Illinois-Indiana-Wisconsin
Supplement
Area Designations for the 2008
Ozone National Ambient Air Quality Standards

On December 9, 2011, EPA sent letters to Governor Pat Quinn of Illinois, Governor Mitchell E. Daniels, Jr. of Indiana, and Governor Scott Walker of Wisconsin, providing that EPA intended to designate as "unclassifiable/attainment" all parts of the States of Illinois, Indiana, and Wisconsin not otherwise noted in those letters and accompanying enclosures as intended nonattainment areas for the 2008 8-hour ozone National Ambient Air Quality Standards (2008 8-hour ozone NAAQS or standards).[1] All counties in the Chicago-Naperville-Michigan City, Illinois-Indiana-Wisconsin (IL-IN-WI) Combined Statistical Area (CSA) were identified in these letters as intended unclassifiable/attainment areas.

Based on new information submitted by the State of Illinois just prior to issuance of those letters, EPA is now revising its intended designation for many of the counties in the Chicago-Naperville-Michigan City, IL-IN-WI CSA. In a letter dated December 7, 2011, the State of Illinois submitted a letter stating that it had submitted certified ozone air quality data for 2011. That information was not submitted in sufficient time for EPA to consider it in the analyses provided in the December 9, 2011 letters. The newly submitted data, when considered in conjunction with data from the previous two years (2009 and 2010) indicate that a monitor (the Zion monitor) located in Lake County, Illinois is violating the 2008 8-hour ozone NAAQS. Based on that new information, EPA recently completed an analysis (provided below) to determine the area it intends to designate as nonattainment based on the violation of the 2008 8-hour ozone standard at the Zion monitor. The intended nonattainment designation for the counties identified in this Technical Support Document (TSD) replaces the intended designation of unclassifiable/attainment for these counties provided in the December 9, 2011 letters and enclosures. This document does not change or modify the intended designations

[1] The primary 8-hour ozone standard, set to protect human health, was revised on March 27, 2008 (73 FR 16436) from 0.08 parts per million to 0.075 parts per million (ppm) (75 parts per billion (ppb)). The secondary ozone standard, set to protect human welfare and the environment, was revised to be consistent with the primary standard in all respects.

identified in the December 9, 2011 letters and enclosures for any other counties in the States.

The table below identifies the counties or parts of counties in Illinois, Indiana, and Wisconsin that EPA intends to designate as nonattainment as part of the Chicago-Naperville, IL-IN-WI nonattainment area for the 2008 8-hour ozone NAAQS. In accordance with section 107(d) of the Clean Air Act (CAA), EPA must designate an area as "nonattainment" if it is violating the 2008 8-hour ozone NAAQS or if it contributes to a violation of the 2008 8-hour ozone NAAQS in a nearby area. The technical analyses supporting the boundaries for this nonattainment area are provided below.

Table 1. Intended Chicago-Naperville, IL-IN-WI Nonattainment Area for the 2008 Ozone NAAQS

State	State Recommended Nonattainment Counties	EPA's Intended Nonattainment Counties†
Illinois	Cook DuPage Kane Lake McHenry Will Kendall – Partial Oswego Township Grundy – Partial Aux Sable Township Goose Lake Township	Cook DuPage Kane Lake McHenry Will Kendall – Partial Oswego Township Grundy – Partial Aux Sable Township Goose Lake Township
Indiana	Lake	Lake Porter Jasper
Wisconsin	None	Kenosha

† Nonattainment for both primary and secondary 2008 8-hour ozone standards.

The analysis below provides the technical and qualitative bases for the intended boundaries of the Chicago-Naperville, IL-IN-WI ozone nonattainment area under the 2008 8-hour ozone NAAQS. It relies on our analysis of whether and which monitors are recording violations of the 2008 8-hour ozone NAAQS, based on state-certified air quality monitoring data from 2009-2011 for the State of Illinois and from 2008-2010 for ozone monitors in Indiana and Wisconsin and on an evaluation of whether nearby areas are contributing to such violations. EPA has evaluated contributions from nearby areas (counties within the Chicago-Naperville-Michigan City, IL-IN-WI CSA) based on a weight-of-evidence analysis considering the factors identified below. EPA issued guidance on December 4, 2008 that identified these

factors as ones EPA would consider in determining nonattainment area boundaries, and recommended that states consider these factors in making their designation recommendations to EPA.[2]

1. Air quality data, including the ozone design value[3] calculated for each Federal Reference Method (FRM) or Federal Equivalent Method (FEM) monitor in the area;

2. Emissions and emissions-related data, including locations of sources, population, amounts of emissions and emission controls, and growth patterns;

3. Meteorology (weather/pollutant transport patterns);

4. Geography and topography (mountain ranges and other air basin boundaries affecting ozone levels and ozone precursor transport); and,

5. Jurisdictional boundaries, e.g. counties, air districts, existing ozone nonattainment areas, Indian country, Metropolitan Planning Organizations (MPOs) and their covered areas.

Ground-level ozone is generally not emitted directly into the air, but is created by chemical reactions involving Nitrogen Oxides (NOx) and Volatile Organic Compounds (VOC) in the presence of sunlight.[4] Because NOx and VOC emissions from a broad range of sources over a wide area typically contribute to violations of the ozone standards, EPA believes it is important to consider whether there are contributing emissions from a broad geographic area. Accordingly, EPA chose to examine the five factors with respect to the counties in the larger of the CSA or Core Based Statistical Area (CBSA) associated with the

[2] The December 4, 2008 guidance memorandum, "Area Designations for the 2008 Revised Ozone National Ambient Air Quality Standards," refers to 9 factors. In this technical support document, we have grouped the emissions-related factors together under the heading of "Emissions-Related Data," which results in 5 main categories of factors used to evaluate potential nonattainment area boundaries.

[3] Average of the annual fourth-highest daily maximum 8-hour ozone concentrations during a three-year period with complete data that the state has quality assured/quality controlled and certified. In evaluating the attainment status of an area, EPA generally considers complete ozone data for the most recent three-year period.

[4] Peak ozone concentrations generally occur downwind of source areas on relatively sunny days with high temperatures and relatively low wind speeds.

violating monitor(s).[5] All data and information used by EPA in this evaluation are the latest available to EPA and/or provided to EPA by states or tribes.

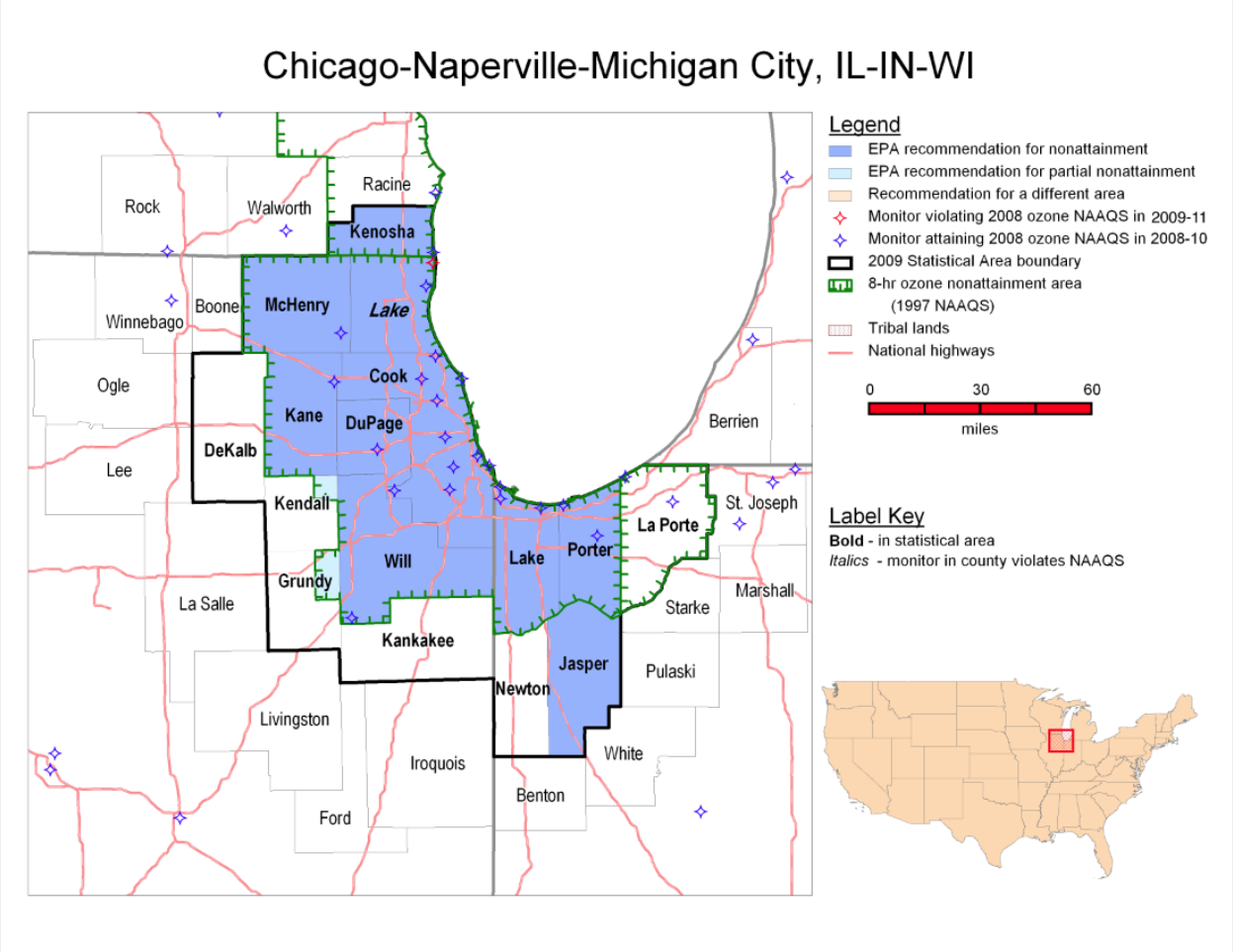
In EPA's designations guidance for the 2008 ozone NAAQS, EPA recommended examining CSA/CBSAs because certain factors used to establish CSAs and CBSAs are similar to the factors EPA is using in this technical analysis to determine if a nearby area is contributing to a violation of the 2008 8-hour ozone NAAQS. Congress required a similar approach in 1990 for areas classified as serious and above for the 1-hour ozone standard and EPA used the same approach in the designation process for the 1997 ozone NAAQS. Where a violating monitor is not located in a CSA or CBSA, EPA's September 4, 2008 guidance recommends using the boundary of the county containing the violating monitor as the starting point for considering the nonattainment area's boundary.

Technical Analysis for the Chicago-Naperville-Michigan City, IL-IN-WI CSA

Figure 1 is a map of the intended Chicago-Naperville, IL-IN-WI ozone nonattainment area. The map provides other relevant information, including the locations of ozone monitors, county and other jurisdictional boundaries, Chicago-Naperville-Michigan City, IL-IN-WI CSA boundary, and major transportation arteries.

Figure 1. Chicago-Naperville, IL-IN-WI Area

[5] Lists of the CBSAs and CSAs and their geographic components are provided at www.census.gov/population/www/metroareas/metrodef.html. The lists are periodically updated by the Office of Management and Budget. EPA used the most recent update, based on 2008 population estimates, issued on December 1, 2009 (OMB Bulletin No. 10-02).



For purposes of the 1997 ozone NAAQS, as noted in Figure 1, portions of this area were designated nonattainment as parts of the Chicago-Gary-Lake County, IL-IN and Milwaukee-Racine, WI ozone nonattainment areas. The boundary of the Chicago-Gary-Lake County, IL-IN ozone nonattainment area for the 1997 ozone NAAQS included the entire counties of Cook, DuPage, Kane, Lake, McHenry, and Will in Illinois and Lake and Porter in Indiana. This nonattainment area also included parts of Kendall (Oswego Township) and Grundy (Aux Sable and Goose Lake Townships) in Illinois. Kenosha County in Wisconsin was designated as nonattainment, but was included in the Milwaukee-Racine, Wisconsin ozone nonattainment area for the 1997 ozone NAAQS. Although Kenosha County was designated as part of the Milwaukee-Racine, WI ozone nonattainment area, the Chiwaukee Prairie monitoring site in Kenosha County was used as the ozone design value site for both the Chicago-Gary-Lake County, IL-IN ozone nonattainment area and the Milwaukee-Racine, WI ozone nonattainment area for both the 1997 8-hour ozone standard and the 1-hour ozone standard.

La Porte County, Indiana was designated as a separate nonattainment area for the 1997 ozone NAAQS. All other counties in the Chicago-Naperville-Michigan City, IL-IN-WI CSA were designated as attainment/unclassifiable for the 1997 ozone NAAQS.

In March 2009, the Illinois Environmental Protection Agency (IEPA) recommended that Cook, DuPage, Kane, Lake, McHenry, Kendall (Oswego Township only), Grundy (Aux Sable and Goose Lake Townships only), and Will Counties be designated as nonattainment for the 2008 8-hour ozone NAAQS based on air quality data for 2006-2008. Illinois recommended that all other Illinois counties in the Chicago-Naperville-Michigan City, IL-IN-WI CSA be designated as attainment for the 2008 ozone NAAQS. On December 7, 2011, the Illinois Environmental Protection Agency submitted confirmation that the State had certified air quality data for 2011. The State did not provide a revised ozone nonattainment area recommendation in conjunction with these new data.

In March 2009, Indiana recommended that Lake County be designated as nonattainment for the 2008 8-hour ozone NAAQS based on a monitored violation of NAAQS in this county during 2006-2008, and that Porter, La Porte, Jasper, and Newton Counties be designated as attainment for the 2008 ozone NAAQS based on a lack of monitored violations of the 2008 ozone NAAQS in these counties during 2006-2008.

In March 2009, Wisconsin recommended that Kenosha County be designated as attainment for the 2008 ozone NAAQS despite the fact that violations of the 2008 8-hour ozone NAAQS were monitored in this county during 2006-2008.[6]

After considering these recommendations and the new certified air quality data submitted by the State of Illinois, and based

[6] Letter from Douglas P. Scott, Director, Illinois Environmental Protection Agency, to Bharat Mathur, Acting Regional Administrator, U.S. Environmental Protection Agency, Region 5, regarding Illinois' recommended ozone nonattainment boundaries (March 9, 2009); Letter from Thomas W. Easterly, Commissioner, Indiana Department of Environmental Management, to Bharat Mathur, Acting Regional Administrator, U.S. Environmental Protection Agency, Region 5, regarding: Recommendations Concerning Air Quality Designations for the 2008 Revised 8-Hour Ozone National Ambient Air Quality Standard (March 11, 2009); and, Letter from Governor Jim Doyle, State of Wisconsin, to Lisa Jackson, Administrator, U.S. Environmental Protection Agency, regarding: Designation of 8-Hour Ozone Nonattainment Areas in Wisconsin (March 12, 2009).

on EPA's technical analysis described below, EPA intends to designate the counties in Illinois, Indiana, and Wisconsin, and the partial counties in Illinois identified in Table 1 as "nonattainment" for the 2008 8-hour ozone NAAQS as part of the Chicago-Naperville, IL-IN-WI nonattainment area. We intend to designate all other portions of the Chicago-Naperville-Michigan City, IL-IN-WI CSA as unclassifiable/attainment for the 2008 8-hour ozone NAAQS.

Factor Assessment

Factor 1: Air Quality Data

For this factor, we considered 8-hour ozone design values (in ppm) for air quality monitors in counties in the Chicago-Naperville-Michigan City, IL-IN-WI CSA. We used the most recent three-years of certified air quality data, and, thus, considered ozone data for the 2008-2010 period for Indiana and Wisconsin and for the 2009-2011 period for Illinois. We also provide the ozone design values for counties in Illinois based on air quality data for 2008-2010 to provide a complete view of the ozone air quality in this area for this three-year period.

A monitor's ozone design value is the metric or statistic that indicates whether that monitor attained the ozone air quality standard. The 2008 8-hour ozone NAAQS are met at a monitor when the annual fourth-highest daily maximum 8-hour ozone concentrations, averaged over three years is 0.075 ppm or less. A design value is valid only if minimum data completeness requirements are met. See 40 CFR part 50 Appendix P. Where several monitors are located in a county (or a designated nonattainment area or maintenance area), the design value for the county, or area, is determined by the monitor with the highest individual design value.

Note: Monitors that are eligible for providing design value data generally include State and Local Air Monitoring Stations (SLAMS) that are sited in accordance with 40 CFR part 58 Appendix D (Section 4.10) and operating with a FRM or FEM monitor that meets the requirements of 40 CFR part 58 Appendix A. All data from a Special Purpose Monitor (SPM) using an FRM or FEM monitor which has operated for more than 24 months is eligible for comparison to the NAAQS unless the monitoring agency demonstrates that the data came from a particular period during which the requirements of 40 CFR part 58 Appendix A (quality assurance requirements) or Appendix E (probe and monitoring path siting criteria) were not met.

The 2008-2010 and 2009-2011 ozone design values for monitors and counties in the Chicago-Naperville-Michigan City, IL-IN-WI CSA are given in Table 2.

Table 2. Ozone Air Quality Data for the Chicago-Naperville-Michigan City, IL-IN-WI CSA

State/County	**Site Number**	**2008-2010 8-Hour Ozone Design Value (ppm)**	**2009-2011 8-Hour Ozone Design Value (ppm)**
Illinois:			
Cook	170317002	0.063	0.069
Cook	170310032	0.068	0.072
Cook	170310064	0.064	0.068
Cook	170310076	0.067	0.069
Cook	170314002	0.065	0.069
Cook	170311601	0.070	0.069
Cook	170314007	0.059	0.062
Cook	170314201	0.068	0.072
Cook	170310001	0.069	0.071
Cook	170311003	0.066	0.067
DuPage	170436001	0.060	0.063
Kane	170890005	0.066	0.069
Lake	170971007	0.074	**0.076†**
McHenry	171110001	0.065	0.067
Will	171971011	0.062	0.063
Indiana:			
Lake	180892008	0.067	NA
Lake	180890030	0.064	NA
Lake	180890022	0.061	NA
Porter	181270026	0.062	NA
Porter	181270024	0.067	NA
La Porte	180910010	0.065	NA
La Porte	180910005	0.065	NA
Wisconsin:			
Kenosha	550590019	0.074	NA

† Monitored violation of the 2008 8-hour ozone NAAQS.

Lake County (the Zion monitor) in Illinois shows a violation of the 2008 8-hour ozone NAAQS and confirms that at least one ozone monitor in the Chicago-Naperville-Michigan City, IL-IN-WI CSA violates this NAAQS. This supports the inclusion of Lake County, Illinois in the intended ozone nonattainment area. A county (or partial county) must also be designated nonattainment if it contributes to a violation in a nearby area. Each county without a violating monitor that is located near a county with a violating monitor has been evaluated based on the weight-of-evidence of the five factors to determine whether it may have contributed to the nearby violation.

It should be noted that historically the Chiwaukee Prairie monitoring site in Kenosha County, Wisconsin has been the high downwind monitoring site for the Chicago region. The Chiwaukee Prairie ozone design value was used to establish the classification for the Chicago-Gary-Lake County, IL-IN ozone nonattainment area under both the 1997 8-hour ozone standard and the 1-hour ozone standard. In addition, monitoring data from this monitoring site were historically used by the States of Illinois, Indiana, and Wisconsin in conjunction with modeled ozone concentrations to demonstrate that emission reductions in the Chicago area were sufficient to attain the 1-hour ozone standard and the 1997 8-hour ozone standard.

These considerations led us to further consider the peak ozone concentrations at the Chiwaukee Prairie site relative to those for the Zion, Illinois site.

Figure 2 considers the relationship between daily peak 1-hour ozone concentrations for the Chiwaukee Prairie and Zion monitoring sites for the 2000-2011 period.

Figure 2. Correlation Between Daily Peak 1-Hour Ozone Concentrations at Chiwaukee Prairie (Wisconsin) and Zion (Illinois) Monitoring Sites (2000-2011)

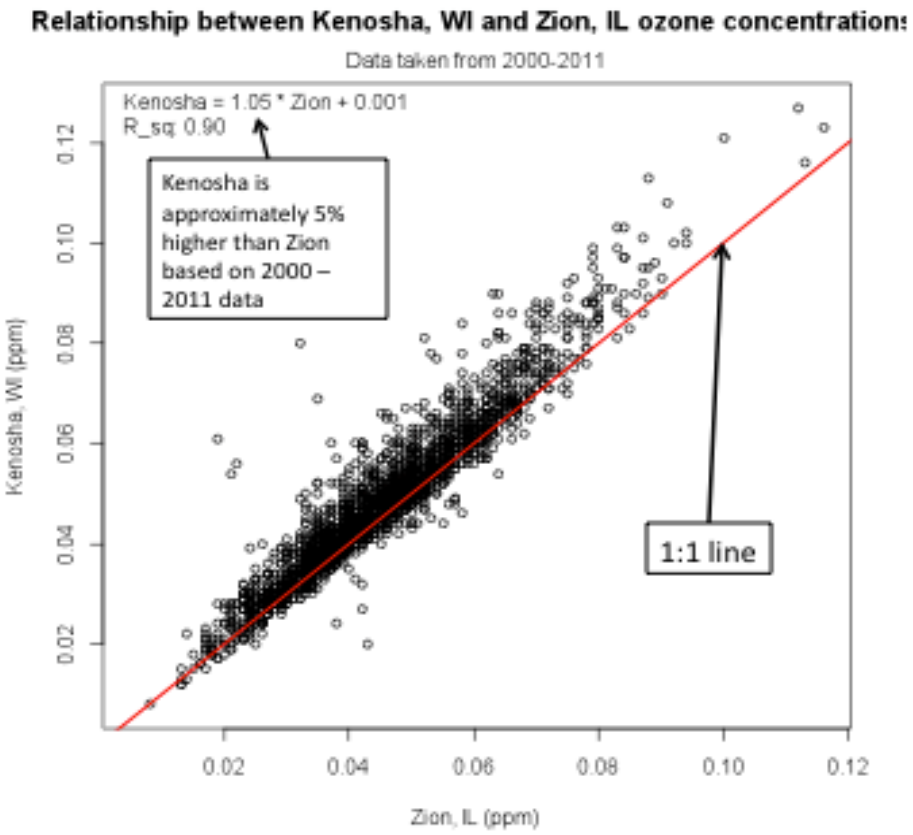


Figure 3 shows the comparison between 3-year ozone design values for the Chiwaukee Prairie and Zion monitoring sites for the 2000-2011 period (note that the 2001 ozone monitoring data for Chiwaukee Prairie have been quality assured, but have not been certified by the State of Wisconsin).

Figure 3. Three-Year 8-Hour Ozone Design Values for Chiwaukee Prairie (Wisconsin) and Zion (Illinois) Monitoring Sites (2000-2011)

The data displayed in Figures 2 and 3 demonstrate both the strong correlation between the peak ozone concentrations at the Chiwaukee Prairie and Zion monitoring sites and the fact that the peak ozone concentrations at the Chiwaukee Prairie monitoring site generally exceed those at the Zion monitoring site. The two monitoring sites are approximately six miles apart, with the Chiwaukee Prairie monitoring site located very near the Illinois-Wisconsin border. The proximity of the two monitoring sites and the above data comparisons strongly suggest that it is likely that the Chiwaukee Prairie monitoring site will be determined to be violating the 2008 8-hour ozone NAAQS once certified data are submitted later this year. Preliminary data for the site suggest that the site may well be violating this ozone standard.

Factor 2: Emissions and Emissions-Related Data

EPA evaluated emissions for ozone precursors (VOC and NOx) and other emissions-related data that provide information on area contributions to the ozone standard violation.

Emissions Data

EPA evaluated county-level emission data for NOx and VOC derived from the 2008 National Emissions Inventory (NEI), version 1.5. These are the most recently available NEI emissions data. (See http://www.epa.gov/ttn/chief/net/2008inventory.html) Significant emission levels in a nearby area indicate the potential for the area to contribute to the observed ozone standard violation.

Table 3 shows the 2008 emissions of VOC and NOx (tons per year (tpy)) for all counties in the Chicago-Naperville-Michigan City, IL-IN-WI CSA. This table also indicates which of the counties were recommended to be nonattainment for the 2008 ozone NAAQS by their respective states.

Table 3. Total 2008 VOC and NOx Emissions (tons/year) in the Chicago-Naperville-Michigan City, IL-IN-WI CSA

State/County	State Recommended Nonattainment?	VOC Emissions (tpy)	NOx Emissions (tpy)
Illinois:			
Cook	Yes	129,466	143,372
DeKalb	No	4,395	4,637
DuPage	Yes	30,508	30,412
Grundy	Yes (partial)	3,291	4,577
Kane	Yes	13,893	15,161
Kankakee	No	5,179	6,941
Kendall	Yes (partial)	3,970	4,642
Lake	Yes	19,978	24,549
McHenry	Yes	9,012	9,138
Will	Yes	19,255	39,878
Illinois Totals		**235,347**	**283,307**
Indiana:			
Jasper	No	2,845	19,788
Lake	Yes	21,266	46,808
La Porte	No	5,555	8,875
Newton	No	1,913	841
Porter	No	8,100	27,055
Indiana Totals		**39,679**	**103,367**
Wisconsin:			
Kenosha	No	5,370	6,788
Total CSA Emissions		**283,996**	**393,462**

Emissions Observations by State

Illinois:

From the Illinois emissions in Table 3, it can be seen that comparatively high emissions originate in the following counties: Cook, DuPage, Kane, Lake, McHenry, and Will. Emissions from these counties, in 2008, account for 94.4 percent of the total Illinois VOC emissions and 92.7 percent of the total Illinois NOx emissions for the Illinois portion of the Chicago-Naperville-Michigan City, IL-IN-WI CSA. These same counties account for 78.3 percent of the total VOC emissions and 66.7 percent of the total NOx emissions for the entire Chicago-Naperville-Michigan City, IL-IN-WI CSA.

Indiana:

From the Indiana emissions data in Table 3, it can be seen that comparatively high VOC emissions originate in Lake and Porter Counties, and comparatively high NOx emissions originate in Jasper, Lake, and Porter Counties. These counties account for 74.0 percent of the total VOC emissions and 90.6 percent of the total NOx emissions for the Indiana portion of the Chicago-Naperville-Michigan City, IL-IN-WI CSA. These same counties account for 10.3 percent of the total VOC emissions and 23.8 percent of the total NOx emissions for the entire Chicago-Naperville-Michigan City, IL-IN-WI CSA.

Wisconsin:

The VOC and NOx emissions in Kenosha County are comparatively small; they are comparable to the emissions from the low-emissions counties in the Illinois and Indiana portions of the Chicago-Naperville-Michigan City, IL-IN-WI CSA.

Population, Population Density, and Degree of Urbanization

EPA evaluated the county-specific populations, population trends, and vehicle use characteristics for the Chicago-Naperville-Michigan City, IL-IN-WI CSA as indicators of the probable location and magnitude of non-point source emissions. These include ozone-creating emissions from on-road and off-road vehicles and engines, consumer products, residential fuel combustion, and consumer services. Areas of dense population or commercial development are an indicator of area source and mobile source NOx and VOC emissions that may contribute to violating ozone monitors. Rapid population growth in a county on the urban perimeter signifies increasing integration with the urban core area, and indicates that it may be appropriate to

include this county in the ozone nonattainment area, particularly if this county already has moderate or higher VOC and/or NOx emissions. Table 4 shows the 2010 population, population density, and population growth information for each county in the Chicago-Naperville-Michigan City, IL-IN-WI CSA

Table 4. Population and Population Growth in the Chicago-Naperville-Michigan City, IL-IN-WI CSA

State/County	State Recommended Nonattainment?	2010 Population	2010 Population Density (1,000 per square mile)	Change in Population (2000-2010)	Population Percent Change (2000-2010)
Illinois:					
Cook	Yes	5,194,675	5.43	-182,417	-3
DeKalb	No	105,160	0.17	15,839	18
DuPage	Yes	916,924	2.73	10,269	1
Grundy	Yes (partial)	50,063	0.12	12,388	33
Kane	Yes	515,269	0.98	107,749	26
Kankakee	No	113,449	0.17	9,573	9
Kendall	Yes (partial)	114,736	0.36	59,529	108
Lake	Yes	703,462	1.50	55,288	9
McHenry	Yes	308,760	0.51	46,890	18
Will	Yes	677,560	0.80	169,531	33
Indiana:					
Jasper	No	33,478	0.06	3,296	11
Lake	Yes	496,005	0.99	11,516	2
La Porte	No	111,467	0.18	1,309	1
Newton	No	14,244	0.04	-298	-2
Porter	No	164,343	0.39	17,188	12
Wisconsin:					
Kenosha	No	166,426	0.60	16,352	11

Sources: U.S. Census Bureau population estimates for 2010 as of August 4, 2011. (http://factfinder2.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=DEC_10_PL_GCTPL2.ST05&prodType=table) and U.S. Census Bureau GIS files for the county boundaries.

Population Observations By State

Illinois:

For Illinois, the population data show that Cook, DuPage, Kane, Lake, McHenry, and Will Counties have comparatively large populations and population densities and, therefore, are more urbanized than the other Illinois counties in this CSA. This

indicates that the population-related VOC and NOx emissions in these counties are relatively high. In addition, the population change levels for 2000-2010 in Kane, Kendall, Lake, McHenry, and Will Counties significantly exceed those of other Illinois counties in the CSA, suggesting that these “fast growing” counties are becoming increasingly urbanized and integrated with the urban core of the Chicago-Naperville-Michigan City, IL-IN-WI CSA. This further indicates that the population-related emission contributions from these counties are increasing compared to those from other counties in the Chicago-Naperville-Michigan City, IL-IN-WI CSA.

The population densities of DeKalb, Grundy, and Kankakee Counties are relatively small compared to those of other counties in the Chicago-Naperville-Michigan City, IL-IN-WI CSA, indicating that the population-related VOC and NOx emissions in these counties contribute significantly less to high ozone concentrations in this CSA.

Indiana:

In the Indiana portion of the Chicago-Naperville-Michigan City, IL-IN-WI CSA, the populations and population densities of Lake, Porter, and La Porte Counties are significantly larger than those of Jasper and Newton Counties. This indicates that population-related VOC and NOx emissions in Jasper and Newton Counties contribute less to high ozone concentrations in this CSA.

The population and population density of La Porte County are comparable to those DeKalb and Kankakee Counties in Illinois, indicating that the population-related VOC and NOx emissions in this county contribute significantly less to high ozone concentrations in this CSA.

Finally, it is concluded that the population-related emissions of Lake and Porter Counties are more significant, from an ozone formation standpoint, than those of other counties in the Indiana portion of the Chicago-Naperville-Michigan City, IL-IN-WI CSA, indicating that population-related VOC and NOx emissions in these counties do contribute significantly to high ozone concentrations in this CSA.

Wisconsin:

Kenosha County has a moderately low 2010 population compared to those of higher populated counties in the Chicago-Naperville-

Michigan City, IL-IN-WI CSA. However, the population density of Kenosha County is relatively high, showing that this county is significantly urbanized and that population-related VOC and NOx emissions in this county can significantly contribute to high downwind ozone concentrations.

Traffic and Commuting Patterns

EPA evaluated the total VMT for each county in the Chicago-Naperville-Michigan City, IL-IN-WI CSA. In combination with the population/population density data and the location of main transportation arteries (see the above area map), this information helps identify the probable location of non-point source emissions. A county with high VMT is generally an integral part of the urban area and indicates the presence of relatively high motor vehicle (on-road mobile source) emissions that may significantly contribute to ozone formation and transport in the urban area. This implies that this county should be included in the ozone nonattainment area, particularly if the VOC and/or NOx emissions in this county are a significant portion of the total emissions in the area (in the CSA/CBSA).

Table 5 shows the traffic levels, total 2008 VMT, in each county in the Chicago-Naperville-Michigan City, IL-IN-WI CSA.

Table 5. Traffic Levels in the Chicago-Naperville-Michigan City, IL-IN-WI CSA

State/County	State Recommended Nonattainment?	2008 VMT (million miles)*
Illinois:		
Cook	Yes	32,755
DeKalb	No	883
DuPage	Yes	8,443
Grundy	Yes (partial)	678
Kane	Yes	3,628
Kankakee	No	945
Kendall	Yes (partial)	769
Lake	Yes	5,638
McHenry	Yes	2,169
Will	Yes	5,713
Indiana:		
Jasper	No	732
Lake	Yes	4,915
La Porte	No	936
Newton	No	219
Porter	No	1,640
Wisconsin:		
Kenosha	No	1,354

***** Mobile source VMT are those input into the NEI version 1.6 used to compute the mobile source portion of the NEI emissions summarized above in Table 3.

VMT Observations By State

Illinois:

For Illinois, the VMT data show that VMT levels in Cook County are significantly higher than those for other counties in the Chicago-Naperville-Michigan City, IL-IN-WI CSA. The VMT levels for DuPage, Kane, Lake, McHenry, and Will Counties are comparatively higher than those of the other Illinois counties in the Chicago-Naperville-Michigan City, IL-IN-WI CSA and, cumulatively, are a significant portion of the total VMT for the Chicago-Naperville-Michigan City, IL-IN-WI CSA.

Indiana:

For Indiana, the VMT data show that VMT levels in Lake and Porter Counties are comparatively higher than those of the other Indiana counties in the Chicago-Naperville-Michigan City, IL-IN-WI CSA, and, cumulatively, are a significant portion of the total VMT for the Chicago-Naperville-Michigan City, IL-IN-WI CSA.

Wisconsin:

The VMT level in Kenosha County is similar to the VMT level in Porter County, Indiana. This indicates that the ozone impact of mobile source emissions in Kenosha County should be similar to that of Porter County.

Factor 3: Meteorology (Weather/Transport Patterns)

EPA evaluated available meteorological data to help determine how meteorological conditions, particularly transport conditions, affect the fate and transport of ozone and ozone precursors contributing to ozone formation in the Chicago-Naperville-Michigan City, IL-IN-WI CSA. The data available for this evaluation were presented by the States of Illinois and Wisconsin as part of their March 2009 ozone designation recommendation submittals. Indiana conducted no meteorological analyses to assess the impacts of transported ozone and ozone precursors for monitors outside of Indiana, and presented minimal discussions on pollutant transport for ozone monitors inside of Indiana.

In Illinois' March 9, 2009 ozone designation recommendation submittal, the IEPA notes that the predominant wind direction across the State is from south/southwest, with an average wind speed of approximately 11 miles per hour. The State notes that ozone monitors in the Chicago area that exceed the 2008 8-hour ozone standard based on 2006-2008 data show strong evidence of regional (i.e., longer-range) contributions to high ozone levels. The State also presents a pollution wind rose (direction percent frequency) for days in 2006-2008 with peak 8-hour ozone concentrations exceeding 75 ppb, with wind data collected at the Alsip monitoring site (Cook County). These data show that, on high ozone days, the wind blew from the south through southwest. Some high ozone day winds were also recorded with winds from east-northeast through south-southeast and west-southwest through west. Virtually no high ozone day wind directions were recorded for wind directions for west-northwest through northeast.

In Wisconsin's March 12, 2009 ozone designation recommendation submittal technical support document, the Wisconsin Department of Natural Resources (WDNR) summarized the wind directions for days (2006-2008) when 1-hour ozone concentrations at the Chiwaukee Prairie monitoring site in Kenosha County exceeded 75 ppb. This analysis indicated that, on 57.9 percent of these high ozone days winds were from the southeast through south, which is where the Chicago-Gary-Lake County, IL-IN ozone nonattainment area for the 1997 8-hour ozone standard is located. On 15.8 percent of the high ozone days, winds were from the southwest, indicating that emissions in Walworth County contributed to the high ozone concentrations in Kenosha County.

Factor 4: Geography/Topography (Mountain Ranges or Other Air Basin Boundaries)

The geography/topography analysis evaluates the physical features of the land that might affect the air-shed, and, therefore, the distribution of ozone over the area.

The Chicago-Naperville-Michigan City, IL-IN-WI CSA does not have any geographical or topographical barriers significantly limiting air pollution transport within its air-shed. Therefore, this factor did not play a significant role in this evaluation.

Factor 5: Jurisdictional Boundaries

Once we identified the general area that we anticipated we would recommend as nonattainment for the 2008 8-hour ozone NAAQS, we then considered existing jurisdictional boundaries for purposes of providing a clearly defined legal boundary and to help identify the area appropriate for carrying out the air quality planning and enforcement functions for an ozone nonattainment area. Examples of jurisdictional boundaries include existing or prior nonattainment boundaries, air district boundaries, township boundaries, areas covered by metropolitan planning organizations, state lines, and Reservation boundaries. Where existing jurisdictional boundaries are not adequate or appropriate to describe the nonattainment area, other clearly defined and permanent landmarks or geographic coordinates may be considered.

The Chicago-Naperville-Michigan City, IL-IN-WI CSA has previously established ozone nonattainment boundaries associated with both the 1-hour and 8-hour ozone NAAQS. The Chicago nonattainment boundary for the 1-hour ozone NAAQS included Cook, DuPage, Kane, Lake, McHenry, and Will Counties and Lake and Porter Counties in Indiana in their entireties and partial counties for Grundy (Aux Sable and Goose Lake Townships) and Kendall (Oswego Township) Counties in Illinois. Kenosha County, Wisconsin was part of the Milwaukee 1-hour ozone nonattainment area. All of these areas were designated as nonattainment for the 1997 8-hour ozone NAAQS.

Illinois has recommended that the same full and partial counties in Illinois be included as part of the Chicago nonattainment area for the 2008 8-hour ozone NAAQS. Indiana has recommended that only Lake County be designated as nonattainment for the 2008 ozone NAAQS. Finally, Wisconsin has recommended that Kenosha County be designated as attainment for the 2008 8-hour ozone NAAQS.

Conclusion

Illinois:

Based on the assessment of factors described above, EPA intends to include the following Illinois counties and partial counties in the Chicago-Naperville, IL-IN-WI ozone nonattainment area: Cook, DuPage, Kane, Lake, McHenry, and Will Counties in their entirety; and, Oswego Township in Kendall County, and Aux Sable and Goose Lake Townships in Grundy County. Based on the levels of VOC and NOx emissions, and other emissions-related data, including population and VMT levels, it is concluded that Cook,

DuPage, Kane, Lake, McHenry, and Will Counties are significant sources of emissions that contribute to the high ozone levels at the Zion monitor. Based on the State of Illinois' recommendation and on historical nonattainment boundary considerations, we also intend to include Oswego Township in Kendall County and Aux Sable and Goose Lake Townships in Grundy County as part of the Chicago-Naperville, IL-IN-WI ozone nonattainment area for the 2008 8-hour ozone standard.

Based on our analysis of the factors above, especially considering the emissions-related factors, we intend to designate the remaining Illinois counties, including the remaining portions of Kendall and Grundy Counties, in the Chicago-Naperville-Michigan City, IL-IN-WI CSA as attainment for the 2008 8-hour ozone NAAQS.

Indiana:

Based on the assessment of factors described above, EPA intends to include Lake, Jasper, and Porter Counties in the Chicago-Naperville, IL-IN-WI nonattainment area for the 2008 8-hour ozone NAAQS. This is based on the high emissions in these counties that contribute to high ozone concentrations at the Zion monitor. Meteorology on high ozone days in Chicago area favor the transport of ozone and ozone precursor emissions from these counties to the Zion monitor and other downwind portions of the Chicago area.

The low emissions and emissions-related population and VMT data of Newton County favor the exclusion of this county from the nonattainment area. It is concluded that emissions from this county do not significantly contribute to the high ozone concentrations at the Zion monitor.

The VOC and NOx emissions of La Porte County are significantly lower than those of Lake and Porter Counties and those of recommended nonattainment counties in Illinois. In addition, it is recognized that historically La Porte County has been designated as a separate nonattainment area for the 1997 8-hour ozone standard. Based collectively on these factors, we intend to not include La Porte County in the Chicago-Naperville, IL-IN-WI ozone nonattainment area for the 2008 8-hour ozone NAAQS.

Wisconsin:

Kenosha County presents a more unique situation for this designation analysis. The VOC and NOx emissions in Kenosha

County are relatively low and similar to those for counties recommended for exclusion from the intended ozone nonattainment area. In addition, it is noted that Illinois' and Wisconsin's wind direction analyses for high ozone days indicate that Kenosha County emissions are probably downwind of the violating Zion, Illinois monitor on high ozone days. These conclusions would support the exclusion of Kenosha County from the intended ozone nonattainment area.

Nonetheless, it is also recognized that the Chiwaukee Prairie monitoring site in Kenosha County has historically been the high downwind ozone monitoring site for the Chicago region. Chiwaukee Prairie ozone design values were used to establish the classification for the Chicago-Gary-Lake County, IL-IN ozone nonattainment area under both the 1997 8-hour ozone standard and the 1-hour ozone standard.

Based on the above considerations, at this time we are notifying the State of Wisconsin that we intend to include Kenosha in the Chicago-Naperville, IL-IN-WI ozone nonattainment area for the 2008 8-hour ozone standard. If the State of Wisconsin submits certified data for 2009-2011 showing that Kenosha County is actually attaining the 2008 8-hour ozone standard, EPA's conclusion regarding the designation for Kenosha County should be revisited.