

Wisconsin Department of Natural Resources

2019 Wisconsin Air Quality Trends by County

Data from 2001-2018

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Wisconsin Air Quality Trends

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Acronyms and abbreviations

TABLE 1. Acronyms and abbreviations used in this report

Term	Definition
CO	Carbon monoxide
DNR	Wisconsin Department of Natural Resources
EPA	U.S. Environmental Protection Agency
hr	Hour
NAAQS	National Ambient Air Quality Standards
NO ₂	Nitrogen dioxide
PM _{2.5}	Fine particles (particles 2.5 micrometers or smaller in size)
PM ₁₀	Inhalable particles (particles 10 micrometers or smaller in size)
ppb	Parts per billion
ppm	Parts per million
SO ₂	Sulfur dioxide
µg/m ³	Microgram per cubic meter

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Air quality by county

This document is a companion to the 2019 Wisconsin Air Quality Trends Report (AM-574 2019; available at <https://dnr.wi.gov/topic/AirQuality/Trends.html>). The Trends Report provides an introduction to National Ambient Air Quality Standards (NAAQS) and the associated criteria pollutants, emissions data for criteria pollutants and their precursors, and regional or statewide air quality trends compared to the NAAQS. This document (i.e., Trends by County) presents more localized, county-level graphs of air quality trends by pollutant compared to the NAAQS.

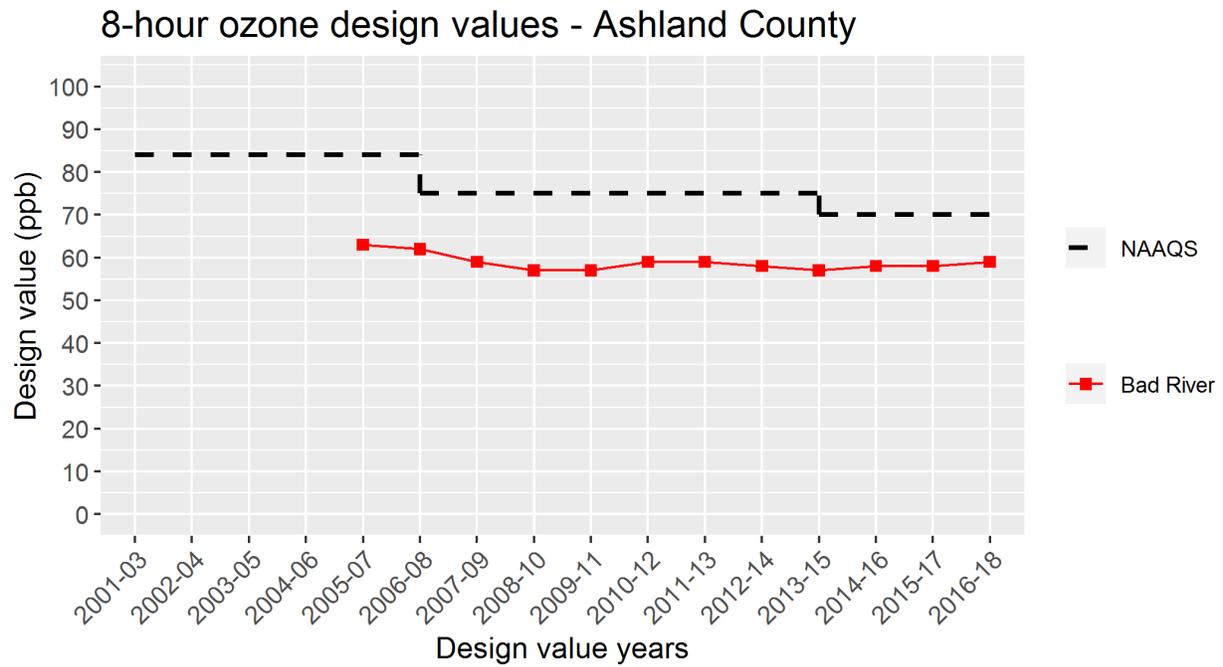
Pollution concentrations shown in graphs in this document are design values. Design values are used to assess compliance with the NAAQS and are based on data collected over long periods. Usually, design values are averages of annual values to ensure that typical pollutant concentrations are represented, rather than isolated spikes in concentrations. Design values are published annually on EPA's Air Quality Design Values webpage (<https://www.epa.gov/air-trends/air-quality-design-values>) in late summer for data through the end of the previous year. More information about the calculation of design values, including examples, can also be found in the [Trends Report](#).

The data presented in this document and in the Trends Report are for pollutants that are currently monitored at active ambient air monitoring sites operated by the Wisconsin Department of Natural Resources (DNR) or tribal partners. If data are not shown for a particular design-value period, it is because the design value was not valid, most often due to data-completeness issues.

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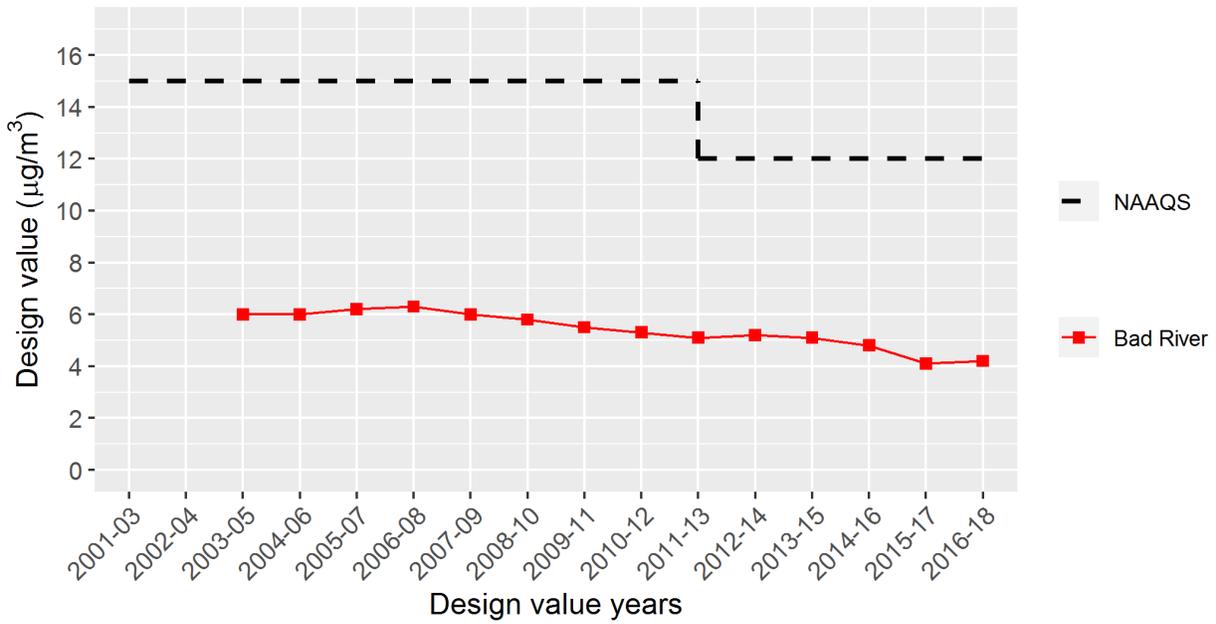
Ashland County

Monitoring for ozone and PM_{2.5} is conducted by the Bad River Tribe at the Bad River Tribal School, which is located at 10 Birch Street in Odanah. In November 2018, a continuous PM_{2.5} monitor was added at this site and in December the filter-based PM_{2.5} monitor was shutdown.

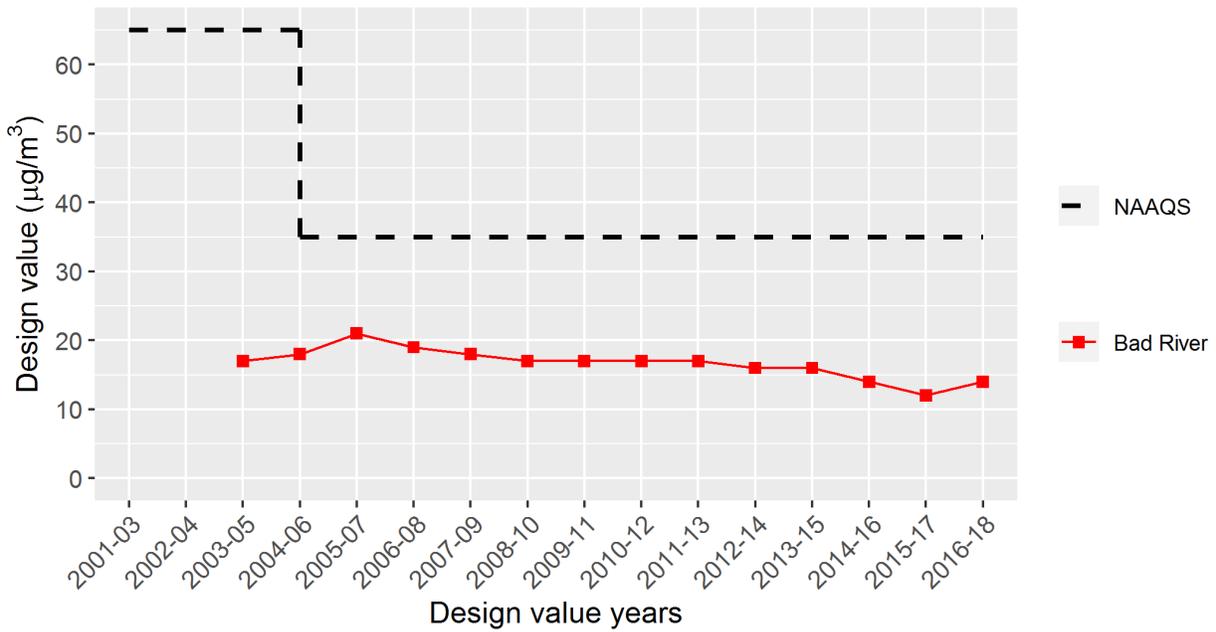


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Annual PM2.5 design values - Ashland County



24-hour PM2.5 design values - Ashland County

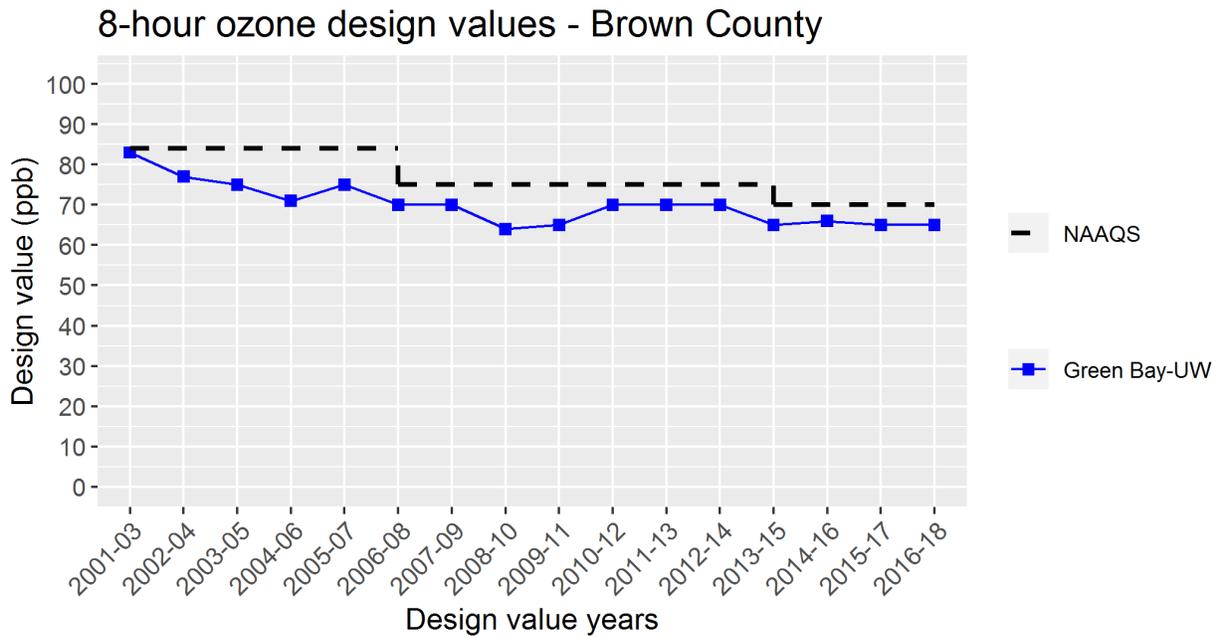


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Brown County

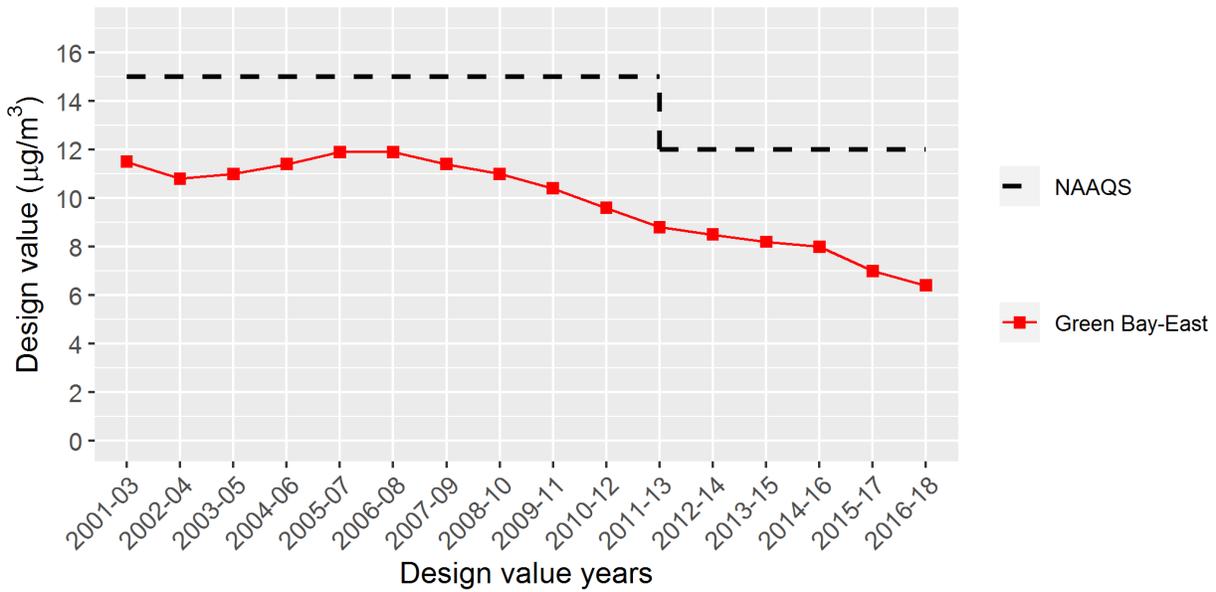
Ozone monitoring in Brown County takes place north of Highways 54 and 57 east of the University of Wisconsin–Green Bay campus. Monitoring for PM_{2.5} and SO₂ is conducted at Green Bay East High School, located at 1415 East Walnut Street.

In January 2018, the primary method of measuring PM_{2.5} was switched from filter-based to continuous at the Green Bay-East site. In April of 2018, both filter-based PM_{2.5} monitors were shut down at this site. The continuous PM_{2.5} monitor remains.

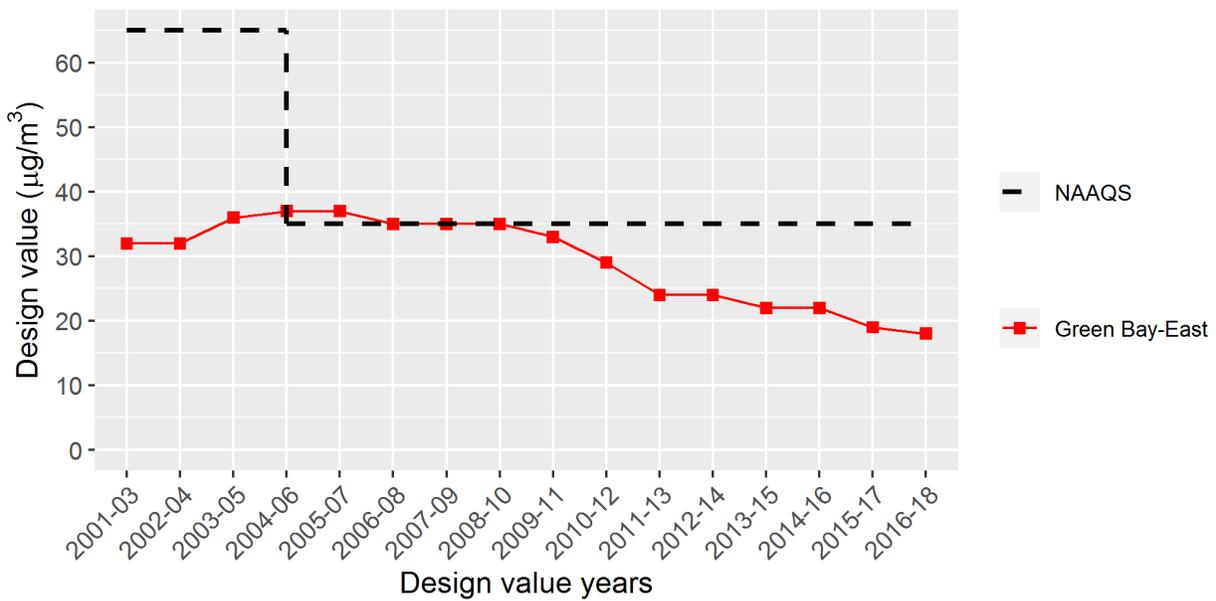


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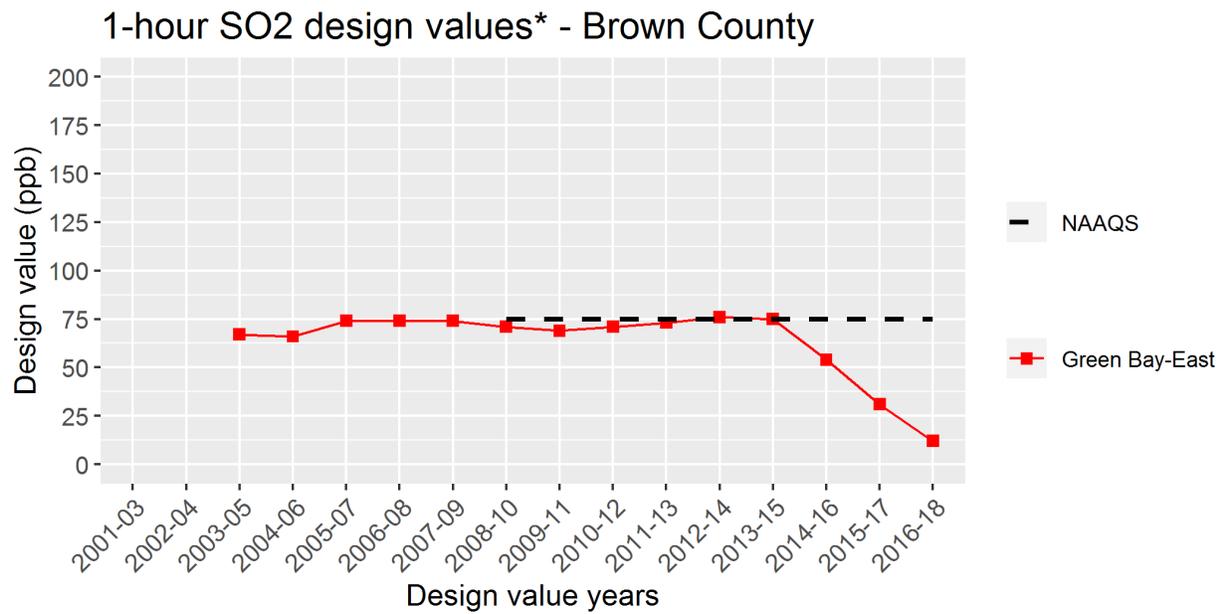
Annual PM2.5 design values - Brown County



24-hour PM2.5 design values - Brown County



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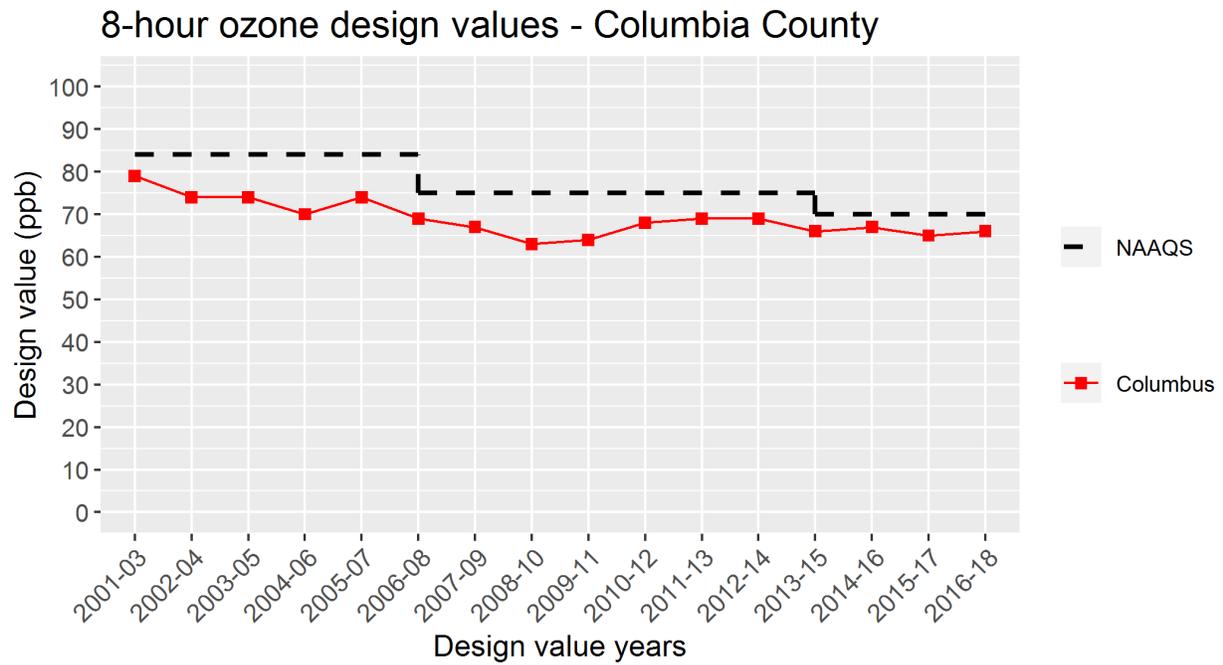


*In 2010, EPA established a 1-hr SO₂ standard that replaced the previous annual and 24-hr standards.

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Columbia County

Ozone monitoring in Columbia County takes place at N 1045 Wendt Road, a rural location in Columbus Township. This location serves as the downwind ozone site in the Madison Core Based Statistical Area.

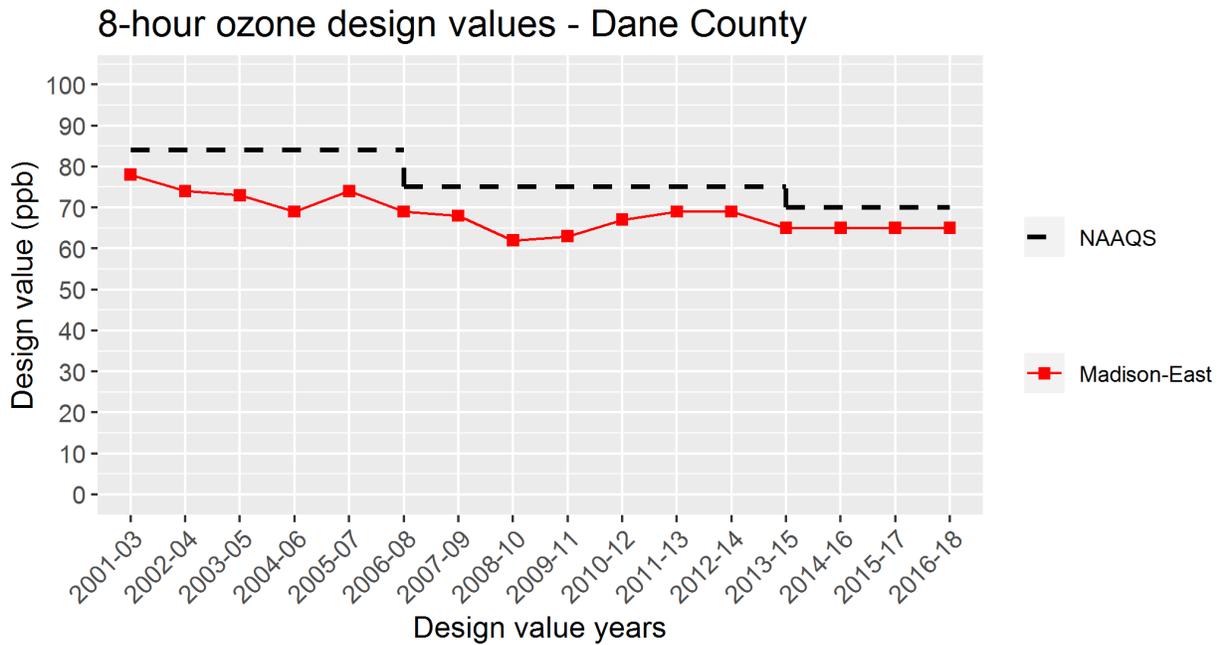


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Dane County

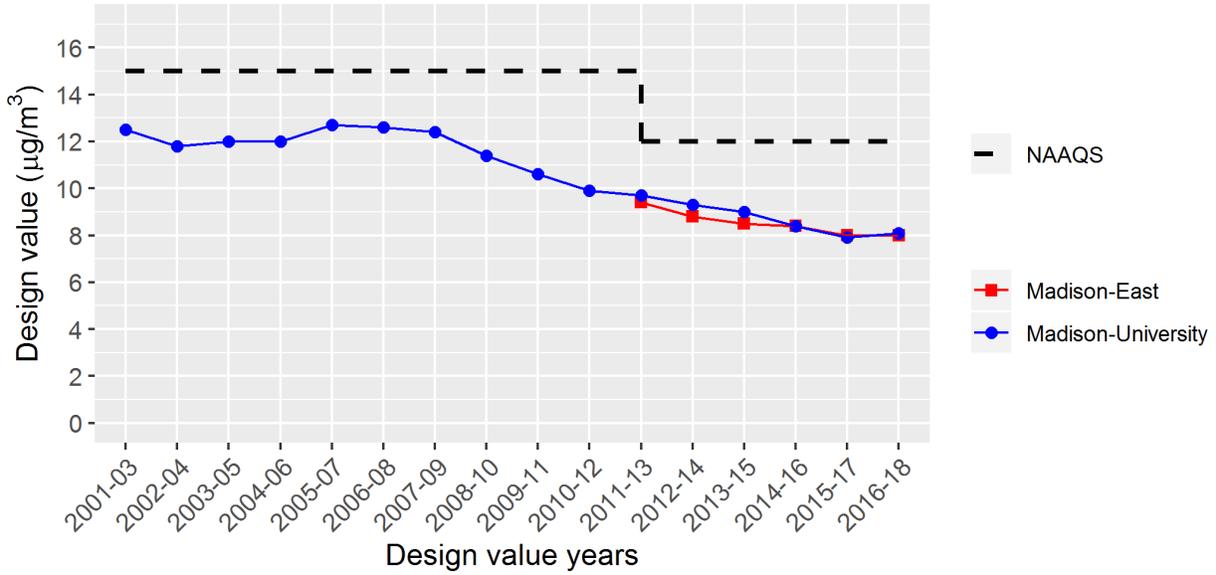
Ozone monitoring in Dane County takes place at Madison East High School, located at 2302 North Hoard Street, next to the Madison East High School sports field. Fine particles are monitored at both the Madison-East site and the Madison-University Avenue site, located at 2757 University Avenue. Monitoring of PM₁₀ takes place at the Madison-University Avenue site. Sulfur dioxide monitoring restarted at the Madison-East site in 2013.

In January 2018, the primary method of measuring PM_{2.5} was switched from filter-based to continuous at the Madison-East site, and in June of 2018 the method of measuring continuous PM_{2.5} at this site was updated. In August of 2018, filter-based PM_{2.5} and PM₁₀ monitoring was discontinued at the Madison-University site and a continuous monitor was added to measure both PM_{2.5} and PM₁₀.

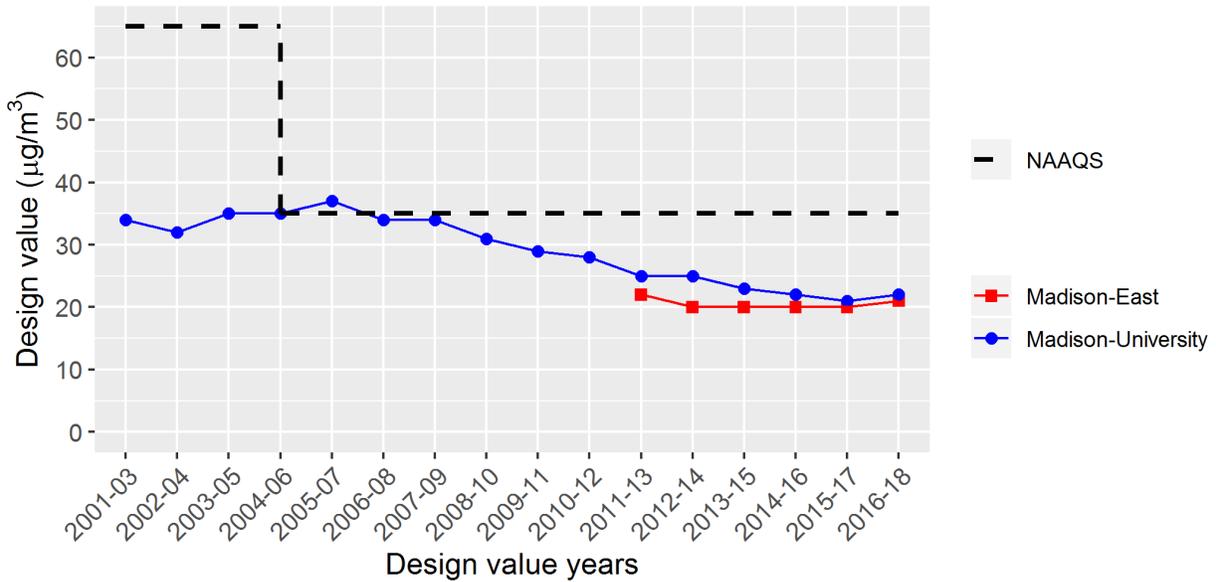


Wisconsin Air Quality Trends

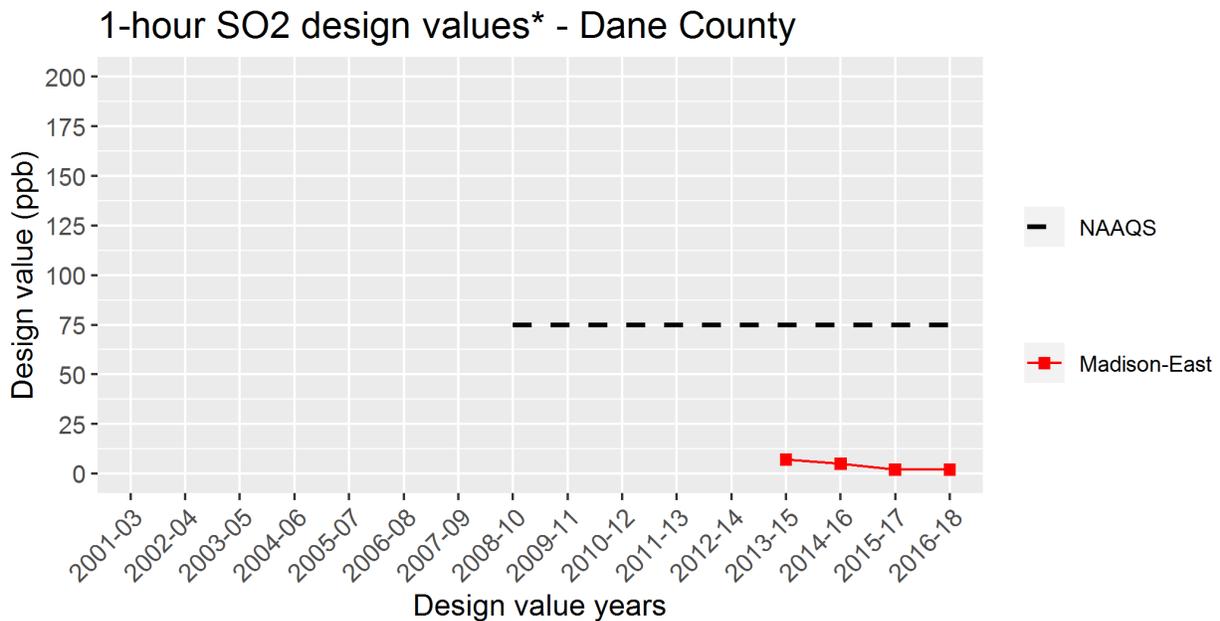
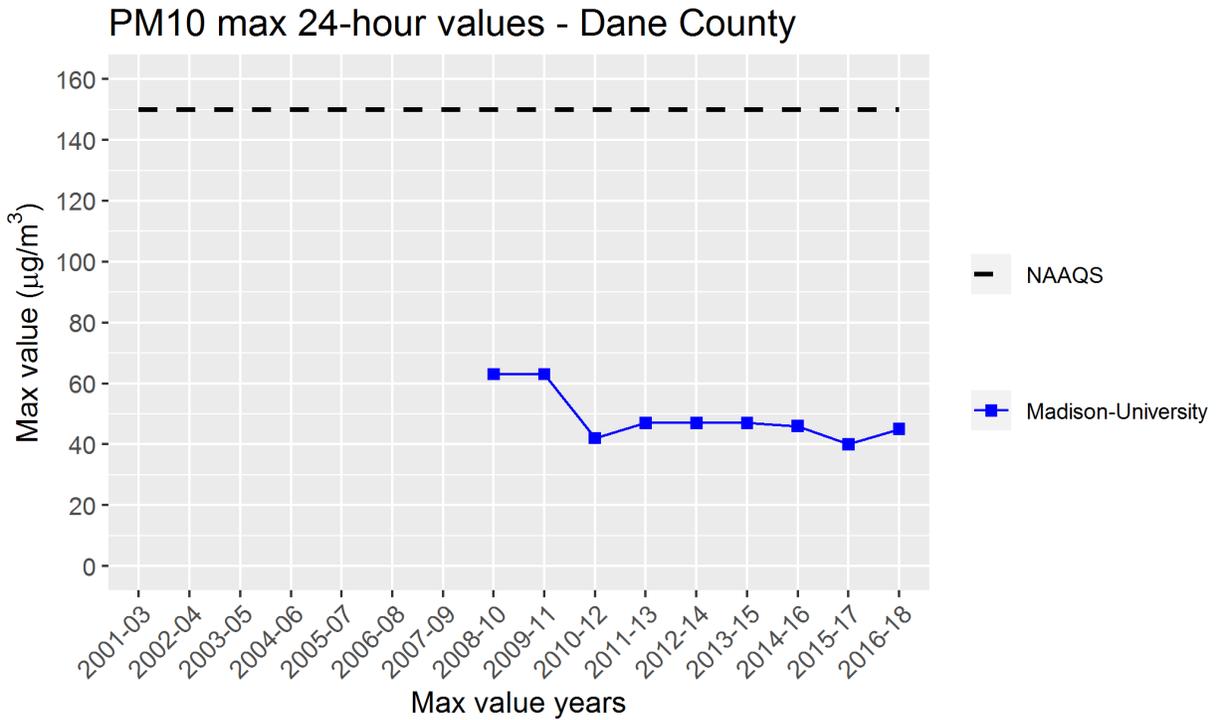
Annual PM2.5 design values - Dane County



24-hour PM2.5 design values - Dane County



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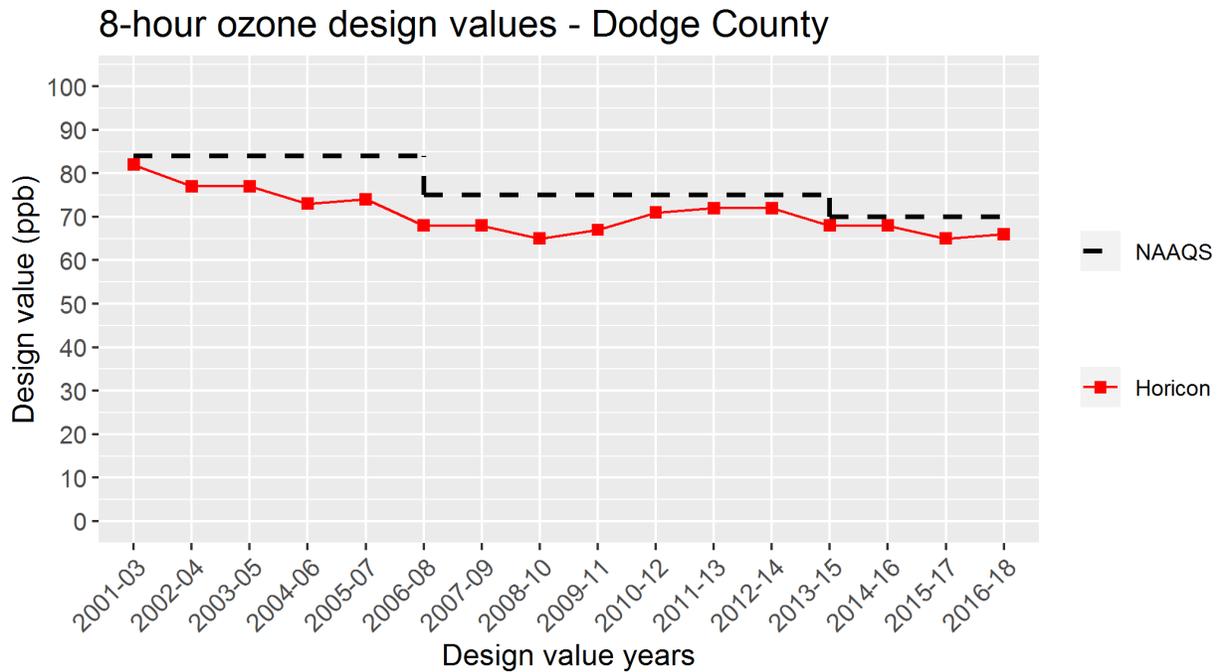
*In 2010, EPA established a 1-hr SO₂ standard that replaced the previous annual and 24-hr standards.

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Dodge County

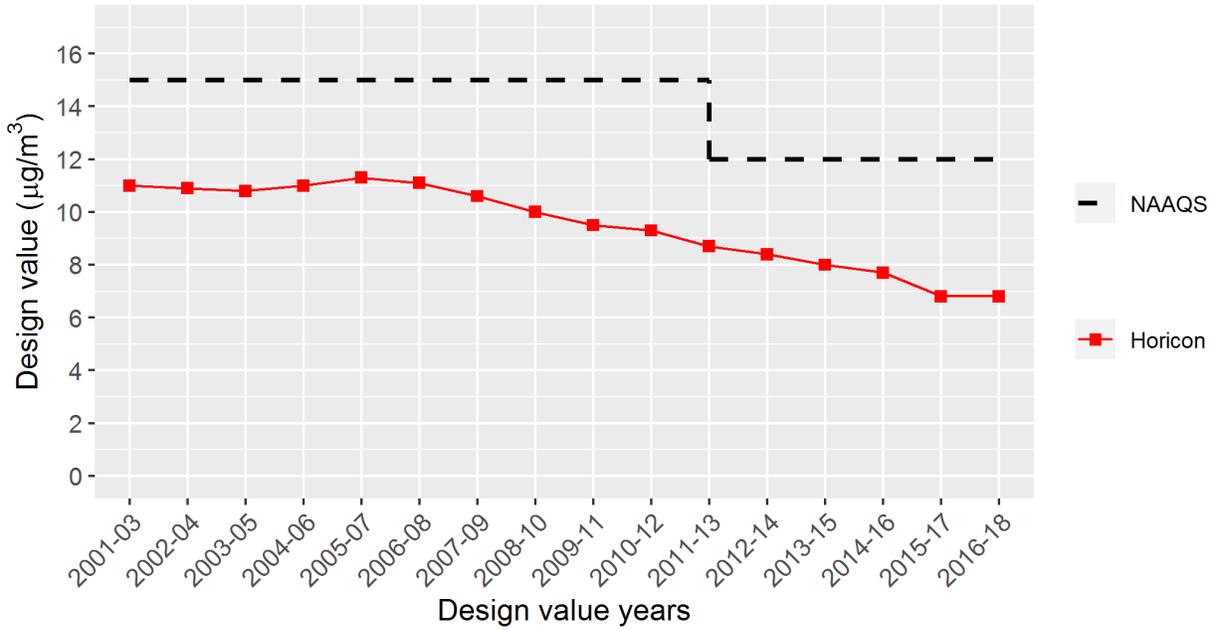
Monitoring for ozone, PM_{2.5}, PM₁₀, SO₂, and CO in Dodge County is conducted at the Horicon Wildlife Area, located at 1210 North Palmatory Street. The Horicon site began sampling for ozone on January 22, 2010 and for 24-hr PM_{2.5} on December 18, 2009. Prior to these dates, sampling in Dodge County was performed at a site near Mayville. Data from both sites are used to calculate design values for 2008-2010, 2009-2011, and 2010-2012.

In January 2018, the primary method of measuring PM_{2.5} was switched from filter-based to continuous. In July 2018, the methods for measuring both continuous PM_{2.5} and continuous PM₁₀ were updated.

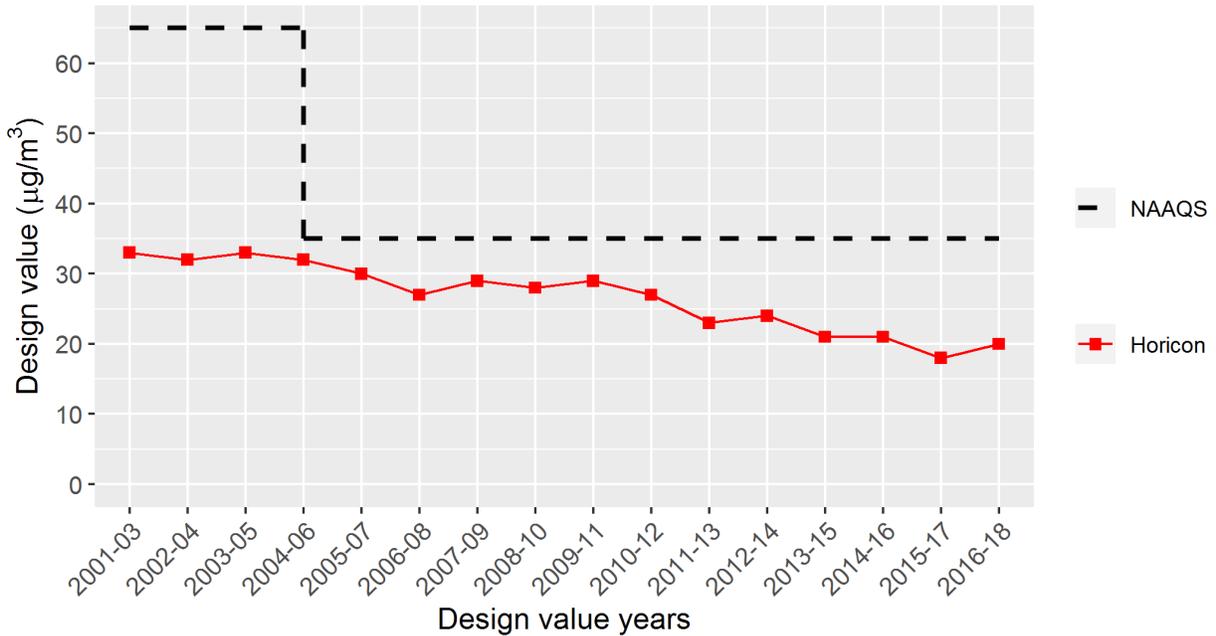


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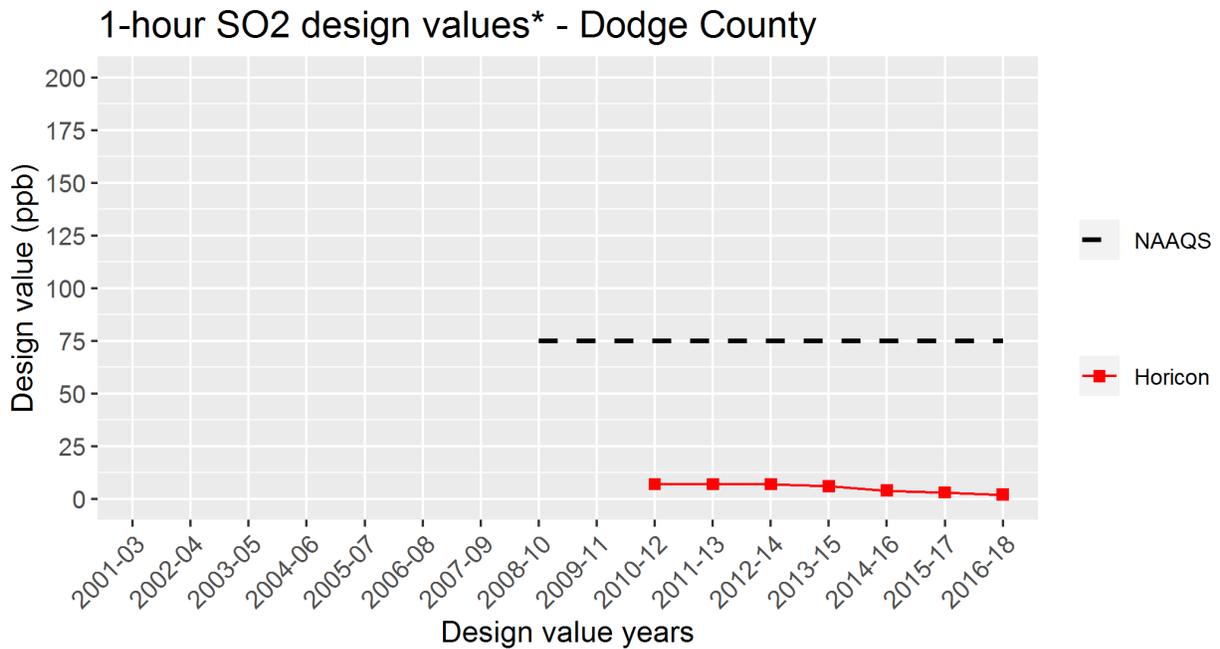
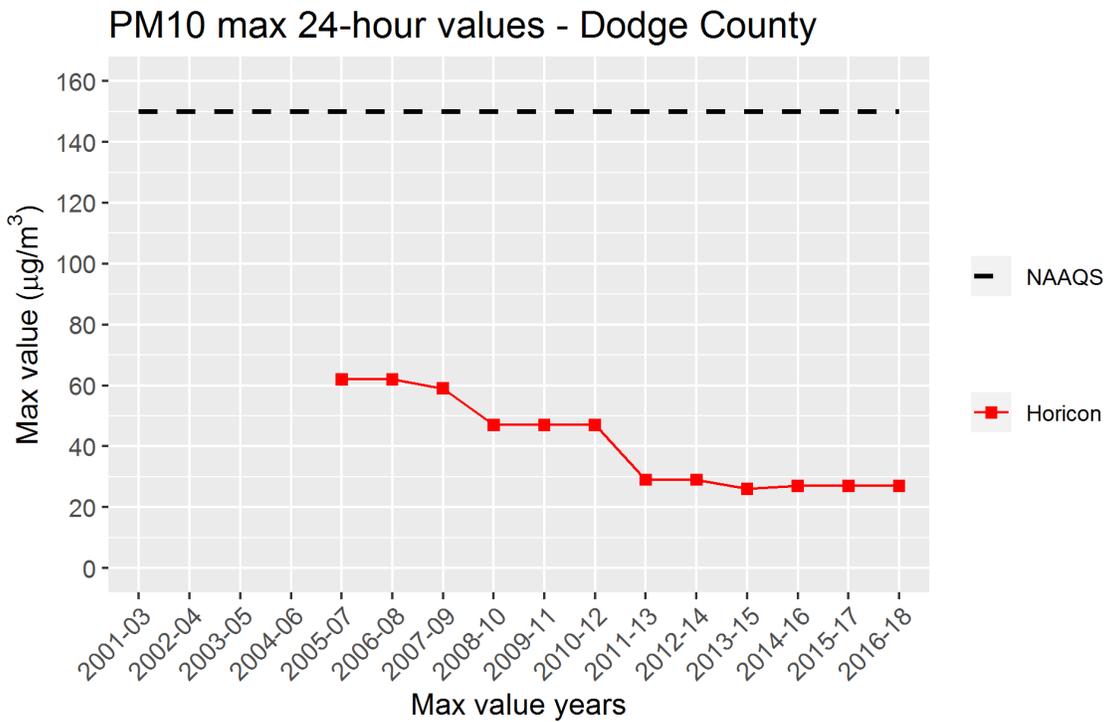
Annual PM2.5 design values - Dodge County



24-hour PM2.5 design values - Dodge County



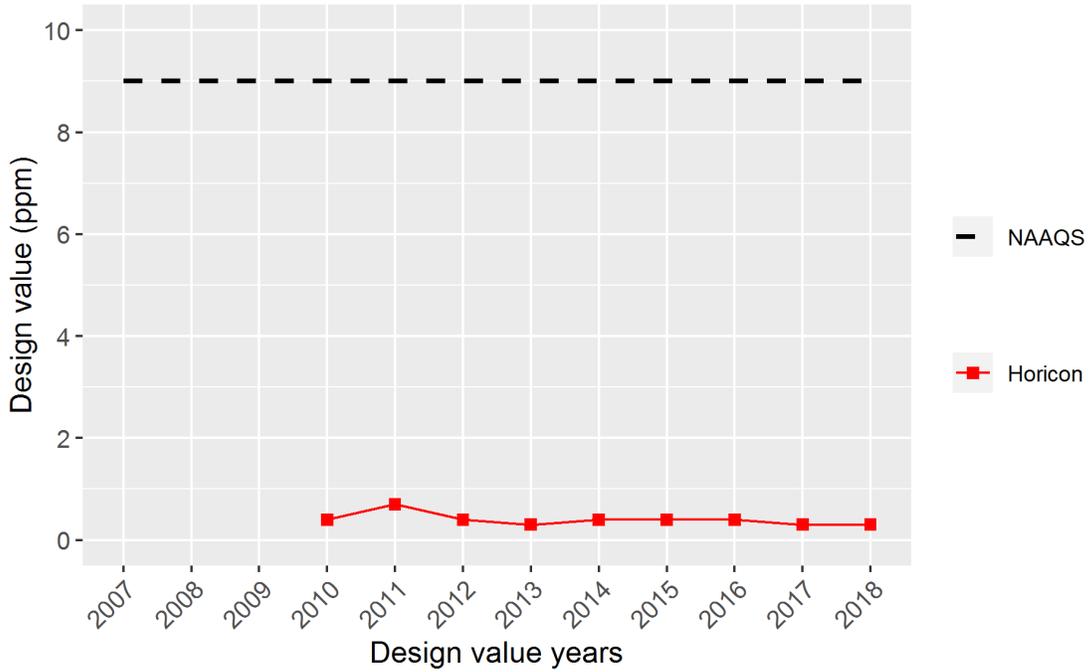
Wisconsin Air Quality Trends



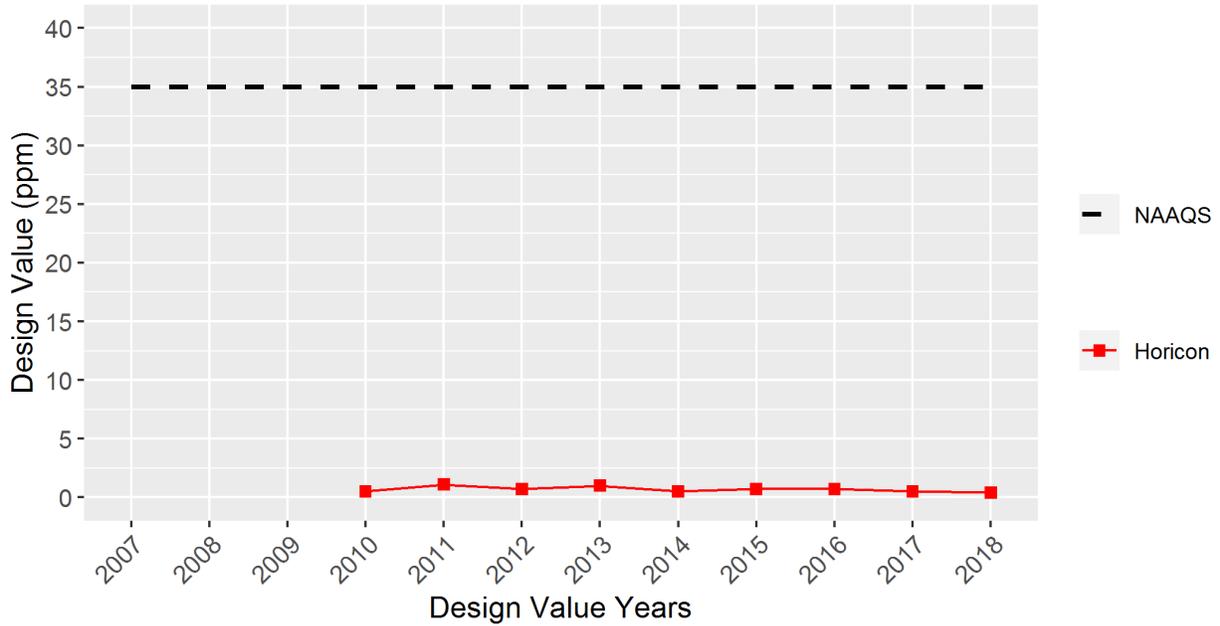
*In 2010, EPA established a 1-hr SO₂ standard that replaced the previous annual and 24-hr standards.

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8-hour CO design values - Dodge County



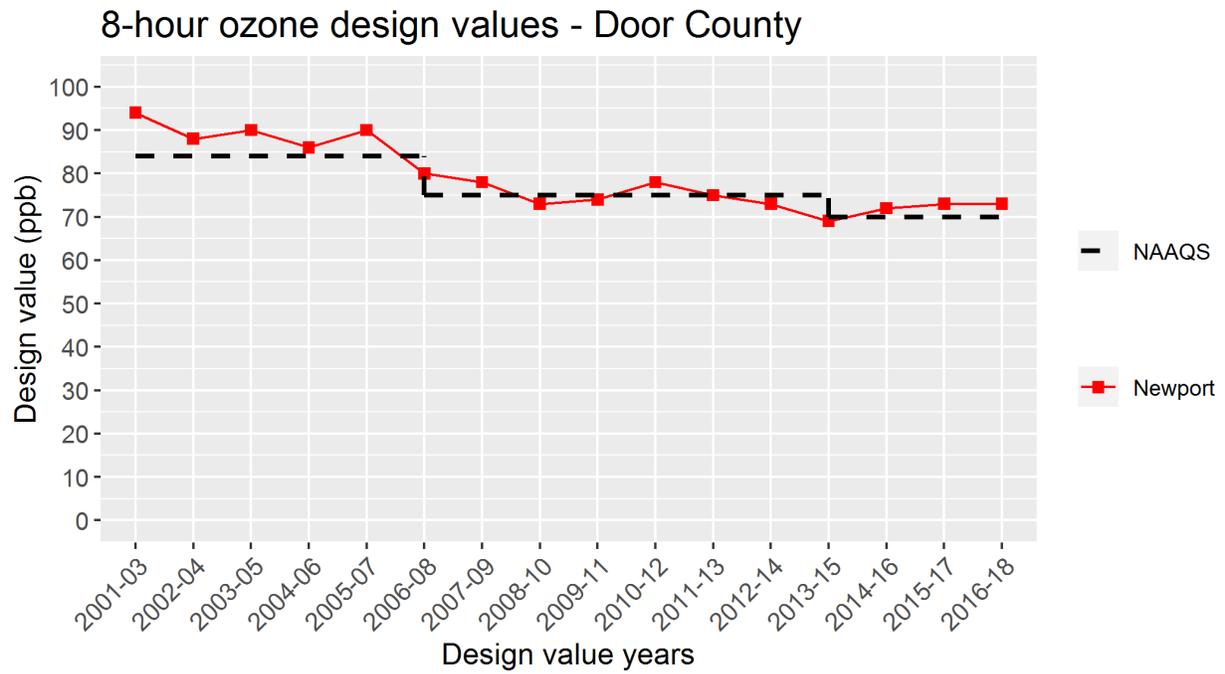
1-hour CO design values - Dodge County



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Door County

Ozone monitoring in Door County takes place at Newport State Park at 475 County Trunk Highway NP in Ellison Bay. The site is located inside the state park.

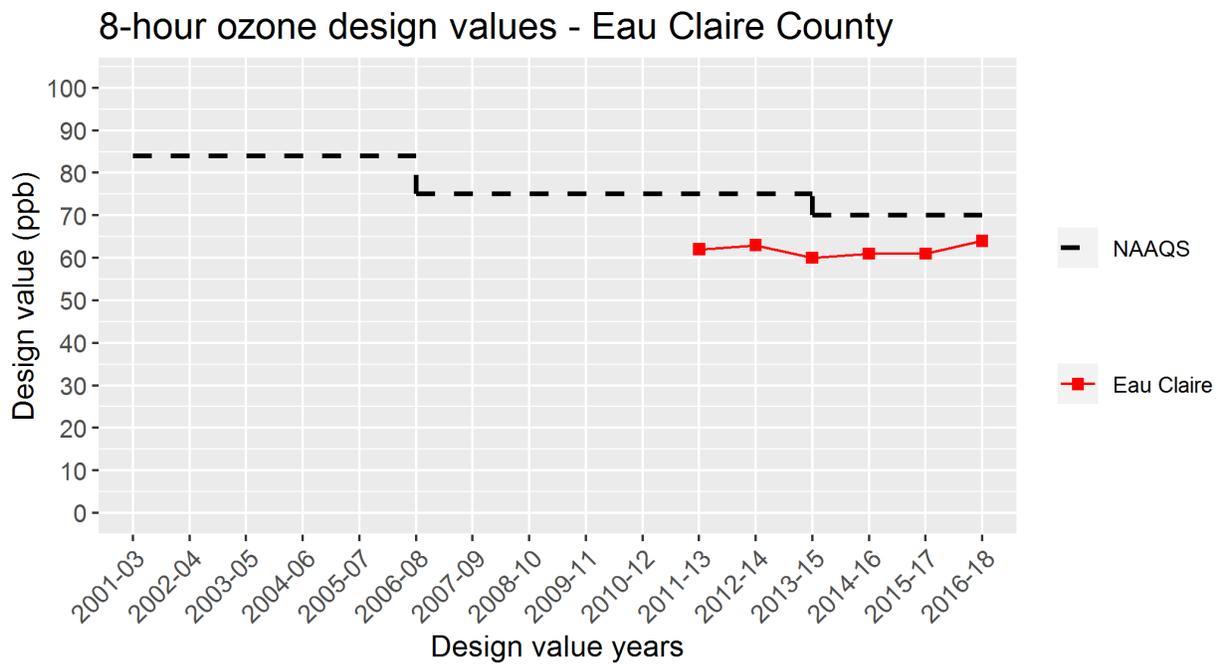


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Eau Claire County

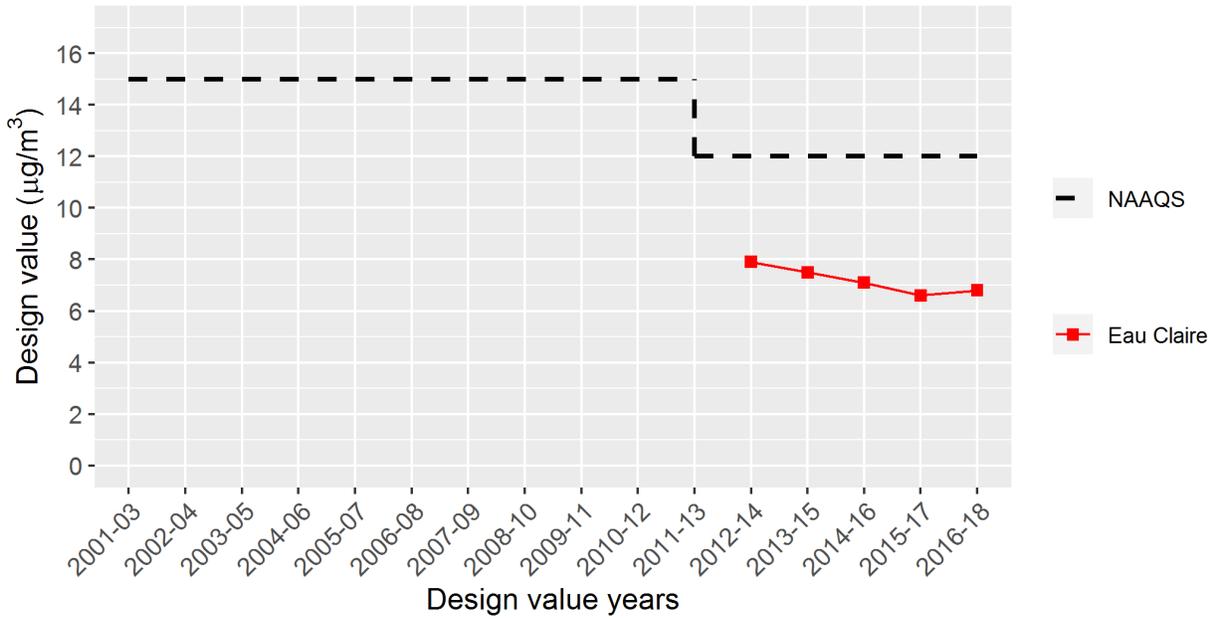
Monitoring for ozone and PM_{2.5} in Eau Claire County takes place near the Department of Transportation Sign Shop, located at 5509 Highway 53 South on the outskirts of Eau Claire. Monitoring at this site began April 1, 2011.

In January 2018, the primary method of measuring PM_{2.5} was switched from filter-based to continuous. In April 2018, filter-based PM_{2.5} monitoring was discontinued at this site. In July of 2018, the method of measuring continuous PM_{2.5} at this site was updated.

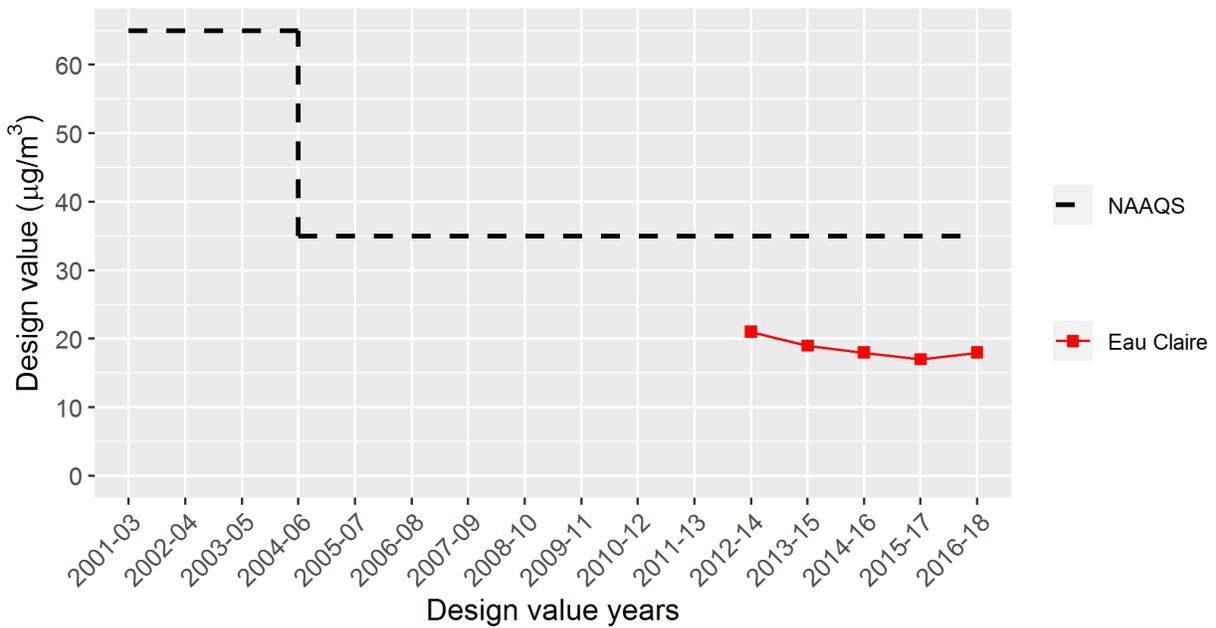


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Annual PM2.5 design values - Eau Claire County



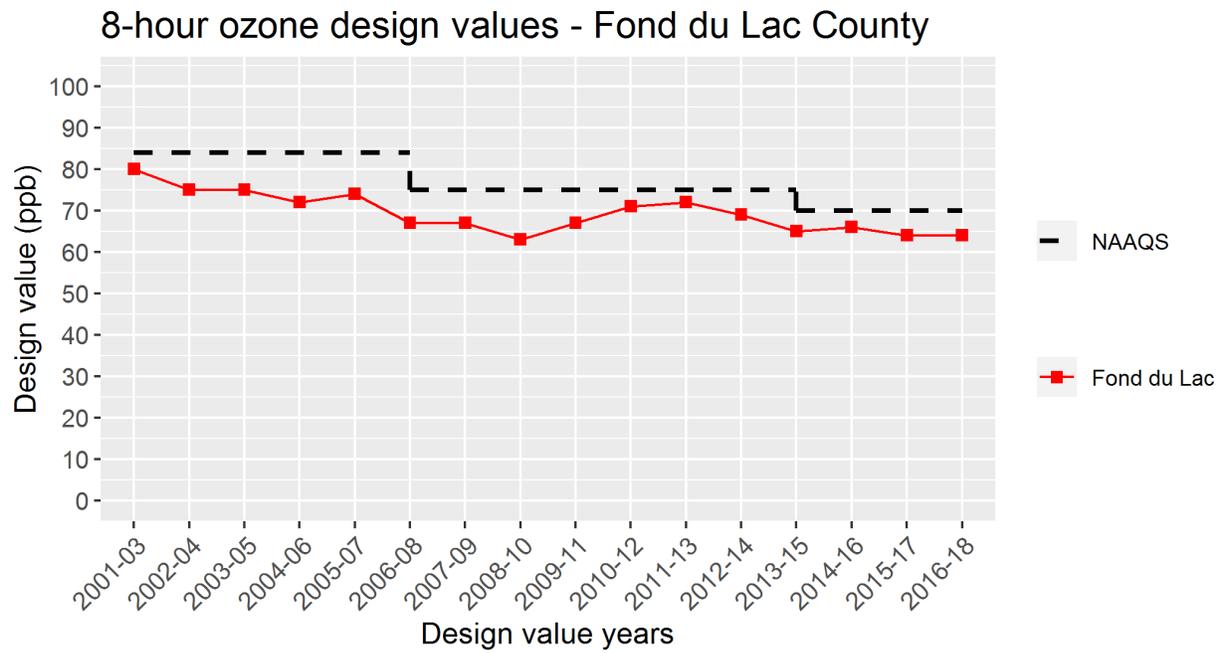
24-hour PM2.5 design values - Eau Claire County



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Fond du Lac County

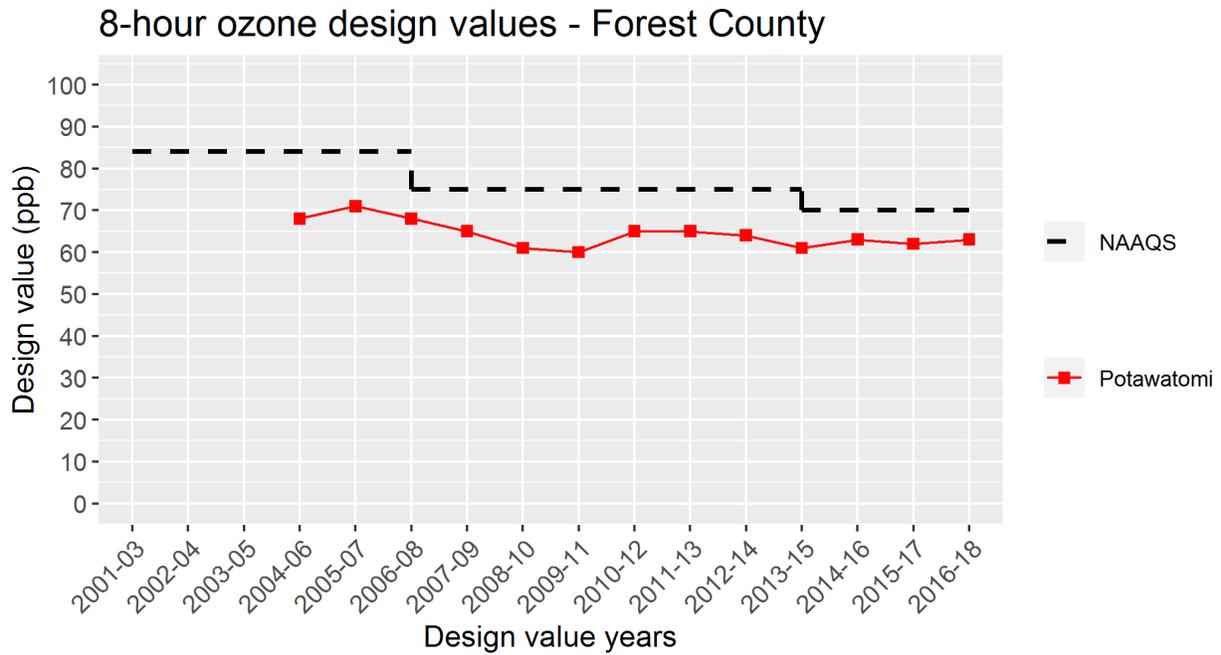
Ozone monitoring in Fond du Lac County is performed at N3996 Kelly Road in the Town of Byron. The site is located at the edge of a farm field.



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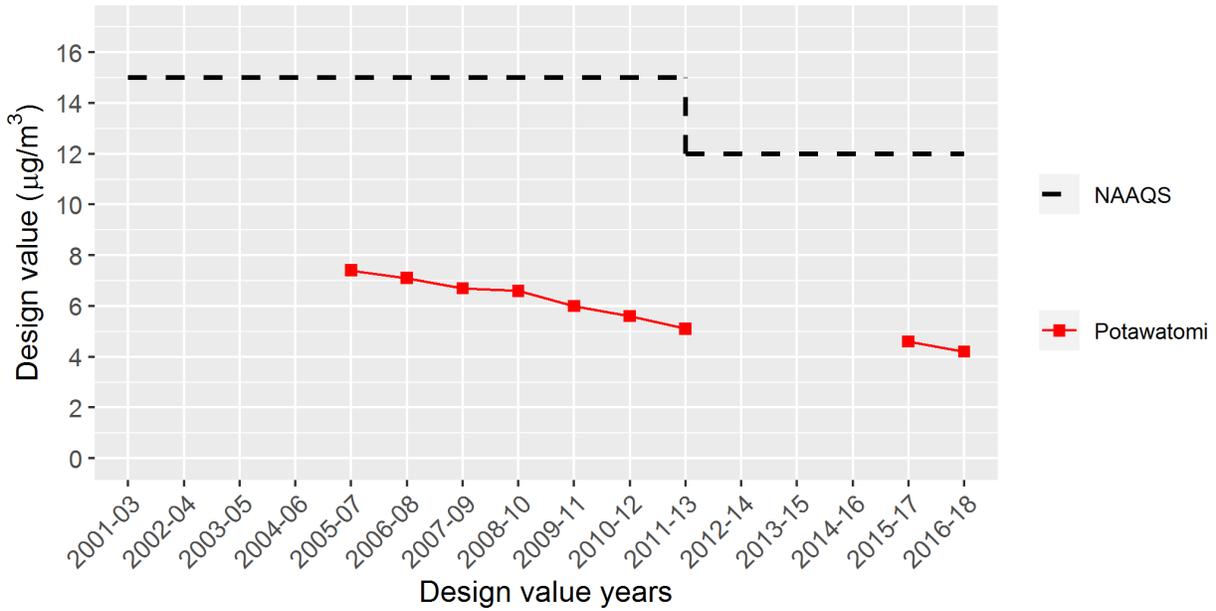
Forest County

Monitoring for ozone, PM_{2.5}, and SO₂ is conducted by the Forest County Potawatomi Tribe along Fire Tower Road in Crandon. Data completeness issues for PM_{2.5} in 2014 resulted in invalid design values for 2012-2014 through 2014-2016, therefore design values for those years are not included in the graphs. In December 2018, the method of measuring continuous PM_{2.5} was updated.

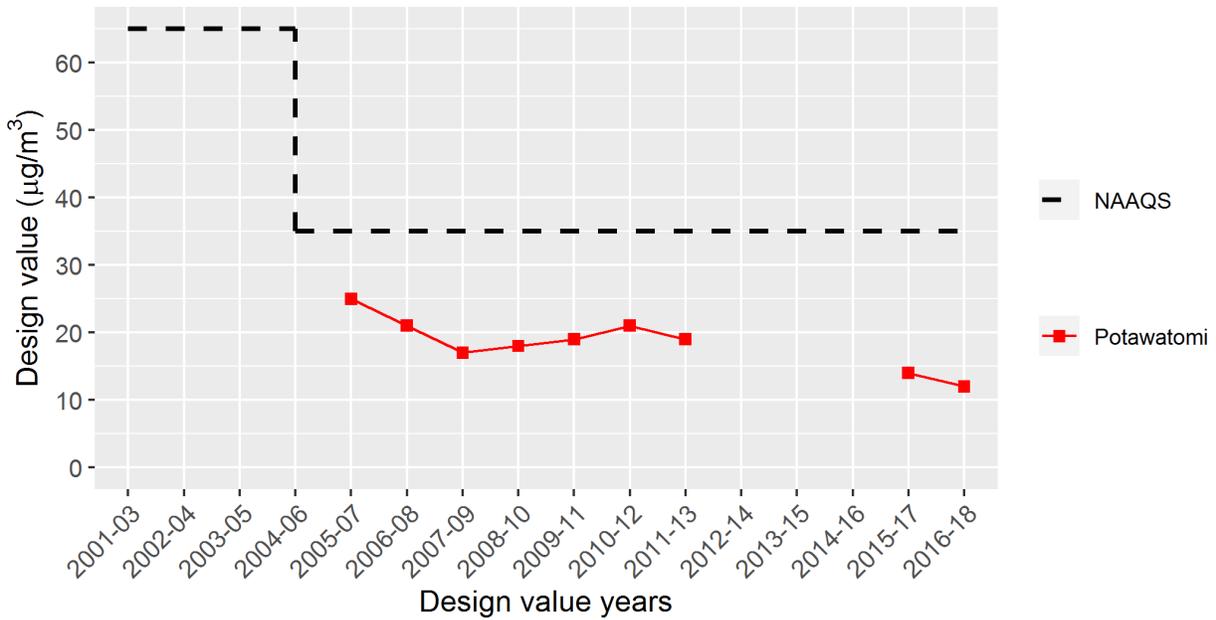


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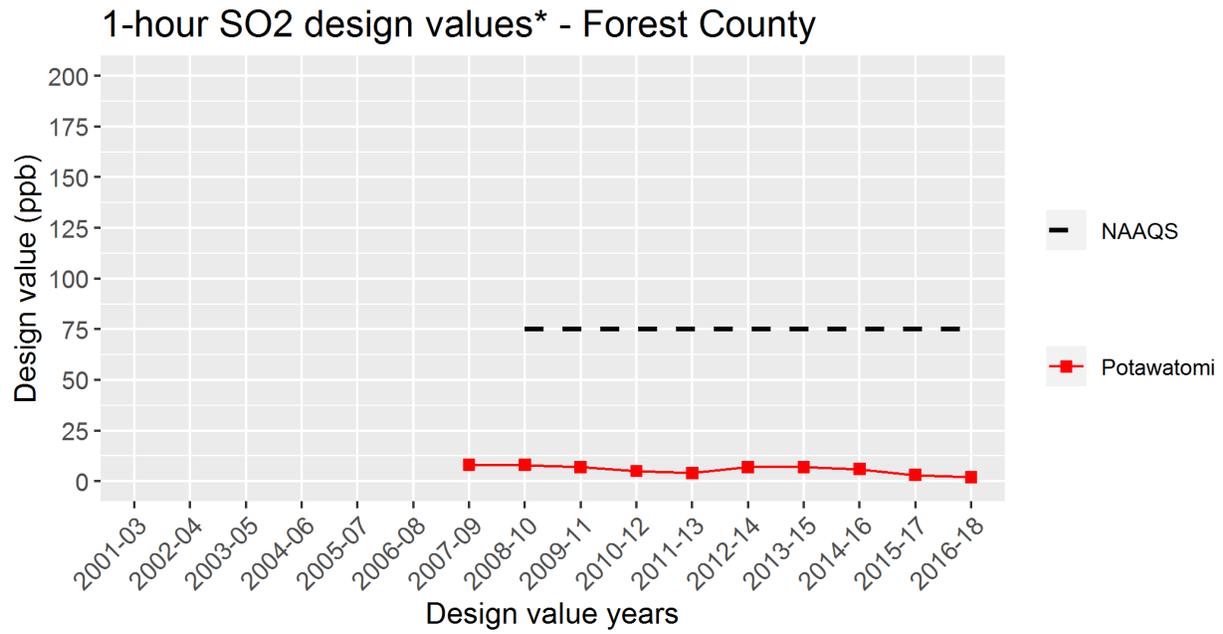
Annual PM2.5 design values - Forest County



24-hour PM2.5 design values - Forest County



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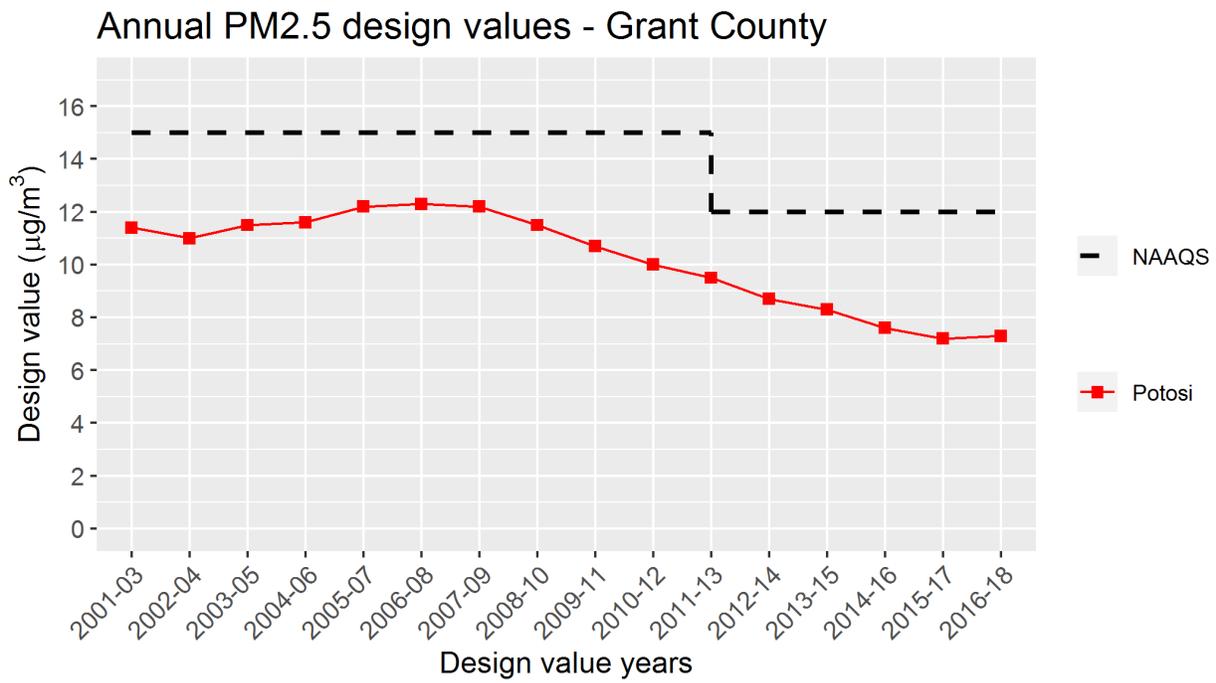


*In 2010, EPA established a 1-hr SO₂ standard that replaced the previous annual and 24-hr standards.

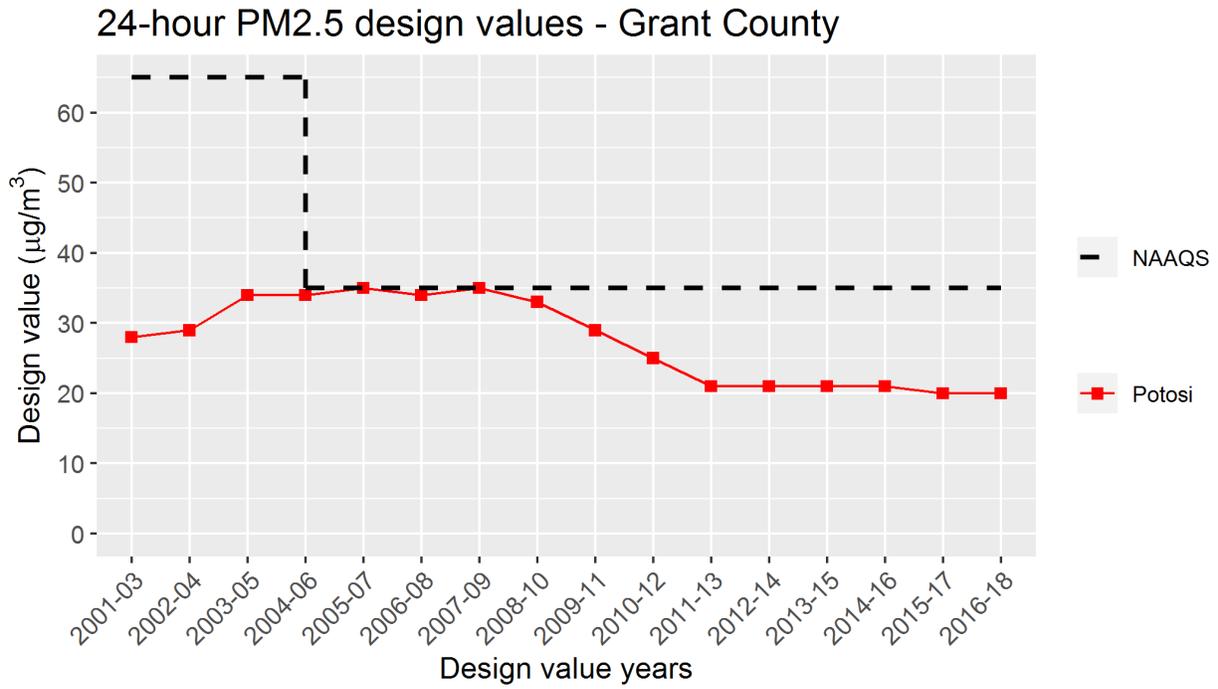
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Grant County

Fine particle monitoring in Grant County takes place at 128 Highway 61 on Potosi High School property. In June 2018, the method of measuring continuous PM_{2.5} at this site was updated.



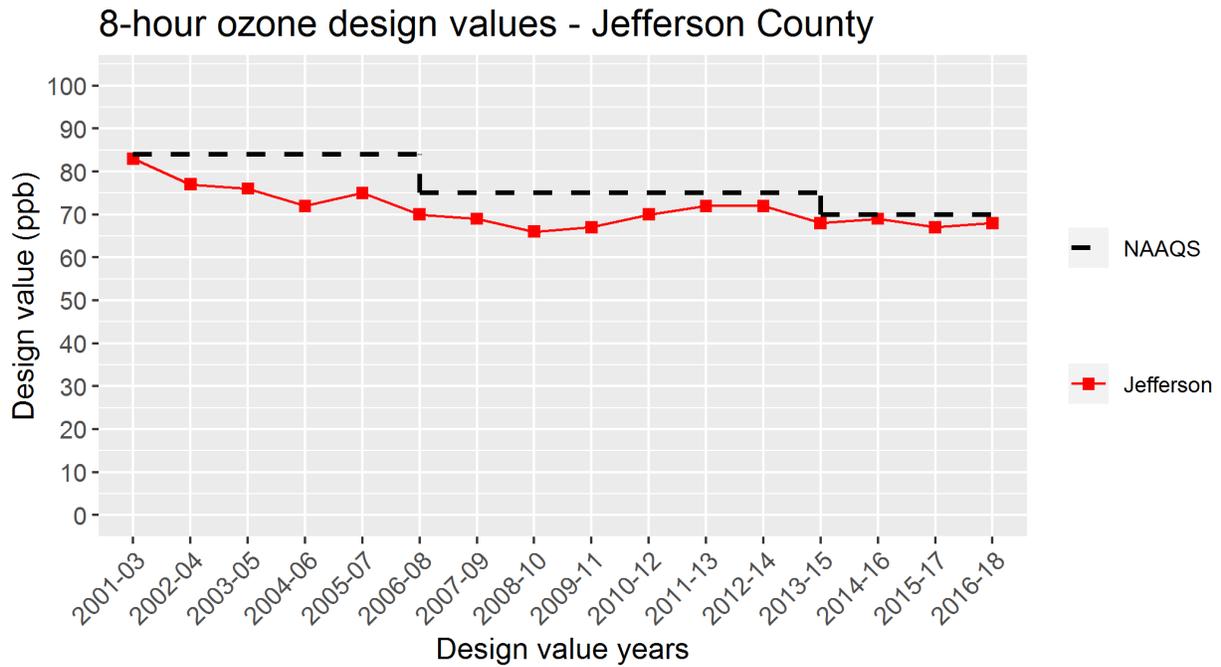
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Jefferson County

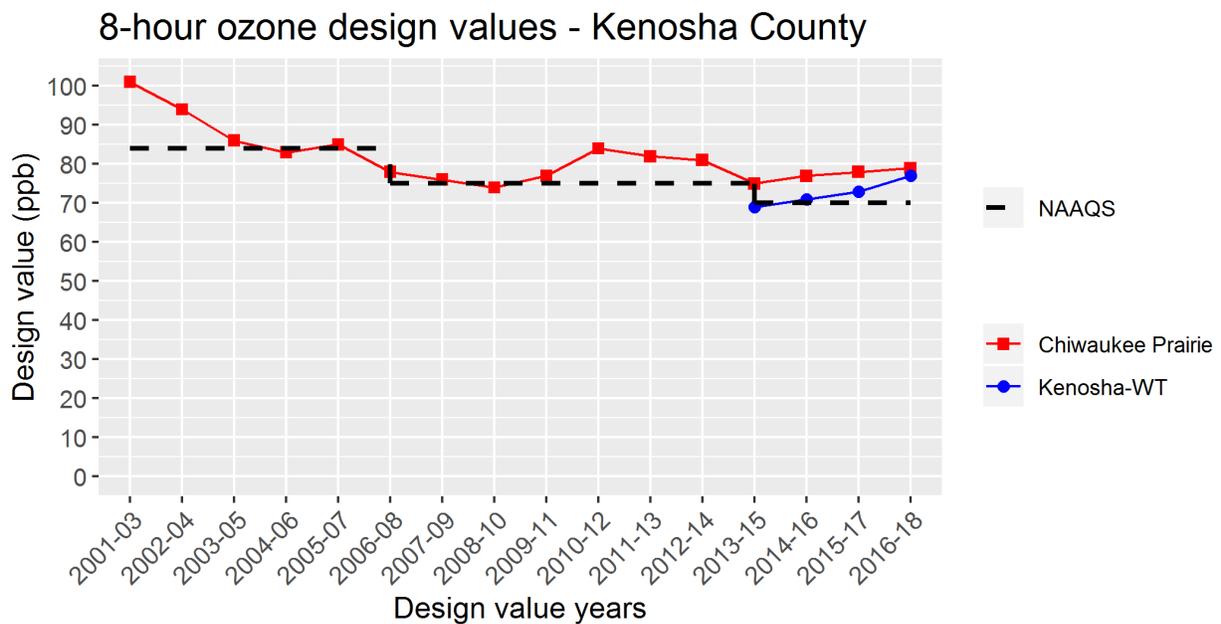
Ozone monitoring in Jefferson County is currently conducted near the elementary school grounds at N4440 Laatsch Lane in the city of Jefferson. Prior to 2013, monitoring took place at Jefferson High School next to the sports field grounds at 634 West Linden Drive, approximately ¾ mile from the current site. Due to proximal siting, data from both sites are used to calculate design values for 2011-2013 and 2012-2014.



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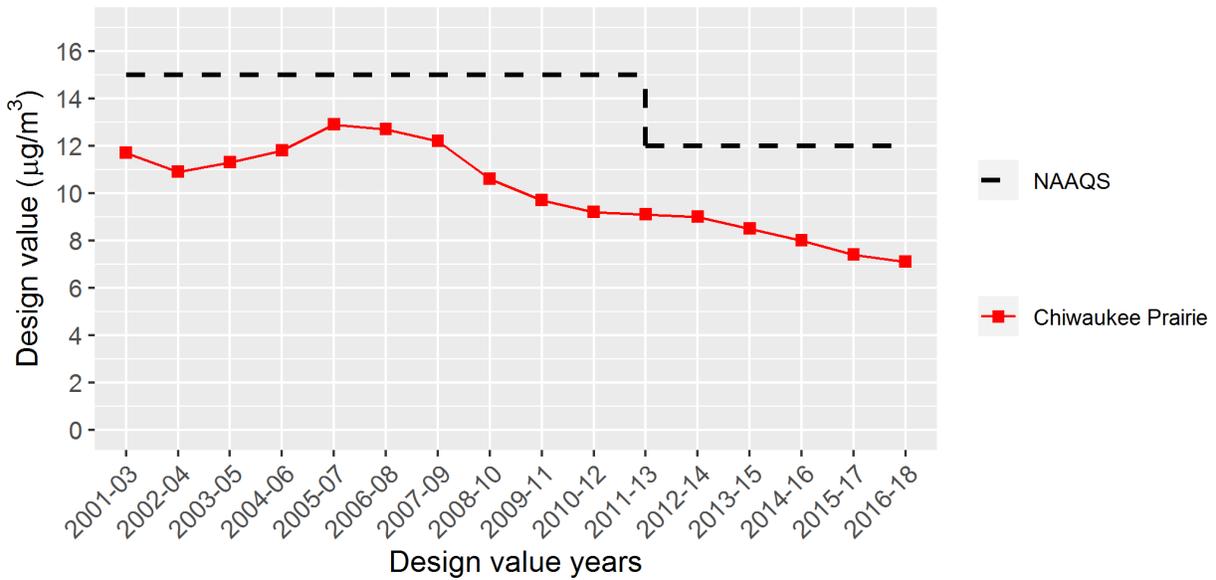
Kenosha County

Monitoring for ozone and PM_{2.5} in Kenosha County is performed at 11838 First Court in the Chiwaukee Prairie, which is a rural area near the Wisconsin-Illinois border. A second ozone monitoring site in Kenosha County (Kenosha-WT) was added in 2013 at the water tower, located at 4504 64th St. in Kenosha. The Kenosha-WT site is designated as a special-purpose monitor; data from this monitor can also be compared against the NAAQS. In July 2018, the method of measuring continuous PM_{2.5} at the Chiwaukee site was updated.

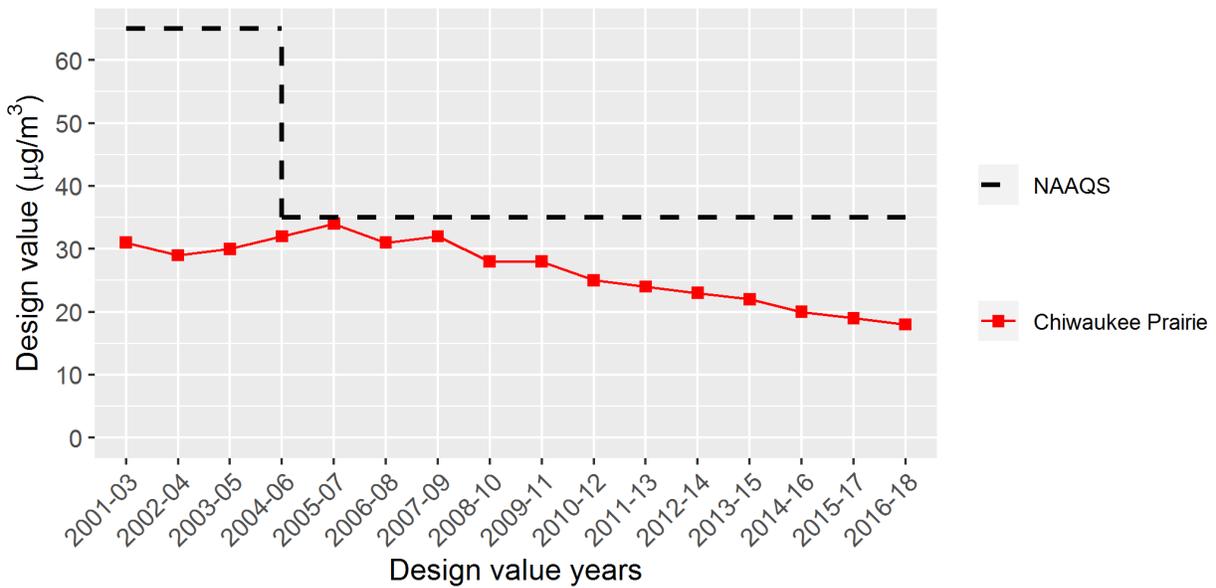


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Annual PM2.5 design values - Kenosha County



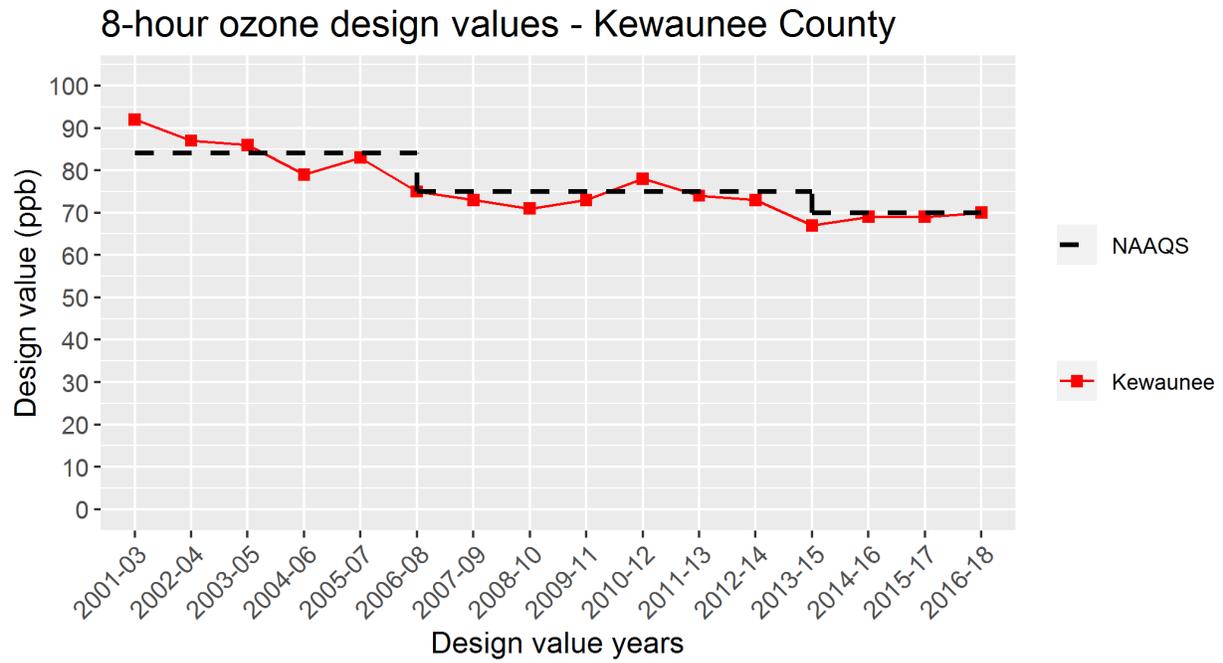
24-hour PM2.5 design values - Kenosha County



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Kewaunee County

Ozone monitoring in Kewaunee County takes place at Rural Route 1, Highway 42 on a bluff overlooking Lake Michigan.

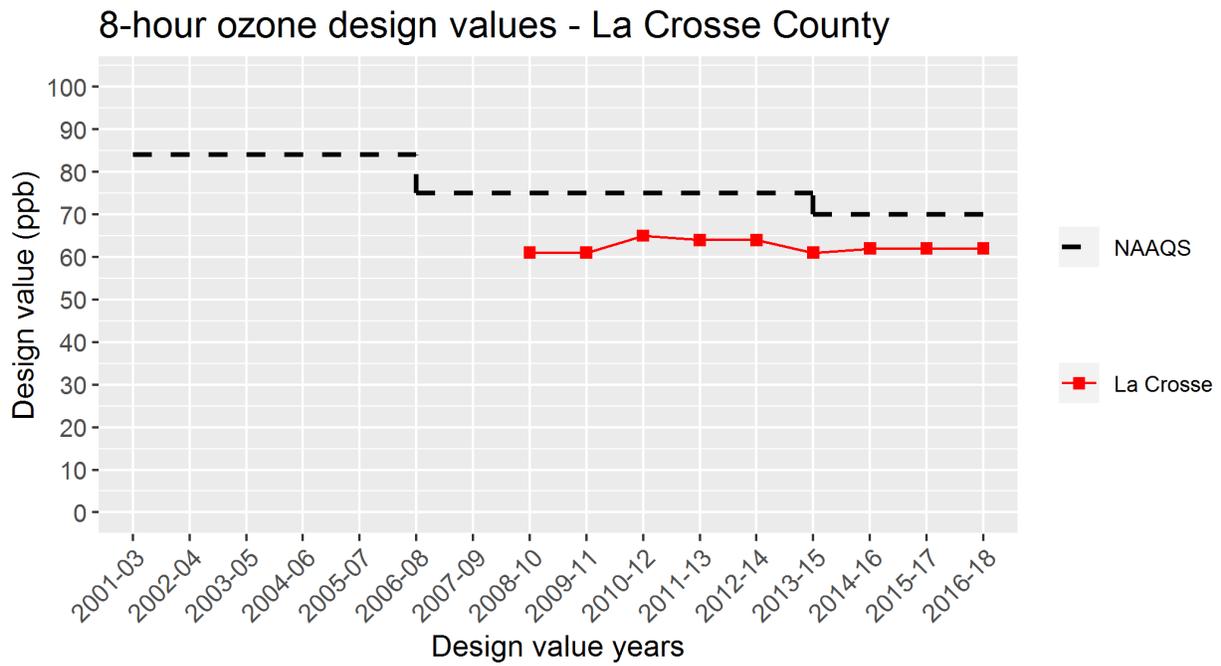


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La Crosse County

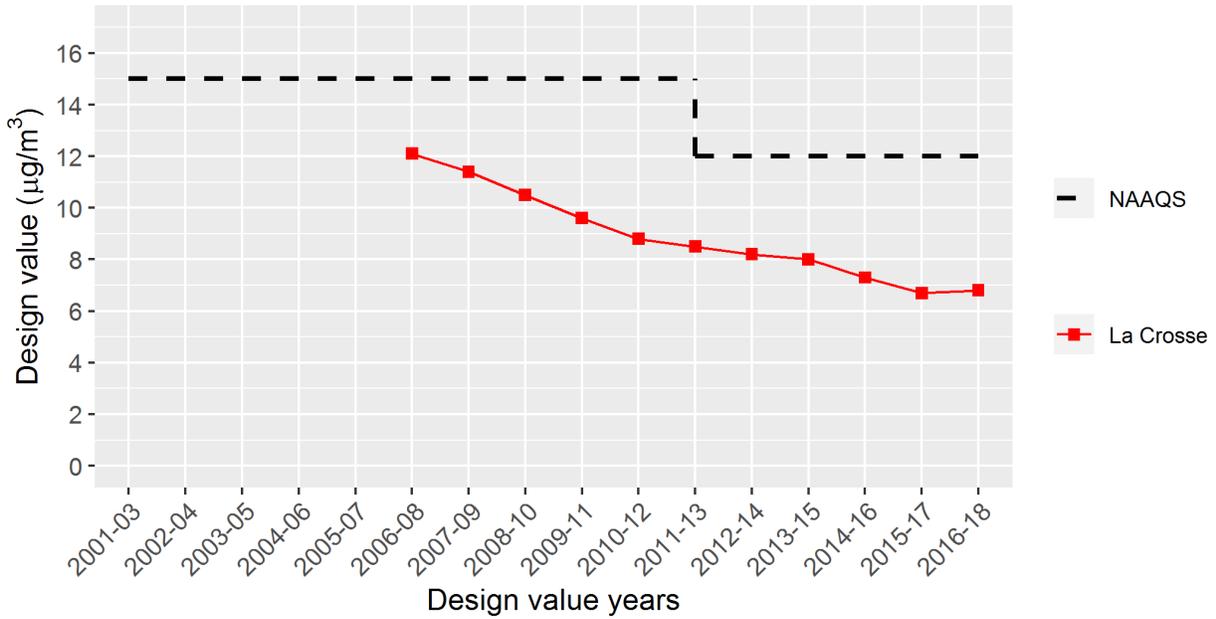
Monitoring for ozone and PM_{2.5} in La Crosse County is conducted at the Department of Transportation office, located at 3350 Mormon Coulee Road in La Crosse.

In January 2018, the primary method of measuring PM_{2.5} at this site was changed from filter-based to continuous. In April 2018, the filter-based monitor was shut down. In July 2018, the method of measuring continuous PM_{2.5} was updated.

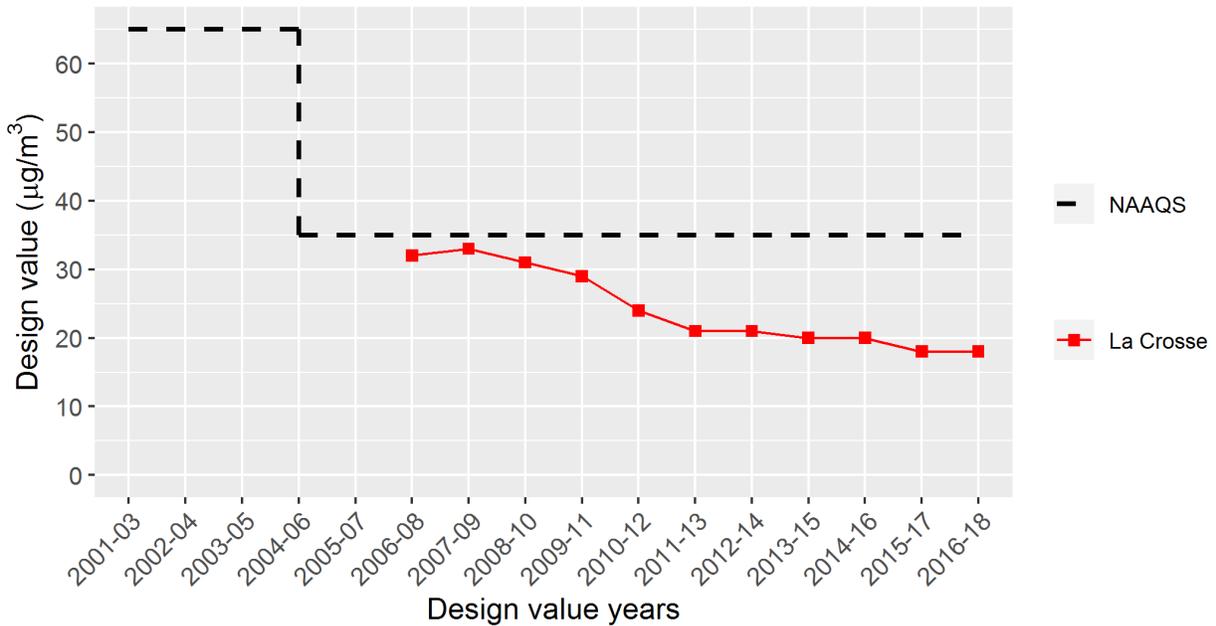


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Annual PM2.5 design values - La Crosse County



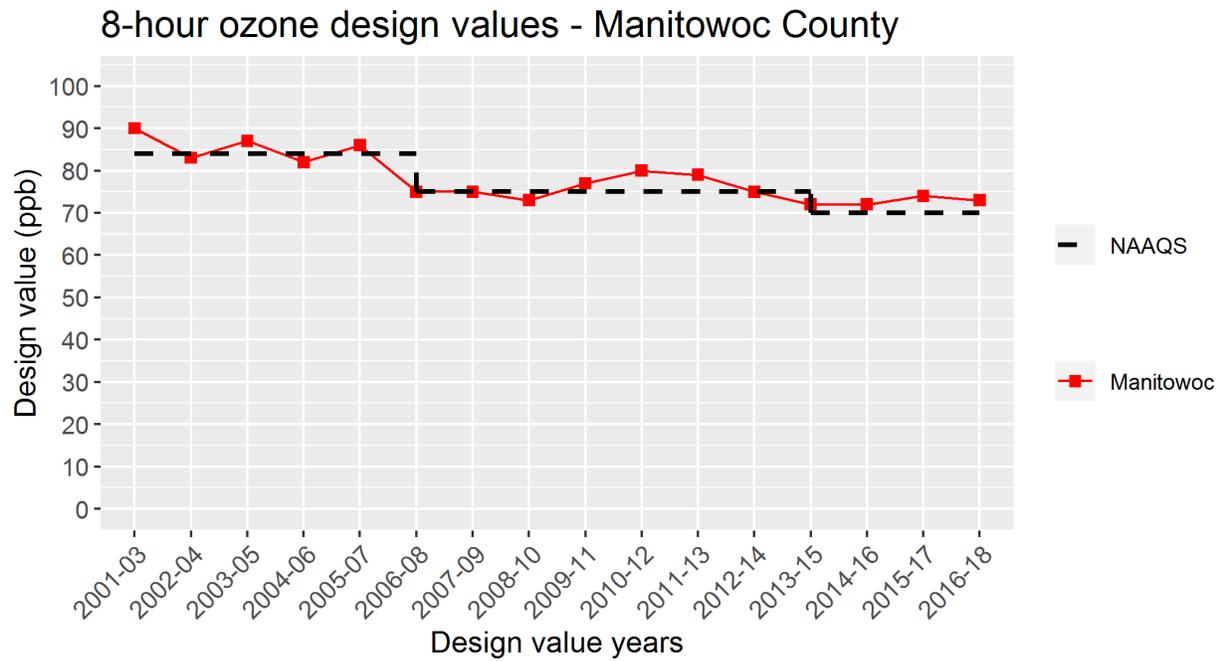
24-hour PM2.5 design values - La Crosse County



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Manitowoc County

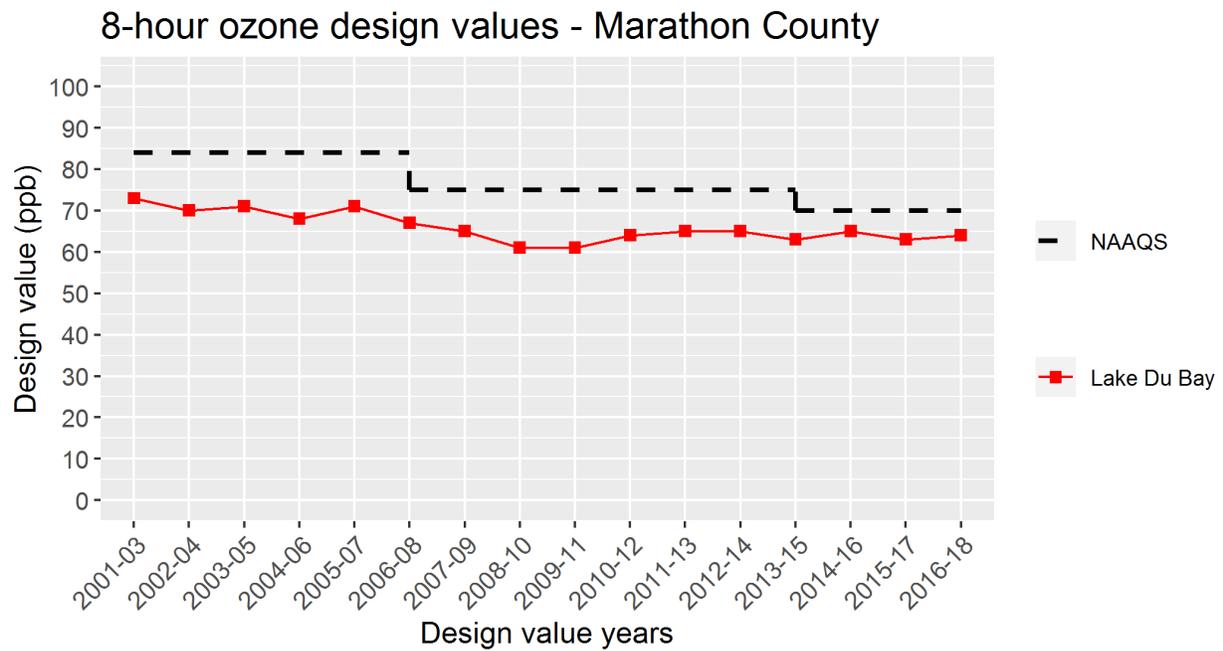
Ozone monitoring for Manitowoc County is performed at 2315 Goodwin Road in Two Rivers at the Woodland Dunes Nature Center and Preserve.



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Marathon County

Ozone monitoring in Marathon County is conducted at a rural location at 1780 Bergen Road near Lake Du Bay in Bergen Township.



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Milwaukee County

Monitoring for ozone, PM_{2.5}, and PM₁₀ in Milwaukee County takes place at multiple sites which are shown together in graphs below for comparison. Sites include Bayside (601 E Ellsworth Lane in Bayside), Milwaukee-16th St. (1337 S Cesar E Chavez Dr at the Health Center Building), Milwaukee-College Avenue Park & Ride (1550 W. College Avenue in the park and ride area), Milwaukee-College Avenue Near Road site (established in October 2013 also at 1550 W. College Avenue, but adjacent to the highway), Milwaukee-Fire Department (711 W. Wells St, on top of a fire department), and Milwaukee-SER (2300 N. Dr. Martin Luther King Jr. Drive at the DNR Southeast Region Headquarters office).

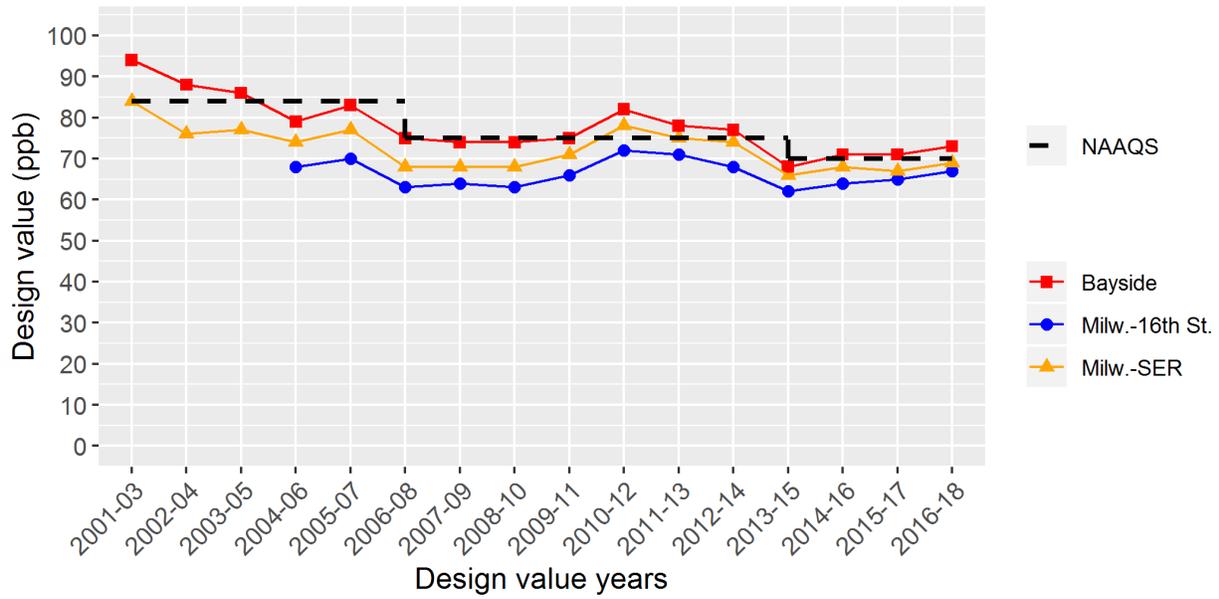
In 2017, PM_{2.5} monitoring at the Milwaukee-Fire Department site concluded to allow instrumentation to be used at the Milwaukee-College Avenue Near Road site. Because the PM_{2.5} monitor was shut down at the Milwaukee-Fire Department site and started up at the Milwaukee-College Avenue Near Road site, neither site had valid PM_{2.5} design values for the 2015-2017 or 2016-2018 periods. Because graphs only include data from active sites, data from the Milwaukee-Fire Department site will no longer be included on the PM_{2.5} graphs.

In January 2018, the primary method of measuring PM_{2.5} was switched from filter-based to continuous at the Milwaukee-16th St., Milwaukee-College Avenue Near Road, and Milwaukee-SER sites. In April 2018, filter-based PM_{2.5} monitoring was discontinued at the Milwaukee-College Avenue Near Road and Milwaukee-College Avenue Park & Ride sites. In July 2018, the method for measuring continuous PM_{2.5} was updated at the Milwaukee-College Avenue Near Road and Milwaukee-SER sites. This change resulted in adding PM₁₀ measurements to the Milwaukee-College Avenue Near Road site and updating the method for measuring continuous PM₁₀ at the Milwaukee-SER site. Because PM₁₀ monitoring started up at the Milwaukee-College Avenue Near Road site in 2018, the site did not have a valid PM₁₀ design value for the 2016-2018 period.

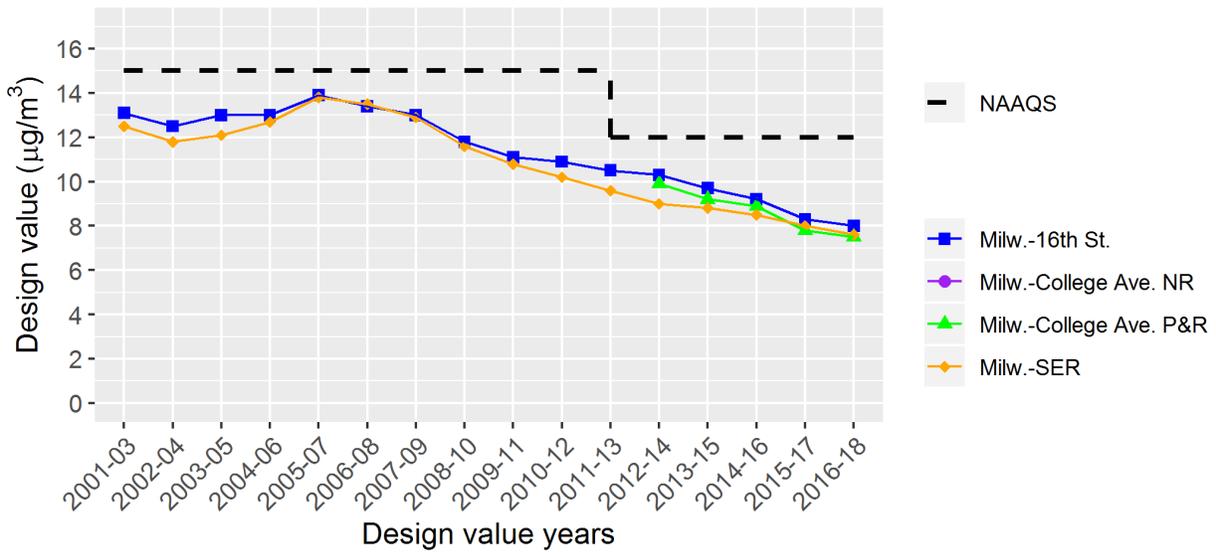
Sulfur dioxide is measured at the Milwaukee-SER site. Sulfur dioxide monitoring at this site was not conducted from 2007 to 2010. Nitrogen dioxide is monitored at the Milwaukee-SER site as well as at the Milwaukee-College Avenue Near Road site. Monitoring for CO, which started in 2014, takes place at the Milwaukee-College Avenue Near Road site.

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8-hour ozone design values - Milwaukee County

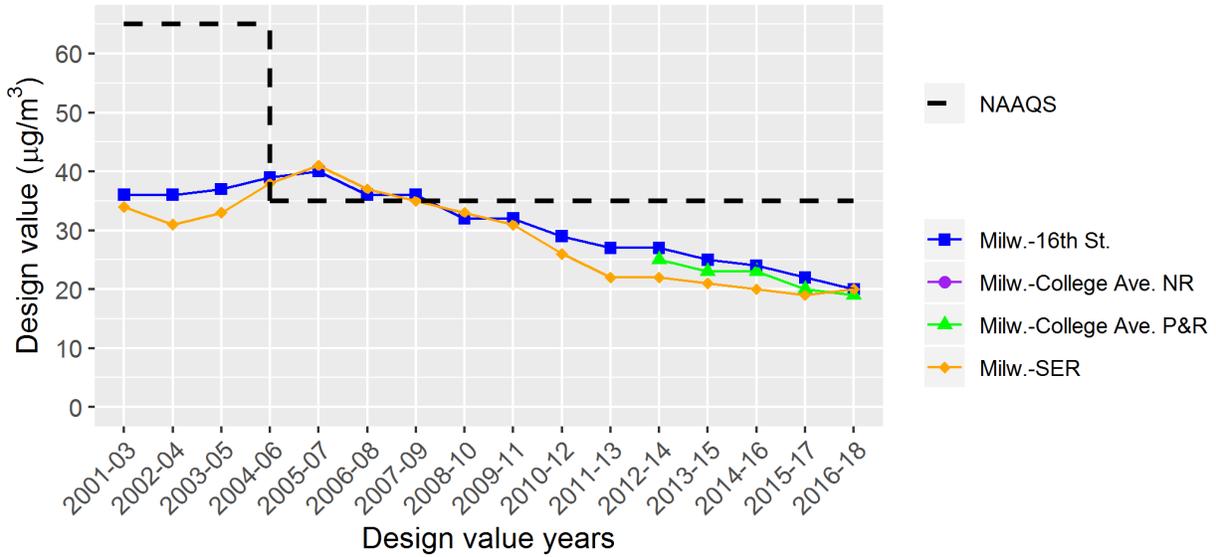


Annual PM2.5 design values - Milwaukee County

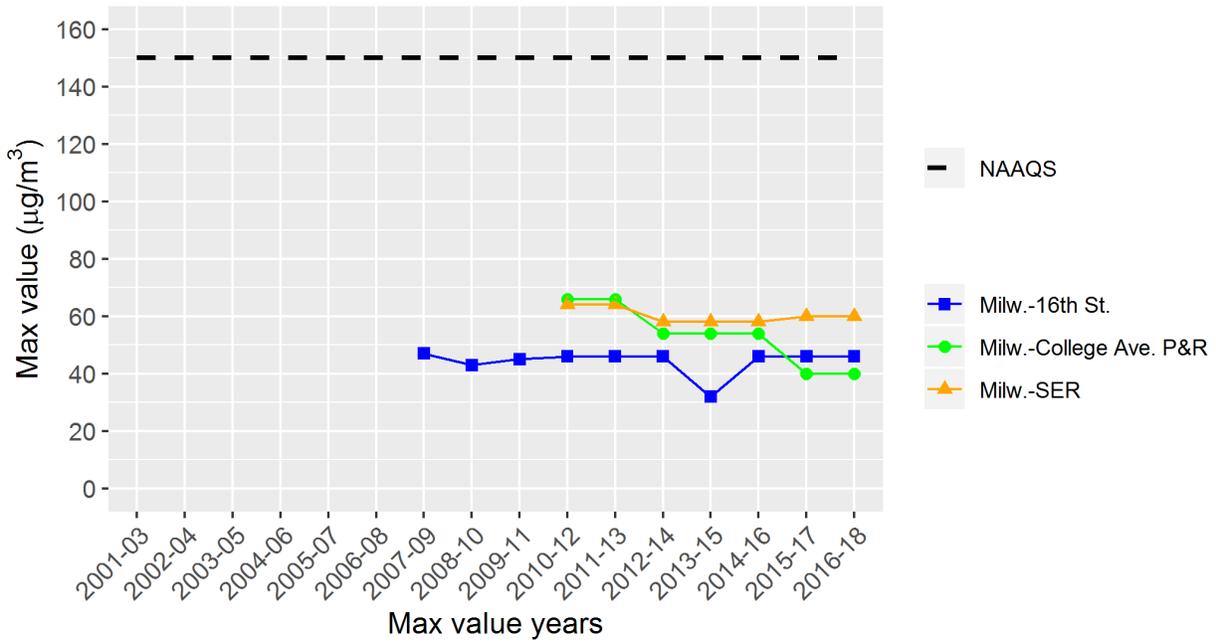


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24-hour PM2.5 design values - Milwaukee County

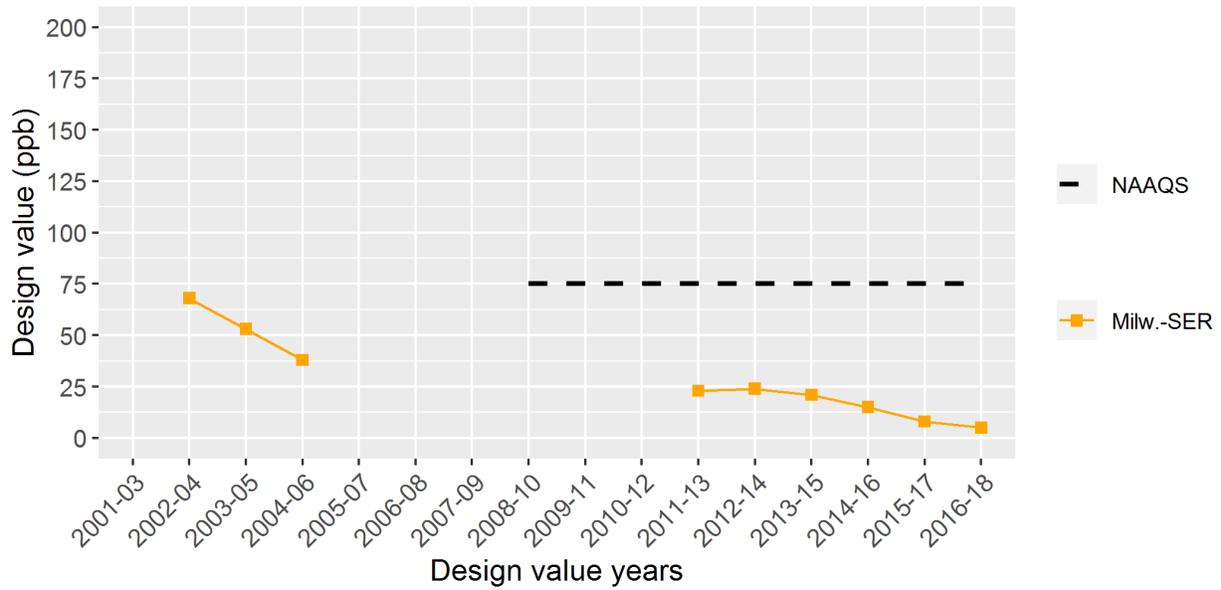


PM10 max 24-hour values - Milwaukee County



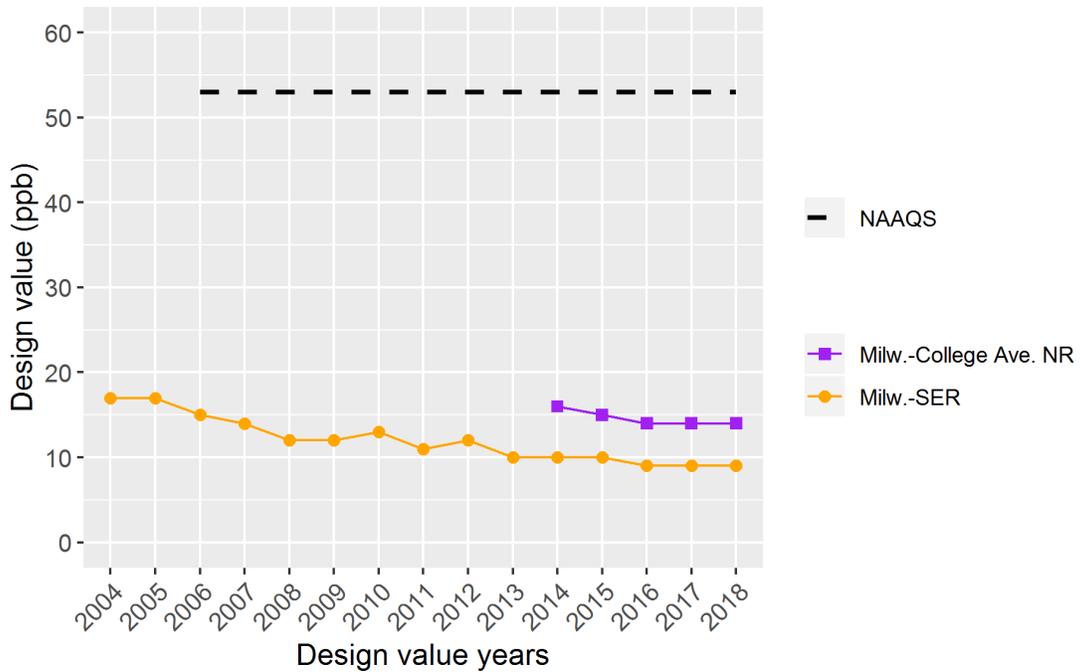
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1-hour SO₂ design values* - Milwaukee County

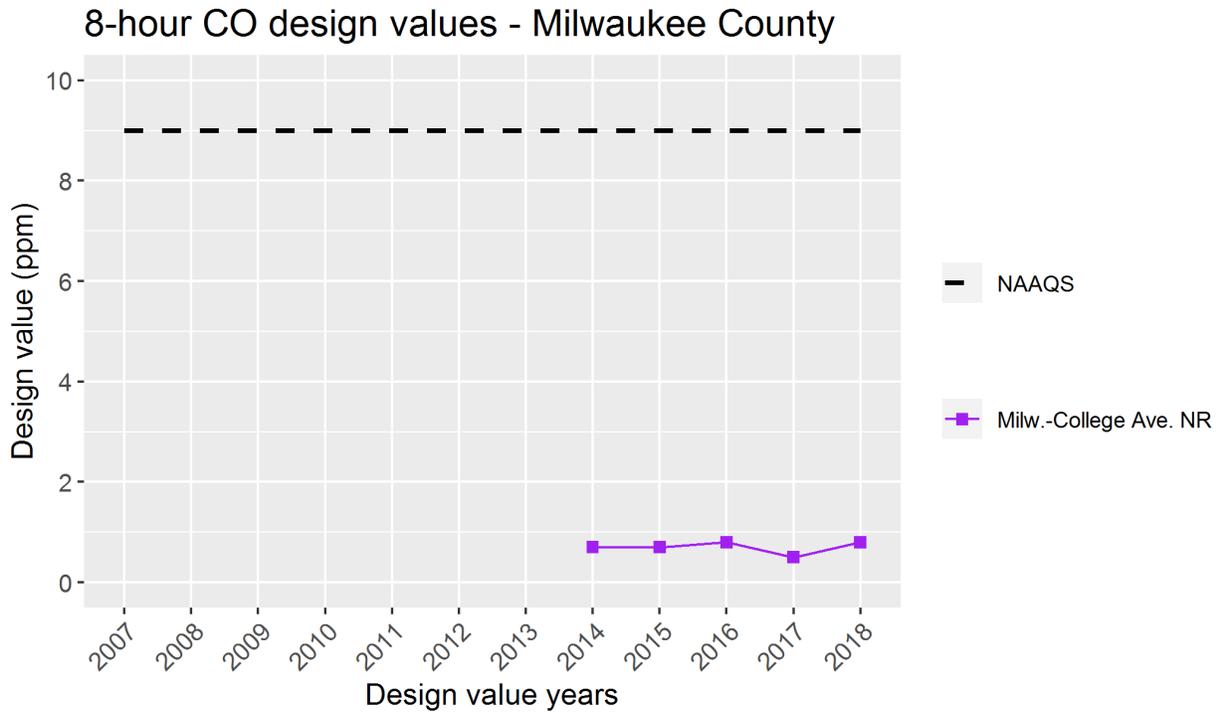
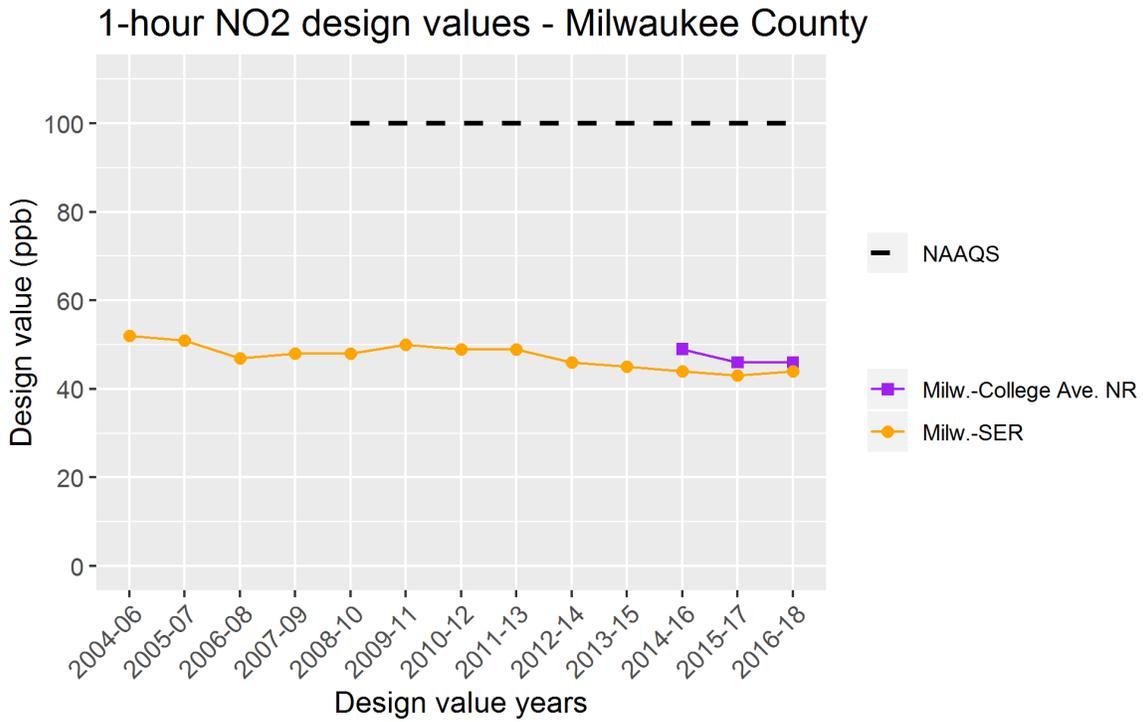


*In 2010, EPA established a 1-hr SO₂ standard that replaced the previous 24-hr and annual standards.

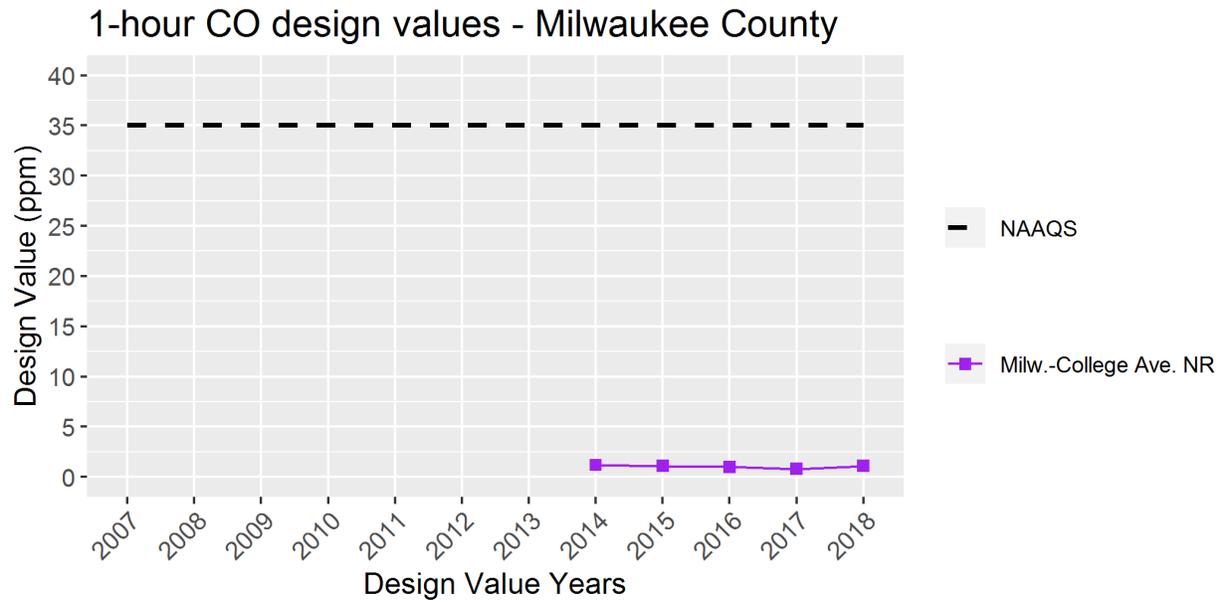
Annual NO₂ design values - Milwaukee County



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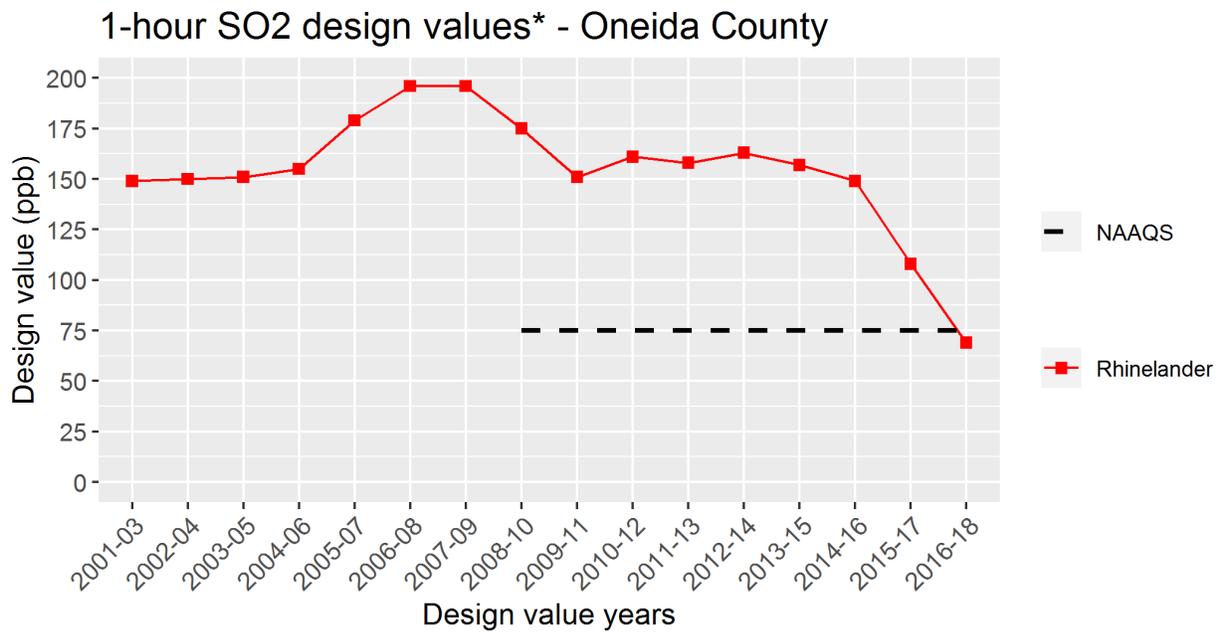
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Oneida County

Monitoring for SO₂ in Oneida County takes place at 434 High Street next to the Rhinelander water tower. This site is source-oriented and is sited to assess compliance with the SO₂ NAAQS. A portion of Oneida County around this monitor was designated as nonattainment for the 2010 1-hour SO₂ NAAQS in 2013. To bring this area into attainment, DNR submitted an attainment plan to EPA that established permanent and enforceable SO₂ requirements on the facility primarily responsible for the monitored values. EPA found the attainment plan to be complete, and the facility has implemented the requirements contained in the plan.

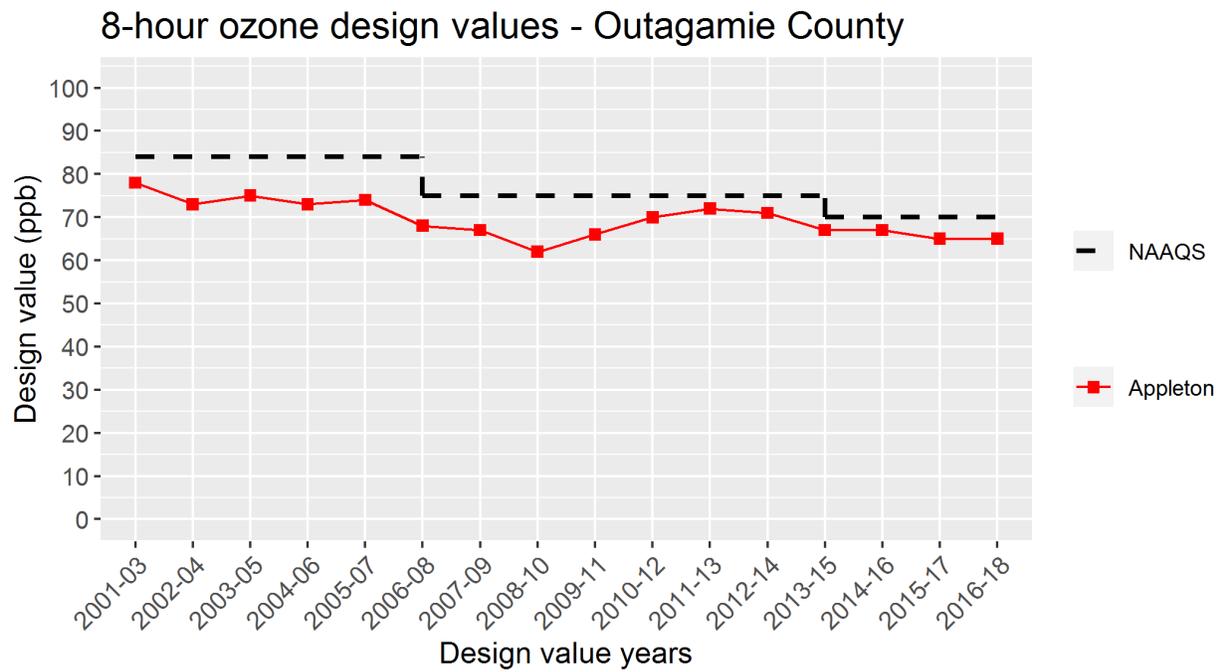


*In 2010, EPA established a 1-hr SO₂ standard that replaced the previous annual and 24-hr standards.

Wisconsin Air Quality Trends

Outagamie County

Monitoring for ozone and PM_{2.5} in Outagamie County is performed at 4432 North Meade Street in Appleton near a residential area.

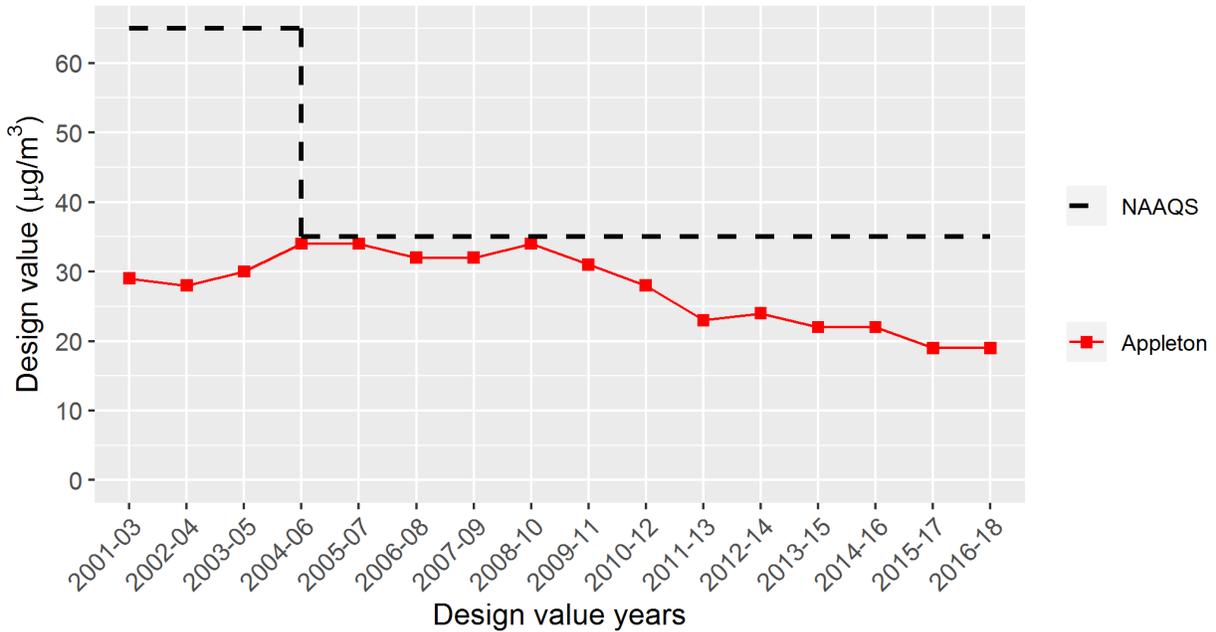


Wisconsin Air Quality Trends

Annual PM2.5 design values - Outagamie County



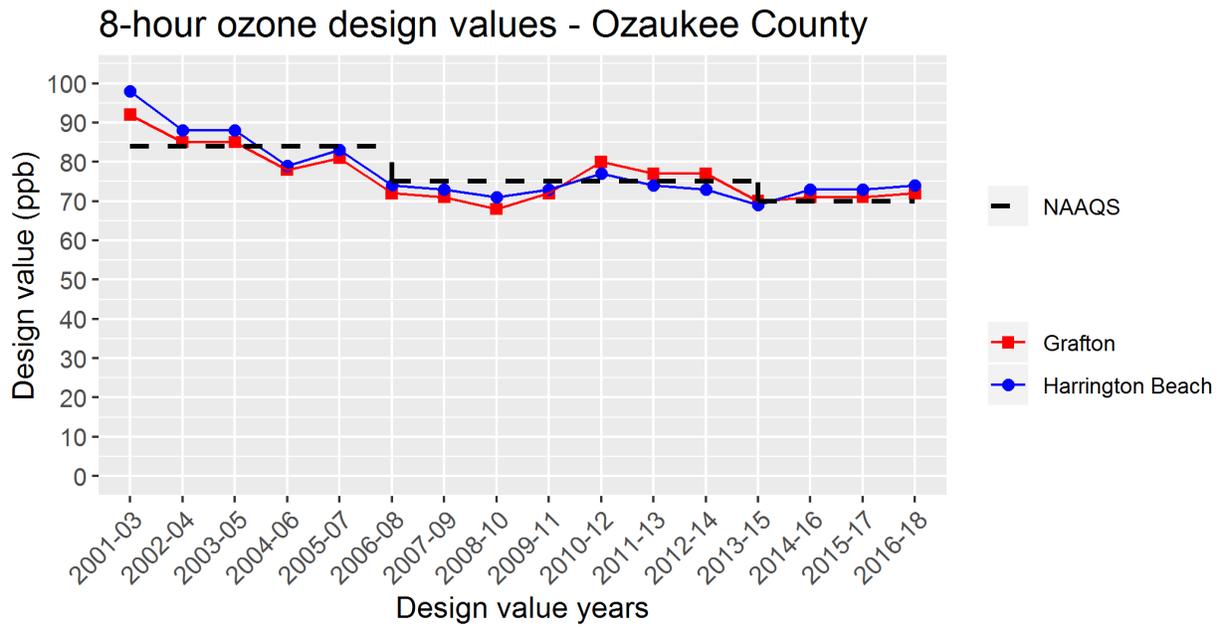
24-hour PM2.5 design values - Outagamie County



Wisconsin Air Quality Trends

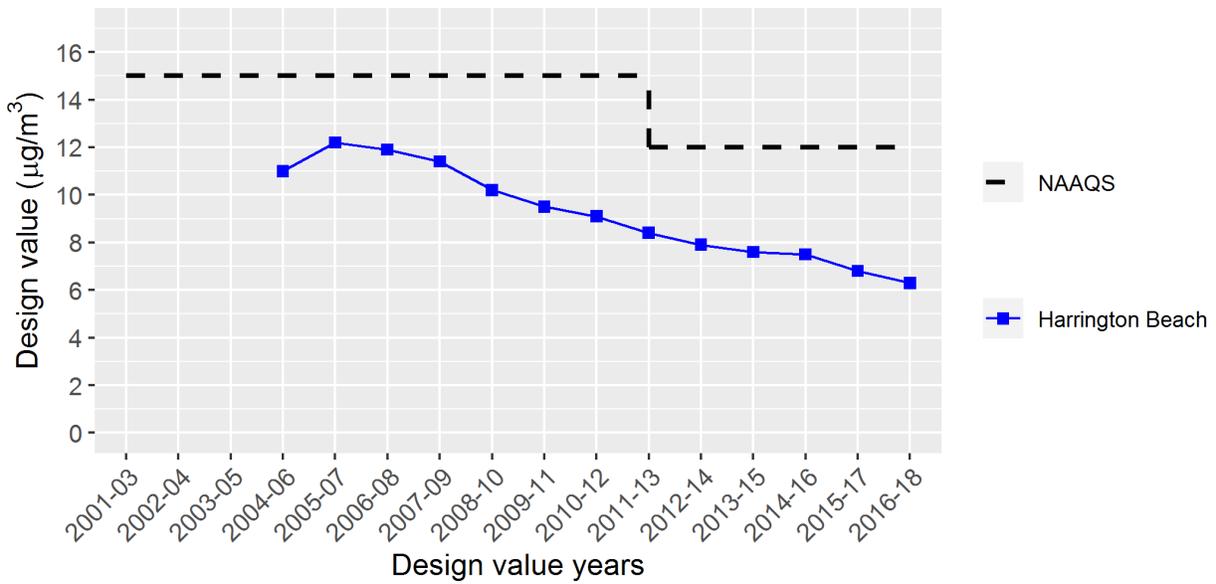
Ozaukee County

Ozone monitoring in Ozaukee County takes place at the intersection of Highway 57 and Interstate 43 in Grafton, and at Harrington Beach State Park located at 531 Highway D. Fine particle monitoring takes place at the Harrington Beach site. In July 2018, the method of measuring continuous PM_{2.5} at the Harrington Beach site was updated.

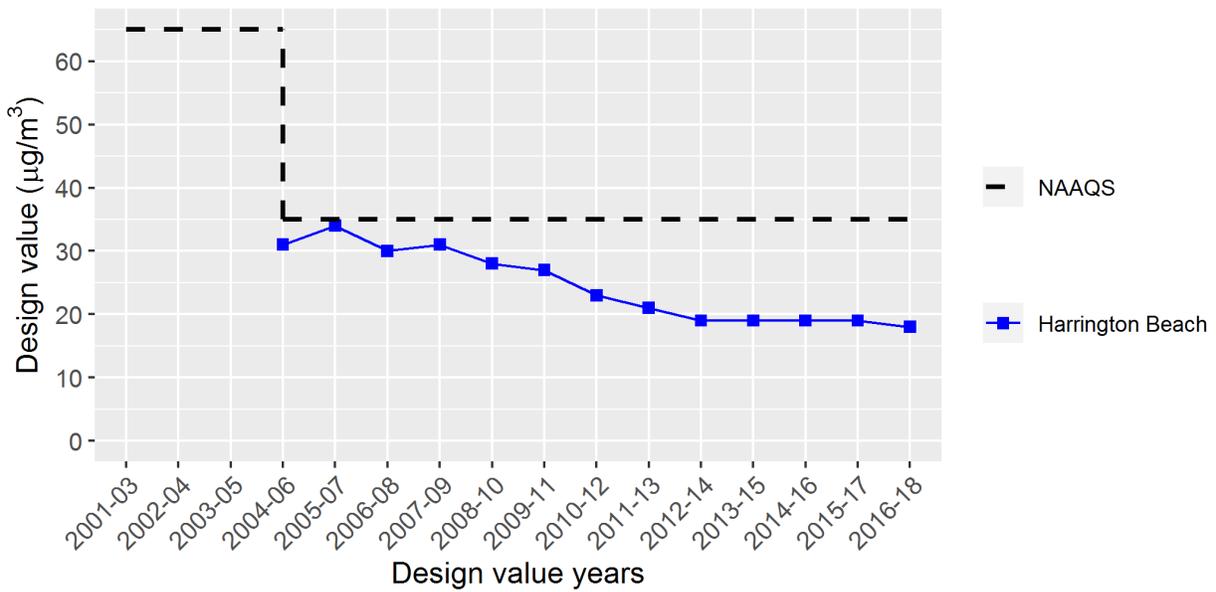


Wisconsin Air Quality Trends

Annual PM2.5 design values - Ozaukee County



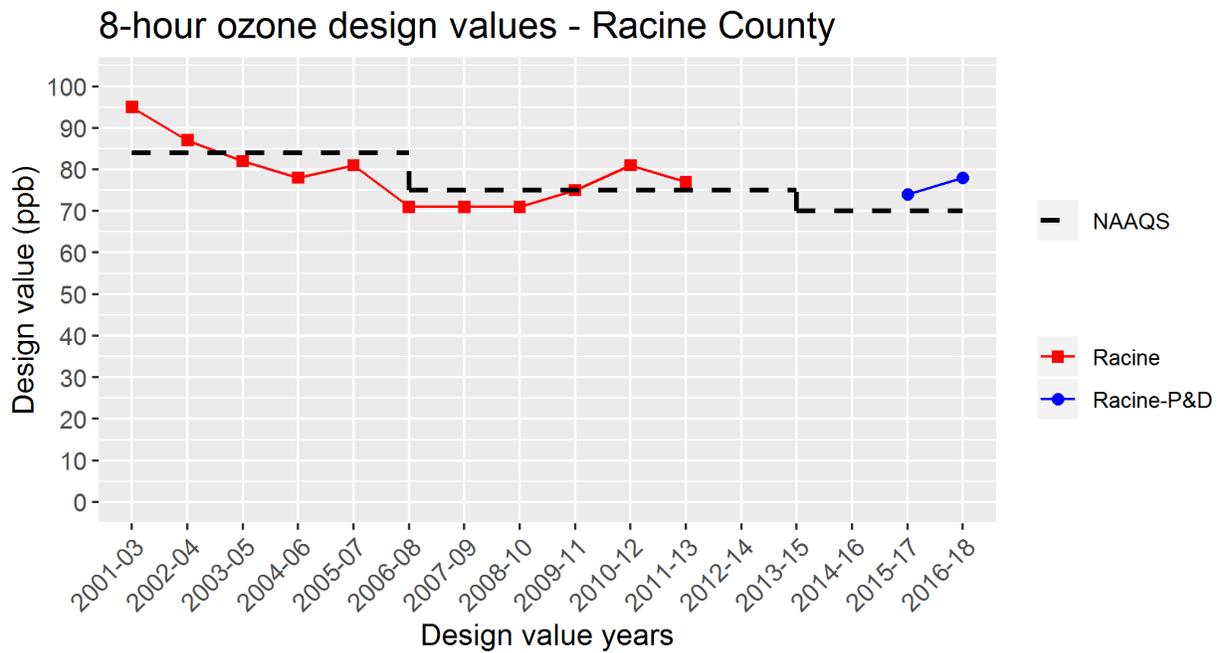
24-hour PM2.5 design values - Ozaukee County



Wisconsin Air Quality Trends

Racine County

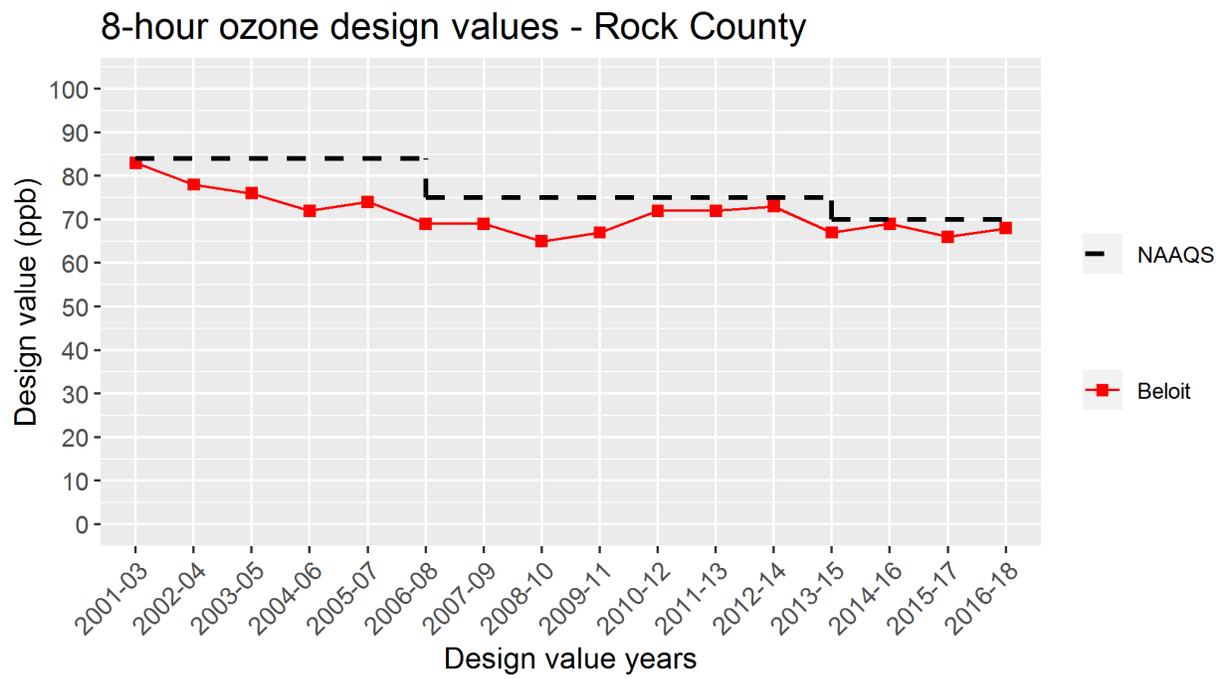
Ozone monitoring in Racine County is conducted at 4227 Charles Street in a farm field in the rural village of Caledonia (Racine-Payne & Dolan site). Sampling began at this site on April 3, 2015. Prior to this date, sampling for ozone in Racine County was performed at 1519 Washington Avenue above a local business in the downtown area of Racine. Due to extensive safety issues, this site was shut down at the end of 2013. Federal rules determine that data from the old and new sites cannot be combined; however, design values from the historic site are included here to provide context for the data currently available from the new site.



Wisconsin Air Quality Trends

Rock County

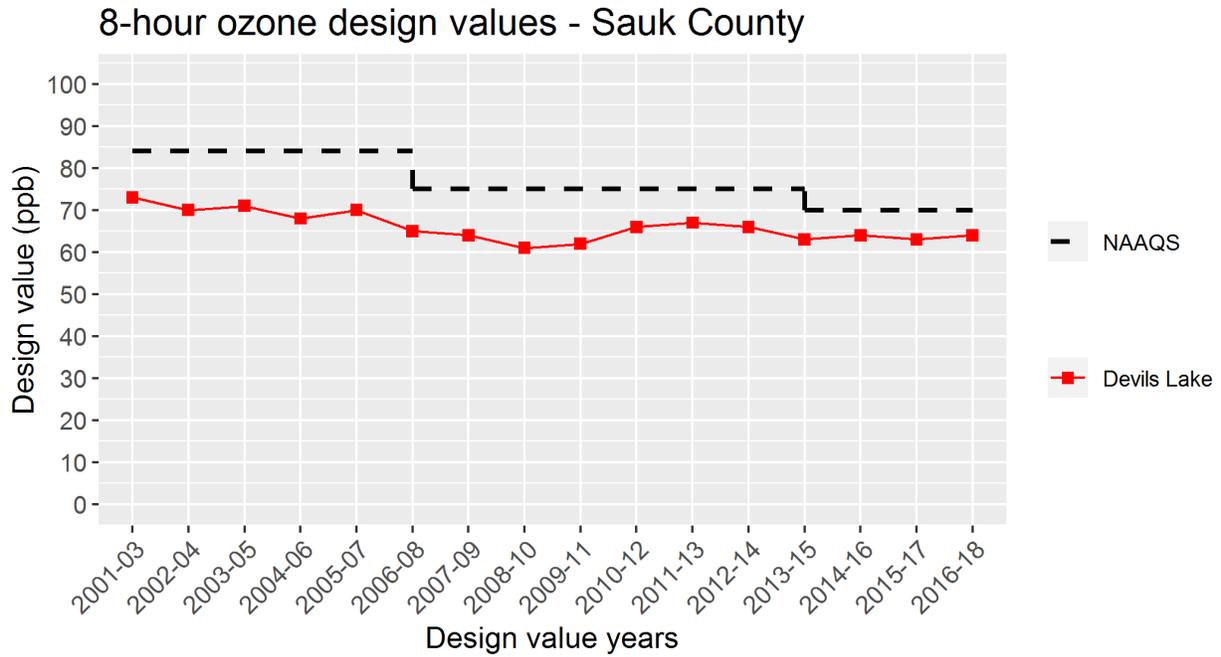
Ozone monitoring in Rock County is conducted at 1948 Merrill Street in Beloit. The site is located at the Cunningham School.



Wisconsin Air Quality Trends

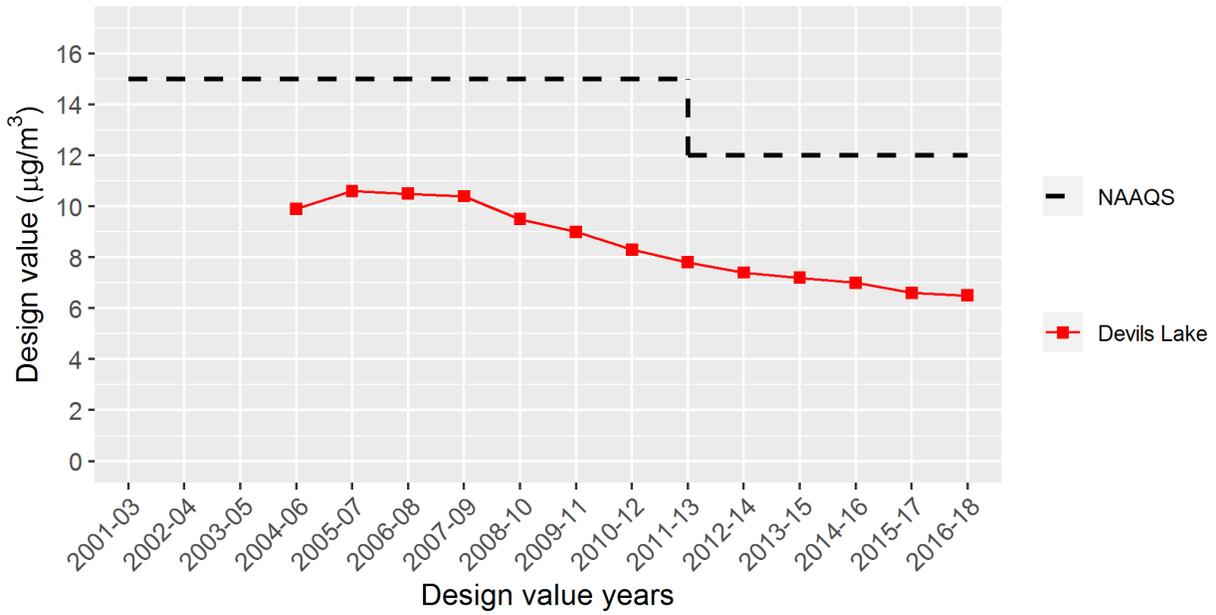
Sauk County

Monitoring for ozone, PM_{2.5}, and PM₁₀ in Sauk County takes place at Devils Lake State Park at E12886 Tower Road in Baraboo. In January 2018, the primary methods of measuring PM_{2.5} was switched from filter-based to continuous at this site. In April 2018, both filter-based PM_{2.5} monitors were shut down.

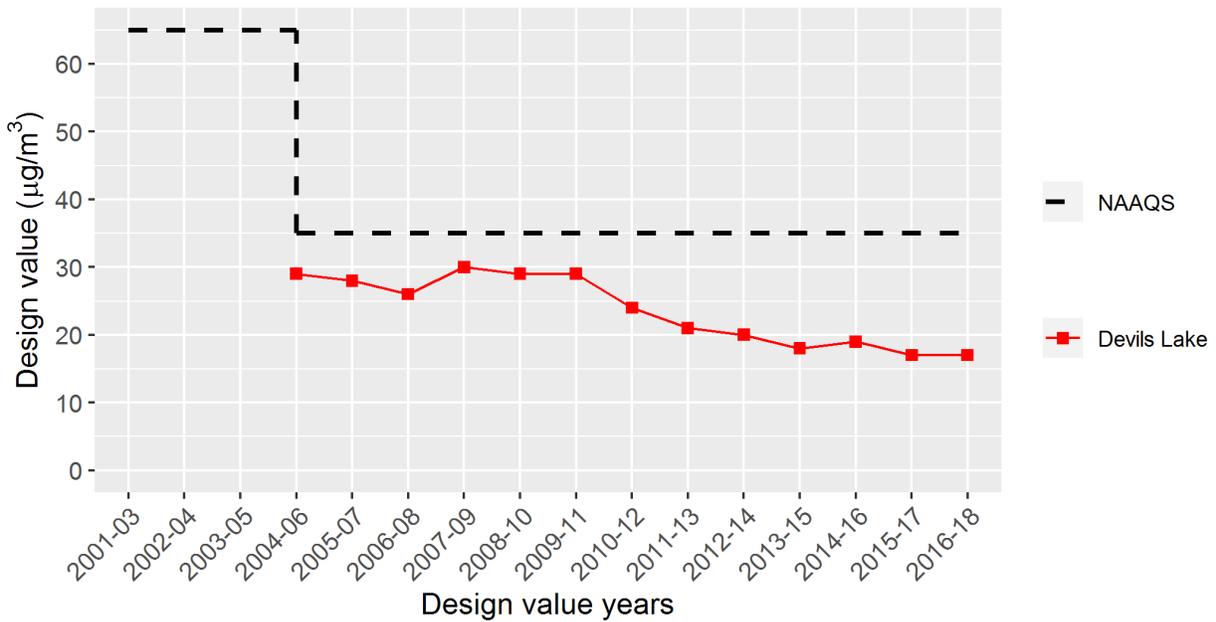


Wisconsin Air Quality Trends

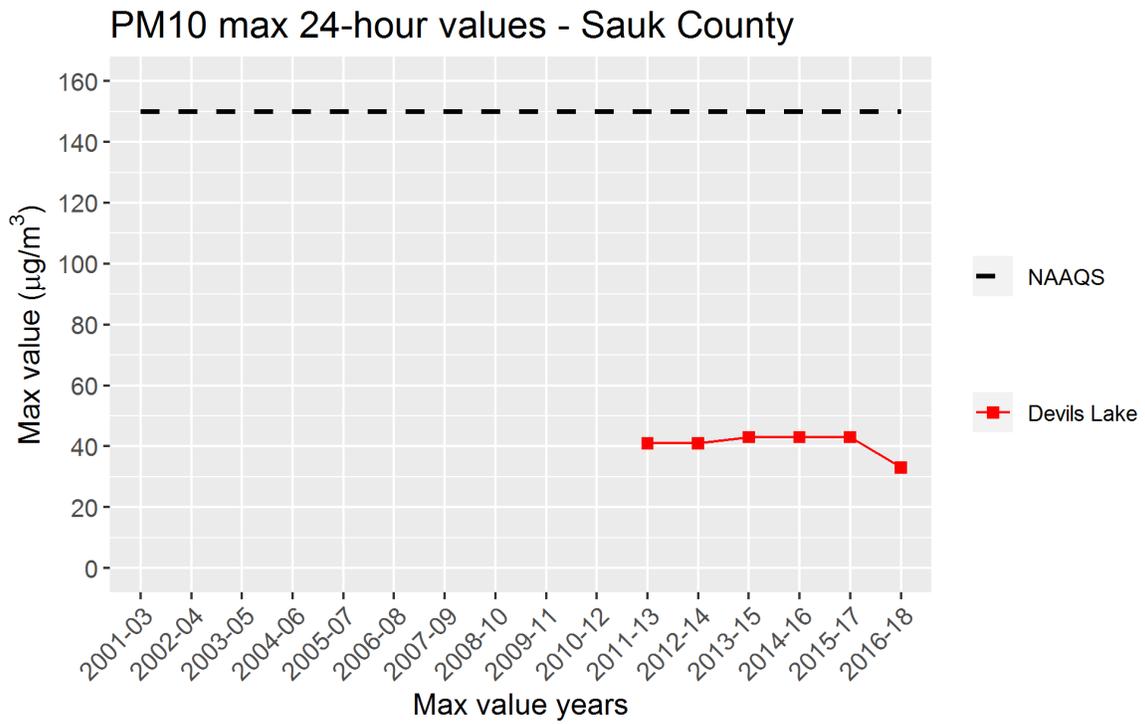
Annual PM2.5 design values - Sauk County



24-hour PM2.5 design values - Sauk County



Wisconsin Air Quality Trends

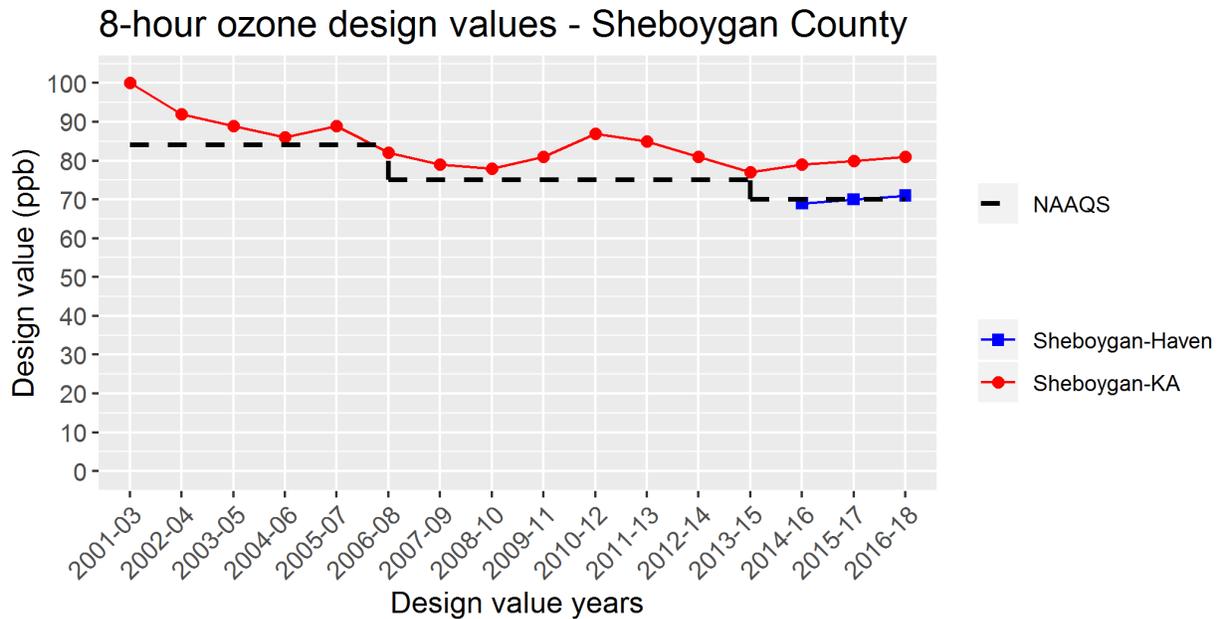


Wisconsin Air Quality Trends

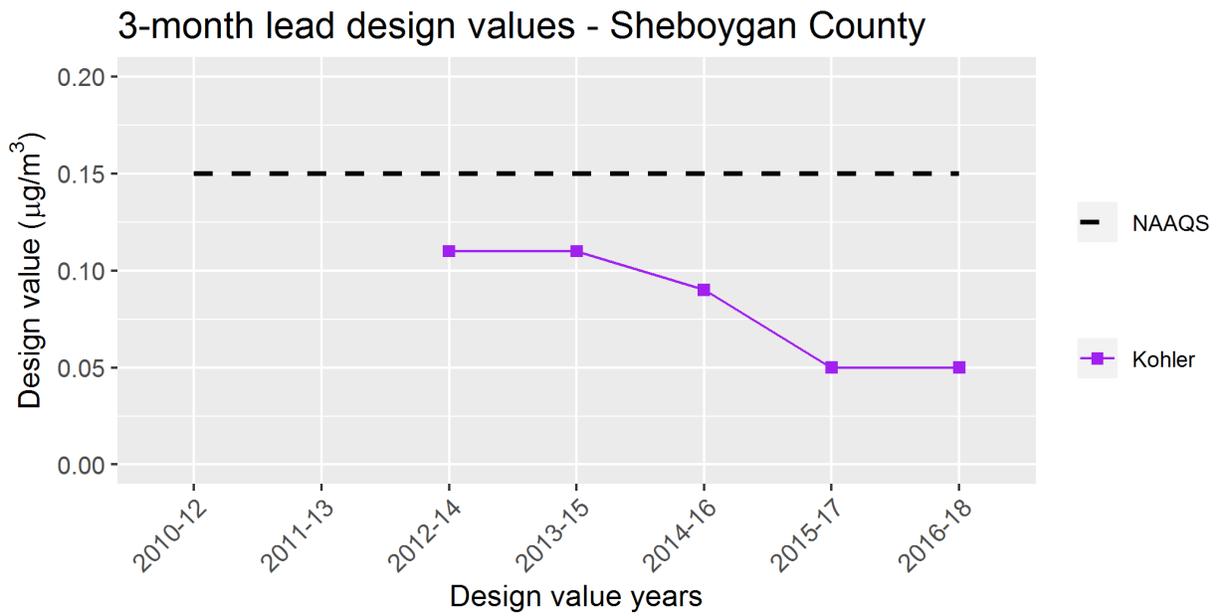
Sheboygan County

Ozone monitoring in Sheboygan County is performed at the Sanderling nature center within Kohler-Andrae State Park. This Lake Michigan shoreline site is located at 1520 Beach Park Road. A second ozone monitoring site was added during the 2014 ozone season (Sheboygan-Haven); it is located at N7563 Highway 42 near the intersection with County Road JJ. The special purpose Sheboygan-Haven monitoring site is located approximately three miles inland from the lakeshore. The Sheboygan Kohler-Andrae site is located directly on the Lake Michigan shoreline. Data gathered from the two sites is specifically used to help determine how much ozone decreases as one moves away from the lakeshore in Sheboygan County.

Lead monitoring in Sheboygan County began in December 2009 at the Kohler site. This source-oriented site is located at 444 Highland Drive at the Kohler Company fence line.



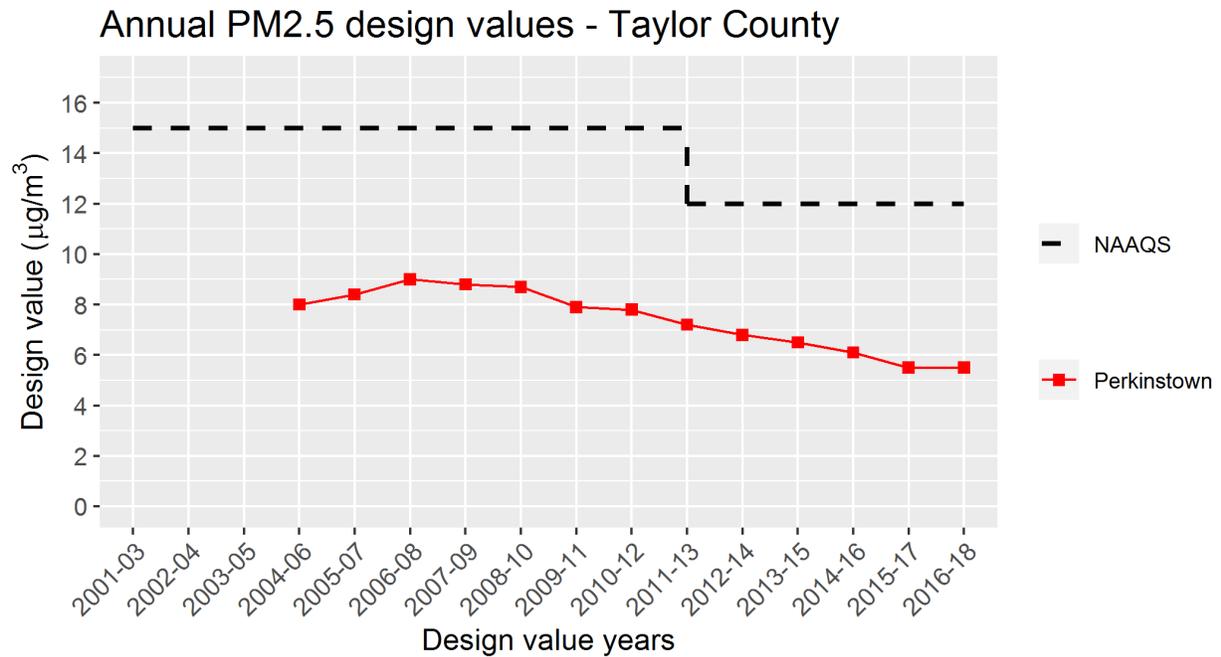
Wisconsin Air Quality Trends



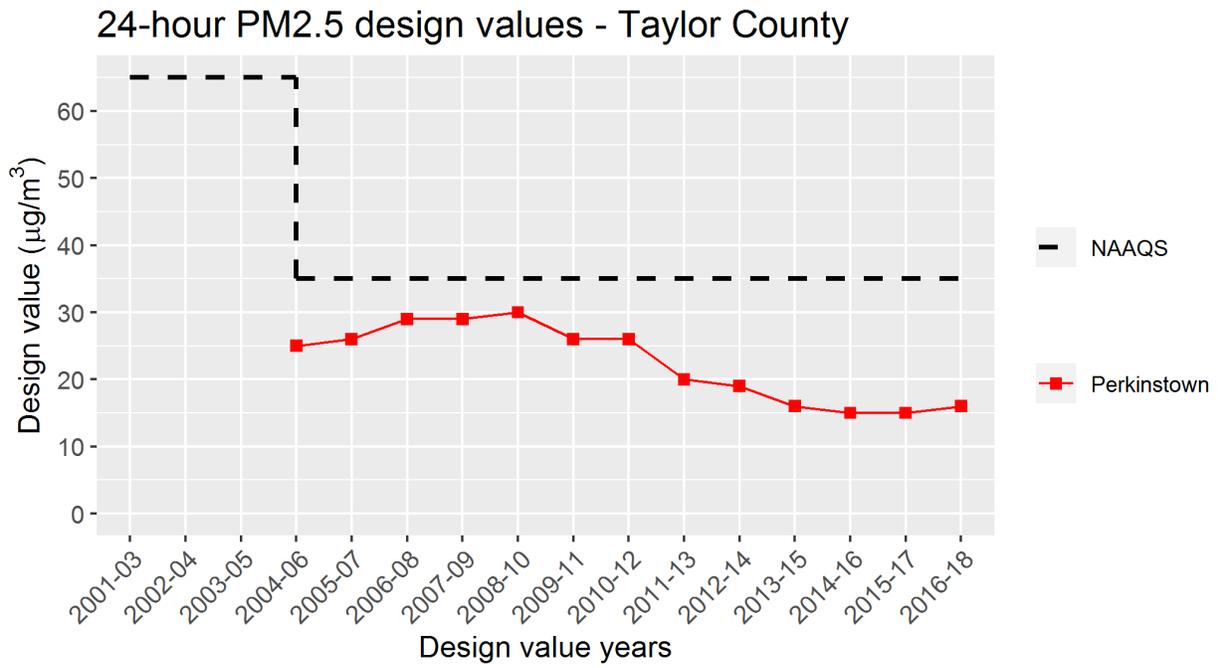
Wisconsin Air Quality Trends

Taylor County

Fine-particle monitoring in Taylor County takes place at W10746 County Highway M, a rural site one mile east of Perkinstown. In July 2018, the method of measuring continuous PM_{2.5} at this site was updated.



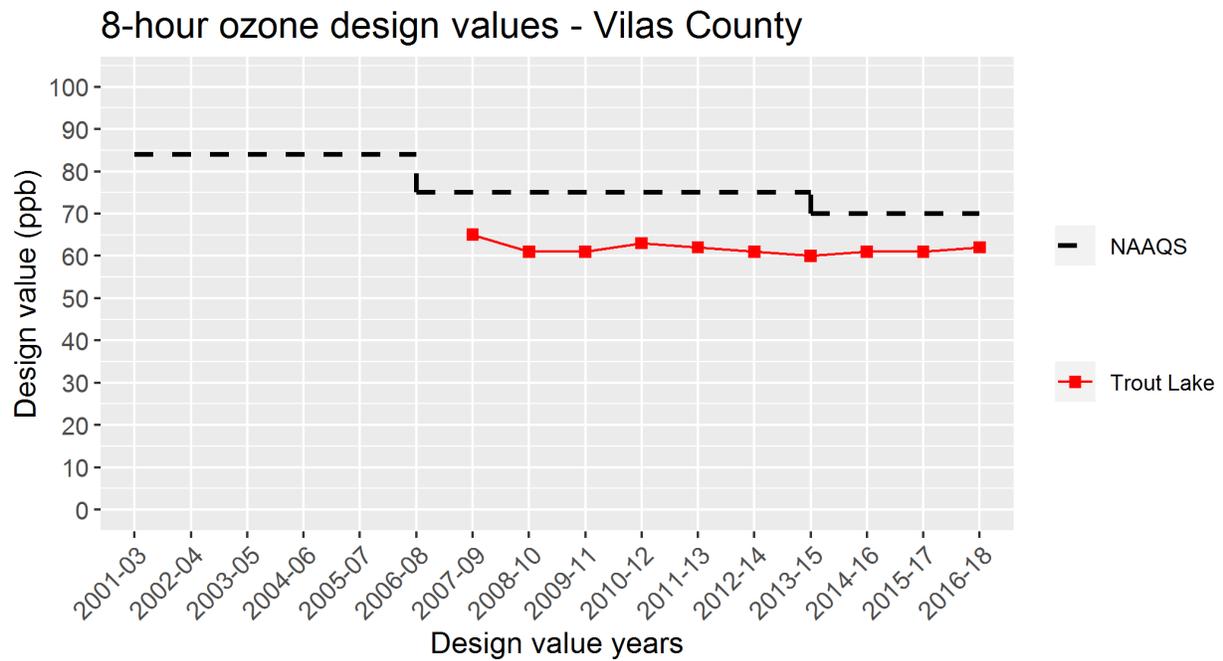
Wisconsin Air Quality Trends



Wisconsin Air Quality Trends

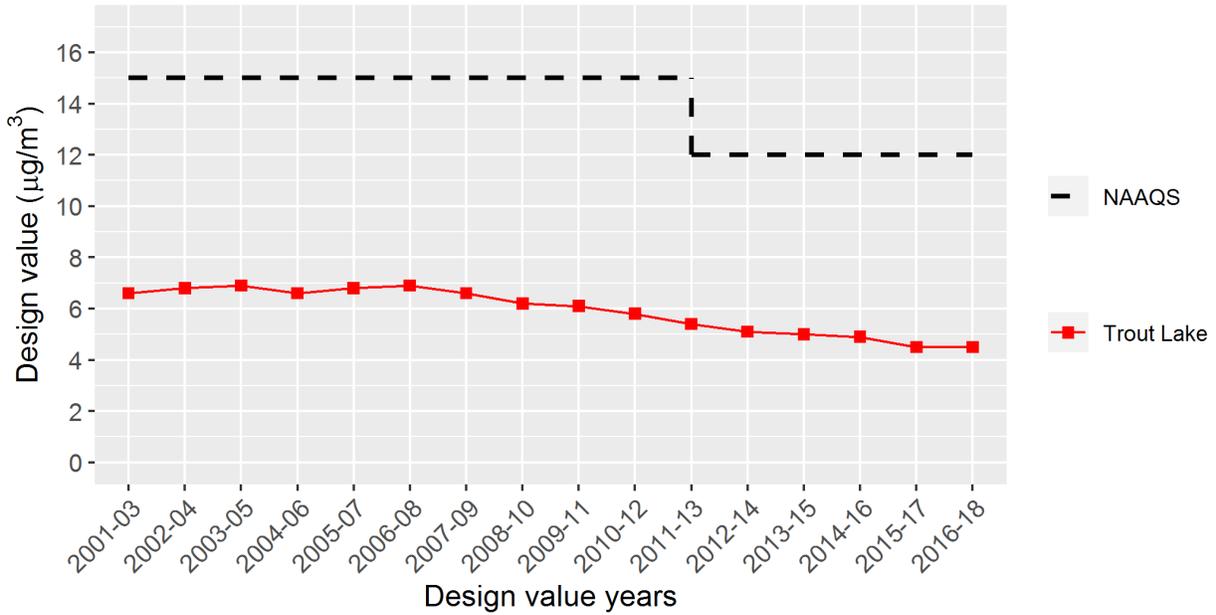
Vilas County

Monitoring for ozone and PM_{2.5} in Vilas County is conducted in a field at the DNR-University of Wisconsin Trout Lake Station at 10810 County Highway M in Boulder Junction. In July 2018, the method of measuring continuous PM_{2.5} at this site was updated.

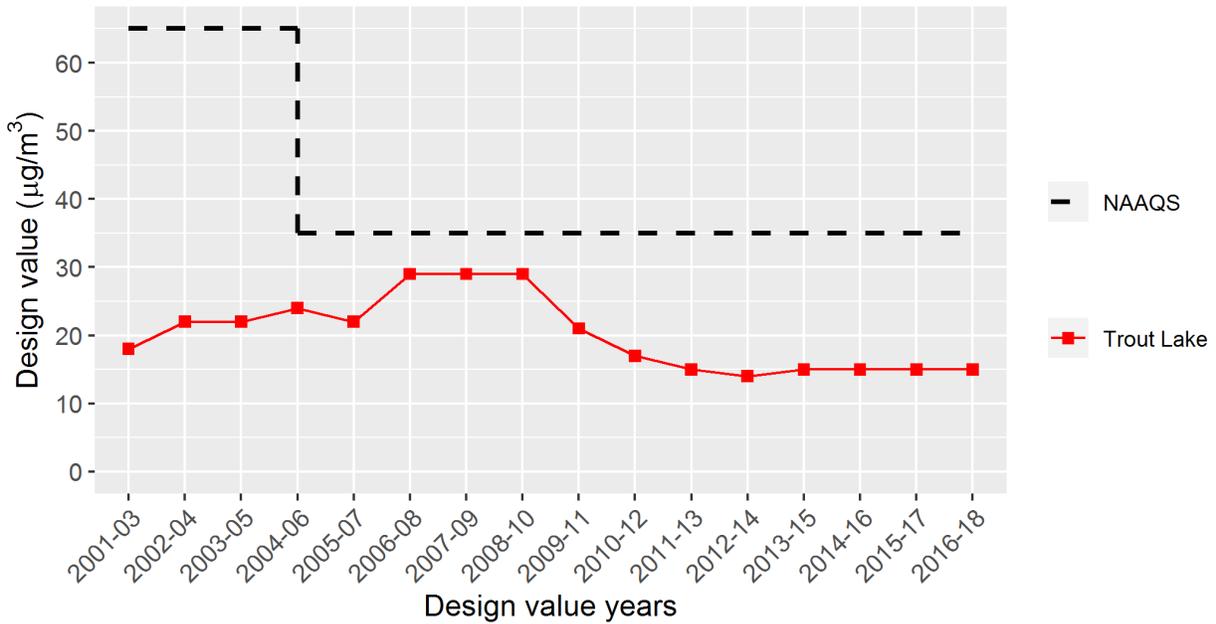


Wisconsin Air Quality Trends

Annual PM2.5 design values - Vilas County



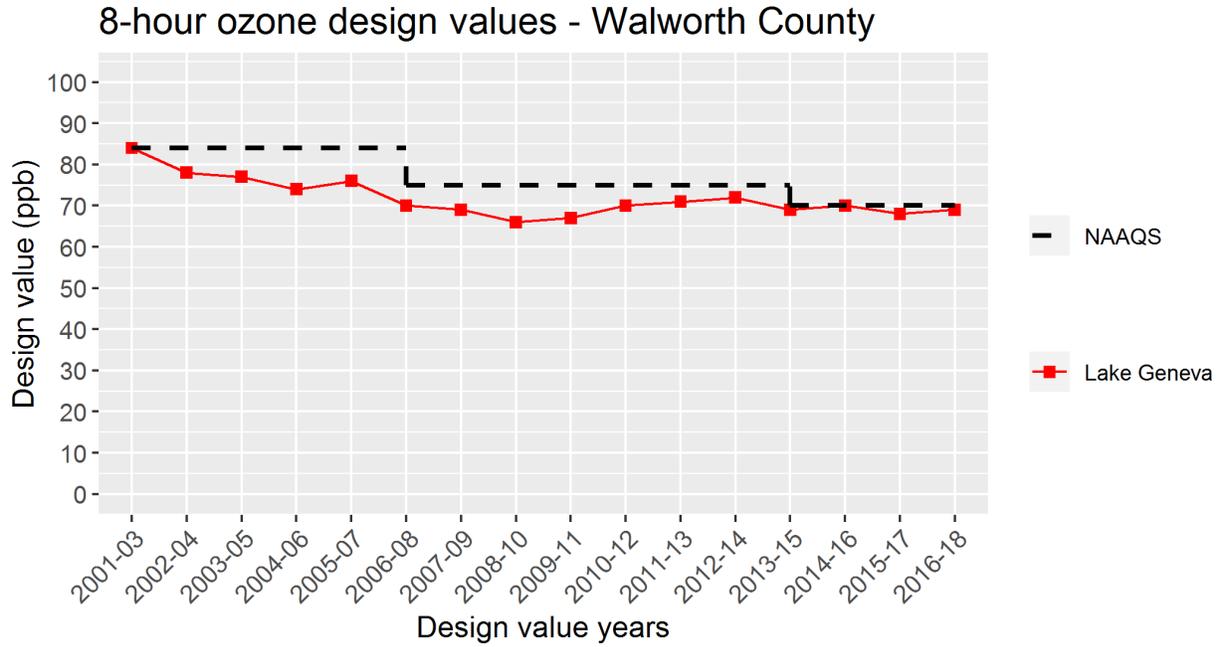
24-hour PM2.5 design values - Vilas County



Wisconsin Air Quality Trends

Walworth County

Ozone monitoring in Walworth County is performed at a rural site on the outskirts of the city of Lake Geneva. The address for the site is Rural Route 4 Elgin Club Road. In November 2018, this site was shut down. It will be moved to a new location in 2019.

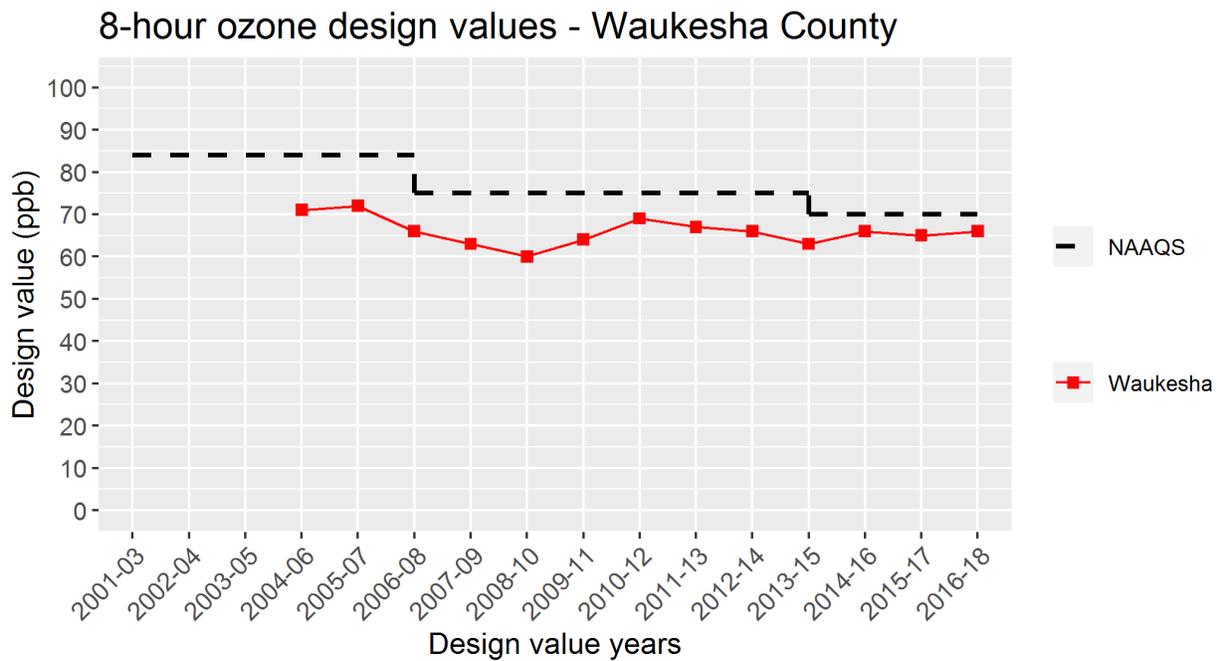


Wisconsin Air Quality Trends

Waukesha County

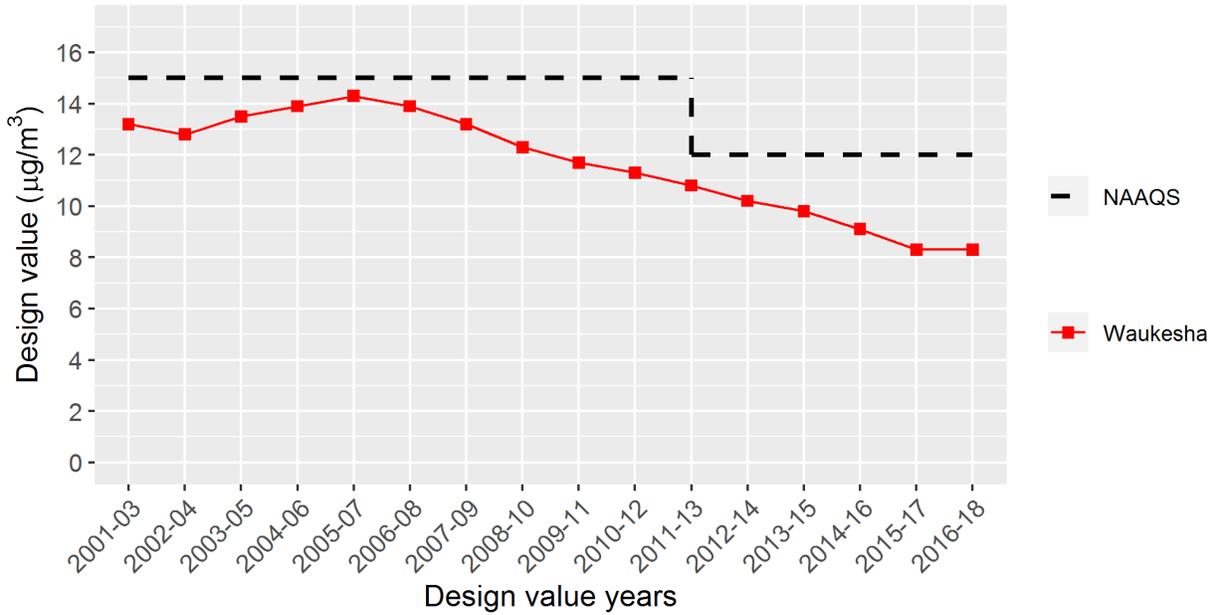
Monitoring for ozone, PM_{2.5}, and PM₁₀ in Waukesha County is conducted at 1310 Cleveland Avenue in the city of Waukesha. Sampling for concentrations of ozone and PM_{2.5} began on April 29, 2004 and January 22, 2004, respectively. Prior to these dates, sampling for ozone in Waukesha County was performed at a site on the Carroll College campus.

In January 2018, the primary method of measuring PM_{2.5} was switched from filter-based to continuous at the Waukesha site. In April 2018, filter-based PM_{2.5} sampling was discontinued. In July 2018, the method of measuring continuous PM_{2.5} was updated. At this time, filter-based PM₁₀ monitoring was also discontinued, and continuous PM₁₀ monitoring added to the site.

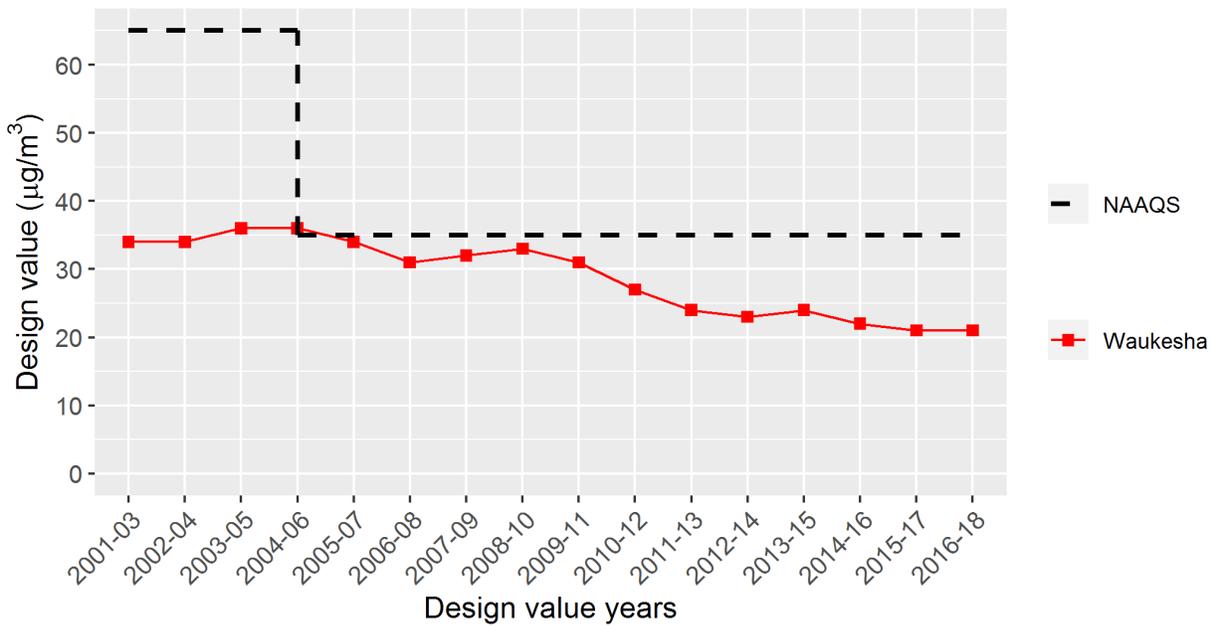


Wisconsin Air Quality Trends

Annual PM2.5 design values - Waukesha County



24-hour PM2.5 design values - Waukesha County



Wisconsin Air Quality Trends

