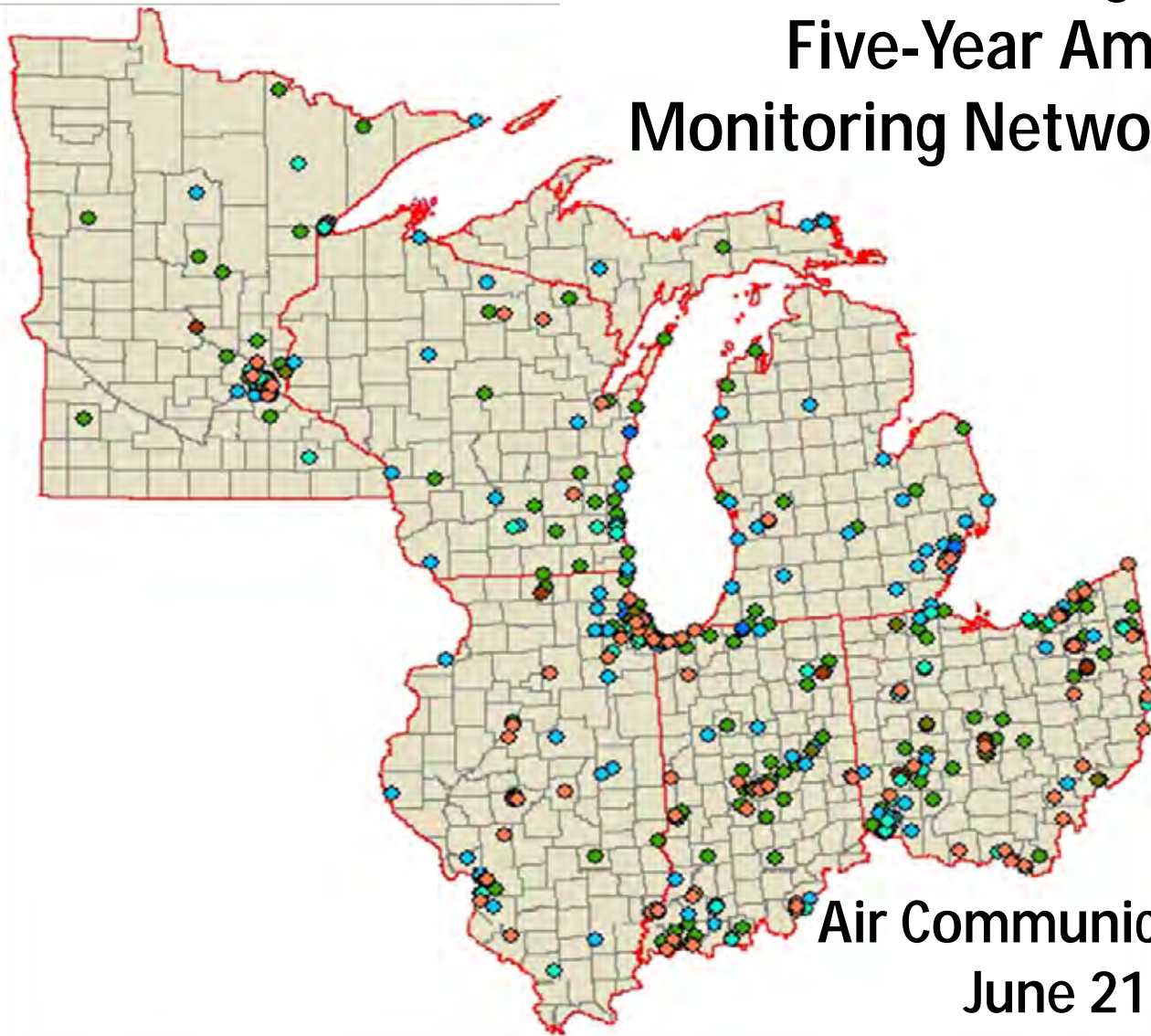


# EPA Region V Five-Year Ambient Air Monitoring Network Assessment



**Air Communication Series**  
**June 21, 2010**

**Kellie Gavin - Cassie McMahon - Kari Palmer**

# Topics Covered

- Introduction to Network Assessment
- Financial Considerations
- Analysis Completed
- Assessment Results

# Introduction to Network Assessment

As part of the October, 2006 revisions to the national ambient air monitoring regulations, the EPA required states to complete a network assessment once every five years [40 CFR 58.10(e)]. The first assessment is due July 1, 2010.

**At a minimum the network assessment must address whether:**

- the existing network meets the monitoring objectives defined in appendix D;
- new sites are needed;
- existing sites are no longer needed and can be terminated;
- new technologies are appropriate for incorporation into the network.

Periodic network assessments are a key tool to ensure...

**“...national air monitoring networks achieve, with limited resources, the best possible scientific value and protection of public and environmental health and welfare.”**

# Introduction to Network Assessment

Region V states completed a single, region-wide, network assessment which:

- recognizes the regional nature of primary pollutants of concern (ozone & PM<sub>2.5</sub>);
- better informs EPA Region V funding allocations to the states;
- reduces assessment burden on state/local agency staff.

Regional assessment was coordinated by LADCO with guidance from:

- State Air Directors
- Steering Committee – representatives from each state/tribal/local air program

## Technical Analysis Team

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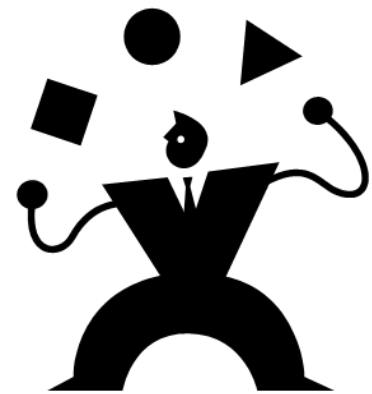


# Network Assessment Guiding Principles

The LADCO State Air Directors established the following guiding principles in assessing the existing air monitoring network:

**1. Monitoring Objectives:** based on consideration of policy needs and concerns, the following objectives are listed below in priority order:

- Monitor areas of *high concentration* and *high population*, and provide data to the public in a timely manner, support compliance with the NAAQS and control strategy development, and support air pollution research studies.
- Multi-pollutant monitoring
- Source-oriented monitoring
- Rural (and medium-sized city) monitoring
- Environmental justice monitoring
- School monitoring



# Network Assessment Guiding Principles

2. Allocation of existing funding for monitoring
3. Compliance with new EPA monitoring requirements
4. Future Funding
5. Basis for Network Changes
6. Training
7. Outstanding issues

# New Air Monitoring Requirements

## Final Rules:

- Lead (2009) – source and population-oriented
- NO<sub>2</sub> (2010) – near-roadway, population-oriented, and Environmental Justice
- SO<sub>2</sub> (2010) – population-oriented

## Proposed Rules:

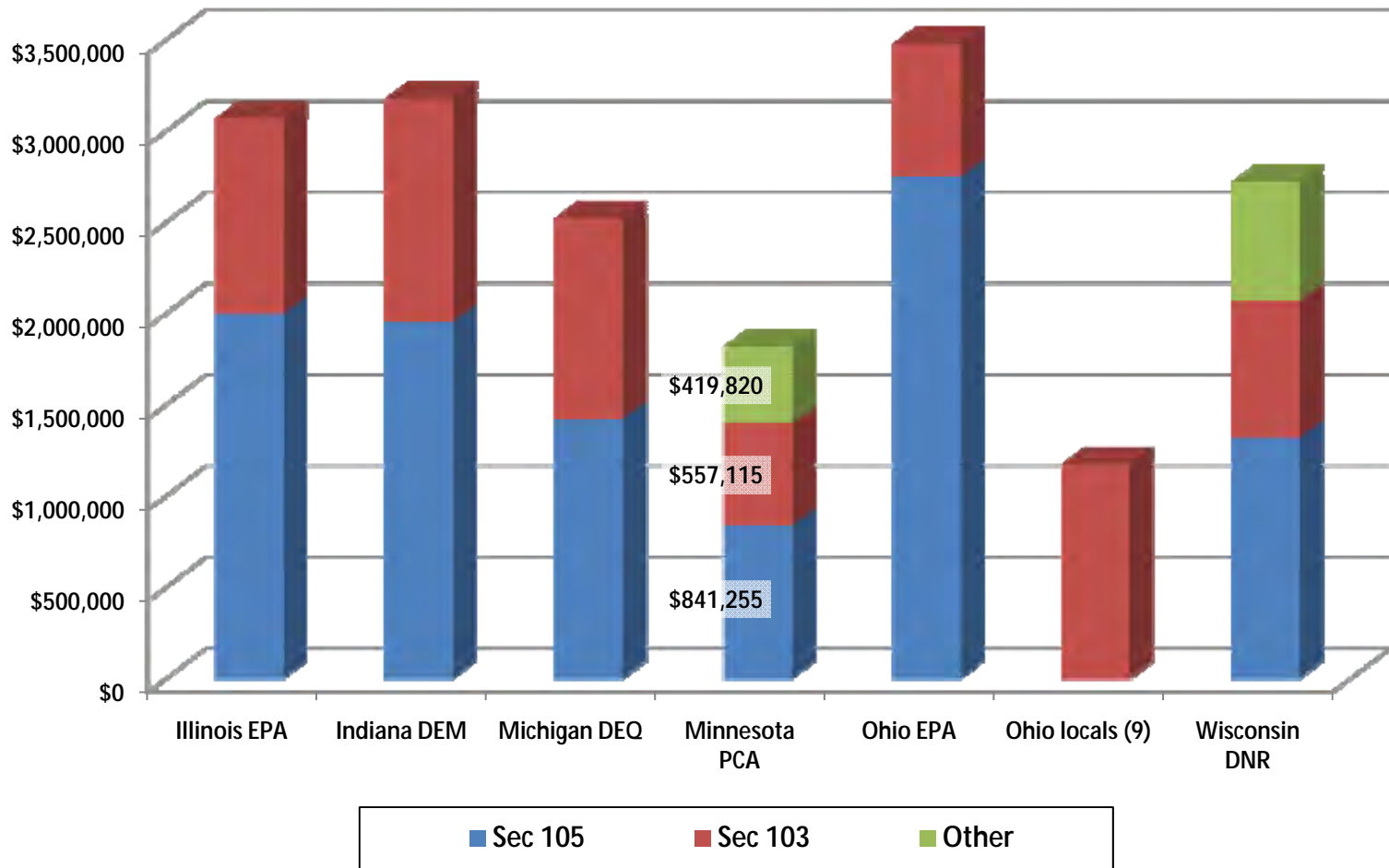
- Lead (Fall 2010) – reduce source-oriented monitoring threshold to  $\geq 0.5$  TPY and require lead monitors at NCore sites.
- Ozone (Fall 2010) – Small MSA's and Rural monitoring.

## Additional Considerations:

- PM<sub>2.5</sub> (Mid 2011)
- Roadside Monitoring
- State Initiatives/Special Studies

# Financial Considerations

## FY 2010 Operating Budget

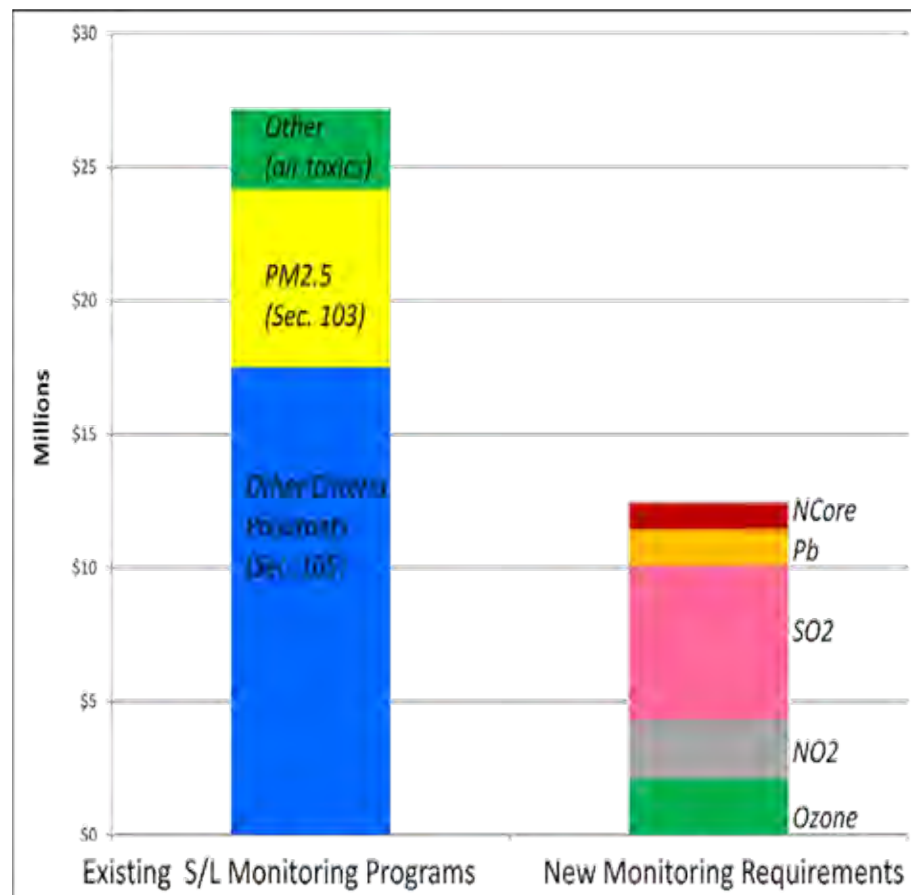




# Financial Considerations

Insufficient funding to fully comply with new monitoring requirements

- \$12-14 million needed across Region V
- Section 103 converting to Section 105
- Federal budget includes \$15 million line item for new monitoring
- Identify disinvestments
- Spread out funding to do some of each new requirement



# Financial Considerations

## Anticipated one-time capital costs – Approx. \$345,000

### Lead:

- 2 new monitoring sites added in 2010 (\$60,000)
- 1 new monitor at existing NCore site (\$15,000)
- Analytical equipment to comply with pending FEM method

### NO<sub>2</sub>:

- 2 new near-roadway monitoring sites by 2013 (\$160,000) [high uncertainty]

### Ozone:

- 2 new rural/mid-size MSA monitoring sites (\$60,000)
- 1 new urban monitor (\$30,000)

### NCore:

- 1 new PM<sub>10-2.5</sub> “Coarse” system for 2011 (\$20,000)

## Anticipated new recurring costs – Approx. \$170,000 including:

- site operations and maintenance
- sample media and analysis
- data validation and reporting

# Statistical Analyses

- Focus on priority pollutants
  - Ozone & PM<sub>2.5</sub>
- Analyses by LADCO, EPA, WDNR, MPCA
- Focus on priority monitoring objectives
- Leave specific recommendations up to states

# Monitoring Objectives

- Data to public in timely manner
  - Spatial coverage analysis
  - Area and population served
- Support compliance with NAAQS
  - Measured concentrations
  - Deviation from NAAQS

# Monitoring Objectives

- Support control strategy development
  - Urban-rural pairs
  - Length of record
  - Emissions inventory
- Support air pollution research
  - Number of parameters
  - New NCore monitoring network

# Overall Findings

- Insufficient funding for required monitoring
- Generally maintain existing networks
  - Disinvestments
    - Remove “low value” sites
    - Redundant PM<sub>2.5</sub> and O<sub>3</sub> sites
  - Investments
    - Add O<sub>3</sub> precursor monitoring in higher ozone urban areas
    - Enhance rural monitoring
    - Ammonia & ultra-fine at all NCore sites

# Minnesota Recommendations

- Review pairs of redundant sites
- Review “low value” PM<sub>2.5</sub> sites such as NE Minnesota
- Establish an upwind, rural background monitor for Minneapolis/St. Paul

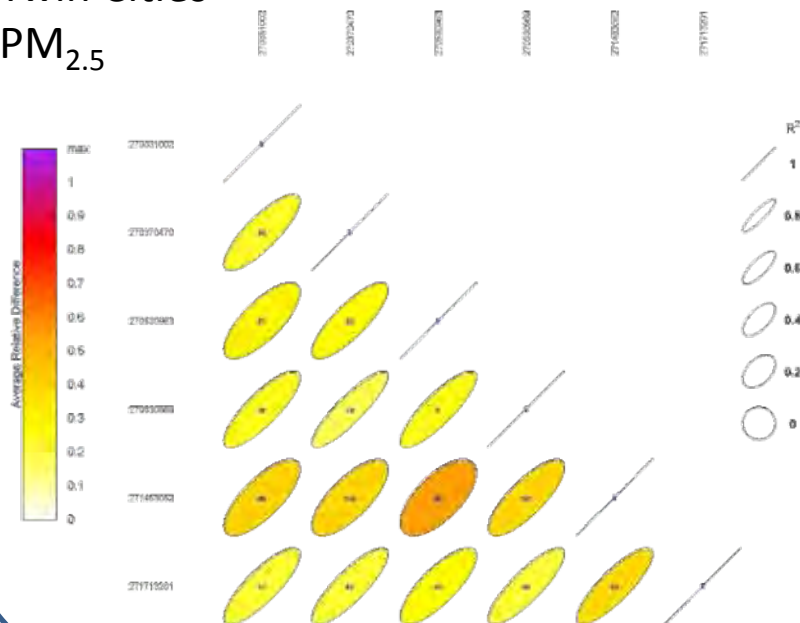
# Minnesota Recommendations

- Review pairs of redundant sites
- PM<sub>2.5</sub>: **Mpls/Humboldt, Richfield, Apple Valley**

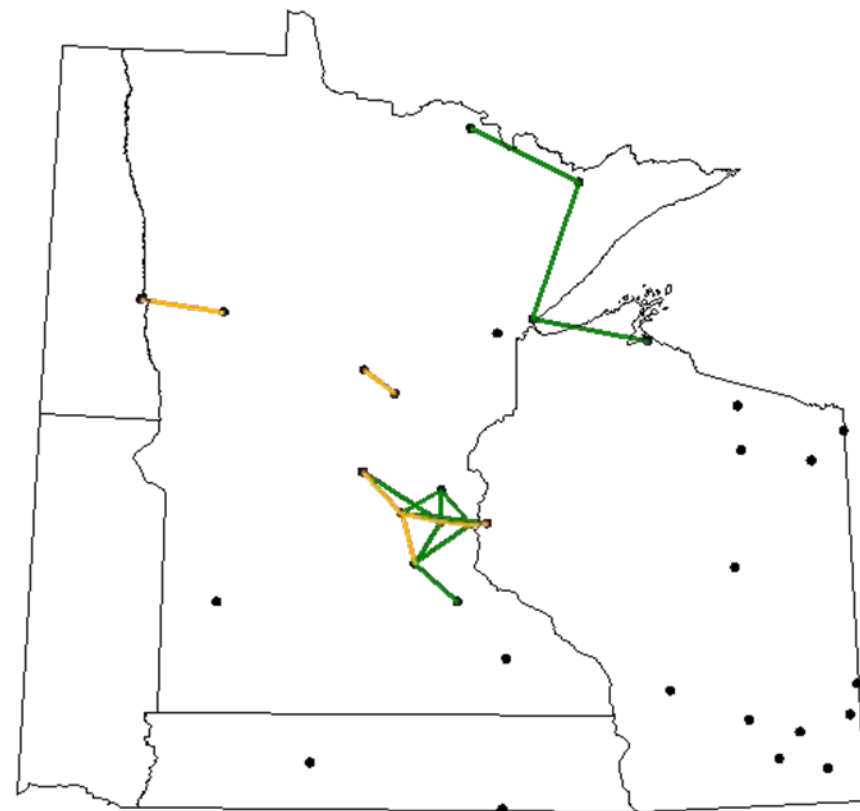
All Minnesota Ozone Correlations > 0.85  
Correlations > 0.95 in red, > 0.9 in orange, > 0.85 in green

Twin Cities

PM<sub>2.5</sub>



Numbers in Ellipses Represent Distance Between Sites in km

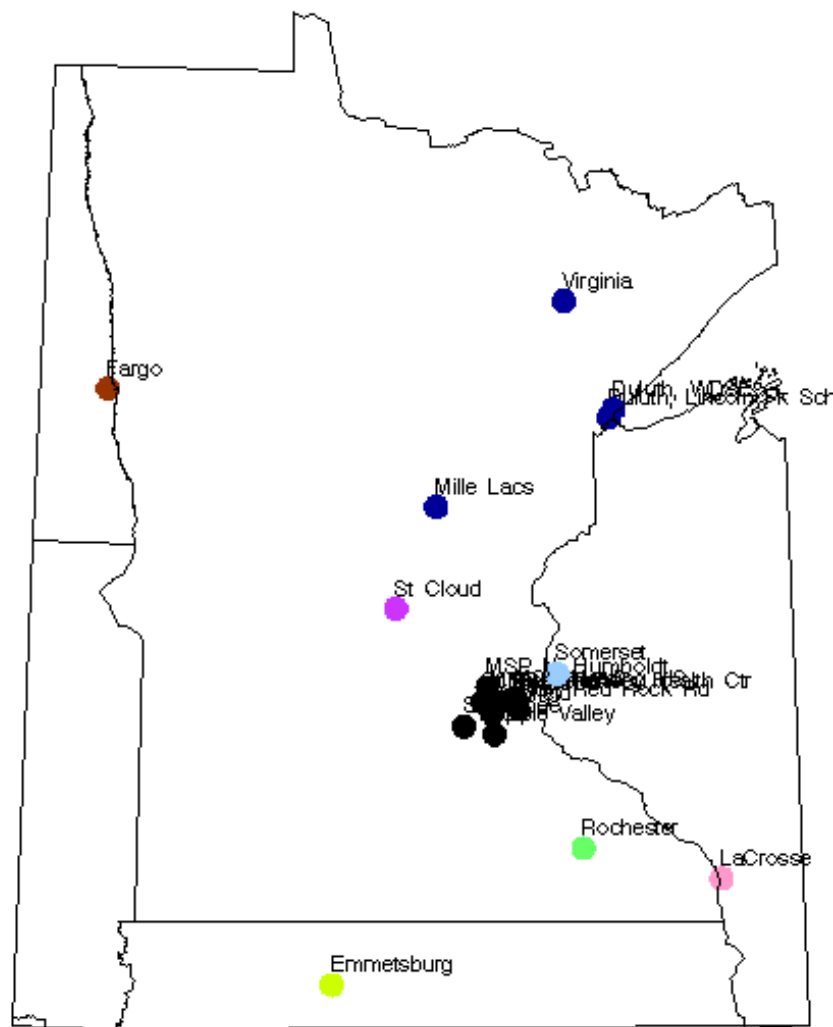




# Minnesota Recommendations

## Minnesota Monitor Clusters

- Review “low value”  $PM_{2.5}$  sites such as NE Minnesota



# Minnesota Recommendations

- Establish an upwind, rural background monitor for Minneapolis/St. Paul



# Next Steps

- Submit assessment to EPA (July 1, 2010)
- Review assessment in light of new standards
  - PM<sub>2.5</sub>, ozone, SO<sub>2</sub>, NO<sub>2</sub>
- Consider assessment in 2012 network plan
- Next assessment due 2015!