State of Ohio Environmental Protection Agency
Division of Air Pollution Control

Ohio's 2008 Revised Lead Standard Recommended Designations and Nonattainment Boundaries

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An Explanation of Ohio EPA's Analysis

Promulgated on October 15, 2008 and effective January 12, 2009, U.S. EPA strengthened the national ambient air quality standard (NAAQS) for lead from 1.5 ug/m^3 to 0.15 ug/m^3 [73 FR 66964]. Ohio currently has no counties designated nonattainment for lead.

As part of the promulgation of this revised standard, an expanded monitoring network is being deployed by states. Ohio currently has a network of 17 lead monitors that have been in place for a number of years. This expanded monitoring network will contain both:

- Source-specific monitors sited at: facilities with lead actual emissions greater than one ton per year; facilities with less than one ton per year of actual lead emissions where dispersion modeling identified the potential for emissions to contribute to 50 percent of the lead standard in air; and facilities where existing monitors have shown a violation of the new standard, as a three-month rolling average, during 2006, 2007 or 2008; and

- Urban areas with populations greater than 500,000 persons.

In July, 2009, Ohio EPA submitted a proposed monitoring network design plan to U.S. EPA. Of the 17 current lead monitors, Ohio EPA proposed to retain 13[1]. In addition to those monitors, Ohio EPA will be adding four new source-specific monitors. These new monitors will begin collecting data in January 2010.

U.S. EPA intends to make initial designations as expeditiously as possible in areas where monitoring data is currently sufficient, or will be sufficient in the immediate future, to accurately characterize the areas as either not attaining or attaining. U.S. EPA also anticipates States may not have sufficient information to make such a determination and advises states to identify such areas as "unclassifiable."

Initial designations are due by October 15, 2009. This submittal is Ohio's recommendation for these initial designations. U.S. EPA will then have one year to promulgate the final initial designations. After the collection of more complete monitoring data based upon the expanded monitoring network, additional designations will occur (must be promulgated by no later than October 15, 2011).

In addition to recommended designations, suggested nonattainment area boundaries are provided with this submittal. U.S. EPA presumptively defines the boundary for a lead nonattainment area as the perimeter of the county associated with a violating air quality monitor. However, U.S. EPA does provide states with the ability to conduct additional area-specific analyses that could lead to a departure from the presumptive county boundary. Such an analysis, or demonstration, must consider the following eight factors:

[1] The Daido facility in Bellefontaine, OH was monitored by five different monitors. The facility is in the process of closing; however, Ohio EPA has suggested to continue monitoring this location using one of the five monitors.

1. Emissions in areas potentially included versus excluded from the nonattainment area;
2. Air quality in potentially included versus excluded areas;
3. Population density and degree of urbanization including commercial development in included versus excluded areas;
4. Expected growth (including extent, pattern and rate of growth);
5. Meteorology (weather/transport patterns);
6. Geography/topography (mountain ranges or other air basin boundaries);
7. Jurisdictional boundaries (e.g., counties, air districts, Reservations, etc.); and
8. Level of control of emission sources.

A demonstration supporting the departure must show both that violations(s) are not occurring in the excluded portions of the county and that the excluded portions are not source areas that contribute to the observed violations. U.S. EPA further provides that states may, in addition to submitting recommendations based on the factor analysis, also choose to recommend lead nonattainment boundaries using any one, or a combination of the following techniques, which will be considered in the process:

- Qualitative analysis;
- Spatial interpolation of air quality monitoring data; or
- Air quality simulation by dispersion modeling.

Each of these three approaches is described more fully in "Procedures for Estimating Probability of Nonattainment of a PM10 NAAQS Using Total Suspended Particulate or PM10 Data," December 1986 [57 Fr 13549].

Ohio EPA's analysis is of each county currently containing a lead monitor and each county for which a monitor will be located as part of the expanded monitoring network. For Counties with sufficient monitoring data to demonstrate attainment or nonattainment, Ohio EPA has suggested the appropriate designation based on the monitoring data. For Counties lacking sufficient information, Ohio EPA has suggested such areas be identified as unclassifiable. Where Ohio EPA is not suggesting a boundary of the presumptive county perimeter, analyses of the eight factors (described below), and when necessary, one or more of the three techniques identified above, is included in this document. For Counties not addressed in this document, Ohio EPA is suggesting designations of attainment based on no monitors being located within those Counties and no monitors planned for location within those Counties.

Discussion of Eight-Factor Analyses

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

The analysis for factor 1 looks at emissions of lead from Ohio sources contained in the 2005 national emissions inventory (NEI) and 2005 toxics release inventory (TRI) (air emissions only). Also included in this factor are tables showing any stationary source with actual lead emissions greater than 0.50 tons per year (TPY) from either inventory. U.S. EPA has stated that lead emissions do not generally transport over long distances. The county-level presumption is based on a possibility that a number of smaller sources may collectively contribute to an exceedance of the NAAQS. Detailed inventory data are contained in Appendix A.

The detailed factor analysis later in this document discusses emissions for certain specific counties; however, Ohio has provided a summary of all state-wide and national lead emissions information below. These summaries also include sources less than 0.50 TPY.

Based upon Ohio point sources in the 2005 NEI, the following emissions of lead are applicable to each of Ohio's Counties (from largest to smallest emissions):

County	TPY	County	TPY
Cuyahoga	3.48	**Wood**	0.036
Jefferson	1.35	**Ashtabula**	0.036
Trumbull	0.27	**Richland**	0.035
Noble	0.68	**Greene**	0.031
Lorain	0.66	**Carroll**	0.026
Auglaize	0.61	**Gallia**	0.023
Lucas	0.59	**Jackson**	0.020
Morgan	0.58	**Perry**	0.019
Summit	0.53	**Athens**	0.017
Columbiana	0.52	**Erie**	0.016
Washington	0.48	**Medina**	0.016
Stark	0.46	**Wyandot**	0.016
Wayne	0.44	**Warren**	0.016
Franklin	0.39	**Hancock**	0.014
Hamilton	0.37	**Portage**	0.011
Lake	0.32	**Preble**	0.011
Scioto	0.30	**Clark**	0.011
Fulton	0.29	**Pike**	0.010
Coshocton	0.27	**Madison**	0.010
Paulding	0.17	**Harrison**	0.009
Logan	0.17	**Champaign**	0.008
Marion	0.16	**Shelby**	0.007
Montgomery	0.15	**Delaware**	0.007
Fairfield	0.12	**Sandusky**	0.006
Adams	0.11	**Union**	0.006
Clermont	0.11	**Crawford**	0.005

County	TPY	County	TPY
Ross	0.10	**VanWert**	0.004
Defiance	0.44	**Putnam**	0.003
Pickaway	0.088	**Huron**	0.002
Tuscarawas	0.087	**Mercer**	0.002
Butler	0.073	**Geauga**	0.002
Mahoning	0.072	**Miami**	0.001
Hocking	0.069	**Allen**	0.001
Licking	0.062	**Lawrence**	0.001
Muskingum	0.062	**Ashland**	0.000
Ottawa	0.059	**Knox**	0.000
Belmont	0.051	**Fayette**	0.000
Guernsey	0.050	**Darke**	0.000
Williams	0.046	**Monroe**	0.000
Seneca	0.040	**Henry**	0.000
Clinton	0.040	**Hardin**	0.000
		Vinton	0.000

Total 2005 NEI point source emissions in Ohio are 15.36 TPY[2].

Based upon Ohio point sources in the 2005 TRI, the following emissions of lead are applicable to each of Ohio's Counties (from largest to smallest emissions):

County	TPY	County	TPY
Cuyahoga	4.29	**Williams**	0.046
Trumbull	2.65	**Clinton**	0.045
Butler	1.63	**Guernsey**	0.045
Jefferson	1.37	**Ashtabula**	0.031
Stark	1.24	**Seneca**	0.027
Lorain	1.22	**Carroll**	0.026
Gallia	0.41	**Jackson**	0.020
Washington	0.92	**Pike**	0.018
Summit	0.83	**Greene**	0.018
Wayne	0.71	**Pickaway**	0.016
Noble	0.68	**Warren**	0.016
Coshocton	0.66	**Erie**	0.015
Auglaize	0.61	**Wyandot**	0.015
Morgan	0.57	**Medina**	0.012
Montgomery	0.52	**Preble**	0.011
Miami	0.51	**Clark**	0.011
Franklin	0.51	**Portage**	0.010
Licking	0.49	**Hancock**	0.010
Clermont	0.47	**Madison**	0.010
Lucas	0.47	**Paulding**	0.010
Adams	0.43	**Delaware**	0.007
Scioto	0.43	**Monroe**	0.007

[2] Ohio has submitted revised NEI numbers for several Ohio facilities as part of the monitoring planning process. These revised numbers may not be reflected in the most current 2005 NEI available on U.S. EPA's website at this time.

County	TPY	County	TPY
Shelby	0.42	**Sandusky**	0.005
Hamilton	0.41	**Crawford**	0.005
Fulton	0.38	**VanWert**	0.004
Defiance	0.37	**Union**	0.003
Henry	0.35	**Mercer**	0.002
Lake	0.22	**Geauga**	0.002
Muskingum	0.20	**Huron**	0.002
Columbiana	0.17	**Allen**	0.000
Logan	0.17	**Putnam**	0.000
Marion	0.16	**Champaign**	0.000
Ashland	0.15	**Hardin**	0.000
Ross	0.14	**Athens**	0.000
Mahoning	0.13	**Darke**	0.000
Fairfield	0.12	**Fayette**	0.000
Richland	0.12	**Harrison**	0.000
Wood	0.11	**Knox**	0.000
Ottawa	0.089	**Lawrence**	0.000
Tuscarawas	0.064	**Perry**	0.000
Hocking	0.060	**Vinton**	0.000
Belmont	0.053		

Total 2005 TRI point source emissions in Ohio are 25.98 TPY[3].

The following table compares the 2005 NEI and TRI lead emissions for each county and provides a state-wide total.

COUNTY	2005 NEI (TPY)	2005 TRI (TPY)	DIFFERENCE (TRI - NEI) (TPY)
Adams	0.108	0.429	0.321
Allen	0.001	0.000	0.000
Ashland	0.000	0.152	0.152
Ashtabula	0.036	0.031	-0.005
Athens	0.017	0.000	-0.017
Auglaize	0.613	0.613	0.000
Belmont	0.051	0.053	0.002
Butler	0.073	1.630	1.557
Carroll	0.026	0.026	0.000
Champaign	0.008	0.000	-0.007
Clark	0.011	0.011	0.000
Clermont	0.106	0.475	0.369
Clinton	0.040	0.045	0.005

[3] Ohio has corrected TRI numbers for several Ohio facilities based upon information supplied by the facility provided such corrections were consistent with the NEI corrections noted under footnote 2.

COUNTY	2005 NEI (TPY)	2005 TRI (TPY)	DIFFERENCE (TRI - NEI) (TPY)
Columbiana	0.518	0.174	-0.344
Coshocton	0.273	0.659	0.386
Crawford	0.005	0.005	0.000
Cuyahoga	3.478	4.293	0.816
Darke	0.000	0.000	0.000
Defiance	0.437	0.369	-0.068
Delaware	0.007	0.007	0.000
Erie	0.016	0.015	-0.001
Fairfield	0.124	0.124	-0.001
Fayette	0.000	0.000	0.000
Franklin	0.388	0.506	0.117
Fulton	0.288	0.383	0.094
Gallia	0.023	0.413	0.391
Geauga	0.002	0.002	0.000
Greene	0.031	0.018	-0.013
Guernsey	0.050	0.045	-0.006
Hamilton	0.374	0.410	0.036
Hancock	0.014	0.010	-0.004
Hardin	0.000	0.000	0.000
Harrison	0.009	0.000	-0.009
Henry	0.000	0.346	0.345
Hocking	0.069	0.060	-0.008
Huron	0.002	0.002	0.000
Jackson	0.020	0.020	0.000
Jefferson	1.352	1.373	0.020
Knox	0.000	0.000	0.000
Lake	0.322	0.222	-0.100
Lawrence	0.001	0.000	-0.001
Licking	0.062	0.486	0.424
Logan	0.171	0.171	0.000
Lorain	0.659	1.218	0.559
Lucas	0.586	0.471	-0.115
Madison	0.010	0.010	0.000
Mahoning	0.072	0.134	0.062
Marion	0.164	0.158	-0.006
Medina	0.016	0.012	-0.004
Mercer	0.002	0.002	0.000
Miami	0.001	0.511	0.509
Monroe	0.000	0.007	0.006
Montgomery	0.152	0.525	0.373

COUNTY	2005 NEI (TPY)	2005 TRI (TPY)	DIFFERENCE (TRI - NEI) (TPY)
Morgan	0.576	0.568	-0.008
Muskingum	0.062	0.204	0.142
Noble	0.683	0.683	0.000
Ottawa	0.059	0.089	0.030
Paulding	0.173	0.010	-0.164
Perry	0.019	0.000	-0.019
Pickaway	0.088	0.016	-0.072
Pike	0.010	0.018	0.008
Portage	0.011	0.010	-0.001
Preble	0.011	0.011	0.000
Putnam	0.003	0.000	-0.002
Richland	0.035	0.124	0.089
Ross	0.101	0.140	0.039
Sandusky	0.006	0.005	0.000
Scioto	0.303	0.428	0.126
Seneca	0.040	0.027	-0.013
Shelby	0.007	0.415	0.408
Stark	0.455	1.240	0.785
Summit	0.528	0.832	0.304
Trumbull	0.266	2.649	2.383
Tuscarawas	0.087	0.064	-0.023
Union	0.006	0.003	-0.002
VanWert	0.004	0.004	0.000
Vinton	0.000	0.000	0.000
Warren	0.016	0.016	0.000
Washington	0.483	0.923	0.440
Wayne	0.443	0.714	0.271
Williams	0.046	0.046	0.000
Wood	0.036	0.105	0.069
Wyandot	0.016	0.015	-0.001
TOTALS	15.358	25.980	10.621

As part of the review for the new lead standard, U.S. EPA analyzed sources of lead across the country, primarily based upon the 2002 National NEI[4]. The remainder of this section provides a brief overview of U.S. EPA's findings.

[4] U.S. EPA's "Review of the National Ambient Air Quality Standard for Lead: Policy Assessment of Scientific and Technical Information," November 2007.

Point source emissions account for about 66% of the national lead emissions in the 2002 NEI. The point source emissions are roughly split between combustion and industrial processes, while mobile and nonroad sources (emissions associated with general aviation aircraft leaded fuel) account for 29%.

The following table summarizes the largest stationary source category emitters nationwide (based upon the 2002 NEI):

Source Category Description	Total Emissions (tpy)[a]
ALL CATEGORIES [b]	1,697[b]
Mobile sources	491[c]
Industrial/Commercial/ Institutional Boilers & Process Heaters	190
Utility Boilers	168[d]
Iron and Steel Foundries	110
Primary Lead Smelting	59
Hazardous Waste Incineration	47
Secondary Lead Smelting	43
Military Installations	33
Municipal Waste Combustors	33
Integrated Iron & Steel Manufacturing	32
Pressed and Blown Glass and Glassware Manufacturing	32
Stainless and Non Stainless Steel Manufacturing: EAF	32
Mining	31
Lead Acid Battery Manufacturing	27
Secondary Nonferrous Metals	24
Portland Cement Manufacturing	22
Primary Copper Smelting	22
Primary Metal Products Manufacturing	21
Industrial and Commercial Machinery Manufacturing	18
Fabricated Metal Products Manufacturing	14
Electrical and Electronics Equipment Manufacturing	12
Waste Disposal - Solid Waste Disposal	11
Industrial Inorganic Chemical Manufacturing	10
Pulp & Paper Production	10
Sewage Sludge Incineration	10
Mineral Products Manufacturing	9
Secondary Aluminum Production	9
Synthetic Rubber Manufacturing	9
Secondary Copper Smelting	8
Transportation Equipment Manufacturing	8
Ferroalloys Production	7
Nonferrous Foundries	7
Stationary Reciprocating Internal Combustion Engines	7
Commercial and Industrial Solid Waste Incineration	6
Primary Nonferrous Metals--Zinc, Cadmium and Beryllium	6
Residential Heating	6
Asphalt Processing and Asphalt Roofing Manufacturing	5

[a]Some values here differ from those in the CD (Table 2-8) due to changes in the 2002 NEI subsequent to CD publication. Additionally, values just above 5 tpy have been rounded to 5.
[b]Includes 91 tpy Pb emissions from 109 smaller categories (57 tpy in MACT categories and 34 tpy in non MACT).
[c] This value is not yet reflected in 2002 NEI (vers 3); it will be reflected in version 4, estimated for 2008 release.
[d] This estimate of 168 tons, which is based on the 2002 NEI, has uncertainties and differs from estimates in some other studies and inventories. For example, the estimated lead emissions reported to the U.S. EPA's Toxic Release Inventory for year 2004 is about 90 tons for this sector, and the projected estimate for year 2010 presented in the 1998 EPA Utility Air Toxics Study Report to Congress (U.S. EPA, 1998) is 92 tons.

Source: Table 2-2. Source categories emitting greater than 5 tpy of Pb in the 2002 NEI. U.S. EPA's "Review of the National Ambient Air Quality Standard for Lead: Policy Assessment of Scientific and Technical Information," November 2007.

As can be seen from the above, the main stationary sources of emissions in the 2002 NEI are comprised primarily of combustion-related emissions and industrial process-related emissions. Stationary source categories that have the largest emissions in the 2002 NEI are summarized in Appendix B[5].

Another source of lead emissions is from certain mobile and nonroad sources. While lead is not added to jet fuel that is used in commercial aircraft, military aircraft, or other turbine engine aircraft, currently lead is still added to aviation gasoline used in most piston-engine aircraft and some types of race cars (which use alkyl-lead additives to boost octane).

Currently, there are two main types of leaded aviation gasoline that differ in lead content (1.12 grams lead per liter (g Pb/L) vs. 0.56 g Pb/L) with the majority used being comprised of the lower lead content aviation gasoline. In 2002 approximately 280 million gallons of aviation gasoline were supplied nationwide contributing an estimated 491 tons of lead to the air and comprising 29% of the national lead inventory. Of the 491 tons of lead nationwide from aviation gasoline, Ohio was apportioned 16.93 TPY in the 2002 NEI. In comparison as seen above, emissions of lead from Ohio's stationary (point) sources comprised 15.36 TPY in 2005 (NEI).

The 2002 NEI apportioned lead emissions to the following Ohio nonroad mobile sources:

Source Classification			**Pollutant**	**Annual Emissions (TPY)**
Aircraft	General Aviation	Total	LEAD & COMPOUNDS	16.93
Railroad Equipment	Diesel	Line Haul Locomotives: Class I Operations	LEAD & COMPOUNDS	0.055
Marine Vessels, Commercial	Diesel	Port emissions	LEAD	0.036
Marine Vessels, Commercial	Diesel	Underway emissions	LEAD	0.023
Railroad Equipment	Diesel	Yard Locomotives	LEAD & COMPOUNDS	0.0077
Marine Vessels, Commercial	Residual	Total, All Vessel Types	LEAD	0.0057
Railroad Equipment	Diesel	Line Haul Locomotives: Passenger Trains (Amtrak)	LEAD & COMPOUNDS	0.0015
Railroad Equipment	Diesel	Line Haul Locomotives: Class II / III Operations	LEAD & COMPOUNDS	0.0003

[5] Appendix 2A of U.S. EPA's "Review of the National Ambient Air Quality Standard for Lead: Policy Assessment of Scientific and Technical Information," November 2007.

The 2002 NEI apportioned lead emissions to the following Ohio nonpoint (or area) sources:

Source Classification				Pollutant	Annual Emissions (TPY)
Stationary Source Fuel Combustion	Residential	Distillate Oil	Total: All Combustor Types	Lead	0.097
Stationary Source Fuel Combustion	Residential	Natural Gas	Total: All Combustor Types	Lead	0.08
Stationary Source Fuel Combustion	Industrial	Distillate Oil	Total: Boilers and IC Engines	Lead	0.07
Stationary Source Fuel Combustion	Commercial/ Institutional	Distillate Oil	Total: Boilers and IC Engines	Lead	0.05
Industrial Processes	Mineral Processes: SIC 32	Concrete, Gypsum, Plaster Products	Total	Lead	0.043
Stationary Source Fuel Combustion	Industrial	Natural Gas	Total: Boilers and IC Engines	Lead	0.038
Stationary Source Fuel Combustion	Commercial/ Institutional	Natural Gas	Total: Boilers and IC Engines	Lead	0.036
Stationary Source Fuel Combustion	Industrial	Residual Oil	Total: All Boiler Types	Lead	0.029
Stationary Source Fuel Combustion	Residential	Liquified Petroleum Gas (LPG)	Total: All Combustor Types	Lead	0.026
Stationary Source Fuel Combustion	Industrial	Waste oil	Total	Lead	0.02
Stationary Source Fuel Combustion	Commercial/ Institutional	Bituminous/ Subbituminous Coal	Total: All Boiler Types	Lead	0.02
Stationary Source Fuel Combustion	Residential	Kerosene	Total: All Heater Types	Lead	0.011
Waste Disposal, Treatment, and Recovery	On-site Incineration	Commercial/ Institutional	Total	Lead	0.007
Miscellaneous Area Sources	Other Combustion	Cremation	Humans	Lead	0.007
Stationary	Residential	Anthracite	Total: All	Lead	0.0054

Source Classification				Pollutant	Annual Emissions (TPY)
Source Fuel Combustion		Coal	Combustor Types		
Stationary Source Fuel Combustion	Industrial	Kerosene	Total: All Boiler Types	Lead	0.0052
Stationary Source Fuel Combustion	Residential	Bituminous/ Subbituminous Coal	Total: All Combustor Types	Lead	0.005
Miscellaneous Area Sources	Other Combustion	Cremation	Animals	Lead & Compound	0.004
Stationary Source Fuel Combustion	Commercial/ Institutional	Kerosene	Total: All Combustor Types	Lead	0.0037
Stationary Source Fuel Combustion	Commercial/ Institutional	Liquified Petroleum Gas (LPG)	Total: All Combustor Types	Lead	0.00069
Stationary Source Fuel Combustion	Commercial/ Institutional	Anthracite Coal	Total: All Boiler Types	Lead	0.00045
Stationary Source Fuel Combustion	Industrial	Anthracite Coal	Total: All Boiler Types	Lead	0
Stationary Source Fuel Combustion	Industrial	Bituminous/ Subbituminous Coal	Total: All Boiler Types	Lead	0

U.S. EPA also found another significant source of lead emissions in the resuspension of soil-bound lead particles and contaminated road dust.[6] Studies of emissions in southern California indicate that lead in resuspended road dust may represent between 40% and 90% of lead emissions in that area. In general, resuspension is typically initiated by vehicular traffic, construction and agricultural operations, and to a lesser extent, the wind. Lead resuspended in soil near roadways that was in place during the use of leaded gasoline may be a notable emissions source if or when such soil is disturbed (e.g., road widening or building construction).

Factor 2: Air quality in potentially included versus excluded areas

The revised lead standard is 0.15 ug/m^3. The air quality analysis looks at the rolling three-month average values for each monitor for 2006 to 2008. For each evaluated year, twelve rolling three-month averages are computed starting with November of the preceding year and ending with December of the year being evaluated.

40 CFR Part 50, Appendix R provides the computation methods for the lead standard. This regulation requires individual samples be analyzed and a monthly

[6] Quantitative estimates of resuspension-related emissions are not included in the 2002 NEI.

mean computed. Under the old lead standard, Ohio EPA analyzed samples using a monthly composite method. Therefore, the historical data represented in this document uses the monthly composite values to compute the rolling three-month values.

Compliance with the lead standard is determined over a three-calendar year period. Any one exceedance of a three-month average during this period indicates an exceedance of the lead standard.

The three-month averages, evaluated over a three-calendar year period, for monitors that are violating the standard are highlighted in red. Monitoring sites that were missing one or months of a composite analysis in any three-month period are highlighted in yellow.

Data is retrieved from the U.S. EPA's Air Quality System (AQS) at http://www.epa.gov/ttn/airs/airsaqs/ and is presented in ug/m^3 in all tables. AQS data retrieval sheets are provided in Appendix C. The State and local air monitoring stations (SLAMS) data certification report for calendar year 2008 is provided in Appendix D.

Factors 3 and 4: Population density and degree of urbanization including commercial development in included versus excluded areas, and expected growth (including extent, pattern and rate of growth)

Ohio EPA has combined these two factors in the discussions below. Tables presented under factors 3 and 4 show the past, present, and projected population for each county. Population data and expected growth indicate the likelihood of population-based emissions that may contribute to violations. The population data are provided by the Ohio Department of Development, Office of Strategic Research (http://www.odod.state.oh.us/research/), the U.S. Census Bureau (http://www.census.gov/), and Ohio State University's Exurban Exchange Program (http://exurban.osu.edu/index.htm). Appendix E provides more detailed population data for all 88 Counties in Ohio.

Tables presented under factors 3 and 4 show the land use/land cover for each county in percentage of urban (residential, commercial, industrial, transportation, grasses), cropland, pasture, forest, and wetlands (all types). The source of this is the Ohio EPA, Division of Surface Water ftp://ftp-gis.epa.state.oh.us/gisdepot/gisdata/dsw/LandCover/Statewide_Land_Cover_DSW_pub_2005.pdf. Urbanized area maps are also provided in Appendix E for select Counties. The source of this information is from the U.S. Census Bureau's website http://www.census.gov/geo/www/maps/ua2kmaps.htm.

Factor 5: Meteorology (weather/transport patterns)

The meteorology review looks at wind data gathered at stations in and near Ohio by the National Weather Service (NWS). Figures presented for factor 5 indicate the annual average winds for each NWS site. 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.

Ohio is located in what is meteorologically termed the Mid-Latitudes. For pollutant dispersion, the most important meteorological parameter is wind speed and wind direction. In this region, surface weather systems predominantly travel from west to east, guided by either the sub-tropical or polar jet streams. The resulting surface transport winds associated with these systems will generally have a western component with additional southern components in the summer and northern components in the winter, although, on any given day, winds can blow from any direction.

Discussions regarding this factor will show representative wind roses for several locations in-and-around Ohio. The regional nature of mid-latitude wind distributions may best be represented by the Columbus and Dayton airport wind roses. Columbus and Dayton are located in a relatively flat area in the central part of the State, generally unaffected by significant orographic or other surface features (e.g., Lake Erie).

These general wind patterns can be modified by two general geographic features. Ohio is bounded on the north by Lake Erie which can provide localized modifications to the general flow, primarily by the introduction of land breezes and lake breezes along the Lake during periods of low synoptic wind speeds. These effects would best be represented by the Toledo and Cleveland airport wind roses.

The second major geographic feature affecting winds in Ohio is the hilly terrain located in the east, south and southeast portions of the State. While the remainder of the State is primarily agricultural, these portions of the State, which represent the foot hills of the Appalachians, have significant forested areas which modify the surface roughness lengths and can impact wind speed and wind direction. The Covington, Huntington and Pittsburgh airport wind roses best illustrate the range of deviations that can occur, as compared to the Columbus and Dayton examples.

As stated above, at any location within the State, winds can blow from any direction. Any given period could have average winds from any direction, thus making counties in all directions from the urban industrial core area potentially important emission source areas.

Factor 6: Geography/topography (mountain ranges or other air basin boundaries)

The geography/topography analysis looks at physical features that might have an effect on the airshed and, therefore, the distribution of pollutants over an area. Ohio does not have significant topographic features that significantly influence the regional transport of pollutants within the study areas. Maps for this section are provided in Appendix F. The sources for the information provided in this section are:

Ohio Department of Natural Resources, Division of Soil and Water
http://www.dnr.state.oh.us/default/soils/surveysupplements/tabid/17839/Default.aspx

Ohio Department of Development, Office of Strategic Research
http://www.odod.state.oh.us/research/files/s0.htm

Factor 7: Jurisdictional boundaries (e.g., counties, air districts, Reservations, etc.)

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.

The goals of the Clean Air Act and air quality planning are administered by the Ohio EPA Central Office in conjunction with Ohio EPA District Offices and local air agencies (DO/LAA). The LAAs contract with Ohio EPA to perform the same functions as the DOs, but typically for smaller geographic regions. A map of the DO/LAAs can be found at: http://www.epa.state.oh.us/dapc/general/dolaa.html.

A map showing the (Metropolitan Statistical Areas (MSAs) and Combined Statistical Areas (CSAs) in Ohio and a Metropolitan Planning Organization (MPO) map are provided in Appendix G. For information on the metropolitan planning organizations referenced in this document, please see: http://www.odotnet.net/Planning/ACCESS%20OHIO/Final/AppendixB.pdf.

However, because U.S. EPA has stated that lead emissions do not generally transport over long distances and there is a county-level presumption, this factor will not require great consideration.

Factor 8: Level of control of emission sources

As part of the review for the new lead standard, U.S. EPA analyzed lead emission trends across the country, primarily based upon the 2002 NEI[7]. This section provides a brief overview of U.S. EPA's findings.

[7] U.S. EPA's "Review of the National Ambient Air Quality Standard for Lead: Policy Assessment of Scientific and Technical Information," November 2007.

U.S. EPA found there has been a downward trend in lead emissions from the fuel combustion, industrial process and solid waste sectors from 1980 through 2002, as well as the dramatic reduction in lead emissions in the transportation sector due to the removal of lead from gasoline. Thirty-five years ago, combustion of leaded gasoline was the main contributor of lead to the air. In the early 1970s, EPA set national regulations to gradually reduce the lead content in gasoline with a complete ban on the use of leaded gasoline in highway vehicles after December 1995.

While U.S. EPA found the most dramatic reductions occurred prior to 1990, lead emissions were further reduced by about 65% (from approximately 5,000 to approximately 1,700 TPY) between 1990 and 2002 primarily from mobile sources, primary and secondary lead and copper smelting, pulp and paper manufacturing, inorganic paint pigment production and steel wire products.

The following table summarizes the nationwide trends U.S. EPA found from 1980 to 2002.

	1980	1985	1990	1995	1999	2002
Transportation	64,706	18,973	1,197	564	-	491[a]
Fuel Combustion	4,299	515	500	490	-	377
Industrial Processes	3,938	2,531	2,474	2,271	-	719
Solid Waste	1,210	871	804	604	-	110
Total	74,153	22,890	4,975	3,929	3303	1,697

[a] This value is not yet reflected in 2002 NEI (vers 3); it will be reflected in version 4, estimated for 2008 release.
Note: Estimates for 1980-1995 are from http://www.epa.gov/airtrends/econ-emissions.html.
Detailed categorization of the 1999 NEI is not available.
Estimates for 2002 are from Version 3 of the 2002 National Emissions Inventory, US EPA (USEPA, 2007a). The estimates for 2002 differ from those in Table 2-8 of the CD due to changes in the 2002 NEI subsequent to publication of the CD.

Source: Table 2-1. Trends in Pb emissions (tpy) from 1980 to 2002. U.S. EPA's "Review of the National Ambient Air Quality Standard for Lead: Policy Assessment of Scientific and Technical Information," November 2007.

Vehicles used in racing are not regulated by the U.S. EPA under the Clean Air Act and can therefore use alkyl-lead additives to boost octane. U.S. EPA formed a voluntary partnership with the National Association for Stock Car Auto Racing (NASCAR) with the goal of permanently removing alkyl-lead from racing fuels used in the Nextel Cup, Busch and Craftsman Truck Series. In January of 2006, NASCAR agreed to switch to unleaded fuel in its race cars and trucks beginning in 2008. NASCAR initiated this switch in 2007.

Ohio has state implementation plan (SIP) approved regulations regarding particulate emissions from stationary sources and regarding emissions of fugitive dust. These programs assist in reducing the potential impact on lead concentrations:

- Ohio Administrative Code (OAC) rule 3745-17-08: Restriction of emission of fugitive dust[8].

  This rule was developed to address reasonably available control measures (RACM) requirements as part of Ohio's plan for attaining the total suspended particulate (TSP) standard. This rule prohibits fugitive dust sources from being operated; or any materials handled, transported, or stored; or a building (or its appurtenances) or road to be used, constructed, altered, repaired, or demolished without taking measures or installing RACM to prevent fugitive dust from becoming airborne. The requirements only apply to fugitive dust sources located within specific geographical areas of Ohio[9] that encompass all or a portion of 44 of the 88 Ohio counties (unless the director of Ohio EPA invokes his/her authority to require submittal, and implementation, of a control program which will bring the fugitive dust source into compliance with the requirements). These 44 areas were selected based upon Ohio EPA modeling results indicating boundaries in which the TSP standard was not being met.

- Ohio Administrative Code (OAC) rule 3745-17-07: Control of visible particulate emissions from stationary sources[10].

  This rule was developed to address reasonably available control technology/reasonably available control measures (RACT/RACM) requirements as part of Ohio's plan for attaining the TSP and PM10 standards. Among other requirements, this rule sets visible emissions (VE) limits for stacks and fugitive dust sources (paved roadways or parking areas, unpaved roadways or parking areas, and material storage piles, material handling operations, coke oven batteries, etc.). More stringent RACT/RACM requirements are required for sources in Cuyahoga County (discussed later in this document) and Jefferson County.

- Ohio Administrative Code (OAC) rule 3745-17-11: Restrictions on particulate emissions from industrial processes[11].

  This rule addresses particulate emissions from various point sources throughout Ohio by limiting the allowable mass rate of emission of particulate matter.

Ohio EPA also has a SIP-approved major and minor new source review (NSR) program. All new or modified sources must meet Ohio's NSR requirements. The RACM requirements for fugitive dust discussed above are often incorporated into NSR permits for both major and minor sources and also frequently for sources beyond the boundaries of the 44 areas discussed above.

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[8] http://www.epa.state.oh.us/dapc/regs/3745-17/17-08.pdf
[9] http://www.epa.state.oh.us/dapc/regs/3745-17/3745-17-08App1.pdf
[10] http://www.epa.state.oh.us/dapc/regs/3745-17/17-07.pdf
[11] http://www.epa.state.oh.us/dapc/regs/3745-17/17-11.pdf

As part of the detailed factor analysis below, where appropriate for a specific county, facility or area, Ohio EPA has identified any specific lead emission control measures beyond what has been discussed above.

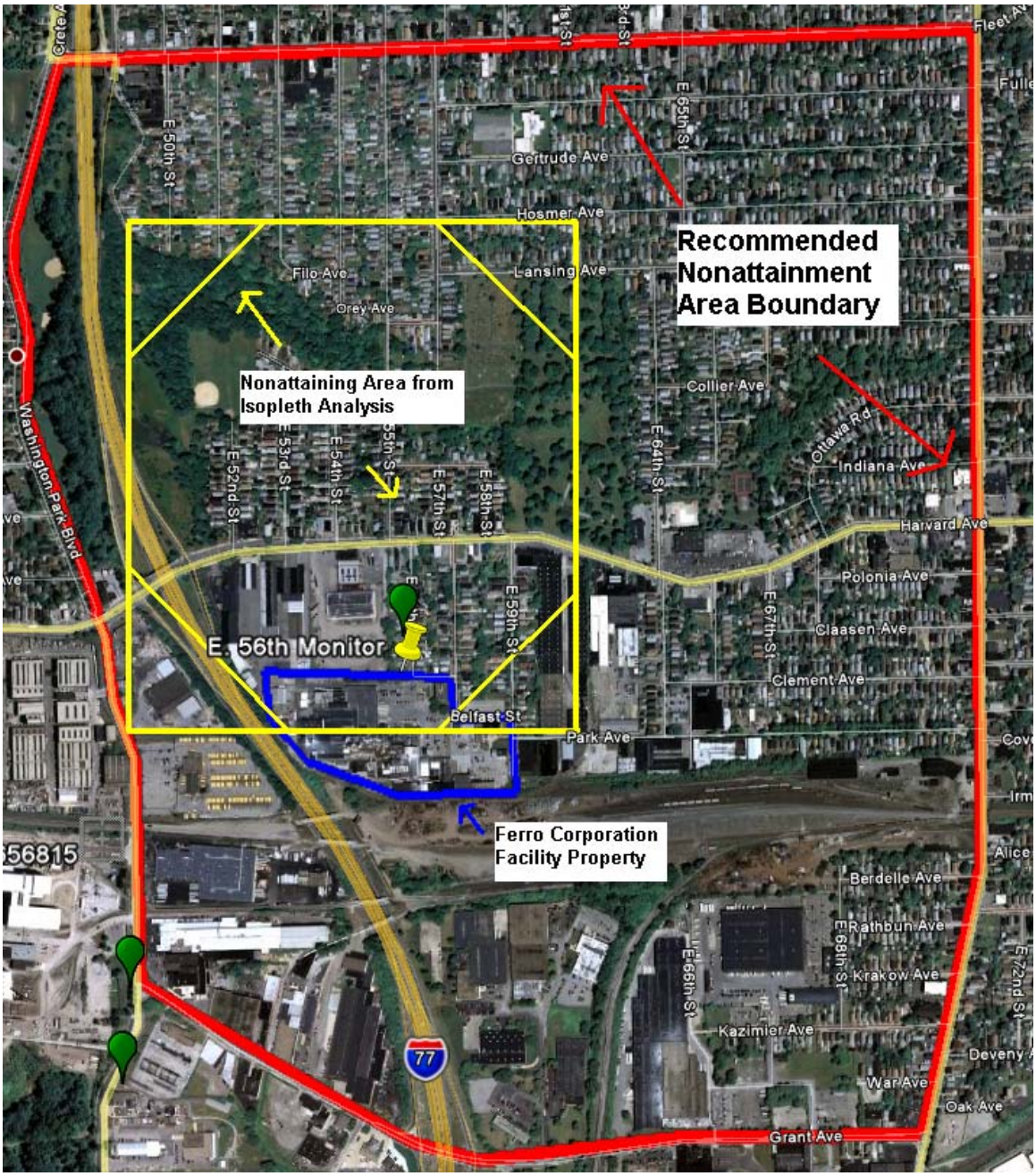
Factor Analysis

Counties with Monitor(s) Exceeding the Lead NAAQS

Cuyahoga
Fulton
Logan

Recommended nonattainment boundary:

Partial Cuyahoga - The area enclosed on the west by Washington Park Boulevard/Crete Avenue/East 49th Street, on the east by East 71st Street, on the north by Fleet Avenue, and on the south by Grant Avenue.



Discussion:

Ohio EPA is recommending partial nonattainment of Cuyahoga County, as indicated in the map above, based upon both an analysis of the eight factors and on additional spatial interpolation analysis of monitoring data. This discussion summarizes the results of these analyses.

As seen under factor 1 below there are only three facilities located in Cuyahoga County with emissions greater than 0.50 TPY. Total lead air emissions in Cuyahoga County range from 3.48 TPY (NEI) to 4.29 TPY (TRI). The emissions from all sources in Cuyahoga County can be viewed in the map under factor 1. As indicated in the map, the majority of the smaller sources that make up the total county-wide emissions are located within the City of Cleveland area. As seen under the map in factor 2 below, the City of Cleveland area is well monitored with five monitors. Therefore, these monitors would accurately reflect emissions from these smaller sources that may collectively contribute to a violation of the lead standard. Of those five monitors, only one monitor has shown violations during the 2006 to 2008 period. This monitor is identified in the boundary map above (E. 56th Street) and has historically been dedicated to monitoring the Ferro Corporation facility, also identified above. Therefore, it is Ohio EPA's belief the violating lead monitor is associated with a localized area around the Ferro Corporation facility.

As can be seen under factors 3 and 4 below, the City of Cleveland is the most densely populated and urbanized area in Cuyahoga County. Within Cleveland, and all of Cuyahoga County, population has been declining and is expected to continue to decline in the future.

As indicated under factor 8 below, in addition to State-wide control requirements of sources that may affect lead emissions, Cuyahoga County has additional, more stringent requirements in place at the county level.

In order to determine an appropriate boundary for the nonattainment area encompassing this violating monitor, Ohio EPA used spatial interpolation of air quality monitoring data. Based upon U.S. EPA guidance ("Procedures for Estimating Probability of Nonattainment of a PM10 NAAQS Using Total Suspended Particulate or PM10 Data," December 1986 [57 Fr 13549]), "spatial interpolation of air monitoring data is the method most appropriate for situations in which monitors are located at relatively close proximity to one another." Appendix H contains the detailed spatial interpolation analysis conducted by Ohio EPA. The analysis was based upon monitoring data from the five monitors using three worst-case 3-month averages during which violations occurred. The results are conservative and consistent with the area's meteorology, and Ohio EPA recommends that the appropriate partial-county nonattainment boundary be established as indicated in the map above. This boundary would not interfere with any jurisdictional boundaries discussed under factor 7.

An additional grouping of smaller sources of emissions is located in the vicinity west of the City of Solon. The facility with the greatest emissions in Cuyahoga County,

American Spring Wire Corporation, is located within this area and will be monitored in the near future as part of the expansion of the ambient monitoring network. After adequate collection of future monitoring data, Ohio EPA will be able to determine if additional nonattainment boundaries in this area appropriate. Until such time, Ohio EPA is recommending the remainder of Cuyahoga County be determined "unclassifiable."

Factor 1: Emissions

2005 County-Wide Emissions (TPY):

TRI	4.29
NEI	3.48

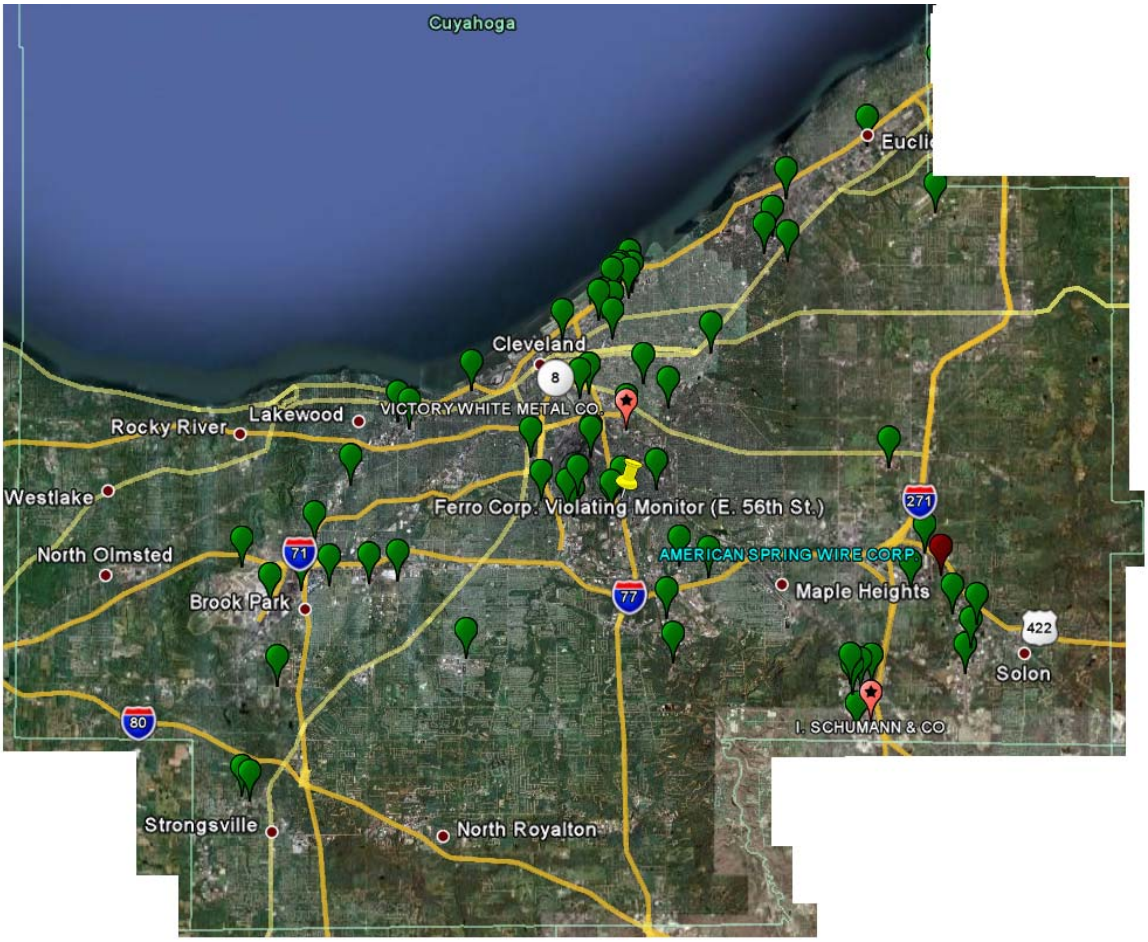
2005 Sources of Lead Emissions (≥0.5 TPY)[12]

Source Name	NEISIC Code Description	NEI	TRI	Street Address	City
AMERICAN SPRING WIRE CORP.	Steel Wiredrawing and Steel Nails and Spikes	1.19	1.19	26300 MILES RD.	BEDFORD HEIGHTS
I. SCHUMANN & CO	Secondary Smelting and Refining of Nonferrous Metals	0.55	0.55	22500 ALEXANDER RD	OAKWOOD VILLAGE
VICTORY WHITE METAL CO.	Rolling, Drawing, and Extruding of Nonferrous Metals, Except Copper and Aluminum	0.50	0.50	6100 ROLAND AVE	CLEVELAND

Map of 2005 Sources of Lead Emissions

The following map identifies all sources of lead emissions (TRI or NEI) in Cuyahoga County during 2005. Sources with emissions ≥ 0.5 TPY are identified by facility name and the symbol "" if ≥ 1.0 TPY or "" if ≥ 0.50 TPY and <1.0 TPY, while all other sources < 0.5 TPY are identified by the symbol "". A yellow pin symbol indicates the location of any violating monitor. Appendix A contains a complete list of all sources, with emissions, for Cuyahoga County.

[12] Ford Motor Company is excluded from this list. Ford reported emissions of 0.00033 TPY under the TRI and erroneously reported 1.2 TPY under the NEI. Regardless, Ford has been reducing the level of operations and is permanently shutting down all operations at this facility by the end of 2010.


Cuyahoga
Cleveland
8
VICTORY WHITE METAL CO.
Lakewood
Rocky River
Westlake
Ferro Corp. Violating Monitor (E. 56th St.)
271
North Olmsted
71
AMERICAN SPRING WIRE CORP.
Maple Heights
Brook Park
77
422
Solon
80
I. SCHUMANN & CO.
Strongsville
North Royalton

Factor 2: Air quality data

= Exceeds standard

AQS: Three-month rolling average for 2006, 2007 and 2008 (ug/m^3)

Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-035-0042 Fire Station 4 Cleveland	Nov -Jan	0.010	0.009	0.011
	Dec -Feb	0.012	0.008	0.008
	Jan -Mar	0.015	0.009	0.008
	Feb-Apr	0.019	0.011	0.013
	Mar-May	0.018	0.017	0.021
	Apr-Jun	0.019	0.019	0.023
	May-July	0.014	0.024	0.022
	Jun-Aug	0.015	0.021	0.016
	July-Sept	0.011	0.021	0.016
	Aug-Oct	0.013	0.024	0.015
	Sept-Nov	0.011	0.023	0.013
	Oct-Dec	0.012	0.021	0.009

Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-035-0038 St. Tikhon Cleveland	Nov -Jan	0.013	0.010	0.013
	Dec -Feb	0.020	0.009	0.012
	Jan -Mar	0.023	0.011	0.013
	Feb-Apr	0.026	0.011	0.024
	Mar-May	0.022	0.016	0.027
	Apr-Jun	0.020	0.018	0.027
	May-July	0.016	0.021	0.021
	Jun-Aug	0.020	0.020	0.021
	July-Sept	0.026	0.018	0.019
	Aug-Oct	0.028	0.018	0.015
	Sept-Nov	0.021	0.015	0.010
	Oct-Dec	0.012	0.016	0.007

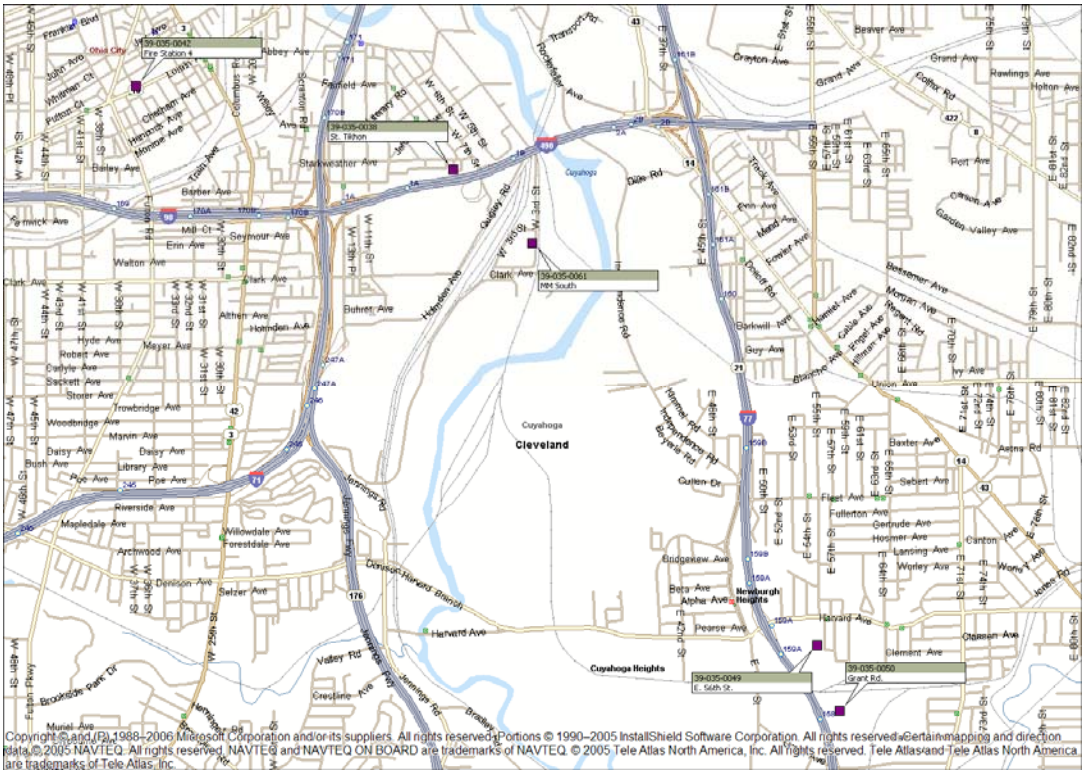
Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-035-0061 Master Metals Facility Cleveland	Nov -Jan	0.008	0.009	0.014
	Dec -Feb	0.006	0.008	0.011
	Jan -Mar	0.013	0.009	0.012
	Feb-Apr	0.017	0.010	0.021
	Mar-May	0.036	0.015	0.026
	Apr-Jun	0.034	0.021	0.026
	May-July	0.031	0.028	0.027
	Jun-Aug	0.016	0.028	0.033
	July-Sept	0.014	0.026	0.035
	Aug-Oct	0.012	0.023	0.027
	Sept-Nov	0.011	0.022	0.016
	Oct-Dec	0.009	0.019	0.010

Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-035-0049 E. 56th St. Ferro Corp Facility Cleveland	Nov -Jan	0.053	0.046	0.118
	Dec -Feb	0.045	0.062	0.053
	Jan -Mar	0.058	0.066	0.078
	Feb-Apr	0.075	0.049	0.087
	Mar-May	0.079	0.062	0.142
	Apr-Jun	0.088	0.061	0.115
	May-July	0.098	0.083	0.136
	Jun-Aug	0.105	0.086	0.143
	July-Sept	0.100	0.114	0.150
	Aug-Oct	0.068	0.133	0.173
	Sept-Nov	0.051	0.163	0.120
	Oct-Dec	0.036	0.155	0.102

Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-035-0050 Grant Rd. Ferro Corp Facility Cleveland	Nov -Jan	0.007	0.008	0.016
	Dec -Feb	0.012	0.010	0.012
	Jan -Mar	0.040	0.012	0.012
	Feb-Apr	0.046	0.034	0.016
	Mar-May	0.044	0.040	0.025
	Apr-Jun	0.021	0.048	0.026
	May-July	0.018	0.036	0.033
	Jun-Aug	0.018	0.040	0.026
	July-Sept	0.017	0.036	0.038
	Aug-Oct	0.014	0.028	0.032
	Sept-Nov	0.011	0.020	0.032
	Oct-Dec	0.009	0.018	0.014

Sites with one or months of a composite analysis missing in any three-month period.

Cuyahoga County Lead Monitor Locations and Site ID Numbers



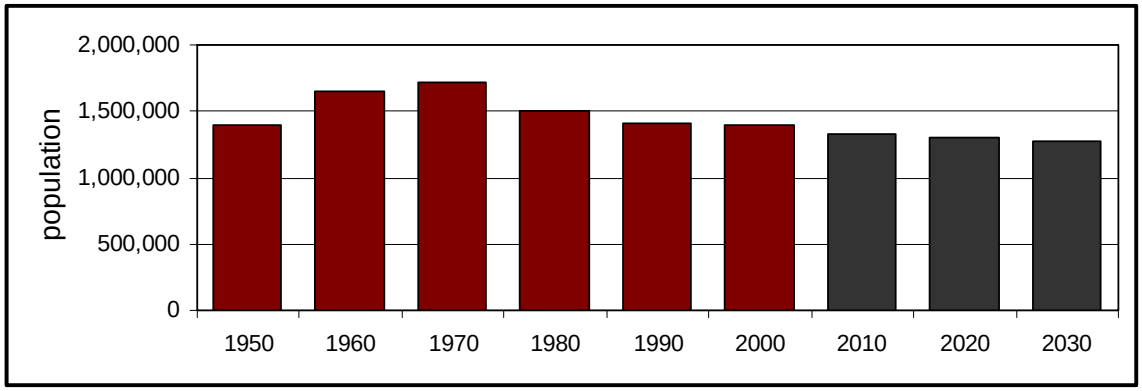
Factor 3 - 4: Urbanization, population and projected growth

Sources: Office of Strategic Research, Ohio Department of Development
U.S. Census Bureau Population Estimates Program 2007

As indicated in the following table and graph, Cuyahoga County population is projected to steadily decrease.

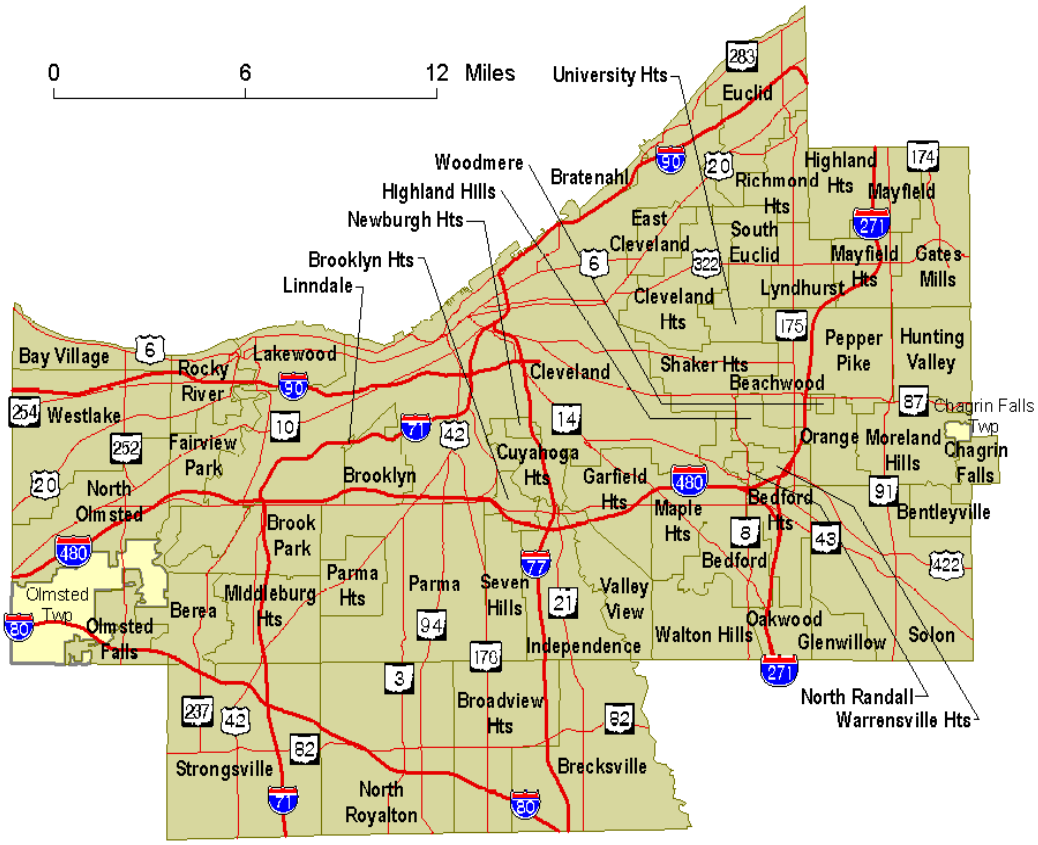
COUNTY	2004	2005	2006	2007	2010	2020	2030
Cuyahoga	1,346,194	1,330,428	1,314,241	1,295,958	1,332,540	1,301,870	1,274,020

Cuyahoga County



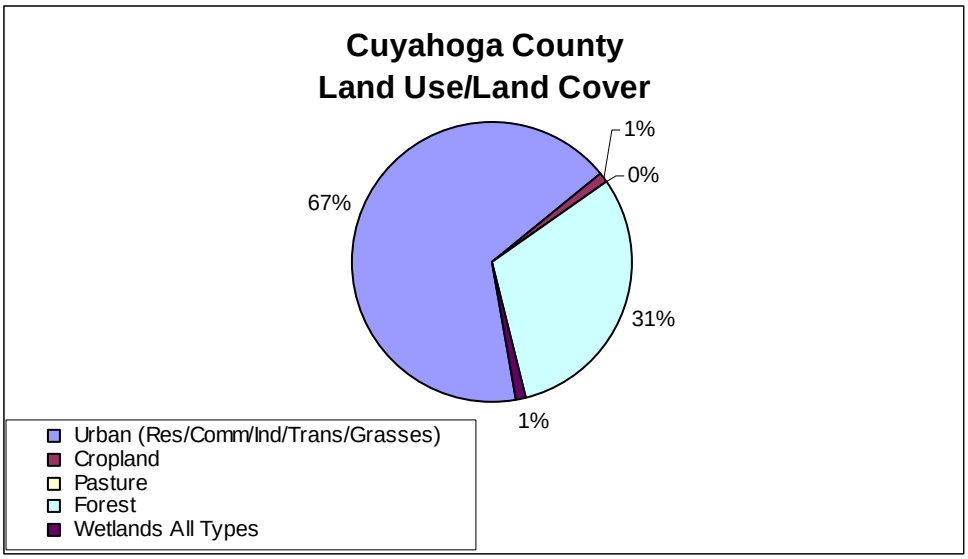
The largest populated cities in Cuyahoga County are:

City	Population 2000	2000 Density (persons per sq. mile)	Est. 2007
Cleveland	478,403	6167	438,042
Parma	85,655	4291	78,785
Lakewood	56,646	10208	51,305
Euclid	52,717	4923	47,940
Cleveland Heights	49,958	6160	46,321
Strongsville	43,858	1780	42,874
North Olmsted	34,113	2933	31,641
Westlake	31,719	1995	30,710
North Royalton	28,648	1346	29,373
Garfield Heights	30,734	4253	28,058



Population is expected to decline in these cities with the exception of North Royalton towards the southern border of Cuyahoga County.

Cuyahoga County is one of the most highly urbanized Counties in Ohio:

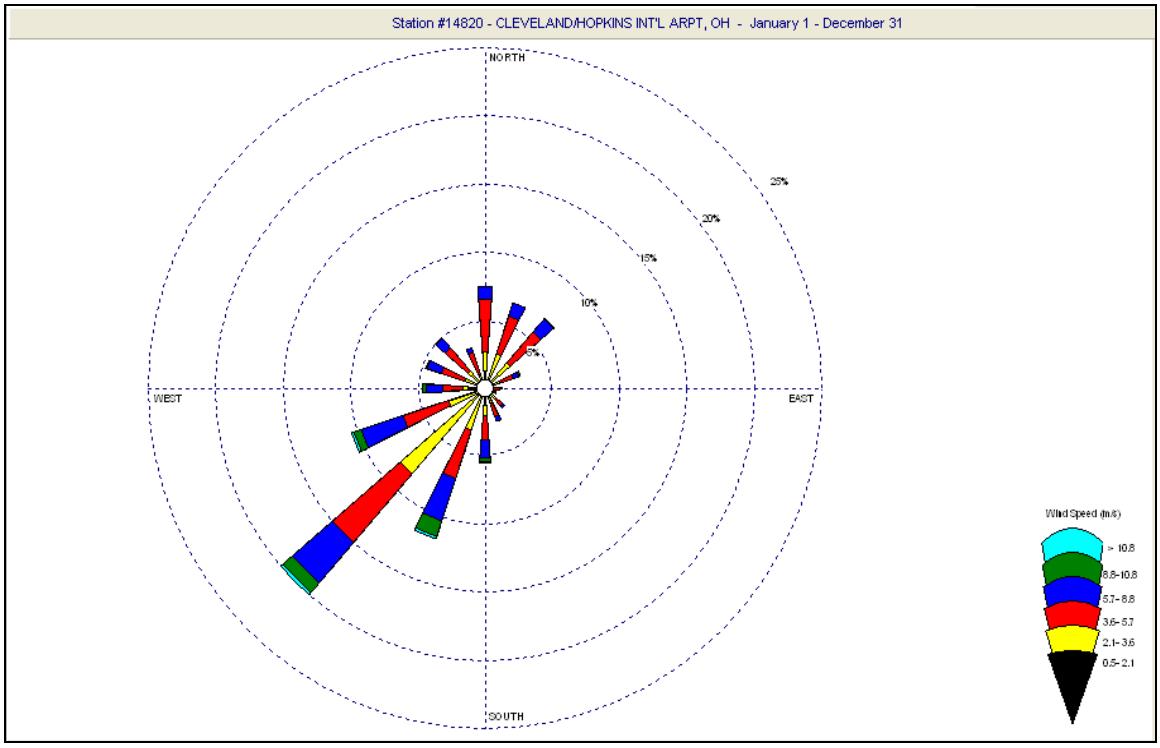


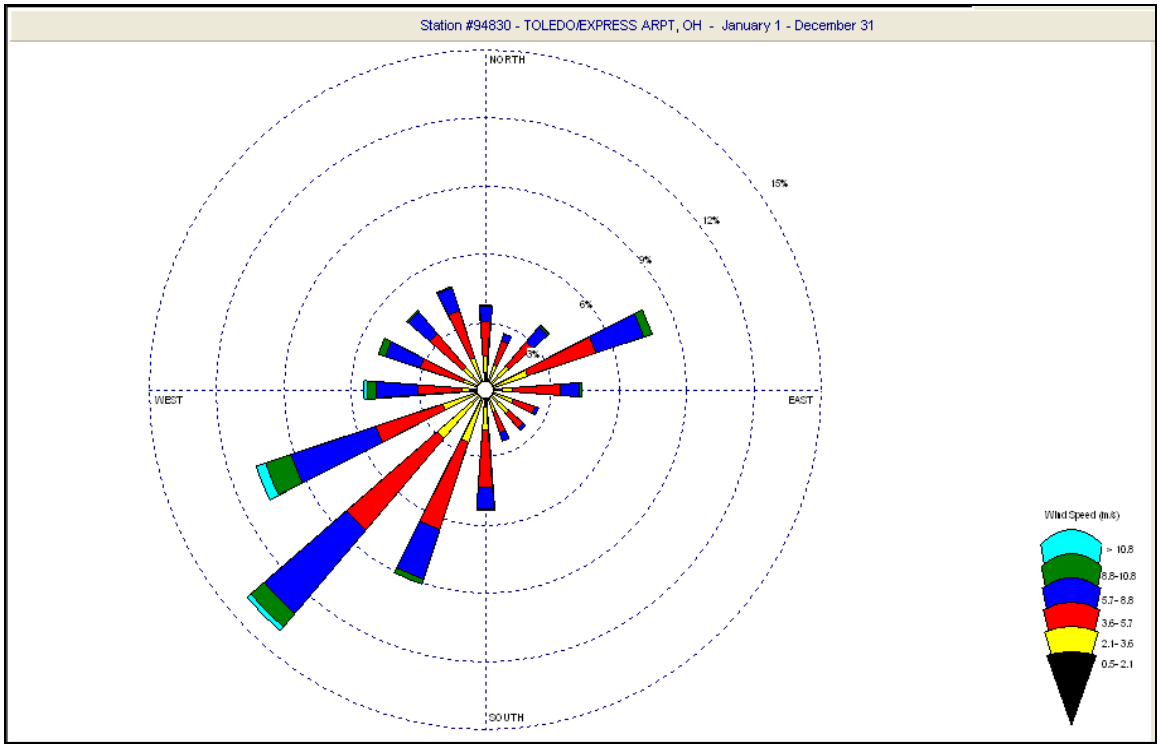
Refer to Appendix E for more detailed maps regarding urbanized areas and population density.

Factor 5: Meteorology

Please refer to the factor 5 general discussion at the beginning of this document for general meteorological information applicable to Cuyahoga County.

Ohio is bounded on the north by Lake Erie which can provide localized modifications to the general flow, primarily by the introduction of land breezes and lake breezes along the Lake during periods of low synoptic wind speeds. These effects would best be represented by the Toledo and Cleveland airport wind roses.





Factor 6: Geography/topography

Cuyahoga County is located within two physiographic Provinces: the glaciated Allegheny Plateau of the Appalachian Plateaus Province on the south and east and the Huron-Erie Lake Plains and Till Plains sections of the Central Lowland Province on the west and north (see Appendix F). The shore of Lake Erie is 569 feet above sea level. The City of Cleveland lies on a series of irregular bluffs lying roughly parallel to the lake. The land rises quickly from the lakeshore with an elevation of 791 feet above sea level at the Hopkins Airport five miles inland from the lake.

The Cuyahoga County area does not have any geographical or topographical barriers significantly affecting transport of lead within its air shed. Therefore, this factor provides no reason to delineate areas potentially included versus excluded from the nonattainment area.

Factor 7: Jurisdictional boundaries

The Ohio EPA Central Office and Cleveland Division of Air Quality are responsible for air quality planning within all areas of Cuyahoga County. The Northeast Ohio Areawide coordinating Agency (NOACA) is the planning agency designated as the Metropolitan Planning Organization for the greater Cleveland area. The NOACA region is composed of five Counties: Cuyahoga, Geauga, Lake, Lorain, and Medina.

The area map identified under factor 3-4 above shows township and city boundaries for Cuyahoga County.

Factor 8: Level of control of emission sources

In addition to those requirements identified in the general discussion section for factor 8 at the beginning of this document, Ohio EPA has also implemented the following requirements in Cuyahoga County that assist in reducing the potential impact on lead concentrations:

- OAC rule 3745-17-12: Additional restrictions on particulate emissions from specific air contaminant sources in Cuyahoga County[13].

  This rule, which provides more stringent requirements than the other OAC Chapter 3745-17 rules discussed in the general section for factor 8, regulates particulate emissions and emissions of fugitive dust from 25 different facilities in Cuyahoga County. Many of these facilities are a source of lead emissions.

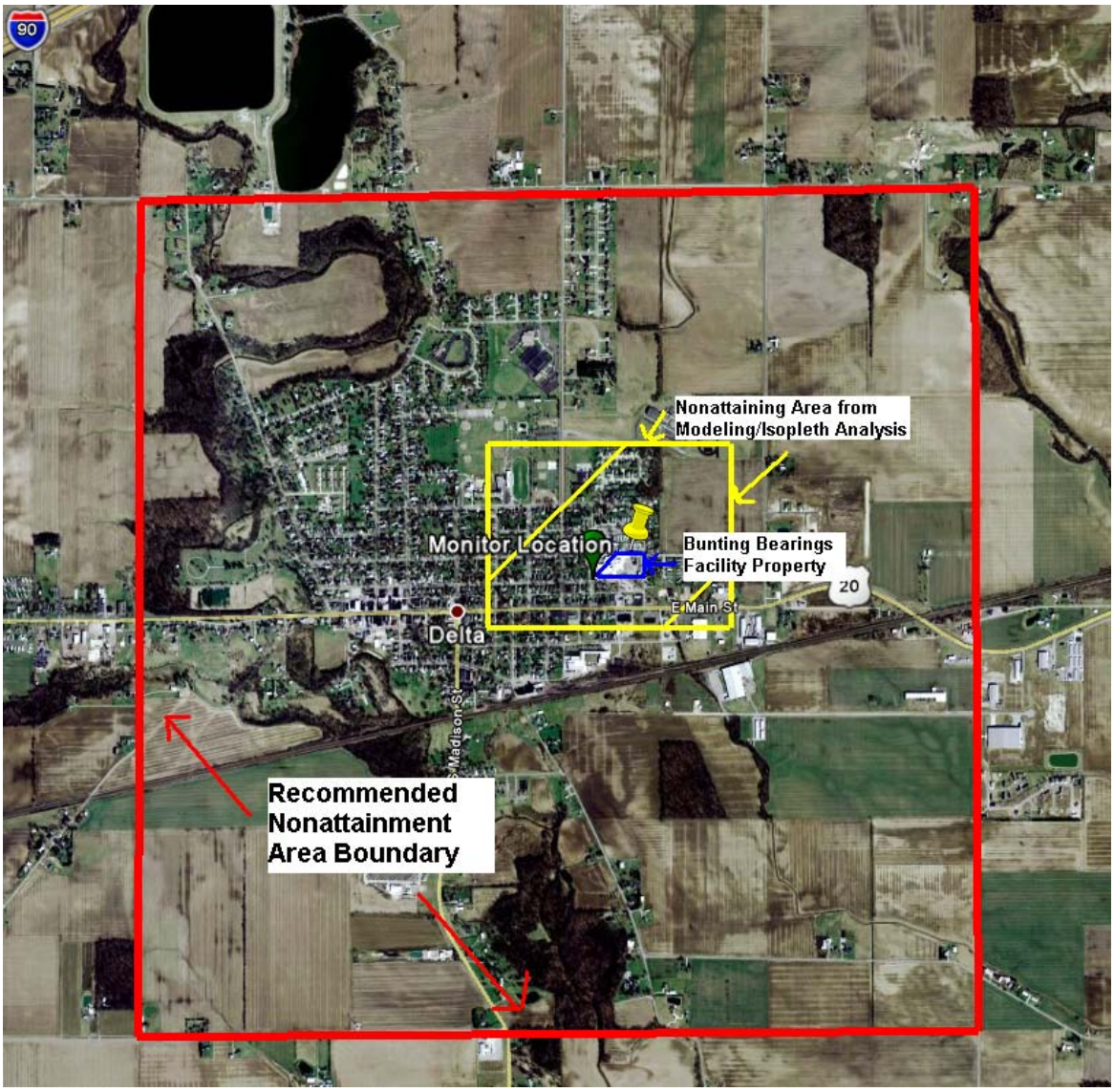
- OAC rule 3745-71-06 Source specific emission limits.

  This rule was developed to address lead emissions specifically from Master Metals, Incorporated in Cleveland, Ohio. However, since that time this facility has permanently shut down and is no longer a source of lead emissions.

[13] http://www.epa.state.oh.us/dapc/regs/3745-17/17-12.pdf

Recommended nonattainment boundary:

Partial Fulton: The area enclosed by sections 12 and 13 of York Township and sections 7 and 18 of Swan Creek Township.



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Discussion:

Ohio EPA is recommending partial nonattainment of Fulton County, as indicated in the map above, based upon both an analysis of the eight factors and on additional analyses combining dispersion modeling and actual historic monitoring values. This discussion summarizes the results of these analyses.

As seen under factor 1 below there are no facilities located in Fulton County with emissions greater than 0.50 TPY. Appendix A identifies only four smaller sources of with combined lead emissions ranging from 0.29 TPY (NEI) to 0.38 TPY (TRI). The emissions from all sources in Fulton County can be viewed in the map under factor 1. As can be seen, these four smaller sources are fairly widespread throughout the county. Fulton County contains only one monitor which has shown violations fairly consistently during the 2006 to 2008 period. This monitor is identified in the boundary map above and has historically been dedicated to monitoring the Bunting Bearings facility, in the City of Delta, also identified above. Therefore, it is Ohio EPA's belief the violating lead monitor is associated with a localized area around the Bunting Bearings facility.

As can be seen under factors 3 and 4 below, the City of Delta is the fifth largest populated and urbanized area in Fulton County. Although population in Fulton County is expected to increase slightly in the future, the population of the City of Delta is expected to decline.

In order to determine an appropriate boundary for the nonattainment area encompassing this violating monitor, Ohio EPA performed a hybrid approach involving the use of dispersion modeling in conjunction with historic monitoring data. The model is used to generate reasonable concentration gradients through the study area, while the monitor data is used to generate an actual/modeled concentration ratio that can serve as a "correction factor" for adjustment of any apparent systematic tendency of the model to over, or under, predict monitor values. Based upon U.S. EPA guidance ("Procedures for Estimating Probability of Nonattainment of a PM10 NAAQS Using Total Suspended Particulate or PM10 Data," December 1986 [57 Fr 13549]), "dispersion modeling is more appropriate than spatial interpolation of air monitoring data in areas where actual monitoring data are scarce." Appendix I contains the detailed analysis conducted by Ohio EPA. The analysis was based upon emissions from the four lead sources in the county corrected upwards using actual worst-case monitored values to provide a conservative boundary for recommendation. The results are conservative, consistent with the areas meteorology, and Ohio EPA recommends that the appropriate partial-county nonattainment boundary be established as indicated in the map above. This boundary would not interfere with any jurisdictional boundaries discussed under factor 7.

Factor 1: Emissions

2005 County-Wide Emissions (TPY):

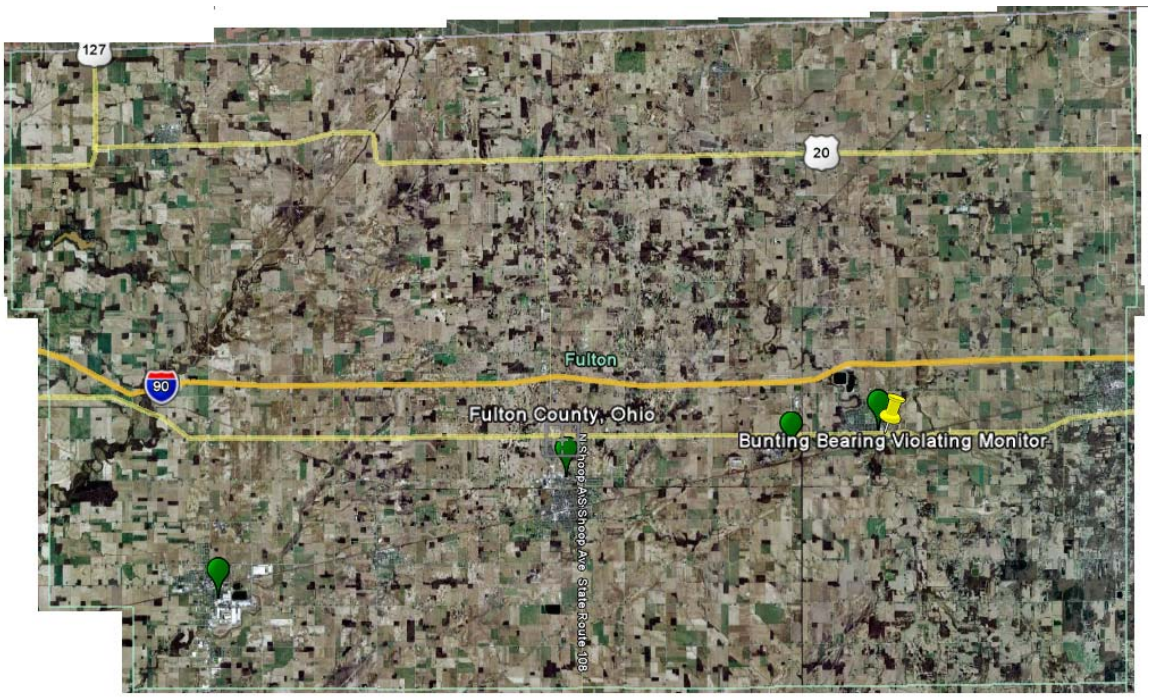
TRI	0.38
NEI	0.29

2005 Sources of Lead Emissions (≥0.5 TPY)

Source Name	NEISIC Code Description	NEI	TRI	Street Address	City
None					

Map of 2005 Sources of Lead Emissions

The following map identifies all sources of lead emissions (TRI or NEI) in Fulton County during 2005. Sources with emissions ≥ 0.5 TPY are identified by facility name and the symbol " " if ≥ 1.0 TPY or " " if ≥ 0.50 TPY and <1.0 TPY, while all other sources < 0.5 TPY are identified by the symbol " ". A yellow pin symbol indicates the location of any violating monitor. Appendix A contains a complete list of all sources, with emissions, for Fulton County.



Factor 2: Air quality data

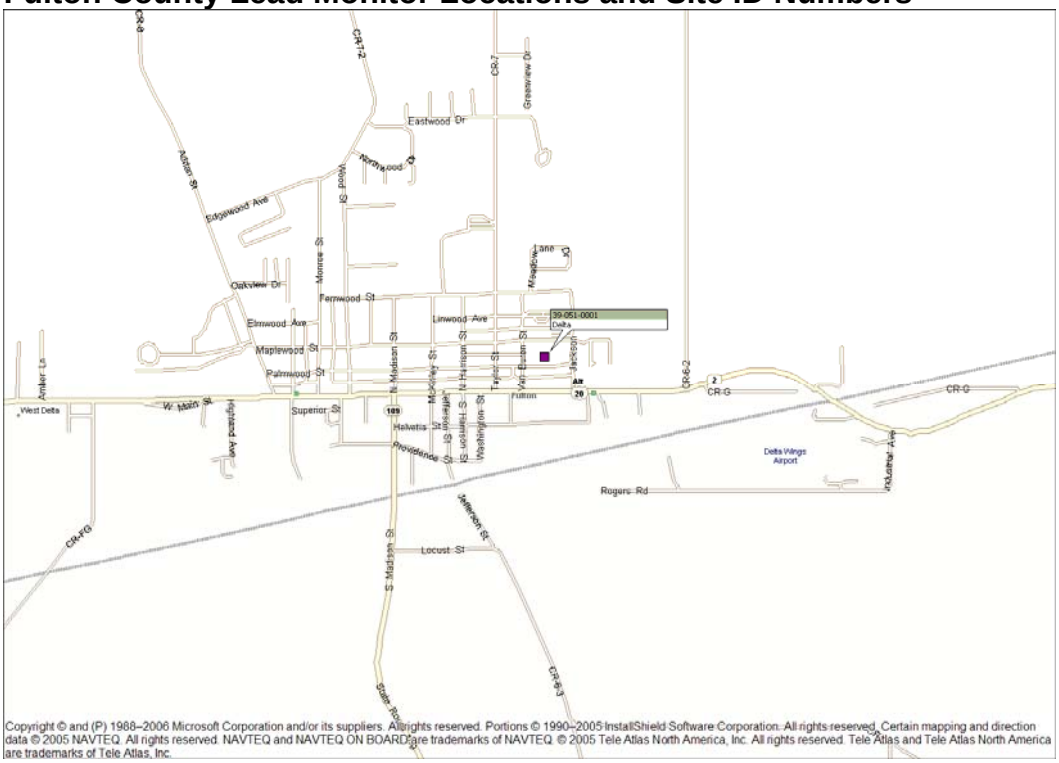
= Exceeds standard

AQS: Three-month rolling average for 2006, 2007 and 2008 (ug/m^3)

Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-051-0001 Bunting Bearing Facility Delta	Nov -Jan	0.105	0.423	0.567
	Dec -Feb	0.090	0.450	0.453
	Jan -Mar	0.071	0.357	0.387
	Feb-Apr	0.035	0.233	0.254
	Mar-May	0.100	0.186	0.237
	Apr-Jun	0.116	0.203	0.267
	May-July	0.117	0.180	0.317
	Jun-Aug	0.157	0.247	0.290
	July-Sept	0.215	0.205	0.170
	Aug-Oct	0.283	0.242	0.237
	Sept-Nov	0.210	0.339	0.320
	Oct-Dec	0.270	0.523	0.291

Sites with one or months of a composite analysis missing in any three-month period.

Fulton County Lead Monitor Locations and Site ID Numbers



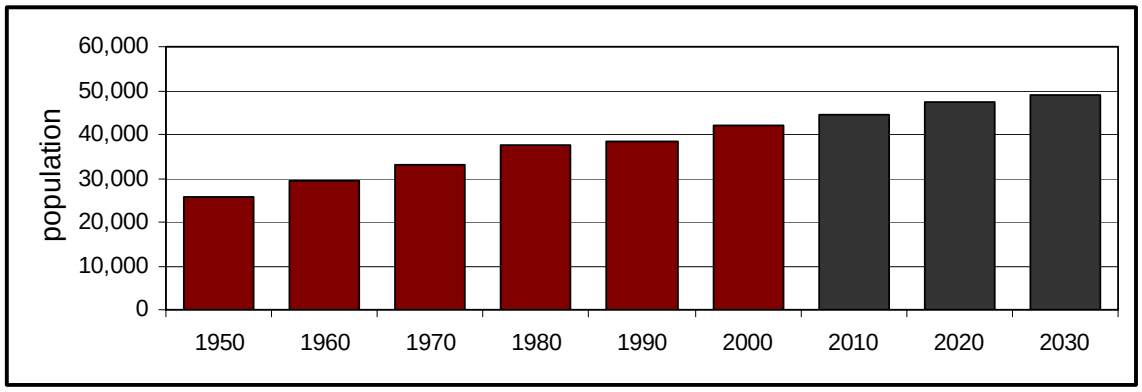
Factor 3 - 4: Urbanization, population and projected growth

Sources: Office of Strategic Research, Ohio Department of Development U.S. Census Bureau Population Estimates Program 2007

As indicated in the following table and graph, Fulton County population is relatively low (57th of the 88 Counties in 2007) although the population is projected to slightly increase.

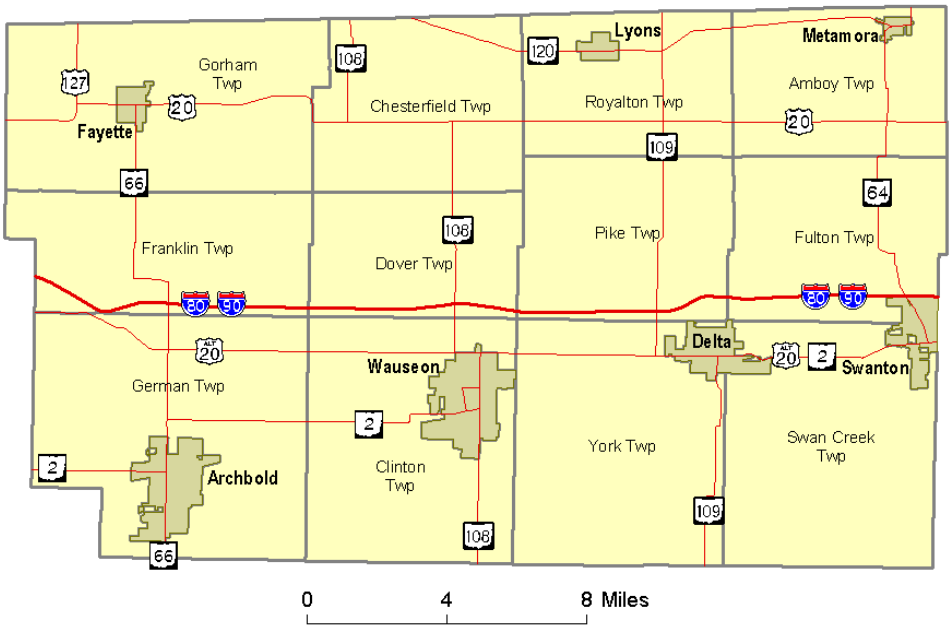
	2004	2005	2006	2007	2010	2020	2030
Fulton	42,785	42,888	42,900	42,562	44,610	47,210	49,110

Fulton County



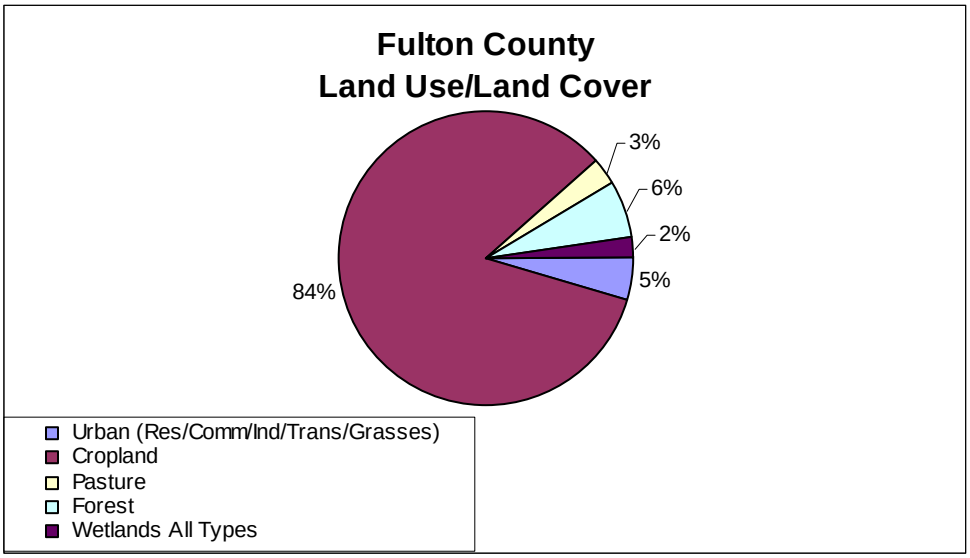
The largest populated cities in Fulton County are:

City/Twp./Village	Population 2000	2000 Density (persons per sq. mile)	Est. 2007
Wauseon City	7,091	1438	7,278
Swan Creek Twp UB	6,306	158	6,246
Archbold Village	4,290	1009	4,453
Swanton Village (pt.)	3,283	1388	3,491
Delta Village	2,930	1127	2,907
Clinton Twp UB	2,189	60	2,217
German Twp UB	2,168	47	2,193
York Twp UB	1,788	44	1,805
Pike Twp	1,738	62	1,698
Fulton Twp UB	1,618	58	1,610



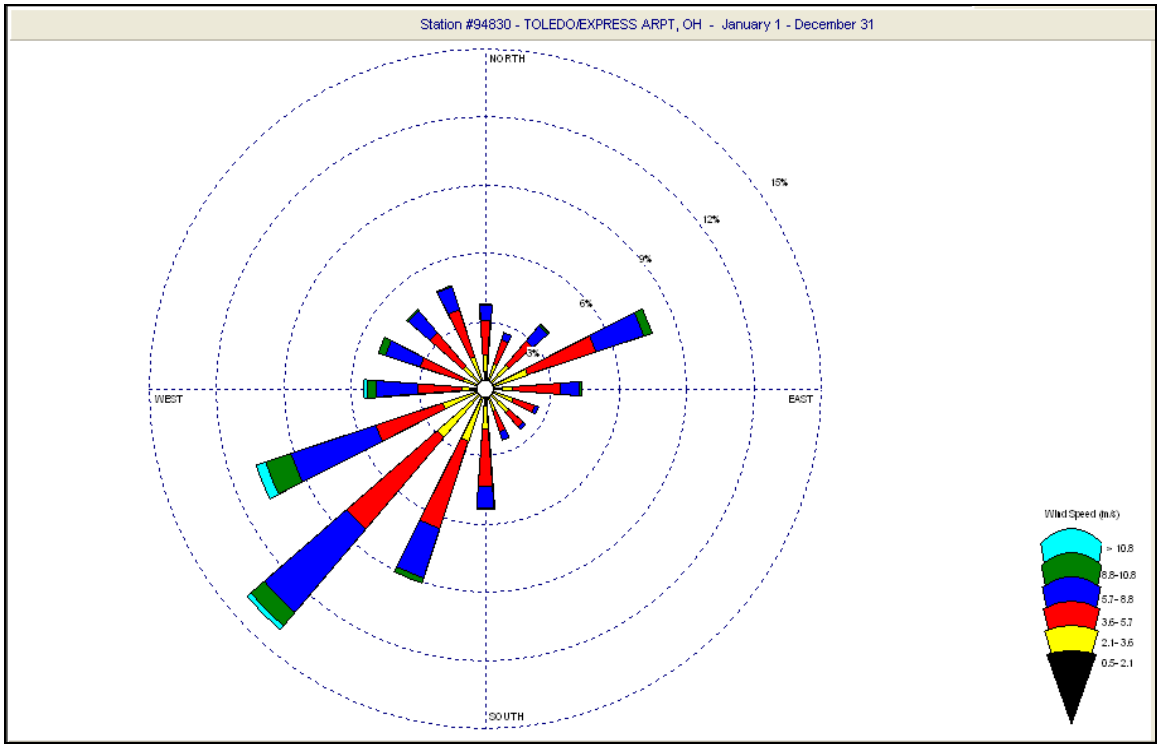
Overall, population is expected to slightly increase in these cities/townships although some areas are showing a slight decline. There are no densely populated areas within Fulton County (all less than 245 persons per square mile with a county-wide average of 103 persons per square mile).

Fulton County is predominantly cropland with only 5% urbanization:



Factor 5: Meteorology

Ohio is bounded on the north by Lake Erie which can provide localized modifications to the general flow, primarily by the introduction of land breezes and lake breezes along the Lake during periods of low synoptic wind speeds. The Toledo wind rose will be most representative for Fulton County.



Factor 6: Topography/Land use/Land cover

Fulton County is located in the Huron-Erie Lake Plains region (Appendix F). The county is made up of gently rolling terrain and nearly level plain. The landscape slopes eastward toward Lake Erie. The elevation ranges from about 680 feet to 806 feet above sea level.

The Fulton County area does not have any geographical or topographical barriers significantly affecting transport of lead within its air shed. Therefore, this factor provides no reason to delineate areas potentially included versus excluded from the nonattainment area.

Factor 7: Jurisdictional boundaries

The Ohio EPA Central Office and Ohio EPA Northwest District Office are responsible for air quality planning within all areas of Fulton County.

The Toledo, OH MSA includes: Fulton, Lucas, Ottawa, and Wood Counties. There is no CSA or MPO for this county.

The area map identified under factor 3 and4 above shows township and city boundaries for Fulton County.

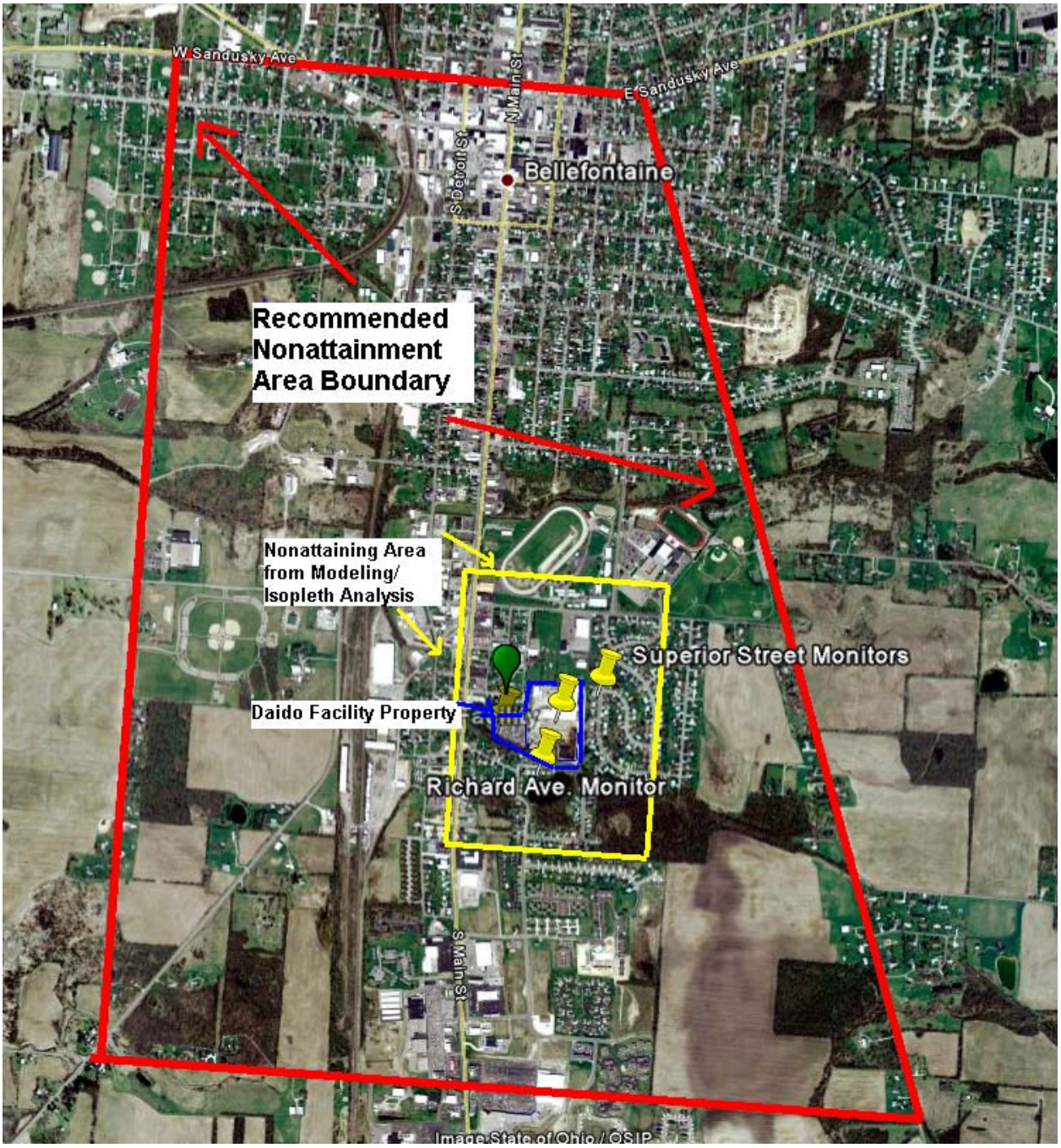
Factor 8: Level of control of emission sources

Please refer to the factor 8 general discussion at the beginning of this document for applicable control information for Fulton County.

Logan County, OH

Recommended nonattainment boundary:

Partial Logan: The area enclosed by sections 27, 28, 33 and 34 of Lake Township



Discussion:

Ohio EPA is recommending partial nonattainment of Logan County, as indicated in the map above, based upon both an analysis of the eight factors and on additional analyses combining dispersion modeling and actual historic monitoring values. This discussion summarizes the results of these analyses.

As seen under factor 1 below there are no facilities located in Logan County with emissions greater than 0.50 TPY. Appendix A identifies only four smaller sources of lead emissions totaling 0.17 TPY (NEI and TRI). The emissions from all sources in Logan County can be viewed in the map under factor 1. As can be seen, these four smaller sources are fairly widespread throughout the county. Logan County contains four monitors which have shown violations in the 2006 and early 2007 periods, but has not show any since mid 2007. The monitors are identified in the boundary map above and have historically been dedicated to monitoring the Daido facility, in the City of Bellefontaine, also identified above. Therefore, it is Ohio EPA's belief the violating lead monitors are associated with a localized area around the Daido facility. Furthermore, Daido has decreased its operations in the recent past (evident by the change in monitored violations) and permanently shut down all lead operations in June of 2009. However, because the historical data has shown violations Ohio EPA believes it remains appropriate to designate this localized area as nonattainment until such time the air quality data meet the requirement for three years without violations.

As can be seen under factors 3 and 4 below, the City of Bellefontaine is a small city with a population of 13,069 (in 2000) although it is the largest populated and urbanized area in Logan County. Although population in Logan County is expected to increase slightly in the future, the population of the City of Bellefontaine is expected to decline.

In order to determine an appropriate boundary for the nonattainment area encompassing these violating monitors, Ohio EPA performed a hybrid approach involving the use of dispersion modeling in conjunction with historic monitoring data. The model is used to generate reasonable concentration gradients through the study area, while the monitor data is used to generate an actual/modeled concentration ratio that can serve as a "correction factor" for adjustment of any apparent systematic tendency of the model to over, or under, predict monitor values. Based upon U.S. EPA guidance ("Procedures for Estimating Probability of Nonattainment of a PM10 NAAQS Using Total Suspended Particulate or PM10 Data," December 1986 [57 Fr 13549]), "dispersion modeling is more appropriate than spatial interpolation of air monitoring data in areas where actual monitoring data are scarce." Appendix J contains the detailed analyses conducted by Ohio EPA. The analysis was based upon emissions from the four lead sources in the county corrected upwards using actual worst-case monitored values to provide a conservative boundary for recommendation. The results are conservative, consistent with the area's meteorology, and Ohio EPA recommends the appropriate partial-county nonattainment boundary be established as indicated in the map above. This boundary would not interfere with any jurisdictional boundaries discussed under factor 7.

Factor 1: Emissions

2005 County-Wide Emissions (TPY):

TRI	0.17
NEI	0.17

2005 Sources of Lead Emissions (≥0.5 TPY)

Source Name	NEISIC Code Description	NEI	TRI	Street Address	City
None					

Map of 2005 Sources of Lead Emissions

The following map identifies all sources of lead emissions (TRI or NEI) in Logan County during 2005. Sources with emissions ≥ 0.5 TPY are identified by facility name and the symbol " " if ≥ 1.0 TPY or " " if ≥ 0.50 TPY and <1.0 TPY, while all other sources < 0.5 TPY are identified by the symbol " ". A yellow pin symbol indicates the location of any violating monitor. Appendix A contains a complete list of all sources, with emissions, for Logan County.

Factor 2: Air quality data

= Exceeds standard

AQS: Three-month rolling average for 2006, 2007 and 2008 (ug/m^3)

Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-091-0008 1215 Greenwood – Daido Facility Bellefontaine	Nov -Jan		0.180	0.070
	Dec -Feb		0.167	0.073
	Jan -Mar		0.113	0.080
replaced Main St. Nov. 2006	Feb-Apr		0.100	0.063
	Mar-May		0.077	0.057
	Apr-Jun		0.050	0.060
	May-July		0.047	0.070
	Jun-Aug		0.043	0.067
	July-Sept		0.047	0.073
	Aug-Oct		0.040	0.073
	Sept-Nov	0.160	0.053	0.090
	Oct-Dec	0.215	0.050	0.093

Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-091-0005 Main St – Daido Facility Bellefontaine	Nov -Jan	0.110		
	Dec -Feb	0.097		
	Jan -Mar	0.123		
replaced by Greenwood Nov. 2006	Feb-Apr	0.113		
	Mar-May	0.147		
	Apr-Jun	0.133		
	May-July	0.120		
	Jun-Aug	0.100		
	July-Sept	0.105		
	Aug-Oct	0.185		
	Sept-Nov	0.270		
	Oct-Dec	0.270		

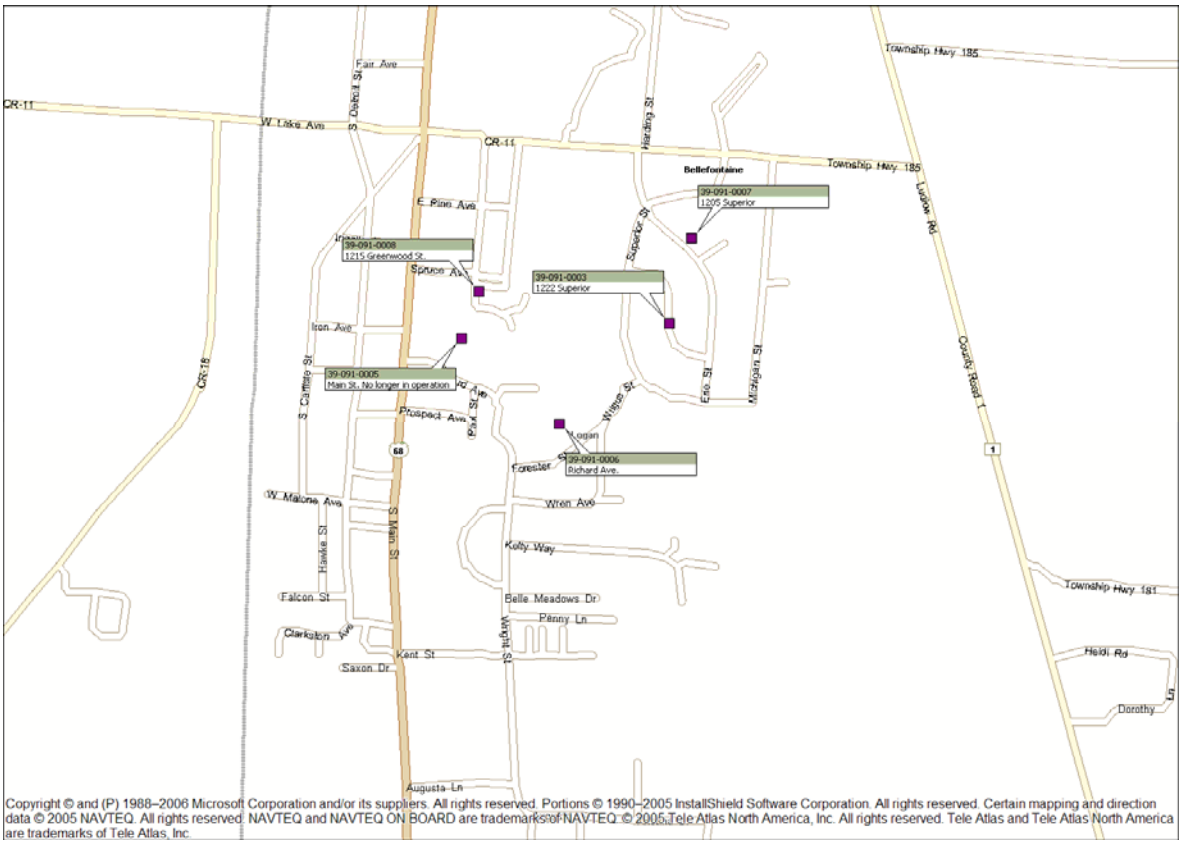
Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-091-0003 1222 Superior – Daido Facility Bellefontaine	Nov -Jan	0.042	0.023	0.089
	Dec -Feb	0.055	0.026	0.045
	Jan -Mar	0.051	0.045	0.045
	Feb-Apr	0.035	0.039	0.043
	Mar-May	0.025	0.050	0.045
	Apr-Jun	0.035	0.056	0.063
	May-July	0.088	0.054	0.058
	Jun-Aug	0.086	0.069	0.041
	July-Sept	0.088	0.064	0.023
	Aug-Oct	0.032	0.083	0.026
	Sept-Nov	0.024	0.116	0.027
	Oct-Dec	0.015	0.097	0.023

Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-091-0007 1205 Superior – Daido Facility Bellefontaine	Nov -Jan	0.137	0.087	0.057
	Dec -Feb	0.123	0.113	0.060
	Jan -Mar	0.157	0.140	0.050
	Feb-Apr	0.137	0.160	0.047
	Mar-May	0.193	0.160	0.047
	Apr-Jun	0.220	0.127	0.063
	May-July	0.237	0.107	0.083
	Jun-Aug	0.207	0.070	0.093
	July-Sept	0.175	0.087	0.100
	Aug-Oct	0.130	0.080	0.097
	Sept-Nov	0.095	0.070	0.083
	Oct-Dec	0.083	0.060	0.063

Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-091-0006 Richard Ave. – Daido Facility Bellefontaine	Nov -Jan	0.143	0.163	0.083
	Dec -Feb	0.150	0.220	0.090
	Jan -Mar	0.173	0.257	0.097
	Feb-Apr	0.153	0.247	0.080
	Mar-May	0.140	0.190	0.067
	Apr-Jun	0.133	0.133	0.060
	May-July	0.173	0.100	0.067
	Jun-Aug	0.220	0.090	0.077
	July-Sept	0.225	0.083	0.097
	Aug-Oct	0.210	0.080	0.100
	Sept-Nov	0.155	0.077	0.090
	Oct-Dec	0.153	0.070	0.073

Sites with one or months of a composite analysis missing in any three-month period.

Logan County (Bellefontaine, OH) Lead Monitor Locations and Site ID Numbers



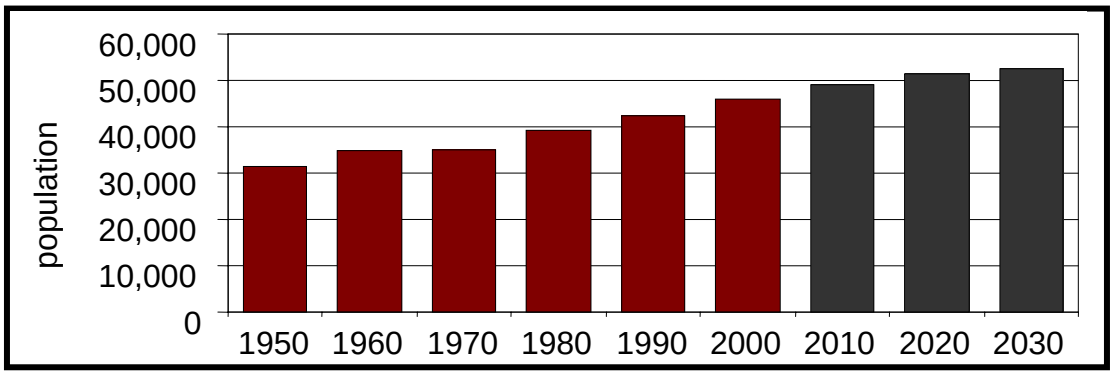
Factor 3 - 4: Urbanization, population and projected growth

Sources: Office of Strategic Research, Ohio Department of Development
U.S. Census Bureau Population Estimates Program 2007

As indicated in the following table and graph, Logan County population is relatively low (52nd of the 88 Counties in 2007) although the population is projected to slightly increase.

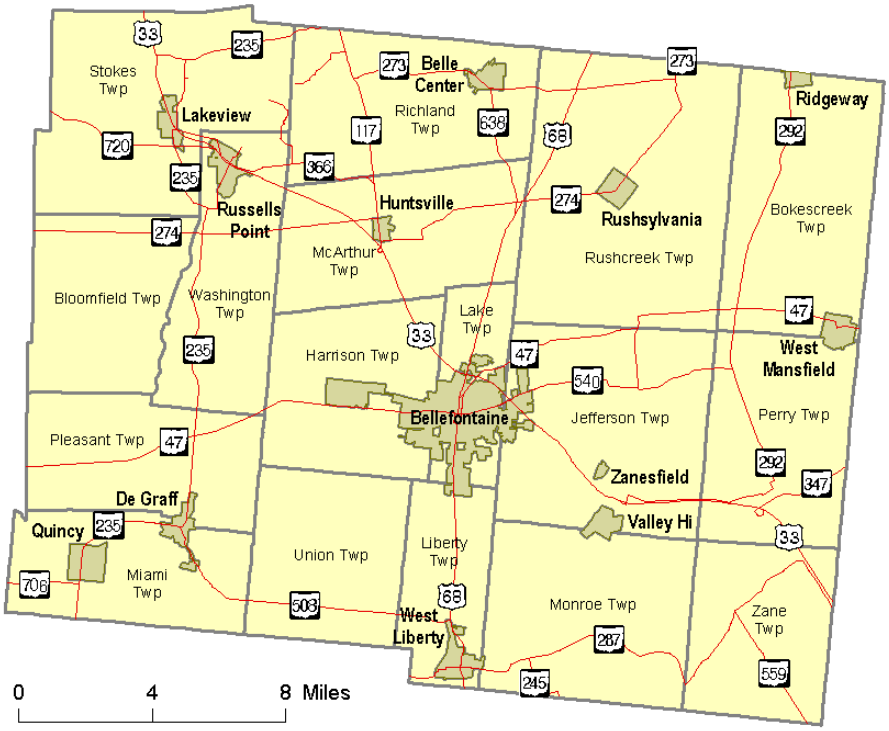
	2004	2005	2006	2007	2010	2020	2030
Logan	46,469	46,327	46,104	46,279	49,040	51,340	52,500

Logan County



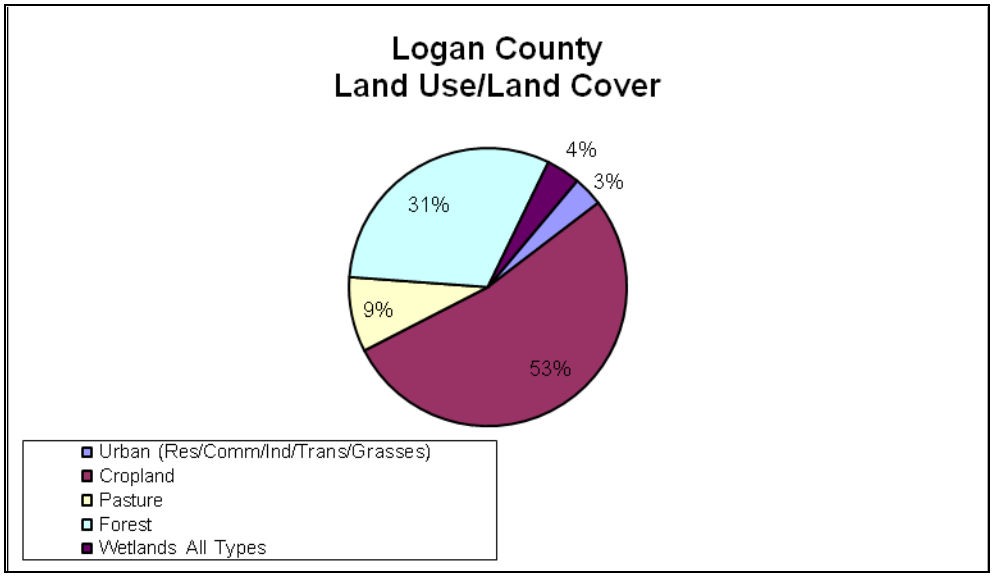
The largest populated cities in Logan County are:

City/Twp./Village	Population 2000	2000 Density (persons per sq. mile)	Est. 2007
Bellefontaine City	13,069	1491	12,737
Stokes Twp UB	4,293	135	4,275
Washington Twp UB	2,326	106	2,327
Jefferson Twp UB	2,012	56	2,103
Rushcreek Twp UB	1,648	34	1,790
West Liberty Village	1,813	1638	1,738
Richland Twp UB	1,648	58	1,693
Harrison Twp UB	1,599	69	1,651
McArthur Twp UB	1,495	54	1,584
Russells Point Village	1,619	1733	1,529



Overall, population is expected to slightly increase in these cities/townships although some areas, such as the largest city (Bellefontaine), are showing a slight decline. There are no densely populated areas within Logan County (all less than 245 persons per square mile with a county-wide average of 100 persons per square mile).

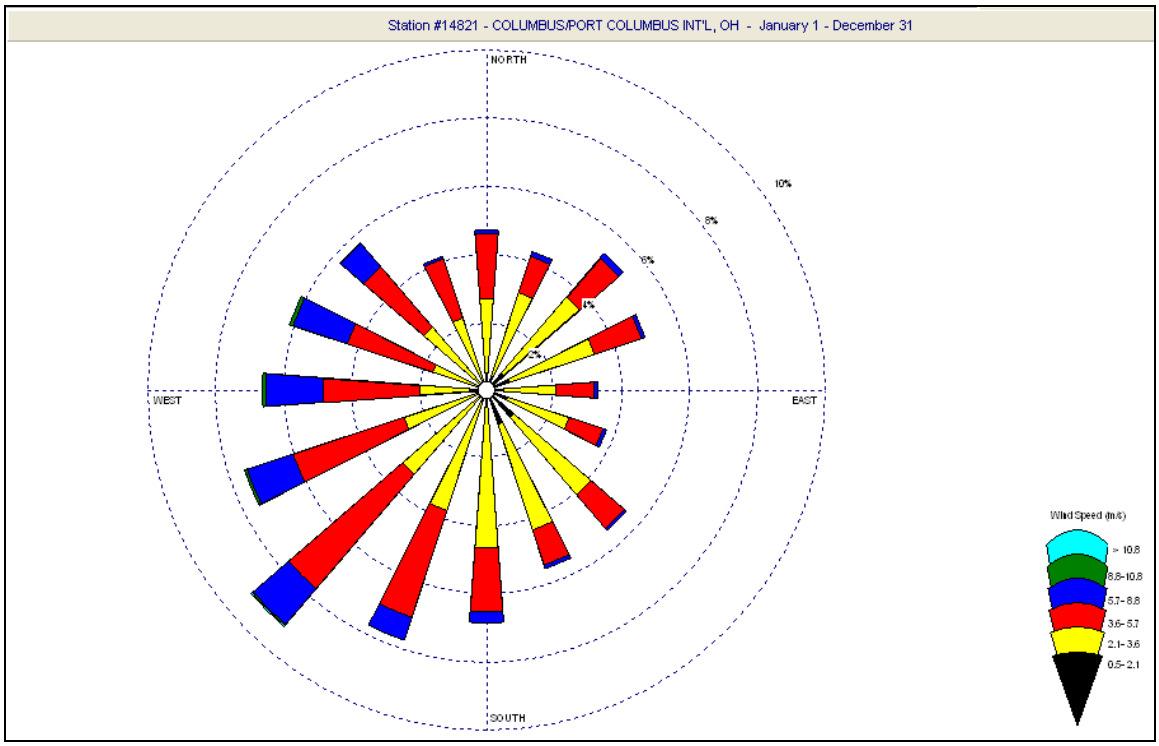
Logan County is predominantly cropland and forest with only 3% urbanization:

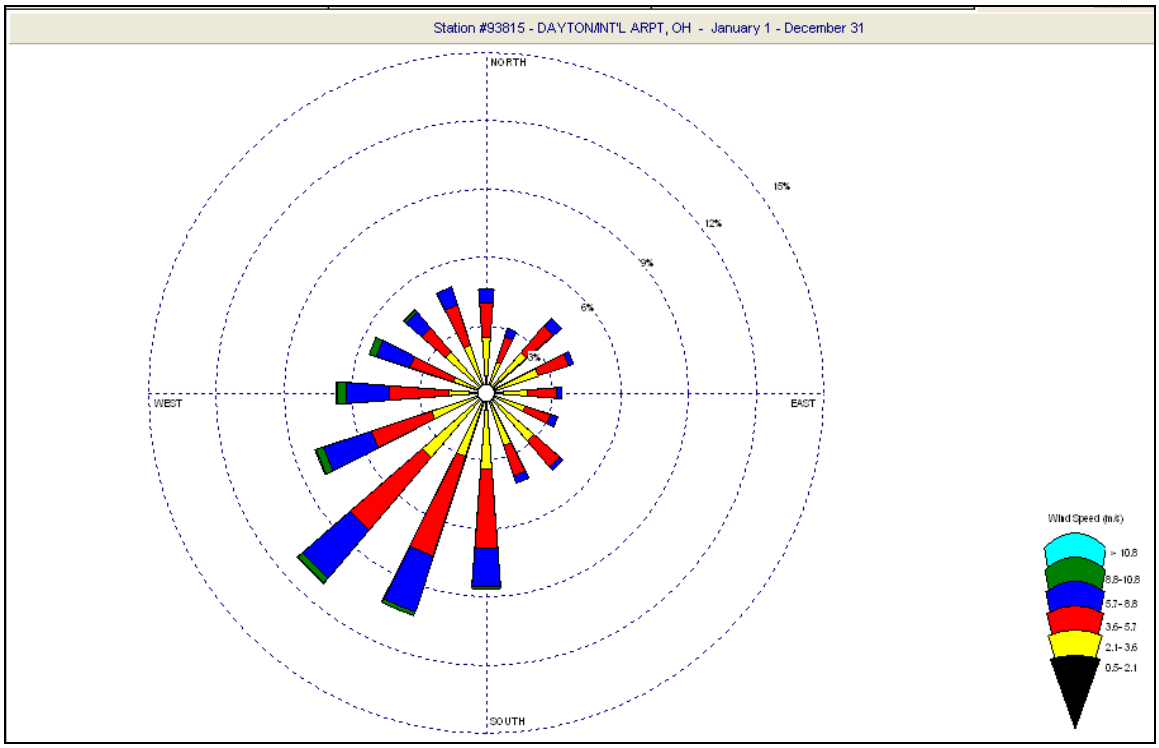


Factor 5: Meteorology

Please refer to the factor 5 general discussion at the beginning of this document for general meteorological information applicable to Fulton County.

The regional nature of mid-latitude wind distributions may best be represented by the Columbus and Dayton airport wind roses:





Factor 6: Topography/Land use/Land cover

Logan County is located in the Central Lowland Till Plains region (Appendix F). The relief varies because of glacier movements that created eight end and ground morains, creating a complex pattern. Along the west and northwest, northeast and southwest corners the ground is nearly level to gently sloping. Inward from these regions the topography varies from nearly level to very steep where the highest point in Ohio is near Bellefontaine. The elevation ranges from about 450 feet to 1,549 feet above sea level.

The Logan County area does not have any geographical or topographical barriers significantly affecting transport of lead within its air shed. Therefore, this factor provides no reason to delineate areas potentially included versus excluded from the nonattainment area.

Factor 7: Jurisdictional boundaries

The Ohio EPA Central Office and Ohio EPA Southwest District Office are responsible for air quality planning within all areas of Logan County.

Logan County belongs to the Bellefontaine micropolitan statistical area. There is no MSA, CSA or MPO for this county.

The area map identified under factors 3 and 4 above shows township and city boundaries for Logan County.

Factor 8: Level of control of emission sources

Please refer to the factor 8 general discussion at the beginning of this document for applicable control information for Logan County.

Counties with All Monitors Meeting the Lead NAAQS

Butler
Columbiana
Franklin
Washington

Butler County, OH

Recommended nonattainment boundary: none

Discussion:

Butler County contains one monitor which has shown no violations of the lead standard from the 2006 to 2008 period. No additional monitors are proposed under Ohio's expanded monitoring network. Therefore, no nonattainment designation is necessary for this county nor is an analysis of the eight factors. For informational purposes, factor 2 is identified below.

Factor 2: Air quality data

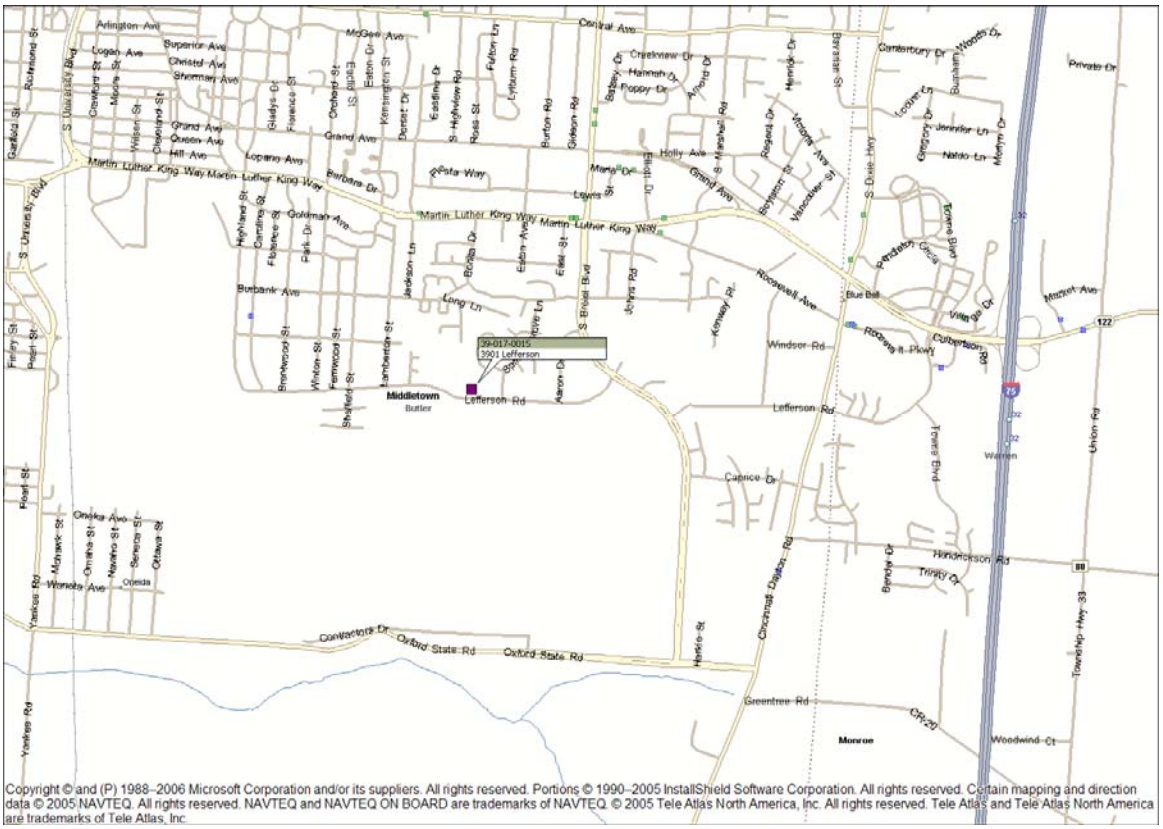
= Exceeds standard

AQS: Three-month rolling average for 2006, 2007 and 2008 (ug/m^3)

Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-017-0015 3901 Lefferson – AK Steel Facility Middletown	Nov -Jan	0.010	0.003	0.005
	Dec -Feb	0.010	0.002	0.005
	Jan -Mar	0.010	0.002	0.004
	Feb-Apr	0.005	0.004	0.005
	Mar-May	0.005	0.006	0.005
	Apr-Jun	0.007	0.006	0.007
	May-July	0.010	0.005	0.007
	Jun-Aug	0.009	0.006	0.008
	July-Sept	0.006	0.006	0.006
	Aug-Oct	0.004	0.007	0.008
	Sept-Nov	0.004	0.007	0.009
	Oct-Dec	0.004	0.007	0.009

Sites with one or months of a composite analysis missing in any three-month period.

Butler County Lead Monitor Locations and Site ID Numbers



Columbiana County, OH

Recommended nonattainment boundary: none

Discussion:

Columbiana County contains three monitors which have shown no violations of the lead standard from the 2006 to 2008 period. No additional monitors are proposed under Ohio's expanded monitoring network. Therefore, no nonattainment designation is necessary for this county nor is an analysis of the eight factors. For informational purposes, factor 2 is identified below.

Factor 2: Air quality data

= Exceeds standard

AQS: Three-month rolling average for 2006, 2007 and 2008 (ug/m^3)

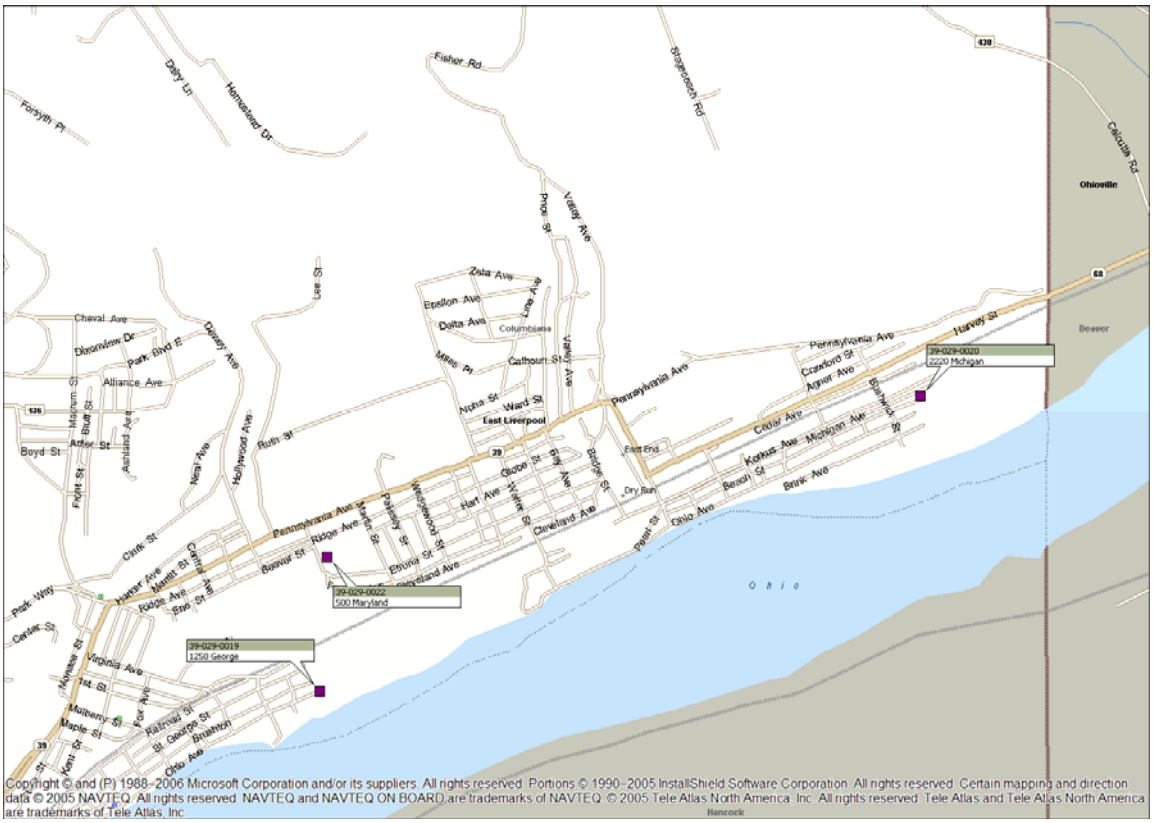
Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-029-0019	Nov -Jan	0.021	0.020	0.014
1250 George – Von Roll Facility East Liverpool	Dec -Feb	0.022	0.005	0.013
	Jan -Mar	0.022	0.013	0.010
	Feb-Apr	0.024	0.014	0.023
	Mar-May	0.023	0.026	0.030
	Apr-Jun	0.026	0.019	0.029
	May-July	0.013	0.021	0.018
	Jun-Aug	0.014	0.020	0.012
	July-Sept	0.011	0.025	0.018
	Aug-Oct	0.009	0.025	0.015
	Sept-Nov	0.020	0.018	0.015
	Oct-Dec	0.022	0.015	0.009

Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-029-0020	Nov -Jan	0.029	0.024	0.014
2220 Michigan – SH Bell (State Line) Facility East Liverpool	Dec -Feb	0.029	0.007	0.016
	Jan -Mar	0.038	0.013	0.013
	Feb-Apr	0.024	0.016	0.018
	Mar-May	0.024	0.023	0.019
	Apr-Jun	0.015	0.015	0.019
	May-July	0.010	0.017	0.012
	Jun-Aug	0.009	0.015	0.008
	July-Sept	0.009	0.022	0.010
	Aug-Oct	0.010	0.024	0.010
	Sept-Nov	0.024	0.022	0.010
	Oct-Dec	0.027	0.017	0.008

Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-029-0022	Nov -Jan	0.018	0.010	0.014
500 Maryland – Von Roll/ SH Bell (Little England) Facilities East Liverpool	Dec -Feb	0.020	0.009	0.015
	Jan -Mar	0.034	0.020	0.012
	Feb-Apr	0.022	0.019	0.018
	Mar-May	0.021	0.027	0.025
	Apr-Jun	0.010	0.016	0.025
	May-July	0.011	0.022	0.018
	Jun-Aug	0.011	0.019	0.009
	July-Sept	0.008	0.022	0.013
	Aug-Oct	0.007	0.019	0.011
	Sept-Nov	0.006	0.014	0.013
	Oct-Dec	0.010	0.014	0.010

Sites with one or months of a composite analysis missing in any three-month period.

Columbiana County Lead Monitor Locations and Site ID Numbers



Franklin County, OH

Recommended nonattainment boundary: none

Discussion:

Franklin County contains one monitor which has shown no violations of the lead standard from the 2006 to 2008 period. An additional monitor will likely be proposed in the future as part of the monitoring network for urban areas with populations greater than 500,000 persons. The current monitor is already located within the only urban area in Franklin County that meets this criterion, Columbus. County-wide emissions are low in Franklin County with no sources emitting greater than 0.5 TPY.

2005 County-Wide Emissions (TPY):

TRI	0.51
NEI	0.39

Therefore, Ohio EPA believes no nonattainment designation or unclassifiable recommendation is necessary for this county nor is an analysis of the eight factors. For informational purposes, factor 2 is identified below.

Factor 2: Air quality data

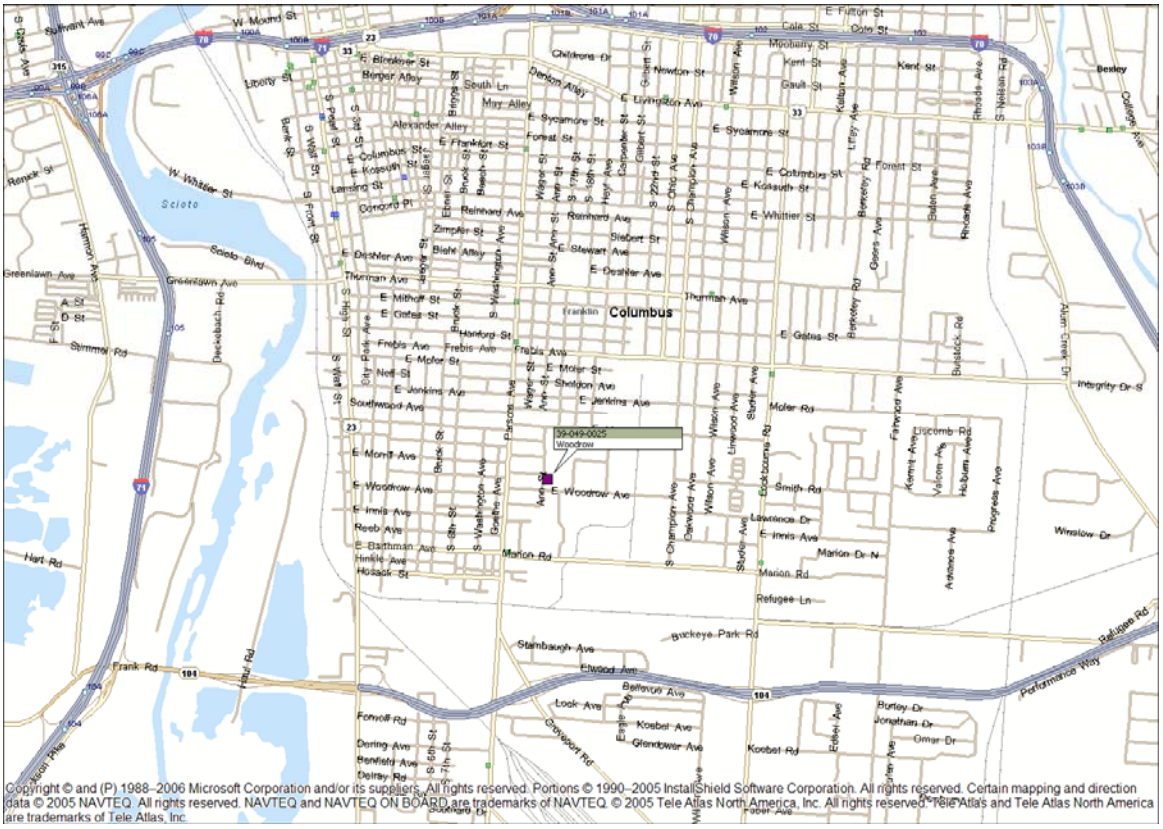
= Exceeds standard

AQS: Three-month rolling average for 2006, 2007 and 2008 (ug/m^3)

Site Location City	**3-month period**	**Three-month rolling average (ug/m^3)**		
		2006	**2007**	**2008**
39-049-0025 Woodrow Columbus	Nov -Jan	0.004	0.007	0.007
	Dec -Feb	0.005	0.007	0.005
	Jan -Mar	0.005	0.007	0.005
	Feb-Apr	0.009	0.006	0.008
	Mar-May	0.007	0.008	0.009
	Apr-Jun	0.009	0.008	0.011
	May-July	0.009	0.009	0.011
	Jun-Aug	0.010	0.010	0.011
	July-Sept	0.010	0.011	0.012
	Aug-Oct	0.009	0.010	0.011
	Sept-Nov	0.008	0.009	0.010
	Oct-Dec	0.007	0.008	0.008

Sites with one or months of a composite analysis missing in any three-month period.

Franklin County Lead Monitor Locations and Site ID Numbers



Washington County, OH

Recommended nonattainment boundary: none

Discussion:

Washington County contains one monitor which has shown no violations of the lead standard from the 2006 to 2008 period. No additional monitors are proposed under Ohio's expanded monitoring network. Therefore, no nonattainment designation is necessary for this county nor is an analysis of the eight factors. For informational purposes, factor 2 is identified below.

Factor 2: Air quality data

= Exceeds standard

AQS: Three-month rolling average for 2006, 2007 and 2008 (ug/m^3)

Site Location City	3-month period	Three-month rolling average (ug/m^3)		
		2006	2007	2008
39-167-0008 – Eramet Facility Marietta	Nov -Jan	0.005	0.004	0.004
	Dec -Feb	0.007	0.006	0.004
	Jan -Mar	0.007	0.006	0.004
	Feb-Apr	0.008	0.005	0.004
	Mar-May	0.004	0.004	0.004
	Apr-Jun	0.003	0.003	0.004
	May-July	0.005	0.004	0.004
	Jun-Aug	0.004	0.004	0.004
	July-Sept	0.004	0.004	0.004
	Aug-Oct	0.002	0.005	0.004
	Sept-Nov	0.002	0.005	0.004
	Oct-Dec	0.003	0.004	0.004

Sites with one or months of a composite analysis missing in any three-month period.

Washington County Lead Monitor Locations and Site ID Numbers

Counties Currently without Monitors, but with Future Monitors to be Installed for the Lead NAAQS

The following Counties will have monitors installed in the near future as part of the expanded lead monitoring network. Because monitoring data is currently not sufficient to accurately characterize these areas as either not attaining or attaining, Ohio EPA is recommending such areas be identified as unclassifiable. For informational purposes, factor 1 is identified below for each area.

Marion
Stark
Trumbull
Hamilton
Lucas
Mahoning
Montgomery
Summit

Marion County, OH

A facility-based monitor will be installed near the Nucor Marion Steel facility.

Factor 1: Emissions

2005 County-Wide Emissions (TPY):

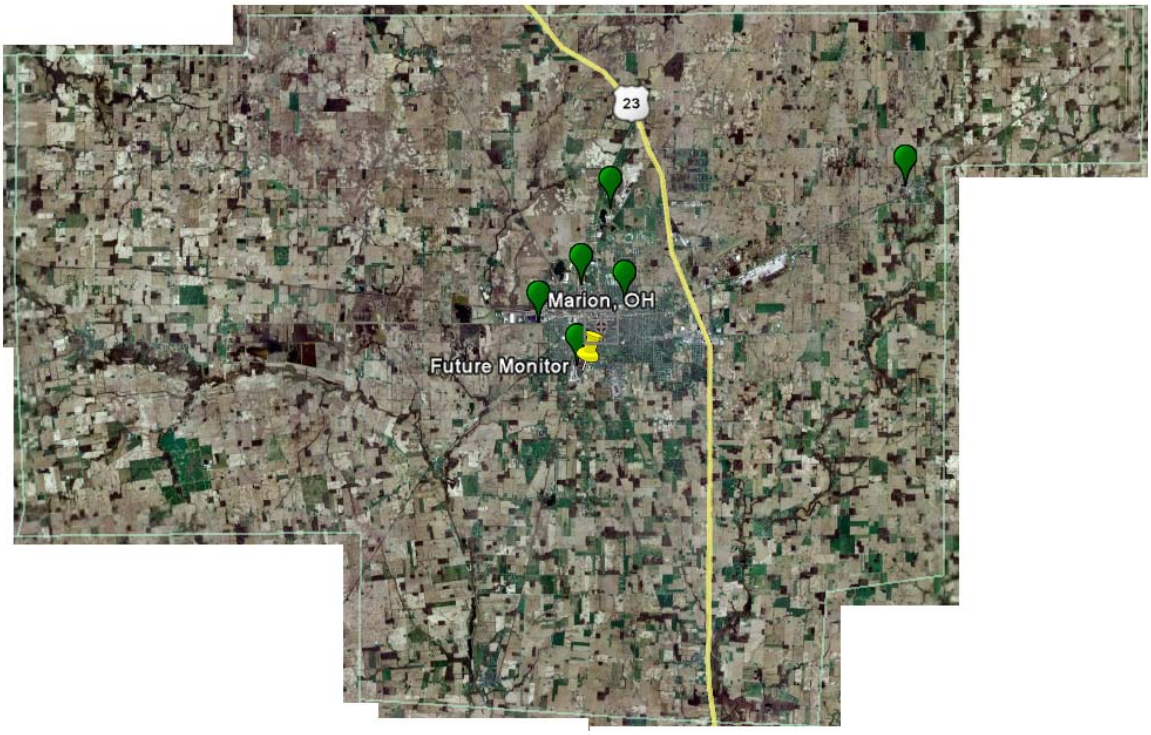
TRI	0.16
NEI	0.16

2005 Sources of Lead Emissions (≥0.5 TPY)

Source Name	NEISIC Code Description	NEI	TRI	Street Address	City
None					

Map of 2005 Sources of Lead Emissions

The following map identifies all sources of lead emissions (TRI or NEI) in Marion County during 2005. Sources with emissions ≥ 0.5 TPY are identified by facility name and the symbol "📍" if ≥ 1.0 TPY or "📍" if ≥ 0.50 TPY and <1.0 TPY, while all other sources < 0.5 TPY are identified by the symbol "📍". A yellow pin symbol indicates the location of future monitors. Appendix A contains a complete list of all sources, with emissions, for Marion County.



Stark County, OH

A facility-based monitor will be installed near the Timken facility.

Factor 1: Emissions

2005 County-Wide Emissions (TPY):

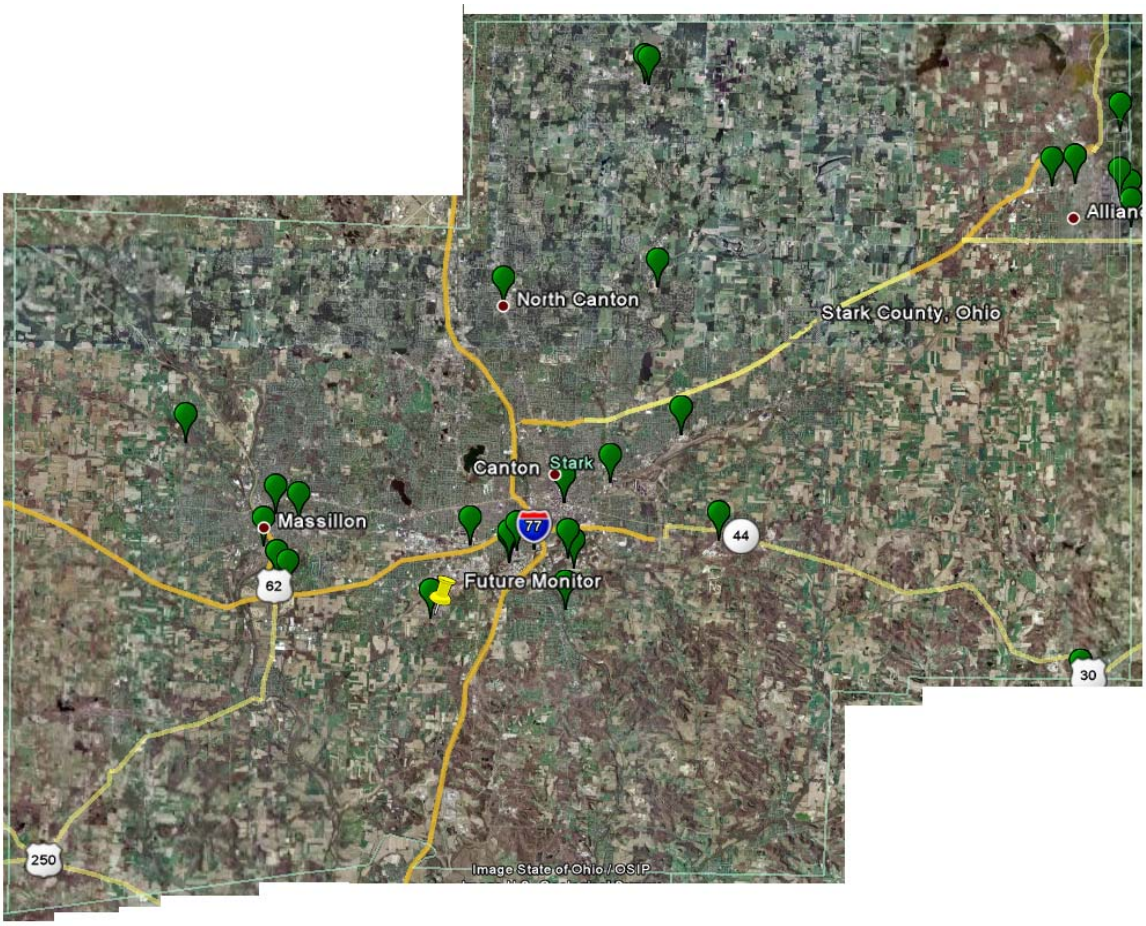
TRI	0.46
NEI	1.24

2005 Sources of Lead Emissions (≥0.5 TPY)

Source Name	NEISIC Code Description	NEI	TRI	Street Address	City
THE TIMKEN COMPANY - BEARING PLANTS	Ball and Roller Bearings	0.00	1.05	1835 DUEBER AVENUE, S.W.	CANTON

Map of 2005 Sources of Lead Emissions

The following map identifies all sources of lead emissions (TRI or NEI) in Stark County during 2005. Sources with emissions ≥ 0.5 TPY are identified by facility name and the symbol "" if ≥ 1.0 TPY or "" if ≥ 0.50 TPY and <1.0 TPY, while all other sources < 0.5 TPY are identified by the symbol "". A yellow pin symbol indicates the location of future monitors. Appendix A contains a complete list of all sources, with emissions, for Trumbull County.


North Canton
Stark County, Ohio
Canton
Stark
Massillon
77
44
62
Future Monitor
30
250
Image State of Ohio / OSIP

Trumbull County, OH

A facility-based monitor will be installed near the Ellwood Engineering Castings facility.

Factor 1: Emissions

2005 County-Wide Emissions (TPY):

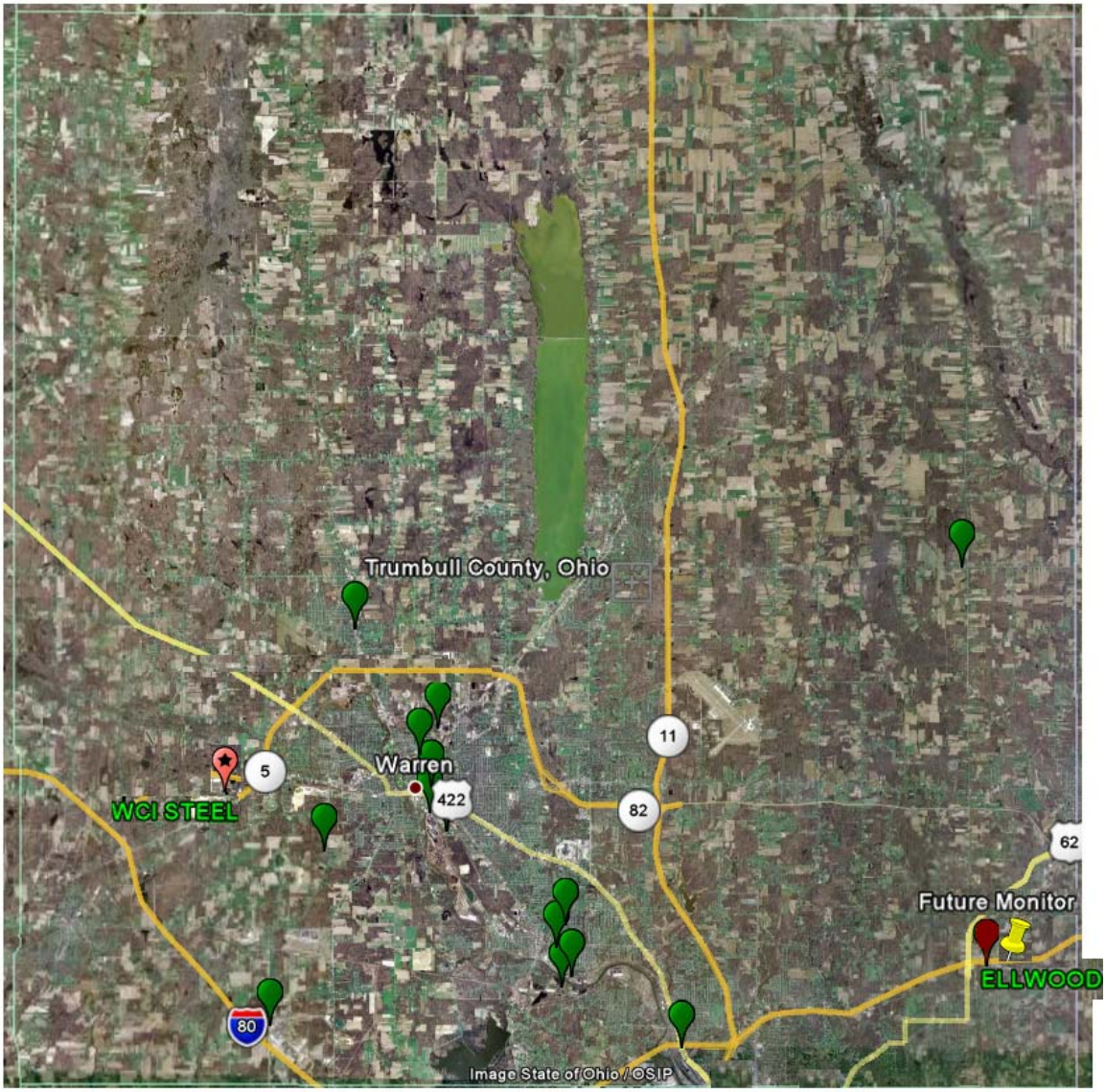
TRI	2.65
NEI	0.27

2005 Sources of Lead Emissions (≥0.5 TPY)

Source Name	NEISIC Code Description	NEI	TRI	Street Address	City
ELLWOOD ENGINEERED CASTINGS	Gray and Ductile Iron Foundries	0.00	1.74	7158 HUBBARD MASURY ROAD	HUBBARD
WCI STEEL, INC.	Steel Works, Blast Furnaces (Including Coke Ovens), and Rolling Mills	0.00	0.54	1040 PINE AVE SE	WARREN

Map of 2005 Sources of Lead Emissions

The following map identifies all sources of lead emissions (TRI or NEI) in Trumbull County during 2005. Sources with emissions ≥ 0.5 TPY are identified by facility name and the symbol "📍" if ≥ 1.0 TPY or "📍" if ≥ 0.50 TPY and <1.0 TPY, while all other sources < 0.5 TPY are identified by the symbol "📍". A yellow pin symbol indicates the location of future monitors. Appendix A contains a complete list of all sources, with emissions, for Trumbull County.


Trumbull County, Ohio
Warren
WCI STEEL
5
422
11
82
62
Future Monitor
ELLWOOD
80
Image State of Ohio / OSIP

Hamilton County, OH

A core-based statistical area (CBSA) monitor is planned for installation in January 2011 in the Cincinnati-Middletown area.

Factor 1: Emissions

2005 County-Wide Emissions (TPY):

TRI	0.41
NEI	0.37

2005 Sources of Lead Emissions (≥0.5 TPY)

Source Name	NEISIC Code Description	NEI	TRI	Street Address	City
None					

Map of 2005 Sources of Lead Emissions

The following map identifies all sources of lead emissions (TRI or NEI) in Hamilton County during 2005. Sources with emissions ≥ 0.5 TPY are identified by facility name and the symbol "📍" if ≥ 1.0 TPY or "📍" if ≥ 0.50 TPY and <1.0 TPY, while all other sources < 0.5 TPY are identified by the symbol "📍". Appendix A contains a complete list of all sources, with emissions, for Hamilton County.

Lucas County, OH

A CBSA monitor is planned for installation in January 2011 in the Toledo area.

Factor 1: Emissions

2005 County-Wide Emissions (TPY):

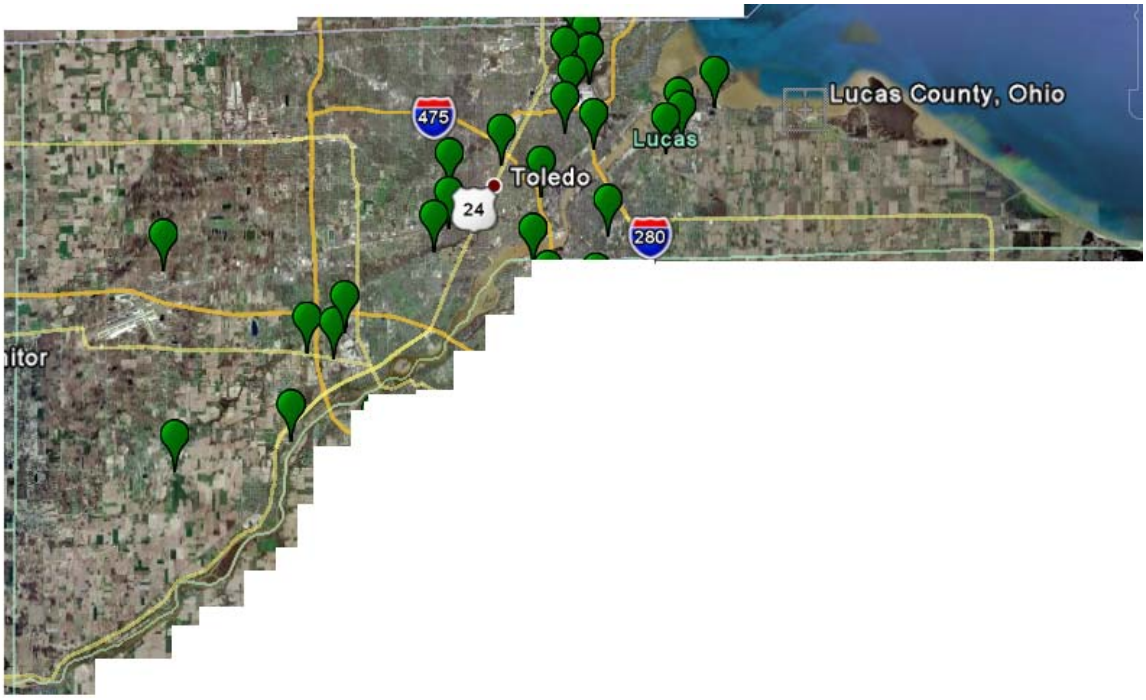
TRI	0.47
NEI	0.59

2005 Sources of Lead Emissions (≥0.5 TPY)

Source Name	NEISIC Code Description	NEI	TRI	Street Address	City
None					

Map of 2005 Sources of Lead Emissions

The following map identifies all sources of lead emissions (TRI or NEI) in Lucas County during 2005. Sources with emissions ≥ 0.5 TPY are identified by facility name and the symbol "📍" if ≥ 1.0 TPY or "📍" if ≥ 0.50 TPY and <1.0 TPY, while all other sources < 0.5 TPY are identified by the symbol "📍". Appendix A contains a complete list of all sources, with emissions, for Lucas County.



Mahoning County, OH

A CBSA monitor is planned for installation in January 2011 in the Youngstown-Warren-Boardman area.

Factor 1: Emissions

2005 County-Wide Emissions (TPY):

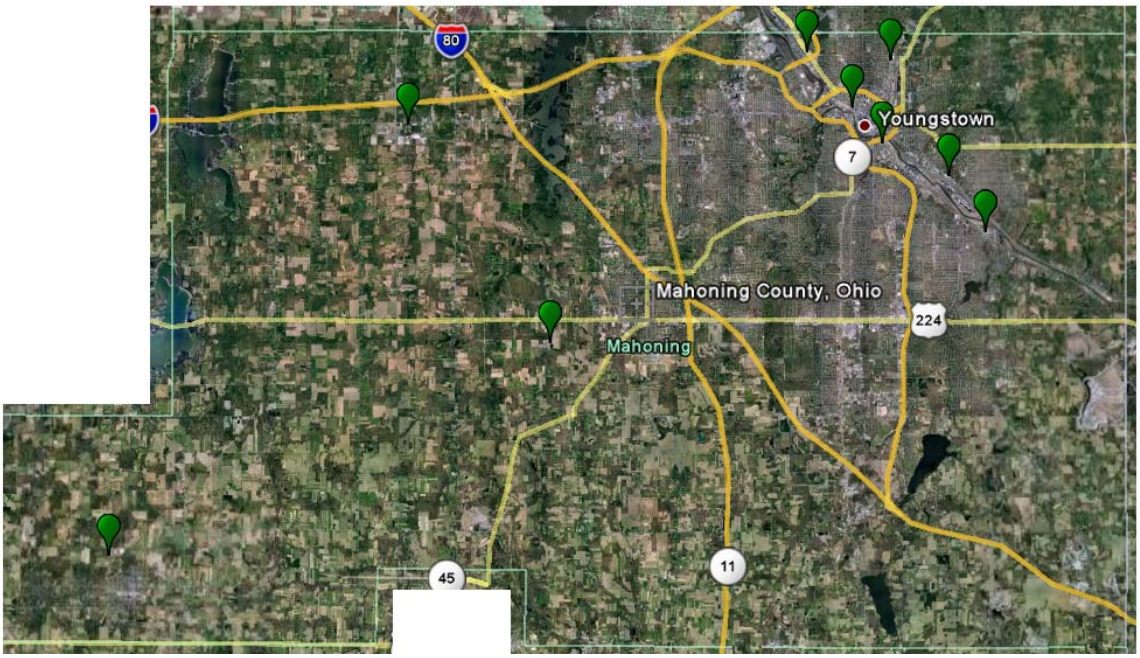
TRI	0.13
NEI	0.07

2005 Sources of Lead Emissions (≥0.5 TPY)

Source Name	NEISIC Code Description	NEI	TRI	Street Address	City
None					

Map of 2005 Sources of Lead Emissions

The following map identifies all sources of lead emissions (TRI or NEI) in Mahoning County during 2005. Sources with emissions ≥ 0.5 TPY are identified by facility name and the symbol "📍" if ≥ 1.0 TPY or "📍" if ≥ 0.50 TPY and <1.0 TPY, while all other sources < 0.5 TPY are identified by the symbol "📍". Appendix A contains a complete list of all sources, with emissions, for Mahoning County.



Montgomery County, OH

A CBSA monitor is planned for installation in January 2011 in the Dayton area.

Factor 1: Emissions

2005 County-Wide Emissions (TPY):

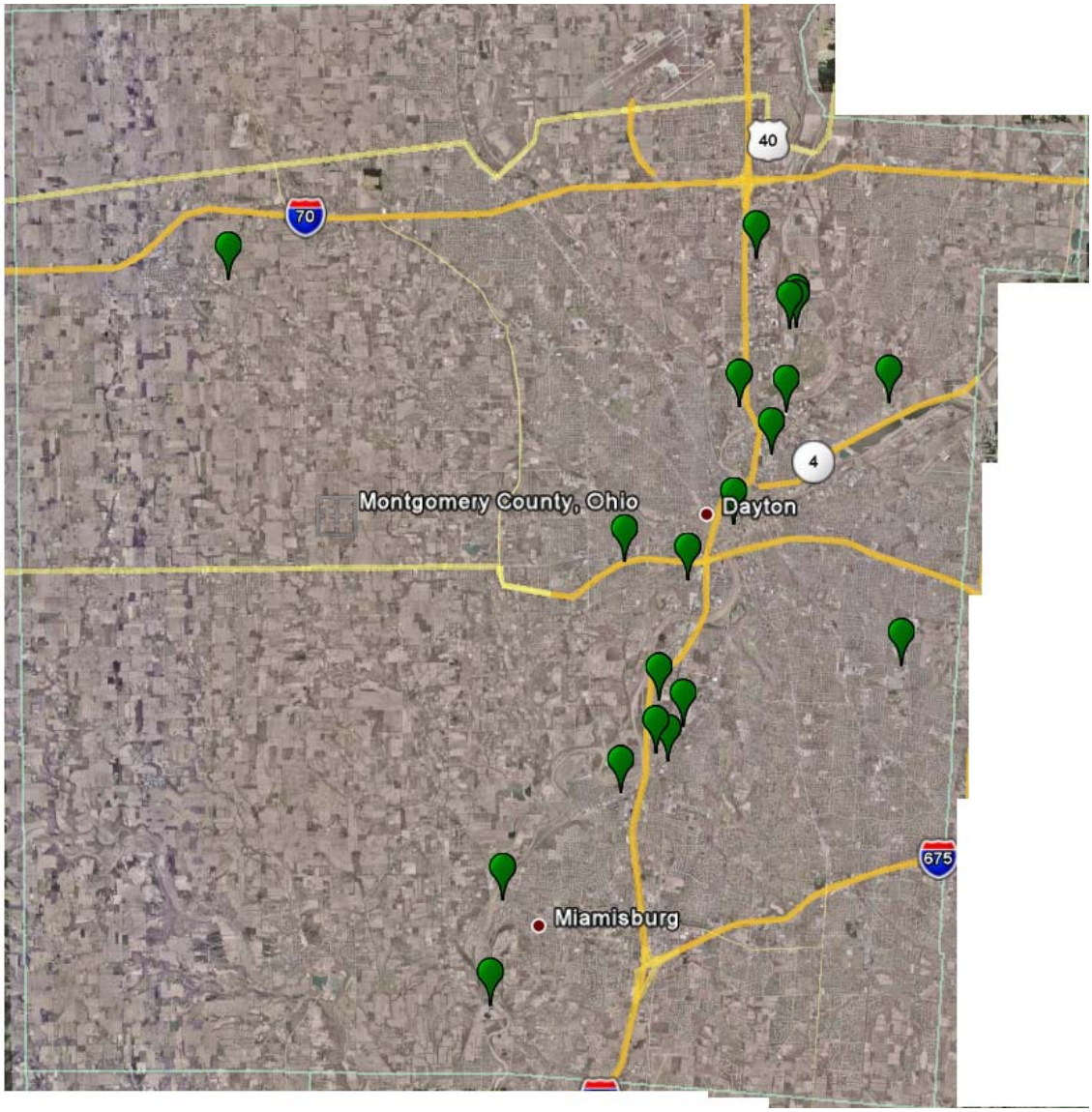
TRI	0.52
NEI	0.15

2005 Sources of Lead Emissions (≥0.5 TPY)

Source Name	NEISIC Code Description	NEI	TRI	Street Address	City
None					

Map of 2005 Sources of Lead Emissions

The following map identifies all sources of lead emissions (TRI or NEI) in Montgomery County during 2005. Sources with emissions ≥ 0.5 TPY are identified by facility name and the symbol "" if ≥ 1.0 TPY or "" if ≥ 0.50 TPY and <1.0 TPY, while all other sources < 0.5 TPY are identified by the symbol "". Appendix A contains a complete list of all sources, with emissions, for Montgomery County.


40
70
4
Montgomery County, Ohio
Dayton
675
Miamisburg

A CBSA monitor is planned for installation in January 2011 in the Akron area.

Factor 1: Emissions

2005 County-Wide Emissions (TPY):

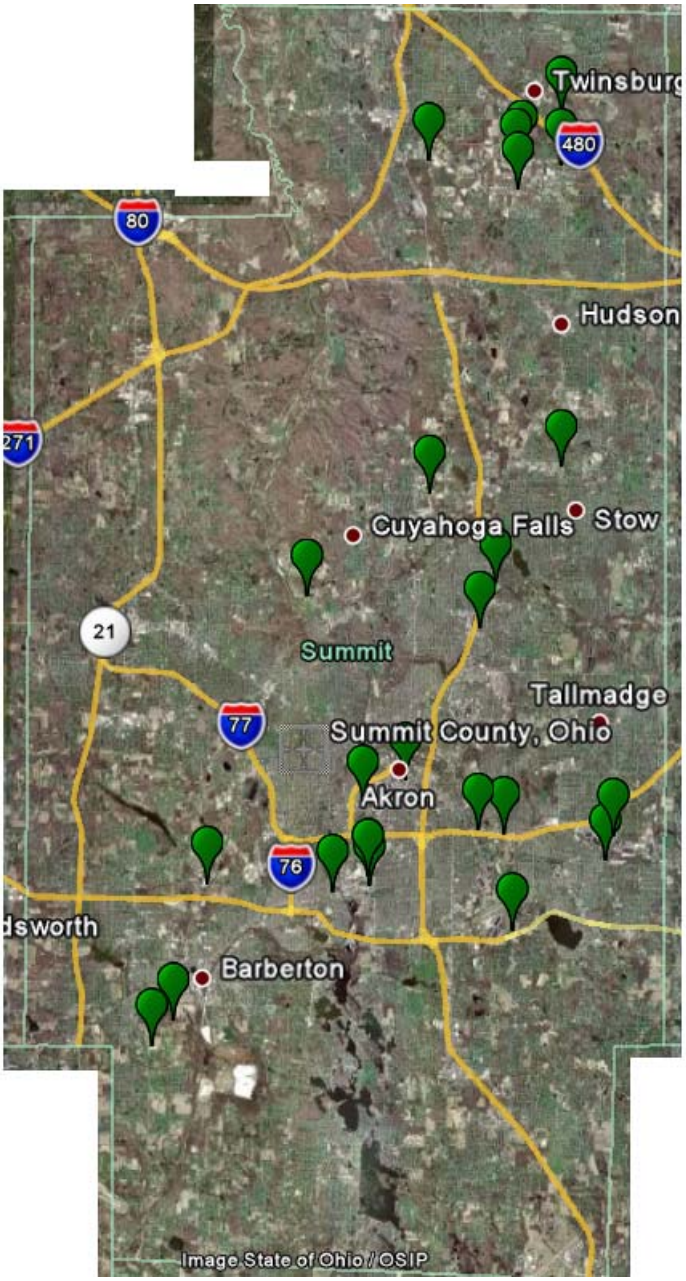
TRI	0.83
NEI	0.53

2005 Sources of Lead Emissions (≥0.5 TPY)

Source Name	NEISIC Code Description	NEI	TRI	Street Address	City
None					

Map of 2005 Sources of Lead Emissions

The following map identifies all sources of lead emissions (TRI or NEI) in Summit County during 2005. Sources with emissions ≥ 0.5 TPY are identified by facility name and the symbol " " if ≥ 1.0 TPY or " " if ≥ 0.50 TPY and <1.0 TPY, while all other sources < 0.5 TPY are identified by the symbol " ". Appendix A contains a complete list of all sources, with emissions, for Summit County.


Twinsburg
480
80
Hudson
271
Cuyahoga Falls
Stow
21
Summit
Tallmadge
77
Summit County, Ohio
Akron
76
dsworth
Barberton
Image State of Ohio / OSIP

APPENDIX A
Detailed lead emissions inventories

APPENDIX B
Stationary source categories that have the largest emissions in the 2002 NEI

APPENDIX C
Air Quality System (AQS) data sheets

APPENDIX D
SLAMS 2008 lead certification

APPENDIX E
Population and urbanization maps

APPENDIX F
Geography and topography maps

APPENDIX G
Jurisdiction boundary maps

APPENDIX H
Spatial interpolation analysis for Cuyahoga County

APPENDIX I
Dispersion modeling and historic monitoring data analysis for Fulton County

APPENDIX J
Dispersion modeling and historic monitoring data analysis for Logan County

APPENDIX K
Public notice, public hearing, and response to comments documentation

(*note: no response to comments document is included because no testimony was given, or comments received)