

## Wisconsin Department of Natural Resources

### 2020 Wisconsin Air Quality Trends by County

Data from 2001-2019

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# Wisconsin Air Quality Trends

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## **Disclaimer**

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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 <sub>2</sub>	Nitrogen dioxide
PM <sub>2.5</sub>	Fine particles (particles 2.5 micrometers or smaller in size)
PM <sub>10</sub>	Inhalable particles (particles 10 micrometers or smaller in size)
ppb	Parts per billion
ppm	Parts per million
SO <sub>2</sub>	Sulfur dioxide
µg/m <sup>3</sup>	Microgram per cubic meter

# Wisconsin Air Quality Trends

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## Air quality by county

This document is a companion to the 2020 Wisconsin Air Quality Trends Report (AM-583 2020; available at <https://dnr.wi.gov/topic/AirQuality/Trends.html>). The Trends Report introduces criteria pollutants and National Ambient Air Quality Standards (NAAQS) and provides emissions data on pollutants and precursors along with regional and statewide air quality trends. This document presents county-level graphs of air quality trends associated with criteria pollutants compared to the NAAQS.

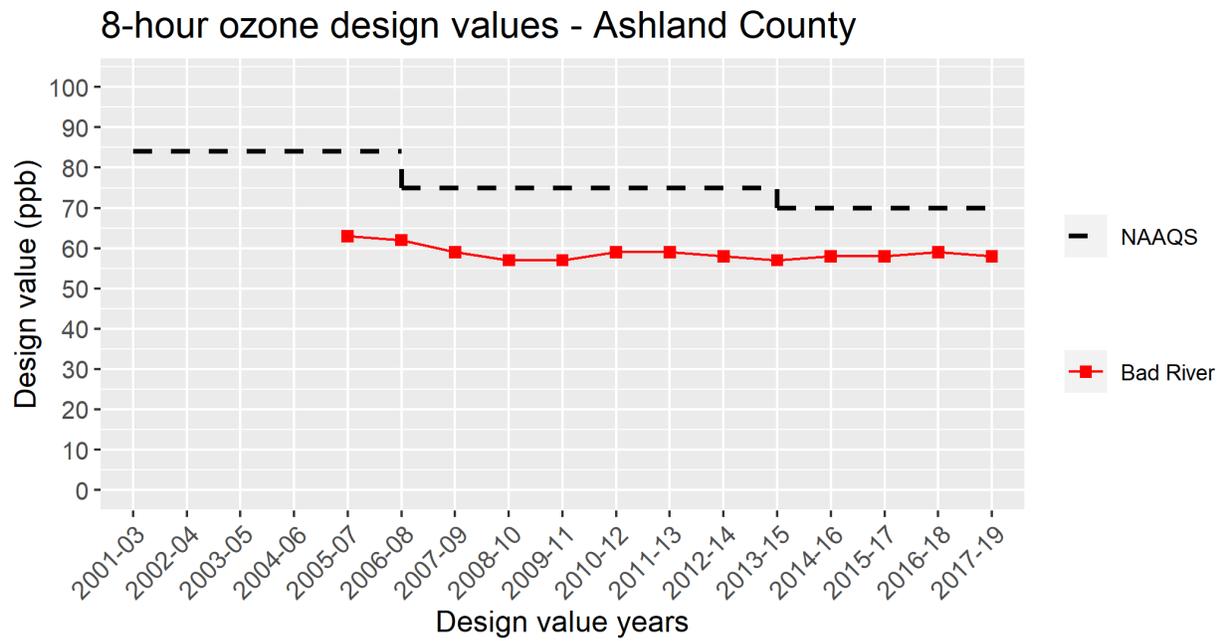
This document displays pollution concentrations as design values. The Environmental Protection Agency (EPA) uses design values to assess compliance with the NAAQS. Design values represent data collected over periods defined to represent typical pollutant concentrations rather than isolated concentration spikes. Annually, EPA updates the Air Quality Design Values webpage (<https://www.epa.gov/air-trends/air-quality-design-values>) to include the most recent design values. More information about the calculation of design values, including examples, can be found in the [Trends Report](#).

This document with the Trends Report presents data from active air monitoring sites operated by the Wisconsin Department of Natural Resources (DNR) or tribal partners. If a design value period does not have data, it is likely due to data completeness issues.

# Wisconsin Air Quality Trends

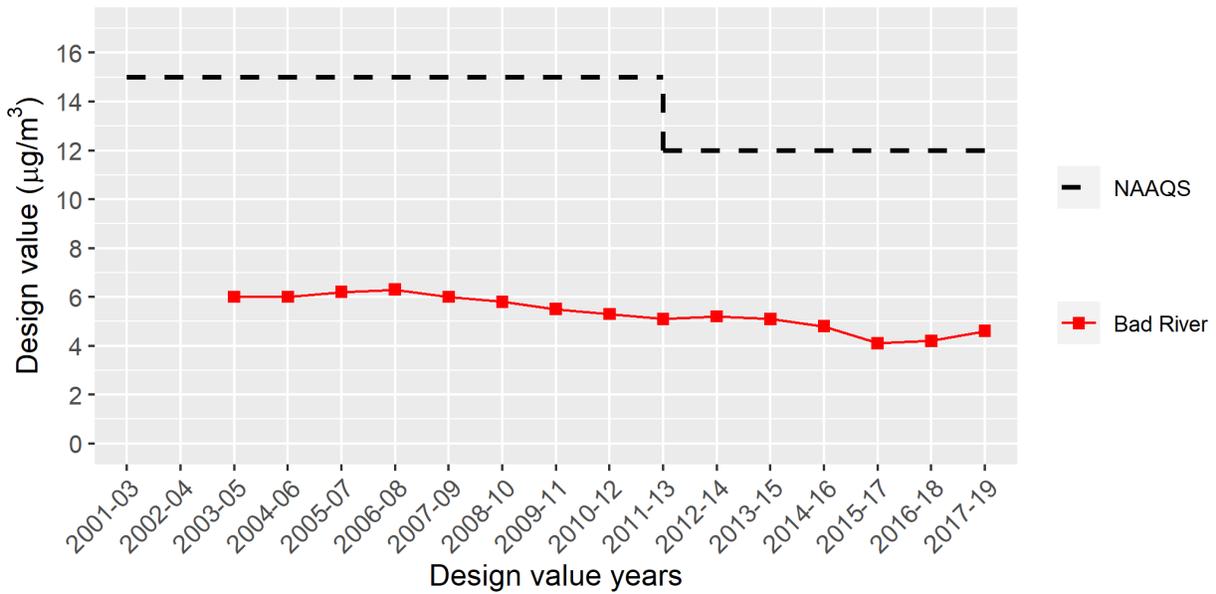
## Ashland County

The Bad River Tribe monitors ozone and fine particulates (PM<sub>2.5</sub>) in Ashland County at the Bad River site located at 10 Birch Street in Odanah.

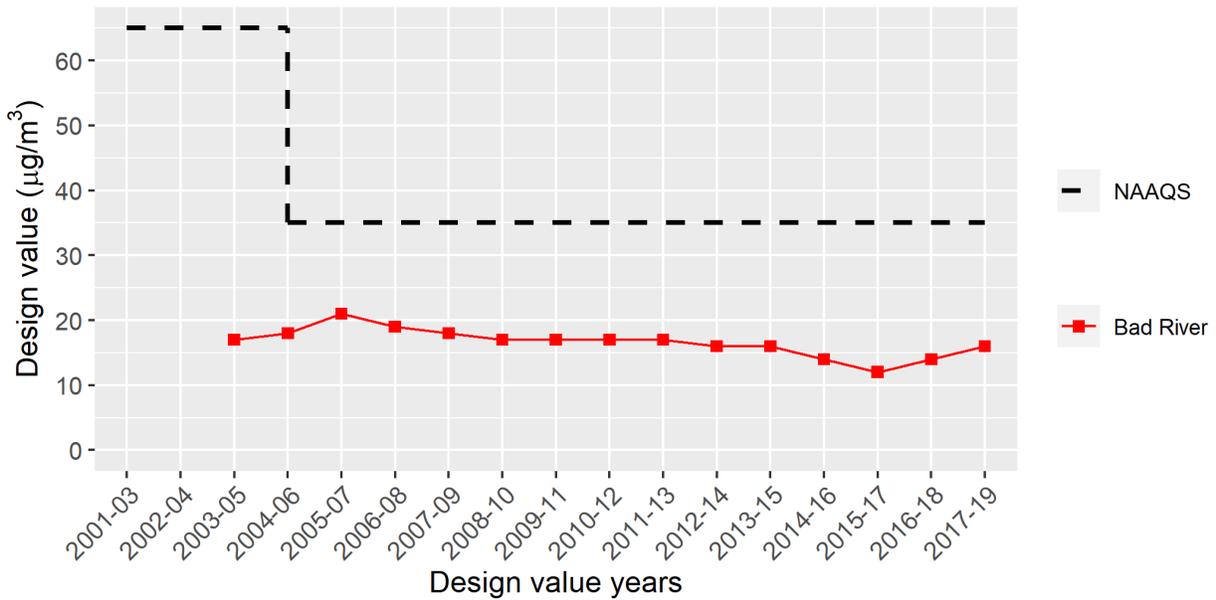


# Wisconsin Air Quality Trends

## Annual PM2.5 design values - Ashland County



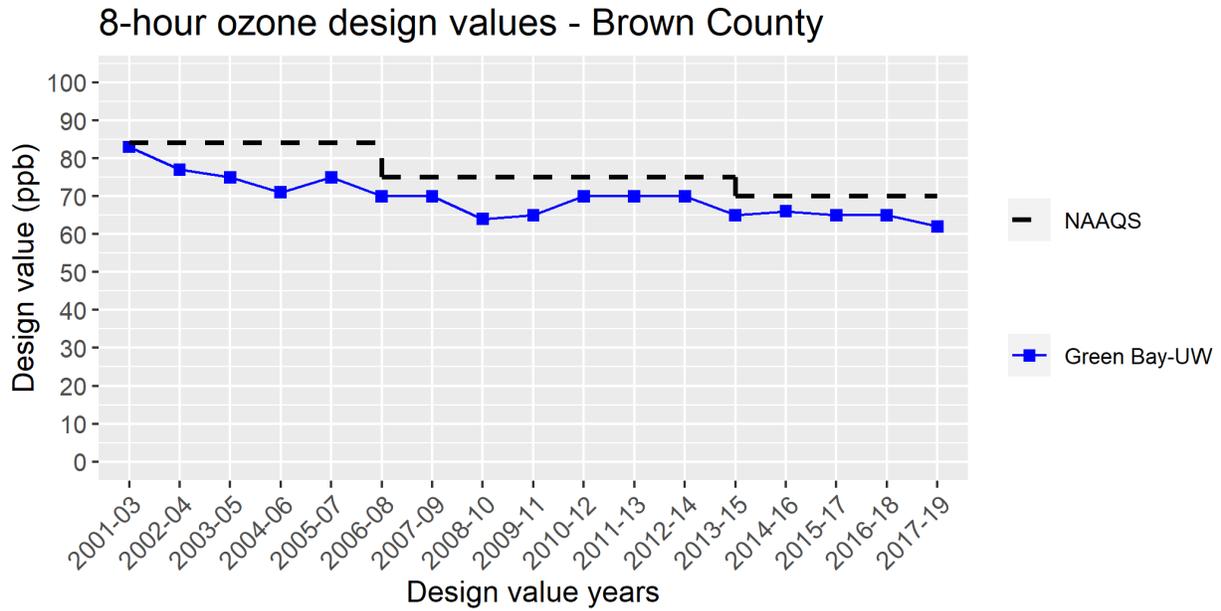
## 24-hour PM2.5 design values - Ashland County



# Wisconsin Air Quality Trends

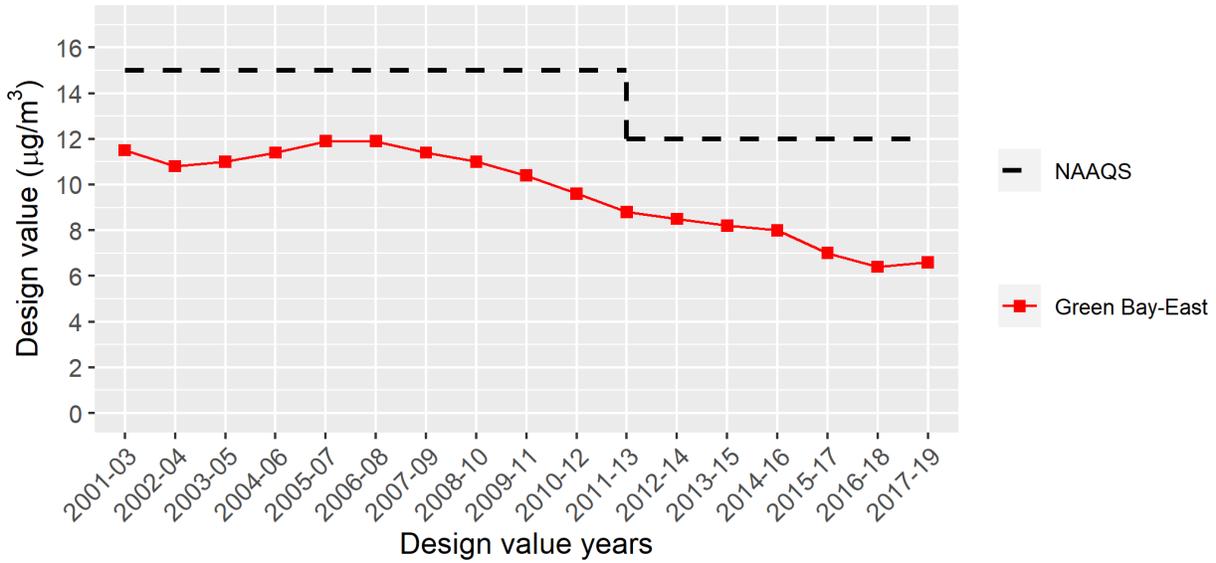
## Brown County

The DNR monitors ozone in Brown County at the Green Bay – UW site north of Highways 54 and 57. The DNR monitors PM<sub>2.5</sub> and sulfur dioxide (SO<sub>2</sub>) at the Green Bay – East site located at 1415 East Walnut Street. In July 2019 the method of measuring continuous PM<sub>2.5</sub> at this site changed.

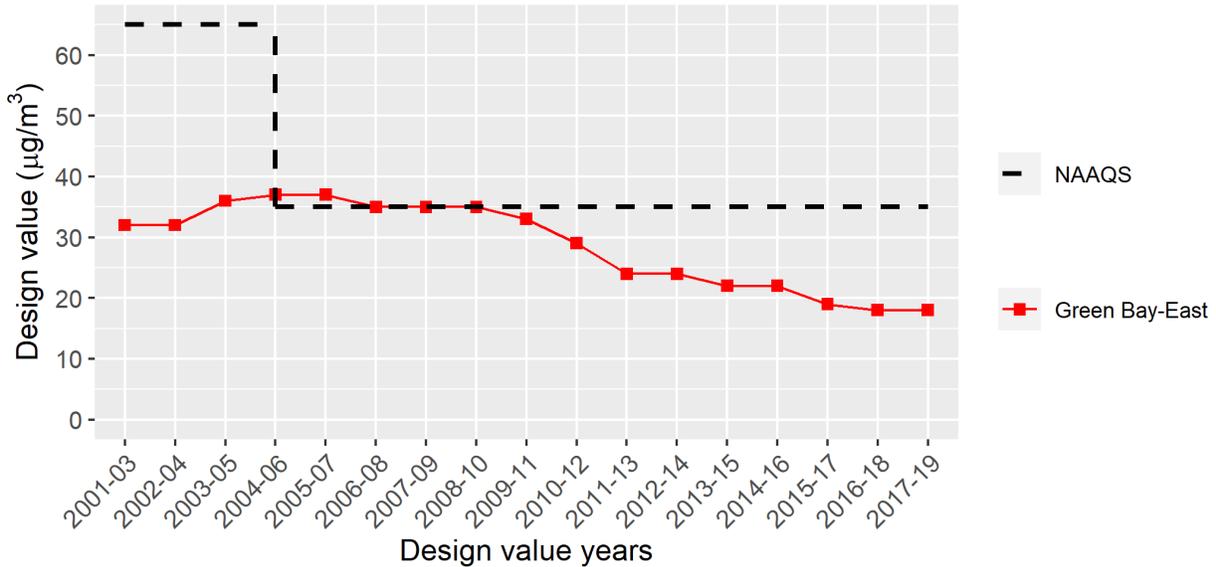


# Wisconsin Air Quality Trends

## Annual PM2.5 design values - Brown County

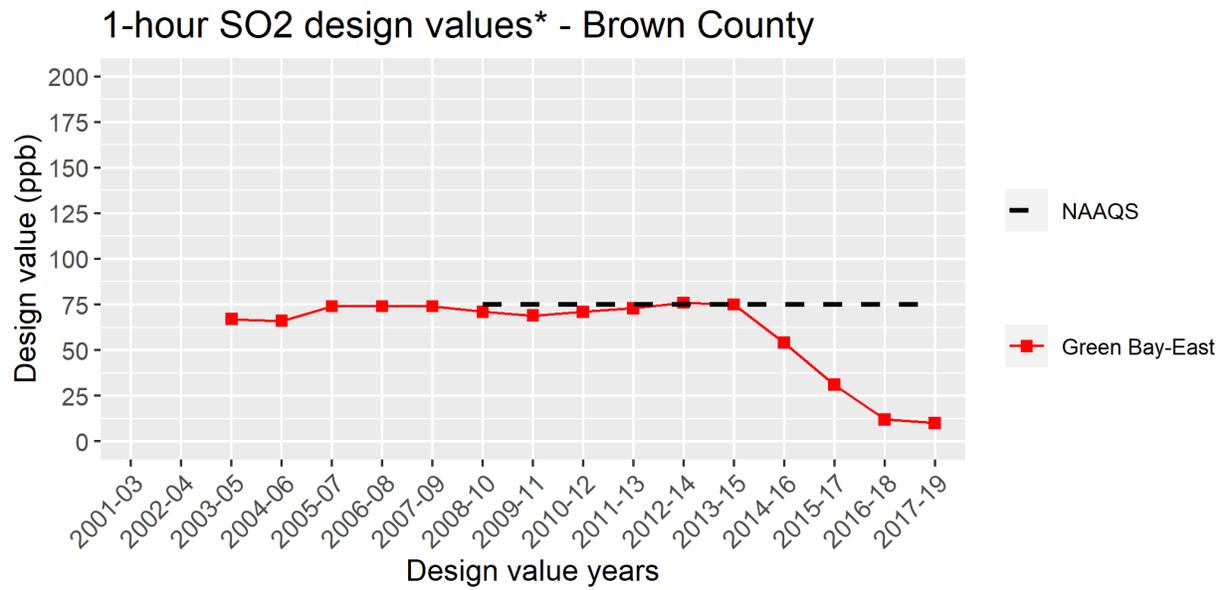


## 24-hour PM2.5 design values - Brown County



# Wisconsin Air Quality Trends

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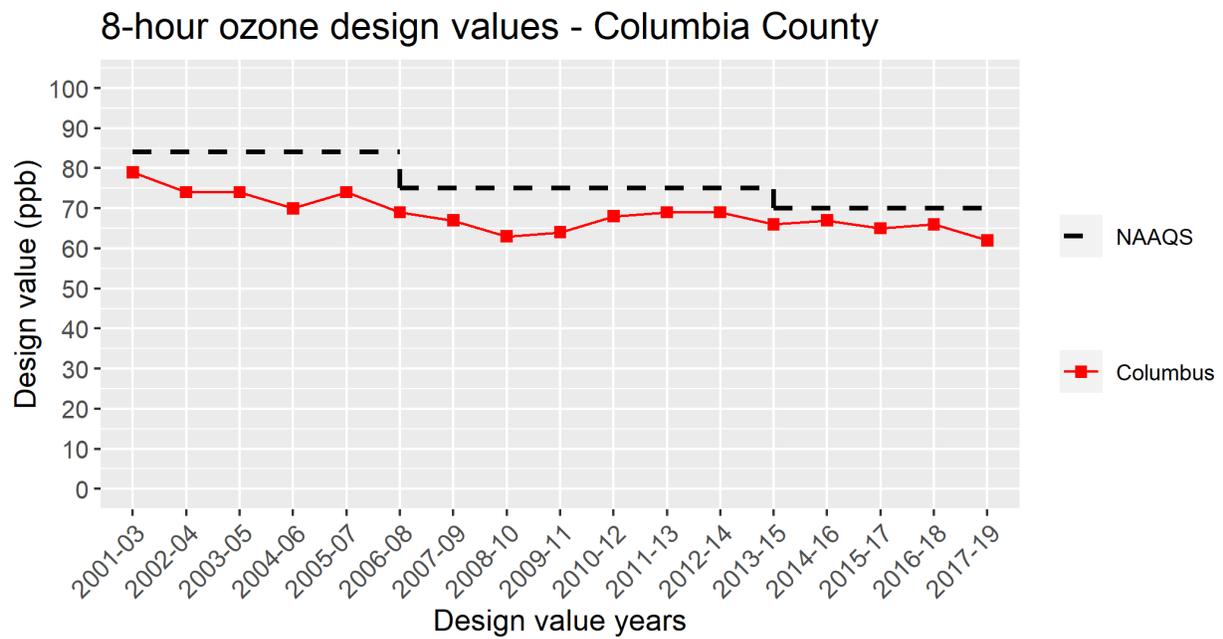


\*In 2010, EPA established a 1-hr SO<sub>2</sub> standard that replaced the previous annual and 24-hr standards.

# Wisconsin Air Quality Trends

## Columbia County

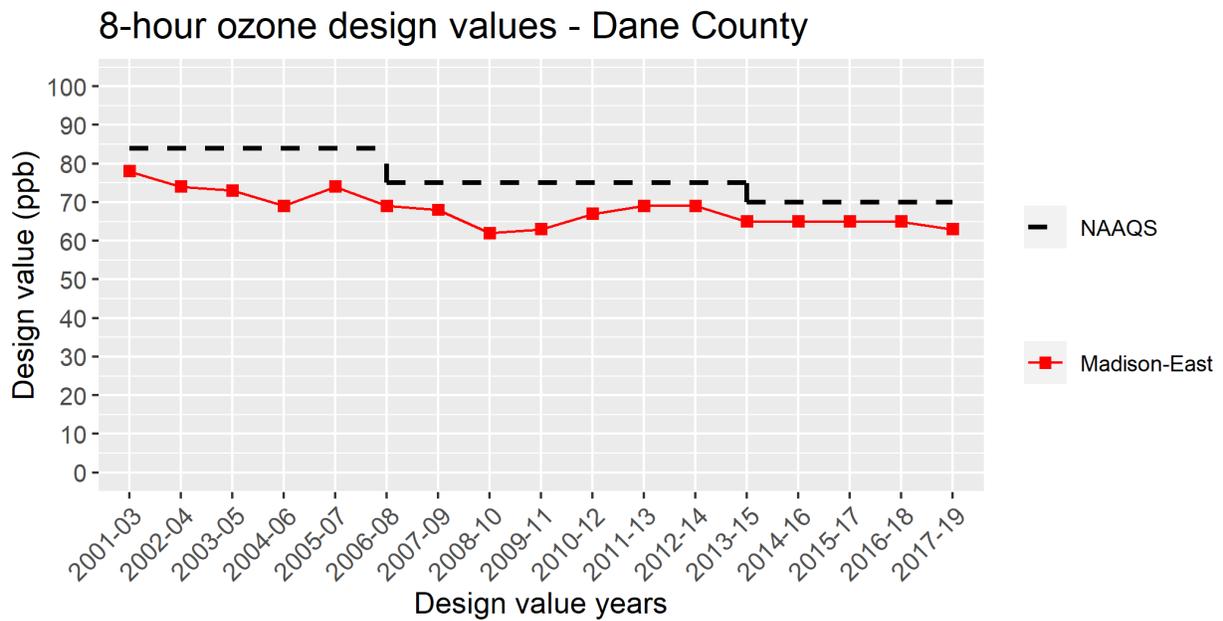
The DNR monitors ozone in Columbia County at N 1045 Wendt Road, a rural location in Columbus Township. This location serves as the downwind ozone site in the Madison Core Based Statistical Area.



# Wisconsin Air Quality Trends

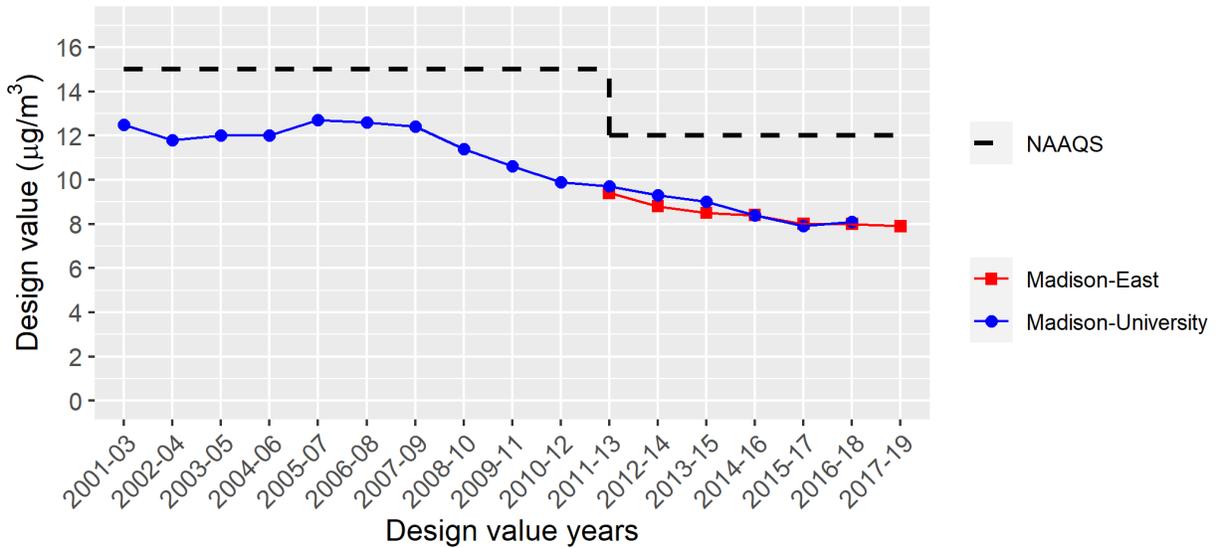
## Dane County

The DNR monitors ozone in Dane County at the Madison-East site, located at 2302 North Hoard Street, next to the Madison East High School sports field. The DNR monitors PM<sub>2.5</sub> at the Madison – East site and the Madison – University site, located at 2757 University Avenue. Data completeness issues for PM<sub>2.5</sub> in 2019 resulted in an invalid design value for 2017-2019; therefore, the graphs do not include a design value for that period. Monitoring of inhalable particles (PM<sub>10</sub>) takes place at the Madison-University Avenue site. Sulfur dioxide monitoring restarted at the Madison-East site in 2013.

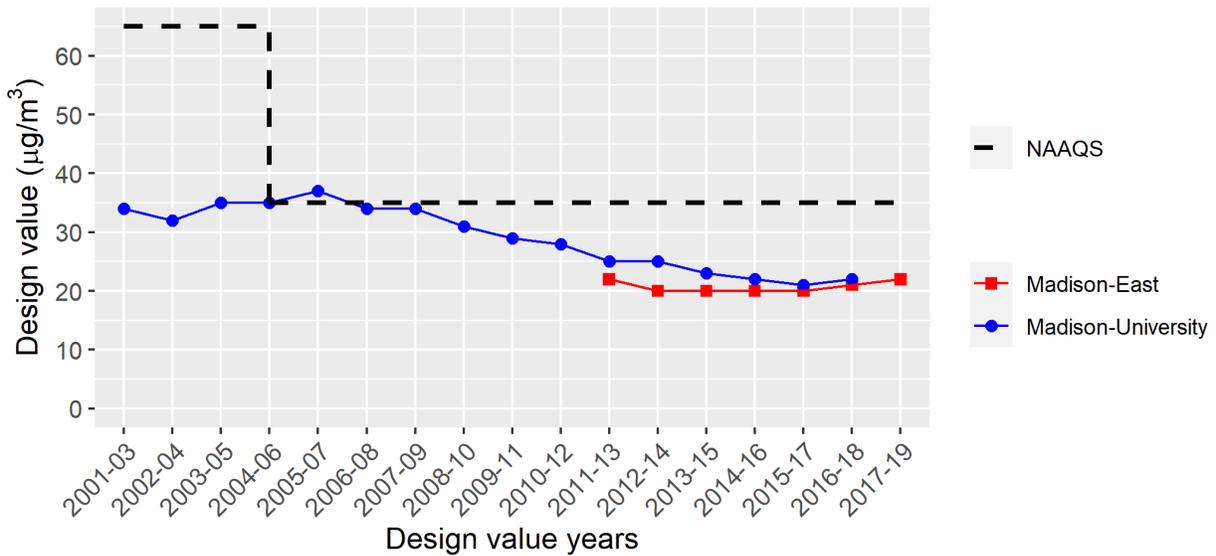


# Wisconsin Air Quality Trends

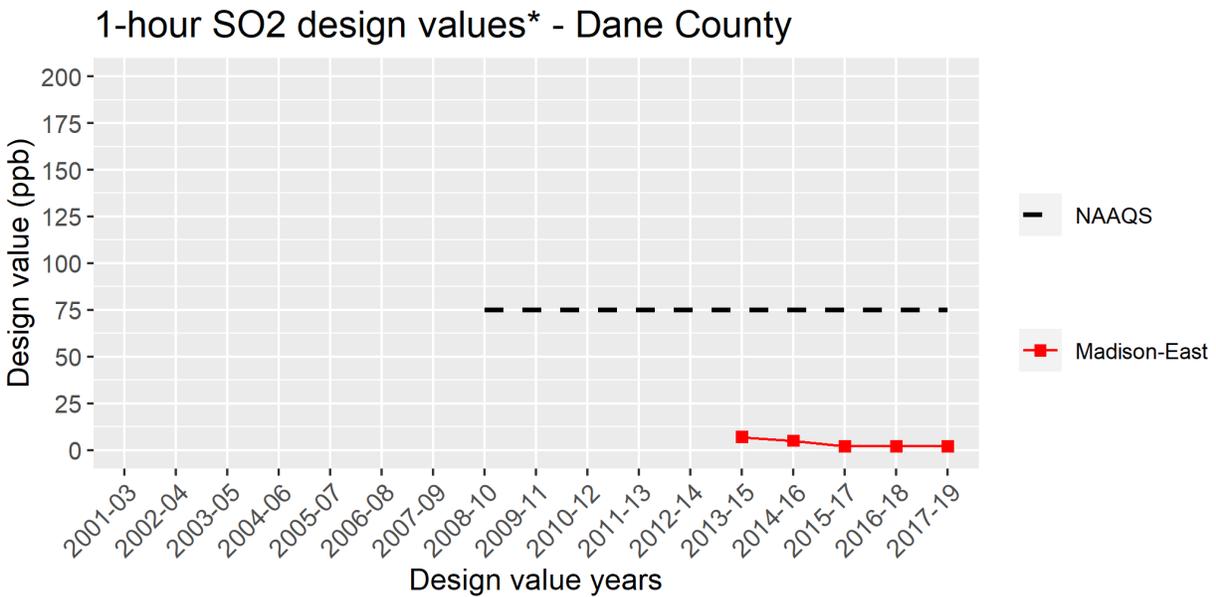
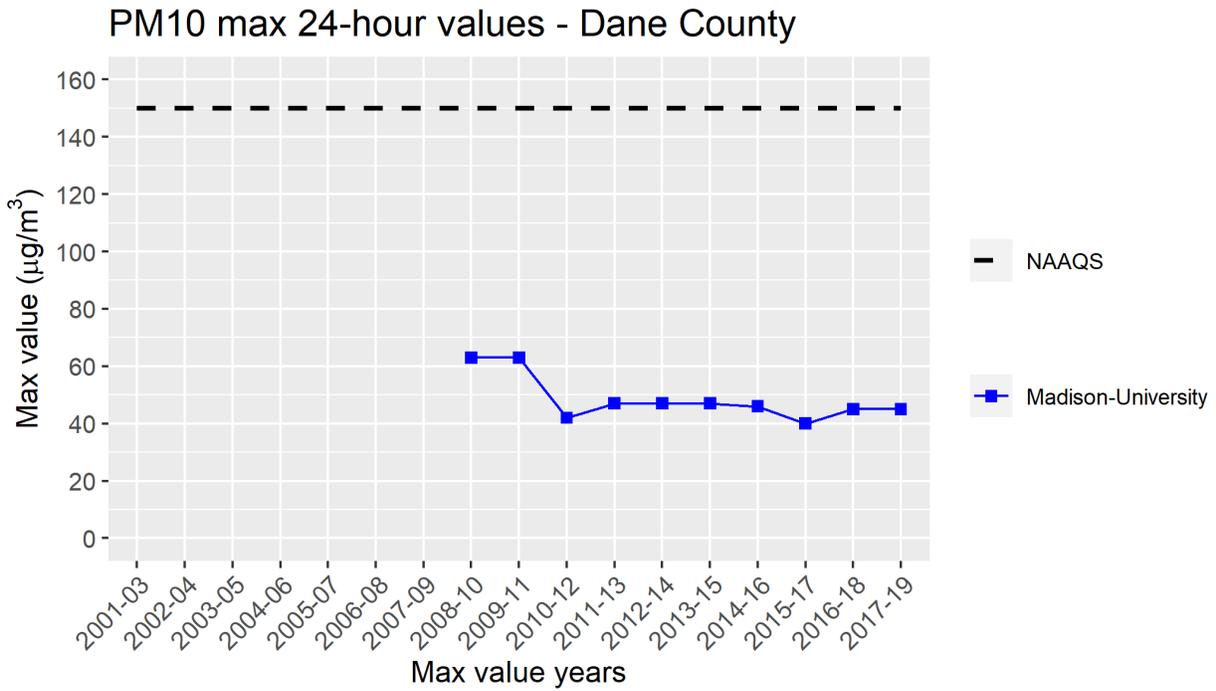
## Annual PM2.5 design values - Dane County



## 24-hour PM2.5 design values - Dane County



# Wisconsin Air Quality Trends

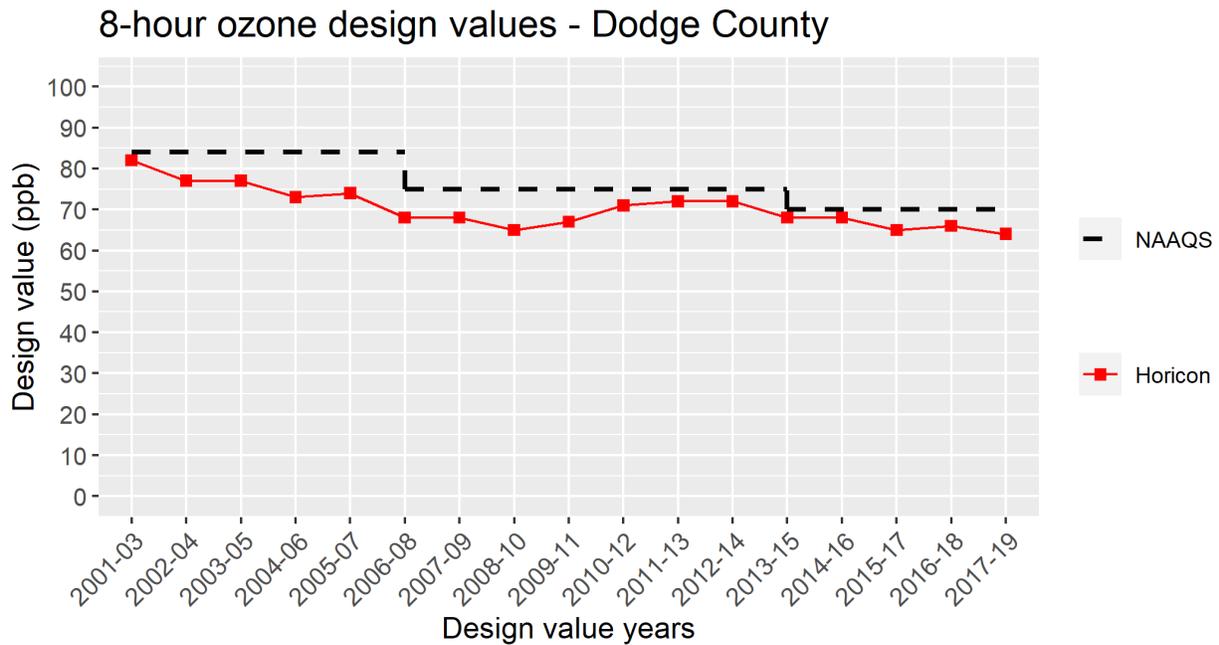


\*In 2010, EPA established a 1-hr SO<sub>2</sub> standard that replaced the previous annual and 24-hr standards.

# Wisconsin Air Quality Trends

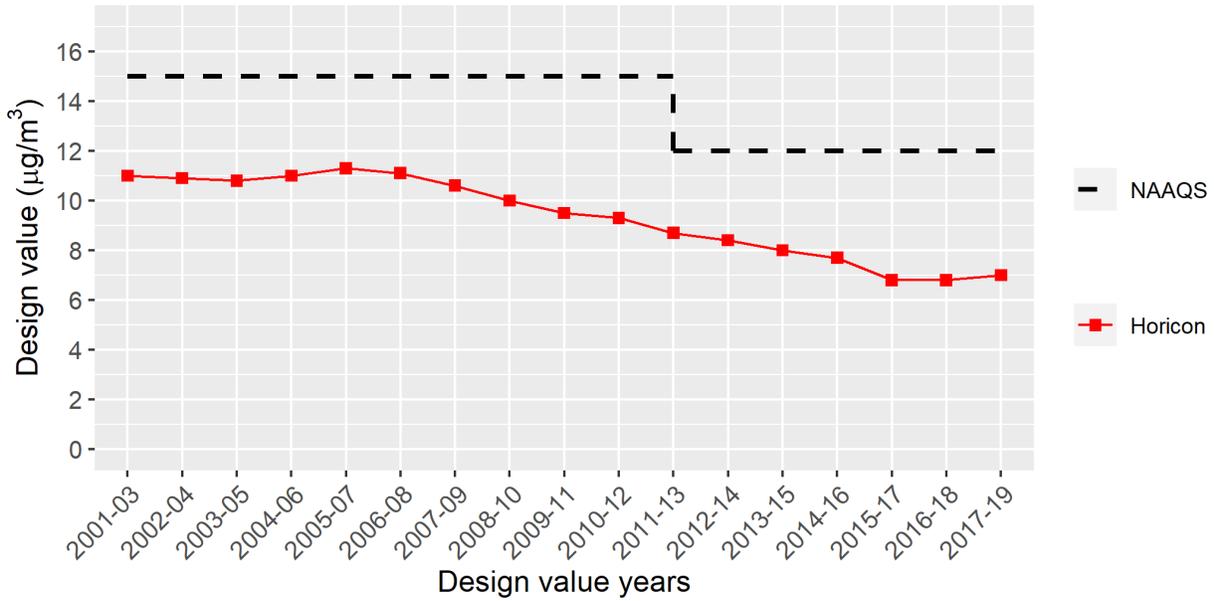
## Dodge County

The DNR monitors ozone, PM<sub>2.5</sub>, PM<sub>10</sub>, SO<sub>2</sub>, and carbon monoxide (CO) in Dodge County at the Horicon site located in the Horicon Wildlife Area at 1210 North Palmatory Street. Ozone sampling began here January 22, 2010 and 24-hr PM<sub>2.5</sub> sampling began on December 18, 2009. Prior to these dates, pollution monitoring in Dodge County occurred at a site near Mayville. Design values for 2008-2010, 2009-2011, and 2010-2012 use data from both sites.

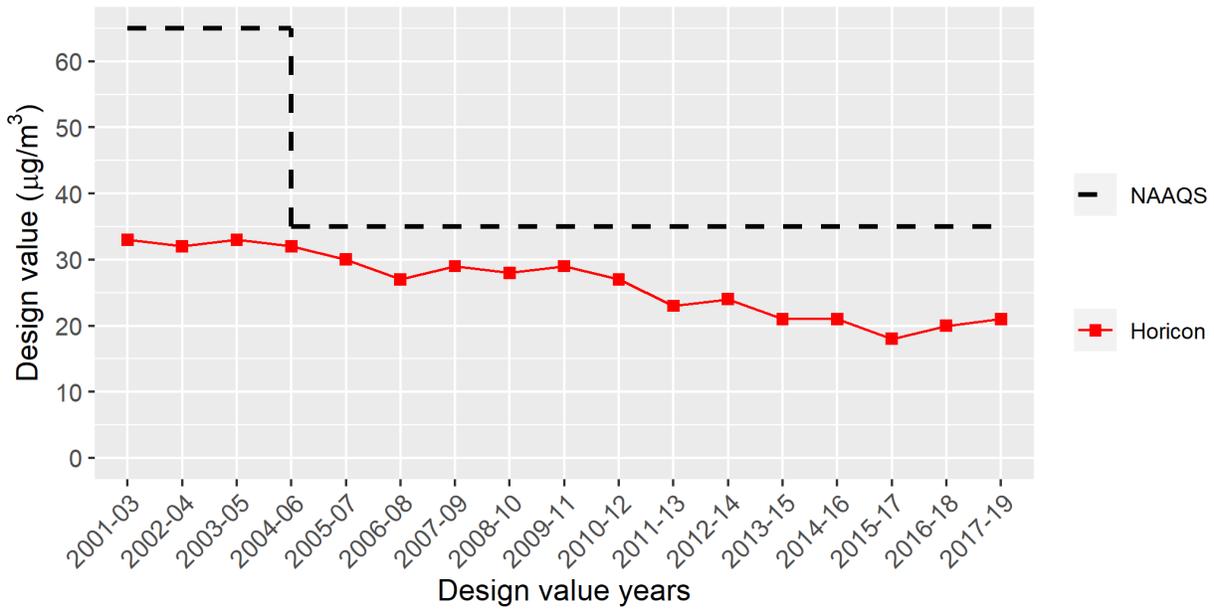


# Wisconsin Air Quality Trends

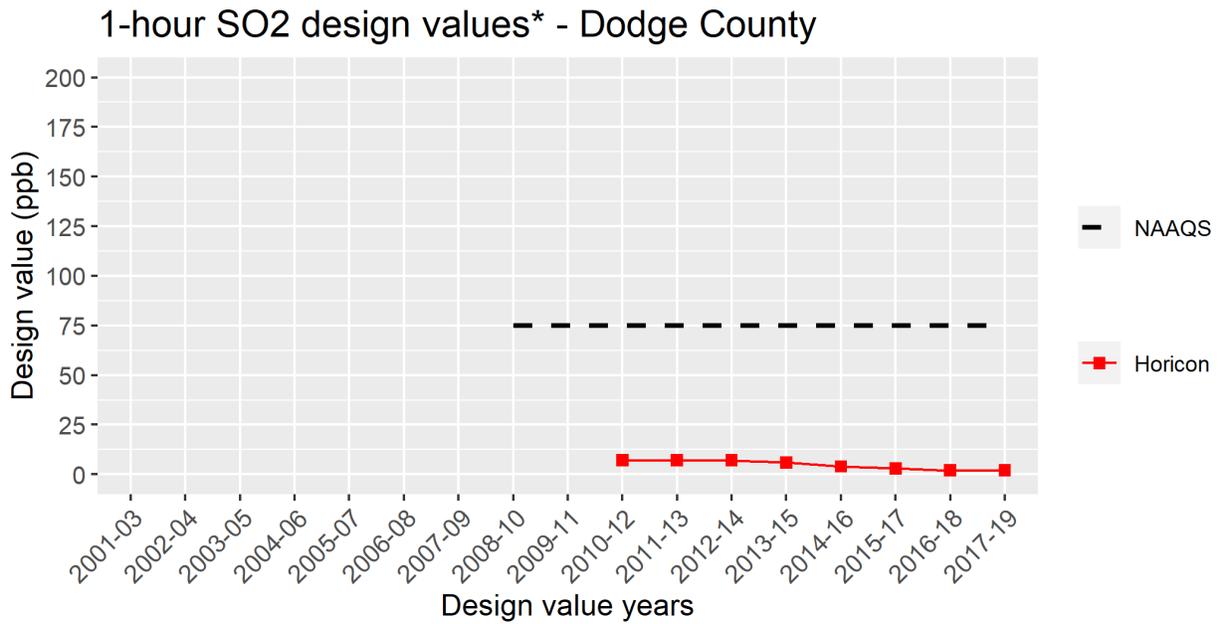
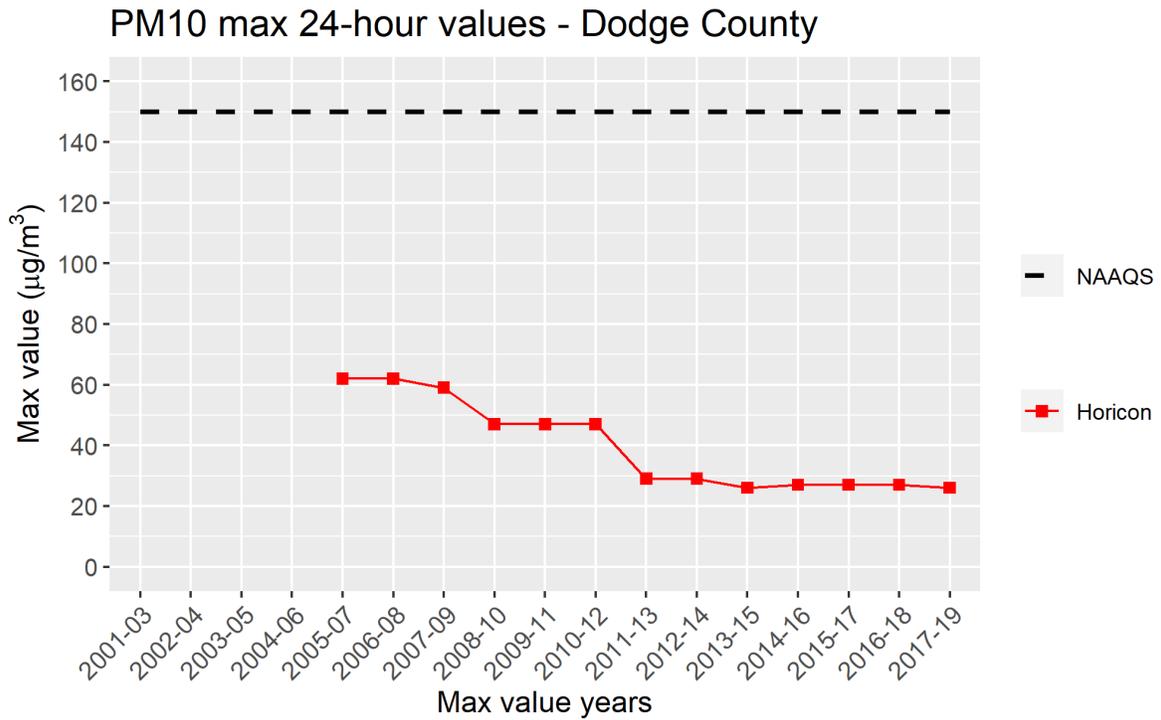
## Annual PM2.5 design values - Dodge County



## 24-hour PM2.5 design values - Dodge County



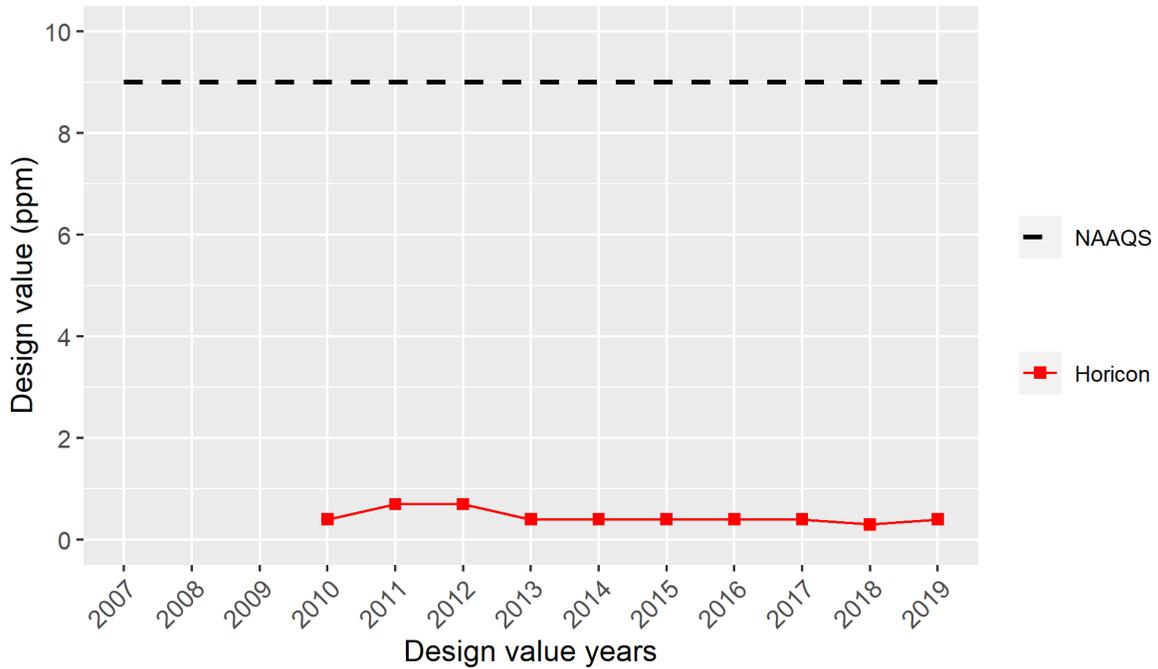
# Wisconsin Air Quality Trends



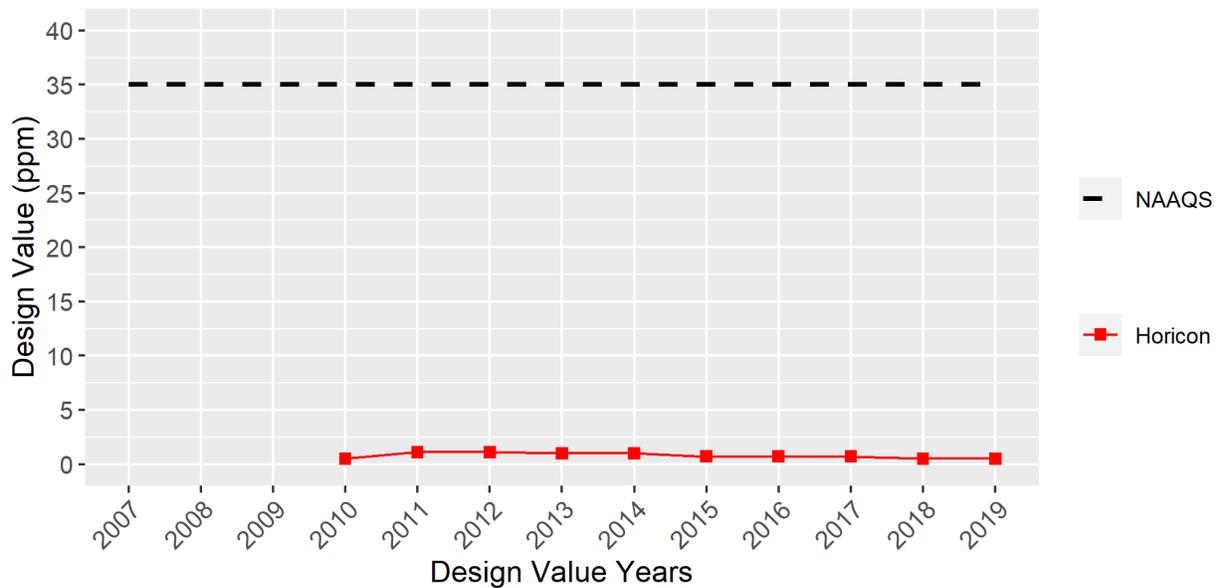
\*In 2010, EPA established a 1-hr SO<sub>2</sub> standard that replaced the previous annual and 24-hr standards.

# Wisconsin Air Quality Trends

## 8-hour CO design values - Dodge County



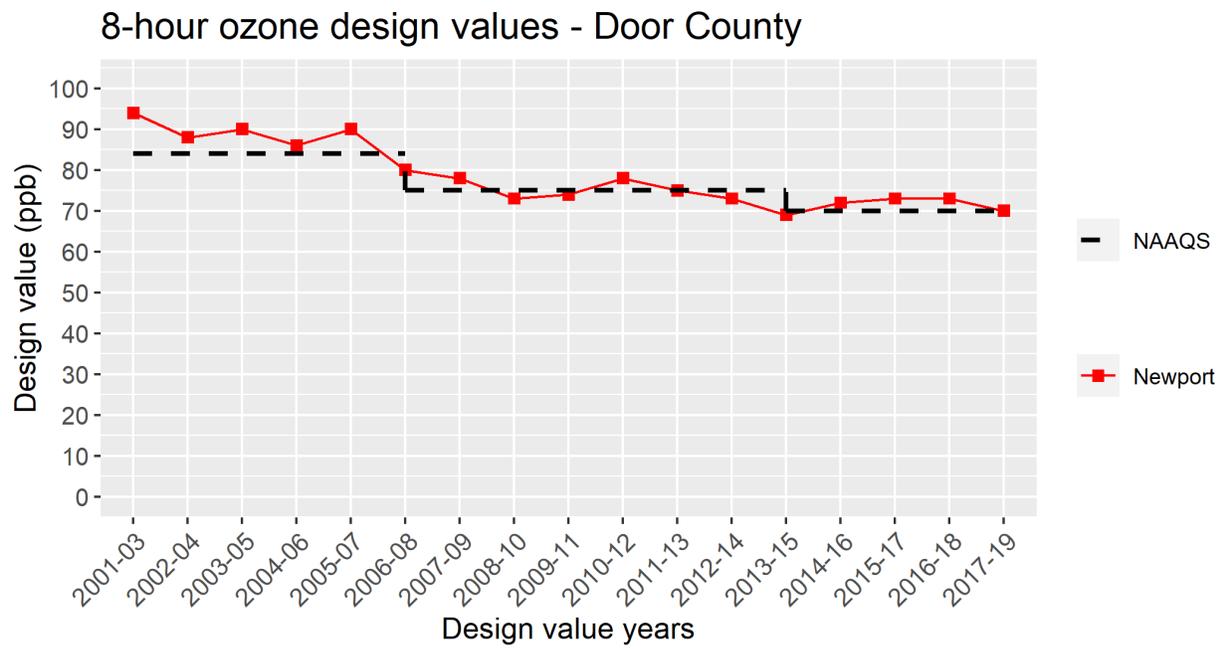
## 1-hour CO design values - Dodge County



# Wisconsin Air Quality Trends

## Door County

The DNR monitors ozone in Door County at the Newport site located within Newport State Park at 475 County Trunk Highway NP in Ellison Bay.

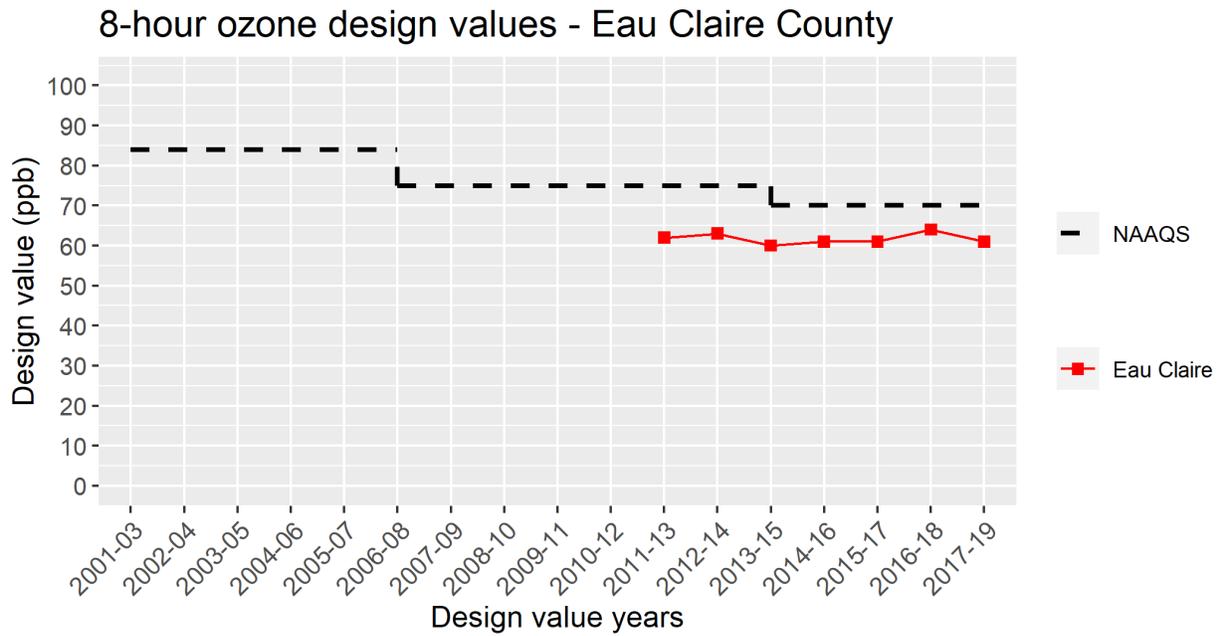


# Wisconsin Air Quality Trends

## Eau Claire County

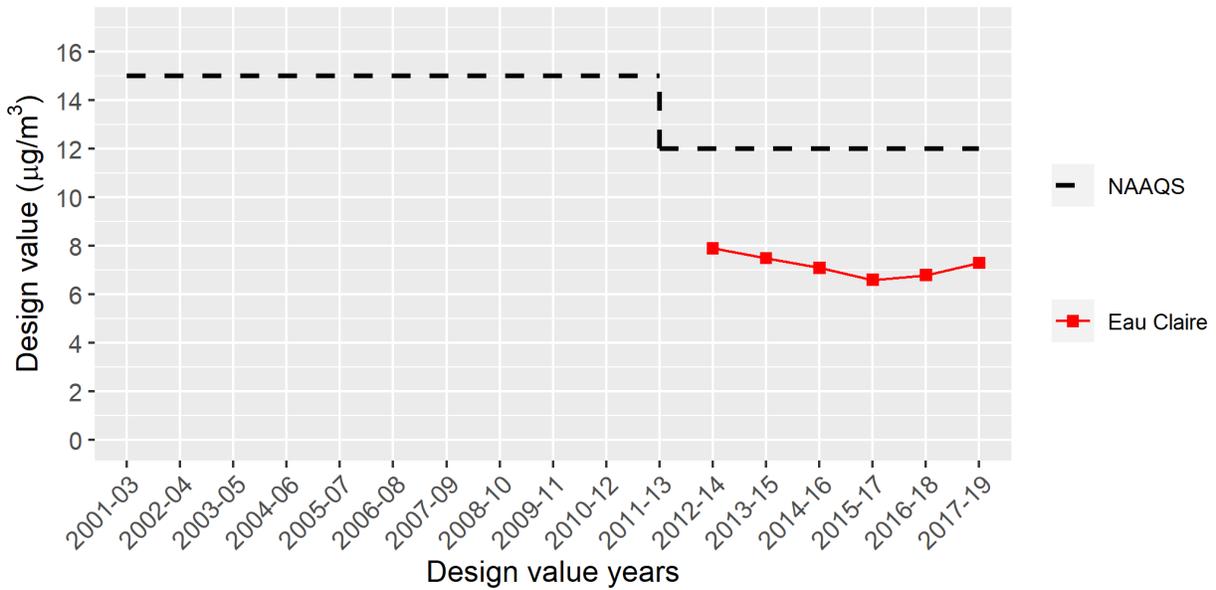
The DNR monitors ozone, PM<sub>2.5</sub> and PM<sub>10</sub> in Eau Claire County at the Eau Claire site located at 5509 Highway 53 South on the outskirts of Eau Claire. Monitoring at this site began April 1, 2011.

In May 2019, the site moved across the property. Continuous PM<sub>10</sub> monitoring began at this time. Because PM<sub>10</sub> monitoring started part way through the year, the site does not have a valid PM<sub>10</sub> design value.

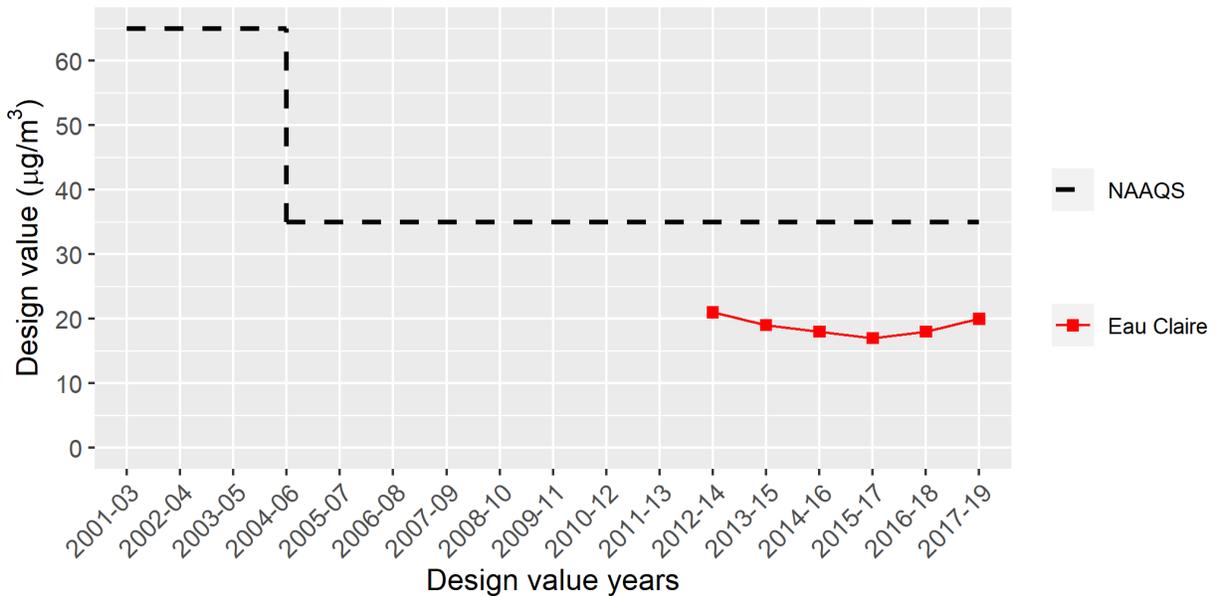


# Wisconsin Air Quality Trends

## Annual PM2.5 design values - Eau Claire County



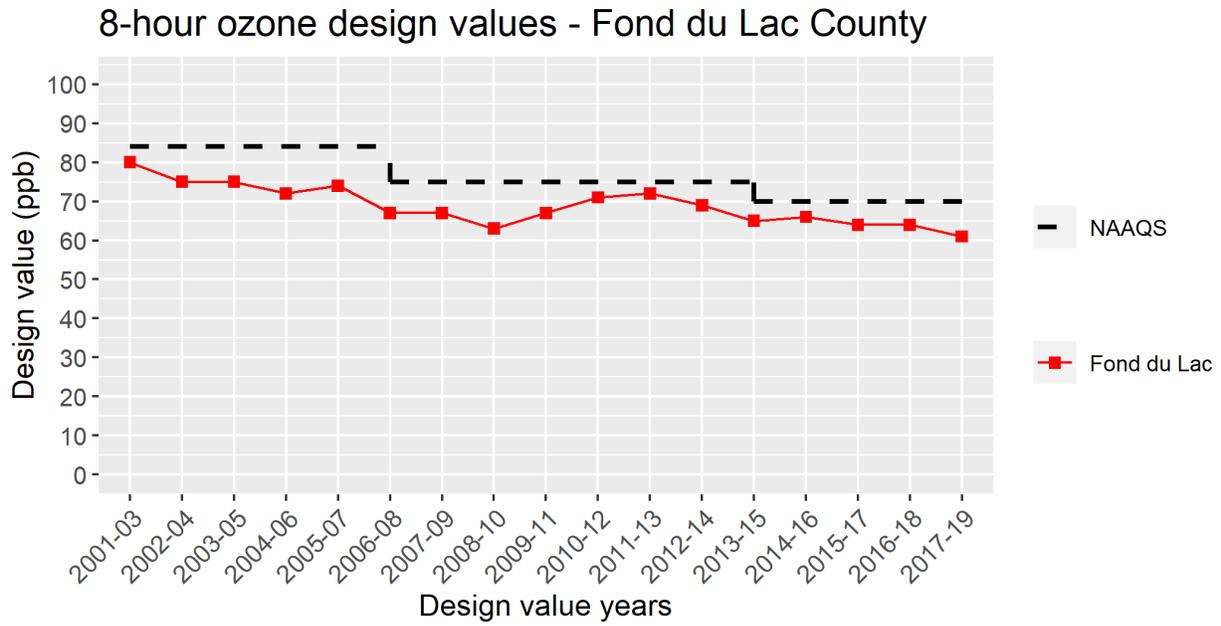
## 24-hour PM2.5 design values - Eau Claire County



# Wisconsin Air Quality Trends

## Fond du Lac County

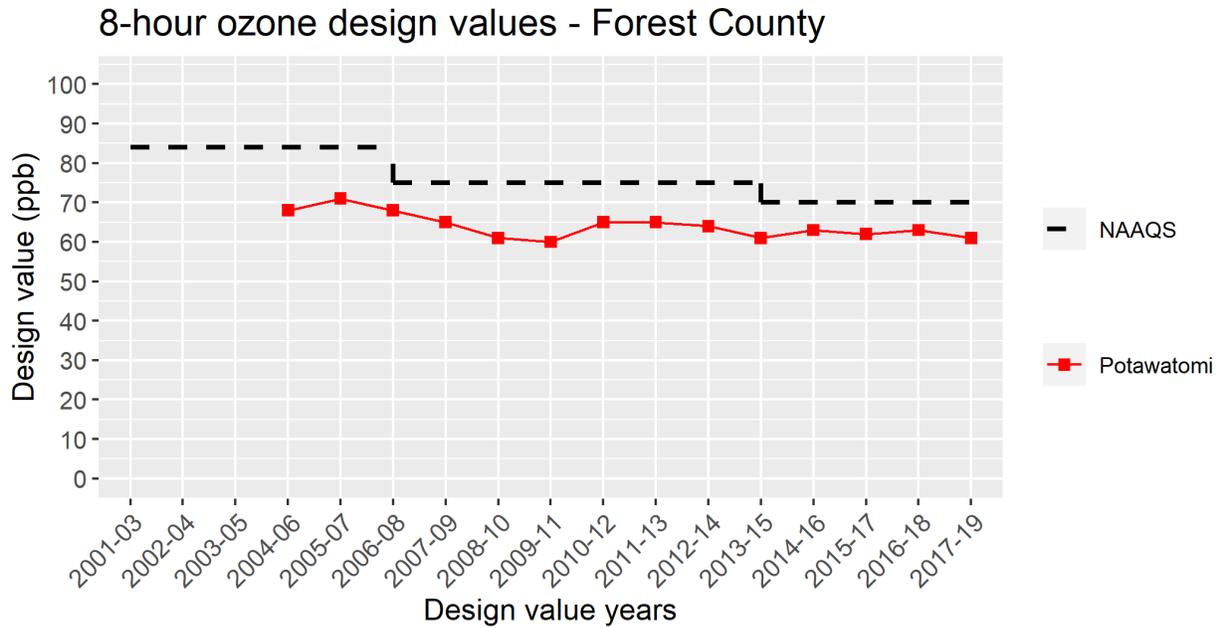
The DNR monitors ozone in Fond du Lac County at the Fond du Lac site located at N3996 Kelly Road in the Town of Byron at the edge of a farm field.



# Wisconsin Air Quality Trends

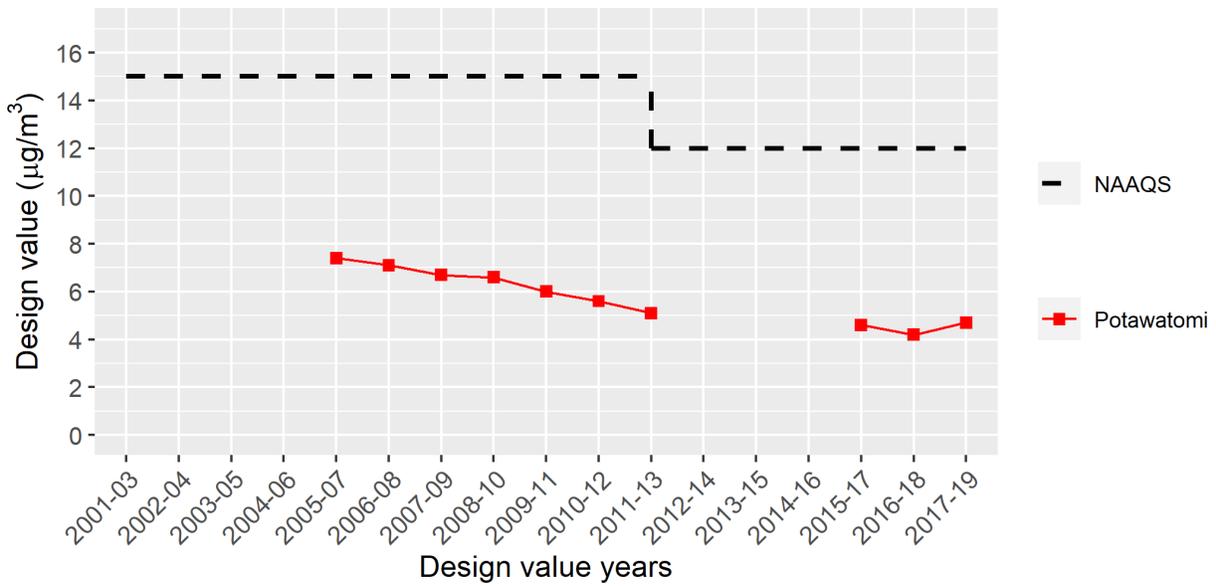
## Forest County

The Forest County Potawatomi Tribe monitors ozone, PM<sub>2.5</sub> and SO<sub>2</sub> along Fire Tower Road in Crandon. Data completeness issues for PM<sub>2.5</sub> in 2014 resulted in invalid design values for 2012-2014 through 2014-2016; therefore, the graphs do not include design values for those years.

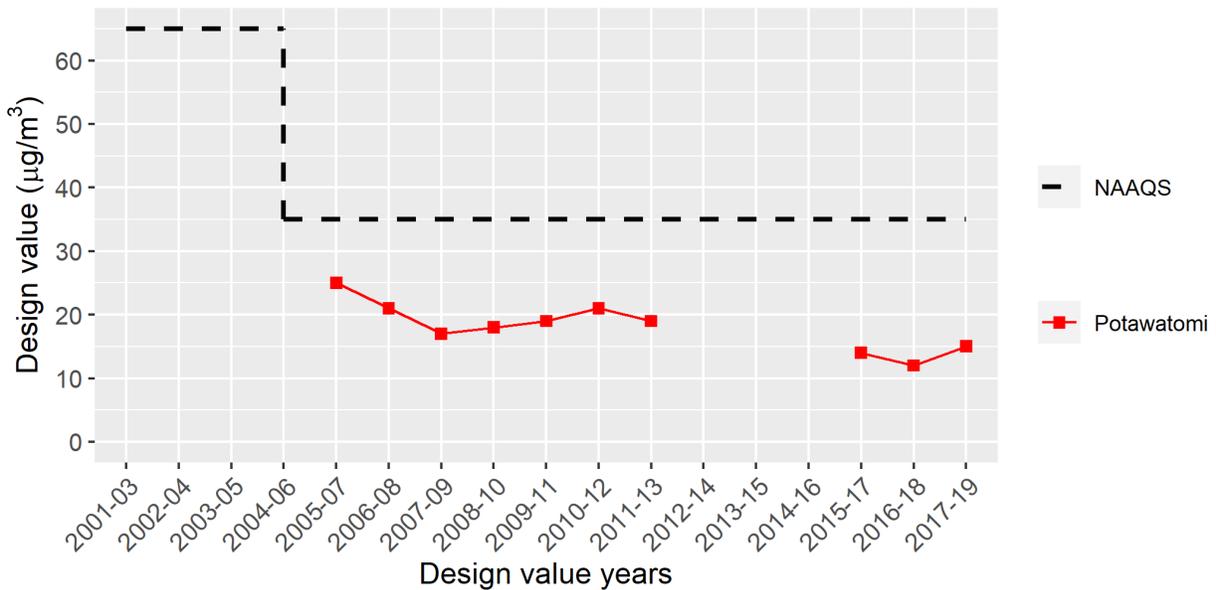


# Wisconsin Air Quality Trends

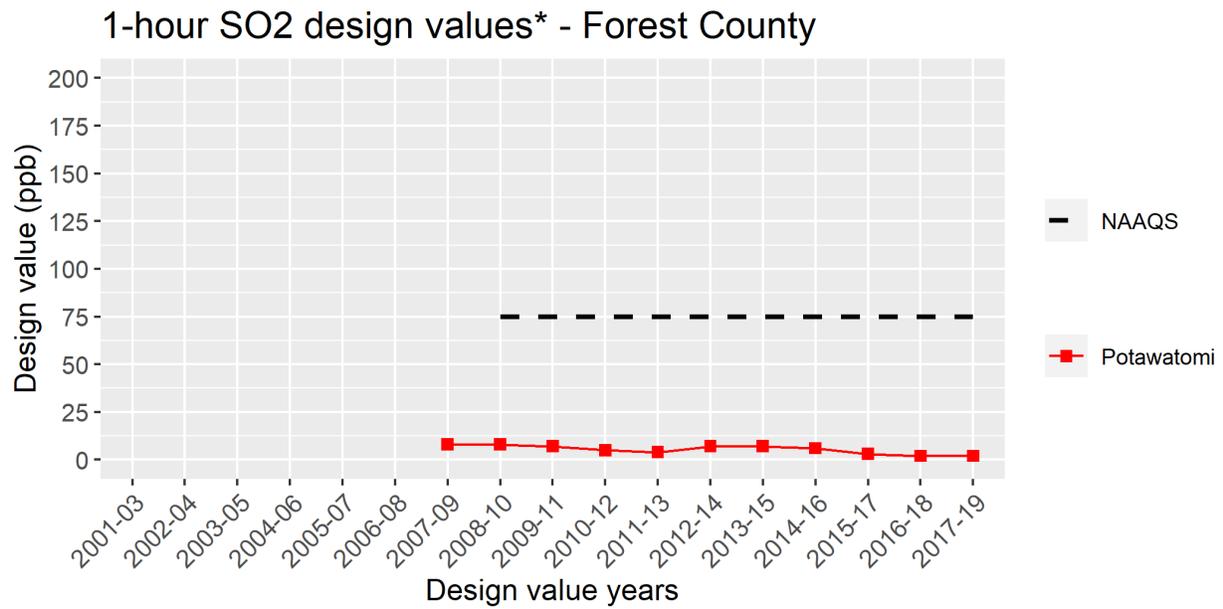
## Annual PM2.5 design values - Forest County



## 24-hour PM2.5 design values - Forest County



# Wisconsin Air Quality Trends



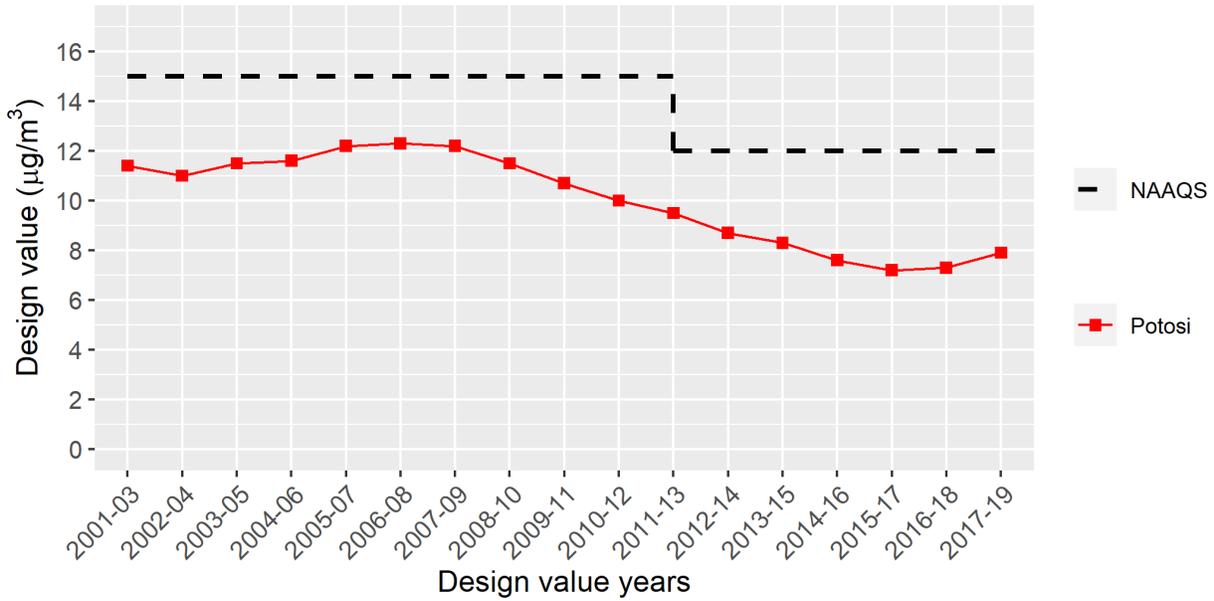
\*In 2010, EPA established a 1-hr SO<sub>2</sub> standard that replaced the previous annual and 24-hr standards.

# Wisconsin Air Quality Trends

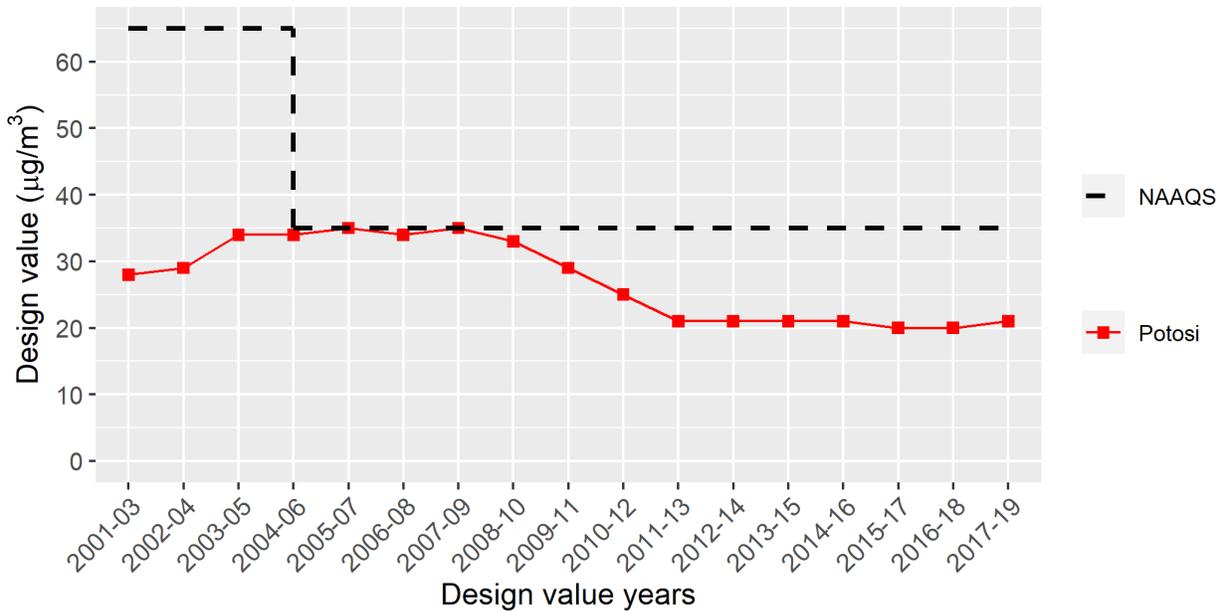
## Grant County

The DNR monitors PM<sub>2.5</sub> in Grant County at the Potosi site located on Potosi High School property at 128 Highway 61.

### Annual PM<sub>2.5</sub> design values - Grant County



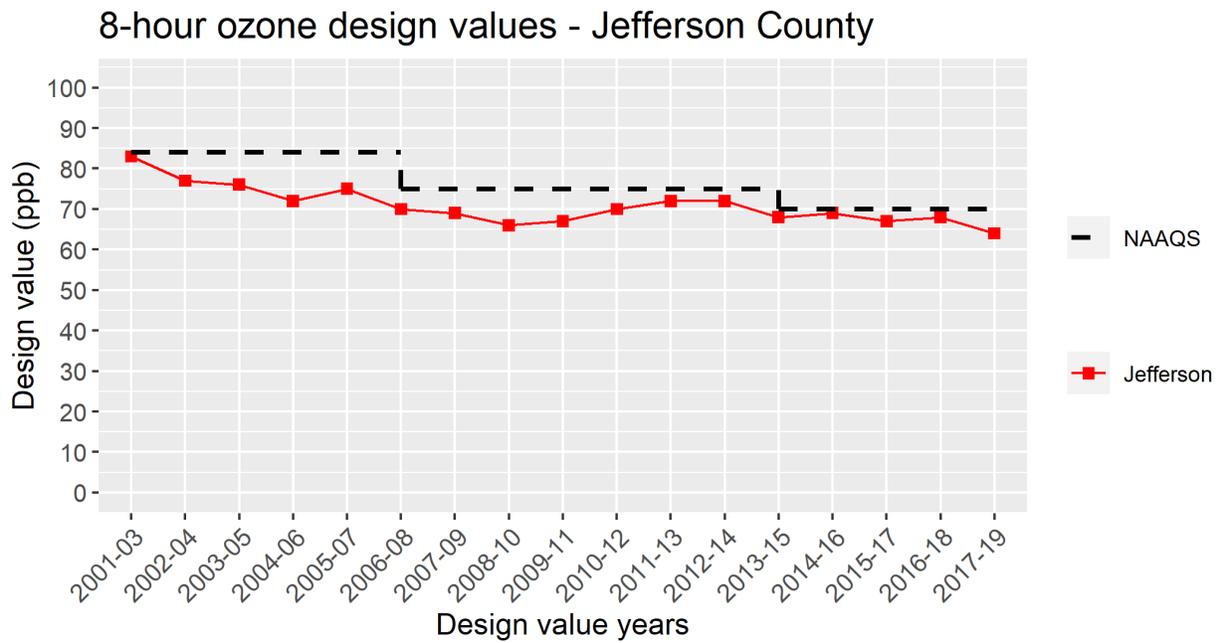
### 24-hour PM<sub>2.5</sub> design values - Grant County



# Wisconsin Air Quality Trends

## Jefferson County

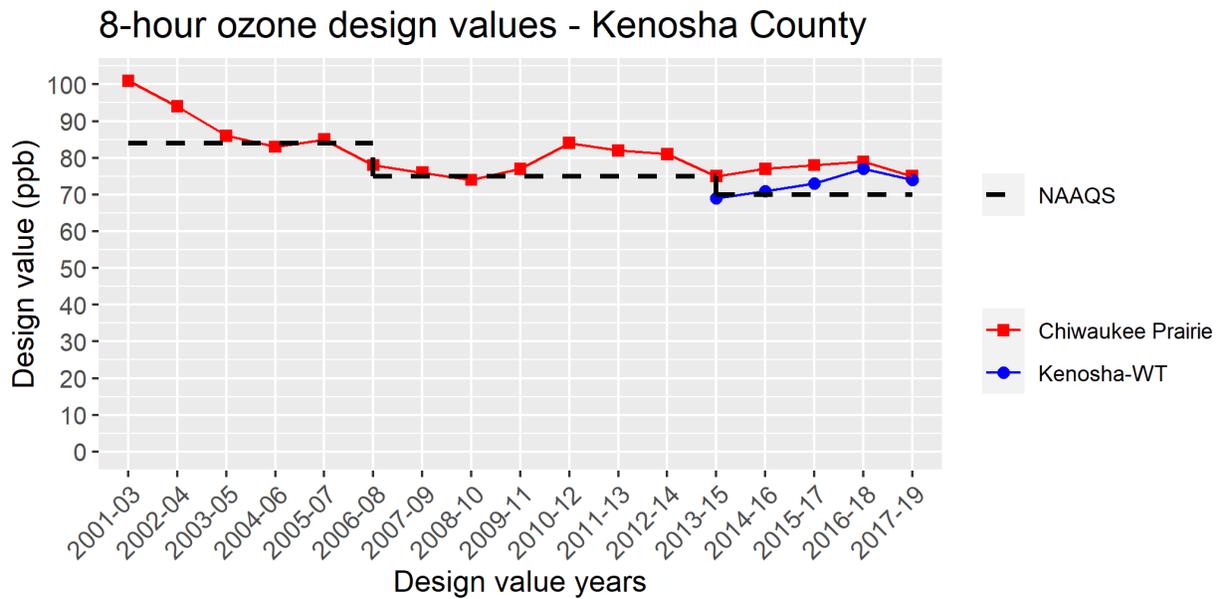
The DNR monitors ozone in Jefferson County at the Jefferson site located near the elementary school grounds at N4440 Laatsch Lane in the city of Jefferson. Prior to 2013, monitoring took place at Jefferson High School next to the sports field grounds at 634 West Linden Drive, approximately ¼ mile from the current site. Design values for 2011-2013 and 2012-2014 include data from both sites.



# Wisconsin Air Quality Trends

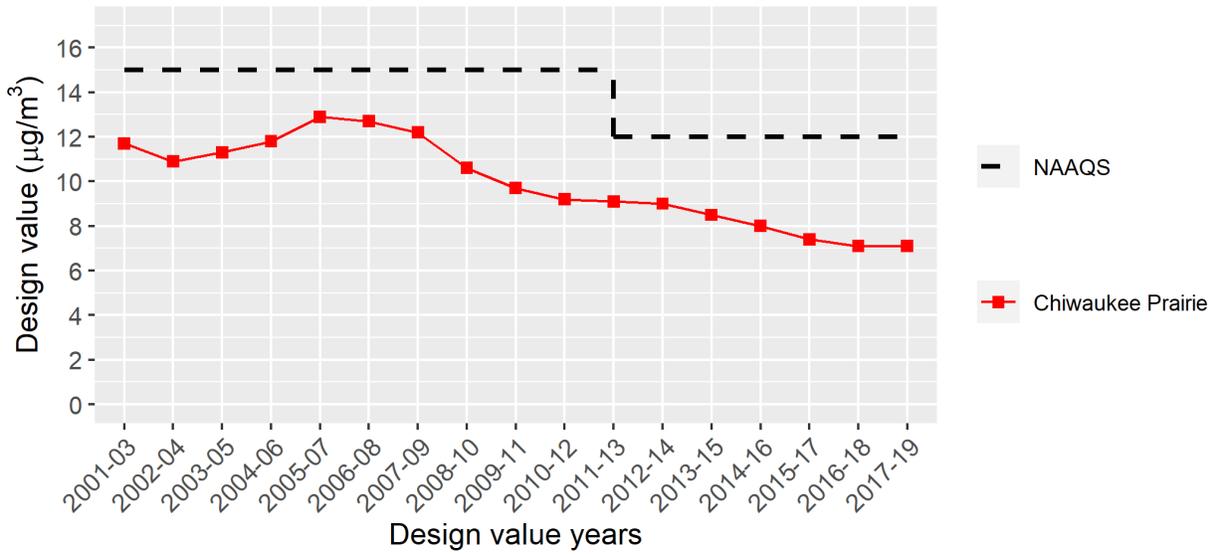
## Kenosha County

The DNR monitors ozone and PM<sub>2.5</sub> in Kenosha County at the Chiwaukee Prairie site located at 11838 First Court in the Chiwaukee Prairie, which is a rural area near the Wisconsin-Illinois border. In 2013, DNR began ozone monitoring at the Kenosha – WT site (4504 64<sup>th</sup> St. in Kenosha) as a special purpose monitor for NAAQS comparisons. Data gathered from the two sites help determine how much ozone decreases moving away from the lakeshore in Kenosha County.

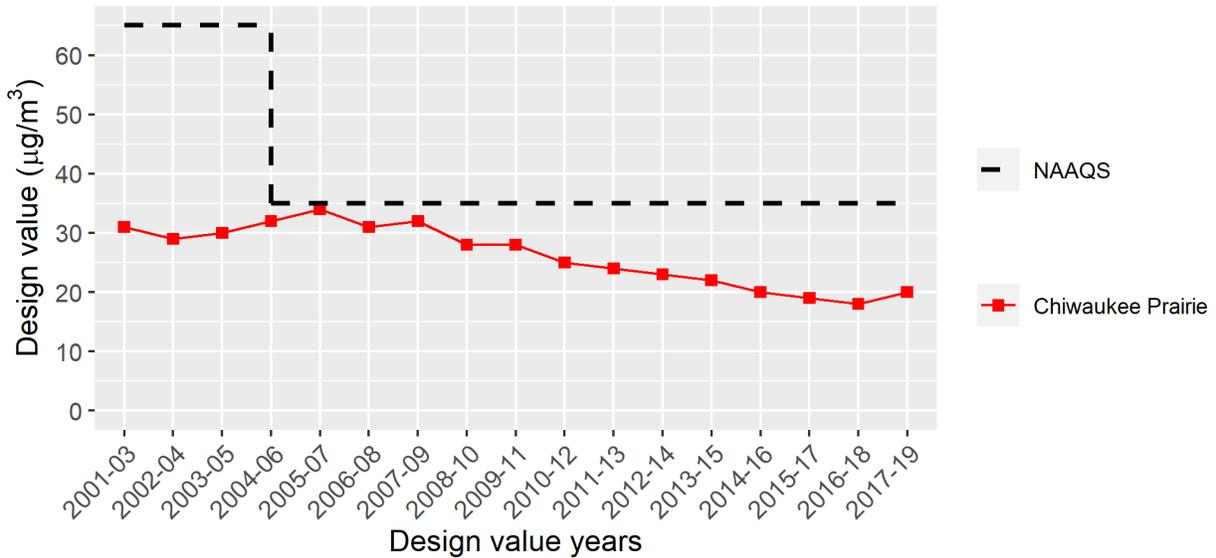


# Wisconsin Air Quality Trends

## Annual PM2.5 design values - Kenosha County



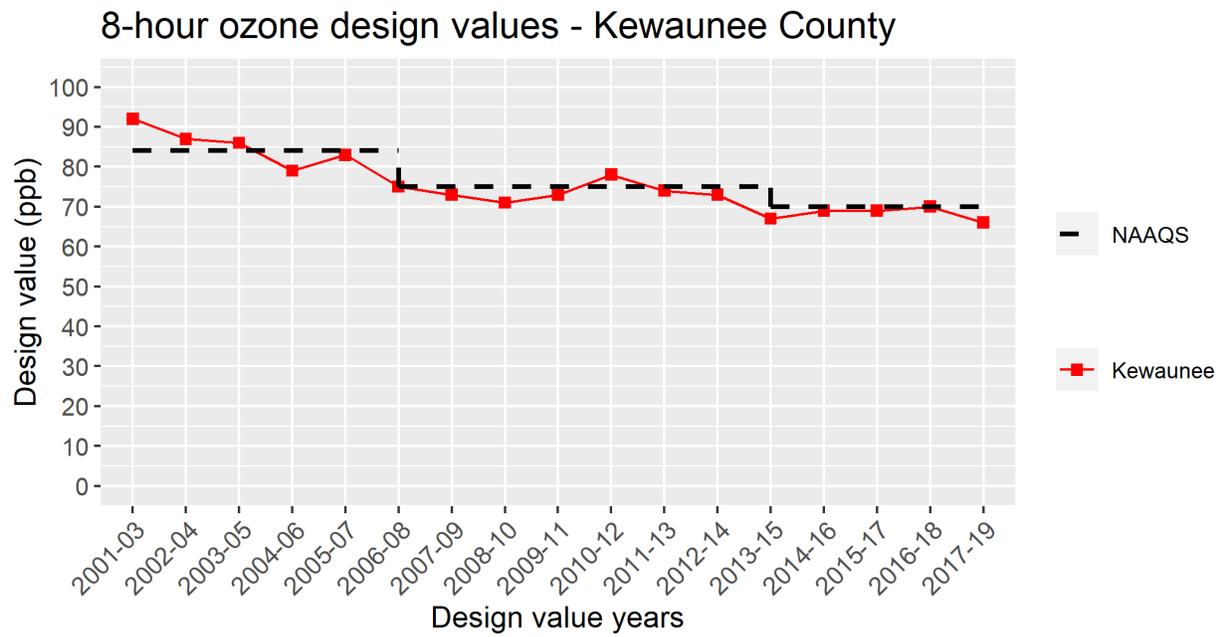
## 24-hour PM2.5 design values - Kenosha County



# Wisconsin Air Quality Trends

## Kewaunee County

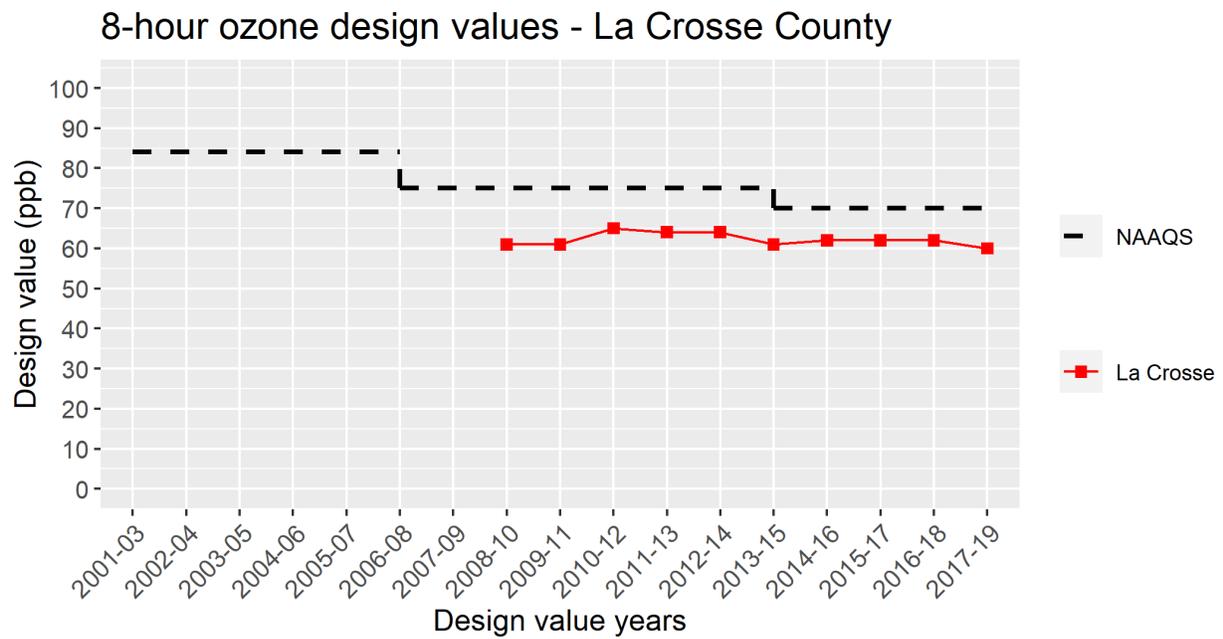
The DNR monitors ozone in Kewaunee County at the Kewaunee site located at Rural Route 1, Highway 42 on a bluff overlooking Lake Michigan.



# Wisconsin Air Quality Trends

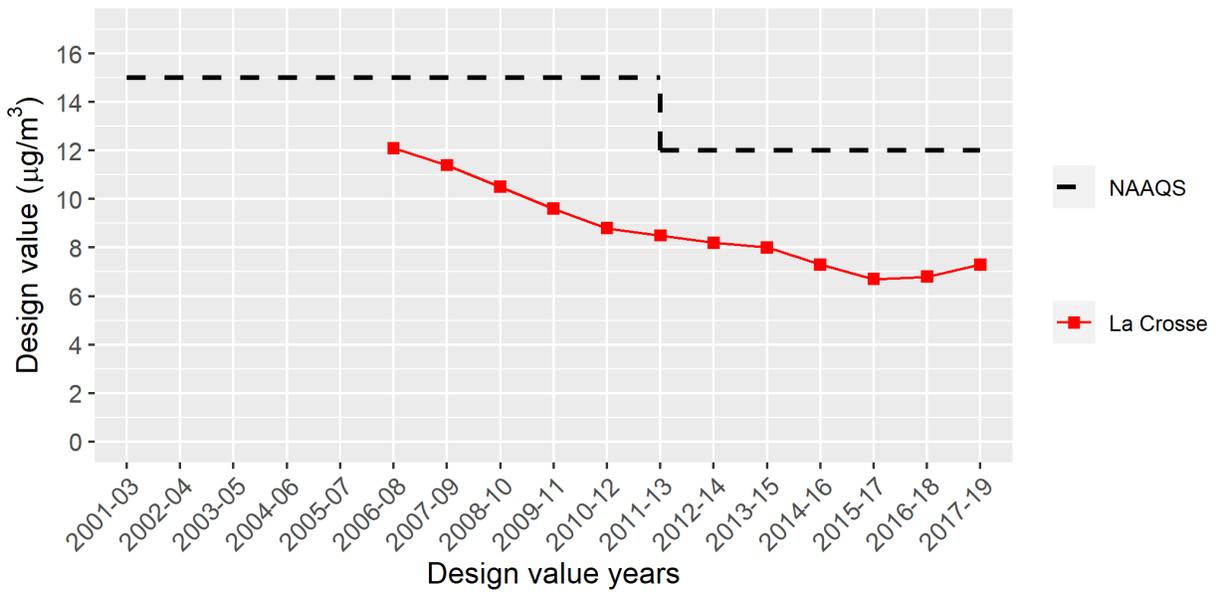
## La Crosse County

The DNR monitors ozone and PM<sub>2.5</sub> in La Crosse County at the La Crosse site at the Department of Transportation office, located at 3350 Mormon Coulee Road in La Crosse.

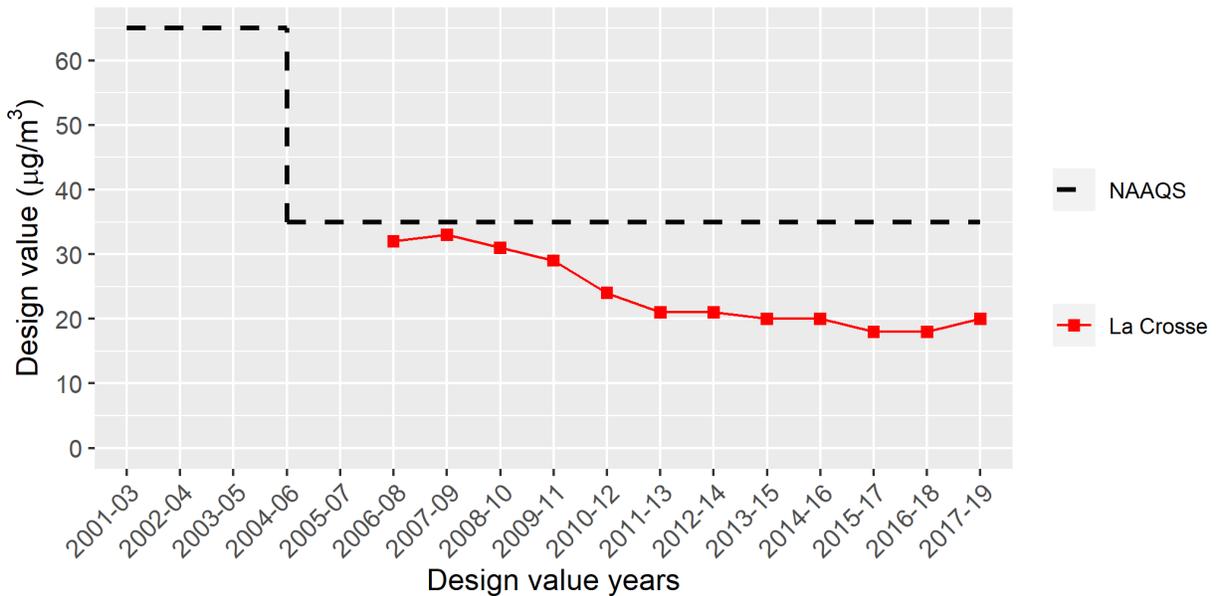


# Wisconsin Air Quality Trends

## Annual PM2.5 design values - La Crosse County



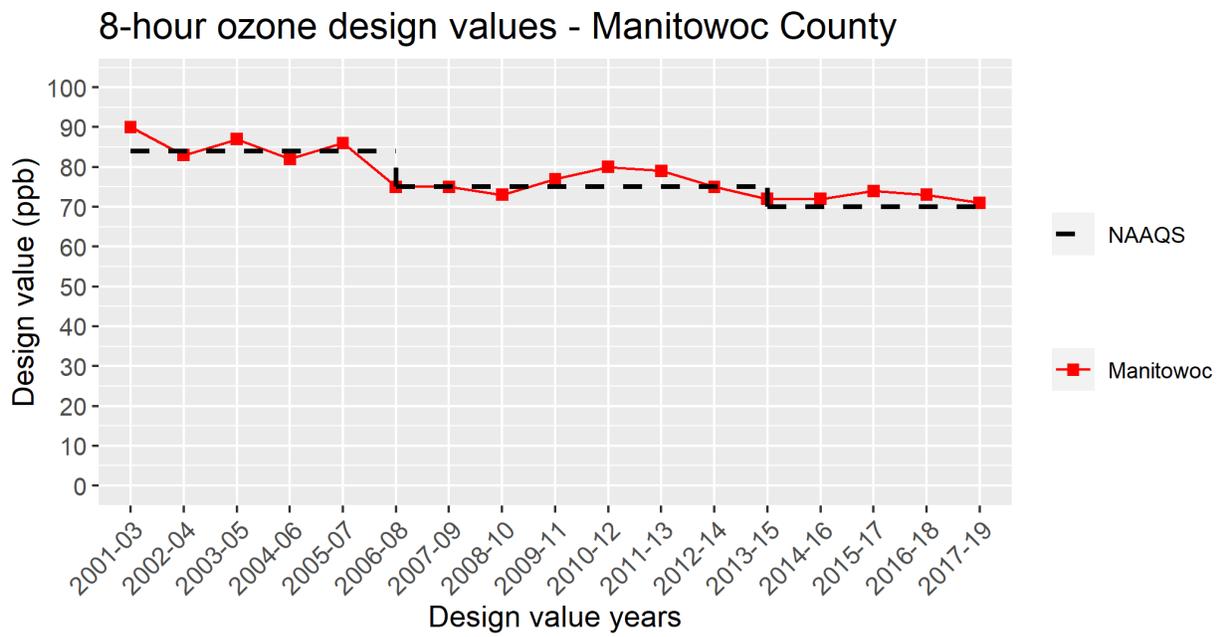
## 24-hour PM2.5 design values - La Crosse County



# Wisconsin Air Quality Trends

## Manitowoc County

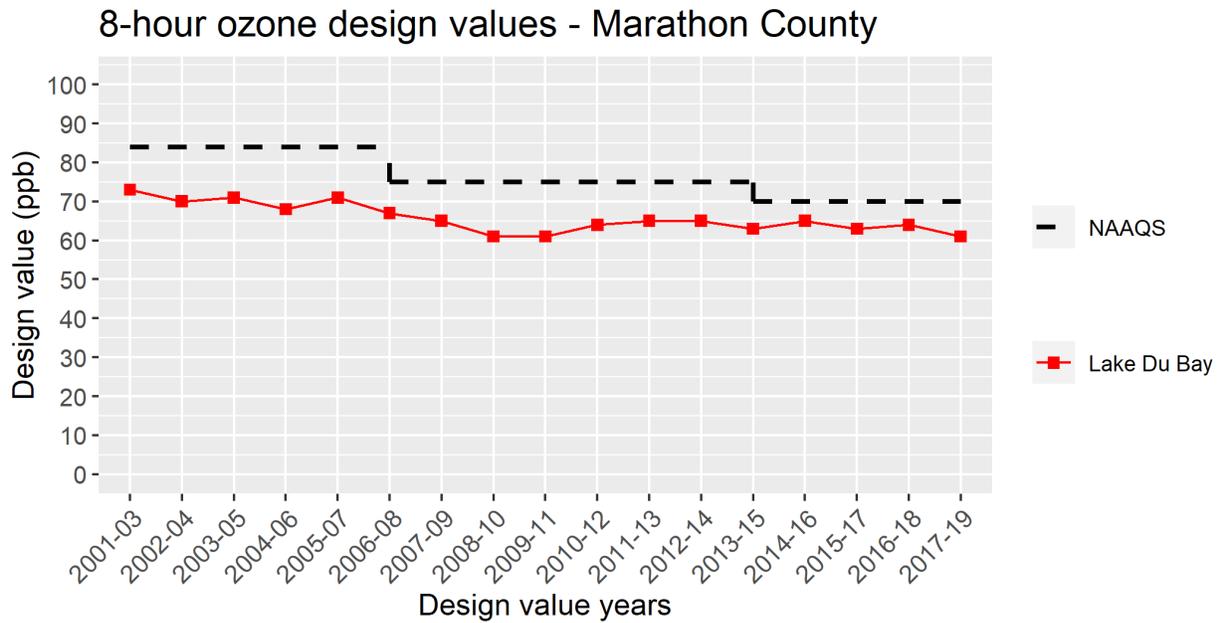
The DNR monitors ozone in Manitowoc County at the Manitowoc site located in the Woodland Dunes Nature Center and Preserve at 2315 Goodwin Road in Two Rivers.



# Wisconsin Air Quality Trends

## Marathon County

The DNR monitors ozone in Marathon County at the Lake Du Bay site in a rural area at 1780 Bergen Road near Lake Du Bay in Bergen Township.



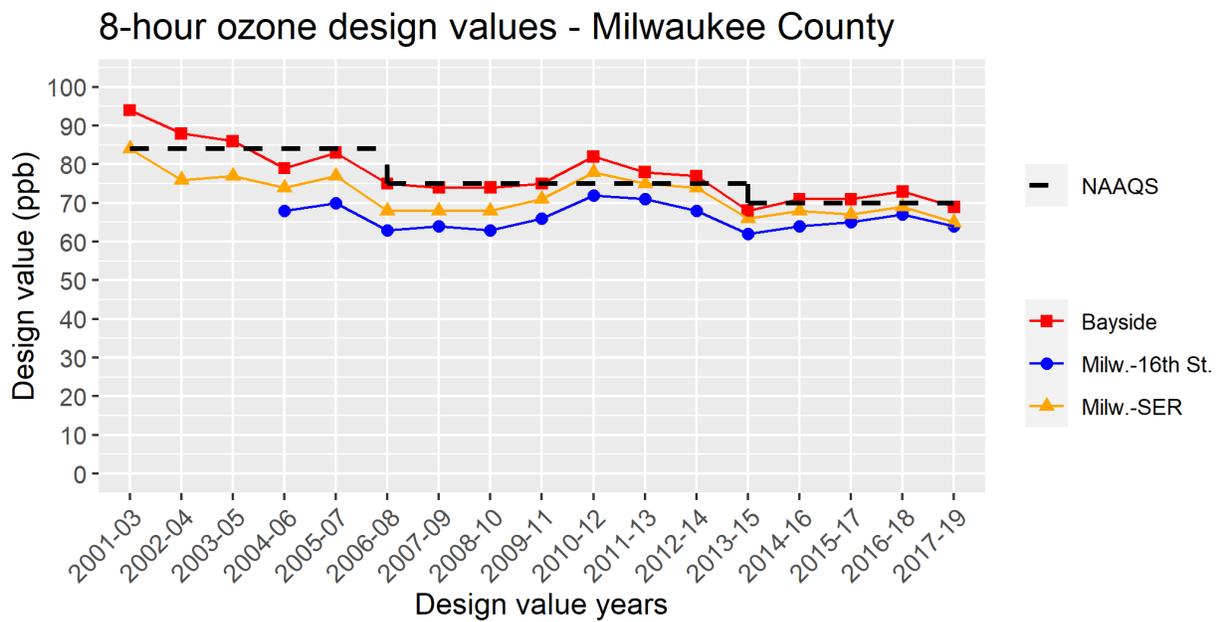
# Wisconsin Air Quality Trends

## Milwaukee County

The DNR monitors ozone, PM<sub>2.5</sub>, and PM<sub>10</sub> in Milwaukee County at multiple sites graphed together for comparison. Sites include Bayside (601 E Ellsworth Lane in Bayside), Milwaukee-16<sup>th</sup> St. (1337 S Cesar E Chavez Dr at the Health Center Building), Milwaukee-College Ave P&R (1550 W. College Avenue in the park and ride area), Milwaukee-College Avee NR site (established in October 2013 also at 1550 W. College Avenue but adjacent to the highway) and Milwaukee-SER (2300 N. Dr. Martin Luther King Jr. Drive at the DNR Southeast Region Headquarters office).

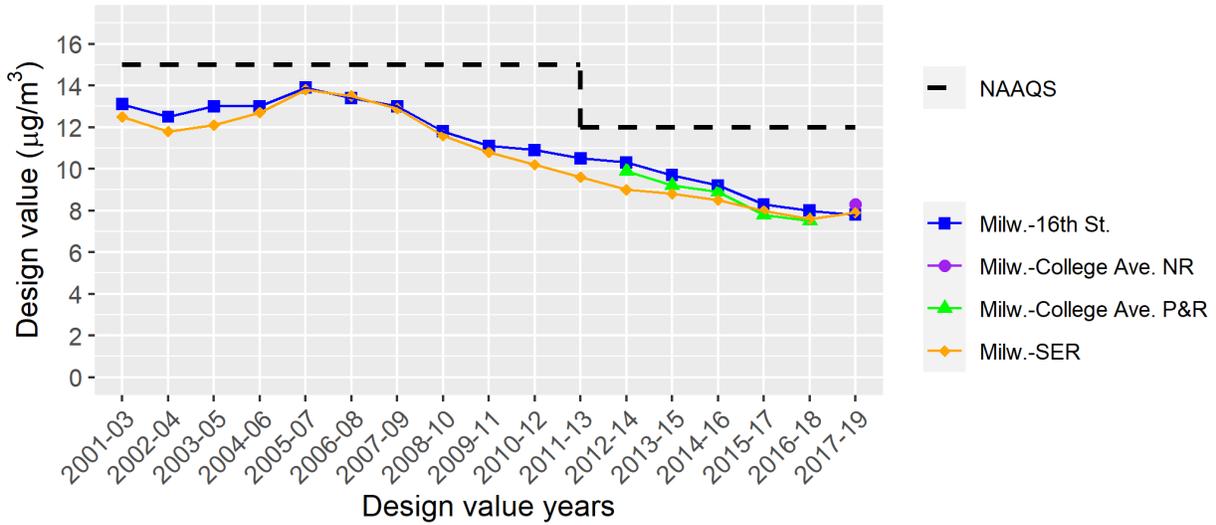
In June 2017 PM<sub>2.5</sub> monitoring started at the Milwaukee-College Ave NR site. The first valid design value period is 2017-2019. In December 2018, DNR shut down filter-based PM<sub>10</sub> monitors at both the Milwaukee-College Avenue P&R and Milwaukee-SER sites. In October 2019, the method of measuring continuous PM<sub>2.5</sub> at the Milwaukee-16<sup>th</sup> St. site changed. Also, in October 2019, DNR discontinued continuous PM<sub>2.5</sub> monitoring at the Milwaukee-College Avenue P&R site, effectively shutting down the site. Lastly, DNR began PM<sub>10</sub> monitoring at the Milwaukee-College Avenue NR site in July 2018, so there is no valid design value.

The DNR currently measures SO<sub>2</sub> at the Milwaukee-SER site but discontinued monitoring SO<sub>2</sub> here from 2007 through 2010. The DNR monitors nitrogen dioxide (NO<sub>2</sub>) at both the Milwaukee-SER and Milwaukee-College Ave NR sites. In May of 2019, the method of measuring NO<sub>2</sub> at the Milwaukee-SER site changed. Monitoring for CO, which started in 2014, takes place at the Milwaukee-College Avenue Near Road site.

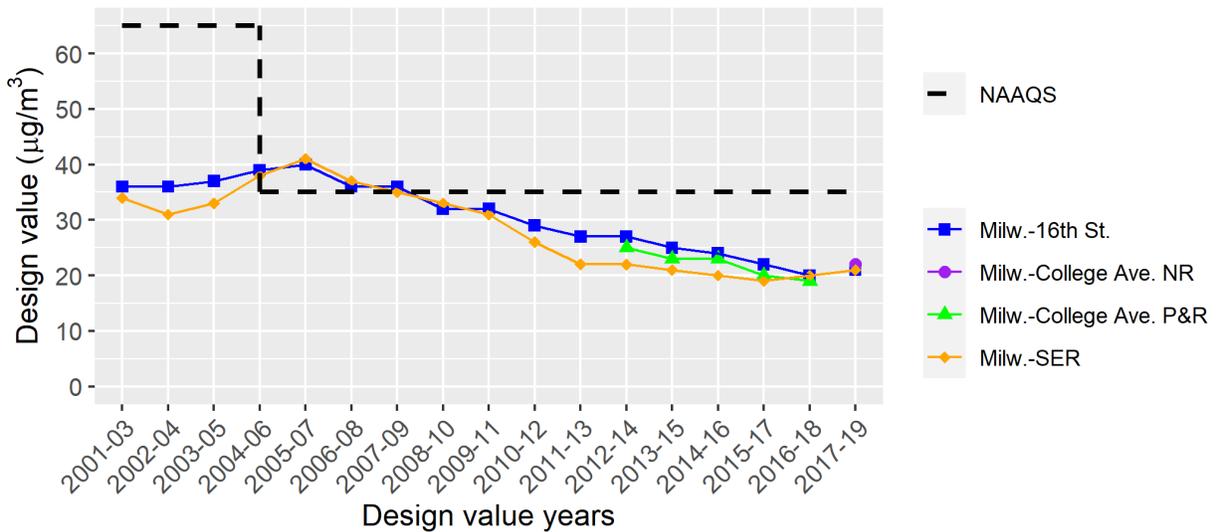


# Wisconsin Air Quality Trends

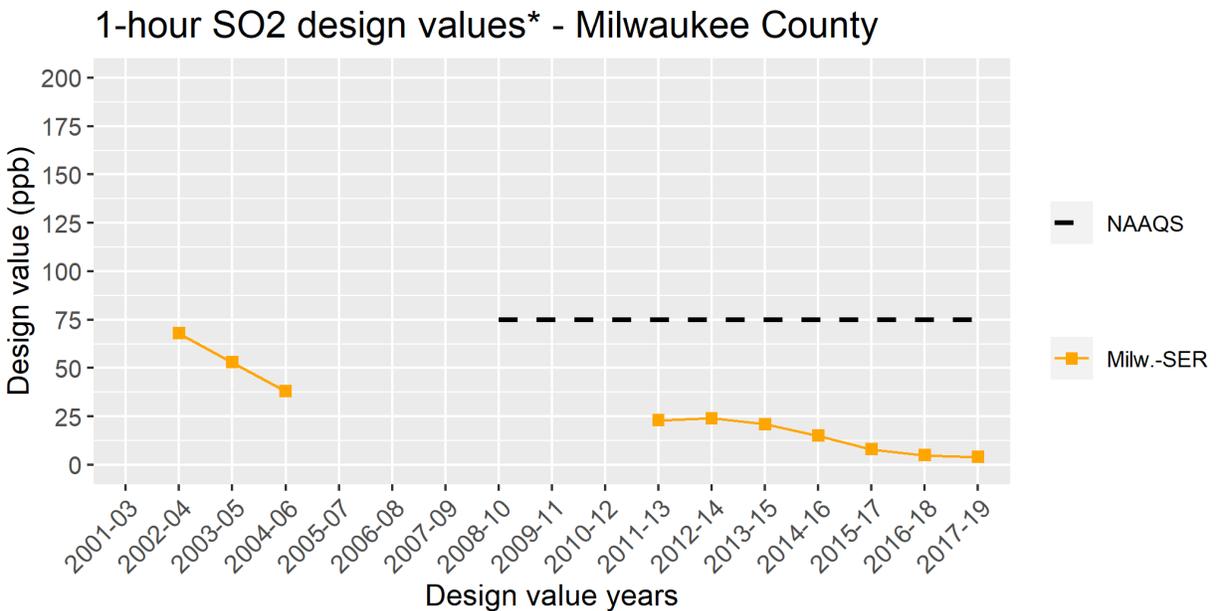
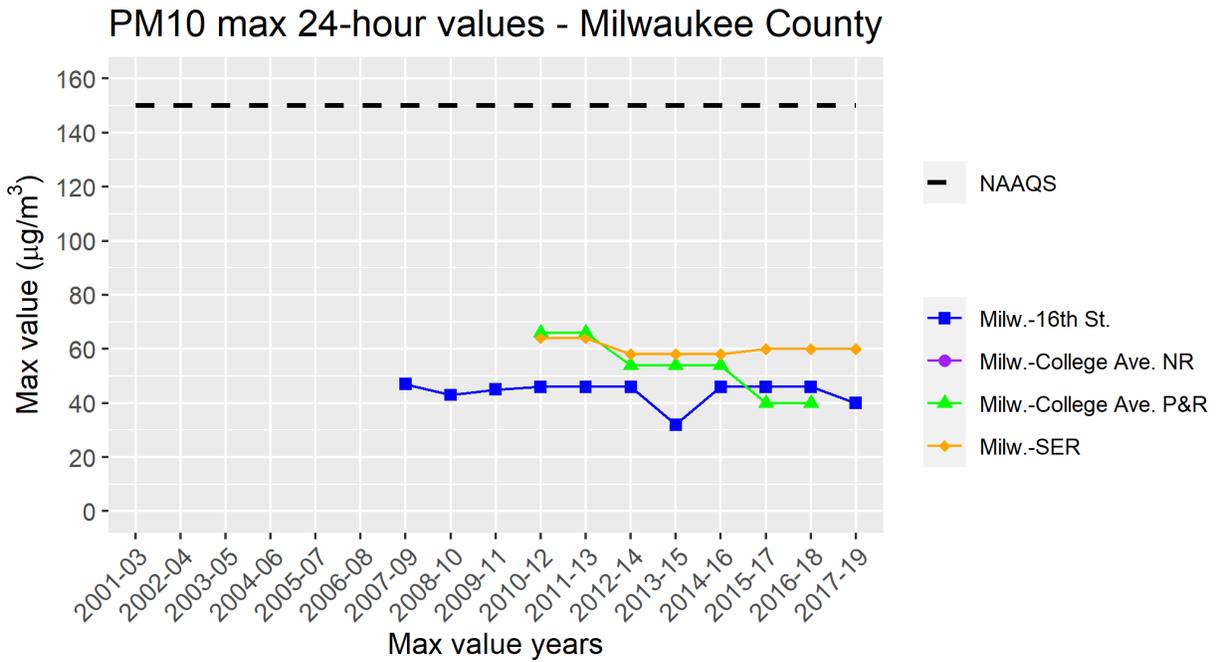
## Annual PM2.5 design values - Milwaukee County



## 24-hour PM2.5 design values - Milwaukee County



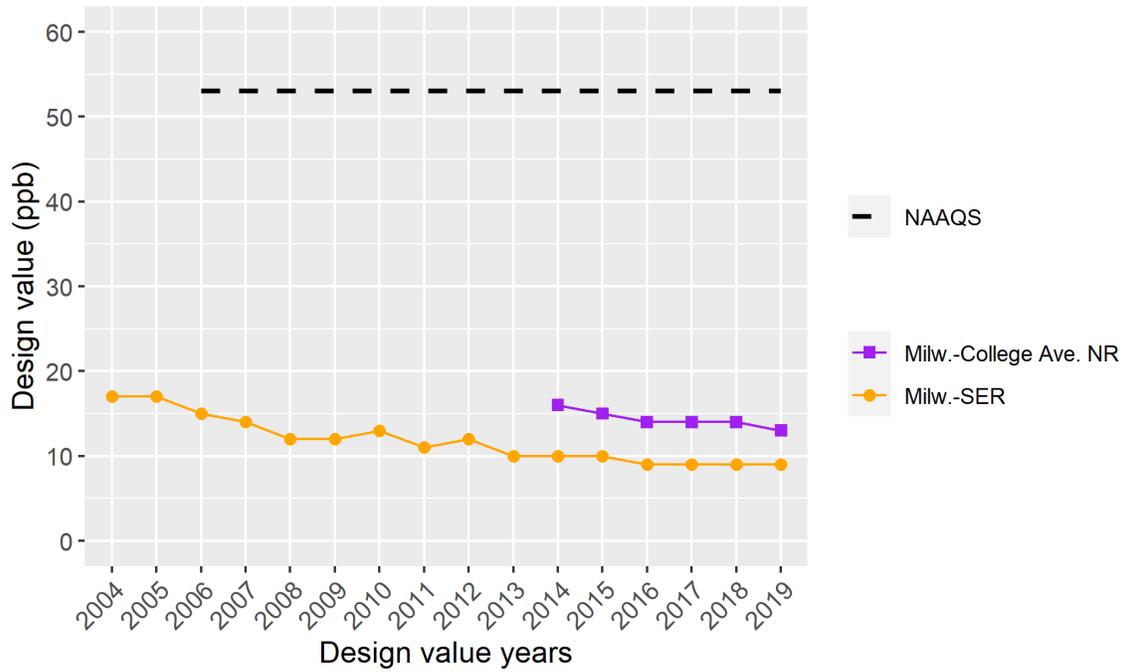
# Wisconsin Air Quality Trends



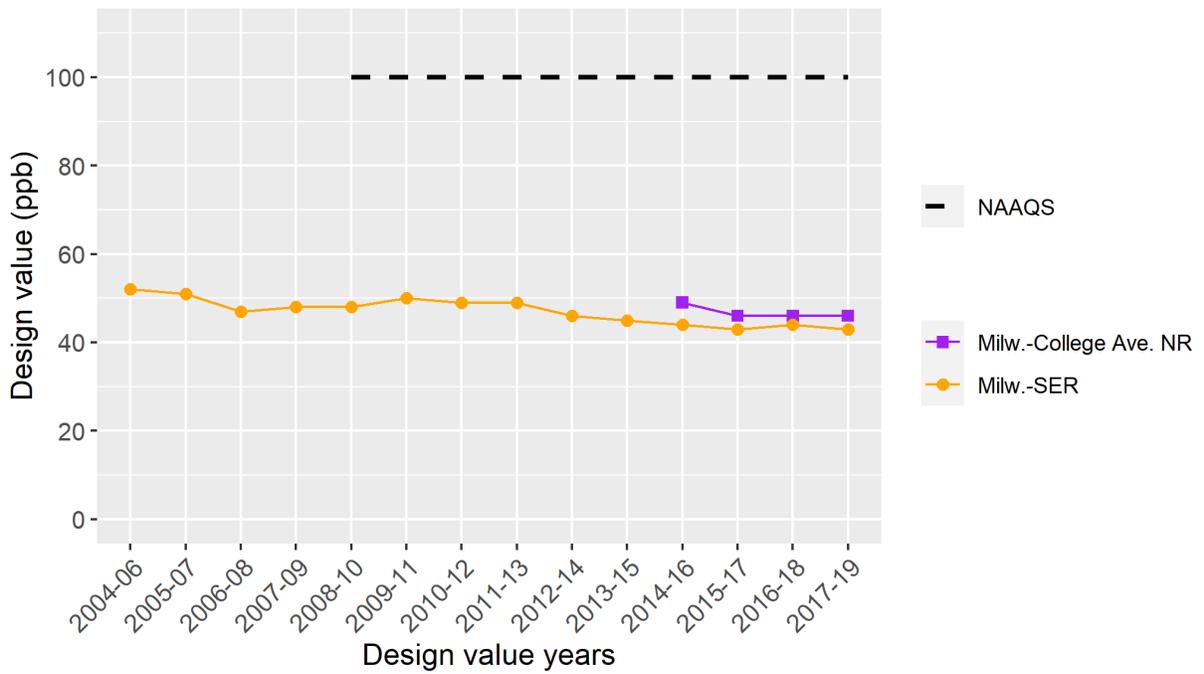
\*In 2010, EPA established a 1-hr SO<sub>2</sub> standard that replaced the previous 24-hr and annual standards.

# Wisconsin Air Quality Trends

## Annual NO2 design values - Milwaukee County

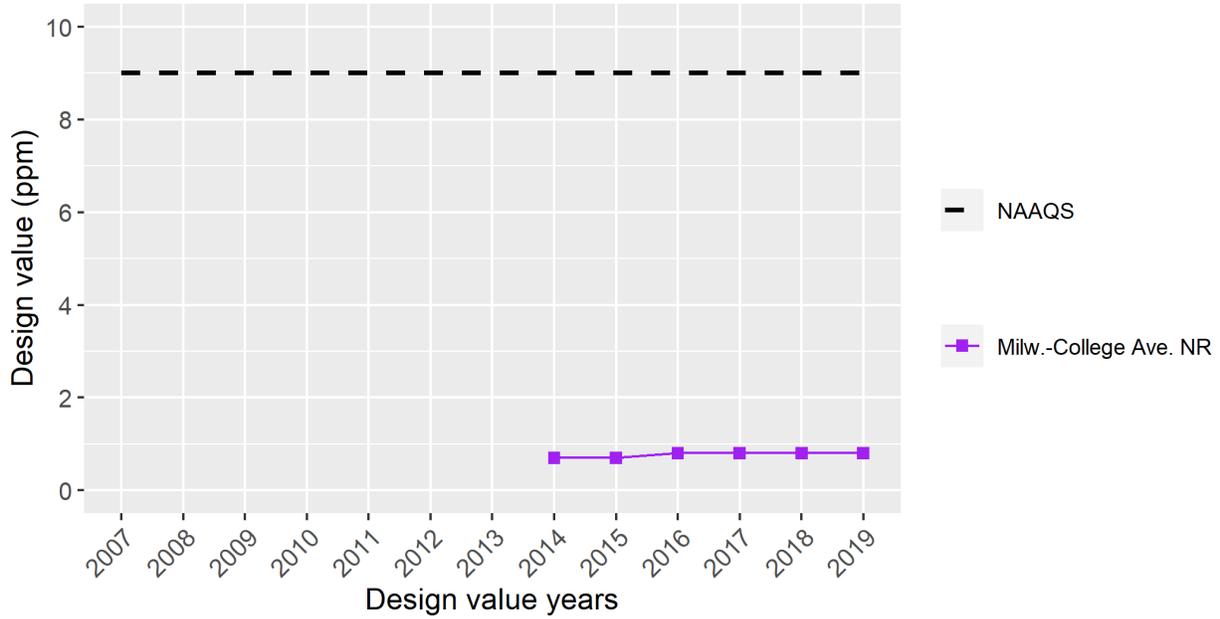


## 1-hour NO2 design values - Milwaukee County

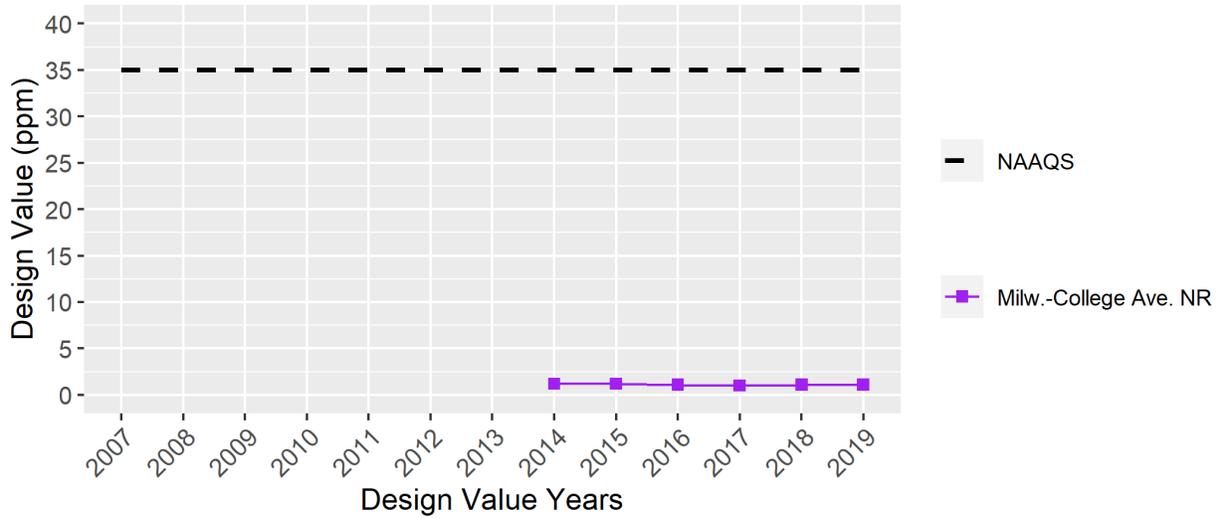


# Wisconsin Air Quality Trends

## 8-hour CO design values - Milwaukee County



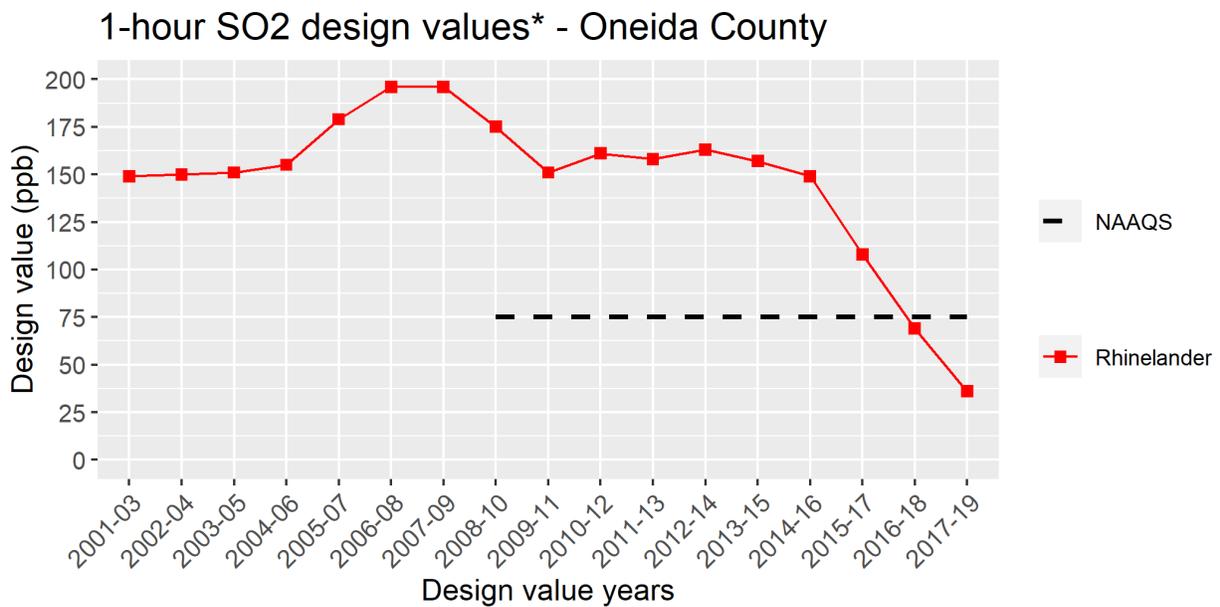
## 1-hour CO design values - Milwaukee County



# Wisconsin Air Quality Trends

## Oneida County

The DNR monitors SO<sub>2</sub> in Oneida County at the Rhinelander site located at 434 High Street next to the Rhinelander water tower. This source-oriented site assesses compliance with the SO<sub>2</sub> NAAQS. In 2013, EPA designated a portion of Oneida County around this monitor as nonattainment for the 2010 1-hour SO<sub>2</sub> NAAQS in 2013. The DNR submitted an attainment plan to EPA establishing permanent and enforceable SO<sub>2</sub> requirements for the facility primarily responsible for the monitored values. The facility has since implemented the requirements contained in the plan.



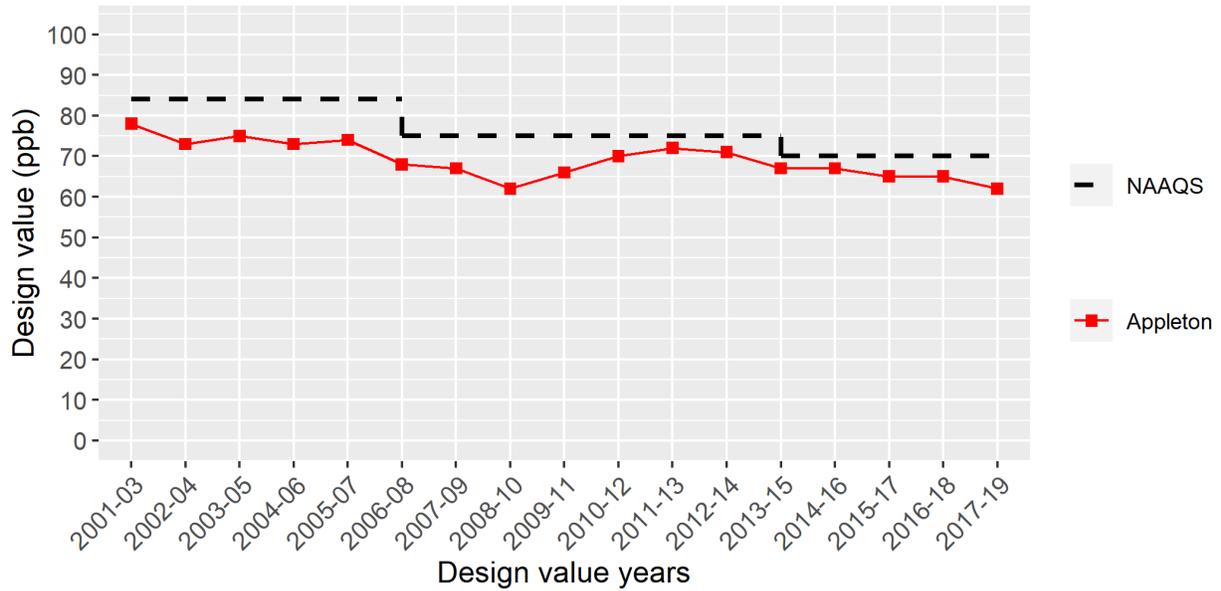
\*In 2010, EPA established a 1-hr SO<sub>2</sub> standard that replaced the previous annual and 24-hr standards.

# Wisconsin Air Quality Trends

## Outagamie County

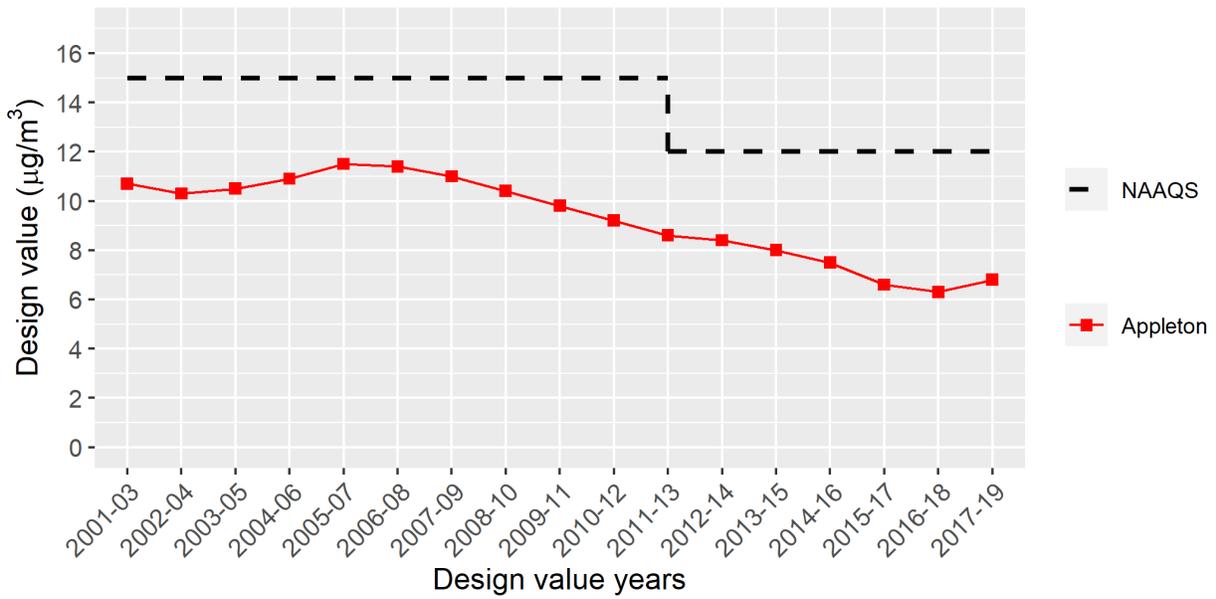
The DNR monitors ozone and PM<sub>2.5</sub> in Outagamie County at the Appleton site located at 4432 North Meade Street in Appleton near a residential area. Source-oriented monitoring for SO<sub>2</sub> occurs in Kaukauna at 601 Plank Road. Monitoring began in January 2017 with the 2017-2019 being the first valid design value. In January 2019, DNR updated the monitoring method for PM<sub>2.5</sub>.

### 8-hour ozone design values - Outagamie County

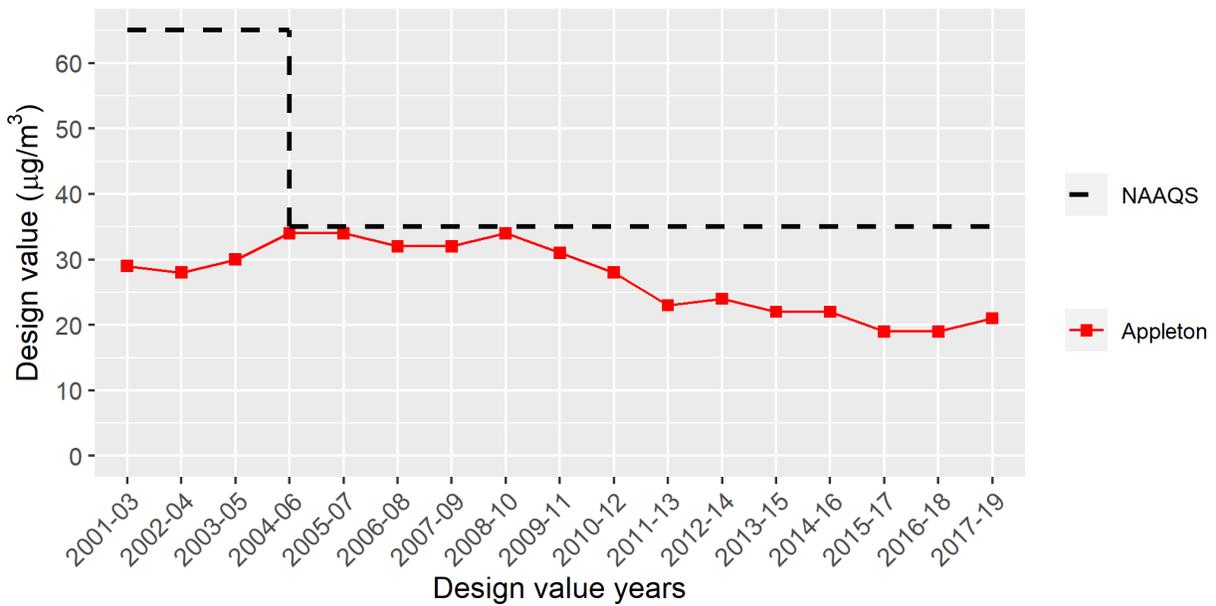


# Wisconsin Air Quality Trends

## Annual PM2.5 design values - Outagamie County

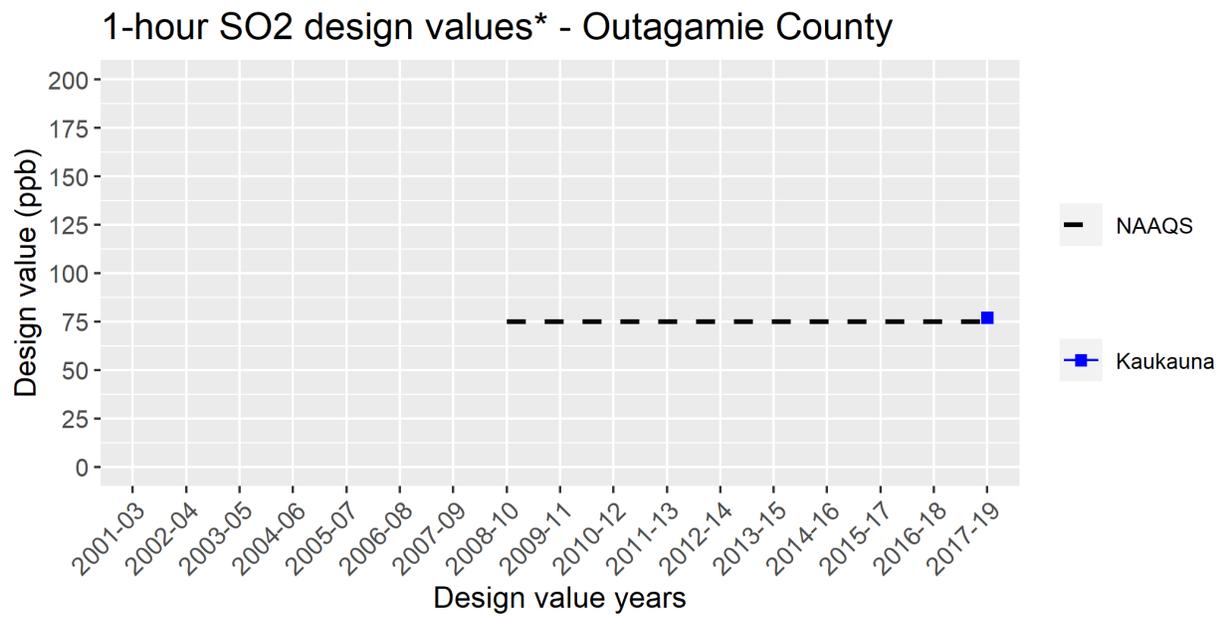


## 24-hour PM2.5 design values - Outagamie County



# Wisconsin Air Quality Trends

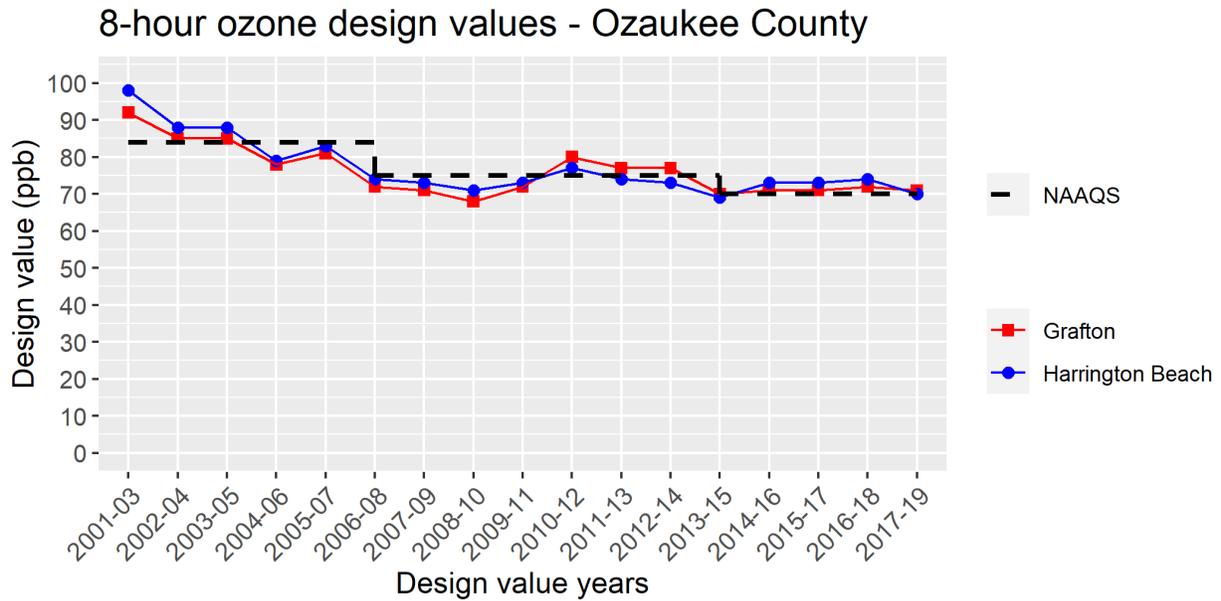
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# Wisconsin Air Quality Trends

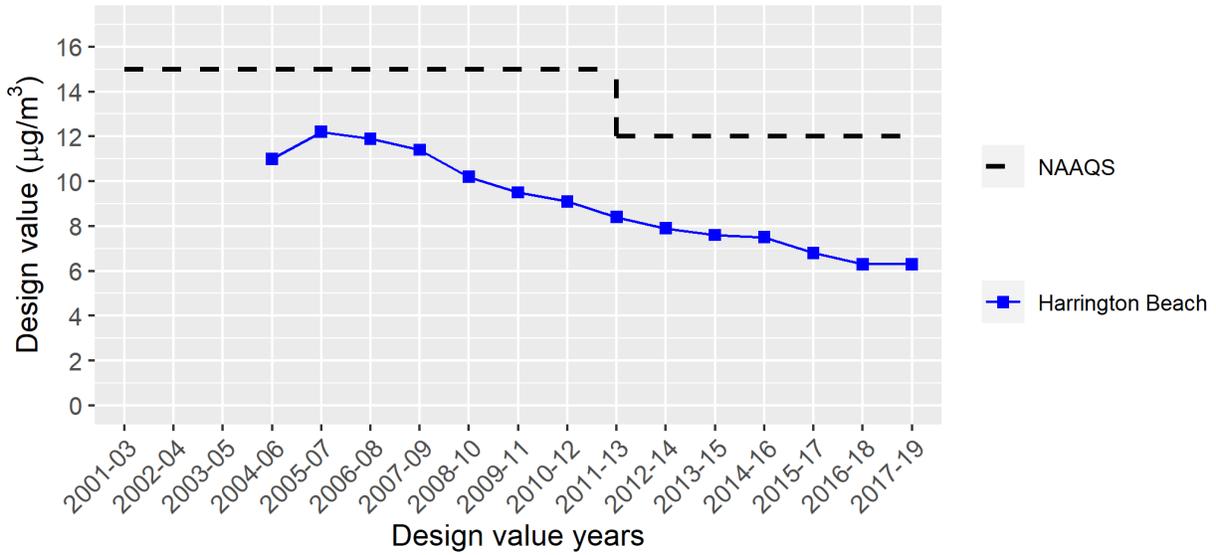
## Ozaukee County

The DNR monitors ozone in Ozaukee County at two sites: Grafton (intersection of Highway 57 and Interstate 43 in Grafton) and Harrington Beach (531 Highway D within Harrington Beach State Park). The DNR monitors PM<sub>2.5</sub> at the Harrington Beach site.

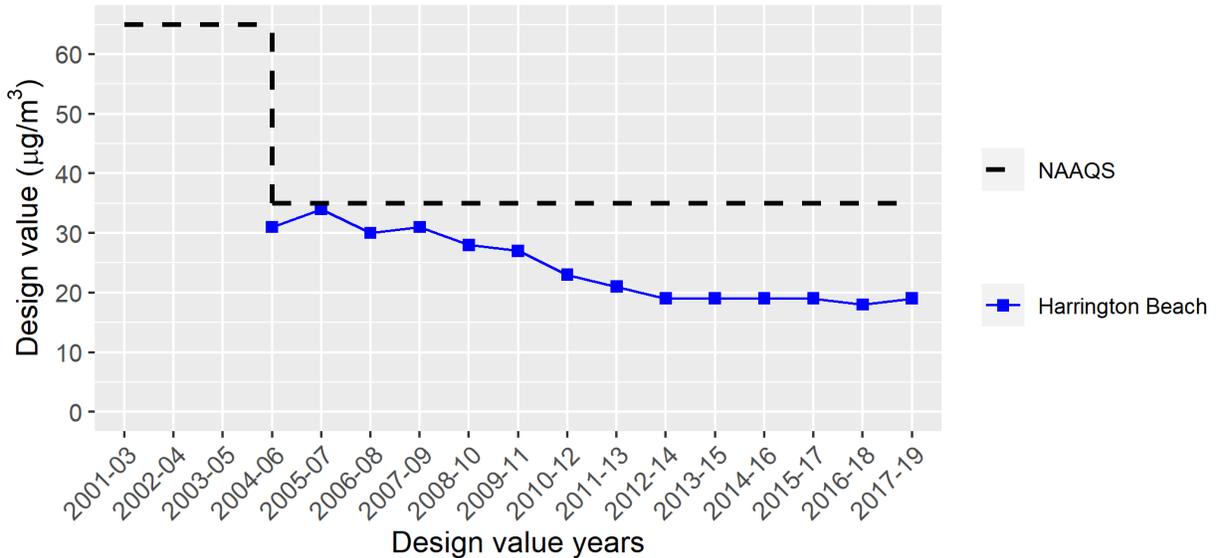


# Wisconsin Air Quality Trends

## Annual PM2.5 design values - Ozaukee County



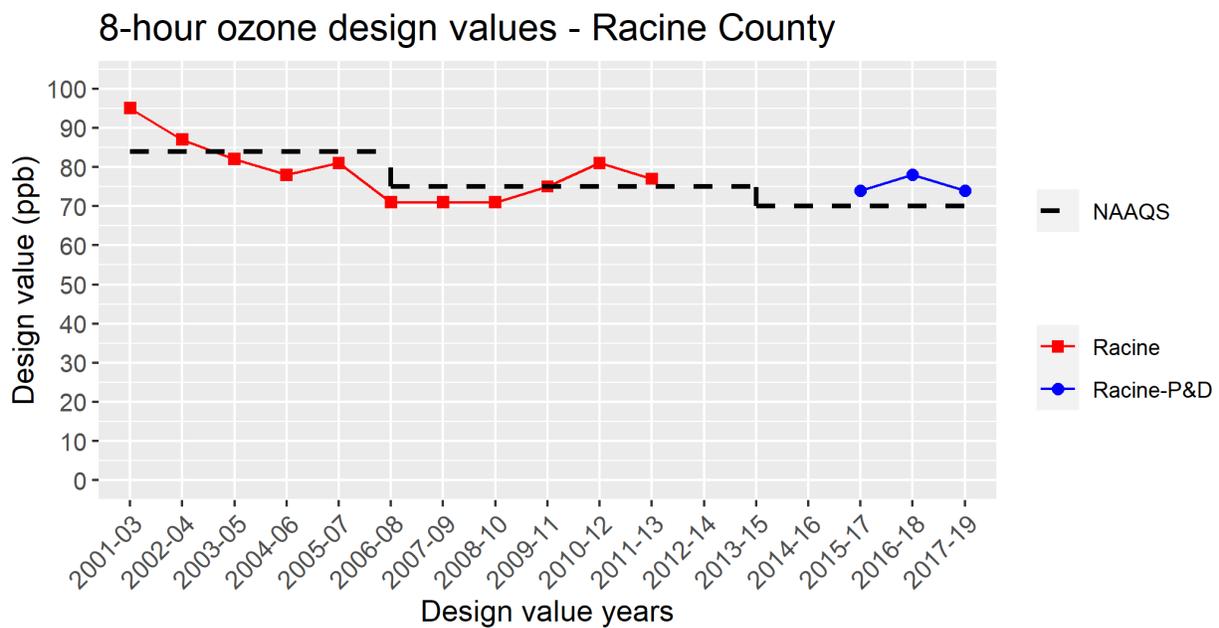
## 24-hour PM2.5 design values - Ozaukee County



# Wisconsin Air Quality Trends

## Racine County

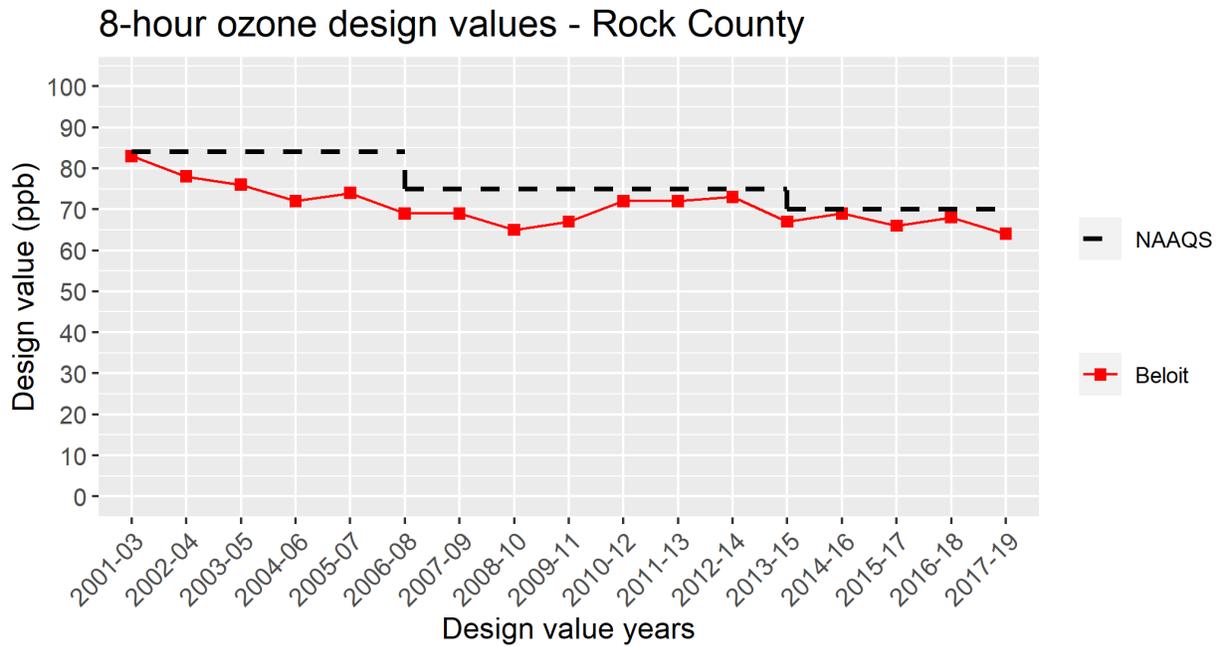
The DNR monitors ozone in Racine County at the Racine – Payne & Dolan site located at 4227 Charles Street in a rural location in the village of Caledonia. Sampling began at this site on April 3, 2015. Prior to this date, ozone monitoring in Racine County occurred at 1519 Washington Avenue above a local business in downtown Racine. Due to extensive safety issues, DNR shut down the site in 2013. Federal rules determine that data from the old and new sites cannot be combined; however, design values from the historic site provide context for the current site’s data.



# Wisconsin Air Quality Trends

## Rock County

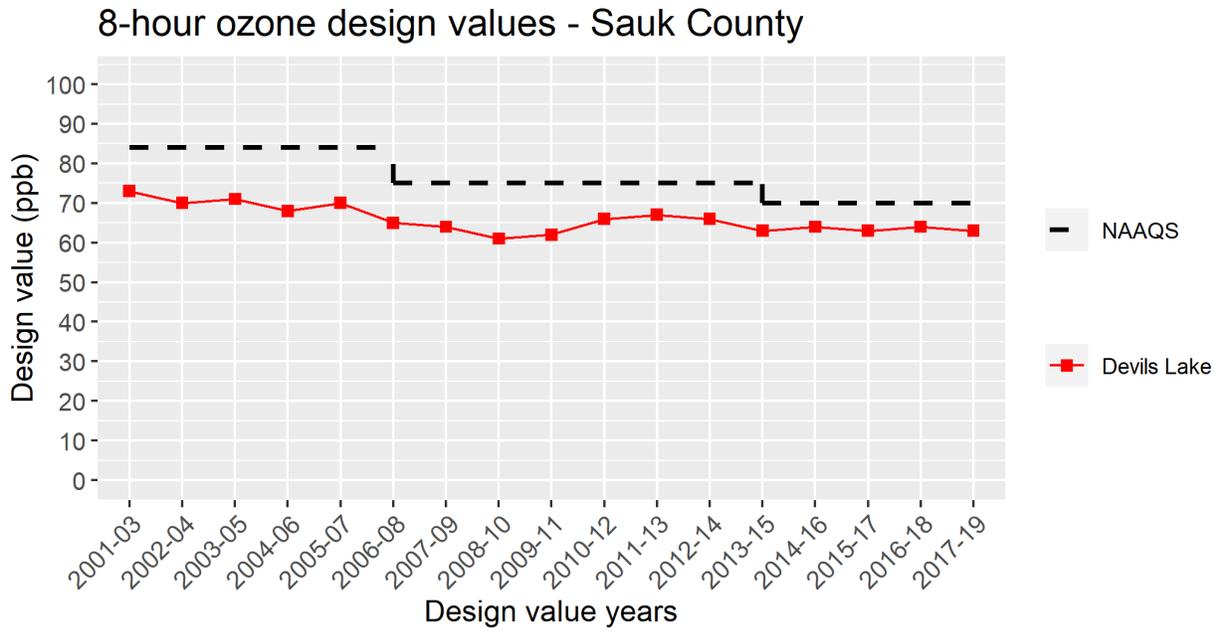
The DNR monitors ozone in Rock County at the Beloit site located at 1501 Ritsher St at the Converse Elementary School. Prior to April 2013, ozone monitoring occurred at the Beloit Cunningham School on 1948 Merrill St. Design values for 2011-2013 through 2013-2015 include data from both sites.



# Wisconsin Air Quality Trends

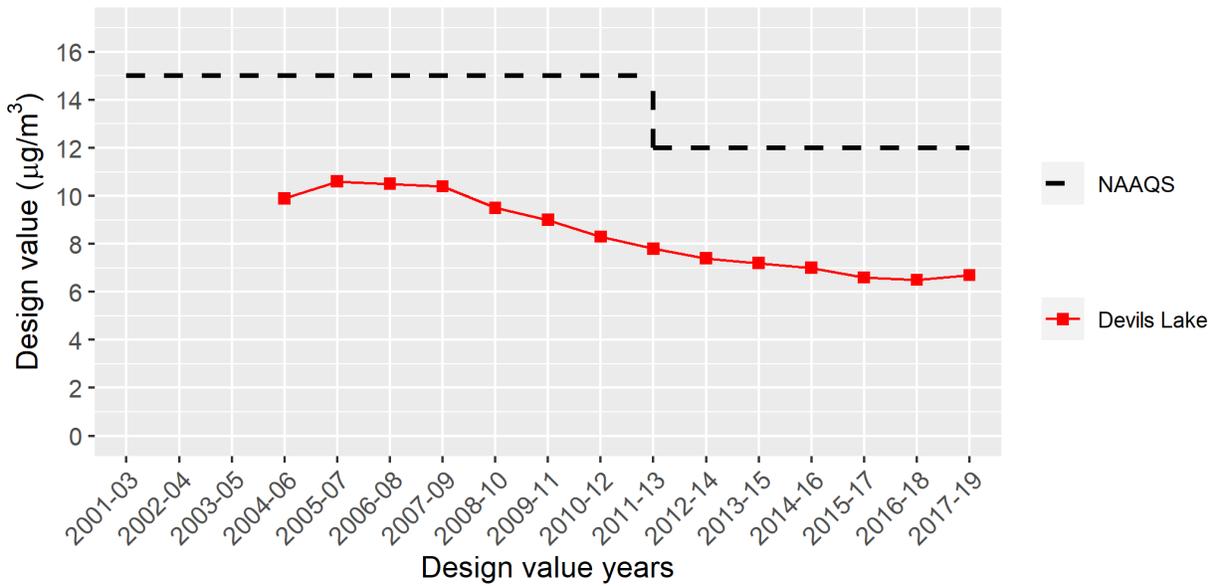
## Sauk County

The DNR monitors ozone, PM<sub>2.5</sub>, and PM<sub>10</sub> in Sauk County at the Devils Lake site located in Devils Lake State Park at E12886 Tower Road in Baraboo. In April 2019, DNR updated the monitoring method for continuous PM<sub>2.5</sub> and PM<sub>10</sub>.

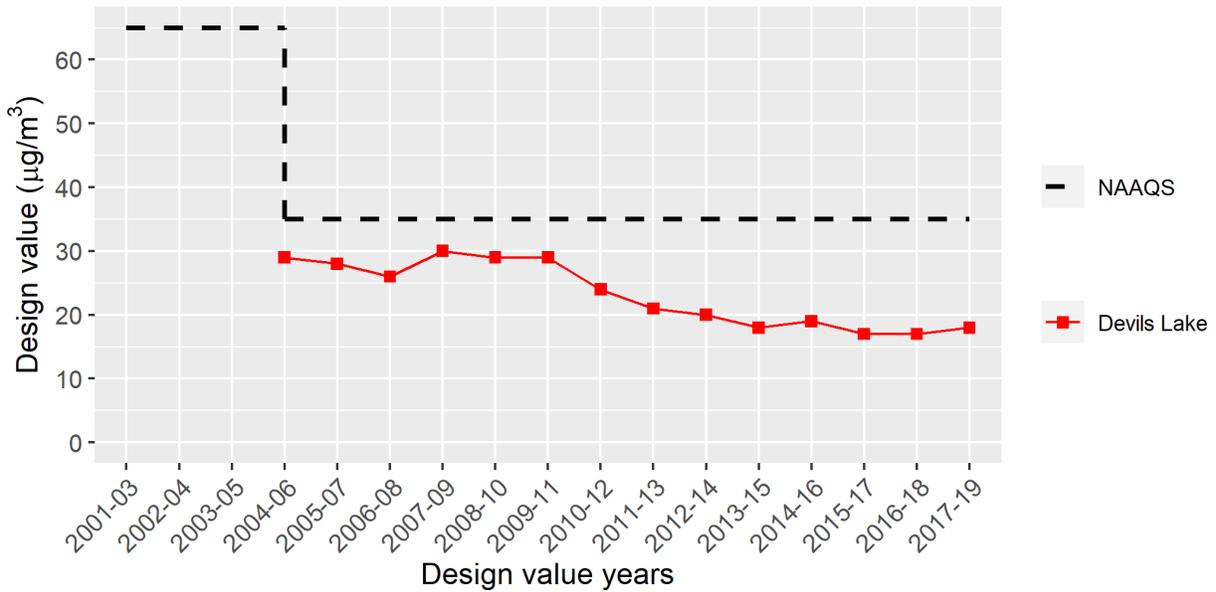


# Wisconsin Air Quality Trends

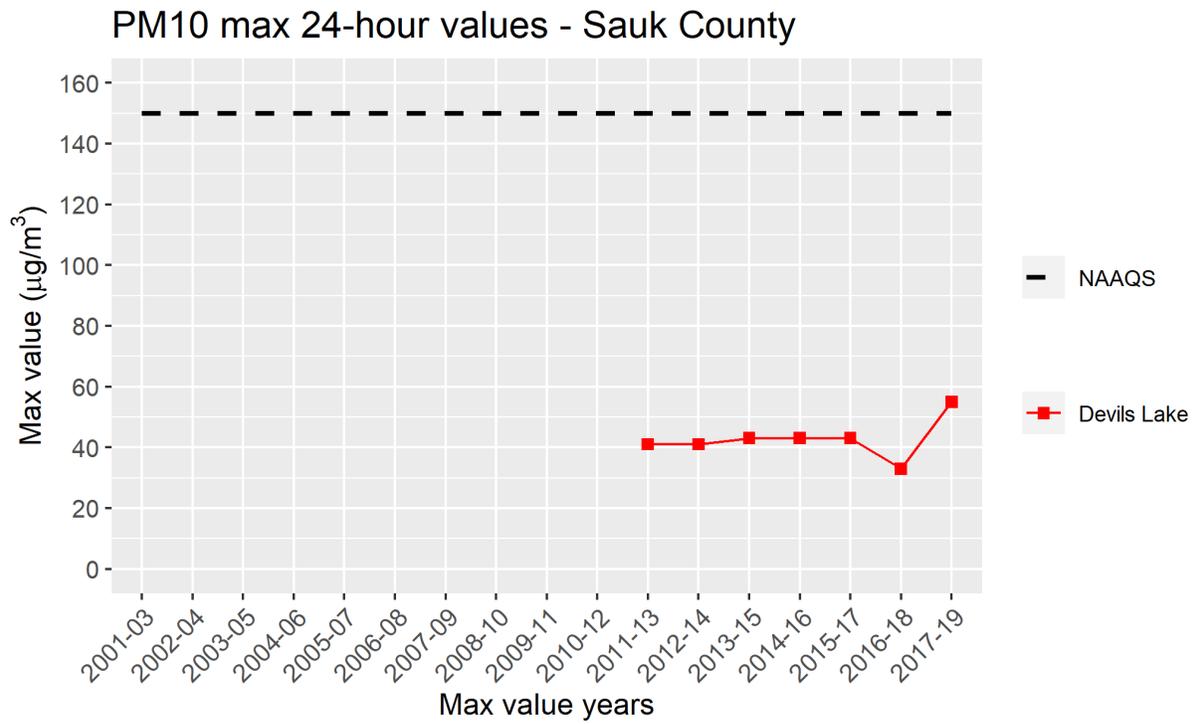
## Annual PM2.5 design values - Sauk County



## 24-hour PM2.5 design values - Sauk County



# Wisconsin Air Quality Trends

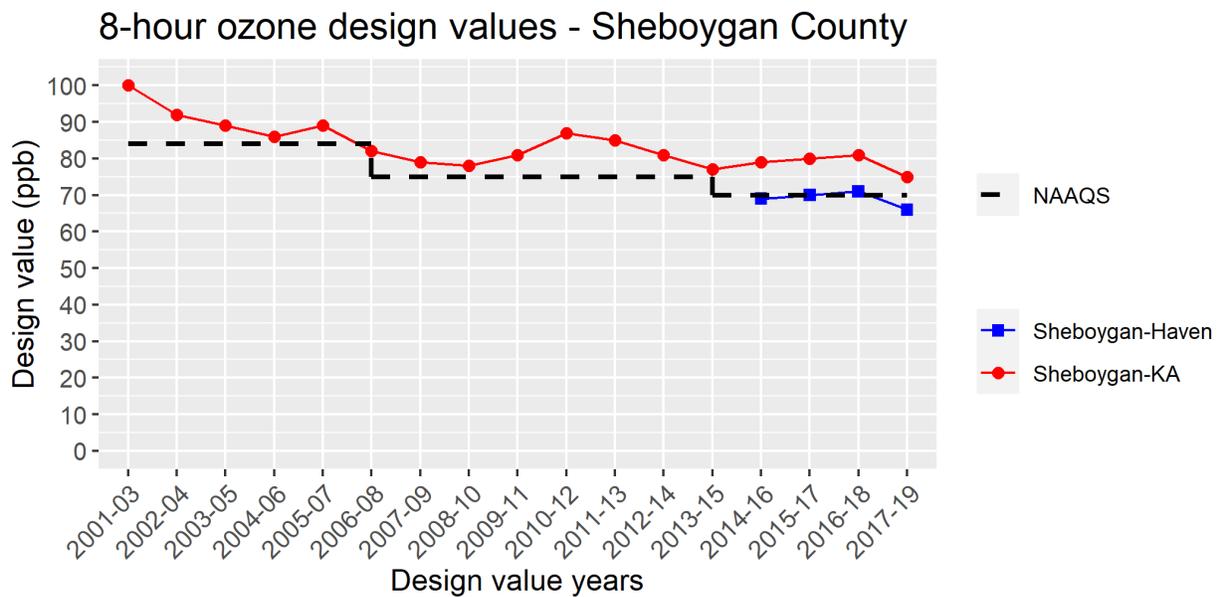


# Wisconsin Air Quality Trends

## Sheboygan County

The DNR monitors ozone in Sheboygan County at the Sheboygan-Kohler Andrae (KA) site at 1520 Beach Park Road within Kohler-Andrae State Park. In 2014, DNR began ozone monitoring at the Sheboygan-Haven site located at N7563 Highway 42 in Sheboygan. Data gathered from the two sites 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 located at 444 Highland Drive. Since beginning operation, the lead monitoring site never recorded an exceedance of the standard and recorded reductions in monitored lead concentrations, design values and variability over time. On March 22, 2019, EPA approved the shutdown of the regulatory monitoring site due to the monitor meeting federal shutdown requirements based on a data demonstration. Due to the sampler's discontinuation, data from the Kohler site is no longer included in this report.

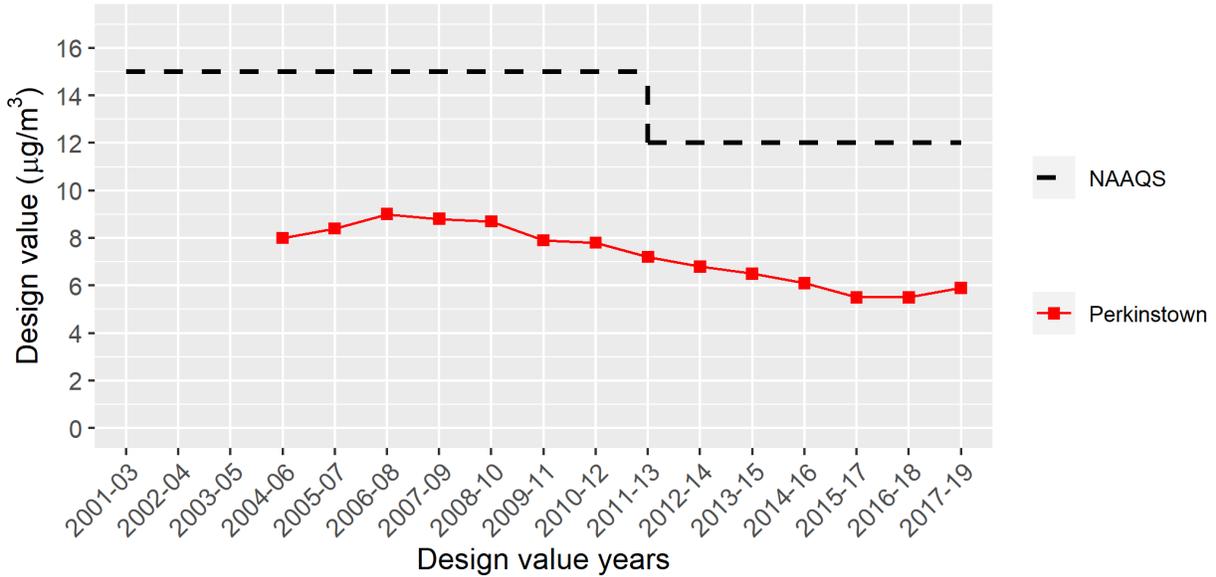


# Wisconsin Air Quality Trends

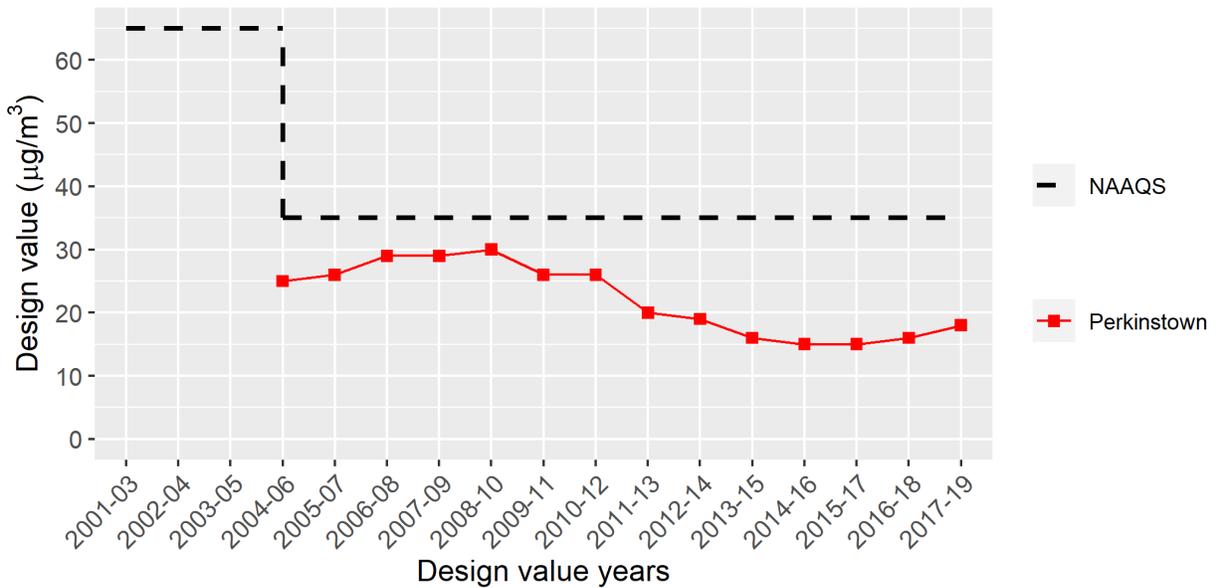
## Taylor County

The DNR monitors PM<sub>2.5</sub> in Taylor County at the Perkinstown site located at W10746 County Highway M.

### Annual PM<sub>2.5</sub> design values - Taylor County



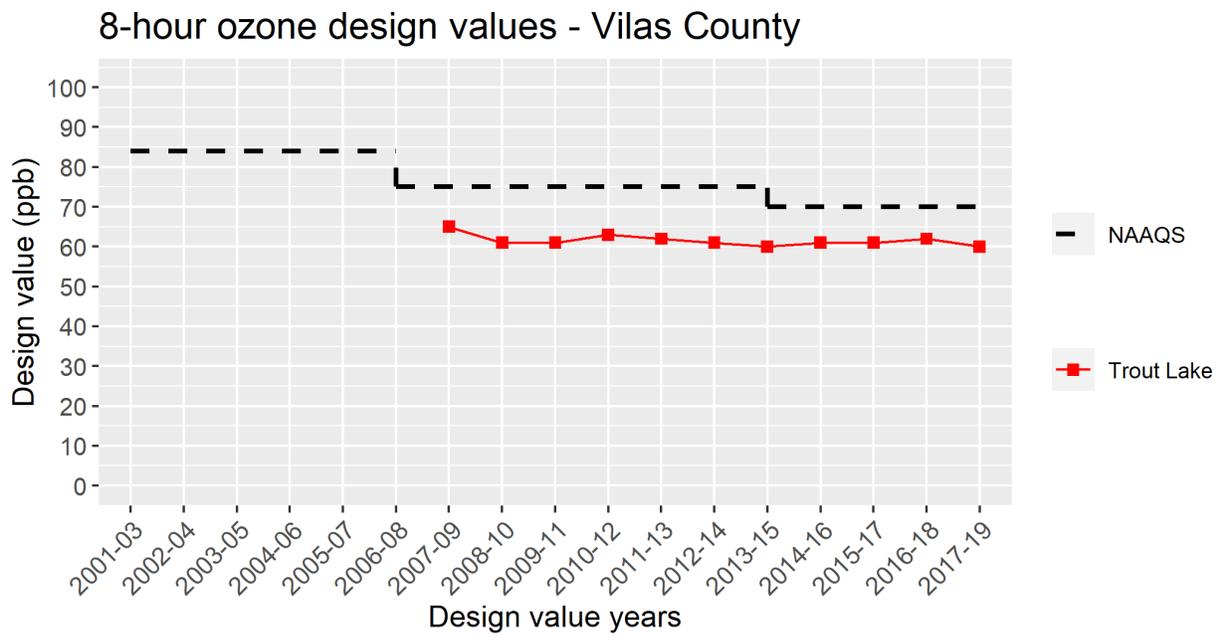
### 24-hour PM<sub>2.5</sub> design values - Taylor County



# Wisconsin Air Quality Trends

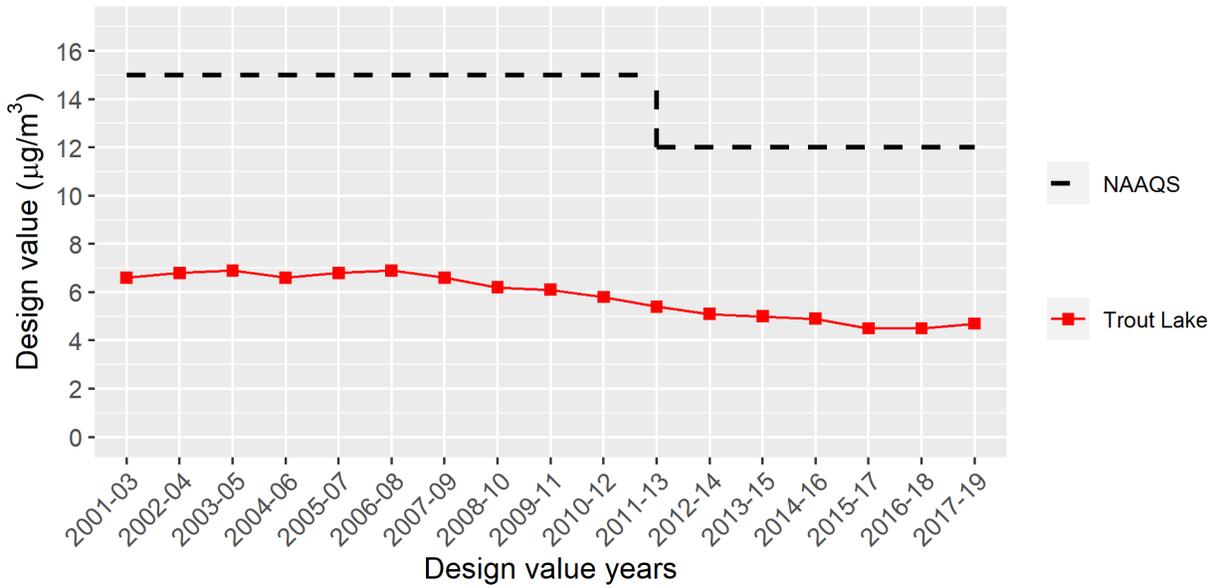
## Vilas County

The DNR monitors ozone and PM<sub>2.5</sub> in Vilas County at the Trout Lake site located at the DNR-University of Wisconsin Trout Lake Station at 10810 County Highway M in Boulder Junction.

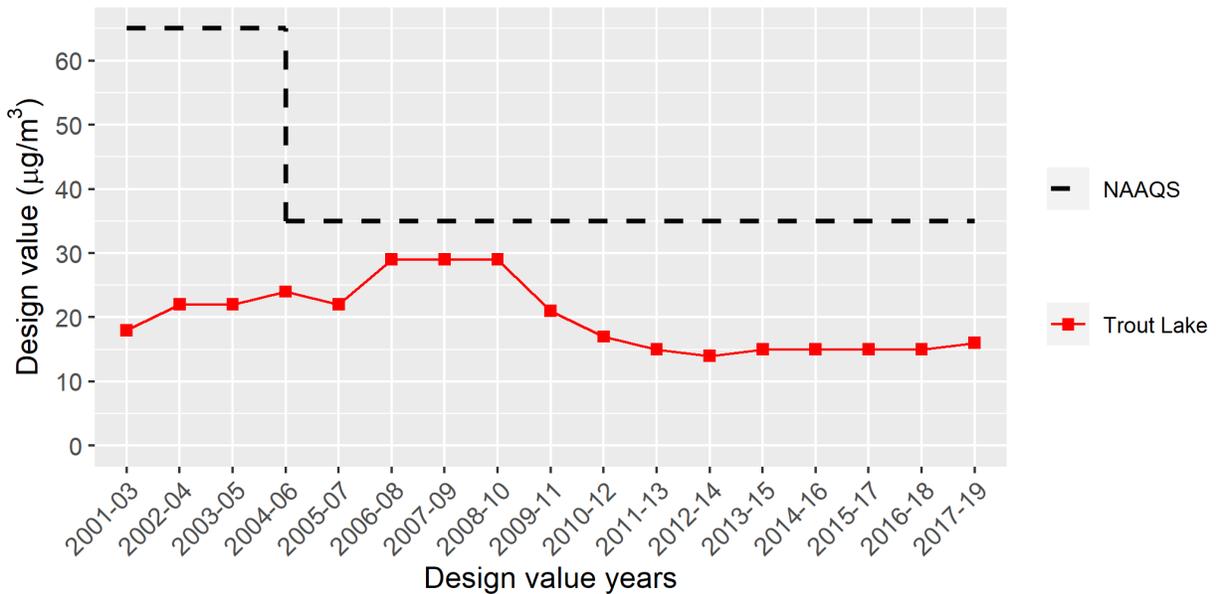


# Wisconsin Air Quality Trends

## Annual PM2.5 design values - Vilas County



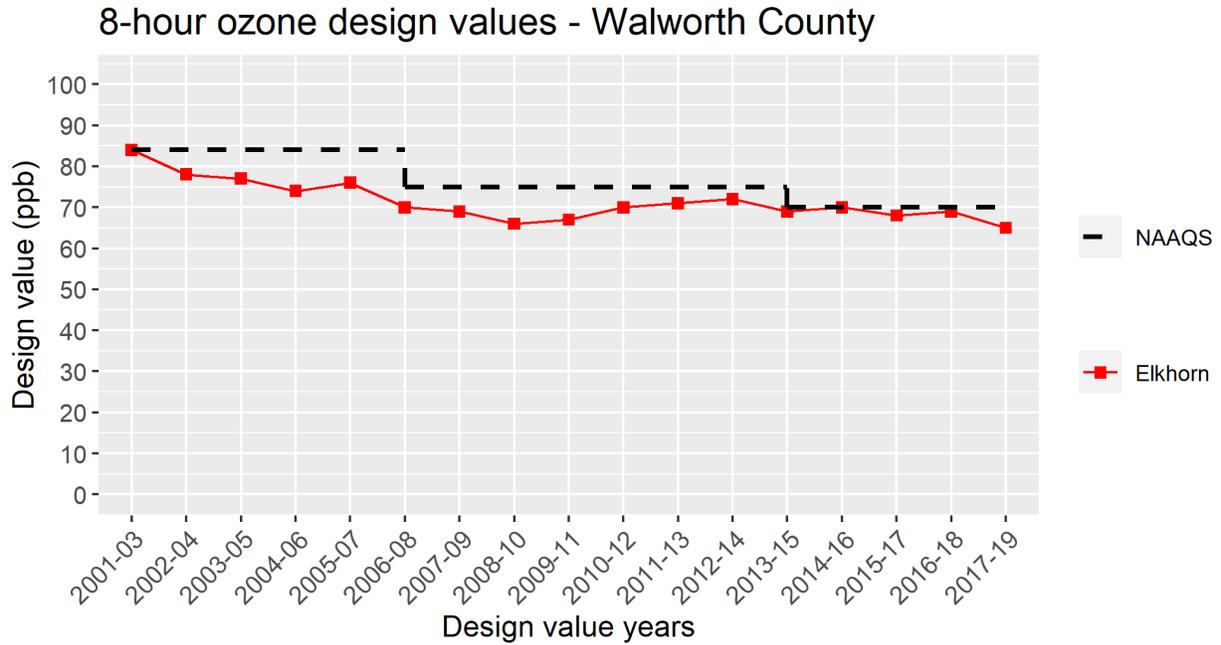
## 24-hour PM2.5 design values - Vilas County



# Wisconsin Air Quality Trends

## Walworth County

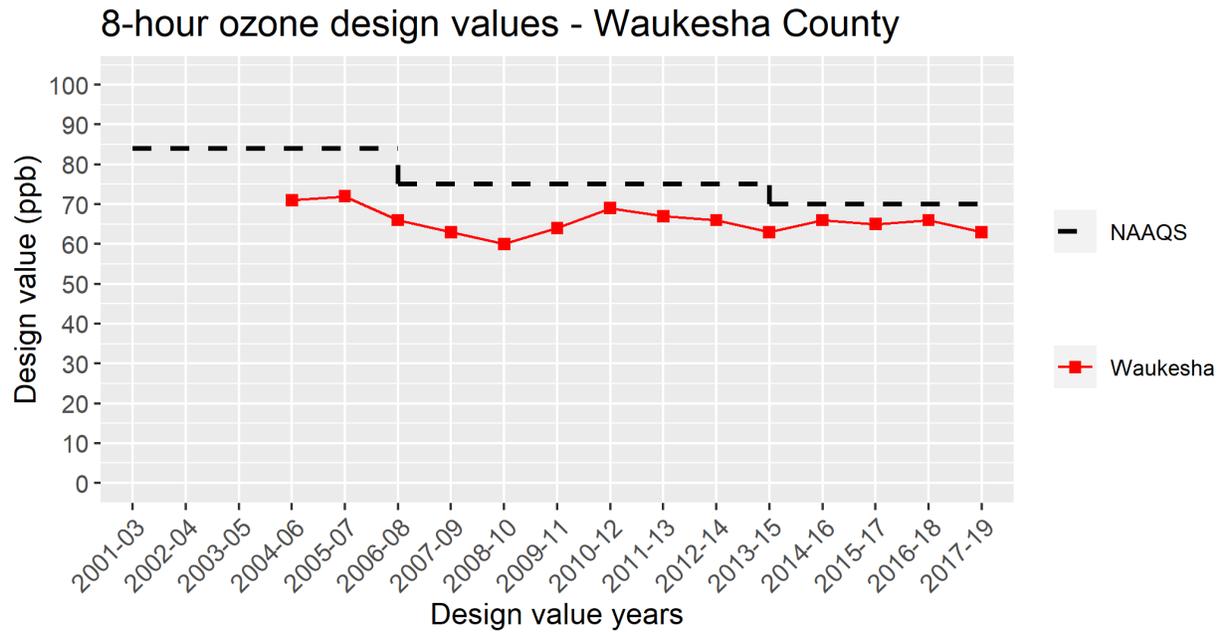
The DNR monitors ozone in Walworth County at the Elkhorn site located at W 3900 County Rd NN. Prior to March 2019, ozone monitoring occurred on the outskirts of Lake Geneva. (Rural Route 4 Elgin Club Road). Design values for 2017-2019 include data from both sites.



# Wisconsin Air Quality Trends

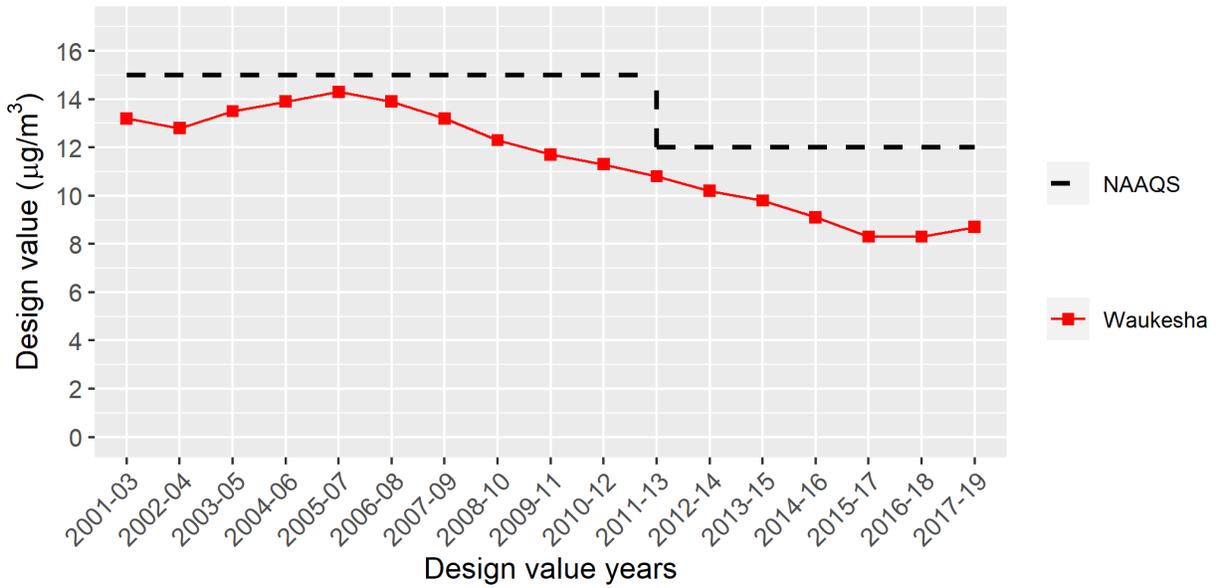
## Waukesha County

The DNR monitors ozone, PM<sub>2.5</sub>, and PM<sub>10</sub> at the Waukesha site located at 1310 Cleveland Ave in Waukesha.

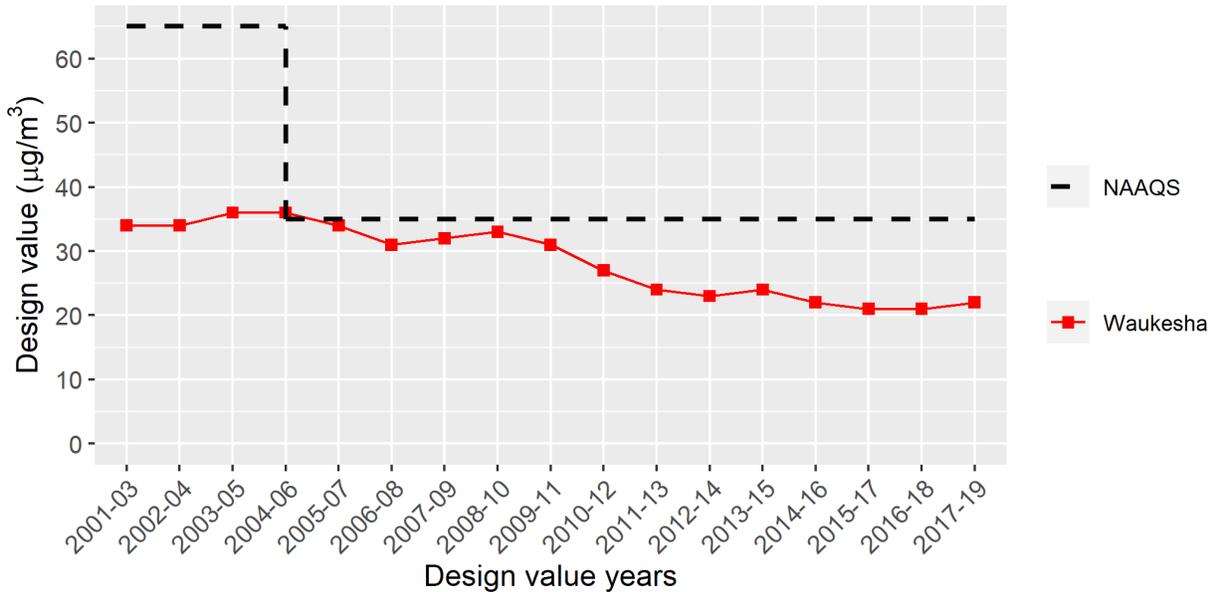


# Wisconsin Air Quality Trends

## Annual PM2.5 design values - Waukesha County



## 24-hour PM2.5 design values - Waukesha County



# Wisconsin Air Quality Trends

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