

St. Louis Ozone/PM25 Control Strategies Meeting

November 19, 2004

East-West Gateway Office

- Air Quality
Overview /Background
- Workgroup Responsibilities
- Steps for SIP Development
- Missouri Inventory
- Potential Control Strategies

Air Quality Overview/Background

Phase 1, 8-Hour Implementation Rule

- Rule Signed on April 15, 2004
- St. Louis Classified as “Moderate”

Current 8-hour Ozone Status for the St. Louis Area

Limiting Monitor: Orchard Farm, MO

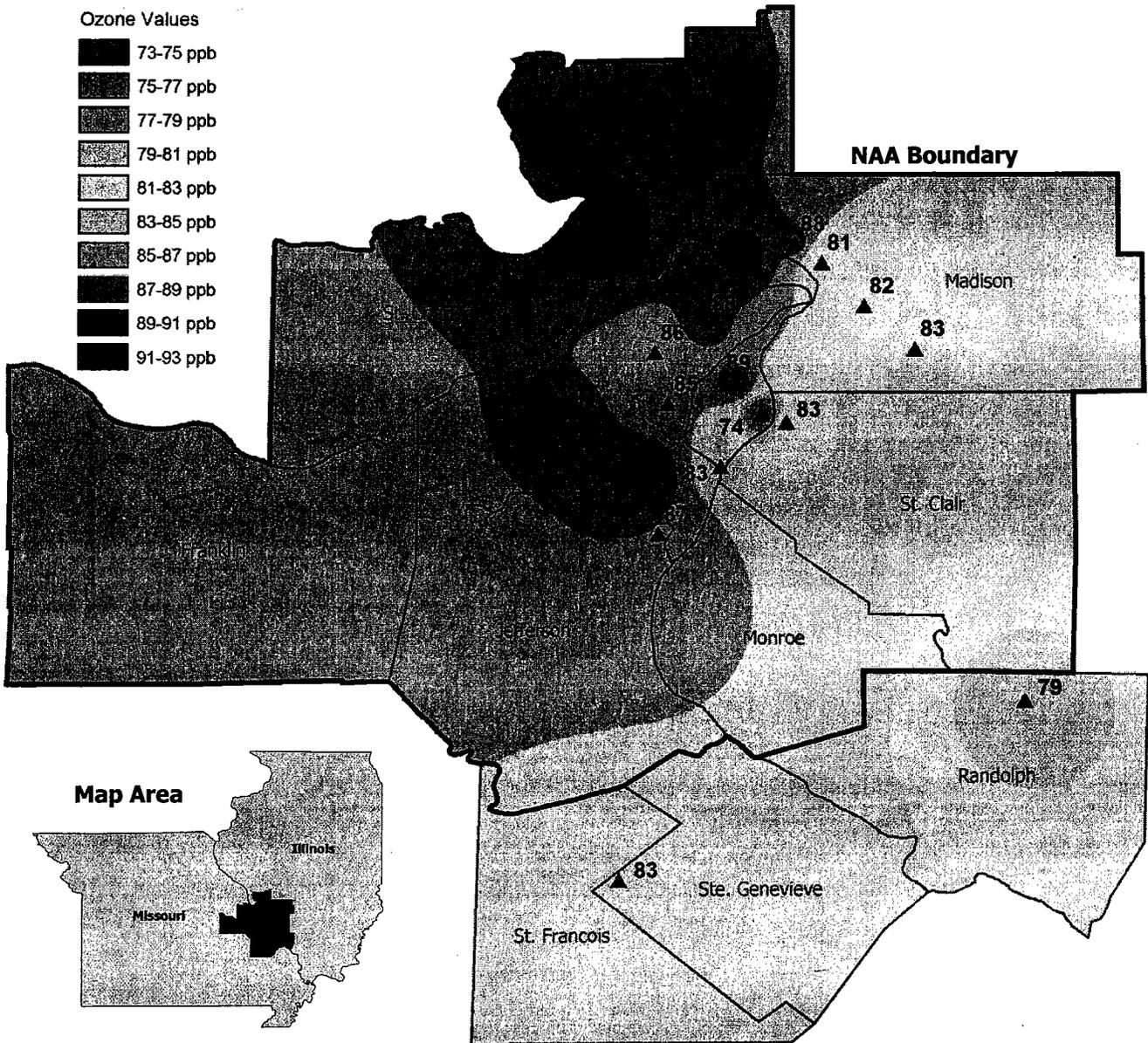
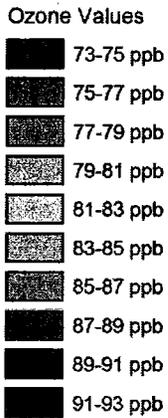
Top Four Values by Year

Rank	2001	2002	2003	2004*
1 st High	90 ppb	114 ppb	97 ppb	80 ppb
2 nd High	90 ppb	111 ppb	96 ppb	80 ppb
3 rd High	89 ppb	101 ppb	95 ppb	78 ppb
4 th High	88 ppb	98 ppb	90 ppb	76 ppb

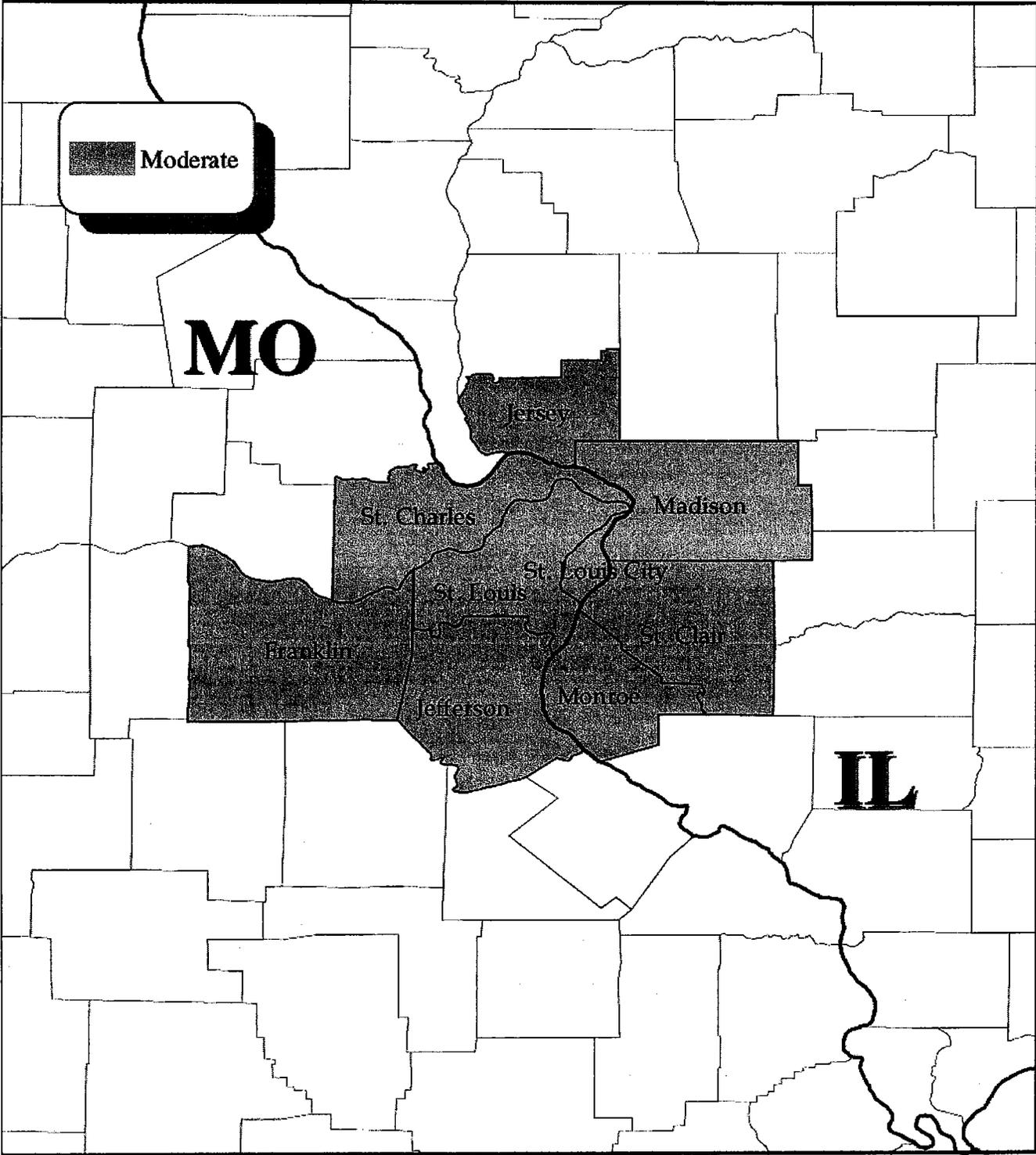
Design Value

2001-2003	2002-2004*
92 ppb	88 ppb

St. Louis Region 2001-2003 8-hour Ozone Design Values

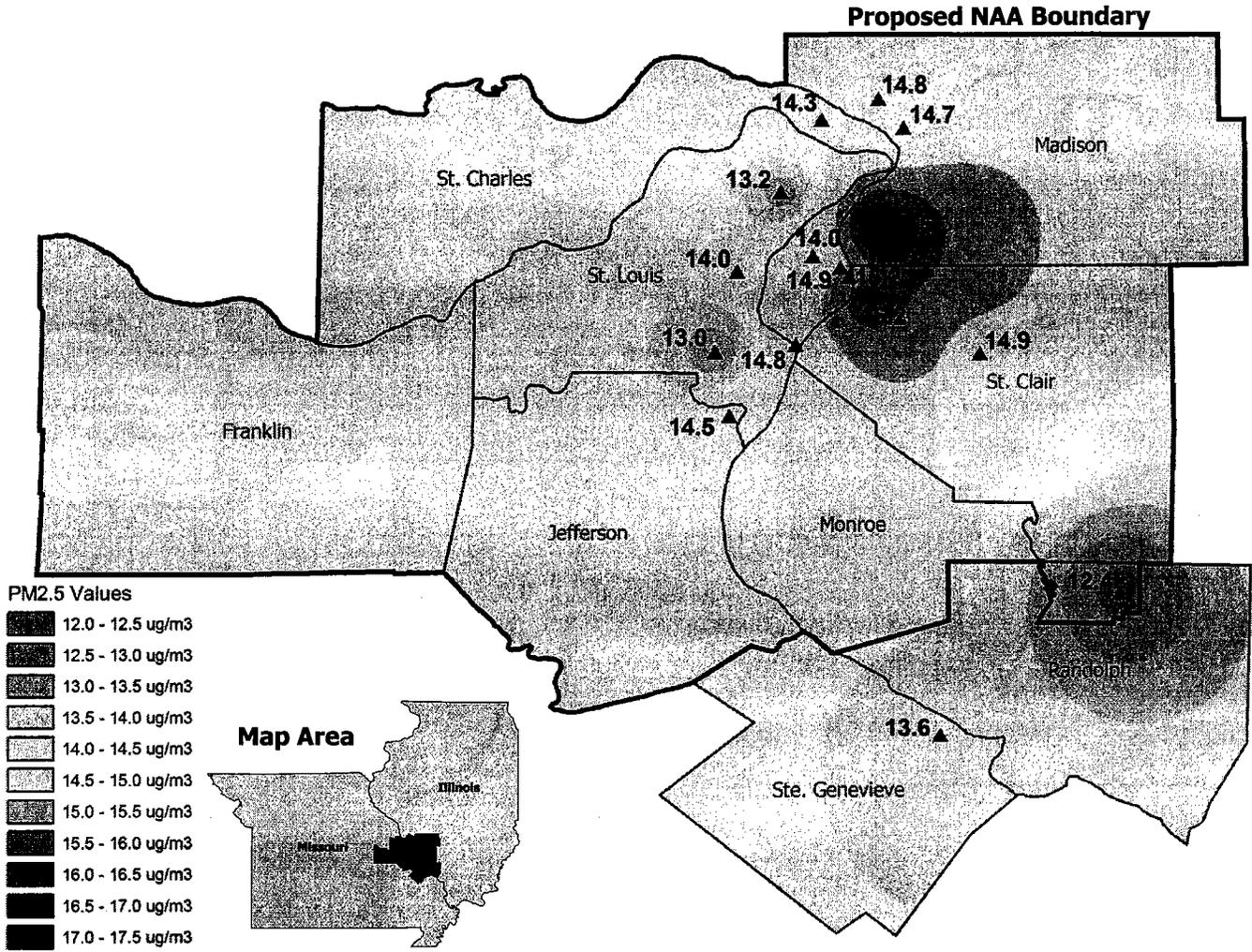


8-Hour Ozone Nonattainment Area St. Louis, MO-IL

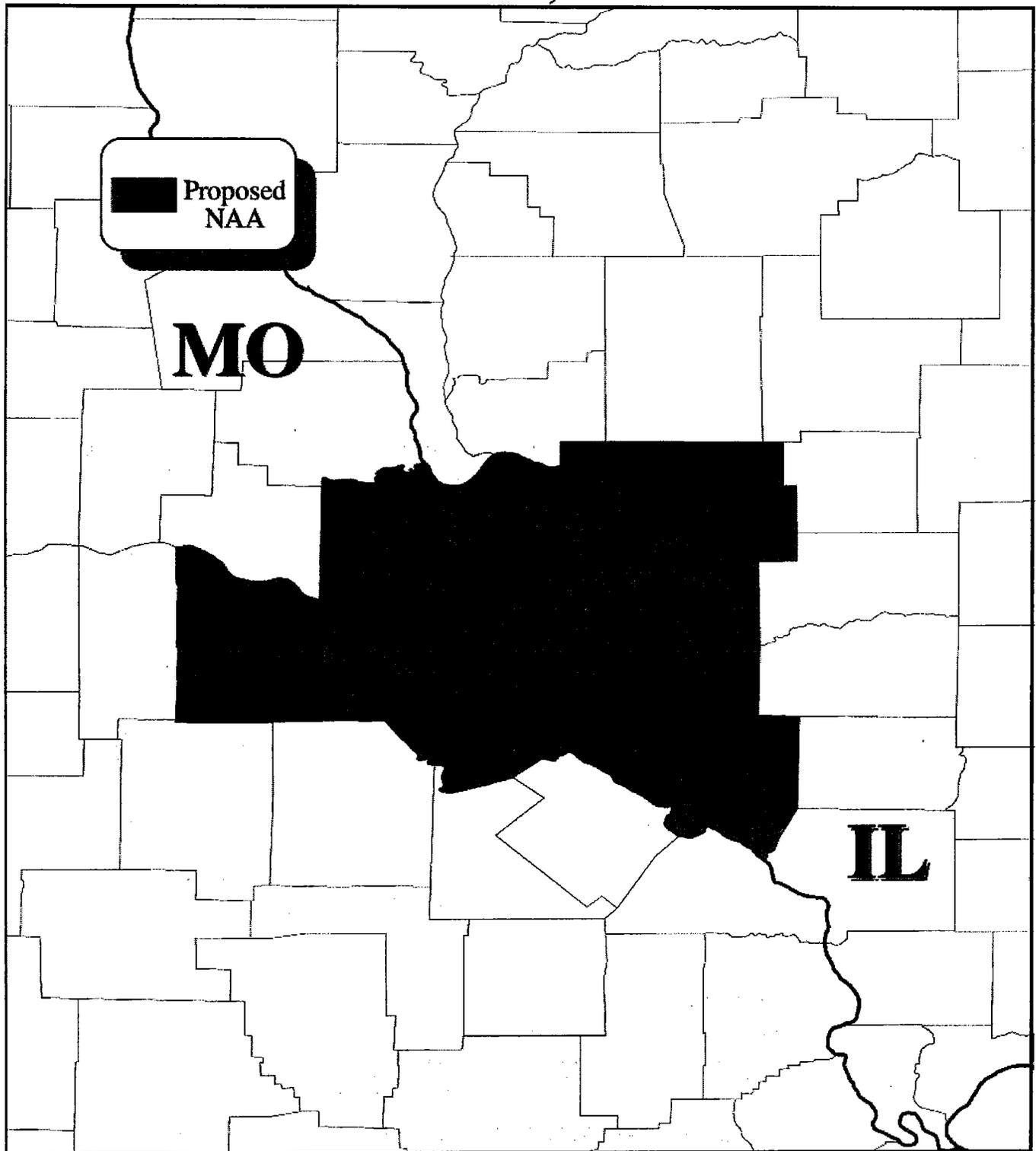


Source: USEPA, Office of Air Quality Planning and Standards, Green Book, August 03, 2004

St. Louis Region 2001-2003 Annual PM2.5 Design Values



Proposed PM2.5 Nonattainment Area St. Louis, MO-IL

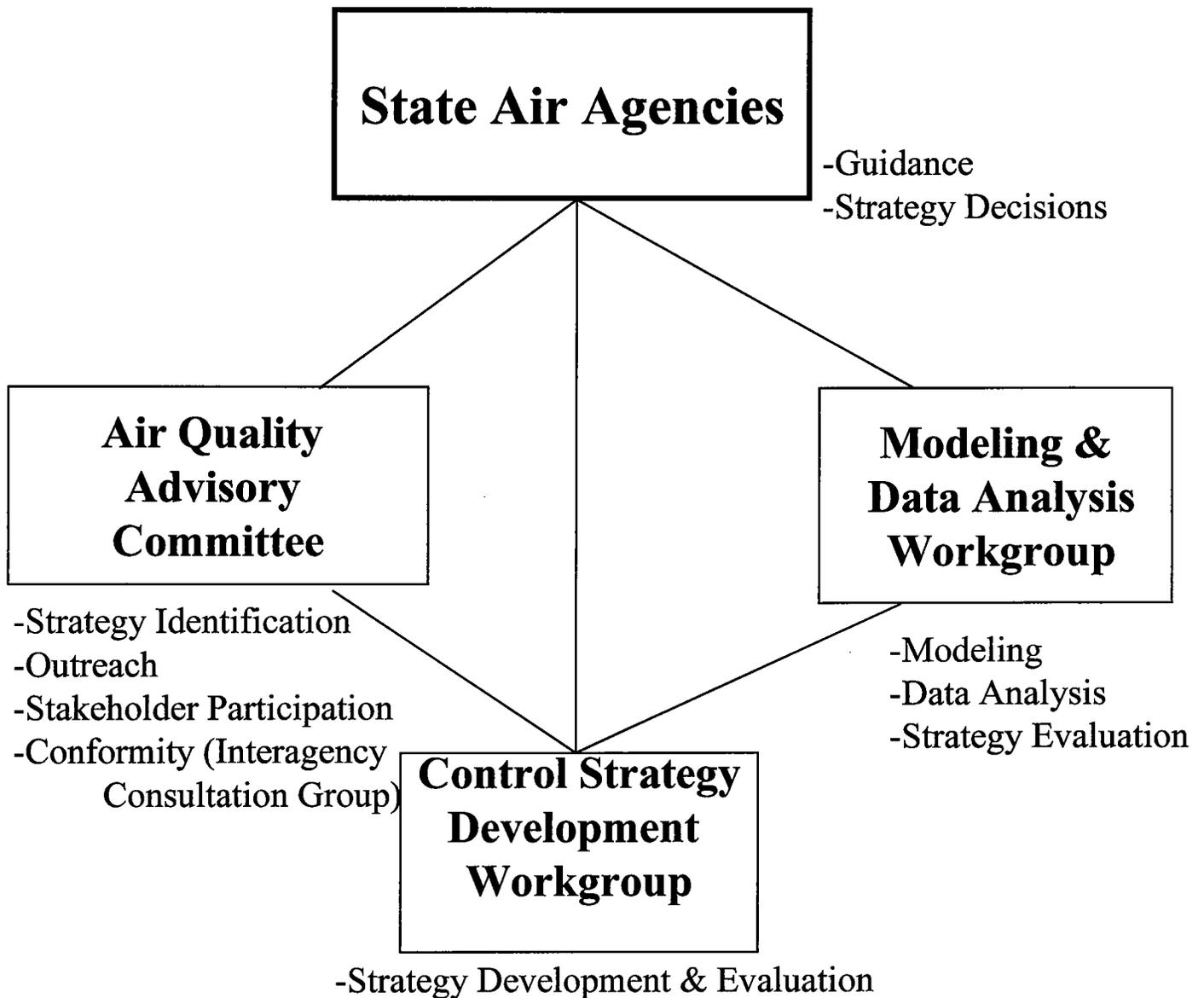


* September 1, 2004, IEPA recommended only Baldwin Township in Randolph County as NAA
Source: USEPA, Office of Air Quality Planning and Standards, July 8, 2004

Discussion/Questions

Workgroup Responsibilities

Organizational Chart



Control Strategy Development Workgroup:

Responsible for...

- Identification and technical evaluation of control strategies needed to demonstrate attainment and meet other regulatory requirements
- Preparation of emissions inventories, tracking of control requirements required by the Clean Air Act, identification of other control measures, and evaluation of feasibility and costs
- Coordination and communication of strategies and technical information to AQAC, the Modeling and Data Analysis Workgroup, and the State Agency Air Directors

Air Quality Advisory Committee (AQAC)

Responsible for ...

- Providing a forum for communication and outreach between local governmental agencies, stakeholders, the Modeling and Data Analysis Workgroup, Control Strategy Development Workgroup, and the State Agency Air Directors
- Identifying control strategy options for evaluation by the Control Strategy Development Workgroup
- Developing conformity budgets
- Preparing conformity demonstrations that are consistent with the 8-hour ozone and PM_{2.5} SIPs.

Control Strategy Development Workgroup Participants

- Illinois EPA
- Missouri DNR
- U.S. EPA Region V
- U.S. EPA Region VII
- East-West Gateway

Local organizations, stakeholders, and academics that can contribute technical capabilities or resources are also invited to participate.

Discussion/Questions

Steps for SIP Development

SIP Schedule

Timeline...

- Final Area Designation : Ozone in 2004 and PM2.5 in 2005
- Control Strategy Evaluation : 2004- 2005
- Technical Evaluation (Emission Inventory, Model Performance Evaluation, Control Strategy Modeling): Today - 2006
- SIP Submittals: 2007
- Attainment Dates : 2010

Components of the SIP

- **Attainment Demonstration Modeling**
- **Reasonable Further Progress (RFP)**
- **Reasonable Available Control Technology (RACT)**
- **New Source Review (NSR)**
- **Conformity**

SIP Development Approach

- Hold Stakeholder Meetings
- Perform Emission Inventory
- Define Potential List of Control Strategies for Both Ozone and $PM_{2.5}$
- Evaluate Emission Reduction and Cost Effectiveness for selected control strategies

Cont.

- **Provide Control Strategies to Modeling Workgroup for Evaluation.**
- **Coordinate and Communicate of Strategies and Technical Information to AQAC.**
- **Develop and Adopt SIPs, Including Emission Control Programs/Rules, Milestones and Deadlines.**

Discussion/Questions

Missouri Emission Inventory

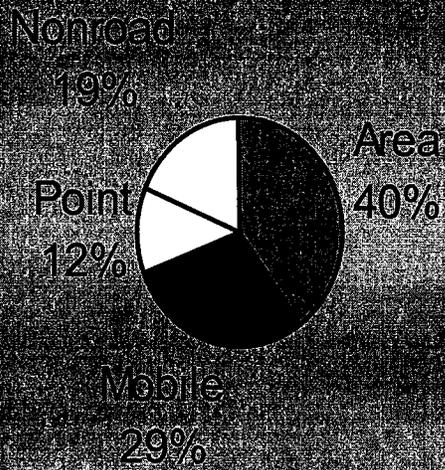
Emission Inventory

- Base year inventory: 2002
- Pollutants: VOC, NO_x, PM_{2.5} precursors (SO_x, NO_x, Fine particulate, etc)
- Type of inventory- Point, area, Nonroad, mobile
- Tools: Transportation Data, Demographic data, Mobile 6, non-road models, etc.

Preliminary 2002 Emissions for the
 Missouri Portion of the St. Louis
 Nonattainment Area (tons/year)

Category/Pollutant	VOC	NOx	PM2.5
Area	34987	10014	23624
Mobile	25273	62375	1085
Point	10829	43878	10988
Nonroad	16212	20021	1302
Total	87301	136288	36999

Preliminary 2002 VOC Emissions for the Missouri Portion of the St. Louis NAA

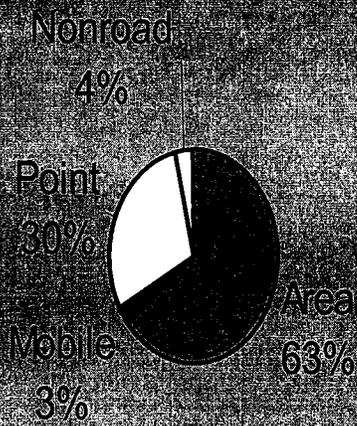


- Area
- Mobile
- Point
- Nonroad

Preliminary 2002 NO_x Emissions for the Missouri Portion of the St. Louis NAA



Preliminary 2002 PM_{2.5} emissions for the Missouri Portion of St. Louis NAA



- Area
- Mobile
- Point
- Nonroad

Discussion/Questions

Potential List of Control Strategies

Emission Reduction Strategies

- Short List of Control Strategies
- Economically and Technologically Feasible
- Implement As Soon As Practical But not Later Than 2009
- Reduction Must be Quantifiable, Permanent, Enforceable.

	Source of additional information	Reduction in Emissions of Volatile Organic Compounds and/or Nitrogen Oxides that React in Sunlight to form Ground Level Ozone			Detail for Pre-2010 Actions		PM2.5 emissions
		ATTAINMENT before 2010	MAINTENANCE 2010-2020	LONG TERM after 2020	EMISSIONS reductions in pounds per summer day	COST estimated as dollars per ton of reduction	reduced Please see footnote*
Detail sheets are attached.							
STATE AND LOCAL ACTIONS ALREADY IN PLACE							
Permitting and control of major industrial sources	MDNR/KDHE KCMO/KCK	already counted					
Existing State RACT rules for specific industries	MDNR/KDHE	already counted					
Reporting of emissions from sources above 40 tons/year	MDNR/KDHE						
FEDERAL ACTIONS							
Interstate Air Quality Rule	EPA MDNR/KDHE						
MACT rules for hazardous air pollutants	EPA MDNR/KDHE	already counted?					
New Source Review off-sets for non-attainment areas	EPA	uncertain impact	not required for maintenance				
POTENTIAL NEW ACTIONS							
Regulate emergency generator use for non-emergency power	KCMO/KCK	yes	yes				
Restrict use of lighter fluids and switch to charcoal chimneys	Jo Co	yes	yes				
Prohibit residential open burning and construction debris burns	MDNR/KDHE MARC	yes	yes				
Lower RACT applicability limits	MDNR	yes	yes				
Establish RACT for new source categories	KDHE	yes	yes				
Control major NOx sources in strategic locations	KDHE/MDNR	yes	yes				

SOLVENT USERS/ VOC EMITTERS	Source of additional information	Reduction in Emissions of Volatile Organic Compounds and/or Nitrogen Oxides that React in Sunlight to form Ground Level Ozone			Detail for Pre-2010 Actions		PM2.5 emissions reduced Please see footnote*
		ATTAINMENT before 2010	MAINTENANCE 2010-2020	LONG TERM after 2020	EMISSIONS reductions in pounds per summer day	COST estimated as dollars per ton of reduction	
Detail sheets are attached.							
STATE AND LOCAL ACTIONS ALREADY IN PLACE							
Permitting and control of major industrial sources							
Existing State RACT rules for specific industries							
Household hazardous waste programs & education							
FEDERAL ACTIONS							
MACT rules for hazardous air pollutants							
VOC standards for commercial and consumer products							
POTENTIAL NEW ACTIONS							
Partner with retailers to sell low emission products							
Best Practices training tied to business licensing							
Lower RACT applicability limits							
Early MACT/HAP implementation							
Economic incentives for using low-VOC alternatives							
Control Emissions from solvent metal cleaning							

FUELS VEHICLE MAINTENANCE AND TECHNOLOGY	Source of additional information	Reduction in Emissions of Volatile Organic Compounds and/or Nitrogen Oxides that React in Sunlight to form Ground Level Ozone			Detail for Pre-2010 Actions		PM2.5
		ATTAINMENT before 2010	MAINTENANCE 2010-2020	LONG TERM after 2020	EMISSIONS reductions in pounds per summer day	COST estimated as dollars per ton of reduction	emissions reduced Please see footnote*
STATE AND LOCAL ACTIONS ALREADY IN PLACE							
Stage I Vapor Recovery							
Lower RVP Gasoline							
<i>see note about RFG</i>							
Promotion of alternative fueled hybrid vehicles (Clean Cities)							
Missouri safety inspections							
FEDERAL ACTIONS							
Tax credits for electric and hybrid electric vehicles							
On-Board Stage II Vapor Recovery for newer cars							
Tier 2, gasoline and diesel fuel standards							
Tier 2, light & medium duty vehicle emissions standards							
Tier 2, heavy duty vehicle emissions standards							
POTENTIAL NEW ACTIONS							
Full emissions testing prog (IVM 240)							
Stage II Vapor Recovery at the gas pump							
Stage II Vapor Recovery or w/time-of-day pricing							
Reformulated gasoline (RFG) <i>would replace lower RVP</i>							
More aggressive promotion of alt fuel vehicles (incl hy-elec.)							
Former gas cap replacement could be implemented again							
Require emissions testing for vehicle title transfer							
Vehicle repair/replacement for low income owners in conj. W/							

ON-ROAD VEHICLE OPERATIONS AND MILES TRAVELED	Source of additional information	Reduction in Emissions of Volatile Organic Compounds and/or Nitrogen Oxides that React in Sunlight to form Ground Level Ozone			Detail for Pre-2010 Actions		PM2.5 emissions reduced Please see footnote*
		ATTAINMENT before 2010	MAINTENANCE 2010-2020	LONG TERM after 2020	EMISSIONS	COST	
					reductions in pounds per summer day	estimated as dollars per ton of reduction	
STATE AND LOCAL ACTIONS ALREADY IN PLACE							
Reduced fare transit on							
Ozone Alert Days							
Operation Green Light, Phase I							
Regional Rideshare carpool matching program							
FEDERAL ACTIONS							
EPA Smart Growth Network							
Any DOT initiatives?							
POTENTIAL NEW ACTIONS							
Double speeding fines on ozone alert days							
Enhanced enforcement of speed limits							
Reduce regional highway speeds to 55 mph							
Reduce regional highway speeds by 5 mph							
Institute surcharges on parking to encourage transit/carpooling							
Promulgate and enforce anti-idling rules							
Install IdleAir Systems for diesel trucks at rest/truck stops							

FLEET OPERATIONS	Source of additional information	Reduction in Emissions of Volatile Organic Compounds and/or Nitrogen Oxides that React in Sunlight to form Ground Level Ozone			Detail for Pre-2010 Actions		PM2.5 emissions reduced Please see footnote*
		ATTAINMENT before 2010	MAINTENANCE 2010-2020	LONG TERM after 2020	EMISSIONS reductions in pounds per summer day	COST estimated as dollars per ton of reduction	
STATE AND LOCAL ACTIONS ALREADY IN PLACE							
State alternative fuel vehicle fleet requirements							
Grant funding for alternative or hybrid vehicles (Clean Cities)							
FEDERAL ACTIONS							
Tier 2, light & medium duty vehicle emissions standards							
Tier 2, gasoline and diesel fuel standards							
Tier 2, heavy duty vehicle emissions standards							
Urban Bus Program and the Clean School Bus Program							
Federal alternative fuel vehicle fleet requirements							
POTENTIAL NEW ACTIONS							
Benchmarks for emissions reductions....							
Convert light duty fleets to alternative fuels/hybrid tech.							
Heavy duty engine retrofit incentive program							
Use of auxiliary controls to lower idling emissions from trains							

SEASONAL HEAVY CONSTRUCTION	Source of additional information	Reduction in Emissions of Volatile Organic Compounds and/or Nitrogen Oxides that React in Sunlight to form Ground Level Ozone			Detail for Pre-2010 Actions		PM2.5 emissions reduced Please see footnote*
		ATTAINMENT before 2010	MAINTENANCE 2010-2020	LONG TERM after 2020	EMISSIONS	COST	
					reductions in pounds per summer day	estimated as dollars per ton of reduction	
Detail sheets are attached.							
STATE AND LOCAL ACTIONS ALREADY IN PLACE							
Contractual requirements for off peak and night work							
Restrictions on open burning of debris							
FEDERAL ACTIONS							
Low sulfur diesel phasing in btwn 2007 and 2010							
Rules for cleaner off-road diesel engines 2008 to 2014							
POTENTIAL NEW ACTIONS							
Contract incentives for early engine retrofits							
Require coordination btwn road work and utility work							
Geographic coordination of construction in the region							
Require low VOC paving and striping materials							

Rules in Place

- **Open Burning Restrictions**
- **Control of Emission of Nitrogen Oxides.**
- **Control of Petroleum Liquid Storage, Loading and Transfer**
- **Control of Emissions From Aerospace Manufacturing and Rework Facilities (5/18/2000)**
- **Control of Emissions from Solvent Metal Cleaning (7/11/80)**
- **Liquefied Cutback Asphalt Paving Restricted (7/11/80)**
- **Control of Emissions from Perchloroethylene Dry Cleaning Installations (4/3/81)**
- **Control of Emissions from Industrial Surface Coating Operations (7/11/80)**
- **Control of Emissions from Rotogravure and Flexographic Printing Facilities (4/3/81)**
- **Control of Emissions from Manufacture of Synthesized Pharmaceutical Products (4/3/81)**
- **Control of Emissions from Polyethylene Bag Sealing Operations (10/15/84)**

Cont.

- **Control of Emissions from the Application of Deadeners and Adhesives (3/5/90)**
- **Control of Emissions from Manufacture of Paints, Varnishes, Lacquers, Enamels and Other Allied Surface Coating Products (4/16/85)**
- **Control of Emissions from the Manufacture of Polystyrene Resin (3/5/90)**
- **Control of Equipment Leaks from Synthetic Organic Chemical and Polymer Manufacturing Plants (4/14/88)**
- **Control of Emissions from Bakery Ovens (2/17/00)**
- **Control of Emissions From Offset Lithographic Printing Operations (2/17/00)**
- **Control of VOC Emissions from Traffic Coatings (2/17/00)**
- **Control of Emissions from Aluminum Foil Rolling (2/17/00)**
- **Control of Emissions from Solvent Cleanup Operations (2/17/00)**

Cont.

- **Municipal Solid Waste Landfills (4/24/98)**
- **Control of Emissions From Volatile Organic Liquid Storage (5/18/2000)**
- **Control of Volatile Organic Compound Emissions From Existing Major Sources (5/18/2000)**
- **Control of Volatile Organic Compound Emissions From Wood Furniture Manufacturing Operations (5/18/00)**
- **Control of Emissions From Batch Process Operations (5/18/00)**
- **Control of Volatile Organic Compound Emissions From Reactor Processes and Distillations Operations Processes in the Synthetic Organic Chemical Manufacturing Industry (5/18/00)**

Implementation Issues

- Rule signed on April 15, 2004
- St. Louis classified as “Moderate”
- RFG & I/M requirements same as 1-hour (Phase 2)
- RFP 3% per year (Phase 2) - VOC or NO_x?
- RACT
- Full Blown attainment demonstration
- Attainment date for moderate areas - 6 years (April 15, 2010)
- 1-hour standard revoked on April 15, 2005.
- NSR transition
- Transportation Conformity transition.
- CAIR
- NO_x SIP Call

Discussion/Questions

Assignments

