

GENERAL COMMENTS

On June 29, 2004, U.S. EPA responded to states on recommendations made in February for designations of areas under the new fine particulate standards. In that response, EPA states that: *"Consistent with the Clean Air Act, this letter is to notify you that based on the information contained in your submittal, EPA intends to make modifications to recommended designations and boundaries in your State."* Although U.S. EPA had previously issued specific guidance on information and documentation that was expected in states' first round submittals, EPA did not use information provided by states in developing its June 29 response. In fact, EPA used very different information and methodologies in developing those proposals.

In its April and June 2003 guidance on methodologies and emissions data used in making recommendations under the PM_{2.5} standard, EPA outlined the importance of having *"...an available emissions data set that can be shared and used by all parties involved in the process of defining boundaries."* In order to have comparable emissions data for all areas under review, the 1999 National Emissions Inventory (NEI) was used in developing Kentucky's February 2004 submittal, as recommended by EPA. However, in EPA's June 2004 response back to states, EPA stated it had used the 2001 NEI data. This dataset has still not been made available to states for review. States have had no opportunity to review the emissions data, nor the methodology by which EPA "grew" the emissions from the 1999 NEI. Despite EPA's inconsistent approach, Kentucky took the initiative and used the most recent emissions inventory available in order to show changes in emissions levels in specific areas. This was very important in showing where additional emissions reductions had occurred within a specific geographic region.

Two of the components EPA used in their analysis of areas were county level emissions estimates for carbon and crustal emissions. EPA used the SMOKE model information from the Clear Skies modeling that was based on the 1996 NEI to generate this data. Using this modeled data, especially with 1996 information as the basis, is questionable at best and should not be used in this analysis.

Weighted Emissions Score

The Commonwealth was surprised to learn that EPA had employed the use of a "weighted emissions scoring" process to evaluate counties for emissions contributions to an area attainment problem. At no time did U.S. EPA offer information concerning this methodology. Further, EPA did not afford the states the opportunity to provide input on the appropriateness of or the science behind this methodology. This approach was revealed in late May 2004, a full three months after states had been required to submit boundary recommendations to EPA. Taking this approach, especially at such a late date, is not only contrary to boundary guidance provided to states by U.S. EPA, but insults the established designation process which allows states to use their thorough knowledge of the monitoring network and local and regional circumstances to make those designations. A full detailed explanation of the origin

of the data and how EPA has used the scoring methodology has still not been released for review.

Given the facts presented above, the Commonwealth must go on record as being strongly opposed to the use of this process.

However, since EPA has utilized the weighted emission scores in its PM_{2.5} response letter to the states, it still remains important to document the problems that exist with the methodology used by EPA in determining those weighted emission scores:

- EPA did not include adjacent county (i.e., county outside the MSA) emissions into the total emissions for an area when calculating the weighted emissions score. The weighted emissions score, in some instances for counties within the MSA, would have been drastically different if all counties emissions had been included in calculating the weighted emissions scores.
- EPA's choice of regional speciation monitors must be questioned. EPA, has provided no explanation how it determined "appropriate" regional monitoring sites to use in the weighted emissions scoring process. This eliminates states air quality agencies from having any input on the appropriateness of those sites. States have "background" monitors located to determine background pollutant levels. For EPA to ignore the availability of area specific information, or request input from states on the appropriateness of using one site versus another, is shortsighted. It stands to reason that an in-state regional background monitor would have been more representative of the area than a monitor located in another state. This could have drastic impacts on the results obtained from the analysis.
- EPA used the SMOKE model information from the Clear Skies modeling that was based on the 1996 NEI to generate the total carbon and crustal components of the emissions data used in their analyses. This data was used in an attempt to generate urban excess in the weighted emissions score calculation. This approach is subjective at best.
- The use of a cumulative percentage roll-up of the weighted emissions scores is inherently flawed since it causes the inclusion of counties that have scores that are significantly lower than the top scoring counties in an area. The cumulative roll-up is purely an arbitrary mathematical exercise that does not take into account important information (e.g. geographic location, predominant wind patterns, future national control measures, etc.) that should be considered in making PM_{2.5} nonattainment designations.
- EPA has still not supplied the speciation data nor the timeframes used in their analysis for the background monitor sites used in the regional analysis.

- Other national studies performed have taken a different approach in determining source apportionment. Of particular note are conclusions contained in *2003 National Air Quality and Emissions Trends Report* that compares the percent difference in PM constituency from regionally representative monitors and urban monitors. While this approach on the front end is similar to the methodology EPA used, EPA went a step further in attempting to use that data to correlate with actual emissions within a set geographic area. Of a more specific concern, when reviewing regional background PM constituency compared with urban data, sulfates appear to make up a small percentage of urban excess. We believe this shows that sulfates are a regional problem and that the proposed regional controls of SO₂ should alleviate the problem. The second concern is that carbon mass seems to make up the largest percentage of the urban excess and it appears that mobile sources are a major contributor to PM_{2.5} levels in our urban areas. With the proposed federal changes to fuels and engine requirements, contributions from this sector will also be lowered within the next few years.

Additional Regional/National Controls

EPA has finalized or is in the process of finalizing several new control initiatives that are designed to lower emissions that contribute to PM_{2.5} levels. The implementation dates for many of these initiatives will begin within the next two years and in many instances, will be in place well before control plan submittal deadlines or attainment dates. This fact should lead to the conclusion that greater caution should be exercised before saddling an area with a nonattainment designation when no local control strategies will be available or required.

Clean Air Interstate Rule (CAIR)/BART

In the June 29, 2004, response to Kentucky, EPA has proposed nonattainment designations for several counties, either within the MSA or adjacent to an MSA, due to the location of a power plant within their borders.

The May 5, 2004, proposed BART rule states on page 25204 that *"Based on our current evaluation, we believe the IAQR rule, as proposed, is clearly better than BART for those affected EGUs in the affected States which we propose to cover under the IAQR. We thus expect that the final IAQR would satisfy the BART requirements for affected EGUs that are covered pursuant to the final IAQR"*. Per this EPA finding regarding PM and EGUs under the IAQR/BART, EPA should not include counties in PM_{2.5} nonattainment areas because they contain a power plant. EPA has determined that the IAQR (i.e., CAIR) will achieve the necessary PM air quality improvements.

Upon implementation of the Clean Air Interstate Rule (CAIR) SO₂ emissions from power plants will be reduced nationwide by 3.6 million tons in 2010 (approximately 40 percent below current levels) and by another 2 million tons per year when the rules are fully implemented (approximately 70 percent below current levels). NO_x emissions would be cut by 1.5 million tons nationwide in 2010 and 1.8 million tons annually in 2015 (about 65 percent below today's levels).

To designate counties nonattainment because they have a power plant in them would place additional hardships on the county and would be counterproductive since the EGUs in the entire region will be mandated by EPA's CAIR rule to significantly control their PM precursor emissions without being designated nonattainment. In addition, Non-EGUs in Kentucky will also be required to put on BART controls, which will further achieve PM air quality improvements.

Mobile Controls

In many areas, EPA based potential nonattainment designations on the supposition that population, commuter traffic, or local VMT played an important role in determining potential impacts on PM_{2.5} levels within an MSA. It is not feasible to designate a county as nonattainment if the only reason an area has been included was due to these population-based factors. With national controls being implemented that would address this contribution, including these counties as nonattainment would place additional, burdensome planning requirements on these local areas for no useful purpose. Due to the Tier 2 Vehicle and Low Sulfur Gasoline, scheduled to be in place by 2006, average national gasoline sulfur levels will be 90% lower. The new Low Sulfur Diesel Rule, scheduled to be phased in beginning in 2007, along with new clean engines operating requirements will reduce NO_x emissions by 50%, and reduce PM emissions by more than 90%. The implementation of these new federal rules will significantly decrease the fine particulate contribution in and from areas impacted by population and transportation factors.

The final compliance dates under the CAIR and BART rules are set for relatively the same time frame as attainment of the "presumed" attainment date for PM_{2.5} levels. As seen with all control programs, emission reductions are seen in advance over a broad time frame with final compliance achieved on a specific date. Emission reductions of PM and precursor emissions will begin to take place well in advance of the final compliance dates for PM attainment.

Additionally, although final compliance for the national engine and fuel improvements will take place over several years before being fully implemented, incremental improvements will be seen in the urban areas beginning within a year after designations.

Continuing PM Reductions in State

Ambient data for the period of 1999-2004 continues to show a downward trend in PM_{2.5} levels in Kentucky. This improvement in PM_{2.5} levels is consistent with those seen in the southeast during the same time period. According to a recent EPA's report on air quality improvements, PM_{2.5} levels have decreased 18% in the southeastern U.S. since monitoring began in 1999.

It would appear that consideration of this data would be prudent in the designation process. Failure to do so ignores the fact that some areas in Kentucky are on track to achieve the PM_{2.5} standard by the end of 2004.

Contradictions in the June 29, 2004 Response Letter

There were many contradictions or inaccuracies noted throughout the June 29, letter from EPA

- On page 3, the letter states *"Campbell and Kenton Counties...and both counties part [sic] of the Cincinnati 1-hour ozone nonattainment area due to violating monitors."* This statement is incorrect. On August 30, 2002, EPA's final rule, redesignating the Kentucky portion of the Cincinnati-Hamilton 1-Hour Ozone Nonattainment Area to maintenance, became effective.
- On page 4, the table that EPA utilizes in its analysis of the weighted emissions factor for the area includes Montgomery County, Ohio. However, Montgomery County, Ohio is not in the MSA, it is in the Dayton-Springfield MSA, so the emissions from this county would skew the analysis.
- Comments on page 5 and page 12 indicate that even though a monitor shows attainment with the standard, being close to the standard is a reason for nonattainment designation.
- On page 20, the letter states *"Although Pulaski County This factor did not appear significant for the remaining counties listed in this table."* It appears that a sentence ending is missing.
- On page 22, the letter states that Madison County *"...has the largest number of workers commuting into Fayette County (6,870), which is relatively insignificant for such a large county as Fayette. Based on the analysis for this factor, there are no counties with commuting data showing a potential to contribute to the PM 2.5 violations in Fayette County."* On page 23, the letter states, *"...no other Kentucky counties, with the exception of Madison County, have VMT and commuting data with a potential to contribute to the PM 2.5 violations in Fayette County."* One page indicates that commuting data indicates no potential impact; the next page states that the commuting data indicates a potential impact.

Date Extension

EPA indicated in previous guidance its intention to consider 2002-2004 monitoring when making PM_{2.5} designations. Kentucky feels that EPA should follow through with its original intentions.

Kentucky believes that the date for official designation should be extended until after the beginning of 2005, instead of mid-November 2004. This would allow states to utilize the 2004 data, and would provide the use of the most recent available data, a requirement that EPA consistently espouses.

Meteorological Conditions/Upwind Counties

The geographic location of a county and the historic prevailing wind data in an area has an impact on PM_{2.5} monitored values. In addressing comments from information presented in the February 2004 recommendations from Kentucky, EPA claims that an area may contribute to the monitored violation even if it is located downwind of another area, due to this being a “year-long” standard. EPA has previously made numerous references to “upwind areas impacting downwind areas” and “predominant wind patterns.” This has been the premise for several control programs recently implemented by EPA and most recently set the stage for the CAIR and BART proposals. Therefore, if the geographic location and predominant wind patterns are an important variable when determining when and at what levels PM impacts are seen, including at Class I areas, then the same variable should be taken into account when EPA makes final PM_{2.5} designations.

Conclusions

- EPA should abandon its approach of using the weighted emissions factor screening levels as the sole reason to include an area in nonattainment. The method used by EPA has not been reviewed by states and other interested parties. This study, while applying similar methodologies for parts of the analysis goes beyond comparison and looks for ways to associate a regional pollutant on a localized level, without taking into account other variables in a geographic location.
- EPA is in the process of adopting CAIR to lower the regional concentrations of SO₂ and NO_x. New fuel and engine requirements to assist in lowering PM concentrations in our urban areas are being implemented within the next two years. EPA’s position has been that the implementation of these national/regional controls will alleviate PM_{2.5} problems in most areas of the nation. To require nonattainment designations for “possible potential” contributions from these sectors, when control programs have already been adopted to address them is nothing more than a unnecessary paper exercise for state and local agencies resulting in costly resource expenditures.
- As other national studies have shown, urban PM levels can definitely be driven by localized activities. EPA needs to be cognizant of information submitted by

states where there appear to be definite “pockets” of nonattainment and an urban core impact area. This can most readily be seen where there are monitors attaining the standard located within a short distance of a monitor in violation.

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.

EPA's June 29, 2004 proposal on appropriate designations for Kentucky included Boone County as nonattainment based on the following criteria:

- EPA indicates that Boone County has significant emissions and a large power plant in the County.
- EPA indicates that the population growth and VMT data for Boone County has a potential to contribute to the $PM_{2.5}$ violations in the area.

Emissions Data

In Kentucky's February recommendations, 1999 NEI data was used in the original analysis. As stated in the General Comments portion of this document, EPA had recommended that states use the 1999 since it was the latest available to states at that time.

It is important to note here that EPA, in their review, used the 2001 NEI data, which provided different data than what EPA had recommended that states use. The 2001 NEI data, nor the methodology used in the calculations for that inventory have been made available to states for review.

In EPA's June 29, 2004 letters to states, EPA looked outside the original MSA boundaries to determine if large emissions contributions from adjacent areas were having an impact on $PM_{2.5}$ levels within the MSA. Specifically, in the Cincinnati-Hamilton metropolitan area, EPA has included Montgomery County, Ohio in the analysis for the Cincinnati-Hamilton area and indicates that it too will be nonattainment, despite the fact that Montgomery County, Ohio, is in an entirely different MSA, the Dayton-Springfield MSA.

Hamilton and Clermont Counties in Ohio, and Dearborn County in Indiana contribute 88% of all SO_x within the counties EPA has recommended as nonattainment for $PM_{2.5}$. By comparison, Boone County emits only 6% of SO_x emissions from the counties recommended by EPA as having the potential to impact the violating monitors. A similar comparison can be made with both NO_x and PM. Boone County's NO_x and PM emissions stand at 8% of the total EPA recommended areas. In a detailed review of EPA's recommended areas to be designated nonattainment, Boone County ranks consistently less than 8% of

combined emissions contributions within EPA's proposed nonattainment boundaries. See Figures 1-4 below.

Figure 1

NKY Area SOx Emissions in EPA Proposed Nonattainment Counties

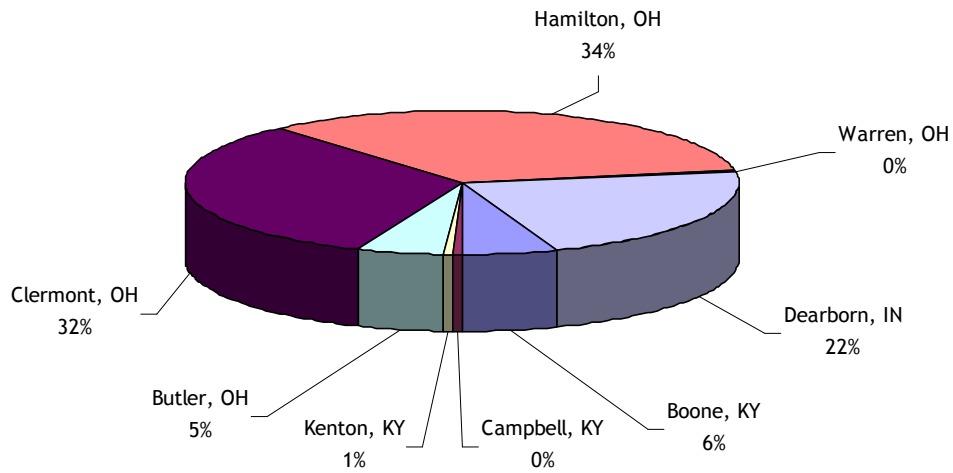


Figure 2

NKY Area NOx Emissions in EPA Proposed Nonattainment Counties

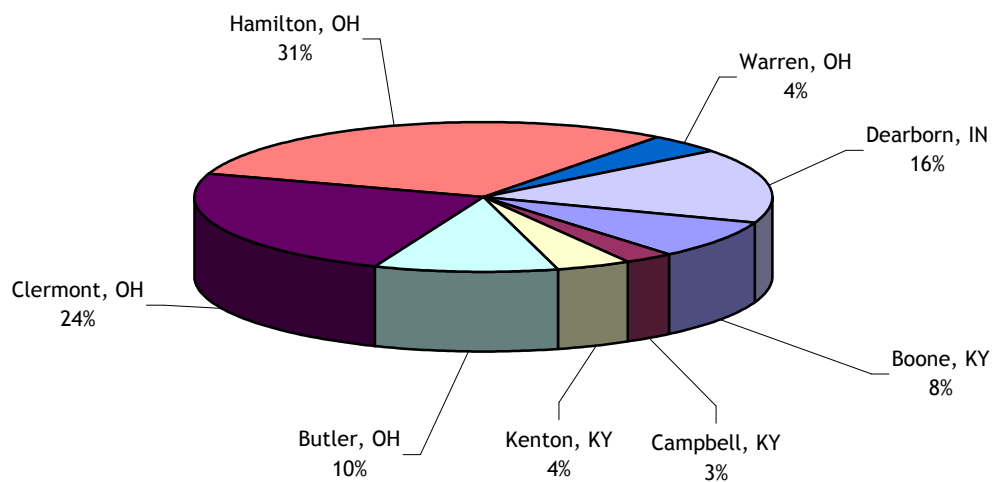


Figure 3

NKY Area PM Emissions in EPA Proposed Nonattainment Counties

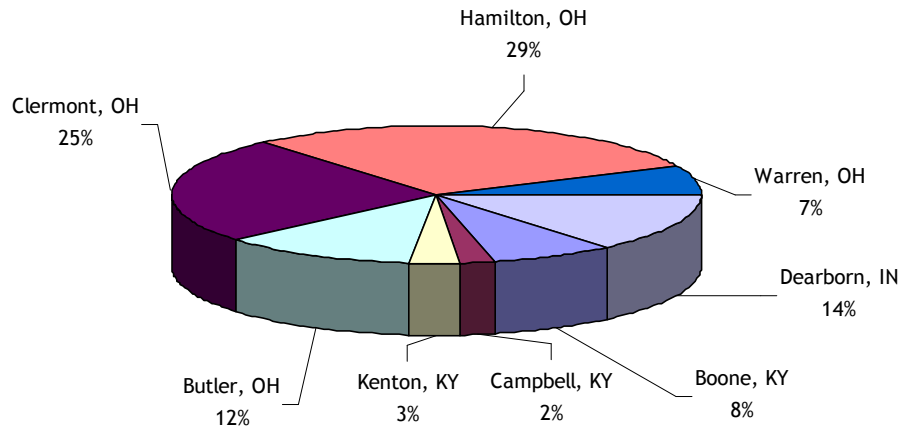
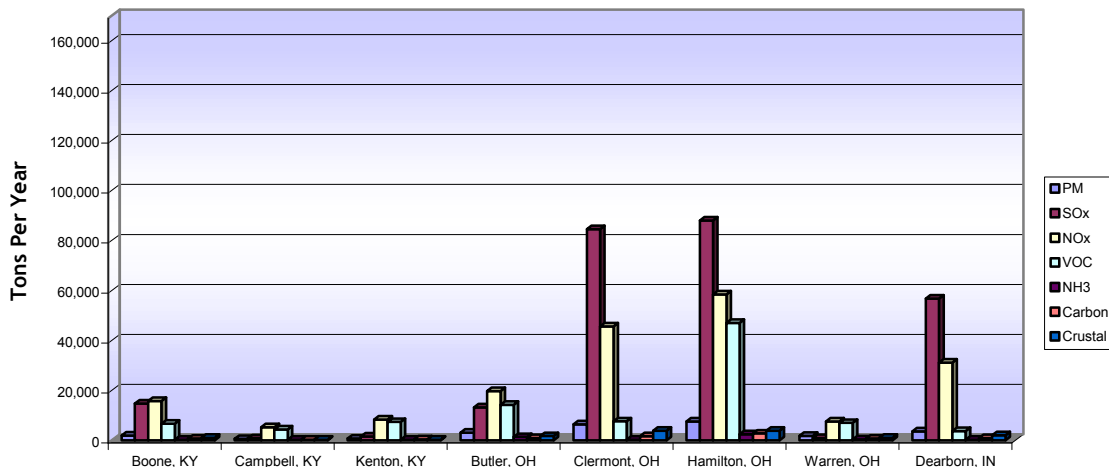


Figure 4

EPA Proposed Nonattainment Counties Emissions 2001



Additional Emission Reductions in Boone County, Kentucky

A factor not taken into account, either in the 1999 nor 2001 NEI data sets, was the implementation of additional NO_x controls at the Cynergy East Bend Power Plant in Boone County. In 2002, NO_x emissions were dropped substantially by the installation of SCR on Unit #2. The operation of this control technology was

responsible for a 2,534-ton reduction in NO_x emissions during the 2003 summer ozone season, which includes the quarters where Kentucky, and the region, typically record the highest PM_{2.5} levels. The implementation of these controls at that facility further reduce the potential emission contribution to monitors in question in Southwestern Ohio.

It is also important to note that the East Bend facility has existing controls to lower emissions of SO₂ and PM.

Additional Regional/National Controls

The implementation of new federal rules to decrease the amount of sulfur in both gasoline and diesel fuel will significantly decrease the amount of SO₂ in the entire area. Because of the Low Sulfur Diesel Rule, in 2007, new clean engines operating on 15-ppm sulfur diesel fuel will reduce NO_x emissions by 50%, and reduce PM emissions by more than 90%. Due to the Tier 2 Vehicle and Gasoline Sulfur program, by 2006 average national gasoline sulfur levels will be 90% lower.

Upon implementation of the Clean Air Interstate Rule (CAIR) SO₂ emissions from power plants will be reduced nationwide by 3.6 million tons in 2010 (approximately 40 percent below current levels) and by another 2 million tons per year when the rules are fully implemented (approximately 70 percent below current levels). NO_x emissions would be cut by 1.5 million tons nationwide in 2010 and 1.8 million tons annually in 2015 (about 65 percent below today's levels).

The first phase of compliance under the CAIR rule to reduce both SO₂ and NO_x emissions would be required by 2010, allowing substantial emission reductions in the area, by the proposed attainment date for PM_{2.5} nonattainment areas.

Monitoring Data & Trends

As can be seen in Figure 5 below, the speciation data from Kentucky's Covington speciation monitor indicates that sulfate and organic carbon are the major components of the PM_{2.5} values. In Figure 1 above and Figure 6 below, Boone County, Kentucky, contributes only 6% of the SO₂ in the area, and only 8% of the organic carbon (figure 6 below) within EPA's proposed nonattainment counties.

Figure 5

Covington Speciation Data 2001-2003
Average Concentration ($\mu\text{g}/\text{m}^3$)

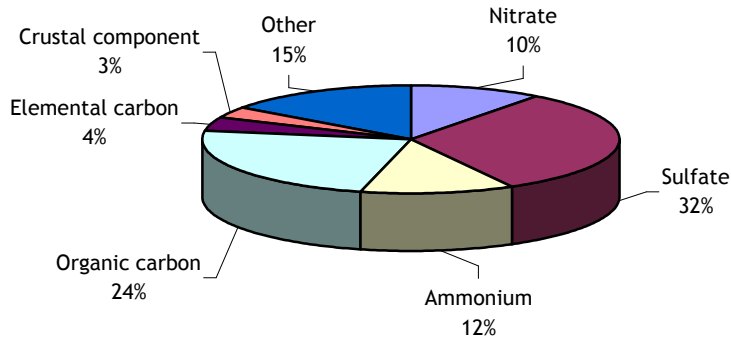
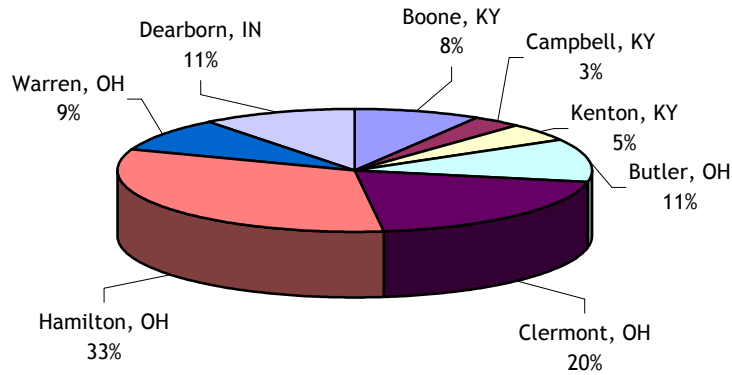


Figure 6

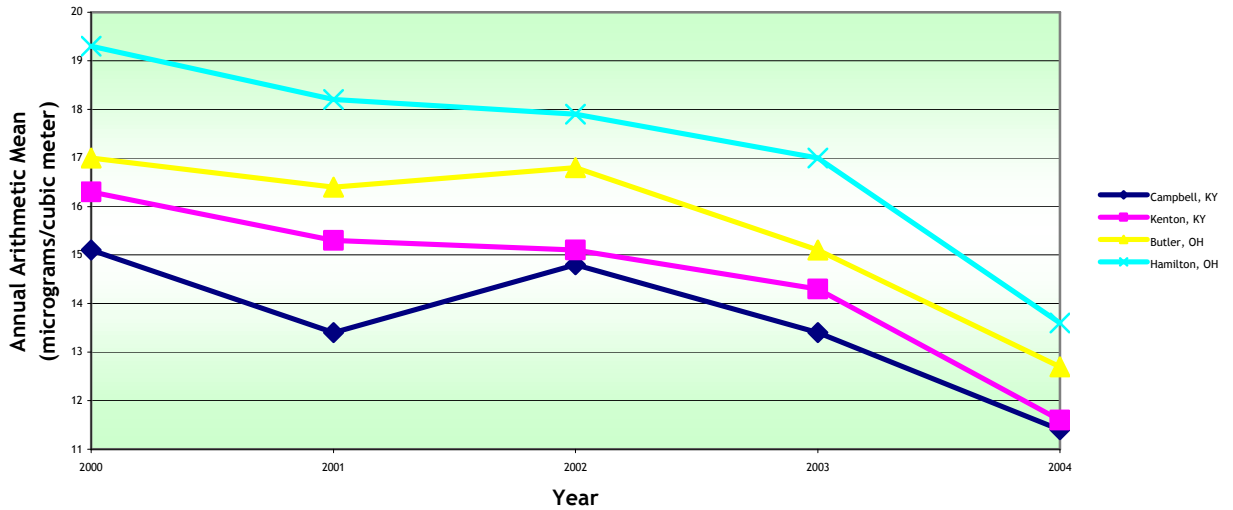
NKY Area Carbon Emissions in EPA Proposed Nonattainment Counties



The monitors located in Campbell and Kenton Counties for the 2001-2003 timeframe show attainment with the standard and the annual concentrations continue to show a downward trend as depicted in Figure 7 below, which utilized data from the year 2000 through April 2004. Monitors in Southwestern Ohio also continue to show comparable downward trends in monitoring values.

Figure 7

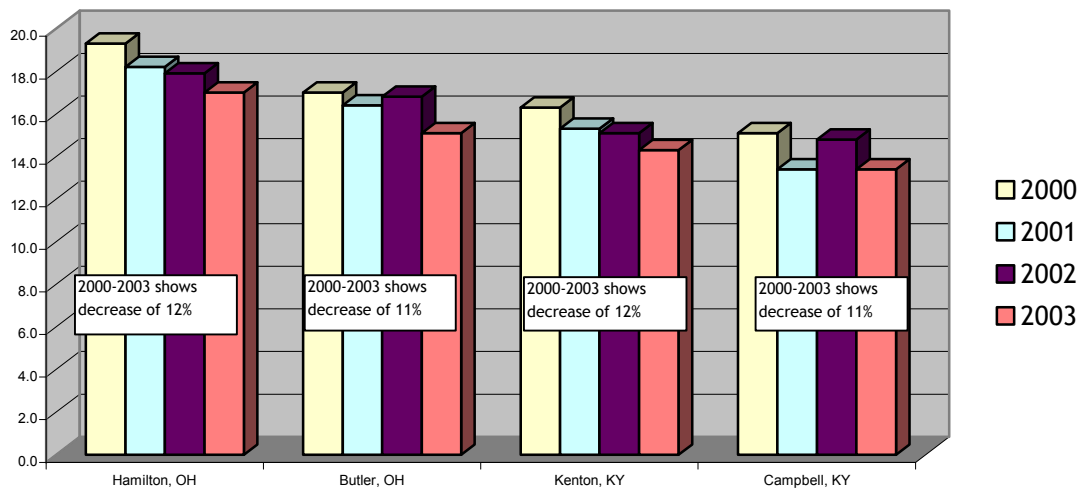
Northern Kentucky Area PM 2.5 Trend



PM_{2.5} levels throughout the entire region have been steadily decreasing over the last four years. Specifically, the PM_{2.5} levels in Campbell County have decreased by 11%, Kenton County's levels have decreased by 12%, 12% in Hamilton County, and 11% in Butler County (See Figure 8 below).

Figure 8

Decline in PM Values for NKY Area

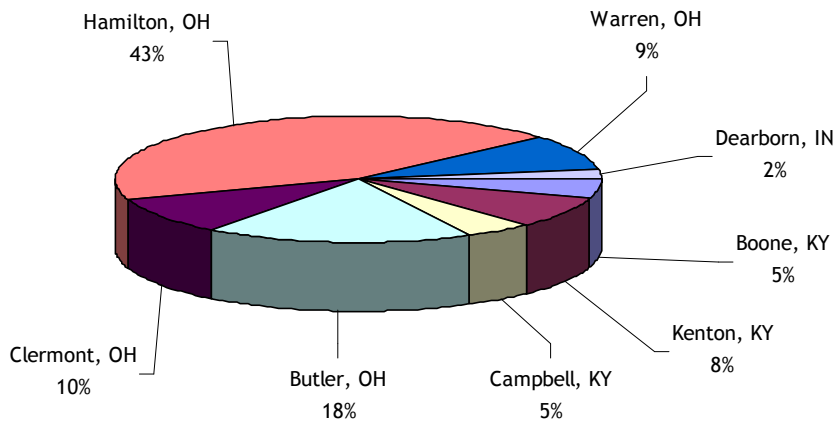


Population Growth and VMT Levels

EPA stated that Boone County had relatively high population growth that had the potential to impact $PM_{2.5}$ violations in the area. Boone County makes up only 5% of the population in the entire MSA, see Figure 9 below.

Figure 9

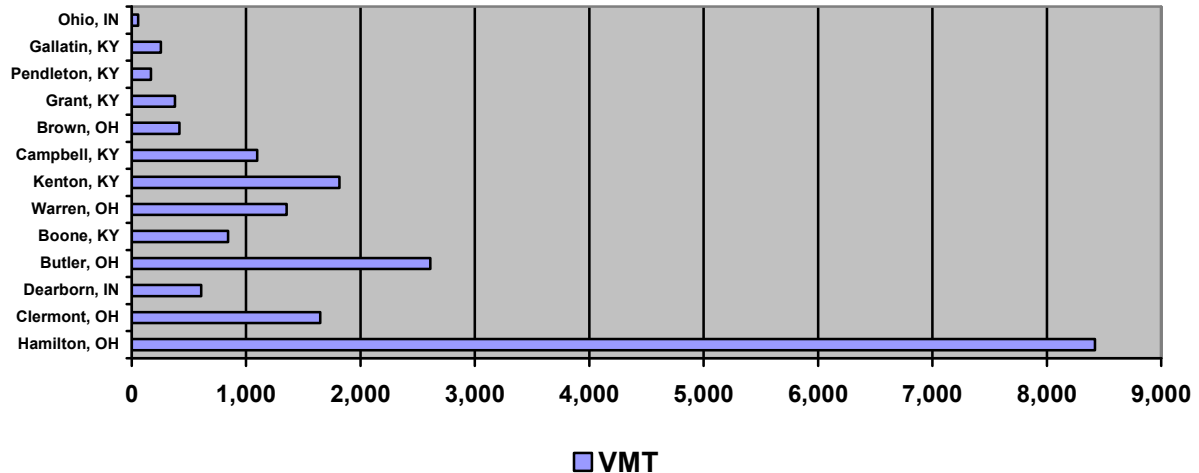
Northern Kentucky Area 2002 Population for USEPA
Proposed $PM_{2.5}$ Nonattainment Counties



Therefore, Kentucky believes that the population in Boone County should not be used as a determining factor for potential contributions to $PM_{2.5}$ violations in Southwestern Ohio.

Based on EPA's June 29, 2004, discussion of VMT data in the region, an attempt was made to segregate county VMT data by state rather than reviewing the data for the region as a whole. This is an unfair comparison. Data presented by EPA shows the overwhelming contribution from VMT in the area to be occurring outside of Boone County. Figure 10 below outlines total VMT per county for the MSA.

Figure 10
Cincinnati-Hamilton MSA
VMT per year
in thousands



Conclusions

Based on the factors discussed above, Kentucky believes that Boone County should be designated attainment for the PM_{2.5} standard.

- Kentucky believes that EPA’s use of the weighted emissions scoring approach was skewed. A review of actual percentages of emissions contributions to an area shows that Boone County does not have the potential to contribute to PM_{2.5} levels within the region.
- PM_{2.5} levels continue to decline throughout the entire region. From a review of all monitors in the region, an average 12% decline in PM_{2.5} levels has occurred from 2000 through 2003. Every monitor in Kentucky is currently showing values well within attainment of the annual PM_{2.5} standard using 2002 through 2004 data.
- The population growth nor VMT of Boone County is significant enough to have the potential to impact PM_{2.5} levels in the region. Boone County’s population actually represents only 5% of the actual MSA. The VMT from Boone County is substantially lower than other counties within the MSA.
- Additional emission reductions on a national and regional level will provide substantial benefits in the region. The anticipated sulfur reductions due to the Low Sulfur Diesel Rule, the Tier 2 Vehicle and

Gasoline Sulfur programs, and the Clean Air Interstate Rule (CAIR) will further lower pollutant levels within this region.

- It appears EPA has included Boone County as a potential nonattainment area due to an emissions contribution from the East Bend power plant. However, a review of the actual percentage of emissions in the entire area, shows that Boone County's contribution pales in comparison to other counties within the proposed nonattainment counties. That facility already has in place existing controls for SO₂, NO_x and PM. Including Boone County as nonattainment in order to gain additional controls would serve no purpose.

Based on the above conclusions, Boone County, Kentucky should be designated attainment for the PM_{2.5} standard. To have this county designated nonattainment would invoke additional, substantial, unnecessary requirements on local government planning agencies with little or no benefit to the area.

Substantial local emission reductions from Boone County have already occurred, or will have occurred well before attainment dates for this standard. Drastic emission reductions are scheduled to occur in the mobile sector throughout the next several years that will greatly impact pollutant levels in the area. Couple these changes with those anticipated by the CAIR provisions, which will further reduce SO_x and NO_x emissions within the region, and the air monitoring data demonstrating attainment of the PM_{2.5} Standard, the only conclusion that can be drawn is that Boone County, Kentucky, should be designated attainment for the PM_{2.5} Standard.

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.

EPA's June 29, 2004 proposal on appropriate designations for Kentucky included Boyd County as nonattainment based on the following criteria:

- EPA indicates that Boyd County has significant SO_x, NO_x, and PM emissions, in close proximity to the violating MSA monitors and that anticipated controls would not be implemented until after designations are made;
- Even though Boyd County has monitoring data very close to the standard, EPA states that this indicates a potential to contribute to the PM_{2.5} violations in the area;
- EPA indicates that the population and population density of Boyd County has a potential to contribute to the PM_{2.5} violations in the area.

Emissions Data

In Kentucky's February recommendations, 1999 NEI data was used in the original analysis. As stated in the General Comments portion of this document, EPA had recommended that states use the 1999 data since it was the latest available to states at that time.

It is important to note here that EPA, in their review, used the 2001 NEI data which provided different data than what EPA had recommended that states use. The 2001 NEI data, nor the methodology used in the calculations for that inventory have been made available to states for review.

However, in EPA's June 29, 2004 letters to states, EPA looked outside the original MSA boundaries to determine if large emissions contributions from adjacent areas were having an impact on PM_{2.5} levels in many of the areas. Specifically, in the Huntington-Ashland metropolitan area, EPA in a separate letter to Ohio, has also recommended that Adams, Gallia, and Scioto Counties in Southeastern Ohio also be included as nonattainment areas due to the substantial, significant emissions of SO_x, NO_x, and PM from those counties.

Adams and Gallia Counties alone contribute 80% of all SO_x within the counties EPA has recommended as nonattainment for PM_{2.5}. By comparison, Boyd County emits only 3% of SO_x emissions from the counties recommended by EPA as having the potential to impact the violating monitors. A similar comparison

can be made with both NO_x and PM. Boyd County's NO_x emissions rank at 7% of the total EPA recommended areas, and PM at 9%. In a detailed review of EPA's recommended areas to be designated nonattainment, Boyd County ranks consistently at less than 10% of combined emissions contributions within EPA's proposed nonattainment boundaries. See Figures 1-4 below.

Figure 1

Ashland Area SO_x Emissions in EPA Proposed Nonattainment Counties

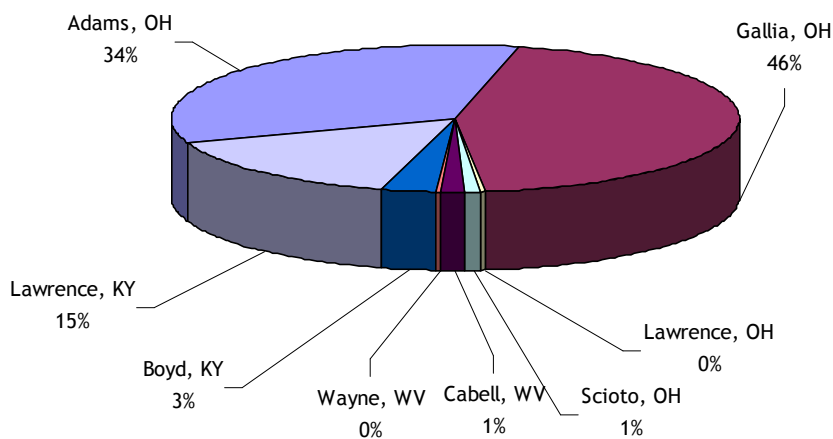


Figure 2

Ashland Area NO_x Emissions in EPA Proposed Nonattainment Counties

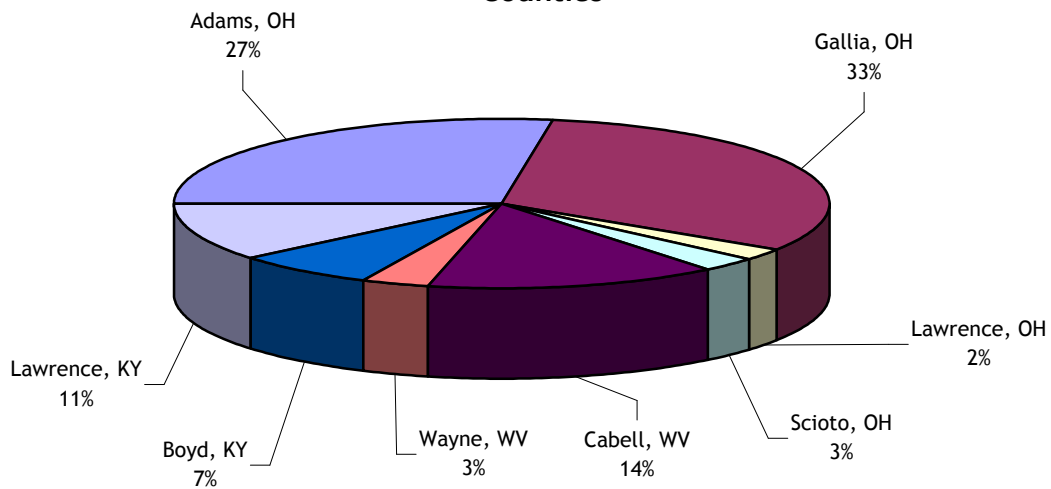


Figure 3

Ashland Area PM Emissions in EPA Proposed Nonattainment Counties

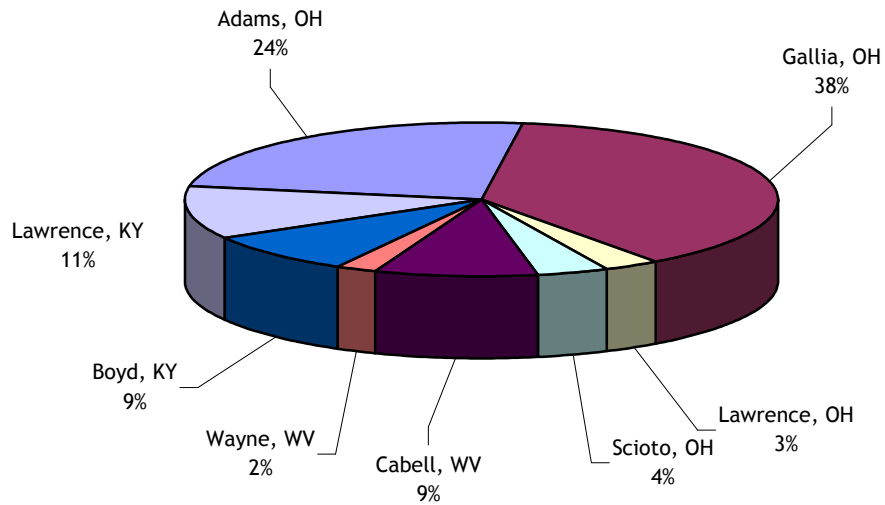
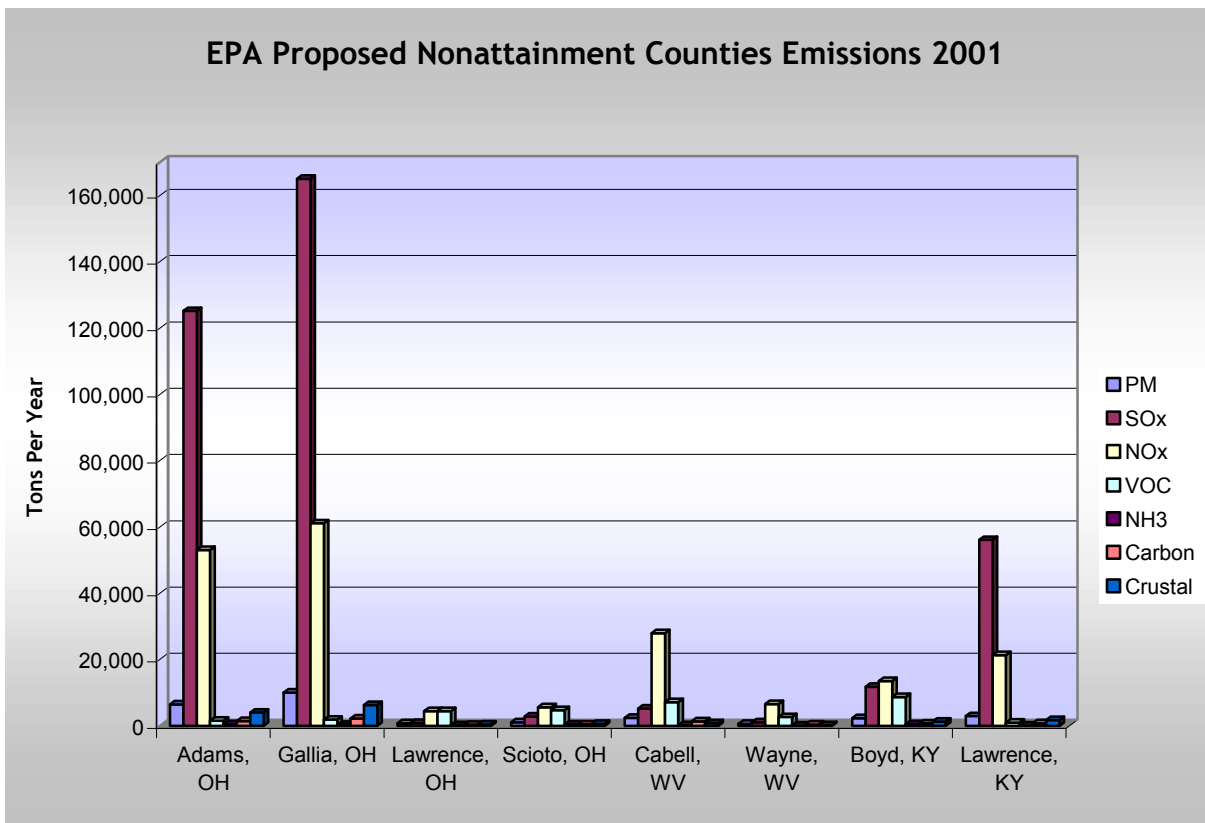


Figure 4

EPA Proposed Nonattainment Counties Emissions 2001



Additional Emission Reductions in Boyd County

EPA's response to Kentucky also stated that the additional controls documented in the February submittal at Calgon Carbon and Catlettsburg Refining, LLC were not being considered due to the implementation date being at the end of 2005, well after designations are made. Kentucky offers the following additional information.

Calgon Carbon Corporation

Emission reductions documented at Calgon Carbon occurred in 2002 with the shut down of the C line activators.

Additional sulfur dioxide emission limits and operating restrictions have been imposed on Calgon Carbon Corporation, a facility that has the potential to contribute to PM_{2.5} levels in the area, by the issuance of Title V permit V-00-015, issued April 27, 2004. Calgon Carbon shutdown its C-Line Activators in 2002 thus creating significant actual SO₂ reductions which have not been documented in the 2001 NEI data used by U.S. EPA in the June emissions analysis.

Additionally, the current permit requires that sulfur dioxide controls of at least 90% efficiency, which results in 304 tons per year decrease, be in place if these Activators are ever re-started. In addition, the Package Boiler's allowable SO₂ emissions have been reduced by the requirement that only natural gas be used as fuel. Previously the use of fuel oil was permitted. See reductions noted in Table 1 and Figure 5 below.

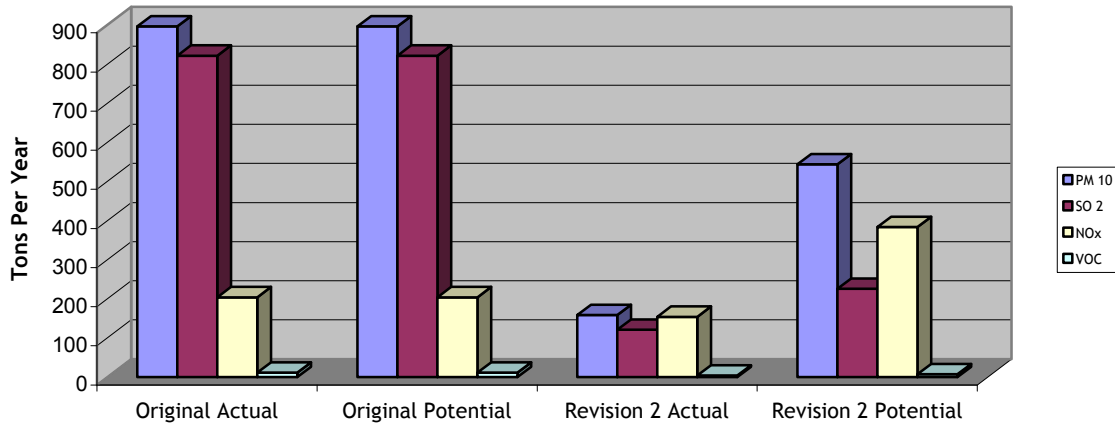
This permit can be found on the Kentucky Division for Air Quality website at: http://www.air.ky.gov/NR/ronlyres/C2470F5E-8021-43E6-BF33-5268DB5503F1/0/FinalR2_3104.pdf

Table 1
Reductions for Calgon Carbon Corporation

Pollutant	Original Actual (tpy)	New Permitted Actual (tpy)	Actual Emission Reductions (tpy)
PM₁₀	897	159	738
SO₂	822	121	701
NOx	204	154	50
VOC	11	4	7

Figure 5

Calgon Carbon Reductions in 2004 Title V Permit



Although there is some indication that the NOx emissions in the latest permit have the potential to increase, actual NOx emissions are anticipated to remain below the original potential emissions levels. Additionally, speciation monitoring data for the Ashland area show that the PM_{2.5} levels in the area are primarily SO_x and carbon related.

Catlettsburg Refining, L.L.C.

Catlettsburg Refining, L.L.C. is undergoing a project entitled the Refinery Modernization Project, which involves new operational and emissions limitations. The proposed Refinery Modernization Project involves installation of new equipment and upgrading of existing equipment. This will allow the refinery to produce cleaner-burning transportation fuels, to improve yields, to utilize a wider range of purchased feed materials, and to reduce fixed and operating costs. In addition, the project will substantially reduce emissions of SO₂ and NO_x from the refining operations mainly due to the fact that the new catalytic cracker will now be subject to much more stringent New Source Performance Standards.

The following actual emission reductions are expected to occur by 2006 (see Figure 6 below):

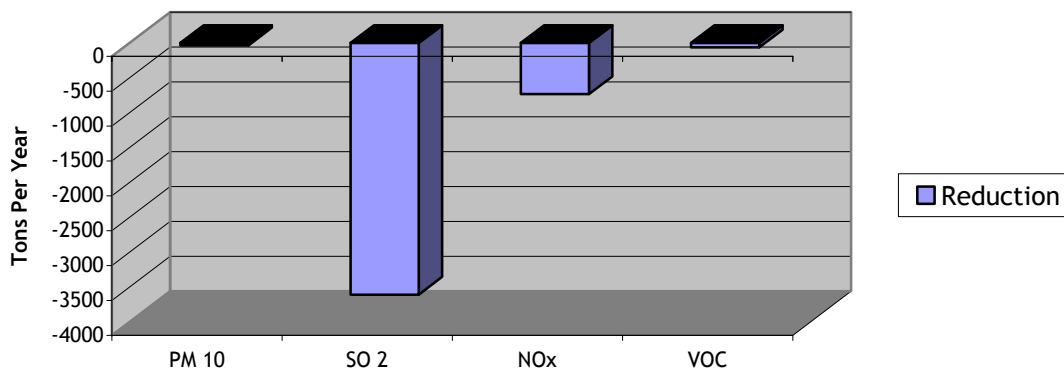
- PM - 33 tons per year (decrease)
- PM₁₀ - 33 tons per year (decrease)
- SO₂ - 3,605 tons per year (decrease)
- NO_x - 730 tons per year (decrease)
- CO - 4 tons per year (decrease)
- VOC - 64 tons per year (decrease)

The most recent modification to the permit that requires these limitations was issued June 4, 2004, and can be found on the Kentucky Division for Air Quality website at:

<http://www.air.ky.gov/NR/rdonlyres/6EB5FA41-A66E-4097-A763-7936B5FB6EFF/0/DraftR2.pdf>

Figure 6

Catlettsburg Refining, L.L.C. Reductions in Permit VF-02-001 Revision 2 2004



Although these controls will not be implemented before designations, the reductions are an ongoing process and will be implemented before any control strategies are required to be submitted to U.S. EPA in 2008.

Additional Regional/National Controls

The implementation of new federal rules to decrease the amount of sulfur in both gasoline and diesel fuel will significantly decrease the amount of SO₂ in the entire area. Because of the Low Sulfur Diesel Rule, in 2007, new clean engines operating on 15-ppm sulfur diesel fuel will reduce NO_x emissions by 50%, and reduce PM emissions by more than 90%. Due to the Tier 2 Vehicle and Gasoline Sulfur program, by 2006 average national gasoline sulfur levels will be 90% lower.

Upon implementation of the Clean Air Interstate Rule (CAIR) SO₂ emissions from power plants will be reduced nationwide by 3.6 million tons in 2010 (approximately 40 percent below current levels) and by another 2 million tons per year when the rules are fully implemented (approximately 70 percent below current levels). NO_x emissions would be cut by 1.5 million tons nationwide in 2010 and 1.8 million tons annually in 2015 (about 65 percent below today's levels).

The first phase of compliance under the CAIR rule to reduce both SO₂ and NO_x emissions would be required by 2010, the proposed attainment date for PM_{2.5} nonattainment areas, allowing substantial emission reductions in the area.

Monitoring Data & Trends

As can be seen in Figure 7 below, the speciation data from Kentucky's Ashland speciation monitor indicates that sulfate and organic carbon are the major components of the PM_{2.5} values. In Figure 1 above and Figure 8 below, Boyd County, Kentucky, contributes only 3% of the SO₂ in the area, and only 9% of the organic carbon within EPA's proposed nonattainment counties.

Figure 7

**Ashland Speciation Data 12/9/01 - 12/11/03
Average Concentration (µg/m³)**

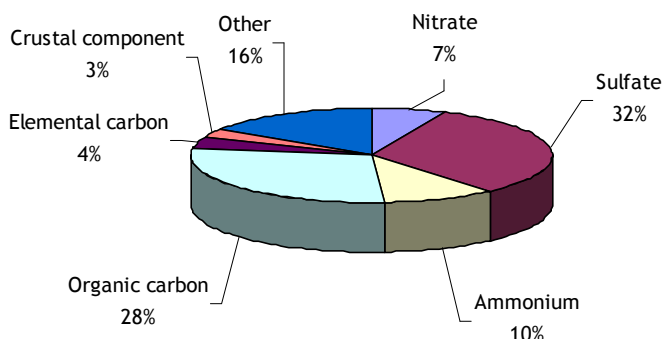
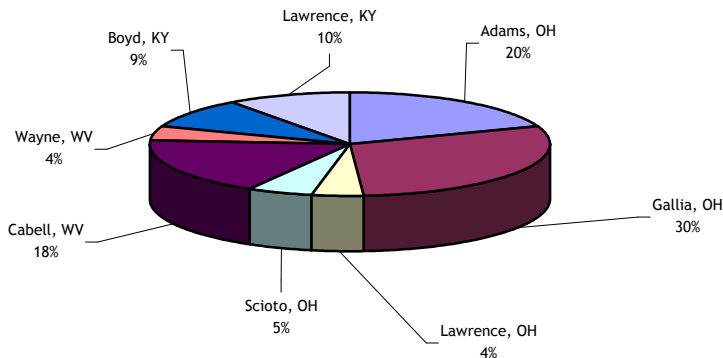


Figure 8

**Ashland Area Carbon Emissions in EPA Proposed
Nonattainment Counties**

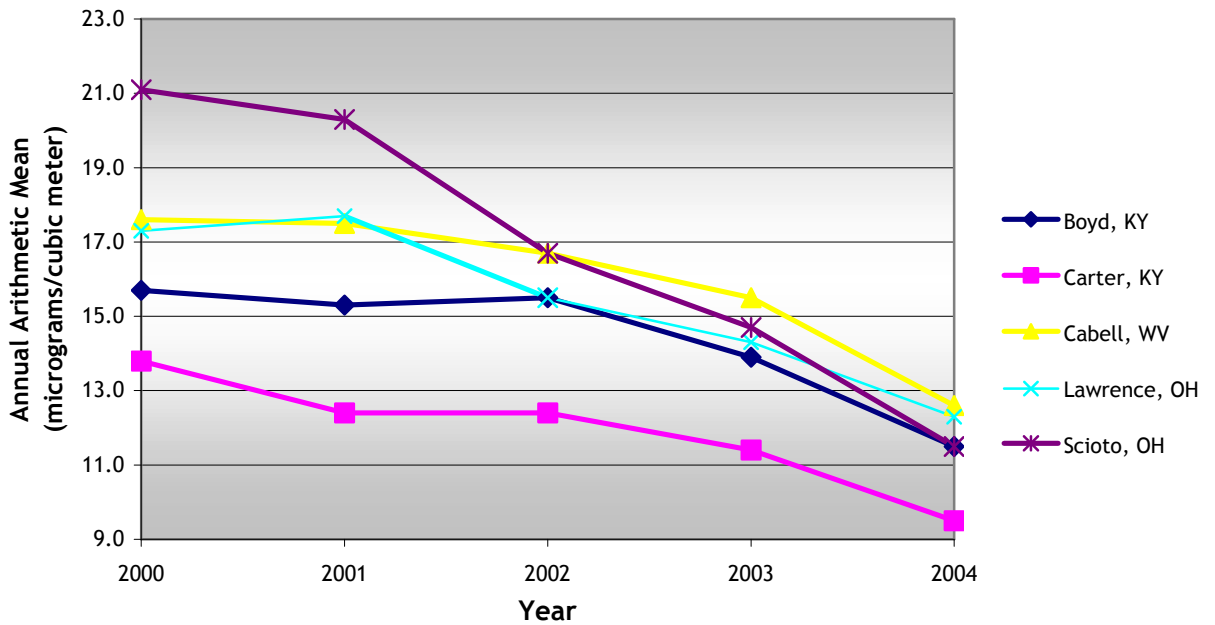


As EPA notes in its June 29, 2004 letter, the monitor located in Boyd County shows attainment with the PM_{2.5} standard, with a 2001-2003 design value of

14.9 $\mu\text{g}/\text{m}^3$. In addition to showing attainment with the standard, the annual concentrations continue to show a downward trend as depicted in Figure 9 below, which utilized data from the year 2000 through April 2004.

Figure 9

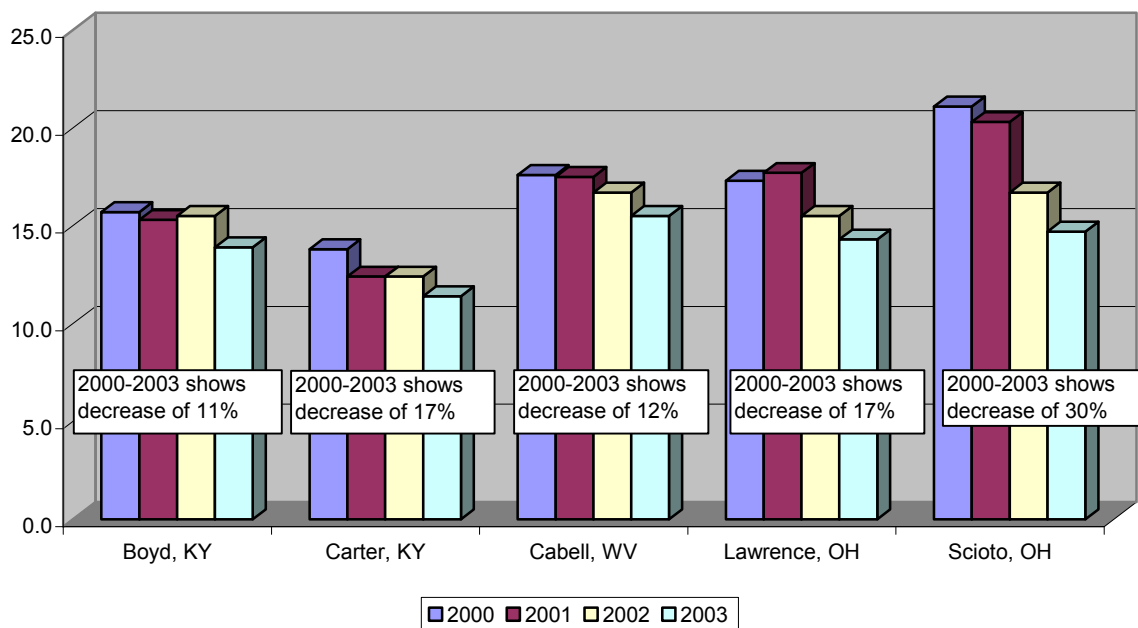
Ashland Area PM 2.5 Trend Utilizing Most Current Available Data



PM_{2.5} levels throughout the entire region have been steadily decreasing over the last four years. Specifically, the PM_{2.5} levels in Boyd County have decreased by 11%, Carter County's levels have decreased by 17%, 12% in Cabell County, 17% in Lawrence County, and 30% in Scioto County (See Figure 10 below).

Figure 10

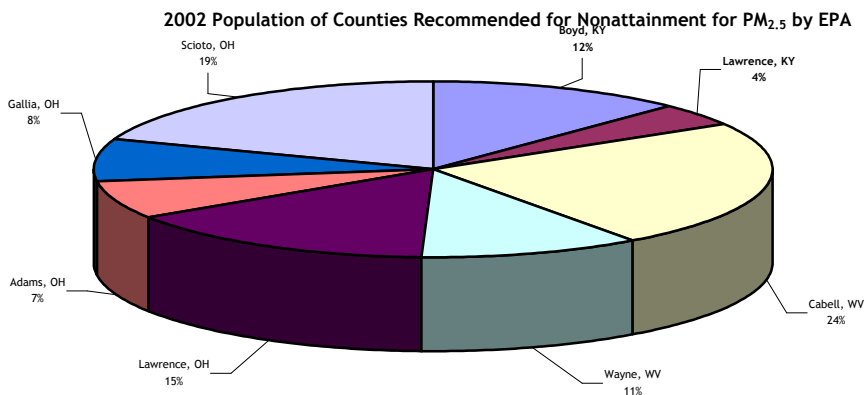
Decline in PM Values for Ashland Area



Population Density and Growth

EPA stated that 2002 population levels indicated Boyd County had the potential to impact PM_{2.5} violations in the area. Although Boyd County has the third largest population in the MSA, it makes up only 16% of the population in the entire MSA and only 12% when compared to the West Virginia and Ohio counties proposed for nonattainment, see Figure 11 below.

Figure 11



Additionally, the 2000 census data indicates Boyd County's population from 1990 through 2000 decreased by approximately 2.7% (51,150 to 49,752). The population is further projected to decrease by an additional 3.2% between 2000 and 2010.

Therefore, Kentucky believes that the population in Boyd County does not have the potential to contribute to PM_{2.5} violations in the area.

Conclusion

Based on the factors discussed above, Kentucky believes that Boyd County should be designated attainment for the PM_{2.5} standard.

- Kentucky believes that EPA's use of the weighted emissions scoring approach was skewed. EPA did not include adjacent county emissions in the total emissions being analyzed for the area. If the emissions from the entire area under review were used, vs just those within the MSA, a very different result in the weighted emissions scores would have occurred. Boyd County would not have the potential to contribute significantly to PM_{2.5} levels within the region.
- PM_{2.5} levels continue to decline throughout the entire region. From a review of all monitors in the region, an average 17% decline in PM_{2.5} levels has occurred from 2000 through 2003. Every monitor in the region is currently showing values well within attainment of the annual PM_{2.5} standard using 2002 through 2004 data.
- The population of Boyd County is not significant enough to have the potential to impact PM_{2.5} levels in the region. Population in this area has shown a continuing decline over the last several years and that decline is anticipated to continue. Boyd County's population actually represents only 16% of the actual MSA and, when compared with the population of the counties proposed by EPA for nonattainment, only 12% of the total population.
- Additional emission reductions on a national and regional level will provide substantial benefits in the region. The anticipated sulfur reductions due to the Low Sulfur Diesel Rule, the Tier 2 Vehicle and Gasoline Sulfur programs, and the Clean Air Interstate Rule (CAIR) will further lower pollutant levels within this region.
- The substantial emission reductions that have already occurred from Calgon Carbon, and those that will occur at the Catlettsburg Refining operations result in over 4,000 tons of SO₂ being removed from the area every year, bringing total for Boyd County well below EPA's 10,000 TPY

significance level for any one pollutant. These controls have been made permanent and enforceable and will provide long-term emission reductions to the region.

To have this county designated nonattainment would invoke additional substantial and unnecessary requirements on local government planning agencies. Substantial local emission reductions from Boyd County have already occurred, or will occur well before attainment dates for this standard. Drastic emission reductions are scheduled to occur in the mobile sector throughout the next several years that will greatly impact pollutant levels in the area. In addition, reductions anticipated by the CAIR provisions, the air monitoring data demonstrating attainment of the $PM_{2.5}$ Standard, and the decline in $PM_{2.5}$ levels throughout the entire region, lead to the conclusion that Boyd County, Kentucky, should be designated attainment for the $PM_{2.5}$ Standard.

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.

EPA's June 29, 2004, proposal on appropriate designations for Kentucky included Bullitt County as nonattainment based on the following criteria:

- EPA indicates that Bullitt County has significant emissions and close proximity to the violating MSA monitors.
- EPA indicates that Bullitt County has monitoring data very close to the PM_{2.5} standard, and that this indicates a potential to contribute to the PM_{2.5} violations in the area;
- EPA states that Bullitt County has relatively high traffic and commuting patterns;
- EPA states that Bullitt County's population growth is significant enough to contribute to PM_{2.5} violations in Jefferson County.

Emissions Data

In Kentucky's original February recommendations, 1999 NEI data was used in the original analysis. That data documented that Bullitt County did not contribute a significant amount of suspect emissions in the seven county Metropolitan Statistical Area (MSA), mandated for review by U.S. EPA.

In EPA's June 29, 2004, letters to states, EPA looked outside the original MSA boundaries to determine if large emissions contributions from adjacent areas were having an impact on PM_{2.5} levels in many of the areas. EPA also used the 2001 NEI which provided slightly newer data than had been recommended that states use.

Based on EPA's 2001 NEI data supplied to states, Bullitt County does not emit any pollutant over 10,000 TPY. In fact, Bullitt County emits less than 1% of SO_x emissions from the counties recommended by EPA as having the potential to impact the violating monitors. A similar comparison can be made with both NO_x and PM. Bullitt County's NO_x emissions stand at 3% and PM at 5% of the total EPA recommended areas. In a detailed review of EPA's recommended nonattainment areas, Bullitt County ranks consistently low in potential emissions contributions within EPA's proposed nonattainment boundaries (See Figures 1-4 below). Based on this data, Kentucky strongly objects to EPA's characterization of emissions from Bullitt County as being significant.

Figure 1

Louisville Area 2001 SOx Emissions

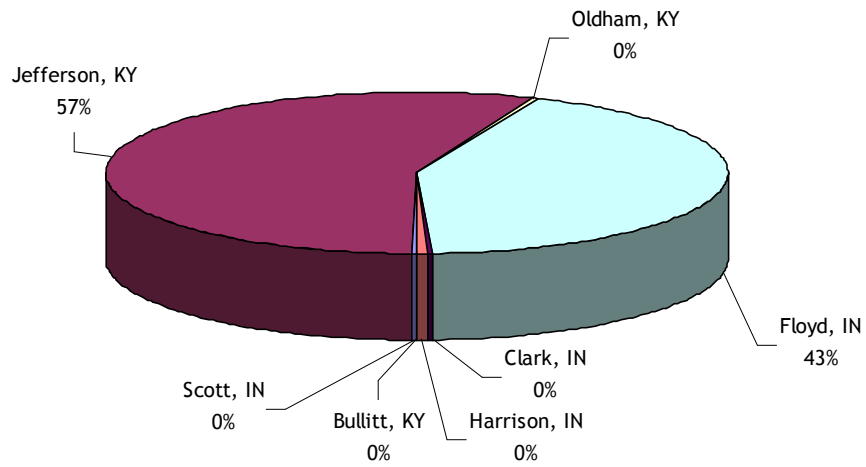


Figure 2

Louisville Area 2001 NOx Emissions

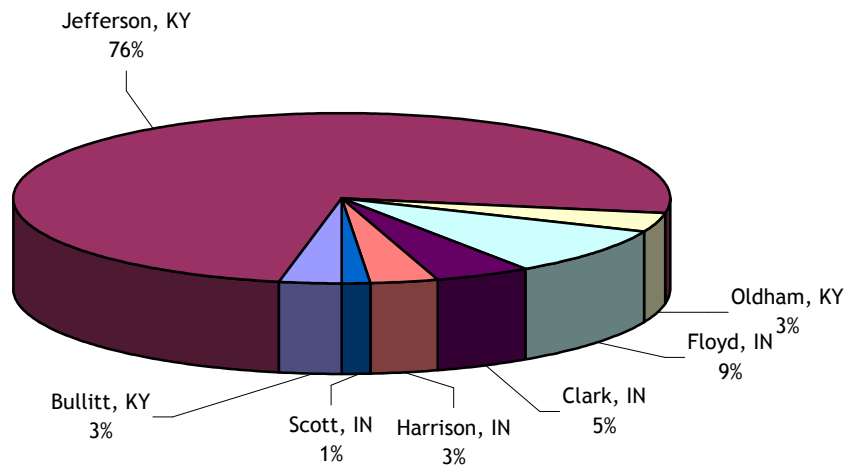


Figure 3

Louisville Area 2001 PM Emissions

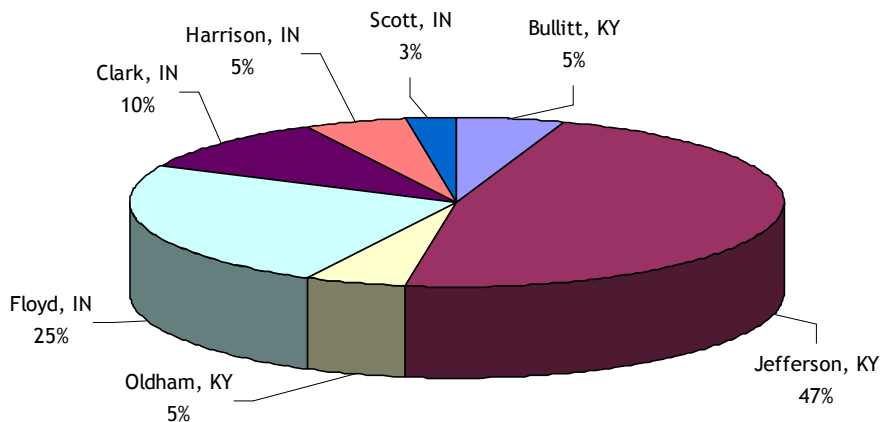
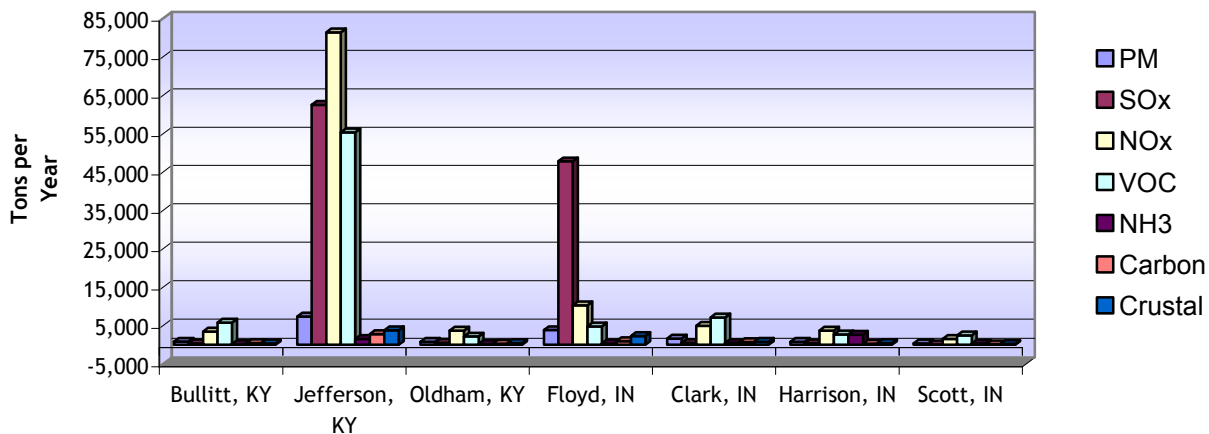


Figure 4

Louisville Area 2001 Emissions



In Figure 5 below, the data from Jefferson County’s speciation monitor on Barret Avenue indicates that sulfates and organic carbon are the major components of the PM_{2.5} values in the area. As can be seen in Figure 1 above, Bullitt County, Kentucky, contributes less than 1% of the SO₂ and approximately 8% of the total organic carbon emissions (Figure 6 below) in the counties recommended by EPA as having the potential to impact the violating monitor. In both instances, every other county with the exception of Oldham County, Kentucky and Harrison County, Indiana has a higher potential to contribute to the problem.

Figure 5

LMAPCD (Barret)
AIRS Code 212270007 POC 5 (ROUTINE)
Date(s): 1/3/03 - 12/29/03
Average Concentration ($\mu\text{g}/\text{m}^3$)

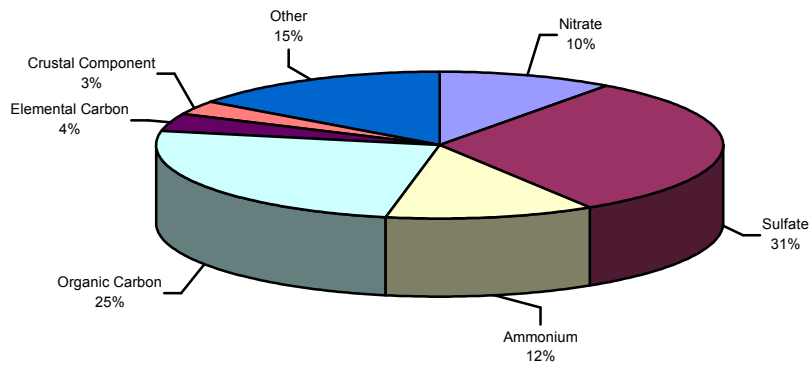
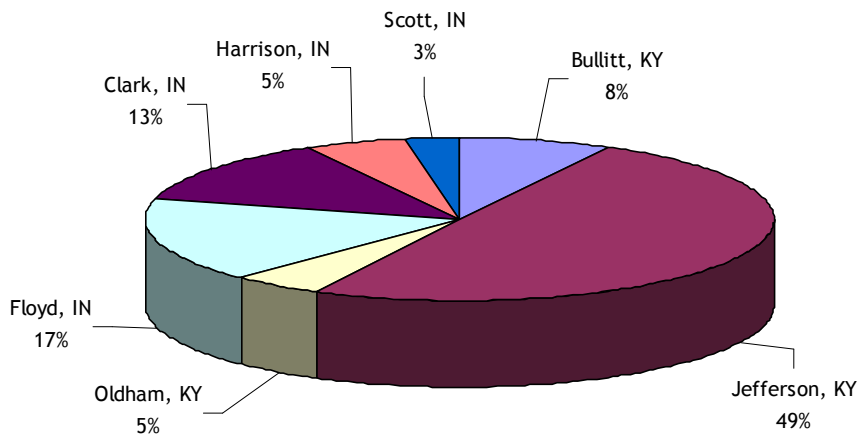


Figure 6

Louisville Area 2001 Carbon Emissions



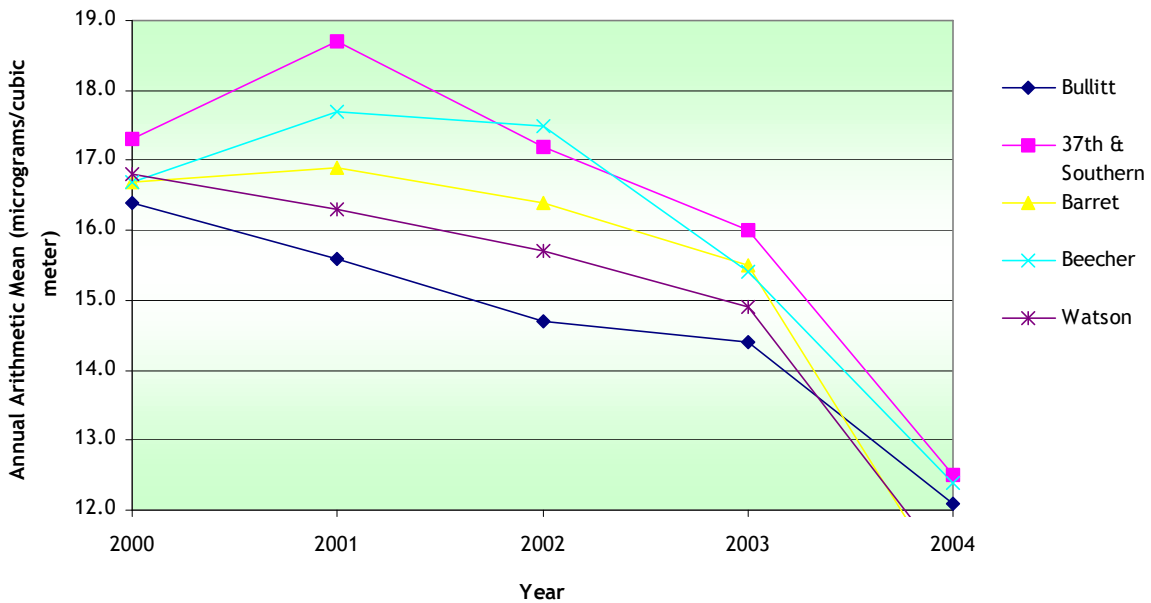
Monitoring Data and Trends

The monitor located in Bullitt County shows attainment with the $\text{PM}_{2.5}$ standard. For the 2001-2003 timeframe the design value ($14.9 \mu\text{g}/\text{m}^3$) approaches the annual standard but continues to demonstrate attainment. The

annual concentrations, for both the Bullitt County monitor and for the entire area continue to show a downward trend as depicted in Figures 7 and 8, which utilized data from the year 2000 through April 2004.

Figure 7

Louisville Area PM_{2.5} Trend Utilizing Most Current Available Data

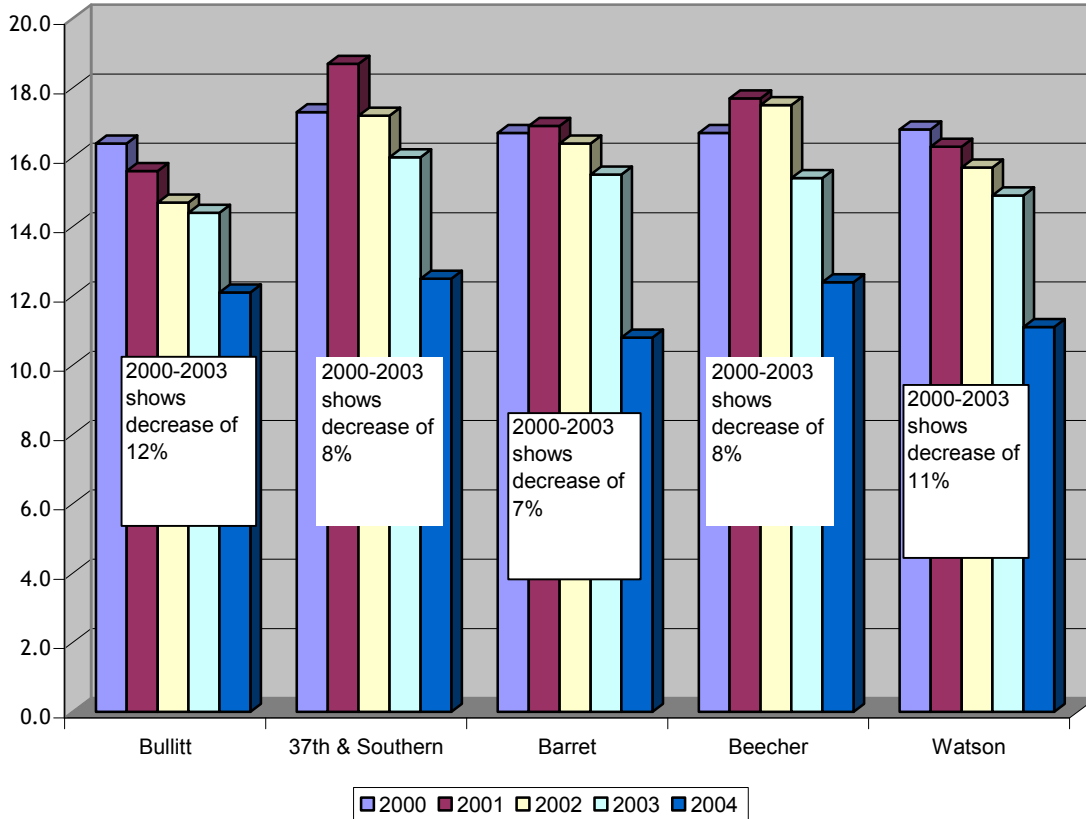


As depicted in Figure 8 below, monitoring data for the Louisville area shows a 7% - 12% decrease, depending on monitor location, from the year 2000 through 2003.

Monitoring data shows that Bullitt County is attaining the PM_{2.5} standard. Based on the continuing decline in PM_{2.5} levels throughout the region, all monitors within this region are anticipated to attain the PM_{2.5} standard without any additional controls being imposed on the area. The monitor with the highest design value in the entire region, located on 37th and Southern in Jefferson County is anticipated to be in compliance with the standard by the end of 2005, if levels continue to decline as they have in the past. Based on air monitoring data so far in 2004, levels may decline more rapidly than in the past few years.

Figure 8

PM Decreases in the Louisville Area

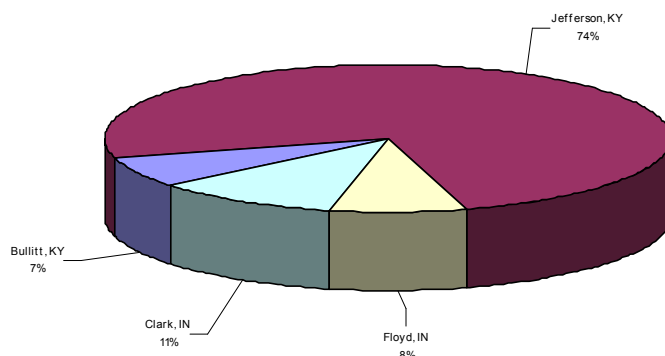


Population Density and Growth

EPA stated that 2002 population levels indicated Bullitt County had the potential to impact $PM_{2.5}$ violations in the area. However, while Bullitt County has the fourth highest population in the MSA, the county itself comprises approximately only 6% of the entire MSA, and only 7% of the counties recommended by EPA as having the potential to impact the violating monitors. See Figure 9 below.

Figure 9

Louisville Area 2002 Population for USEPA Proposed PM_{2.5} Nonattainment Counties



Traffic and Commuting Patterns

EPA's position on traffic and commuting patterns in the June 29th letter noted that Bullitt County has potentially significant numbers of commuters impacting the area. However, further in the document under a specific discussion of population levels, EPA states that population is not a factor in any county except Jefferson. In 2002 Bullitt County contributed only 7% of the VMT's in the area recommended by EPA as having the potential to impact the violating monitors. Based on data used by EPA in their analysis, Bullitt County had 19,730 commuters traveling into Jefferson County. This number is insignificant (6.5%) when compared to 303,624 Jefferson County commuters in 2002.

It is important to note that any possible impacts from population or commuter contributions from Bullitt County would be mitigated in the near future by national fuel programs referenced later in this document.

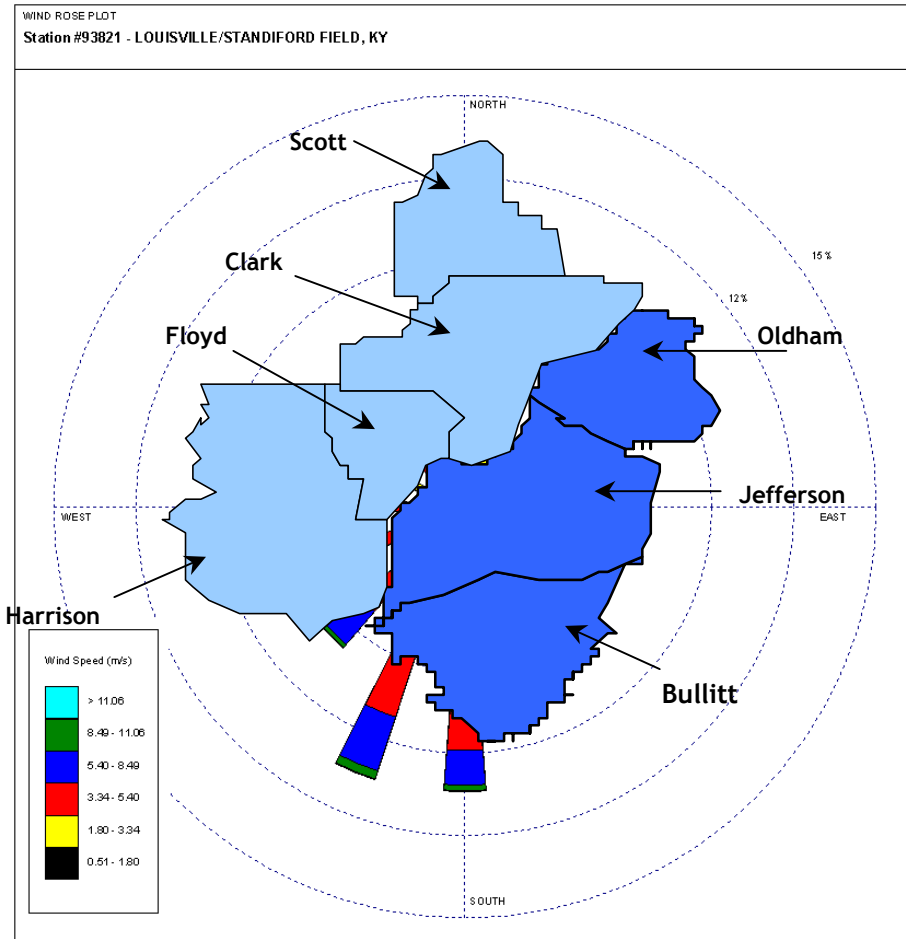
Therefore, Kentucky believes that Bullitt County does not have the population, commuter, or VMT potential to contribute to PM_{2.5} violations in the area.

Additional Information

A further review of wind rose data shows that predominant winds generally come from the south-southwest, which would typically show a contribution coming from Bullitt County (See Figure 10). However, previous documented

data outlining emissions contribution percentages in the area, population and commuter data show that activities actually occurring in Bullitt County would have little impact on $PM_{2.5}$ levels within that county or on other counties within the MSA. Rather, it appears that the monitor located in Bullitt County is being impacted by emissions from other areas.

Figure 10



Using the NOAA HYSPLIT Model, a review of some of the highest PM_{2.5} level 24-hour periods was performed to attempt to determine possible contributions from Bullitt County. A separate analysis was performed on days when monitoring levels were high in Bullitt County and days when monitoring levels were high in other monitors within the region.

As can be seen in Attachments A through C on days when monitored values were highest in Bullitt County, wind patterns indicate a potential impact from both Jefferson County and Southern Indiana.

A separate review of days when monitored values were highest in Jefferson County and Southern Indiana, again show no impact coming from Bullitt County. See attachments D through L.

Additional Regional/National Controls

The implementation of new federal rules to decrease the amount of sulfur in both gasoline and diesel fuel will significantly decrease the amount of SO₂ in the entire area. Because of the Low Sulfur Diesel Rule, in 2007, new clean engines operating on 15-ppm sulfur diesel fuel will reduce NO_x emissions by 50%, and reduce PM emissions by more than 90%. Due to the Tier 2 Vehicle and Gasoline Sulfur program, by 2006 average national gasoline sulfur levels will be 90% lower.

Upon implementation of the Clean Air Interstate Rule (CAIR) SO₂ emissions from power plants will be reduced nationwide by 3.6 million tons in 2010 (approximately 40 percent below current levels) and by another 2 million tons per year when the rules are fully implemented (approximately 70 percent below current levels). NO_x emissions would be cut by 1.5 million tons nationwide in 2010 and 1.8 million tons annually in 2015 (about 65 percent below today's levels).

The first phase of compliance under the CAIR rule to reduce both SO₂ and NO_x emissions would be required by 2010, allowing substantial emission reductions in the area, by the proposed attainment date for PM_{2.5} nonattainment areas.

Conclusions

Based on the factors discussed above, Kentucky believes that Bullitt County should be designated attainment for the PM_{2.5} standard.

- Kentucky believes that EPA's use of the weighted emissions scoring approach was skewed. Although attempting to have a standardized process to review violations of the PM_{2.5} standard throughout the nation

on the surface appears to make sense, each area is actually very different and emission contribution ratios are just one factor and should not alone be used to determine impacts.

- Emissions data, population, and commuter data show that the actual percentage of contribution from Bullitt County itself is exceptionally low compared to other counties within the region. This analysis actually points to the Bullitt County monitor being impacted by emissions from other counties within the region.
- PM_{2.5} levels continue to decline throughout the entire region. From a review of all monitors in the region, an average 9% decline in PM_{2.5} levels has occurred from 2000 through 2003. The Bullitt County monitor in the region is currently showing attainment of the annual PM_{2.5} standard using 2002 through 2004 data and other monitors are projected to come into compliance within a short period of time.
- A review of trajectory analysis on both days when the Bullitt County monitor is showing high PM_{2.5} values, as well as a separate review of a sampling of days when PM_{2.5} values are highest at other monitors within the region, show that Bullitt County is not impacting violating monitors on days when the levels are highest.
- Additional emission reductions on a national and regional level will provide substantial benefits in the region. The anticipated sulfur reductions due to the Low Sulfur Diesel Rule and the Tier 2 Vehicle and Gasoline Sulfur programs, and the Clean Air Interstate Rule (CAIR) will further lower pollutant levels within this region.

Based on the above conclusions, Bullitt County, Kentucky should be designated attainment for the PM_{2.5} standard. To have this county designated nonattainment would invoke additional, substantial, unnecessary requirements on local government planning agencies. Especially since a thorough review of information shows that Bullitt County is being impacted by emissions coming from outside the county. Drastic emission reductions are scheduled to occur in the mobile sector throughout the next several years that will greatly impact pollutant levels in the area. Couple these changes with those anticipated by the CAIR provisions which will further reduce SO_x and NO_x emissions within the region, the air monitoring data demonstrating attainment of the PM_{2.5} Standard, and the downward trend in monitored values, and the conclusion must be that Bullitt County, Kentucky, 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.

EPA's June 29, 2004 proposal on appropriate designations for Kentucky included Kenton County as nonattainment based on the following criteria:

- EPA indicates that Kenton County has monitoring data very close to the $PM_{2.5}$ standard, and that this indicates a potential to contribute to the $PM_{2.5}$ violations in the area;
- EPA states that Kenton County has relatively high population values, VMT, and commuting patterns that are significant enough to contribute to $PM_{2.5}$ violations in the MSA.

Monitoring Data and Trends

The monitor located in Kenton County shows attainment with the $PM_{2.5}$ standard. For the 2001-2003 timeframe the design value ($14.9 \mu\text{g}/\text{m}^3$) demonstrates attainment with the annual standard. The annual concentrations for the area continue to show a downward trend as depicted in Figure 1, which utilized data from the year 2000 through April 2004.

Figure 1

Northern Kentucky Area PM 2.5 Trend

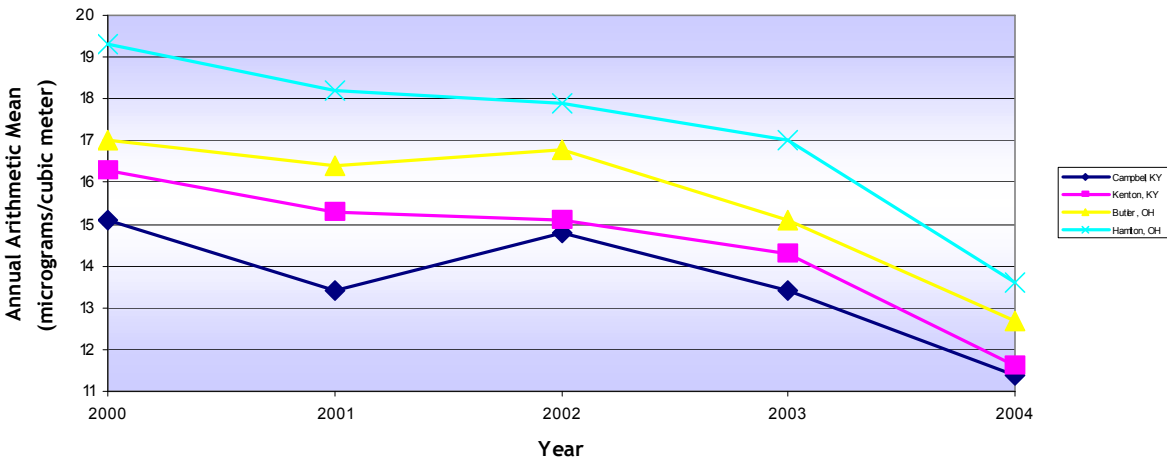
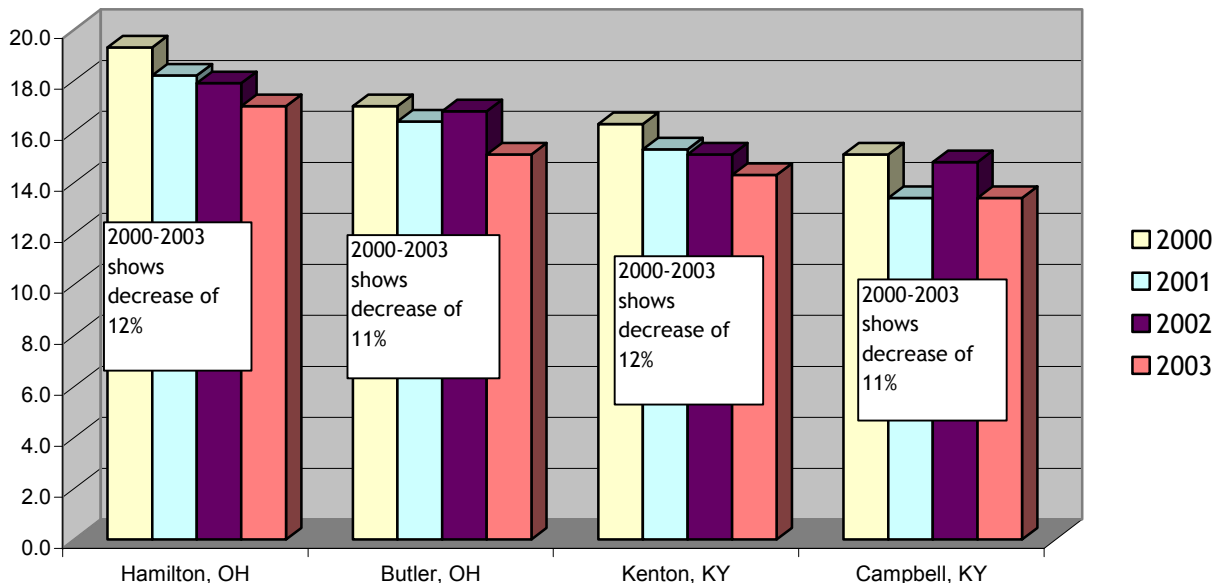


Figure 2

Decline in PM Values for NKY Area



As depicted in Figure 2 above, monitoring data for the Northern Kentucky area shows an 11-12% decrease over from the year 2000 through 2003.

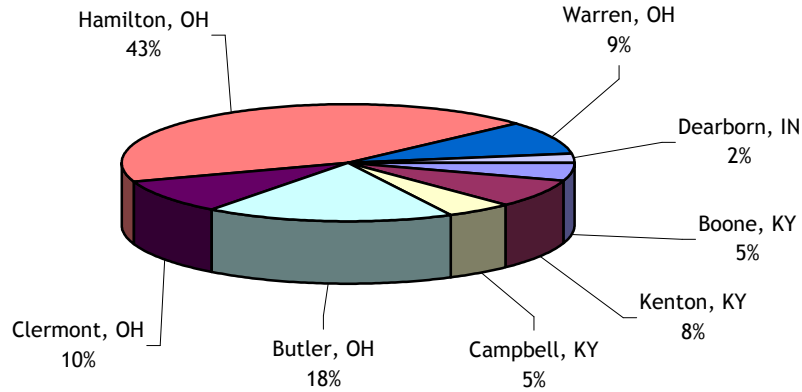
The Kenton County monitor is attaining the $PM_{2.5}$ standard. The continuing downward trend in $PM_{2.5}$ levels throughout the region indicate that air quality is improving in the region and should continue to do so over the next several years.

Population Growth and VMT Levels

EPA stated that Kenton County had relatively high population density that had the potential to impact $PM_{2.5}$ violations in the area. Kenton County makes up only 8% of the population in the entire MSA, see Figure 3 below.

Figure 3

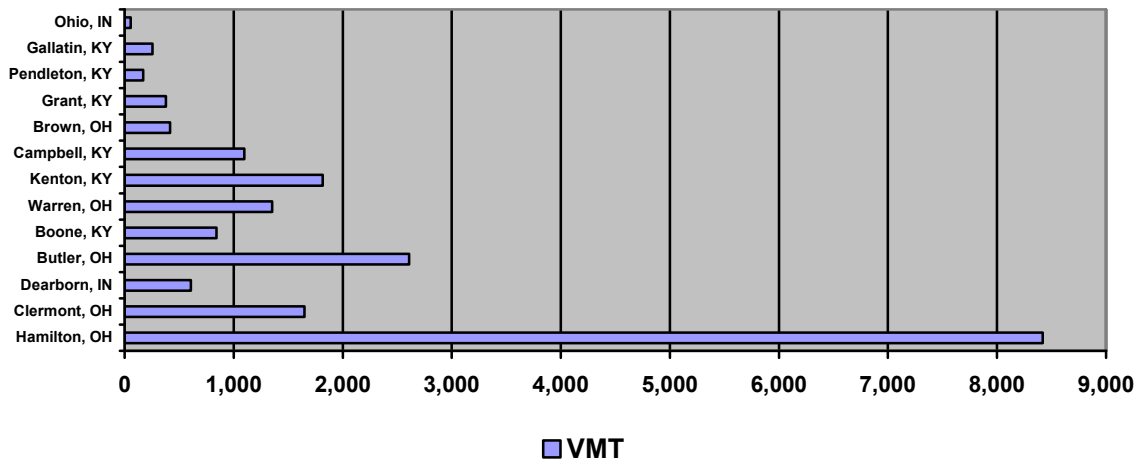
**Northern Kentucky Area 2002 Population for USEPA
Proposed PM_{2.5} Nonattainment Counties**



Therefore, Kentucky believes that the population density in Kenton County should not be used as a determining factor for potential contributions to PM_{2.5} violations in Southwestern Ohio.

Based on EPA's June 29, 2004, discussion of VMT data in the region, an attempt was made to segregate county VMT data by state rather than reviewing the data for the region as a whole. This is an unfair comparison. Data presented by EPA shows the overwhelming contribution from VMT in the area to be occurring outside of Kenton County. Figure 4 below outlines total VMT per county for the MSA.

Figure 4
Cincinnati-Hamilton MSA
VMT per year
In thousands



EPA's position on traffic and commuting patterns in the June 29th letter noted that Kenton County has potentially significant numbers of commuters impacting Hamilton County.

Although EPA stated that commuting patterns may play a role in PM_{2.5} levels throughout the region, they also state that 20,200 commuters traveling from Kenton County into Hamilton County is insignificant when compared to total Hamilton County commuters in 2002. Kentucky agrees with EPA that commuter data is insignificant for Kenton County and therefore should not be used as a factor in determining nonattainment.

Additionally, when reviewing VMT data, it should be noted that in 2002 Kenton County contributed only 9.2% of the total VMT's in the counties recommended by EPA as having the potential to impact the violating monitors. Due to the small contribution from Kenton County, this factor should also not be used in determining a nonattainment designation for this county.

Therefore, it is Kentucky's position that Kenton County does not have the population density levels, commuter or VMT potential to contribute to PM_{2.5} violations in the area.

Additional Regional/National Controls

The implementation of new federal rules to decrease the amount of sulfur in both gasoline and diesel fuel will significantly decrease the amount of SO₂ in the entire area. Because of the Low Sulfur Diesel Rule, in 2007, new clean engines operating on 15-ppm sulfur diesel fuel will reduce NO_x emissions by 50%, and reduce PM emissions by more than 90%. Due to the Tier 2 Vehicle and Gasoline Sulfur program, by 2006 average national gasoline sulfur levels will be 90% lower.

Upon implementation of the Clean Air Interstate Rule (CAIR) SO₂ emissions from power plants will be reduced nationwide by 3.6 million tons in 2010 (approximately 40 percent below current levels) and by another 2 million tons per year when the rules are fully implemented (approximately 70 percent below current levels). NO_x emissions would be cut by 1.5 million tons nationwide in 2010 and 1.8 million tons annually in 2015 (about 65 percent below today's levels).

The first phase of compliance under the CAIR rule to reduce both SO₂ and NO_x emissions would be required by 2010, allowing substantial emission reductions in the area, by the proposed attainment date for PM_{2.5} nonattainment areas.

Conclusions

Based on the factors discussed above, Kentucky believes that Kenton County should be designated attainment for the PM_{2.5} standard.

- PM_{2.5} levels continue to decline throughout the entire region. From a review of all monitors in the region, an average 12% decline in PM_{2.5} levels has occurred from 2000 through 2003. The Kenton County monitor in the region is currently showing attainment of the annual PM_{2.5} standard using 2002 through 2004 data.
- Contributions from commuters and vehicle miles traveled in Kenton County have been shown to have no potential to impact PM_{2.5} levels within the region when compared to the levels from other counties and therefore should not be used to determine nonattainment status for this county.
- Additional emission reduction on a national and regional level will provide substantial additional emission reductions in the region. The anticipated sulfur reductions due to the Low Sulfur Diesel Rule, the Tier 2 Vehicle and Gasoline Low Sulfur programs, and the Clean Air Interstate Rule (CAIR) will further lower pollutant levels within this region.

To have this county designated nonattainment would invoke additional, substantial, unnecessary requirements on local government planning agencies. Drastic emission reductions are scheduled to occur in the mobile sector throughout the next several years that will greatly impact pollutant levels in the area. Couple these changes with those anticipated by the CAIR provisions which will further reduce SO_x and NO_x emissions within the region, and the air monitoring data demonstrating attainment of the PM_{2.5} Standard, the downward trend in monitored values, and the resulting conclusion is that Kenton County, Kentucky, should be designated attainment for the PM_{2.5} Standard.

LAWRENCE COUNTY, KENTUCKY

Lawrence County is south of the Huntington-Ashland Metropolitan Statistical Area (MSA) and is located to the south of Boyd County and to the southwest of Huntington, West Virginia. The Big Sandy River forms its eastern border.

EPA's June 29, 2004 proposal on appropriate designations for Kentucky included Lawrence County as nonattainment based on the following criteria:

- EPA indicates that Lawrence County has significant SO_x, and NO_x emissions from a power plant and its close proximity to the violating MSA monitors.

Emissions Data

Lawrence County, Kentucky, was not discussed in Kentucky's February recommendations. Based on the original guidance from U.S. EPA in April 2003, states were required to review possible emissions contributions for counties within an MSA boundary, if a monitor within the MSA was in violation of the PM_{2.5} standard. Later, EPA suggested that states look outside the MSA boundaries if there was the possibility that emissions from a county outside the MSA were having a significant impact on monitors within the MSA. It is also important to note that EPA also used the 2001 NEI data which provided different data than the data EPA had recommended that states use. The 2001 NEI data, nor the methodology used in the calculations for that inventory have been made available to states for review.

However, in EPA's June 29, 2004, letters to states, EPA looked outside the original MSA boundaries to determine if large emissions contributions from adjacent areas were having an impact on PM_{2.5} levels in many of the areas. Specifically, in the Huntington-Ashland metropolitan area, EPA has also recommended that Adams, Gallia, and Scioto Counties in Southeastern Ohio and Lawrence County, Kentucky, also be included as nonattainment areas due to the emissions of SO_x, NO_x, and PM.

Adams and Gallia Counties alone contribute 80% of all SO_x within the counties EPA has recommended as nonattainment for PM_{2.5}. By comparison, Lawrence County emits only 15% of SO_x emissions from the counties recommended by EPA as having the potential to impact the violating monitors. A similar comparison can be made with both NO_x and PM. Lawrence County's NO_x and PM emissions rank at 11% of the total EPA recommended areas. In a detailed review of EPA's recommended nonattainment areas, Lawrence County ranks consistently at less than or equal to 15% of combined emissions contributions within EPA's proposed nonattainment boundaries. See Figures 1-4 below.

Figure 1

Ashland Area SOx Emissions in EPA Proposed Nonattainment Counties

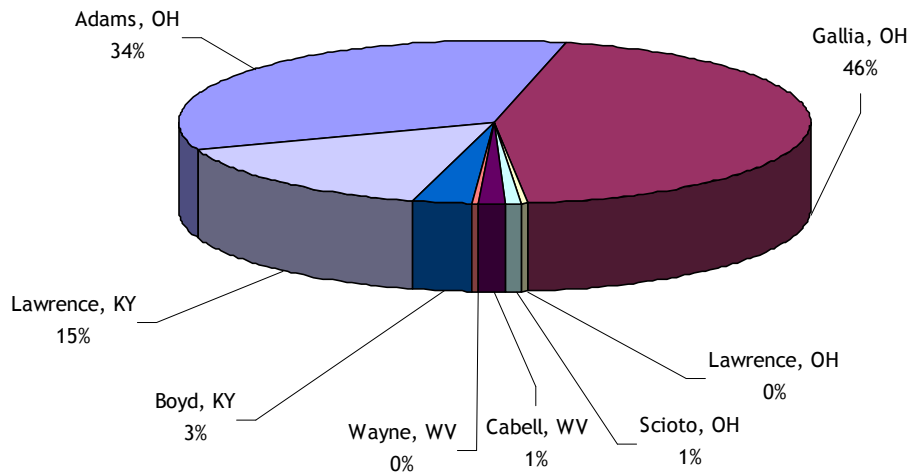


Figure 2

Ashland Area NOx Emissions in EPA Proposed Nonattainment Counties

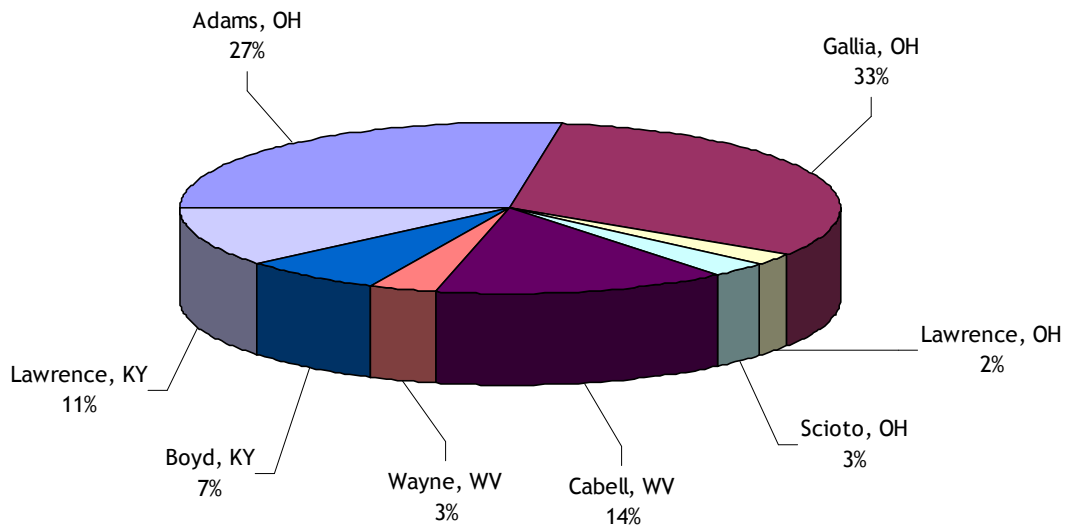


Figure 3

Ashland Area PM Emissions in EPA Proposed Nonattainment Counties

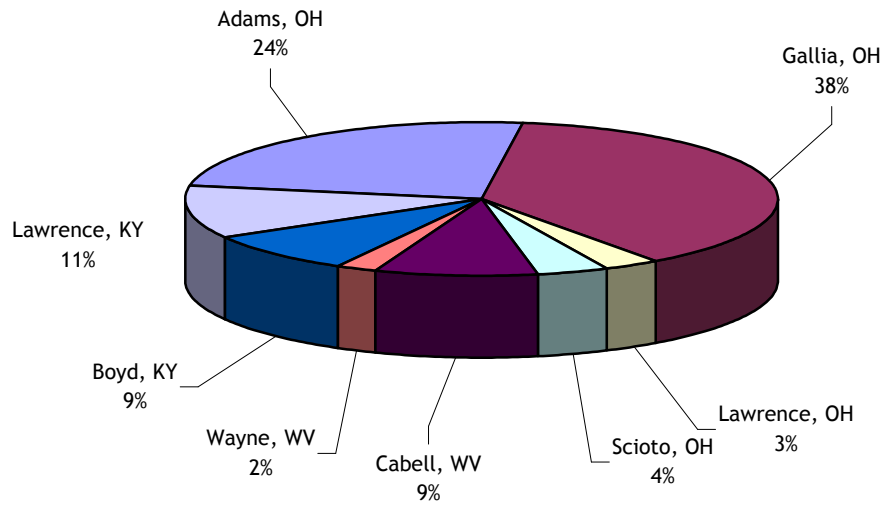
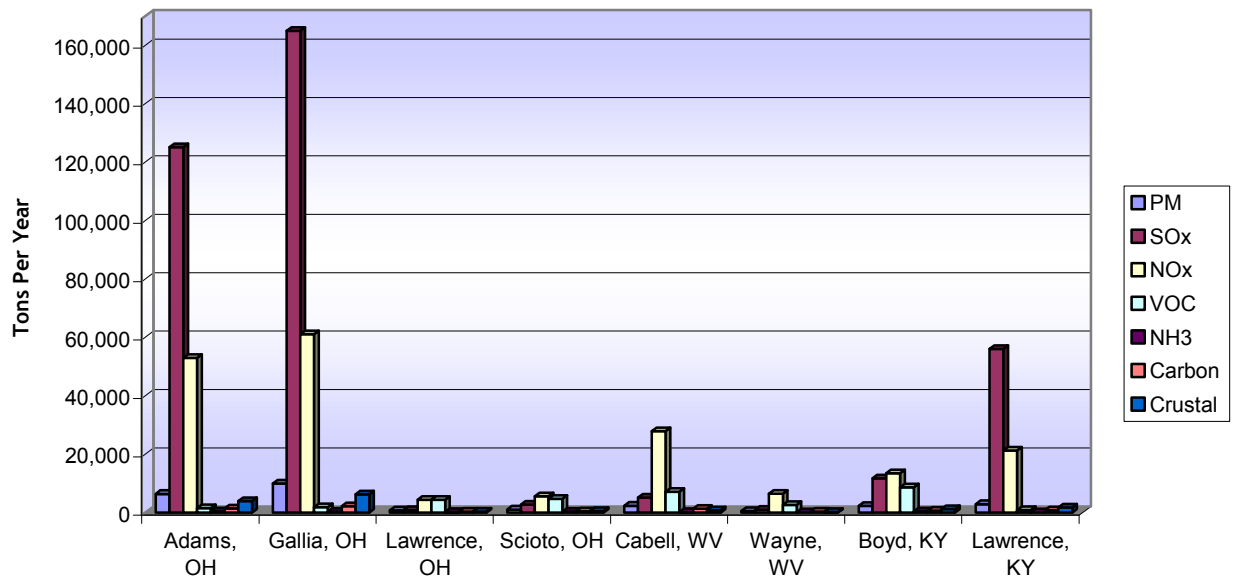


Figure 4

EPA Proposed Nonattainment Counties Emissions 2001



Additional Emission Reductions in Lawrence County, Kentucky

A factor not taken into account, either in the 1999 nor 2001 NEI data sets, was the implementation of NO_x controls at the Big Sandy Power Plant in Lawrence County. In 2003, NO_x emissions were dropped substantially by the installation of SCR on Unit #2 and over Fire Air Technology employed on Unit #1. The operation of these control technologies was responsible for 2,880 ton reduction in NO_x emissions during the summer ozone season, which includes the quarters where Kentucky typically records the highest PM_{2.5} levels. The implementation of these controls at that facility even further reduces the potential emission contribution to monitors in question in Southeastern Ohio and West Virginia.

Additional Regional/National Controls

The implementation of new federal rules to decrease the amount of sulfur in both gasoline and diesel fuel will significantly decrease the amount of SO₂ in the entire area. Because of the Low Sulfur Diesel Rule, in 2007, new clean engines operating on 15-ppm sulfur diesel fuel will reduce NO_x emissions by 50%, and reduce PM emissions by more than 90%. Due to the Tier 2 Vehicle and Gasoline Sulfur program, by 2006 average national gasoline sulfur levels will be 90% lower.

Upon implementation of the Clean Air Interstate Rule (CAIR) SO₂ emissions from power plants will be reduced nationwide by 3.6 million tons in 2010 (approximately 40 percent below current levels) and by another 2 million tons per year when the rules are fully implemented (approximately 70 percent below current levels). NO_x emissions would be cut by 1.5 million tons nationwide in 2010 and 1.8 million tons annually in 2015 (about 65 percent below today's levels).

The first phase of compliance under the CAIR rule to reduce both SO₂ and NO_x emissions would be required by 2010, allowing substantial emission reductions in the area, by the proposed attainment date for PM_{2.5} nonattainment areas.

Monitoring Data and Trends

As can be seen in Figure 7 below, the speciation data from Kentucky's Ashland speciation monitor indicates that sulfate and organic carbon are the major components of the PM_{2.5} values. In Figure 1 above and Figure 8 below, Lawrence County, Kentucky, contributes only 15% of the SO₂ in the area, and only 10% of the organic carbon in the area of EPA proposed nonattainment counties.

Figure 7

**Ashland Speciation Data 12/9/01 - 12/11/03
Average Concentration ($\mu\text{g}/\text{m}^3$)**

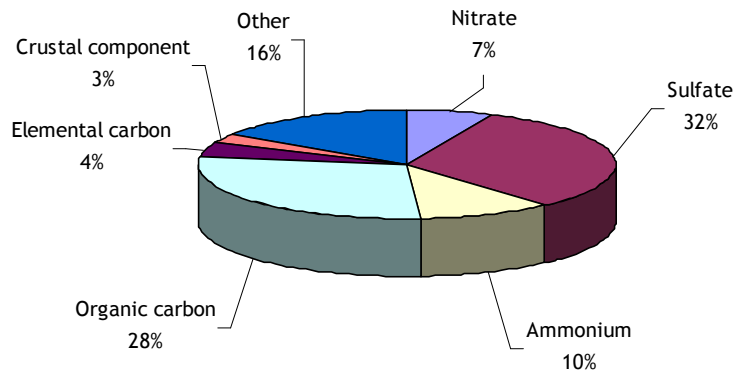
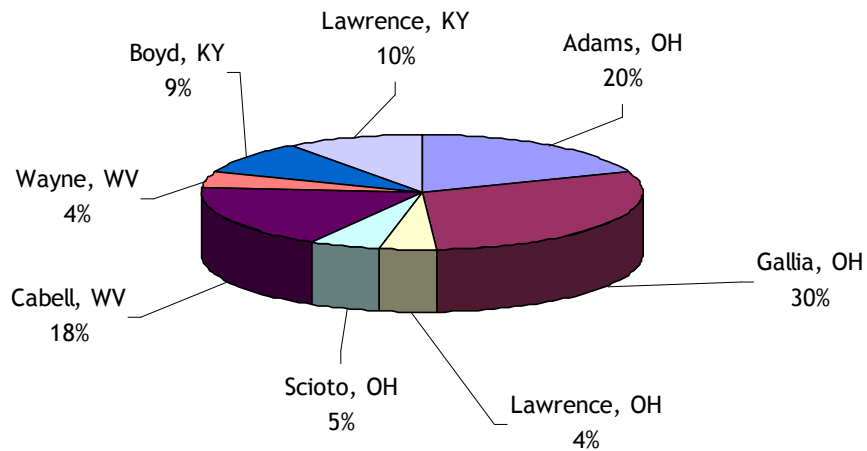


Figure 8

**Ashland Area Carbon Emissions in EPA Proposed
Nonattainment Counties**

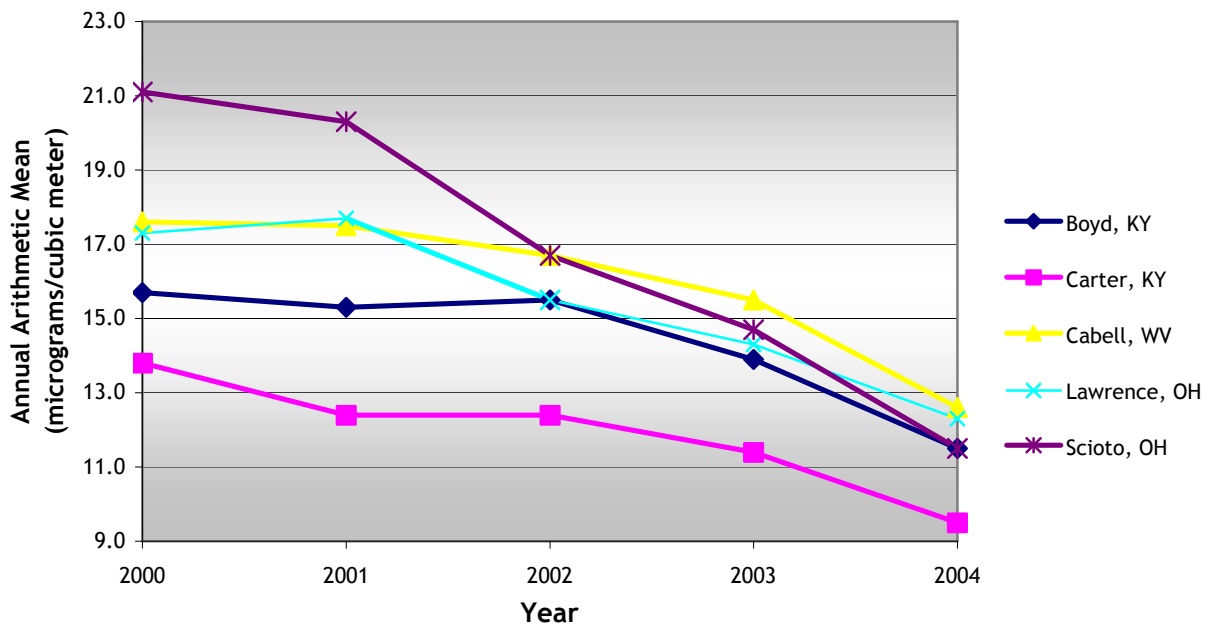


As EPA notes in its June 29, 2004 letter, the monitor located in Boyd County shows attainment with the $\text{PM}_{2.5}$ standard, with a 2001-2003 design value of $14.9 \mu\text{g}/\text{m}^3$. In addition to showing attainment with the standard, the annual

concentrations continue to show a downward trend as depicted in Figure 9 below, which utilized data from the year 2000 through April 2004.

Figure 9

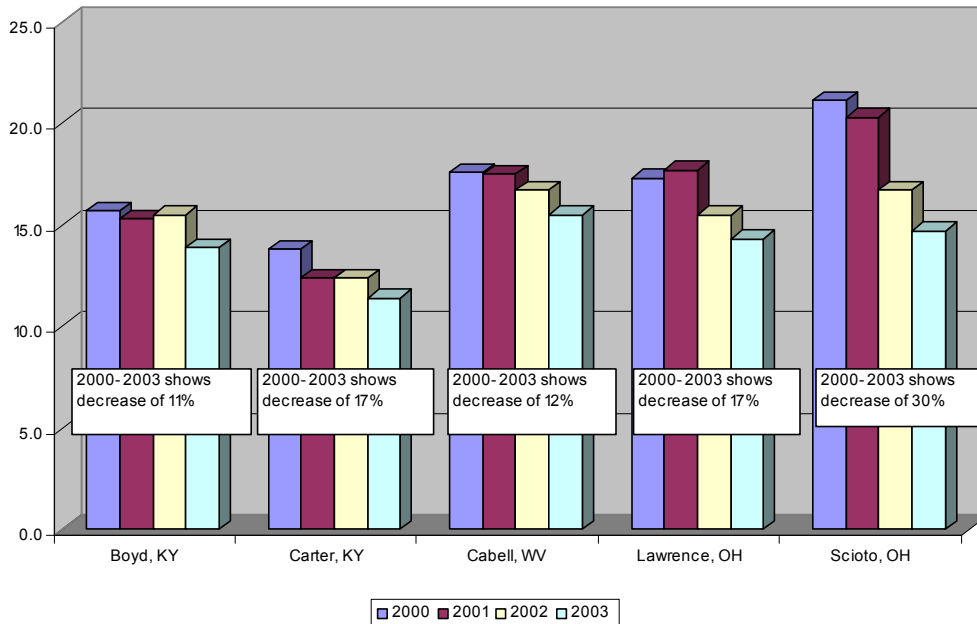
Ashland Area PM 2.5 Trend Utilizing Most Current Available Data



Lawrence County does not have a monitor, however, the PM_{2.5} levels throughout the entire region have been steadily decreasing over the last four years. Monitored levels have decreased by 11% in Boyd County, 17% in Carter County, 12% in Cabell County, WV, 17% in Lawrence County, OH, and 30% in Scioto County, OH (See Figure 10 below).

Figure 10

Decline in PM Values for Ashland Area



Conclusions

Based on the factors discussed above, Kentucky believes that Lawrence County, Kentucky should be designated attainment for the $PM_{2.5}$ standard.

- Kentucky believes that EPA's use of the weighted emissions scoring approach was skewed. EPA did not include adjacent county emissions in the total emissions being analyzed for the area. If the emissions from the entire area under review were used, vs just those within the MSA, a very different result in the weighted emissions scores would have occurred. Lawrence County would not have the potential to significantly contribute to $PM_{2.5}$ levels within the region.
- $PM_{2.5}$ levels continue to decline throughout the entire region. From a review of all monitors in the region, an average 17% decline in $PM_{2.5}$ levels has occurred from 2000 through 2003. Every monitor in the region is currently showing values well within attainment of the annual $PM_{2.5}$ standard using 2002 through 2004 data.

- Substantial NO_x emission reductions have already occurred from the installation of controls at the Big Sandy Power Plant in Lawrence County.
- Additional emission reductions on a national and regional level will provide substantial benefits in the region. The anticipated sulfur reductions due to the Low Sulfur Diesel Rule, the Tier 2 Vehicle and Gasoline Sulfur programs, and the Clean Air Interstate Rule (CAIR) will further lower pollutant levels within this region.

To have this county designated nonattainment would invoke additional, substantial, and unnecessary requirements on local government planning agencies. Substantial local NO_x emission reductions from Lawrence County have already occurred. Drastic emission reductions are scheduled to occur in the mobile sector throughout the next several years that will greatly impact pollutant levels in the area. In addition reductions anticipated by the CAIR provisions, and the air monitoring data demonstrating attainment of the PM_{2.5} Standard, lead to the conclusion that Lawrence County, Kentucky, 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.

EPA's June 29, 2004 proposal on appropriate designations for Kentucky included Madison County as nonattainment based on the following criteria:

- EPA indicates that Madison County has significant emissions (although this statement is not based on a single pollutant equaling 10,000 tpy or more) and that the county is part of the MSA where at least one monitor is showing a violating MSA monitor.
- EPA states that Madison County has relatively high population density and that Madison County's population growth is significant enough to contribute to PM_{2.5} violations in Fayette County.
- EPA contradictorily states both that Madison County has relatively high VMT (page 19) and has the largest number of workers commuting into Fayette County (page 22), and that no counties show commuting data with potential to impact Fayette County (page 22), and that only Madison County has VMT and commuting data with a potential to contribute to violations in Fayette County (page 23).

Emissions Data

In Kentucky's original February recommendations, 1999 NEI data was used in the original analysis.

However, in EPA's June 29, 2004, letters to states, EPA looked outside the original MSA boundaries to determine if large emissions contributions from adjacent areas were having an impact on PM_{2.5} levels within the MSA. EPA also used the 2001 NEI which provided slightly newer data than had been recommended that states use.

Madison County emits only 2% of SO_x emissions from the counties recommended by EPA as having the potential to impact the violating monitors. A similar comparison can be made with both NO_x and PM. Madison County's NO_x emissions rank at 12% of the total EPA recommended areas, and PM at 10%. In a detailed review of EPA's recommended areas to be designated nonattainment, Madison County ranks consistently less than or equal to 12% of combined emissions contributions within EPA's June 29, 2004, proposed nonattainment boundaries. See Figures 1-4 below.

Figure 1

Fayette Area 2001 SOx Emissions

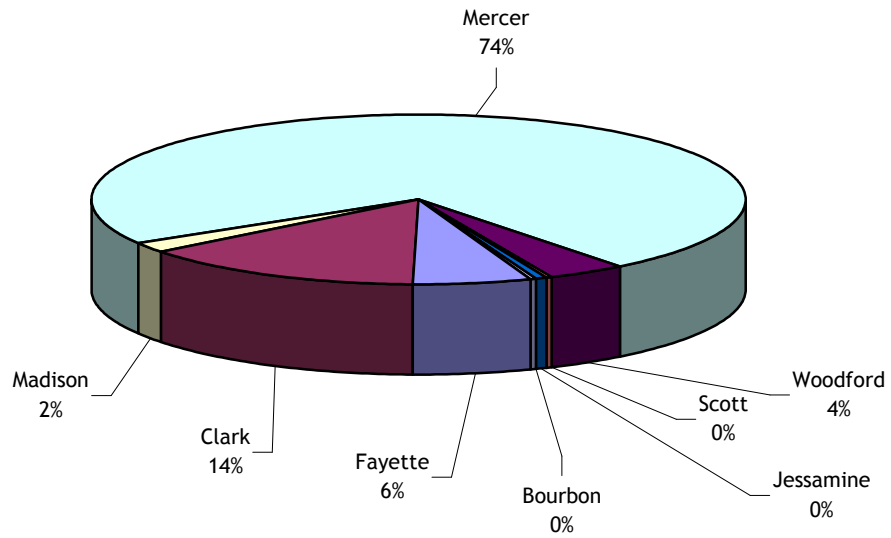


Figure 2

Fayette Area 2001 NOx Emissions

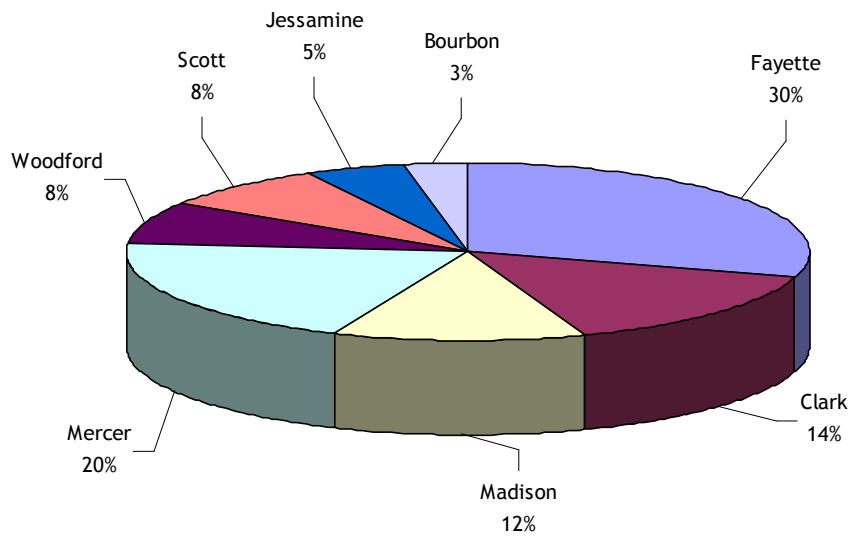


Figure 3

Fayette Area 2001 PM Emissions

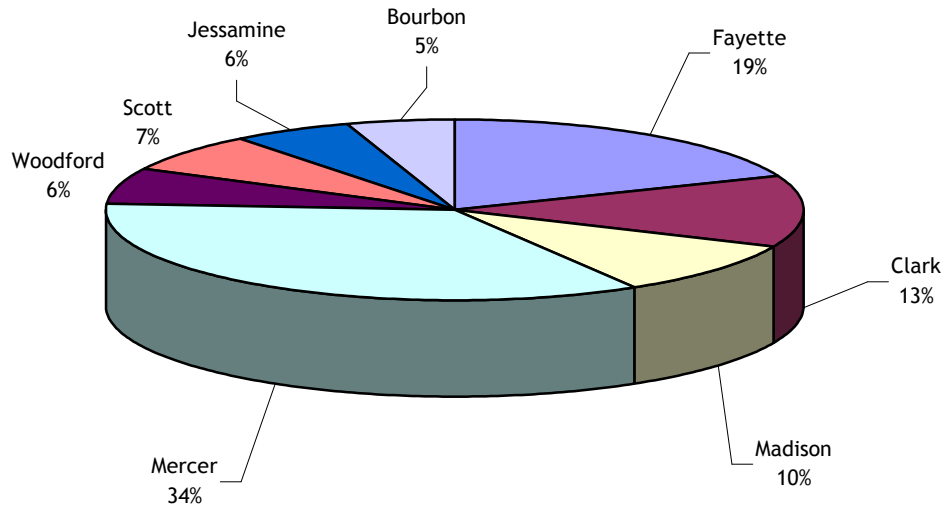
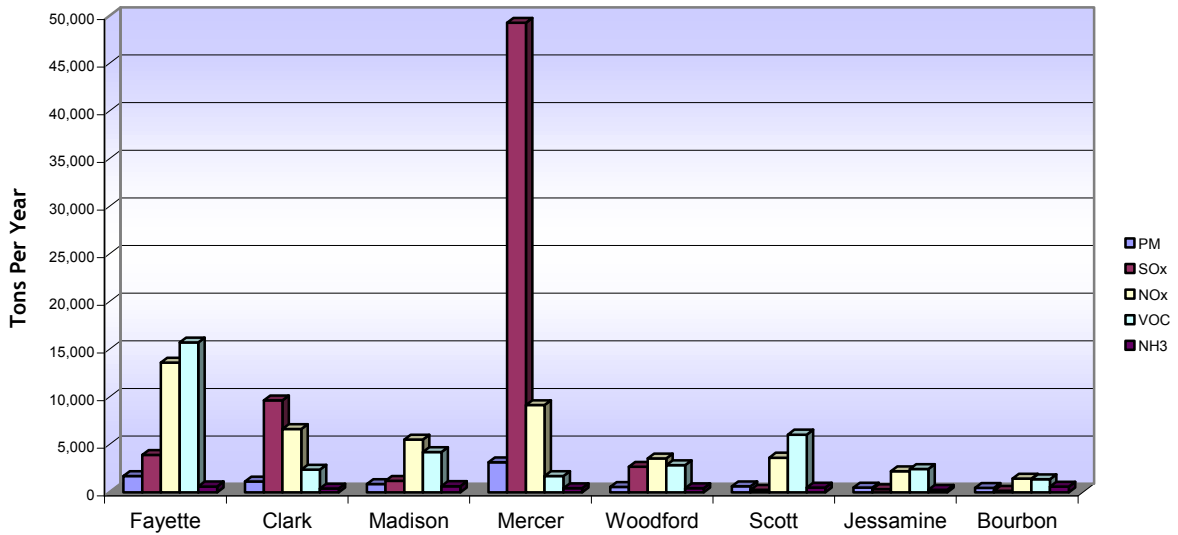


Figure 4

Lexington Area Counties Emissions 2001

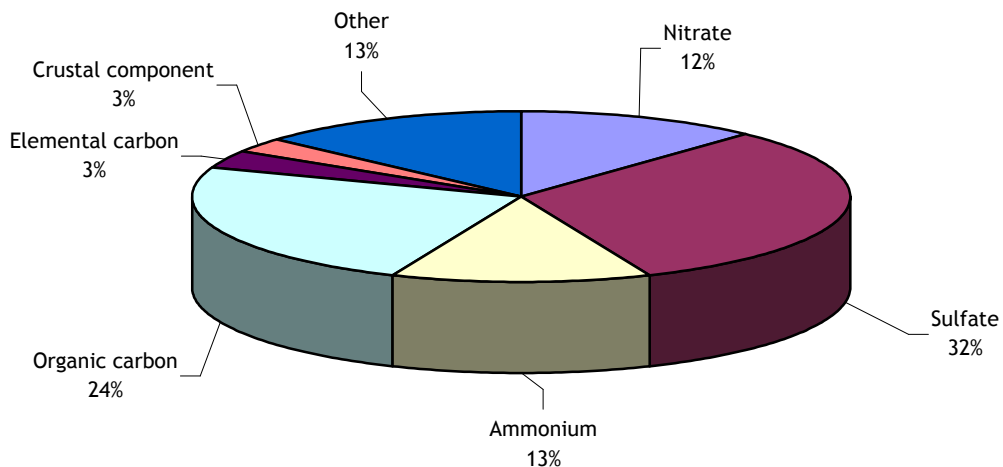


Monitoring Data and Trends

As can be seen in Figure 5 below, the speciation data from Kentucky's Lexington speciation monitor indicates that Sulfate is the major component of the PM_{2.5} values in the area. As can be seen in Figure 1 above, Madison County, Kentucky, contributes only 2% of the SO_x in the counties recommended by EPA as having the potential to impact the violating monitor.

Figure 5

**Lexington Speciation Monitoring Data 2001-2003
Average Concentration ($\mu\text{g}/\text{m}^3$)**



The MSA has three monitors located within its boundaries, two in Fayette County and one in Madison County. In Fayette County, one monitor is located in a central urban area in the midst of the downtown, University of Kentucky campus (Limestone), and the other located on an arterial roadway approximately 1.9 miles north of downtown (Newtown Pike). PM_{2.5} monitoring levels have continued to decline at all three monitors within this region. (See Figure 6 below)

The monitor located in Madison County shows attainment with the PM_{2.5} standard. For the 2001-2003 timeframe, the design value ($13.4 \mu\text{g}/\text{m}^3$) is well below the annual standard demonstrating attainment. In fact, this monitor has the second lowest design value of the 19 monitors in the state.

The Newtown Pike monitor shows attainment with the standard, having an average of $14.9 \mu\text{g}/\text{m}^3$ over the time period 2001-2003, and having an average of $13.6 \mu\text{g}/\text{m}^3$ through April 2004.

The latest average through April 2004 for the Limestone monitor is $14.7 \mu\text{g}/\text{m}^3$. The current design value of $15.6 \mu\text{g}/\text{m}^3$ is based on the 2001-2003 time period.

$\text{PM}_{2.5}$ levels at each monitor in the region have steadily declined as evidenced by a 15% reduction at the Newtown Pike monitor, a 12% reduction at the Limestone monitor, and a 13% reduction at the Madison County monitor (See Figure 6 below).

Figure 5

Fayette Area $\text{PM}_{2.5}$ Trend Utilizing Most Current Available Data

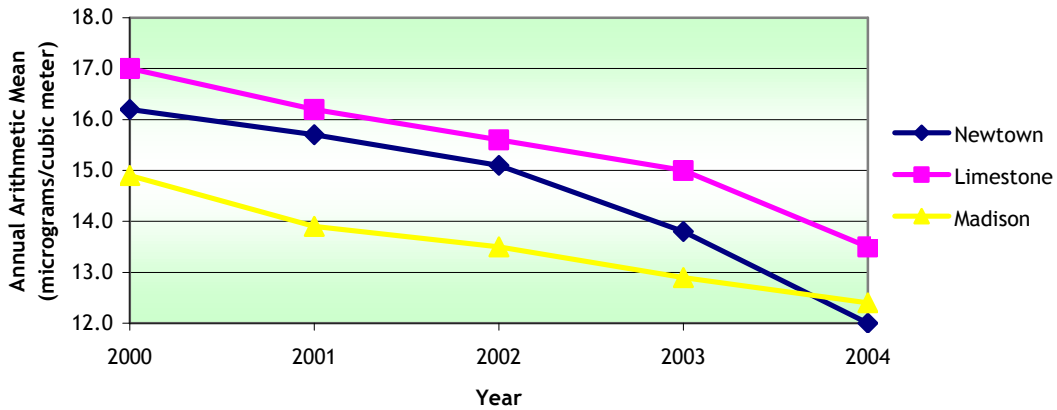
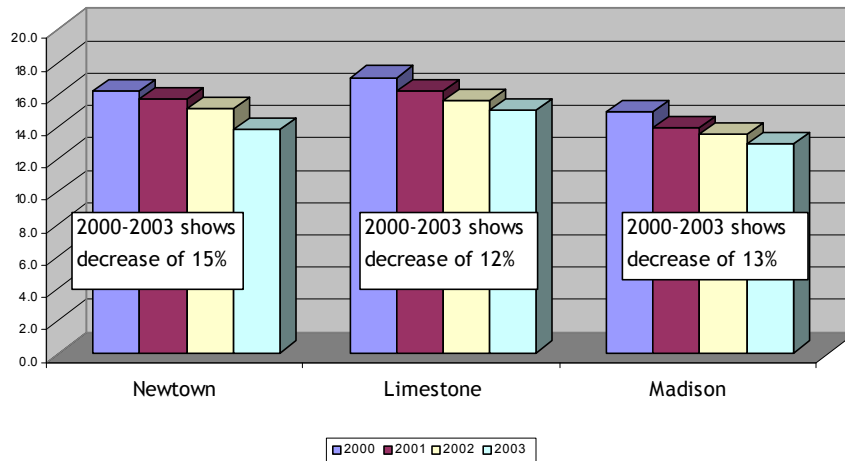


Figure 6

Decline in PM Values for the Fayette Area



Localized vs Regional Impacts

It is Kentucky's position that the monitor located on the UK Campus exhibits an "Urban Core Phenomenon." That is, the monitor's location is at the center of a large public university situated in a downtown metropolitan area with significant activity having a direct relationship to the PM_{2.5} levels being monitored.

This monitor is bracketed by numerous large and small boilers on the University of Kentucky campus and is located adjacent to continuing construction on the campus. Significant local impacts are occurring due to not only the close proximity of the boilers, but also from the emission contributions of construction equipment in the area. This monitor is located only 1.9 miles from the monitor showing attainment of the standard on Newtown Pike.

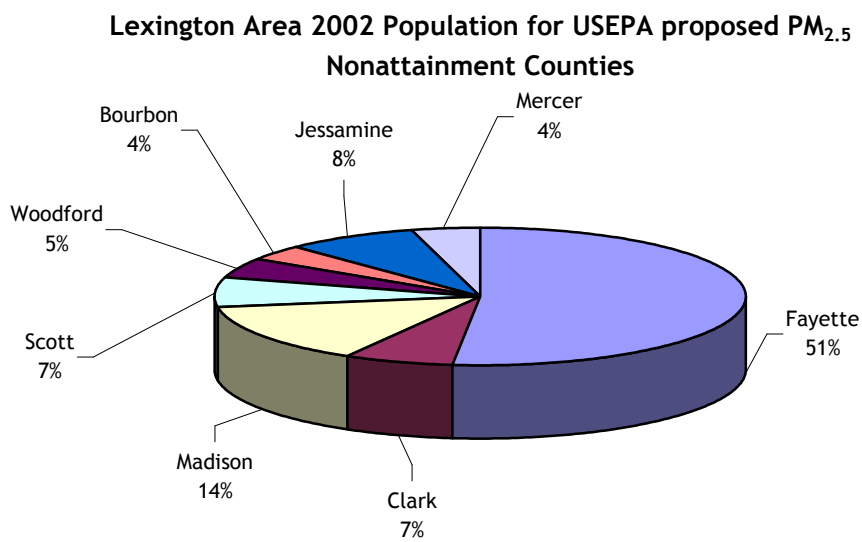
If significant regional impacts from emissions from Madison County were occurring, they would be expected throughout the regional monitoring network and not at one specific monitor in downtown Lexington.

Notwithstanding this Urban Core Phenomenon at the Fayette County violating monitor, Kentucky believes Madison County is attaining the PM_{2.5} standard and that the continuing downward trend in PM_{2.5} levels indicate no potential to impact Fayette County.

Population Density and Growth

EPA stated that 2002 population levels indicated Madison County had the potential to impact PM_{2.5} violations in the area. However, while Madison County has the second highest population level of the MSA counties and surrounding counties with significant weighted emissions scores, the county itself comprises approximately 15% of the entire MSA, and only 14% of all the counties recommended by EPA as having the potential to impact the violating monitors. See Figure 7 below.

Figure 7



Traffic and Commuting Patterns

EPA's position on traffic and commuting patterns in the June 29th letter was contradictory as outlined:

- On page 19, the second paragraph reads, "Madison County also has relatively high population and population growth, *and relatively high VMT.*"
- On page 22, the last paragraph under commuting information reads, "Based on the analysis of this factor, *there are no counties with commuting data showing a potential to contribute to the PM_{2.5} violations in Fayette County.*"
- On page 23, under vehicle miles traveled, it reads, "Based on the analysis of for this factor, no other Kentucky counties, *with the exception of Madison County, have VMT and commuting data with a potential to contribute to PM_{2.5} violations in Fayette County.*"

Kentucky agrees with the EPA statement that while Madison County has the largest number of workers commuting into Fayette County (6,870 commuters), the commuting data do not indicate significant (or any) contributions to Fayette County (page 22 and 23 of EPA's June 29th letter).

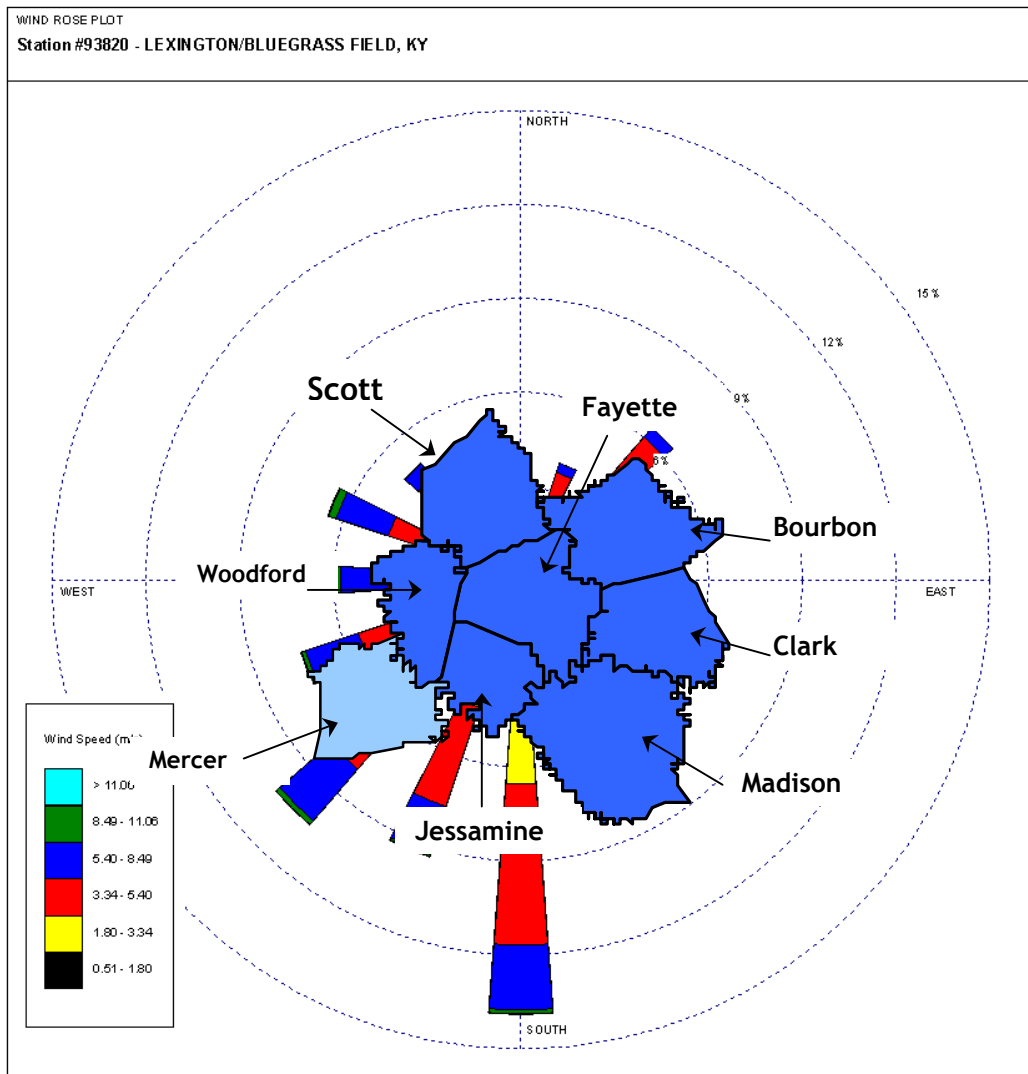
Therefore Kentucky believes that Madison County does not have the population, commuter, or VMT potential to contribute to PM_{2.5} violations in the area.

Meteorology

EPA's response to Kentucky stated that the wind speed/wind direction data provided by Kentucky in the February submittal did not play a significant role in the decision making process and that the information was for summertime winds. Kentucky offers the following information.

Kentucky has provided updated wind rose diagrams. These were created using year-round data from EPA's Support Center for Regulatory Models (SCRAM) website. As shown in the updated wind rose in Figure 11 below, the majority of the time the wind in the Lexington area comes from the south and the southwest. Madison County is southeast from the violating monitor in Fayette County. The wind rose data indicates that Madison County does not impact this monitor.

Figure 8



Additional Regional/National Controls

The implementation of new federal rules to decrease the amount of sulfur in both gasoline and diesel fuel will significantly decrease the amount of SO₂ in the entire area. Because of the Low Sulfur Diesel Rule, in 2007, new clean engines operating on 15-ppm sulfur diesel fuel will reduce NO_x emissions by 50%, and reduce PM emissions by more than 90%. Due to the Tier 2 Vehicle and Gasoline Sulfur program, by 2006 average national gasoline sulfur levels will be 90% lower.

Upon implementation of the Clean Air Interstate Rule (CAIR) SO₂ emissions from power plants will be reduced nationwide by 3.6 million tons in 2010 (approximately 40 percent below current levels) and by another 2 million tons per year when the rules are fully implemented (approximately 70 percent below current levels). NO_x emissions would be cut by 1.5 million tons nationwide in 2010 and 1.8 million tons annually in 2015 (about 65 percent below today's levels).

The first phase of compliance under the CAIR rule to reduce both SO₂ and NO_x emissions would be required by 2010, allowing substantial emission reductions in the area, by the proposed attainment date for PM_{2.5} nonattainment areas.

Conclusions

Based on the factors discussed above, Kentucky believes that Madison County should be designated attainment for the PM_{2.5} standard.

- Kentucky believes that EPA's use of the weighted emissions scoring approach was skewed. EPA did not include adjacent county emissions in the total emissions being analyzed for the area. If the emissions from the entire area under review were used, vs just those within the MSA, a very different result in the weighted emissions scores would have occurred. Madison County would not have the potential to contribute significantly to PM_{2.5} levels within the region.
- The monitor in Madison County is showing attainment of the standard. The only monitor showing a violation throughout the entire eight county region is being impacted by extreme urban core activities in a specific geographic location within Fayette County.
- PM_{2.5} levels continue to decline throughout the entire region. From a review of all monitors in the region, an average decline of 13% in PM_{2.5} levels has occurred from 2000 through 2003. Every monitor in the region is currently showing values well within attainment of the annual PM_{2.5} standard using 2002 through 2004 data.

- Additional emission reductions on a national and regional level will provide substantial additional emission reductions in the region. The anticipated sulfur reductions due to the Low Sulfur Diesel Rule, the Tier 2 Vehicle and Gasoline Low Sulfur programs, and the Clean Air Interstate Rule (CAIR) will further lower pollutant levels within this region.

To have this county designated nonattainment would invoke substantial and unnecessary requirements on local government planning agencies. Drastic emission reductions are scheduled to occur in the mobile sector throughout the next several years that will greatly impact pollutant levels in the area. In addition, reductions anticipated by the CAIR provisions, the air monitoring data demonstrating attainment of the PM_{2.5} Standard at two of the three monitors in the area, the downward trend in monitored values, and Kentucky's position that the monitored violation of the standard in the downtown area is the result of a localized "urban core phenomenon," lead to the conclusion that Madison County, Kentucky, should be designated attainment for the PM_{2.5} Standard.

MERCER COUNTY, KENTUCKY

Mercer County is located in the Bluegrass Region of central Kentucky. It is not a part of the Lexington-Fayette County, Kentucky Metropolitan Statistical Area (MSA) and is located southwest of Fayette and Woodford Counties.

EPA's June 29, 2004 proposal on appropriate designations for Kentucky included Mercer County as nonattainment based on the following criteria:

- EPA indicates that Mercer County has significant (Based on 10,000 tpy of any pollutant being significant) SO_x (only pollutant over 10,000 tpy), NO_x, and PM emissions that potentially contribute to the violating MSA monitor.

Emissions Data

Mercer County, Kentucky, was not discussed in Kentucky's February recommendations. Based on the original guidance from U.S. EPA in April 2003, states were required to review possible emissions contributions for counties within an MSA boundary, if a monitor within the MSA was in violation of the PM_{2.5} standard.

Later, EPA suggested that states look outside the MSA boundaries if there was the possibility that emissions from a county outside the MSA were having a significant impact on monitors within the MSA. Kentucky chose to review counties within the MSA.

However, in EPA's June 29, 2004 letters to states, EPA looked outside the original MSA boundaries to determine if large emissions contributions from adjacent areas were having an impact on PM_{2.5} levels in many of the areas.

Mercer County has been included because it contains an identifiable large emitting facility (e.g., power plant), which EPA believes contributes to the nearby nonattainment problem. It is important to note here that EPA also used the 2001 NEI data, which provided different data than the data EPA had recommended that states use. Neither the 2001 NEI data, nor the methodology used in the calculations for that inventory have been made available to states for review.

Mercer County emits 74% of SO_x emissions from the counties recommended by EPA as having the potential to impact the violating monitors. A similar comparison can be made with both NO_x and PM. Mercer County's NO_x emissions rank at 20% of the total EPA recommended areas, and PM at 34%.

See Figures 1-4 below. Despite this data, the CAIR rule will significantly reduce emissions from this facility as discussed below.

Figure 1

Lexington Area SOx Emissions in EPA Proposed Nonattainment Counties

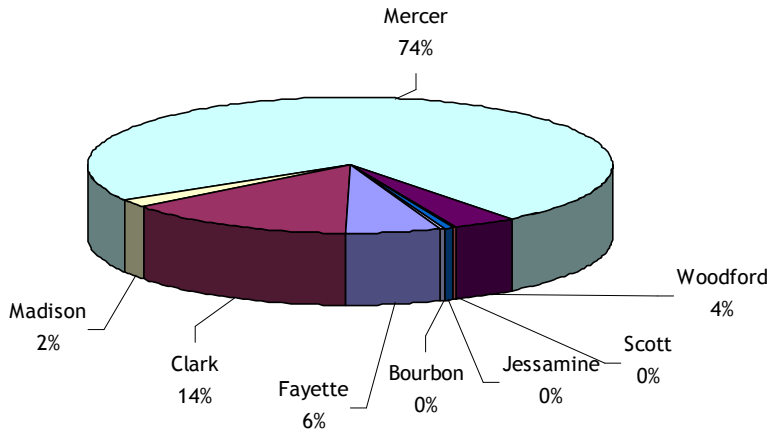


Figure 2

Lexington Area 2001 NOx Emissions

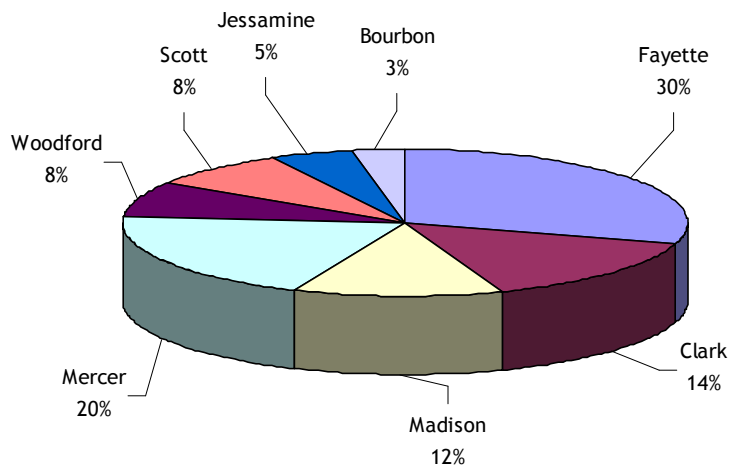


Figure 3

Fayette Area PM Emissions in EPA Proposed Nonattainment Counties

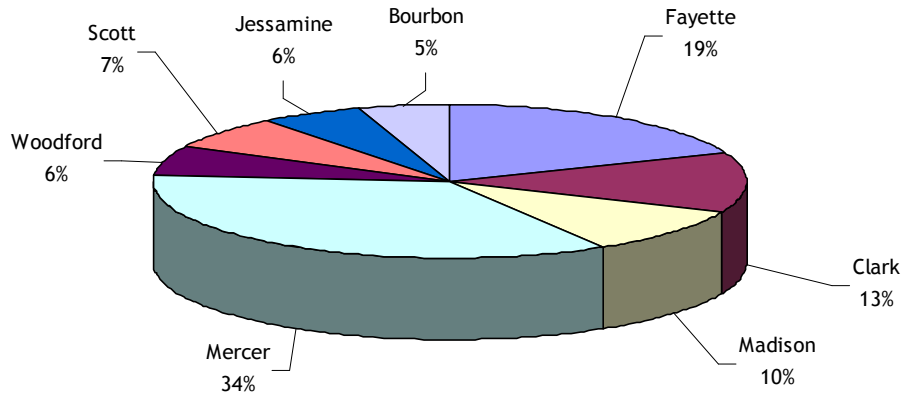
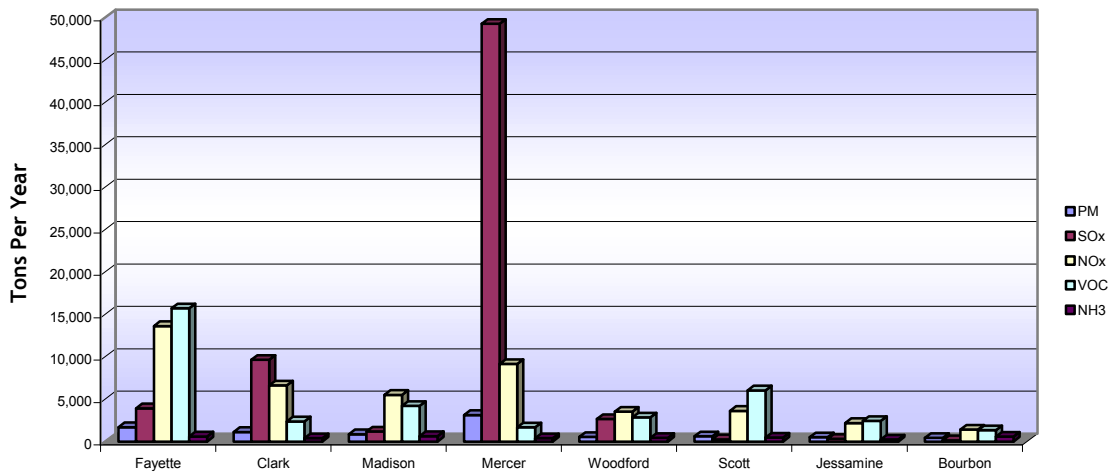


Figure 4

Lexington Area Counties Emissions 2001



Additional Regional/National Controls

The implementation of new federal rules to decrease the amount of sulfur in both gasoline and diesel fuel will significantly decrease the amount of SO₂ in the entire area. Because of the Low Sulfur Diesel Rule, in 2007, new clean engines operating on 15-ppm sulfur diesel fuel will reduce NO_x emissions by 50%, and reduce PM emissions by more than 90%. Due to the Tier 2 Vehicle and Gasoline Sulfur program, by 2006 average national gasoline sulfur levels will be 90% lower.

Upon implementation of the Clean Air Interstate Rule (CAIR) SO₂ emissions from power plants will be reduced nationwide by 3.6 million tons in 2010 (approximately 40 percent below current levels) and by another 2 million tons per year when the rules are fully implemented (approximately 70 percent below current levels). NO_x emissions would be cut by 1.5 million tons nationwide in 2010 and 1.8 million tons annually in 2015 (about 65 percent below today's levels).

The first phase of compliance under the CAIR rule to reduce both SO₂ and NO_x emissions would be required by 2010, allowing substantial emission reductions in the area, by the proposed attainment date for PM_{2.5} nonattainment areas.

Monitoring Data and Trends

The MSA has three monitors located within its boundaries, two in Fayette County and one in Madison County. PM_{2.5} monitoring levels have continued to decline at all three monitors within this region. (See Figure 5 below)

Fayette County has two PM_{2.5} monitors, one located in a central urban area in the midst of the downtown, University of Kentucky campus (Limestone), and the other located on an arterial roadway 1.9 miles north of downtown (Newtown Pike).

The Newtown Pike monitor shows attainment with the standard, having an average of 14.9 µg/m³ over the time period 2001-2003, and having an average of 13.6 µg/m³ through April 2004.

The latest average through April 2004 for the Limestone monitor is 14.7 µg/m³. The current design value of 15.6 µg/m³ is based on the 2001-2003 time period.

Even though Mercer County does not have a monitor, the PM_{2.5} levels have decreased by 15% at the Newtown Pike monitor, 12% at the Limestone monitor, and 13% at the Madison County monitor (See Figure 6 below).

Figure 5

Fayette Area PM2.5 Trend Utilizing Most Current Available Data

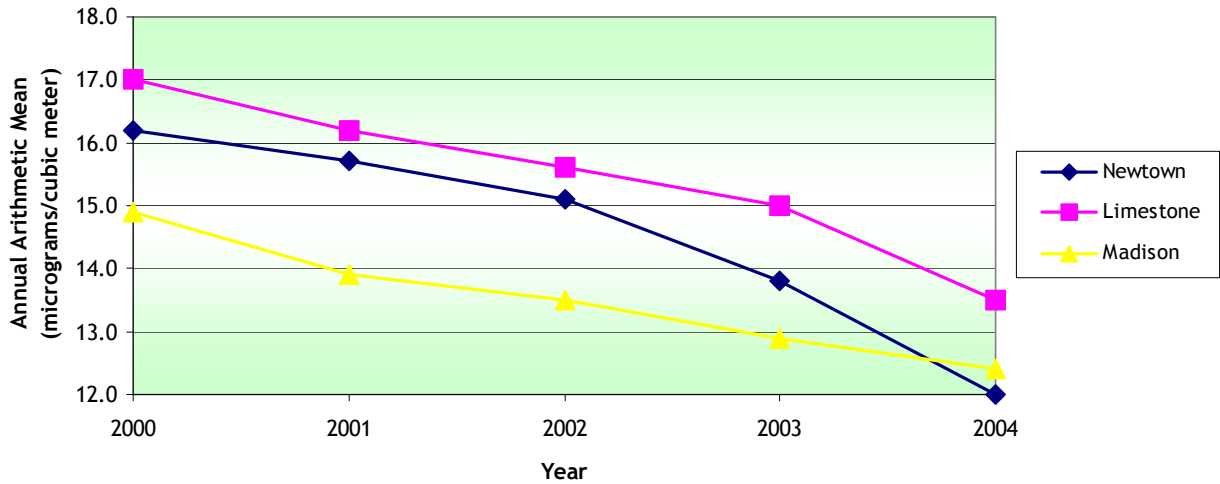
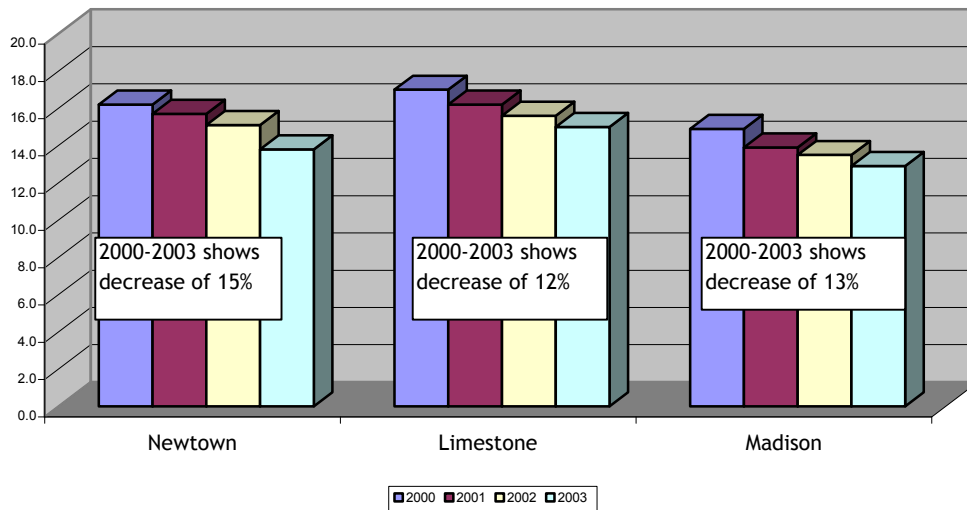


Figure 6

Decline in PM Values for the Fayette Area



Localized vs Regional Impacts

It is Kentucky's position that the monitor located on the UK Campus exhibits an "Urban Core Phenomenon." That is, the monitor's location is at the center of a large public university situated in a downtown metropolitan area with significant activity having a direct relationship to the PM_{2.5} levels being monitored.

This monitor is bracketed by numerous large and small boilers on the University of Kentucky campus and is located adjacent to continuing construction on the campus. Significant local impacts are occurring due to not only the close proximity of the boilers, but also from the emission contributions of construction equipment in the area. This monitor is located only 1.9 miles from the monitor showing attainment of the standard on Newtown Pike.

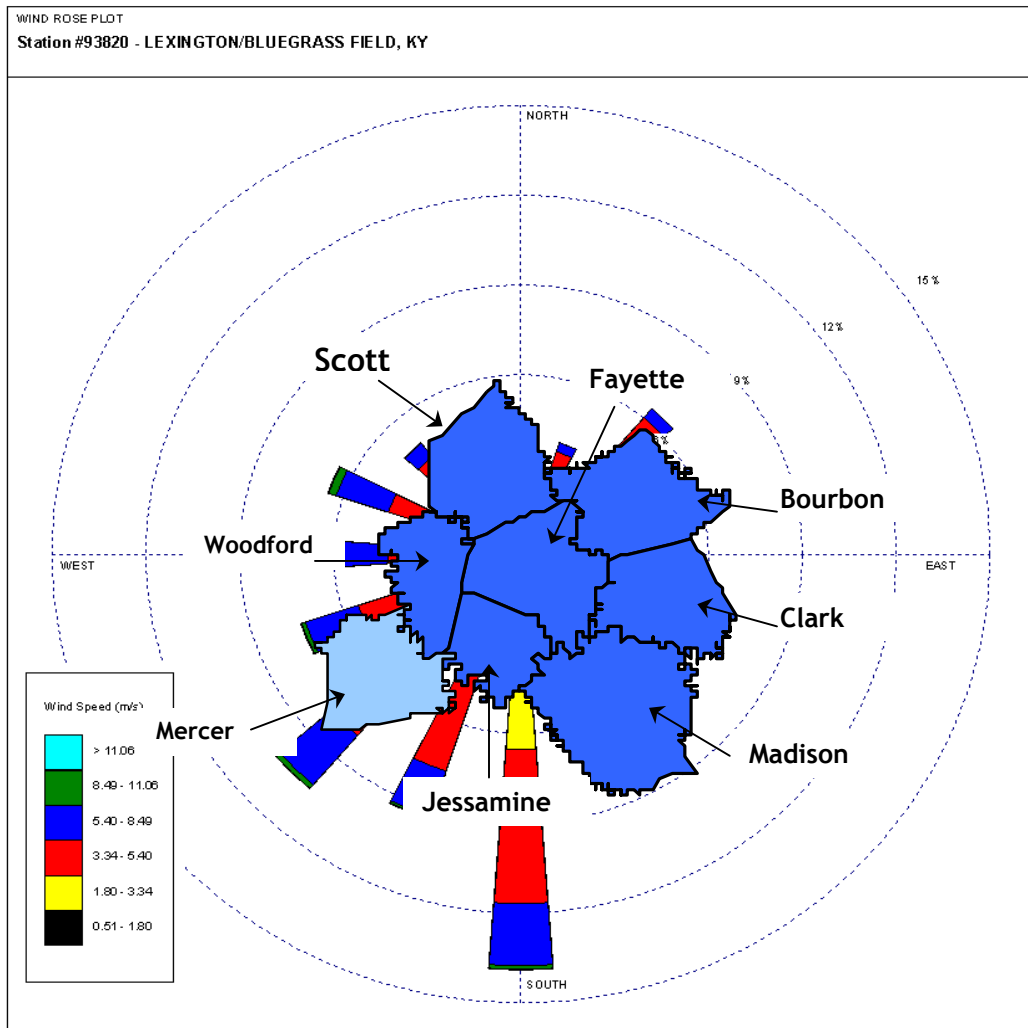
If significant regional impacts from emissions from Mercer County were occurring, they would be expected throughout the regional monitoring network and not at one specific monitor in downtown Lexington.

Meteorology

EPA's response to Kentucky stated that the wind speed/wind direction data provided by Kentucky in the February submittal did not play a significant role in the decision making process and that the information was for summertime winds. Kentucky offers the following information.

As shown in the updated wind rose in Figure 7 below, the majority of the time the wind in the Lexington area comes from the south and the southwest. This would indicate that both monitors, not just one would be having an impact and therefore causing violations of the standard at both monitoring sites. This data clearly shows, that an isolated urban core impact is being seen at the downtown Lexington monitoring site.

Figure 7



Conclusions

Based on the factors discussed above, Kentucky believes that Mercer County should be designated attainment for the PM_{2.5} standard.

- The only monitor showing a violation throughout the entire eight county region is being impacted by a localized urban core phenomenon. Wind Rose data provided in Figure 7 show that both monitors should be violating the standard if a localized impact were not being documented.
- PM_{2.5} levels continue to decline throughout the entire region. From a review of all monitors in the region, an average decline of 13% in PM_{2.5} levels has occurred from 2000 through 2003. Every monitor in the region is currently showing values well within attainment of the annual PM_{2.5} standard using 2002 through 2004 data.
- Additional emission reductions on a national and regional level will provide substantial additional emission reductions in the region. The anticipated sulfur reductions due to the Low Sulfur Diesel Rule; the Tier 2 Vehicle and Gasoline Low Sulfur programs, and the Clean Air Interstate Rule (CAIR) will further lower pollutant levels within this region.

To have this county designated nonattainment would invoke additional substantial and unnecessary requirements on local government planning agencies. Drastic emission reductions are scheduled to occur in the mobile sector throughout the next several years that will greatly impact pollutant levels in the area. In addition, reductions anticipated by the CAIR provisions; the air monitoring data demonstrating attainment of the PM_{2.5} Standard at two of the three monitors in the area; the downward trend in monitored values, and Kentucky's position that the monitored violation of the standard in the downtown area is the result of a localized "urban core phenomenon" lead to the conclusion that Mercer County, Kentucky, 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.

EPA's June 29, 2004 proposal on appropriate designations for Kentucky included Woodford County as nonattainment based on the following criteria:

- EPA indicates that Woodford County has significant (based on 10,000 tpy of any pollutant as being significant) SO_x, NO_x, and PM emissions that potentially contribute to the violating MSA monitor.

Emissions Data

In Kentucky's original February recommendations, 1999 NEI data was used in the original analysis.

However, in EPA's June 29, 2004 letters to states, EPA looked outside the original MSA boundaries to determine if large emissions contributions from adjacent areas were having an impact on PM_{2.5} levels in many of the areas. EPA also used the 2001 NEI which provided slightly newer data than had been recommended that states use.

Based on EPA's interpretation of 10,000 tpy as being significant, Woodford County's emissions would not be considered significant. Woodford County emits only 4% of SO_x emissions from the counties recommended by EPA as having the potential to impact the violating monitors. A similar comparison can be made with both NO_x and PM. Woodford County's NO_x emissions rank at 8% of the total EPA recommended areas, and PM at 6%. In a detailed review of EPA's recommended areas to be designated nonattainment, Woodford County ranks consistently at less than or equal to 8% of combined emissions contributions within EPA's proposed nonattainment boundaries. Woodford County emits less than 5,000 tpy of any pollutant under review. See Figures 1-4 below.

Figure 1

Lexington Area SOx Emissions in EPA Proposed Nonattainment Counties

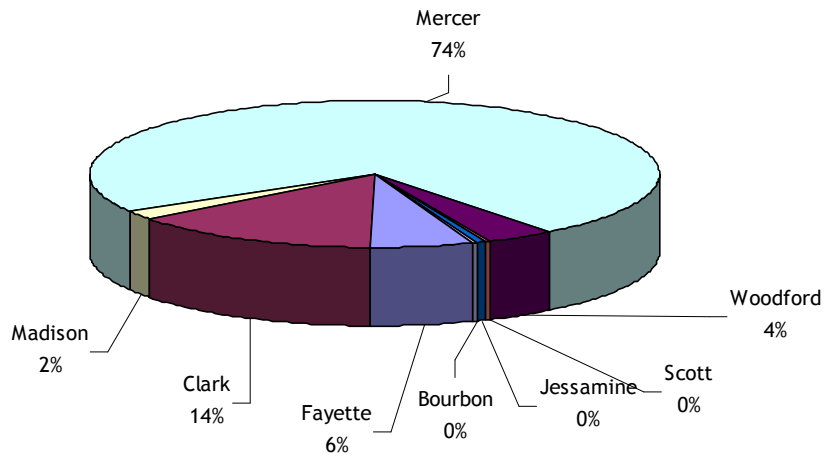


Figure 2

Lexington Area 2001 NOx Emissions

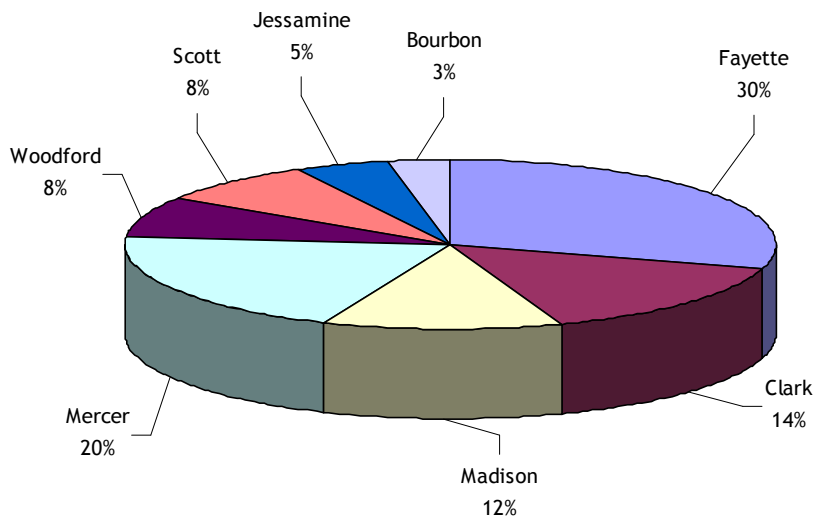


Figure 3

Lexington Area PM Emissions in EPA Proposed Nonattainment Counties

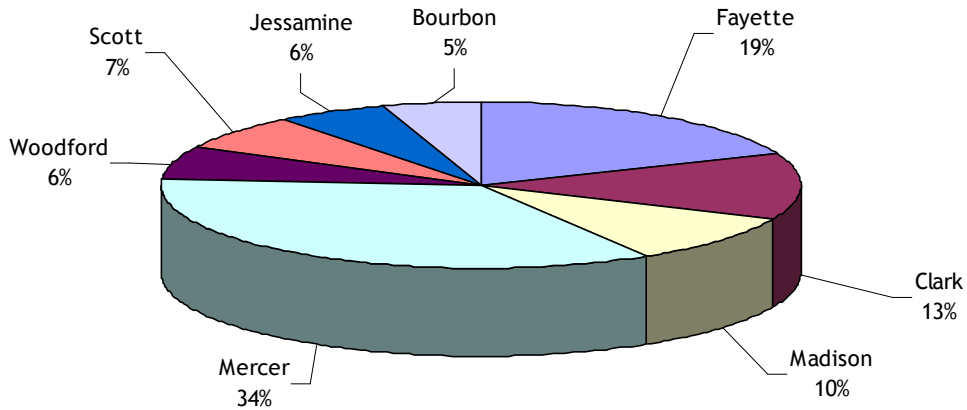
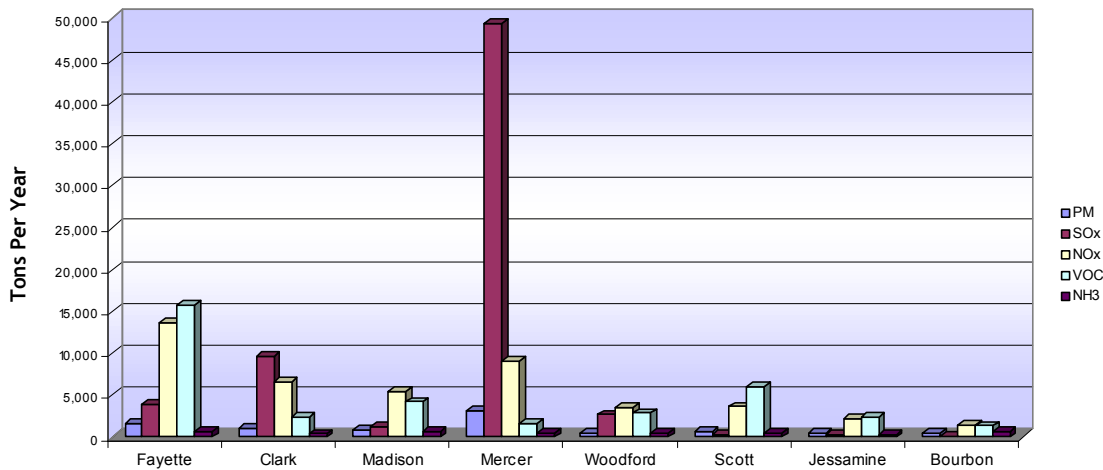


Figure 4

Lexington Area Counties Emissions 2001



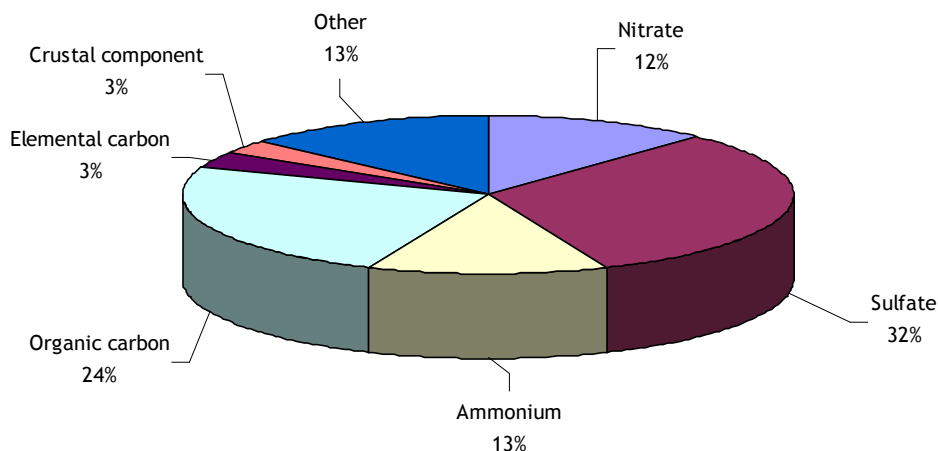
Monitoring Data and Trends

As can be seen in Figure 5 below, the speciation data from Kentucky's Lexington speciation monitor indicates that sulfate is the major component of the PM_{2.5} values. As can be seen in Figure 1 above, Woodford County

contributes only 4% of the SO_x in the area of proposed nonattainment counties by EPA.

Figure 5

**Lexington Speciation Monitoring Data 2001-2003
Average Concentration ($\mu\text{g}/\text{m}^3$)**



The MSA has three monitors located within its boundaries, two in Fayette County and one in Madison County. $\text{PM}_{2.5}$ monitoring levels have continued to decline at all three monitors within this region. (See Figure 6 below)

Fayette County has two $\text{PM}_{2.5}$ monitors, one located in a central urban area in the midst of the downtown, University of Kentucky campus (Limestone), and the other located on an arterial roadway located 1.9 miles north of downtown (Newtown Pike).

The Newtown Pike monitor shows attainment with the standard, having an average of $14.9 \mu\text{g}/\text{m}^3$ over the time period 2001-2003, and having an average of $13.6 \mu\text{g}/\text{m}^3$ through April 2004.

The latest average through April 2004 for the Limestone monitor is $14.7 \mu\text{g}/\text{m}^3$. The current design value of $15.6 \mu\text{g}/\text{m}^3$ is based on the 2001-2003 time period.

Even though Woodford County does not have a monitor, the $\text{PM}_{2.5}$ levels have decreased by 15% at the Newtown Pike monitor, 12% at the Limestone monitor, and 13% at the Madison County monitor (See Figure 7 below).

Figure 6

Fayette Area PM2.5 Trend Utilizing Most Current Available Data

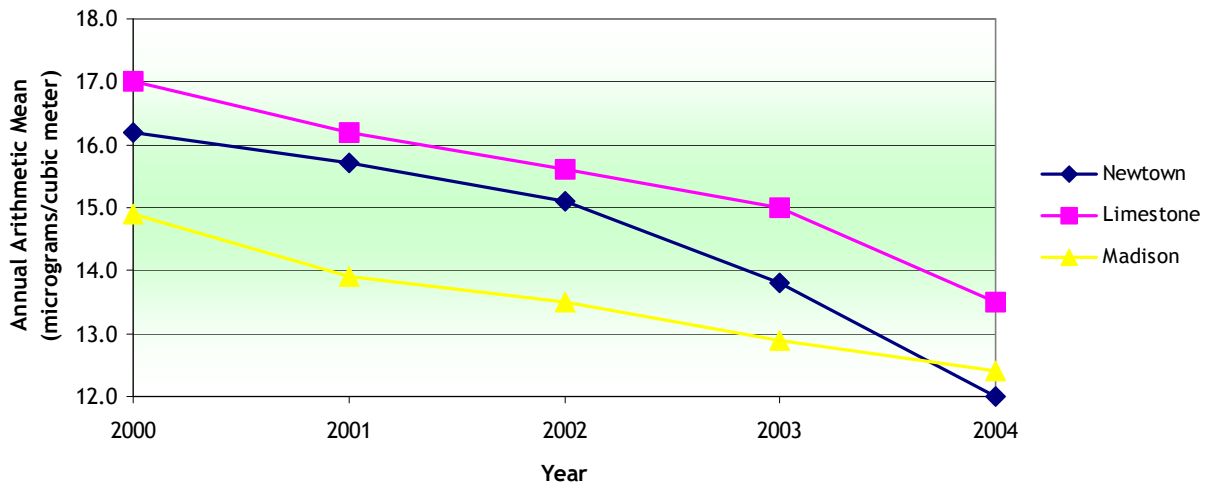
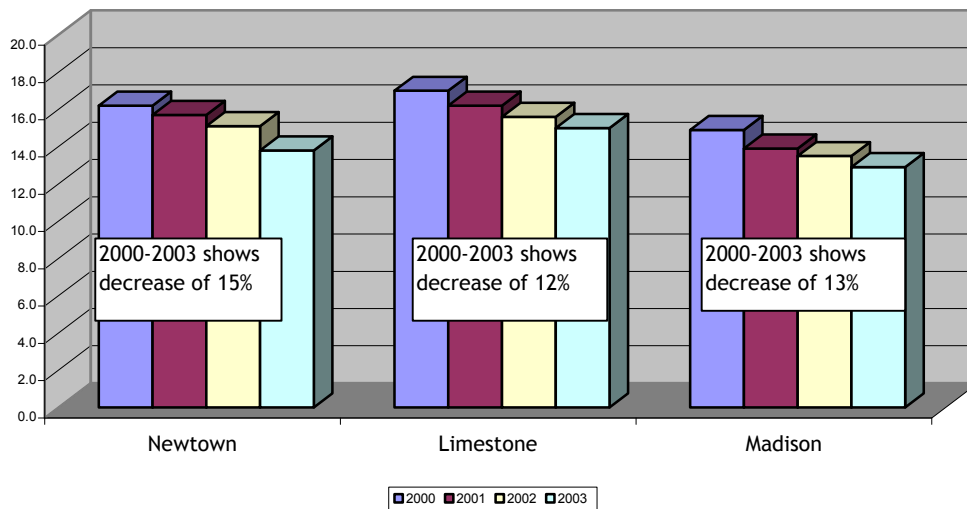


Figure 7

Decline in PM Values for the Fayette Area



Localized vs Regional Impacts

It is Kentucky's position that the monitor located on the UK Campus exhibits an "Urban Core Phenomenon." That is, the monitor's location is at the center of a large public university situated in a downtown metropolitan area with significant activity having a direct relationship to the PM_{2.5} levels being monitored.

This monitor is bracketed by numerous large and small boilers on the University of Kentucky campus and is located adjacent to continuing construction on the campus. Significant local impacts are occurring due to not only the close proximity of the boilers, but also from the emission contributions of construction equipment in the area. This monitor is located only 1.9 miles from the monitor showing attainment of the standard on Newtown Pike.

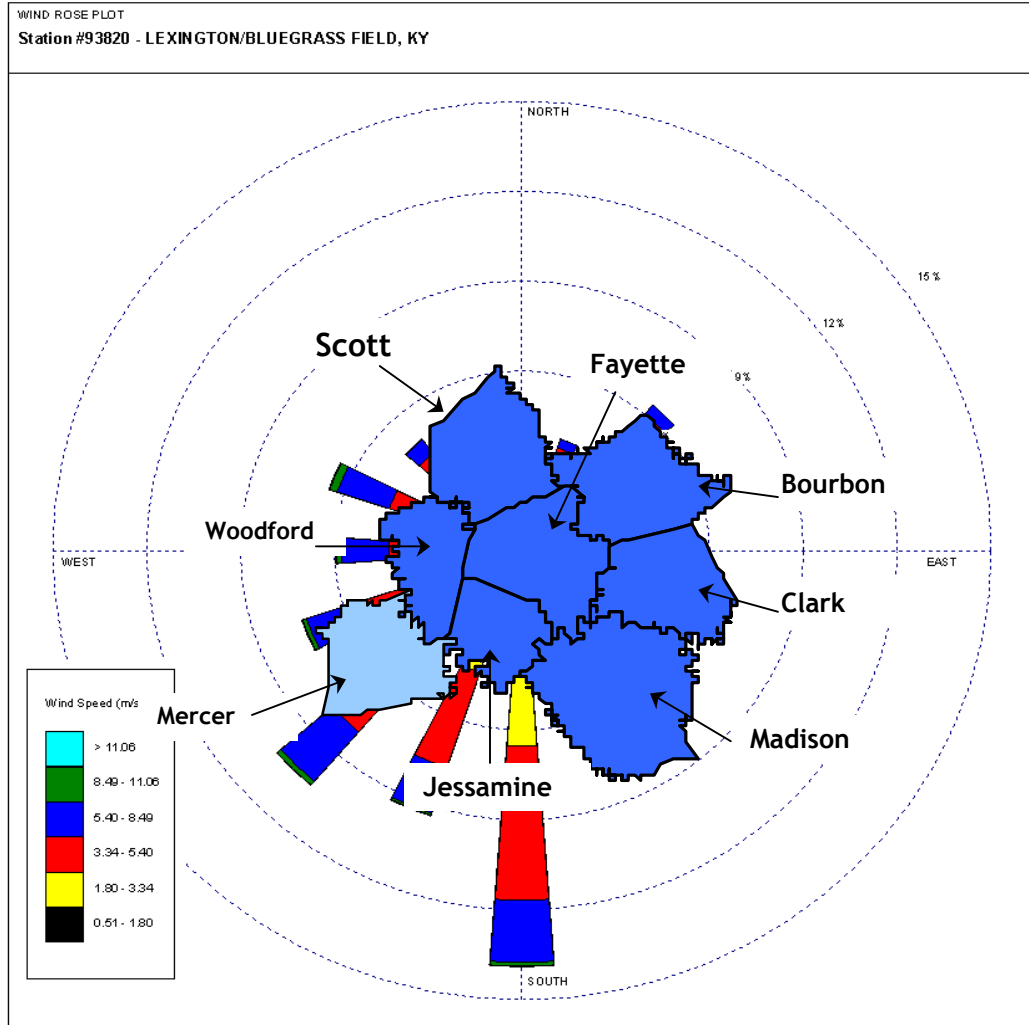
If significant regional impacts from emissions from Woodford County were occurring, they would be expected throughout the regional monitoring network and not at one specific monitor in downtown Lexington.

Meteorology

EPA's response to Kentucky stated that the wind speed/wind direction data provided by Kentucky in the February submittal did not play a significant role in the decision making process and that the information was for summertime winds. Kentucky offers the following information.

As shown in the updated wind rose in Figure 8 below, the majority of the time the wind in the Lexington area comes from the south and the southwest. Woodford County is east-northeast from the violating monitor in Fayette County. The wind rose data indicates that Woodford County does not impact the monitor in violation. The monitoring site more directly impacted by activity in Woodford County is the monitor showing attainment of the standard.

Figure 8



Additional Regional/National Controls

The implementation of new federal rules to decrease the amount of sulfur in both gasoline and diesel fuel will significantly decrease the amount of SO₂ in the entire area. Because of the Low Sulfur Diesel Rule, in 2007, new clean engines operating on 15-ppm sulfur diesel fuel will reduce NO_x emissions by 50%, and reduce PM emissions by more than 90%. Due to the Tier 2 Vehicle and Gasoline Sulfur program, by 2006 average national gasoline sulfur levels will be 90% lower.

Upon implementation of the Clean Air Interstate Rule (CAIR) SO₂ emissions from power plants will be reduced nationwide by 3.6 million tons in 2010 (approximately 40 percent below current levels) and by another 2 million tons per year when the rules are fully implemented (approximately 70 percent below current levels). NO_x emissions would be cut by 1.5 million tons nationwide in 2010 and 1.8 million tons annually in 2015 (about 65 percent below today's levels).

The first phase of compliance under the CAIR rule to reduce both SO₂ and NO_x emissions would be required by 2010, allowing substantial emission reductions in the area, by the proposed attainment date for PM_{2.5} nonattainment areas.

Conclusions

Based on the factors discussed above, Kentucky believes that Woodford County should be designated attainment for the PM_{2.5} standard.

- Kentucky believes that EPA's use of the weighted emissions scoring approach was skewed. EPA did not include adjacent county emissions in the total emissions being analyzed for the area. If the emissions from the entire area under review were used, vs just those within the MSA, a very different result in the weighted emissions scores would have occurred. Woodford County would not have the potential to contribute significantly to PM_{2.5} levels within the region.
- The only monitor showing a violation throughout the entire eight county region is being impacted by extreme urban core activities in a specific geographic location within Fayette County.
- PM_{2.5} levels continue to decline throughout the entire region. From a review of all monitors in the region, an average decline of 13% in PM_{2.5} levels has occurred from 2000 through 2003. Every monitor in the region

is currently showing values well within attainment of the annual $PM_{2.5}$ standard using 2002 through 2004 data.

- Additional emission reductions on a national and regional level will provide substantial additional emission reductions in the region. The anticipated sulfur reductions due to the Low Sulfur Diesel Rule, the Tier 2 Vehicle and Gasoline Low Sulfur programs, and the Clean Air Interstate Rule (CAIR) will further lower pollutant levels within this region.

To have this county designated nonattainment would invoke additional substantial and unnecessary requirements on local government planning agencies. Drastic emission reductions are scheduled to occur in the mobile sector throughout the next several years that will greatly impact pollutant levels in the area. In addition, reductions anticipated by the CAIR provisions, the air monitoring data demonstrating attainment of the $PM_{2.5}$ Standard at two of the three monitors in the area, the downward trend in monitored values, and Kentucky's position that the monitored violation of the standard in the downtown area is the result of a localized "urban core phenomenon," lead to the conclusion that Woodford County, Kentucky, should be designated attainment for the $PM_{2.5}$ Standard.