

Air Pollution in Detroit: Status and Trends

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Overview

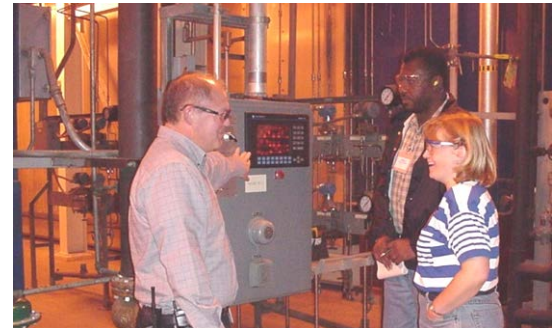
- Core functions of the Air Quality Division
- The AQD's air monitoring program
 - Which pollutants are monitored
 - What do our air monitors show?
- New air monitoring challenges on the horizon

Core Functions of the Air Quality Division

- Regulate sources of air pollution to ensure that the air that we breathe is healthy.
 - New sources and sources that are modified are required to get permits
 - Michigan has state only air toxics regulations

Ensuring Healthy Air (continued)

- We inspect these sources to make sure permits conditions are being met
- Enforcement administer fines and penalties for violations



Ensuring Healthy Air (continued)

- We have staff that monitor the ambient air and conduct stack tests
- If we exceed a health standard, we develop strategies that will make it clean again.



What pollutants do we monitor?

- Section 109 of the 1970 federal Clean Air Act requires EPA to develop National Ambient Air Quality Standards for
 - Sulfur dioxide
 - Nitrogen dioxide
 - Ozone
 - Particulate matter
 - Lead
 - Carbon monoxide

Clean Air Act

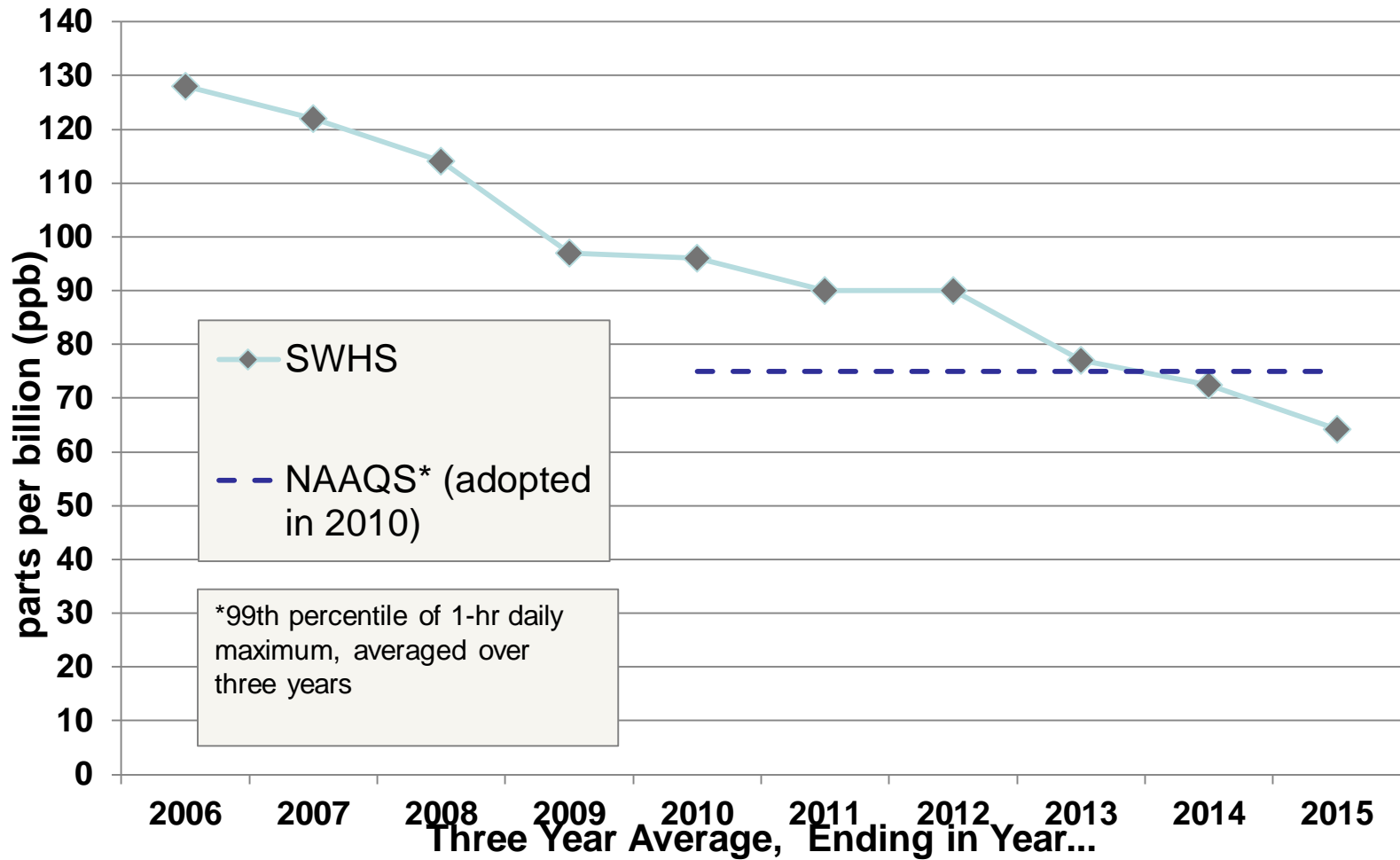
[Section 110(a)(2)(B)]

- Each [State implementation] plan shall
 - Provide for the establishment and operation of appropriate devices, methods, systems, and procedures necessary to-
 - » (i) monitor, compile, and analyze data on ambient air quality, and
 - » (ii) upon request, make such data available to the Administrator;

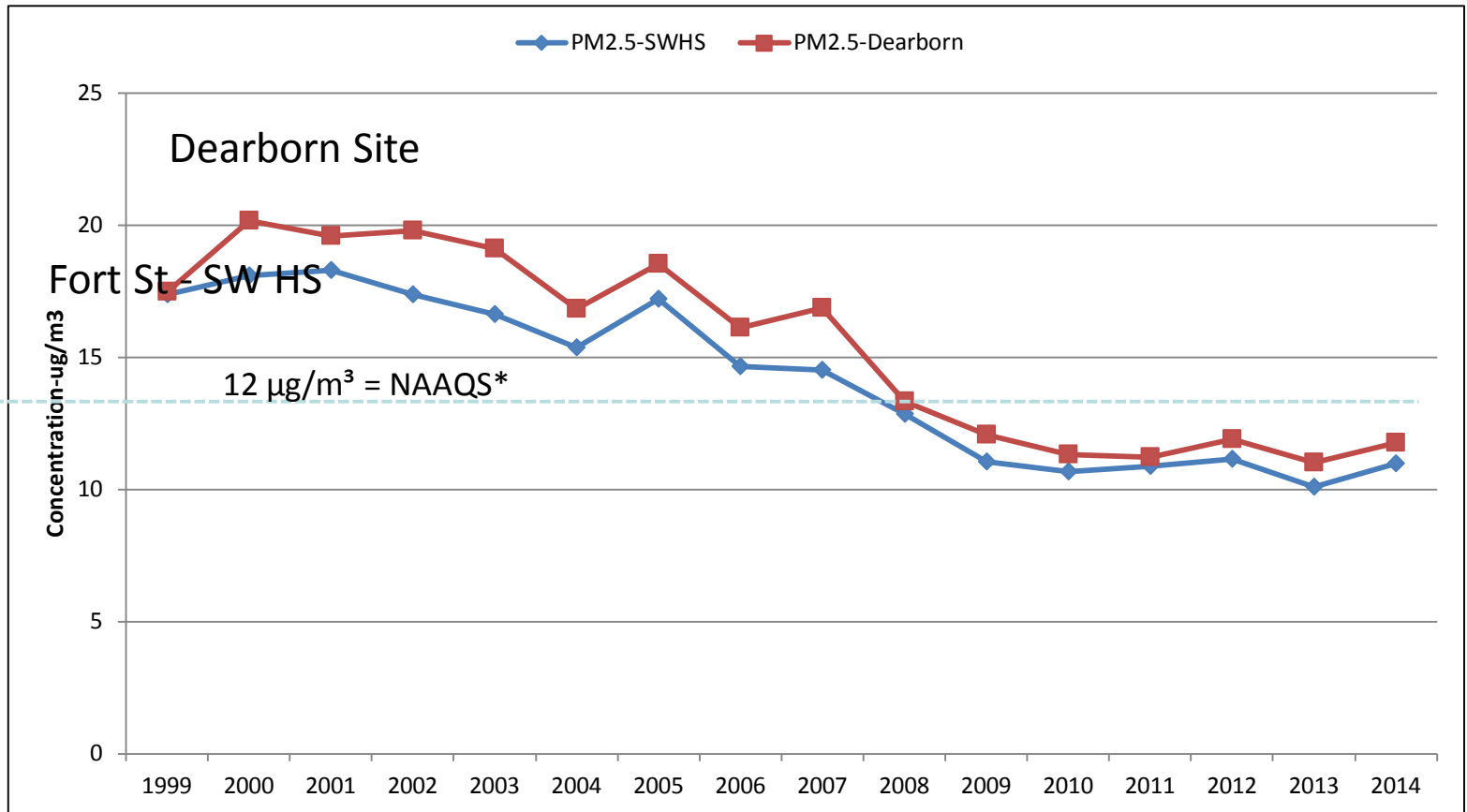
Air Monitoring Program

- Air sampled at approximately 45 statewide sites to make sure the National Ambient Air Quality Standards are being met
 - 10 sites in Wayne County
 - Detroit- West Fort Street (SWHS)
 - Detroit-West Lafayette Street
 - Detroit-West Jefferson
 - Detroit-Linwood
 - Detroit-East 7 Mile
 - Detroit-Eliza Howell (I-96 and Telegraph)
 - Dearborn
 - River Rouge
 - Wyandotte
 - Livonia

SO₂: 99th Percentile of max daily 1-hrs



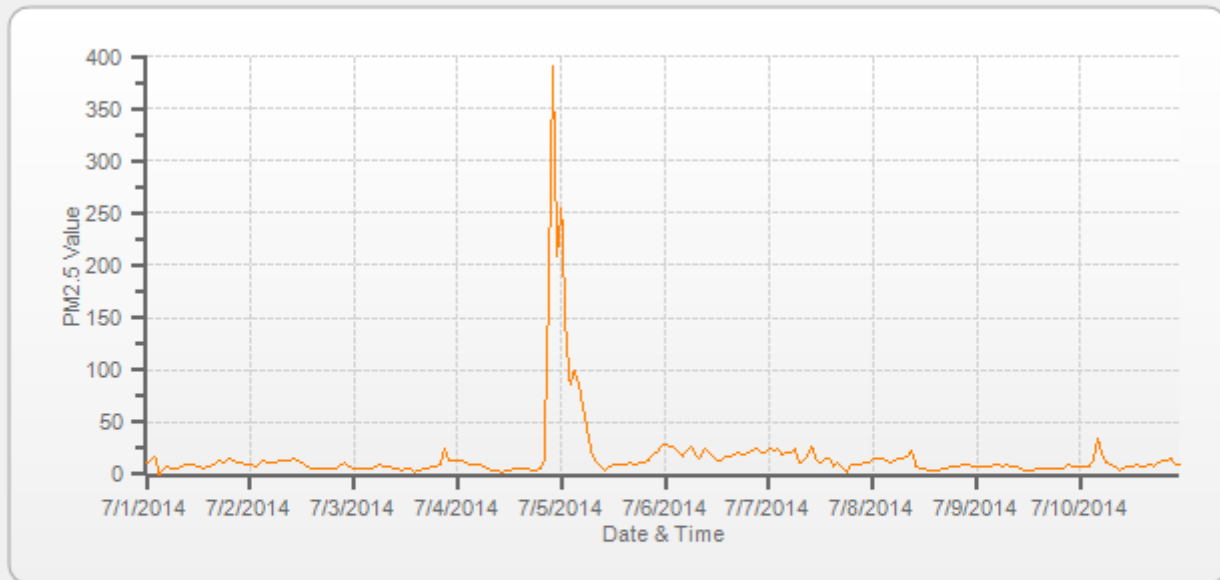
Particulate Matter <math><2.5 \mu\text{m}</math> Diameter (PM_{2.5}) Annual Average Concentrations



*The annual

Maximum Hourly PM_{2.5}

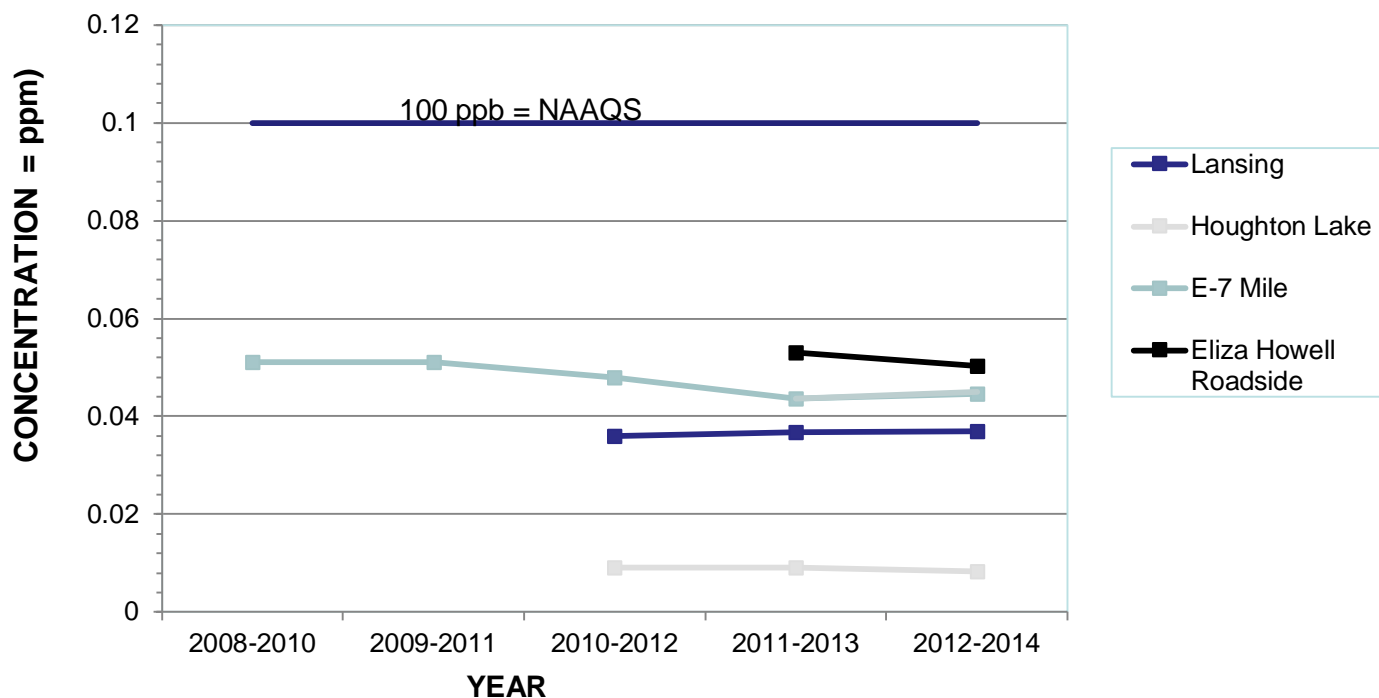
PM2.5[ug/m3(L)] Station: DEARBORN Periodically: 7/1/2014 12:00 AM-7/10/2014 11:55 PM Type: AVG 1 Hr. [1 Hr.]



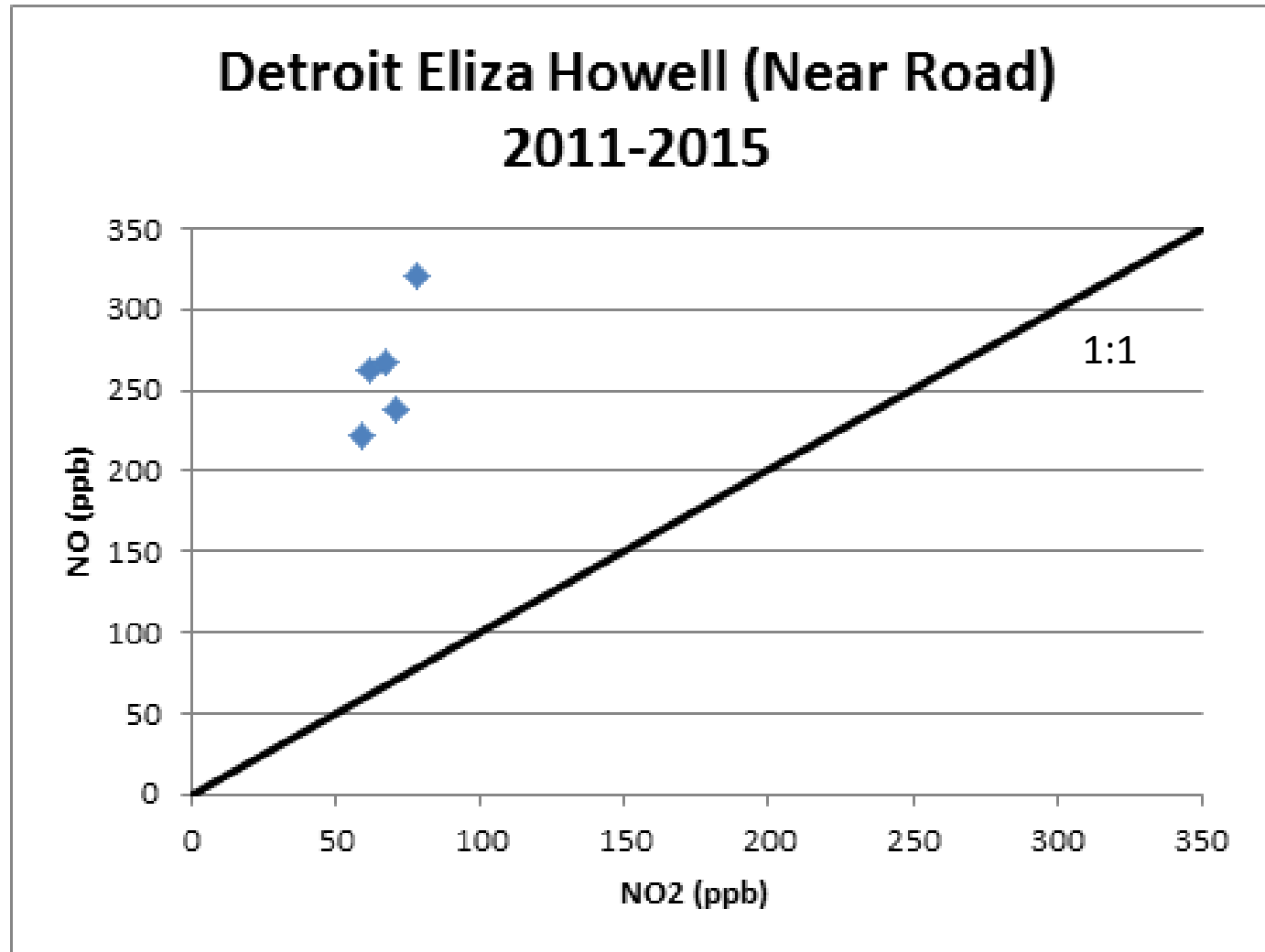
PM2.5[ug/m3(L)]

NO₂

In Michigan from 2008-2014
(3-year average of the 98th percentile of 1-hr values)

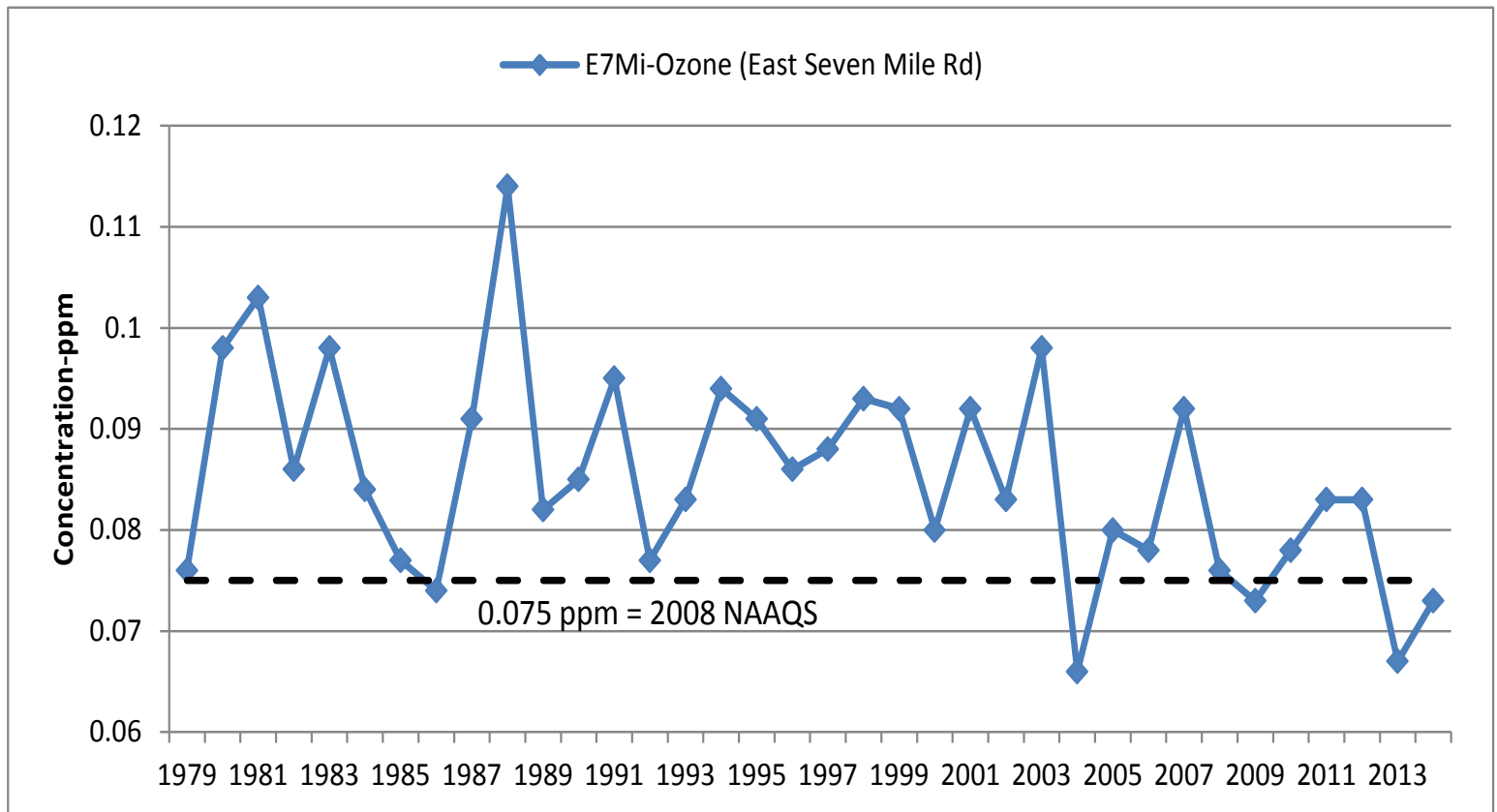


Max 1-hour NO/NO2 Impacts



Ozone (O₃)

4th Maximum 8-Hour Concentration



*

National Air Toxics Trend Site (Dearborn)

Summa Can for
VOCs
(volatile organic
compounds)



Metals –
collected on
TSP/PM10
filters



Semi-Volatile
sampling



Ways to Access Air Monitoring Data

Near Real Time (Mlair)

MLair Department of Environmental Quality Michigan.gov

Michigan.gov Home DEQ Home DEQ Air DEQ Air Monitoring Contact DEQ

[Air Quality Index](#) [Action Days](#) [Air Quality Notification](#) [Monitoring Data](#) [Ozone Maps](#) [PM_{2.5} Maps](#) [Links](#)

Announcements
Ozone is monitored April thru September.
 Previous season maps & data are available. Use the calander option to...
TIP ... Click on an AQI "dot" to view air monitor data. [\(more\)](#)

Forecast Discussions
 FORECAST SUMMARY: Monday, December 2nd, 2013 through Monday, December 9th, 2013 PM-2.5: 24-hour Fine Particulate concentrations a... [\(more\)](#)

Latest AQI Information Select Map: [Legend](#)

Location	Current AQI Value	Forecast	
		Today	Tomorrow
Ann Arbor	28 - PM _{2.5}	PM _{2.5}	PM _{2.5}
Benton Harbor	22 - PM _{2.5}	PM _{2.5}	PM _{2.5}
Detroit	31 - PM _{2.5}	PM _{2.5}	PM _{2.5}
Eastern U.P.	22 - PM _{2.5}	PM _{2.5}	PM _{2.5}
Flint	22 - PM _{2.5}	PM _{2.5}	PM _{2.5}
Grand Rapids	27 - PM _{2.5}	PM _{2.5}	PM _{2.5}
Houghton Lake	25 - O ₃	PM _{2.5}	PM _{2.5}
Kalamazoo	22 - PM _{2.5}	PM _{2.5}	PM _{2.5}
Lansing	26 - PM _{2.5}	PM _{2.5}	PM _{2.5}
Ludington	25 - O ₃	PM _{2.5}	PM _{2.5}
Saginaw	23 - PM _{2.5}	PM _{2.5}	PM _{2.5}
Traverse City	25 - O ₃	PM _{2.5}	PM _{2.5}

[AQI Breakpoints](#) [Actions To Protect Health](#)

December 06, 2013

Click on site to display hourly monitor values

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 In partnership with the U.S. EPA AIRNow program.

<http://deqmiair.org>

Hourly Data

Site: Lansing

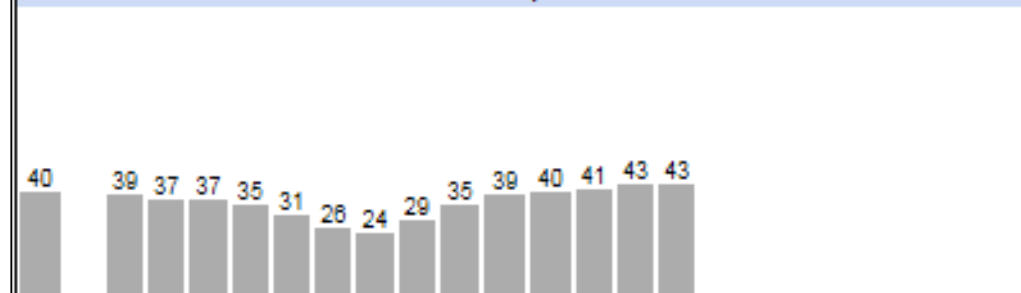
Hourly air quality measurements*

*Displayed values are end-hour. All data are preliminary and subject to validation.

<< < Today > >>

Ozone

12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11
am pm



Parts
per
Billion

Hourly Concentrations

Summary Data

2014 Annual Air Quality Report

M
i
c
h
i
g
a
n



DEQ Department of Environmental Quality

Pb (24-hour) Measured in $\mu\text{g}/\text{m}^3$

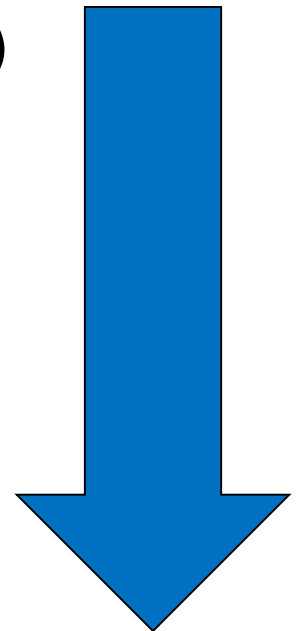
City	County	Year	# OBS	Highest rolling 3-month Arith Mean	Highest Value (24 hr)
Belding-Reed St.	Ionia	2014	60	0.04	0.270
Belding-Merrick St.	Ionia	2014	60	0.05	0.210
Grand Rapids	Kent	2014	60	0.01	0.012
Port Huron Rural St.	St. Clair	2014	60	0.03	0.130
Vassar	Tuscola	2014	61	0.00	0.014
Allen Park	Wayne	2014	59	0.01	0.027
Dearborn	Wayne	2014	60	0.02	0.060

What's on the horizon?



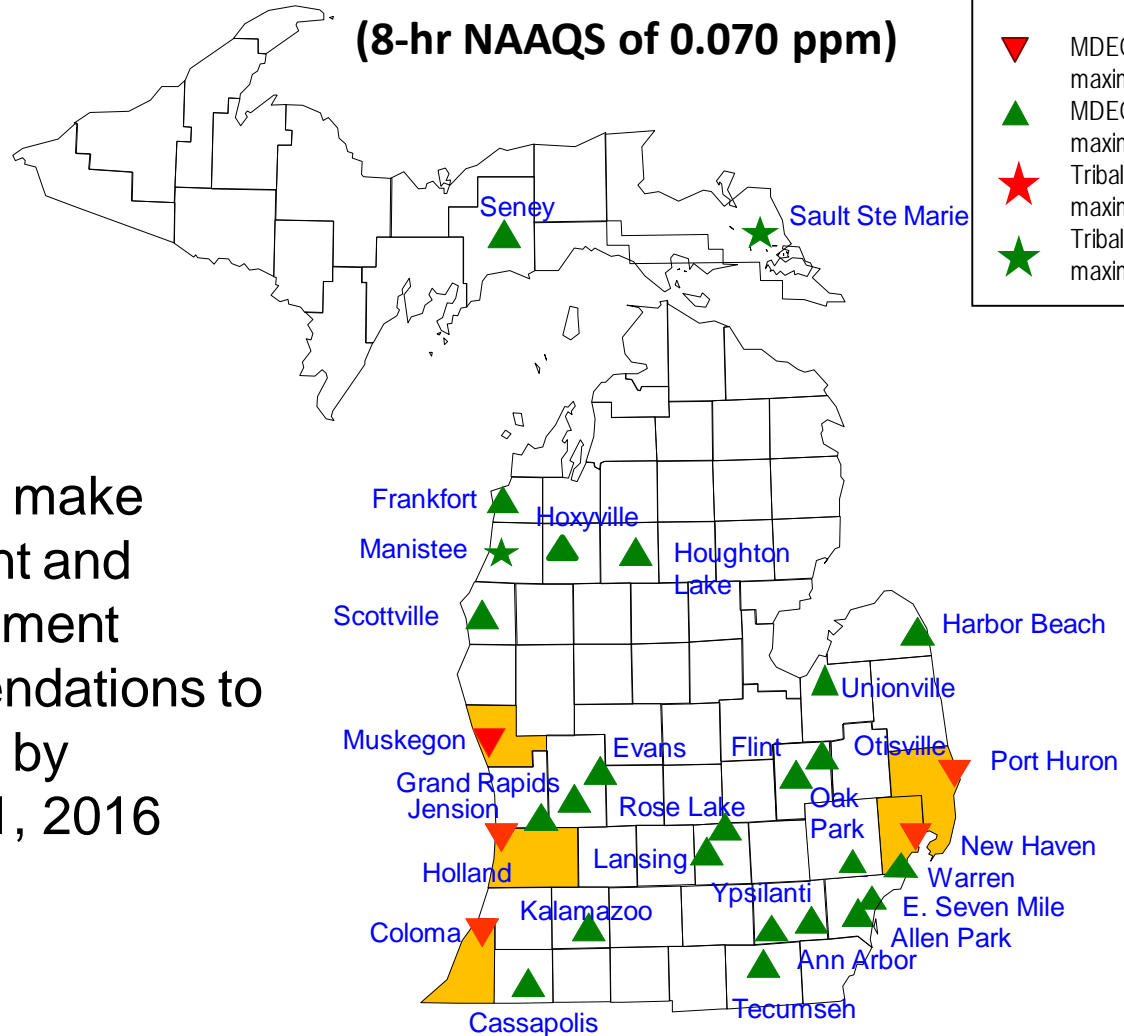
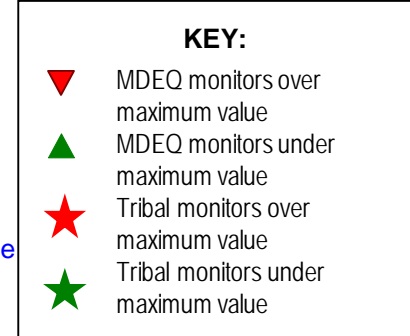
Ozone

- Reduced the NAAQS to 0.070 ppm
 - Rule signed October 1, 2015 and published October 26, 2015
 - Annual fourth-highest daily maximum 8-hour concentration, averaged over three years
 - Five sites above the NAAQS (ppm)
 - Holland (0.075),
 - Muskegon (0.074),
 - Coloma (0.073),
 - New Haven (0.071) and
 - Port Huron (0.072)



Potential Ozone Non-attainment

(8-hr NAAQS of 0.070 ppm)



MDEQ to make attainment and nonattainment recommendations to U.S. EPA by October 1, 2016

2013-2015 data



Near Road Air Toxics

- September 2015: MDEQ received grant to collect air toxics data at two metro Detroit near road sites
 - Carbonyls
 - Continuous BTEX
 - Carbon black
 - Ultra-fine Particulate
 - Metals (continuous and filter-based)
- Sampling to run for two years, beginning Spring 2016



Monitoring at Refineries

- Rule signed September 29, 2015 and published December 1, 2015
 - Perimeter benzene monitoring
 - Two week passive monitors must encircle the facility
 - » Compare a rolling annual average of 2.8 ppb, facility do a root cause analysis (RCA) and corrective action
 - Provides for alternative monitoring methods allowing real time monitoring in the future



A New Monitoring Station in 48217!

- Yet to Be Determined
 - Exact location
 - Complete list of parameters
- Start date
 - July 2016?

