



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
77 WEST JACKSON BOULEVARD  
CHICAGO, IL 60604-3590

JUNE 29, 2004

REPLY TO THE ATTENTION OF:

R-19J

Honorable Bob Taft  
Governor of Ohio  
Columbus, Ohio 43215-6117

Dear Governor Taft:

Fine-particle pollution represents one of the most significant barriers to clean air facing our nation today. These tiny particles - about 1/30<sup>th</sup> the diameter of a human hair - have been scientifically linked to serious human health problems. Their ability to be suspended in air for long periods of time makes them a public health threat far beyond the source of emissions. An important part of our nation's commitment to clean, healthy air deals with reducing levels of this fine-particle (PM<sub>2.5</sub>) pollution.

We have reviewed the February 13, 2004, letter from Christopher Jones, Director, Ohio Environmental Protection Agency, submitting recommendations on air quality designations for the PM<sub>2.5</sub> standard. We have also reviewed the technical information Ohio submitted to support the recommendations for areas that differed from the presumptive boundaries. We appreciate the effort the State has made to develop this supporting information. Consistent with the Clean Air Act, this letter is to notify you that, based upon the information contained in your submittal and other available information, the Environmental Protection Agency (EPA) intends to promulgate designations that differ from Ohio's recommended designations and boundaries.

Your Environmental Director will receive a copy of this letter with a more detailed enclosure containing a description of areas where EPA intends to modify your state recommendations, and the basis for such modification. Should you have additional information that you wish to be considered by EPA in this process, we request that you provide it to us by September 1.

You will hear from us again in November when EPA takes the final step in the PM<sub>2.5</sub> designation process and determines those areas

that are in attainment (or unclassifiable) and those areas that are nonattainment. For areas in attainment, the challenge will be not only to maintain, but also to continue the progress you have made toward clean air. It is a commitment to no backsliding in your State's clean air status for fine particles. EPA will also issue a proposed fine particle implementation rule prior to final designations, which will allow you to proceed with planning to achieve clean air.

The Bush Administration is addressing fine particle pollution with a comprehensive national clean air strategy. This strategy includes EPA's recent rule to reduce pollution from nonroad diesel engines, and the proposed rule to reduce pollution from power plants in the Eastern United States. These two rules are important components of EPA's efforts to help States and localities meet the more protective national fine-particle and 8-hour ozone air quality standards. Together these rules will help all areas of the country achieve cleaner air.

If you have any questions, please do not hesitate to contact me. We look forward to a continued dialogue with you as we work together to implement the PM<sub>2.5</sub> standards.

Very truly yours,



Bharat Mathur,  
Acting Regional Administrator

Enclosure

cc: Christopher Jones, Director  
Ohio Environmental Protection Agency

John A. Benedict, Director  
West Virginia Department of Environmental Protection

Joyce Epps, Director  
Pennsylvania Department of Environmental Protection

Lori Kaplan, Commissioner  
Indiana Department of Environmental Management

John Lyons, Air Director  
Kentucky Department of Environmental Quality

**Review of Designations in Ohio  
For the Particulate Matter Air Quality Standard**

The following table identifies the individual areas and counties comprising those areas in Ohio that EPA intends to designate as nonattainment. Ohio provided two options of recommendations: Option 1 only includes counties monitoring nonattainment, and Option 2 includes the Option 1 counties plus additional counties recommended as contributing to nonattainment. EPA finds the Option 2 recommendations generally to reflect a proper review of nonattainment areas in accordance with EPA guidance, and so this table compares EPA's recommendations to Ohio's Option 2 recommendations. Following this table is a description of the data EPA examined and a discussion of each area and the basis for EPA's intended designations. EPA intends to designate as attainment/unclassifiable all counties not identified in the table below.

<b>Area</b>	<b>Ohio Counties in Metropolitan Area</b>	<b>Ohio Recommended Nonattainment Counties (Option 2)</b>	<b>EPA's Intended Nonattainment Counties</b>
<b>Canton-Massillon, OH</b>	Stark Carroll	Stark	Stark
<b>Cincinnati-Hamilton, OH-KY-IN</b>	Butler Clermont Hamilton Warren Brown	Butler Clermont Hamilton Warren	Butler Clermont Hamilton Warren
<b>Cleveland-Akron-Lorain, OH</b>	Cuyahoga Lake Lorain Medina Portage Summit Ashtabula Geauga	Cuyahoga Lake Lorain Medina Portage Summit	Cuyahoga Lake Lorain Medina Portage Summit Ashtabula Geauga
<b>Columbus, OH</b>	Delaware Fairfield Franklin Licking Madison Pickaway	Delaware Fairfield Franklin Licking	Delaware Fairfield Franklin Licking Coshocton

Area	Ohio Counties in Metropolitan Area	Ohio Recommended Nonattainment Counties (Option 2)	EPA's Intended Nonattainment Counties
<b>Dayton-Springfield, OH</b>	Clark Greene Montgomery Miami	Clark Greene Montgomery	Clark Greene Montgomery
<b>Huntington-Ashland, WV-KY-OH</b>	Lawrence	Lawrence Scioto	Lawrence Scioto Adams Gallia
<b>Parkersburg-Marietta, WV-OH</b>	Washington		Washington
<b>Steubenville-Weirton, OH-WV</b>	Jefferson	Jefferson	Jefferson
<b>Toledo, OH</b>	Lucas Wood Fulton	Lucas Wood	Lucas Wood
<b>Wheeling, WV-OH</b>	Belmont		Belmont
<b>Youngstown-Warren, OH</b>	Columbiana Mahoning Trumbull	Columbiana Mahoning Trumbull	Columbiana Mahoning Trumbull

## An Explanation of EPA's 9-Factor Analysis

### **Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:**

*The analysis for factor 1 looks at emissions of carbonaceous particles (carbon), inorganic particles (crustal), SO<sub>2</sub>, and NO<sub>x</sub>. EPA computed a composite emission score for each county by multiplying the county's emissions as a fraction of the metropolitan area emissions for each of these pollutants times a corresponding air quality weighting factor. These scores for the metropolitan area counties add to 100. The air quality weighting factors for each area are given below and reflect the percentages of the total estimated "urban excess" value found as carbonaceous particles, miscellaneous inorganic particles (crustal material), ammonium sulfate, and ammonium nitrate. Tables presented under factor 1 provide the carbonaceous particles, inorganic particles, SO<sub>2</sub>, and NO<sub>x</sub> emissions and the composite emission scores for the counties in the corresponding metropolitan area and adjacent counties. Emissions data are derived from the National Emissions Inventory and are for 2001, given in tons per year. Metropolitan area counties are in **bold**. Emissions data indicate the potential for a county to contribute to observed violations, often making the emissions data the most important factor in assessing boundaries of nonattainment areas.*

*"Urban excess" values are derived by comparing urban monitored component concentrations against rural monitored component concentrations. Concentrations of the four PM<sub>2.5</sub> components are obtained from local data if available (or, if necessary, from the nearest available urban site), and are compared to available rural concentrations. The monitoring sites used for this purpose are identified below. Although this information is air quality information, it is presented under Factor 1 due to its integration into the analysis of emissions information.*

### **Factor 2. Air quality in potentially included versus excluded areas:**

*The air quality analysis looks at the annual average design value for each area based on data for 2001 to 2003. Counties without monitors are not listed.*

### **Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:**

Tables presented under factor 3 show the 2002 population for each metropolitan area, as well as the population density for each county in that area. Population data indicate the likelihood of population-based emissions that might contribute to violations.

**Factor 4. Traffic and commuting patterns:**

The traffic and commuting analysis looks at the number of commuters in each county who drive to another county within the metropolitan area ("Number"), the percent of total commuters in each county who commute to other counties within the metropolitan area ("percent"), as well as the total Vehicle Miles Traveled (VMT) for each county in thousands of miles. A county with numerous commuters is generally an integral part of the area, and would be an appropriate part of the domain of some mobile source strategies, thus warranting inclusion in the nonattainment area.

Note that the percent of commuters traveling to counties within the metropolitan area is based on the total number of commuters from that county. This total includes commuters who may travel outside the metropolitan area from their county of origin.

**Factor 5. Expected growth:**

The expected growth analysis looks at the percent growth for counties in each metropolitan area from 1990 to 2000.

**Factor 6. Meteorology:**

The meteorology analysis looks at wind data gathered over a ten year period by the National Weather Service. Tables presented under factor 6 list the year round average prevailing wind directions by quadrant for each county in the corresponding metropolitan area. These data show that annual average  $PM_{2.5}$  concentrations are influenced by emissions in any direction at various times, but these data may also suggest that emissions in some directions relative to the violation may be more prone to contribute than emissions in other directions.

**Factor 7. Geography/topography:**

The geography/topography analysis looks at physical features of the land that might have an effect on the airshed, and therefore, the distribution of particulate matter over an area. The State of Ohio has no such features that significantly influenced EPA's intended nonattainment areas.

**Factor 8. Jurisdictional boundaries:**

*The analysis of jurisdictional boundaries looks at the planning and organizational structure of an area to determine if the implementation of controls in a potential nonattainment area can be carried out in a cohesive manner.*

**Factor 9. Level of control of emission sources:**

*The level of control analysis looks at what controls are currently implemented in each area.*



**9-Factor Analyses for Metropolitan Areas in Ohio**

**Canton-Massillon, OH**

**Discussion:**

There are two counties in this metropolitan area, Stark County and Carroll County. EPA agrees with the Ohio EPA to include Stark County as nonattainment for the Canton-Massillon area. The majority of the emissions and population are located in Stark County, which contains a monitor that is violating the standard. Stark County also represents the ozone nonattainment area for the Canton-Massillon Metropolitan Area. There are four counties that are adjacent to the metropolitan area, Harrison, Holmes, Tuscarawas and Wayne Counties, that are not part of other metropolitan areas. Of these counties, only Wayne County required further review due to the population and emissions in the county. Wayne County is adjacent to both the Cleveland and Canton Metropolitan areas. It does not appear appropriate to associate this county with the Canton-Massillon Metropolitan Area. There is limited commuting from Wayne County to the Canton-Massillon Metropolitan Area and there does not appear to be additional interaction that would indicate a need to include Wayne County in the nonattainment area. In addition, Wayne County has relatively low emissions when compared to emissions in the Cleveland Metropolitan Area.

Because emissions are relatively low for Harrison, Holmes, and Tuscarawas Counties, and no other factor warranted designating these counties nonattainment, the following data summaries for factors 3 through 9 do not address these counties.

**Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:**

<u>County</u>	<u>SOx</u>	<u>NOx</u>	<u>Carbon</u>	<u>Crustal</u>	<u>Composite emission score</u>
<b>Carroll</b>	<b>386</b>	<b>1,886</b>	<b>120</b>	<b>234</b>	<b>10.0</b>
<b>Stark</b>	<b>2,736</b>	<b>14,968</b>	<b>1,255</b>	<b>2,158</b>	<b>90.0</b>
Harrison	258	712	70	116	5.2
Holmes	272	1,687	141	448	10.8
Tuscarawas	3,970	6,333	354	553	40.5
Wayne	21,450	8,911	702	1,849	126.4

**Urban increment:**

Total mass= 4.2 ug/m3

11% sulfates; 30% nitrates; 49% carbon; 10% crustal.

Urban site=390990014;

Rural site=MKG01 (M.K. Goddard)

**Factor 2. Air quality in potentially included versus excluded areas:**

<u>County</u>	<u>2001-2003 Design Value</u>
Stark	17.3

**Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:**

<u>County</u>	<u>2002 Population</u>	<u>Population Density</u>
Carroll	29,166	74
Stark	377,940	656
Wayne	112,704	203

**Factor 4. Traffic and commuting patterns:**

<u>County</u>	<u>Number</u>	<u>Percent</u>	<u>County VMT (Thousands)</u>
Carroll	5,125	40	193
Stark	956	1	3,135
Wayne	1,681	3	1,039

**Factor 5. Expected growth**

<u>County</u>	<u>Percent growth 1990-2000</u>
Carroll	9
Stark	3
Wayne	10

**Factor 6. Meteorology:**

	<u>Average percent of wind direction by quadrant</u>			
<u>County</u>	<u>Northwest</u>	<u>Southwest</u>	<u>Southeast</u>	<u>Northeast</u>
Carroll	27	39	18	17
Stark	24	41	17	17
Wayne	24	41	18	16

**Factor 7. Geography/topography:**

There are no geographical features (mountain ranges, abrupt changes in elevation, etc.) that affect this area. The State provided no information about geography/topography for this area.

**Factor 8. Jurisdictional boundaries:**

The Stark County Regional Planning Commission/Stark County Area Transportation Study (SCATS) is the Metropolitan Planning Organization (MPO) for the Canton-Massillon, OH.

-Source: SCATS webpage,  
<http://www.rpc.co.stark.oh.us/scats.html>

The area's ozone nonattainment area consists of the following county:

-Stark

**Factor 9. Level of control of emission sources:**

The State provided no information about the level of control of emission sources for this area.

**Cincinnati-Hamilton, OH-KY-IN****Discussion:**

There are five Ohio counties in this Metropolitan area: Brown, Butler, Clermont, Hamilton and Warren Counties. There are violating monitors in Butler and Hamilton Counties. EPA agrees with the Ohio EPA's Option 2 recommendation to include Butler, Clermont, Hamilton and Warren Counties as nonattainment for the Cincinnati-Hamilton nonattainment area. Brown County is not included because there are minimal emissions and population in this county relative to the Metropolitan area. Brown County was also excluded from the ozone nonattainment area for Cincinnati-Hamilton. There are four counties that are adjacent to the metropolitan area in Ohio and not included in other metropolitan areas. These counties are Preble, Clinton, Highland and Adams Counties. Of these adjacent counties, Adams County merits further review due to the emissions in the county. Adams County is more likely to contribute to violations in Scioto County and the Huntington-Ashland metropolitan area, and is addressed in connection with that area.

Because emissions are relatively low for Preble, Clinton, and Highland Counties, and no other factor warranted designating these counties nonattainment, the following data summaries for factors 3 through 9 do not address these counties.

**Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:**

<u>County</u>	<u>SOx</u>	<u>NOx</u>	<u>Carbon</u>	<u>Crustal</u>	<u>Composite emission score</u>
Boone, KY	14,717	15,794	721	1,068	7.7
Brown, OH	395	2,927	208	520	2.0
Butler, OH	13,204	19,735	956	1,752	9.9
Campbell, KY	860	5,294	285	260	2.8
Clermont, OH	84,599	45,618	1,693	3,916	20.0
Dearborn, IN	56,773	31,138	900	2,121	11.4
Gallatin, KY	350	2,365	100	234	1.0
Grant, KY	210	2,664	182	191	1.8
Hamilton, OH	88,053	58,398	2,780	3,873	30.3
Kenton, KY	1,573	8,365	415	301	4.2
Ohio, IN	113	682	49	89	0.5
Pendleton, KY	597	3,396	139	207	1.5
Warren, OH	895	7,565	743	1,063	6.9
Adams, OH	125,136	52,992	1,435	3,973	19.4
Bracken, KY	52	570	76	94	0.7
Carroll, KY	53,086	26,269	821	2,177	10.3
Clinton, OH	375	2,490	193	583	1.8
Franklin, IN	92	1,335	143	341	1.3
Harrison, KY	290	1,786	114	225	1.1
Highland, OH	242	1,756	177	498	1.6
Mason, KY	38,142	16,071	562	1,429	7.0
Owen, KY	57	572	126	105	1.1
Preble, OH	428	2,765	228	721	2.2
Ripley, IN	140	2,081	221	507	2.0
Switzerland, IN	251	1,554	101	145	1.0
Union, IN	58	548	68	272	0.6

**Urban increment:**

Total mass= 2.1 ug/m<sup>3</sup>

7% sulfates; 15% nitrates; 78% carbon; 0% crustal.

Urban site=211170007;

Rural site=LIV01 (Livonia)

**Factor 2. Air quality in potentially included versus excluded**

areas:

<u>County</u>	<u>2001-2003 Design Value</u>
Butler, OH	16.2
Campbell, KY	14.5
Hamilton, OH	17.8
Kenton, KY	15.0
Preble, OH	13.5

Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:

<u>County</u>	<u>2002 Population</u>	<u>Population Density</u>
Boone, KY	93,290	379
Brown, OH	43,464	88
Butler, OH	340,543	729
Campbell, KY	88,604	583
Clermont, OH	183,352	406
Dearborn, IN	47,333	155
Gallatin, KY	7,836	79
Grant, KY	23,620	91
Hamilton, OH	833,721	2048
Kenton, KY	152,164	934
Ohio, IN	5,804	67
Pendleton, KY	14,815	53
Warren, OH	175,133	438
Adams, OH	27,804	48

Factor 4. Traffic and commuting patterns:

<u>County</u>	<u>Number</u>	<u>Percent</u>	<u>County VMT (Thousands)</u>
Boone, KY	19,805	44	842
Brown, OH	9,901	53	417
Butler, OH	62,298	39	2610
Campbell, KY	26,658	62	1097
Clermont, OH	50,763	57	1649
Dearborn, IN	10,978	48	607

Gallatin, KY	1,805	50	254
Grant, KY	5,234	51	379
Hamilton, OH	54,833	14	8420
Kenton, KY	44,002	58	1816
Ohio, IN	1,644	59	56
Pendleton, KY	3,704	57	169
Warren, OH	32,089	42	15
Adams	2,578	23	283

## Factor 5. Expected growth

<u>County</u>	<u>Percent growth 1990-2000</u>
Boone, KY	49
Brown, OH	21
Butler, OH	14
Campbell, KY	6
Clermont, OH	19
Dearborn, IN	19
Gallatin, KY	46
Grant, KY	42
Hamilton, OH	-2
Kenton, KY	7
Ohio, IN	6
Pendleton, KY	20
Warren, OH	39
Adams, OH	8

## Factor 6. Meteorology:

	<u>Average percent of wind direction by quadrant</u>			
<u>County</u>	<u>Northwest</u>	<u>Southwest</u>	<u>Southeast</u>	<u>Northeast</u>
Boone, KY	22	41	18	19
Brown, OH	23	40	18	18
Butler, OH	24	40	18	18
Campbell, KY	23	40	18	19
Clermont, OH	23	40	18	18
Dearborn, IN	23	40	18	19

<b>Gallatin, KY</b>	<b>22</b>	<b>41</b>	<b>19</b>	<b>19</b>
<b>Grant, KY</b>	<b>21</b>	<b>40</b>	<b>19</b>	<b>20</b>
<b>Hamilton, OH</b>	<b>23</b>	<b>41</b>	<b>18</b>	<b>19</b>
<b>Kenton, KY</b>	<b>22</b>	<b>41</b>	<b>18</b>	<b>19</b>
<b>Ohio, IN</b>	<b>22</b>	<b>39</b>	<b>19</b>	<b>19</b>
<b>Pendleton, KY</b>	<b>21</b>	<b>40</b>	<b>19</b>	<b>20</b>
<b>Warren, OH</b>	<b>24</b>	<b>39</b>	<b>19</b>	<b>18</b>
Adams, OH	22	39	20	19

**Factor 7. Geography/topography:**

There are no geographical features (mountain ranges, abrupt changes in elevation, etc.) that affect this area. The State provided no information about geography/topography for this area.

**Factor 8. Jurisdictional boundaries:**

The Ohio-Kentucky-Indiana Regional Council of Governments (OKI) is the Metropolitan Planning Organization (MPO) for Butler, Warren, Clermont, and Hamilton Counties in Ohio; Campbell, Kenton, and Boone Counties in Kentucky; and Dearborn County, Indiana.

-Source: OKI webpage, <http://www.oki.org/>

The Ohio portion of this area's ozone nonattainment area consists of the following Ohio counties:

-Butler, Clermont, Hamilton, Warren, Clinton

**Factor 9. Level of control of emission sources:**

The State provided no information about the level of control of emission sources for this area.

**Cleveland-Akron-Lorain, OH****Discussion:**

There are violating monitors in Cuyahoga and Summit Counties. EPA intends to modify the Ohio EPA Option 2 recommendation to include Cuyahoga, Lake, Lorain, Medina, and Summit and Portage Counties also to include Geauga and Ashtabula Counties in the Cleveland-Lorain-Elyria nonattainment area. These counties are all in the ozone nonattainment area, and matching the two nonattainment areas will facilitate planning for both standards. Both Geauga and Ashtabula Counties, like the other counties in the metropolitan area, have significant commuting into other parts of the metropolitan area and sufficient emissions to warrant designating as part of the nonattainment area.

There are four counties adjacent to this metropolitan area that are not a part of another metropolitan area. These are Erie, Huron, Ashland and Wayne Counties. Emissions are relatively low for these counties.

Because emissions are relatively low for Ashland, Erie, Huron, and Wayne Counties, and no other factor warranted designating these counties nonattainment, the following data summaries for factors 3 through 9 do not address these counties.

**Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:**

<u>County</u>	<u>SOx</u>	<u>NOx</u>	<u>Carbon</u>	<u>Crustal</u>	<u>Composite emissions score</u>
<b>Ashtabula</b>	<b>14,985</b>	<b>16,470</b>	<b>870</b>	<b>1,098</b>	<b>9.7</b>
<b>Cuyahoga</b>	<b>15,440</b>	<b>52,547</b>	<b>3,126</b>	<b>1,808</b>	<b>28.0</b>
<b>Geauga</b>	<b>624</b>	<b>3,985</b>	<b>472</b>	<b>648</b>	<b>3.6</b>
<b>Lake</b>	<b>53,219</b>	<b>24,531</b>	<b>1,074</b>	<b>1,570</b>	<b>16.2</b>
<b>Lorain</b>	<b>35,677</b>	<b>31,826</b>	<b>1,212</b>	<b>2,007</b>	<b>17.1</b>
<b>Medina</b>	<b>527</b>	<b>7,132</b>	<b>526</b>	<b>788</b>	<b>4.6</b>
<b>Portage</b>	<b>1,643</b>	<b>9,120</b>	<b>712</b>	<b>794</b>	<b>6.0</b>
<b>Summit</b>	<b>16,264</b>	<b>27,641</b>	<b>1,511</b>	<b>1,066</b>	<b>14.8</b>
<b>Ashland</b>	<b>825</b>	<b>3,460</b>	<b>214</b>	<b>663</b>	<b>2.4</b>



Crawford, PA	1,231	8,034	413	772	4.4
Erie	1,341	7,327	447	635	11.8
Huron	557	3,828	242	697	2.6
Wayne	21,450	8,911	702	1,849	8.9

**Urban increment:**Total mass= 7.1 ug/m<sup>3</sup>

13% sulfates; 34% nitrates; 42% carbon; 11% crustal.

Urban site=390350060

Rural site=MKG01 (M.K. Goddard)

**Factor 2. Air quality in potentially included versus excluded areas:**

<u>County</u>	<u>2001-2003 Design Value</u>
Cuyahoga	18.3
Lake	13.4
Lorain	13.9
Portage	14.2
Summit	16.6

**Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:**

<u>County</u>	<u>2003 Population</u>	<u>Population Density</u>
Ashtabula	102,515	146
Cuyahoga	1,379,049	3,011
Geauga	92,980	230
Lake	229,004	1,004
Lorain	288,360	585
Medina	158,439	375
Portage	153,886	313
Summit	546,381	1,323

**Factor 4. Traffic and commuting patterns:**

<u>County</u>	<u>Number</u>	<u>Percent</u>	<u>County VMT (Thousands)</u>
Ashtabula	11,106	24	1,107
Cuyahoga	49,985	8	11,461
Geauga	24,452	55	901
Lake	42,894	37	1,833
Lorain	40,464	30	2,514
Medina	37,343	49	1,622
Portage	34,001	44	1,796
Summit	51,921	20	5,141

## Factor 5. Expected growth:

<u>County</u>	<u>Percent growth 1990-2000</u>
Ashtabula	3.0
Cuyahoga	-1.0
Geauga	12.0
Lake	6.0
Lorain	5.0
Medina	23.0
Portage	7.0
Summit	5.0

## Factor 6. Meteorology:

	<u>Average percent of wind direction by quadrant</u>			
<u>County</u>	<u>Northwest</u>	<u>Southwest</u>	<u>Southeast</u>	<u>Northeast</u>
Ashtabula	24	40	20	15
Cuyahoga	21	45	16	18
Geauga	23	41	20	16
Lake	22	43	18	17
Lorain	21	45	16	18
Medina	21	45	16	18

<b>Portage</b>	<b>25</b>	<b>40</b>	<b>19</b>	<b>16</b>
<b>Summit</b>	<b>23</b>	<b>42</b>	<b>17</b>	<b>17</b>

**Factor 7. Geography/topography:**

There are no geographical features (mountain ranges, abrupt changes in elevation, etc.) that affect this area. The State provided no information about geography/topography for this area.

**Factor 8. Jurisdictional boundaries:**

The Northeast Ohio Areawide Coordinating Agency (NOACA) is the Metropolitan Planning Organization (MPO) for Cuyahoga, Geauga, Lake (OH), Lorain, and Medina Counties.

-source: NOACA webpage, <http://www.noaca.org/>

The area's ozone nonattainment area consists of the following counties:

-Ashtabula, Cuyahoga, Geauga, Lake, Lorain, Medina, Portage, and Summit

**Factor 9. Level of control of emission sources:**

The State provided no information about the level of control of emission sources for this area.

**Columbus, OH**

**Discussion:**

Franklin County contains a violating monitor. There are no other monitors in the metropolitan area. EPA intends to modify the Ohio EPA's Option 2 recommendation to include Delaware, Fairfield, Franklin, and Licking Counties also to include Coshocton County in the Columbus nonattainment area. Pickaway and Madison Counties are excluded from the nonattainment area. These two counties have the lowest composite emissions scores in the metropolitan area. Pickaway County was not included as part of the ozone nonattainment area, and Madison County was included because it contained a monitored violation of the ozone standard. These two counties also have the lowest population, population density and vehicle miles traveled in the metropolitan area. There are eleven counties adjacent to the metropolitan area that are not included in another metropolitan area. Most of these counties have relatively low emissions and do not warrant further discussion. The exception is Coshocton County, which has emissions principally from the Conesville power plant located in that county. EPA believes that this county is contributing to violations.

Coshocton County is adjacent to the Columbus Metropolitan Area and contains a power plant with significant emissions that contribute to the violations in the Columbus Metropolitan Area. We have included such counties in our initial recommendations in order to ensure that a sufficient portion of those counties, including such large facilities, is included within the boundaries of the nonattainment area as part of the final designations. You may wish to recommend an alternative Columbus nonattainment area that includes these emissions but includes only a portion of these counties.

Because emissions are relatively low for the counties adjacent to the metropolitan area other than Coshocton County, and no other factor warranted designating these counties nonattainment, the following data summaries for factors 3 through 9 do not address these counties.

**Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:**

<u>County</u>	<u>SOx</u>	<u>NOx</u>	<u>Carbon</u>	<u>Crustal</u>	<u>Composite emissions score</u>
<b>Delaware</b>	<b>676</b>	<b>6,088</b>	<b>573</b>	<b>1,277</b>	<b>11.2</b>
<b>Fairfield</b>	<b>1,301</b>	<b>6,556</b>	<b>507</b>	<b>1,098</b>	<b>10.4</b>
<b>Franklin</b>	<b>6,435</b>	<b>41,541</b>	<b>2,084</b>	<b>2,098</b>	<b>48.2</b>
<b>Licking</b>	<b>1,054</b>	<b>7,815</b>	<b>909</b>	<b>1,701</b>	<b>17.1</b>
<b>Madison</b>	<b>233</b>	<b>3,106</b>	<b>259</b>	<b>1,033</b>	<b>5.2</b>
<b>Pickaway</b>	<b>9,854</b>	<b>5,971</b>	<b>363</b>	<b>1,282</b>	<b>7.9</b>
Champaign	383	1,757	180	602	3.5
Coshocton	97,412	24,560	1,385	3,733	30.9
Fayette	309	2,136	204	669	4.0
Hocking	408	2,161	104	154	2.4
Knox	302	2,225	258	657	4.9
Marion	675	3,896	273	909	5.7
Morrow	291	2,434	157	532	3.4
Muskingum	1,908	5,595	363	656	7.8
Perry	327	2,079	133	326	2.9
Ross	31,103	8,000	423	910	9.6
Union	377	2,202	246	897	4.7

**Urban increment:**

Total mass= 2.1 ug/m<sup>3</sup>

0% sulfates; 27% nitrates; 73% carbon; 0% crustal.

Urban site=390171004;

Rural site=LIV01 (Livonia)

**Factor 2. Air quality in potentially included versus excluded areas:**

<u>County</u>	<u>2001-2003 Design Value</u>
Franklin	16.7

**Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:**

<u>County</u>	<u>2002 Population</u>	<u>Population Density</u>
Delaware	125,399	283
Fairfield	129,161	255
Franklin	1,086,814	2013
Licking	148,731	216
Madison	40,365	87
Pickaway	53,437	106
Coshocton	36,836	65

**Factor 4. Traffic and commuting patterns:**

<u>County</u>	<u>Number</u>	<u>Percent</u>	<u>County VMT (Thousands)</u>
Delaware	32,350	56	1,099
Fairfield	31,533	52	1,064
Franklin	24,992	5	10,081
Licking	25,636	36	1,474
Madison	8,378	47	619
Pickaway	10,498	48	545
Coshocton	843	5	308

**Factor 5. Expected growth**

<u>County</u>	<u>Percent growth 1990-2000</u>
Delaware	64
Fairfield	19
Franklin	11
Licking	13

<b>Madison</b>	<b>8</b>
<b>Pickaway</b>	<b>9</b>
Coshocton	3

**Factor 6. Meteorology:**

<b>Average percent of wind direction by quadrant</b>				
<b>County</b>	<b>Northwest</b>	<b>Southwest</b>	<b>Southeast</b>	<b>Northeast</b>
<b>Delaware</b>	<b>24</b>	<b>35</b>	<b>23</b>	<b>19</b>
<b>Fairfield</b>	<b>24</b>	<b>34</b>	<b>23</b>	<b>19</b>
<b>Franklin</b>	<b>24</b>	<b>33</b>	<b>24</b>	<b>20</b>
<b>Licking</b>	<b>24</b>	<b>35</b>	<b>23</b>	<b>19</b>
<b>Madison</b>	<b>24</b>	<b>34</b>	<b>23</b>	<b>19</b>
<b>Pickaway</b>	<b>24</b>	<b>33</b>	<b>24</b>	<b>19</b>
Coshocton	24	42	18	16
Muskingum	24	36	23	18
Perry	24	35	23	19
Ross	24	34	23	19
Union	24	34	23	19

**Factor 7. Geography/topography:**

There are no geographical features (mountain ranges, abrupt changes in elevation, etc.) that affect this area. The State provided no information about geography/topography for this area.

**Factor 8. Jurisdictional boundaries:**

The Mid-Ohio Regional Planning Commission (MORPC) is the Metropolitan Planning Organization (MPO) for the Columbus, OH area.

Source: MORPC webpage, <http://www.morpc.org/MORPC.htm>

The area's ozone nonattainment area consists of the following counties:

-Delaware, Franklin, Licking, Fairfield, Madison, and Knox

**Factor 9. Level of control of emission sources:**

The State provided no information about the level of control of emission sources for this area.

**Dayton-Springfield, OH****Discussion:**

There is a violating monitor in Montgomery County. EPA agrees with the Ohio EPA Option 2 to include Clark, Greene, and Montgomery Counties in the Dayton-Springfield nonattainment area. The majority of emissions and population are captured notwithstanding the exclusion of Miami County, which has limited emissions and population. Miami County is also lower in terms of population density and VMT in the metropolitan area.

There are six counties adjacent to the metropolitan area and not included in another metropolitan area. Emissions are relatively low for these counties, and no other factor warranted designating these counties nonattainment. Therefore the following data summaries for factors 3 through 9 do not address these counties.

**Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:**

<u>County</u>	<u>SOx</u>	<u>NOx</u>	<u>Carbon</u>	<u>Crustal</u>	<u>Composite emissions score</u>
Clark	544	5,691	395	1,024	16.1
Greene	1,895	8,841	389	1,064	17.9
Miami	478	4,116	337	972	13.2
Montgomery	11,214	24,177	1,190	1,210	52.8
Champaign	383	1,757	180	602	6.8
Darke	551	3,174	381	1,316	14.0
Preble	428	2,765	228	721	8.9
Clinton	375	2,490	193	583	7.7
Fayette	309	2,136	204	669	7.8
Shelby	803	3,468	225	670	9.3

**Urban increment:**

Total mass= 2.1 ug/m<sup>3</sup>:

0% sulfates; 27% nitrates; 73% carbon; 0% crustal.

Urban site=390171004;

Rural site=LIV01 (Livonia)

**Factor 2. Air quality in potentially included versus excluded areas:**

<u>County</u>	<u>2001-2003 Design Value</u>
Clark	14.7
Greene	9.5
Montgomery	15.2

Preble	13.5
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**Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:**

<u>County</u>	<u>2002 Population</u>	<u>Population Density</u>
Clark	143,416	359
Greene	149,964	361
Miami	99,596	245
Montgomery	554,470	1200

**Factor 4. Traffic and commuting patterns:**

<u>County</u>	<u>Number</u>	<u>Percent</u>	<u>County VMT (Thousands)</u>
Clark	14,604	22	1,483
Greene	27,963	38	1,299
Miami	13,764	28	850
Montgomery	31,453	12	5,668

**Factor 5. Expected growth**

<u>County</u>	<u>Percent growth 1990-2000</u>
Clark	-2
Greene	8
Miami	6
Montgomery	-3

**Factor 6. Meteorology:**

	<u>Average percent of wind direction by quadrant</u>			
<u>County</u>	<u>Northwest</u>	<u>Southwest</u>	<u>Southeast</u>	<u>Northeast</u>
Clark	25	36	21	18
Greene	25	36	21	18
Miami	25	38	20	17
Montgomery	25	38	20	17

**Factor 7. Geography/topography:**

There are no geographical features (mountain ranges, abrupt changes in elevation, etc.) that affect this area. The State provided no information about geography/topography for this area.

**Factor 8. Jurisdictional boundaries:**



The Miami Valley Regional Planning Commission (MVRPC) is the Metropolitan Planning Organization (MPO) for the following counties: Greene, Miami, Montgomery, and portions of Warren.

-Source: MVRPC website, <http://www.mvrpc.org/index.htm>

The area's ozone nonattainment area consists of the following counties:

-Clark, Greene, Miami, and Montgomery

**Factor 9. Level of control of emission sources:**

The State provided no information about the level of control of emission sources for this area.

**Huntington-Ashland, WV-KY-OH**

**Discussion:**

There are monitors showing violations of the standard in Scioto and Lawrence Counties. Therefore, EPA agrees with Ohio's Option 2 recommendation to designate these counties nonattainment. We are also modifying the recommendations to include Adams and Gallia Counties in this nonattainment area. Lawrence County is the only county in Ohio in the metropolitan area. Aside from Scioto County, there are four counties in Ohio adjacent to the metropolitan area. These are Adams, Pike, Jackson and Gallia Counties. Adams County contains the DP&L Killen Generating Station and the DP&L J.M. Stuart Generating Station. Gallia contains the Ohio Power Gavin power plant and Ohio Valley Electric Corporation Kyger Creek power plant. Adams and Gallia counties are included due to significant emissions contributing to violations.

Adams and Gallia Counties are adjacent to violating counties in the Huntington-Ashland area and contain power plants with significant emissions that contribute to the violations in the area. We have included such counties in our initial recommendations in order to ensure that a sufficient portion of these counties, including such large facilities, is included within the boundaries of the nonattainment area as part of the final designations. You may wish to recommend an alternative Huntington-Ashland nonattainment area that includes these emissions but includes only a portion of these counties.

Emissions are relatively low for Pike and Jackson Counties, and no other factor warranted designating these counties nonattainment. The following data summaries for factors 3 through 9 do not address these counties.

**Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:**

<u>County</u>	<u>SOx</u>	<u>NOx</u>	<u>Carbon</u>	<u>Crustal</u>	<u>Composite emissions score</u>
Boyd, KY	11,740	13,478	689	1,242	25.2
Cabell, WV	5,155	27,903	1,318	774	40.3
Carter, KY	237	2,615	242	249	6.8
Greenup, KY	2,519	4,336	295	160	9.5
Lawrence, OH	841	4,399	293	379	8.6
Wayne, WV	1,023	6,485	317	199	9.6
Adams, OH	125,136	52,992	1,435	3,973	102.4
Elliott, KY	115	393	114	46	3.1
Gallia, OH	164,984	61,079	2,171	6,238	141.4
Jackson, OH	461	1,320	164	219	4.7
Lawrence, KY	56,055	21,265	745	1,718	48.3
Lewis, KY	469	2,873	285	121	8.1
Lincoln, WV	67	1,314	143	108	4.0
Martin, KY	661	1,236	136	131	4.0
Mason, WV	70,053	31,327	899	2,162	60.0
Mingo, WV	281	2,842	191	217	5.5
Rowan, KY	313	1,691	204	123	5.7
Scioto, OH	2,790	5,566	400	559	12.5

**Urban increment:**

Total mass= 3.2 ug/m3:

10% sulfates; 6% nitrates; 84% carbon; 0% crustal.

Urban site=210190017;

Rural site=QUCI1 (Quaker City)

**Factor 2. Air quality in potentially included versus excluded areas:**

<u>County</u>	<u>2001-2003 Design Value</u>
Boyd, KY	15.0
Cabell, WV	16.6
Carter, KY	12.2
Lawrence	15.8
Scioto	17.2

Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:

<u>County</u>	<u>2002 Population</u>	<u>Population Density</u>
Lawrence, OH	62,172	137
Boyd, KY	49,603	310
Cabell, WV	95,266	338
Carter, KY	27,055	66
Greenup, KY	36,761	106
Wayne, WV	42,382	84
Adams	27,804	48
Gallia	31,301	67
Scioto	78,041	128

Factor 4. Traffic and commuting patterns:

<u>County</u>	<u>Number</u>	<u>Percent</u>	<u>County VMT (Thousands)</u>
Lawrence, OH	11,446	49	796
Boyd, KY	3,967	21	411
Cabell, WV	2,864	7	1,030
Carter, KY	2,088	20	665
Greenup, KY	5,743	40	264
Wayne, WV	8,203	52	377
Adams	2,578	23	283
Gallia	337	3	266
Scioto	1,333	5	633

Factor 5. Expected growth:

<u>County</u>	<u>Percent growth 1990-2000</u>
Lawrence, OH	1
Boyd, KY	-3
Cabell, WV	0
Carter, KY	10
Greenup, KY	0
Wayne, WV	3
Adams	8
Gallia	7

Scioto	9
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**Factor 6. Meteorology:**

	<u>Average percent of wind direction by quadrant</u>			
<u>County</u>	<u>Northwest</u>	<u>Southwest</u>	<u>Southeast</u>	<u>Northeast</u>
Lawrence, OH	22	39	20	19
Boyd, KY	21	38	21	19
Cabell, WV	22	39	20	20
Carter, KY	2	39	20	20
Greenup, KY	22	39	20	19
Wayne, WV	22	39	20	20
Adams	22	39	20	19
Gallia	22	39	20	20
Scioto	22	39	20	20

**Factor 7. Geography/topography:**

There are no geographical features (mountain ranges, abrupt changes in elevation, etc.) that affect this area. The State provided no information about geography/topography for this area.

**Factor 8. Jurisdictional boundaries:**

The KYOVA Interstate Planning Commission is the Metropolitan Planning Organization (MPO) for Lawrence County, OH.

-Source: KYOVA website. <http://www.state.wv.us/kyova/>

There are no counties in the Ohio portion of the metropolitan area designated nonattainment for the ozone standard.

**Factor 9. Level of control of emission sources:**

The State provided no information about the level of control of emission sources for this area.

**Parkersburg-Marietta, WV-OH****Discussion:**

Only one county in Ohio, Washington County, is in the metropolitan area. This county has a high level of emissions and contributes to violations in Wood County, West Virginia. Therefore, EPA intends to designate Washington County nonattainment as part of the Parkersburg-Marietta nonattainment area.

There are five counties in Ohio adjacent to the metropolitan area, including Meigs, Athens, Morgan, Noble and Monroe Counties. Emissions are relatively low for these counties, and no other factor warranted designating these counties nonattainment. The following data summaries for factors 3 through 9 do not address these counties.

**Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:**

<u>County</u>	<u>SOx</u>	<u>NOx</u>	<u>Carbon</u>	<u>Crustal</u>	<u>Composite emission score</u>
Washington	173,312	37,020	2,415	6,711	82.2
Wood, WV	6,514	6,943	591	482	17.8
Athens	733	3,166	176	222	5.4
Jackson, WV	3,464	3,947	451	1,128	13.3
Meigs	375	2,244	147	145	4.4
Monroe	4,532	2,809	162	504	5.2
Morgan	81	558	88	122	2.5
Noble	144	1,622	87	127	2.7
Pleasants, WV	68,264	23,398	823	1,411	30.1
Ritchie, WV	118	713	97	63	2.8
Tyler, WV	176	1,233	122	126	3.6
Wirt, WV	19	206	46	36	1.3

**Urban increment:**

Total mass= 3.2 ug/m<sup>3</sup>:

10% sulfates; 6% nitrates; 84% carbon; 0% crustal.

Urban site=210190017;

Rural site=QUCI1 (Quaker City)

**Factor 2. Air quality in potentially included versus excluded areas:**

<u>County</u>	<u>2001-2003 Design Value</u>
Wood, WV	16.0
Athens	12.5

**Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:**

<u>County</u>	<u>2002 Population</u>	<u>Population Density</u>
Washington	62,561	99

Wood, WV	87,306	238
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**Factor 4. Traffic and commuting patterns:**

<u>County</u>	<u>Number</u>	<u>Percent</u>	<u>County VMT (Thousands)</u>
Washington	5,927	21	737
Wood, WV	3,316	9	911

**Factor 5. Expected growth:**

<u>County</u>	<u>Percent growth 1990-2000</u>
Washington	2
Wood, WV	1

**Factor 6. Meteorology:**

<u>Average percent of wind direction by quadrant</u>				
<u>County</u>	<u>Northwest</u>	<u>Southwest</u>	<u>Southeast</u>	<u>Northeast</u>
Washington	22	37	19	21
Wood, WV	22	39	18	21

**Factor 7. Geography/topography:**

There are no geographical features (mountain ranges, abrupt changes in elevation, etc.) that affect this area. The State provided no information about geography/topography for this area.

**Factor 8. Jurisdictional boundaries:**

The Wood-Washington-Wirt Interstate Planning Commission (WWW) is the Metropolitan Planning Organization (MPO) for the following townships in Washington County, OH: Newport, Marietta, Fearing, Muskingum, Warren, Dunham and Belpre Townships.

-Source: WWW website, <http://www.triplew.org/index.html>

The area's ozone nonattainment area consists of the following counties:

-Washington County, OH, and Wood County, WV

**Factor 9. Level of control of emission sources:**

The State provided no information about the level of control of emission sources for this area.

**Steubenville-Weirton, OH-WV**

**Discussion:**

The only Ohio county in the metropolitan area is Jefferson County. There is a monitor violating the standard in Jefferson County. EPA agrees with Ohio to include Jefferson County in the Steubenville-Weirton nonattainment area. There is one county adjacent to the metropolitan area in Ohio that is not part of another violating metropolitan area, namely Harrison County. This county has a low composite emissions score as well as having relatively low population and VMT for the area.

Because emissions are relatively low for Harrison County, and no other factor warranted designating this county nonattainment, the following data summaries for factors 3 through 9 do not address this county.

**Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:**

<u>County</u>	<u>SOx</u>	<u>NOx</u>	<u>Carbon</u>	<u>Crustal</u>	<u>Composite emission score</u>
Brooke, WV	1,663	2,500	191	277	3.7
Hancock, WV	1,982	4,961	1,243	1,747	18.7
Jefferson	217,794	61,402	2,723	7,529	77.6
Harrison	258	712	70	116	1.3

**Urban increment:**

Total mass= 4.2 ug/m3:

11% sulfates; 30% nitrates; 49% carbon; 10% crustal.

Urban site=390990014;

Rural site=MKG01 (M.K. Goddard)

**Factor 2. Air quality in potentially included versus excluded areas:**

<u>County</u>	<u>2001-2003 Design Value</u>
Brooke, WV	16.8
Hancock, WV	17.4
Jefferson	17.8

**Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:**

<u>County</u>	<u>2002 Population</u>	<u>Population Density</u>
Brooke, WV	25,179	283
Hancock, WV	32,082	387

Jefferson	72,402	177
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**Factor 4. Traffic and commuting patterns:**

<u>County</u>	<u>Number</u>	<u>Percent</u>	<u>County VMT (Thousands)</u>
Brooke, WV	2,548	24	313
Hancock, WV	4,029	28	212
Jefferson	3,161	11	741

**Factor 5. Expected growth:**

<u>County</u>	<u>Percent growth 1990-2000</u>
Brooke, WV	-6
Hancock, WV	-7
Jefferson	-8

**Factor 6. Meteorology:**

<u>Average percent of wind direction by quadrant</u>				
<u>County</u>	<u>Northwest</u>	<u>Southwest</u>	<u>Southeast</u>	<u>Northeast</u>
Brooke, WV	29	36	19	16
Hancock, WV	29	36	19	16
Jefferson	28	37	19	16

**Factor 7. Geography/topography:**

There are no geographical features (mountain ranges, abrupt changes in elevation, etc.) that affect this area. The State provided no information about geography/topography for this area.

**Factor 8. Jurisdictional boundaries:**

The Brooke-Hancock-Jefferson Metropolitan Planning Commission (BHJMPC) is the Metropolitan Planning Organization (MPO) for Jefferson County, OH.

-Source: BHJMPC website, <http://www.bhjmpc.org/>

The Ohio portion of this ozone nonattainment area consists of the following county:

-Jefferson

**Factor 9. Level of control of emission sources:**

The State provided no information about the level of control of emission sources for this area.



**Toledo, OH****Discussion:**

There is a violating monitor in Lucas County. EPA agrees with the Ohio EPA's Option 2 recommendation to include Lucas and Wood Counties as the Toledo nonattainment area. Fulton County is also in the Metropolitan area but was excluded upon review of the nine factors. Fulton County has lower emissions, population, population density, and VMT in the Metropolitan area. Fulton County was also excluded from the ozone nonattainment area. There are several counties adjacent to the metropolitan area and in Ohio, including Hancock, Henry, Ottawa, Putnam, Sandusky, Seneca, and Williams Counties. These counties have lower composite emissions scores and are also lower in the other factors including population and VMT.

Thus, no other factor warranted designating these counties nonattainment. The following data summaries for factors 3 through 9 do not address these counties.

Monroe County, Michigan, has a design value of 15.1  $\mu\text{g}/\text{m}^3$ , but this county is part of the Detroit Metropolitan Area. EPA intends to designate this county as part of the Detroit nonattainment area.

**Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:**

<u>County</u>	<u>SOx</u>	<u>NOx</u>	<u>Carbon</u>	<u>Crustal</u>	<u>Composite emission score</u>
<b>Fulton</b>	<b>878</b>	<b>5,105</b>	<b>336</b>	<b>692</b>	<b>12.0</b>
<b>Lucas</b>	<b>31,000</b>	<b>36,975</b>	<b>1,370</b>	<b>1,702</b>	<b>69.2</b>
<b>Wood</b>	<b>1,410</b>	<b>8,822</b>	<b>466</b>	<b>1,413</b>	<b>18.8</b>
Hancock	567	4,351	342	1,036	11.1
Henry	3,139	2,547	185	662	6.3
Hillsdale, MI	1,286	3,270	245	812	8.2
Ottawa	1,544	5,031	403	687	13.0
Putnam	306	2,749	237	935	7.4
Sandusky	2,937	8,288	300	1,170	15.4
Seneca	826	4,575	281	951	10.4
Williams	469	3,600	196	634	7.8

**Urban increment:**

Total mass= 4.8  $\mu\text{g}/\text{m}^3$ :

0% sulfates; 64% nitrates; 36% carbon; 0% crustal.  
 Urban site=390950026;  
 Rural site=QUCI1 (Quaker City)

**Factor 2. Air quality in potentially included versus excluded areas:**

<u>County</u>	<u>2001-2003 Design Value</u>
Lucas	15.1

**Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:**

<u>County</u>	<u>2002 Population</u>	<u>Population Density</u>
Fulton	42,573	105
Lucas	453,506	1334
Wood	122,387	198

**Factor 4. Traffic and commuting patterns:**

<u>County</u>	<u>Number</u>	<u>Percent</u>	<u>County VMT (Thousands)</u>
Fulton	5,825	28	672
Lucas	19,011	9	4,324
Wood	19,773	32	1,400

**Factor 5. Expected growth:**

<u>County</u>	<u>Percent growth 1990-2000</u>
Fulton	9
Lucas	-2
Wood	7

**Factor 6. Meteorology:**

<u>Average percent of wind direction by quadrant</u>				
<u>County</u>	<u>Northwest</u>	<u>Southwest</u>	<u>Southeast</u>	<u>Northeast</u>
Fulton	25	41	16	18
Lucas	24	41	16	19
Wood	24	41	16	18

**Factor 7. Geography/topography:**

There are no geographical features (mountain ranges, abrupt changes in elevation, etc.) that affect this area. The State

provided no information about geography/topography for this area.

**Factor 8. Jurisdictional boundaries:**

The Toledo Metropolitan Area Council of Governments (TMACOG) is the Metropolitan Planning Organization (MPO) for Fulton, Lucas, Ottawa, Sandusky, and Wood Counties in Ohio.

-Source: TMACOG webpage, <http://www.tmacog.org/>

This area's ozone nonattainment area consists of the following counties:

-Lucas and Wood

**Factor 9. Level of control of emission sources:**

The State provided no information about the level of control of emission sources for this area.

**Wheeling, WV-OH**

**Discussion:**

The only Ohio county in the metropolitan area is Belmont County. This county contains higher emissions due in part to the R.E. Burger power plant. This county was also included as part of the ozone nonattainment area and contains the largest county population in the metropolitan area. There are four Ohio counties adjacent to the metropolitan area, namely Guernsey, Harrison, Monroe, and Noble Counties. These counties are excluded due to lower emissions, population and VMT.

**Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:**

<u>County</u>	<u>SOx</u>	<u>NOx</u>	<u>Carbon</u>	<u>Crustal</u>	<u>Composite emission score</u>
Belmont, OH	51,374	13,036	734	1,667	29.5
Ohio, WV	514	3,609	192	135	5.5
Marshall, WV	113,921	44,521	1,319	3,417	65.0
Greene, PA	217,794	61,402	2,723	7,529	99.2
Guernsey, OH	1,164	5,643	229	261	7.3
Harrison, OH	258	712	70	116	1.8
Monroe, OH	4,532	2,809	162	504	5.5
Noble, OH	144	1,622	87	127	2.5
Wetzel, WV	698	4,323	160	79	5.2

**Urban increment:**

Total mass= 5.7 ug/m3:

27% sulfates; 24% nitrates; 46% carbon; 3% crustal.

Urban site=421290008;

Rural site=DOS01 (Dolly Sods /Otter Creek Wilderness)

**Factor 2. Air quality in potentially included versus excluded areas:**

<u>County</u>	<u>2001-2003 Design Value</u>
Ohio, WV	15.2
Marshall, WV	15.7

**Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:**

<u>County</u>	<u>2002 Population</u>	<u>Population Density</u>
Belmont, OH	69,448	129
Ohio, WV	46,126	435
Marshall, WV	34,898	114

**Factor 4. Traffic and commuting patterns:**

<u>County</u>	<u>Number</u>	<u>Percent</u>	<u>County VMT (Thousands)</u>
Belmont, OH	5,667	20	1,066
Ohio, WV	2,964	15	437
Marshall, WV	5,233	37	233

**Factor 5. Expected growth:**

<u>County</u>	<u>Percent growth 1990-2000</u>
Belmont, OH	-1
Ohio, WV	-7
Marshall, WV	-5

**Factor 6. Meteorology:**

	<u>Average percent of wind direction by quadrant</u>			
<u>County</u>	<u>Northwest</u>	<u>Southwest</u>	<u>Southeast</u>	<u>Northeast</u>
Belmont, OH	28	37	19	16
Ohio, WV	29	36	19	16
Marshall, WV	28	36	19	16

**Factor 7. Geography/topography:**

There are no geographical features (mountain ranges, abrupt changes in elevation, etc.) that affect this area. The State provided no information about geography/topography for this area.

**Factor 8. Jurisdictional boundaries:**

The Bel-O-Mar Regional Council and Interstate Planning Commission is the Metropolitan Planning Organization (MPO) for Belmont County, OH.

-Source: Bel-O-Mar Regional Council website,  
<http://www.belomar.org/>

The Ohio portion of this area's ozone nonattainment area consists of the following county in Ohio:

-Belmont

**Factor 9. Level of control of emission sources:**

The State provided no information about the level of control of emission sources for this area.

**Youngstown-Warren, OH****Discussion:**

EPA agrees with the Ohio EPA's Option 2 recommendation to include Columbiana, Mahoning and Trumbull Counties as nonattainment. These counties all have significant emissions contributing to the violations in Mahoning County. There are no adjacent counties to this metropolitan area in Ohio that are not a part of another violating metropolitan area.

**Factor 1. Emissions in areas potentially included versus excluded from the nonattainment area:**

<u>County</u>	<u>SOx</u>	<u>NOx</u>	<u>Carbon</u>	<u>Crustal</u>	<u>composite emission score</u>
Columbiana	1,291	5,825	442	696	15.9
Mahoning	3,511	12,210	920	804	31.2
Trumbull	30,327	19,010	1,217	1,365	52.9
Mercer, PA	874	7,459	412	760	16.7
Crawford, PA	1,231	8,034	413	772	17.3
Lawrence, PA	35,620	13,065	681	1,833	41.2

**Urban increment:**

Total mass= 4.2 ug/m3:  
 11% sulfates; 30% nitrates; 49% carbon; 10% crustal.  
 Urban site=390990014;  
 Rural site=MKGO1 (M.K. Goddard)

**Factor 2. Air quality in potentially included versus excluded areas:**

<u>County</u>	<u>2001-2003 Design Value</u>
Mahoning	15.2
Trumbull	15.0

**Factor 3. Population density and degree of urbanization including commercial development in included versus excluded areas:**

<u>County</u>	<u>2002 Population</u>	<u>Population Density</u>
Columbiana	111,806	210
Mahoning	253,308	610
Trumbull	223,518	363

**Factor 4. Traffic and commuting patterns:**

<u>County</u>	<u>Number</u>	<u>Percent</u>	<u>County VMT (Thousands)</u>
Columbiana	9,090	18	928
Mahoning	22,894	21	2,576
Trumbull	12,347	13	2,108

**Factor 5. Expected growth:**

<u>County</u>	<u>Percent growth 1990-2000</u>
Columbiana	4
Mahoning	-3
Trumbull	-1

**Factor 6. Meteorology:**

	<u>Average percent of wind direction by quadrant</u>			
<u>County</u>	<u>Northwest</u>	<u>Southwest</u>	<u>Southeast</u>	<u>Northeast</u>
Columbiana	27	39	18	17
Mahoning	25	39	21	15
Trumbull	25	38	22	15

**Factor 7. Geography/topography:**

There are no geographical features (mountain ranges, abrupt changes in elevation, etc.) that affect this area. The State provided no information about geography/topography for this area.

**Factor 8. Jurisdictional boundaries:**

The Eastgate Regional Council of Governments (Eastgate) is the Metropolitan Planning Organization (MPO) for Mahoning and Trumbull Counties in Ohio.

-Source: Eastgate webpage, <http://www.eastgatecog.org/>

The Ohio portion of this area's ozone nonattainment area consists of the following counties:

-Columbiana, Mahoning, and Trumbull

**Factor 9. Level of control of emission sources:**

The State provided no information about the level of control of emission sources for this area.