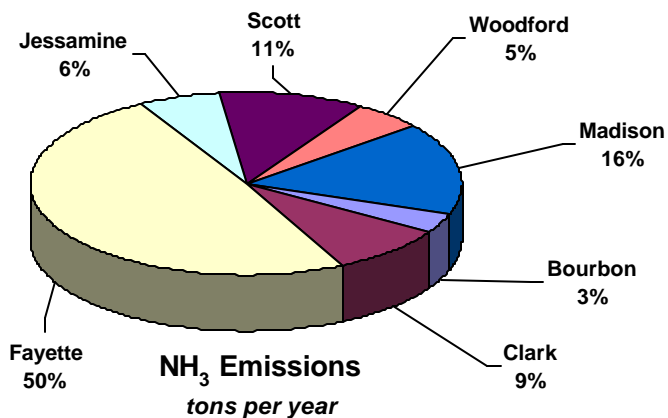
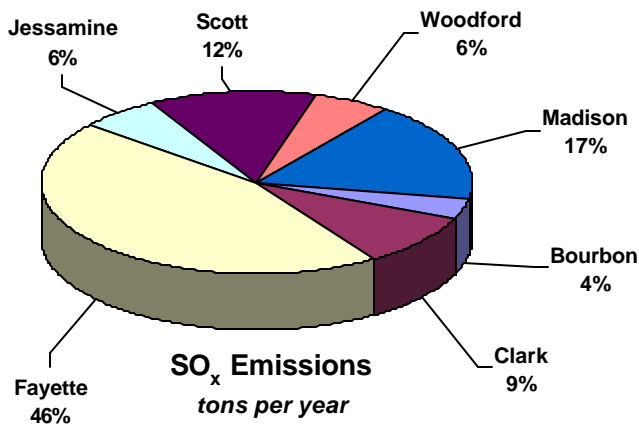
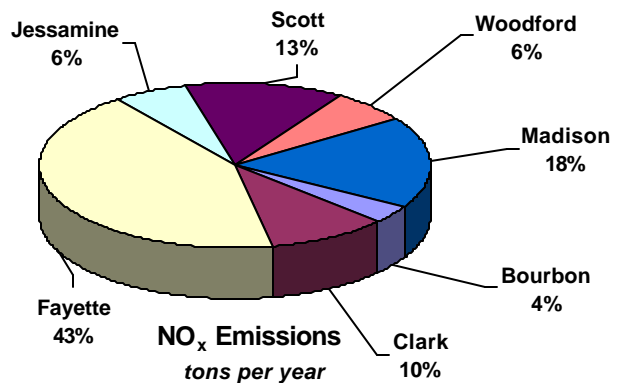
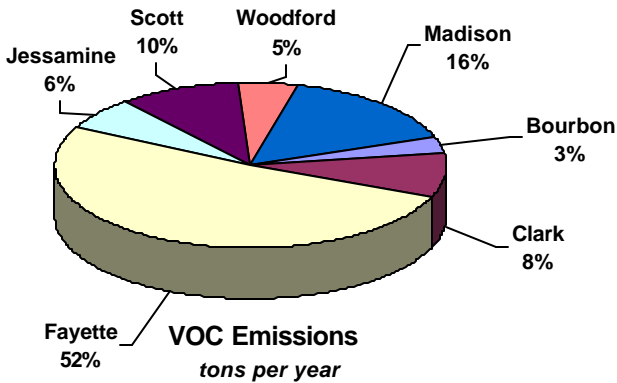
Onroad mobile source VOC emissions from Madison County were estimated at 1,983 tons per year (tpy) in 1999, which represents approximately 16% of the total 12,736 tpy of overall VOC onroad mobile source emissions from the Lexington MSA. Onroad mobile source NO_x emissions from Madison County were estimated at 3,362 tpy in 1999, which represents approximately 18% of the total 18,194 tpy of overall NO_x onroad mobile source emissions from the Lexington MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Madison County were estimated at 118 tons per year (tpy) in 1999, which represents approximately 17% of the total 675 tpy overall SO_x point source emissions from the Lexington MSA. (see table 1-E)

Onroad mobile source NH₃ emissions from Madison County were estimated at 92 tpy in 1999, which represents approximately 16% of the total 564 tpy overall NH₃ onroad mobile source emissions from the Lexington MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Madison County were estimated at 74 tons per year (tpy) in 1999, which represents approximately 19% of the total 388 tpy overall PM_{2.5} onroad mobile source emissions from the Lexington MSA. (See table 1-G)

1999 NEI Lexington MSA Onroad Mobile Source Emissions (tons per year)



Based on information received from the Kentucky Transportation Cabinet, commuting traffic from other counties into Madison County is 23.6% and classified as minimal, and the commuting traffic from Madison County into other counties is minimal at 30.2%.

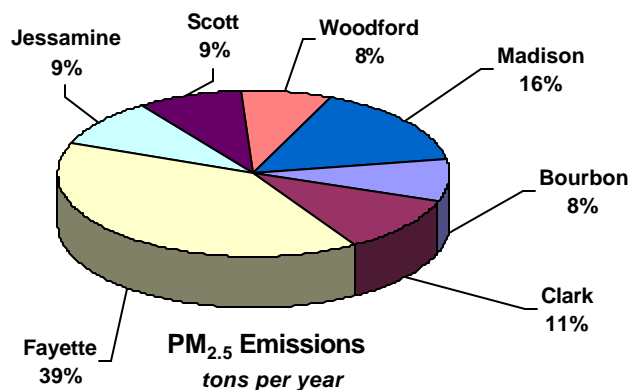
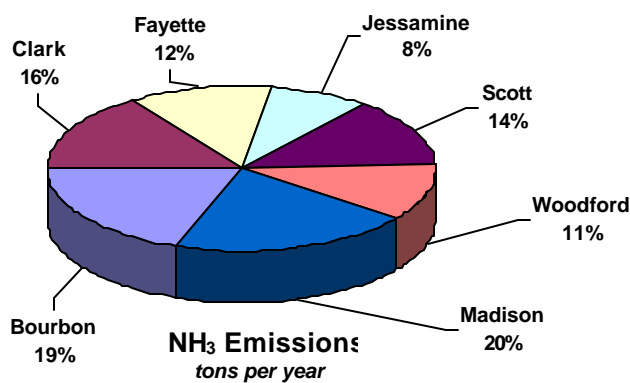
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

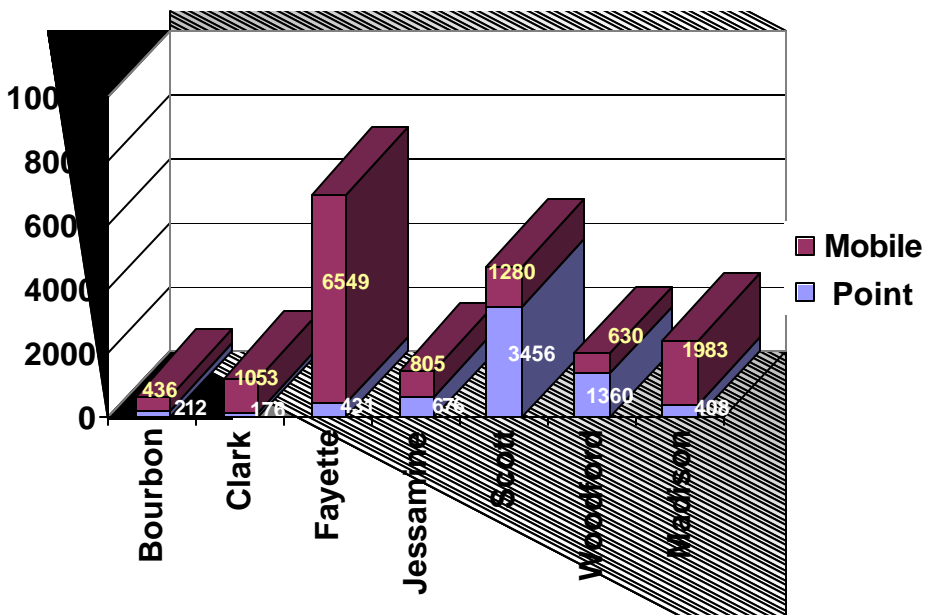
Area source NH₃ emissions from Madison County were estimated at 1,684 tpy in 1999, which represents approximately 20% of the total 8,281 tpy of overall NH₃ area source emissions from the Lexington MSA. (See Table 1-F)

Area source PM_{2.5} emissions from Madison County were estimated at 944 tpy in 1999, which represents approximately 16% of the total 6,009 tpy of overall PM_{2.5} area source emissions from the Lexington MSA. (See table 1-G)

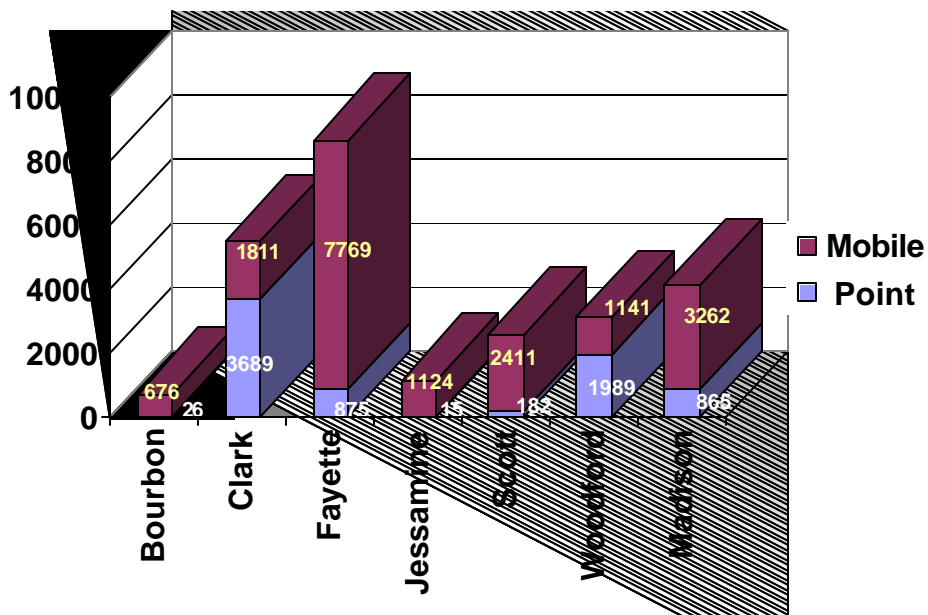
1999 NEI Lexington MSA Area Source Emissions (tons per year)



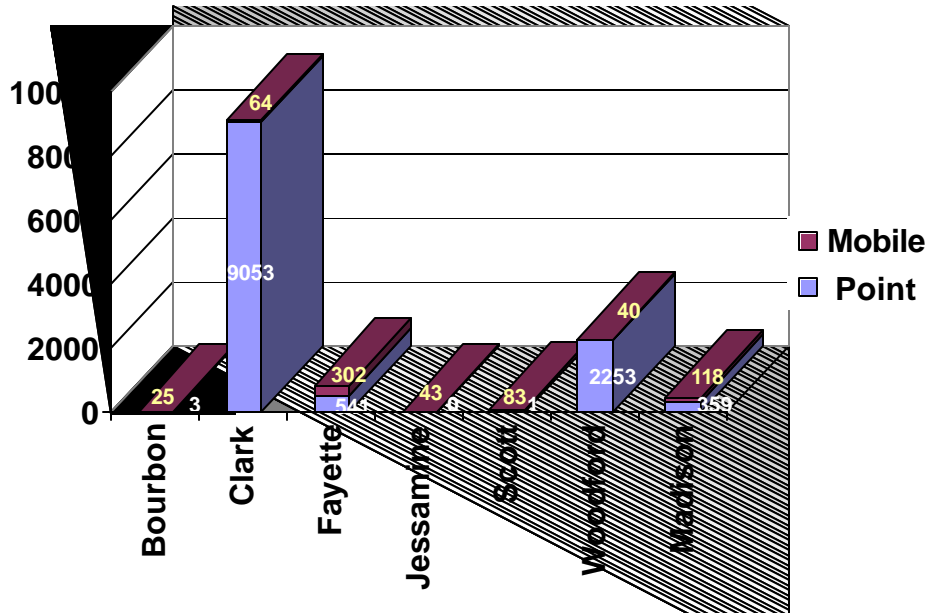
1999 NEI VOC Contribution (tons per year)



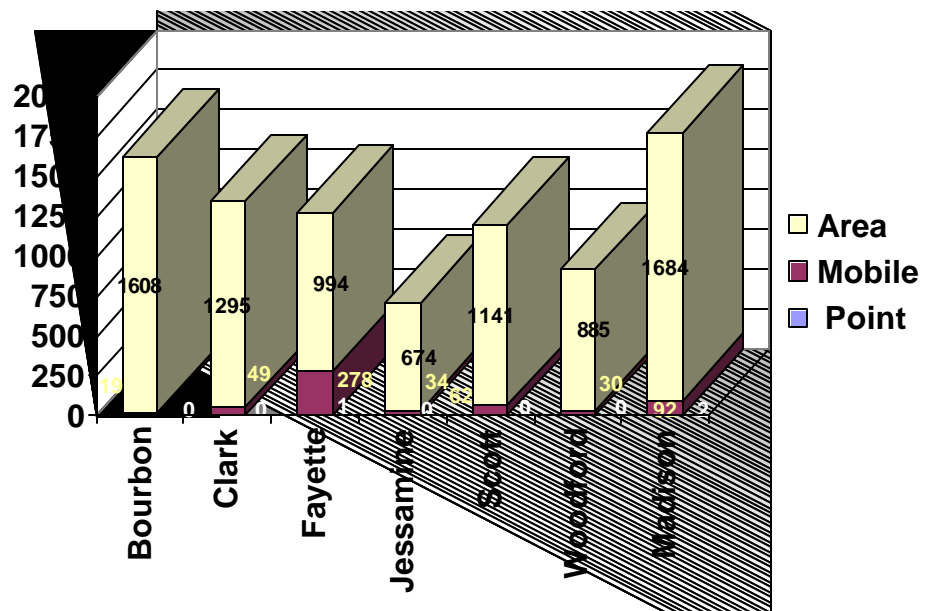
1999 NEI NO_x Contribution (tons per year)



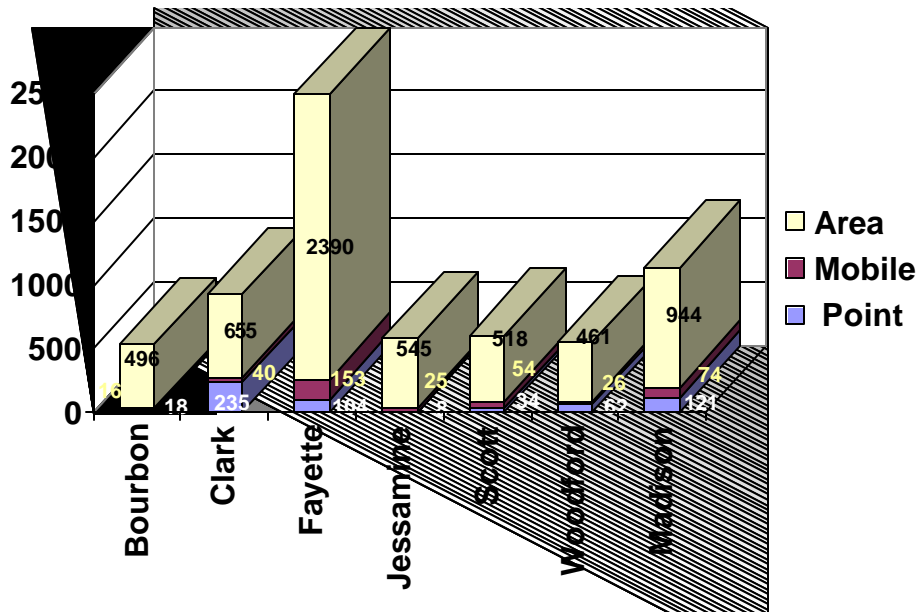
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

Madison County, based on 2001 - 2003 PM_{2.5} monitoring data, is meeting the annual PM_{2.5} standard with annual average reading of 13.4 micrograms per cubic meter.

Madison County emissions contributions are approximately 12% VOC, 16% NO_x, 3% SO_x, 20% NH₃, and 16% PM_{2.5} of the total emissions for the region.

Predominant wind patterns would typically have Madison County emissions moving away from the violating monitor in Fayette County. (See Figure 1-A)

The monitoring and emissions data and other documentation presented indicate that Madison County, Kentucky, does not contribute a significant amount of emissions that contribute to PM_{2.5} formation in the Lexington-Fayette MSA, and monitoring data shows the area to be meeting the standard. Therefore, Madison County should be designated attainment for the PM_{2.5} standard.

SCOTT COUNTY, KENTUCKY

Scott County is part of the Lexington-Fayette County, Kentucky Metropolitan Statistical Area (MSA) and is located directly on the I-75 north-south interstate corridor. It is located southwest of Harrison County, northwest of Bourbon County, north northwest of Fayette County, north northeast of Woodford County, east of Franklin County, southeast of Owen County, and south of Grant County.

Geography/Topography

Scott County has a land area of 285 square miles and is located in the Blue Grass Region of central Kentucky, a scenic area famous for its many beautiful horse farms and low rolling hills.

Meteorological Information

Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Scott County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 86°F and the mean low was 66°F. The mean precipitation for the same period was 4.8 inches.

Planning

The authority for air quality planning in the Scott County area resides with the Kentucky Environmental and Public Protection Cabinet. Transportation planning for all of Scott County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Scott County. The PM_{2.5} monitor (21-067-0012) at Newtown Pike in Fayette County, Kentucky, shows an annual average design value of 14.9 micrograms per cubic meter, which is in attainment of the standard. However, because the PM_{2.5} monitor (21-067-0014) at South Limestone in Fayette County, Kentucky, shows an annual average design value of 15.6 micrograms per cubic meter, which exceeds the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS) and would be classified as a county in nonattainment, information for

Scott County is being presented in this document. The monitoring information for 2003 is complete for all counties in the Lexington MSA. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 35,320 persons living in Scott County. (See table 1-C) That represents approximately 124 persons per square mile. The population of Scott County is approximately 42.4% rural with the remaining 57.6% living in incorporated areas. The largest city in Scott County is Georgetown.

Scott County's population from 1990 through 2000 increased by approximately 38.5% (23,867 to 33,061). The population is expected to further increase by approximately 35.7% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the Lexington MSA, Scott County represents approximately 7.2% of the total 2002 population in the MSA area. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Sources

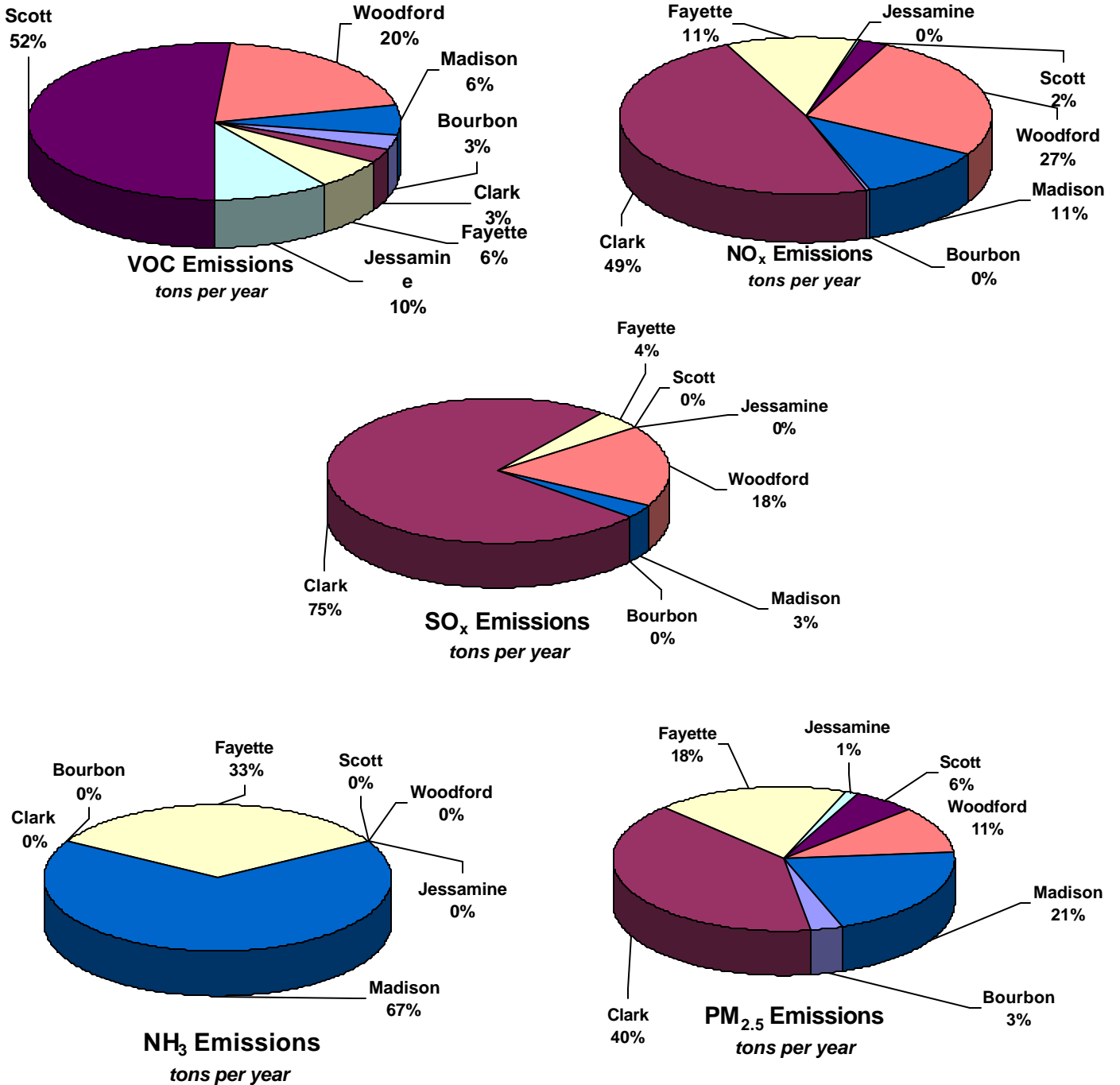
Point source VOC emissions from Scott County were estimated at 3,456 tons per year in 1999, which represents approximately 52% of the total 6,719 tpy overall VOC point source emissions from the Lexington MSA. Point source NO_x emissions from Scott County were estimated at 182 tpy in 1999, which represents approximately 2% of the total 7,641 tpy overall NO_x point source emissions from the Lexington MSA. (See table 1-D)

Point source SO_x emissions from Scott County were estimated at 1 ton per year in 1999, which represents less than 1% of the total 12,210 tpy overall SO_x point source emissions from the Lexington MSA. (See table 1-E)

Point source NH₃ emissions from Scott County were estimated at 0 tpy in 1999. (See table 1-F)

Point source PM_{2.5} emissions from Scott County were estimated at 34 tons per year (tpy) in 1999, which represents approximately 6% of the total 582 tpy overall PM_{2.5} point source emissions from the Lexington MSA. (See table 1- G)

1999 NEI Lexington Area Point Source Emissions (tons per year)



Point sources located within Scott County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

Onroad Mobile

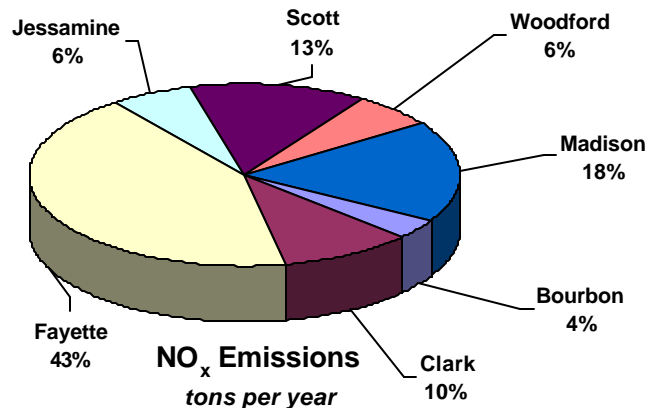
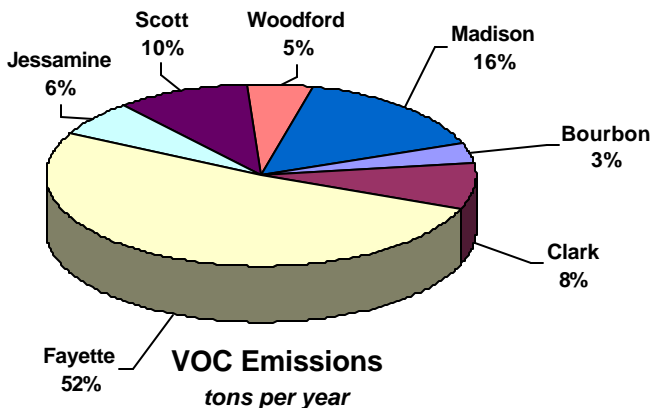
Onroad mobile source VOC emissions from Scott County were estimated at 1,280 tons per year (tpy) in 1999, which represents approximately 10% of the total 12,736 tpy of overall VOC onroad mobile source emissions from the Lexington MSA. Onroad mobile source NO_x emissions from Scott County were estimated at 2,411 tpy in 1999, which represents approximately 13% of the total 18,194 tpy of overall NO_x onroad mobile source emissions from the Lexington MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Scott County were estimated at 83 tons per year (tpy) in 1999, which represents approximately 12% of the total 675 tpy overall SO_x onroad mobile source emissions from the Lexington MSA. (See table 1-E)

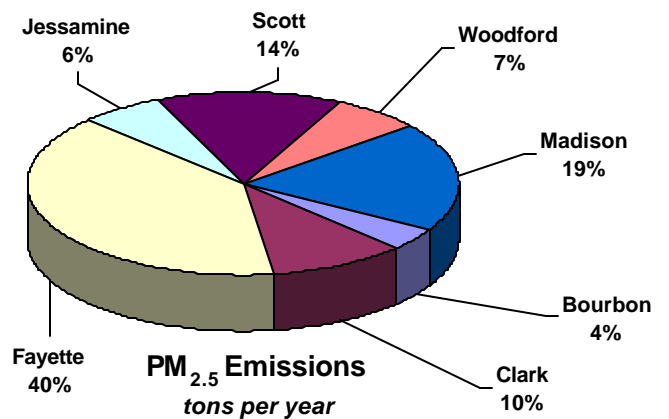
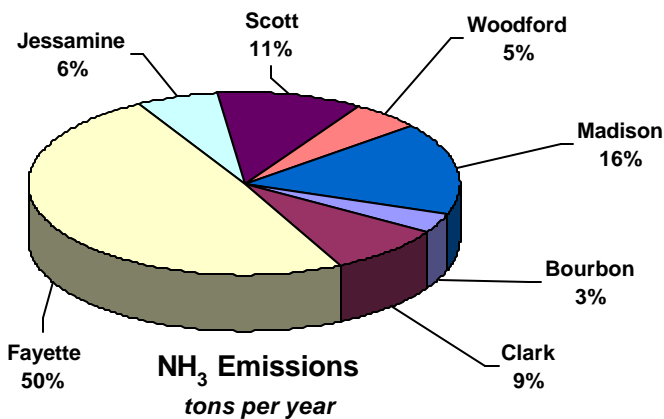
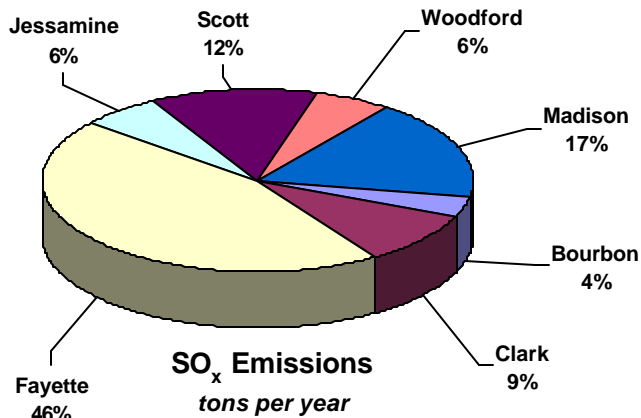
Onroad mobile source NH₃ emissions from Scott County were estimated at 62 tpy in 1999, which represents approximately 11% of the total 564 tpy overall NH₃ onroad mobile source emissions from the Lexington MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Scott County were estimated at 54 tons per year (tpy) in 1999, which represents approximately 14% of the total 388 tpy overall PM_{2.5} onroad mobile source emissions from the Lexington MSA. (See table 1-G)

**1999 NEI Lexington MSA
Onroad Mobile Source Emissions
(tons per year)**



1999 NEI Lexington MSA Onroad Mobile Source Emissions (continued)



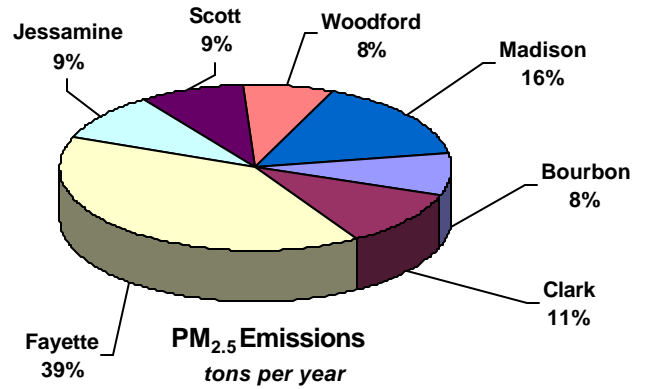
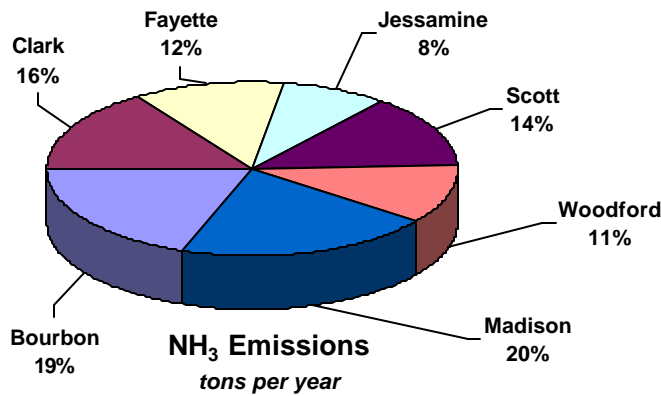
Based on information received from the Kentucky Transportation Cabinet, commuting traffic from other counties into Scott County is 56.9% and classified as significant, and the commuting traffic from Scott County into other counties is high at 38.6%.

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

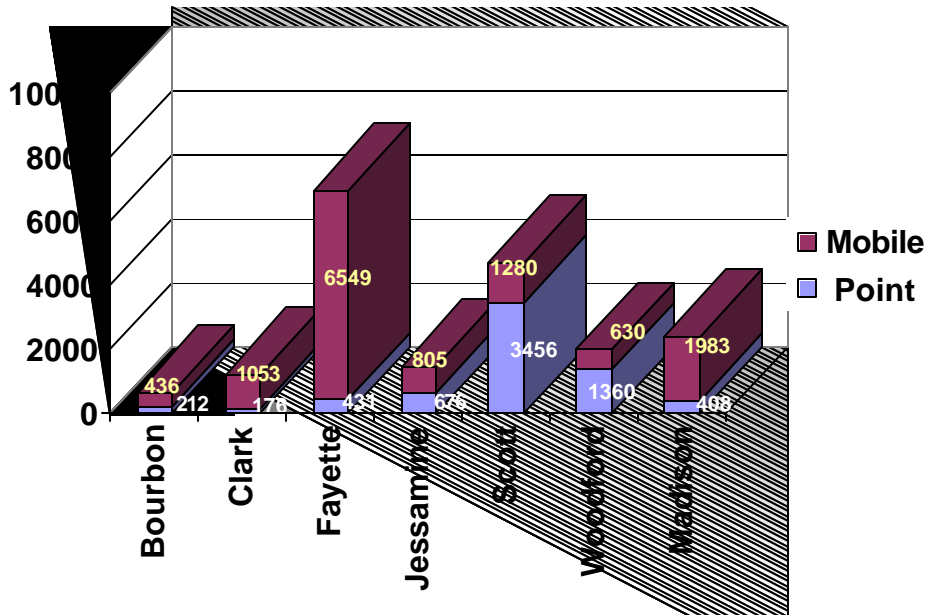
Area source NH₃ emissions from Scott County were estimated at 1,141 tpy in 1999, which represents approximately 14% of the total 8,281 tpy of overall NH₃ area source emissions from the Lexington MSA. (See table 1-F)

Area source PM_{2.5} emissions from Scott County were estimated at 518 tpy in 1999, which represents approximately 9% of the total 6,009 tpy of overall PM_{2.5} area source emissions from the Lexington MSA. (See table 1-G)

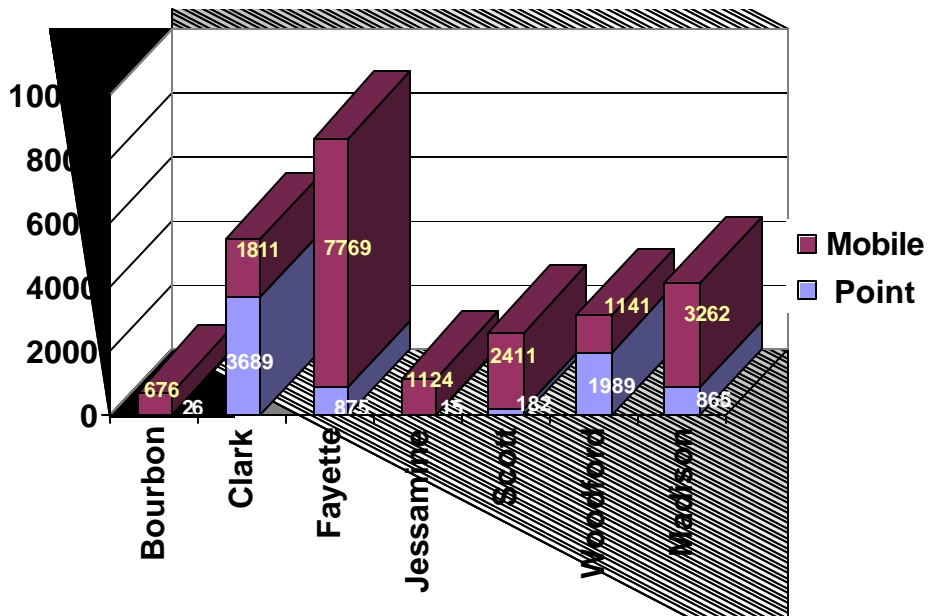
1999 NEI Lexington MSA Area Source Emissions (tons per year)



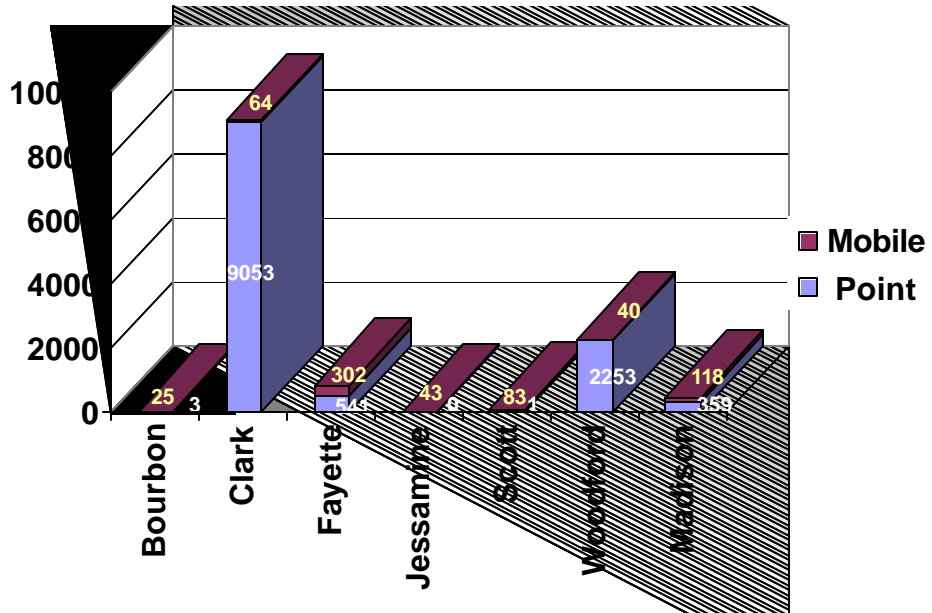
1999 NEI VOC Contribution (tons per year)



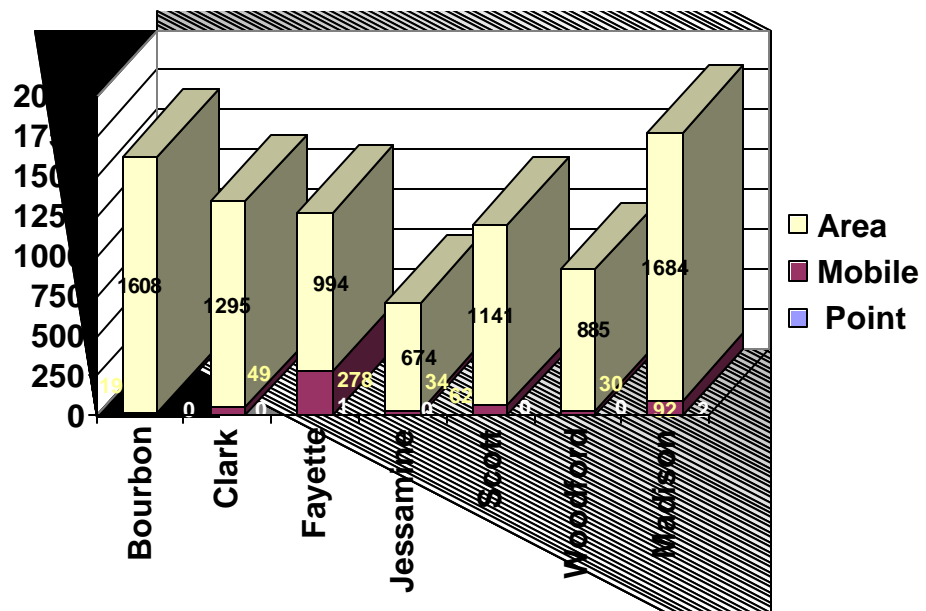
1999 NEI NO_x Contribution (tons per year)



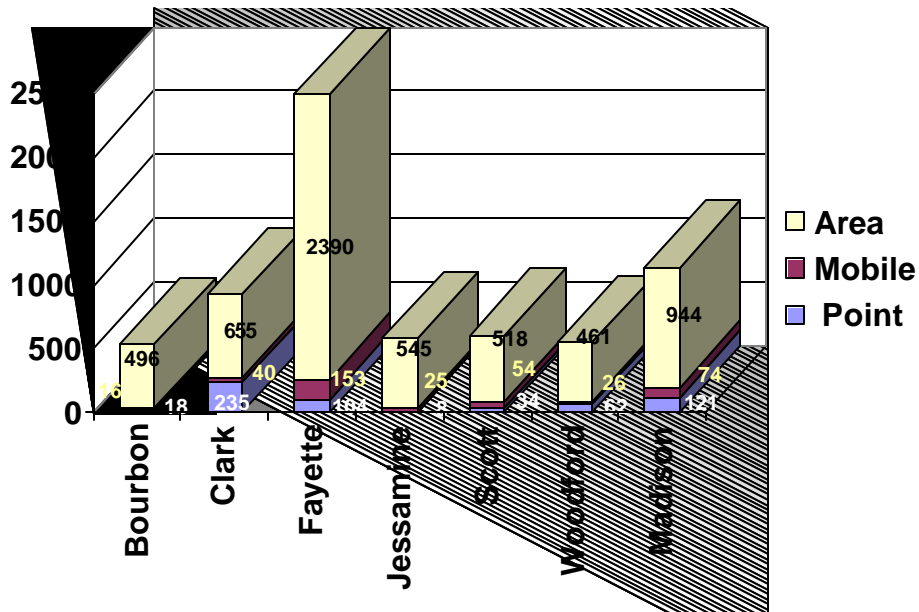
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

Scott County contributes approximately VOC 24% of the total VOC emissions, 10% of the total NO_x emissions, 1% of the total SO_x emissions and 9% of the total PM_{2.5} emissions and 14% of the total NH₃ emissions in the area. These emissions provide an insignificant contribution to fine particulate levels in the overall area.

Additionally, predominant wind patterns would typically have Scott County emissions moving away from the violating monitor in Fayette County with the violation (the Limestone Monitor). If an impact were to occur, typically emissions from Scott County would impact the Newtown monitor which is in attainment of the standard.

The emissions data and other documentation presented indicate that Scott County, Kentucky, does not contribute a significant amount of emissions that contribute to PM_{2.5} formation in the Lexington-Fayette MSA.

Therefore, based the documentation presented Scott County should be designated attainment for the PM_{2.5} standard.

WOODFORD COUNTY, KENTUCKY

Woodford County is part of the Lexington-Fayette County, Kentucky Metropolitan Statistical Area (MSA). It is located southeast of Scott County, east of Fayette County, northeast of Jessamine County, northwest of Mercer County, east of Anderson County, and southeast of Franklin County. The northern tip of the county lies on the I-64 east-west interstate corridor.

Geography/Topography

Woodford County has a land area of 190 square miles and is located in the Blue Grass Region of central Kentucky, a scenic area famous for its many beautiful horse farms and low rolling hills.

Meteorological Information

Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Woodford County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 86°F and the mean low was 66°F. The mean precipitation for the same period was 4.8 inches.

Planning

The authority for air quality planning in the Woodford County area resides with the Kentucky Environmental and Public Protection Cabinet. Transportation planning for all of Woodford County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Woodford County. The PM_{2.5} monitor (21-067-0012) at Newtown Pike in Fayette County, Kentucky, shows an annual average design value of 14.9 micrograms per cubic meter, which is in attainment of the standard. However, because the PM_{2.5} monitor (21-067-0014) at South Limestone in Fayette County, Kentucky, shows an annual average design value of 15.6 micrograms per cubic meter, which exceeds the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS) and would be classified as a county in nonattainment, information for Woodford County is being presented in this document. The monitoring

information for 2003 is complete for all counties in the Lexington MSA. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 23,403 persons living in Woodford County. (See table 1-C) That represents approximately 123 persons per square mile. The population of Woodford County is approximately 41.2% rural with the remaining 58.8% living in incorporated areas. The largest city in Woodford County is Versailles.

Woodford County's population from 1990 through 2000 increased by approximately 16.3% (19,955 to 23,208). The population is expected to further increase by approximately 13.9% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the Lexington MSA, Woodford County represents approximately 4.8% of the total 2002 population in the MSA area. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Source

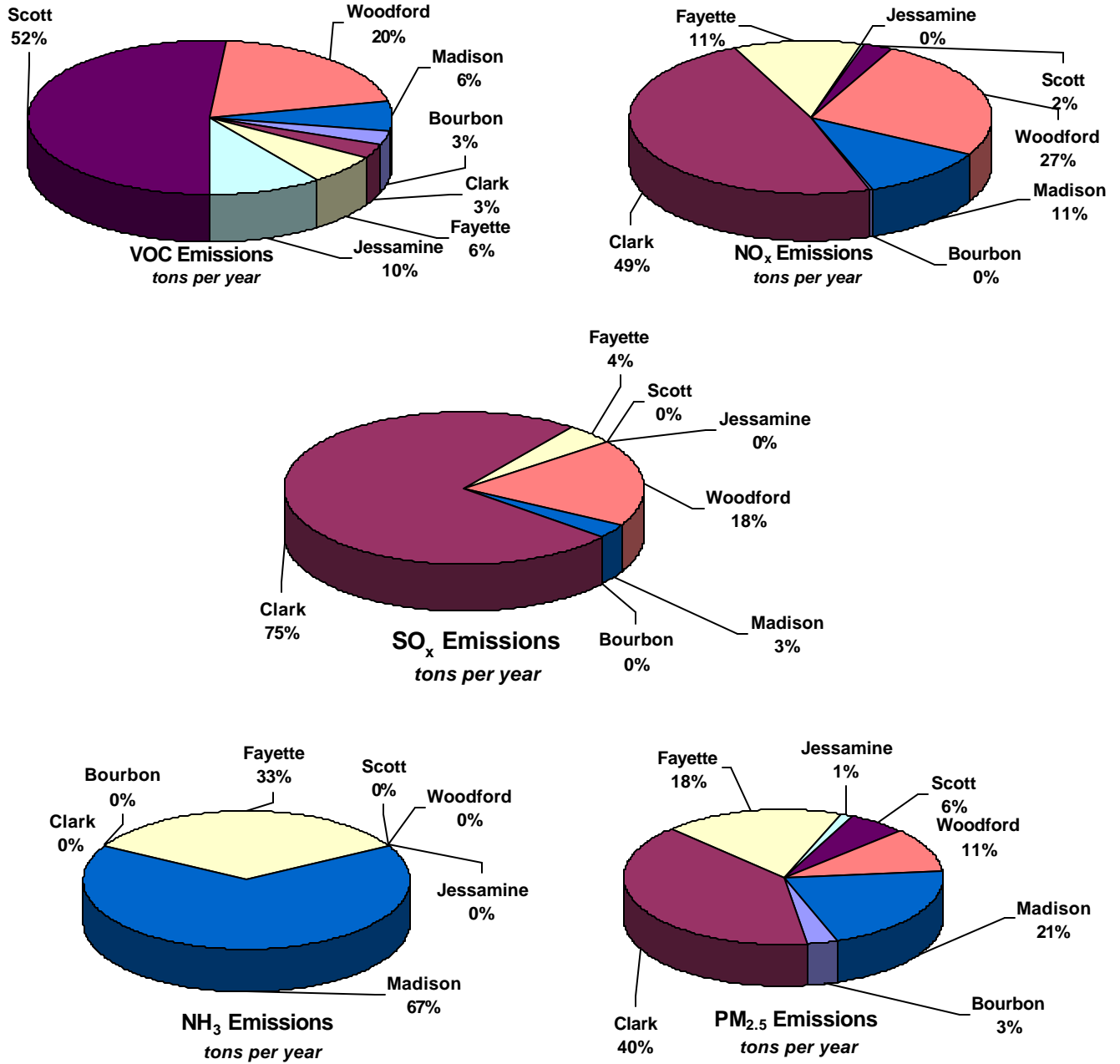
Point source VOC emissions from Woodford County were estimated at 1,360 tons per year (tpy) in 1999, which represents approximately 20% of the total 6,719 tpy overall VOC point source emissions from the Lexington MSA. Point source NO_x emissions from Woodford County were estimated at 1,989 tpy in 1999, which represents approximately 27% of the total 7,641 tpy overall NO_x point source emissions from the Lexington MSA. (See table 1-D)

Point source SO_x emissions from Woodford County were estimated at 2,253 tons per year (tpy) in 1999, which represents approximately 18% of the total 12,210 tpy overall SO_x point source emissions from the Lexington MSA. (See table 1-E)

Point source NH₃ emissions from Woodford County were estimated at 0 tpy in 1999. (See table 1-F)

Point source PM_{2.5} emissions from Woodford County were estimated at 62 tons per year (tpy) in 1999, which represents approximately 11% of the total 582 tpy overall PM_{2.5} point source emissions from the Lexington MSA. (See table 1- G)

1999 NEI Lexington Area Point Source Emissions (tons per year)



Point sources located within Woodford County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

Onroad Mobile

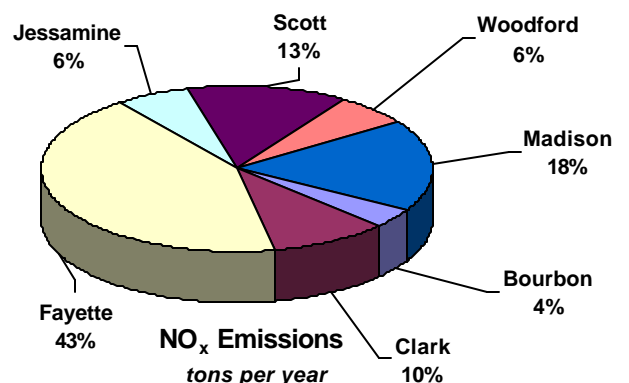
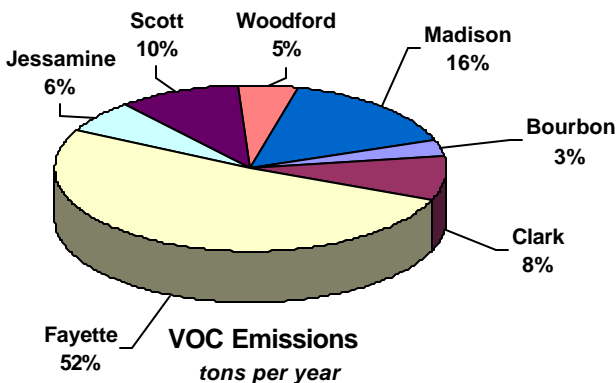
Onroad mobile source VOC emissions from Woodford County were estimated at 630 tons per year (tpy) in 1999, which represents approximately 5% of the total 12,736 tpy of overall VOC onroad mobile source emissions from the Lexington MSA. Onroad mobile source NO_x emissions from Woodford County were estimated at 1,141 tpy in 1999, which represents approximately 6% of the total 18,194 tpy of overall NO_x onroad mobile source emissions from the Lexington MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Woodford County were estimated at 40 tons per year (tpy) in 1999, which represents approximately 6% of the total 675 tpy overall SO_x onroad mobile source emissions from the Lexington MSA. (See table 1-E)

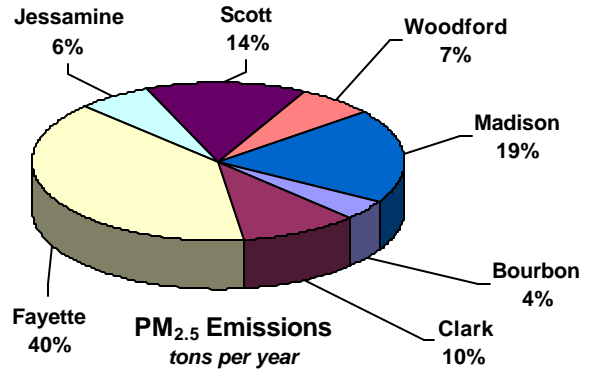
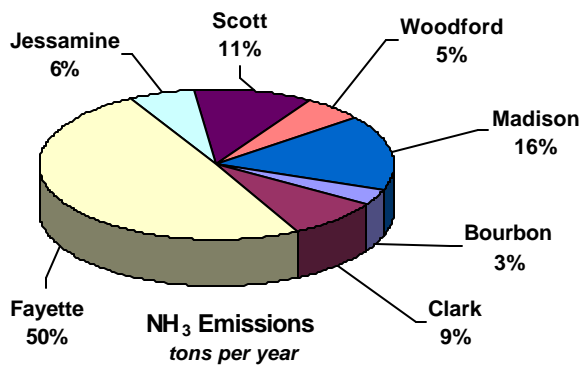
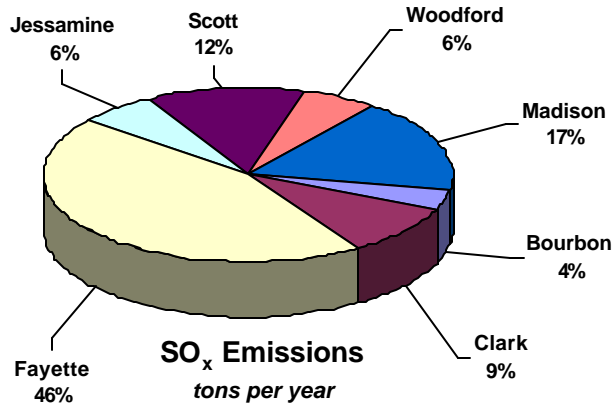
Onroad mobile source NH₃ emissions from Woodford County were estimated at 30 tpy in 1999, which represents approximately 5% of the total 564 tpy overall NH₃ onroad mobile source emissions from the Lexington MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Woodford County were estimated at 26 tons per year (tpy) in 1999, which represents approximately 7% of the total 388 tpy overall PM_{2.5} onroad mobile source emissions from the Lexington MSA. (See table 1-G)

**1999 NEI Lexington MSA
Onroad Mobile Source Emissions
(tons per year)**



1999 NEI Lexington MSA Onroad Mobile Source Emissions (continued)



Based on information received from the Kentucky Transportation Cabinet, commuting traffic from other counties into Woodford County is 48.7% and classified as high, and the commuting traffic from Woodford County into other counties is significant at 54.8%.

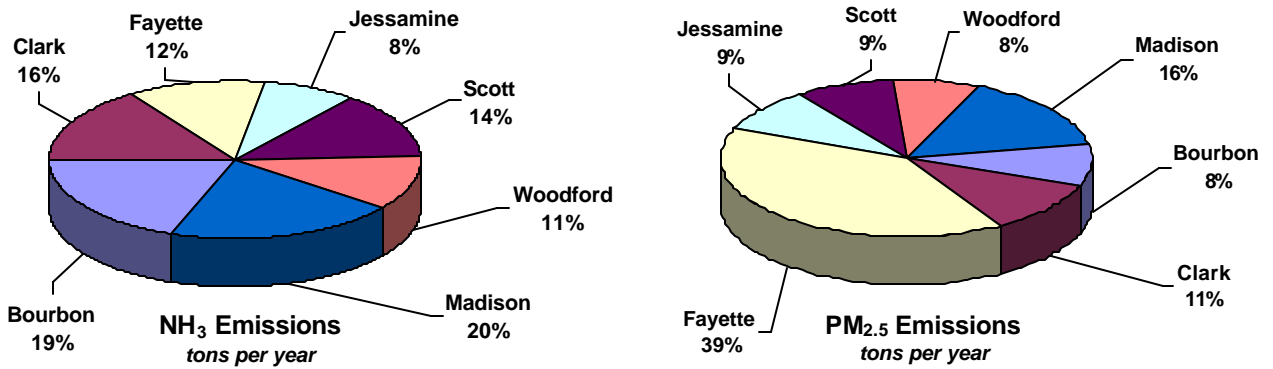
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

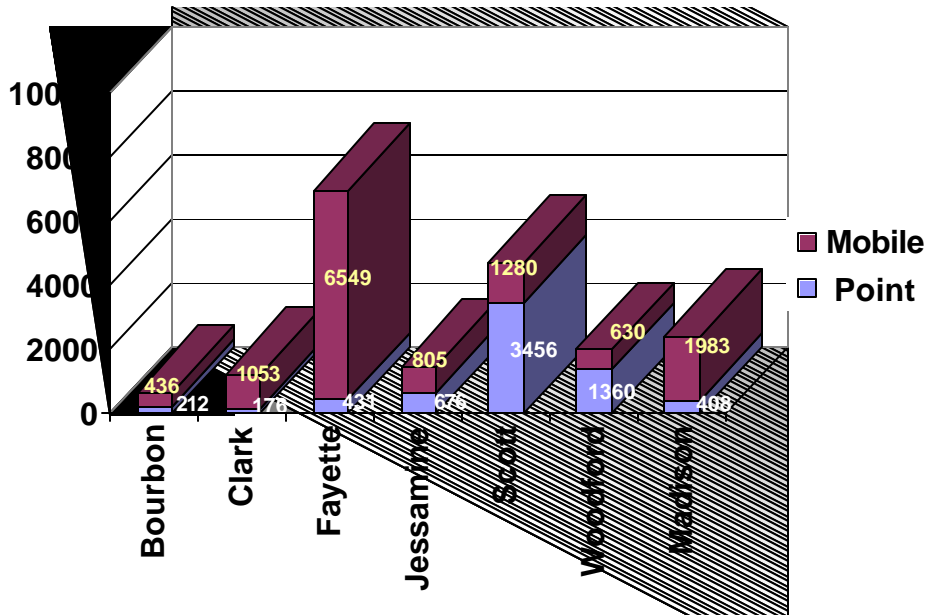
Area source NH_3 emissions from Woodford County were estimated at 885 tpy in 1999, which represents approximately 11% of the total 8,281 tpy of overall NH_3 area source emissions from the Lexington MSA. (See table 1-F)

Area source $\text{PM}_{2.5}$ emissions from Woodford County were estimated at 461 tpy in 1999, which represents approximately 8% of the total 6,009 tpy of overall $\text{PM}_{2.5}$ area source emissions from the Lexington MSA. (See table 1-G)

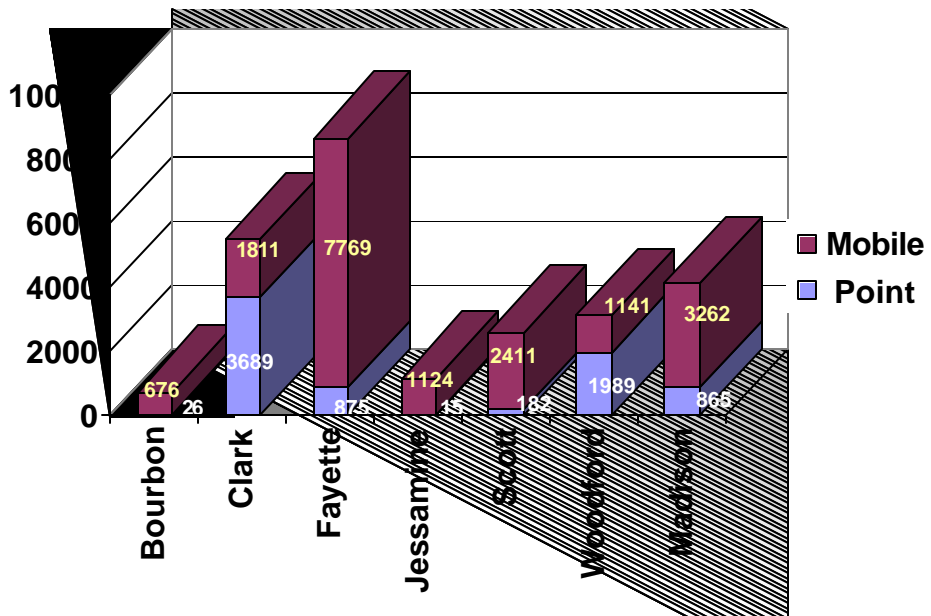
1999 NEI Lexington MSA Area Source Emissions (tons per year)



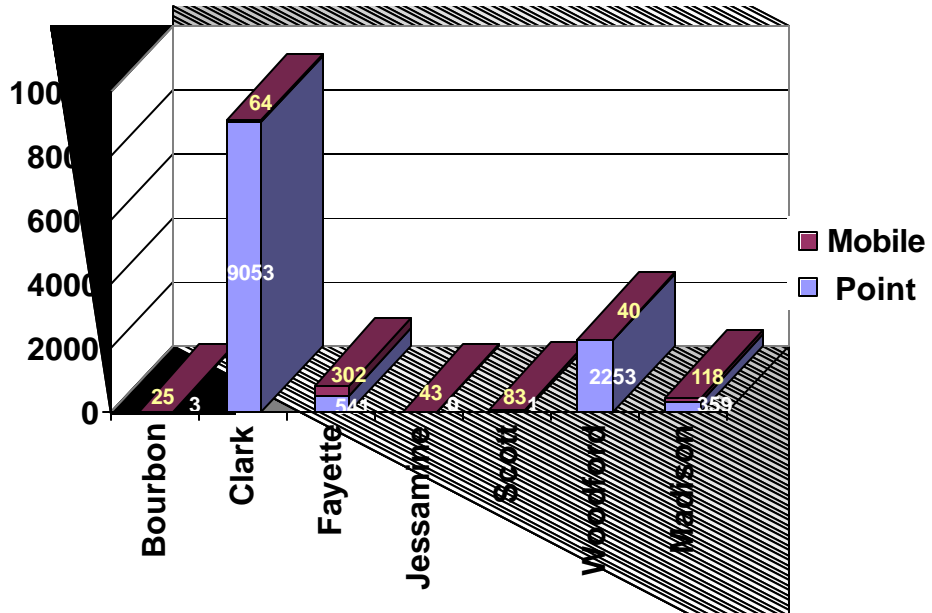
1999 NEI VOC Contribution (tons per year)



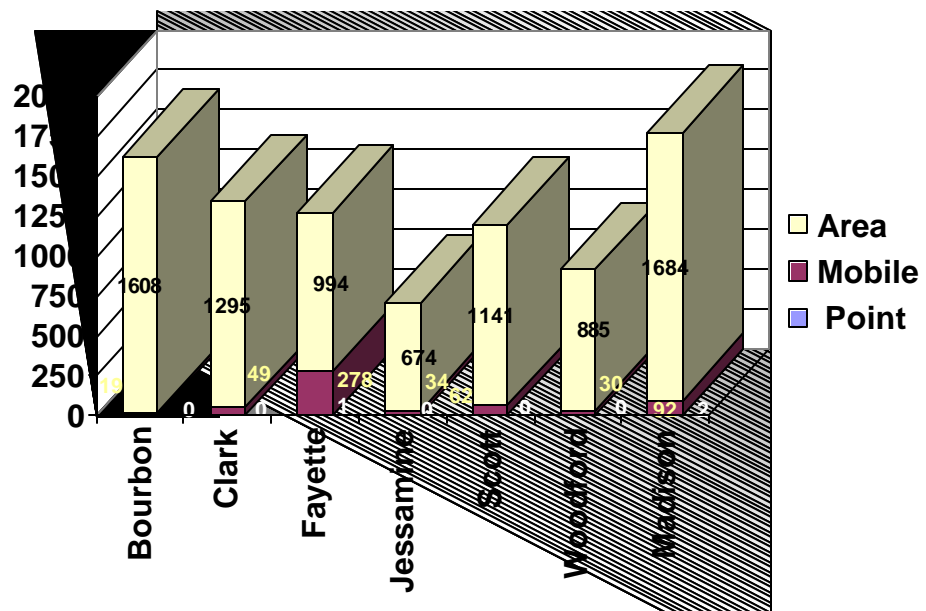
1999 NEI NO_x Contribution (tons per year)



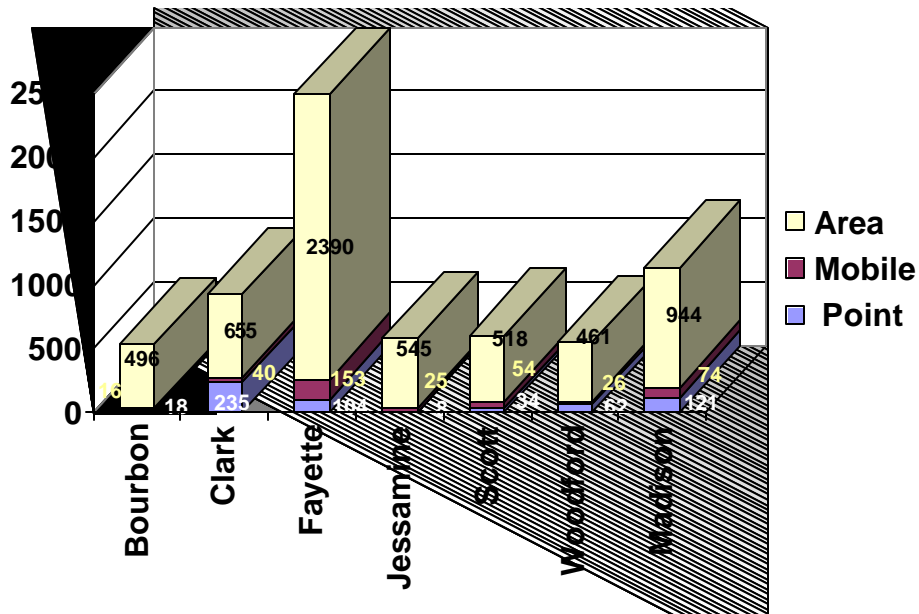
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

The emissions data and other documentation presented indicate that Woodford County, Kentucky, does not contribute a significant amount of PM_{2.5} emissions nor emissions that contribute to PM_{2.5} formation in the Lexington-Fayette MSA. Emission contributions from Woodford County are approximately 10% of the total VOC emissions, 12% of the total NO_x emissions, 18% of the total SO_x emissions, 8% of the total PM_{2.5} emissions and 10% of the total NH₃ emissions in the Lexington-Fayette MSA.

Prevailing wind patterns would typically indicate that emissions from Woodford County are not impacting Fayette County, and if contributions were being seen, typically impacts would be at the Newtown monitor that is showing attainment of the standard rather than the Limestone monitoring site that is showing a violation.

Therefore, Woodford County should be designated attainment for the PM_{2.5} standard.

Figure 1-A Wind Rose Patterns

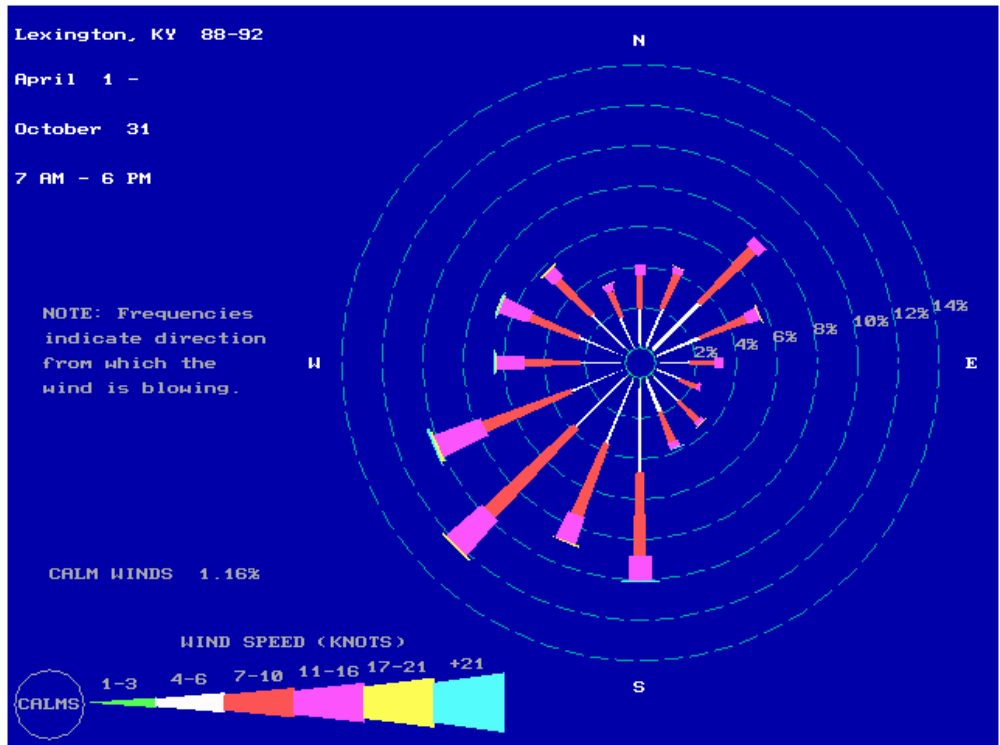


Figure 1-B 1999 NEI Lexington-Fayette MSA VOC and NO_x Emissions (tons per year)

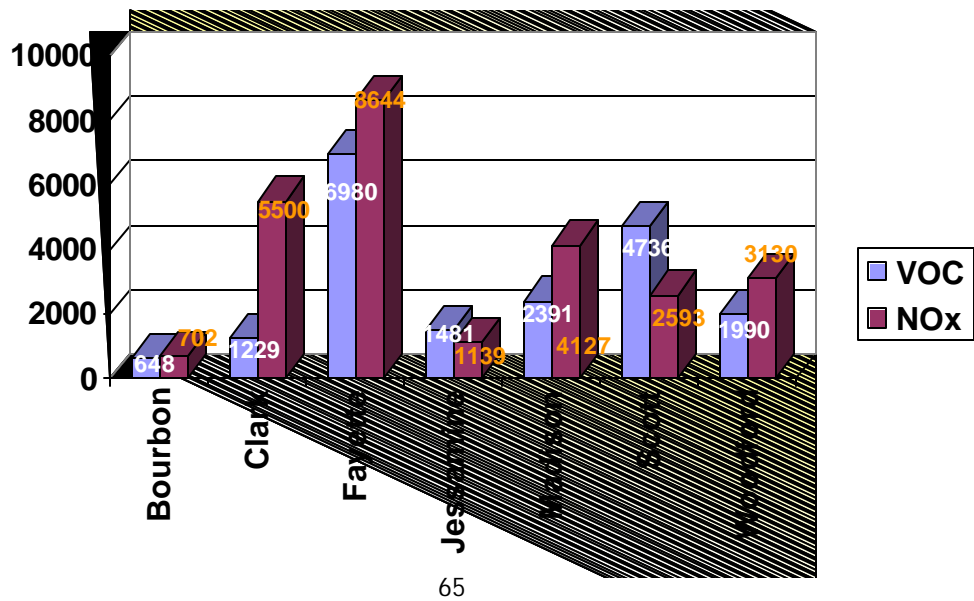


Figure 1-C
1999 NEI Lexington-Fayette MSA
SO_x Emissions
(tons per year)

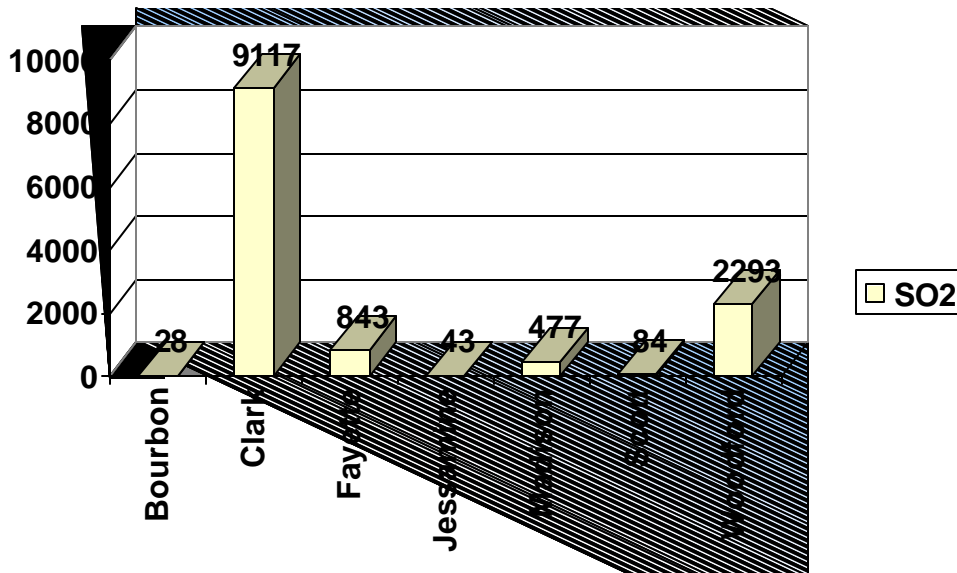


Figure 1-D
1999 Lexington-Fayette MSA
NH₃ and PM_{2.5} Emissions
(tons per year)

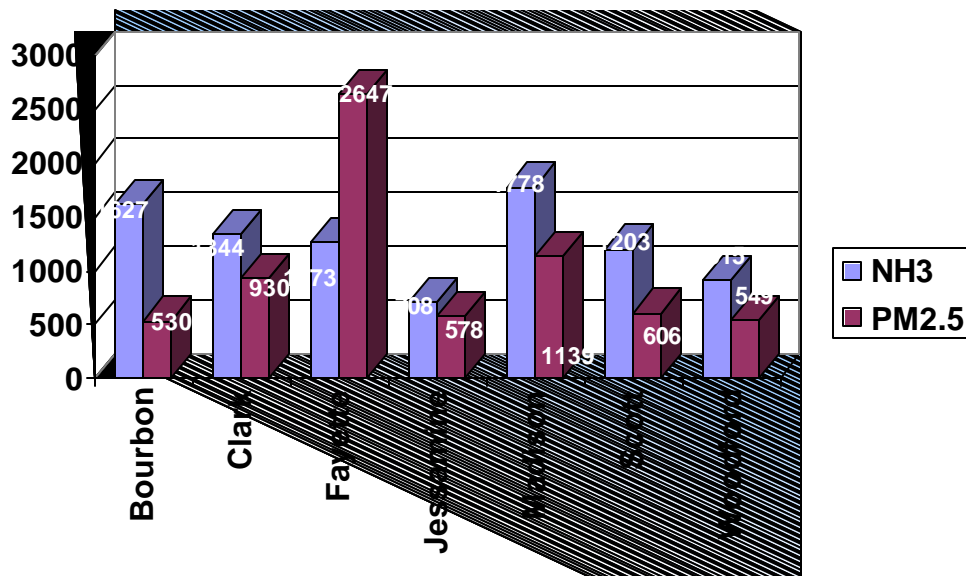


Table 1-A
Annual Average Design Value for PM 2.5
 (micrograms per cubic meter)

County	2001	2002	2003	Design Value
Kentucky				
Fayette – Limestone	16.2	15.6	15.0	15.6
Fayette – Newtown Pike	15.7	15.1	13.8	14.9
Bourbon				N/A
Clark				N/A
Jessamine				N/A
Madison	13.9	13.5	12.9	13.4
Scott				N/A
Woodford				N/A

Table 1-B
Lexington, KY MSA Population
Growth Data

County	1990	2000	%Growth 1990 - 2000	2010	%Growth 2000 - 2010
Bourbon	19,236	19,360	0.6%	19,350	-0.1%
Clark	29,496	33,144	12.4%	36,932	11.4%
Fayette	225,366	260,512	15.6%	295,664	13.5%
Jessamine	30,508	39,041	28.0%	48,116	23.2%
Madison	57,508	70,872	23.2%	83,629	18.0%
Scott	23,867	33,061	38.5%	44,851	35.7%
Woodford	19,955	23,208	16.3%	26,427	13.9%

Table 1-C
2002 Estimated Lexington, KY MSA
Population

Kentucky	Estimated Population
Bourbon County	19,576
Clark County	33,726
Fayette County	263,618
Jessamine County	40,740
Madison County	73,334
Scott County	35,320
Woodford County	23,403
Total MSA Estimated Population	489,717

Table 1-D
1999 NEI Lexington-Fayette County, KY MSA
VOC and NO_x Emissions
(tons per year)

County	VOC			NO _x		
	Point	Mobile	Total	Point	Mobile	Total
Bourbon	212	436	648	26	676	702
Clark	176	1,053	1,229	3,689	1,811	5,500
Fayette	431	6,549	6,980	875	7,769	8,644
Jessamine	676	805	1,481	15	1,124	1,139
Madison	408	1,983	2,391	865	3,262	4,127
Scott	3,456	1,280	4,736	182	2,411	2,593
Woodford	1,360	630	1,990	1,989	1,141	3,130
Total Emissions	6,719	12,736	19,455	7,641	18,194	25,835

Table 1-E
1999 NEI Lexington-Fayette County, KY MSA
SO_x Emissions
(tons per year)

County	SO _x		Total
	Point	Mobile	
Bourbon	3	25	28
Clark	9,053	64	9,117
Fayette	541	302	843
Jessamine	0	43	43
Madison	359	118	477
Scott	1	83	84
Woodford	2,253	40	2,293
Total Emissions	12,210	675	12,885

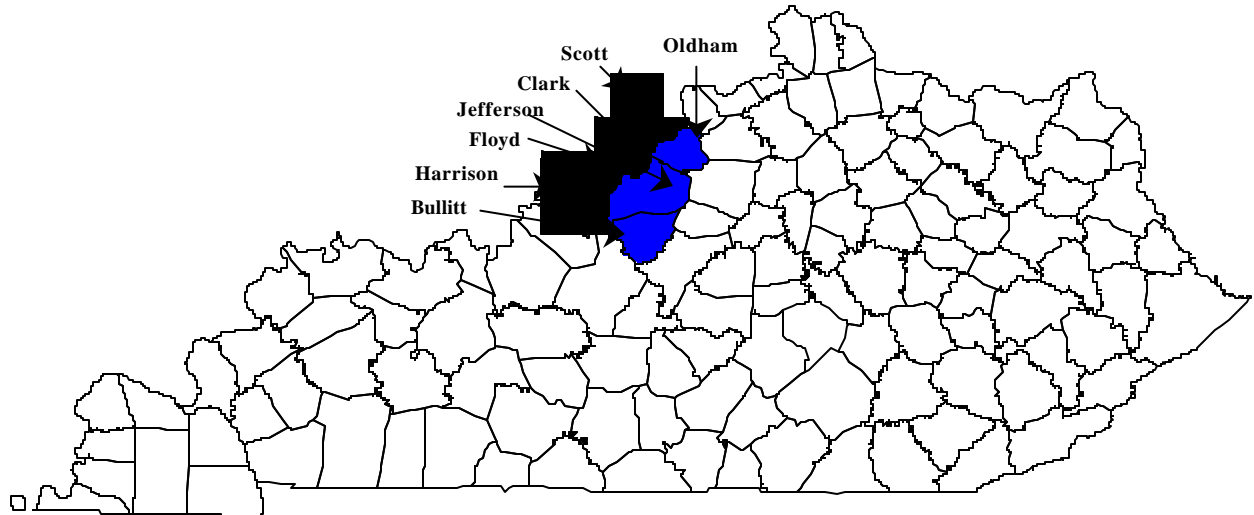
Table 1-F
1999 NEI Lexington-Fayette County, KY MSA
NH₃ Emissions
(tons per year)

County	NH ₃			Total
	Area	Point	Mobile	
Bourbon	1,608	0	19	1,627
Clark	1,295	0	49	1,344
Fayette	994	1	278	1,273
Jessamine	674	0	34	708
Madison	1,684	2	92	1,778
Scott	1,141	0	62	1,203
Woodford	885	0	30	915
Total Emissions	8,281	3	564	8,848

Table 1-G
1999 NEI Lexington-Fayette County, KY MSA
PM_{2.5} Emissions
(tons per year)

County	PM _{2.5}			Total
	Area	Point	Mobile	
Bourbon	496	18	16	530
Clark	655	235	40	930
Fayette	2,390	104	153	2,647
Jessamine	545	8	25	578
Madison	944	121	74	1,139
Scott	518	34	54	606
Woodford	461	62	26	549
Total Emissions	6,009	582	388	6,979

Kentucky Portion of the Louisville, KY-IN MSA



The Louisville, KY Metropolitan Statistical Area (MSA) was listed in 2001 as being the 50th largest MSA within the United States. This MSA encompasses seven counties, Scott, Clark, Floyd, and Harrison Counties, Indiana and Oldham, Jefferson, and Bullitt Counties, Kentucky.

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-75 interstate corridor.

Meteorological Information

Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Bullitt County area came from the south-southwest and typically at 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 87°F and the mean low was 70°F. The mean precipitation for the same period was 4.3 inches.

Planning

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

Air Monitoring

For the 2001 - 2003 monitoring period, the Bullitt County PM_{2.5} monitor (21-029-0006) showed an annual average design value of 14.9 micrograms per cubic meter, which would be classified as a county in attainment of the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS) (15 micrograms per cubic meter). However, because PM_{2.5} monitors in Jefferson County, Kentucky, and Clark and Floyd Counties in Indiana have a probable PM_{2.5} design value exceeding the annual PM_{2.5} standard, information for Bullitt County is being

presented in this document. The monitoring information for 2003 is complete for Bullitt County, Kentucky. However, the 2003 monitoring data reported for Jefferson County, Kentucky, and the Indiana counties is the latest available and is not complete through December 2003. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 63,800 persons living in Bullitt County. (See table 1-C) That represents approximately 213 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 1990 through 2000 increased by approximately 28.7% (47,567 to 61,236). The population is further expected to increase by an additional 27.3% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the entire Louisville, KY-IN MSA, Bullitt County represents approximately 6.1% of the total 2002 population in the entire MSA and 7.9% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5}, is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Sources

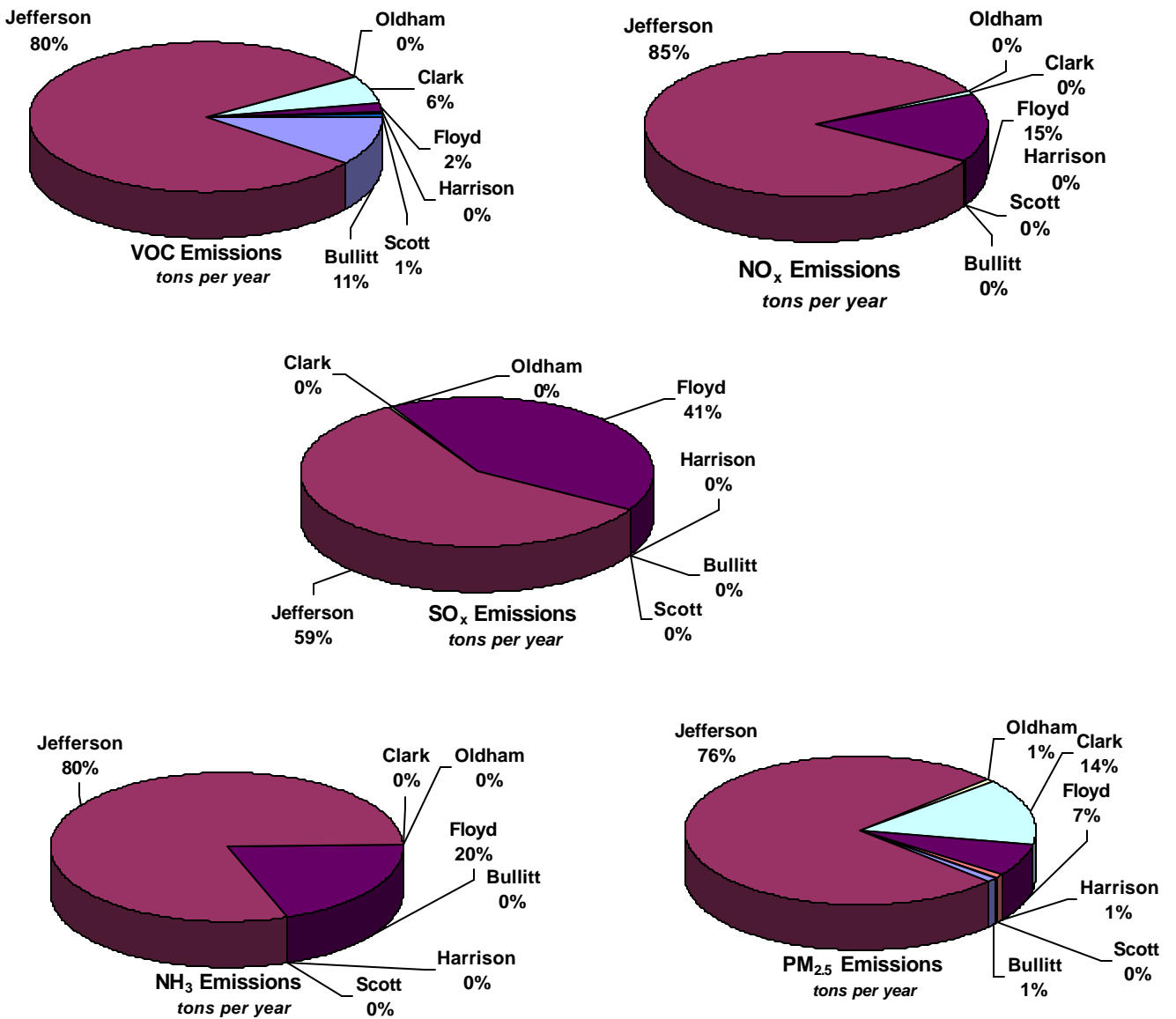
Point source VOC emissions from Bullitt County were estimated at 2,510 tons per year in 1999, which represents approximately 11% of the total 23,548 tpy of the overall VOC point source emissions from the Louisville MSA. Point source NO_x emissions from Bullitt County were estimated at 89 tpy in 1999, which represents less than 0.5% of the total 45,440 tpy of the overall NO_x point source emissions from the Louisville MSA. (See table 1-D)

Point source SO_x emissions from Bullitt County were estimated at 140 tons per year in 1999, which represents less than 1% of the total of 120,688 tpy of the overall SO_x point source emissions from the Louisville MSA. (See table 1-E)

Point source NH₃ emissions from Bullitt County were estimated at 0 tpy in 1999 (See table 1-F)

Point source PM_{2.5} emissions from Bullitt County were estimated at 26 tons per year in 1999, which represents approximately 1% of the total 3,272 tpy of the overall PM_{2.5} point source emissions from the Louisville MSA. (See table 1-G)

1999 NEI Louisville MSA Point Source Emissions (tons per year)



Point sources located within Bullitt County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

Onroad Mobile

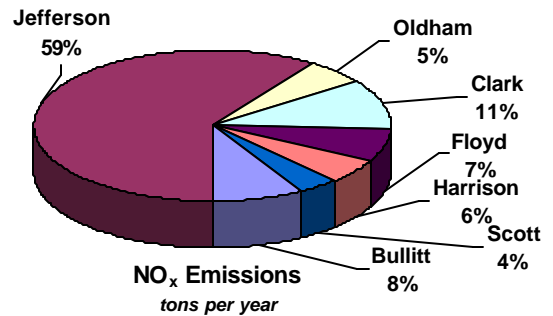
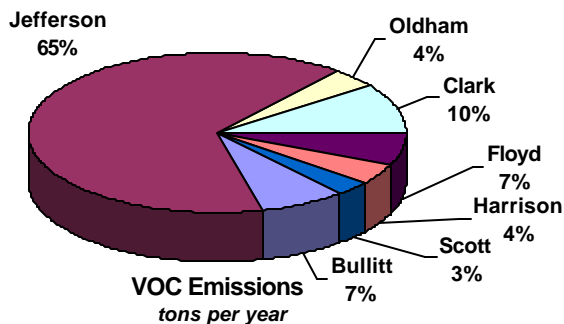
Onroad mobile source VOC emissions from Bullitt County were estimated at 1,668 tons per year (tpy) in 1999, which represents approximately 7% of the total 23,130 tpy of the overall VOC onroad mobile source emissions from the Louisville MSA. Onroad mobile source NO_x emissions from Bullitt County were estimated at 3,029 tpy in 1999, which represents approximately 8% of the total 36,037 tpy of the overall NO_x onroad mobile source emissions from the Louisville MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Bullitt County were estimated at 109 tons per year in 1999, which represents approximately 8% of the total 1,400 tpy of the overall SO_x onroad mobile source emissions from the Louisville MSA. (See table 1-E)

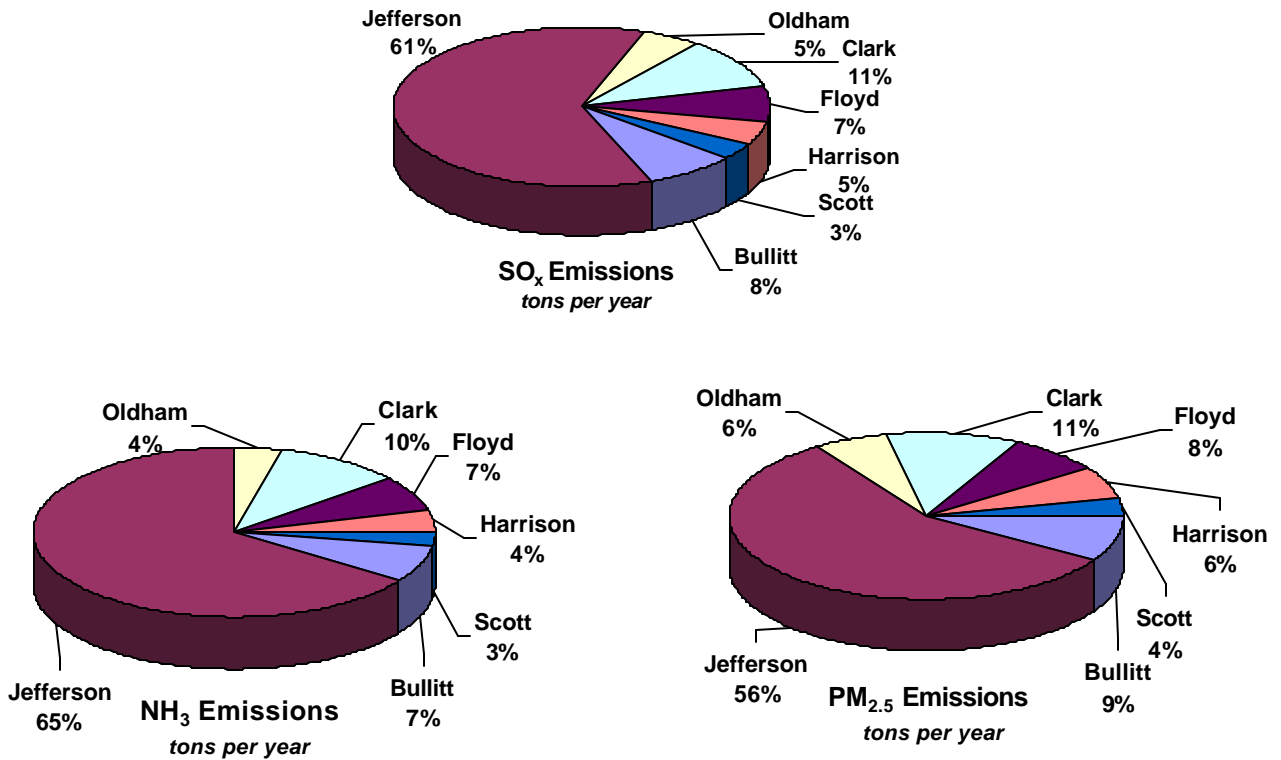
Onroad mobile source NH₃ emissions from Bullitt County were estimated at 83 tpy in 1999, which represents approximately 7% of the total 1,202 tpy of the overall NH₃ onroad mobile source emissions from the Louisville MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Bullitt County were estimated at 69 tons per year (tpy) in 1999, which represents approximately 9% of the total 779 tpy of the overall PM_{2.5} onroad mobile source emissions from the Louisville MSA. (See table 1-G)

**1999 NEI Louisville MSA
Onroad Mobile Source Emissions
(tons per year)**



1999 NEI Louisville MSA Onroad Mobile Source Emissions (continued)



Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Bullitt County is 33.3% and classified as high. The commuting traffic from Bullitt County into other counties is significant at 72.5%.

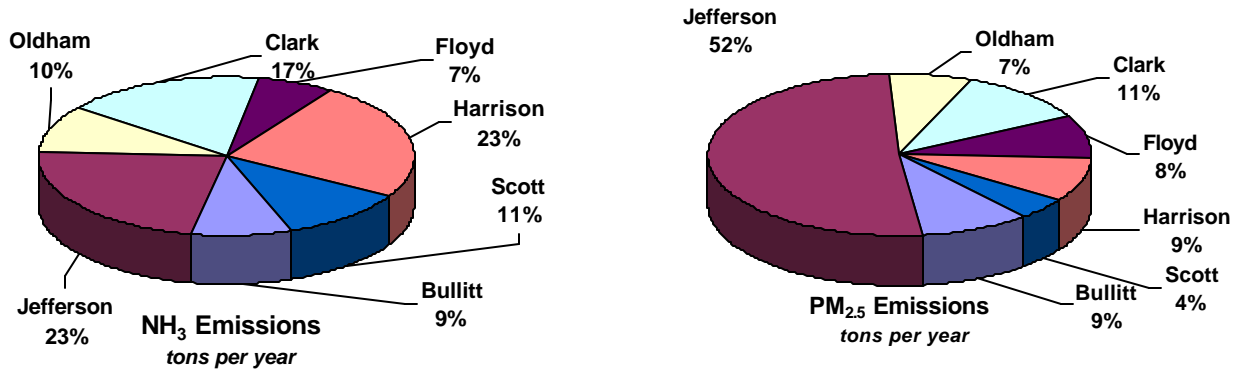
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

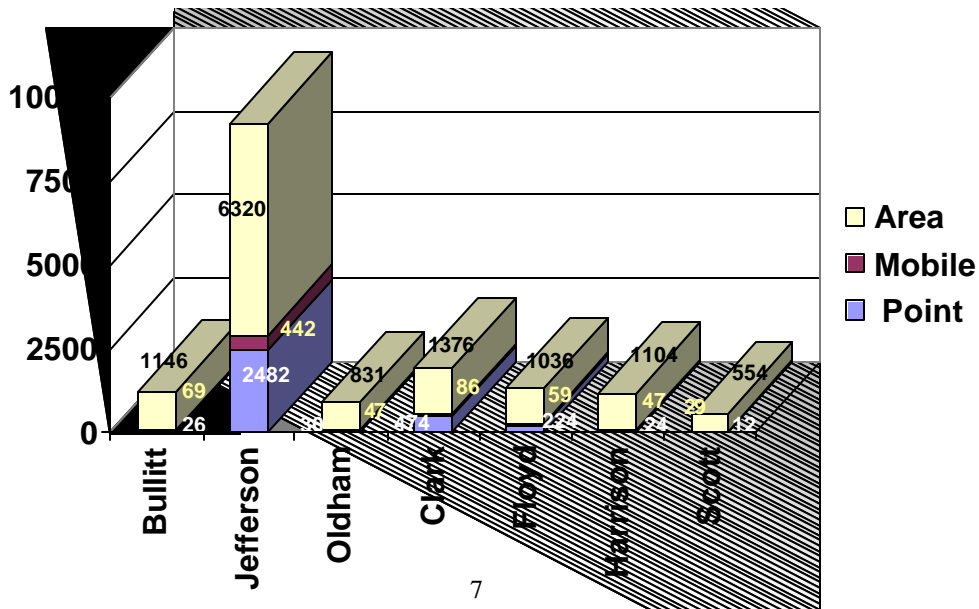
Area source NH₃ emissions from Bullitt County were estimated at 310 tpy in 1999, which represents approximately 9% of the total 3,558 tpy of overall NH₃ area source emissions from the Louisville MSA. (See Table 1-F)

Area source PM_{2.5} emissions from Bullitt County were estimated at 1,146 tpy in 1999, which represents approximately 9% of the total 12,367 tpy of overall PM_{2.5} area source emissions from the Louisville MSA. (See table 1-G)

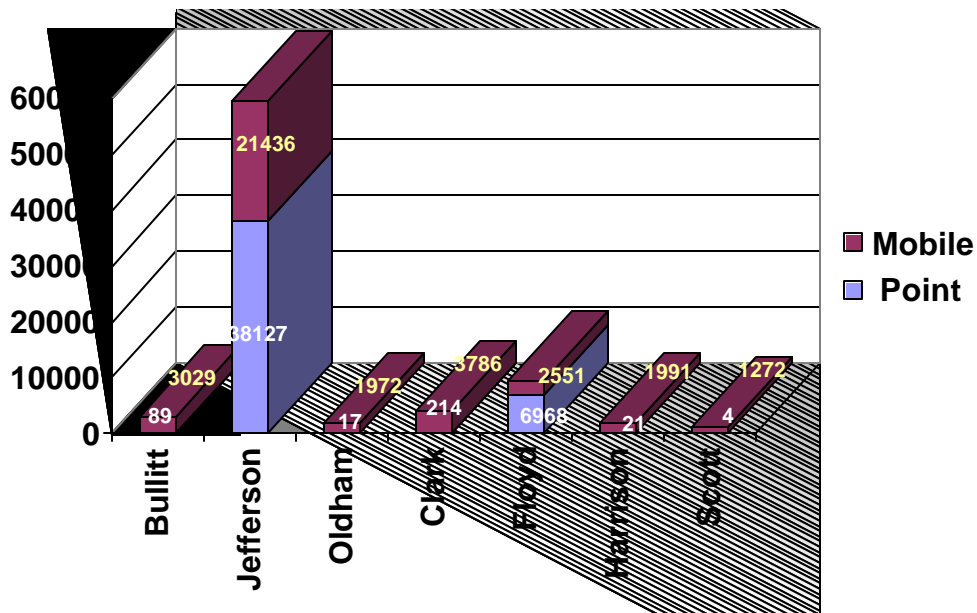
1999 NEI Louisville MSA Area Source Emissions (tons per year)



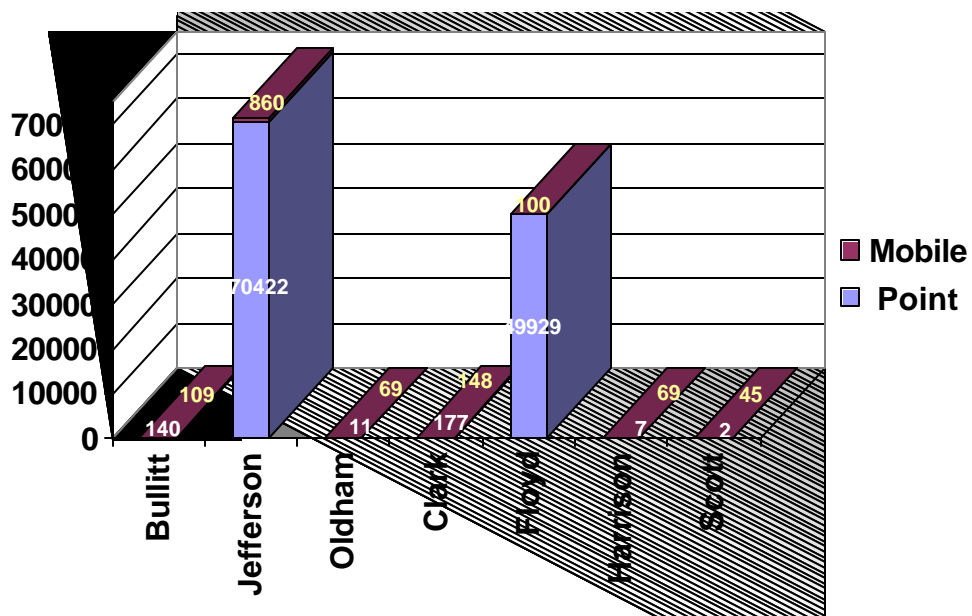
1999 NEI VOC Contribution (tons per year)



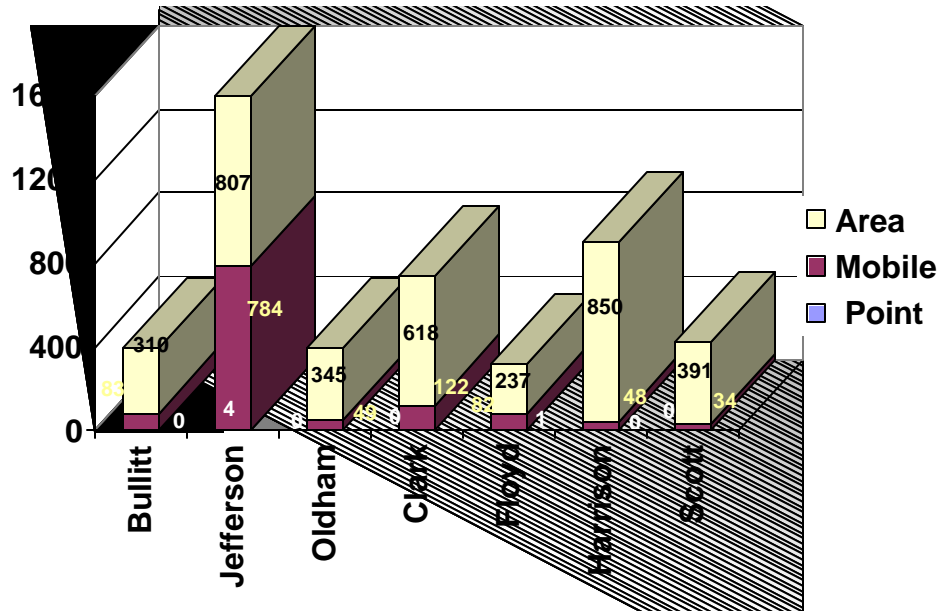
1999 NEI NO_x Contribution (tons per year)



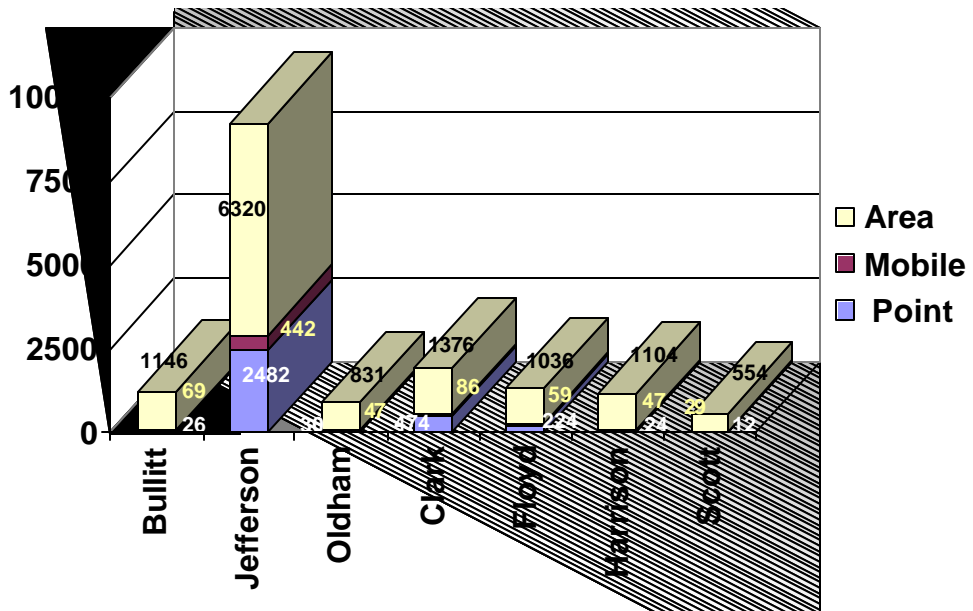
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

Bullitt County, based on 2001 - 2003 PM_{2.5} monitoring and emissions data, is meeting the annual PM_{2.5} standard with an annual average design value of 14.9 micrograms per cubic meter.

Bullitt County contributes approximately 9% of total VOC emissions, 4% of total NO_x emissions, 8% of the total PM_{2.5} emissions, approximately 8% of the total NH₃ emissions, and less than 0.5% of the total SO_x emissions in the Louisville MSA.

The monitoring and emissions data and other documentation presented indicate that Bullitt County, Kentucky, does not contribute a significant amount of PM_{2.5} or emissions that contribute to PM_{2.5} formation in the Louisville MSA.

Therefore, Bullitt County should be designated attainment for the PM_{2.5} standard.

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 northwest of Jefferson County, to the southwest of Trimble County, to the east of Henry County, and to the northwest of Shelby County. It is also to the southeast of Clark County, Indiana.

Geography/Topography

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

Meteorological Information

Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Oldham County area came from the south southwest and typically at 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 87°F and the mean low was 70°F. The mean precipitation for the same period was 4.3 inches.

Planning

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

Air Monitoring

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Oldham County. The Bullitt County PM_{2.5} monitor to the south shows an average annual design value in attainment of the PM_{2.5} annual National Ambient Air Quality Standards (NAAQS) (15 micrograms per cubic meter). However, because PM_{2.5} monitors in Jefferson County, Kentucky, and Clark and Floyd Counties in Indiana have a probable PM_{2.5} design value exceeding the annual PM_{2.5} standard, information for Oldham County is being presented in this document. The monitoring information for 2003 is complete for Bullitt County, Kentucky. However, the 2003 monitoring data reported for Jefferson County,

Kentucky, and the Indiana counties is the latest available and is not complete through December 2003. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 49,310 persons living in Oldham County. (See table 1-C) That represents approximately 261 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 city in Oldham County is LaGrange.

Oldham County's population from 1990 through 2000 increased by approximately 65.2% (33,263 to 46,178). The population is further expected to increase by an additional 36.0% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the entire Louisville, KY-IN MSA, Oldham County represents approximately 4.7% of the total 2002 population in the entire MSA and 6.1% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Source

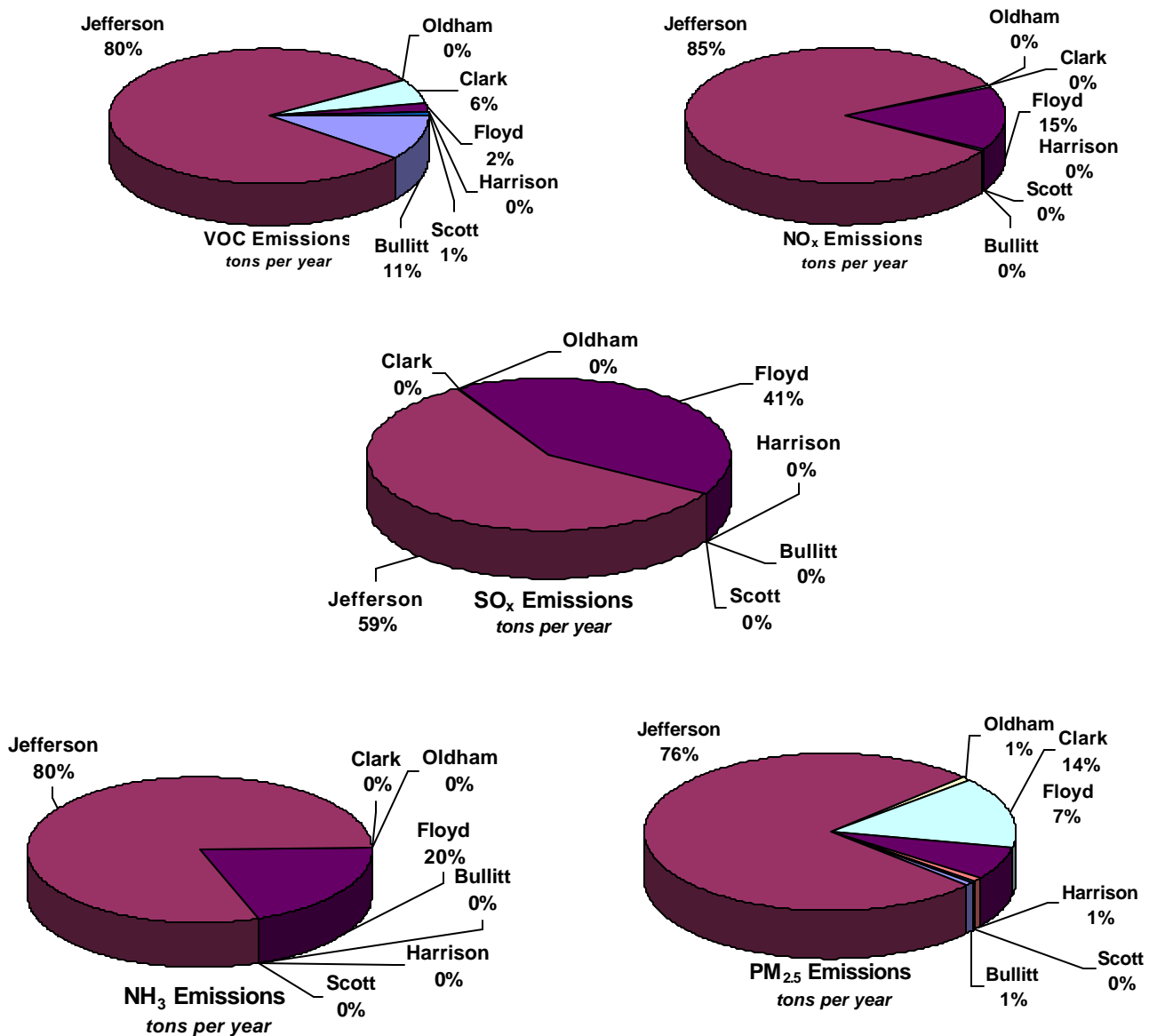
Point source VOC emissions from Oldham County were estimated at 55 tons per year in 1999, which represents less than 1% of the total 23,548 tpy of the overall VOC point source emissions from the Louisville MSA. Point source NO_x emissions from Oldham County were estimated at 17 tpy in 1999, which represents less than 1% of the total 45,440 tpy of the overall NO_x point source emissions from the Louisville MSA. (See table 1-D)

Point source SO_x emissions from Oldham County were estimated at 11 tons per year in 1999, which represents less than 1% of the total of 120,688 tpy of the overall SO_x point source emissions from the Louisville MSA. (See table 1-E)

Point source NH₃ emissions from Oldham County were estimated at 0 in 1999. (See table 1-F)

Point source PM_{2.5} emissions from Oldham County were estimated at 30 tons per year in 1999, which represents approximately 1% of the total 3,272 tpy of the overall PM_{2.5} point source emissions from the Louisville MSA. (See table 1-G)

1999 NEI Louisville MSA Point Source Emissions (tons per year)



Point sources located within Oldham County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

Onroad Mobile

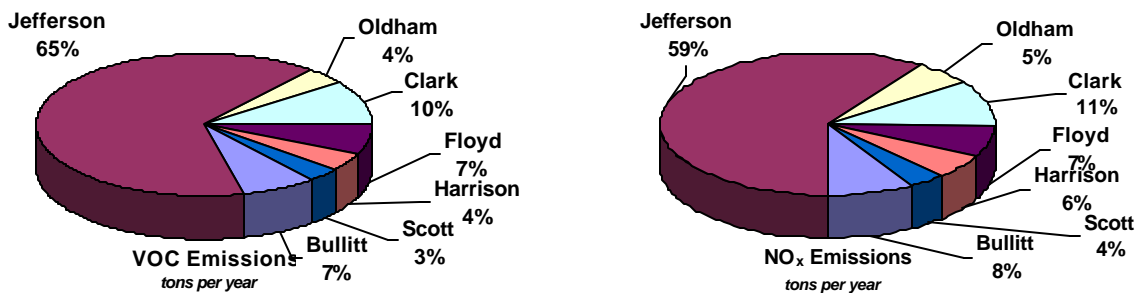
Onroad mobile source VOC emissions from Oldham County were estimated at 957 tons per year in 1999, which represents approximately 4% of the total 23,130 tpy of the overall VOC onroad mobile source emissions from the Louisville MSA. Onroad mobile source NO_x emissions from Oldham County were estimated at 1,972 tpy in 1999, which represents approximately 5% of the total 36,037 tpy of the overall NO_x onroad mobile source emissions from the Louisville MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Oldham County were estimated at 69 tons per year in 1999, which represents approximately 5% of the total 1,400 tpy of the overall SO_x onroad mobile source emissions from the Louisville MSA. (See table 1-E)

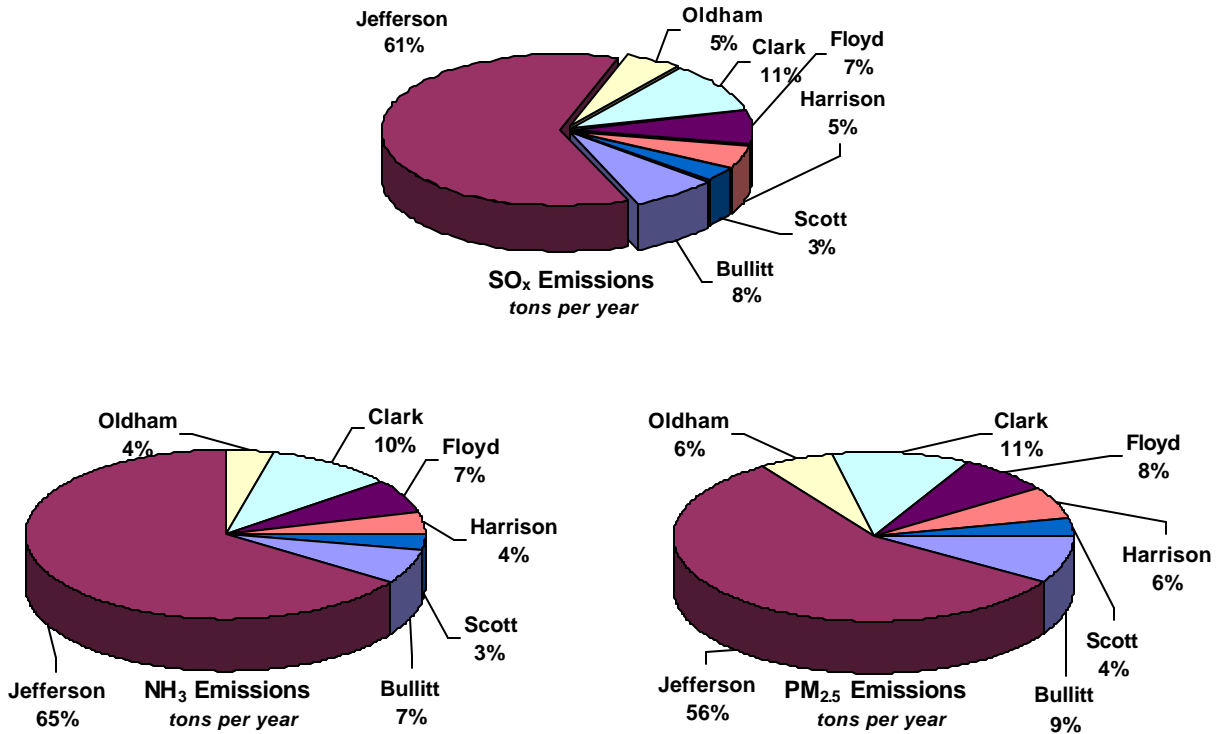
Onroad mobile source NH₃ emissions from Oldham County were estimated at 49 tpy in 1999, which represents approximately 4% of the total 1,202 tpy of the overall NH₃ onroad mobile source emissions from the Louisville MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Oldham County were estimated at 47 tons per year in 1999, which represents approximately 6% of the total 779 tpy of the overall PM_{2.5} onroad mobile source emissions from the Louisville MSA. (See table 1-G)

1999 NEI Louisville MSA Onroad Mobile Source Emissions (tons per year)



1999 NEI Louisville MSA Onroad Mobile Source Emissions (continued)



Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Oldham County is 45.7% and classified as high. The commuting traffic from Oldham County into other counties is significant at 66.8%.

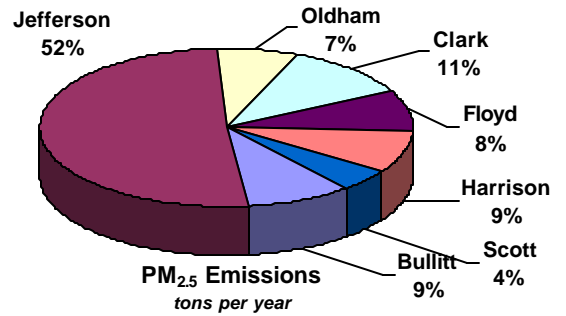
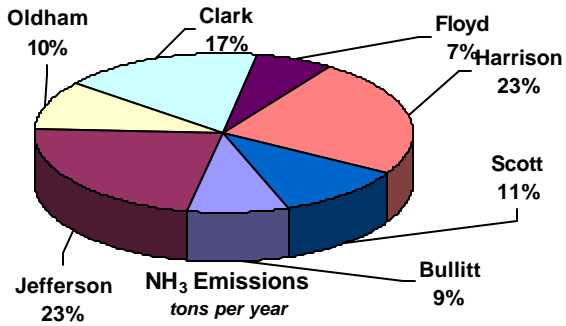
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

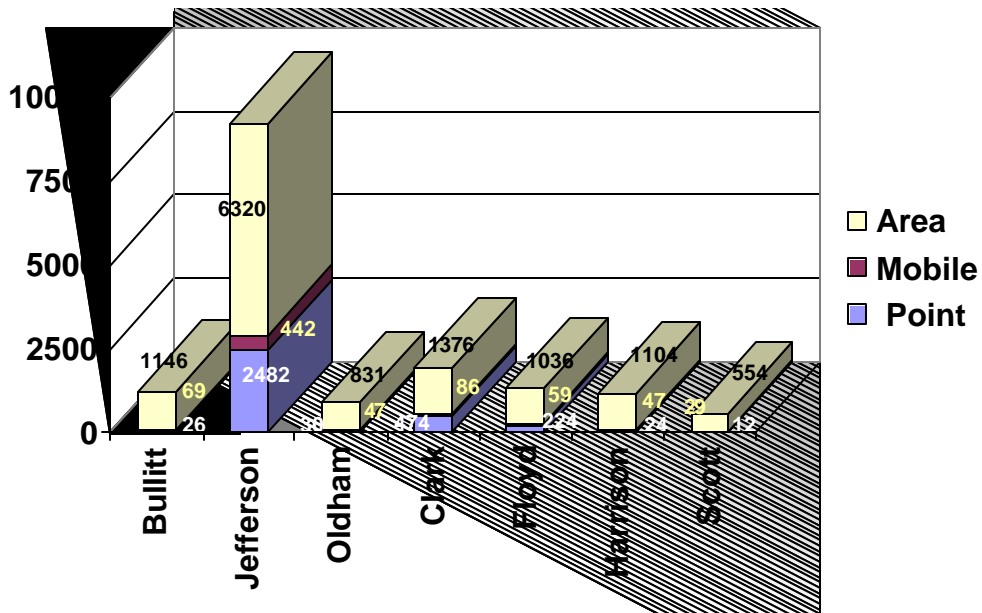
Area source NH₃ emissions from Oldham County were estimated at 345 tpy in 1999, which represents approximately 10% of the total 3,558 tpy of overall NH₃ area source emissions from the Louisville MSA. (See table 1-F)

Area source PM_{2.5} emissions from Oldham County were estimated at 831 tpy in 1999, which represents approximately 7% of the total 12,367 tpy of overall PM_{2.5} area source emissions from the Louisville MSA. (See table 1-G)

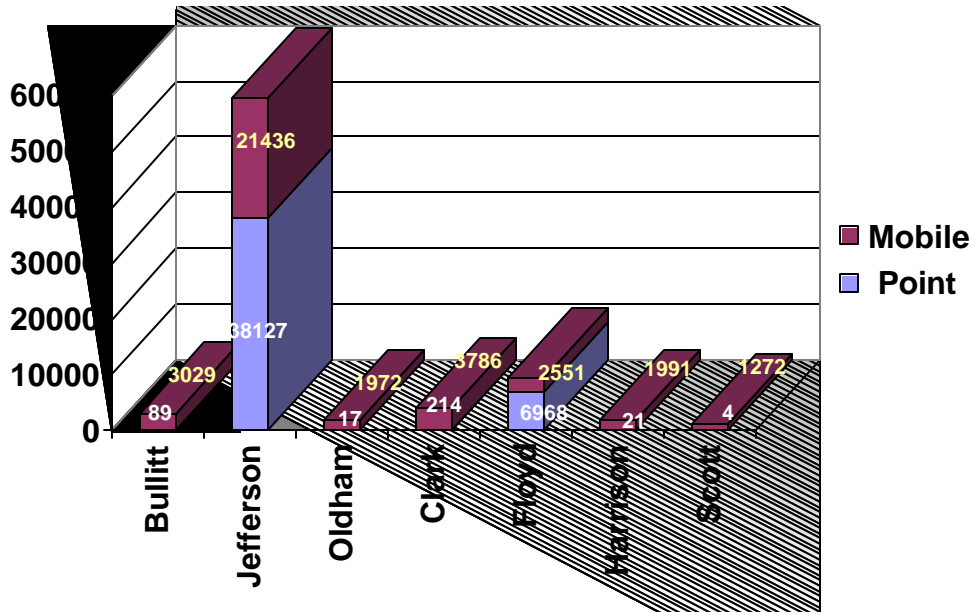
1999 NEI Louisville MSA Area Source Emissions (tons per year)



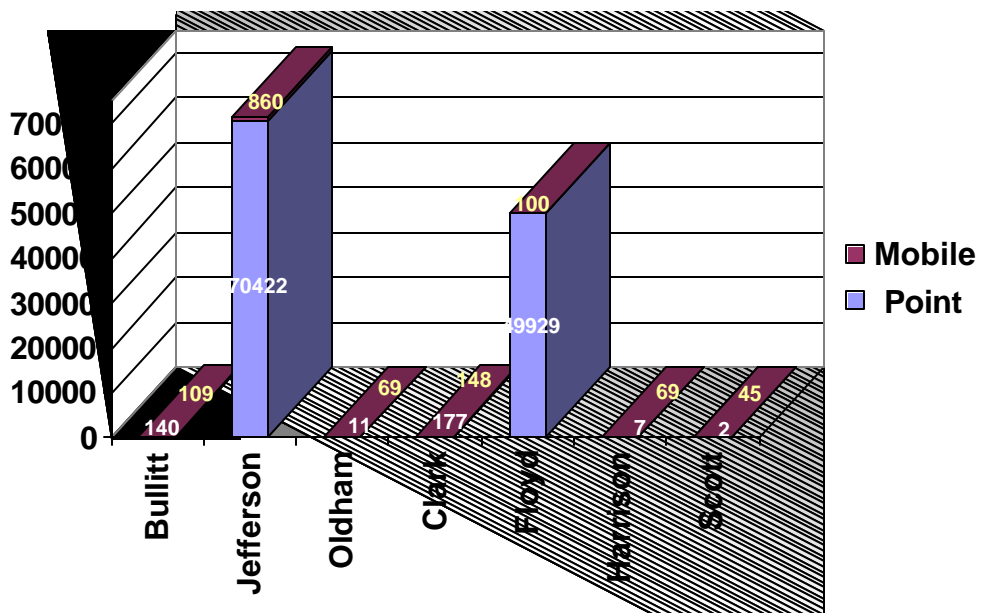
1999 NEI VOC Contribution (tons per year)



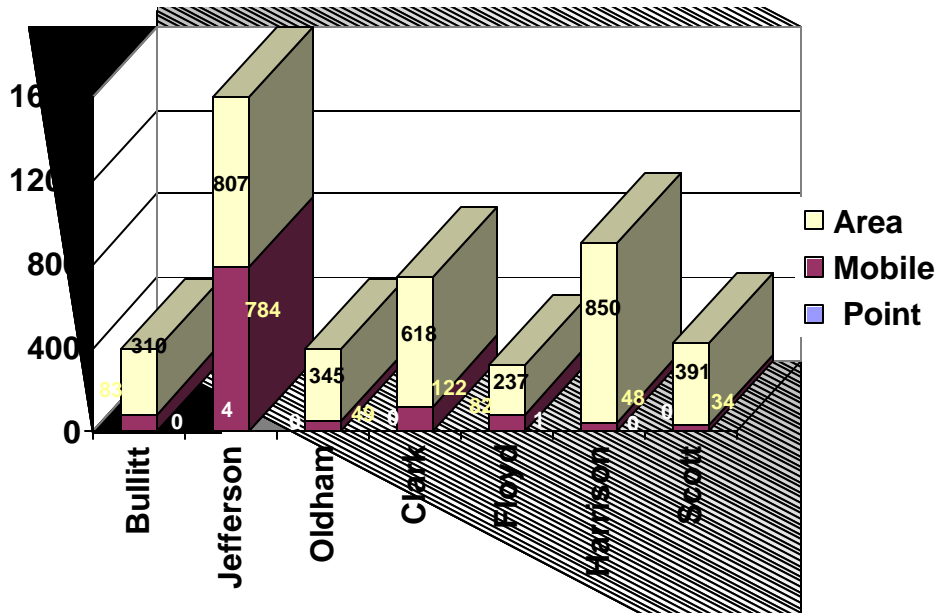
1999 NEI NO_x Contribution (tons per year)



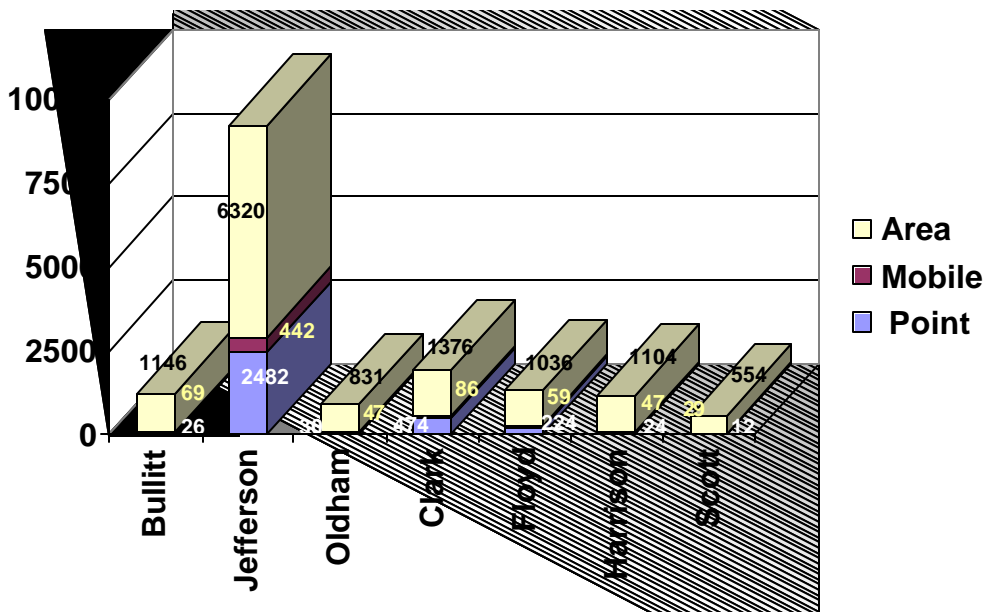
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Oldham County.

The emissions data and other documentation presented indicate that Oldham County, Kentucky, does not contribute a significant amount of PM_{2.5} or emissions that contribute to PM_{2.5} formation in the Louisville MSA. Oldham County contributes approximately 2% of both VOC and NO_x emissions, 6% of the total PM_{2.5} emissions, approximately 8% of the total NH₃ emissions, and less than 0.5% of the total SO_x emissions in the Louisville MSA.

Predominant wind patterns are away from Jefferson County and would have the small amount of emissions from Oldham County being transported away from monitors with violations.

Therefore, Oldham County should be designated attainment for the PM_{2.5} standard.

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 southeast of Oldham, to the east 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/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Jefferson County area came from the south southwest and typically at 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 87°F and the mean low was 70°F. The mean precipitation for the same period was 4.3 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 2001 - 2003 monitoring period, all four Jefferson County PM_{2.5} monitors shows an probable exceedence of the average annual design value, which would classify Jefferson County as nonattainment for the PM_{2.5} annual National Ambient Air Quality Standards (NAAQS) (15 micrograms per cubic meter). In addition, probable exceedences on Clark and Floyd Counties in Indiana have

been recorded. The monitoring information for 2003 is complete for Bullitt County, Kentucky, which is meeting the PM_{2.5} annual standard. However, the 2003 monitoring data reported for Jefferson County, Kentucky, and the Indiana counties of Clark and Floyd is the latest available and may not be complete through December 2003. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 698,080 persons living in Jefferson County. (See table 1-C) That represents approximately 1813 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 1990 through 2000 increased by approximately 4.3% (665,123 to 693,604). The population is further expected to increase by an additional 3.4% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the entire Louisville, KY-IN MSA, Jefferson County represents approximately 67.1% of the total 2002 population in the entire MSA and 86.1% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or open source and includes filterable and condensable particles.

Point Sources

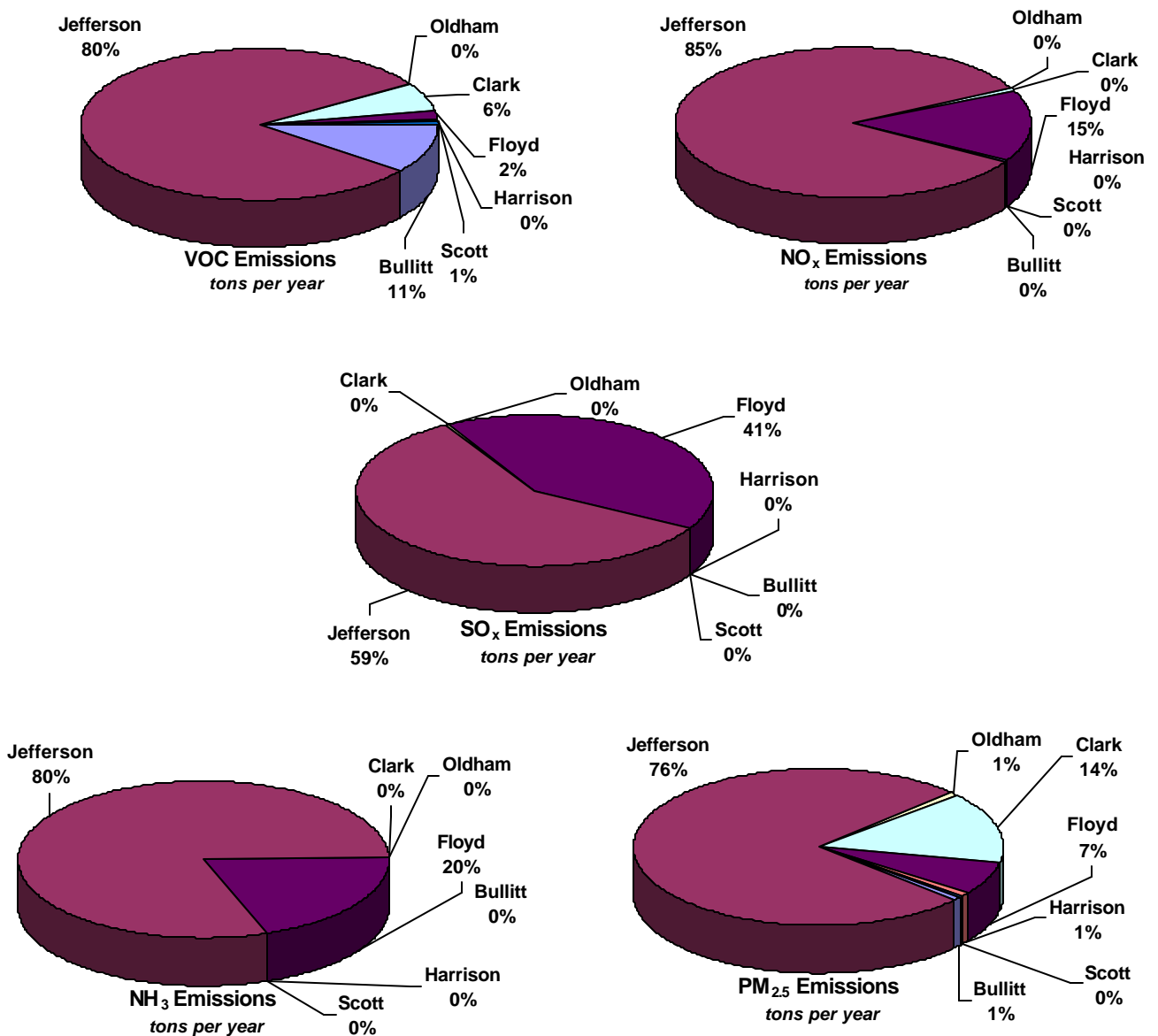
Point source VOC emissions from Jefferson County were estimated at 18,887 tons per year in 1999, which represents approximately 80% of the total 23,548 tpy of the overall VOC point source emissions from the Louisville MSA. Point source NO_x emissions from Jefferson County were estimated at 38,127 tpy in 1999, which represents approximately 85% of the total 45,440 tpy of the overall NO_x point source emissions from the Louisville MSA. (See table 1-D)

Point source SO_x emissions from Jefferson County were estimated at 70,422 tons per year in 1999, which represents approximately 59% of the total of 120,688 tpy of the overall SO_x point source emissions from the Louisville MSA. (See table 1-E)

Point source NH₃ emissions from Jefferson County were estimated at 4 tpy in 1999, which represents 80% of the total 5 tpy of the overall NH₃ point source emissions from the Louisville MSA. (See table 1-F)

Point source PM_{2.5} emissions from Jefferson County were estimated at 2,482 tons per year in 1999, which represents approximately 76% of the total 3,272 tpy of the overall PM_{2.5} point source emissions from the Louisville MSA. (See table 1-G)

1999 NEI Louisville MSA Point Source Emissions (tons per year)



Point sources located within Jefferson County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS), and any additional local emission control measures.

Onroad Mobile

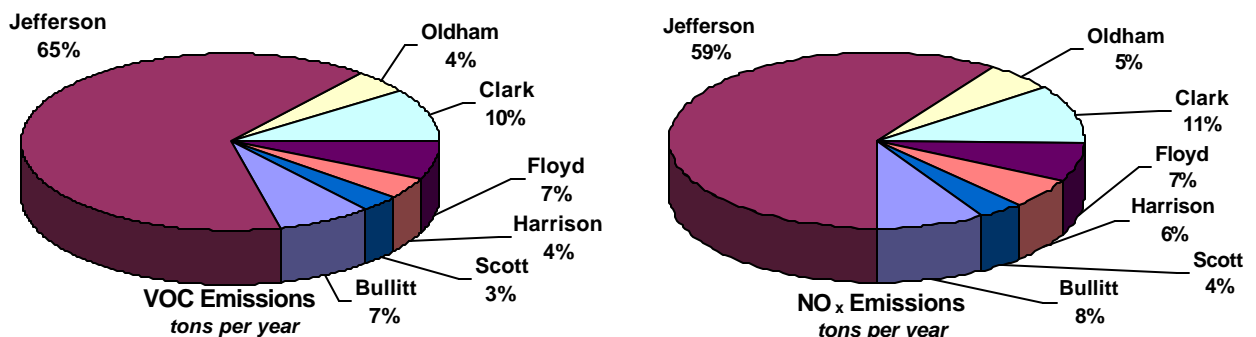
Onroad mobile source VOC emissions from Jefferson County were estimated at 14,981 tons per year in 1999, which represents approximately 65% of the total 23,130 tpy of the overall VOC onroad mobile source emissions from the Louisville MSA. Onroad mobile source NO_x emissions from Jefferson County were estimated at 21,436 tpy in 1999, which represents approximately 59% of the total 36,037 tpy of the overall NO_x onroad mobile source emissions from the Louisville MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Jefferson County were estimated at 860 tons per year in 1999, which represents approximately 61% of the total 1,400 tpy of the overall SO_x onroad mobile source emissions from the Louisville MSA. (See table 1-E)

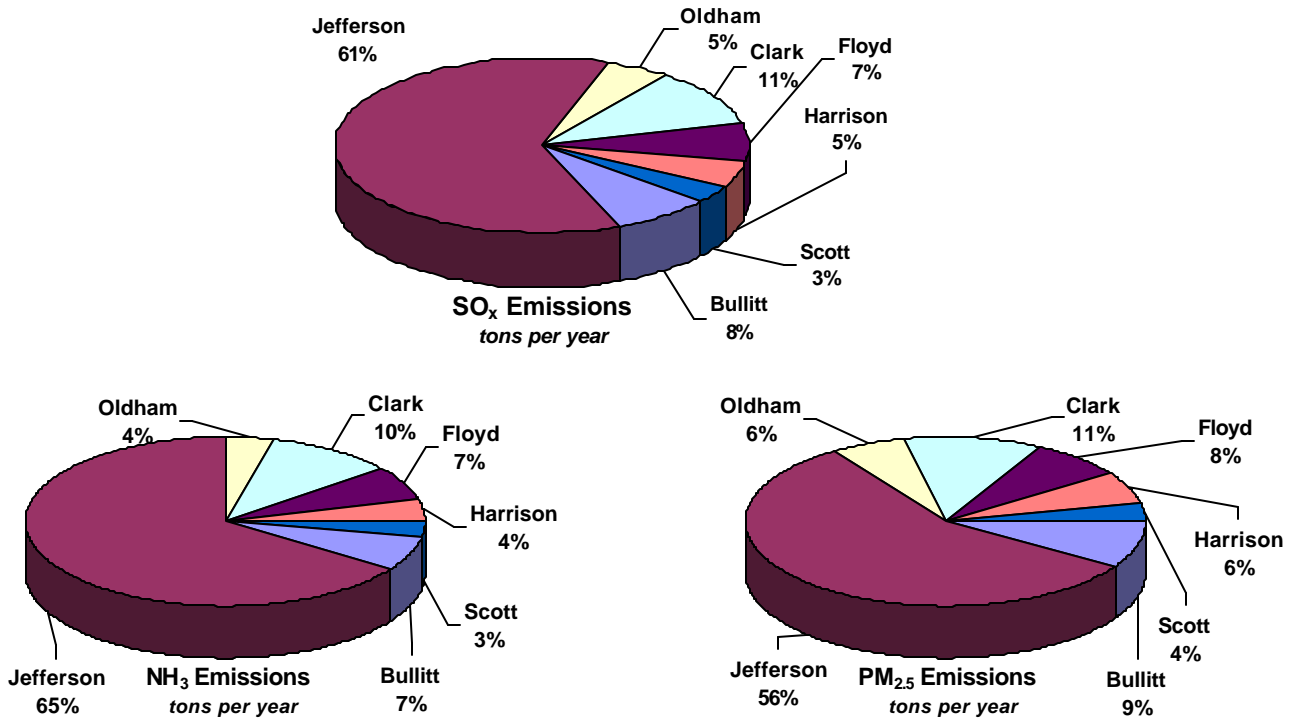
Onroad mobile source NH₃ emissions from Jefferson County were estimated at 784 tpy in 1999, which represents approximately 65% of the total 1,202 tpy of the overall NH₃ onroad mobile source emissions from the Louisville MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Jefferson County were estimated at 442 tons per year (tpy) in 1999, which represents approximately 56% of the total 779 tpy of the overall PM_{2.5} onroad mobile source emissions from the Louisville MSA. (See table 1-G)

1999 NEI Louisville MSA Onroad Mobile Source Emissions (tons per year)



1999 NEI Louisville MSA Onroad Mobile Source Emissions (continued)



Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Jefferson County is 24.9% and classified as minimal. The commuting traffic from Jefferson County into other counties is not significant at 7.7%.

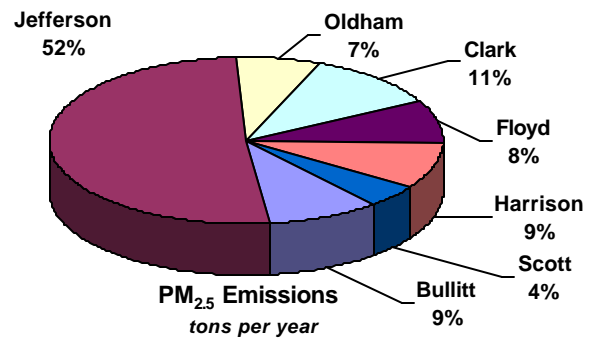
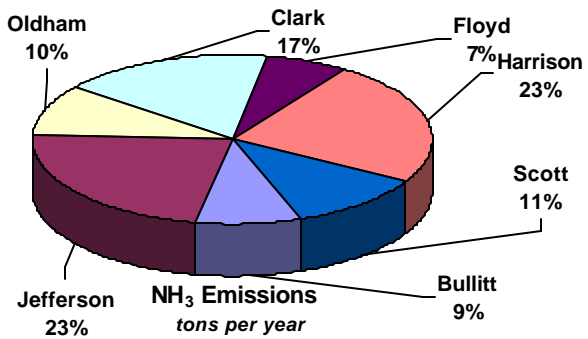
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

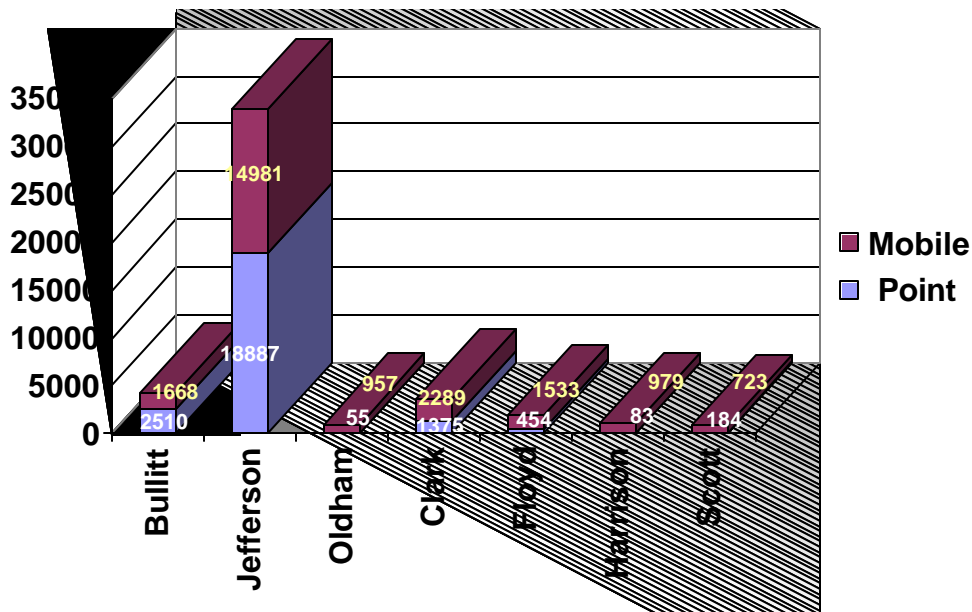
Area source NH₃ emissions from Jefferson County were estimated at 807 tpy in 1999, which represents approximately 23% of the total 3,558 tpy of overall NH₃ area source emissions from the Louisville MSA. (See table 1-E)

Area source PM_{2.5} emissions from Jefferson County were estimated at 6,320 tpy in 1999, which represents approximately 52% of the total 12,367 tpy of overall PM_{2.5} area source emissions from the Louisville MSA. (See table 1-G)

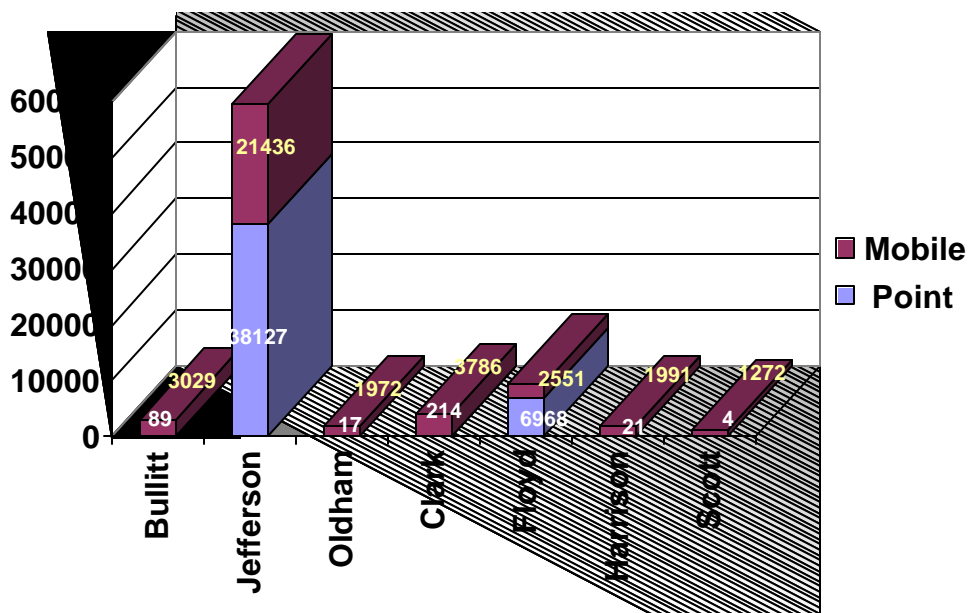
1999 NEI Louisville MSA Area Source Emissions (tons per year)



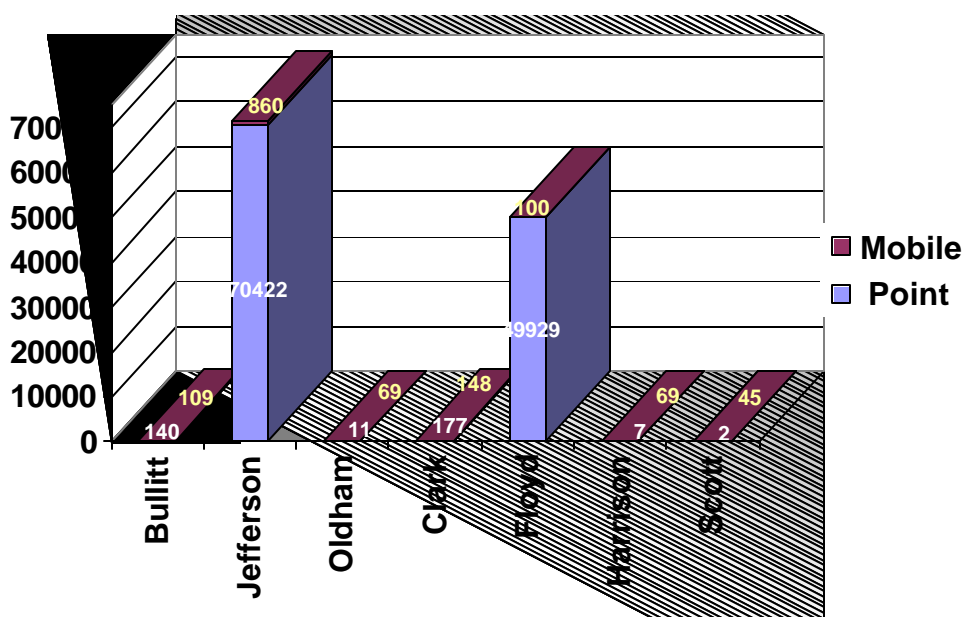
1999 NEI VOC Contribution (tons per year)



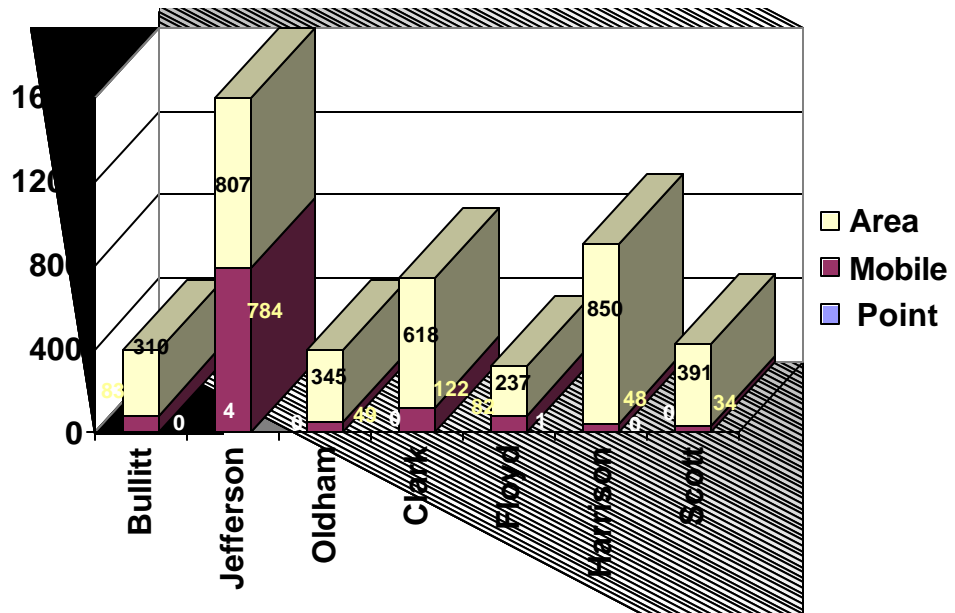
1999 NEI NO_x Contribution (tons per year)



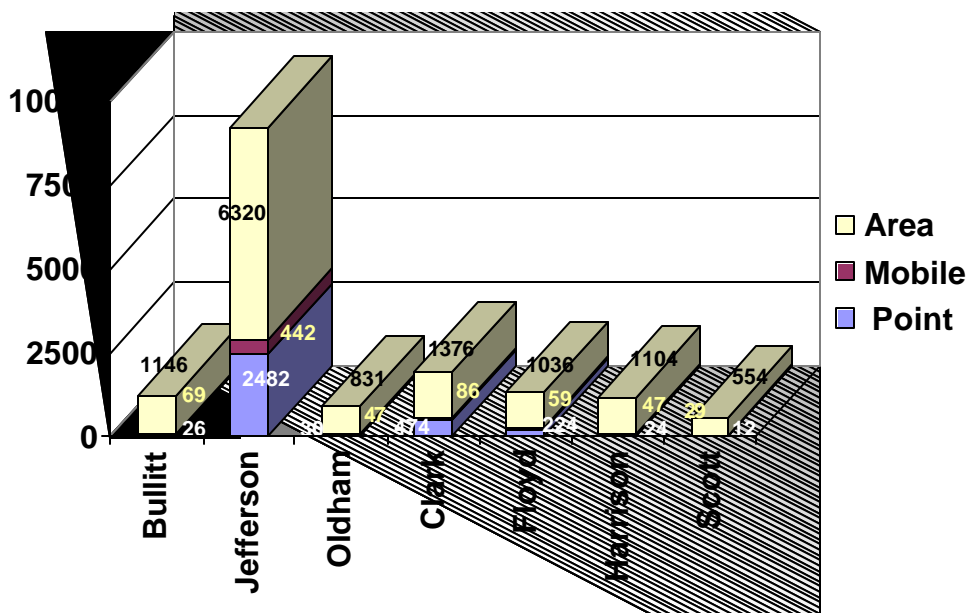
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

Jefferson County, based on 2001 - 2003 PM_{2.5} monitoring data, is not meeting the annual PM_{2.5} standard with an annual design value of 17.3 micrograms per cubic meter (monitor located at 37th and Southern), representing the monitor with the highest design value in the county.

The monitoring and emissions data and other documentation presented indicate that Jefferson County, Kentucky, does contribute a significant amount of PM_{2.5} or emissions that contribute to PM_{2.5} formation in the Louisville MSA.

Jefferson County contributes approximately 73% of the total VOC emissions, 73% of the total NO_x emissions, 56% of the total PM_{2.5} emissions, 33% of the total NH₃ emissions, and 58% of the total SO_x emissions in the Louisville MSA.

Therefore, Jefferson County should be designated nonattainment for the PM_{2.5} standard.

Louisville, KY-IN MSA Figure 1-A Wind Rose Patterns

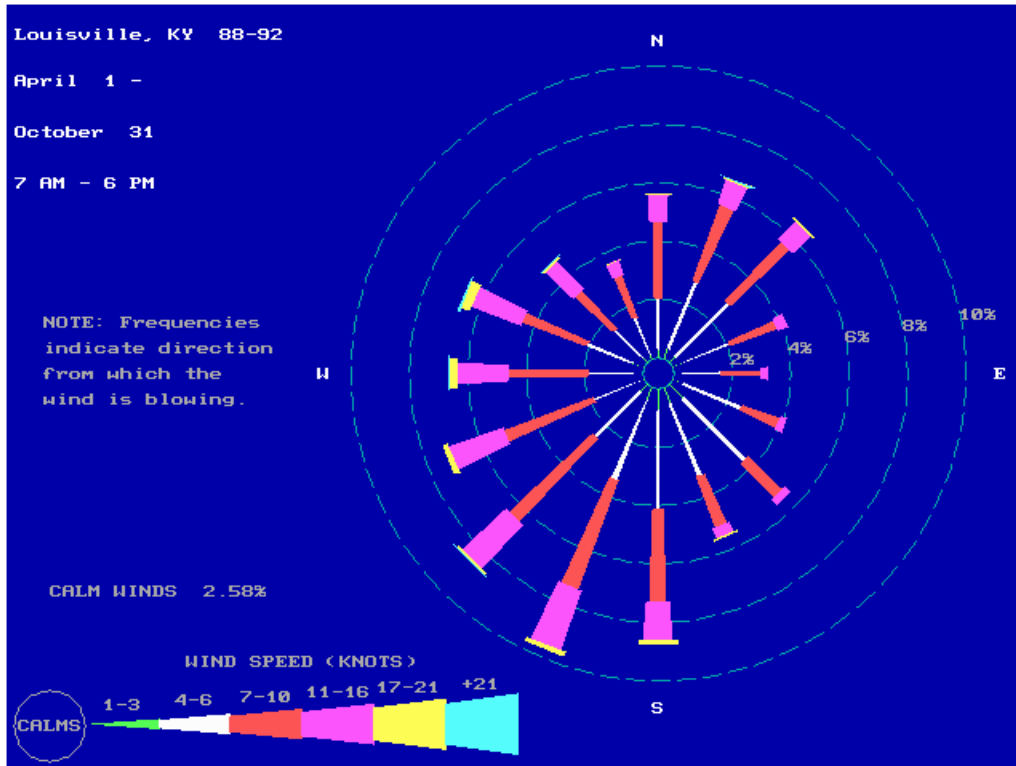


Figure 1-B 1999 NEI Louisville MSA VOC and NO_x Emissions (tons per year)

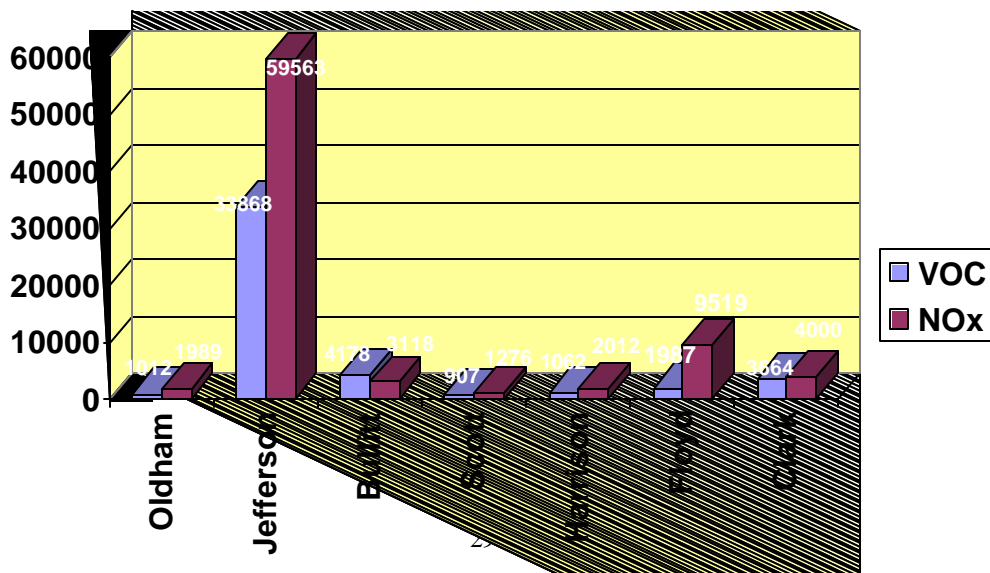


Figure 1-C
1999 NEI Louisville MSA
SO_x Emissions
(tons per year)

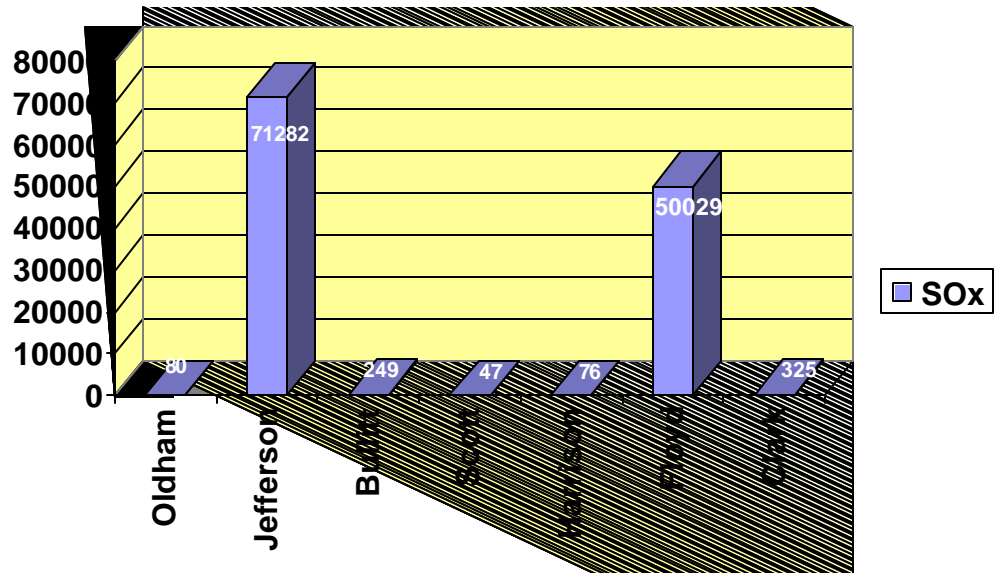


Figure 1-D
1999 NEI Louisville MSA
NH₃ and PM_{2.5} Emissions
(tons per year)

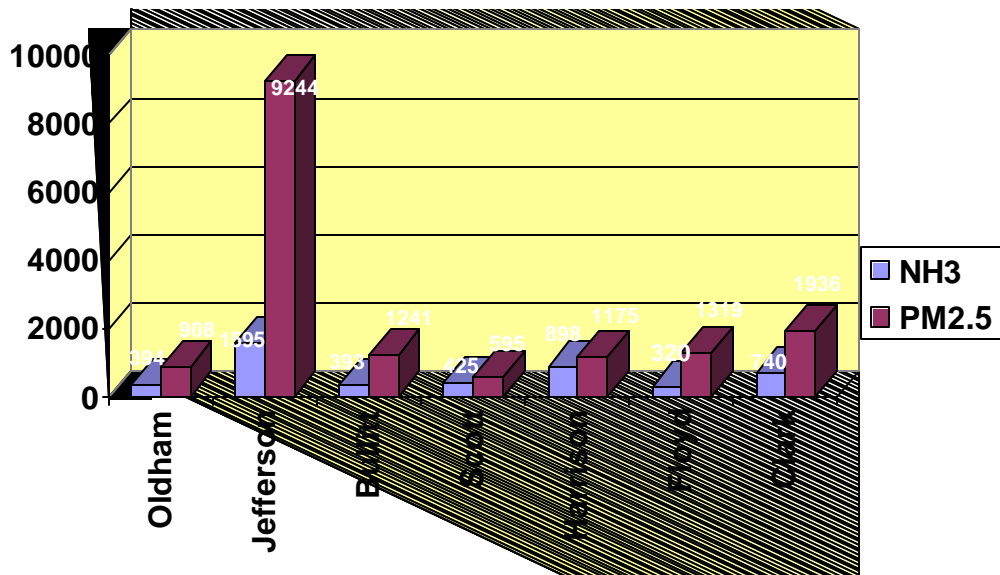


Table 1-A
Louisville, KY-IN MSA
Average Annual Design Values for PM_{2.5}
(micrograms per cubic meter thru October 2003)

County	2001	2002	2003*	Design Value
Kentucky				
Jefferson				
37 th & Southern	18.7	17.2	16.1	17.3
Barret	16.9	16.4	15.7	16.3
Beecher	17.7	17.5	15.5	16.9
Watson	16.3	15.7	15.2	15.7
Bullitt	15.6	14.7	14.4	14.9
Oldham				N/A
Indiana				
Clark	16.9	16.0	17.0	16.6
Floyd	15.8	14.6	15.5	15.3

*The monitoring information for 2003 is complete for Bullitt County, Kentucky. However, the 2003 monitoring data reported for Jefferson County, Kentucky, and the Indiana counties is the latest available and may not be complete through December 2003.

Table 1-B
Kentucky Portion of the Louisville, KY-IN MSA
Population Growth Data

County	1990	2000	%Growth 1990 - 2000	2010	%Growth 2000 - 2010
Bullitt	47,567	61,236	28.7%	77,928	27.3%
Jefferson	665,123	693,604	4.3%	717,376	3.4%
Oldham	33,263	46,178	38.8%	62,789	36.0%

Table 1-C
2002 Estimated Louisville, KY-IN MSA Population
Growth Data

Kentucky	Estimated Population	% of Total
Bullitt	63,800	6%
Jefferson	698,080	67%
Oldham	49,310	5%
Indiana		
Clark	98,198	10%
Floyd	71,633	7%
Harrison	35,244	3%
Scott	23,334	2%
Total Estimated Population	1,039,599	

Table 1-D
1999 NEI Louisville MSA
VOC and NO_x Emissions
(tons per year)

County	VOC			NO _x		
	Point	Mobile	Total	Point	Mobile	Total
Clark	1,375	2,289	3,664	214	3,786	4,000
Floyd	454	1,533	1,987	6,968	2,551	9,519
Harrison	83	979	1,062	21	1,991	2,012
Scott	184	723	907	4	1,272	1,276
Bullitt	2,510	1,668	4,178	89	3,029	3,118
Jefferson	18,887	14,981	33,868	38,127	21,436	59,563
Oldham	55	957	1,012	17	1,972	1,989
Total Emissions	23,548	23,130	46,678	45,440	36,037	81,477

Table 1-E
1999 NEI Louisville MSA
SO_x Emissions
(tons per year)

County	SO _x		Total
	Point	Mobile	
Clark	177	148	325
Floyd	49,929	100	50,029
Harrison	7	69	76
Scott	2	45	47
Bullitt	140	109	249
Jefferson	70,422	860	71,282
Oldham	11	69	80
Total Emissions	120,688	1,400	122,088

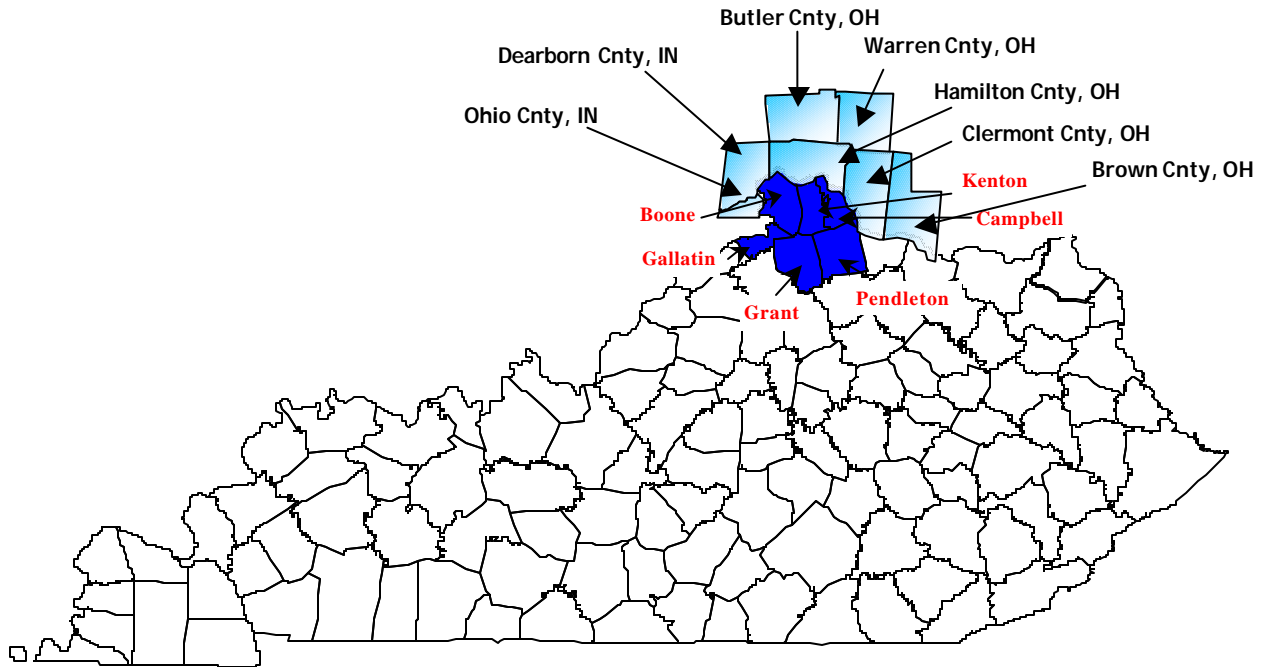
Table 1-F
1999 NEI Louisville MSA
NH₃ Emissions
(tons per year)

County	NH ₃			Total
	Area	Point	Mobile	
Clark	618	0	122	740
Floyd	237	1	82	320
Harrison	850	0	48	898
Scott	391	0	34	425
Bullitt	310	0	83	393
Jefferson	807	4	784	1,595
Oldham	345	0	49	394
Total Emissions	3,558	5	1,202	4,765

Table 1-G
1999 NEI Louisville MSA
PM_{2.5} Emissions
(tons per year)

County	PM _{2.5}			Total
	Area	Point	Mobile	
Clark	1,376	474	86	1,936
Floyd	1,036	224	59	1,319
Harrison	1,104	24	47	1,175
Scott	554	12	29	595
Bullitt	1,146	26	69	1,241
Jefferson	6,320	2,482	442	9,244
Oldham	831	30	47	908
Total Emissions	12,367	3,272	779	16,418

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



The Cincinnati-Hamilton Metropolitan Statistical Area (MSA) was listed in 2001 as being the 24th largest MSA within the United States. This MSA encompasses three states and thirteen counties. It includes Dearborn and Ohio Counties in Indiana, Butler, Brown, Clermont, Hamilton, and Warren Counties in Ohio, and Boone, 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 is 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 less than two hours driving from each other.

BOONE COUNTY, KENTUCKY

Boone County is part of the Cincinnati-Hamilton, 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

Due to the close proximity of Cincinnati, Ohio, meteorological data from Cincinnati was used for this Kentucky area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Boone County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 86°F, the mean low was 66°F. The mean precipitation for the same period was 3.8 inches.

Planning

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

Air Monitoring

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Boone County. However, the Kenton County monitor to the east for 2001 - 2003 shows an average annual design value of 14.9 micrograms per cubic meter, which achieves the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS - 15 micrograms per cubic meter) and is classified as a county in attainment. In addition for the 2001 - 2003 monitoring period, the PM_{2.5} monitor in Campbell County, shows an average annual design value of 13.9 micrograms per cubic meter, which is also in attainment of the annual standard. However, because the Ohio monitors in Hamilton and Butler Counties across the Ohio River show exceedances of the annual PM_{2.5} standard, information for Boone County is being presented in this document. The monitoring information for 2003 is complete for the Kentucky counties. However, the 2003 monitoring data reported for the Ohio counties is the latest available and is not complete through December 2003. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 93,290 persons living in Boone County. (See table 1-C) That represents approximately 379 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 Burlington.

Boone County's population from 1990 through 2000 increased by approximately 49.3% (57,589 to 85,991). The population is further expected to increase by an additional 46.6% between 2000 and 2010. (See table 1-B)

For the entire Cincinnati-Hamilton, OH-KY-IN MSA, Boone County represents approximately 4.6% of the total population in the MSA and 24.5% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Sources

Point source VOC emissions from Boone County were estimated at 877 tons per year in 1999, which represents approximately 49% of the total 1,752 tpy of overall VOC point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. Point source NO_x emissions from Boone County were estimated at 10,248 tons per year in 1999, which represents approximately 84% of the total 12,289 tpy of the NO_x point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-D)

Point source SO_x emissions from Boone County were estimated at 18,147 tons per year in 1999, which represents approximately 98% of the total 18,635 tpy overall SO_x point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-E)

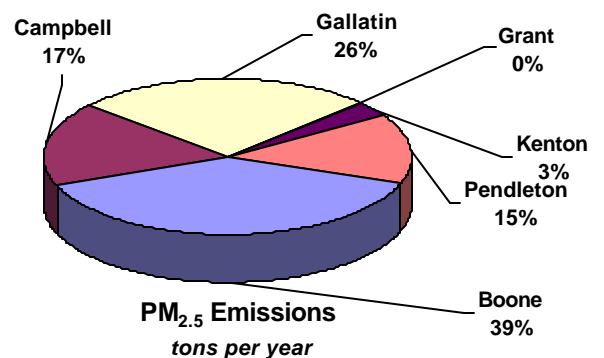
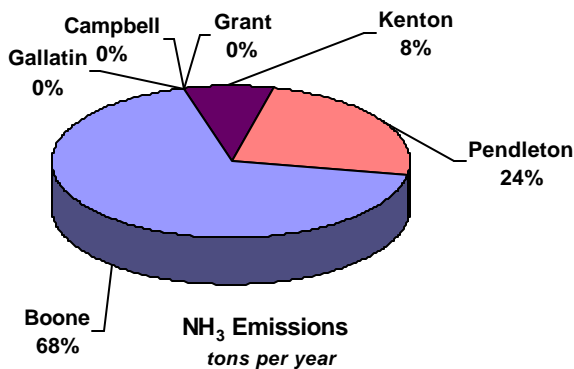
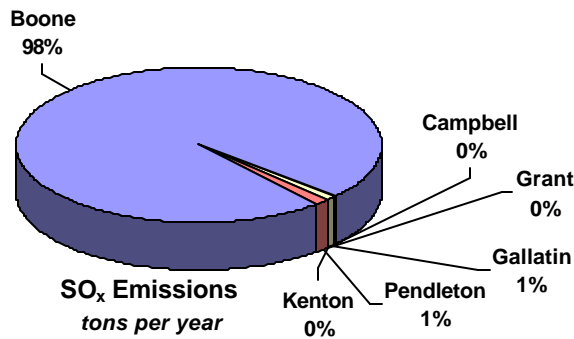
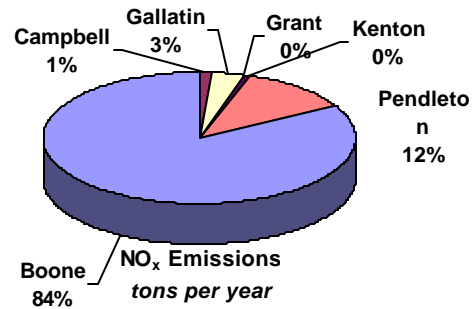
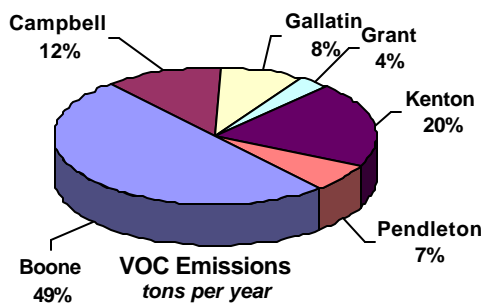
Point source NH₃ emissions from Boone County were estimated at 17 tons per year in 1999, which represents 68% of the total 25 tpy overall NH₃ point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1F)

Point source PM_{2.5} emissions from Boone County were estimated at 196 tons per year in 1999, which represents approximately 39% of the total 510 tpy overall

PM_{2.5} point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

A comparison across the entire Ohio, Kentucky, Indiana MSA was performed using the federal 1999 National Emission Inventory data. Tables 1-D through 1-G and Figures 1-E through 1-K provide a comparison of Boone County's emissions to the entire region.

1999 NEI Cincinnati-Hamilton, OH-KY-IN Northern Kentucky Point Source Emissions (tons per year)



Point sources located within Boone County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS). Any controls imposed as a result of previous nonattainment designations are required to remain in Boone County.

Onroad Mobile

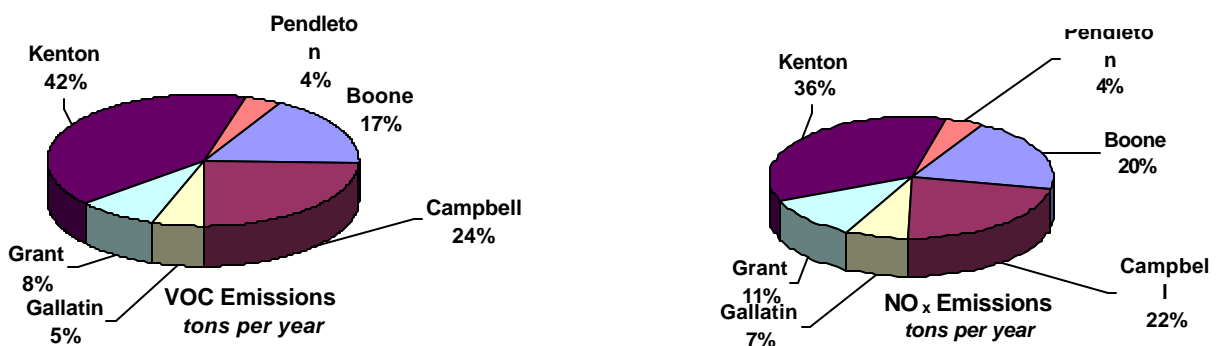
Onroad mobile source VOC emissions from Boone County were estimated at 1,478 tons per year in 1999, which represents approximately 17% of the total 8,505 tpy of overall VOC onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. Onroad mobile source NO_x emissions from Boone County were estimated at 2,868 tons per year in 1999, which represents approximately 20% of the total 14,441 tons per year of overall NO_x onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Boone County were estimated at 105 tons per year in 1999, which represents approximately 19% of the total 546 tpy of overall SO_x onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-E)

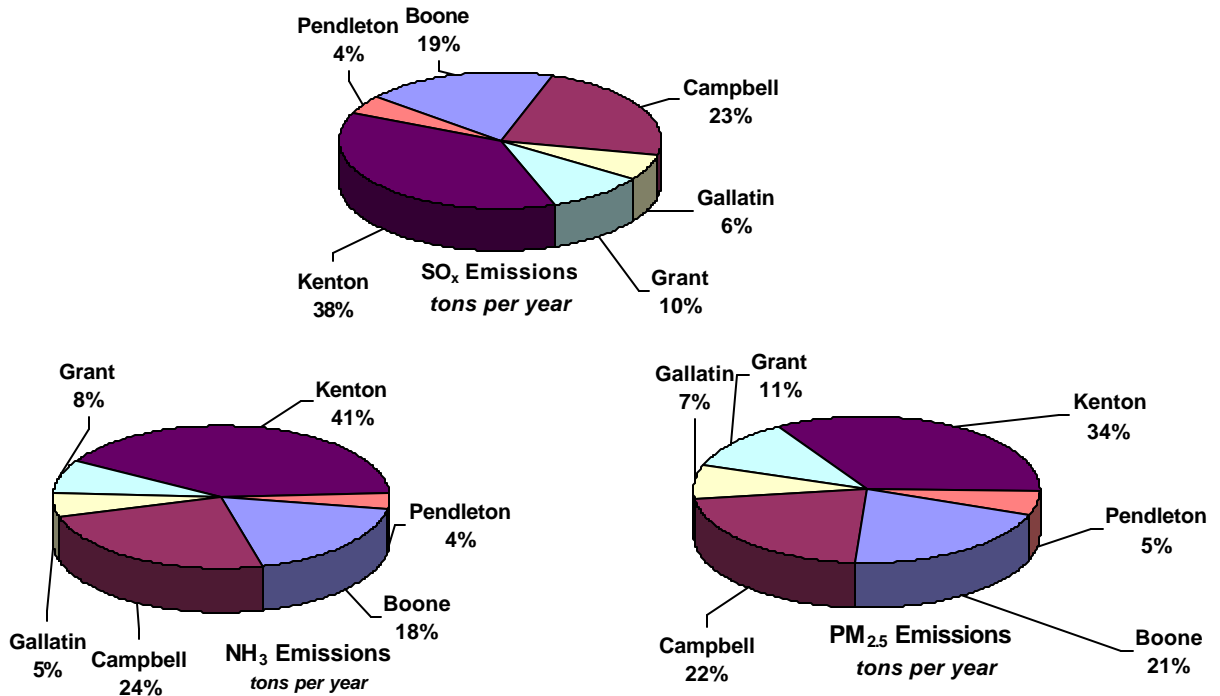
Onroad mobile source NH₃ emissions from Boone County were estimated at 84 tons per year in 1999, which represents approximately 18% of the total 457 tpy of overall NH₃ onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Boone County were estimated at 64 tons per year in 1999, which represents approximately 21% of the total 311 tpy of overall NH₃ onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

1999 NEI Northern Kentucky Onroad Mobile Source Emissions (tons per year)



1999 NEI Northern Kentucky Onroad Mobile Source Emissions (continued)



Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Boone County is 63.1% and classified as significant, and the commuting traffic from Boone County into other counties is high at 47%.

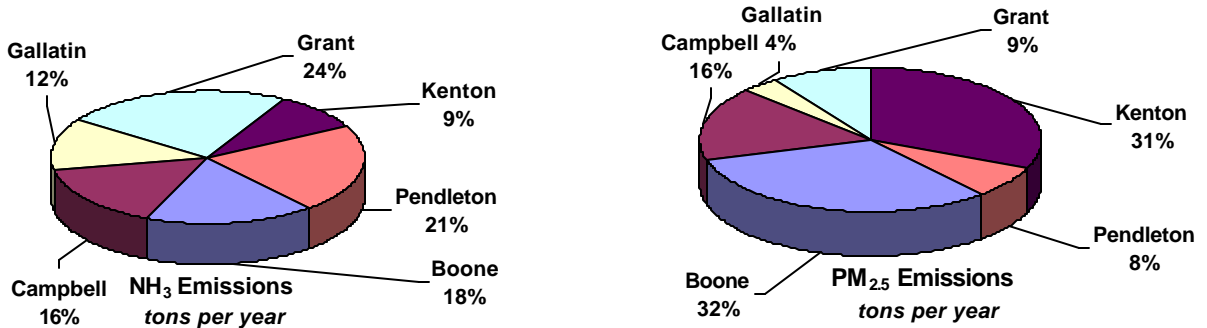
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

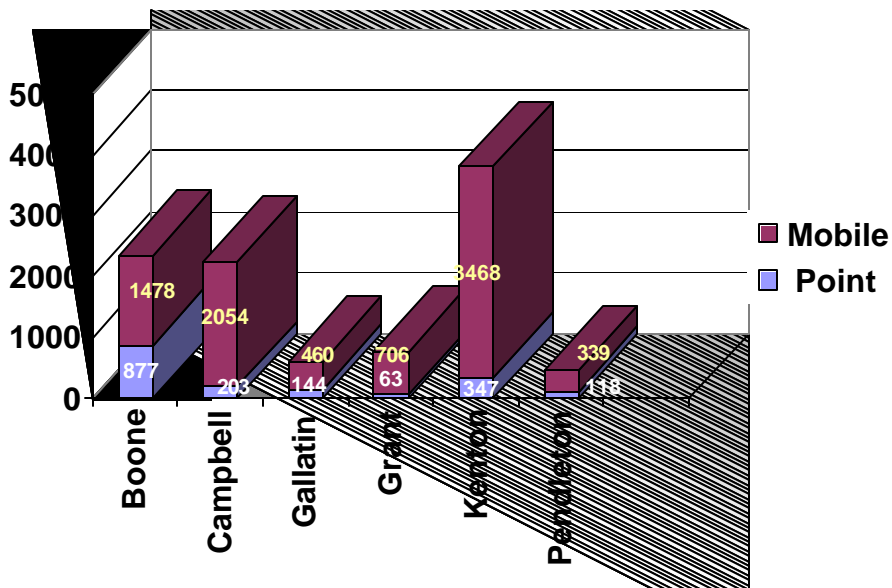
Area source NH₃ emissions from Boone County were estimated at 388 tons per year in 1999, which represents approximately 18% of the total 2,204 tpy of overall NH₃ area source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Area source PM_{2.5} emissions from Boone County were estimated at 1,542 tons per year in 1999, which represents approximately 32% of the total 4,873 tpy of overall PM_{2.5} area source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

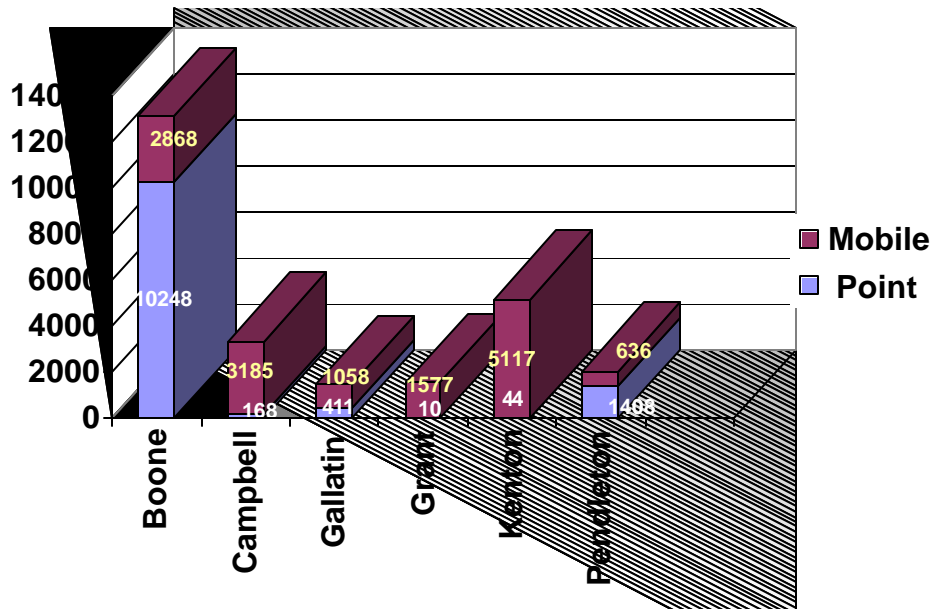
1999 NEI Northern Kentucky Area Source Emissions (tons per year)



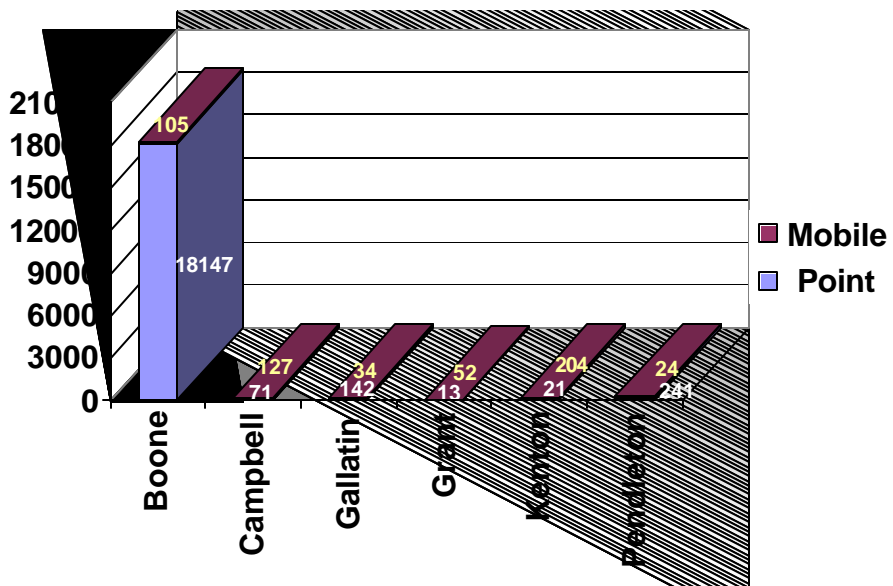
1999 NEI VOC Contribution (tons per year)



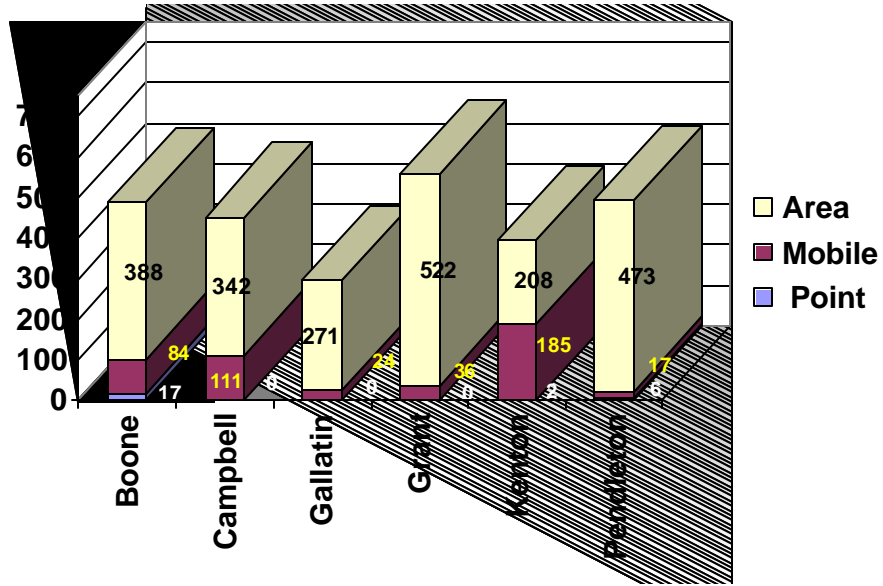
1999 NEI NO_x Contribution (tons per year)



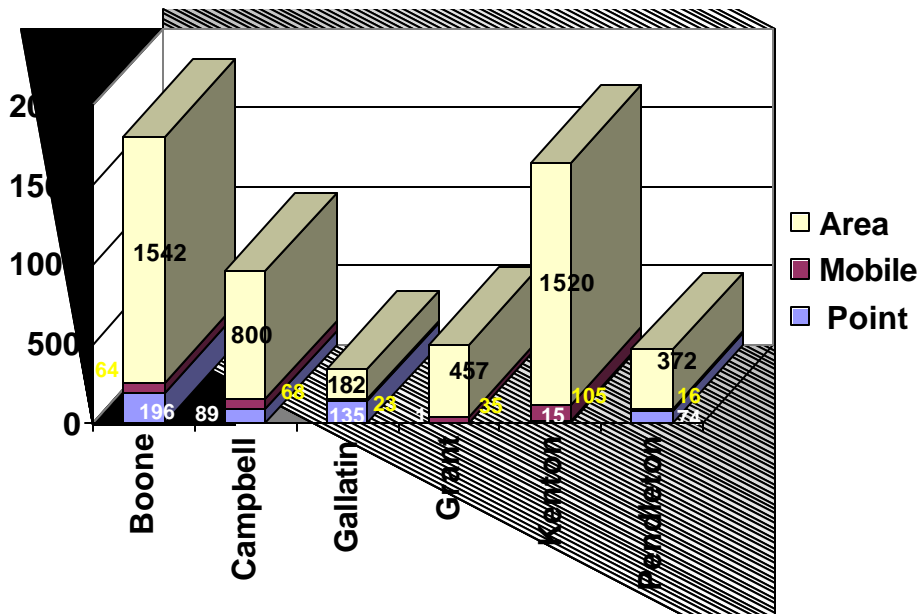
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Boone County. However, for the 2001 - 2003 monitoring period, the Kenton County PM_{2.5} monitor directly to the east shows an average annual design value of 14.9 micrograms per cubic meter, which achieves the National Ambient Air Quality Standard (NAAQS) and is classified as a county in attainment. As well, for the 2001 - 2003 monitoring period, the Campbell County PM_{2.5} monitor further to the east shows an average annual design value of 13.9 micrograms per cubic meter, which is also in attainment of the standard.

Additionally, the emissions from Boone do not significantly contribute to the PM_{2.5} violations in the MSA. While Boone County is a large contributor of both NO_x and VOC within the Kentucky portion of the MSA, combined with the remainder of the MSA, it contributes only 5% of total VOC emissions, 7% of the total NO_x emissions, 7% of the total SO_x emissions, 5% of the total NH₃ emissions and 6% of the total PM_{2.5} emissions (See Tables 1-D through 1-G). Additionally substantial NO_x reductions have occurred during the last year from East Bend Power Plant which would further lower the contribution of NO_x emissions from Boone County.

Therefore, based on the monitoring and emission data, Boone County is providing a negligible contribution to PM_{2.5} levels in the area and should be designated attainment for the PM_{2.5} standard.

CAMPBELL COUNTY, KENTUCKY

Campbell County is part of the Cincinnati-Hamilton, 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

Due to the close proximity of Cincinnati, Ohio, meteorological data from Cincinnati was used for this Kentucky area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Campbell County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 86°F, the mean low was 66°F. The mean precipitation for the same period was 3.8 inches.

Planning

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

Air Monitoring

For the 2001 - 2003 monitoring period, the PM_{2.5} monitor in Campbell County shows an average annual design value of 13.9 micrograms per cubic meter, which achieves the standard and is classified as a county in attainment of the PM_{2.5} annual National Ambient Air Quality Standards (NAAQS - 15 micrograms per cubic meter). The Kenton County monitor to the west shows an average annual design value of 14.9 micrograms per cubic meter, which also achieves the standard and is classified as a county in attainment. However, because the Ohio monitors in Hamilton and Butler Counties across the Ohio River show exceedances of the annual PM_{2.5} standard, information for Campbell County is being presented in this document. The monitoring information for 2003 is complete for the Kentucky counties. However, the 2003 monitoring data reported for the Ohio counties is the latest available and may not be complete through December 2003. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 88,604 persons living in Campbell County. (See table 1-C) That represents approximately 587 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 1990 through 2000 increased by approximately 5.7% (83,866 to 88,616). The population is further expected to increase by an additional 4.3% between 2000 and 2010. (See table 1-B)

For the entire Cincinnati-Hamilton, OH-KY-IN MSA, Campbell County represents approximately 4.4% of the total population in the MSA and 23.2% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Sources

Point source VOC emissions from Campbell County were estimated at 203 tons per year (tpy) in 1999, which represents approximately 12% of the total 1752 tpy of overall VOC point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. Point source NO_x emissions from Campbell County were estimated at 168 tons per year (tpy) in 1999, which represents approximately 1% of the total 12,289 tpy of overall NO_x point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-D)

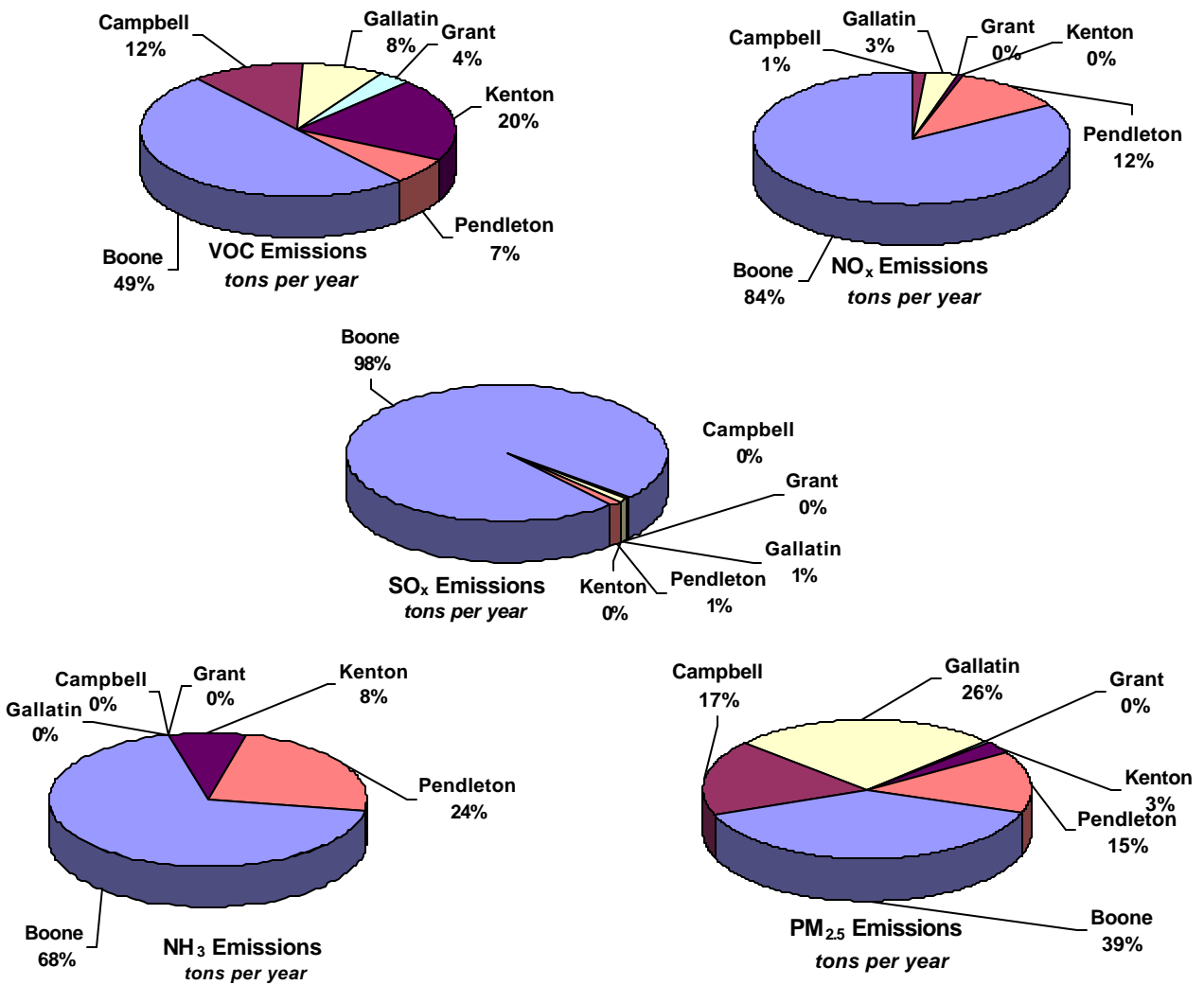
Point source SO_x emissions from Campbell County were estimated at 71 tons per year in 1999, which approximately 1% of the total 18,635 tpy overall SO_x point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-E)

Point source NH₃ emissions from Campbell County were estimated at 0 tons per year in 1999. (See table 1-F)

Point source PM_{2.5} emissions from Campbell County were estimated at 89 tons per year in 1999, which represents approximately 17% of the total 510 tpy overall PM_{2.5} point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

Point sources located within Campbell County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS). Any controls imposed as a result of previous nonattainment designations are required to remain in Campbell County.

1999 NEI Cincinnati-Hamilton, OH-KY-IN Point Source Emissions (tons per year)



Onroad Mobile

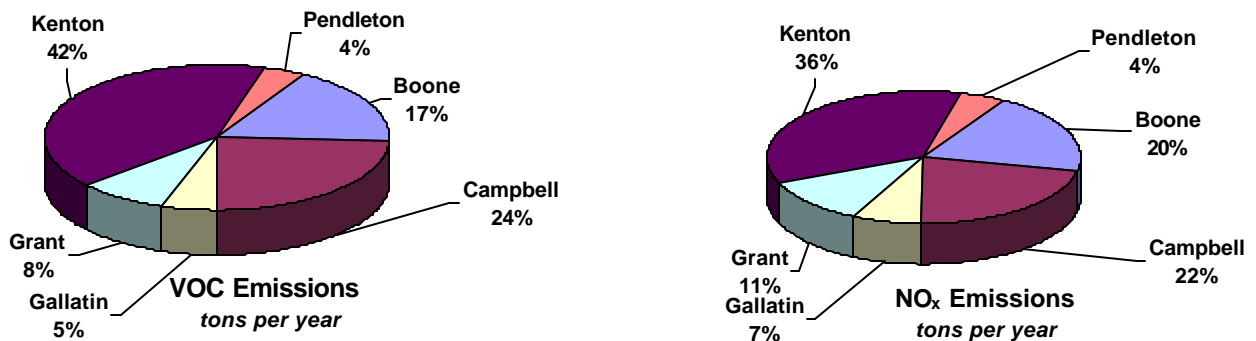
Onroad mobile source VOC emissions from Campbell County were estimated at 2,054 tons per year in 1999, which represents approximately 24% of the total 8,505 tpy of overall VOC onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. Onroad mobile source NO_x emissions from Campbell County were estimated at 3185 tons per year in 1999, which represents approximately 22% of the total 14,441 tons per year of overall NO_x onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Campbell County were estimated at 127 tons per year in 1999, which represents approximately 23% of the total 546 tpy of overall SO_x onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-E)

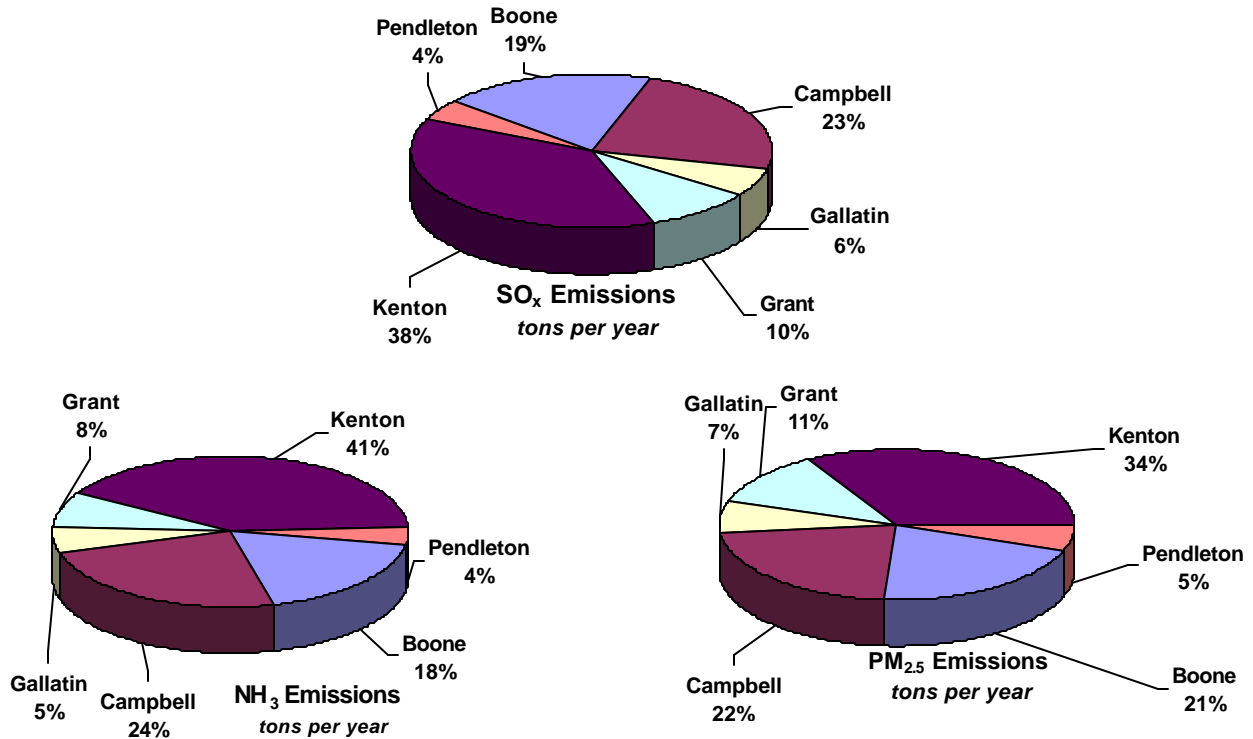
Onroad mobile source NH₃ emissions from Campbell County were estimated at 111 tons per year in 1999, which represents approximately 24% of the total 457 tpy of overall NH₃ onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Campbell County were estimated at 68 tons per year (tpy) in 1999, which represents approximately 22% of the total 311 tpy of overall NH₃ onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

1999 Northern Kentucky Onroad Mobile Source Emissions (tons per year)



1999 Northern Kentucky Onroad Mobile Source Emissions (continued)



Based on information obtained from the Kentucky Transportation Cabinet, 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%.

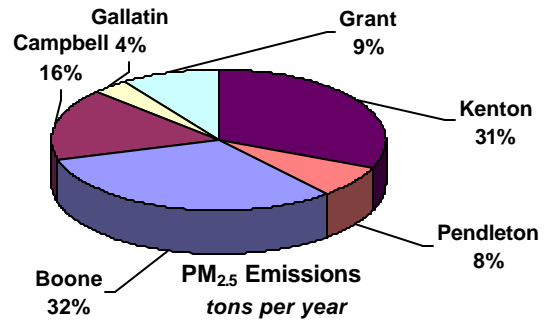
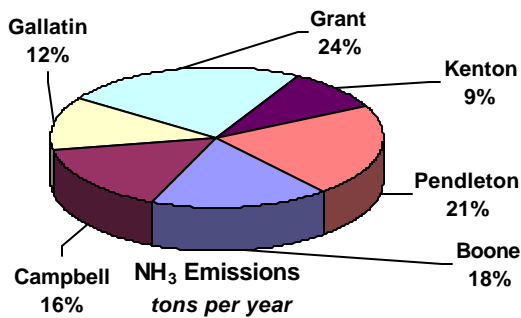
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

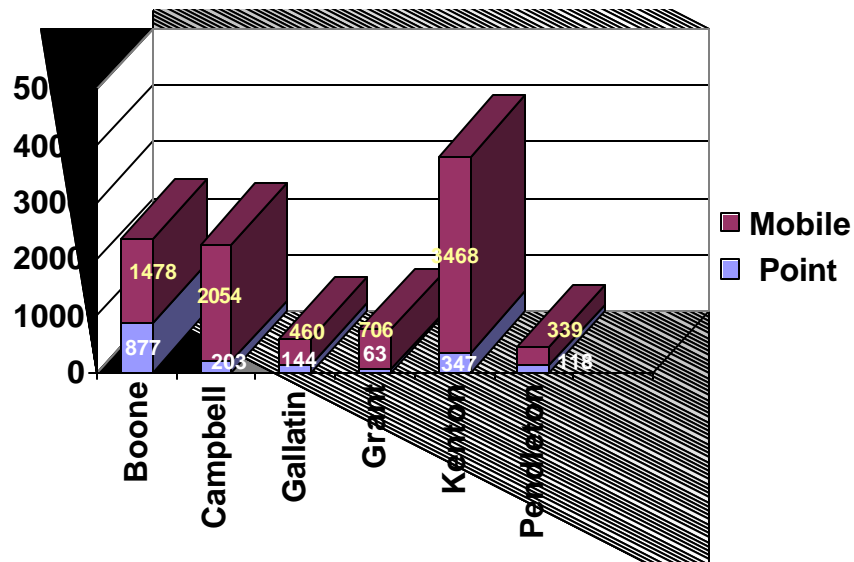
Area source NH₃ emissions from Campbell County were estimated at 342 tons per year in 1999, which represents approximately 16% of the total 2,204 tpy of overall NH₃ area source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Area source PM_{2.5} emissions from Campbell County were estimated at 800 tons per year in 1999, which represents approximately 16% of the total 4,873 tpy of overall PM_{2.5} area source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

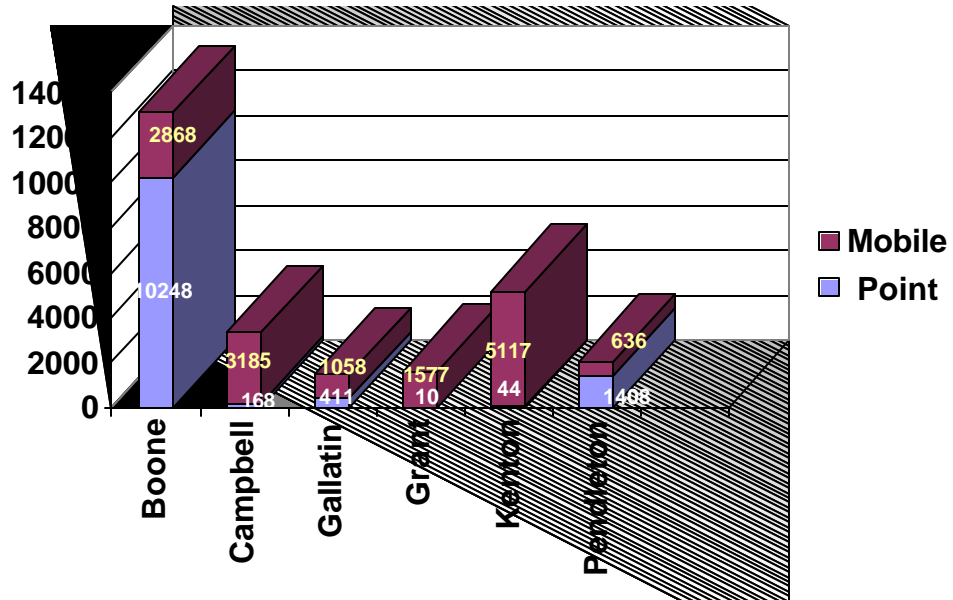
1999 NEI Northern Kentucky Area Source Emissions (tons per year)



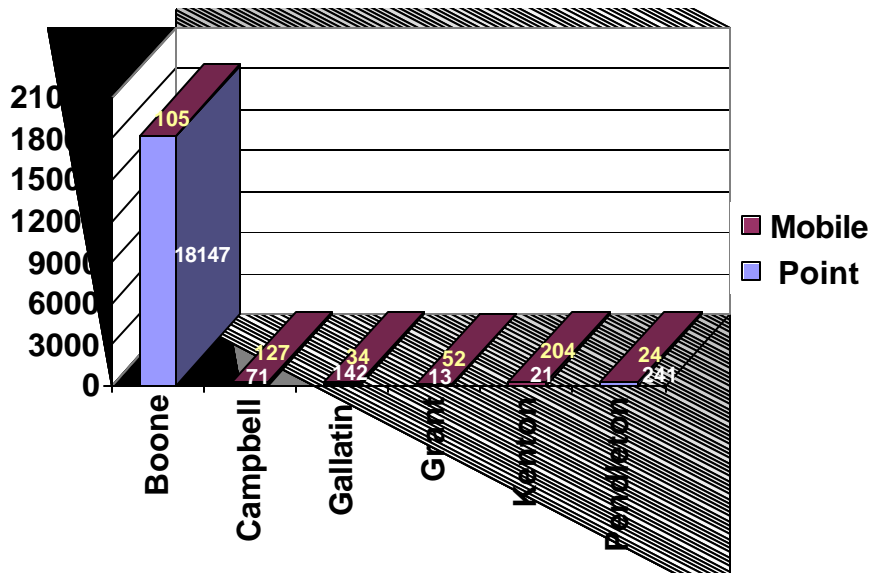
1999 NEI VOC Contribution (tons per year)



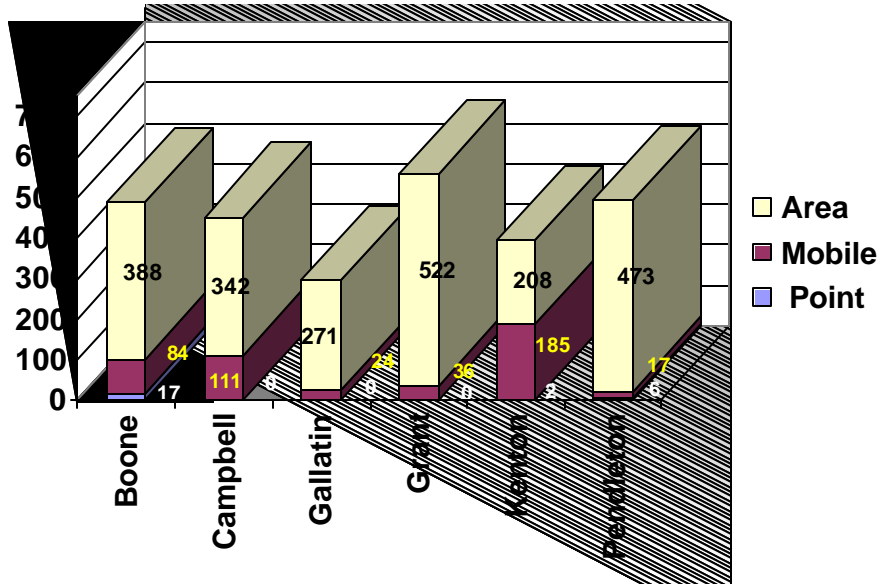
1999 NEI NO_x Contribution (tons per year)



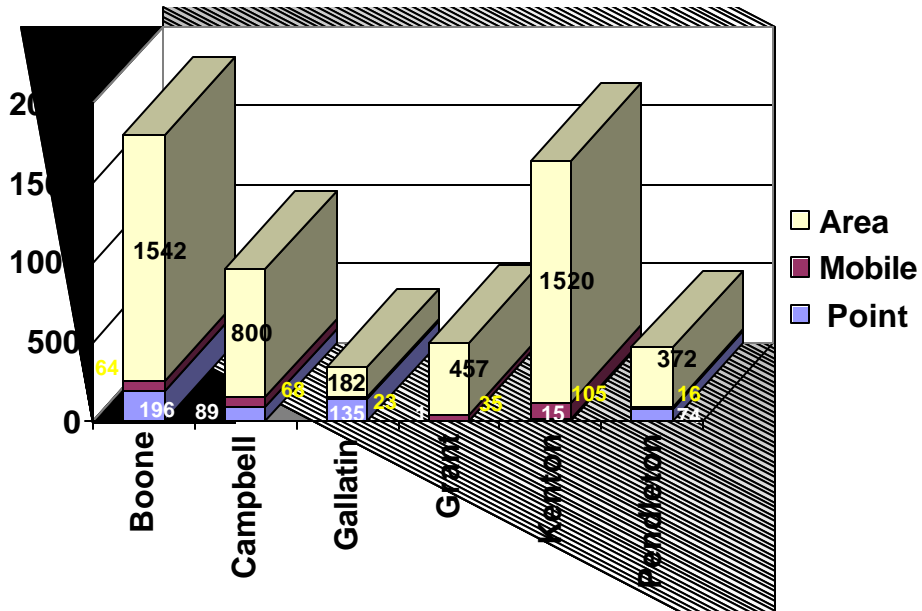
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

For the 2001 - 2003 monitoring period, the Campbell County PM_{2.5} monitor shows an average annual design value of 13.9 micrograms per cubic meter, which achieves the National Ambient Air Quality Standard (NAAQS) and should be classified as a county in attainment. As well, for the 2001 - 2003 monitoring period, the Kenton County PM_{2.5} monitor directly to the west shows an average annual design value of 14.9 micrograms per cubic meter, which is also in attainment of the standard.

Additionally, the emissions from Campbell County compared to the remainder of the MSA are negligible and do not significantly contribute to the PM_{2.5} violations in the MSA. Campbell County contributes approximately 5% of the total VOC emissions, 2% of the total NO_x emissions, less than 1% of the total SO_x emissions, 5% of the total NH₃ emissions and 3% of the total PM_{2.5} emissions in the MSA.

Therefore, based on the monitoring and emissions, data Campbell County should be designated attainment for the PM_{2.5} standard.

KENTON COUNTY, KENTUCKY

Kenton County is part of the Cincinnati-Hamilton, 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

Due to the close proximity of Cincinnati, Ohio, meteorological data from Cincinnati was used for this Kentucky area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Kenton County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 86°F, the mean low was 66°F. The mean precipitation for the same period was 3.8 inches.

Planning

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

Air Monitoring

For the 2001 - 2003 monitoring period, the PM_{2.5} monitor in Kenton County shows an annual average design value of 14.9 micrograms per cubic meter, which achieves the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS - 15 micrograms per cubic meter) and is classified as a county in attainment. In addition, the Campbell County monitor shows an average annual design value of 13.9 micrograms per cubic meter, which also achieves the standard and is classified as a county in attainment of the annual standard. However, because the Ohio monitors in Hamilton and Butler Counties across the Ohio River show exceedances of the annual PM_{2.5} standard, information for Kenton County is being presented in this document. The monitoring information for 2003 is complete for the Kentucky counties. However, the 2003 monitoring data reported for the Ohio counties is the latest available and may not be complete through December 2003.

Population

Based on projections to 2002 from the 2000 census data, there are 152,164 persons living in Kenton County. (See table 1-C) That represents approximately 939 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 Erlanger.

Kenton County's population from 1990 through 2000 increased by approximately 6.6% (142,031 to 151,464). The population is further expected to increase by an additional 5.5% between 2000 and 2010. (See table 1-B)

For the entire Cincinnati-Hamilton MSA, Kenton County represents approximately 7.5% of the total population in the MSA and 40% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Source

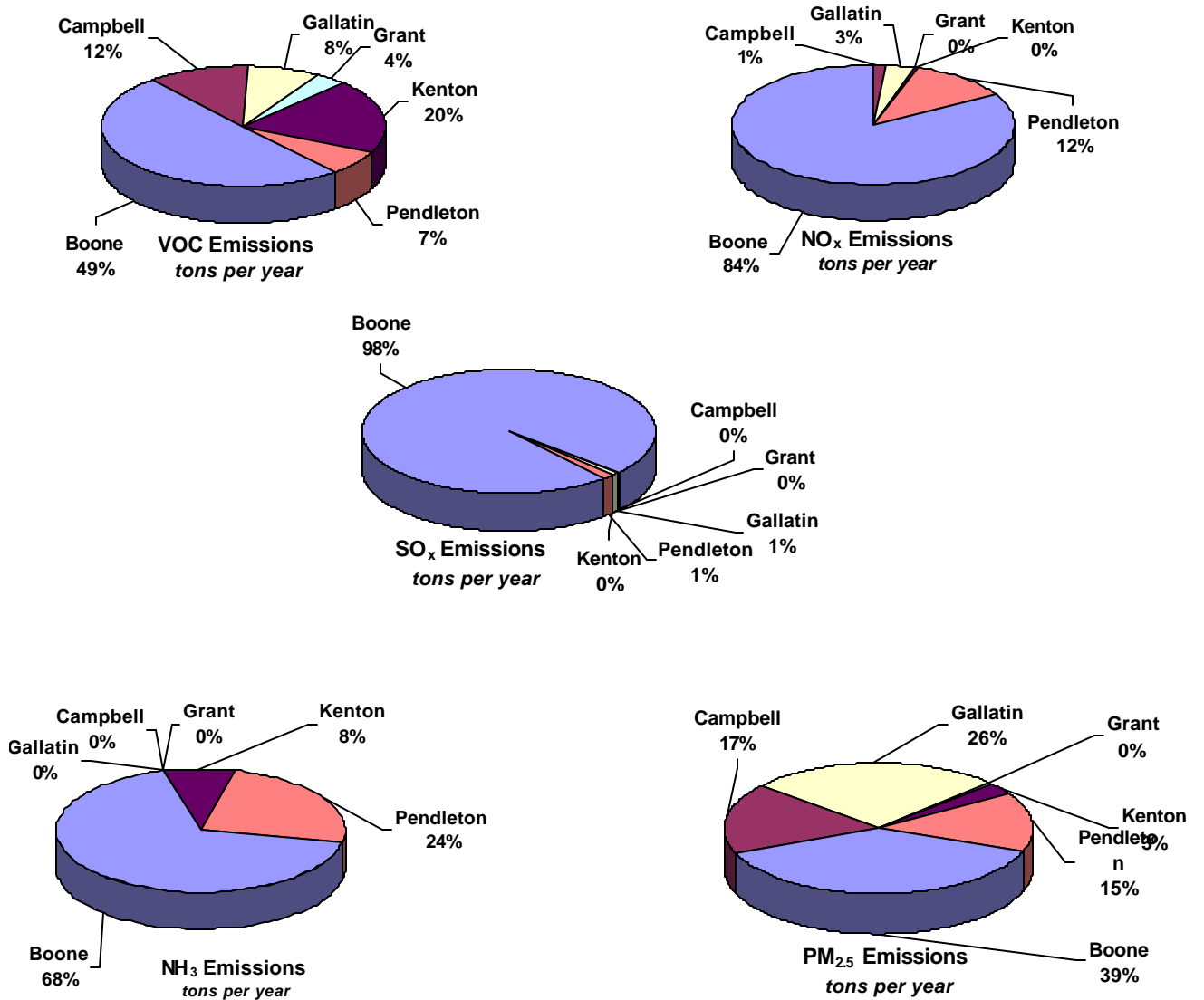
Point source VOC emissions from Kenton County were estimated at 347 tons per year in 1999, which represents approximately 20% of the total 1,752 tpy of overall VOC point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. Point source NO_x emissions from Kenton County were estimated at 44 tons per year in 1999, which is less than 1% of the total 12,289 tpy of the NO_x point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-D)

Point source SO_x emissions from Kenton County were estimated at 21 tons per year in 1999, which represents approximately 0.5% of the total 18,635 tpy overall SO_x point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-E)

Point source NH₃ emissions from Kenton County were estimated at 2 tons per year in 1999, which represents 8% of the total 25 tpy overall NH₃ point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Point source PM_{2.5} emissions from Kenton County were estimated at 15 tons per year in 1999, which represents approximately 3% of the total 510 tpy overall PM_{2.5} point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

1999 NEI Northern Kentucky Point Source Emissions (tons per year)



Point sources located within Kenton County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS). Any controls imposed as a result of previous nonattainment designations are required to remain in Kenton County.

Onroad Mobile

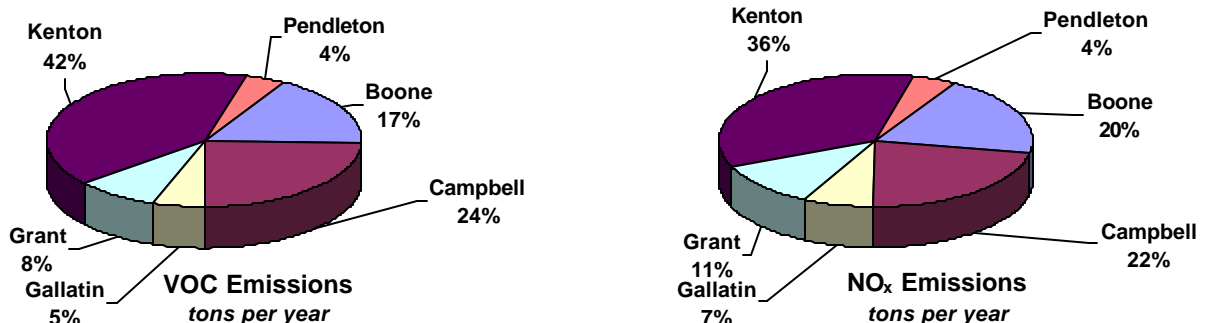
Onroad mobile source VOC emissions from Kenton County were estimated at 3,468 tons per year in 1999, which represents approximately 42% of the total 8,505 tpy of overall VOC onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. Onroad mobile source NO_x emissions from Kenton County were estimated at 5,117 tons per year in 1999, which represents approximately 36% of the total 14,441 tons per year of overall NO_x onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Kenton County were estimated at 204 tons per year in 1999, which represents approximately 38% of the total 546 tpy of overall SO_x onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-E)

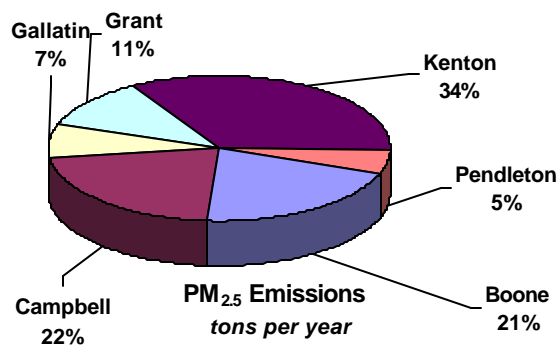
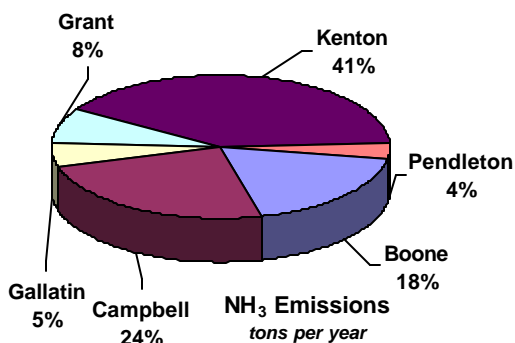
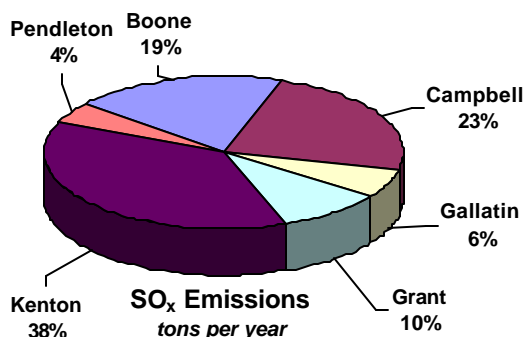
Onroad mobile source NH₃ emissions from Kenton County were estimated at 185 tons per year in 1999, which represents approximately 41% of the total 457 tpy of overall NH₃ onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Kenton County were estimated at 105 tons per year in 1999, which represents approximately 34% of the total 311 tpy of overall NH₃ onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

1999 NEI Northern Kentucky Onroad Mobile Source Emissions (tons per year)



1999 NEI Northern Kentucky Onroad Mobile Source Emissions (continued)



Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Kenton County is 48.5% and classified as high, and the commuting traffic from Kenton County into other counties is significant at 59.6%.

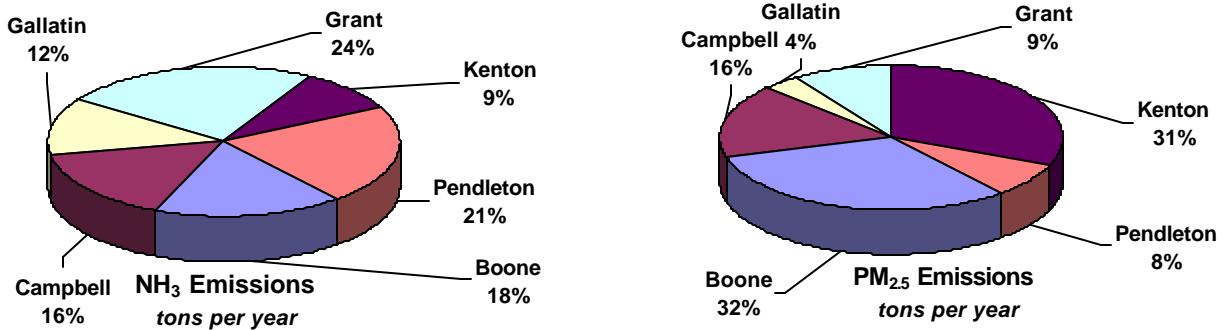
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

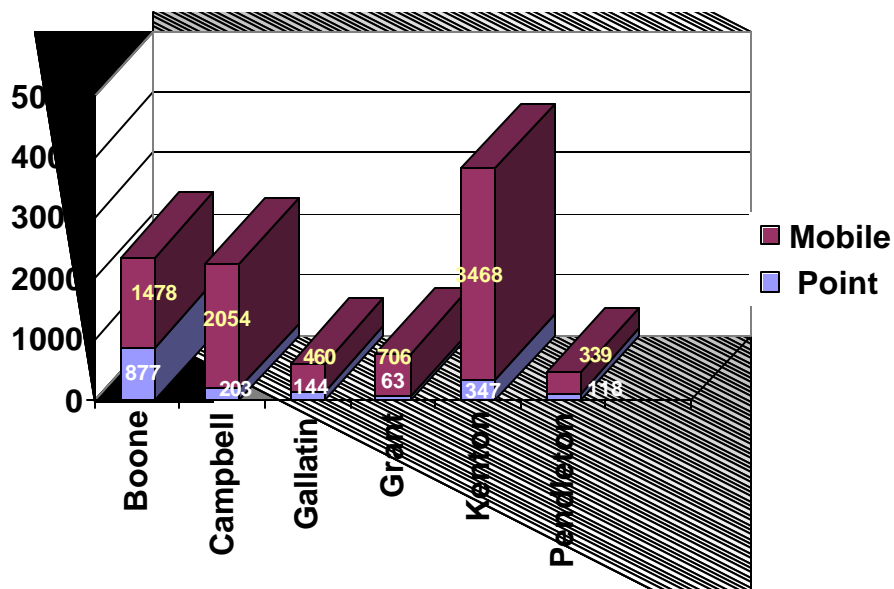
Area source NH₃ emissions from Kenton County were estimated at 208 tons per year in 1999, which represents approximately 9% of the total 2,204 tpy of overall NH₃ area source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Area source PM_{2.5} emissions from Kenton County were estimated at 1,520 tons per year in 1999, which represents approximately 31% of the total 4,873 tpy of overall PM_{2.5} area source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

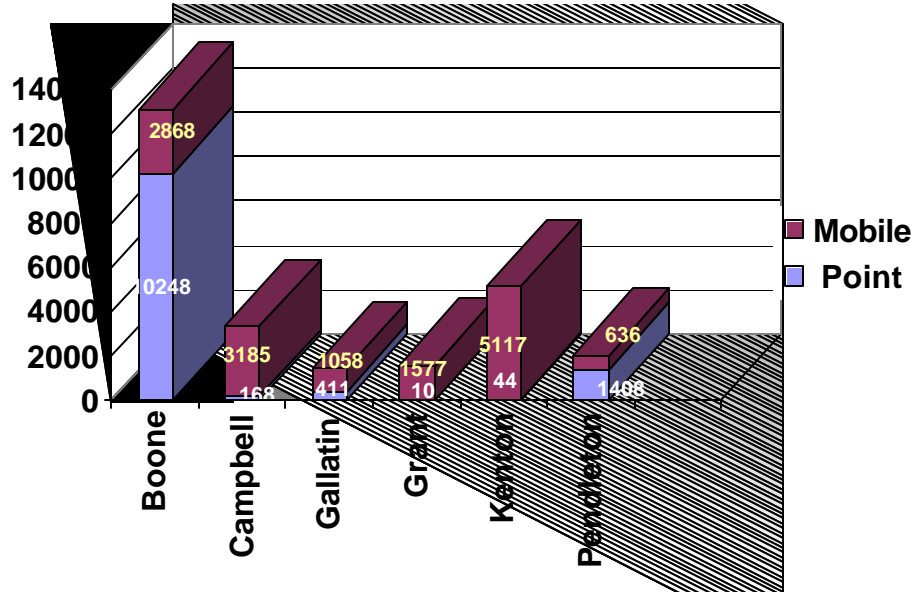
1999 NEI Cincinnati-Hamilton MSA Area Source Emissions (tons per year)



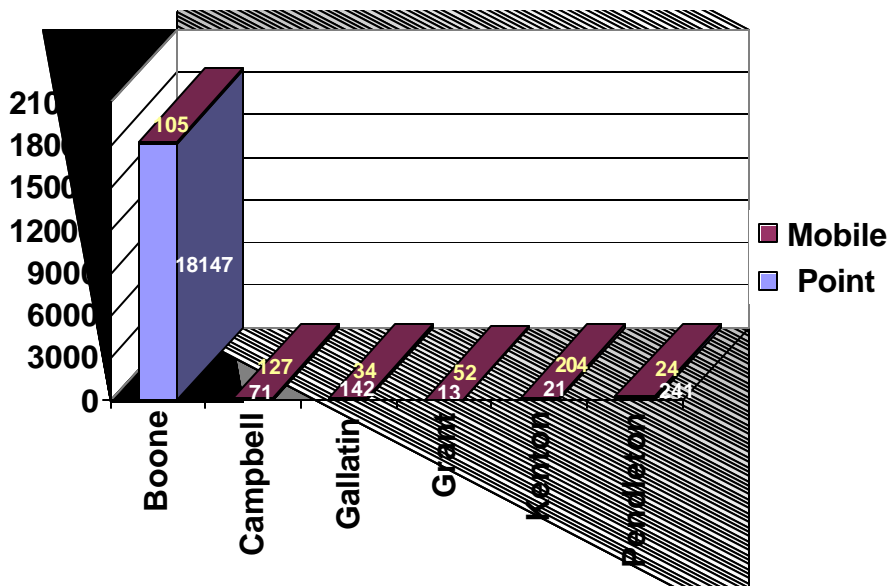
1999 NEI VOC Contribution (tons per year)



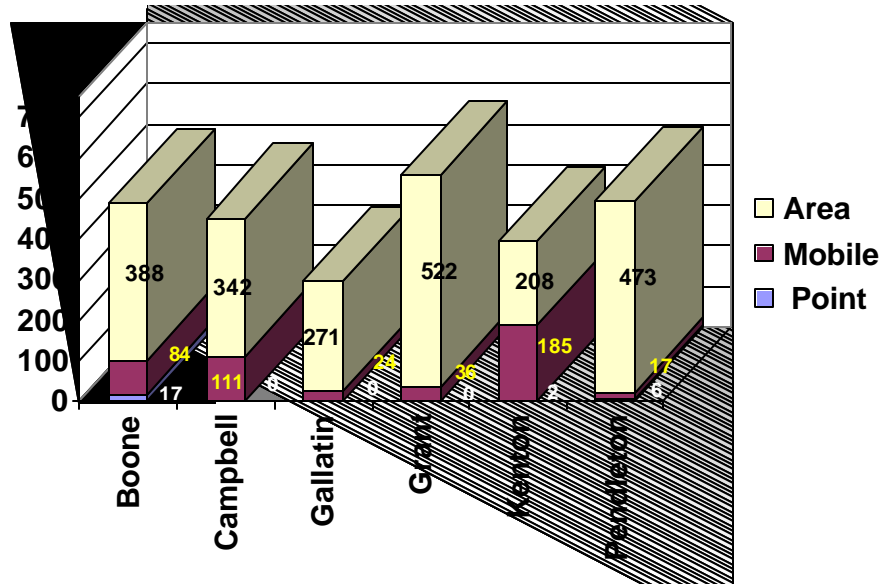
1999 NEI NO_x Contribution (tons per year)



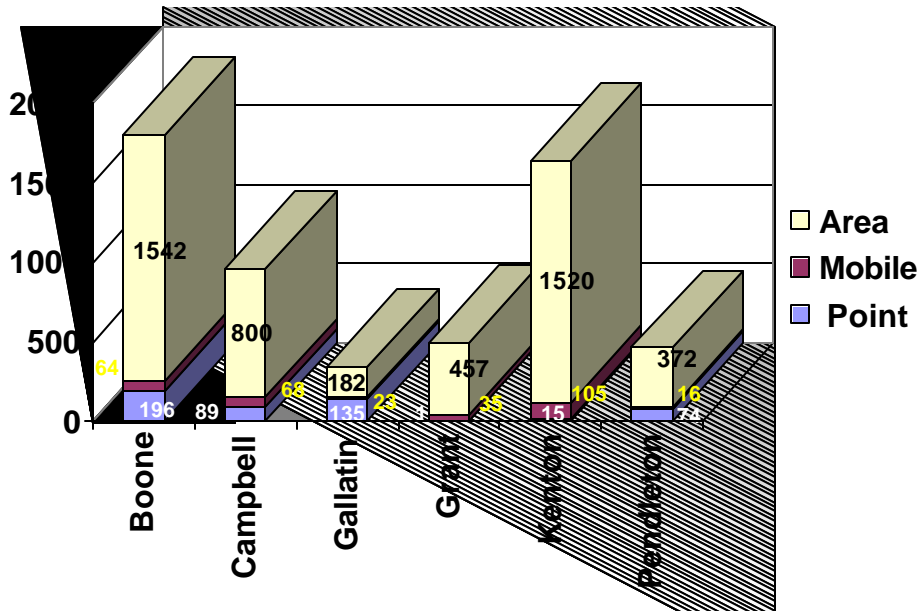
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

For the 2001 - 2003 monitoring period, the Kenton County PM_{2.5} monitor shows an average annual design value of 14.9 micrograms per cubic meter, which achieves the National Ambient Air Quality Standard (NAAQS) and should be classified as a county in attainment. As well, for the 2001 - 2003 monitoring period, the Campbell County PM_{2.5} monitor directly to the east shows an average annual design value of 13.9 micrograms per cubic meter, which is also in attainment of the standard.

Additionally, the emissions from Kenton County compared to the remainder of the MSA are negligible and do not significantly contribute to the PM_{2.5} violations in the MSA. Kenton County contributes approximately 9% of the total VOC emissions, 3% of the total NO_x emissions, less than 0.5% of the total SO_x emissions, 4% of the total NH₃ emissions and 5% of the total PM_{2.5} emissions in the entire MSA.

Therefore, based on the monitoring and emissions data, Kenton County should be designated attainment for the PM_{2.5} standard.

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

Due to the close proximity of Cincinnati, Ohio, meteorological data from Cincinnati was used for this Kentucky area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Gallatin County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 86°F, the mean low was 66°F. The mean precipitation for the same period was 3.8 inches.

Planning

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

Air Monitoring

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Gallatin County. However, the Kenton County monitor to the east northeast shows an average annual design value of 14.9 micrograms per cubic meter, which achieves the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS - 15 micrograms per cubic meter) and is classified as a county in attainment. In addition, the Campbell County monitor further to the east shows an average annual design value of 13.9 micrograms per cubic meter, which also achieves the standard and is classified as attainment. However, because the Ohio monitors in Hamilton and Butler Counties across the Ohio River have probable PM_{2.5} design values that exceed the annual PM_{2.5} standard, information for Gallatin County is being presented in this document. The monitoring information for 2003 is complete for the Kentucky counties. However, the

2003 monitoring data reported for the Ohio counties is the latest available and may not be complete through December. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 7,836 persons living in Gallatin County. (See table 1-C) That represents approximately 80 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 1990 through 2000 increased by approximately 46% (5,393 to 7,870). The population is further expected to increase by an additional 48% between 2000 and 2010. (See table 1-B)

For the entire Cincinnati-Middletown, OH-KY-IN MSA, Gallatin County represents less than 0.5% of the total population in the MSA and 2% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Sources

Point source VOC emissions from Gallatin County were estimated at 144 tons per year in 1999, which represents approximately 8% of the total 1,752 tpy of overall VOC point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. Point source NO_x emissions from Gallatin County were estimated at 411 tons per year in 1999, which represents approximately 3% of the total 12,289 tpy of the NO_x point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-D)

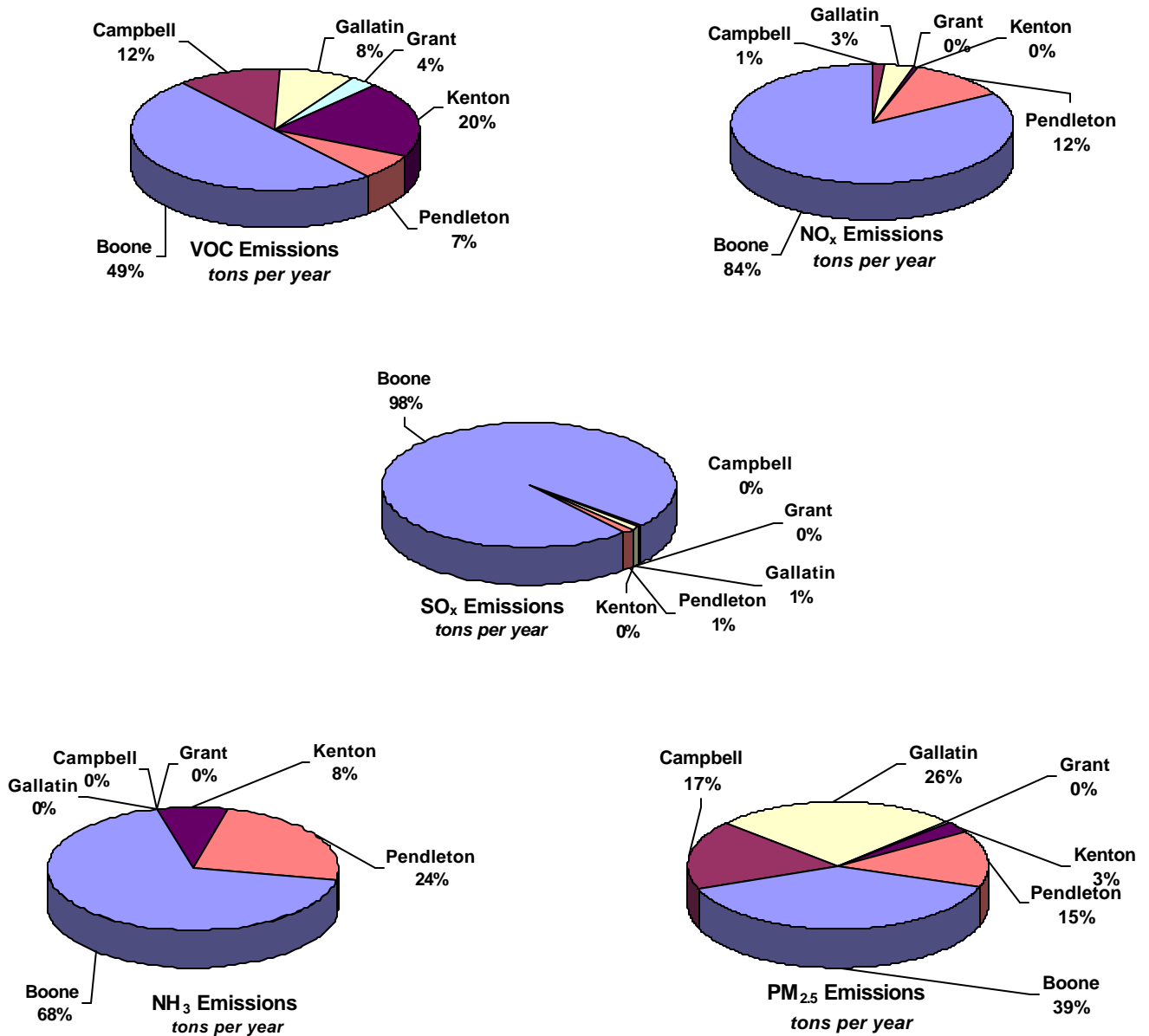
Point source SO_x emissions from Gallatin County were estimated at 142 tons per year in 1999, which represents less than 1% of the total 18,635 tpy overall SO_x point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-E)

Point source NH₃ emissions from Gallatin County were estimated at 0 tons per year in 1999. (See table 1-F)

Point source PM_{2.5} emissions from Gallatin County were estimated at 135 tons per year in 1999, which represents approximately 26% of the total 510 tpy

overall PM_{2.5} point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

1999 NEI Northern Kentucky Point Source Emissions (tons per year)



Point sources located within Gallatin County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source

Performance Standards (NSPS). Any controls imposed as a result of previous nonattainment designations are required to remain in Gallatin County.

Onroad Mobile

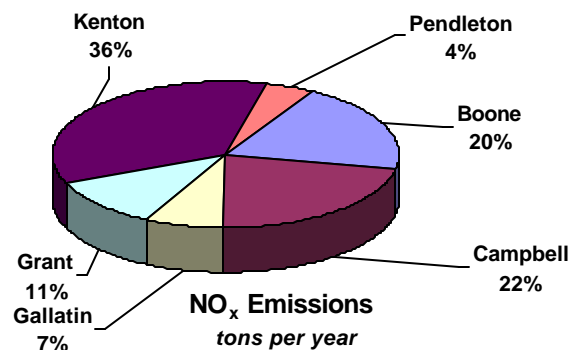
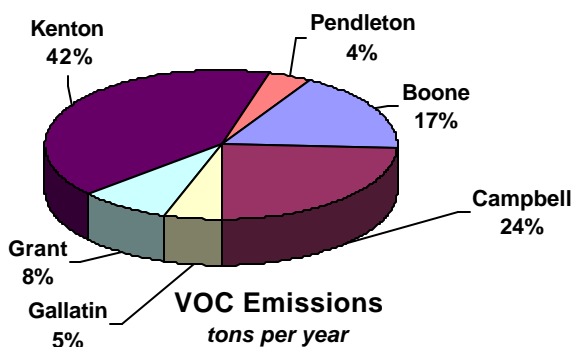
Onroad mobile source VOC emissions from Gallatin County were estimated at 460 tons per year in 1999, which represents approximately 5% of the total 8,505 tpy of overall VOC onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. Onroad mobile source NO_x emissions from Gallatin County were estimated at 1,058 tons per year in 1999, which represents approximately 7% of the total 14,441 tons per year of overall NO_x onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Gallatin County were estimated at 34 tons per year in 1999, which represents approximately 6% of the total 546 tpy of overall SO_x onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-E)

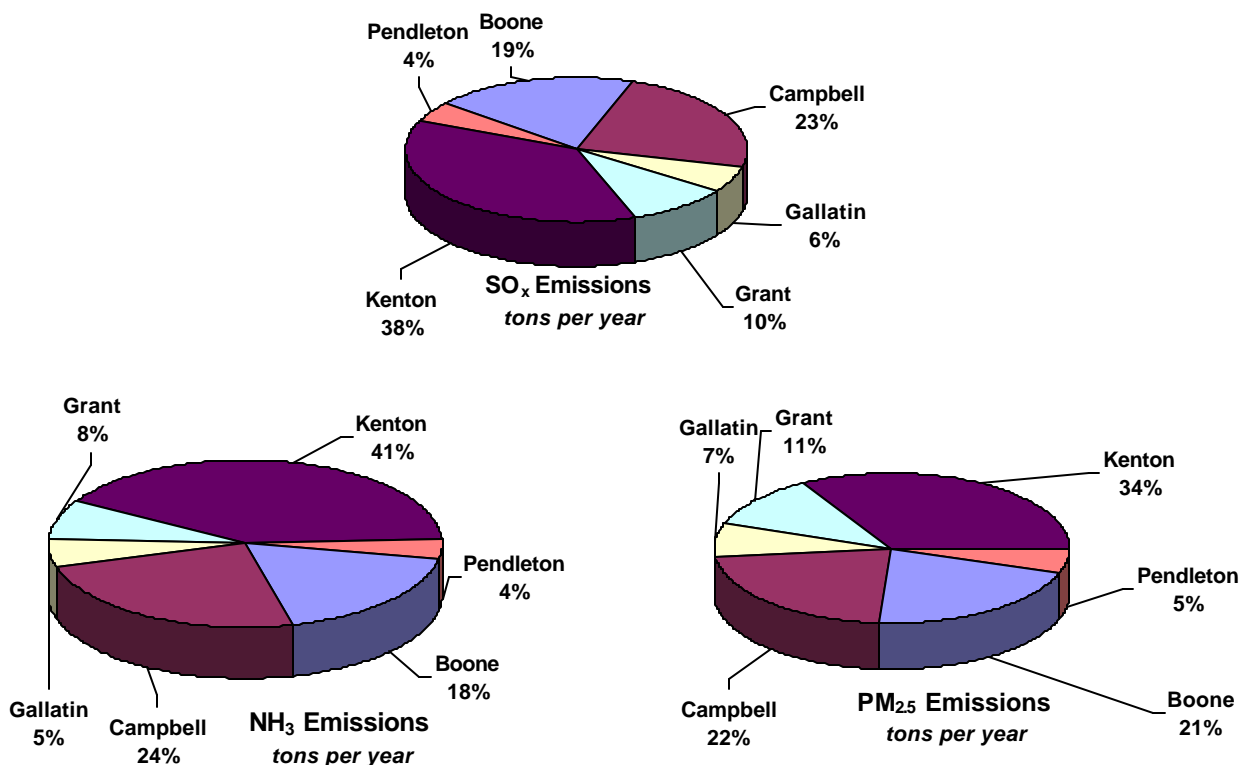
Onroad mobile source NH₃ emissions from Gallatin County were estimated at 24 tons per year in 1999, which represents approximately 5% of the total 457 tpy of overall NH₃ onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Gallatin County were estimated at 23 tons per year in 1999, which represents approximately 7% of the total 311 tpy of overall NH₃ onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

1999 NEI Northern Kentucky Onroad Mobile Source Emissions (tons per year)



1999 NEI Northern Kentucky Onroad Mobile Source Emissions (continued)



Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Gallatin County is 46% and classified as high, and the commuting traffic from Gallatin County into other counties is significant at 63%.

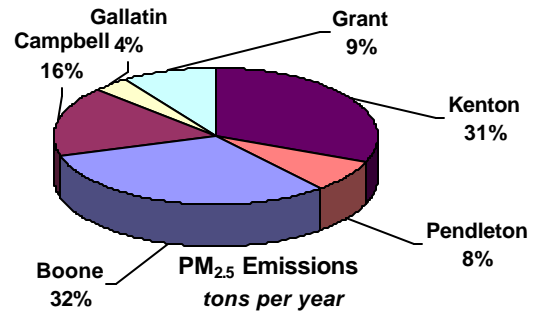
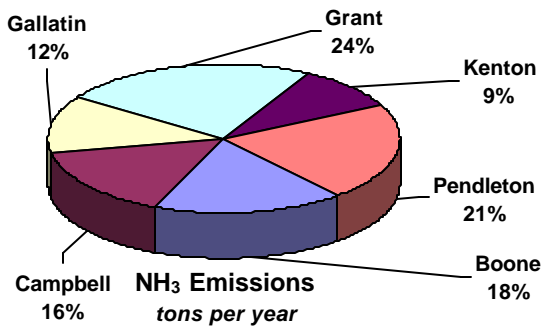
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

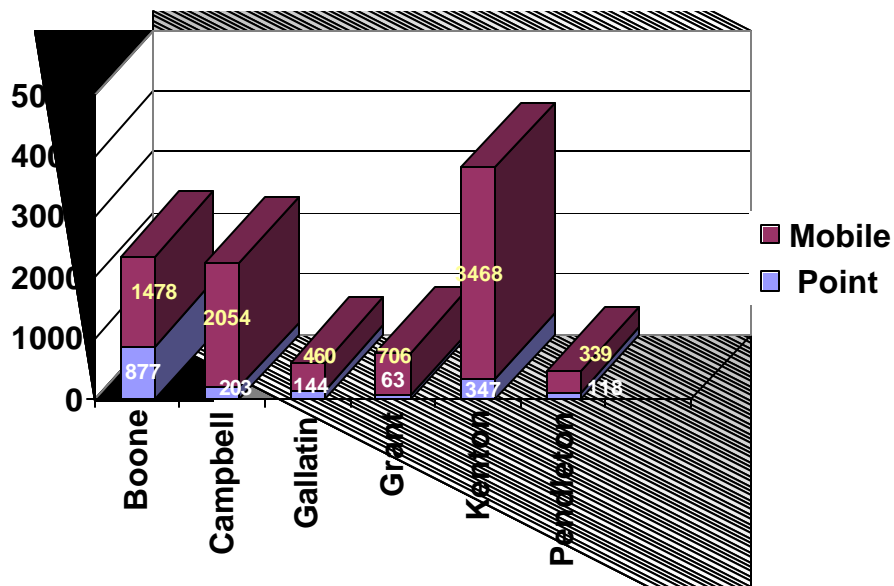
Area source NH₃ emissions from Gallatin County were estimated at 271 tons per year in 1999, which represents approximately 12% of the total 2,204 tpy of overall NH₃ area source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Area source PM_{2.5} emissions from Gallatin County were estimated at 182 tons per year in 1999, which represents approximately 4% of the total 4,873 tpy of overall PM_{2.5} area source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

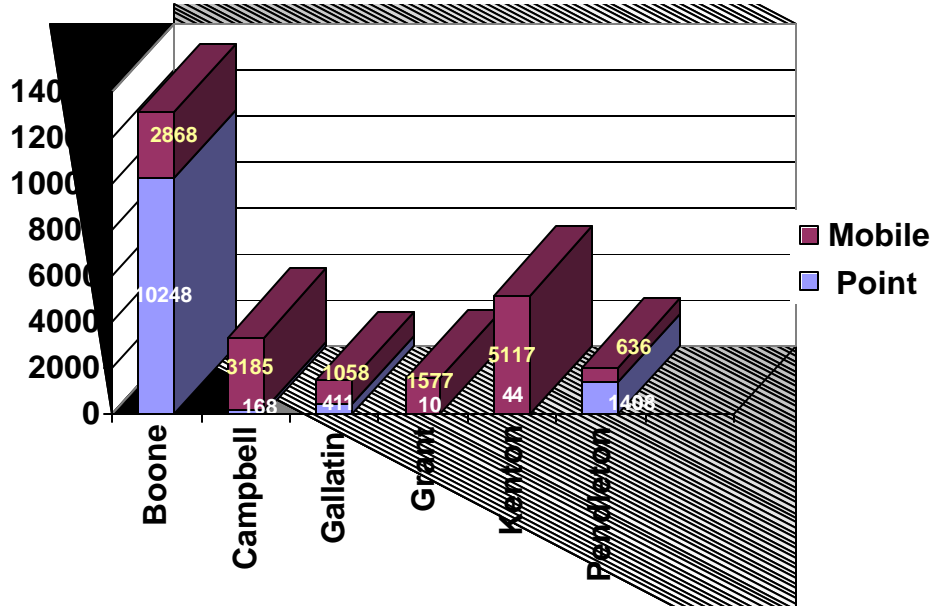
1999 NEI Cincinnati-Hamilton MSA Area Source Emissions (tons per year)



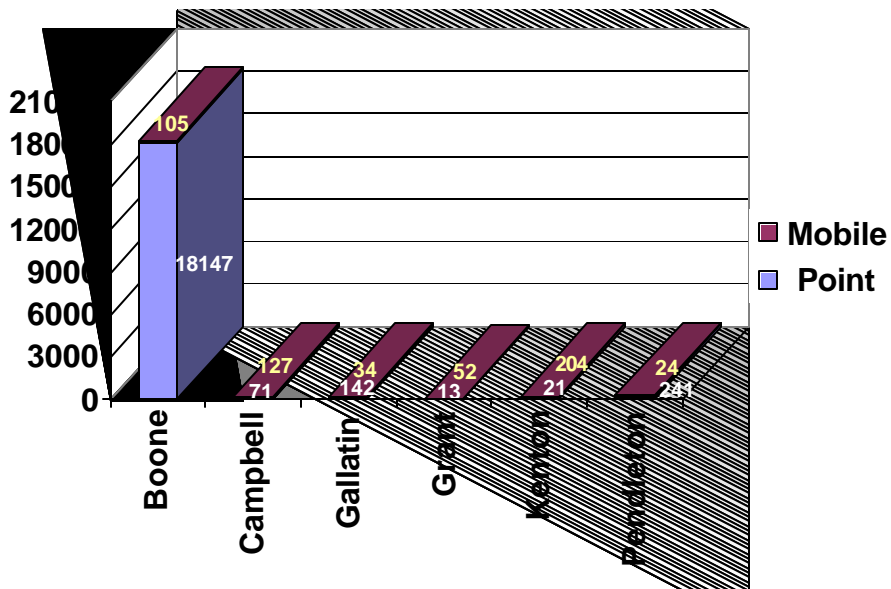
1999 NEI VOC Contribution (tons per year)



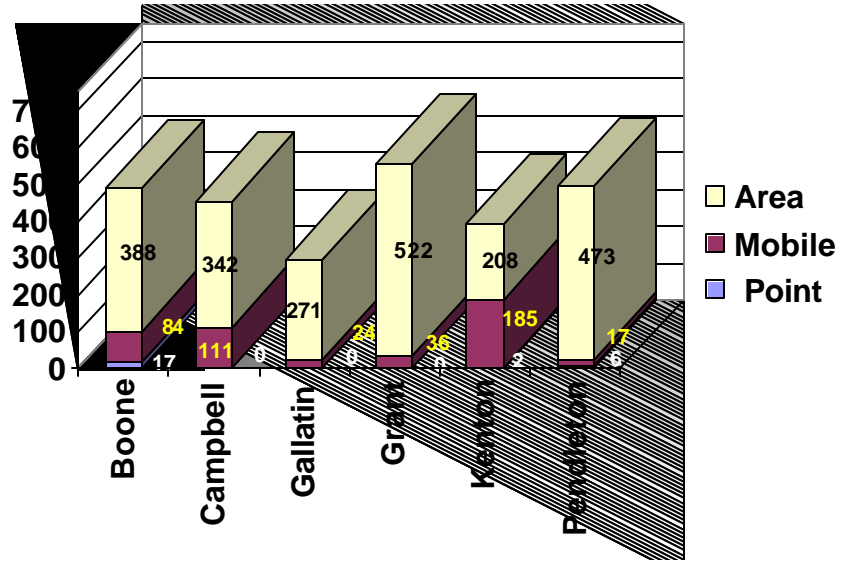
1999 NEI NO_x Contribution (tons per year)



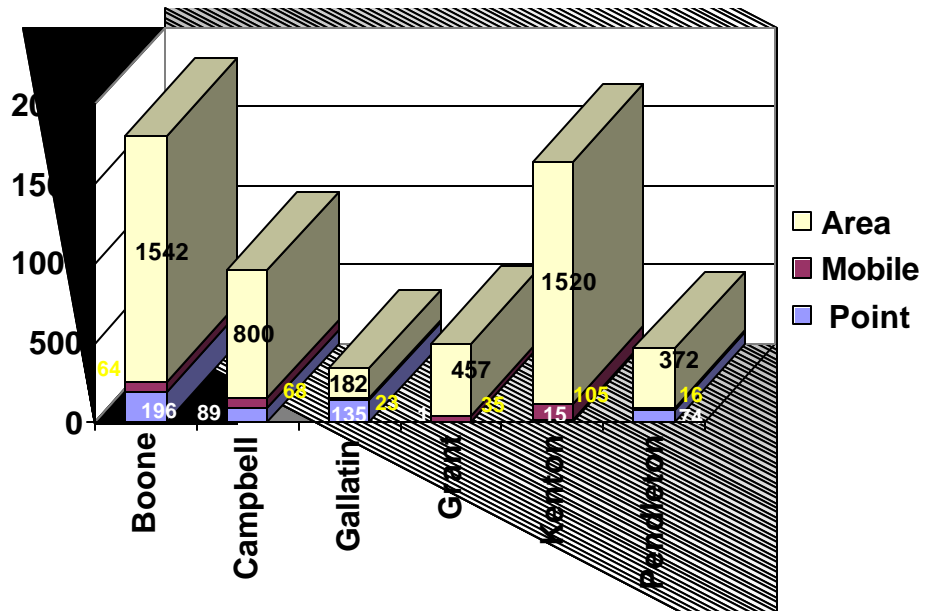
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Gallatin County. However, for the 2001 - 2003 monitoring period, the Kenton County PM_{2.5} monitor directly to the northeast shows an average annual design value of 14.9 micrograms per cubic meter, which achieves the National Ambient Air Quality Standard (NAAQS) and is classified as a county in attainment. As well, for the 2001 - 2003 monitoring period, the Campbell County PM_{2.5} monitor further to the northeast shows an average annual design value of 13.9 micrograms per cubic meter, which is also in attainment of the standard.

Additionally, the emissions from Gallatin County compared to the remainder of the MSA are negligible and do not significantly contribute to the PM_{2.5} violations in the MSA. Gallatin County contributes approximately 1% of the total NO_x emissions, 0% of the total SO_x emissions, 3% of the total NH₃ emissions and 1% of the total PM_{2.5} emissions in the MSA.

Therefore, based on the monitoring and emissions data, Gallatin County should be designated attainment for the PM_{2.5} standard.

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

Due to the close proximity of Cincinnati, Ohio, meteorological data from Cincinnati was used for this Kentucky area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Grant County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 86°F, the mean low was 66°F. The mean precipitation for the same period was 3.8 inches.

Planning

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

Air Monitoring

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Grant County. However, the Kenton County monitor to the east northeast shows an average annual design value of 14.9 micrograms per cubic meter, which achieves the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS - 15 micrograms per cubic meter) and is classified as a county in attainment. In addition, the Campbell County monitor further to the east shows an average annual design value of 13.9 micrograms per cubic meter, which also achieves the standard and is classified as attainment. However, because the Ohio monitors in Hamilton and Butler Counties across the Ohio River have probable PM_{2.5} design values that exceed the annual PM_{2.5} standard, information for Grant County is being presented in this document. The monitoring information

for 2003 is complete for the Kentucky counties. However, the 2003 monitoring data reported for the Ohio counties is the latest available and may not be complete through December. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 23,620 persons living in Grant County. That represents approximately 91 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 Dry Ridge. (See table 1-C)

Grant County's population from 1990 through 2000 increased by approximately 42.2% (15,737 to 22,384). The population is further expected to increase by an additional 44.5% between 2000 and 2010. (See table 1-B)

For the entire Cincinnati-Hamilton MSA, Grant County represents approximately 1.2% of the total population in the MSA and 6.2% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Sources

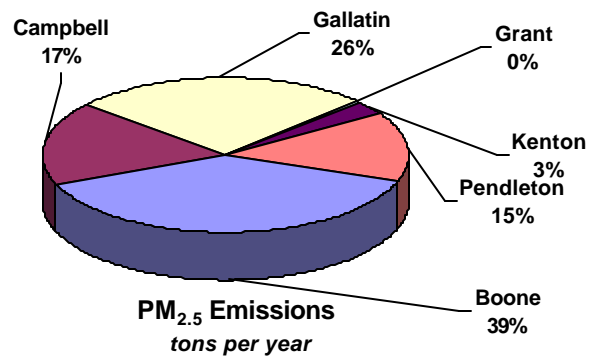
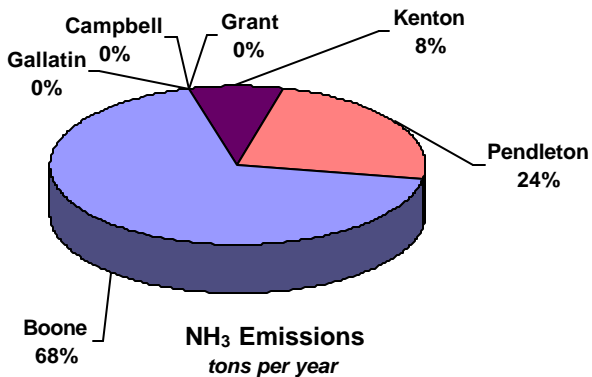
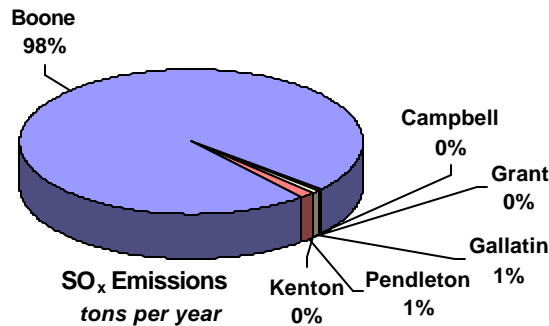
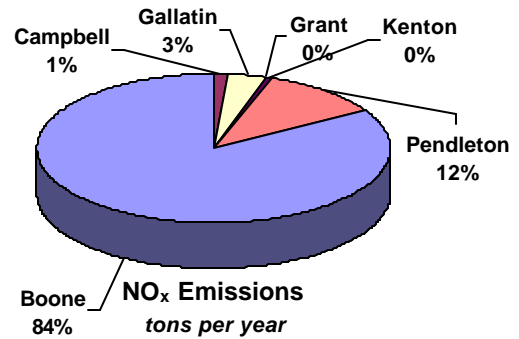
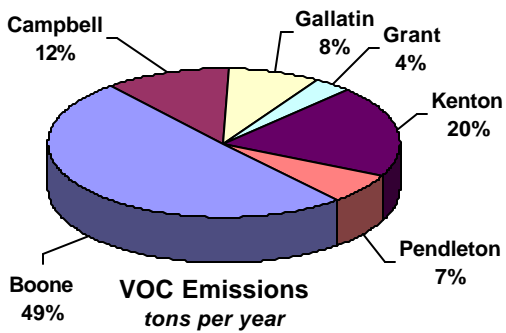
Point source VOC emissions from Grant County were estimated at 63 tons per year in 1999, which represents approximately 4% of the total 1,752 tpy of overall VOC point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. Point source NO_x emissions from Grant County were estimated at 10 tons per year in 1999, which represents less than 1% of the total 12,289 tons per year of the NO_x point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-D)

Point source SO_x emissions from Grant County were estimated at 13 tons per year in 1999, which represents less than 1% of the total 18,635 tpy overall SO_x point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-E)

Point source NH₃ emissions from Grant County were estimated at 0 tons per year in 1999. (See Table 1-F)

Point source PM_{2.5} emissions from Grant County were estimated at 1 ton per year in 1999, which represents less than 1% of the total 510 tpy overall PM_{2.5} point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

1999 NEI Northern Kentucky Point Source Emissions (tons per year)



Point sources located within Grant County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS). Any controls imposed as a result of previous nonattainment designations are required to remain in Grant County.

Onroad Mobile

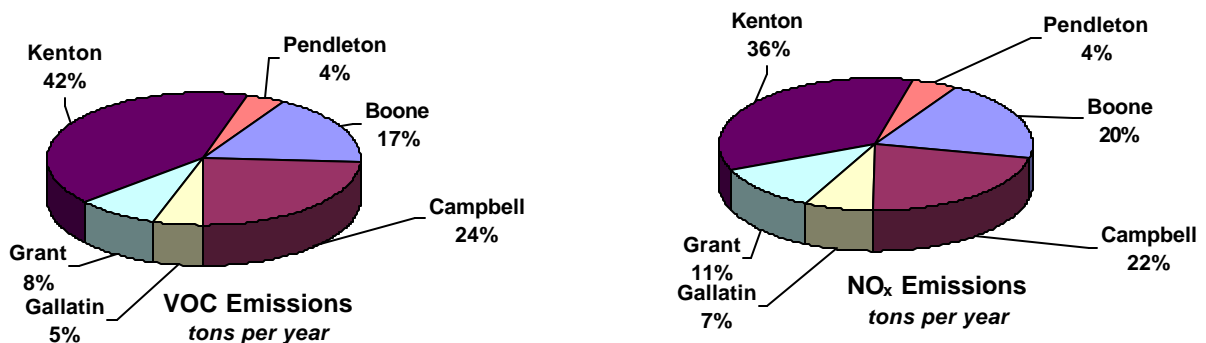
Onroad mobile source VOC emissions from Grant County were estimated at 706 tons per year in 1999, which represents approximately 8% of the total 8,505 tpy of overall VOC onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. Onroad mobile source NO_x emissions from Grant County were estimated at 1,577 tons per year in 1999, which represents approximately 11% of the total 14,441 tons per year of overall NO_x onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Grant County were estimated at 52 tons per year in 1999, which represents approximately 10% of the total 546 tpy of overall SO_x onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-E)

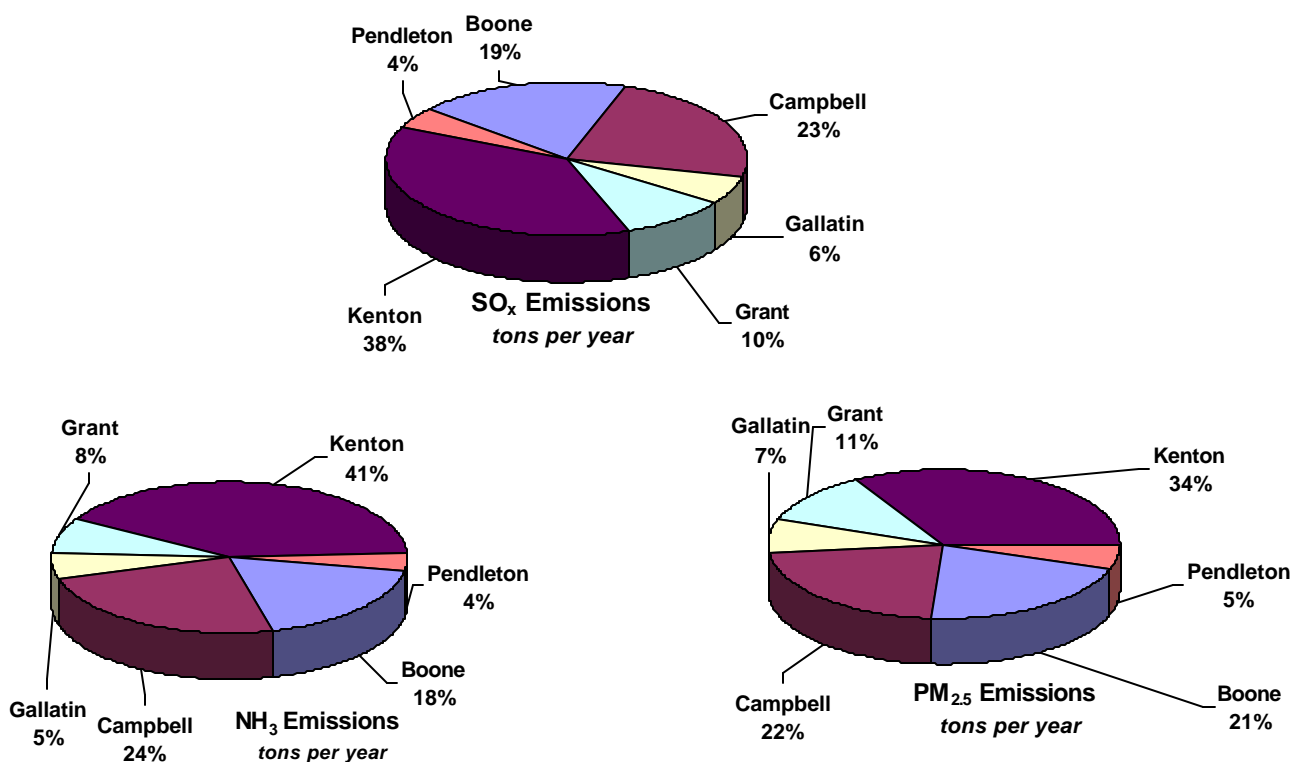
Onroad mobile source NH₃ emissions from Grant County were estimated at 36 tons per year in 1999, which represents approximately 8% of the total 457 tpy of overall NH₃ onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Grant County were estimated at 35 tons per year in 1999, which represents approximately 11% of the total 311 tpy of overall NH₃ onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

1999 NEI Northern Kentucky Onroad Mobile Source Emissions (tons per year)



1999 NEI Northern Kentucky Onroad Mobile Source Emissions (continued)



Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Grant County is 29.5% and classified as minimal, and the commuting traffic from Grant County into other counties is significant at 59.3%.

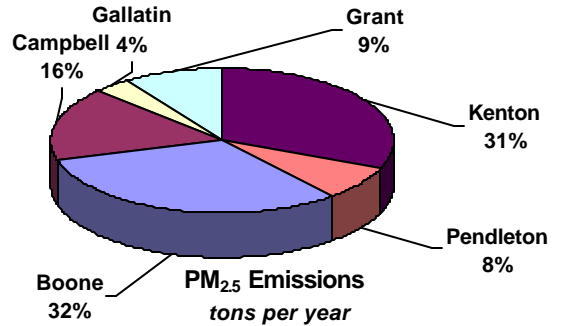
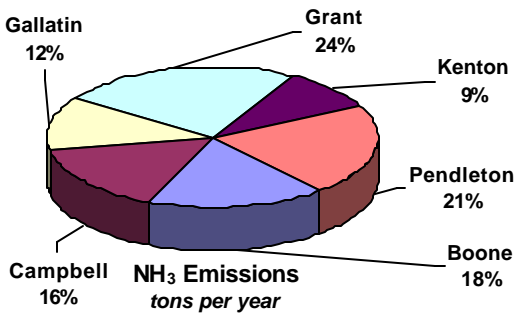
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

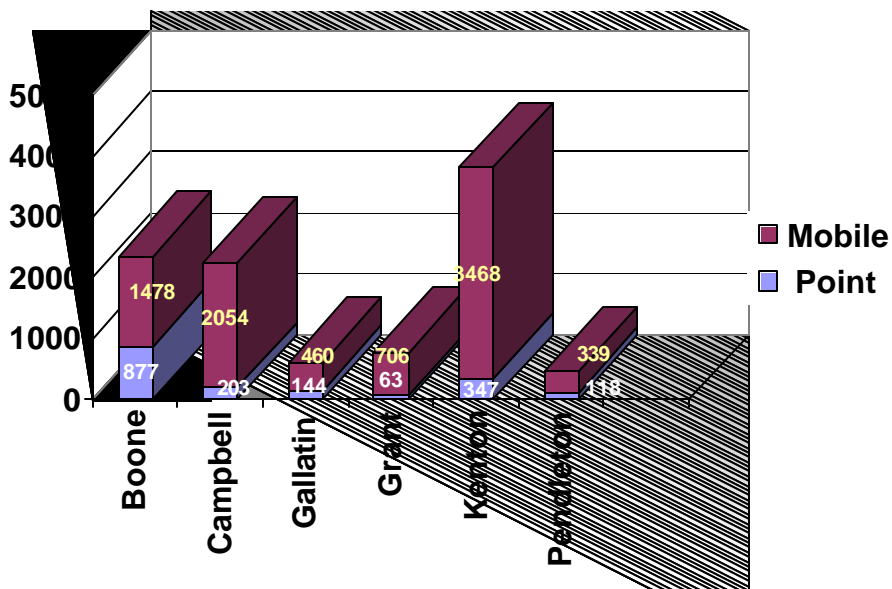
Area source NH₃ emissions from Grant County were estimated at 522 tons per year in 1999, which represents approximately 24% of the total 2,204 tpy of overall NH₃ area source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Area source PM_{2.5} emissions from Grant County were estimated at 457 tons per year in 1999, which represents approximately 9% of the total 4,873 tpy of overall PM_{2.5} area source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

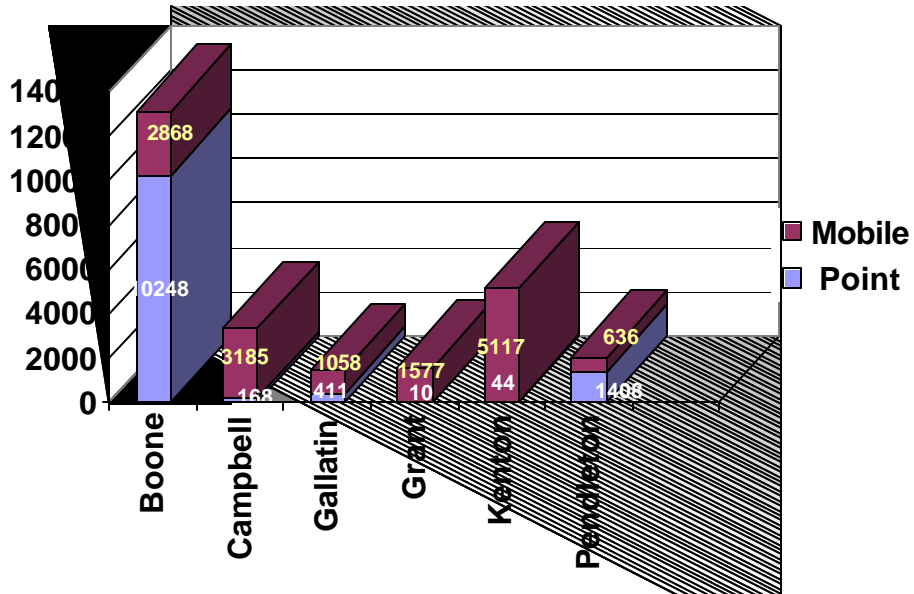
1999 NEI Cincinnati-Hamilton MSA Area Source Emissions (tons per year)



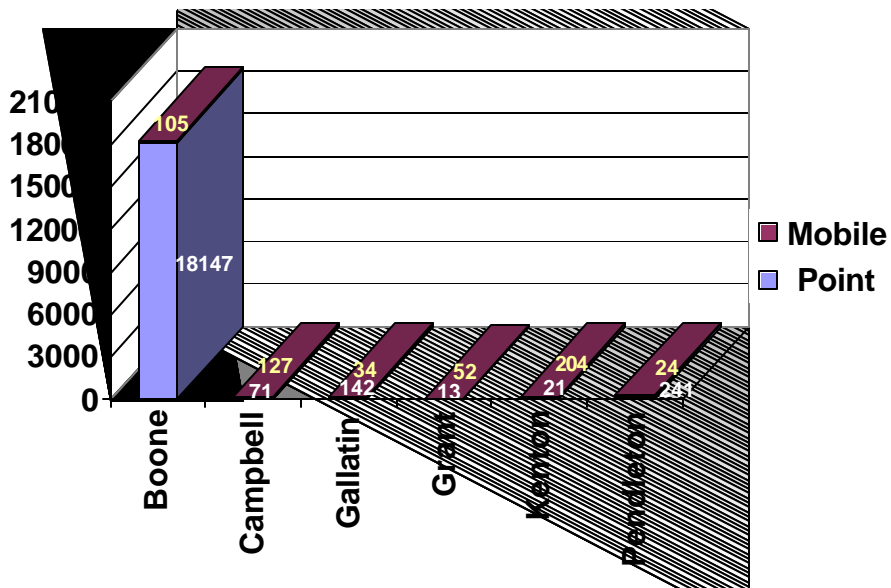
1999 NEI VOC Contribution (tons per year)



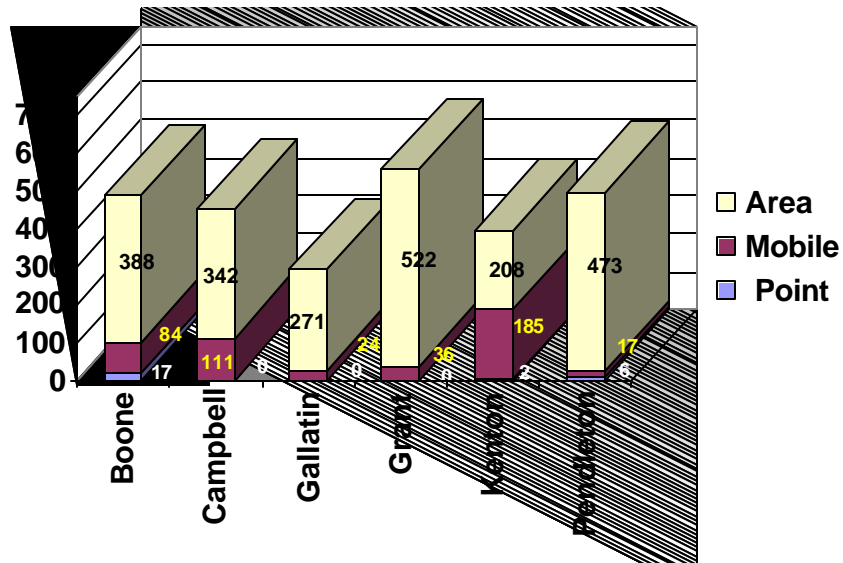
1999 NEI NO_x Contribution (tons per year)



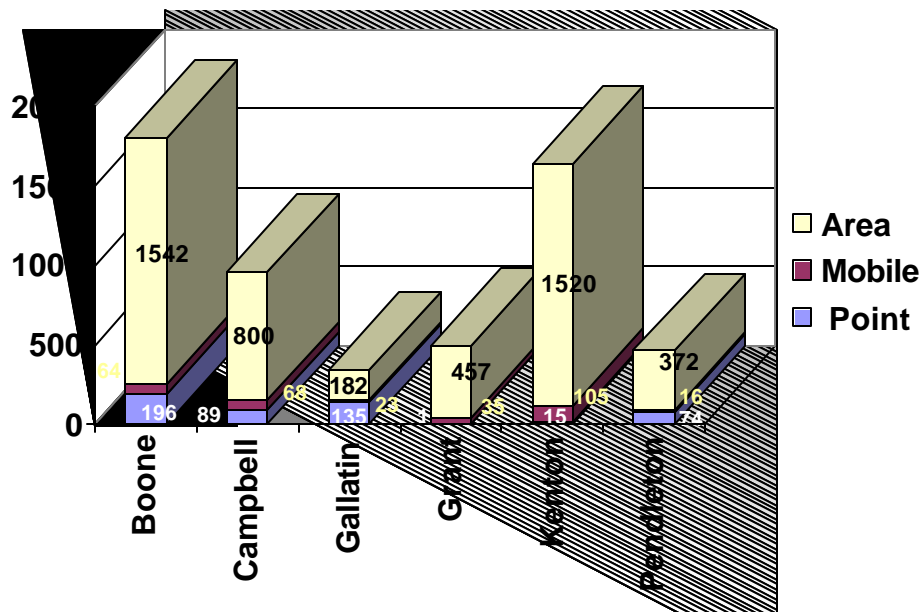
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Grant County. However, for the 2001 - 2003 monitoring period, the Kenton County PM_{2.5} monitor directly to the northeast shows an average annual design value of 14.9 micrograms per cubic meter, which achieves the National Ambient Air Quality Standard (NAAQS) and is classified as a county in attainment. As well, for the 2001 - 2003 monitoring period, the Campbell County PM_{2.5} monitor further to the northeast shows an average annual design value of 13.9 micrograms per cubic meter, which is also in attainment of the standard.

Additionally, the emissions from Grant County compared to the remainder of the MSA are negligible and do not significantly contribute to the PM_{2.5} violations in the MSA. Grant County contributes approximately 1% of the total NO_x emissions, less than 0.5% of the total SO_x emissions, 6% of the total NH₃ emissions and 2% of the total PM_{2.5} emissions in the MSA.

Therefore, based on the monitoring and emissions data Grant County should be designated attainment for the PM_{2.5} standard.

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

Due to the close proximity of Cincinnati, Ohio, meteorological data from Cincinnati was used for this Kentucky area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Pendleton County area came from the southwest and typically from 7-10 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 86°F, the mean low was 66°F. The mean precipitation for the same period was 3.8 inches.

Planning

The authority for air quality planning in the Pendleton County area resides with the Kentucky Environmental and Public Protection Cabinet. Transportation planning for Pendleton County is performed by the Kentucky Transportation Cabinet.

Air Monitoring

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Pendleton County. However, the Kenton County monitor to the east northeast shows an average annual design value of 14.9 micrograms per cubic meter, which achieves the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS - 15 micrograms per cubic meter) and is classified as a county in attainment. In addition, the Campbell County monitor further to the east shows an average annual design value of 13.9 micrograms per cubic meter, which also achieves the standard and is classified as attainment. However, because the Ohio monitors in Hamilton and Butler Counties across the Ohio River have probable PM_{2.5} design values that exceed the annual PM_{2.5} standard, information for Pendleton County is being presented in this document. The monitoring information for 2003 is complete for the Kentucky counties. However, the

2003 monitoring data reported for the Ohio counties is the latest available and may not be complete through December. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 14,815 persons living in Pendleton County. (See table 1-C) That represents approximately 53 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 1990 through 2000 increased by approximately 20% (12,036 to 14,390). The population is further expected to increase by an additional 23% between 2000 and 2010. (See table 1-B)

For the entire Cincinnati-Hamilton, OH-KY-IN MSA, Pendleton County represents approximately 0.7% of the total population in the MSA and 3.9% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles.

Point Sources

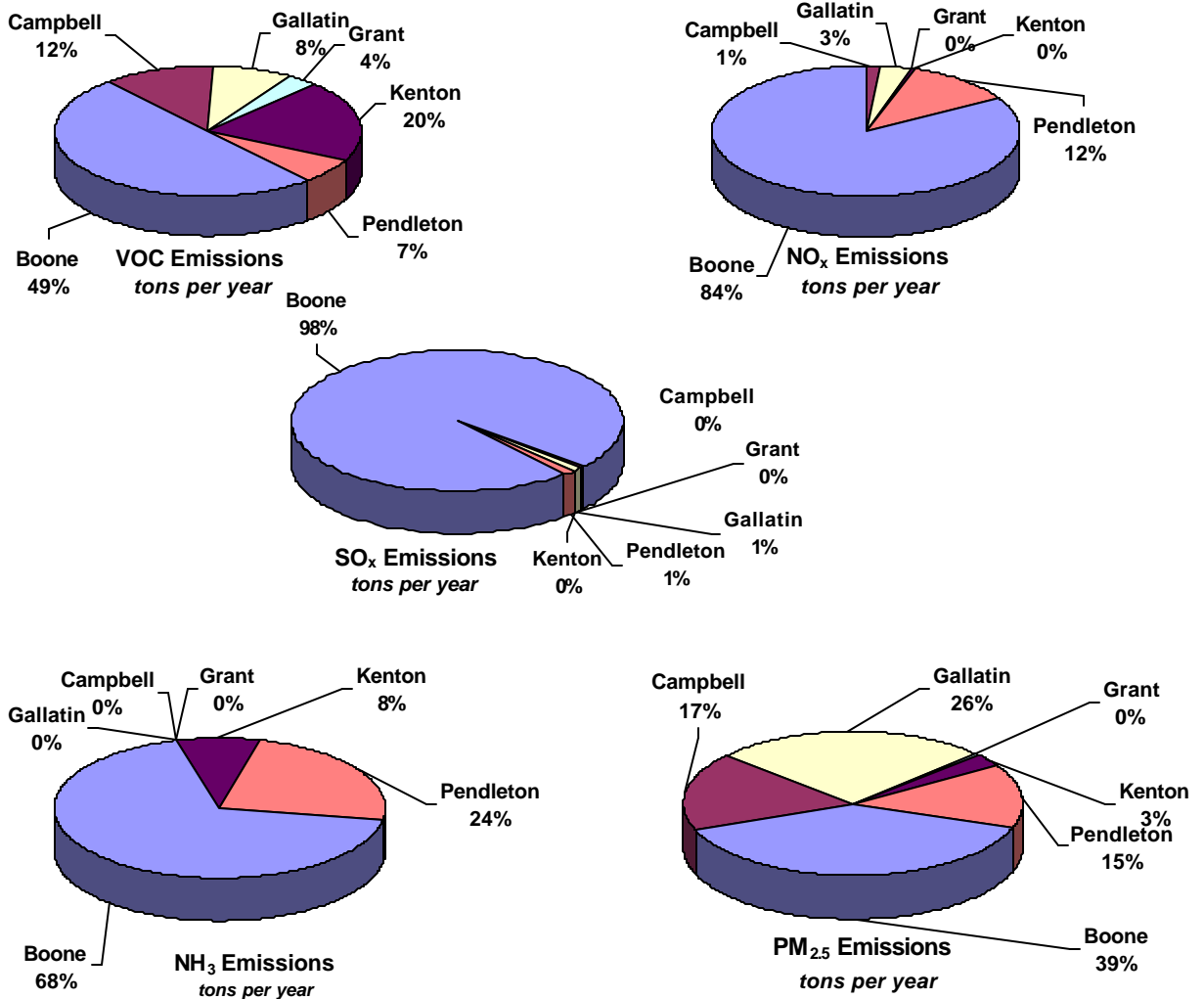
Point source VOC emissions from Pendleton County were estimated at 118 tons per year in 1999, which represents approximately 7% of the total 1,752 tpy of overall VOC point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. Point source NO_x emissions from Pendleton County were estimated at 1,408 tons per year in 1999, which represents approximately 12% of the total 12,289 tpy of the NO_x point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-D)

Point source SO_x emissions from Pendleton County were estimated at 241 tons per year in 1999, which represents less than 1% of the total 18,635 tpy overall SO_x point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See Table 1-E)

Point source NH₃ emissions from Pendleton County were estimated at 6 tons per year in 1999, which represents 24% of the total 25 tpy overall NH₃ point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Point source PM_{2.5} emissions from Pendleton County were estimated at 74 tons per year in 1999, which represents approximately 15% of the total 510 tpy overall PM_{2.5} point source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

1999 NEI Northern Kentucky Point Source Emissions (tons per year)



Point sources located within Pendleton County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS). Any controls imposed as a result of previous nonattainment designations are required to remain in Pendleton County.

Onroad Mobile

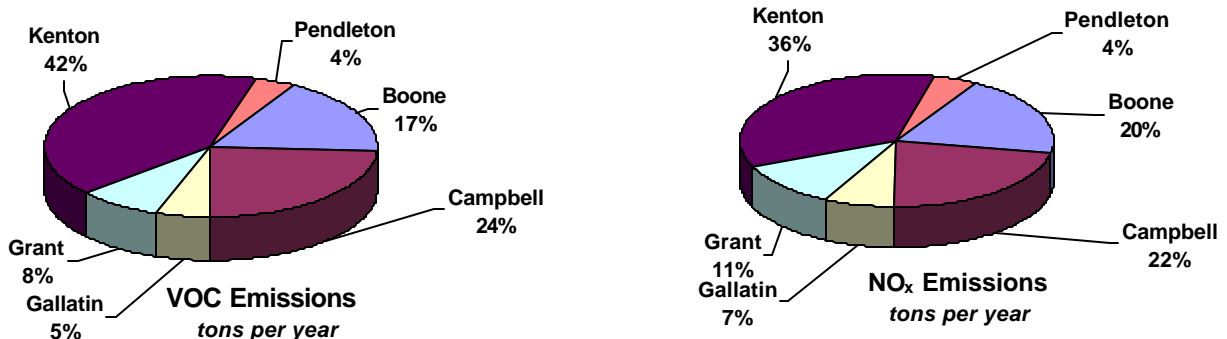
Onroad mobile source VOC emissions from Pendleton County were estimated at 339 tons per year in 1999, which represents approximately 4% of the total 8,505 tpy of overall VOC onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. Onroad mobile source NO_x emissions from Pendleton County were estimated at 636 tons per year in 1999, which represents approximately 4% of the total 14,441 tons per year of overall NO_x onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-D)

Onroad mobile source SO_x emissions from Pendleton County were estimated at 24 tons per year in 1999, which represents approximately 4% of the total 546 tpy of overall SO_x onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-E)

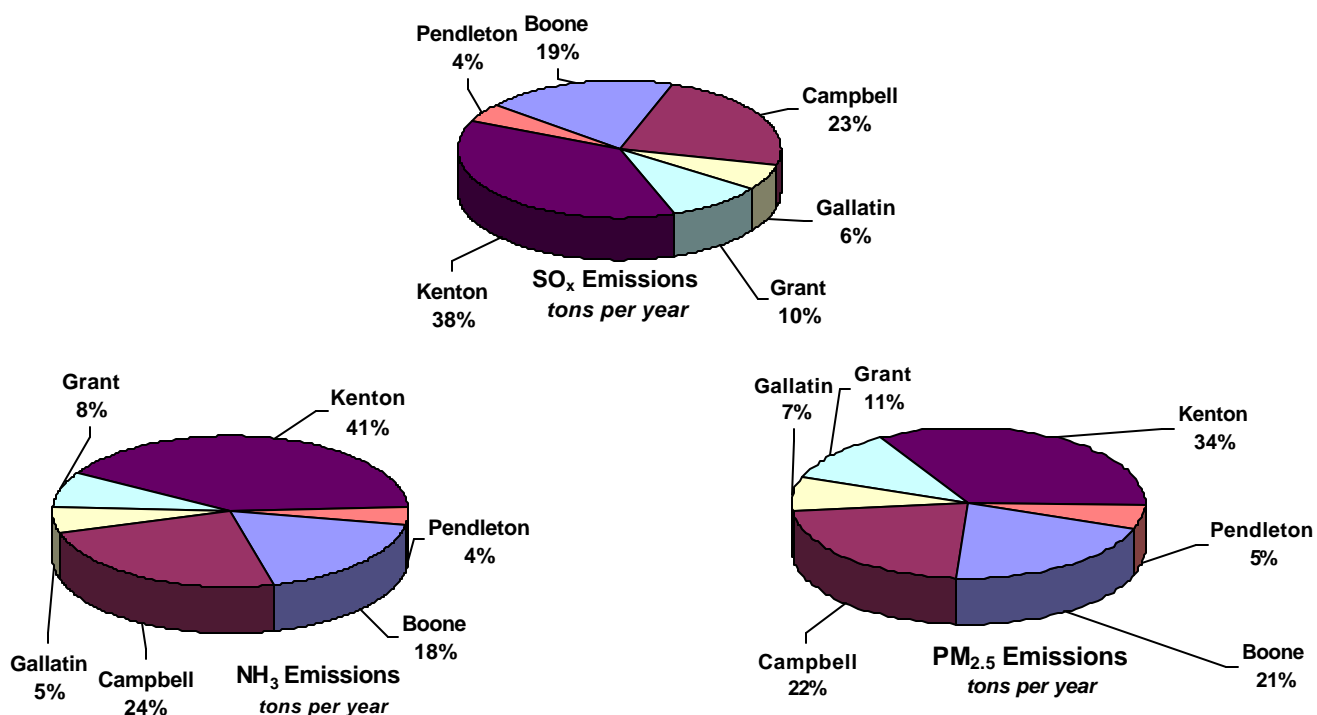
Onroad mobile source NH₃ emissions from Pendleton County were estimated at 17 tons per year in 1999, which represents approximately 4% of the total 457 tpy of overall NH₃ onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Pendleton County were estimated at 16 tons per year in 1999, which represents approximately 5% of the total 311 tpy of overall NH₃ onroad mobile source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

1999 NEI Northern Kentucky Onroad Mobile Source Emissions (tons per year)



1999 NEI Northern Kentucky Onroad Mobile Source Emissions (continued)



Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Pendleton County is 27% and classified as minimal, and the commuting traffic from Pendleton County into other counties is significant at 62%.

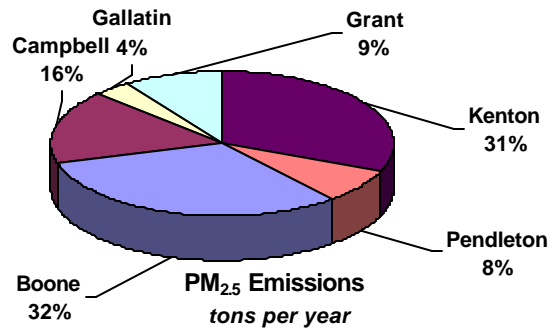
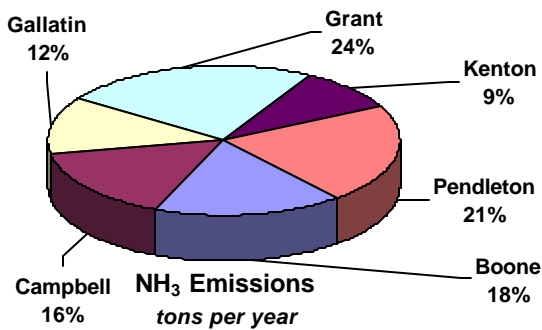
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

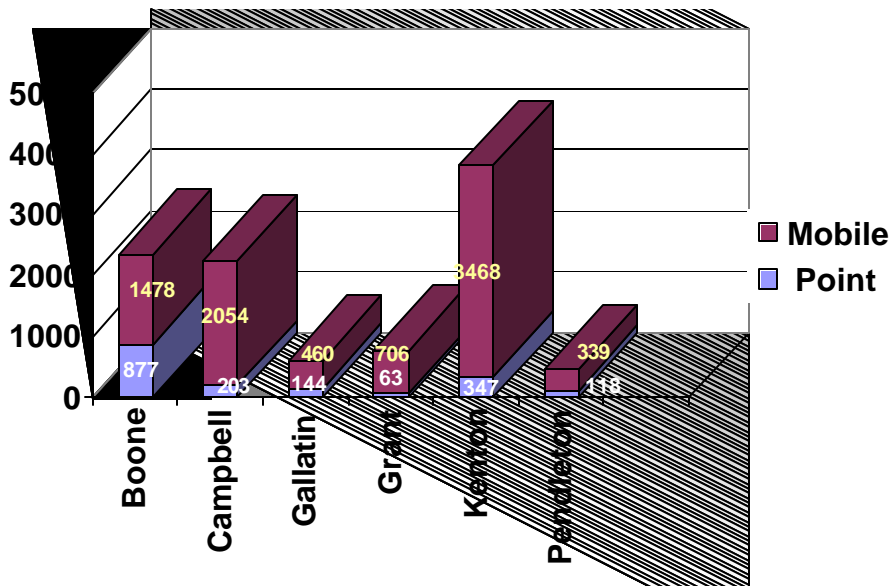
Area source NH₃ emissions from Pendleton County were estimated at 473 tons per year in 1999, which represents approximately 21% of the total 2,204 tpy of overall NH₃ area source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-F)

Area source PM_{2.5} emissions from Pendleton County were estimated at 372 tons per year in 1999, which represents approximately 8% of the total 4,873 tpy of overall PM_{2.5} area source emissions from the Kentucky portion of the Cincinnati-Hamilton MSA. (See table 1-G)

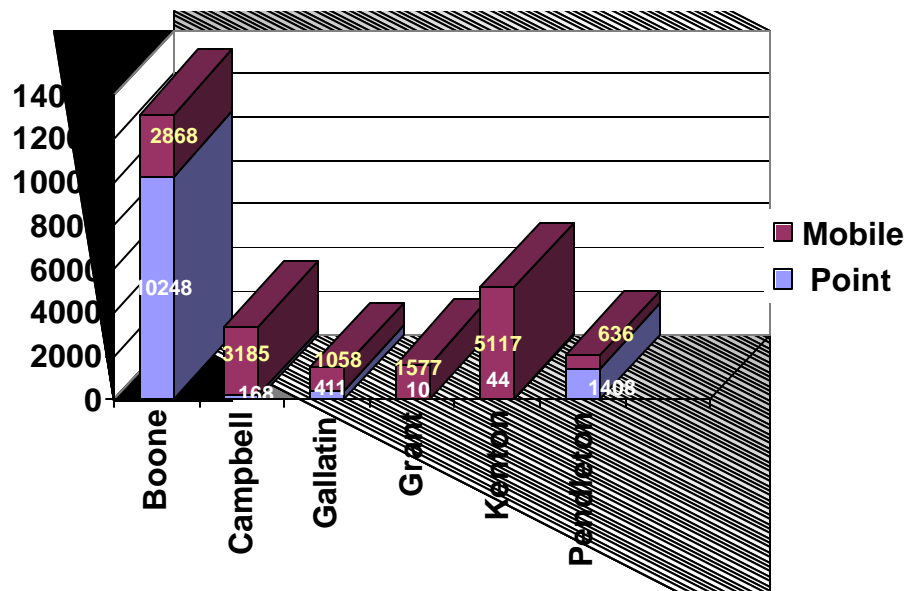
1999 NEI Cincinnati-Hamilton MSA Area Source Emissions (tons per year)



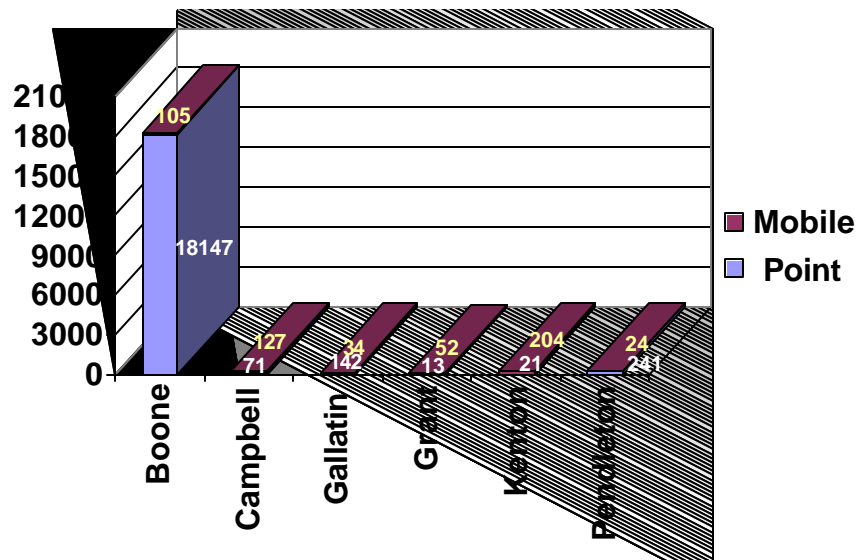
1999 NEI VOC Contribution (tons per year)



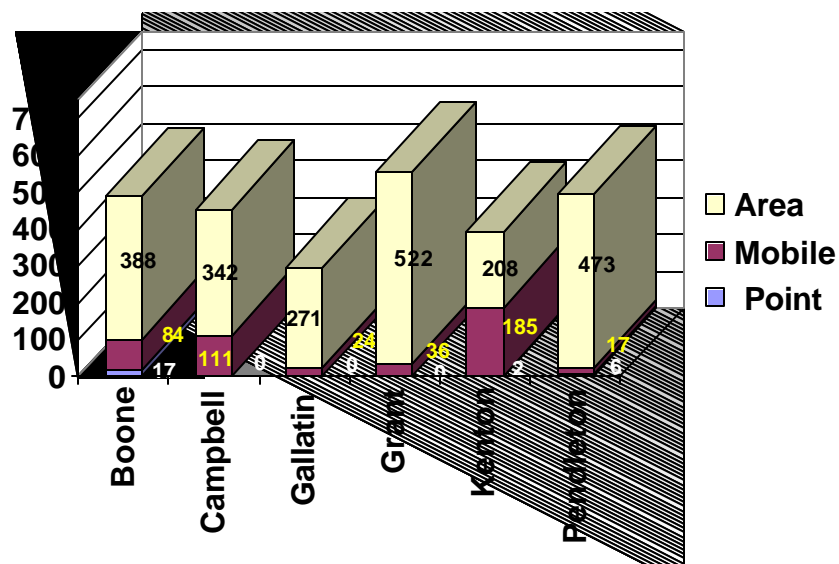
1999 NEI NO_x Contribution (tons per year)



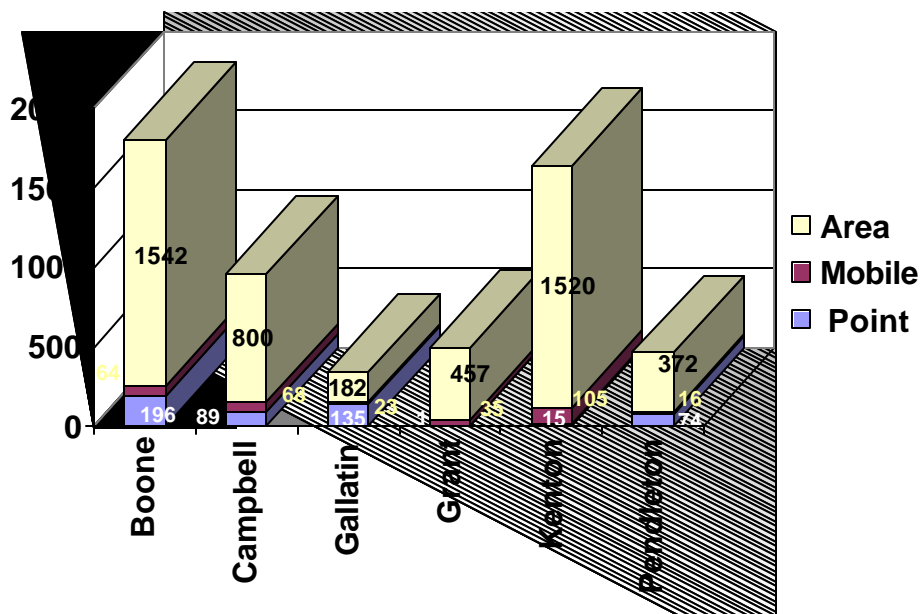
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Pendleton County. However, for the 2001 - 2003 monitoring period, the Kenton County PM_{2.5} monitor directly to the northwest shows an average annual design value of 14.9 micrograms per cubic meter, which achieves the National Ambient Air Quality Standard (NAAQS) and is classified as a county in attainment. As well, for the 2001 - 2003 monitoring period, the Campbell County PM_{2.5} monitor further to the north shows an average annual design value of 13.9 micrograms per cubic meter, which is also in attainment of the standard.

Additionally, the emissions from Pendleton County compared to the remainder of the MSA are negligible and do not significantly contribute to the PM_{2.5} violations in the MSA. Pendleton County contributes approximately 1% of the total NO_x emissions, less than 0.5% of the total SO_x emissions, 6% of the total NH₃ emissions and 2% of the total PM_{2.5} emissions in the MSA.

Therefore, based on the monitoring and emissions data Pendleton County should be designated attainment for the PM_{2.5} standard.

Cincinnati-Hamilton, OH-KY-IN MSA

Figure 1-A

Wind Rose Patterns

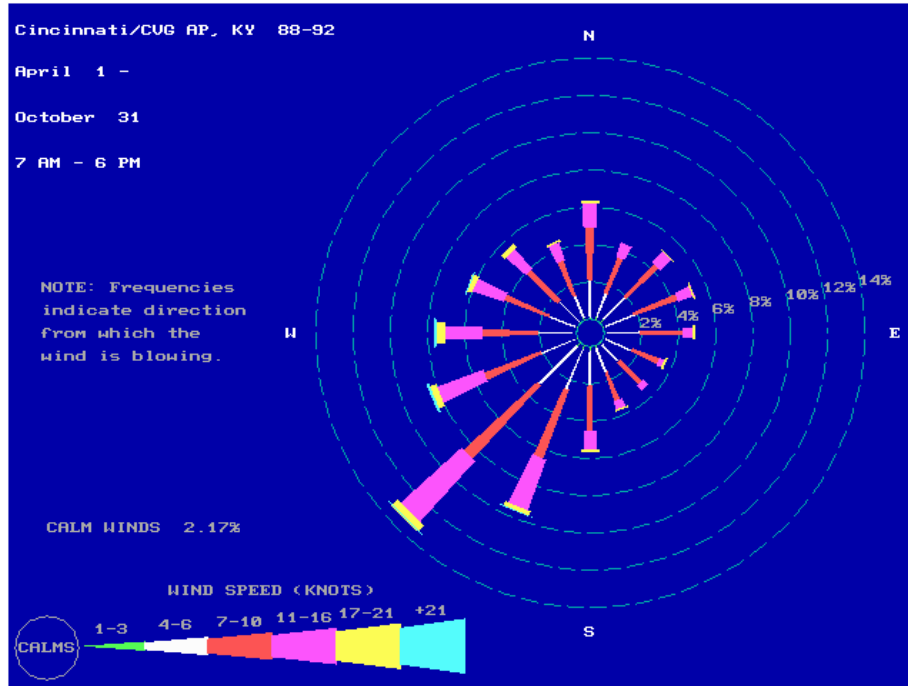


Figure 1-B

1999 NEI

Kentucky Portion of the Cincinnati-Hamilton MSA

VOC and NO_x Emissions

(tons per year)

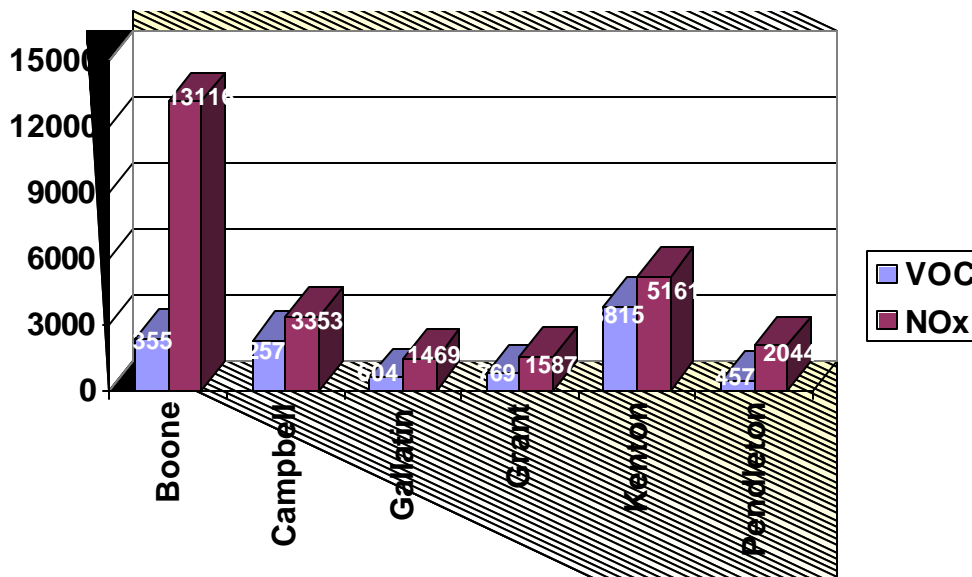


Figure 1-C
1999 NEI
Kentucky Portion of the Cincinnati-Hamilton MSA
SO_x Emissions
 (tons per year)

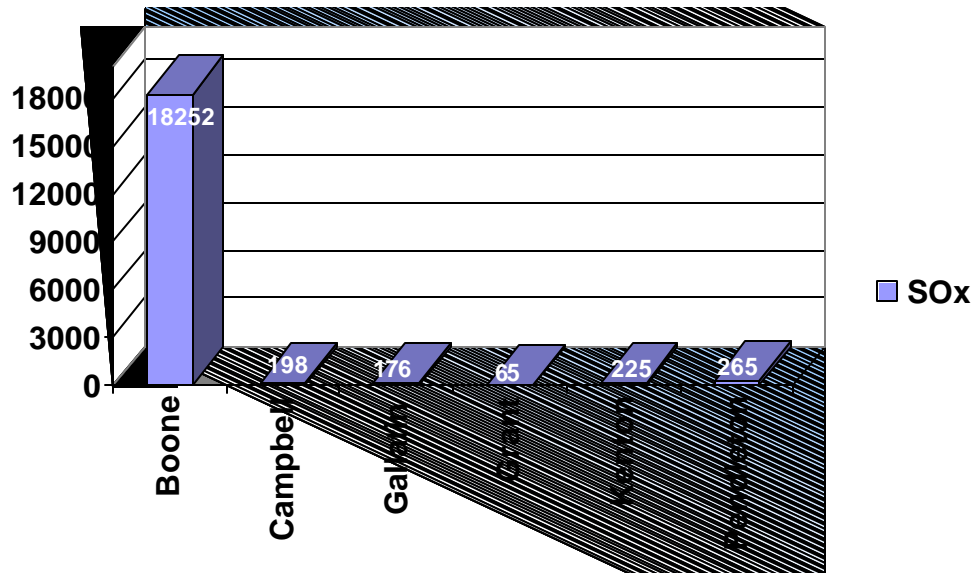


Figure 1-D
1999 NEI
Kentucky Portion of the Cincinnati-Hamilton MSA
NH₃ and PM_{2.5} Emissions
 (tons per year)

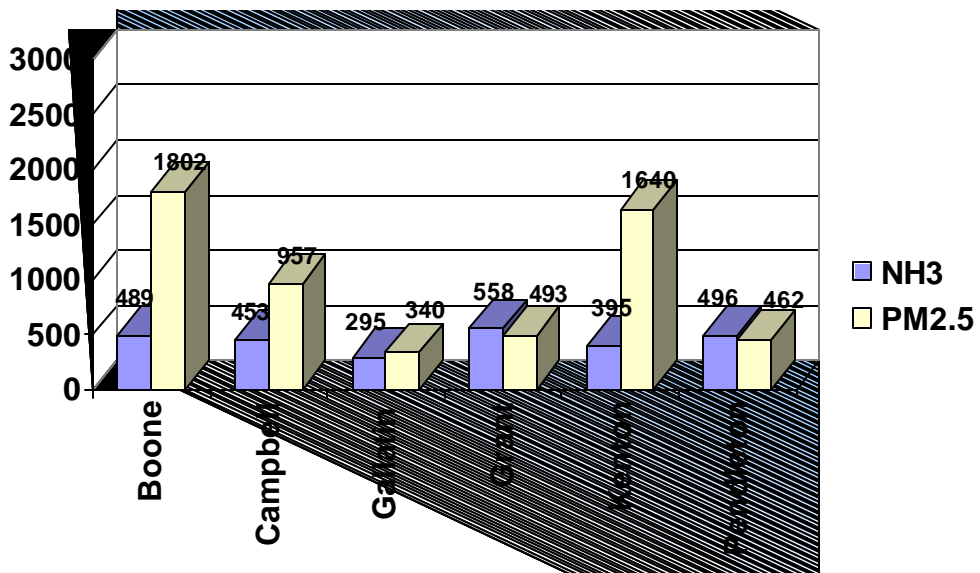


Table 1-A
Annual Average Design Values for PM 2.5
(micrograms per cubic meter)

Monitor	2001	2002	2003**	3-year Average
Kentucky				
Boone	-	-	-	N/A
Campbell	13.4	14.8	13.4	13.9
Gallatin				N/A
Grant				N/A
Kenton	15.3	15.1	14.3	14.9
Pendleton				N/A
Ohio				
Brown	-	-	-	N/A
Butler	16.4	16.8	15.2	16.1
Clermont	-	-	-	N/A
Hamilton	18.2	17.9	17.1	17.7
Warren				N/A
Indiana				
Dearborn	-	-	-	N/A
Ohio	-	-	-	N/A

* n/a no monitoring data available. **The monitoring information for 2003 is complete for the Kentucky counties. However, the 2003 monitoring data reported for the Ohio counties is the latest available and may not be complete through December 2003.

Table 1-B
Northern Kentucky Area Population
Growth Data

County	1990	2000	%Growth 1990 - 2000	2010	%Growth 2000 - 2010
Boone	57,589	85,991	49.3%	126,036	46.6%
Campbell	83,866	88,616	5.7%	92,385	4.3%
Gallatin	5,393	7,870	45.9%	11,638	47.9%
Grant	15,737	22,384	42.2%	32,341	44.5%
Kenton	142,031	151,464	6.6%	159,730	5.5%
Pendleton	12,036	14,390	19.6%	17,690	22.9%

Table 1-C
2002 Estimated Cincinnati-Hamilton, OH-KY-IN
MSA Population

Kentucky	Estimated Population	% of Total
Boone County	93,290	4.6%
Campbell County	88,604	4.4%
Gallatin County	7,836	<.1%
Grant County	23,620	1.1%
Kenton County	152,164	7.5%
Pendleton County	14,815	<.1%
Ohio		
Brown County	43,464	2.1%
Butler	340,543	16.9%
Clermont County	183,352	9.1%
Hamilton County	833,721	41.5%
Warren County	175,133	8.7%
Indiana		
Dearborn County	47,333	2.4%
Ohio County	5,804	.3%
Total Estimated Population	2,009,679	

Table 1-D
1999 NEI Cincinnati-Hamilton, OH-KY-IN MSA
Kentucky Portion of the MSA
VOC and NO_x Emissions
(tons per year)

County	VOC			NO _x		
	Point	Mobile	Total	Point	Mobile	Total
Boone	877	1,478	2,355	10,248	2,868	13,116
Campbell	203	2,054	2,257	168	3,185	3,353
Gallatin	144	460	604	411	1,058	1,469
Grant	63	706	769	10	1,577	1,587
Kenton	347	3,468	3,815	44	5,117	5,161
Pendleton	118	339	457	1,408	636	2,044
Total	1,752	8,505	10,257	12,289	14,441	26,730

Table 1-D (continued)
1999 NEI Cincinnati-Hamilton, OH-KY-IN MSA
VOC and NO_x Emissions
(tons per year)

County	VOC			NO _x		
	Point	Mobile	Total	Point	Mobile	Total
Dearborn	939	1,148	2,087	35,554	2,246	37,800
Ohio	0	111	111	0	206	206
Boone	877	1,478	2,355	10,248	2,868	13,116
Campbell	203	2,054	2,257	168	3,185	3,353
Gallatin	144	460	604	411	1,058	1,469
Grant	63	706	769	10	1,577	1,587
Kenton	347	3,468	3,815	44	5,117	5,161
Pendleton	118	339	457	1,408	636	2,044
Brown	33	814	847	4	1,514	1,518
Butler	1,477	5,187	6,664	8,714	7,144	15,858
Clermont	276	3,077	3,353	45,274	5,066	50,340
Hamilton	1,794	16,523	18,317	30,004	22,284	52,288
Warren	241	2,509	2,750	1,389	4,188	5,577
Total Emissions	6,512	37,874	44,386	133,228	57,089	190,317

Table 1-E
1999 NEI Cincinnati-Hamilton, OH-KY-IN MSA
SO_x Emissions
(tons per year)

County	SO _x		
	Point	Mobile	Total
Dearborn	51,576	79	51,655
Ohio	0	8	8
Boone	18,147	105	18,252
Campbell	71	127	198
Gallatin	142	34	176
Grant	13	52	65
Kenton	21	204	225
Pendleton	241	24	265
Brown	0	56	56
Butler	1,823	288	2,111
Clermont	94,084	201	94,285
Hamilton	78,086	901	78,987
Warren	0	160	160
Total Emissions	244,204	2,239	246,443

Table 1-F
1999 NEI Cincinnati-Hamilton, OH-KY-IN MSA
NH₃ Emissions
(tons per year)

County	NH ₃			Total
	Area	Point	Mobile	
Dearborn	435	2	56	493
Ohio	510	0	5	515
Boone	388	17	84	489
Campbell	342	0	111	453
Gallatin	271	0	24	295
Grant	522	0	36	558
Kenton	208	2	185	395
Pendleton	473	6	17	496
Brown	544	0	39	583
Butler	876	514	246	1,636
Clermont	222	3	158	383
Hamilton	1,277	137	817	2,231
Warren	316	0	128	444
Total Emissions	6,384	681	1,906	8,971

Table 1-G
1999 NEI Cincinnati-Hamilton, OH-KY-IN MSA
PM_{2.5} Emissions
(tons per year)

County	PM _{2.5}			Total
	Area	Point	Mobile	
Dearborn	1,076	195	53	1,324
Ohio	218	0	5	223
Boone	1,542	196	64	1,802
Campbell	800	89	68	957
Gallatin	182	135	23	340
Grant	457	1	35	493
Kenton	1,520	15	105	1,640
Pendleton	372	74	16	462
Brown	1,055	1	38	1,094
Butler	2,794	1,381	161	4,336
Clermont	2,425	2,487	124	5,036
Hamilton	5,416	3,962	464	9,842
Warren	2,485	28	96	2,609
Total Emissions	20,342	8,564	1,252	30,158

Figure 1-C
1999 NEI Point Source VOC Emissions for
Cincinnati-Hamilton Area

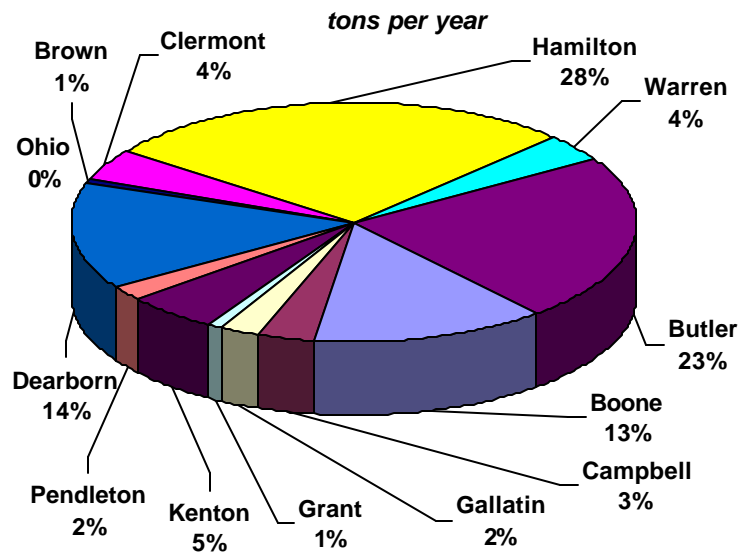


Figure 1-D
1999 NEI Point Source NOx Emissions for
Cincinnati-Hamilton Area

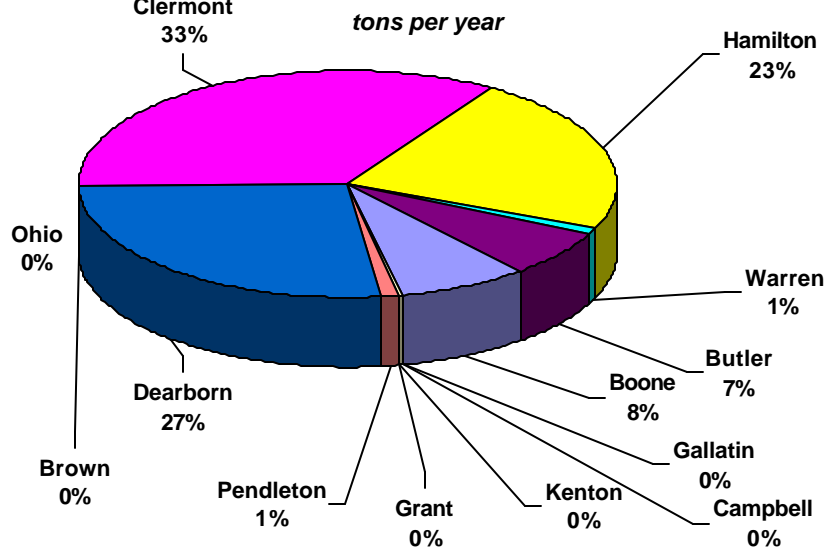


Figure 1-E
1999 NEI Onroad Mobile Source VOC Emissions for Cincinnati-Hamilton Area
tons per year

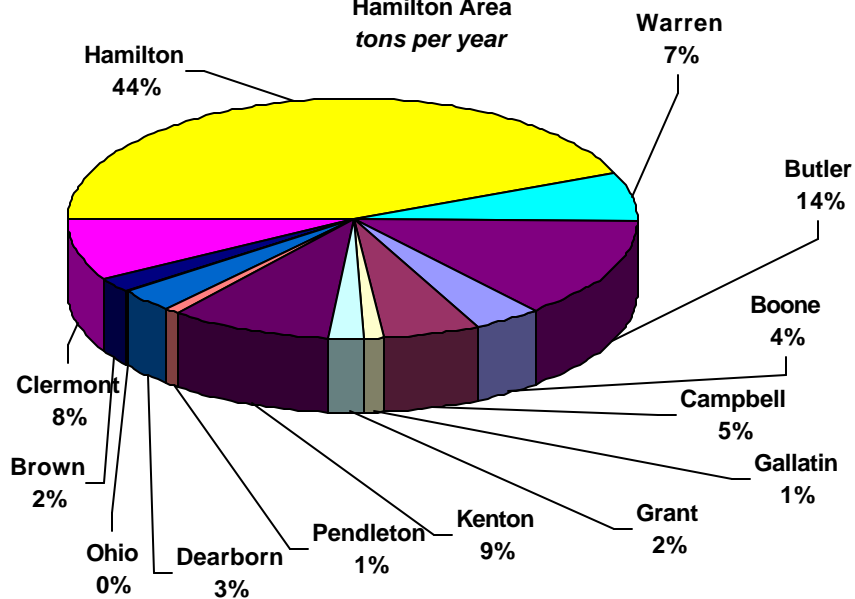


Figure 1-F
1999 NEI Onroad Mobile Source NOx Emissions for Cincinnati-Hamilton Area
tons per year

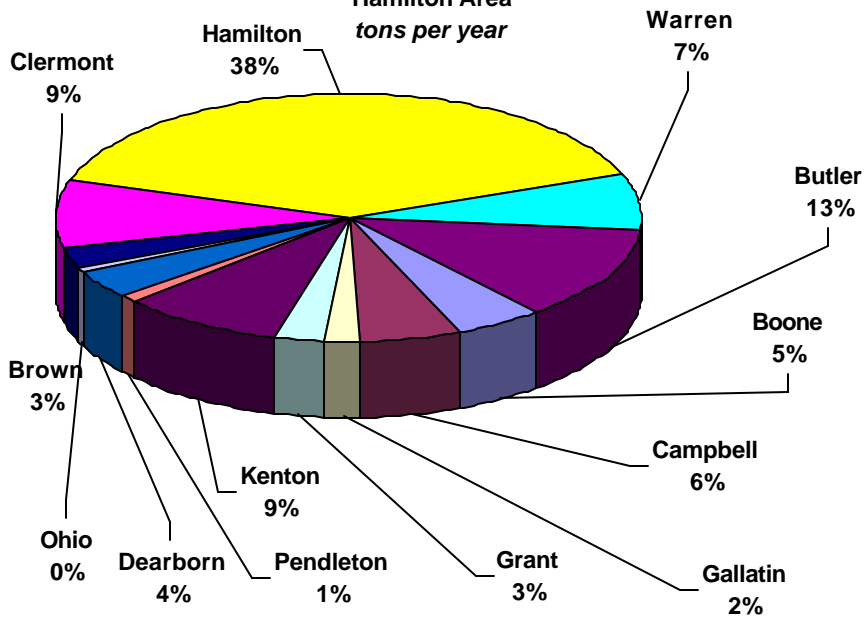


Figure 1-G
1999 NEI Point Source SO_x Emissions for Cincinnati
Hamilton Area
tons per year

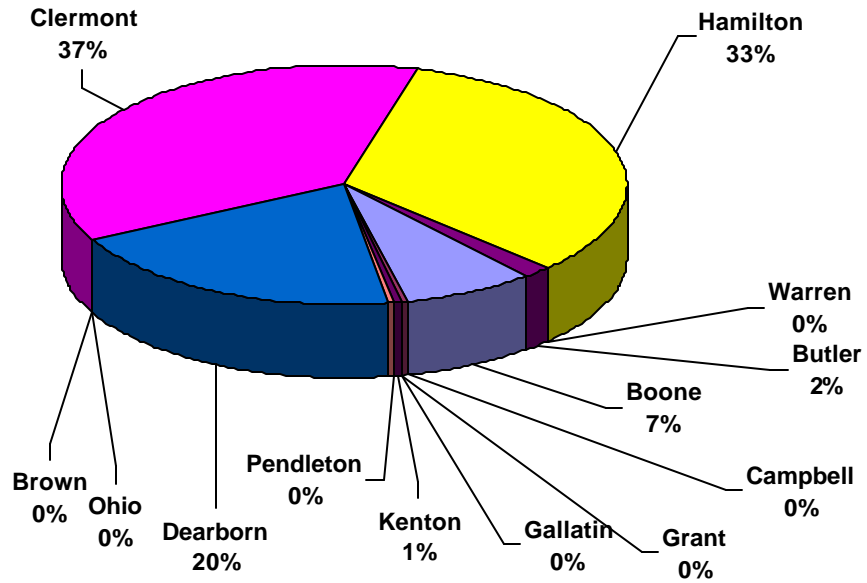


Figure 1-H
1999 NEI Point Source NH₃ Emissions for Cincinnati
Hamilton Area
tons per year

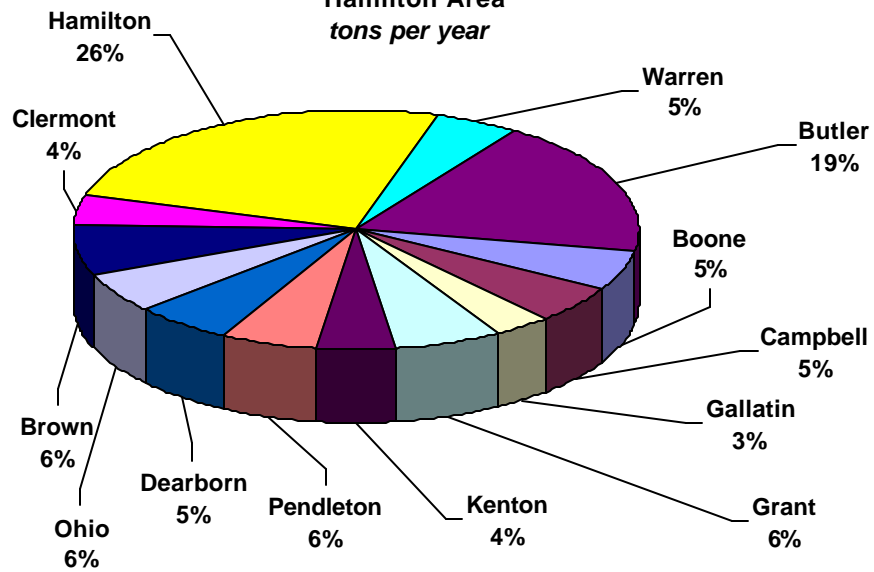


Figure 1-1
1999 NEI Point Source PM2.5-PRI Emissions for Cincinnati Hamilton Area
tons per year

