

**Technical Support Document
for
Recommended Nonattainment Boundaries in Illinois
for the
Lead National Ambient Air Quality Standard**

AQPSTR 09-12

October 15, 2009

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Introduction

On October 15, 2008, the U.S. Environmental Protection Agency (U.S. EPA) revised the lead National Ambient Air Quality Standard (NAAQS) in response to numerous studies which link the health effects associated with lead exposure to adverse effects on IQ, learning and behavior in children. Studies show that these adverse health effects on the nervous system can persist into adulthood. The primary lead standard was strengthened from 1.5 ug/m³, set in 1978, to a level of 0.15 ug/m (73 FR66964; November 12, 2008). Like the 1978 standard, the revised 2008 standard will be measured as the concentration of lead in Total Suspended Particulates (TSP). As part of the revised lead NAAQS, U.S. EPA also modified how attainment is determined. U.S. EPA revised the averaging time to a “rolling 3-month average period with a maximum (not to be exceeded) form, evaluated over a three-year period” (73 FR66964; November 12, 2008). In addition, U.S. EPA strengthened the secondary lead standard to provide increased protection against adverse public welfare effects associated with impacts on organisms and ecosystems. This standard is identical to the primary standard (0.15 ug/m³). In conjunction with strengthening the lead NAAQS, U.S. EPA is improving the existing lead monitoring network by requiring additional monitors (source oriented) to be placed in areas with sources that emit more than 1 ton per year (tpy) of lead and monitors (non-source oriented) in urban areas with populations greater than 500,000 people. In Illinois, these additional monitoring sites will be operational by January 1, 2010.

Section 107(d) of the Clean Air Act (CAA) governs the process for area designations. Following the promulgation of a new or revised air quality standard, the Clean Air Act (CAA) requires the Governor to recommend initial designations of the attainment status for all areas of the State. Areas can be classified as *nonattainment* (does not meet, or contributes to a nearby area that does not meet the NAAQS), *attainment* (meets the NAAQS), or *unclassifiable* (cannot be classified based on available data). Illinois is, therefore, required to provide recommendations for attainment/nonattainment area boundaries for the revised lead standard. The U.S. EPA will act on the State’s recommendations by either affirming and promulgating the recommended designation boundaries, or by promulgating new designations.

This report provides the basis for recommendations by the Illinois Environmental Protection Agency (IEPA) for attainment/nonattainment designation boundaries for all areas in the State of Illinois for the 2008 revised lead standard. Based on the most recent three years of ambient monitoring data (2006-2008), only one monitor in Illinois, located in Madison County, is currently violating the 2008 revised lead NAAQS. Based on an analysis of the factors contained in federal guidance, the IEPA is recommending that only a portion of Madison County, the City of Granite City, be designated as nonattainment for the 2008 revised lead standard. The IEPA considers the lead air quality problem to be due to local industrial emission sources. The recommended boundaries reflect U.S. EPA guidance. The remaining areas of Illinois should be classified as attainment for the lead standard.

Federal Guidance

IEPA relied on guidance identified in a memorandum issued by U.S. EPA on August 21, 2009 which referenced pages in the preamble of the lead NAAQS final rule regarding subjects for developing this recommendation, and for establishing the geographic boundaries of nonattainment areas (NAA) for the 2008 revised lead standard. This memorandum is attached in Appendix A. In this guidance, U.S. EPA recommended that states designate areas with air quality data showing violations of the lead NAAQS, and nearby areas that cause or contribute to NAAQS violations, be designated nonattainment. Due to the non-pervasive nature of lead, U.S. EPA also recommends that the county perimeter associated with the violating monitor(s) serve as the starting point or “presumptive” boundary of the 2008 lead nonattainment area. Due to the fact that the 2008 revised primary and secondary lead NAAQS are identical, “U.S. EPA expects that each area will have the same designation and boundary for both standards”, (Appendix A). U.S. EPA provides states with the ability to depart from presumptive boundaries based on area-specific analyses. States may request nonattainment area boundaries that are smaller than the existing violating county boundaries where counties, or portions of counties are rural and do not contribute to nonattainment based on an examination of eight factors. States may also request nonattainment area boundaries that are larger than the current county to include adjacent counties when those counties contain emission sources, population, growth, and other factors that may

contribute to the nonattainment problem. The monitor exceeding the 2008 lead standard in Illinois and the affected county are shown in Figure 1. Madison County is the only county in Illinois where a violation of the revised lead NAAQS is occurring, so Madison County is the only county represented as part of this analysis. The IEPA's analysis of each of the eight factors for Madison County is provided in the following sections of this report.

Madison County Eight Factor Analysis

U.S. EPA recommends that States and Tribes consider the following eight factors in assessing whether to depart from presumptive boundaries in the designated nonattainment area boundary:

1. Air Quality (in potentially included versus excluded areas)
2. Emissions (in areas potentially included versus excluded from NAA)
3. Population Density and Degree of Urbanization
4. Expected Growth (extent, pattern and rate)
5. Meteorology
6. Geography/Topography
7. Jurisdictional Boundaries
8. Level of Control of Emission Sources

Air Quality

U.S. EPA changed the calculation method for the averaging time to use a "rolling" three-month period with a maximum (not-to-be-exceeded) form, evaluated over a three-year period. This replaced the previous NAAQS interpretation which used a calendar quarter average not to be exceeded in a calendar year. A rolling three month average considers each of the 12 three-month periods associated with a given year, not just the four calendar quarters within that year.

Lead design values, calculated as a rolling 3-month average over a 3 year period (2006- 2008), were derived from lead measurements collected from IEPA's ambient air monitoring network. These values were collected for 13 monitors statewide and their design values are summarized in Table 1 and Figure 1. As shown in Table 1 and Figure 1, IEPA's monitoring data indicates that

between 2006 and 2008, violations of the lead standard have only occurred in Madison County, Illinois. Based on monitoring, the rest of Illinois currently meets the revised lead standard. There are two monitors within Madison County which measure lead. These monitors are located in Granite City and Wood River. Only one of these monitoring stations exceeds the NAAQS, however. The monitor located at 15th and Madison streets in Granite City exceeds the revised lead NAAQS. The monitor located in Wood River, in the northwestern portion of Madison County, is measuring well below the standard at 0.04 ug/m³. Lead air quality data collected in Madison County, therefore, indicates that it is appropriate to designate at least the southwest portion of Madison County as nonattainment areas for the revised lead standard.

Table 1
2006-2008
Lead Design Values in Illinois (ug/m³)

County	Site	Address	Maximum 3-Month Rolling Averages			Design Value
			2006	2007	2008	
Cook	Alsip	4500 W. 123 rd Street	0.01	0.02	0.02	0.02
Cook	Chicago - Cermak	735 W. Harrison	0.06	0.04	0.05	0.06
Cook	Chicago - Mayfair	4850 Wilson Avenue	0.03	0.02	0.02	0.03
Cook	Chicago - Washington	3535 E. 114 th Street	0.04	0.05	0.05	0.05
Cook	Maywood	1500 Maybrook Drive	0.03	0.03	0.03	0.03
Cook	Northbrook	750 Dundee Road	0.01	0.01	0.01	0.01
Cook	Schiller Park	4743 N. Mannheim Road	0.01	0.02	0.01	0.02
Cook	Summit	60 th St. and 74 th Ave.	0.02	0.02	0.02	0.02
Macoupin	Nilwood	Heaton and Dubois	0.01	0.01	0.01	0.01
Madison	Granite City	15 th and Madison	0.18	0.20	0.28	0.28
Madison	Wood River	54 N. Walcott	0.02	0.03	0.04	0.04
Peoria	Peoria	613 NE Jefferson	0.01	0.01	0.01	0.01
St. Clair	East St. Louis	13 th and Tudor	0.04	0.05	0.04	0.05

In conjunction with strengthening the lead NAAQS, the U.S. EPA requires states to expand the existing lead monitoring networks by requiring monitors to be placed in areas with large industrial sources (facilities) that emit lead and in urban areas with populations of more than 500,000 people. The industrial-oriented monitors are to be in place by January 1, 2010 and are to be designed to measure the maximum concentration in areas near sources with lead emissions of

one ton or more per year. The population-oriented monitors are to be in place by January 1, 2011 and designed to gather information on the general population's exposure to lead in air and ensure protection against sources of airborne dust containing lead. U.S. EPA recommends that remaining portions of Illinois should be designated unclassifiable/attainment for the 2008 revised lead standard, until the additional source-oriented monitors have been evaluated.

Consistent with the November 12, 2008 monitoring revisions, IEPA and U.S. EPA reviewed the National Emissions Inventory and determined that six lead sources exceeded the one ton per year emissions criteria. IEPA proposes to conduct ambient lead monitoring at all of these facilities as required by the U.S. EPA rule. This will require new monitoring sites at five locations, and the continuation of the existing site in Granite City. Additionally, source-oriented monitoring at industrial locations in Mapleton and Chicago –Kramer have been proposed. The existing lead monitoring network contains numerous lead monitors in high density population areas within those urban areas that exceed 500,000 persons, so the IEPA has not proposed additional population-oriented monitors.

Emissions

Lead is a metal found naturally in the environment as well as in manufactured products and can be emitted into the air in the form of particles small enough to stay suspended in the air, known as total suspended particulates. Lead emitted to the air can be inhaled directly or ingested after it settles onto surfaces or soil. U.S. EPA recommends that proposed nonattainment designations for the 2008 lead NAAQS reflect not only the areas of measured violations, but also the nearby areas that contribute to measured violations. The highest levels of lead in air are commonly found near lead smelters. Additional sources include: iron and steel foundries, copper smelting, metal mining, industrial, commercial and utility boilers as well as leaded aviation gasoline (AVGAS) in non-commercial small planes, waste incinerators, and cement and glass manufacturing. As shown in Figure 2, the majority of lead sources in Madison County are stationary sources which use raw materials for metal production. IEPA estimated emissions data and Toxics Release Inventory (TRI) data for stationary lead sources show lead emissions during the 2006 – 2008 time period in Madison County, and are summarized by facility in Table

2. According to this data, U.S Steel, Granite City Works is the largest source of lead in the Madison County. The U.S. Steel, Granite City Works facility located in this area exceeds the 1 tpy threshold set for source-oriented monitoring. As seen in Figure 3, the highest emitting lead sources are located in the southwestern portion of Madison County within the limits of Granite City. Emission sources within Granite City make up approximately 70% of total emissions in the county. Other lead sources which are located in close proximity to the violating monitor are Mayco Industries LLC, American Colloid Company, Amsted Rail Company and Owens Corning Roofing & Asphalt, LLC (see Figure 4).

Table 2
Stationary Lead Emissions Sources in Madison County

Name	City	2006 Estimated Emissions (tons/year)	2007 Estimated Emissions (tons/year)	2008 Estimated Emissions (tons/year)
US Steel Granite City Works	Granite City	0.92	1.33	1.54
Alton Steel Inc	Alton	0.402	0.399	0.469
Olin Corp	East Alton	0.18	0.18	0.1731
Amsted Rail Co Inc*	Granite City	0.188	0.154	0.154
Dynegy Midwest Generation Inc	East Alton	0.0119	0.0519	0.114
GBC Metals LLC DBA Olin Brass	East Alton		0.00157	0.025
ConocoPhillips Co	Roxana	0.01	0.01	0.013
Mayco Industries LLC	Granite City	0.006	0.01	0.000227
Richards Brick Co	Edwardsville	0.000393	0.00026	0.00027
Christ Bros Products LLC	South Roxana		0.000009	0.000019
Anderson Hospital	Maryville			0.000009
Owens Corning Roofing & Asphalt LLC	Granite City	0.000007	0.000008	0.000009
Magnesium Elektron North America	Madison		0.00004	0
Gateway Regional Medical Center	Granite City		0	0
St Anthonys Hospital	Alton	0	0	0
Conoco Phillips Hartford Lubricant Plant	Hartford	0	0	0
St Clares Hospital	Alton	0	0	0
Union Electric Co	Venice	0	0	0
Alton Memorial Hospital	Alton	0.000054		0
Kinder Morgan Transmix Co LLC	Hartford		0	0
American Colloid Co*	Granite City	0		0.125
Precoat Metals*	Granite City	0	0	0.0125
Total		1.71835	2.13679	2.62613

*TRI Reported Values

According to U.S. EPA, “stationary sources are expected to be the primary contributor to violations of the NAAQS” (73 FR67033; November 12, 2008); however, fugitive dust emissions from area sources containing deposited lead may also contribute to violations of the revised lead NAAQS. Illinois has one such source in close proximity to the violating monitor. The NL Industries/Taracorp Corporation Superfund site is located in Granite City just blocks from the monitor (see Figure 5). NL Industries and Taracorp operated a secondary lead smelter from the turn of the century until 1983. The site has a documented risk to public health from exposure to lead. Contamination from the site affected portions of Granite City, Madison and Venice. Lead contaminated soils and crushed battery case materials were deposited into a large slag pile (Figure 5). The cleanup of this facility, under U.S. EPA’s Superfund Program, was initiated in 1991 by the U.S. Army Corps of Engineers. The project consisted of the cleanup of residential properties as well as the consolidation and capping of a 250,000 ton slag pile within the main industrial site. The residential cleanup and capping of the Taracorp pile was completed in May of 2000. Recent site visits indicate that the U.S. EPA remedy implemented at the site is effective and may pose little impact on lead emissions.

Population Density and Urbanization

The U.S. Census Bureau estimates that 268,078 people lived in Madison County in 2008. Table 3 lists the population of Granite City and other cities within Madison County, as well as land areas, and population densities based on U.S. Census Bureau data. Figure 6 graphically depicts population densities by census block groups within Madison County. According to the U.S. Census Bureau, Granite City is the largest populated city within Madison County, followed by Alton, Collinsville, Edwardsville and the village of Godfrey. Figure 7 compares the population of the largest municipalities in Madison County.

Table 3
Population and Population Density
2008 Estimates by Municipality
(larger cities)

Municipality	Population 2008	Land Area (Square Miles)	Population Density (Persons per Sq. Mile)
Granite City	30,703	16.7	1,838.5
Alton	29,393	15.0	1,959.5
Collinsville	25,960	13.6	1,908.8
Edwardsville	24,557	14.1	1,741.6
Godfrey	17,524	36.2	484.1
Glen Carbon	12,607	7.5	1,680.9
Wood River	10,973	6.1	1,798.9

Source: U.S. Census Bureau estimate as of March 20, 2009, at <http://factfinder.census.gov/>
Source: U.S. Census Bureau's State and County Quick Facts at
<http://quickfacts.census.gov/qfd/states/17/1730926.html>

Figure 8 depicts current land cover percentages within Madison County based on data compiled by the Illinois Department of Agriculture. According to the "Land Cover of Illinois 1999-2000 On-Line Statistical Summary", Madison County has a high percentage of agricultural land (greater than 62%) indicating that Madison County is primarily rural in nature.

Expected Growth Rates and Patterns

The IEPA has evaluated both population and economic growth rates to identify expected trends of lead emissions in Madison County. Short term population growth can be an important indicator of potential emission increases in an area. Figure 9 shows change in population between 2000 and 2008 for Madison County. This data was provided by the U.S. Census Bureau and is based on estimates dated March 19, 2009. According to the data, Madison County has experienced an increase in population of 3.5%, although larger cities such as Granite City and Alton have both experienced an approximate 4% loss in total population. Municipalities located along and east of the bluff line and towards the rural/agricultural corridor in Madison County are experiencing growth due to urbanization. Collinsville and Edwardsville have experienced

increases in population of 4 and 10 percent, respectively. This change indicates that population in Madison County is moving from core industrial cities into bluff line areas beyond the American Bottoms floodplain communities and towards the City of Highland (East-West Gateway, 2004).

Population and economic trends are developed for long range planning activities by both state and local governmental agencies. The East-West Gateway Council of Governments provides information for long range population and employment projections. According to a 2004 study, Madison County population is expected to increase by 7.6% in future years (2000 – 2015).

The U.S. EPA developed a model referenced as the Economic Growth Analysis System or “EGAS”, to serve as a forecast tool for projecting emissions from industry sectors. EGAS determines growth factors for developing emission inventory projections based on economic activity datasets, both national and regional. Table 4 lists source related emissions in Madison County and their expected emission change from 2008 to 2015 in tons per year, based on EGAS output. This data shows a downward trend of -7.2% for most large metal manufacturing sources, while predicting an increase in smaller producers of lead.

Table 4
EGAS Projected Emission Change (2008 to 2015)
For Stationary Sources in Madison County

Name	City	2008 Estimated Emissions (tons/year)	Projected 2015 Emissions (tons/year)
US Steel Granite City Works	Granite City	1.54	1.429105
Alton Steel Inc	Alton	0.469	0.435227
Olin Corp	East Alton	0.1731	0.160635
Amsted Rail Co Inc*	Granite City	0.154	0.142910
Dynegy Midwest Generation Inc	East Alton	0.114	0.124835
GBC Metals LLC DBA Olin Brass	East Alton	0.025	0.023200
ConocoPhillips Co	Roxana	0.013	0.014000
Mayco Industries LLC	Granite City	0.000227	0.000211
Richards Brick Co	Edwardsville	0.00027	0.000300
Christ Bros Products LLC	South Roxana	0.000019	0.000020
Anderson Hospital	Maryville	0.000009	0.000010
Owens Corning Roofing & Asphalt LLC	Granite City	0.000009	0.000010
Magnesium Elektron North America	Madison	0	0
Gateway Regional Medical Center	Granite City	0	0
St Anthonys Hospital	Alton	0	0
Conoco Phillips Hartford Lubricant Plant	Hartford	0	0
St Clares Hospital	Alton	0	0
Union Electric Co	Venice	0	0
Alton Memorial Hospital	Alton	0	0
Kinder Morgan Transmix Co LLC	Hartford	0	0
American Colloid Co*	Granite City	0.125	0.125
Precoat Metals*	Granite City	0.0125	0
Total		2.62613	2.45546

*TRI 2008 Emission base

Meteorology

Illinois has a temperate climate, with cold winters and hot humid summers. The seasons are sharply differentiated between the northern and southern portions of the state, due to its elongated north-south orientation. Average winter temperatures are 22°F (-6°C) in the north and 37°F (3°C) in the south. Average summer temperatures are 70°F (21°C) in the north and 77°F (25°C) in the south. Illinois averages 36 inches (91 cm) of precipitation a year. Annual snowfall

of 37 inches (94 cm) is normal for northern Illinois, decreasing to 14 inches (36 cm) or less in the southern portions of the state. The predominant wind direction across the state is from the south/southwest, with an average wind speed of approximately 11 miles per hour.

For pollutant dispersion the most important meteorological parameters are wind speed and wind direction. Meteorology affecting Madison County is characterized in Figure 10. Wind rose information was provided by the Illinois State Climatologist Office, and incorporates long term wind statistics at Lambert International Airport showing wind directions for the averaging period of 1961 to 1990. Each vector on the wind rose represents the amount of time the wind blows from one of 16 compass sectors. The length of each vector represents the percentage of time that the wind is blowing from a particular direction. The various colors show the percentage of time that wind from a particular direction is in a particular range of wind speed (knots). According to this information, the predominant wind directions are south, south- southeast and west-northwest, with the highest frequency of winds blowing from the south. No complex chemistry is needed to form lead or lead compounds in the ambient air, therefore, concentrations of lead are typically highest near lead sources.

Geography/Topography

Illinois is typified by flat to gently rolling terrain, with the exception of the Driftless Area in the northwest corner of the state and the Ozark Plateau in southern portion of the state. Illinois occupies a land mass of approximately 55,584 square miles. The average elevation of the state is approximately 600 feet (183 m) above sea level. Charles Mound, located in Jo Davies County, is the highest point in the state with an elevation of 1,235 feet (376 m) above sea level. The lowest point in the state is 279 feet (85 m) above sea level along the Mississippi River in Alexander County. Total topographic relief across the state is less than 1000 feet, demonstrating the general flatness of the terrain. According to U.S. Department of Agriculture, Soil Survey Data, Madison County is characterized by topographic features ranging from upland till plains and bluffs, to the alluvial Mississippi River Valley, known as the “American Bottoms”. The American Bottoms makes up approximately 15 percent of the county. Elevation in the county

ranges from 650 feet above sea level on the bluffs, to approximately 450 feet in the southeast corner of the county, and drops as low as 400 feet in some areas (swales). Madison County does not have significant topographic features which affect lead pollution transport (see Figure 11) and therefore, topography is not considered a significant factor in defining the boundaries of the lead nonattainment areas.

Jurisdictional Boundaries

The Illinois EPA is responsible for air quality regulatory programs for every county in the state. Madison County is also located within the East-West Gateway Council of Governments study area. Jurisdictional boundaries considered in this analysis are consistent with recommended geographic boundaries, or “presumptive boundary” definitions, outlined in the lead rule and guidance documentation. Boundaries in this study reflect May 2009 municipal boundaries (see Figure 12) provided by the Madison County, Chief County Assessment Office, Maps and Plats Division. Based on the geographic location of Granite City and individual sources, it is expected that the coordination of planning activities required to address nonattainment designations, can be carried out in a cohesive manner.

Level of Control of Emission Sources

Emission control measures which have been promulgated at the federal and state level have impacted emission levels from a wide spectrum of emission sectors in the Metro-East/St. Louis area (of which Madison County is a part). These have led to significant air quality improvements. Further emission reductions through State Implementation Plan approved regulations regarding particulate emissions from stationary sources and are expected to enhance these air quality gains. Principal among existing emission reduction measures include the following:

Stationary Point Sources

- MACT Standard for integrated Iron and Steel Manufacturing
- MACT Standard for Iron and Steel Foundries
- PM NAA
 - Areas historically in NAA subject to PM emission limits developed to address standards
- NESHAPS
 - Mass Emission Rate Limits on PM
 - Opacity limits for capture systems and control devices
- NSPS
 - Mass Emission Rate Limits on PM for new sources

Mobile Sources

- U.S EPA removal of leaded gasoline
 - began in the early 1970s, with significant reductions in 1985 and 1986,
 - complete elimination of lead in motor vehicle fuel gasoline at the end of 1996.
- Locomotive Engine Standards

New emission sources are required to obtain construction permits from the IEPA. Typically, state-of-the-art emission controls are required on new emission sources before they can operate.

Recommendations

IEPA's recommendations for attainment/nonattainment designations in Illinois for the revised lead national ambient air quality standards are contained in Table 5. Current air quality data collected by the IEPA indicate that the only area in Illinois where the revised lead standard is not being met is in Granite City, Illinois. Nonattainment designations for this area are, therefore, warranted.

The CAA does not specify the geographic boundaries, size, or the extent to which source contributions would require that an area be designated as nonattainment for the 2008 revised lead standard, nor has U.S. EPA promulgated rules prescribing such. IEPA's recommendations are

consistent with the guidance memorandum provided by U.S. EPA (Appendix A), and are based on an evaluation of present air quality, the distribution of emissions, and other factors. The IEPA recognizes that each of the factors considered in this evaluation are not necessarily conclusive when evaluated individually. Rather, IEPA's recommendations are based on consideration of all of the data and projections taken together. Documentation of data sources utilized in this analysis is summarized in Table 6. The IEPA's recommendation for inclusion of the City of Granite City to represent the boundaries of the nonattainment areas are discussed in the following section and geographically depicted in Figure 12.

Madison County Recommendation

Madison County (Partial County)

Madison County is the only county where current air quality data (2006-2008) does not meet the revised lead standard. A monitor in Madison County, located in the City of Wood River, indicates that northern portions of the County currently meet the revised lead NAAQS, while the one monitor in Granite City located to the southwest portion of the county is not attaining the lead standard. Granite City has the highest level of lead emissions in Madison County. As discussed previously, approximately 70% of total county emissions originate from sources within the City of Granite City. As indicated previously, the City of Granite City has the highest population of all the municipalities in Madison County. In addition, a monitor located in St. Clair County directly to the south of Granite City is currently meeting the revised lead NAAQS, further indicating that the violation is associated with local activities in close proximity to the Granite City Monitor. For these reasons, the boundaries of the City of Granite City should be considered nonattainment for the 2008 revised lead NAAQS.

Remainder of Madison County

Areas of the Madison County, outside of the city of Granite City, are in attainment with the 2008 revised lead NAAQS and should be designated as attainment.

Remainder of Illinois

The remainder of Illinois is attaining the revised lead standard and should, therefore, be designated as attainment.

Table 5

**Recommended Attainment/Nonattainment Designations in Illinois
For the 2008 Revised Lead National Ambient Air Quality Standard**

County	Designation	Name of Area
Madison: Granite City (City)	Nonattainment	Metro-East
Remainder of Madison County	Attainment	Metro-East
All Other Counties	Attainment	Illinois

Table 6
Lead NAA Eight Factor Documentation

Factor	Data Analysis	Data Source	Date of Study
1. Air Quality	Lead 2006-2008 Design Values at individual monitors (statewide)	IEPA BOA Database, Air Monitoring Section	2006-2008
2. Emissions	Emission inventory information for Lead:	IEPA 2008 Estimated Emissions, TRI data, RAPIDS	2008; 2002
3. Population Density and Degree of Urbanization	Annual Estimates of the Population in Illinois. Total population and population density estimates*	Population Division, U.S. Census Bureau; Resident Population for Incorporated Places in Illinois, April 1, 2000 – July 1, 2008 (SUB-EST2008-04-17) Annual Estimates of Population for Counties in Illinois (CO-EST2008-01-17) ESRI Maps and Data	Release Date: July 1, 2009 March 20, 2009 2007
4. Expected Growth (Extent Rates and Patterns)	Total population change based on short and long-term population projections U.S. EPA EGAS Emission Projections (2008 to 2015)	Table 2: Cumulative Estimates of the Resident Population Change for Counties of Illinois: April 1, 2000 to July, 2008 (CO-EST2008-02-17); East-West Gateway Council of Governments Long-Range Population and Employment Projections	Release Date: March 19, 2009 June 2004 EGAS Version 5.0

5. Geography/Topography	Madison County Elevation	Google Maps Data U.S.D.A. Soil Survey of Madison County East-West Gateway Elevation Map	2008 1999 April 2005
6. Jurisdictional Boundaries	Madison County Boundary and municipal boundary information;	Madison County, Chief County Assessment Office, Maps and Plats GIS Division	May 2009 Annexed areas
7. Meteorology	Weather patterns – Wind Rose 1961 -1990	National Weather Service, Illinois State Climatologist Office	October 7, 2004
8. Level of Control of Emission Sources	Existing and expected controls	IEPA – BOA Programs	2009

*<http://www.census.gov>

APPENDIX A

Figure 1

2006-2008 Lead Monitored Design Values

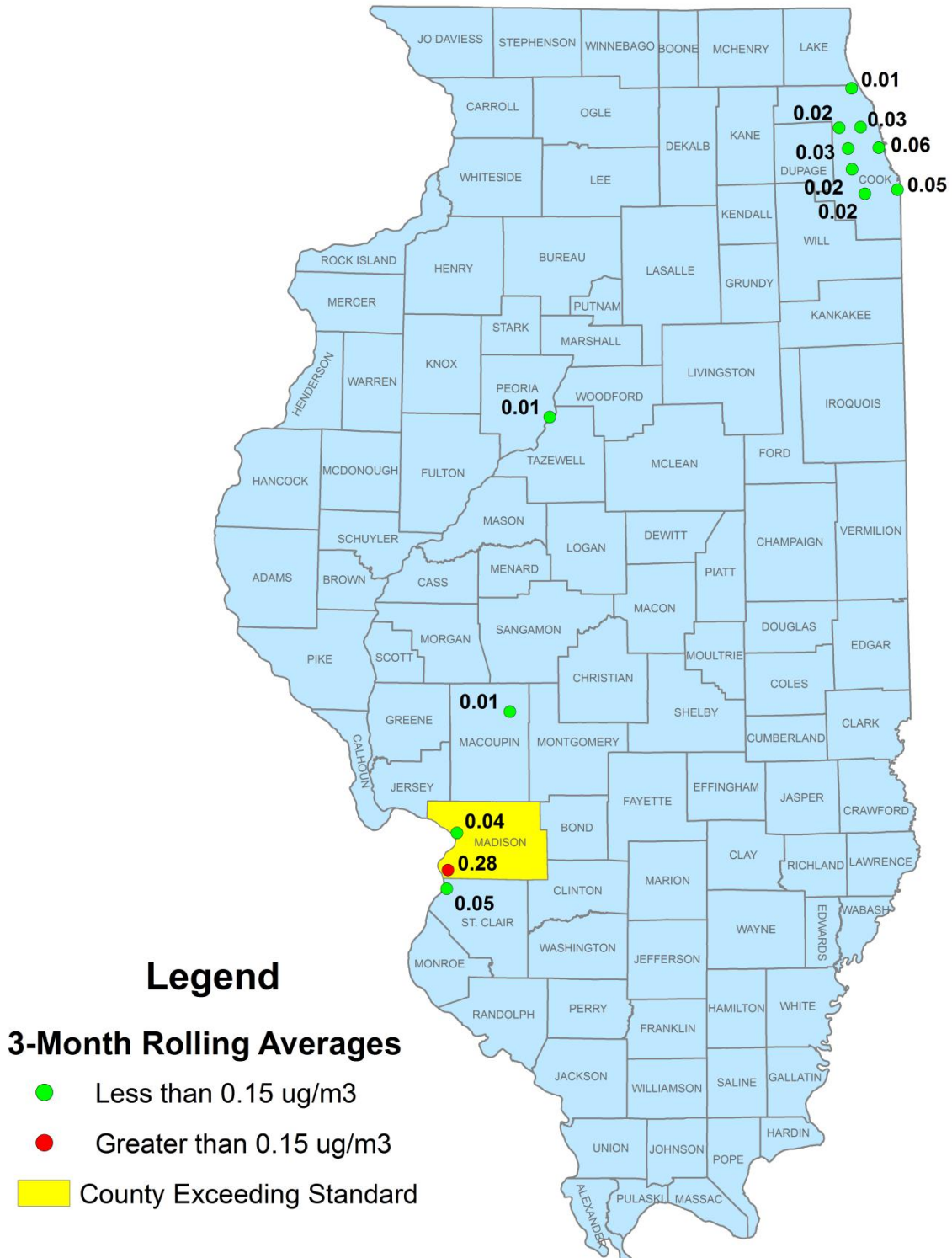


Figure 2

Madison County Lead Emissions by Industry

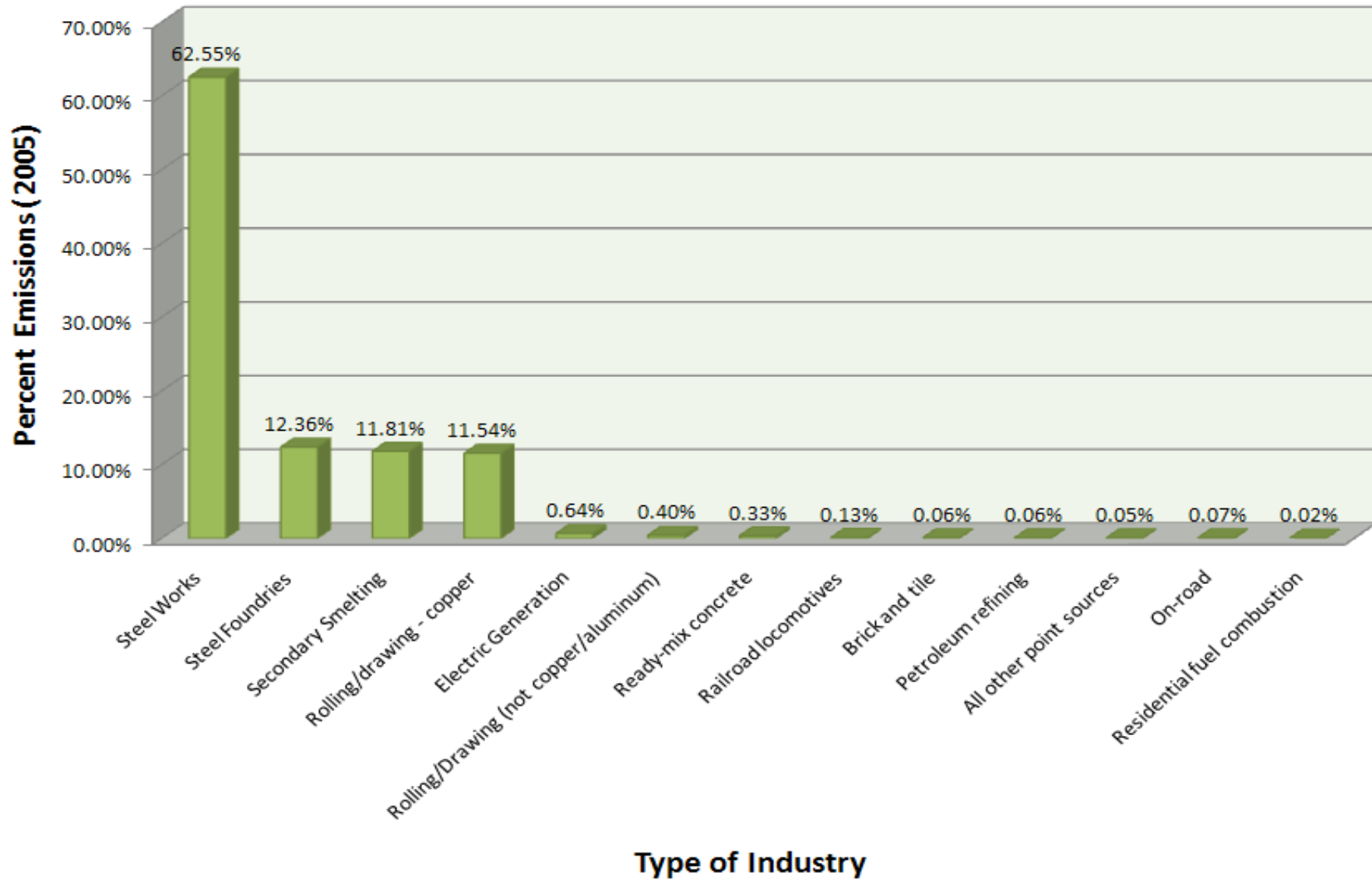


Figure 3

Location and Emissions of Stationary Sources in Madison County

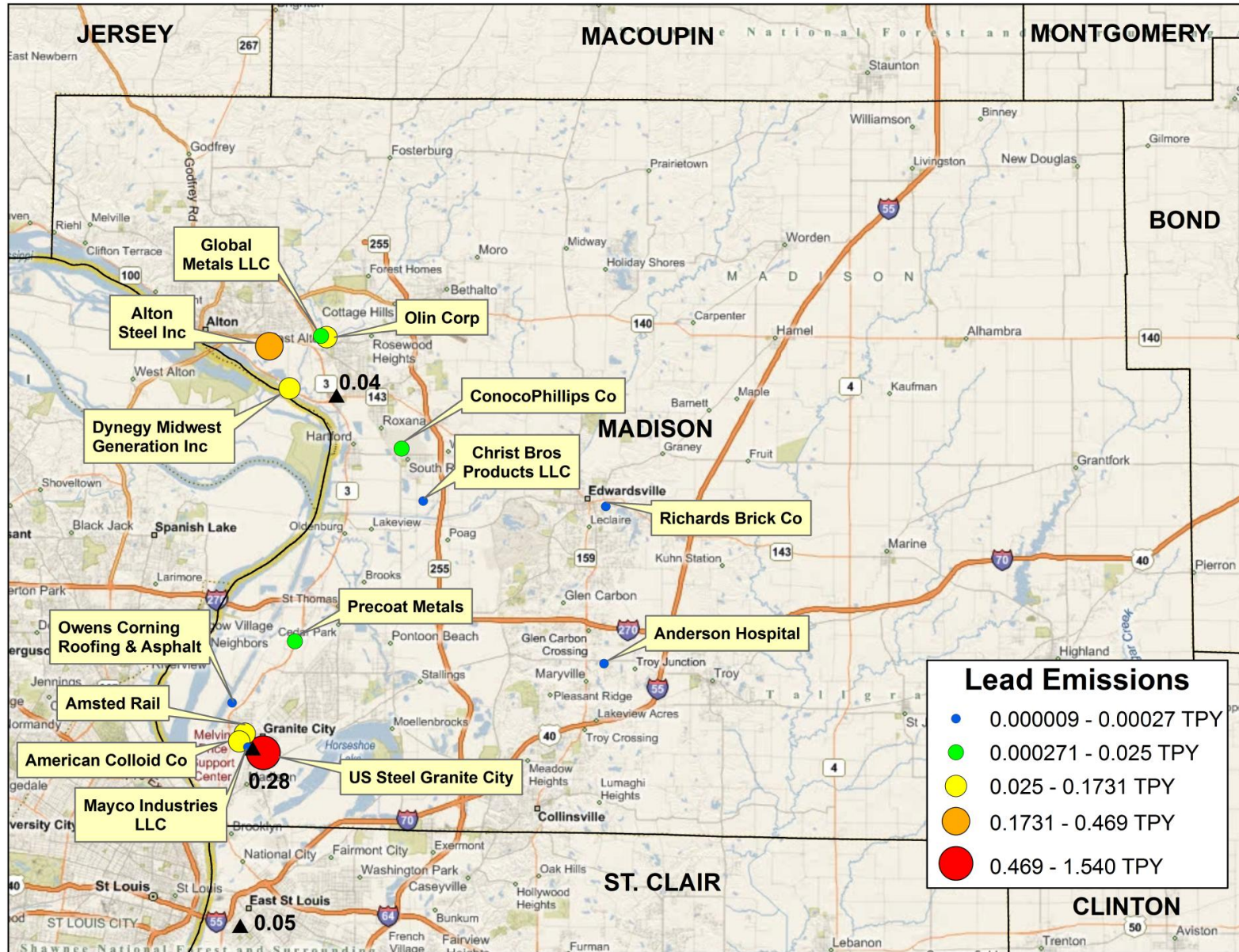


Figure 4

Proximity of Emission Sources to Nearby Monitor



Figure 5

Location of NL Industries/Taracorp Superfund Site



Figure 6

Madison County Population Density and Urbanization

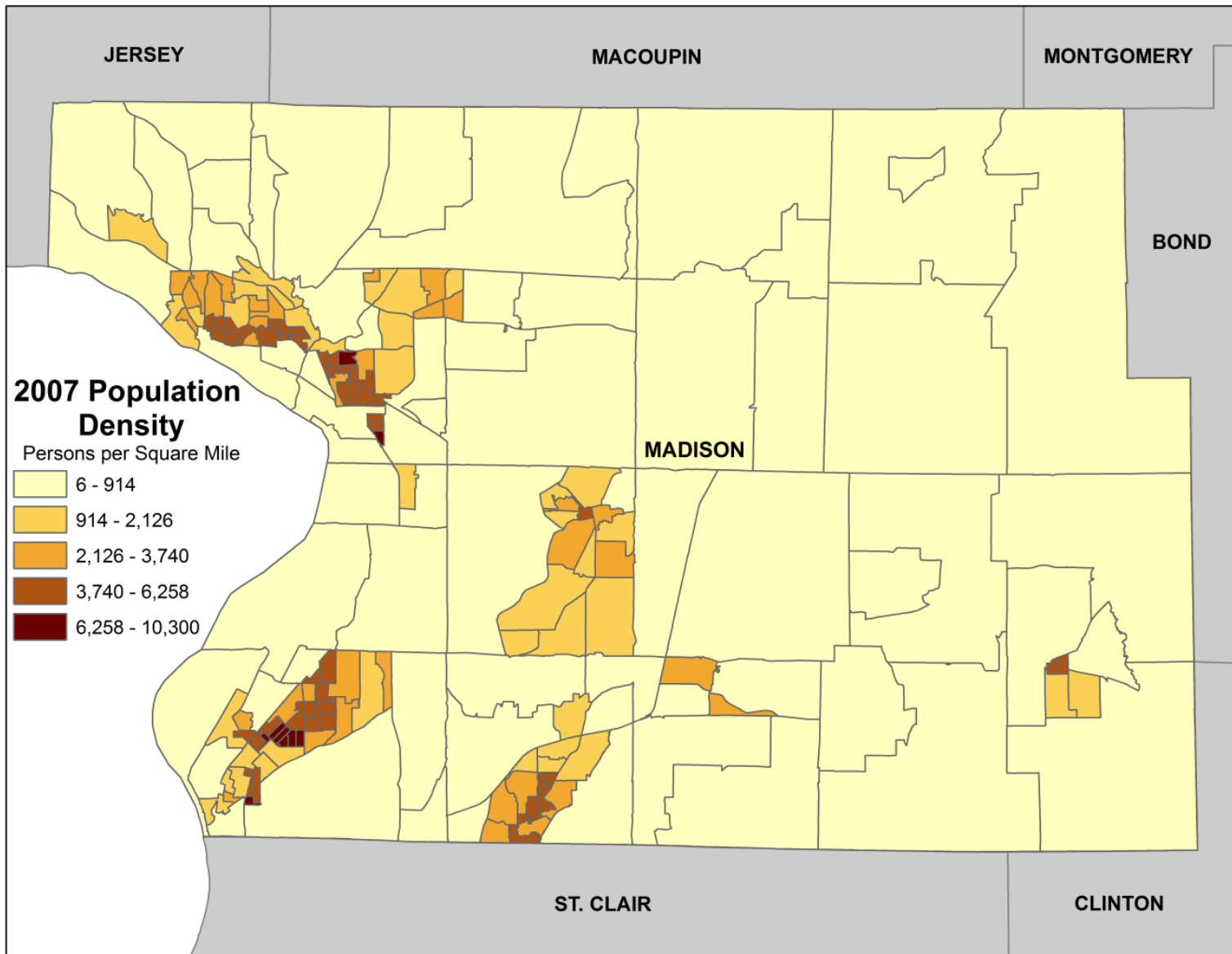


Figure 7

Madison County Total Population by Municipality

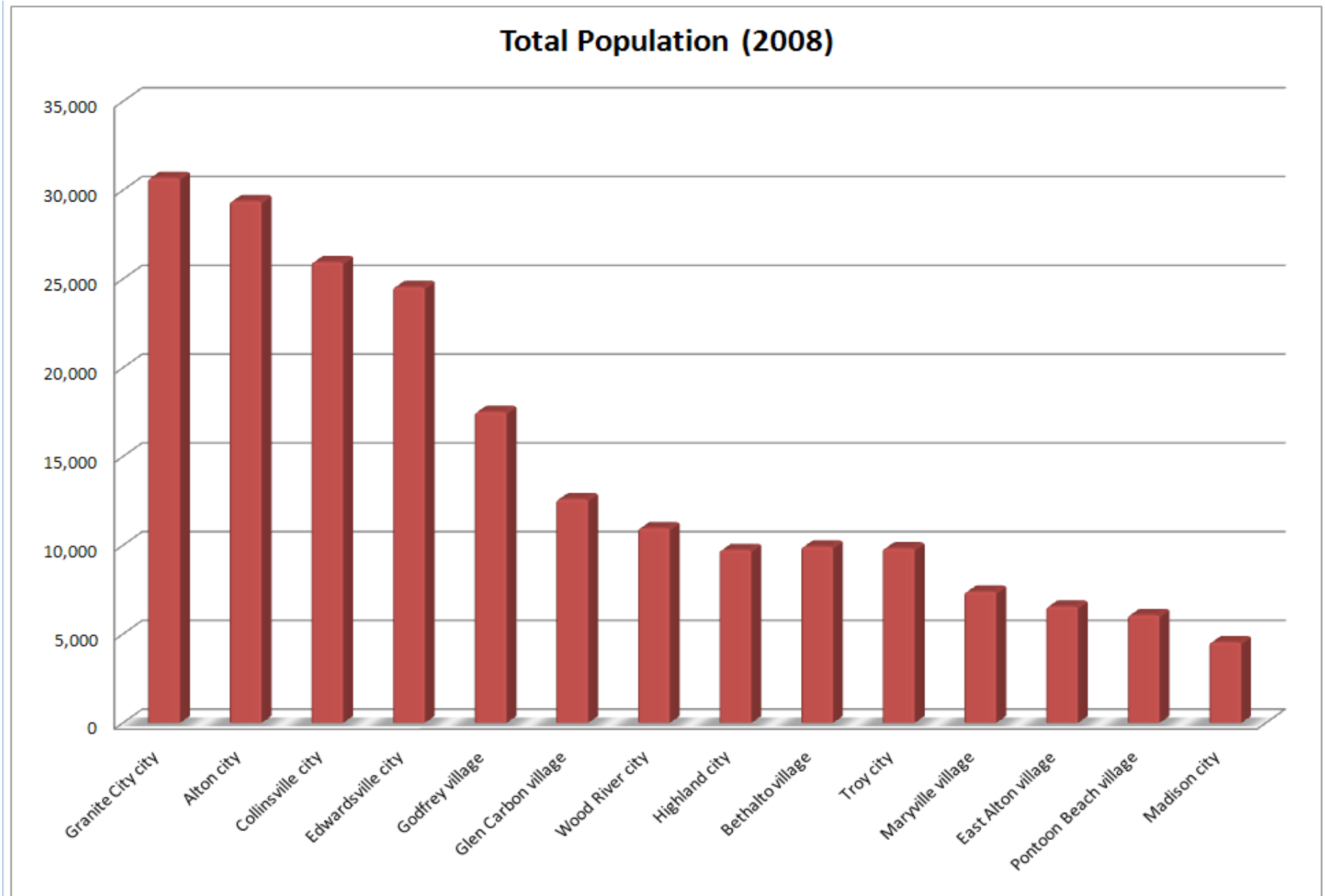


Figure 8

Percent of Land Cover by Type in Madison County

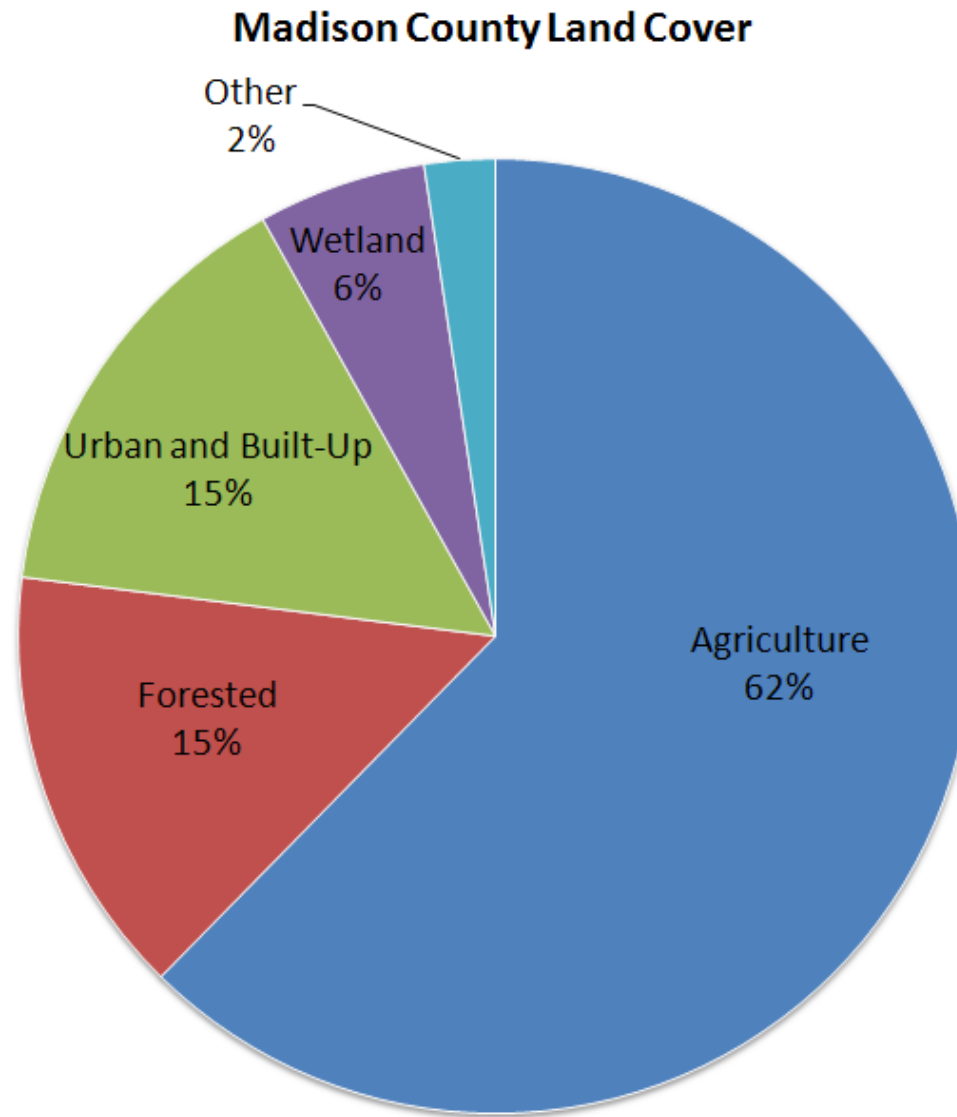


Figure 9

Madison County Population Change

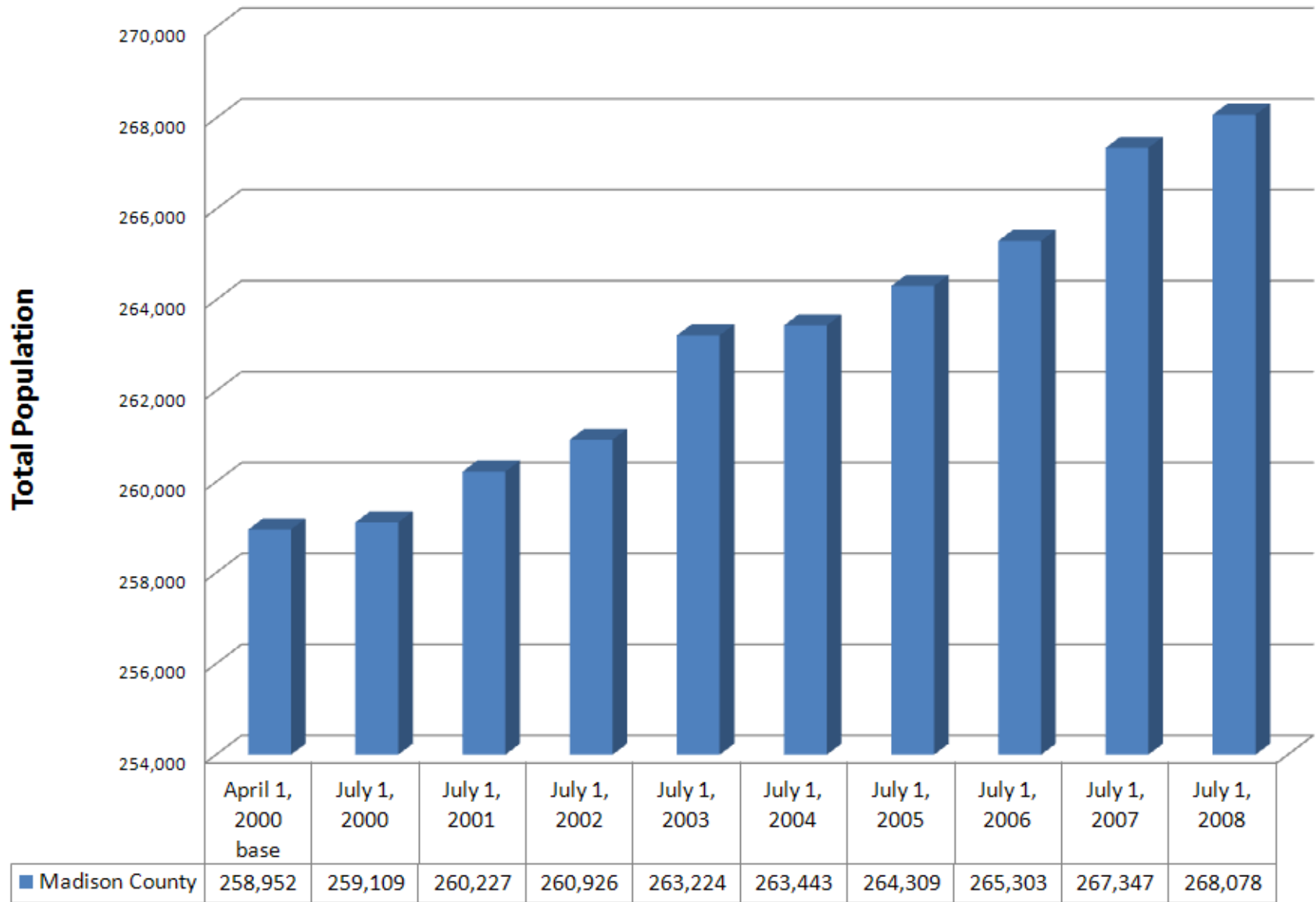


Figure 10

Meteorology – St. Louis Wind Rose

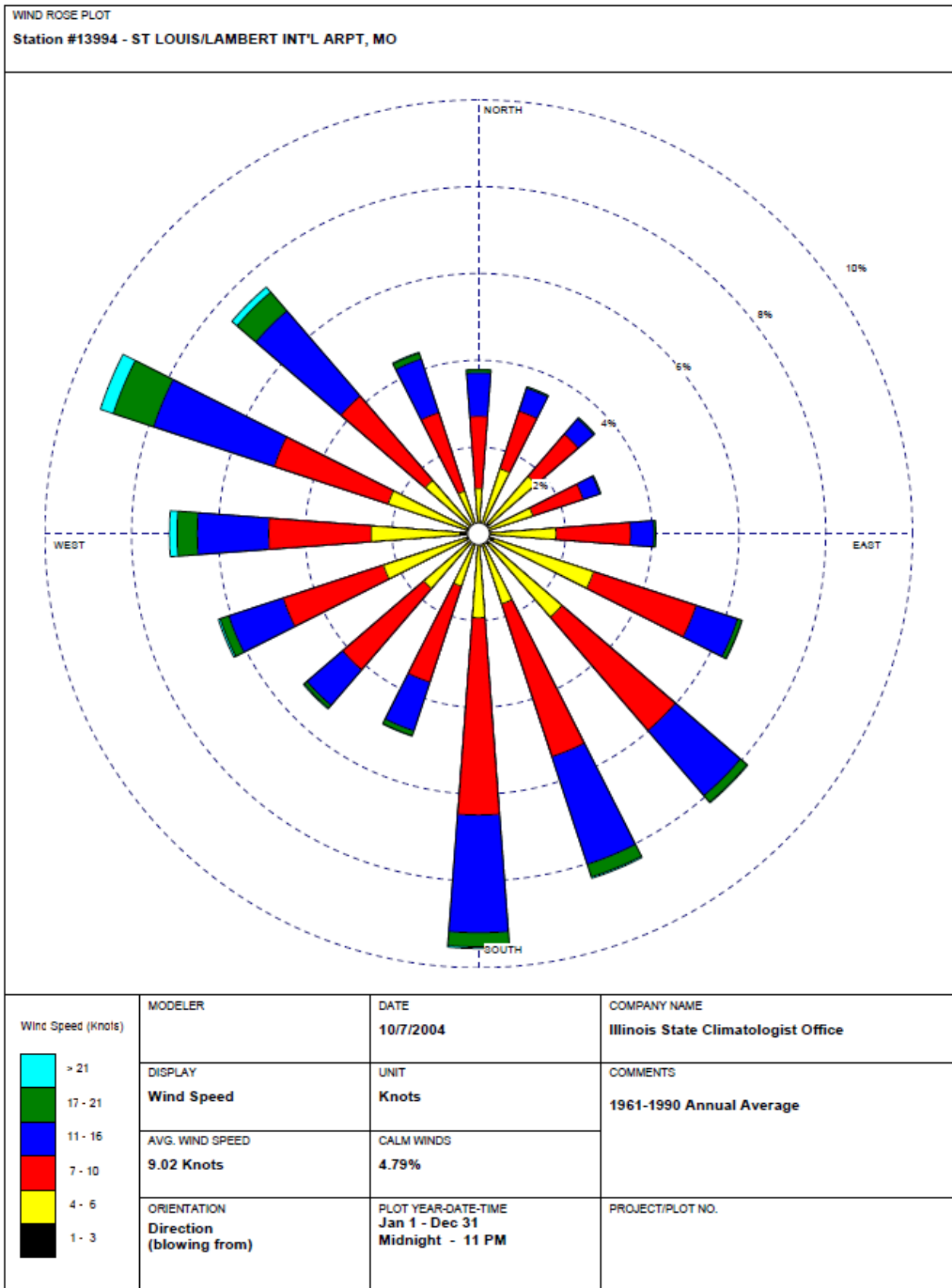


Figure 11

Madison County Elevation (Topography)

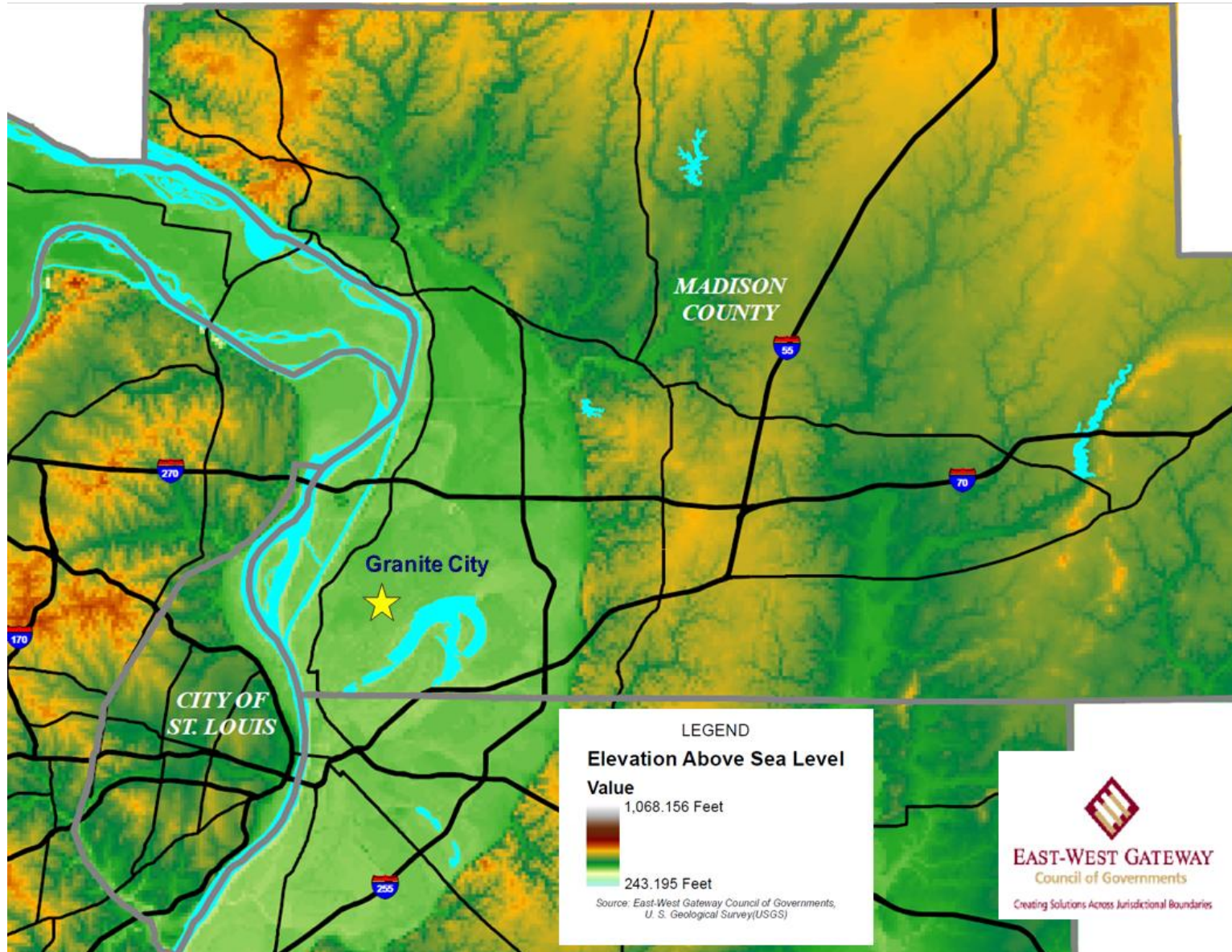


Figure 12

Proposed Lead Nonattainment Area, City of Granite City





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

AUG 21 2009

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

MEMORANDUM

SUBJECT: Area Designations for the 2008 Revised Lead National Ambient Air Quality Standards

FROM: William T. Harnett *William Harnett*
Division Director, Air Quality Policy Division

TO: Regional Administrators, Regions I-X

The U.S. Environmental Protection Agency (EPA) revised the lead National Ambient Air Quality Standards (NAAQS) on October 15, 2008 (73 FR 66964; November 12, 2008). The new primary lead standard was lowered from the 1.5 micrograms per cubic meter (ug/m³) level set in 1978, to a level of 0.15 ug/m³ based on a quarterly averaging time. To provide increased protection against lead-related welfare effects, EPA revised the secondary standard to be identical in all respects to the revised primary standard. The next step in implementing the revised lead NAAQS is for EPA to designate areas as meeting or not meeting the NAAQS. EPA provided guidance for the lead designations process in the preamble to the lead NAAQS final rule. This memorandum provides information on the timeline for designating areas and identifies where guidance on key designations-related subjects can be found in the lead NAAQS preamble. Please share this information with the state and tribal agencies in your Region.

Section 107(d) of the Clean Air Act (CAA) governs the process for area designations following the establishment of new or revised NAAQS. Under section 107(d), states are required to submit recommendations on designations for their areas to EPA not later than one year after the promulgation of a new or revised standard. If, after careful consideration of the recommendations, EPA intends to promulgate a designation that deviates from a state recommendation, EPA will notify the state no later than 120 days prior to promulgating the initial designation. EPA will also provide the state an opportunity to demonstrate why the potential modification is inappropriate. The CAA requires EPA to complete the designation process within two years of promulgation of a new or revised NAAQS unless the Administrator has insufficient information to make these designations. In such a case, EPA may take up to an additional year to make the designations.

Accordingly, state designation recommendations for the 2008 revised lead standards shall be submitted to the Administrator no later than October 15, 2009. States shall provide a list of designation recommendations for all areas in the state or jurisdiction designated as attainment, nonattainment, or unclassifiable on the basis of available information. As described in the final rulemaking (73 FR 66964; November 12, 2008), EPA anticipates that state and tribal officials will be able to base their designation recommendations for some areas on existing monitoring data, and thereby designate an area as "attainment" or "nonattainment." EPA also anticipates there will be other areas where sufficient monitoring data are not available to make such a

determination. In such cases, officials are advised to designate such areas as “unclassifiable.” For the October 15, 2009 letter, EPA recommends states use the most recent three consecutive years of quality-assured, certified air quality data. In most cases, EPA expects these data to be from 2006-2008 that are stored in the EPA Air Quality System (AQS). By no later than, June 17, 2010, EPA will notify all states and tribes, by letter, of our response to state’s recommendation. In order to consider public input in the designation process, we plan to provide a 30-day public comment period immediately following issuance of EPA’s response letters to the states and tribes; we anticipate the comment period would conclude in mid-July 2010 (this depends on publication date). If a state or tribe has additional information that they want EPA to consider with respect to a designation recommendation EPA plans to modify, we would request such information be submitted by August 15, 2010. This will ensure that EPA can fully consider any such information as we move forward to issue designations by October 15, 2010. The CAA requires EPA to designate within two years of finalizing a NAAQS; however, EPA has the discretion to extend the deadline up to one year if there is insufficient information to make designations. EPA intends to complete initial designations by no later than October 15, 2010, where data are sufficient from the existing monitoring network or where no additional data are expected to be available for a state. Using information from the expanded lead monitoring network, EPA will promulgate designations for the remaining areas by no later than October 15, 2011. States/Tribes will have an opportunity to update their recommendation letters, as they pertain to the remaining areas, by October 15, 2010.

The schedule for lead monitor planning and installation:

- By July 1, 2009 - States submit Annual Monitoring Network Plans to EPA, complete with source-oriented lead monitoring information (corrections to emissions inventories, waiver submittals, and monitor location information)
- By Jan 1, 2010 - Source-oriented lead monitors installed and operational
- By July 1, 2010 - States submit Annual Monitoring Network Plans to EPA, complete with non-source oriented lead monitoring information
- By Jan 1, 2011 - Non-source oriented lead monitors installed and operational

Because the 2008 revised primary and secondary lead NAAQS are identical, EPA expects that each area will have the same designation and boundary for both standards.

Guidance for making designations is provided within the lead NAAQS final rulemaking (73 FR 66964; November 12, 2008), available at the following website:

<http://www.epa.gov/fedrgstr/EPA-AIR/2008/November/Day-12/a25654.pdf> . Subjects covered in the final rulemaking include but are not limited to:

- Presumptive county boundaries – pages 67032-67034
- Eight factors for consideration – page 67033
- Years of data to be used for designation recommendations - page 67044
- Exceptional events & associated flagging schedule – pages 67044-67045
- Appendix R to Part 50 – Interpretation of the National Ambient Air Quality Standards for Lead – pages 67054-67057
- Part 58 – Ambient Air Quality Surveillance – pages 67059-67062

Attachment 1 is a timeline of important dates in the designation process for the revised 2008 lead NAAQS designation process.

The staff at EPA's Office of Air Quality Planning and Standards is available for assistance and consultation throughout the designation process. Questions on this guidance may be directed to Rhonda Wright at 919-541-1087.

Attachment 1

Attachment 1:
Timeline for Revised 2008 Lead NAAQS Designation Process

Milestone	Date	
Final Lead NAAQS Rule Promulgated	October 15, 2008 (published November 12, 2008)	
Monitoring Network Implementation	All source-oriented monitors operational by Jan 1, 2010; All nonsource-oriented monitors operational by Jan 1, 2011.	
	<i>EPA makes <u>1st round (2nd Year)</u> initial designations for areas with sufficient lead data</i>	<i>EPA makes <u>2nd round (3rd Year)</u> initial designations for the remaining areas</i>
State/Tribal Designation Recommendations to EPA	¹ No later than October 15, 2009	² No later than October 15, 2010
EPA notifies states/tribes concerning any modifications to their recommendations (120-day letters)	No later than June 17, 2010 (120 days prior to final designations)	No later than June 17, 2011 (120 days prior to final designations)
EPA publishes public notice of state/tribes recommendations and EPA's proposed modifications	Late-June 2010 (publication initiates 30-day public comment period)	Late-June 2011 (publication initiates 30-day public comment period)
End of 30-day public comment period	Late-July 2010	Late-July 2011
States/tribes submit additional information to demonstrate why an EPA modification is inappropriate.	No later than Aug 15, 2010	No later than Aug 15, 2011
Final Designations	No later than Oct 15, 2010	No later than Oct 15, 2011

¹ The CAA states, "By such date as the Administrator may reasonably require, but not later than 1 year after promulgation of a new or revised national ambient air quality standard for any pollutant under section 109, the Governor of each State shall (and at any other time the Governor of a State deems appropriate the Governor may) submit to the Administrator a list of all areas (or portions thereof) in the State, designating as— (i) nonattainment... (ii) attainment... or (iii) unclassifiable..." **CAA § 107(d)(1)(A)**

² For the 2nd year of designations, States and Tribes will have an opportunity to update their recommendation letters for the remaining areas by October 15, 2010.