SUPPLEMENTAL INFORMATION FOR A JUNE 2012 REDESIGNATION REQUEST AND MAINTENANCE PLAN FOR THE 24-HOUR FINE PARTICULATE MATTER NATIONAL AMBIENT AIR QUALITY STANDARD

FOR THE

MILWAUKEE-RACINE 3-COUNTY
NONATTAINMENT AREA

WISCONSIN

Developed By:
The Wisconsin Department of Natural Resources

May 2013

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2007 Ammonia (NH_3) Emissions in Milwaukee, Racine, and Waukesha Counties

Sector	NH_3 Emissions (tons)	Percent of Total		Sector	NH_3 Emissions (tons)	Percent of Total		Sector	NH_3 Emissions (tons)	Percent of Total
EGU Point	1.82	0.07%	⇨	Point	32.33	1.23%	⇨	Stationary	1,960.58	74.22%
Non-EGU Point	30.51	1.15%								
Area	613.34	23.22%	⇨	Area	1,928.25	72.99%				
Agricultural NH_3	1,314.91	49.78%								
Onroad	673.17	25.48%	⇨	Onroad	673.17	25.48%	⇨	Mobile	681.09	25.78%
Nonroad	7.08	0.27%	⇨	Nonroad	7.92	0.30%				
MAR	0.84	0.03%								

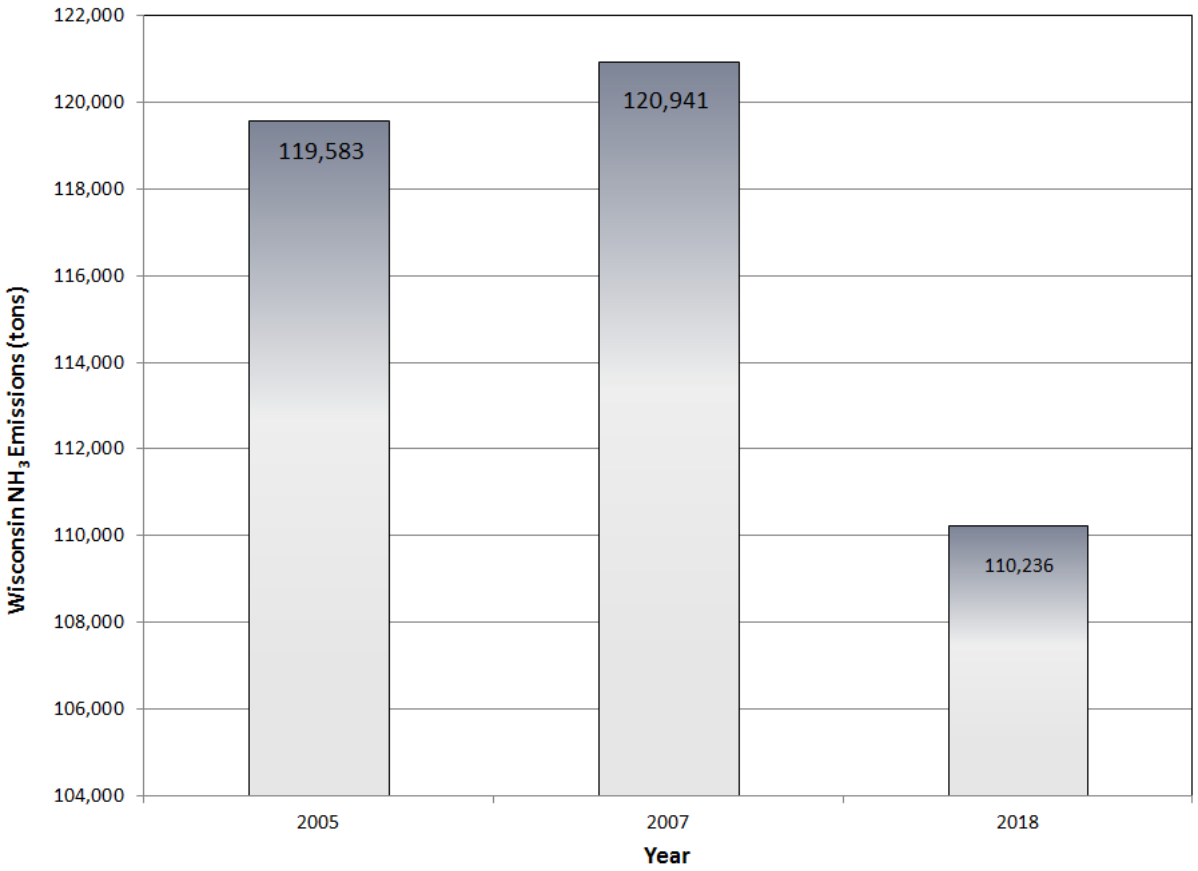
County	NH_3 Emissions (tons)	Percent of Total
Milwaukee	979.51	37.08%
Racine	832.54	31.52%
Waukesha	829.62	31.41%

Notes

These NH_3 emissions were developed by the Lake Michigan Air Directors Consortium (LADCO). Documentation regarding how these emissions were calculated can be found at: http://www.ladco.org/tech/emis/basecv8/Base_C_Emissions_Documentation_Sept_12.pdf.

EGU = Electric Generating Unit
MAR = Marine, Aircraft, and Rail

Total Statewide Wisconsin Ammonia (NH_3) Emissions – 2005, 2007, & 2018



Notes

LADCO only provided onroad estimates (i.e., "MOVES") for 2007 emissions. These emissions were assumed to be the same for 2005 and 2018. These onroad emissions are less than 3% of the total estimated NH_3 emissions for each of the three years shown.

Agricultural NH_3 emissions account for 95%, 94%, and 94% of total statewide NH_3 emissions in 2005, 2007, and 2018, respectively.

In 2007, the NH_3 emissions in the Milwaukee-Racine Nonattainment Area were estimated to be 2,641.66 tons. This is only 2.2% of the statewide total NH_3 emissions (120,941 tons) in 2007.

DAILY FINE PARTICULATE MATTER ($PM_{2.5}$) DESIGN VALUE MODELING

The Wisconsin Department of Natural Resources (WDNR) reviewed the latest future year design value modeling developed by the Lake Michigan Air Directors Consortium (LADCO) for $PM_{2.5}$ in the Milwaukee-Racine Nonattainment Area. This information is summarized on Page 11 of "*Appendix B – Regional Air Quality Analyses for Ozone, $PM_{2.5}$, and Regional Haze*" of a Final Technical Support Document dated September 25, 2008. LADCO provided design values for 2009, 2012, and 2018. The WDNR specifically considered the design values from the "with CAIR" scenarios for the discussion contained in this paper.

2009 - 2012

A comparison of modeled $PM_{2.5}$ design values and air monitoring conducted by the WDNR for 2008 – 2012 is shown on the following page. The primary takeaways are as follows:

- Design values calculated from WDNR air monitoring data are **below** LADCO modeled design values.
- Downward trends from 2008 through 2012 for air monitoring sites where data is available from WDNR air monitoring are **steeper than was anticipated** by the 2008 LADCO modeling.

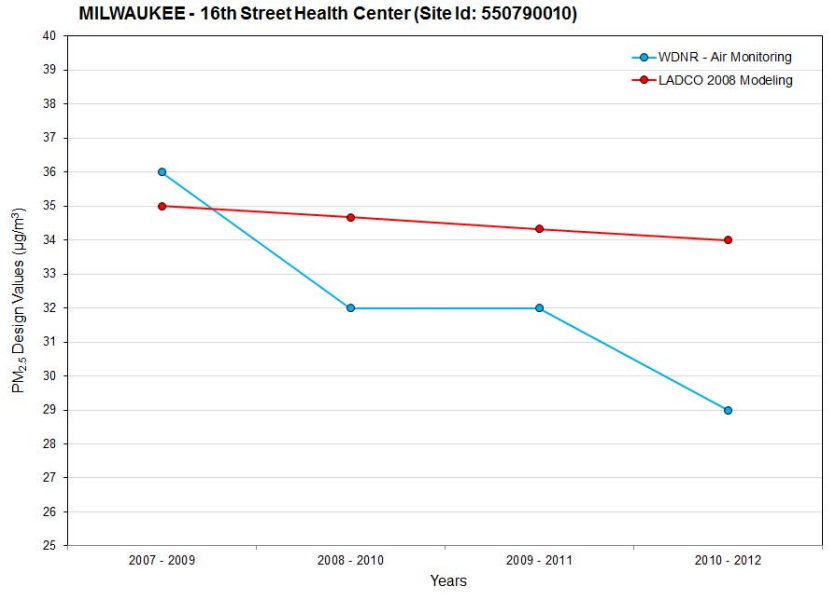
2018

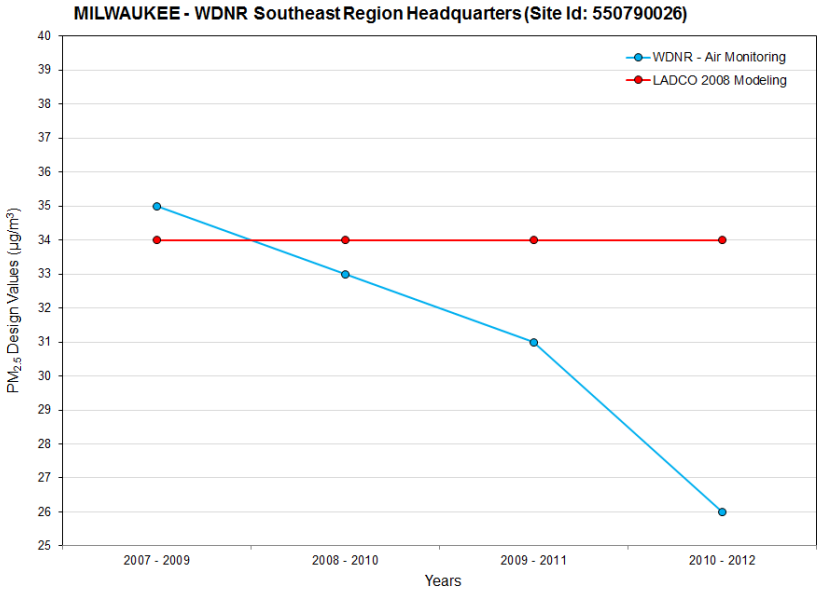
LADCO also developed 2016 – 2018 $PM_{2.5}$ design values as part of their 2008 $PM_{2.5}$ modeling. The design values are as follows:

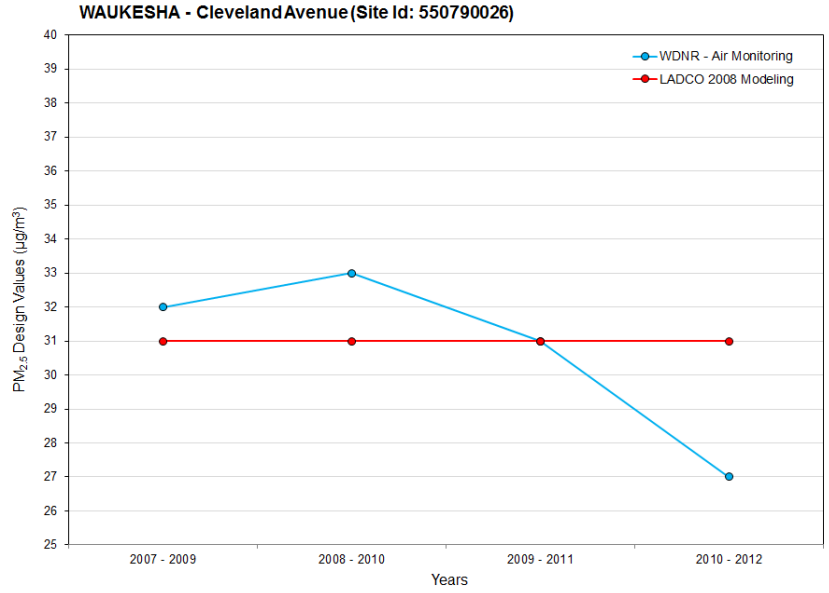
Site Name	Site Id	2016 – 2018 Design Value
MILWAUKEE SIXTEENTH ST. HEALTH CENTER	550790010	33 µg/m^3
MILWAUKEE SER DNR HDQRS	550790026	33 µg/m^3
MILWAUKEE VIRGINIA STREET FIRE STATION	550790043	36 µg/m^3
MILWAUKEE FIRE DEPT HDQRS	550790099	32 µg/m^3
WAUKESHA CLEVELAND AVE	551330027	29 µg/m^3

All of the 2016 – 2018 Milwaukee-Racine Nonattainment Area design values are below the 2006 24-Hour $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) of 35 µg/m^3, except for the projected design value at the WDNR's Milwaukee Virginia Street Fire Station air monitoring location.

The U.S. Environmental Protection Agency (EPA) recently updated its Modeled Attainment Test Software (MATS) from Version 2.3.1 to 2.5.1. The 2008 LADCO modeling relied on the older MATS version to develop the 2016 – 2018 $PM_{2.5}$ design values. In consultation with the U.S. EPA and LADCO, the WDNR reproduced the 2008 LADCO future year modeling using both MATS versions and found that the projected 2016 – 2018 design value dropped from 35.8 µg/m^3 to 33.0 µg/m^3 at the WDNR's Virginia Street Fire Station air monitoring location when using the latest software. The WDNR confirmed this result (i.e., lower design value) with the U.S. EPA.







Milwaukee Virginia Street Fire Station (Site Id: 550790043)

- 2007 – 2009 (LADCO 2008 Modeling): 38 µg/m^3
- 2008 – 2010 (LADCO 2008 Modeling): 37.33 µg/m^3
- 2009 – 2011 (LADCO 2008 Modeling): 36.67 µg/m^3
- 2010 – 2012 (LADCO 2008 Modeling): 36 µg/m^3

- 2007 – 2009 (WDNR – Air Monitoring): 36 µg/m^3
- This site was discontinued on 12/31/2009.

Milwaukee Fire Department Headquarters (Site Id: 550790099)

- 2007 – 2009 (LADCO 2008 Modeling): 33 µg/m^3
- 2008 – 2010 (LADCO 2008 Modeling): 32.67 µg/m^3
- 2009 – 2011 (LADCO 2008 Modeling): 32.33 µg/m^3
- 2010 – 2012 (LADCO 2008 Modeling): 32 µg/m^3

- 2007 – 2009 (WDNR – Air Monitoring): 36 µg/m^3
- This site was discontinued on 12/31/2009. It was restarted in 2012.

Note: 2008 – 2010 & 2009 – 2011 design values for the LADCO 2008 modeling are interpolated since only 2007 – 2009 & 2010 – 2012 were developed.