Dayton Area Ozone Advance Program

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CAAAC

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What I Will Talk About

- Very brief background RAPCA
- Clean Air Act responsibilities
- National Ambient Air Quality Standards
- History of ozone and particulate matter standards and where these are headed
- Consequences of Nonattainment
- Sources of Emissions
- RAPCA Area Air Quality and Inventory
- Control Options

Background on RAPCA

- Regional Air Pollution Control Agency
- Six-county local agency—Dayton, Ohio
  - Agency roots from the 1950's under the City
  - Health Department authority—Direct grant from USEPA and annual contract with Ohio EPA
  - One of nine local agencies in Ohio
- History of nonattainment for ozone and particulate matter and currently borderline air quality for both

Background on RAPCA

- At one time Dayton was a Major Manufacturing Area
- 15 Foundries
- 5 General Motors Plants
- National Cash Register
- Dayton Press (McCalls/Readers' Digest)
- Three Paper Mills
- Two Large Electric Generating Stations, Downtown Steam Stations
- Two Large Municipal Incinerators

Clean Air Act Responsibilities

- Section 109 specifies EPA's responsibility for prescribing National Ambient Air Quality Standards "requisite to protect public health"
- Section 107 specifies the states responsibility for assuring air quality standards are achieved and maintained
- Section 110 (a) (2)(D) specifies interstate transport responsibilities

CLEAN AIR ACT

FINDINGS AND PURPOSES

SEC. 101. (a) The Congress finds--

(3) that air pollution prevention (that is, the reduction or elimination, through any measures, of the amount of pollutants produced or created at the source) and air pollution control at its source is the primary responsibility of States and local governments; and

(4) that Federal financial assistance and leadership is essential for the development of cooperative Federal, State, regional, and local programs to prevent and control air pollution.

National Ambient Air Quality Standards

- USEPA has promulgated NAAQS for ozone, particulate matter, SO2, NO2, CO, and Lead
- NAAQS are reviewed every five years and revised as appropriate
  - Most recent health studies
  - Better monitoring techniques
- Clean Air Science Advisory Committee reviews data and makes recommendations to the Administrator

Revising Standards

- U.S. EPA has been busy revising standards:
  - 2006: 24-hr $PM_{2.5}$
  - 2008: Lead
  - 2010: NO_2, SO_2
  - 2008-2011: Ozone
  - 2011: CO
- More to come:
  - 2012: $PM_{2.5}$
  - 2013-2014: Ozone

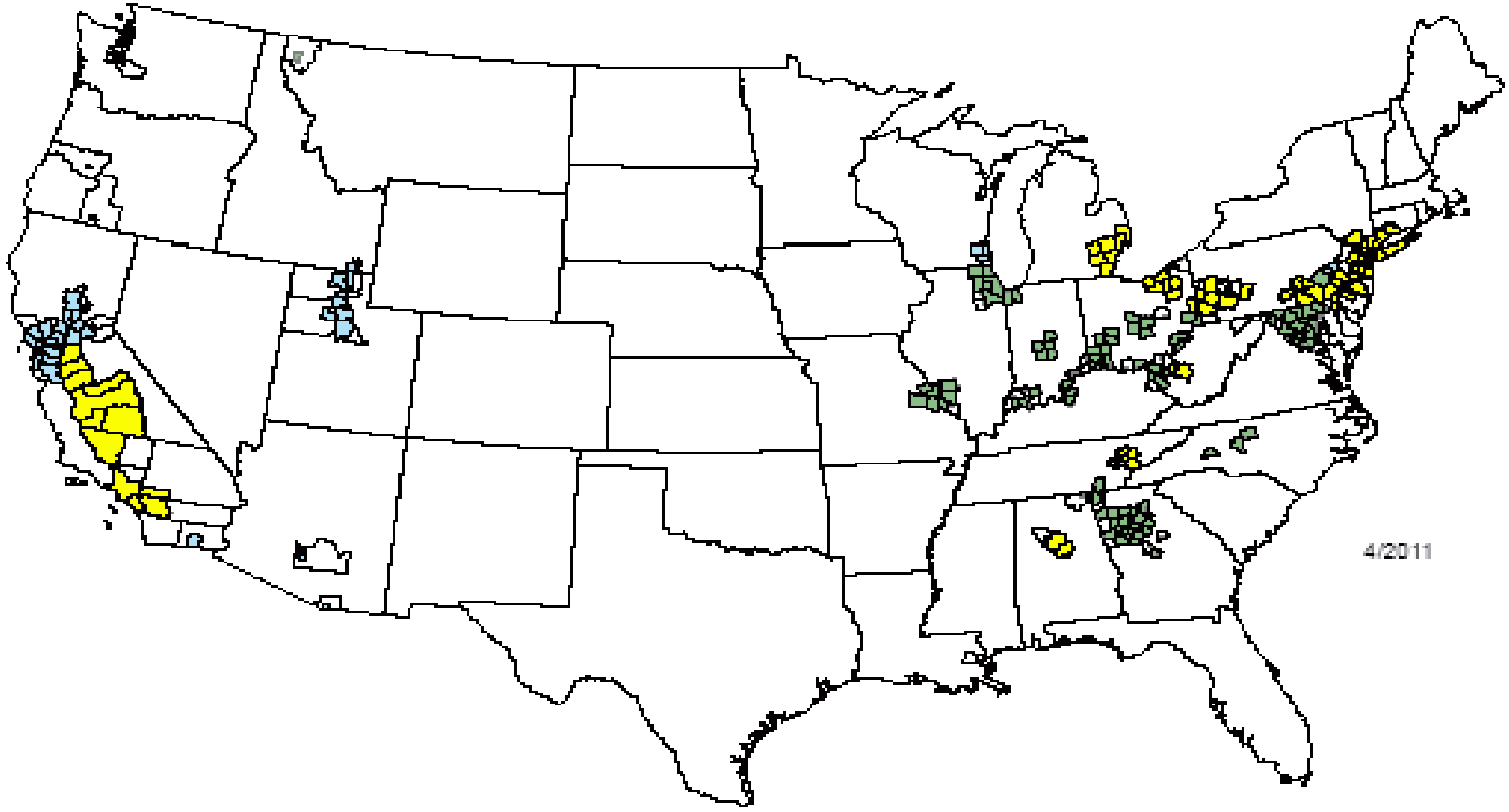
Ozone Air Quality Standard

Timeline	Level (ppm)	Measurement
Revision of New Standard probable in 2014	0.060 -0.070	Average of fourth highest concentration measured over a three year period
New Standard	0.075	
Old standard	0.084	
Old, Old standard	0.125	Not to be exceeded more than four times in a three year period

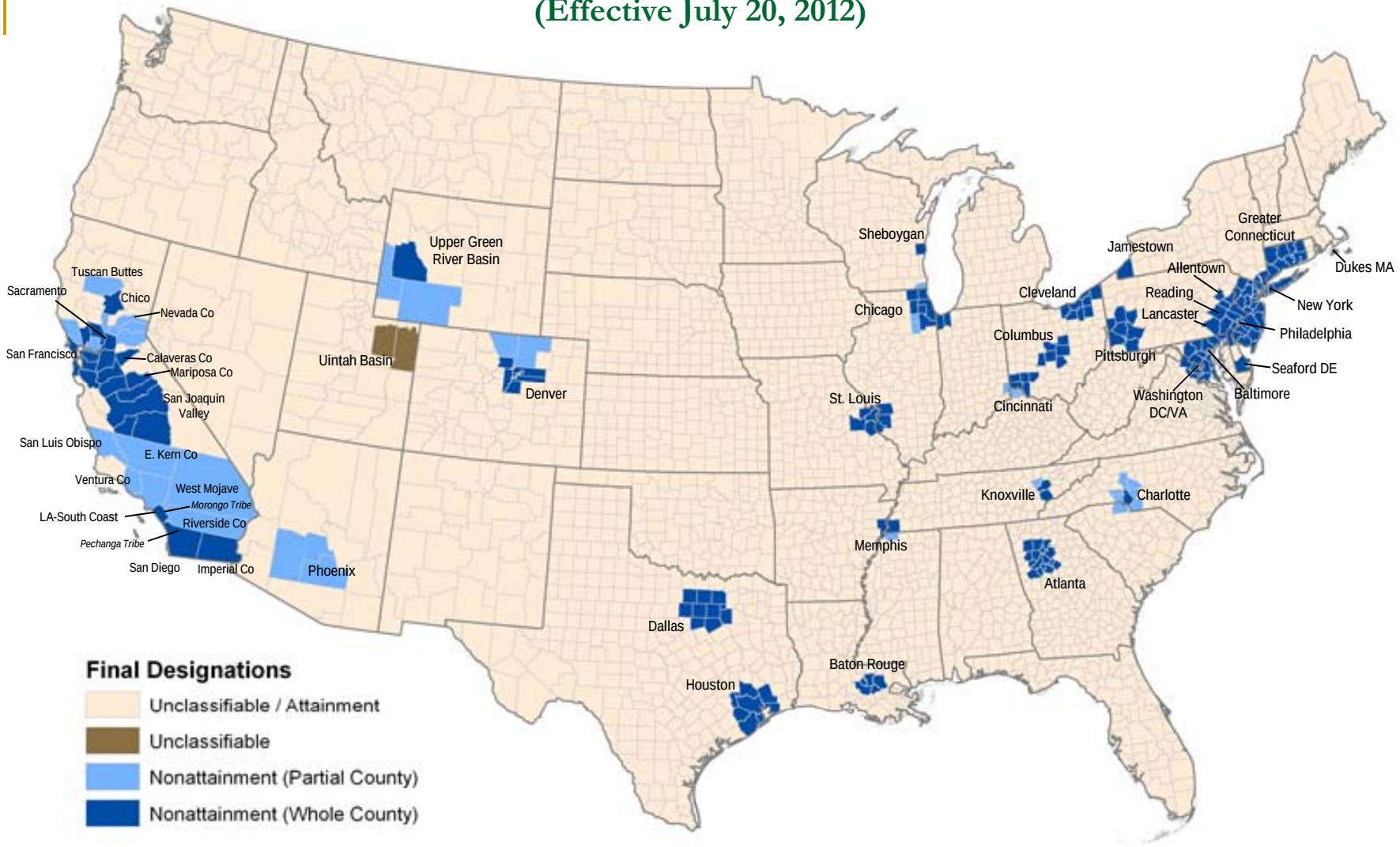
$PM_{2.5}$ Air Quality Standard

- Annual standard – 15 ug/m3, averaged over a three year period
- 24-hour standard- 35 ug/m3
- Court ordered revision of standard. Annual standard could be lowered to 12-13 ug/m3

Counties Designated Nonattainment for PM-2.5 (1997 Standard) and/or PM-2.5 (2006 Standard)



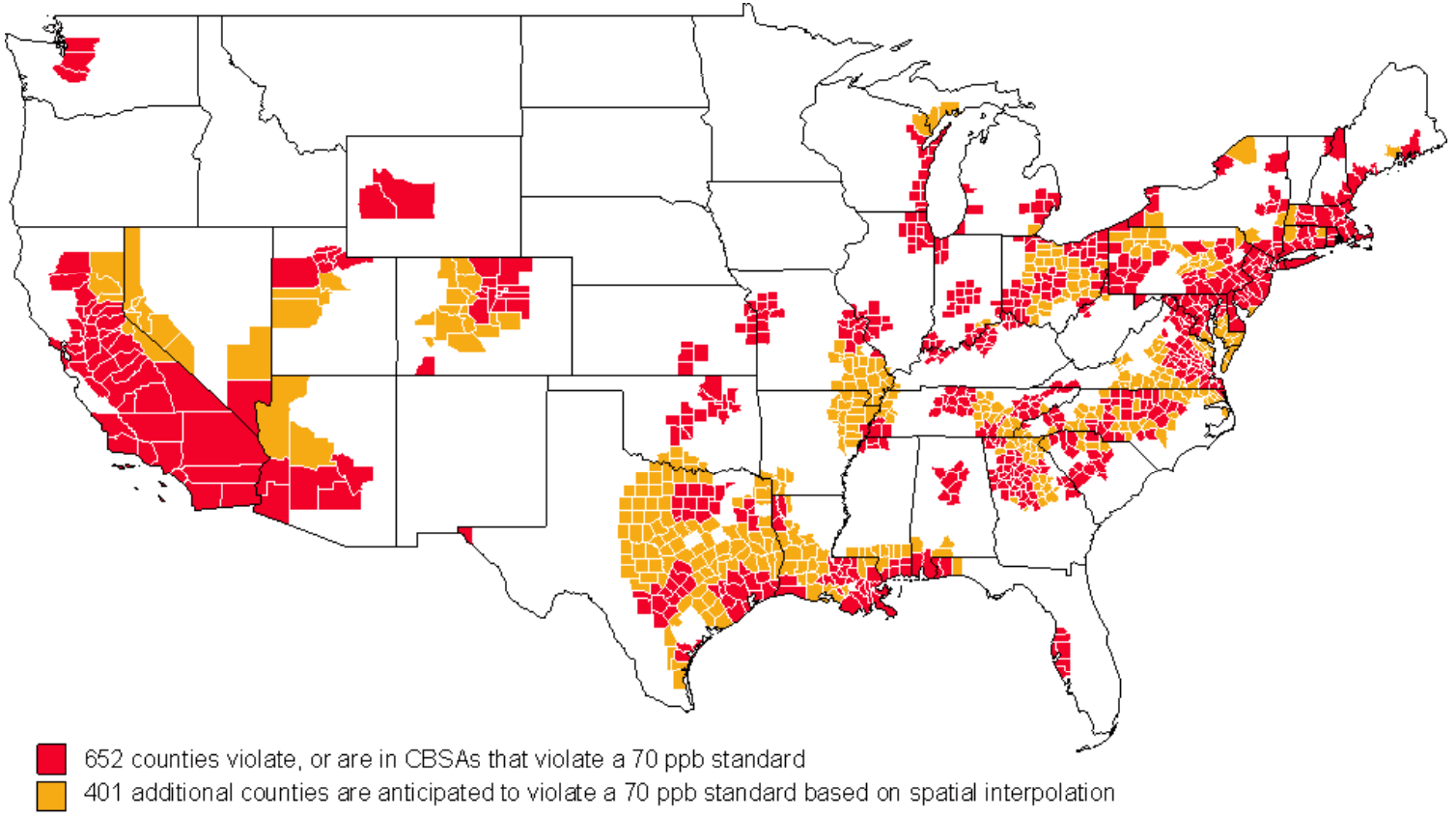
Area Designations for 2008 Ozone NAAQS
(Effective July 20, 2012)



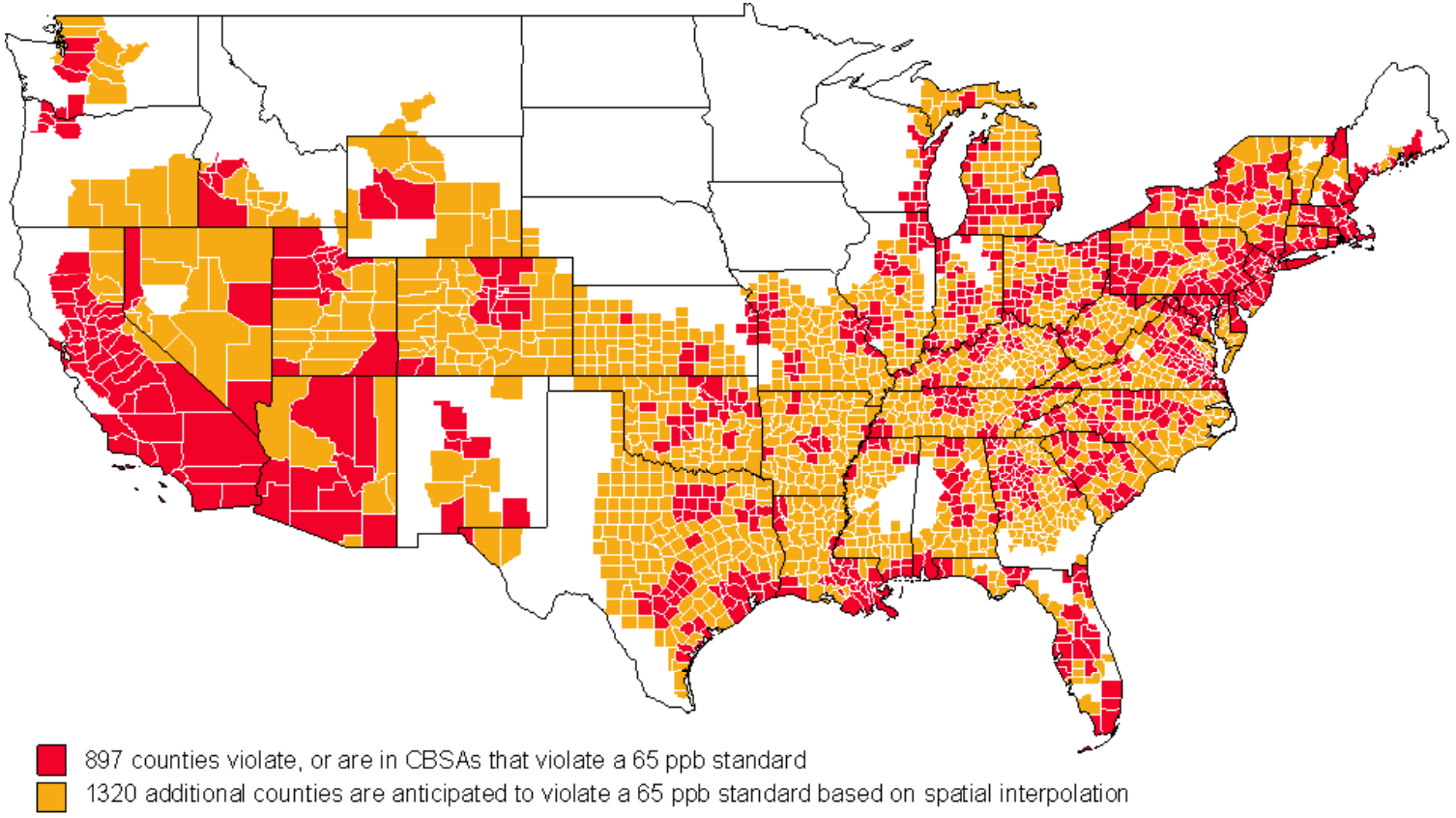
Notes:

EPA has not designated as nonattainment any areas outside the Continental US.

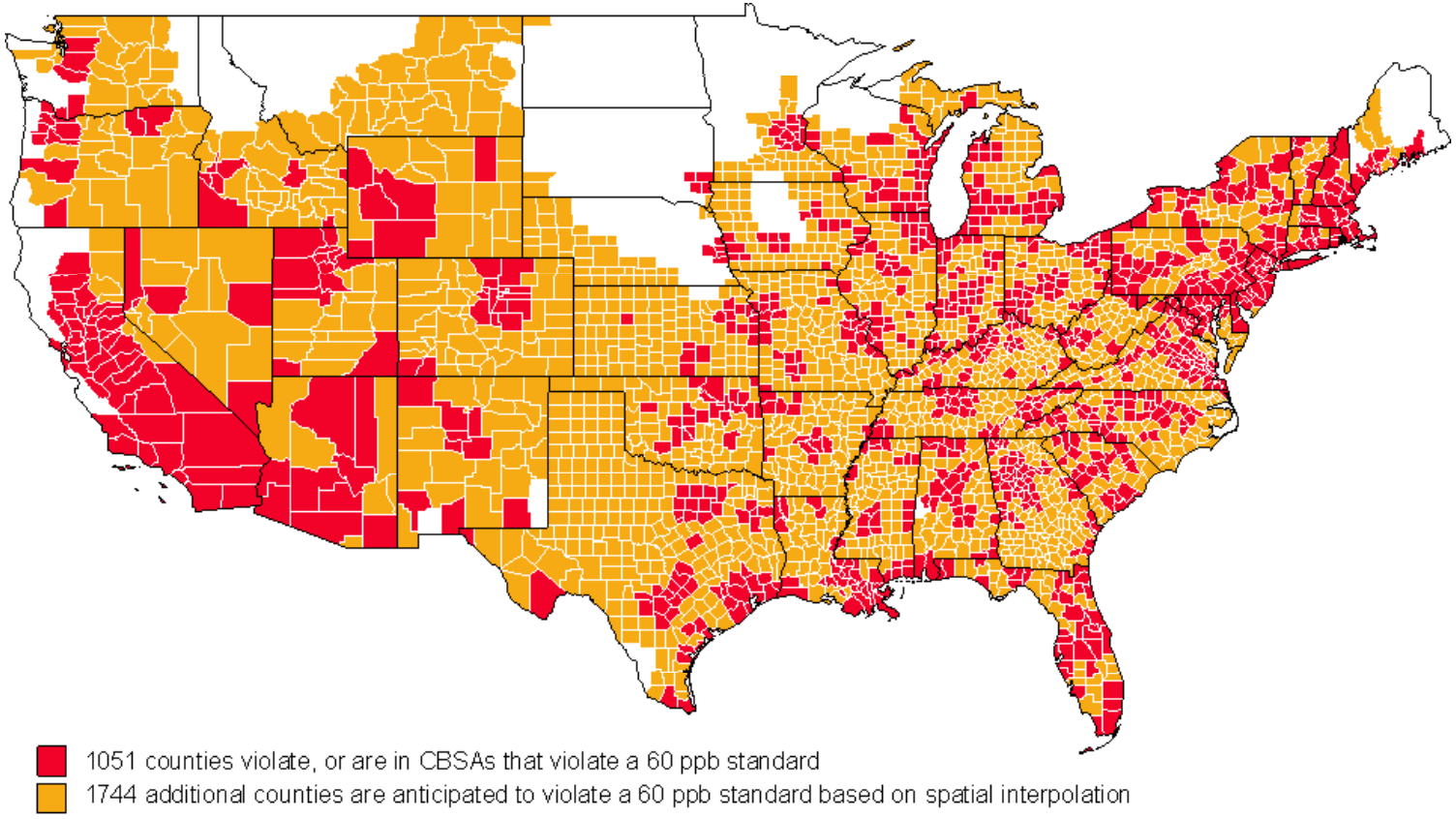
Ozone Standard of 70 ppb based on 2008-2010 Data

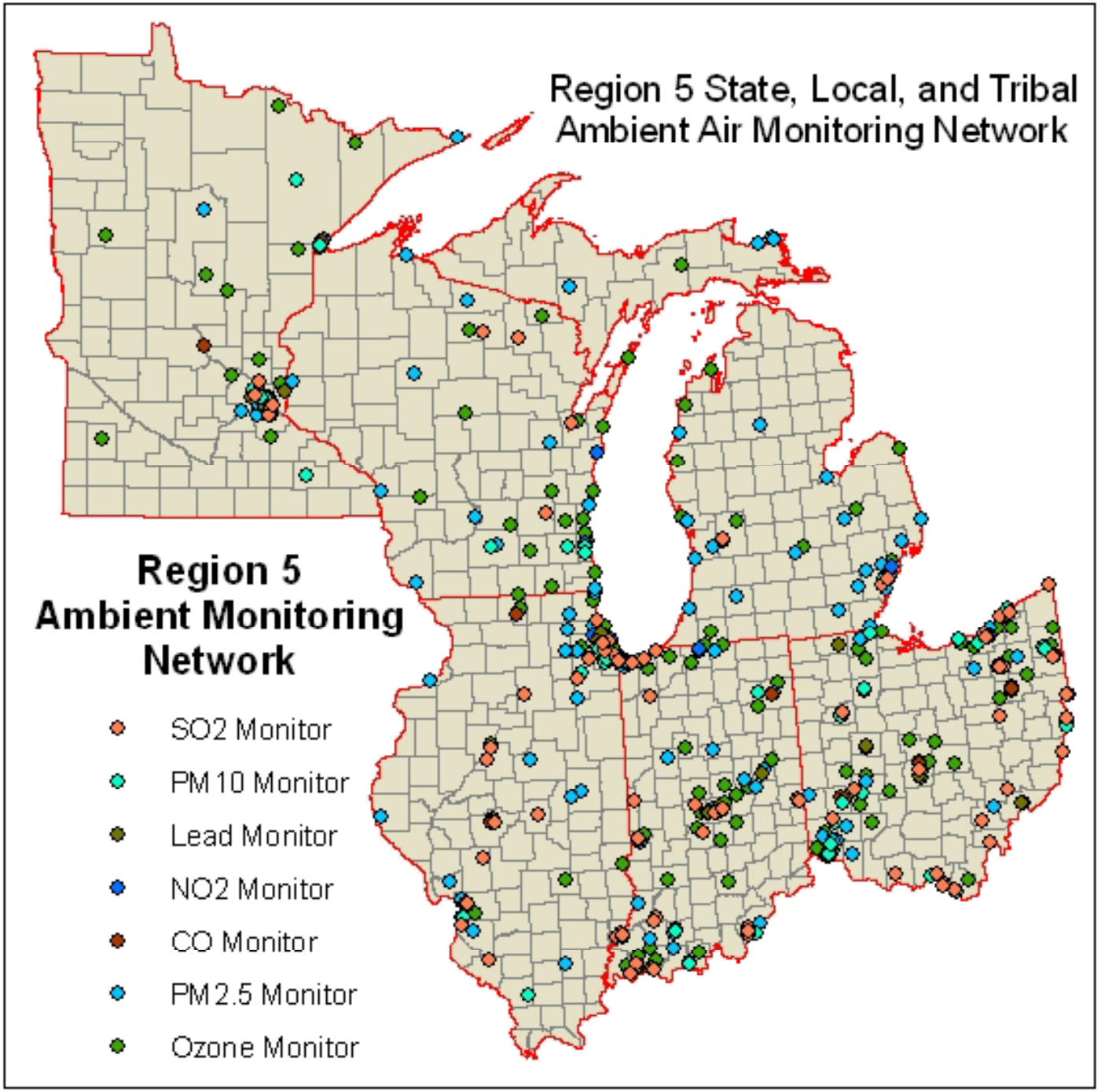


Ozone Standard of 65 ppb based on 2008-2010 Data



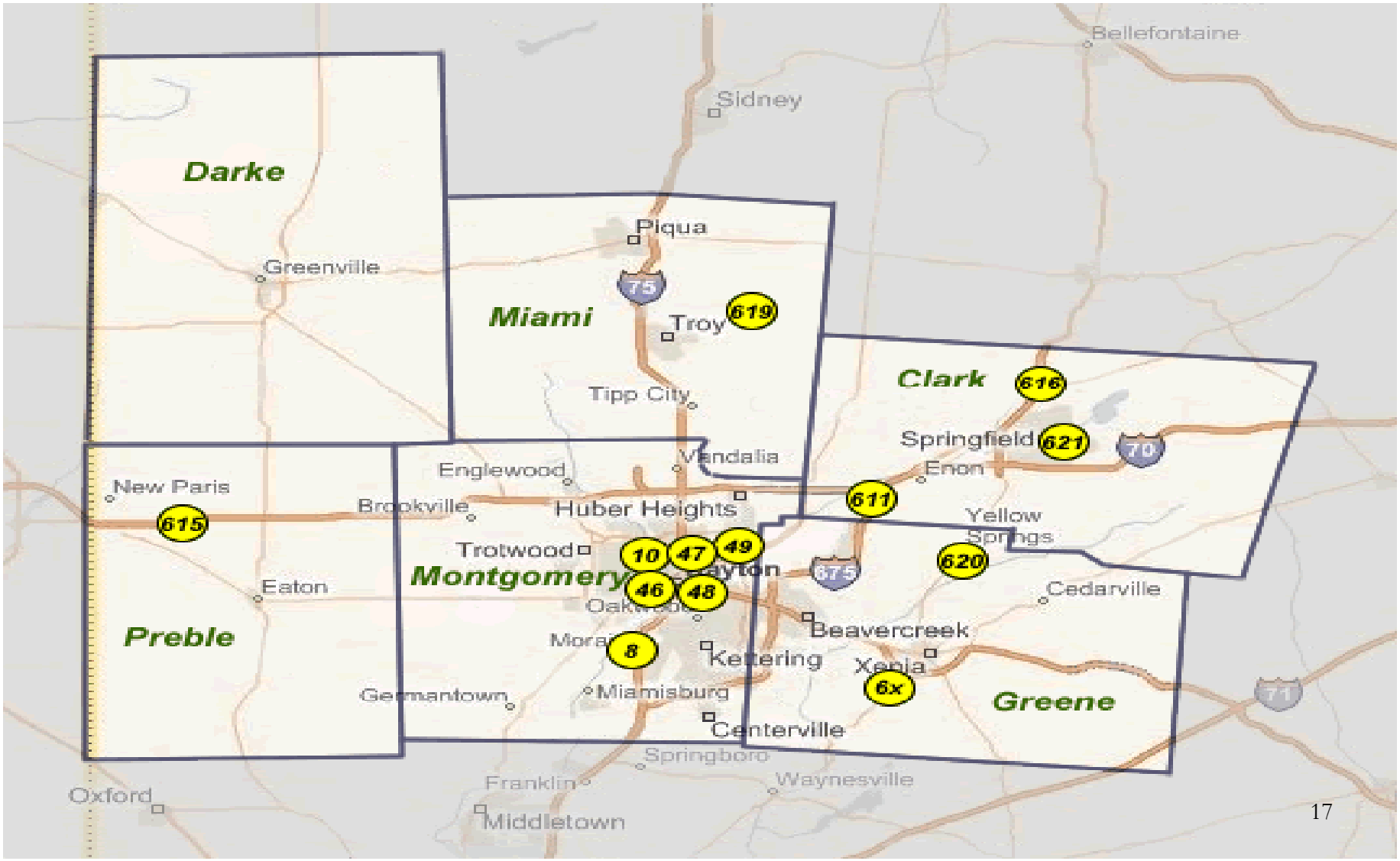
Ozone Standard of 60 ppb based on 2008-2010 Data



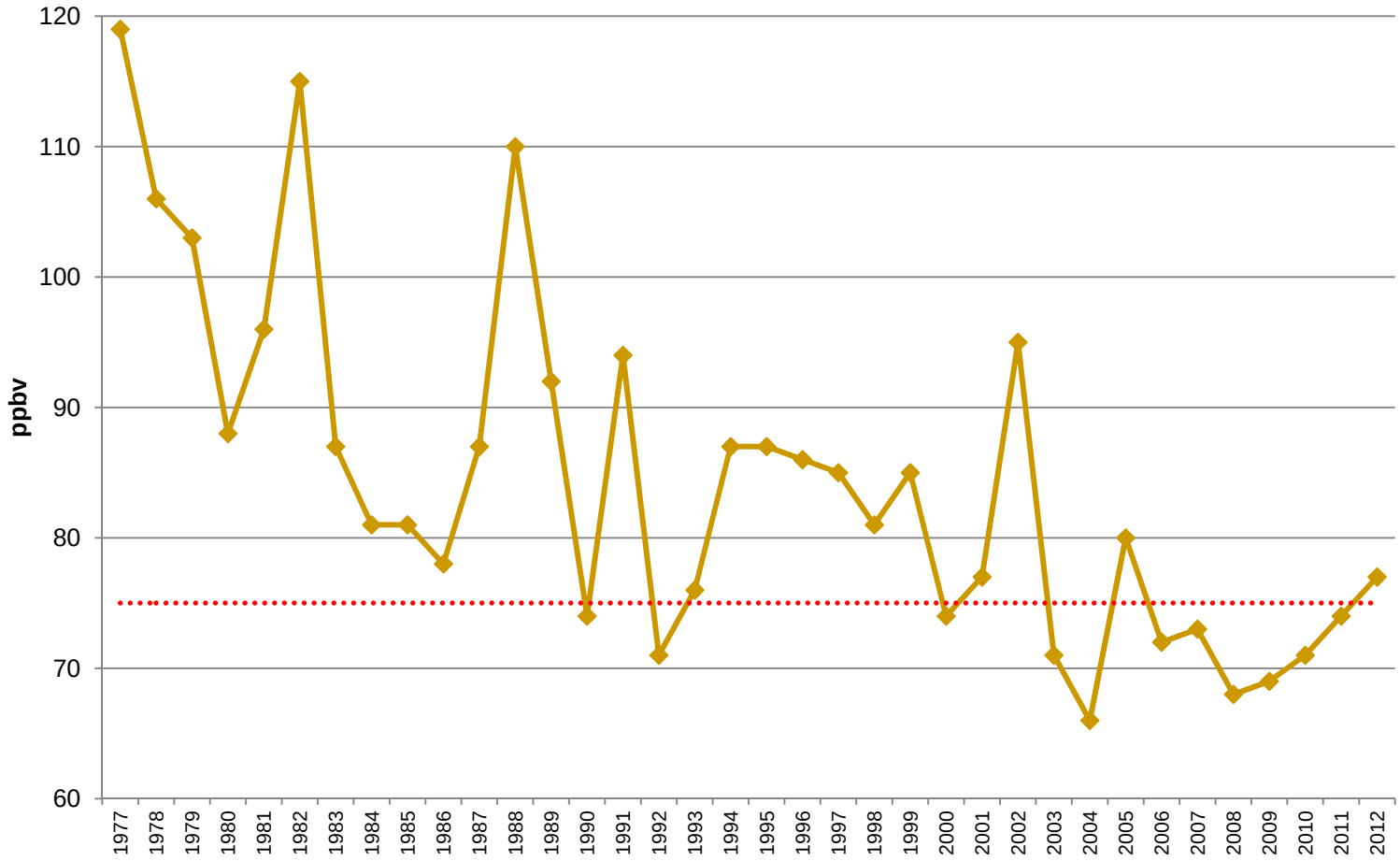

Region 5 State, Local, and Tribal Ambient Air Monitoring Network
Region 5 Ambient Monitoring Network
SO2 Monitor
PM10 Monitor
Lead Monitor
NO2 Monitor
CO Monitor
PM2.5 Monitor
Ozone Monitor

RAPCA - Ambient Air Quality Monitoring Program

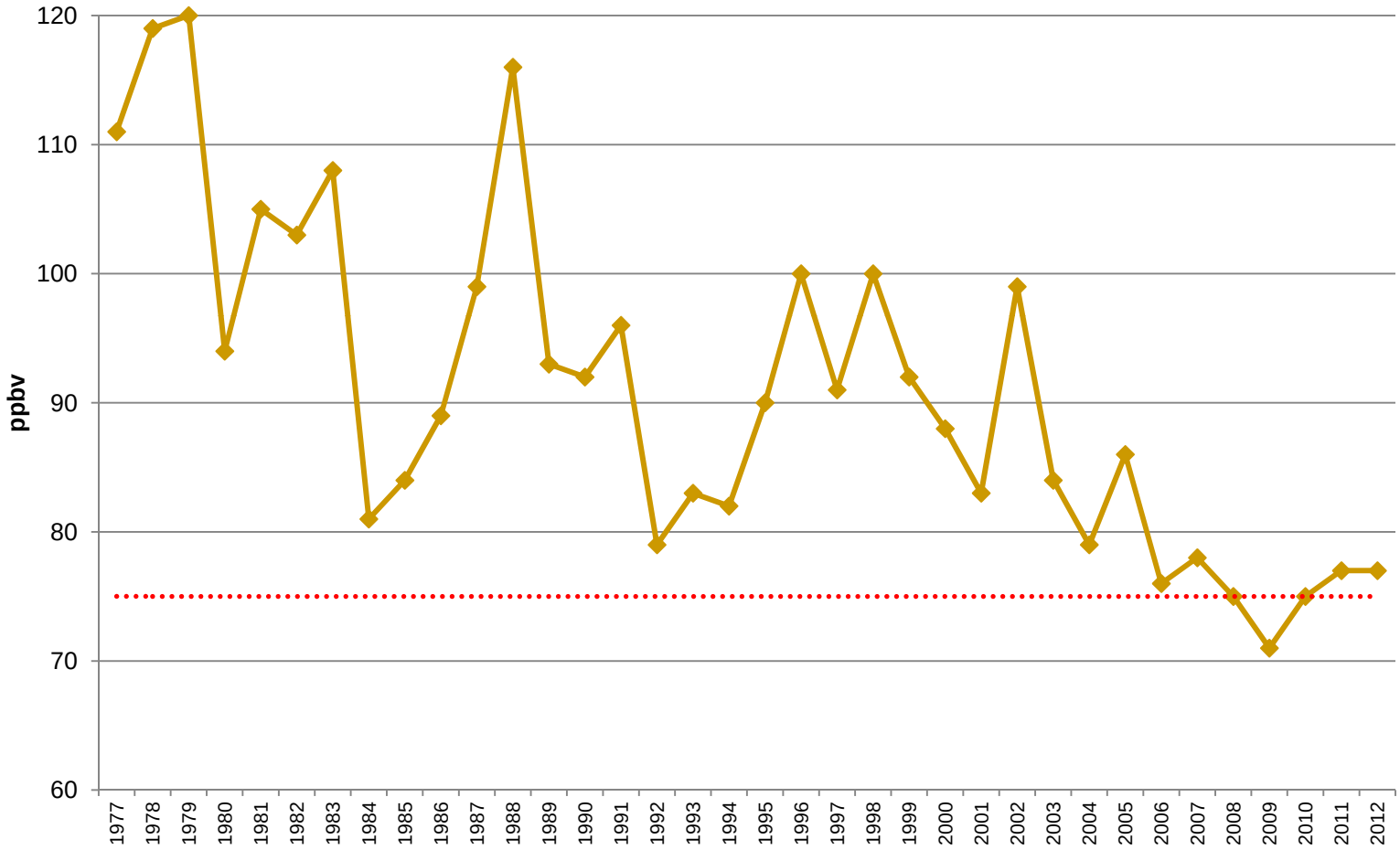
- 15 ambient air quality monitors at 12 locations:



Preble County, Ohio 4th max 8 hr Ozone



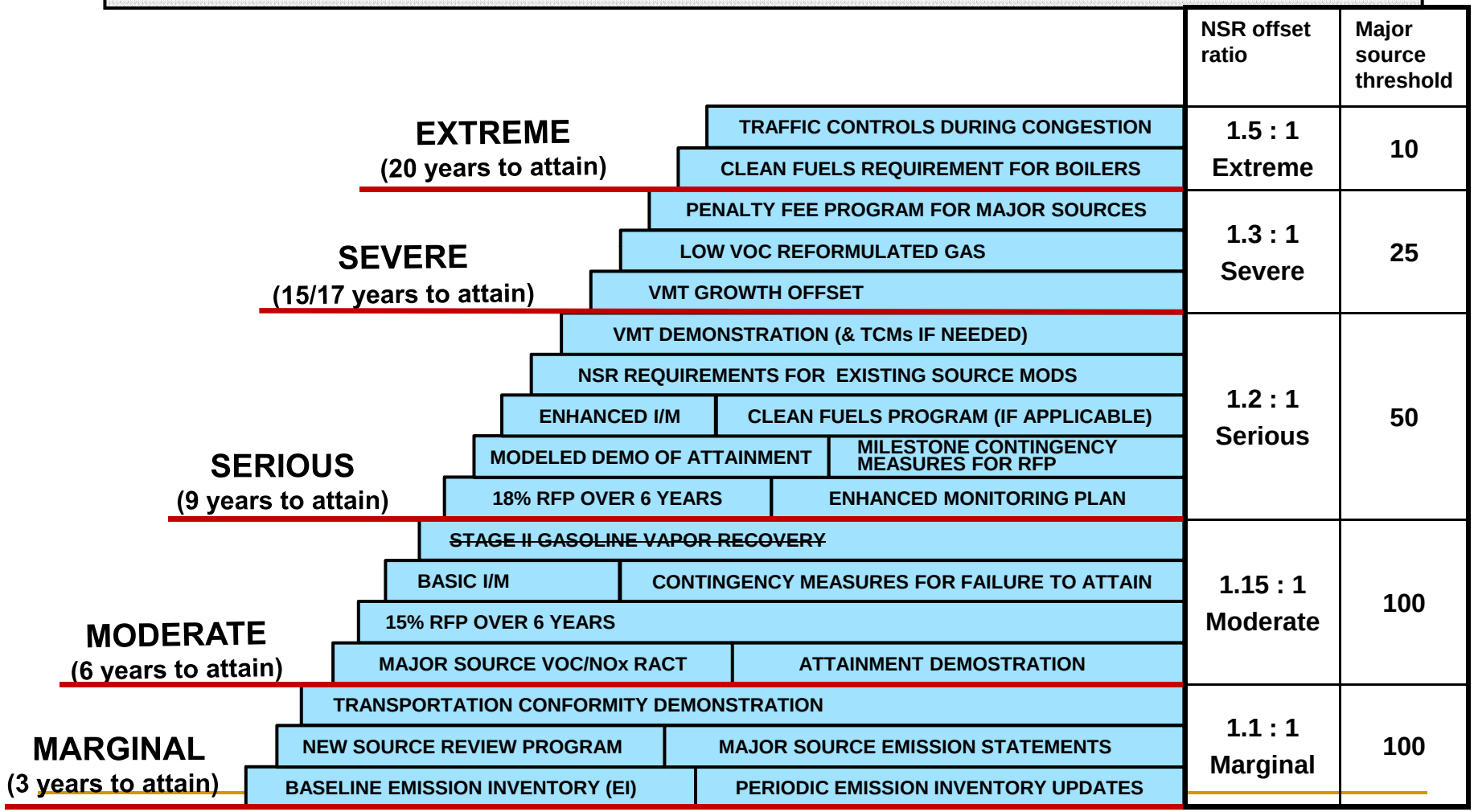
Clark County, Ohio 4th max 8 hr Ozone

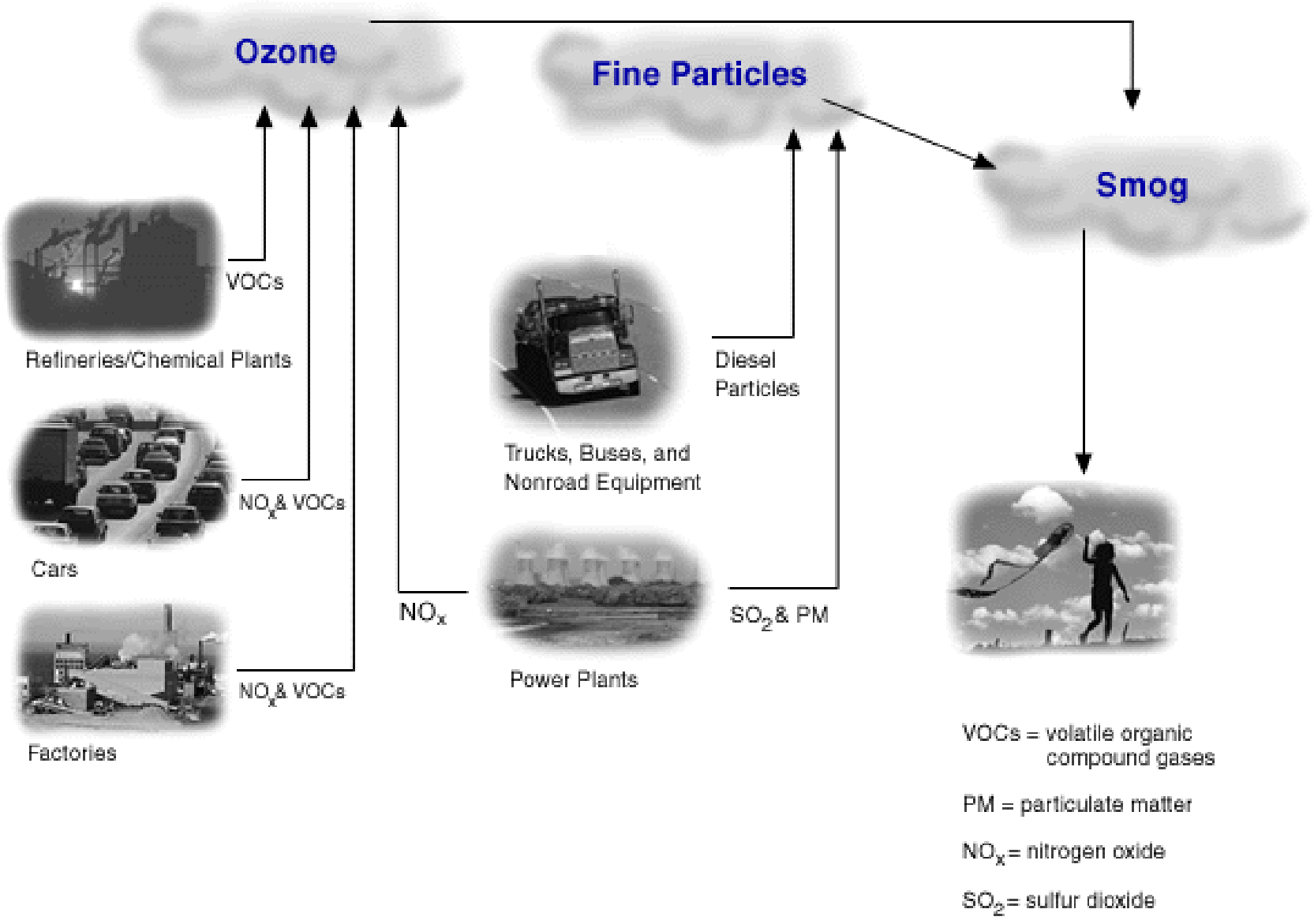


Requirements for Ozone Areas - CAAA

- Requirements for all nonattainment areas
  - Nonattainment New Source Review
    - Emissions offsets
    - Lowest Achievable Control Technology
- Additional requirements for moderate nonattainment areas are the ones you really want to avoid
  - Inspection/maintenance of vehicles
  - 15% reduction in inventory
  - Stage 2 vapor recovery at gasoline dispensing stations

Overview of CAA Ozone Planning & Control Requirements by Classification




Ozone
Fine Particles
Smog
VOCs
Refineries/Chemical Plants
Diesel
Particles
Trucks, Buses, and
Nonroad Equipment
NOx& VOCs
Cars
NOx
SO2& PM
NOx& VOCs
Power Plants
Factories
VOCs = volatile organic
compound gases
PM = particulate matter
NOx= nitrogen oxide
SO2= sulfur dioxide

Sources of Urban Air Pollution

- Mobile Sources (Vehicles)
  - On road
  - Off road
  - Small engines
- Area Sources
- Small commercial/institutional sources
- Large stationary sources

What are area and Mobile Sources?

On-Road Mobile Sources	Area Sources	Area Sources (cont'd)
Cars Buses Trucks	Agricultural Field Burning Agricultural Pesticide Use Agricultural Production - Animal Waste Agricultural Production - Fertilizer Application Agriculture Production - Crops, Tilling Animal Cremation Asphalt Paving Auto body Refinishing Commercial and Consumer Products Usage Commercial Cooking Domestic Animals - Waste Emissions Dry Cleaners Fluorescent Lamp Breakage Fluorescent Lamp Recycling Gasoline Service Stations Gasoline Trucks in Transit Grain Elevators Graphic Arts Hospital Sterilization Human Cremation	Human Perspiration Industrial Processes: Construction Industrial Surface Coating Mineral Processes: SIC 32 Paved Roads Petroleum Bulk Stations/Terminals: Breathing Refrigeration Residential Fossil Fuel Combustion Residential Wood Burning Solvent Cleaning Stationary Fuel Combustion, Commercial/Institutional Stationary Source Fuel Combustion, Industrial Structure Fires Surface Coatings - Architectural Swimming Pools Tank/Drum Cleaning Traffic Markings Unpaved Roads Waste Disposal, Open Burning Waste Incineration Wild Animals - Waste Emissions
Non-Road Mobile Sources		
Lawn & Garden Equipment Off Road Vehicles (e.g., ATVs) Snowmobiles Boats Planes Trains Construction Equipment Farm Equipment		

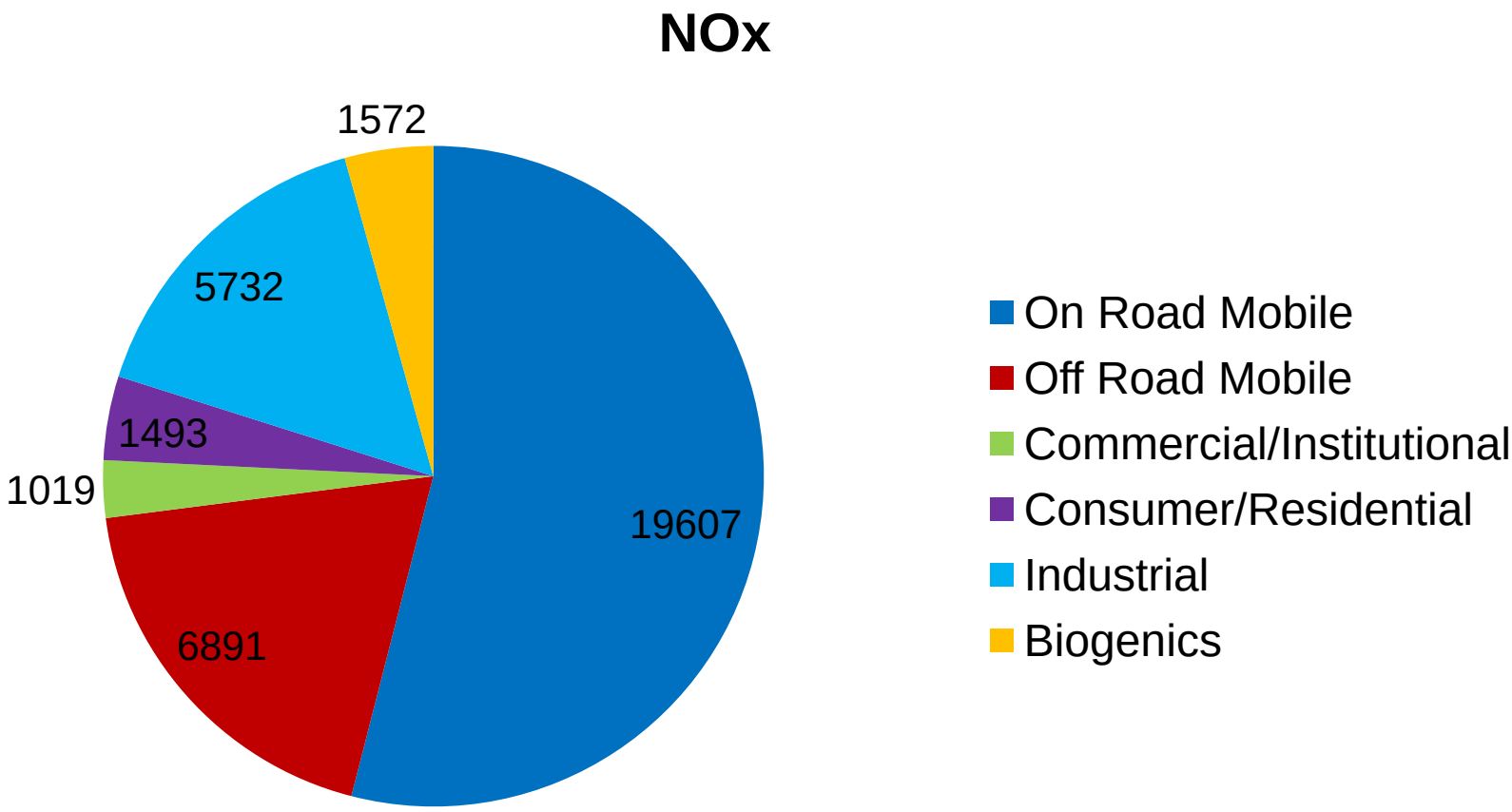
VOC Emissions Inventory, tons per year

	Area	Mobile	Point	TOTAL
1977	15000	35000	23000	73000
1999 NEI	27000	27000	2000	56000
Current (2008 NEI)	16000	19000	1700	37000

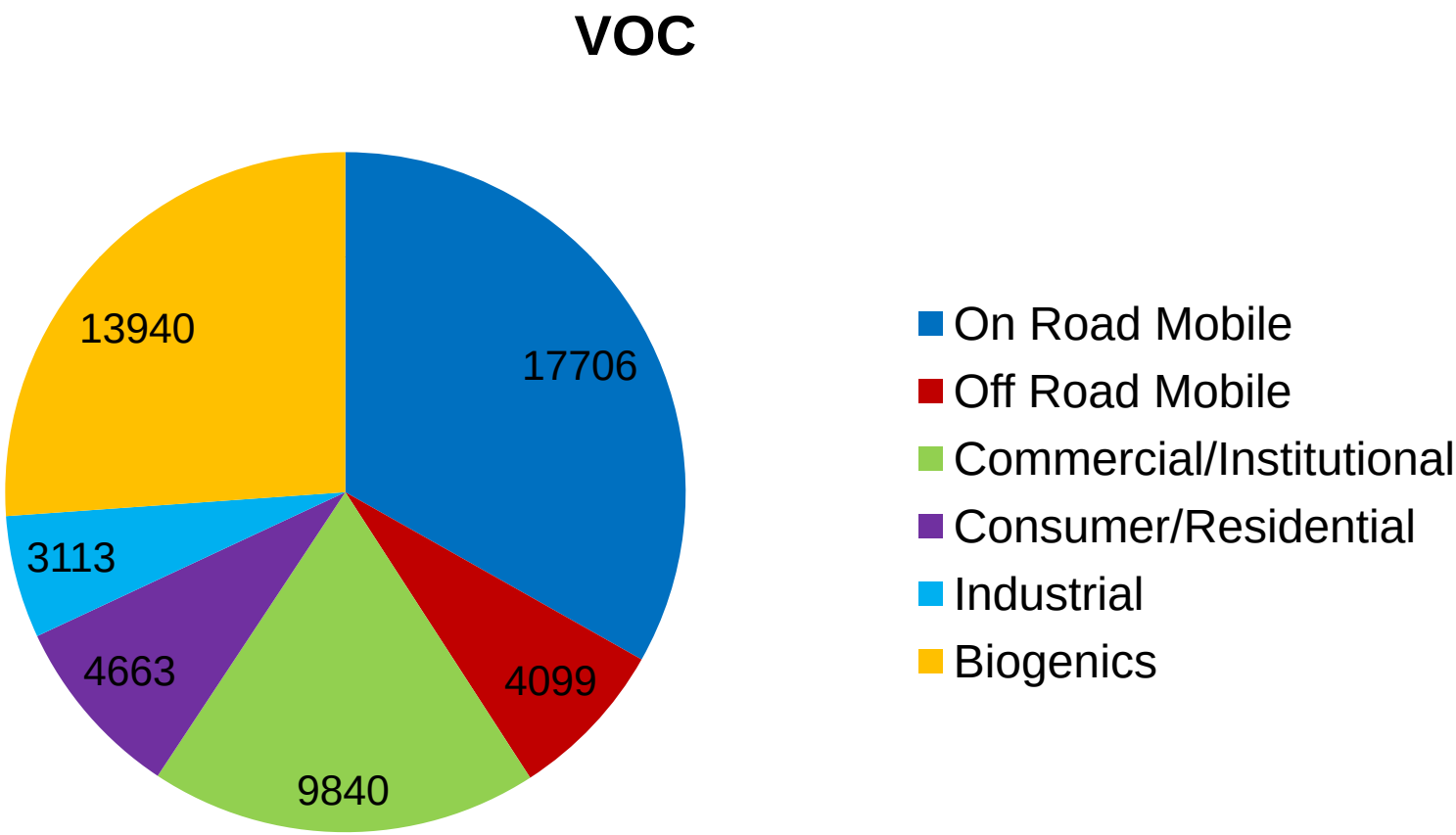
NOx Emissions Inventory, tons per year

	Area	Mobile	Point	TOTAL
1977			18000	
1999 NEI	3000	40000	8000	51000
Current (2008 NEI)	3000	36000	5000	44000

2008 Annual Inventory



2008 Annual Inventory



Ozone Advance Program

- Ozone Advance is a collaborative effort by EPA, states, tribes, and local communities to encourage emission reductions in ozone attainment areas, to help them continue to meet the National Ambient Air Quality Standard (NAAQS).
- Program Goals:
  - Help attainment areas take action in order to keep ozone levels below the level of the standard to ensure continued health protection,
  - Better position areas to remain in attainment,
  - Efficiently direct available resources toward actions to address ozone problems quickly.

Our Goal

- Specifically identify ozone precursor emissions
- By emissions category (point, area, mobile) identify potential emissions reduction measures
- Analyze potential emissions reductions and make recommendations for appropriate implementation

Process Going Forward

- Prepare a detailed emissions inventory
- Form four subgroups to begin the identification of emission reduction possibilities
  - National Measures,
  - Point Sources,
  - Area Sources, and
  - Mobile Sources

National Measures

- NOx/SO2 Reductions from EGUs
  - CAIR/CSAPR or Replacement/Legislation
  - MATS
  - 110 (a)(2)(D) SIPs
- Tier 3 Vehicle Rule
- Low-sulfur Gasoline

Control Options—Point Sources

- VOC Reasonably Available Control Technology (RACT) extend applicability to all counties and smaller sources:
- NOx Reasonably Available Control Technology (RACT) extend applicability to all counties and smaller combustion sources

Control Options—Area Sources

- Consumer Products
- Architectural and Industrial Maintenance Coatings
- Gas Can Replacement Program
- Auto Body Refinishing
- Graphic Arts
- Open Burning Awareness Campaign
- Residential Insulation
- Residential Energy Efficient appliance exchanges

Control Options—On-Road Mobile Sources

- Cash for Clunkers (VOC/NOx)
- Clean Diesel Grants (NOx)
- Alternative Fuel Conversions (VOC)
- Reduced Fare Program with RTA during APAs (VOC/NOx)
- New I/M Program (VOC/NOx)
- National Measures (VOC/NOx)

Control Options—Non-Road Mobile Sources

- Clean Diesel Grants (NOx)
- Lawnmower Exchange Program (VOC)
- Alternative Fuel Conversions (VOC)
- National Measures (NOx)

Next Step

- Control Options Identification will Continue
- Public Awareness Remains an Ongoing Objective
- We will Hold Another Public Meeting in December to Inform Regarding Options and Solicit Feedback/Comments
- Our Plan will be Prepared

Questions?