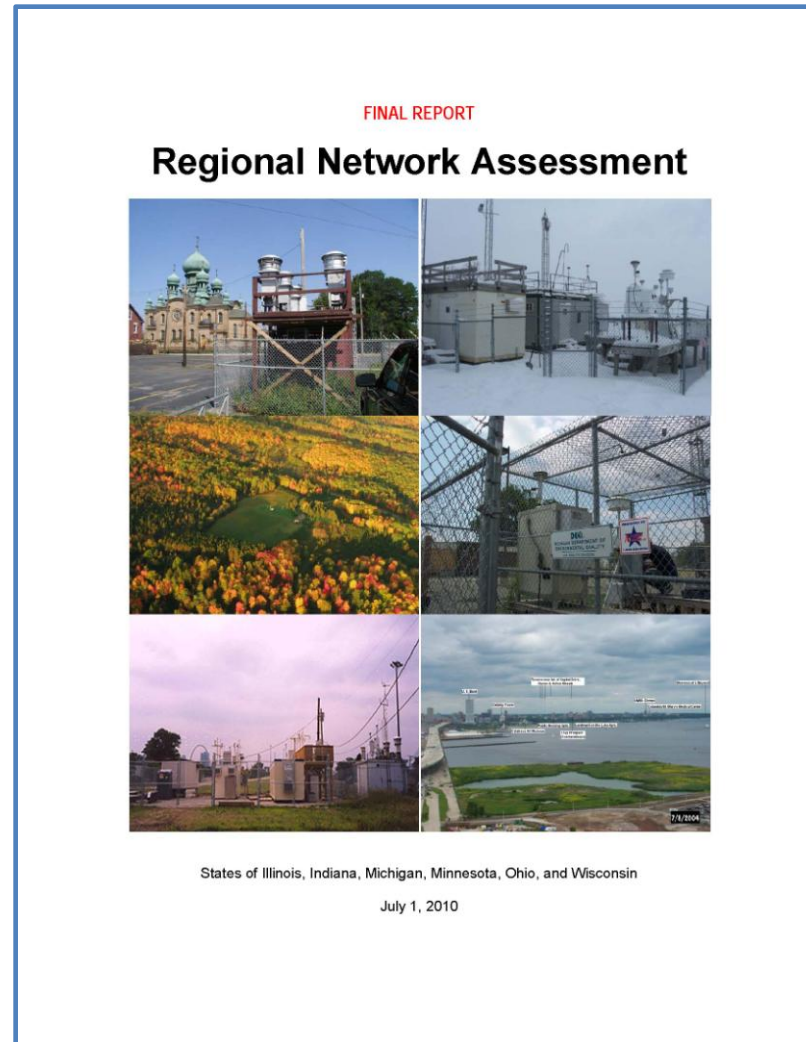


Regional Network Assessment for the Upper Midwest



Why?

- Required by EPA's monitoring regulations
 - 40 CFR Part 58.10
- Provides periodic regional perspective on air monitoring programs
 - Initial assessment completed in 2004

Guiding Principles

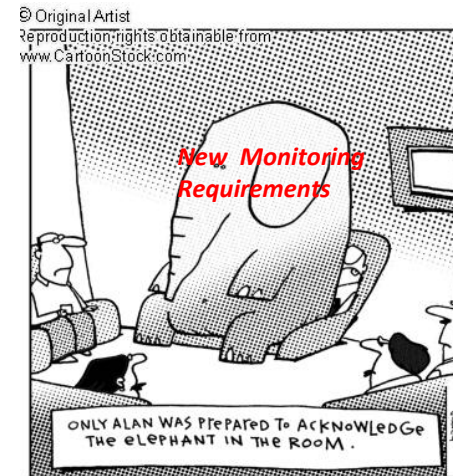
- Monitoring objectives
 - Long-standing objectives (high concentration, high population)
 - Multi-pollutant
 - Source-oriented
 - Rural areas
 - Environmental justice
 - Schools
- Funding (allocation of existing funds and future funding)
- Compliance with new EPA requirements
- Basis for network changes
- Training
- Outstanding issues (continuous PM_{2.5})

Major Findings

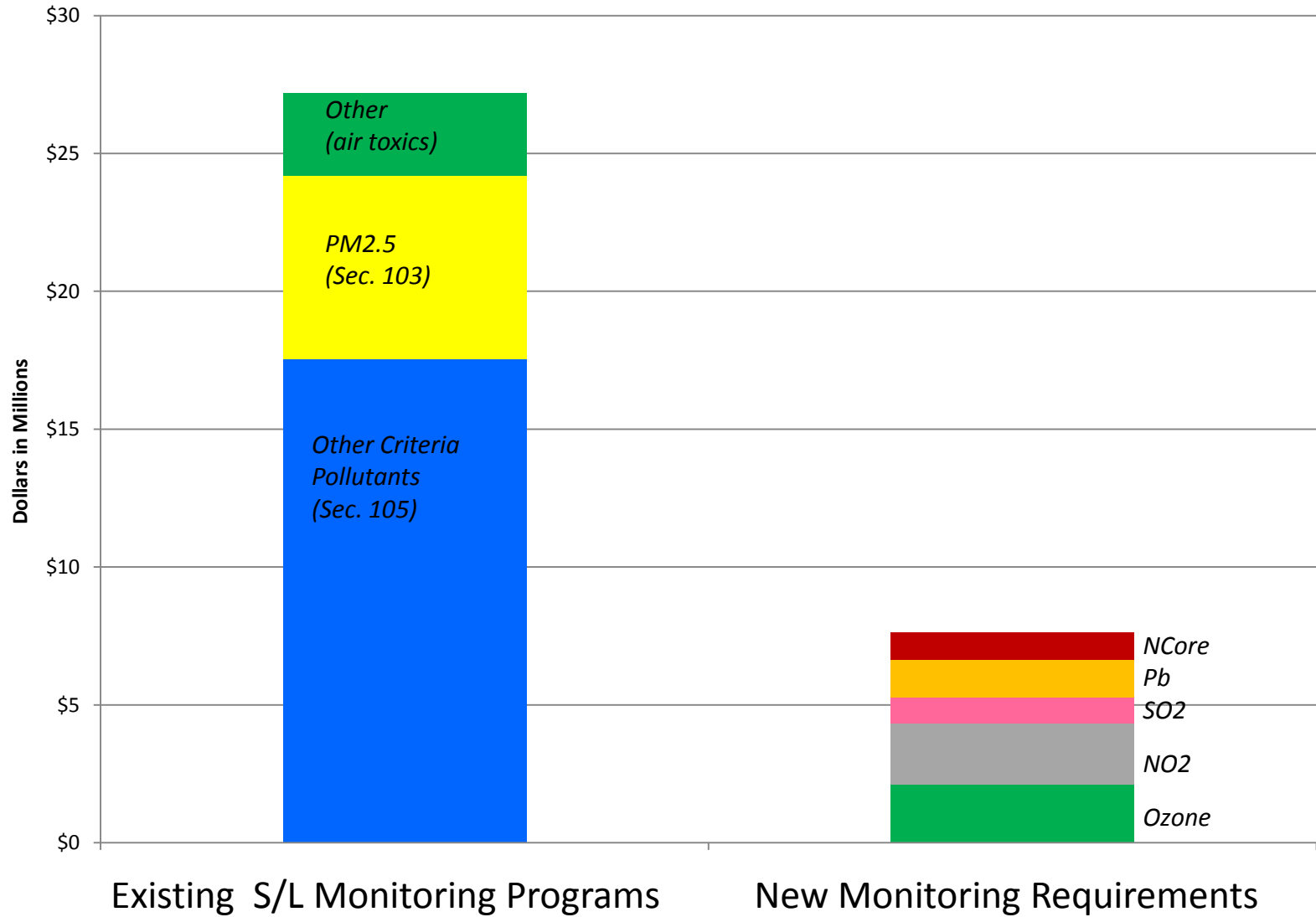
- Existing state/local monitoring networks provide valuable data and need to be maintained
 - Few improvements recommended – both shutdowns (disinvestments) and new monitoring (investments)
- Many new EPA monitoring requirements expected over next several years
 - Sufficient funding not available to implement all of the requirements

Upcoming Changes in NAAQS (and monitoring requirements)

<u>Pollutant</u>	<u>Action</u>	<u>Proposed Standard</u>	<u>Final Standard</u>	<u>Monitor Deployment</u>
NO2	Review of primary standard	July 2009	Jan 2010	Jan 2013
Pb	Revised standard Reconsider. monitoring rule	May 2008 Dec 2009	Nov 2008 April 2010	Jan 2010(source-oriented) Jan 2011(population-oriented) July 2011 (new source-oriented)
O3	Reconsider. 2008 standard Additional urban/rural monitors	Jan 2010 July 2009	Oct 2010 Oct 2010	2012
SO2	Review of primary standard	Dec 2009	June 2010	Jan 2013
CO	Review of standard	Oct 2010	May 2011	
PM _{2.5} , PM10	Review of standard	Feb 2011	Oct 2011	
NO2, SO2	Review of secondary standard	July 2011	Mar 2012	
Other:				
NCore	Multi-pollutant monitoring	Jan 2006	Oct 2006	Jan 2011



Costs



Assessment Process

- Organizational Structure
 - Steering Committee (6 states, locals, tribes, EPA, LADCO)
 - Data Analysis Workgroup (2 states, EPA, LADCO)
- Outreach
 - Notified surrounding states and LADCO's Interested Parties list
- Data Analyses
 - More than 12 different analyses
- Work Products
 - Final report
 - Summary technical memos

http://www.ladco.org/reports/general/Regional_Network_Assessment/index.php

Data Analyses

Spatial coverage analyses: **correlation**, cluster, removal bias, new sites, unmonitored area

Population and area served analysis

Measured concentration analysis

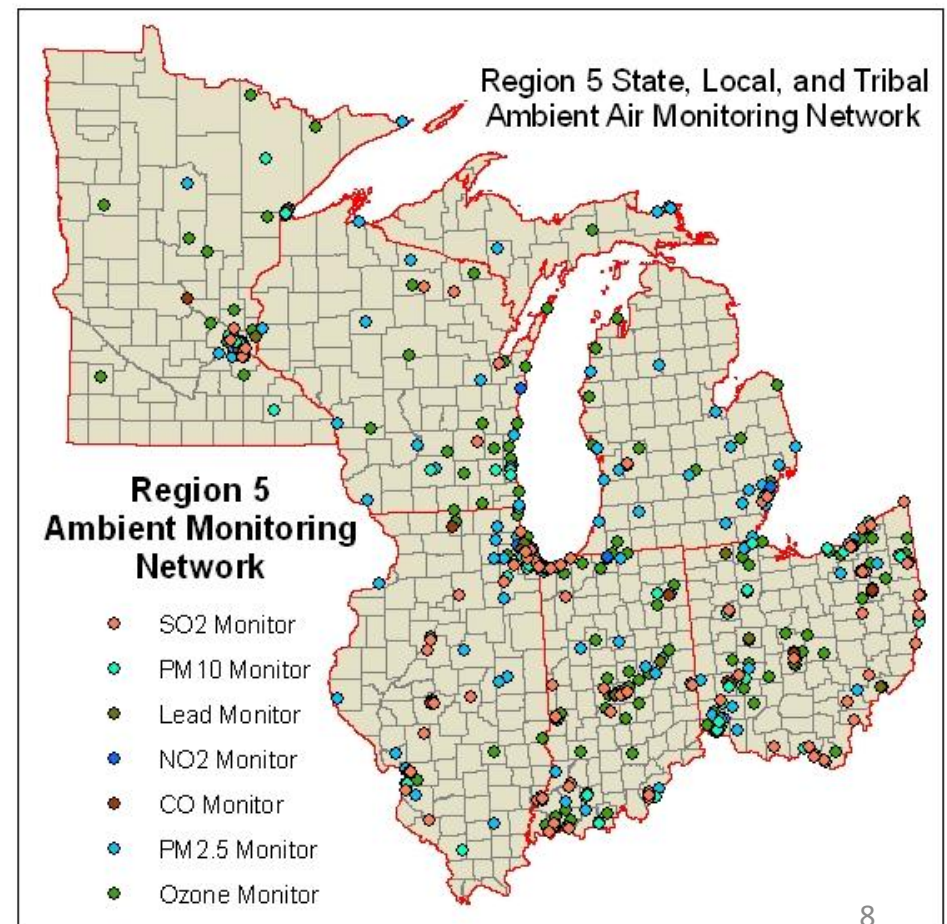
Deviation from NAAQS analysis

Trends analysis (length of record)

Emissions inventory analysis

Urban-rural pair evaluation

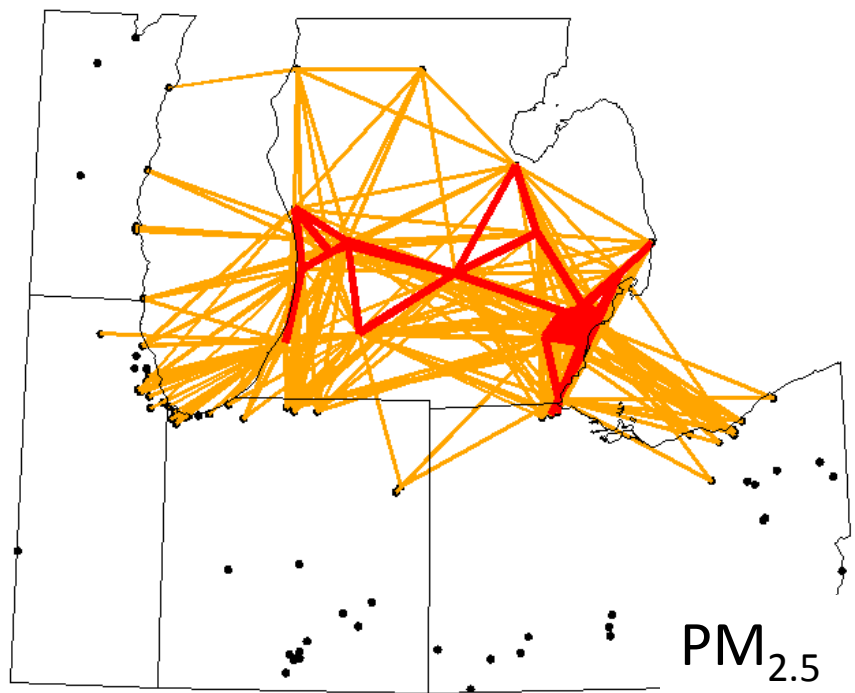
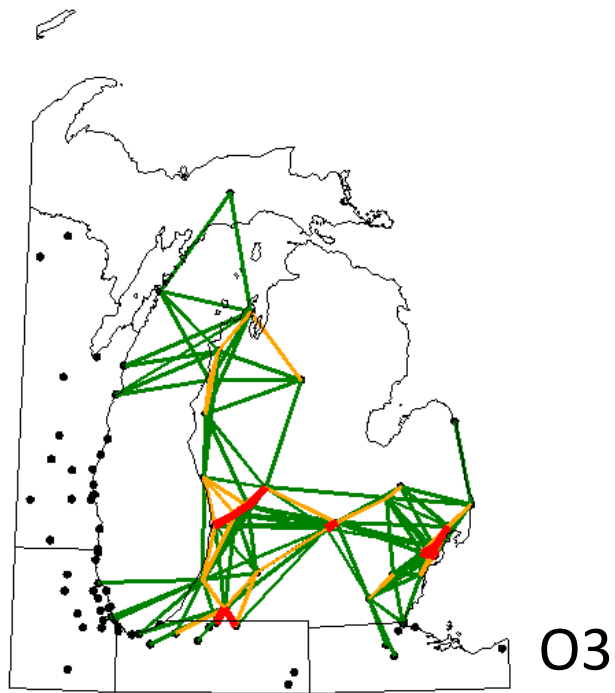
Number of parameters analysis



Correlation Analysis: Ozone and PM_{2.5}

Correlations > 0.95 in red, > 0.9 in orange, > 0.85 in green

Correlations > 0.9 in red, > 0.8 in orange



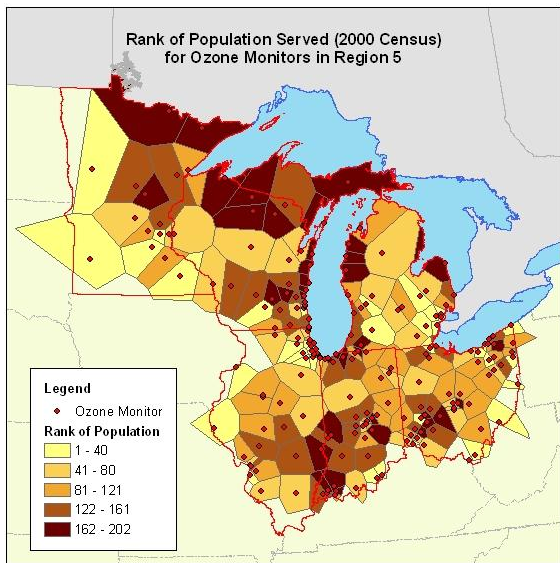
Ozone
 Detroit Oak Park-Warren-E 7 Mile

PM2.5 (6-day)
 Allen Park-Linwood-Oak Park
 Livonia-Ypsilanti
 Livonia-Oak Park
 SWHS-Linwood

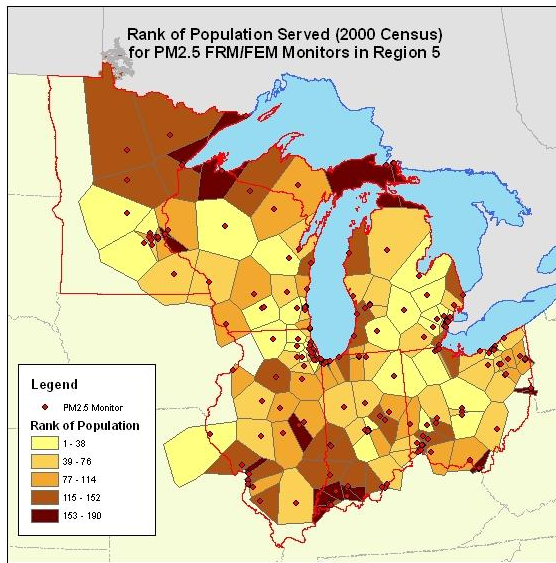
PM2.5 (3-day)
 Allen Park-Ypsilanti

Population and Area Served Analysis

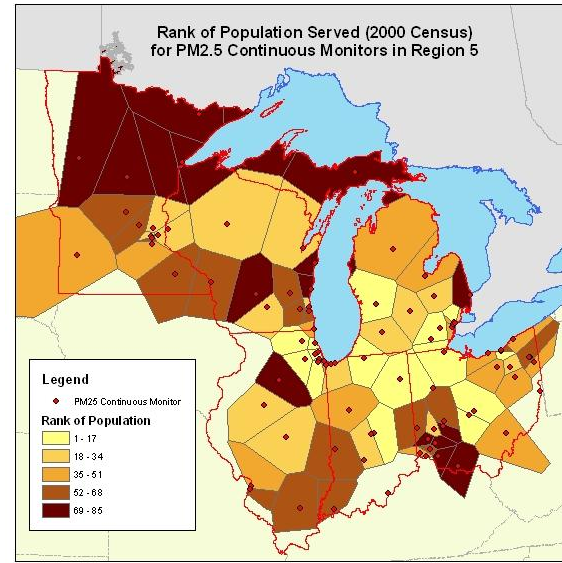
Ozone



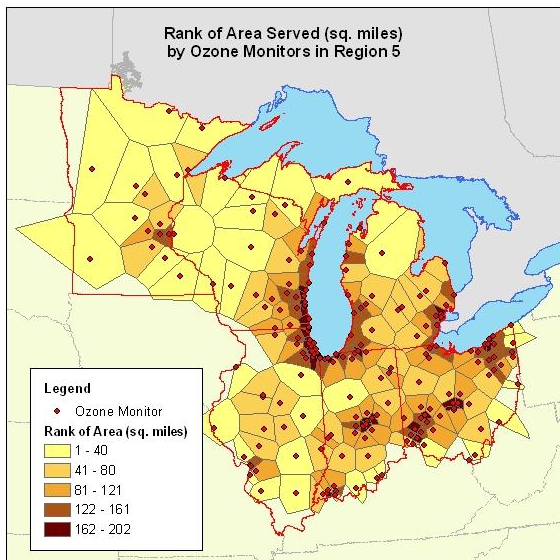
PM2.5-FRM



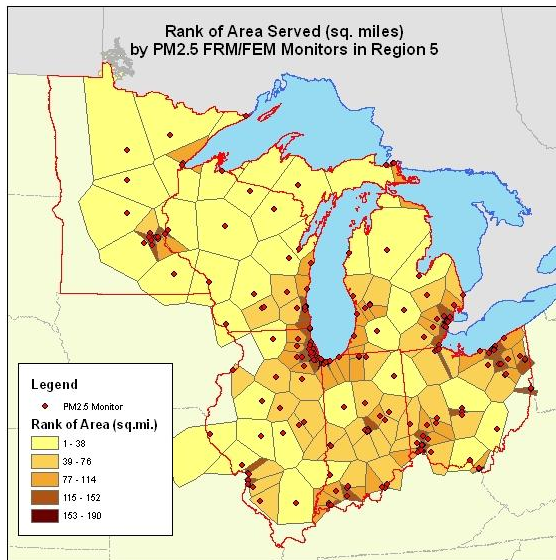
PM2.5-Cont



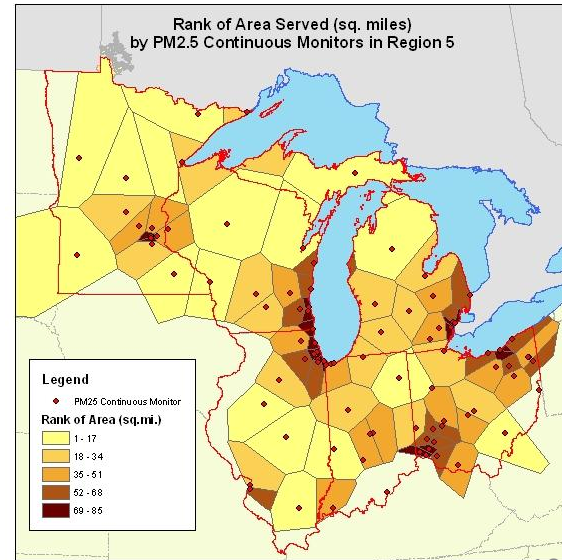
Ozone



PM2.5-FRM

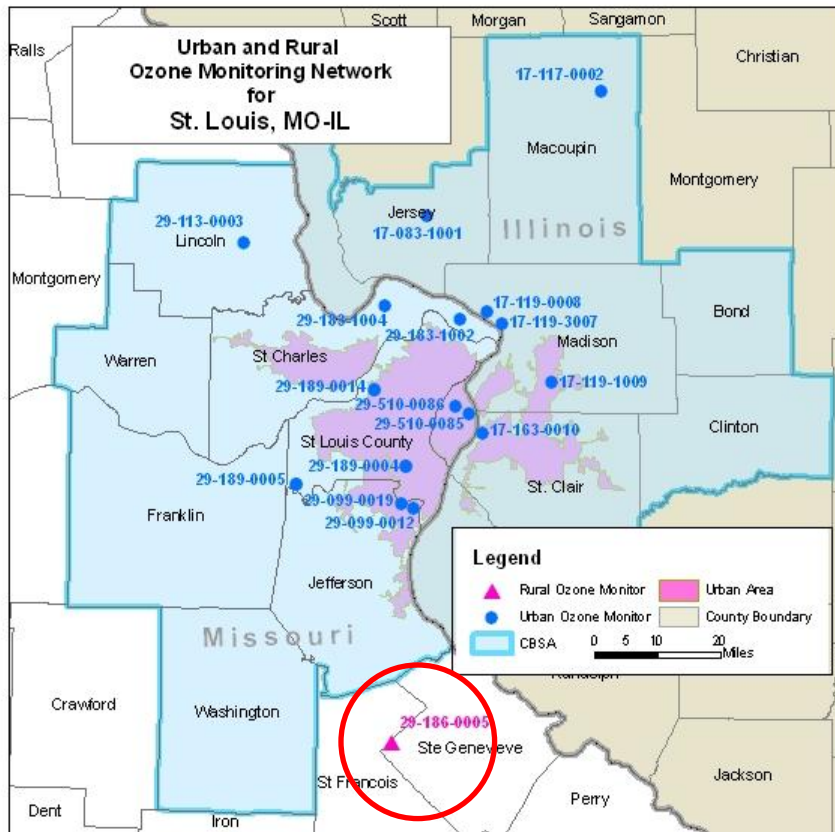


PM2.5-Cont

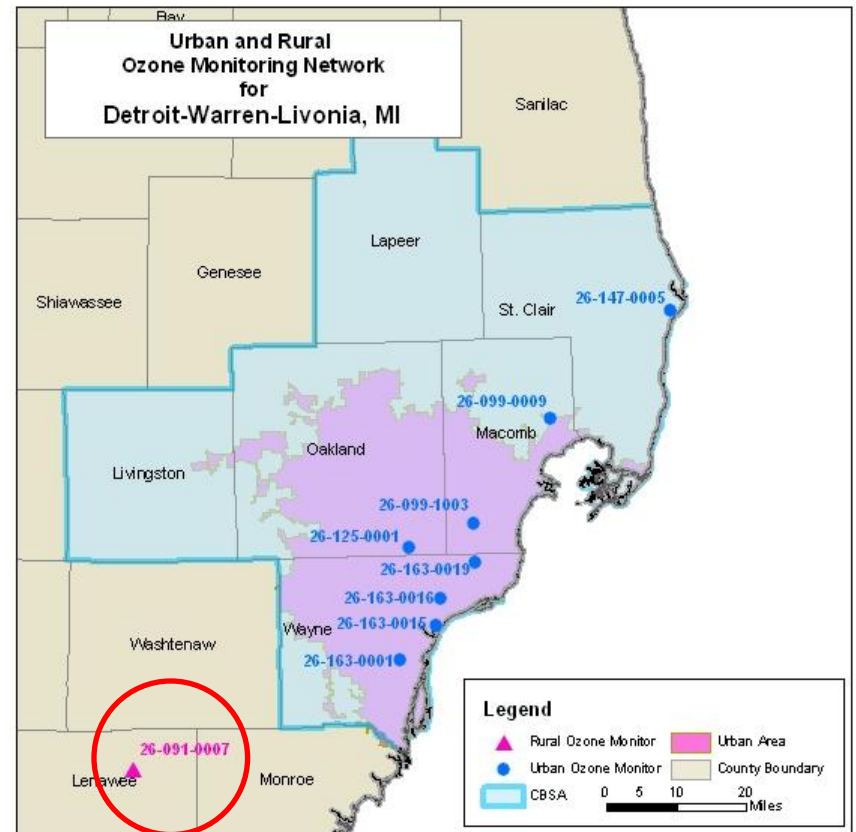


Urban-Rural Pairs

St. Louis

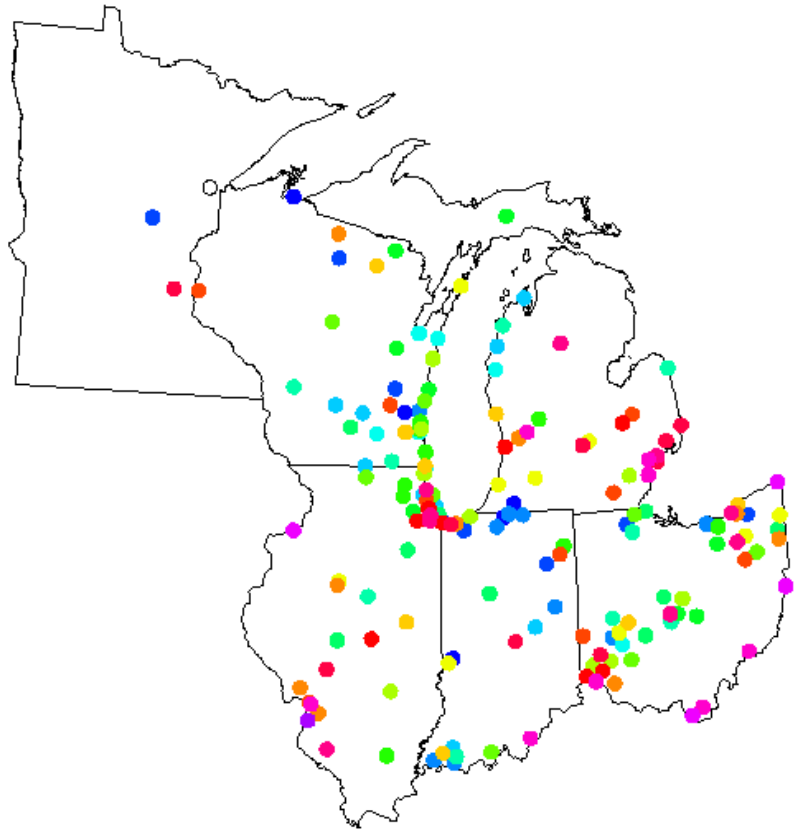


Detroit

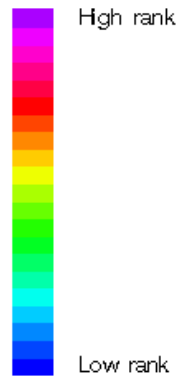
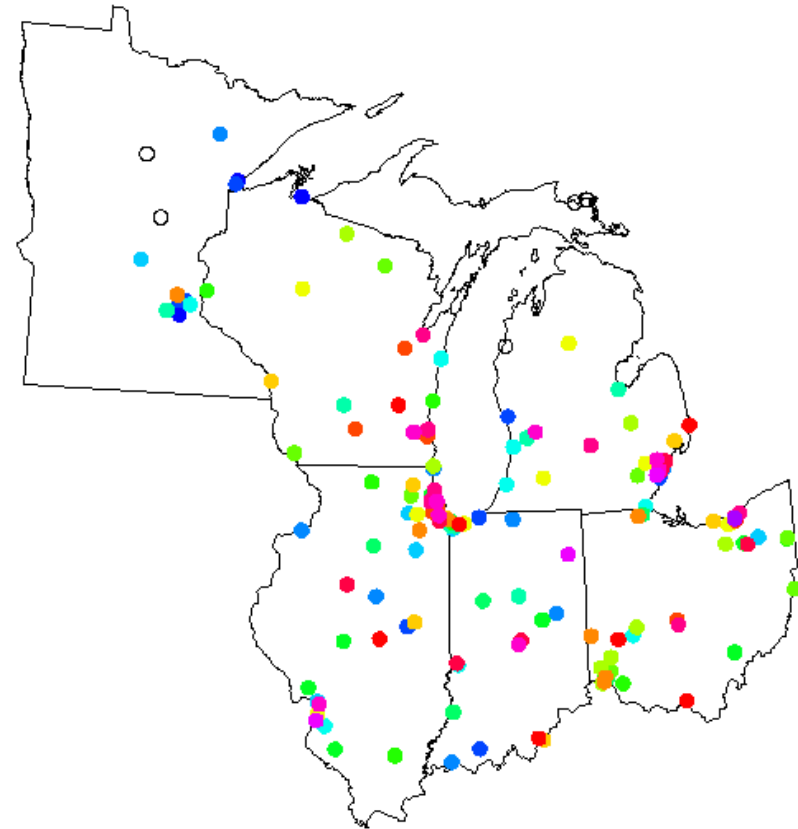


Overall Ranking of Sites

Ozone



PM2.5

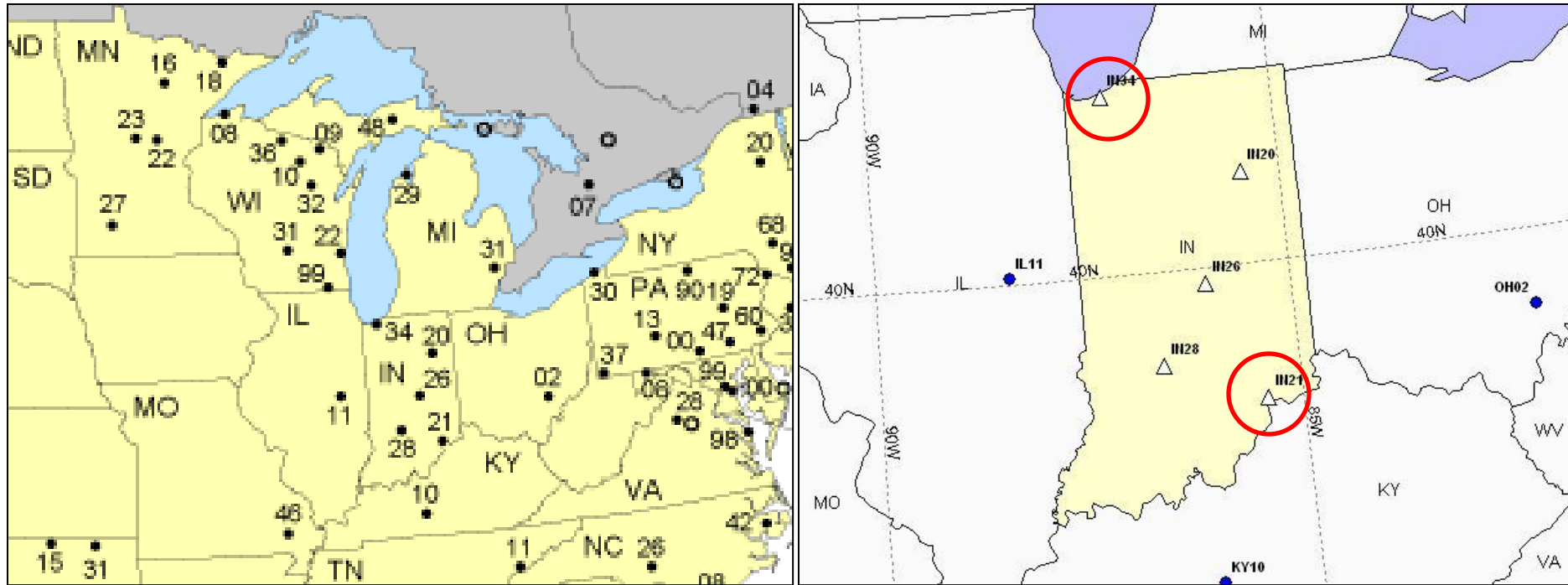


Based on correlations, design value, population served, area served, number of parameters, and number of years

Recommendations

- Priority air pollutants
 - Focus on PM2.5, ozone, and their precursors
- Adequacy of existing monitoring networks
 - Some investments (new monitoring)
 - Some disinvestments (shutdowns)
 - Maintain much of existing programs
- Support for multi-pollutant and rural monitoring
- New monitoring requirements
 - Can't get there from here
- Outstanding issues
 - Upcoming challenges include equivalency of continuous and filter-based PM2.5 measurements, importance of field studies, and monitoring to evaluate environmental progress

Mercury Deposition Monitoring



Under grant from Great Lakes Commission:

1. Re-start two (2) of IN mercury sites
2. Assess mercury network in Midwest