



JIM DOYLE
GOVERNOR
STATE OF WISCONSIN

March 12, 2009

Lisa Jackson
Administrator
US EPA Headquarters
Ariel Rios Building
1200 Pennsylvania Ave., N.W.
Mail Code: 1101A
Washington, D.C., 20460

Subject: Designation of 8-Hour Ozone Nonattainment Areas in Wisconsin.

Dear Acting Administrator Mathur:

I am sending this letter in compliance with section 107(d)(1)(A) of the federal Clean Air Act, which requires the Governor of each state to submit a recommendation as to nonattainment designations within one year from the date of promulgation of new federal standards.

Recommendation

Based on rationale provided below, I am recommending that all counties in Wisconsin be designated as attainment for the 8-hour ozone standard.

Rationale

As you are aware, the State of Wisconsin is very concerned about air pollution and the resultant adverse impacts to public health and the environment. The State has historically been a national leader in improving air quality and has put in place many critical air pollution regulations. The result of these past state actions has born fruit with an improvement in air quality in Wisconsin in recent years.

More specifically, the rationale for my recommendation that portions of the state be designated as nonattainment in Wisconsin is based on the following 4 considerations:

1. Substantial Progress in Reducing Ozone Levels - Even though the federal 8-hour ozone standard was lowered to 75 ppb last year, for the three year period of 2006-08, Wisconsin had only 3 counties monitoring above the standard. This is a reduction of 7 counties from the 10 that were designated as nonattainment for the older 8-hour standard of 85 ppb.

2. Modeling Results – Modeling results conducted by the Lake Michigan Air Director’s Consortium for the upper Great Lakes region including the regional emission reductions from the federal Clean Air Interstate rule, and other on-the-books and on-the-way federal and state regulations, shows all of Wisconsin, save one monitor, will be attaining the new ozone standard by 2015. While including emission reductions from the federal CAIR rule, these positive results do not include additional reductions that will occur in Wisconsin from other recent state actions.

3. State Actions to Reduce NO_x – As you know, NO_x and VOC emissions are key contributors to elevated ozone levels in Wisconsin. Wisconsin’s regulatory platform to reduce NO_x and VOC emissions is a strong one. The state’s on-going mobile source emission control programs for reformulated gasoline and vehicle inspection maintenance have been very effective in reducing VOC emissions. Additionally, in the past three years, Wisconsin focused its efforts on reducing NO_x emissions through the promulgation of four important air quality rules. In addition to the aforementioned CAIR rule, the following 3 rules are now in place:

NO_x Reasonable Available Retrofit Rule
Best Available Retrofit Technology Rule
Mercury Multi-pollutant Rule

In total, these four rules are estimated to reduce NO_x emissions in Wisconsin by more than 60% from 2005 levels and more than 70% from 1995 levels. The net result of these rules is to position the state to meet all applicable current federal air quality standards, and as a result, protect Wisconsin’s citizens from the deleterious impacts of ozone, as well as fine particulates and haze.

4. Ineffectiveness of Non-attainment Designations – There is no firm evidence that designation of the 3 counties that have monitored as exceeding the standard will have any material additional benefit to reducing ozone levels in those counties. Door County has no heavy industry or large coal-fired power plants. As outlined in point # 3 above, industries and utilities in Sheboygan and Kenosha Counties are already subject to state and federal rules targeted at making significant reductions in NO_x and other air pollutants. A non-attainment designation will not change the positive impact of those regulations, nor require additional actions to be pursued.

Under my administration, Wisconsin has taken swift and significant action to protect its citizens from the harmful affects of air pollution. We have jump-started the federal process, by acting now, not after lengthy planning processes. At this time of severe economic crisis for the nation’s economy, we should not place punitive nonattainment designations on counties that would only serve to hinder the vitality of Wisconsin’s businesses.

Lastly, if EPA determines to act on nonattainment designations in Wisconsin, then I request you consider minimizing the geographic area covered by such designations by designating only townships or utilizing alternative designations, such as rural transport for Door County.

Please contact John Melby, Director of the Bureau of Air Management in the Wisconsin DNR, if you have any questions related to this communication. Thank you

for the opportunity to submit the State of Wisconsin's recommendations on this important air quality matter.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim Doyle". The signature is fluid and cursive, with the first name "Jim" and last name "Doyle" clearly distinguishable.

Jim Doyle
Governor

CC: Bharat Mathur, Acting Administrator, Region V, US EPA
Senator Mark Miller, Chair, Senate Environment Committee
Representative Spencer Black, Chair, Assembly Natural Resource Committee
Matt Frank, Secretary, Department of Natural Resources
Al Shea, Administrator, Air & Waste Division, Department of Natural Resources
John Melby, Director, Bureau of Air Management, Department of Natural Resources
County Executives for Door, Sheboygan and Kenosha Counties

**2008 Daily Ozone Standard Nonattainment Designation Options
Technical Support Document**

Wisconsin Department of Natural Resources

February 27, 2009

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I. Executive Summary

On March 12, 2008, the U.S. Environmental Protection Agency (EPA) promulgated revisions to the 1997 primary and secondary national ambient air quality standards (NAAQS) for ozone. The revisions became effective on May 27, 2008 tightening the 8-hour ozone standard, both primary and secondary, from 0.08 parts per million (ppm) to 0.075 ppm. Monitoring sites with a design value greater than 0.075 ppm measure nonattainment of the 8-hour ozone standard. The purpose of this document is to provide technical information to support the determination of which Wisconsin counties should receive nonattainment designations for the revised 8-hour ozone standard.

Section 107(d)(1)(A)(i) of the Clean Air Act (CAA) states that “any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the primary or secondary ambient air quality standard for the pollutant” should be designated as a nonattainment area.

EPA provided guidance on determining ozone designation boundaries in a December 4, 2008 memorandum from Robert J. Meyers, “Area Designations for the 2008 Revised Ozone National Ambient Air Quality Standards.” This document states that a Core Based Statistical Area (CBSA) or Combined Statistical Area (CSA) serve as the starting point or presumptive boundary for considering what should be the geographic boundary of an ozone nonattainment area. When an ozone monitor is located in a county not part of a CBSA or CSA, EPA recommends the county boundary serve as the presumptive nonattainment area. To support the determination of nonattainment boundaries, EPA recommends an evaluation of the following nine factors:

1. Air quality data
2. Emissions data (location of sources and contribution to ozone concentrations)
3. Population density and degree of urbanization (including commercial development)
4. Traffic and commuting patterns
5. Growth rates and patterns
6. Meteorology (weather/transport patterns)
7. Geography/topography (mountain ranges or other air basin boundaries)
8. Jurisdictional boundaries (e.g., counties, air districts, existing nonattainment area, Reservations, metropolitan planning organizations (MPOs))
9. Level of control of emission sources

Based on ozone monitoring data from 2006 through 2008, the counties of Door, Sheboygan, and Kenosha exceeded the revised 8-hour ozone standard. The tables below summarize designation options for these three counties and other nearby counties that may have contributed to the measured nonattainment. Twenty counties are considered for a potential nonattainment designation (Figure 1.1). A detailed assessment of the nine factors recommended by the EPA for the twenty counties is presented in Section 12 of this document. This technical support document is developed to support nonattainment recommendation decisions by the Governor.

Door County Area

Ozone monitoring data from 2006 through 2008 demonstrate a design value concentration above the 8-hour ozone standard in Door County (0.080 ppm). The following table (1.1) outlines three possible nonattainment designation options for the Door County area. These options are based on EPA's nine factors to consider when determining nonattainment boundaries. The counties of Brown, Calumet, Kewaunee, Manitowoc, Marinette, Oconto, and Outagamie are evaluated for potentially contributing to the measured nonattainment in Door County.

Table 1.1: Options Summary for the Door County Area

Designation	Option 1	Option 2	Option 3
Nonattainment Counties	Door Brown Kewaunee Manitowoc	Door	None

Door County is not part of a CBSA or CSA, thus the presumptive boundary for any ozone nonattainment area is the county boundary (Option 2).

Sheboygan County Area

Ozone monitoring data from 2006 through 2008 demonstrate a design value concentration above the 8-hour ozone standard in Sheboygan County (0.082 ppm). The following table (1.2) outlines three possible nonattainment designation options for the Sheboygan County area. These options are based on EPA's nine factors to consider when determining nonattainment boundaries. The counties of Calumet, Dodge, Fond Du Lac, Jefferson, Kenosha, Manitowoc, Milwaukee, Ozaukee, Racine, Walworth, Washington, Waukesha, and Winnebago are evaluated for potentially contributing to the measured nonattainment in Sheboygan County.

Table 1.2: Options Summary for the Sheboygan County Area

Designation	Option 1	Option 2	Option 3
Nonattainment Counties	Sheboygan Milwaukee CSA Kenosha	Sheboygan	None

Milwaukee CSA: Milwaukee, Ozaukee, Racine, Washington, and Waukesha Counties

Sheboygan County makes up the Sheboygan, WI Core Based Statistical Area (CBSA Code 43100), which includes no other counties. Thus, the presumptive boundary for any ozone nonattainment area is the county boundary (Option 2).

Kenosha County Area

Ozone monitoring data from 2006 through 2008 demonstrate a design value concentration above the 8-hour ozone standard in Kenosha County (0.078 ppm). The following table (1.3) outlines three possible nonattainment designation options for the Kenosha County area. These options are based on EPA's nine factors to consider when determining nonattainment areas. The counties of Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha are evaluated for potentially contributing to the measured nonattainment in Kenosha County.

Table 1.3: Options Summary for the Kenosha County Area

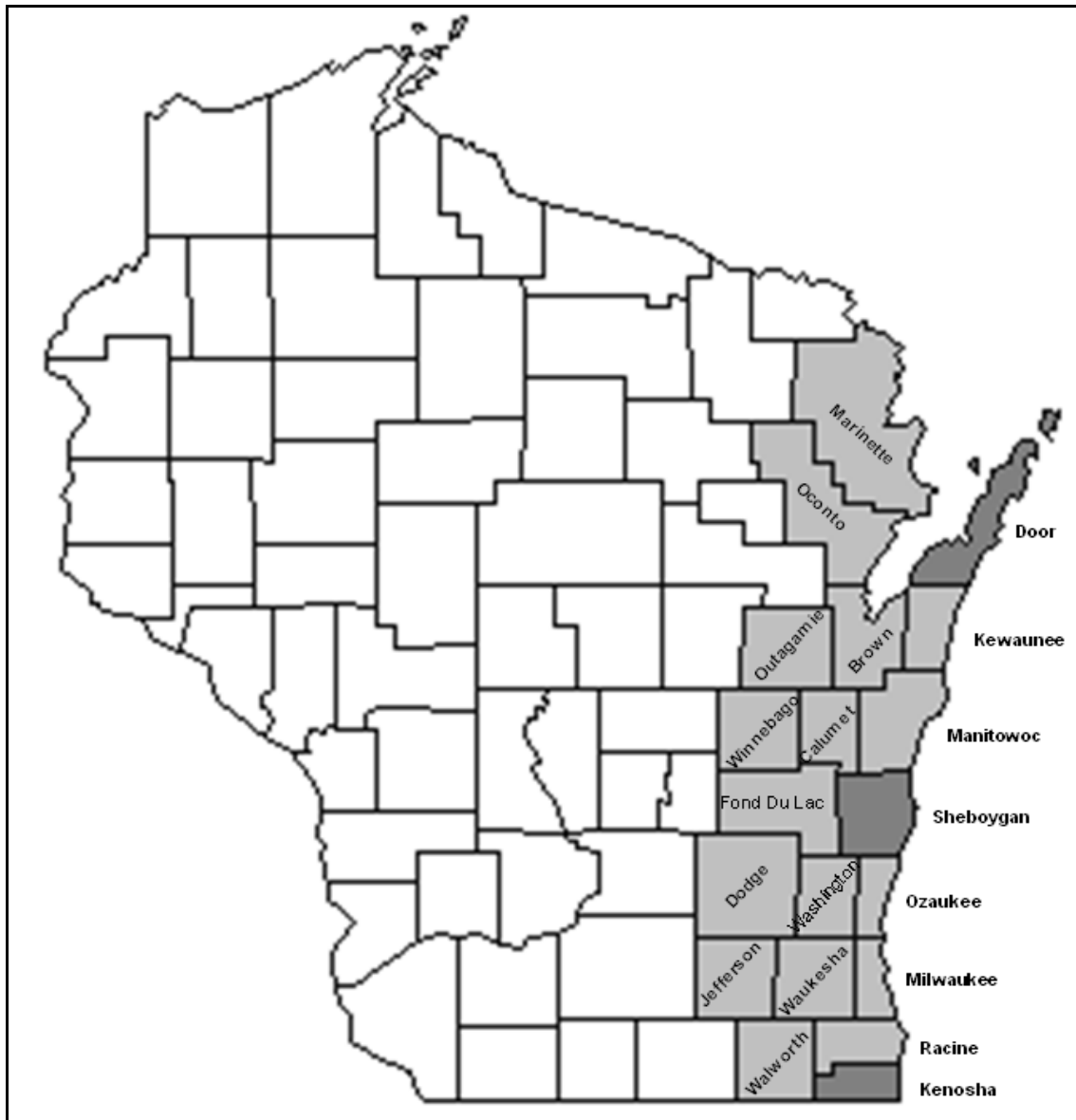
Designation	Options 1 & 2	Option 3
Nonattainment Counties	Kenosha	None

Kenosha County is part of the Chicago-Naperville-Michigan City CSA (CSA Code 176), which includes no other Wisconsin counties. Thus, the presumptive boundary for any ozone nonattainment area is the county boundary (Options 1 & 2).

Other Counties in the State

Monitoring data in other counties of the state indicate attainment of the 8-hour ozone standard. Counties not specifically analyzed in the options summarized above should be designated as attaining the standard.

Figure 1.1 8-Hour Ozone Designation Analysis Area



Counties shaded in dark gray exceeded the 8-hour ozone standard (> 0.075 ppm) based on ozone monitor data from 2006 to 2008.

Figure 1.2 Counties Considered for an 8-Hour Ozone Nonattainment Designation (Option 1)

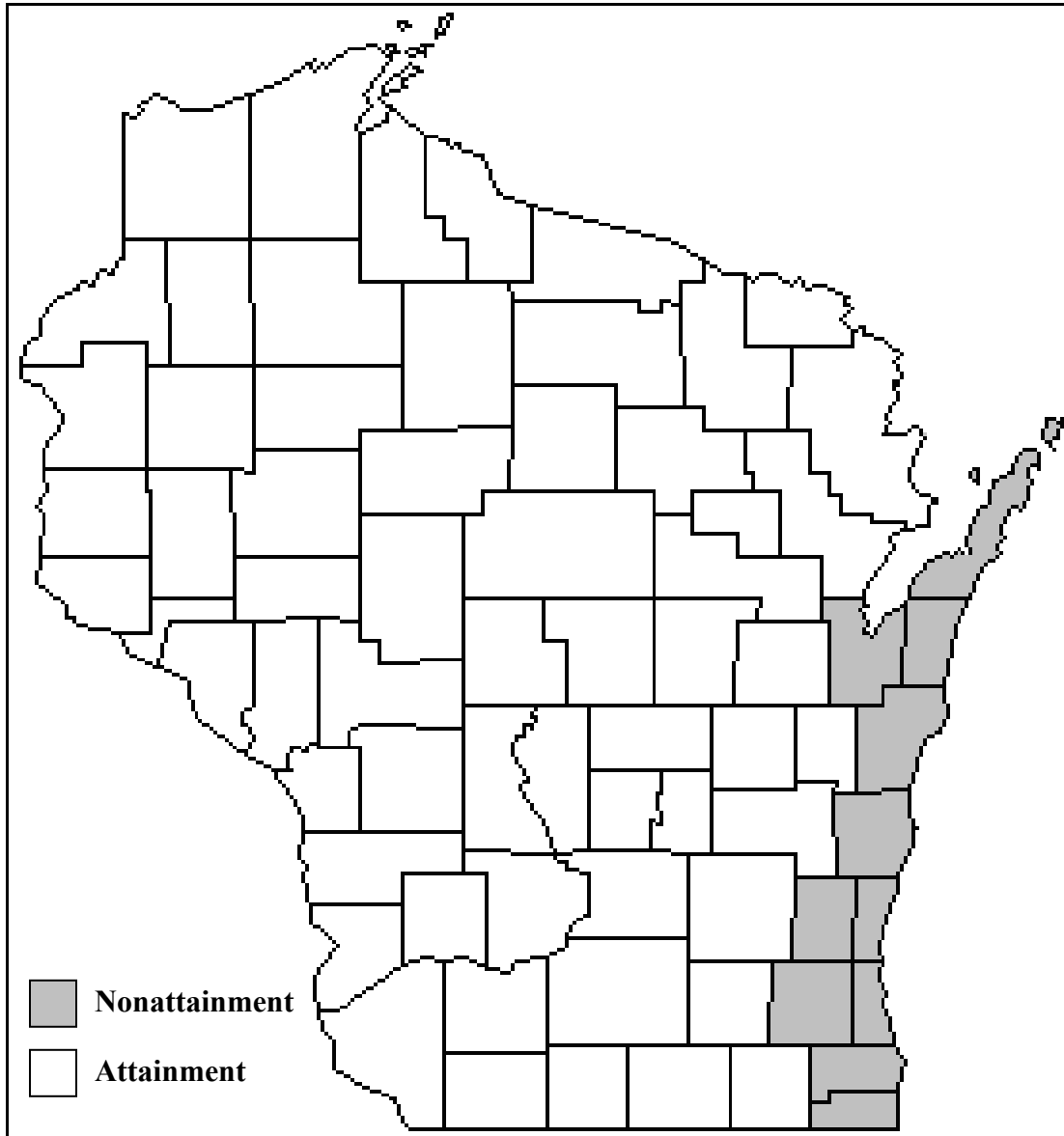


Figure 1.3 Counties Considered for an 8-Hour Ozone Nonattainment Designation (Option 2)

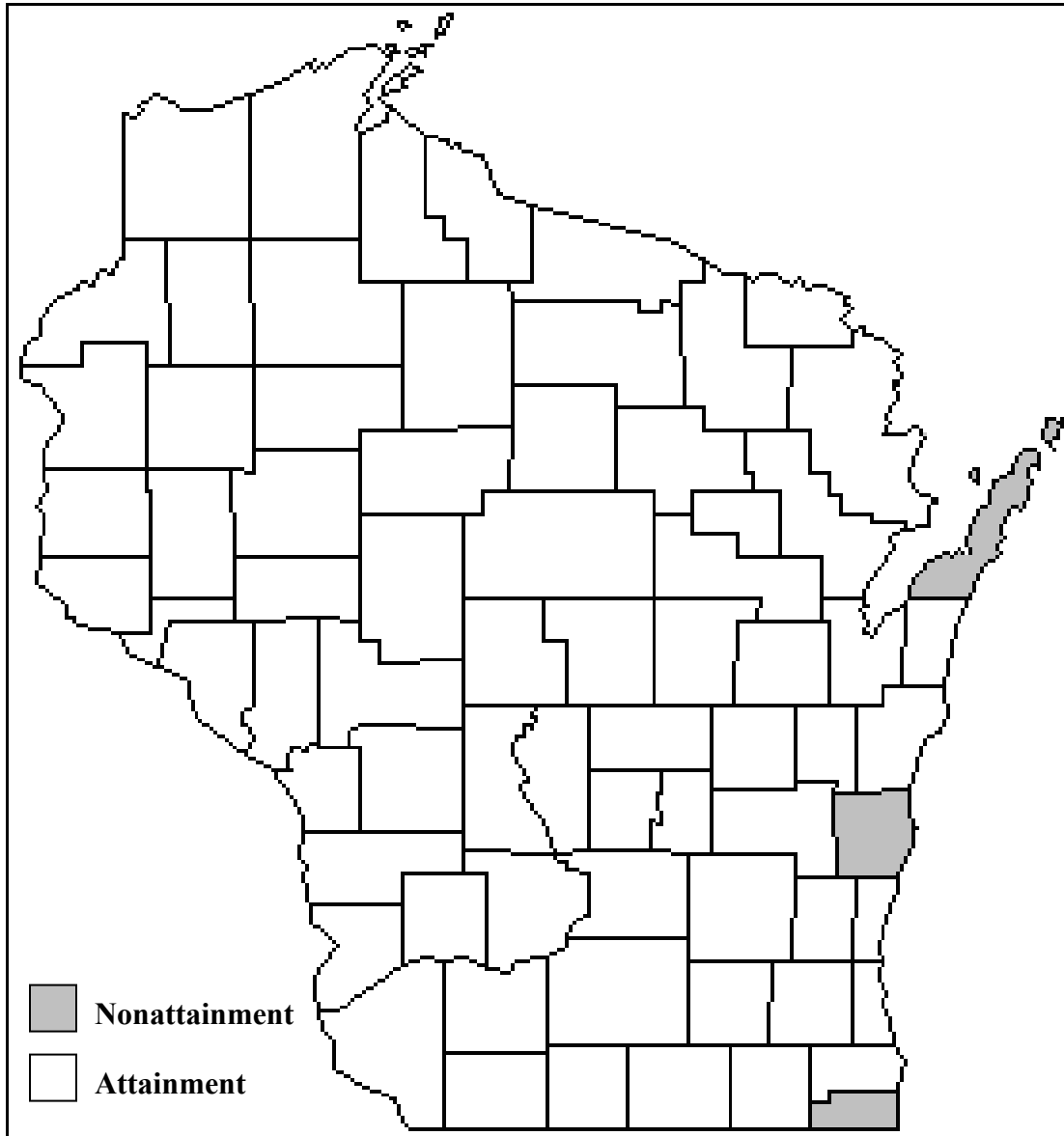
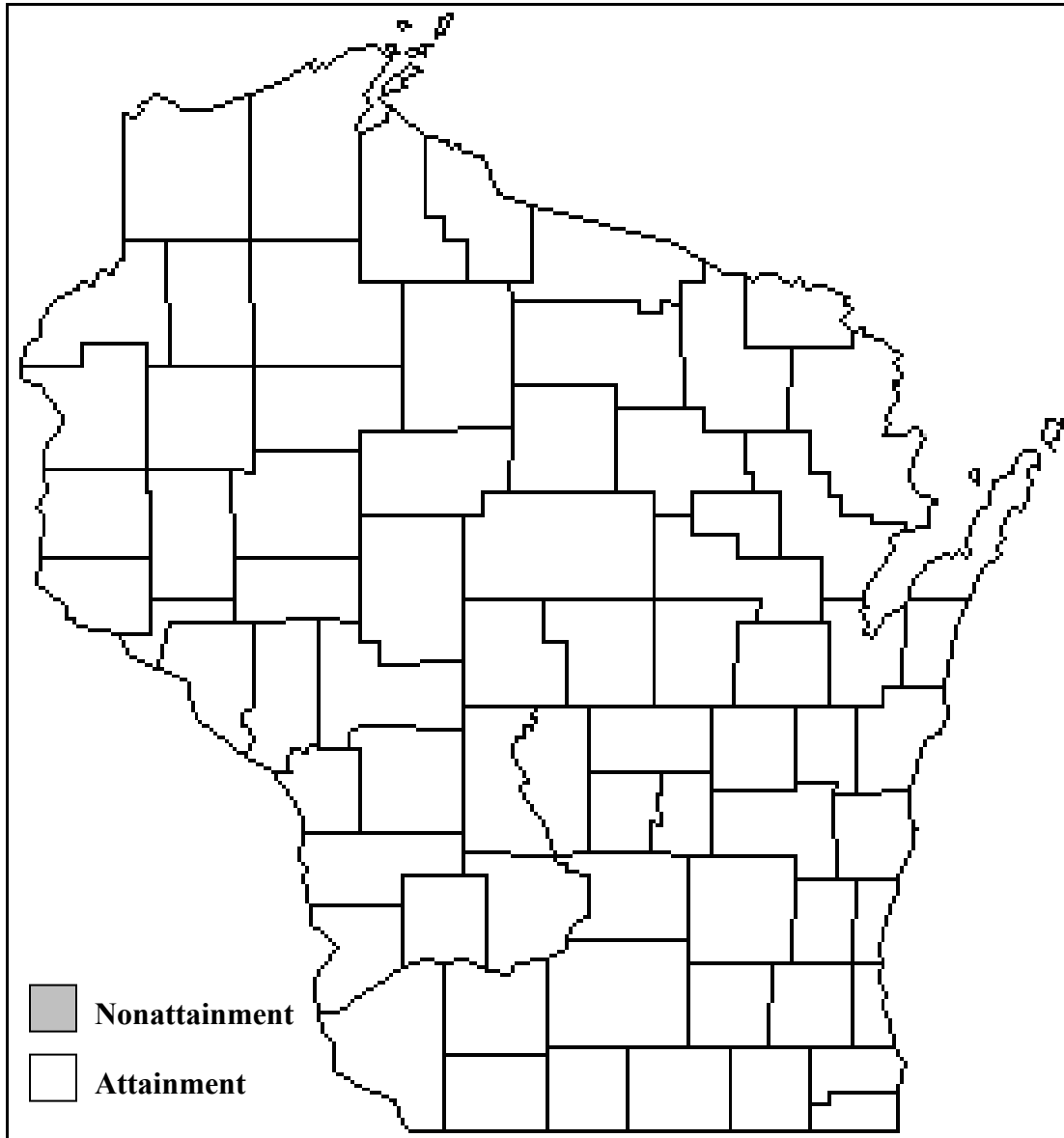


Figure 1.4 Counties Considered for an 8-Hour Ozone Nonattainment Designation (Option 3)



II. Background on Revised 8-Hour Ozone NAAQS

On March 12, 2008, the EPA promulgated revisions to the 1997 primary and secondary NAAQS for ozone. The revisions became effective on May 27, 2008 tightening the 8-hour ozone standard, both primary and secondary, from 0.08 ppm to 0.075 ppm. Monitoring sites with a design value greater than 0.075 ppm measure nonattainment of the 8-hour ozone standard.

EPA concluded that ozone causes adverse health effects at the level of the 1997 standard and below. The 0.075 ppm level for the primary and secondary standard was selected based on “an extensive review of thousands of scientific studies on the impact of ground level ozone on public health and the environment” (U.S. EPA, 2008b).

EPA demonstrated that the benefits of a lower ozone standard are likely greater than the expected costs. The value of the health benefits from the new standard was estimated to range from \$2 billion to \$19 billion per year in 2020. The cost of implementing the new standard was estimated to range from \$7.6 billion to \$8.5 billion per year in 2020 (U.S. EPA, 2008b).

The 2008 ozone standard designation process is as follows:

- Final Rule Promulgated: March 12, 2008
- State Designation Recommendations to EPA: No later than March 12, 2009
- Potential EPA Modifications: No later than November 12, 2009
- 30-Day Public Comment Period Initiated: Mid-November 2009
- State Response Regarding EPA Modifications: No later than January 12, 2010
- Final Designations: No later than March 12, 2010

The purpose of this document is to provide technical information enabling appropriate delineation of nonattainment area boundaries for the 2008 ozone standard. Section 107(d)(1)(A)(i) of the Clean Air Act (CAA) states that “any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the primary or secondary ambient air quality standard for the pollutant” should be designated as a nonattainment area. EPA provided guidance on how to determine ozone attainment boundaries in a December 4, 2008 memorandum from Robert J. Meyers, “Area Designations for the 2008 Revised Ozone National Ambient Air Quality Standards.” Nonattainment recommendations are based upon the nine factors presented in this memorandum.

III. Air Quality Data – Wisconsin Ozone Data Summary

Title 40 of the Code of Federal Regulations (40 CFR) Part 50, Appendix I explains the data handling conventions and computations necessary for determining whether the national 8-hour primary and secondary ambient standards for ozone are met at an ambient ozone air quality monitoring site. Design values are determined by averaging the fourth-highest daily maximum 8-hour average ozone concentrations for three consecutive years¹. A monitoring site is classified as “in attainment” if the design value is less than or equal to 0.075 ppm. During the three year period, daily maximum 8-hour average ozone concentrations are required to be available for at least 90%, on average, of the days during the designated ozone monitoring seasons (April 15th – October 15th), with a minimum data completeness in any one year of 75% of the designated sampling days.

Ozone was monitored at 32 locations across the state from 2006 through 2008. The data was collected in accordance with the requirements of 40 CFR Part 50 and fully quality-assured in accordance with the requirements of 40 CFR Part 58, Appendix A. Table 3.1 lists the fourth-highest daily maximum 8-hour average ozone concentrations for the 32 monitoring locations and resulting design values. The only counties that exceeded the 2008 ozone standard are Door, Sheboygan, and Kenosha (Table 3.1 and Figure 3.1).

The fourth-highest daily maximum 8-hour average ozone concentrations ranged from 0.059 to 0.092 ppm from 2006 through 2008. Across the state, higher than normal ozone concentrations were measured during 2007, while lower than normal ozone concentrations were measured during 2008. The average of the fourth-highest daily maximum 8-hour average ozone concentrations for all 32 monitors is 0.076 ppm for 2007 and 0.064 ppm for 2008. From 2006 through 2008, 15.6 % (5 / 32), 46.9 % (15 / 32), and 0 % (0 / 32) of the ozone monitors recorded fourth-highest daily maximum 8-hour average ozone concentrations that exceeded 0.075 ppm, respectively. It should be noted that Kewaunee and Manitowoc are the only two counties that measured fourth-highest daily maximum 8-hour average ozone concentrations that exceeded 0.075 ppm during two of the three years and still had design values below 0.075 ppm.

Meteorological conditions are most likely the main reason for the variation in ozone concentrations from 2007 to 2008. The daily maximum temperature was 3.1 ° F and 1.7 ° F above normal during the 2007 ozone season at Madison and Milwaukee, respectively, compared to 0.5 ° F above normal and -0.3 ° F below normal during the 2008 ozone season (NWS, 2008a). Normal daily maximum temperatures are based on climatological data from 1971 through 2000 (NWS 2008b). The daily maximum temperature in Milwaukee was 90 ° F or above seven times in 2007 and zero times in 2008 (NWS, 2008a).

Design values from 2006 through 2008 are compared against previous design values to determine the representativeness of the latest 3-year period. Figure 3.2 shows the number of ozone design values since 2003 that have exceeded the 2008 ozone standard on a county level. Design values for the counties of Door, Kenosha, and Sheboygan have

¹ Note: Design values are truncated after three decimal points (i.e., 0.0759 ppm = 0.075 ppm).

02/27/2009

exceeded 0.075 ppm for every concurrent three year period since 2003 (2003-05, 2004-06, 2005-07, and 2006-08). The counties of Kewaunee, Manitowoc, Milwaukee, Ozaukee, and Racine have exceeded 0.075 ppm for every concurrent three year period since 2003, except for the most recent three year period.

Figures 3.3 through 3.7 show ozone design values from the 1999-01 period onward, including a linear trend for the Milwaukee-Racine nonattainment area (Ozaukee, Washington, Waukesha, Milwaukee, Racine, and Kenosha Counties) and the counties of Sheboygan, Manitowoc, Kewaunee, and Door. Based on extrapolation of the linear trends, all counties, except Door, should achieve the 8-hour ozone standard by the 2010-12 period. Although the design values from the latest period are the lowest since the 1999-01 period, they are consistent with the downward trends shown.

Table 3.1: Fourth-Highest Daily Maximum 8-Hour Average Ozone Concentrations

Locations with design values exceeding the 2008 ozone standard are highlighted

AIRS ID	SITE ADDRESS	COUNTY	2006	2007	2008	DESIGN VALUE
550030010	Bad River Tribal School - Odanah	Ashland	0.061	0.066	0.060	0.062
550090026	Uw-Green Bay, Hwys 54 & 57	Brown	0.066	0.082	0.063	0.070
550210015	Wendt Rd, Columbus	Columbia	0.066	0.077	0.064	0.069
550250041	East High, 2302 Hoard St	Dane	0.066	0.080	0.063	0.069
550270007	Mayville, Near N6705 Madison Rd	Dodge	0.068	0.074	0.064	0.068
550290004	Newport State Park (Near Ellison Bay)	Door	0.079	0.092	0.069	0.080
550370001	Popple River, Nadp Fire Station #565	Florence	0.065	0.070	0.061	0.065
550390006	Fond Du Lac, N3996 Kelly Rd, Twn Byron	Fond du Lac	0.066	0.074	0.062	0.067
550410007	Fire Tower Rd, Potawatomi Site	Forest	0.066	0.073	0.066	0.068
550550002	Jefferson H.S. Trailer, Willow Dr.	Jefferson	0.069	0.076	0.066	0.070
550590019	Chiwaukee Prairie, 11838 First Court	Kenosha	0.079	0.085	0.072	0.078
550610002	Kewaunee, Route 1, Hwy 42	Kewaunee	0.077	0.085	0.065	0.075
550710007	Manitowoc/Woodlnd Dunes, 2315 Goodwin Rd	Manitowoc	0.078	0.085	0.064	0.075
550730012	Lake Dubay, 1780 Bergen Rd, Bergen Tnshp	Marathon	0.066	0.072	0.064	0.067
550790085	601 E. Ellsworth Lane	Milwaukee	0.073	0.083	0.069	0.075
550790041	Uwm North Campus, 2114 E Kenwood Blvd	Milwaukee	0.073	0.078	0.065	0.072
550790026	Dnr Ser Hdqrts, 2300 N M. L. King Jr Dr	Milwaukee	0.068	0.075	0.063	0.068
550790010	Health Center, 1337 So 16th St	Milwaukee	0.064	0.067	0.059	0.063
550850004	Harshaw Farm, 4398 Grace Lane, Harshaw	Oneida	0.064	0.071	0.063	0.066
550870009	Aal, 4432 N Meade St	Outagamie	0.069	0.075	0.062	0.068
550890009	Harrington Beach State Park, 531 Hwy D	Ozaukee	0.072	0.084	0.067	0.074
550890008	Grafton, Hwy32 And I43	Ozaukee	0.071	0.082	0.064	0.072
551010017	1519 Washington Ave	Racine	0.071	0.077	0.064	0.070
551050024	Cunningham, 1948 Merrill St	Rock	0.067	0.077	0.065	0.069
551110007	Devils Lake State Park, E12886 Tower Rd	Sauk	0.064	0.070	0.061	0.065
551170006	Kohler Andre Park, 1520 Old Park Road	Sheboygan	0.083	0.088	0.075	0.082
551091002	Hwy 64, Somerset Town Hall	St. Croix	0.068	0.075	0.062	0.068
551230008	Wildcat Mtn, Hwy 33, Ontario	Vernon	0.066	0.071	0.065	0.067
551250001	Trout Lake Nursery, County Hwy M	Vilas	0.066	0.073	0.063	0.067
551270005	Lake Geneva Nadp Site, Rr4 Elgin Club Rd	Walworth	0.072	0.075	0.064	0.070
551310009	Slinger, Hwy 60 & Scenic, Polk Twnshp	Washington	0.066	0.071	0.060	0.065
551330027	1310 Cleveland Ave	Waukesha	0.067	0.072	0.060	0.066

* Annual fourth-highest daily maximum 8-hour average ozone concentrations exceeding 0.075 ppm are listed in **bold**.Source: U.S. EPA AirData, Air Quality System (AQS): (<http://www.epa.gov/air/data/index.html>)

Figure 3.1: 8-Hour Ozone Design Values (ppb) (2006 to 2008)

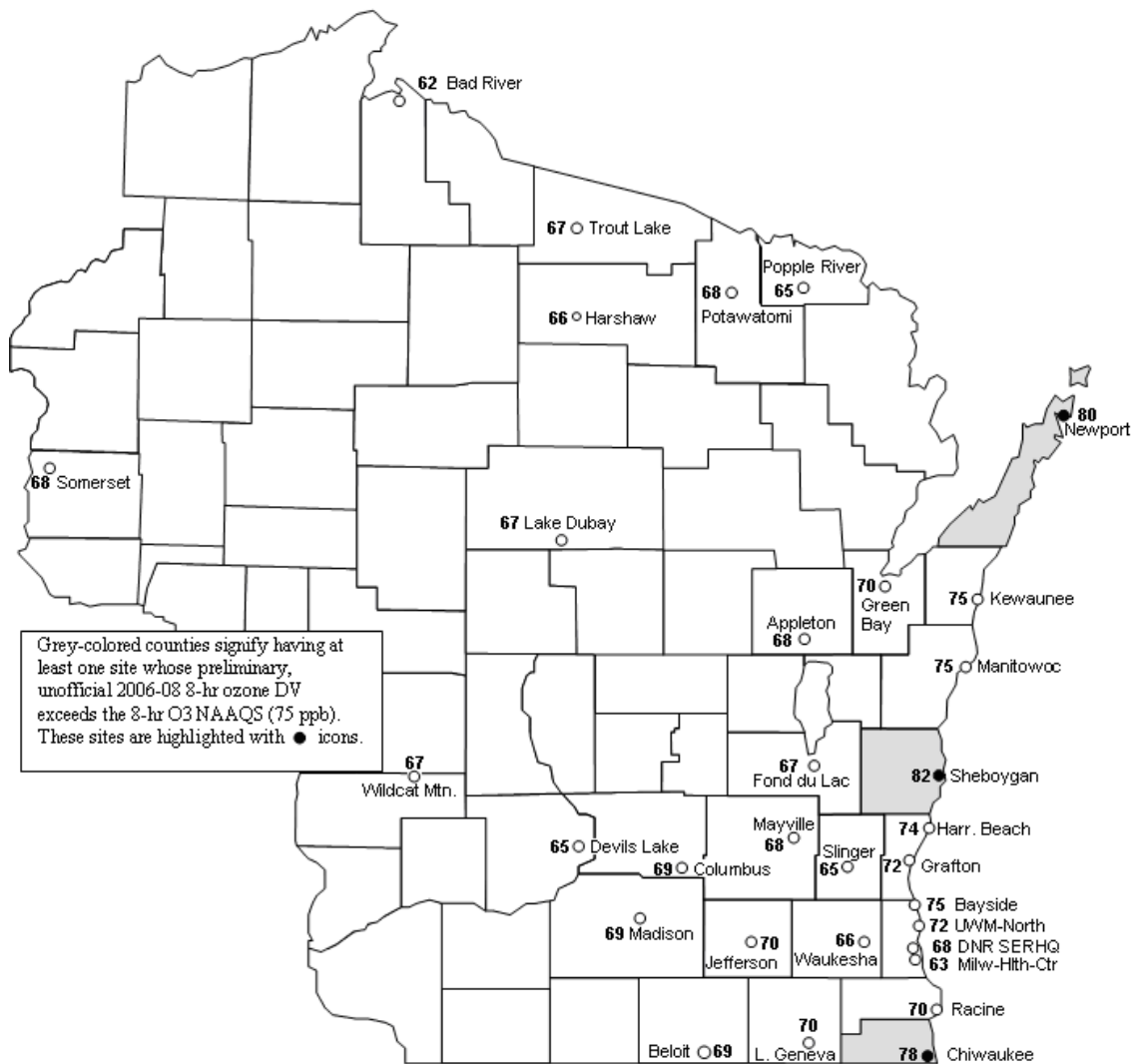
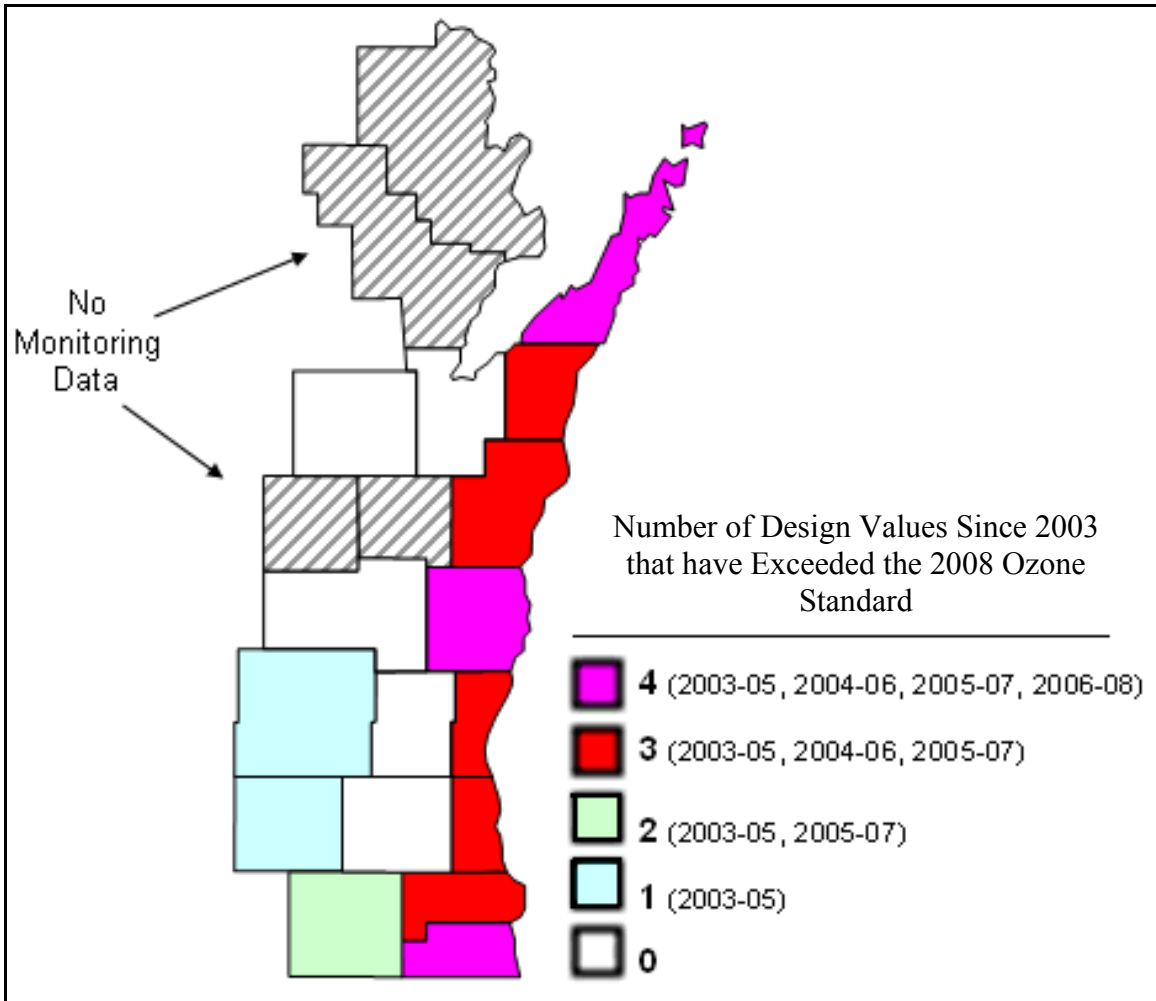
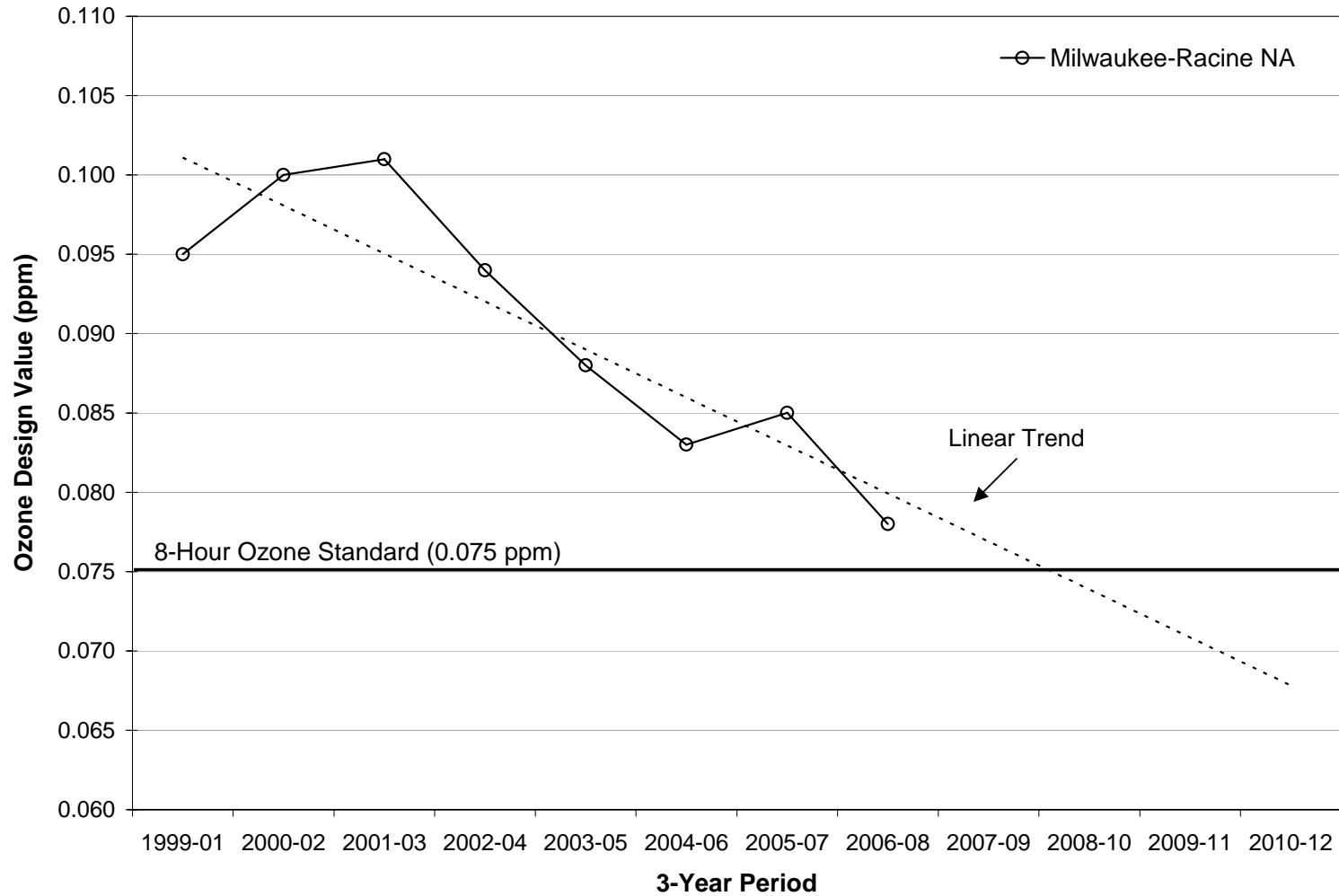


Figure 3.2: Number of 8-Hour Ozone Design Values Since 2003 that have Exceeded the 2008 Ozone Standard
(2003-05, 2004-06, 2005-07, and 2006-08)



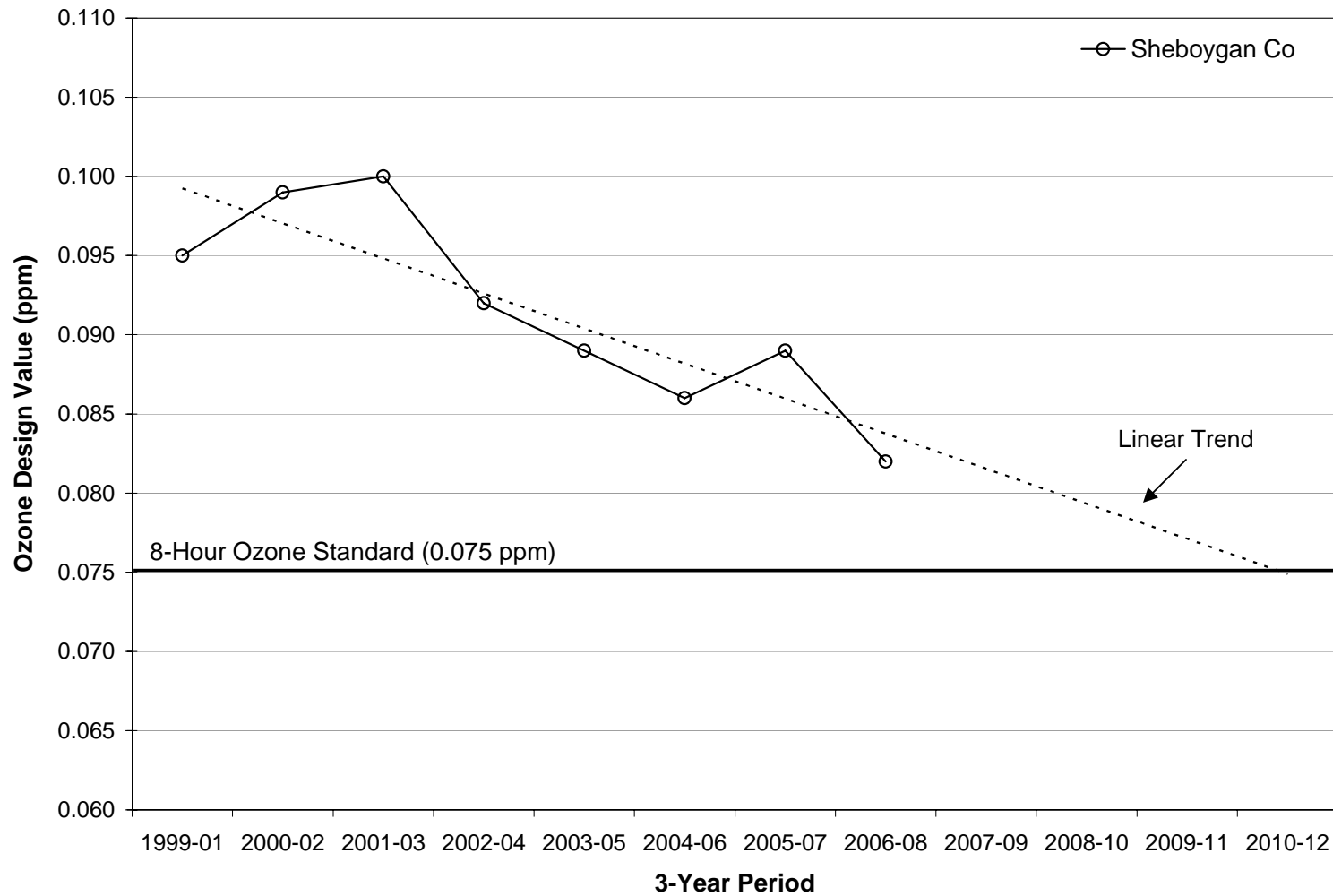
Source: U.S. Environmental Protection Agency Design Values
(<http://www.epa.gov/airtrends/values.html>)

FIGURE 3.3: 8-Hour Ozone Design Values Since 1999 for the Milwaukee-Racine Nonattainment Area



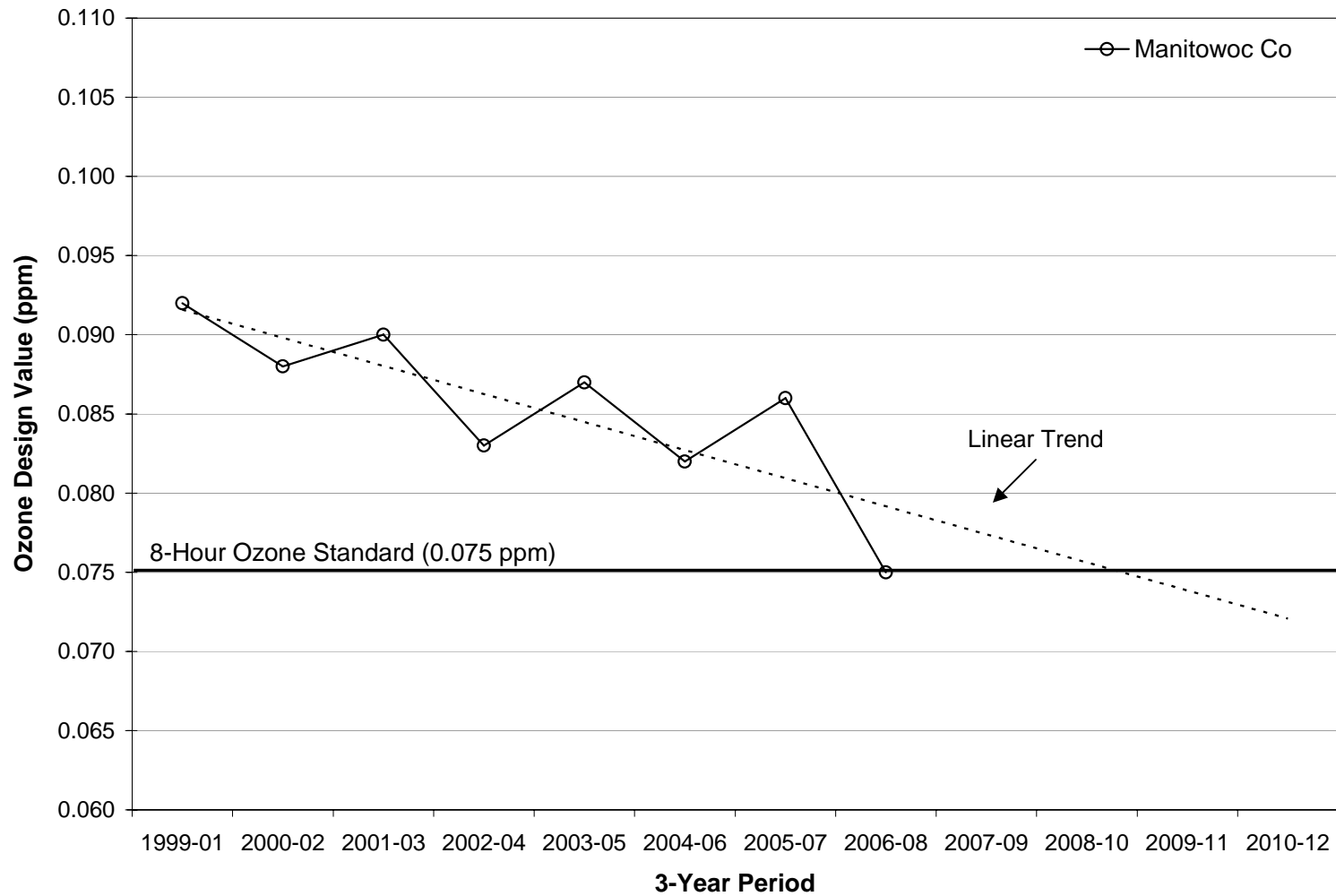
Source: U.S. Environmental Protection Agency Design Values (<http://www.epa.gov/airtrends/values.html>)

FIGURE 3.4: 8-Hour Ozone Design Values Since 1999 for Sheboygan County



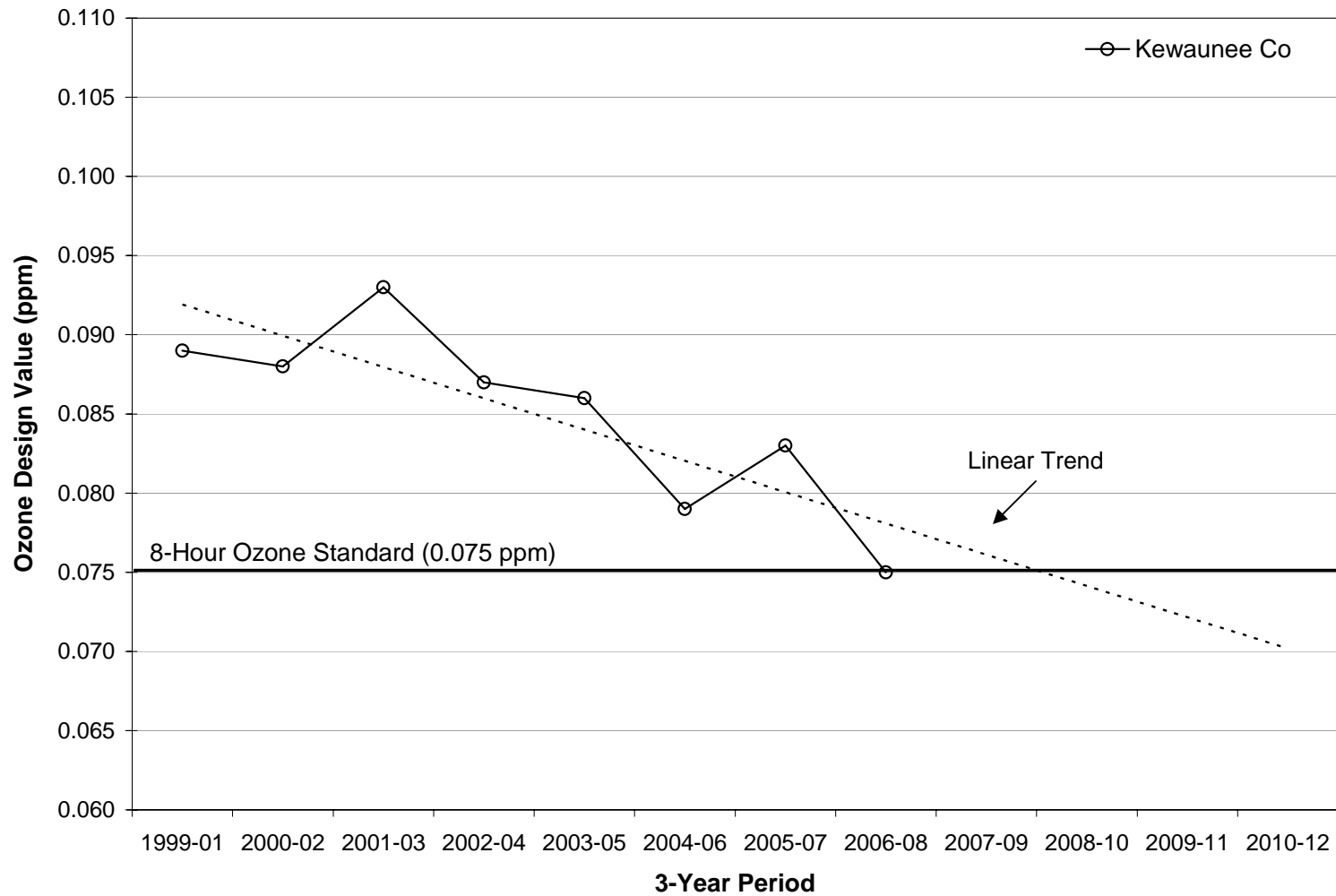
Source: U.S. Environmental Protection Agency Design Values (<http://www.epa.gov/airtrends/values.html>)

FIGURE 3.5: 8-Hour Ozone Design Values Since 1999 for Manitowoc County



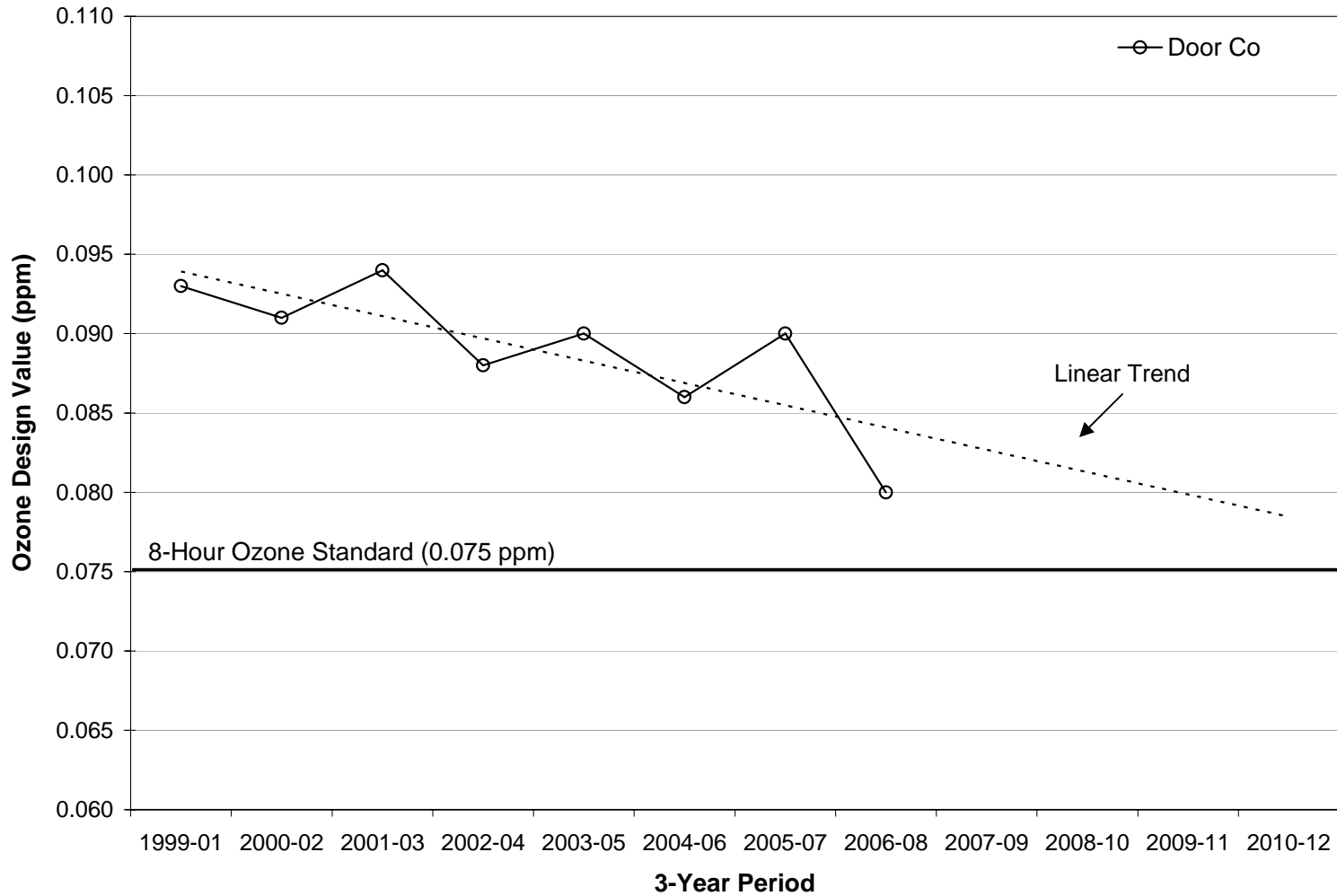
Source: U.S. Environmental Protection Agency Design Values (<http://www.epa.gov/airtrends/values.html>)

FIGURE 3.6: 8-Hour Ozone Design Values Since 1999 for Kewaunee County



Source: U.S. Environmental Protection Agency Design Values (<http://www.epa.gov/airtrends/values.html>)

FIGURE 3.7: 8-Hour Ozone Design Values Since 1999 for Door County



Source: U.S. Environmental Protection Agency Design Values (<http://www.epa.gov/airtrends/values.html>)

IV. Wisconsin Emissions Data

Ground level ozone is created by a chemical reaction between nitrogen oxides (NO_x) and volatile organic compounds (VOCs) in the presence of heat and sunlight. The highest daily ozone concentrations typically occur during the mid- to late-afternoon when daily temperatures reach their maximum. Vehicle and equipment exhaust, industrial emissions, gasoline vapors, and chemical solvents are some major sources of NO_x and VOCs. These emissions contribute to ozone formation locally and regionally. Therefore, it is important to consider emissions in counties where nonattainment is measured, as well as counties that contribute to nonattainment via atmospheric transport of NO_x and VOCs. Emissions summarized below are from the Wisconsin 2005 base year inventory submitted to EPA in June 2007.

Table 4.2 details 2005 summer day emissions for the twenty counties considered for a nonattainment designation. Emissions are summarized by source sector and the pollutants that contribute to ozone production. Automobiles and electric generating units (EGUs) are the major NO_x sources in the state due to high temperature fuel combustion associated with these sources. VOC emissions are derived from a number of sources, including onroad and nonroad mobiles sources (e.g., cars, trucks, lawn mowers, and outboard engines), industrial solvents and coatings, as well as smaller point sources, such as gasoline stations, portable fuel containers, and usage of solvents, coatings and cleaning agents in the home.

Significant NO_x emissions occur in the counties of Milwaukee, Brown, Kenosha, Waukesha, Sheboygan, and Outagamie (Table 4.2 and Figure 4.1). The counties with EGUs, the greatest vehicle miles traveled (VMT), and the largest populations have the highest NO_x emissions. The following table (4.1) shows the statewide ranks for these three factors.

Table 4.1: Statewide Ranks for NO_x Emission Indicators

COUNTY	NO _x (tpsd)	2008 POPULATION	2003-2007 AVERAGE VMT	2005 NO _x from EGUs
Milwaukee	91.3	1	1	3
Brown	72.9	4	4	2
Kenosha	47.7	8	10	1
Waukesha	29.7	3	3	24
Sheboygan	29.6	12	18	7
Outagamie	25.3	6	8	22

Note: Wisconsin has 72 counties.

Figure 4.2 demonstrates that VOC emissions occur in the more populous and industrial areas of the state. In Milwaukee County nearly 96 tons of VOC are emitted on a summer day, while 54 tons and 36 tons are emitted daily in Waukesha and Brown Counties, respectively. Substantial VOC emissions also occur in the Fox River Valley (Brown, Outagamie, and Winnebago Counties) and in counties such as Sheboygan, Washington, and Racine Counties. The counties noted either directly border a nonattainment area or are upwind of an area that measures nonattainment.

Table 4.2: 2005 Emissions Data for the Twenty Counties Considered for a Nonattainment Designation

COUNTY	FIPS Code	POINT		AREA		OFFROAD		ONROAD		TOTAL			
		NOX	VOC	NOX	VOC	NOX	VOC	NOX	VOC	NOX		VOC	
BROWN	55009	48.88	6.75	2.20	13.20	6.40	8.06	15.46	8.11	72.94	15.5%	36.11	7.5%
CALUMET	55015	0.23	1.04	0.19	2.25	1.90	1.89	2.44	1.29	4.76	1.0%	6.46	1.3%
DODGE	55027	0.52	1.77	0.40	7.82	3.75	4.01	6.17	2.94	10.83	2.3%	16.54	3.5%
DOOR	55029	0.00	0.25	0.26	1.91	5.35	9.21	2.45	1.05	8.06	1.7%	12.41	2.6%
FOND DU LAC	55039	1.84	2.69	0.68	6.56	3.44	4.33	6.87	3.51	12.82	2.7%	17.09	3.6%
JEFFERSON	55055	3.25	1.73	0.65	7.85	2.89	4.97	8.49	2.97	15.28	3.3%	17.52	3.7%
KENOSHA	55059	35.40	0.93	0.99	7.42	4.13	4.46	7.13	3.02	47.65	10.2%	15.83	3.3%
KEWAUNEE	55061	0.07	0.31	0.09	1.65	1.73	1.61	1.22	0.59	3.11	0.7%	4.16	0.9%
MANITOWOC	55071	5.07	1.80	0.53	5.83	3.81	3.33	7.36	2.57	16.77	3.6%	13.53	2.8%
MARINETTE	55075	6.67	3.03	0.21	3.98	1.74	4.77	3.07	1.48	11.69	2.5%	13.26	2.8%
MILWAUKEE	55079	30.95	9.01	7.25	54.57	17.80	16.02	35.33	15.86	91.34	19.5%	95.46	19.9%
OCONTO	55083	0.16	0.89	0.22	2.50	1.23	5.01	3.47	1.51	5.07	1.1%	9.90	2.1%
OUTAGAMIE	55087	9.53	4.65	1.54	7.36	4.63	4.64	9.62	5.39	25.33	5.4%	22.04	4.6%
OZAUKEE	55089	1.04	0.65	0.77	8.81	5.28	2.55	5.57	2.02	12.66	2.7%	14.04	2.9%
RACINE	55101	0.83	1.66	1.32	23.10	5.44	6.06	7.33	3.24	14.92	3.2%	34.07	7.1%
SHEBOYGAN	55117	16.43	2.98	1.22	9.50	4.08	5.36	7.84	2.86	29.58	6.3%	20.69	4.3%
WALWORTH	55127	0.44	1.33	0.82	6.26	3.36	6.88	7.59	3.65	12.21	2.6%	18.12	3.8%
WASHINGTON	55131	0.53	0.66	1.06	15.09	3.89	5.65	8.36	2.97	13.84	3.0%	24.36	5.1%
WAUKESHA	55133	1.00	4.60	4.12	21.59	12.11	18.87	22.49	8.88	39.72	8.5%	53.94	11.3%
WINNABEGO	55139	2.78	7.25	1.34	9.39	5.57	11.44	10.81	5.62	20.49	4.4%	33.70	7.0%
TOTAL	---	165.62	53.97	25.86	216.62	98.53	129.12	179.07	79.53	469.08		479.24	
% OF POLLUTANT	---	35.3 %	11.3 %	5.5 %	45.2 %	21.0 %	26.9 %	38.2 %	16.6 %				

NOx and VOC from stationary air pollution sources have been trending downward in Wisconsin since 1985. Figure 4.3 shows the annual amount of NOx and VOC emitted from stationary air pollution sources from 1985 through 2007 for the twenty counties considered for a nonattainment designation. The actual tonnage of reported NOx ranged from approximately 84,544 tons in 1985 to approximately 42,386 tons in 2007. The actual tonnage of reported VOC ranged from approximately 36,460 tons in 1985 to approximately 14,237 tons in 2007.

The following table (4.3) shows the change in summer day emissions for the point, area, on-road, and off-road source sectors from the 2002 to 2005 Wisconsin emissions inventories for the twenty counties considered for a nonattainment designation. The total NOx and VOC emissions decreased from 2002 to 2005 across the twenty county region.

Table 4.3: Change in Summer Day Emissions for the Twenty Counties Considered for a Nonattainment Designation

NOx (tons per summer day)			VOC (tons per summer day)		
Sector	2002	2005	Sector	2002	2005
Point	202.8	165.6	Point	44.6	54.0
Area	20.1	25.9	Area	236.3	216.6
On-road	218.5	179.1	On-road	102.3	79.5
Off-road	107.4	98.5	Off-road	144.6	129.1
Total	548.8	469.1	Total	527.8	479.2
	14.5 % Decrease			9.2 % Decrease	

Figure 4.1: 2005 NO_x Emissions by County (Tons per Summer Day)

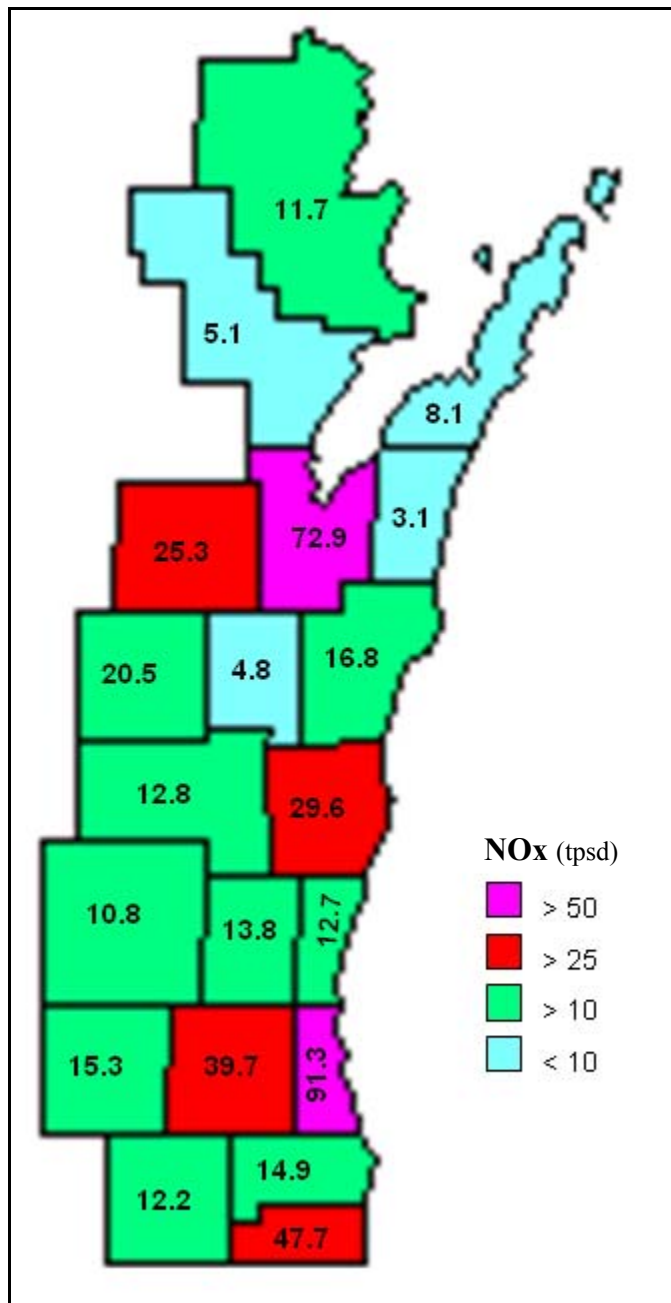
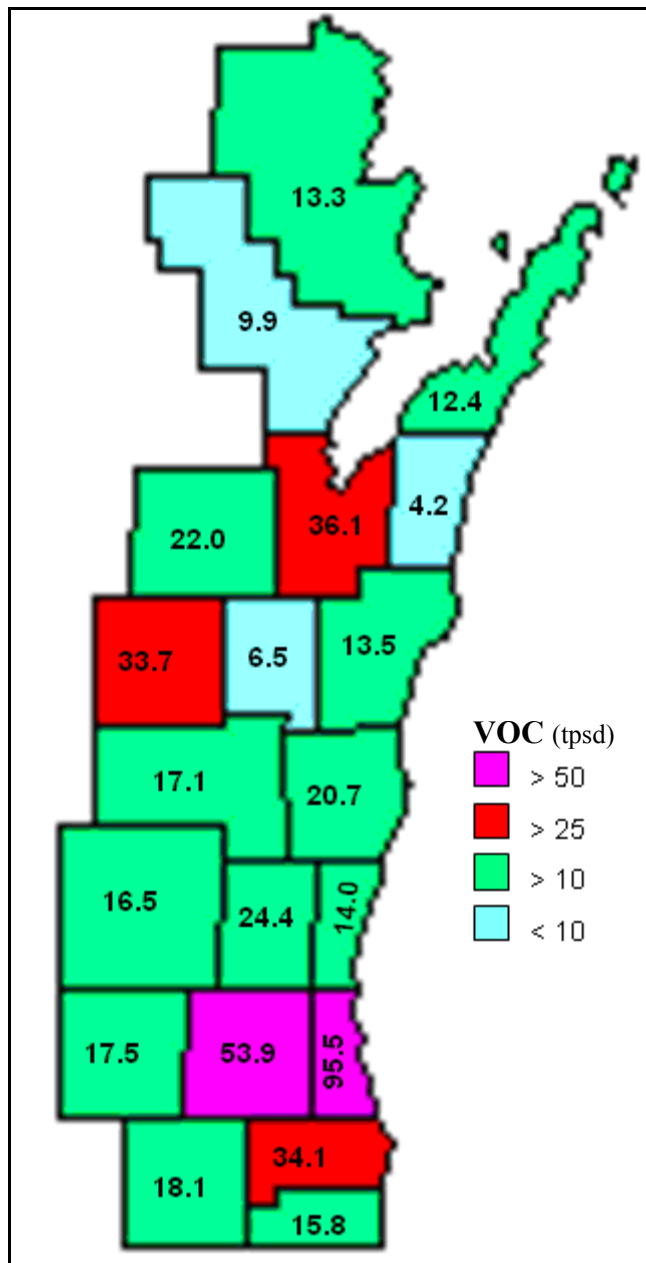
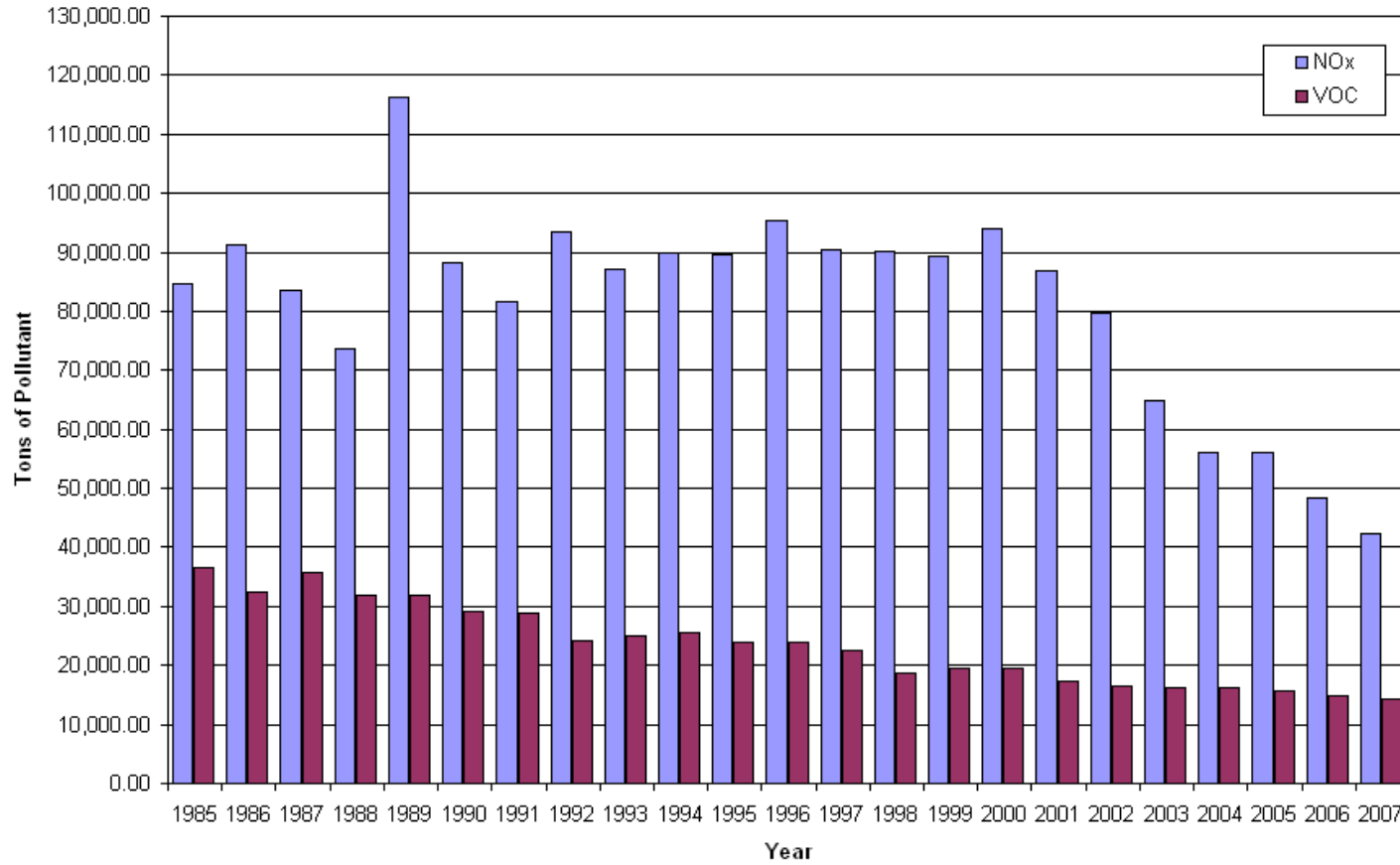


Figure 4.2: 2005 VOC Emissions by County (Tons per Summer Day)



**Figure 4.3: NOx and VOC from Stationary Air Pollution Sources (1985-2007)
for the Twenty Counties Considered for a Nonattainment Designation**



Data Source: http://dnr.wi.gov/air/emission/historical_emissions/historical_emissions_nox.htm

V. Population Density and Degree of Urbanization

Population density and the degree of urbanization are well correlated with the amount and concentration of air pollutant emissions. Identifying areas with a dense population and those experiencing rapid urbanization is critical for determining areas that contribute to ozone formation.

a. Population Density

Since 2000, population density has increased in all twenty counties considered for a nonattainment designation, except Milwaukee. The counties experiencing the largest total increase in population density include Kenosha, Waukesha, Brown, Washington, and Racine (Table 5.1). This is important because emissions typically increase with population density increases.

Table 5.1: Population Density Change (2000 to 2008) and 2008 Population Density
Counties with pop. density change > 25 persons/mi² or pop. density > 500 persons/mi²

COUNTY	Population Density Change 2000 to 2008 (persons/mile ²)	2008 Population Density (persons/mile ²)
Kenosha	45.88	594.12
Waukesha	39.47	688.82
Brown	35.01	463.74
Washington	30.14	302.89
Racine	22.49	589.38

Source: Derived from Data Created by Wisconsin Department of Administration – Demographic Services
(<http://www.doa.state.wi.us/docview.asp?locid=9&docid=7263>)

Figure 5.1 shows the 2008 population density estimates for the twenty counties considered for a nonattainment designation. The counties of southeast Wisconsin and the Fox River Valley are the two most densely populated areas.

b. Degree of Urbanization

The degree of urbanization is also an important influence on pollutant emissions. In 2000, 68.3% of Wisconsin's population lived in urban areas, as defined by the U.S. Census Bureau (More recent estimates are not available). That is 2.6% greater than in 1990 (65.7%).

Approximately 33% of Wisconsin's entire population lives in the twenty counties considered for a nonattainment designation. In 1990, 2.854 million people lived in these counties and 78.7% was classified as urban. During the next 10 years, the population in this area grew to 3.048 million and 81.1% was classified as urban. The twenty counties considered for a nonattainment designation, as a whole, are becoming more urban.

Seven of the twenty counties considered for a nonattainment designation had an urban population of 75% or greater in 1990 or 2000 (Table 5.2). Of these seven largely urbanized counties, all, except Milwaukee and Ozaukee, experienced an increasing degree of urbanization between 1990 and 2000.

Table 5.2: Counties with an Urban Population > 75%

COUNTY	% Urban Population in 2000	% Urban Population in 1990	% Difference 2000 – 1990
Milwaukee	99.7 %	100.0 %	- 0.3 %
Brown	83.9 %	83.2 %	+ 0.7 %
Winnebago	84.2 %	81.7 %	+ 2.5 %
Racine	87.0 %	79.4 %	+ 7.6 %
Kenosha	88.6 %	78.8 %	+ 9.8 %
Waukesha	87.8 %	78.1 %	+ 9.7 %
Ozaukee	74.6 %	75.7 %	- 1.0 %

Source: U.S. Census Bureau – Summary File 1 – SF 1 – 100% Data
http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=DEC&_submenuId=&_lang=en&_ts=

Rural counties in the twenty counties considered for a nonattainment designation are also rapidly becoming more urban. Counties such as Walworth and Washington witnessed urbanization rates exceeding 10% between the 1990 and 2000 (Table 5.3).

Table 5.3: Large Urban Population Increases for Rural Counties
(2000 – 1990) > 10%

COUNTY	% Urban Population in 2000	% Urban Population in 1990	% Difference 2000 – 1990
Walworth	64.0 %	40.3 %	+ 23.7 %
Washington	65.2 %	50.8 %	+ 14.4 %

Source: U.S. Census Bureau – Summary File 1 – SF 1 – 100% Data
http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=DEC&_submenuId=&_lang=en&_ts=

The nonattainment boundary guidance provided by EPA recommends considering the degree of commercial development. Based on data from the Wisconsin Department of Workforce Development, the one year change in “service providing” jobs from October, 2007 to October, 2008 was analyzed for the twenty counties considered for a nonattainment designation (WI DWD, 2008a). Service providing jobs include, construction, mining, and natural resources; manufacturing; trade; transportation, warehousing, and utilities; financial activities; education and health services; leisure and hospitality; information, professional and business; and other services, excluding public service (i.e., government). Figure 5.2 shows the one year percentage change in service providing jobs. Some of the statistics were only provided on a metropolitan, or multiple county, level. Milwaukee and the surrounding counties saw a decrease in the amount of service providing jobs. Only two counties, Dodge and Kenosha, saw an increase in the amount of service providing jobs by more than five percent.

Figure 5.1: 2008 Population Density by County

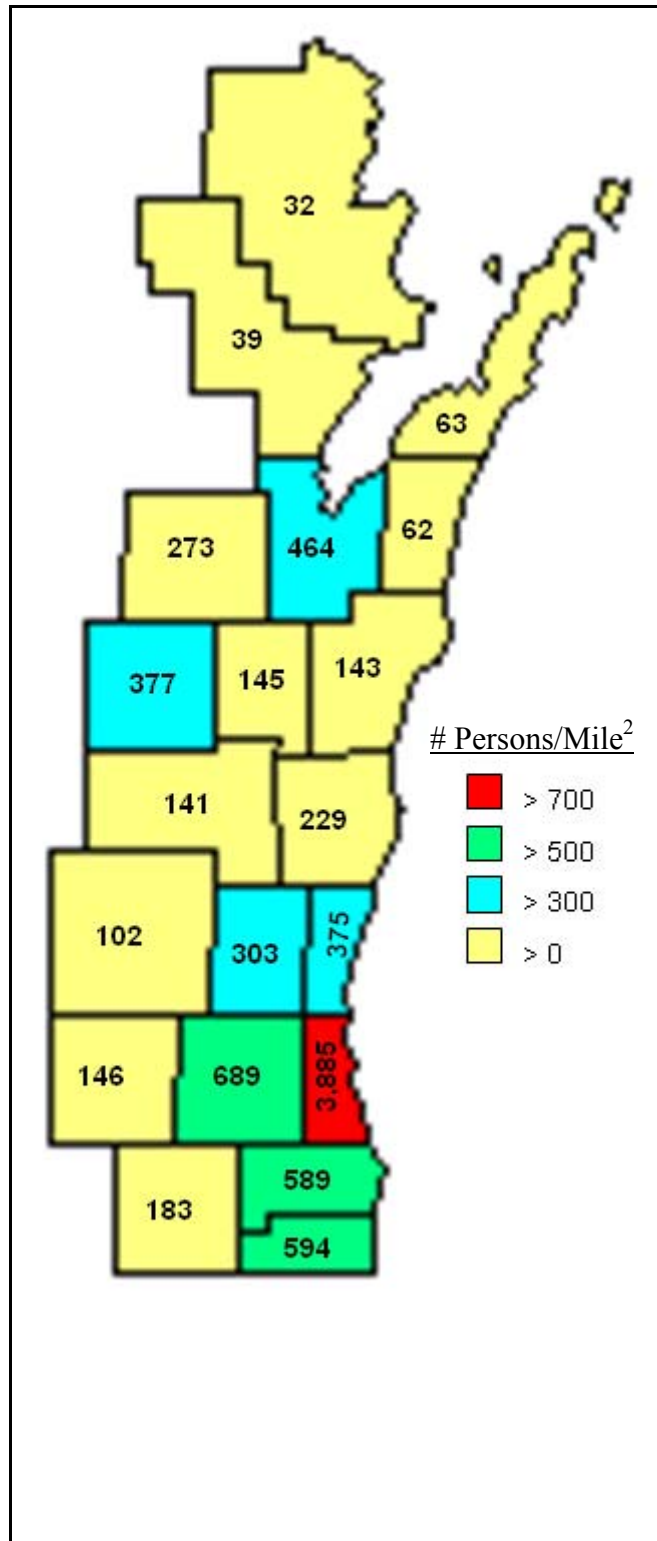
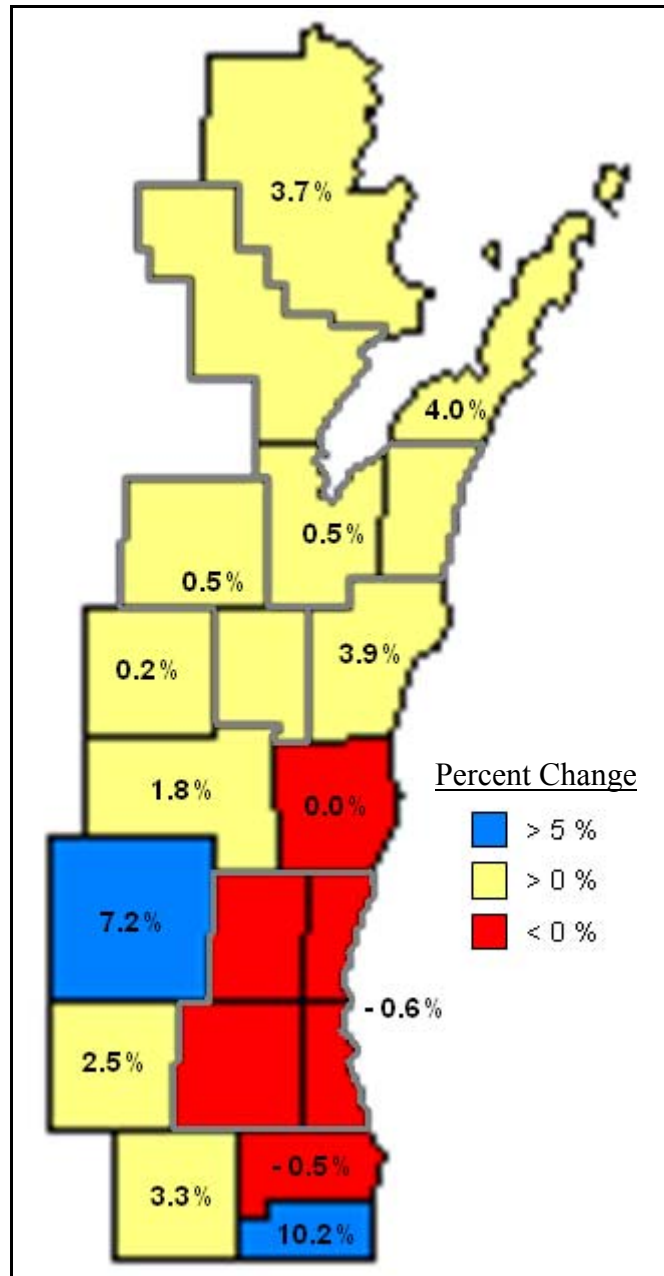


Figure 5.2: One-Year Percentage Change in Service Providing Jobs
October, 2008 – October, 2007



VI. Traffic & Commuting Patterns

Motor vehicles are the single largest source category of ozone precursor NO_x emissions and the second largest source category of ozone precursor VOC emissions across the twenty counties considered for a nonattainment designation. One indicator of vehicle use is the total miles traveled on roads and highways by motor vehicles in the state, or VMT.

The greatest total gasoline VMT occurs in counties with major interstate stretches of highway, as well as areas of greater population (Table 6.1). The counties with the greatest summer average VMT are Milwaukee (1.914 Billion), Waukesha (1.050 Billion), and Brown (0.610 Billion) of the twenty counties considered for a nonattainment designation

Table 6.1: Summer Vehicle Miles Traveled (Billions of Miles)

COUNTY	2003	2004	2005	2006	2007	Average
BROWN	0.606	0.614	0.619	0.605	0.605	0.610
CALUMET	0.096	0.098	0.100	0.099	0.097	0.098
DODGE	0.233	0.245	0.242	0.239	0.238	0.239
DOOR	0.097	0.098	0.093	0.090	0.090	0.094
FOND DU LAC	0.267	0.270	0.278	0.283	0.278	0.275
JEFFERSON	0.249	0.255	0.250	0.244	0.243	0.248
KENOSHA	0.371	0.376	0.384	0.384	0.381	0.379
KEWAUNEE	0.047	0.048	0.047	0.046	0.048	0.047
MANITOWOC	0.215	0.218	0.219	0.215	0.214	0.216
MARINETTE	0.122	0.124	0.120	0.120	0.120	0.121
MILWAUKEE	2.002	2.009	1.847	1.853	1.859	1.914
OCONTO	0.131	0.128	0.130	0.129	0.130	0.130
OUTAGAMIE	0.391	0.399	0.412	0.418	0.413	0.407
OZAUKEE	0.224	0.230	0.254	0.250	0.297	0.251
RACINE	0.419	0.423	0.412	0.402	0.396	0.411
SHEBOYGAN	0.256	0.259	0.264	0.260	0.261	0.260
WALWORTH	0.285	0.284	0.288	0.287	0.294	0.288
WASHINGTON	0.328	0.336	0.338	0.353	0.342	0.339
WAUKESHA	1.035	1.049	1.048	1.064	1.055	1.050
WINNEBAGO	0.453	0.446	0.441	0.438	0.439	0.444
TOTAL	7.83	7.91	7.79	7.78	7.80	7.82

Source: Wisconsin Department of Transportation
(<http://www.dot.state.wi.us/travel/counts/vmt.htm>)

Commuting data provides a measure of how far an individual travels between work and home. Based on 2000 U.S. Census data from the Wisconsin Department of Workforce Development, commuting patterns were analyzed for the three counties that measured nonattainment of the 2008 ozone standard (Door, Sheboygan, and Kenosha) (WI DWD 2008b). Of those that live in Door County, 88.6 % work in Door County; and of those that work in Door County, 92.2 % live in Door County. Of those that live in Sheboygan County, 87.9 % work in Sheboygan County; and of those that work in Sheboygan

County, 86.7 % live in Sheboygan County. Of those that live in Kenosha County, 56.2 % work in Kenosha County, 9.1% work in Racine County, and 28.5 % work in Illinois; and of those that work in Kenosha County, 76.5 % live in Kenosha County, 11.0% live in Racine County, and 6.1 % live in Illinois. Most individuals in these three counties work and live in the same county, with a decreased majority in the Illinois border county of Kenosha.

VII. Growth Rates and Patterns

Wisconsin's population has grown by 5.8 % from 5.36 million to 5.68 million over the past eight years. Several counties experienced strong population growth during this period, while Milwaukee County's population decreased by 0.2 %, or 1,674 inhabitants (Table 7.1 and Figure 7.1). Milwaukee County remains Wisconsin's most populous county with approximately 938,500 inhabitants in 2008.

Many counties witnessed notable population growth. The counties experiencing the largest total increase in population include Waukesha, Brown, Outagamie, Washington, and Kenosha (Table 7.1). The counties experiencing the largest percentage increase in population include Calumet, Washington, Oconto, and Walworth (Table 7.1).

Table 7.1: Population Growth (2000 to 2008)

Counties with growth > 10,000 persons or > 10% increase

COUNTY	Population Growth 2000 to 2008 (persons)	% Increase 2000 to 2008	January 1, 2008 Population Estimate (persons)
Waukesha	21,930	6.1 %	382,697
Brown	18,510	8.2 %	245,168
Outagamie	13,687	8.5 %	174,778
Washington	12,997	11.1 %	130,493
Kenosha	12,517	8.4 %	162,094
Walworth	9,302	10.1 %	101,315
Calumet	5,661	13.9 %	46,292
Oconto	3,609	10.1 %	39,261

Source: Wisconsin Department of Administration – Demographic Services
(http://www.doa.state.wi.us/docs_view2.asp?docid=2066)

The Wisconsin Department of Administration – Demographic Services projects population growth from 2000 through 2035. Positive growth is forecasted throughout the twenty counties considered for a nonattainment designation, except for Milwaukee County (Figure 7.2). The counties projected to have the largest total increase in population include Waukesha, Brown, Outagamie, Kenosha, and Washington (Table 7.2). The counties projected to have the largest percentage increase in population include Calumet, Walworth, Washington, Oconto, Kenosha, and Outagamie (Table 7.2).

Table 7.2: Projected Population Growth (2000 to 2035)

Counties with growth > 50,000 persons or > 40% increase

COUNTY	Population Growth (persons)	Population Growth (%)	Population in 2035 (persons)
Waukesha	93,700	26.0 %	454,467
Brown	90,387	39.9 %	317,045
Outagamie	67,307	41.8 %	228,398
Kenosha	63,500	42.5 %	213,077
Washington	51,663	44.0 %	169,159
Walworth	40,928	44.5 %	132,941
Calumet	30,596	75.3 %	71,227
Oconto	15,385	43.2 %	51,037

Source: Wisconsin Department of Administration – Demographic Services
(http://www.doa.state.wi.us/docs_view2.asp?docid=2066)

Strong population growth will lead to increasing mobile and area source emissions throughout the region.

Figure 7.1: Population Growth by County (2000 to 2008)

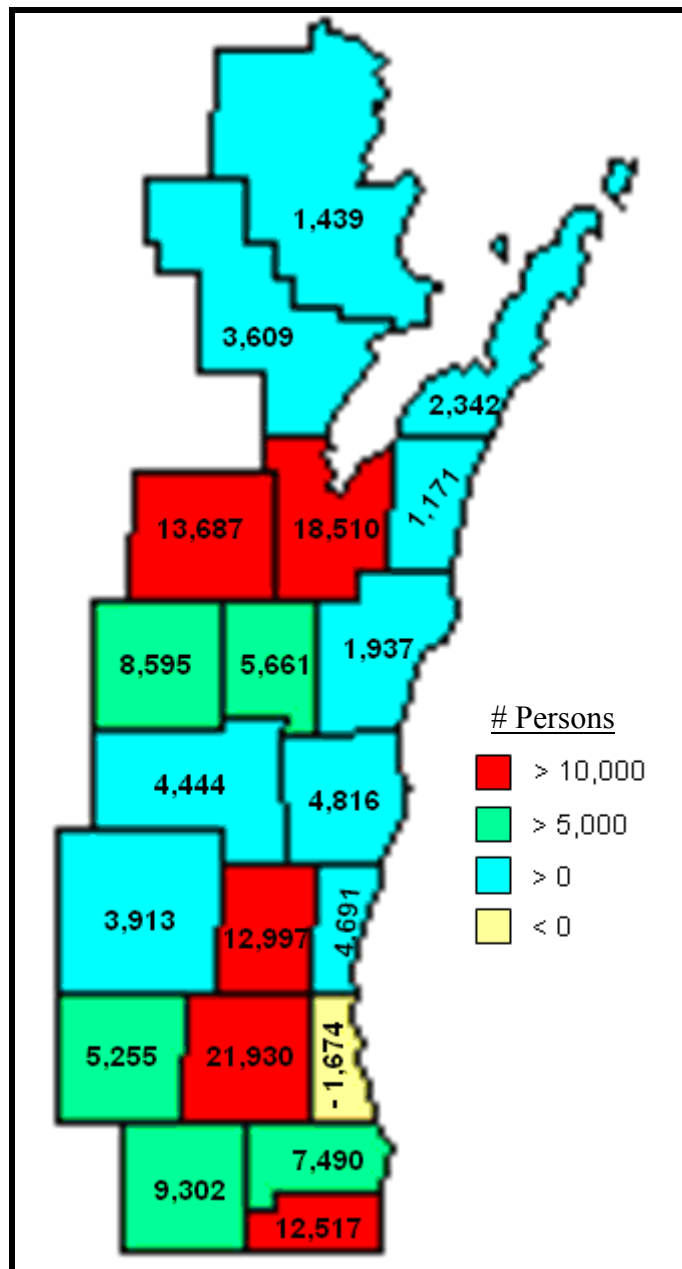
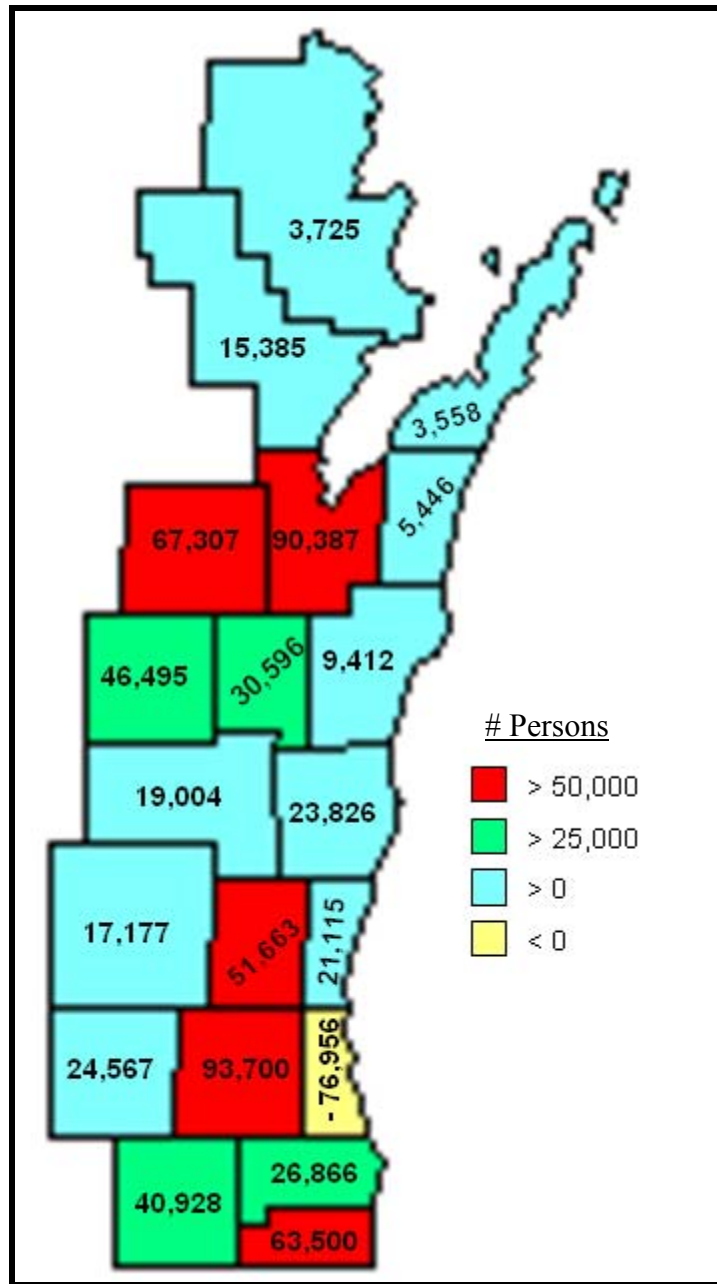


Figure 7.2: Projected Population Growth by County (2008 to 2035)



VIII. Meteorology / Transport

Wisconsin is located in the upper Midwest. It experiences primarily a continental climate with synoptic scale weather features that are often moderated by the passage of either dry, cooler air masses from Canada or warm, humid air that originates from the Gulf coast area.

The topography of Wisconsin is predominantly flat. Consequently, topography has relatively little influence on Wisconsin's weather, especially as it pertains to air pollution transport. However, both Lake Michigan and Lake Superior are large bodies of water on the eastern and northern borders of Wisconsin whose surface temperatures relative to land temperature (spring/summer: cold, fall/winter: warm) often can greatly modify both thermal and wind patterns along the shoreline areas of the state. In particular, the summer and spring time Lake Michigan lake breeze is a mesoscale meteorological feature that is often associated with high levels of tropospheric ozone along the eastern Wisconsin coastline.

On a larger synoptic meteorological scale, when Wisconsin is positioned on the western side of high pressure system, this often brings warm, sunny, humid air with limited atmospheric mixing. This feature is especially, but not exclusively, evident during the warmer months. These meteorological conditions are often very conducive to the transport of high levels of air pollution into the state from upwind regions, such as the Chicago-Gary area and the Ohio River Valley.

a) Eastern Wisconsin Temperatures

Wisconsin has nine climate divisions. Climate divisions are regions with similar temperature and precipitation characteristics. The eastern portion of the state makes up the East Central and Southeast Climate Divisions (Figure 8.1). Ozone monitors are located in all of the counties in these two climate divisions, except Calumet and Winnebago.

The average temperature from May through September, based on data from 1971 through 2000, for these two climate divisions is 64 ° F. Over the past five years, the average May through September temperature has ranged from 62 ° F to 66 ° F (Figure 8.2). Above normal temperatures can lead to higher than normal ozone concentrations. The average fourth-highest daily maximum 8-hour average ozone concentrations for the ozone monitors located in the East Central and Southeast Climate Divisions are also shown in Figure 8.2 (EPA, 2008c). The average May through September temperatures are well correlated with the average 8-hour ozone concentrations. For example, the average May through September temperature during 2005 was 2.0 ° F above normal and the average fourth-highest daily maximum 8-hour average ozone concentration reached a five year high. Temperature data was obtained from the Western Regional Climate Center (WRCC, 2008).

b) Transport Patterns

Atmospheric back trajectories can be used to identify upwind regions contributing to high air pollution concentrations. A brief analysis of transport patterns of both gaseous precursors to ozone and ozone was conducted using derived back trajectories. Wind roses were also developed for the counties that exceeded the 2008 ozone standard from onsite wind measurements.

The HYSPLIT (HYbrid Single-Particle Lagrangian Integrated Trajectory) trajectory model (Draxler and Hess, 1998) was applied to gridded hourly meteorological data on those days from 2006 through 2008 when an ozone monitor in Kenosha, Sheboygan, or Door County measured a 1-hour ozone concentration greater than or equal to 75 parts per billion (ppb). Near surface (10 meters above ground level [agl]) 6-hour back trajectories were determined from the three monitoring locations in Door, Kenosha, and Sheboygan Counties. The ending time for the trajectories was the hour when the highest 1-hour ozone concentration was measured.

The following table (8.1) shows the percentage of times a back trajectory passed through a particular county. Only Sheboygan County has more than 20 % of trajectories that pass through any other Wisconsin counties.

Table 8.1: Hysplit Back Trajectories for Days when 1-Hour Ozone Conc. \geq 75 ppb

Door County		Sheboygan County		Kenosha County	
Number of Days the 1-Hour Ozone Concentration \geq 75 ppb from 2006 – 2008 = 26 Days		Number of Days the 1-Hour Ozone Concentration \geq 75 ppb from 2006 – 2008 = 29 Days		Number of Days the 1-Hour Ozone Concentration \geq 75 ppb from 2006 – 2008 = 19 Days	
Percentage of Times a 6-Hour Back Trajectory Passed Through a Particular County		Percentage of Times a 6-Hour Back Trajectory Passed Through a Particular County		Percentage of Times a 6-Hour Back Trajectory Passed Through a Particular County	
Brown	11.5 %	Ozaukee	41.4 %	Walworth	15.8 %
Kewaunee	7.7 %	Waukesha	31.0 %	Racine	5.3 %
Manitowoc	7.7 %	Milwaukee	31.0 %	Rock	5.3 %
		Racine	31.0 %		
Chicago N.A.	69.2%	Washington	24.1 %	Chicago N.A.	57.9%
		Kenosha	20.7 %		
		Dodge	17.2 %		
		Fond Du Lac	13.8 %		
		Walworth	6.9 %		
		Calumet	6.9 %		
		Winnebago	6.9 %		
		Jefferson	6.9 %		

Wind roses for ozone monitor locations in Kenosha, Sheboygan, and Door County were derived for those hours from 2006 through 2008 when the 1-hour ozone concentration was greater than or equal to 75 ppb (Figures 8.4 – 8.6). Wind roses show the percentage of time the wind was blowing from a particular direction. The primary wind direction for the Door County monitor was from the south-southwest towards Kewaunee, Brown, and Manitowoc Counties. The primary wind direction for the Sheboygan County monitor was from the south-southwest towards Ozaukee, Washington, Waukesha, Milwaukee,

Racine, and Walworth Counties. The primary wind direction for the Kenosha County monitor was from the south-southeast towards Chicago.

c) Ozone Source Apportionment

Air quality models can be useful tools for determining which areas contribute to high ozone concentrations. One such model is the Comprehensive Air Quality Model with Extensions (CAMx). CAMx is a multi-scale, three dimensional, state of the science photochemical model that contains a variety tools, including the ozone source apportionment tool (OSAT). OSAT identifies the contribution to modeled ozone concentration at a particular location from regional locations and various emissions sectors.

The Lake Michigan Air Directors Consortium (LADCO) provided ozone source apportionment results for Door, Sheboygan, and Kenosha Counties. The modeled ozone concentrations were determined assuming 2009 air pollution controls. The 1-hour average ozone concentrations were calculated as 86 ppb, 88 ppb, and 88 ppb for Door, Sheboygan, and Kenosha Counties, respectively, for days when the 1-hour ozone concentration was at least 75 ppb.

Contribution to the 1-hour average ozone concentrations are determined from seventeen geographic regions and six emission sector categories. The geographic regions are listed in Table 8.2. The emission sector categories include electrical generating units and non-electrical generating units, which are combined for a point sector estimate, on-road, off-road, area, and biogenic. A portion of the 1-hour average ozone concentration can not be attributed to any geographic region or emission sector category, rather it is attributed to the boundary contribution from the model. The boundary contribution represents ozone entering the model through the lateral and top boundaries, which may represent a hemispheric or global background contribution. Contributions to the 1-hour average ozone concentrations are based on the “attributable” portion of the average, which excludes the background contribution. Figures 8.7 through 8.9 provide a summary of the OSAT results.

The Chicago nonattainment area contributes the largest portion of the average 1-hour ozone concentration to Door County, 28.9 %. The Milwaukee nonattainment area contributes 8.9 % of the average 1-hour ozone concentration to Door County. The on-road emission source sector is the largest contributor to the average 1-hour ozone concentration to Door County, 27.7 %.

The Chicago nonattainment area contributes the largest portion of the average 1-hour ozone concentration to Sheboygan County, 32.0 %. The Milwaukee nonattainment area contributes 13.5 % of the average 1-hour ozone concentration to Sheboygan County. The on-road emission source sector is the largest contributor to the average 1-hour ozone concentration to Sheboygan County, 29.0 %.

The Chicago nonattainment area contributes the largest portion of the average 1-hour ozone concentration to Kenosha County, 39.6 %. The Milwaukee nonattainment area contributes 4.1 % of the average 1-hour ozone concentration to Kenosha County. The off-road emission source sector is the largest contributor to the average 1-hour ozone concentration to Kenosha County, 29.0 %.

Table 8.2: OSAT Source Regions

Chicago Nonattainment Counties	MANE-VU States ²
Canada	Michigan (Excluding Detroit Nonattainment Counties)
CENRAP and WRAP States ² (Excluding Iowa, Minnesota, and Missouri)	Milwaukee Nonattainment Counties
Cleveland Nonattainment Counties	Missouri
Detroit Nonattainment Counties	Ohio (Excluding Cleveland Nonattainment Counties)
Illinois (Excluding Chicago Nonattainment Counties)	VISTAS States (Excluding Kentucky and West Virginia) ²
Indiana (Excluding Chicago Nonattainment Counties)	West Virginia
Iowa and Minnesota	Wisconsin (Excluding Milwaukee Nonattainment Counties)
Kentucky	

d) Chicago Nonattainment Area NO_x and VOC Emissions

As shown in the OSAT results, the Chicago nonattainment counties contribute a significant portion of the attributable ozone concentrations to Door, Sheboygan, and Kenosha Counties. Figures 8.10 and 8.11 show the NO_x and VOC emissions from the Chicago nonattainment counties compared to the twenty counties in Wisconsin considered for a nonattainment designation. Based on 2005 emissions data estimates provided by LADCO, the Chicago nonattainment counties contribute at least 65% of the regional NO_x and VOC emissions considering the point, area, on-road, and non-road emission source sectors (2008).

² **CENRAP** (Central Regional Air Planning Association): Arkansas, Iowa, Kansas, Louisiana, Minnesota, Missouri, Nebraska, Oklahoma, and Texas.

WRAP (Western Regional Air Partnership): Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming.

MANE-VU (Mid-Atlantic / Northeast Visibility Union): Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

VISTAS (Visibility Improvement – State and Tribal Association of the Southeast): Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia.

Figure 8.1: Eastern Wisconsin Climate Divisions

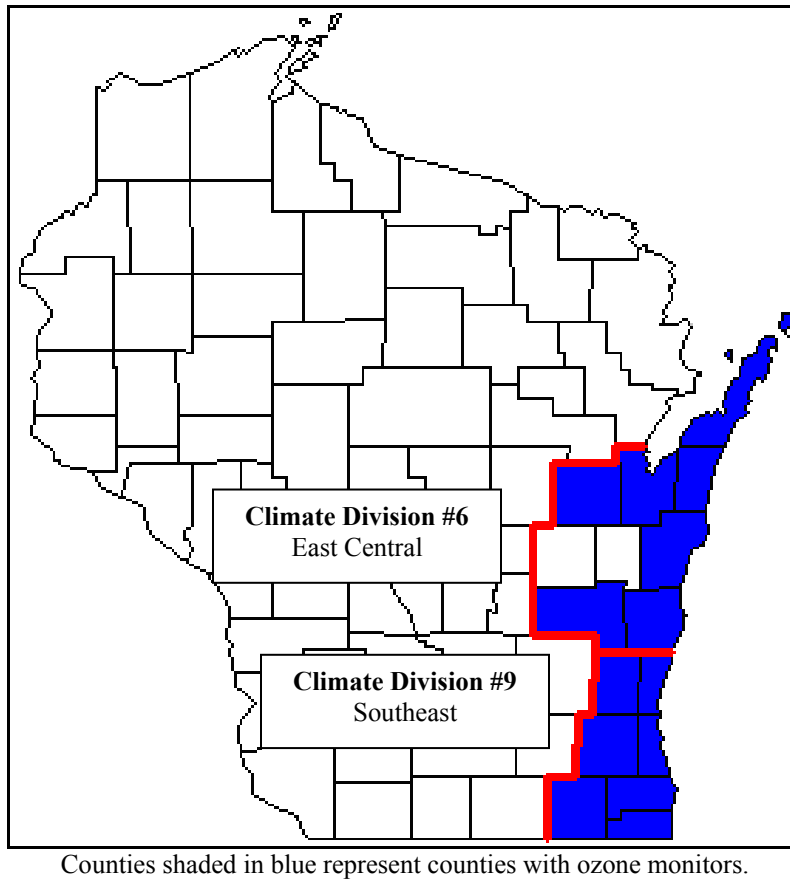


Figure 8.2: Average May – September Temperature and Average Fourth- Highest 8-Hour Average Ozone Concentrations for the East Central and Southeast Climate Divisions.

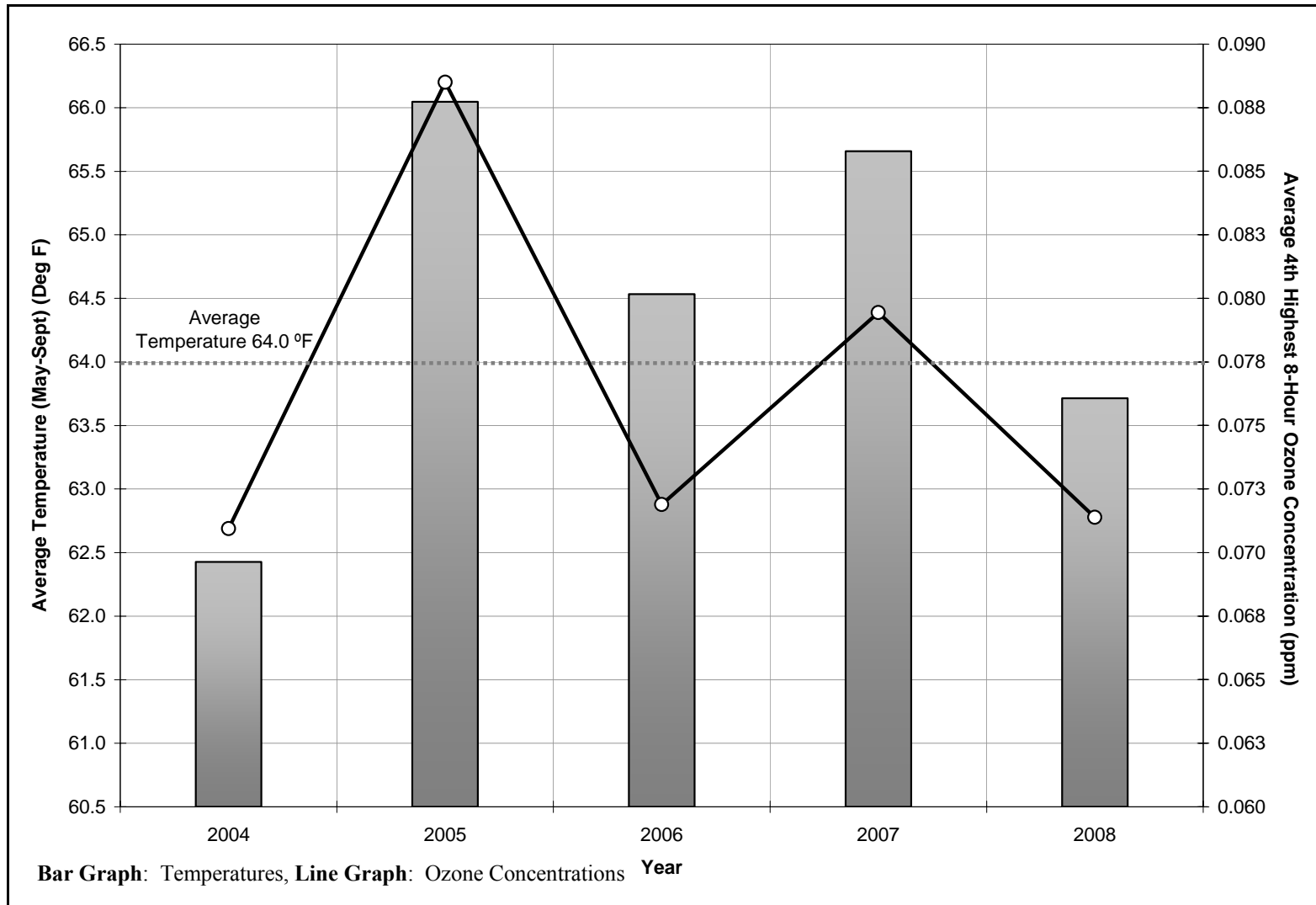


Figure 8.3: Door County Wind Rose when the 1-Hour Ozone Concentration ≥ 75 ppb

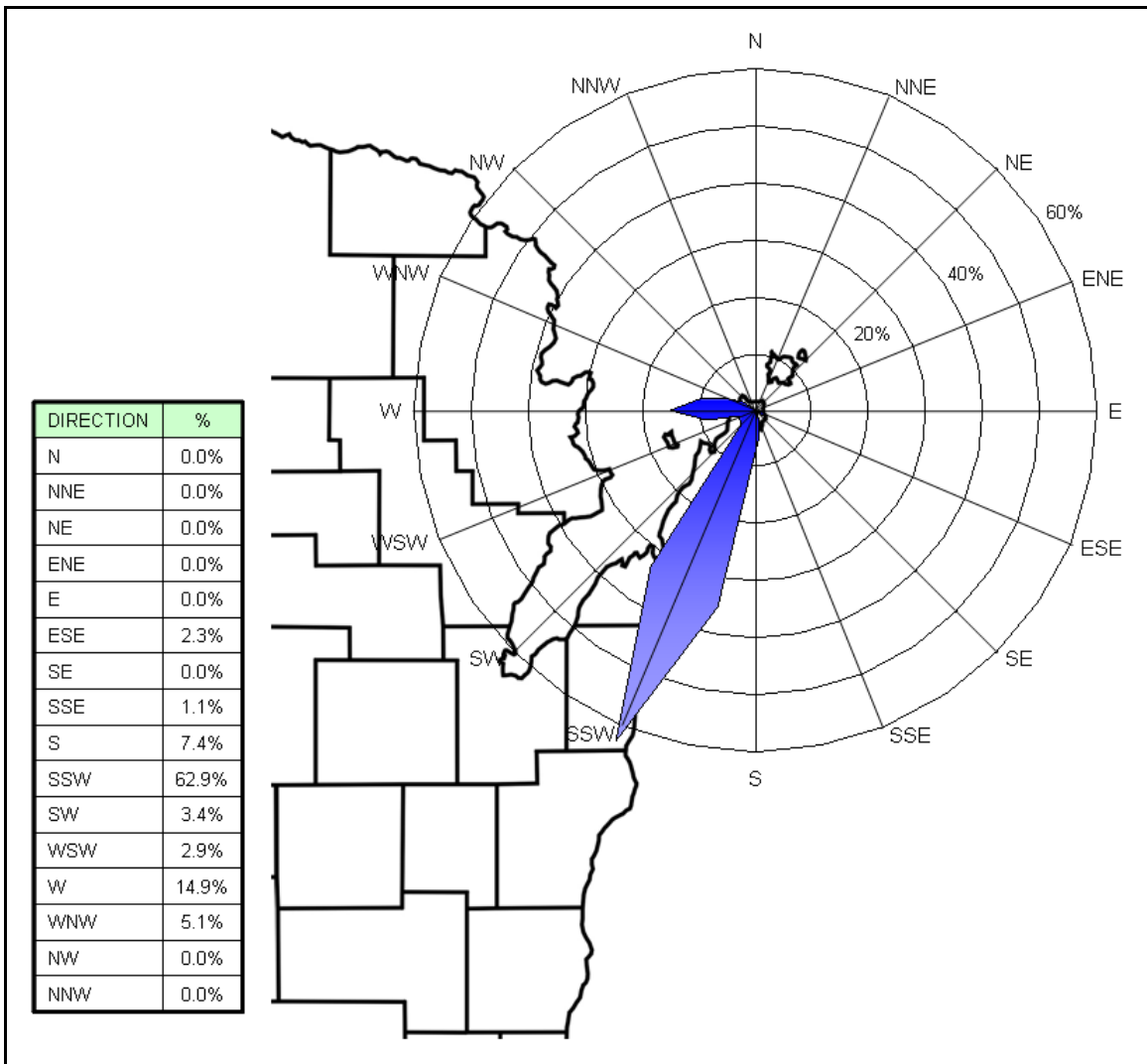


Figure 8.4: Sheboygan County Wind Rose when the 1-Hour Ozone Concentration ≥ 75 ppb

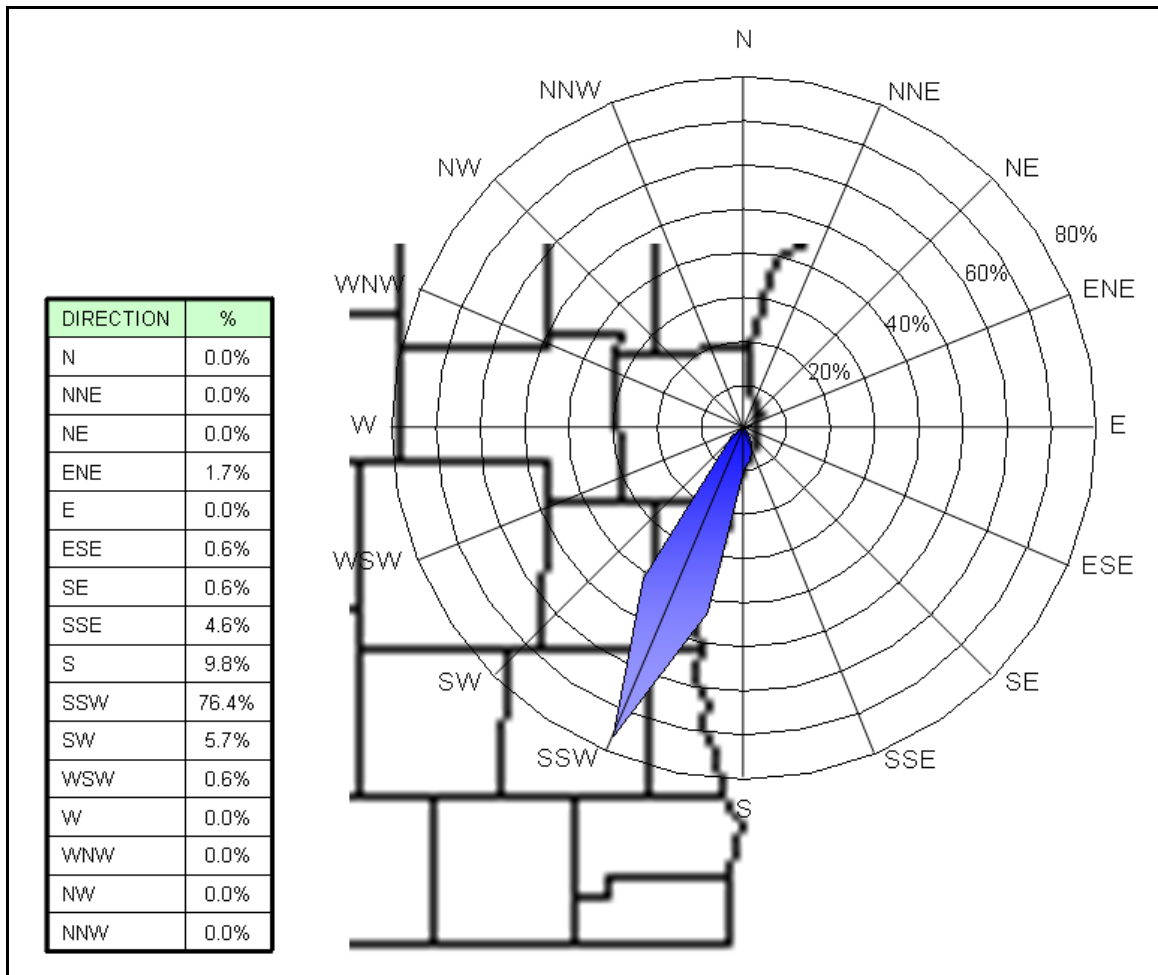


Figure 8.5: Kenosha County Wind Rose when the 1-Hour Ozone Concentration ≥ 75 ppb

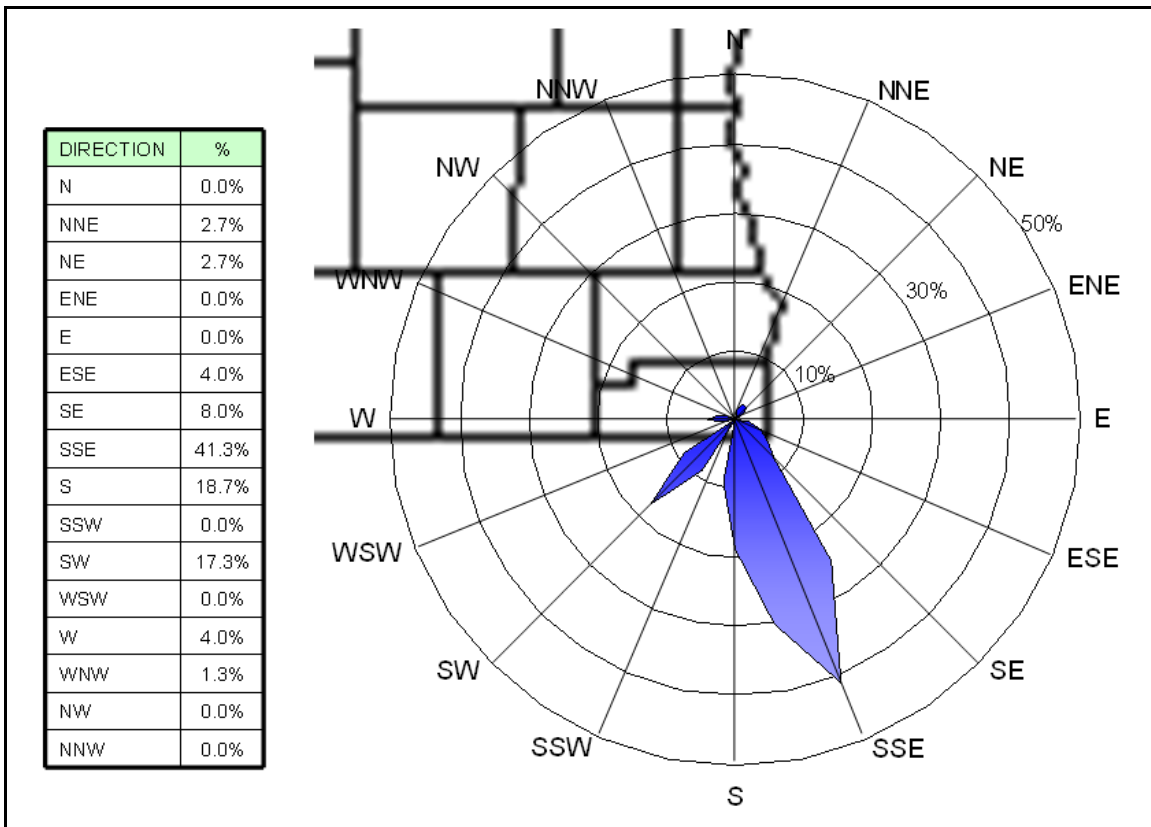
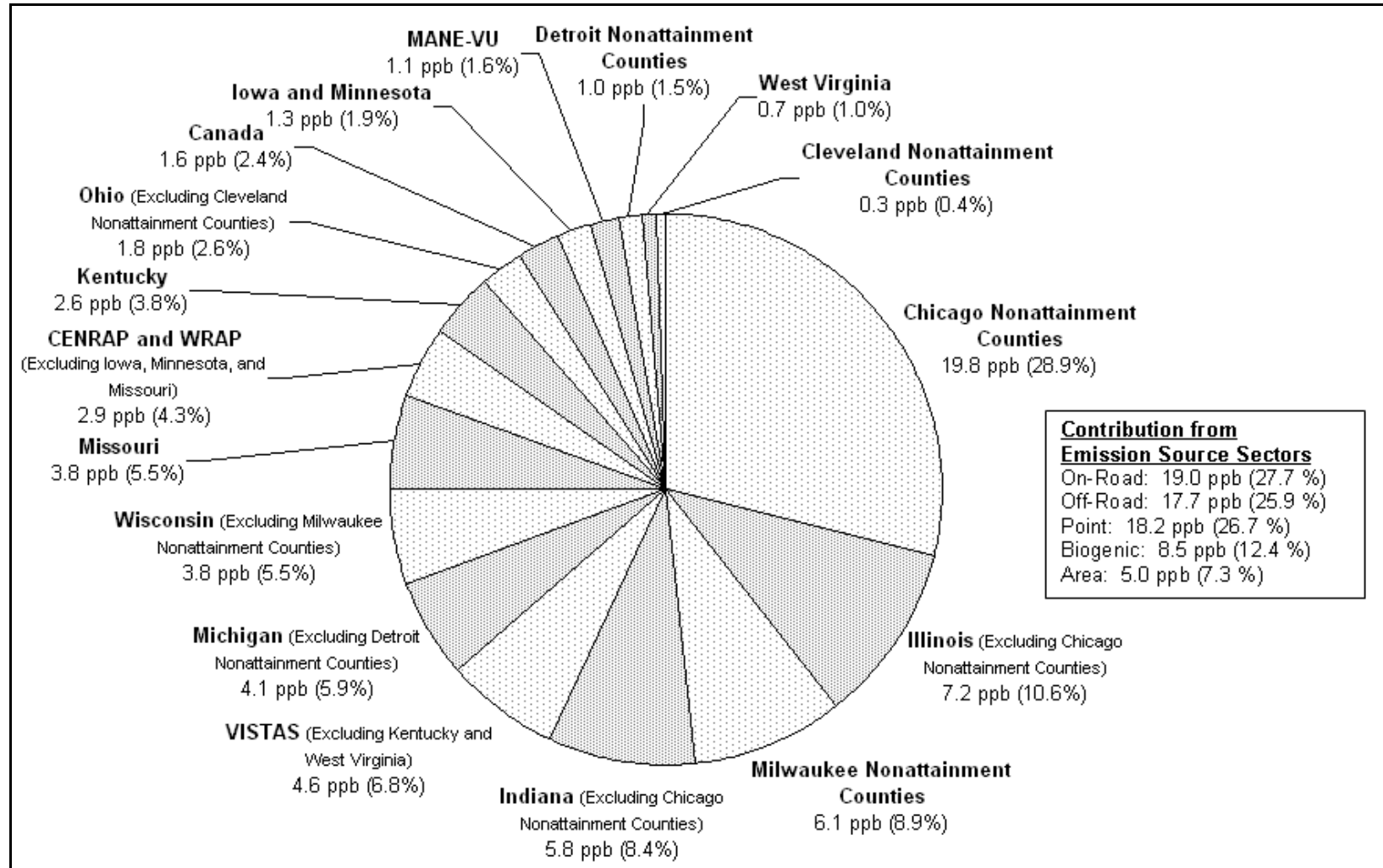
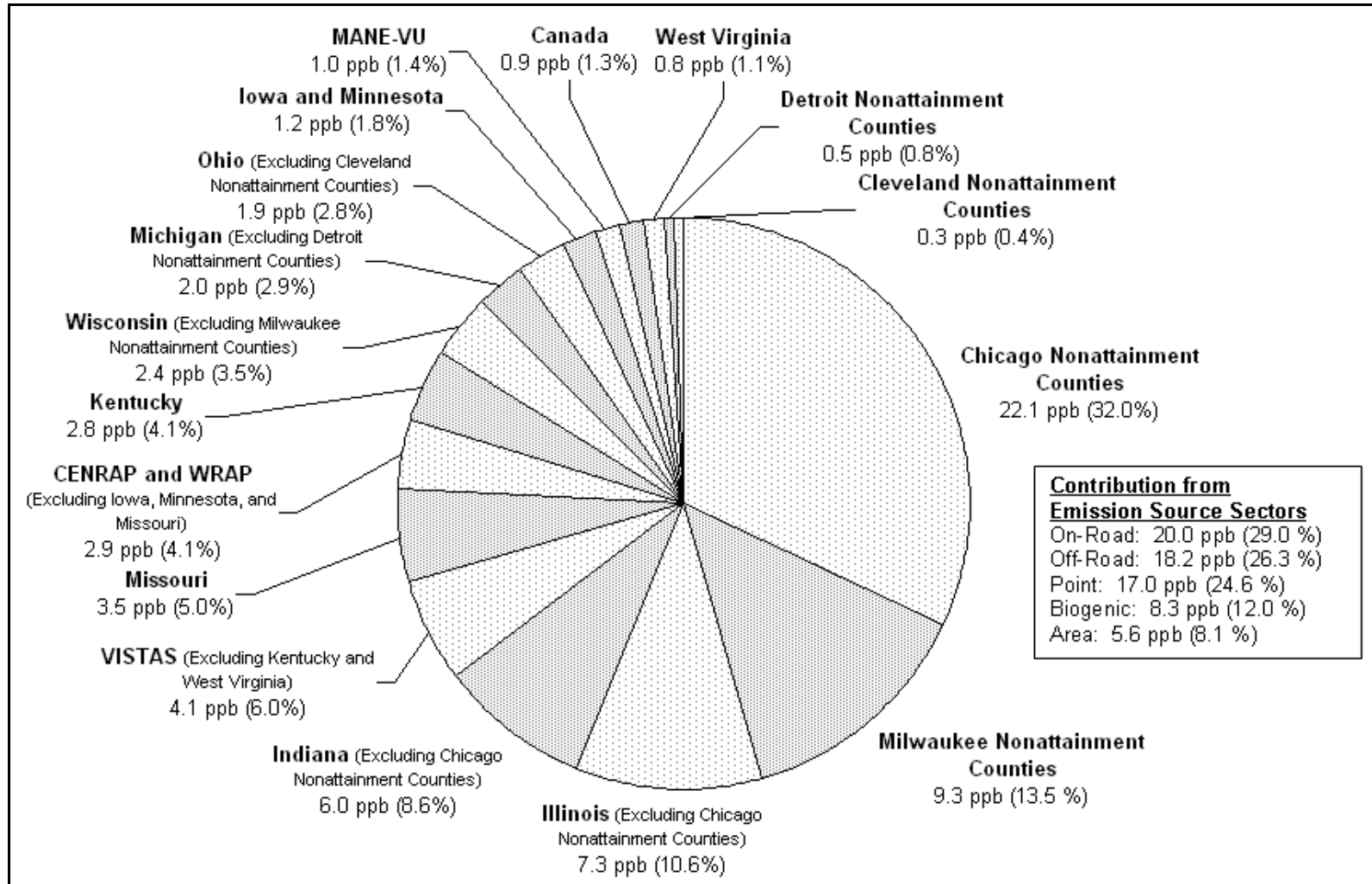


Figure 8.6: OSAT Results for Door County (Site 5502900041)
Regional Contributions for Attributable Ozone (Days when 1-Hour Ozone Concentration \geq 75 ppb)



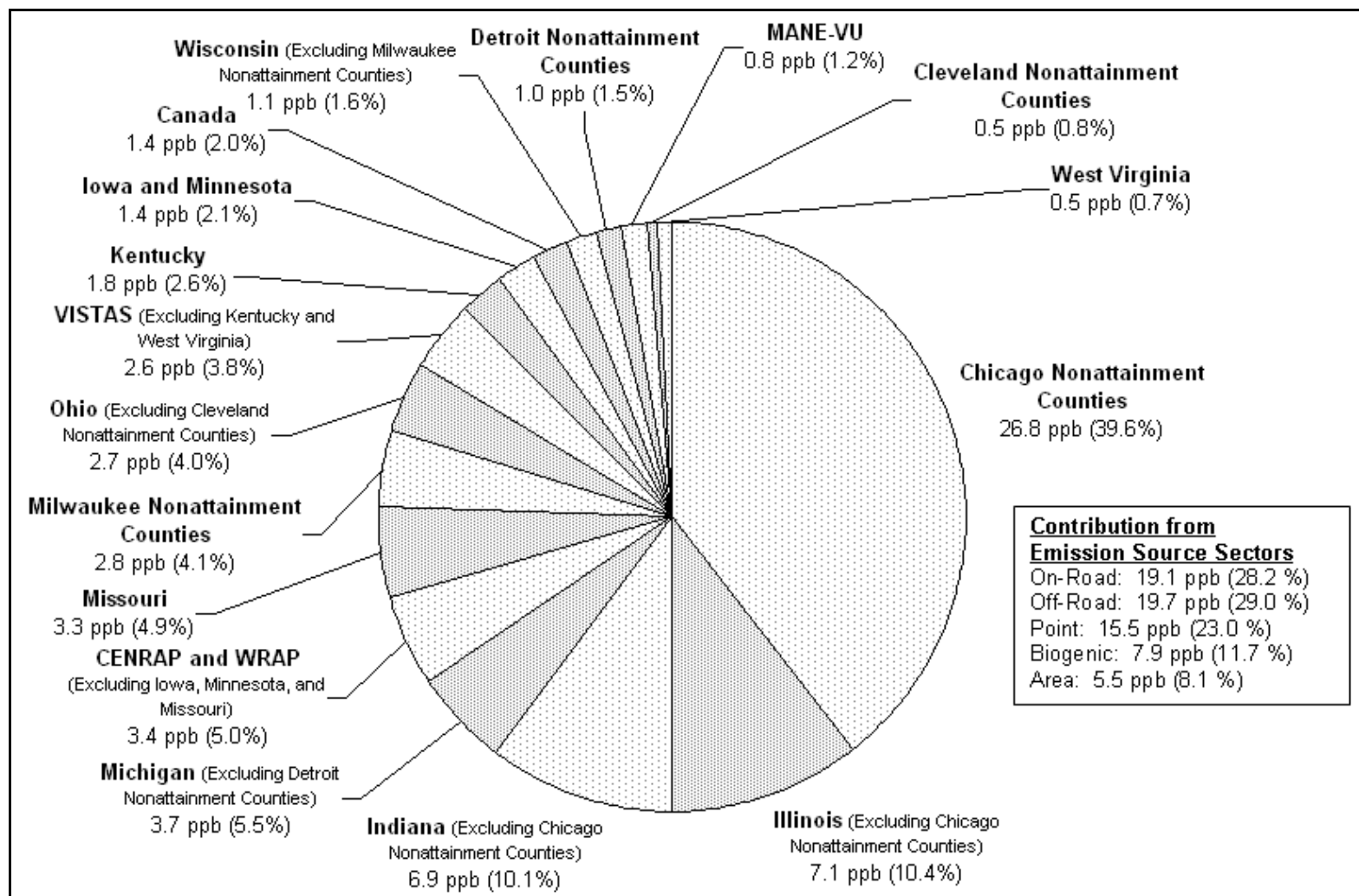
The average 1-hour ozone concentration on days when the 1-hour ozone concentration exceeds 75 ppb is 86 ppb, assuming 2009 air pollution controls. 68 ppb of the 86 ppb ozone concentration is attributable to regional sources and 18 ppb is from the modeled boundary contribution.

Figure 8.7: OSAT Results for Sheboygan County (Site 5511700061)
Regional Contributions for Attributable Ozone (Days when 1-Hour Ozone Concentration ≥ 75 ppb)



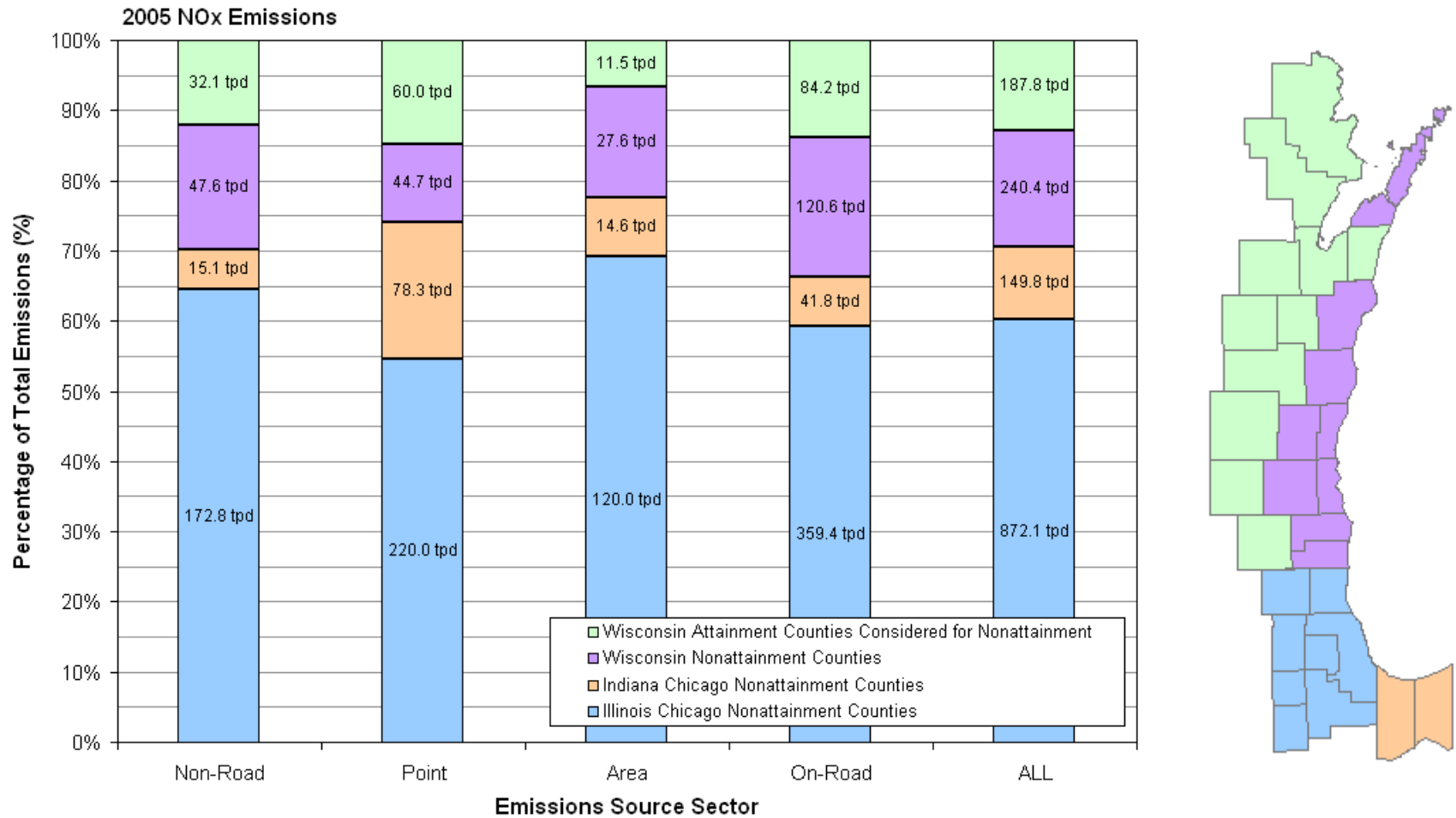
The average 1-hour ozone concentration on days when the 1-hour ozone concentration exceeds 75 ppb is 88 ppb, assuming 2009 air pollution controls. 69 ppb of the 88 ppb ozone concentration is attributable to regional sources and 19 ppb is from the modeled boundary contribution.

Figure 8.8: OSAT Results for Kenosha County (Site 5505900021 / 5505900191)
Regional Contributions for Attributable Ozone (Days when 1-Hour Ozone Concentration ≥ 75 ppb)



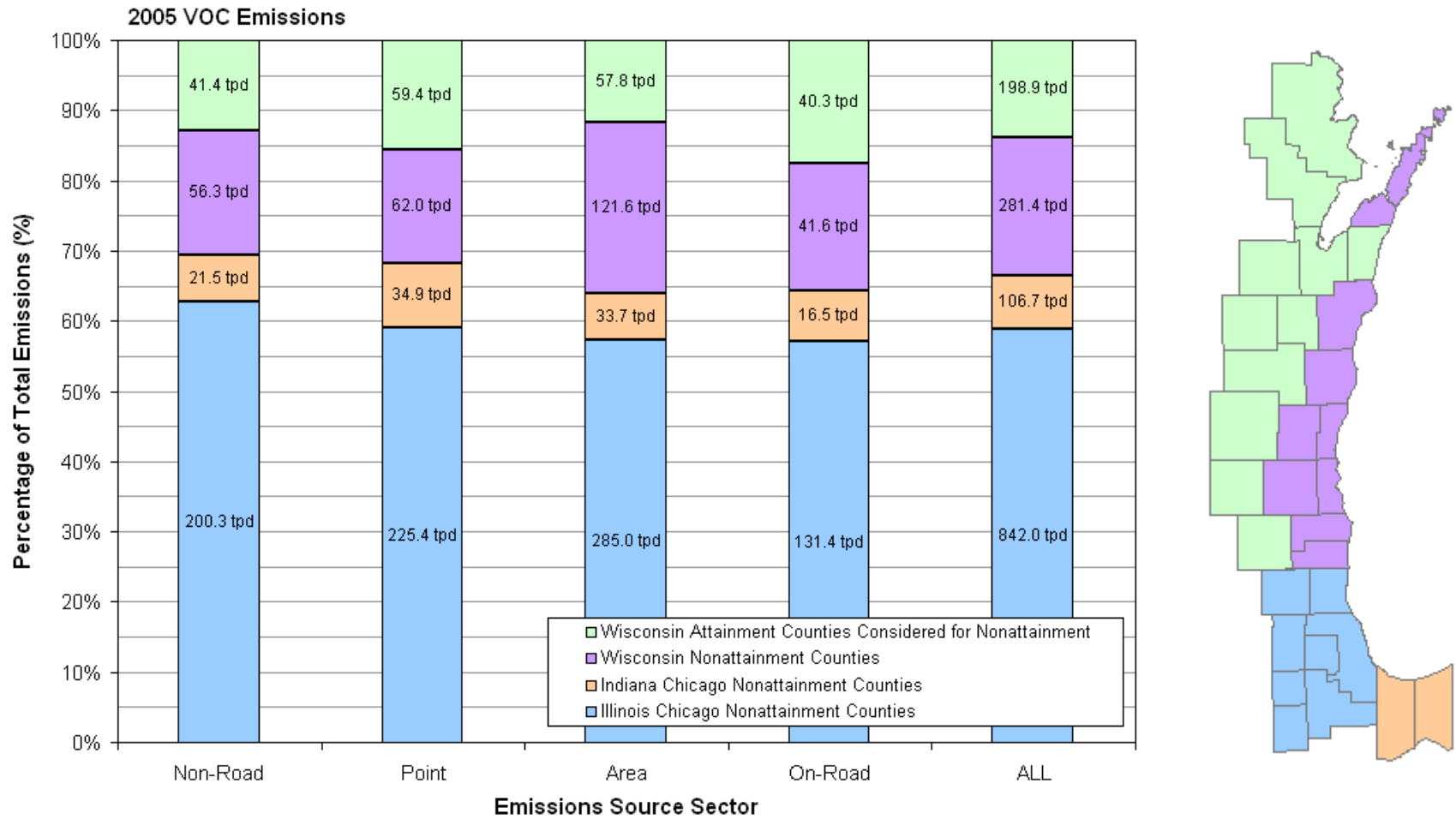
The average 1-hour ozone concentration on days when the 1-hour ozone concentration exceeds 75 ppb is 88 ppb, assuming 2009 air pollution controls. 68 ppb of the 88 ppb ozone concentration is attributable to regional sources and 20 ppb is from the modeled boundary contribution.

Figure 8.9: 2005 NO_x Emissions for the Twenty Counties Considered for a Nonattainment Designation and the Chicago Nonattainment Counties



Source: LADCO – Round 5 Emission Inventory Summaries
 (<http://www.ladco.org/tech/emis/current/index.php>)

Figure 8.10: 2005 VOC Emissions for the Twenty Counties Considered for a Nonattainment Designation and the Chicago Nonattainment Counties



Source: LADCO – Round 5 Emission Inventory Summaries
 (<http://www.ladco.org/tech/emis/current/index.php>)

IX. Geography/ Topography

As shown in Figure 9.1, the topography of eastern Wisconsin is predominately flat. There is no evidence to suggest that the variations in topography influence measured ozone concentrations or has an effect on ozone transport in the region.

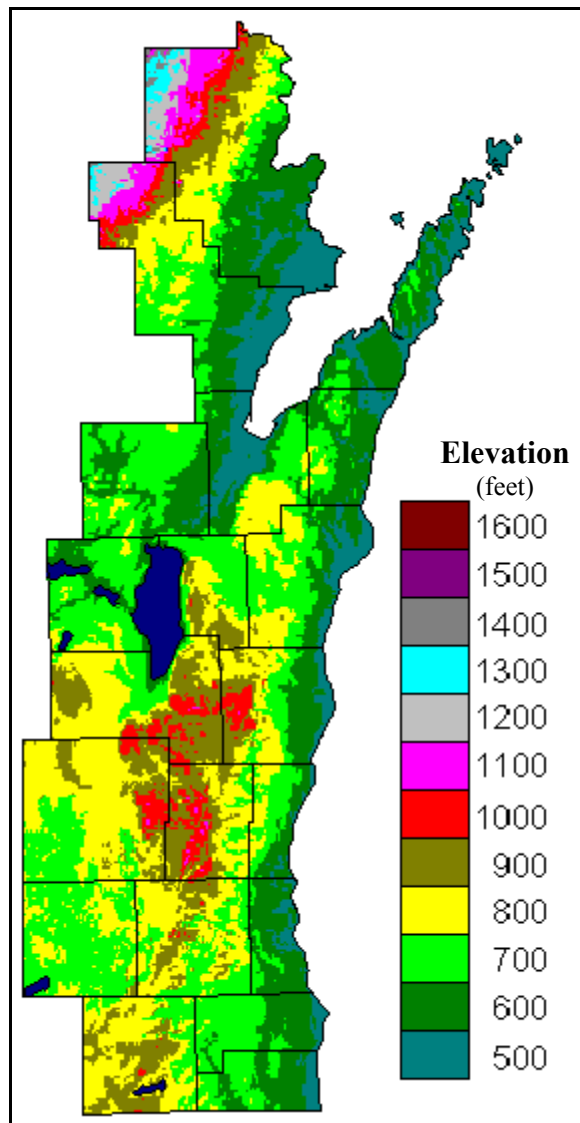
Transport patterns, and subsequently ozone concentrations, can be significantly influenced by Lake Michigan. Often during the day the land surface is relatively warmer than the water surface and a pressure gradient is created causing winds to blow from the water towards the land. Often during the night the opposite pattern exists; the land surface is relatively cooler than the water surface causing winds to blow from the land towards the water. This mesoscale meteorological phenomenon is referred to as a lake breeze circulation.

Dr. G. Jay Lennartson and Dr. Mark Schwartz studied the relationship between high ozone concentrations and the lake breeze circulation in eastern Wisconsin. Their results are summarized in a paper published in the International Journal of Climatology titled, "The lake breeze-ground-level ozone connection in eastern Wisconsin: a climatological perspective" (Lennartson, 2002). Their results showed the following:

- (1) a decrease in both magnitude and frequency of exceedances of the 1-hour ozone standard in eastern Wisconsin with increasing distance from the lakeshore;
- (2) a positive correlation between average onset time of the initial exceedance-hour and a site's distance from Lake Michigan;
- (3) a very high percentage of initial exceedance-hours occurring in association with southeasterly surface air flow; and
- (4) ozone concentration exceedances occurring in association with lake breezes 82.1% of the time at near-shore sites.

Although the lake breeze circulation can play an important role during high ozone events, the purpose of this document is to determine which counties are in nonattainment, or contributing to the nonattainment, of the 2008 ozone standard. No counties are implicated for nonattainment based on the effects of the lake breeze circulation.

Figure 9.1: Topography of the Twenty Counties Considered for Nonattainment



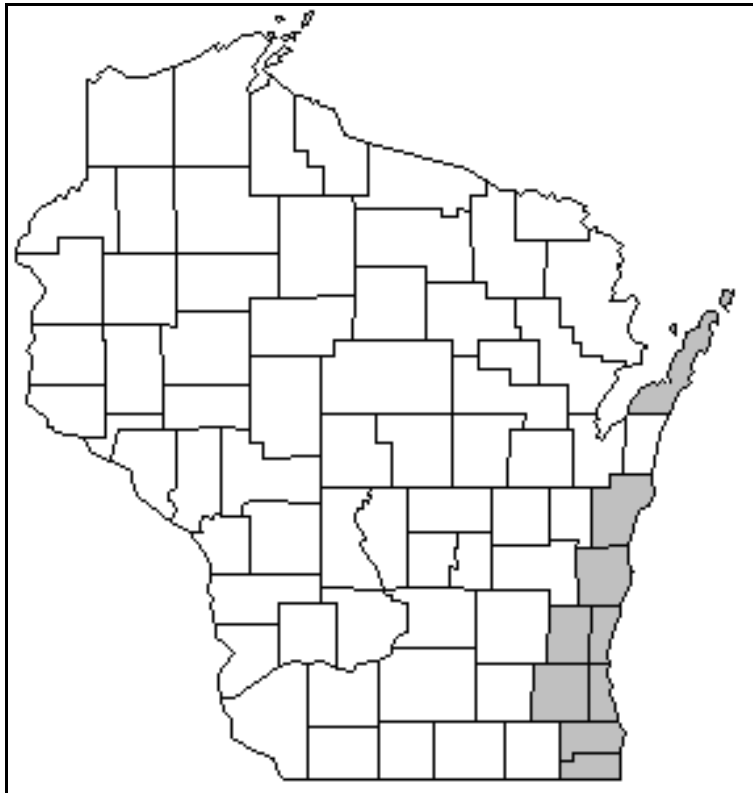
Source: University of Wisconsin – Green Bay
(<http://www.uwgb.edu/dutchs/GEOLWISC/TopoWiscLgCty.htm>)

X. Jurisdictional Boundaries

The ozone boundary guidance from the EPA recommends that the CBSA or CSA serve as the starting point or presumptive boundary for considering what should be the geographic boundaries of an ozone nonattainment area. When an ozone monitor is located in a county not part of a CBSA or CSA, EPA recommends the county boundary serve as the presumptive nonattainment area. None of the three counties that exceeded the 2008 ozone standard, Door, Sheboygan, or Kenosha, are part of a multiple Wisconsin county CSA. Kenosha County is part of the Chicago-Naperville-Michigan City CSA; however, it is also part of the Southeastern Wisconsin Metropolitan Planning Area. This planning area includes the counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha Counties. It is important to note that during previous nonattainment designation determinations, the WDNR and the EPA have included Kenosha County with the Milwaukee CSA (i.e., the Milwaukee-Racine 8-hour Ozone Nonattainment Area).

The following figure (10.1) shows the Wisconsin counties that are currently classified as nonattainment for the 1997 ozone standard (80 ppb).

Figure 10.1: Wisconsin Ozone Nonattainment Areas



Note: 1997 ozone nonattainment counties are shaded in grey.

XI. Level of Control of Emission Sources

The Wisconsin Department of Natural Resources (WDNR) has adopted a number of regulations to permanently control VOC emissions in eastern Wisconsin. Limited regulations were adopted by WDNR prior to 2007 to control NO_x emissions. Throughout the twenty counties considered for a nonattainment designation, some of the regulations are specific to the Milwaukee-Racine ozone nonattainment area, which includes Kenosha, Racine, Milwaukee, Waukesha, Washington, and Ozaukee Counties. Other regulations include Sheboygan, Manitowoc, and Kewaunee Counties.

Wisconsin has adopted and implemented, as part of its State Implementation Plan (SIP), rules requiring all existing stationary sources of VOCs at the 25 ton level in the Milwaukee-Racine Area to meet reasonably available control technology (RACT) requirements. These RACT requirements are contained within chs. NR 419 to 424, Wis. Adm. Code, and apply to sources in categories covered by all applicable control technology guidelines (CTG) and other non-CTG source categories of VOCs.

Under the 1-hour federal ozone standard, Kenosha County, along with other counties classified as part the Milwaukee-Racine Area, was a severe nonattainment area; Sheboygan County was a moderate nonattainment area; and Door County was a rural transport (marginal) nonattainment area. Inspection and maintenance, and VOC RACT were implemented in Kenosha and Sheboygan County, but not in Door County.

The following is a list of NO_x controls implemented by the State of Wisconsin:

- **Stationary Source NO_x Control Program (Wis. Adm. Code NR 428):** NR 428 address control of stationary source NO_x emissions and is structured to meet Rate of Progress (ROP) emission reduction requirements through 2007, the 1-hour ozone standard attainment deadline for the Lake Michigan region. The requirements and performance standards for new or modified sources are presented in NR 428.04. The requirements are applicable in the counties of Kenosha, Milwaukee, Ozaukee, Racine, Washington, and Waukesha. The requirements and performance standards for existing sources are presented in NR 428.05. The requirements are applicable in the counties of Kenosha, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Washington, and Waukesha.

RACT requirements for NO_x emissions are specified in NR 428, Subchapter IV. The purpose of the RACT requirements is to limit NO_x emissions from major sources. The requirements are applicable for the counties of Kenosha, Milwaukee, Ozaukee, Racine, Sheboygan, Washington, and Waukesha. These requirements are estimated to reduce NO_x emissions in the region by approximately 15,000 tons/year (WDNR, 2007).

- **Tier 2 Emission Standards for Vehicles and Gasoline Sulfur Standards:** On February 10, 2000, US EPA finalized a federal rule to significantly reduce emissions from cars and light trucks, including sport utility vehicles (SUVs).

Under this rule, automakers are required to sell lower-emitting cars, and refineries are required to make cleaner, lower sulfur gasoline. This rule applies nationwide. The federal rules are being phased in between 2004 and 2009. Though not fully implemented, Wisconsin began benefiting from the reductions in 2004.

- **Side Benefits of Control of Hazardous Pollutants (Wis. Adm. Code NR 445):** NR 445 applies to all stationary air contaminant sources, which may emit hazardous contaminants. Some sources may be exempt from these requirements based on a risk-based threshold. These controls are expected to result in the reduction of NO_x emissions from the nonroad stationary reciprocating diesel engines. The reduction is the result of NR 445 requiring affected engines to fire low sulfur on-road fuel beginning in July 2006. NR 445 also includes an incentive to replace old engines with engines that meet Tier 2 or later nonroad standards. This will result in reductions of NO_x in the Milwaukee-Racine Area. These measures began benefiting the Area only during the latter half of 2006.
- **Wisconsin's Mercury Rule Multi-Pollutant Option (Wis. Adm. Code NR 446):** Large coal-fired power plants (≥ 150 Megawatts) have the option of choosing a multi-pollutant approach for Wisconsin's mercury rule. This option requires those affected power plants to achieve NO_x and sulfur dioxide (SO₂) reductions beyond those currently required by federal and state regulations.
- **EPA's Clean Air Interstate Rule (CAIR):** This rule will permanently cap emissions of sulfur dioxide (SO₂) and NO_x in the eastern United States, including Wisconsin. CAIR is implemented in two phases. The Phase I NO_x cap begins in 2009 and the Phase II NO_x cap begins in 2015. By 2015, EPA estimates that CAIR will help Wisconsin sources reduce emissions of NO_x by 50,000 tons, or 61%.

The Milwaukee-Racine Area, including Kenosha County, has implemented local controls to decrease the traffic congestion in the city. These local controls will reduce idling times of motor vehicles and thus reduce NO_x emissions. Implemented measures include:

- Commuter Value Pass (CVP) & UPASS programs: The CVP transit agency program offers discounted transit passes through large employers, providing a shared cost program between employer and employee. The UPASS program involves giving students/staff at area universities 'free' transit passes paid through student fees.
- Rideshare: A Wisconsin Department of Transportation interactive web-based ride matching service.
- Advanced Traveler Information Systems: Real-time data from traffic condition cameras is used to provide traveler information to the media and motorists. In addition, the live updates are communicated to motorists using electronic messaging signs.

- Education/Marketing Promotion: Wisconsin Partners for Clean Air voluntary coalition promoting emission reductions along with an Air Quality Watch & Advisory Program alerting the public to air quality conditions and promoting transportation alternatives.
- Traffic Incident Management: A freeway operational detection and control system with limited use of service patrol vehicles to assist road clearance and motorists. (limited to Kenosha and Racine Counties)
- Ramp Metering and High-Occupancy Vehicle Priority: Located on freeway entrance ramps to control the rate of entry and encourage ridesharing and transit use.
- Guaranteed Ride Home (State and Milwaukee County Transit System (MCTS)): Provides transit and vanpool participants a taxi ride in the case of an employee or family member's illness or medical emergency. WisDot also offers reimbursement to employers who offer a guaranteed ride when an unforeseen event occurs.
- Van Pool (State and MCTS): The State Vanpool provides alternative transportation for commuting to Madison from the Milwaukee area.
- Park & Rides: A system of park and ride facilities throughout the area designed for meeting transit and carpools.

Areas without Ozone Precursor Controls

All counties outside of the ozone nonattainment area throughout the twenty counties considered for a nonattainment designation have no major point source control program for ozone precursor pollutants, which also contribute to fine particle levels in measured nonattainment counties. These areas also do not have inspection and maintenance, reformulated gasoline or stage 2 vapor recovery.

XII. Analysis of Potential Nonattainment Areas

EPA provided guidance on determining ozone designation boundaries in a December 4, 2008 memorandum from Robert J. Meyers, "Area Designations for the 2008 Revised Ozone National Ambient Air Quality Standards." This document provided the following nine factors to consider when making nonattainment area boundary recommendations:

1. Air quality data
2. Emissions data (location of sources and contribution to ozone concentrations)
3. Population density and degree of urbanization (including commercial development)
4. Traffic and commuting patterns
5. Growth rates and patterns
6. Meteorology (weather/transport patterns)
7. Geography/topography (mountain ranges or other air basin boundaries)
8. Jurisdictional boundaries (e.g., counties, air districts, existing nonattainment area, Reservations, metropolitan planning organizations (MPOs))
9. Level of control of emission sources

Tables 12.1, 12.3, and 12.5 summarize the implicating factors for each of the three counties that had ozone design values that exceeded the 2008 ozone standard. Nonattainment options are summarized in Tables 12.2, 12.4, and 12.6 and in Figures 1.2, 1.3, and 1.4. Ozone monitoring in the remainder of the state indicates that all other counties should be designated as attaining the 2008 ozone standard.

Door County Area**Table 12.1: Analysis of Factors for the Door County Area**

(The Counties of Brown, Calumet, Door, Kewaunee, Manitowoc, Marinette, Oconto, and Outagamie)

Factor	Door County Area	Implications for Nonattainment
Air Quality In Adjacent Areas	<p>Nonattainment measured in Door (DV – 80 ppb)</p> <p>Attainment measured in other nearby counties, including:</p> <ul style="list-style-type: none"> • Brown (DV – 70 ppb) • Kewaunee (DV – 75 ppb) • Manitowoc (DV – 75 ppb) • Outagamie (DV – 68 ppb) <p>No ozone monitors currently in Calumet, Marinette, or Oconto.</p>	<p>Door County is implicated because nonattainment levels are measured in this county.</p> <p>Kewaunee and Manitowoc Counties are implicated because near nonattainment levels are measured in these counties.</p>
Emissions In Adjacent Areas (Based on 2005 WI Emissions Inventory)	<p>VOC (tpsd)</p> <ul style="list-style-type: none"> • Brown (36.1) • Outagamie (22.0) • Manitowoc (13.5) • Marinette (13.3) • Door (12.4) • Oconto (9.9) • Calumet (6.5) • Kewaunee (4.2) <p>NOX (tpsd)</p> <ul style="list-style-type: none"> • Brown (72.9) • Outagamie (25.3) • Manitowoc (16.8) • Marinette (11.7) • Door (8.1) • Oconto (5.1) • Calumet (4.8) • Kewaunee (3.1) 	<p>Brown and Outagamie Counties are substantial source regions for precursor pollutants. However, Outagamie County is located southwest of Door County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.4, & 8.7).</p>
Population Density and Degree of Urbanization	<p>2008 Population Density (persons/mi²) / Percent Urban</p> <p>Brown 463.74 / 83.9% Outagamie 272.95 / 74.1% Calumet 144.73 / 60.3% Manitowoc 143.41 / 60.9% Door 62.78 / 31.5%</p>	<p>Population density and degree of urbanization implicate Brown County.</p>

<p>Population Density and Degree of Urbanization Continued</p>	<p>Kewaunee 62.33 / 17.6% Oconto 39.34 / 19.9% Marinette 31.98 / 40.2%</p> <p>No counties in the Door County area saw an increase in service providing jobs from October, 2007 to October, 2008 of more than 5.0 %.</p>	
<p>Traffic Patterns</p>	<p>Summer Total Vehicle Miles Traveled (2007)</p> <p>Brown (605 Million) Outagamie (413 Million) Manitowoc (214 Million) Oconto (130 Million) Marinette (120 Million) Calumet (97 Million) Door (90 Million) Kewaunee (48 Million)</p>	<p>Summer vehicle miles traveled implicate Brown County.</p>
<p>Commuting Patterns</p>	<p>Percentage of people who live in Door County and work in:</p> <p>Door 88.6% Brown 5.3% Kewaunee 3.2% All Other Wisconsin Counties < 0.5%</p> <p>Percentage of people who work in Door County and live in:</p> <p>Door 92.2% Kewaunee 4.2% Brown 2.2% All Other Wisconsin Counties < 0.5%</p>	<p>Commuting patterns implicate only Door County.</p>
<p>Population Growth Rates and Patterns</p>	<p>Total population changes from 2000 U.S. Census to 2008 WI DSC final estimate</p> <p>Brown (18,510, +8.2%) Outagamie (13,687, +8.5%) Calumet (5,661, +13.9%) Oconto (3,609, +10.1%) Door (2,342, +8.4%) Manitowoc (1,937, +2.3%) Marinette (1,439, +3.3%) Kewaunee (1,171, +5.8%)</p>	<p>The greatest population growth and projected population growth implicate Calumet, Oconto, Brown and Outagamie Counties. However, Oconto County is located west-southwest and Outagamie is located southwest of Door County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.4, & 8.7).</p>

<p>Population Growth Rates and Patterns Continued</p>	<p>Projected population changes from 2000 U.S. Census to 2035</p> <p>Brown (90,387, +39.9%) Outagamie (67,307, +41.8%) Calumet (30,596, +75.3%) Oconto (15,385, +43.2%) Manitowoc (9,412, +11.4%) Kewaunee (5,446, +27.0%) Marinette (3,725, +8.6%) Door (3,558, +12.7%)</p>	
<p>Meteorology (weather & transport patterns)</p>	<p>On days when the measured 1-hour ozone concentration exceeded 75 ppb, the winds were predominately from the south-southwest direction (62.9% of the total hours). The next most predominate wind direction was from the west (14.9% of the total hours), followed by winds from the south (7.4% of the total hours) and west-northwest (5.1% of the total hours).</p> <p>The NOAA Hysplit trajectory model reveals that on days when the 1-hour ozone concentration exceeded 75ppb, the polluted air masses did not pass through any of the surrounding counties more than 11.5% of the time (Brown County) six hours before the daily maximum ozone concentration was measured. 69.2% of the air masses were transported from the southward direction (i.e., towards the Chicago nonattainment area).</p> <p>The OSAT results for days with a modeled 1-hour ozone concentration of at least 75 ppb in Door County, which are based on 2009 air pollution controls, show that the Milwaukee nonattainment area contributes 8.9% of the average ozone concentration. The Chicago nonattainment area contributes 28.9% of the average ozone concentration. Wisconsin areas, excluding the Milwaukee nonattainment area, only contribute 5.5% of the average ozone concentration.</p>	<p>The measured wind direction patterns implicate Brown, Calumet, Kewaunee, and Manitowoc Counties.</p> <p>The NOAA Hysplit model does not implicate any Wisconsin counties.</p> <p>The OSAT results don't seriously implicate any Wisconsin Counties.</p>

<p>Geography / Topography</p>	<p>Topography is predominantly flat and has little influence on weather, especially related to transport.</p> <p>Lake breezes are typically associated with high ozone concentrations.</p>	<p>No implications for nonattainment.</p>
<p>Jurisdictional Boundaries</p>	<p>Door County is not part of a CSA or Micropolitan Statistical Area.</p>	<p>No implications for nonattainment.</p>
<p>Level of Control of Emission Sources</p>	<p>Some VOC RACT rules have been implemented in Kewaunee and Manitowoc Counties due to ground level ozone nonattainment.</p> <p>Federal Tier 2 Vehicle Emission Controls, Nonroad engine standards, NR 445 side benefits and some local controls apply in all counties.</p> <p>Most of the stationary source control programs do not apply to counties surrounding Door County.</p>	<p>All counties are implicated due to limited emission controls, except for Kewaunee and Manitowoc which are affected by ground-level ozone regulations. However, Marinette, Outagamie, and Oconto Counties are located west and west-southwest of Door County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.4, & 8.7).</p>

Air quality, emissions, population, traffic, growth, and meteorological data indicate that counties bordering or near to Door County contribute to nonattainment there. Based on the data summary above, the following table (12.2) outlines three possible nonattainment designation options for the Door County area.

Table 12.2: Options Summary for the Door County Area

Designation	Option 1	Option 2	Option 3
<p>Nonattainment Counties</p>	<p>Door Brown Kewaunee Manitowoc</p>	<p>Door</p>	<p>None</p>

Option 1 includes all counties that are implicated by at least three of the nine factors analyzed, except Calumet, Kewaunee, and Manitowoc Counties. The primary factors that implicate the four counties are air quality measurements, air pollution emissions, and meteorology-related transport patterns. Kewaunee and Manitowoc Counties, although only implicated by two factors, are included because ozone monitoring data shows the fourth-highest 8-hour average daily ozone concentration exceeded 75 ppb for two of the three years. Calumet County, although implicated by three factors, is not included

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because one implicating factor was transport patterns, not emissions, and another implicating factor was the lack of control on emission sources. There is not much emission control in Calumet County because of a smaller contribution to regional emissions.

Option 2 includes only Door County because it is the only county that measured nonattainment of the 2008 ozone standard. Guidance provided by the EPA states that that a CBSA or CSA should serve as the starting point or presumptive boundary for considering what should be the geographic boundaries of an ozone nonattainment area. Door County is not part of a multi-county CBSA or CSA.

Option 3 classifies all areas as in attainment of the 2008 ozone standard due to the downward trend in monitored ozone design values since 1999, regional decreases in VOC and NO_x emissions, and continued enforcement of state and federal air pollution rules.

Sheboygan County Area**Table 12.3: Analysis of Factors for the Sheboygan County Area**

(The Counties of Calumet, Dodge, Fond Du Lac, Jefferson, Kenosha, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, Waukesha, and Winnebago)

Factor	Sheboygan County Area	Implications for Nonattainment
Air Quality In Adjacent Areas	<p>Nonattainment measured in Sheboygan (DV – 82 ppb) and Kenosha (DV – 78 ppb) Counties</p> <p>Attainment measured in other nearby counties, including:</p> <ul style="list-style-type: none"> • Dodge (DV – 68 ppb) • Fond Du Lac (DV – 67 ppb) • Jefferson (DV – 70 ppb) • Milwaukee (DV – 63, 68, 72, 75 ppb) • Manitowoc (DV – 75 ppb) • Ozaukee (DV – 72 & 74 ppb) • Racine (DV – 71 ppb) • Walworth (DV – 70 ppb) • Washington (DV – 65 ppb) • Waukesha (DV – 66 ppb) <p>No ozone monitors currently in Calumet or Winnebago County.</p>	<p>Sheboygan and Kenosha Counties are implicated because nonattainment levels are measured in these counties.</p> <p>Milwaukee, Manitowoc, and Ozaukee Counties are implicated because near nonattainment levels are measured in these counties. However, Manitowoc County is located north of Sheboygan County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.5, & 8.8).</p>
Emissions In Adjacent Areas (Based on 2005 WI Emissions Inventory)	<p>VOC (tpsd)</p> <ul style="list-style-type: none"> • Milwaukee (95.5) • Waukesha (53.9) • Racine (34.1) • Winnebago (33.7) • Washington (24.4) • Sheboygan (20.7) • Walworth (18.1) • Jefferson (17.5) • Fond Du Lac (17.1) • Dodge (16.5) • Kenosha (15.8) • Ozaukee (14.0) • Manitowoc (13.5) • Calumet (6.5) 	<p>Milwaukee, Kenosha, Sheboygan, Racine, Winnebago, and Waukesha Counties are substantial source regions for precursor pollutants. However, Winnebago County is located west-northwest of Sheboygan County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.5, & 8.8).</p>

<p>Emissions In Adjacent Areas Continued (Based on 2005 WI Emissions Inventory)</p>	<p>NOX (tpsd)</p> <ul style="list-style-type: none"> • Milwaukee (91.3) • Kenosha (47.7) • Waukesha (39.7) • Sheboygan (29.6) • Winnebago (20.5) • Manitowoc (16.8) • Jefferson (15.3) • Racine (14.9) • Washington (13.8) • Fond Du Lac (12.8) • Ozaukee (12.7) • Walworth (12.2) • Dodge (10.8) • Calumet (4.8) 	
<p>Population Density and Degree of Urbanization</p>	<p>2008 Population Density (persons/mi²) / Percent Urban</p> <p>Milwaukee 3,885.12 / 99.7% Waukesha 688.82 / 87.8% Kenosha 594.12 / 88.6% Racine 589.38 / 87.0% Winnebago 377.03 / 84.2% Ozaukee 375.12 / 74.6% Washington 302.89 / 65.2% Sheboygan 228.71 / 70.8% Walworth 182.45 / 64.0% Jefferson 145.46 / 57.8% Calumet 144.73 / 60.3% Manitowoc 143.41 / 60.9% Fond Du Lac 140.74 / 62.1% Dodge 101.79 / 47.8%</p> <p>Dodge and Kenosha Counties are the only counties in the Sheboygan County area that saw an increase in service providing jobs from October, 2007 to October, 2008 of more than 5.0% (7.2 % and 10.2 %, respectively).</p>	<p>Population density and degree of urbanization implicate Milwaukee, Waukesha, Kenosha, Racine, Winnebago, and Dodge Counties. However, Winnebago County is located west-northwest of Sheboygan County and Dodge County is located west-southwest of Sheboygan County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.5, & 8.8).</p>
<p>Traffic Patterns</p>	<p>Summer Total Vehicle Miles Traveled (2007)</p> <p>Milwaukee (1.86 Billion) Waukesha (1.06 Billion) Winnebago (439 Million) Kenosha (381 Million) Racine (396 Million) Washington (342 Million) Ozaukee (297 Million)</p>	<p>Summer vehicle miles traveled clearly implicate Milwaukee and Waukesha Counties.</p>

<p>Traffic Patterns Continued</p>	<p>Walworth (294 Million) Fond Du Lac (278 Million) Sheboygan (261 Million) Jefferson (243 Million) Dodge (238 Million) Manitowoc (214 Million) Calumet (97 Million)</p>	
<p>Commuting Patterns</p>	<p>Percentage of people who live in Sheboygan County and work in:</p> <p>Sheboygan 87.9% Ozaukee 3.3% Manitowoc 2.0% Milwaukee 2.0% All Other Wisconsin Counties < 2.0%</p> <p>Percentage of people who work in Sheboygan County and live in:</p> <p>Sheboygan 86.7% Manitowoc 6.2% All Other Wisconsin Counties < 2.0%</p>	<p>Commuting patterns implicate only Sheboygan County.</p>
<p>Population Growth Rates and Patterns</p>	<p>Total population changes from 2000 U.S. Census to 2008 WI DSC final estimate</p> <p>Waukesha (21,930, +6.1%) Washington (12,997, +11.1%) Kenosha (12,517, +8.4%) Walworth (9,302, +10.1%) Winnebago (8,595, +5.5%) Racine (7,490, +4.0%) Calumet (5,661, +13.9%) Jefferson (5,255, +6.9%) Sheboygan (4,816, +4.3%) Ozaukee (4,691, +5.7%) Fond Du Lac (4,444, +4.6%) Dodge (3,913, +4.6%) Manitowoc (1,937, +2.3%) Milwaukee (-1,674, -0.2%)</p> <p>Projected population changes from 2000 U.S. Census to 2035</p> <p>Waukesha (93,700, +26.0%) Kenosha (63,500, +42.5%) Washington (51,663, +44.0%) Winnebago (46,495, +29.7%)</p>	<p>The greatest population growth and projected population growth implicate Waukesha, Washington, Kenosha, Walworth, and Calumet. However, Calumet County is located northwest of Sheboygan County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.5, & 8.8).</p>

<p>Population Growth Rates and Patterns Continued</p>	<p>Walworth (40,928, +44.5%) Calumet (30,596, +75.3%) Jefferson (24,567, +32.4%) Racine (26,866, +14.2%) Sheboygan (23,826, +21.1%) Ozaukee (21,115, +25.7%) Fond Du Lac (19,004, +19.5%) Dodge (17,177, +20.0%) Manitowoc (9,412, +11.4%) Milwaukee (-76,956, -8.2%)</p>	
<p>Meteorology (weather & transport patterns)</p>	<p>On days when the measured 1-hour ozone concentration exceeded 75 ppb, the winds were predominately from the south-southwest direction (76.4% of the total hours). The next most predominate wind direction was from the south (9.8% of the total hours), followed by winds from the southwest (5.7% of the total hours) and south-southeast (4.6% of the total hours).</p> <p>The NOAA Hysplit trajectory model reveals that on days when the 1-hour ozone concentration exceeded 75ppb, the polluted air masses passed through Ozaukee County 41.4%, Waukesha, Milwaukee, and Racine Counties 31.0%, Washington County 24.1%, Kenosha County 20.7%, and all other counties less than 20% of the time six hours before the daily maximum ozone concentration was measured.</p> <p>The OSAT results for days with a modeled 1-hour ozone concentration of at least 75 ppb in Sheboygan County, which are based on 2009 air pollution controls, show that the Milwaukee nonattainment area contributes 13.5% of the average ozone concentration. The Chicago nonattainment area contributes 32.0% of the average ozone concentration. Wisconsin areas, excluding the Milwaukee nonattainment area, only contribute 3.5% of the average ozone concentration.</p>	<p>The measured wind direction patterns implicate Ozaukee, Washington, Waukesha, Milwaukee, Racine, and Walworth Counties.</p> <p>The NOAA Hysplit model results implicate Ozaukee, Waukesha, Milwaukee, Racine, Washington, and Kenosha Counties.</p> <p>The OSAT results implicate the Milwaukee nonattainment area to the south of Sheboygan County. (Washington, Ozaukee, Waukesha, Milwaukee, Racine, and Kenosha)</p>

<p>Geography / Topography</p>	<p>Topography is predominantly flat and has little influence on weather, especially related to transport.</p> <p>Lake breezes are typically associated with high ozone concentrations.</p>	<p>No implications for nonattainment.</p>
<p>Jurisdictional Boundaries</p>	<p>Sheboygan is part of the Sheboygan, WI Core Based Statistical Area (CBSA).</p>	<p>Jurisdictional boundaries implicate Sheboygan County (i.e., Sheboygan CBSA).</p>
<p>Level of Control of Emission Sources</p>	<p>A number of ground level ozone related emission control programs have been implemented in Kenosha, Racine, Milwaukee, Waukesha, Ozaukee, Washington, and Sheboygan Counties, and to a lesser extent Manitowoc County.</p> <p>Programs include VOC RACT, NR 428, Federal Tier 2 Vehicle Standards, Enhance Inspection and Maintenance, Reformulated Gasoline, Nonroad engine standards, NR 445 side benefits and some local controls.</p> <p>Most of the stationary source control and certain area source and mobile source programs do not apply to the counties of Calumet, Fond Du Lac, Dodge, Jefferson, Walworth, or Winnebago.</p>	<p>Calumet, Fond Du Lac, Dodge, Jefferson, Walworth, and Winnebago Counties are implicated due to the lack of stationary, mobile and area source controls. However, all of these counties, except Walworth County, are located in areas where ozone or its precursors are rarely transported from during high ozone concentration days for Sheboygan County (See Figures 8.3, 8.5, & 8.8).</p>

Air quality, emissions, population, traffic, growth, and meteorological data indicate that counties bordering or near to Sheboygan County contribute to nonattainment there. Based on the data summary above, the following table (12.4) outlines three possible nonattainment designation options for the Sheboygan County area.

Table 12.4: Options Summary for the Sheboygan County Area

Designation	Option 1	Option 2	Option 3
Nonattainment Counties	Sheboygan Milwaukee CSA Kenosha	Sheboygan	None

Milwaukee CSA: Milwaukee, Ozaukee, Racine, Washington, and Waukesha Counties

Option 1 includes all counties that are implicated by at least three of the nine factors analyzed, except Ozaukee, Washington, and Walworth Counties. The primary factors that implicate the seven counties are air quality measurements, air pollution emissions, population density and urbanization, population growth, and meteorology-related transport patterns. Washington and Ozaukee Counties, although only implicated by two factors, are included because they are part of the Milwaukee-Racine-Waukesha Combined Statistical Area (CSA). Walworth County, although implicated by three factors, is not included because one implicating factor was transport patterns, not emissions, and another implicating factor was the lack of control on emission sources. There is not much emission control in Walworth County because of a smaller contribution to regional emissions.

Option 2 includes only Sheboygan County because it is the only county that measured nonattainment of the 2008 ozone standard. Guidance provided by the EPA states that that a CBSA or CSA should serve as the starting point or presumptive boundary for considering what should be the geographic boundaries of an ozone nonattainment area. Sheboygan County is not part of a multi-county CBSA or CSA.

Option 3 classifies all areas as in attainment of the 2008 ozone standard due to the downward trend in monitored ozone design values since 1999, regional decreases in VOC and NO_x emissions, and continued enforcement of state and federal air pollution rules.

Kenosha County Area

Table 12.5: Analysis of Factors for the Kenosha County Area
 (The Counties of Kenosha, Milwaukee, Ozaukee, Racine, Walworth, Washington, and Waukesha)

Factor	Kenosha County Area	Implications for Nonattainment
Air Quality In Adjacent Areas	<p>Nonattainment measured in Kenosha (DV – 78 ppb) County</p> <p>Attainment measured in other nearby counties, including:</p> <ul style="list-style-type: none"> • Milwaukee (DV – 63, 68, 72, 75 ppb) • Ozaukee (DV – 72 & 74 ppb) • Racine (DV – 71 ppb) • Walworth (DV – 70 ppb) • Waukesha (DV – 66 ppb) • Washington (DV – 65 ppb) 	<p>Kenosha County is implicated because nonattainment levels are measured in this County.</p> <p>Milwaukee and Ozaukee Counties are implicated because near nonattainment levels are measured in these counties. However, these counties are located north of Kenosha County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.6, & 8.9).</p>
Emissions In Adjacent Areas (Based on 2005 WI Emissions Inventory)	<p>VOC (tpsd)</p> <ul style="list-style-type: none"> • Milwaukee (95.5) • Waukesha (53.9) • Racine (34.1) • Washington (24.4) • Walworth (18.1) • Kenosha (15.8) • Ozaukee (14.0) <p>NOX (tpsd)</p> <ul style="list-style-type: none"> • Milwaukee (91.3) • Kenosha (47.7) • Waukesha (39.7) • Racine (14.9) • Washington (13.8) • Ozaukee (12.7) • Walworth (12.2) 	<p>Milwaukee, Kenosha, Racine, and Waukesha Counties are substantial source regions for precursor pollutants. However, these counties are located north of Kenosha County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.6, & 8.9).</p>
Population Density and Degree of Urbanization	<p>2008 Population Density (persons/mi²) / Percent Urban</p> <p>Milwaukee 3,885.12 / 99.7% Kenosha 594.12 / 88.6% Waukesha 688.82 / 87.8% Racine 589.38 / 87.0% Ozaukee 375.12 / 74.6% Washington 302.89 / 65.2% Walworth 182.45 / 64.0%</p>	<p>Population density and degree of urbanization implicate Milwaukee, Kenosha, Waukesha, and Racine Counties. However, these counties are located north of Kenosha County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.6, & 8.9).</p>

<p>Population Density and Degree of Urbanization Continued</p>	<p>Kenosha County is the only county in the Kenosha County area that saw an increase in service providing jobs from October, 2007 to October, 2008 of more than 5.0% (10.2 %).</p>	
<p>Traffic Patterns</p>	<p>Summer Total Vehicle Miles Traveled (2007)</p> <p>Milwaukee (1.86 Billion) Waukesha (1.06 Billion) Racine (396 Million) Kenosha (381 Million) Washington (342 Million) Ozaukee (297 Million) Walworth (294 Million)</p>	<p>Summer vehicle miles traveled clearly implicate Milwaukee and Waukesha Counties. However, these counties are located north of Kenosha County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.6, & 8.9).</p>
<p>Commuting Patterns</p>	<p>Percentage of people who live in Kenosha County and work in:</p> <p>Kenosha 56.2% Racine 9.1% All Other Wisconsin Counties < 4.0%</p> <p>Percentage of people who work in Kenosha County and live in:</p> <p>Kenosha 76.5% Racine 11.0% All Other Wisconsin Counties < 4.0%</p>	<p>Commuting patterns implicate only Kenosha County.</p>
<p>Population Growth Rates and Patterns</p>	<p>Total population changes from 2000 U.S. Census to 2008 WI DSC final estimate</p> <p>Waukesha (21,930, +6.1%) Washington (12,997, +11.1%) Kenosha (12,517, +8.4%) Walworth (9,302, +10.1%) Racine (7,490, +4.0%) Ozaukee (4,691, +5.7%) Milwaukee (-1,674, -0.2%)</p> <p>Projected population changes from 2000 U.S. Census to 2035</p> <p>Waukesha (93,700, +26.0%) Kenosha (63,500, +42.5%) Washington (51,663, +44.0%) Walworth (40,928, +44.5%) Racine (26,866, +14.2%) Ozaukee (21,115, +25.7%) Milwaukee (-76,956, -8.2%)</p>	<p>The greatest population growth and projected population growth implicate Waukesha, Kenosha, Walworth, and Washington Counties. However, these counties are located north or west of Kenosha County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.6, & 8.9).</p>

<p>Meteorology (weather & transport patterns)</p>	<p>On days when the measured 1-hour ozone concentration exceeded 75 ppb, the winds were predominately from the south-southeast direction (41.3% of the total hours). The next most predominate wind direction was from the south (18.7% of the total hours), followed by winds from the southwest (17.3% of the total hours) and southeast (8.0% of the total hours).</p> <p>The NOAA Hysplit trajectory model reveals that on days when the 1-hour ozone concentration exceeded 75ppb, the polluted air masses did not pass through any of the surrounding counties more than 15.8% of the time (Walworth County) six hours before the daily maximum ozone concentration was measured.</p> <p>The OSAT results for days with a modeled 1-hour ozone concentration of at least 75 ppb in Kenosha County, which are based on 2009 air pollution controls, show that the Milwaukee nonattainment area contributes only 4.1% of the average ozone concentration. The Chicago nonattainment area contributes 39.6% of the average ozone concentration. Wisconsin areas, excluding the Milwaukee nonattainment area, contribute 1.6% of the average ozone concentration.</p>	<p>The measured wind direction patterns do not implicate any Wisconsin counties, but rather the Chicago nonattainment area.</p> <p>The NOAA Hysplit model results don't implicate any Wisconsin counties.</p> <p>The OSAT results don't implicate any Wisconsin counties.</p>
<p>Geography / Topography</p>	<p>Topography is predominantly flat and has little influence on weather, especially related to transport.</p> <p>Lake breezes are typically associated with high ozone concentrations.</p>	<p>No implications for nonattainment.</p>
<p>Jurisdictional Boundaries</p>	<p>Kenosha is part of the Chicago-Naperville-Michigan City CSA.</p>	<p>Jurisdictional boundaries implicate the Chicago nonattainment area.</p>

<p>Level of Control of Emission Sources</p>	<p>A number of ground level ozone related emission control programs have been implemented in Kenosha, Racine, Milwaukee, Waukesha, Ozaukee, and Washington Counties.</p> <p>Programs include VOC RACT, NR 428, Federal Tier 2 Vehicle Standards, Enhanced Inspection and Maintenance, Reformulated Gasoline, Nonroad engine standards, NR 445 side benefits and some local controls.</p> <p>Most of the stationary source control and certain area source and mobile source programs do not apply to Walworth County.</p>	<p>Walworth County is implicated due to its lack of stationary, mobile and area source controls. However, Walworth County is located west of Kenosha County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.6, & 8.9).</p>
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Air quality, emissions, population, traffic, and growth indicate that counties bordering or near to Kenosha County could potentially contribute to nonattainment there. However, all six counties considered are located north or west of Kenosha County where ozone or its precursors are rarely transported from during high ozone concentration days (See Figures 8.3, 8.6, & 8.9). Based on the data summary above, the following table (12.6) outlines three possible nonattainment designation options for the Kenosha County area.

Table 12.6: Options Summary for the Kenosha County Area

Designation	Options 1 & 2	Option 3
Nonattainment Counties	Kenosha	None

Options 1 and 2 only include Kenosha County because it is the only county that measured nonattainment of the 2008 ozone standard and air pollution transport patterns do not implicate any other Wisconsin counties. Guidance provided by the EPA states that that a CBSA or CSA should serve as the starting point or presumptive boundary for considering what should be the geographic boundaries of an ozone nonattainment area. Kenosha County, although part of the Chicago-Naperville-Michigan City CSA, is not part of a multiple Wisconsin county CBSA or CSA.

Option 3 classifies all areas as in attainment of the 2008 ozone standard due to the downward trend in monitored ozone design values since 1999, regional decreases in VOC and NOx emissions, and continued enforcement of state and federal air pollution rules.

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Appendix

Door County – Rural Transport Classification

Section 107(d)(1)(A)(i) of the Clean Air Act states that any area that does not meet the ozone standards, primary or secondary, should be designated as a nonattainment area. Thus to meet the requirements of the Act, Door County should be designated as a nonattainment area. However, it is requested that the Environmental Protection Agency (EPA) designate Door County as a “rural transport” nonattainment area for the following reasons:

- EPA has previously stated that Door County meets the rural transport area eligibility requirements of the Clean Air Act, Section 182(h). [Docket ID No. EPA-HQ-OAR-2007-0956]. There are two requirements to be eligible for this classification. First, an area must not be part of or adjacent to any part of a Metropolitan Statistical Area (MSA) or, where one exists, a Consolidated Metropolitan Statistical Area (CMSA). Second, sources of VOC and NO_x emissions in the area must not make a significant contribution to the ozone concentrations measured in other areas.
- Door County is not in or adjacent to a Metropolitan Statistical Area (MSA) or Combined Metropolitan Statistical Area (CMSA).
- Based on 2005 emissions data from the Lake Michigan Air Director’s Consortium (LADCO), Door County only contributes 1.1% of VOC emissions and 0.6% of NO_x emissions compared to the current Wisconsin ozone nonattainment counties and the current Chicago area ozone nonattainment counties.

Kenosha County Monitor

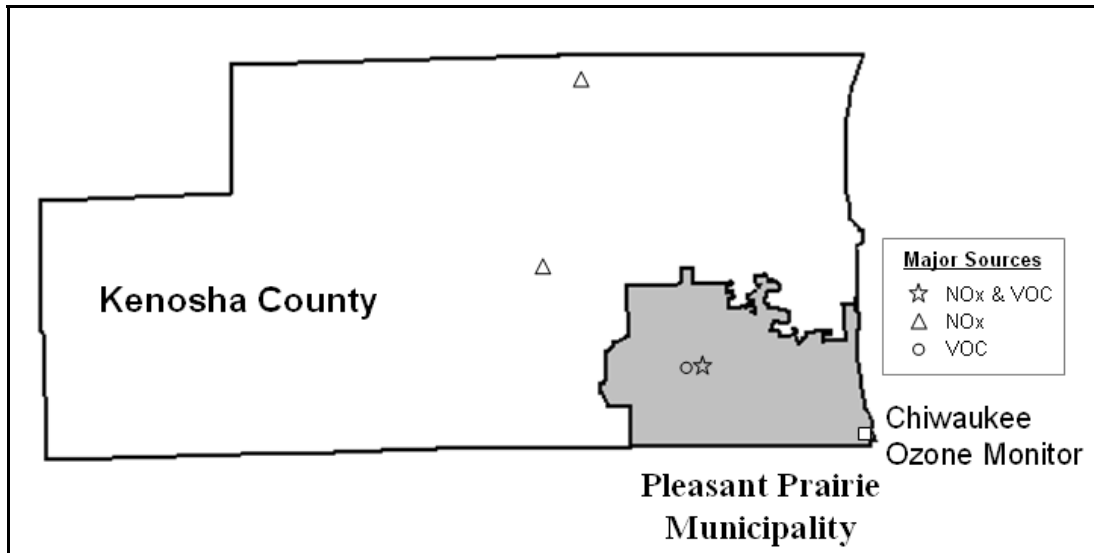
Section 107(d)(1)(A)(i) of the Clean Air Act states that any area that does not meet the ozone standards, primary or secondary, should be designated as a nonattainment area. Thus to meet the requirements of the Act, Kenosha County, or some portion thereof, should be designated as a nonattainment area. The smallest portion of Kenosha County (i.e., Pleasant Prairie Municipality) should be designated as a nonattainment for the following reasons:

- The Chiwaukee ozone monitor in Kenosha County is located less than 1 mile from the Illinois border in Pleasant Prairie Municipality.
- All major VOC point sources (> 100 tons/year) in Kenosha County were located in Pleasant Prairie Municipality based on 2007 emissions data (see figure).
- The largest NO_x point source in Kenosha County was located in Pleasant Prairie Municipality based on 2007 emissions data (see figure). This source, We Energies – Pleasant Prairie Station, accounted for approximately 83% of the total NO_x emissions from major sources in Kenosha County.
- The exceedance of the ozone standard at the Chiwaukee ozone monitor in Kenosha County is most likely due to transport from areas outside the state of Wisconsin. On days when the 1-hour ozone concentration exceeded 75 parts per billion (ppb), the observed wind speed at the Chiwaukee ozone monitor had a southerly component 89.3% of the time from 2006 through 2008. Also, air quality modeling data from the Lake Michigan Air Director’s Consortium (LADCO) shows that the Milwaukee nonattainment counties (Kenosha, Milwaukee, Ozaukee, Racine, Waukesha, and

Washington) and the remainder of Wisconsin only contribute 4.1% and 1.6%, respectively, of the attributable ozone concentration at the Chiwaukee ozone monitor when the 1-hour ozone concentration exceeds 75 ppb. The Chicago nonattainment counties contribute 39.6% of the attributable ozone concentration.

- Based on 2005 emissions data from the Lake Michigan Air Director's Consortium (LADCO), the Chicago nonattainment counties contribute approximately 75 to 80% of the total NO_x and VOC emissions compared to Wisconsin's current ozone nonattainment counties.

Major Sources (> 100 tons/year) of NO_x and/or VOC in Kenosha County





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC - 4 2008

OFFICE OF
AIR AND RADIATION

MEMORANDUM

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

FROM: Robert J. Meyers 
Principal Deputy Assistant Administrator

TO: Regional Administrators, Regions I-X

This memorandum provides information on the timeline for designating areas for the purpose of implementing the 2008 revised primary and secondary ozone National Ambient Air Quality Standards (NAAQS). In addition, this memorandum identifies important factors states and tribes should consider in making recommendations for area designations. Please share this information with the state and tribal agencies in your Region.

The U.S. Environmental Protection Agency (EPA) revised the ozone NAAQS on March 12, 2008 (73 FR 16436; March 27, 2008). The new primary ozone standard was lowered from 0.08 parts per million (ppm) to a level of 0.075 ppm based on numerous epidemiological studies conducted during the past decade in which many of the health effects associated with ozone exposure were identified. These studies showed health effects at and below the level of the 0.08 ppm standard, which was promulgated in 1997. Prolonged (i.e., 8-hour) exposure to ozone is associated with increased mortality and a range of serious morbidity health effects, including aggravation of a variety of respiratory symptoms and lung impairment, asthma attacks, respiratory hospital admissions and emergency department visits, and cardiovascular problems. In March 2008, EPA also strengthened the secondary ozone standard to provide increased protection against adverse public welfare effects including impacts on vegetation and forested ecosystems. EPA made the secondary standard identical in all respects to the revised primary standard.

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 must notify the state at least 120 days prior to promulgating the final designation, and EPA must 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 decisions. In such a case, EPA may take up to an additional year to make the designations. While the language of section 107 specifically addresses states, EPA intends to follow the same process for tribes to the extent practicable, pursuant to section 301(d) of the CAA and the Tribal Authority Rule, or TAR (see 63 FR 7254).

Accordingly, state designation recommendations for the 2008 revised ozone standards should be submitted to the Administrator no later than March 12, 2009. Areas should be identified as attainment, nonattainment, or unclassifiable on the basis of available information. We will notify states by letter no later than November 12, 2009 if we plan to modify a 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-December 2009. 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 January 12, 2010. This will ensure that EPA can fully consider any such information as we move forward to issue designations by March 12, 2010. Because the 2008 revised primary and secondary ozone NAAQS are identical, EPA expects that each area will have the same designation and boundary for both standards.

We recommend that states and tribes identify violating areas using the most recent three consecutive years of quality-assured, certified air quality data. In most cases, we expect these to be data from 2005-2007 or 2006-2008 (if these 2006-2008 data have been certified more quickly than is required) that are stored in the EPA Air Quality System (AQS).¹ In general, violations are identified using data from Federal reference method (FRM) and Federal equivalent method (FEM) monitors that are sited and operated in accordance with 40 CFR Part 58. Special Purpose Monitors (SPM) using an FRM or FEM which have operated for more than 24 months are eligible for comparison to the relevant NAAQS, subject to the requirements given in the October 17, 2006 Revision to Ambient Air Monitoring Regulations (71 FR 61236). Procedures for using the air quality data to determine whether a violation has occurred are given in 40 CFR Part 50 Appendix P, as revised on March 27, 2008 (73 FR 16511). We expect to base the final designations in March 2010 on the most recent quality-assured data which would be from 2006-2008 or 2007-2009.

Air quality monitoring data affected by exceptional events may be excluded from use in identifying a violation if they meet the criteria for exclusion, as specified in the Final Rule on the Treatment of Data Influenced by Exceptional Events (72 FR 13560; March 22, 2007). We recently issued a direct final rule to provide schedules for flagging exceptional event data and submitting documentation specifically for ozone data collected from 2005 through 2009 that are used in the designations process for the 2008 ozone NAAQS. (See 73 FR 58042; October 6, 2008). These schedules reflect our interest in assuring that the exceptional events claims can be fully considered by EPA in the final designations.

¹ This information is available on EPA's website at www.epa.gov/ttn/airs/airsaqs/.

Section 107(d)(1) of the CAA defines an area as nonattainment if it is violating the NAAQS or if it is contributing to a violation in a nearby area. Ground-level ozone and ozone precursor emissions are pervasive and readily transported. Therefore, EPA believes it is important to examine ozone-contributing emissions across a relatively broad geographic area. Accordingly, we recommend that the Core Based Statistical Area (CBSA) or Combined Statistical Area (which includes 2 or more adjacent CBSA's) associated with the violating monitor(s) serve as the starting point or "presumptive" boundary for evaluating the geographic boundaries of an ozone nonattainment area. CBSA is a collective term that refers to both metropolitan and micropolitan statistical areas, which are distinguished based on population size.² Each CBSA consists of a county or counties containing at least one urban core plus adjacent counties that have a high degree of social and economic integration with the urban core as measured by commuting ties.³ EPA recommends starting with this presumption because the factors used to establish the CBSAs and CSAs are similar to the factors EPA plans to consider in determining whether a nearby area is contributing to the violation(s) of the standard. EPA used this same conceptual approach in the designations process for the 1997 ozone NAAQS.^{4,5} Where a violating monitor is not located in a CBSA or CSA, we recommend that the boundary of the county containing the monitor serve as the starting point for considering the extent of the nonattainment area.

EPA believes that each potential nonattainment area should be evaluated on a case-by-case basis and recognizes that these area-specific analyses conducted by states, tribes, and/or EPA may support nonattainment area boundaries that are larger or smaller than the presumptive area starting point. As a framework for area-specific analyses, we recommend that states and tribes base their boundary recommendations on an evaluation of the 9 factors listed in attachment 2. These factors are consistent with those used in the designations process for the 1997 ozone standard and are factors EPA plans to consider in evaluating and making decisions on the nonattainment area boundaries for the 2008 ozone standards. Additionally, states and tribes may

² The Office of Management and Budget (OMB) delineates CBSAs (metropolitan and micropolitan statistical areas) and CSAs. OMB adopted new standards for defining metropolitan and micropolitan statistical areas on December 27, 2000 (65 FR 82229). A micropolitan statistical area has a population of at least 10,000 but less than 50,000. A metropolitan statistical area has a population of at least 50,000.

³ For lists of the CBSAs and CSAs and their geographic components see www.census.gov/population/www/metroareas/metrodef.html. EPA recommends using the most recent available updated lists of the statistical areas. The lists are updated annually to reflect the most recent Census Bureau population estimates.

⁴ Memorandum from John S. Seitz, Director of Office of Air Quality Planning and Standards to Air Directors, Regions I-X, "Boundary Guidance on Air Quality Designations for the 8-Hour Ozone National Ambient Air Quality Standards," March 23, 2000.

⁵ In addition, CAA section 107(d)(4) established the consolidated metropolitan statistical area or metropolitan statistical area as the presumptive boundary for the most polluted areas that were designated nonattainment by operation of law in 1991 for the 1-hour ozone NAAQS.

identify and evaluate other relevant factors or circumstances specific to a particular area.

In addition to nearby areas with sources contributing to nonattainment, ozone concentrations in a local area may be affected by long-range transport of ozone and its precursors (notably nitrogen oxides). In certain parts of the country, such as the eastern United States, ozone is a widespread problem. Where this is the case, the CAA does not require that all contributing areas be designated nonattainment, only the nearby areas. Regional strategies, such as those employed in the Ozone Transport Region and EPA's NO_x SIP Call are needed to address the long-range transport component of ozone nonattainment, while the local component must be addressed through local planning in and around the designated nonattainment area.

This memorandum provides EPA's current views on how boundaries should be determined for ozone designations. The guidance is not binding on states, tribes, the public, or EPA. Issues concerning nonattainment area boundaries will be addressed in EPA's action to designate areas under the 2008 ozone standard. When EPA promulgates designations, those determinations will be binding on states, tribes, the public, and EPA as a matter of law. Ozone nonattainment areas will be classified at the time of designation. The approach EPA will use to classify nonattainment areas under the 2008 revised ozone NAAQS will be established through a separate notice-and-comment rulemaking. Information related to the designations for the 2008 revised ozone NAAQS will be provided on EPA's website at www.epa.gov/ozonedesignations.

Attachment 1 is a timeline of important dates in the designation process for the revised 2008 ozone NAAQS designation process. Attachment 2 provides the list of nine factors that EPA plans to consider in evaluating and making decisions on nonattainment area boundaries.

Staff in EPA's Office of Air Quality Planning and Standards are available for assistance and consultation throughout the designation process. Questions on this guidance may be directed to Carla Oldham at 919-541-3347.

Attachments (2)

cc: Air Division Directors, Regions I-X
Greg Green, OAQPS
Bill Harnett, OAQPS
Brian McLean, OAP
Margo Oge, OTAQ
Stephen D. Page, OAQPS
Peter Tsirigotis, OAQPS
Richard Wayland, OAQPS
Lydia Wegman, OAQPS

ATTACHMENT 1

TIMELINE FOR REVISED 2008 OZONE NAAQS DESIGNATION PROCESS*	
Milestone	Date
EPA promulgated revised ozone NAAQS	March 12, 2008
State and tribal recommendations due for ozone designations	No later than March 12, 2009
EPA notifies states and tribes concerning any modifications to their recommendations (120-day letters).	No later than November 12, 2009 (120 days prior to final designations)
EPA publishes public notice of state recommendations and EPA's proposed modifications and initiates 30-day public comment period.	Mid-November 2009
End of 30-day public comment period.	Mid-December 2009
States and Tribes submit additional information to demonstrate why an EPA modification is inappropriate.	No later than January 12, 2010
EPA promulgates final ozone designations.	No later than March 12, 2010

* This schedule assumes EPA has sufficient information to promulgate designations within 2 years. In the event EPA determines that insufficient information is available to do so, the designation process could be extended up to one year, but no later than March 12, 2011.

ATTACHMENT 2

Factors EPA Plans to Consider in Determining Nonattainment Area Boundaries in Designations for the 2008 Ozone NAAQS

EPA recommends that the Core Based Statistical Area (CBSA) or Combined Statistical Area (CSA) (which includes 2 or more adjacent CBSA's) serve as the starting point or "presumptive" boundary for considering what should be the geographic boundaries of an ozone nonattainment area.⁶ Where a violating monitor is not located in a CBSA or CSA, we recommend that the boundary of the county containing the monitor serve as the presumptive boundary for the nonattainment area. As a framework for area-specific analyses to support nonattainment area boundary recommendations and final boundary determinations, we recommend an evaluation of the 9 factors listed below:

- Air quality data
- Emissions data (location of sources and contribution to ozone concentrations)
- Population density and degree of urbanization (including commercial development)
- Traffic and commuting patterns
- Growth rates and patterns
- Meteorology (weather/transport patterns)
- Geography/topography (mountain ranges or other air basin boundaries)
- Jurisdictional boundaries (e.g., counties, air districts, existing nonattainment areas, Reservations, metropolitan planning organizations (MPOs))
- Level of control of emission sources

Analysis of these factors may support nonattainment boundaries that are either larger or smaller than the presumptive boundary. EPA plans to consider these factors, along with any other relevant information, in determining whether to make modifications to the boundary recommendations from states and tribes. The factors listed above, while generally comprehensive, are not intended to be exhaustive. States and tribes may submit additional information they believe is relevant for EPA to consider. In general, a state's or tribe's demonstration supporting their boundary recommendation for an area should show that: 1) violations are not occurring in nearby portions that are excluded from the recommended area, and 2) the excluded nearby portions do not contain emission sources that contribute meaningfully to the observed violations. While states are not bound to use the approach outlined here, EPA plans to evaluate a state recommendation and determine whether to modify such recommendation based on the above factors and any other information the Agency determines is relevant.

⁶ For lists of the CBSAs and CSAs and their geographic components see www.census.gov/population/www/metroareas/metrodef.html.

The following are public comments received on the Department's nonattainment options draft technical support document. The majority of the comments resulted in no change to the document; rather, they quoted statistics from the document or expressed a preference for a particular nonattainment designation. Any changes to the document resulting from a particular comment or response to a comment are noted in red.

Comments were received from the following groups:

1. Door County – Office of Corporation Counsel
2. Manitowoc County – County Executive
3. We Energies
4. Wisconsin Public Service Corporation (WPSC)
5. Wisconsin Power and Light Co. (WPL)
6. Sierra Club
7. Wisconsin Manufacturers and Commerce (WMC)

Commenter: Door County
Office of Corporation Counsel

- Door County remains in nonattainment status. It is understood and accepted that this status will likely persist for the foreseeable future.
- Door County is affected by overwhelming transport from one or more upwind areas.
- Door County's primary goal is to be granted a "rural-transport nonattainment designation." The DNR is asked to support Door County in its endeavor to qualify for and gain the protections of this nonattainment classification.

Rural Transport Classification: Section 182(h) of the Clean Air Act states that in order for an area to receive the "rural-transport nonattainment designation" it must not include any other nonattainment areas (i.e., Option 2 for the Door County area).

- Door County also wishes to stress the importance of the DNR and EPA continuing and strengthening efforts to reduce upwind NOx and VOC emissions. Otherwise down wind areas affected by transport [e.g., Door County] will be hampered in their efforts to meet federally mandated NAAQS and deadlines.

Commenter: Manitowoc County
Office of the County Executive

- Manitowoc County believes that it should not be designated as a nonattainment county for the Door County area for the following reasons:
 - 1) Manitowoc County met the revised ozone standard of 0.075 ppm for the 2006-08 monitoring period.
 - 2) Current performance standards for existing sources have been working. Manitowoc County's ozone design value has shown steady downward progress from 0.092 ppm in 1999-01 to 0.075 ppm in 2006-08.
 - 3) Manitowoc County is only implicated by two of the nine U.S. EPA factors considered for making nonattainment recommendations. Those two factors are air quality in adjacent areas and weather/transport patterns.
 - 4) Regional contributions for attributable ozone from Wisconsin counties, excluding Milwaukee Nonattainment Counties, only account for 5.5% of the total.
- Adding more restrictions on ozone emissions will not have a beneficial effect on business or the well being of the citizens of Manitowoc County.

Regulatory Burden: The Federal Clean Air Act does not provide a nonattainment designation exception based on the resulting designation's potential effect on businesses.

Commenter: We Energies

- Nonattainment designations will impact We Energies' system of electric generation units and our electricity customers in Wisconsin. The proposed 8-hour ozone nonattainment designations will make it more difficult to add new businesses and expand existing businesses in the affected counties.

See the "Regulatory Burden" response above.

- The data in the technical support document (TSD) demonstrate very clearly that the overwhelming contribution to monitored ozone exceedances in Wisconsin comes from regional emissions that are outside the state's boundaries. This conclusion, however, seems somewhat lost by the focus on providing Wisconsin County-specific data to satisfy the letter of the EPA protocol as well as on the nonattainment designation "options" that the Department took out to public information meetings and public hearing. The TSD should be revised to emphasize the supporting data and conclusion that the overwhelming contribution to monitored ozone exceedances in Wisconsin comes from regional emissions that are outside the state's boundaries. We recommend that some additional data and analysis be included in the TSD. Specifically, we request that the TSD include more data that illustrate the regional nature of the ozone problem affecting Wisconsin, and include more analysis and conclusion that Wisconsin point, area, and mobile sources of VOCs and NO_x, contribute insignificantly to the ozone levels monitored in the subject counties.

Regional Transport: The Ozone Source Apportionment (OSAT) results presented in the Department's nonattainment options document already highlight the regional contribution to monitored ozone exceedances in Wisconsin. However, to further illustrate this point, the percentage of NO_x and VOC emissions for non-road, point, area, and on-road emission sectors will be compared from the Illinois Chicago nonattainment counties, the Indiana Chicago nonattainment counties, the Wisconsin nonattainment counties, and the other Wisconsin counties considered for a nonattainment designation in Section 8 of the Department's document.

- U.S. EPA's guidance for presumptive nonattainment boundaries is the county boundary itself, unless that county is part of a Core Based Statistical Area (CBSA) or Combined Statistical Area (CSA). None of these three counties (Door, Kenosha, or Sheboygan) with monitored data above the ozone standard falls within a Wisconsin CBSA or CSA, making the applicable presumptive boundaries the actual county boundaries. Notably, Kenosha County is included in the Chicago-Naperville-Michigan City CSA. The more appropriate use of this monitor is as a compliance monitor for the upwind Chicago-Gary region. In light of the modeling data presented in the Draft TSD showing that nearly all of the monitored ozone levels at the Kenosha monitor are attributable to sources located outside of Wisconsin, this appears to be a critical time to reevaluate this situation. Inappropriate use of the Kenosha County monitor may result in the burden of preparing an unachievable attainment plan.

Presumptive Boundaries: The presumptive boundaries are the county borders; however, based on the nine factors considered in the

Department's document, as recommended by the EPA guidance, additional counties may be designated as nonattainment counties.

Chiwaukee Monitor: Section 107(d)(1)(A)(i) of the Clean Air Act (the Act) states that any area that does not meet the ozone standards, primary or secondary, should be designated as a nonattainment area. Although the monitor is close to the border of Illinois, it is located in Kenosha County.

In a 26 February 2009 call, EPA Region 5 Staff indicated that the Clean Air Act does not provide Kenosha County any relief from a nonattainment designation. The Chiwaukee Prairie monitor is located in Kenosha County and recorded a violation of the ozone standard; therefore, EPA will designate Kenosha County as a nonattainment county.

- If all Wisconsin contributions are eliminated from the OSAT results presented in the TSD and the 18 ppb due to inflow from areas beyond the modeled domain are added back in, the resulting ozone concentration is still above the standard for all three counties (Door 76 ppb, Sheboygan 76 ppb, and Kenosha 84 ppb). This information clearly suggests that option 2 – recommending the minimum number of nonattainment counties, and potential excluding a nonattainment recommendation for Kenosha County, is the option that makes sense for Wisconsin's citizens. This is not only consistent with U.S. EPA's guidance, but it also anticipates the next step in the process, developing a compliant SIP. If the data show that the majority of the ozone problem comes from out-of-state sources, then why would the state want to obligate itself to solving an ozone problem that it is largely not culpable for creating?
- The TSD needs to include data that illustrates the regional nature of the ozone problem affecting Wisconsin. At a minimum, adding emission data and information on traffic and commuting patterns in upwind states would strengthen the TSD (Examples for potential TSD additions provided in the letter).

See the "Regional Transport" response above. The added regional emission comparison includes the on-road sector, which accounts for traffic and commuting patterns.

- It may also be instructive for the Department to ask LADCO to zero-out Wisconsin emissions of NO_x, and VOCs for the 20 Wisconsin counties included in the TSD, then re-run CAMx for an entire ozone season to test the hypothesis suggested by the OSAT data; namely, that Wisconsin point, area, and mobile sources of VOCs and NO_x, contribute insignificantly to the ozone levels monitored in the subject counties.

The suggested zero-out modeling would not provide any additional useful information in selecting ozone nonattainment areas in Wisconsin.

- We oppose Option 1; conditionally support Option 2, conditioned on further evaluation of the appropriate use of the Kenosha County monitor; and question whether Option 3 is consistent with the provisions of the Clean Air Act.

Commenter: Wisconsin Public Service Corporation (WPSC)

- WPSC supports Option 2 for Door and Sheboygan counties and Option 3 for Kenosha County.
- The nonattainment designations of Door, Sheboygan and Kenosha counties have potential to impact not only our own operations, but also the operations of many industries in the State of Wisconsin. The proposed designations could inhibit the siting of new businesses or the expansion of existing businesses in these areas, which is of significant concern during this period of economic uncertainty.

See the "Regulatory Burden" response above.

- U.S. EPA's evaluation criteria for determining nonattainment boundaries do not account for regional transport of ozone. The modeling data shown in the TSD clearly indicate that regional contributions to monitored ozone exceedances are significant, and most of the regional contribution comes from areas beyond the borders of Wisconsin. Unfortunately, the conclusions in the TSD do not discuss any options for dealing with ozone transport from areas outside of Wisconsin. WPSC believes that this issue is of critical importance for determining nonattainment boundaries.

See the "Regional Transport" response above.

- Modeling data in the TSD indicate that even if all sources of ozone in Wisconsin are eliminated, regional ozone transport may still cause monitors in these counties to exceed the 8-hour standard.
- Option 1 is overly conservative because surrounding counties to Door, Sheboygan, and Kenosha met the standard and is contrary to Wis. Stats. 285.01(30) and 285.23(1). None of the three counties are part of a multiple Wisconsin county CSA or CBSA.

Wisconsin Statutes: The referenced State Statutes are as follows:

285.01(30), "Nonattainment area' means an area identified by the department in a document prepared under s. 285.23 (2) where the concentration in the atmosphere of an air contaminant exceeds an ambient air quality standard."

285.23(1), "The department may not identify a county as part of a nonattainment area under the federal clean air act if the concentration of an air contaminant in the atmosphere in that county does not exceed an ambient air quality standard, unless under the federal clean air act the county is required to be designated as part of a nonattainment area."

Option 1 is not contrary to these State Statutes because 285.23(1) states that an area can also be designated as nonattainment under the Federal Clean Air Act (the Act). Section 107(d)(1)(A)(i) of the Act states that any

area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the primary or secondary ambient air quality standard for the pollutant should be designated as a nonattainment area. Thus, counties that did not measure an exceedance of the ozone standard can still be designated as nonattainment if they contributed to another county's violation of an ambient air quality standard.

- The monitor located in Kenosha County was located in Chiwaukee, which is very close to the border with Illinois, and was designed to monitor ozone concentrations coming from the Chicago area. The location of this monitor does not allow for the measurement of ozone generated within the State of Wisconsin. Modeling results from the TSD support this assertion.

See the "Chiwaukee Monitor" response above.

- Option 2 closely follows Wis. Stats. 285.01(30) and 285.23(1) in the case of Door and Sheboygan Counties, but may not apply to Kenosha County due to the location of the Chiwaukee monitor.

See the "Wisconsin Statutes" response above.

- There is significant evidence that the main cause of nonattainment in Door, Sheboygan, and Kenosha Counties is the result of regional transport of ozone from areas outside of Wisconsin. However, Option 3 is contrary to Wis. Stats 285.01(30) and 285.23(1) for Door and Sheboygan counties, as the data from monitors in those counties clearly indicate that they are above the 75 ppb limit and modeling data indicate that a significant amount of ozone comes from within Wisconsin. Although the Kenosha County monitor indicates that the ozone concentration is above the limit, the location of the monitor does not capture contributions from Kenosha or any other county in Wisconsin. Since there are no data to support that Kenosha County is nonattainment for ozone, a nonattainment designation should not be made.

See the "Regional Transport" response above.
See the "Chiwaukee Monitor" response above.

Commenter: Wisconsin Power and Light Co. (WPL)

- WPL asks that WDNR better reinforce the significant NOx emissions reductions that have occurred and will continue to occur in Sheboygan County, as a result of voluntary early emission reductions and continued efforts to comply with Wisconsin Administrative Code rule requirements in Chapter 428. This includes recent revisions adding Subchapter IV to NR428, which now requires stringent NOx emissions compliance requirements that are beyond EPA's required levels for Reasonably Available Control Technology (RACT). WPL requests that the WDNR reinforce the significant NOx emissions reductions under Chapter NR428 rule on pages 50 and 62 of the TSD and in the final recommendations provided to the Governor.

Section 11 of the nonattainment options document will be updated to indicate that based on the NR428 RACT rule limitations for the counties of Kenosha, Racine, Milwaukee, Waukesha, Washington, Ozaukee, and Sheboygan the estimated NOx emissions reduction is nearly 15,000 tons/year.

- Statistics and commentary presented on the ongoing and planned measures to reduce NOx at the Sheboygan Falls Energy Facility and Edgewater Generating Station.
- WPL points out that the NR428 Subchapter IV RACT requirements will also reduce NOx in the additional counties of Kenosha, Milwaukee, Ozaukee, Racine, Washington and Waukesha. As presented by the WDNR to the Wisconsin Natural Resources Board when requesting final rule approval, the NR428 RACT rule limitations are estimated to reduce NOx emissions by almost 15,000 tons/year.
- WPL believes that whatever the final outcome of designation status is for Sheboygan County under the revised 8-hour ozone NAAQS, the area is well-positioned to attain the standard as a result of the NR428 rule, Wisconsin RACT rules limiting volatile organic compounds (VOC) emissions, as well as, additional adopted federal rules that will reduce transport of ozone precursor emissions, such as the Clean Air Interstate Rule (CAIR) that has NOx reductions commencing this year.
- Potential issues with maintaining the standard would result if emissions are not controlled from areas outside of Wisconsin. Final recommendations should reinforce the relevance of these out-of-state sources in achieving future compliance.

Commenter: Sierra Club

- The Draft Technical Support Document (TSD) proposes three general options. Only the first option is scientifically and legally defensible and, therefore, we urge the Governor to propose designation of the counties in Option 1.
- Ozone pollution is a significant health threat at levels below the 2008 standard. The Bush Administration's decision to adopt a 0.075 ppm ozone standard conflicted with evidence that a lower standard was necessary to protect public health (statistics and further commentary presented in the letter). It is now well known that the 0.075 ppm standard was the result of improper political influence by the Bush Administration in a process that is supposed to be controlled by science (statistics and further commentary presented in the letter). Because the 0.075 ppm standard is not protective of health and was adopted for political reasons, rather than health reasons, it will be updated. It is almost certain that the U.S. EPA will revise the 2008 standard to no higher than 0.070 ppm and probably as low as 0.060 ppm based on the science we already know. Most or all of the counties in Option 1 will be in violation of these lower values. Also, ozone trends presented in the TSD do not show ozone levels at the 0.060 to 0.070 ppm level for many years (if ever).
- Even if Option 1 were not the only technically and legally defensible option for designating nonattainment areas for the 2008 0.075 standard, the Governor should still propose designation of the counties in Option 1 because it puts Wisconsin on a path to compliance with the coming, lower ozone standard and with ozone levels that impartial scientists tell us is necessary to protect public health. Option 1 is also supported by the total emissions from Wisconsin sources that contribute to ozone formation (statistics from the TSD quoted in the letter).
- We also note that each of the factors to be considered in whether to designate up-wind counties favors including more counties than merely Door, Sheboygan and Kenosha. The point of designating nonattainment areas is to trigger pollution controls to bring down pollution levels. Therefore, because these pollution controls will be most effective if applied to the counties causing the ozone pollution, rather than the counties suffering the pollution, Option 1 is the only option that makes technical and scientific sense.
- Option 3 is not a viable or legally defensible option. It relies on the same flawed legal interpretation that was used to designate nonattainment areas for the 2006 PM_{2.5} standard. In a December 18, 2007 letter, the Governor recommended designations based on projections of 2015 levels. However, in December, 2008, the EPA correctly rejected that proposal and designated counties based on actual monitored pollution levels because that is what the Clean Air Act requires. Wisconsin should avoid making the same mistake here.

Commenter: Wisconsin Manufacturers & Commerce (WMC)

- Nonattainment designations carry with them substantial regulatory and related economic burdens. Given the costly regulatory implications and negative business climate perceptions associated with a nonattainment designation, we urge the Governor to limit his nonattainment designation recommendations to only those counties that are actually violating the standard.

See the "Regulatory Burden" response above.

- Any evaluation of these nonattainment options must start with the statutory directive (Wis. Stats. 285.23(1)) that nonattainment designations may only be attached to those counties "where the concentration in the atmosphere of an air contaminant exceeds an ambient air quality standard." That is, there must be a "violating monitor." An obvious, but related tenet is the legal and policy imperative that the monitor used to determine compliance in a particular county must be measuring that county's air quality. Based on this litmus test, we oppose Option 1 as it includes numerous counties with no violating monitors. Conversely, we question the validity of Option 3 as it is inconsistent with the Act and an invitation to EPA to make unilateral nonattainment designations not in the best interest of Wisconsin. While we generally support Option 2, we note below the fact Kenosha County does not have a compliance monitor violating the new ozone standard, and should therefore not be designated as nonattainment.

See the "Wisconsin Statutes" response above.

See the "Chiwaukee Monitor" response above.

- We strongly oppose the nonattainment designation of any counties that are meeting the standard.
- For Door County, ozone contributions from non-Wisconsin counties amount to over 85 percent for the offending monitor (TSD, pp. 44). Similarly, for Sheboygan County, about 83 percent of the relevant ozone contributions are from out of state (TSD, pp. 45). It is important to note that even the relevancy of these insignificant amounts from Wisconsin is overstated in the TSD. That is, EPA created the CBSA/CSA boundary presumption to address the Act's requirement to include contributing "nearby areas." The presumption can be rebutted if a state identifies other contributing sources in areas that are considered nearby.

See the "Presumptive Boundaries" response above.

- EPA's nonattainment boundary guidance rests on the presumption that boundaries are defined by Core Based Statistical Area (CBSA) or Combined Statistical Area (CSA). Door County is not part of a CBSA or CSA, thus the presumptive boundary for any ozone nonattainment area is the county boundary (Option 2). Sheboygan County makes up the Sheboygan, WI Core Based Statistical Area (CBSA Code 43100), which includes no other counties. Thus, the presumptive boundary for any ozone nonattainment area is the county boundary (Option 2). Thus, there is a strong presumption, consistent with

Wisconsin law, that only Door and Sheboygan counties be considered nonattainment. To rebut that presumption, upwind counties must have sources that significantly contribute to the violations in those counties. The Department's TSD generally supports the conclusion that emissions from the upwind counties targeted under this option are insignificant.

See the "Presumptive Boundaries" response above

The Department's document does not "generally support the conclusion that emissions from the upwind counties targeted under this option are insignificant." Rather, as summarized in Table 12.1, 12.3, and 12.5 the following upwind counties are considered "substantial source regions" for either NOx and/or VOC: Brown, Milwaukee, Kenosha, Sheboygan, Racine, and Waukesha.

- For example, for Sheboygan County, this option targets Milwaukee, Ozaukee, Washington, Waukesha, Racine, and Kenosha counties for their contribution to the Sheboygan County violation. The Department's TSD analysis merely aggregates all sources in the entire six-county region, and then, only finds a 13.5 percent contribution. There is no attempt to identify specific sources meaningfully affecting the Sheboygan County monitor, or whether such sources are considered "nearby" under the Act. It would difficult, for example, to conclude any given source in any of these counties are making meaningful contribution, and that these emissions are not already controlled.

The OSAT results provided by LADCO were only available on this larger scale. The remaining portions of the document, such as NOx and VOC emissions, population growth, vehicle miles, etc., focus more specifically on the individual counties.

- Finally, we urge the Department to provide additional analysis in the TSD that the Wisconsin counties noted under Option 1, including sources in Door and Sheboygan counties, are insignificant and the violations in Door and Sheboygan counties are driven by regional pollution.

The department followed the guidance provided by the EPA.

See the "Regional Transport" response above

- We urge the Department to evaluate and advocate that Door and Sheboygan obtain regulatory relief under overwhelming or rural transport concepts or other avenues that recognize these counties should not be burdened with additional regulations for pollution not emanating from within their borders. This approach, we believe, is more consistent with the Act and better addresses the violations in those counties than Option 3, which will default to an EPA determination these counties should be considered nonattainment, possibly without any protections otherwise afforded under the Act.

See the "Rural Transport Classification" response above.

Sheboygan County would not be eligible for this classification since it borders the Milwaukee Combined Statistical Area (CSA) and it is also a single county metropolitan area.

- We could support Option 2 except for the fact Kenosha County does not have a compliance monitor violating the new ozone standard. That is, the Chiwaukee monitor in Kenosha County that the Department properly notes exceeds the standard does not measure Wisconsin air quality, nor was it ever intended to be a Wisconsin compliance monitor. The Department's data relating to meteorology/transport patterns and ozone source apportionment provide compelling evidence that the Chiwaukee monitor is not affected by Wisconsin sources. The Chiwaukee monitor is located within the Chiwaukee Prairie Nature Preserve, less than a quarter mile from Lake Michigan, less than a mile north of the Illinois border, and miles south of the city of Kenosha. Based on DNR wind direction data during relevant time periods, zero percent of the pollution affecting the Chiwaukee monitor is coming from the North, the North-Northwest or the Northwest. DNR's ozone source apportionment data shows that at over 94 percent of the contributions to the Chiwaukee monitor during relevant times are from out of state sources. EPA requires a compliance monitor be downwind of population areas. Being upwind of the City of Kenosha or other relevant areas of Kenosha County, the Chiwaukee monitor fails that test. Consistent with these policies, EPA acknowledges, as did the Department in the past, that being downwind of the Chicago-Gary region makes the Chiwaukee monitor the compliance monitor for that region. Thus, treating Chiwaukee monitor as a compliance monitor for any Wisconsin county, including Kenosha, conflicts with the Act and EPA policies and positions, and defies logic. Because Kenosha County does not have a violating monitor, the Governor should recommend an attainment designation.

See the "Chiwaukee Monitor" response above.

- As it stands today, every county in Wisconsin is meeting the current 84 ppb ozone standard. Unfortunately, as with the prior request, the Department is failing to timely submit a redesignation request. One again, we fear these areas are being shortchanged. We urge the Department to submit a redesignation request without delay for all Wisconsin counties now designated nonattainment, including Sheboygan, Manitowoc, Door, Ozone Designation Comments Page 5 Milwaukee, Ozaukee, Washington, Waukesha, Racine, and Kenosha counties. These counties have suffered for too long due to unjustified delays.

The Department is currently working on a redesignation request for all of Wisconsin's nonattainment counties based on 2006 through 2008 ozone data.

- In summary, we respectively request that the Department and the Doyle Administration recommend all Wisconsin counties meeting the new ozone standard, including Kenosha County, be designated attainment and that all Wisconsin counties be swiftly redesignated attainment for the old standard.

- Additional comments provided on DNR's air quality monitoring network proposal, including the following topics:
 - Using the Chiwaukee monitor to determine the compliance status for the downwind Milwaukee-Racine CMSA is inconsistent with the Clean Air Act and EPA policies.
 - DNR and EPA have misconstrued Governor Thompson's and Governor Doyle's requests to EPA for Kenosha County "Ozone Planning" authority.
 - The Chiwaukee monitor is not considered a compliance monitor for any Wisconsin county, even Kenosha.

DOOR COUNTY AREA

Option 1 Nonattainment Counties: Door, Brown, Kewaunee and Manitowoc	Option 2 Nonattainment Counties: Door	Option 3 Nonattainment Counties: None
Sierra Club	Door County Office of Corporation Counsel Manitowoc County ¹ Office of the County Executive Wisconsin Public Service Corporation (WPSC) We Energies Wisconsin Manufacturers & Commerce (WMC)	

SHEBOYGAN COUNTY AREA

Option 1 Nonattainment Counties: Sheboygan, Kenosha, Milwaukee, Ozaukee, Racine, Washington, and Waukesha	Option 2 Nonattainment Counties: Sheboygan	Option 3 Nonattainment Counties: None
Sierra Club	Wisconsin Public Service Corporation (WPSC) We Energies Wisconsin Manufacturers & Commerce (WMC)	

Note: Wisconsin Power and Light Co. (WPL) did not endorse any option; rather, they requested the technical support document include a revised discussion regarding the level of control of emission sources in Sheboygan County.

KENOSHA COUNTY AREA

Option 1 Nonattainment Counties: Kenosha	Option 2 Nonattainment Counties: Kenosha	Option 3 Nonattainment Counties: None
Sierra Club		Wisconsin Public Service Corporation (WPSC) We Energies Wisconsin Manufacturers & Commerce (WMC)

¹ Manitowoc County did not specifically endorse Option 2; rather, they commented that they should not be designated as a nonattainment county as presented in Option 1 for the Door County area.