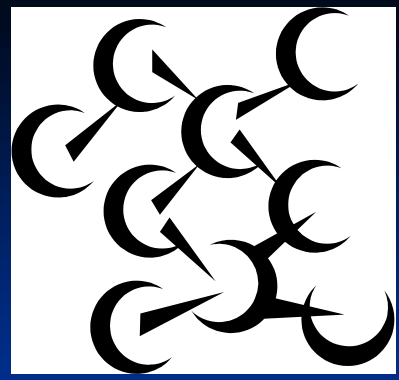
OVERVIEW of SIP for Annual PM2.5 Standard

MWAQC

December 12, 2007

Outline

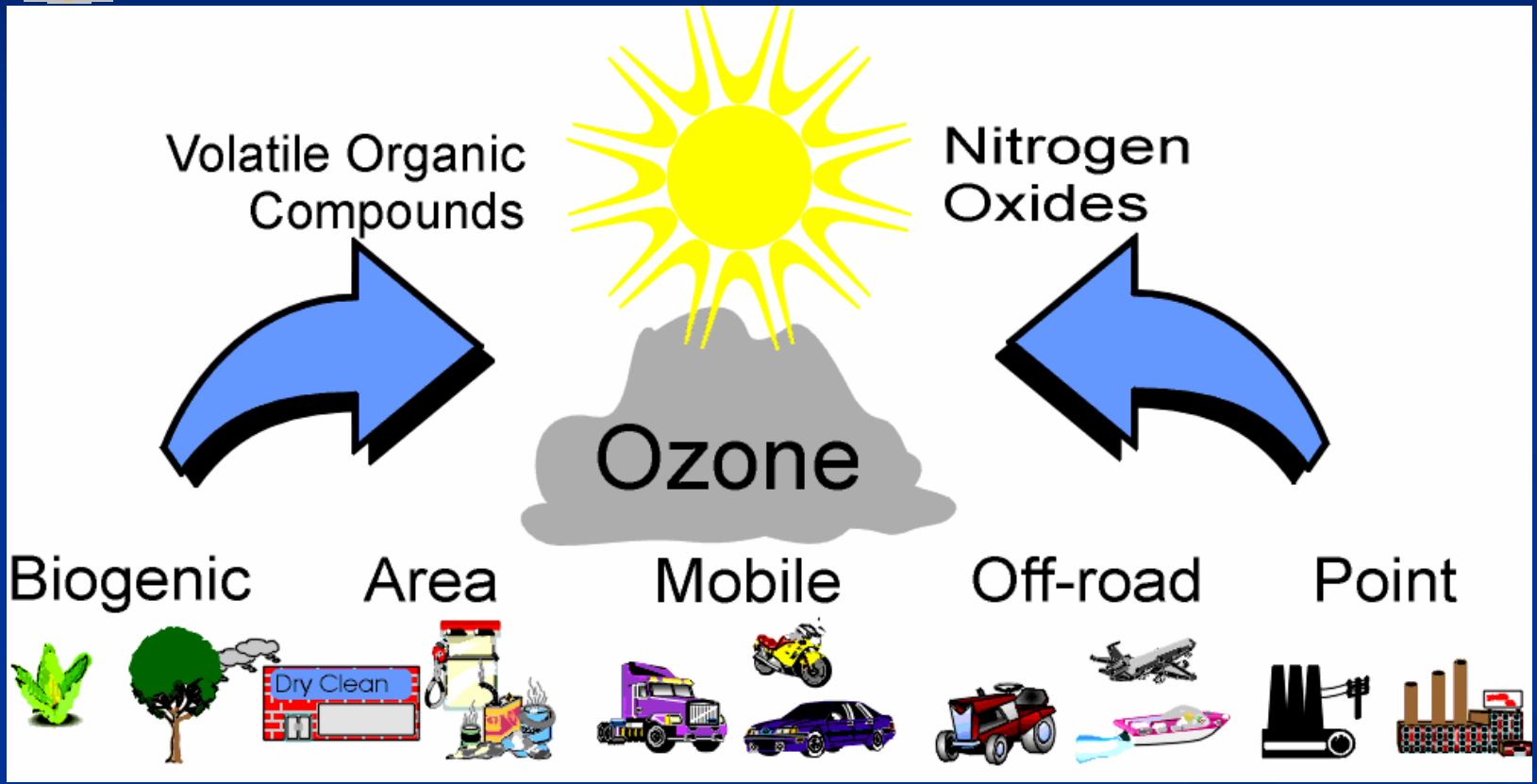


- Fine Particle Pollution, Definition & SIP Requirements
- Attainment Demonstration
- Inventories
- Control Measures
- Mobile Vehicle Emissions Budgets
- Contingency Plan
- Public Hearing Process

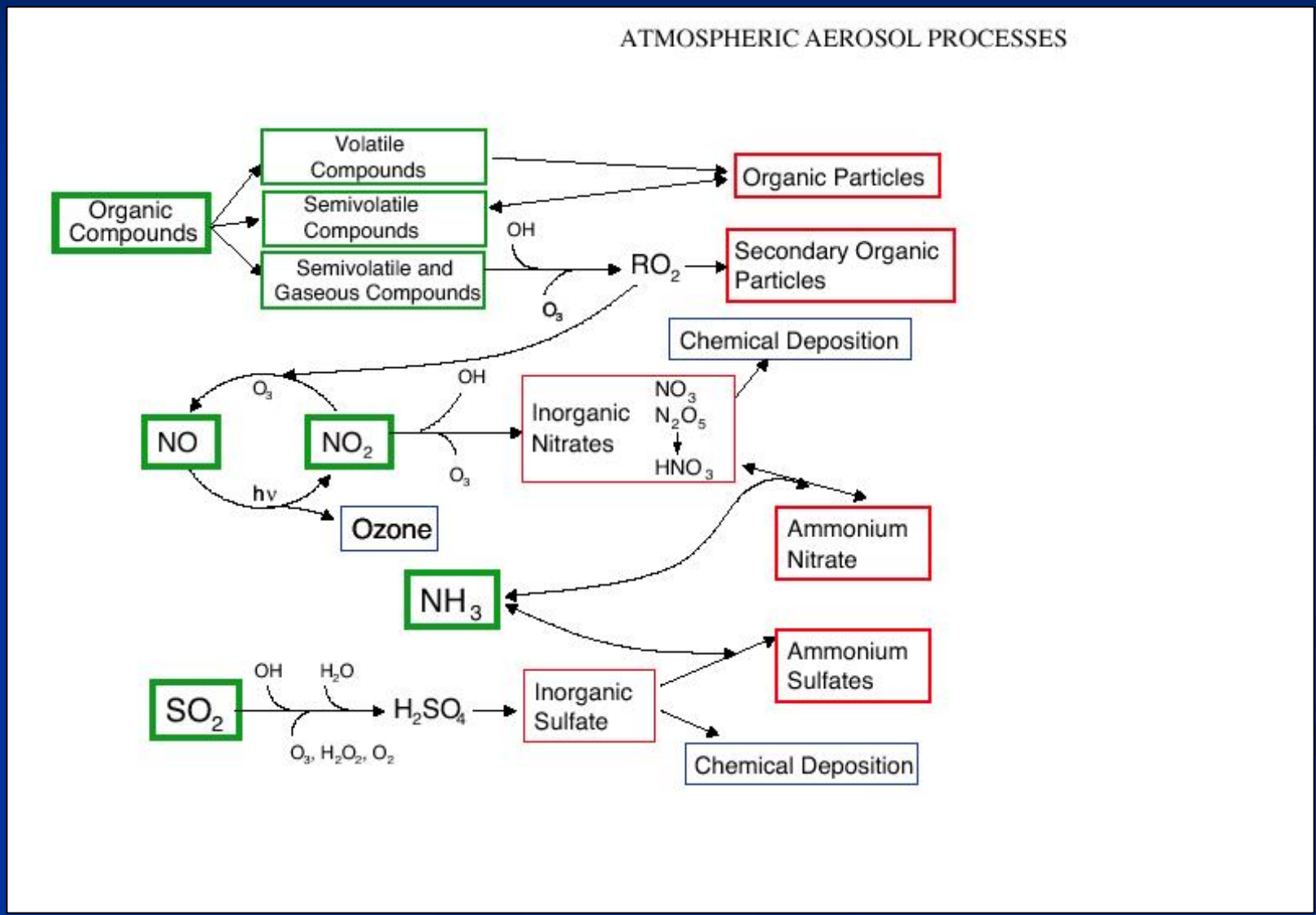
Air Pollution: Fine Particles

- Chemical, particulate matter or aerosol that modifies the natural characteristics of the atmosphere
- Created locally by emissions from coal combustion, cars & trucks, road construction
- Causes respiratory problems
- Impairs visibility

Formation of Ground Level Ozone



Formation of Fine Particles

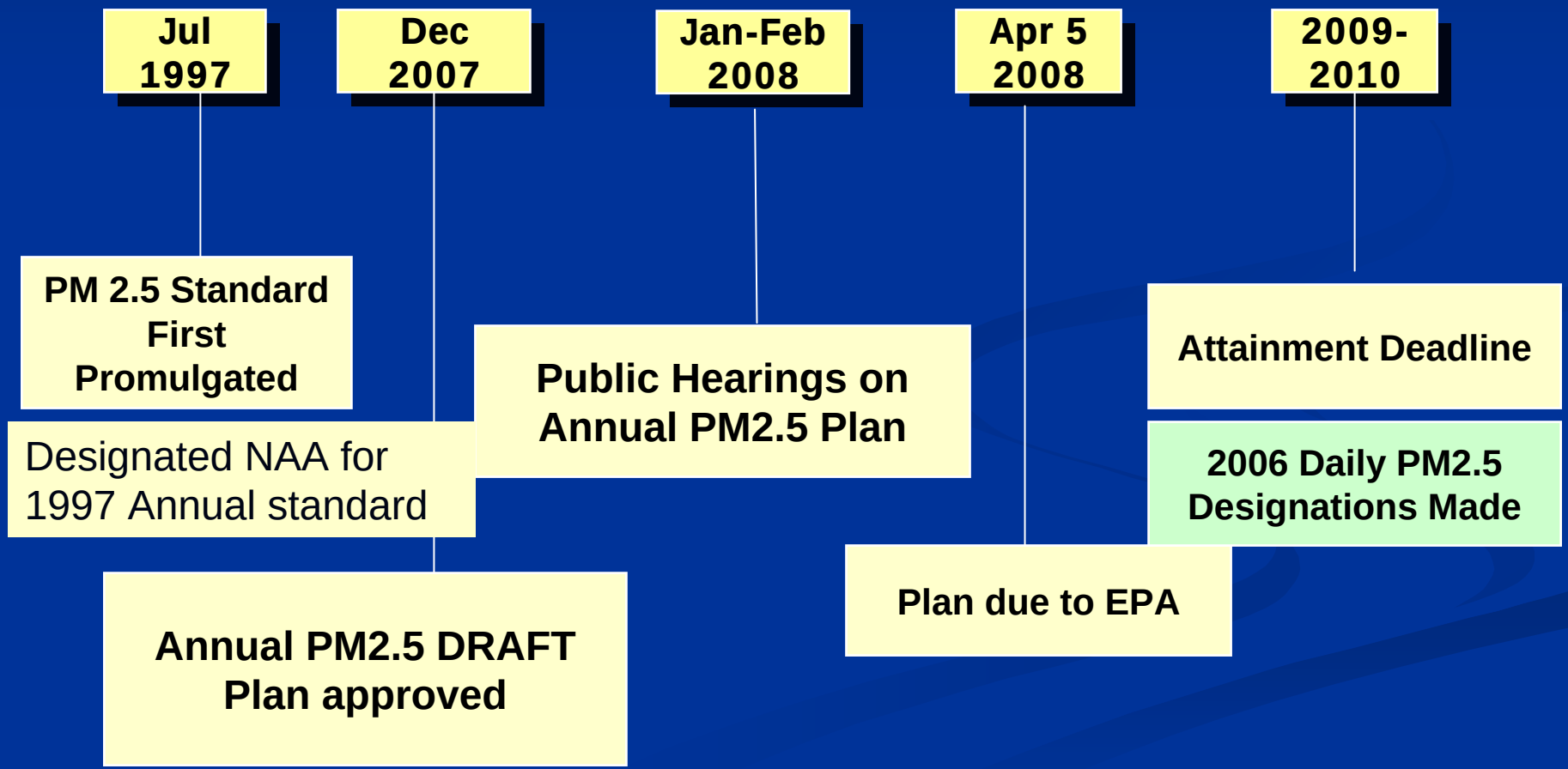


Sources of Particle Pollution

Fine Particles Can Be Emitted Directly or Formed in the Air from Gases

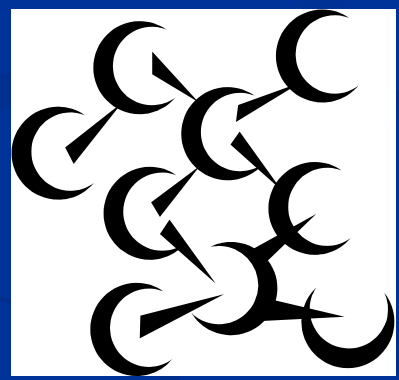
Source: EPA

PM2.5 Planning Schedule: Annual



PM2.5 SIP Requirements
Comparison to 8-hr Ozone SIP

- 2002 Base Year, 2009 Attainment Year
- 5 precursors: VOC, NH3, SO2, NOx, PM2.5-Direct
- NO RFP in 2008
- Attainment Modeling
- RACM, RACT
- Contingency Measures



Attainment Modeling Results

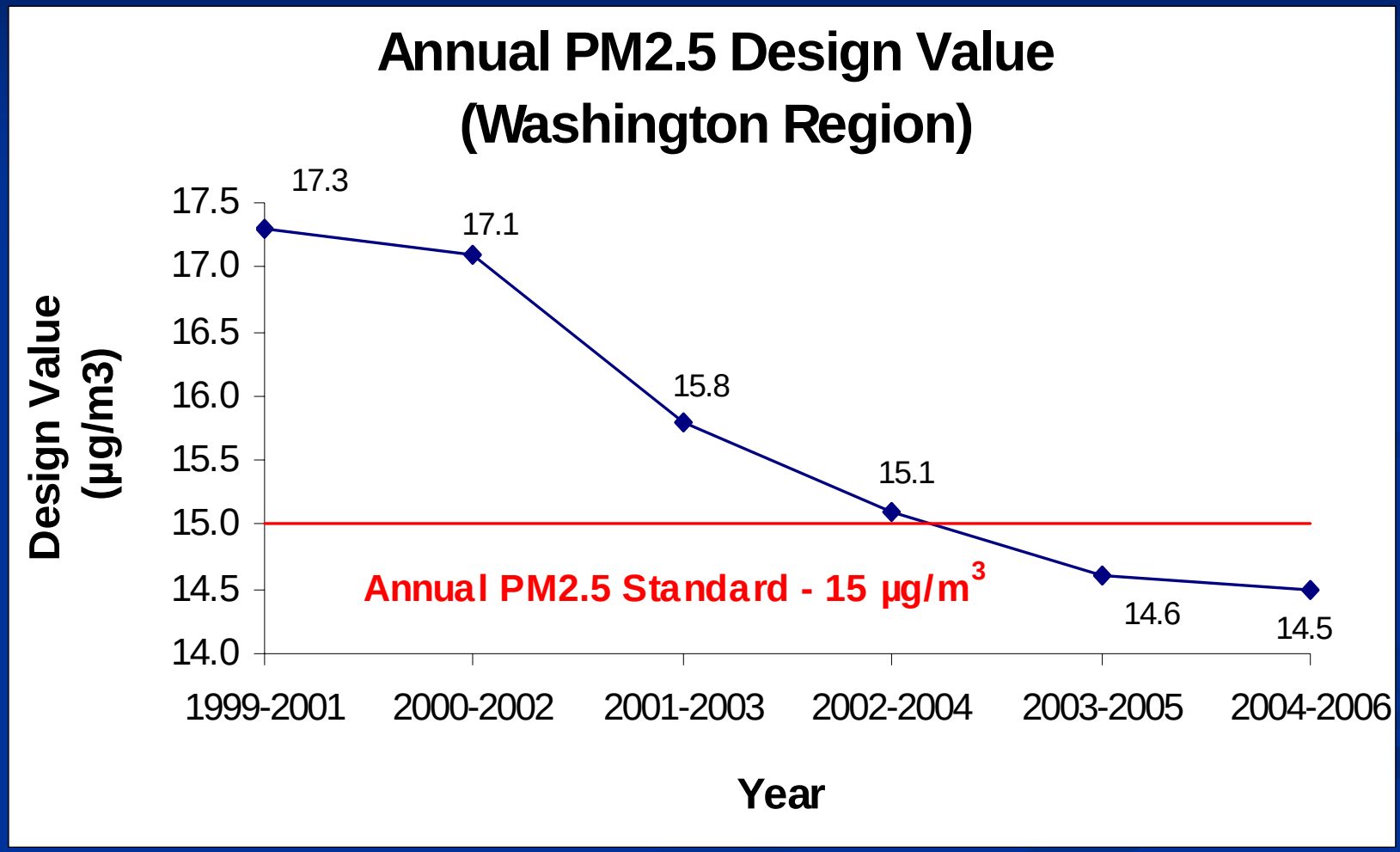
AIRS ID	Site Name	Jurisdiction	State	2000-2004 DVB					9
				Q1	Q2	Q3	Q4	#Q	DVF
11-001-0041	River Terrace	District of Columbia	---	5 13.4	14.91	6 17.3	14.16	20	12.6
11-001-0042	Park Services	District of Columbia	---	3 13.6	15.49	3 18.1	12.98	20	11.9
11-001-0043	McMillan	District of Columbia	---	5 11.2	15.28	0 16.0	13.55	20	12.1
24-031-3001	Rockville	Montgomery	MD	3 14.5	13.64	1 22.0	10.43	20	10.4
24-033-0001	Bladensburg	Prince George's	MD	3	16.72	0	14.93	11	13.9
24-033-0002	Greenbelt	Prince George's	MD	9.73	12.37	3 14.9	9.28	7	9.5
24-033-0030	Beltsville	Prince George's	MD	NA 12.0	NA	3 15.6	10.36	2	10.4
24-033-8001	Suitland	Prince George's	MD	4 11.6	15.61	6 17.2	11.62	8	11.0
24-033-8003	PG Equestrian Center	Prince George's	MD	1 13.2	15.72	6 17.2	10.87	11	11.3
51-013-0020	Aurora Hills	Arlington	VA	7 11.5	14.88	7 16.9	13.05	20	11.5
51-059-0030	Franconia	Fairfax	VA	9 12.5	14.01	5 17.2	12.02	19	10.4
51-059-1005	Annandale	Fairfax	VA	8 12.6	14.20	5 17.8	11.37	11	10.5
51-059-5001	Lewinsville	Fairfax	VA	3 11.3	14.05	0 17.3	12.37	19	10.7
51-107-1005	Ashburn	Loudoun	VA	8	14.14	2	11.71	20	10.1

Annual PM2.5 standard= 15 ug/m3

PM2.5 and Observed Data

PM 2.5	Annual	Daily
EPA 1997	15 ug/m3	65 ug/m3
Science Advisors	13-14 ug/m3	35 ug/m3
EPA 2006	15 ug/m3	35 ug/m3
Observed Data		
2005	14.8 ug/m3	37 ug/m3
2006	14.5 ug/m3	36 ug/m3

Annual PM2.5 Standard: 15 ug/m3



PM2.5 Inventories

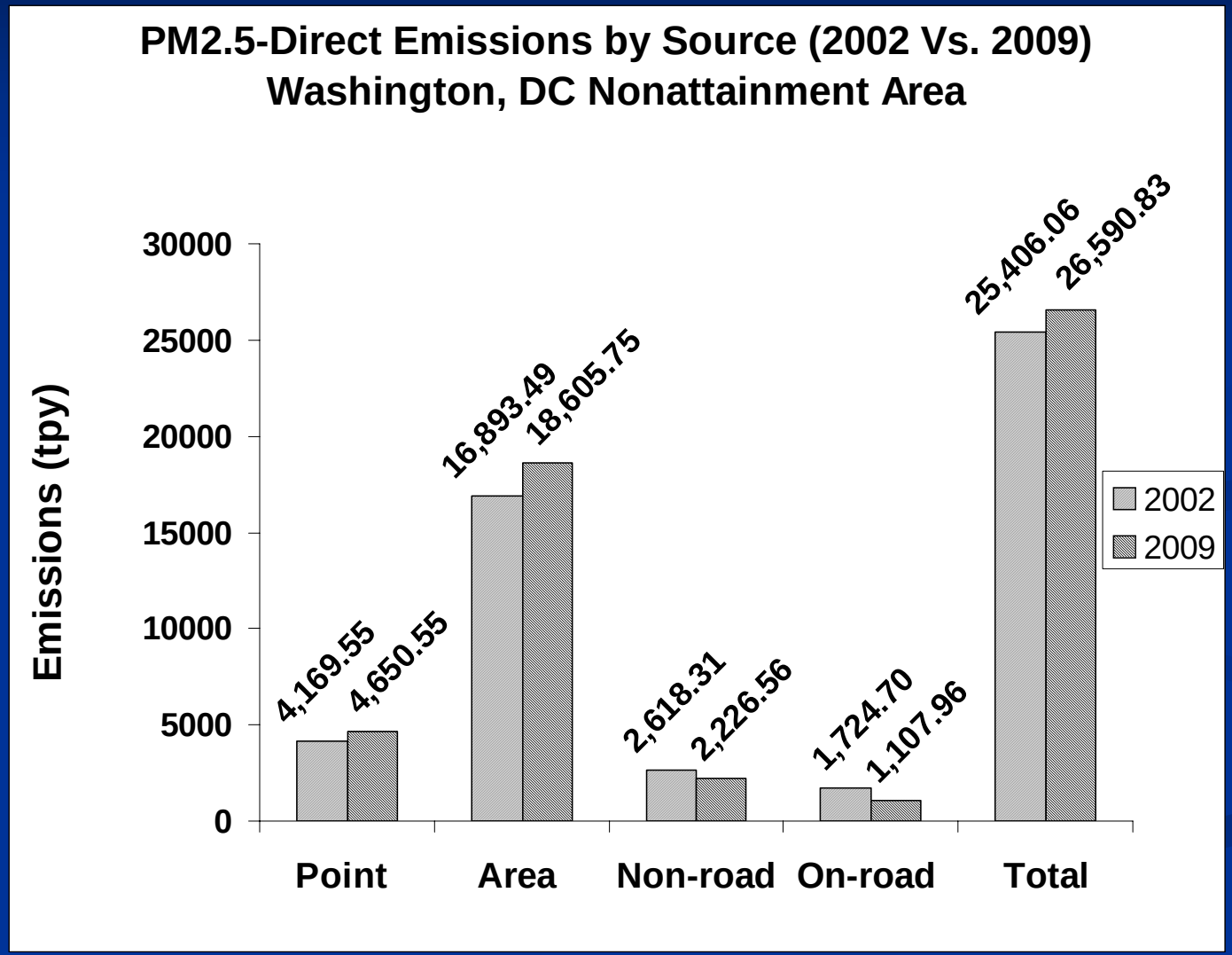
Significant PM2.5 Precursors

	$PM_{2.5}$ Direct	NO_x	SO_2	VOC	NH_3	PM_{10}
EPA SIP Requirements for PM Pollutants						
Base Year Emission Inventory	√	√	√	√	√	√
Attainment Year Emission Inventory	√	√	√	-	-	Not required
Significance Determinations for SIP Controls and Motor Vehicle Emission Budgets						
Significance Precursors for SIP Controls	√	√	√	No*	No*	
Significance Precursors for Motor Vehicle Emission Budgets for Conformity	√	√	No	No*	No*	

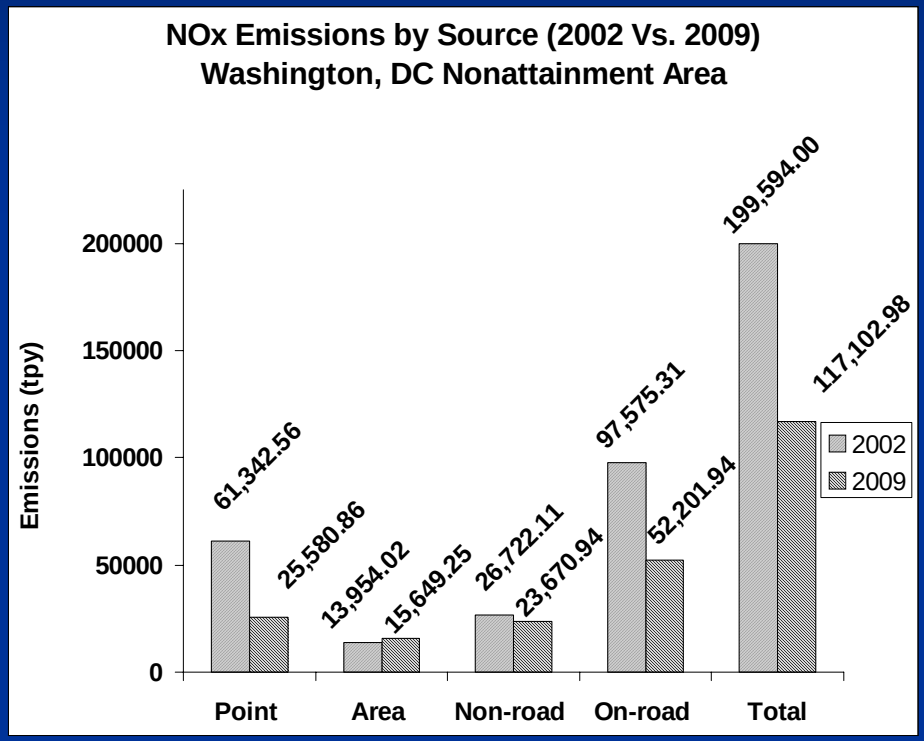
- = Not required unless precursor deemed significant by states or EPA.

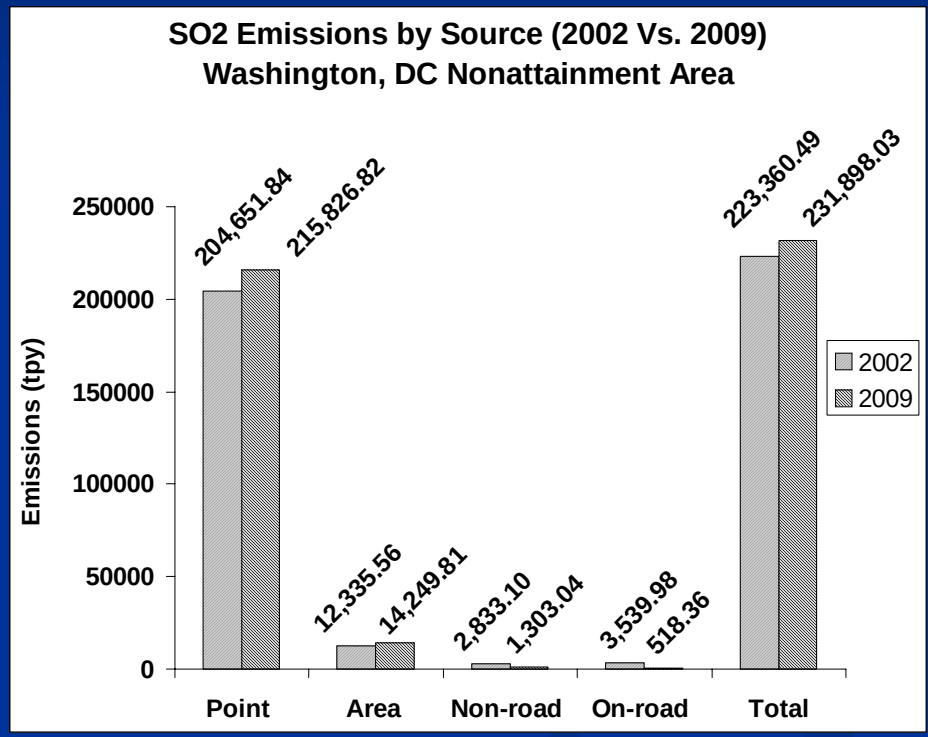
* = Due to lack of conclusive information at this time, given the state of science and research on $PM_{2.5}$ precursors, the Washington, DC region decided to follow EPA's advice on VOC and NH_3 for the current Annual $PM_{2.5}$ NAAQS SIP and reevaluate their significance in future $PM_{2.5}$ SIPs and revisions.

PM2.5 Precursor Inventories



PM2.5 Precursor Inventories

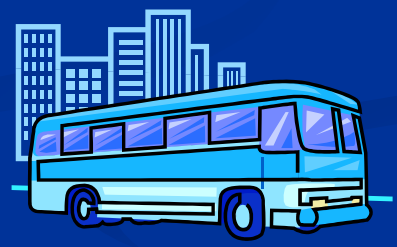




Control Measures

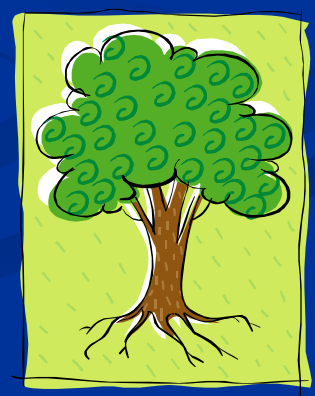
Plan to Reduce Fine Particles

- **Point Source**
  - NOX SIP Call
  - Clean Air Interstate Rule (CAIR) - VA & DC
  - Maryland Healthy Air Act - MD
  - Utility Reductions (Possum Point Fuel Conversion) -VA
- **Area Source**
  - National Locomotives Rule
- **Nonroad Source**
  - 2004 Nonroad Heavy Duty Diesel Rule
- **Onroad Source**
  - Heavy-Duty Diesel Engine Rule
  - Tier 2 Motor Vehicle Emission Standards
  - Vehicle Inspection Program



Plan to Reduce Fine Particles

- Supplemental Measures:
  - Telecommuting Initiative
  - Tree Canopy Programs
  - Wind Energy Purchases
  - Energy Efficiency in buildings
  - LED Traffic Signal Retrofits
  - Renewable Portfolio Standards



Contingency Plan

Planning Requirements

- SIP must contain post-2010 measures
- Approx. 10,000 tpy NOx target
- Will meet using both NOx and SO_2
- Measures
  - Tier 2 Motor Vehicle Standards
  - CAIR/HAA

Mobile Vehicle Emissions Budgets

- Ozone SIP: 2008, 2009, 2010

- PM2.5 SIP: 2009, 2010

NEXT STEPS

- Dec. 12: MWAQC vote to approve SIP for public comment
- Dec. 21: Start of 30-day public comment period
- January 28: Public hearings held.
- February 12: TAC reviews comments and responses to comments
- March 6: MWAQC votes to approve

Draft PM2.5 SIP

- http://sharepoint.mwcog.org/airquality/Shared%20Documents/Forms/AllItems.aspx