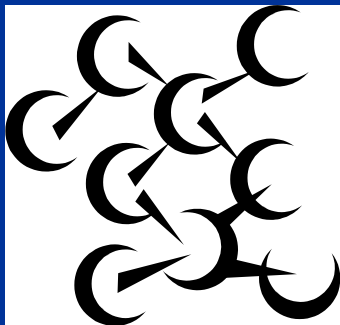


# OVERVIEW of SIP for Annual PM<sub>2.5</sub>

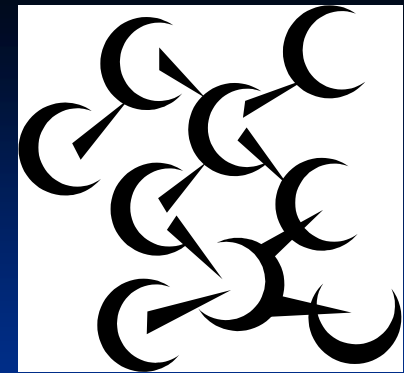
## Standard

MWAQC

March 7, 2007



# Outline



- Fine Particle Pollution, Definition & SIP Requirements
- Attainment Demonstration
- Mobile Vehicle Emissions Budgets
- Public Hearing Process

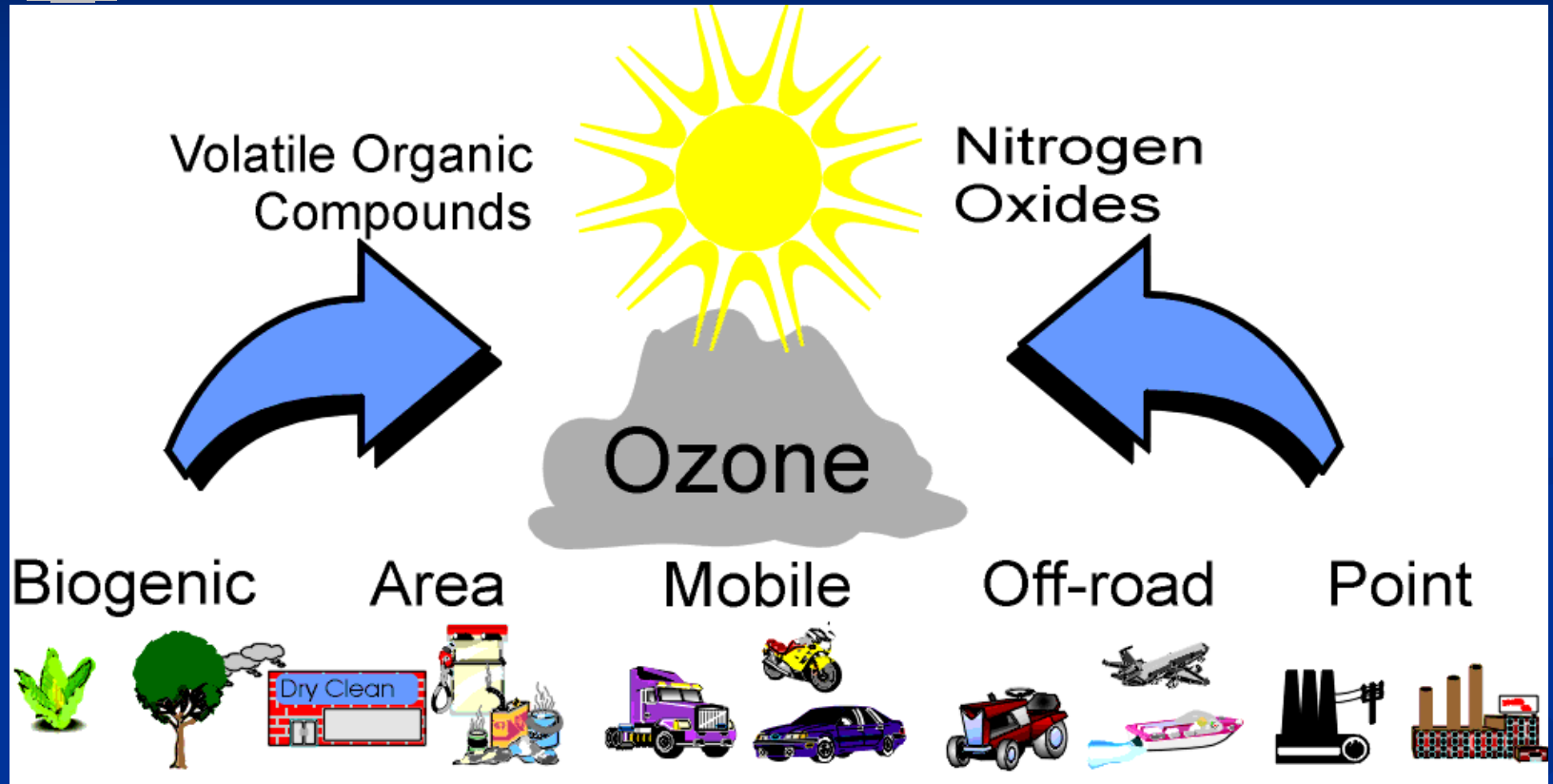
# Air Pollution: Fine Particles

- 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

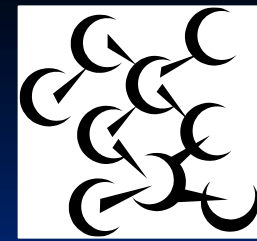




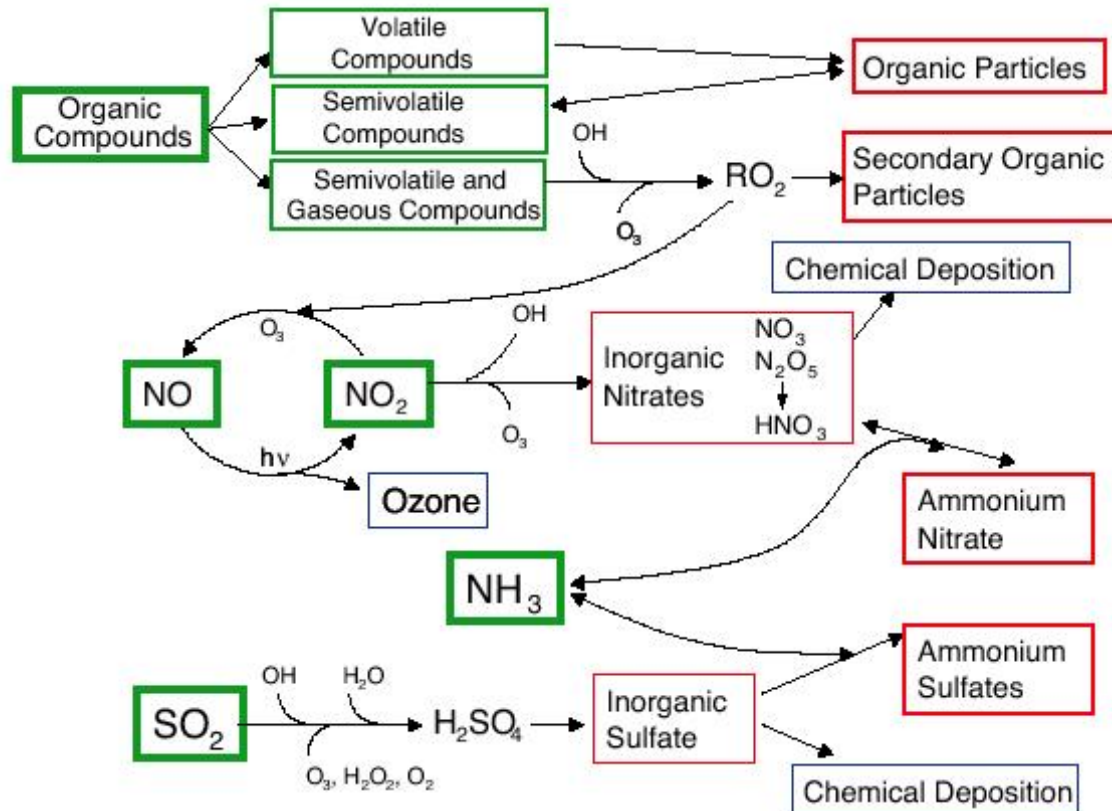
# Formation of Ground Level Ozone



# Formation of Fine Particles



## ATMOSPHERIC AEROSOL PROCESSES



# Sources of Particle Pollution

Wood-Burning Stoves



Power Plants



Heavy Duty Diesel Engines



Natural Sources



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

Cars and Trucks



Non-Road Vehicles



Forest Fires

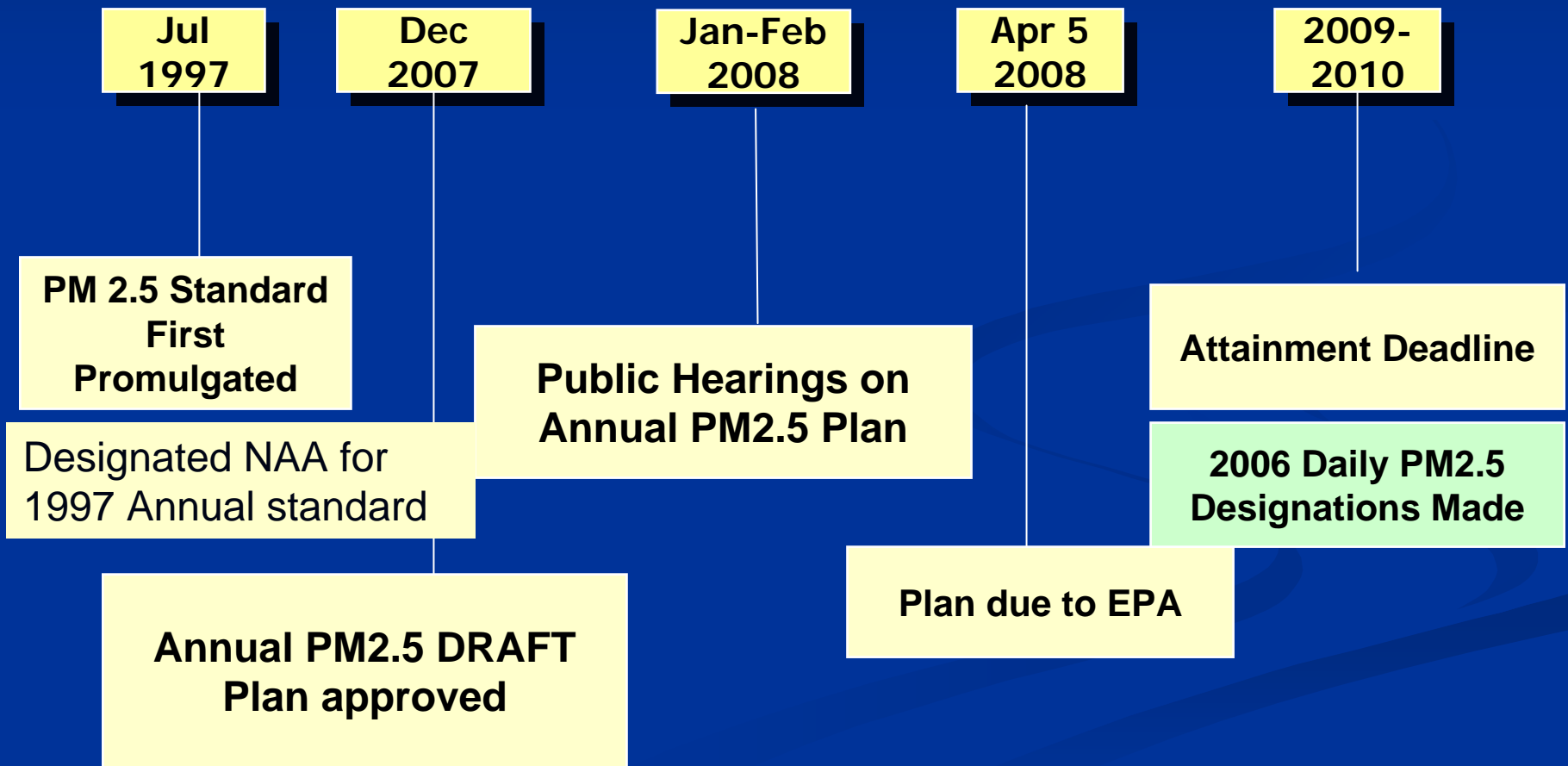


Industrial Sources



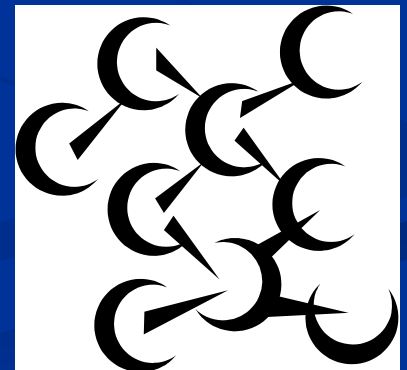


# PM2.5 Planning Schedule: Annual



# PM2.5 SIP Requirements

- 2002 Base Year, 2009 Attainment Year
- 5 precursors: NO<sub>x</sub>, VOC, SO<sub>2</sub>, NH<sub>3</sub>, PM<sub>direct</sub>
- Attainment Modeling
- Reasonably Available Control Measures (RACM), RACT
- Contingency Measures





# Attainment Modeling Results

AIRS ID	Site Name	Jurisdiction	State	2000-2004 DVB					2009
				Q1	Q2	Q3	Q4	#Q	DVF
11-001-0041	River Terrace	District of Columbia	---	14.85	14.91	18.76	14.16	20	12.6
11-001-0042	Park Services	District of Columbia	---	13.43	15.49	17.33	12.98	20	11.9
11-001-0043	McMillan	District of Columbia	---	13.65	15.28	18.10	13.55	20	12.1
24-031-3001	Rockville	Montgomery	MD	11.23	13.64	16.01	10.43	20	10.4
24-033-0001	Bladensburg	Prince George's	MD	14.53	16.72	22.00	14.93	11	13.9
24-033-0002	Greenbelt	Prince George's	MD	9.73	12.37	14.83	9.28	7	9.5
24-033-0030	Beltsville	Prince George's	MD	NA	NA	14.93	10.36	2	10.4
24-033-8001	Suitland	Prince George's	MD	12.04	15.61	15.66	11.62	8	11.0
24-033-8003	PG Equestrian Center	Prince George's	MD	11.61	15.72	17.26	10.87	11	11.3
51-013-0020	Aurora Hills	Arlington	VA	13.27	14.88	17.27	13.05	20	11.5
51-059-0030	Franconia	Fairfax	VA	11.59	14.01	16.95	12.02	19	10.4
51-059-1005	Annandale	Fairfax	VA	12.58	14.20	17.25	11.37	11	10.5
51-059-5001	Lewinsville	Fairfax	VA	12.63	14.05	17.80	12.37	19	10.7
51-107-1005	Ashburn	Loudoun	VA	11.38	14.14	17.32	11.71	20	10.1

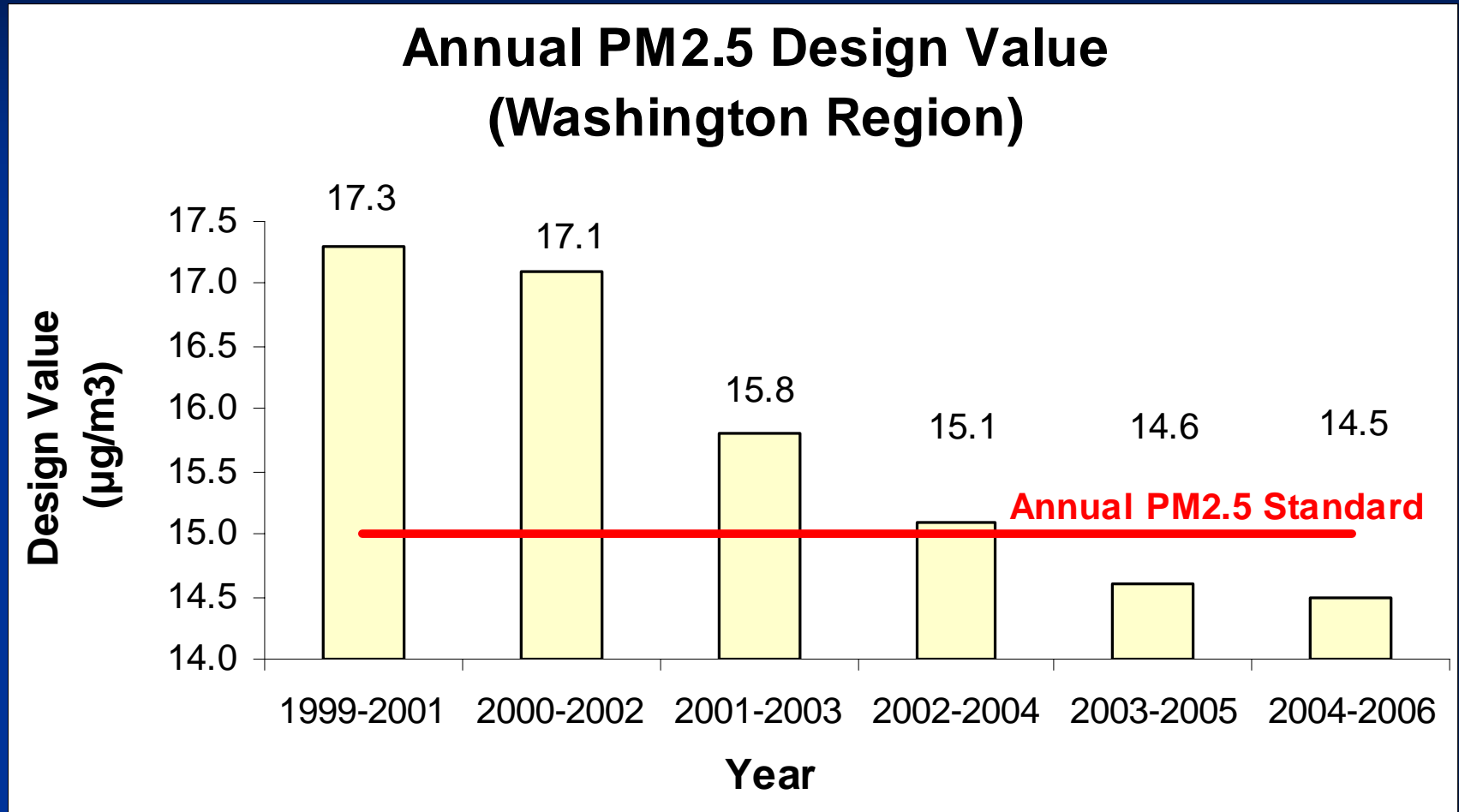
Annual PM<sub>2.5</sub> standard= 15 ug/m<sup>3</sup>

# PM2.5 and Observed Data

PM 2.5	Annual	Daily
EPA 1997	15 ug/m <sup>3</sup>	65 ug/m <sup>3</sup>
Science Advisors	13-14 ug/m <sup>3</sup>	35 ug/m <sup>3</sup>
EPA 2006	15 ug/m <sup>3</sup>	35 ug/m <sup>3</sup>
Observed Data		
2005	14.6 ug/m <sup>3</sup>	37 ug/m <sup>3</sup>
2006	14.5 ug/m <sup>3</sup>	36 ug/m <sup>3</sup>



# Annual PM2.5 Standard: 15 $\mu\text{g}/\text{m}^3$



# Plan to Reduce Fine Particles

- **Power Plants**

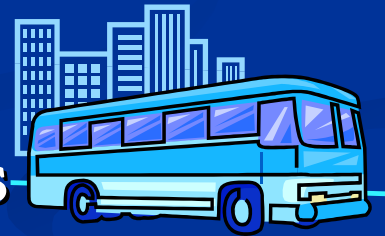
- New controls on power plants to reduce nitrogen oxides by 2009 and sulfur levels by 2010

- **Cleaner locomotives**

- **Cleaner heavy duty trucks and buses**

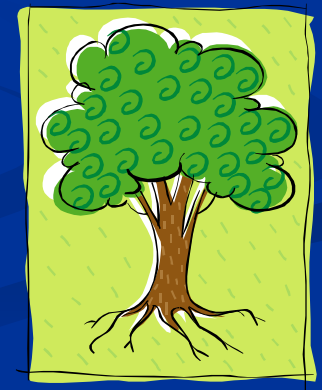
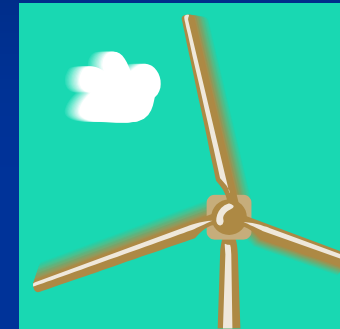
- **Cleaner (low sulfur) diesel fuel**

- **Cleaner (low sulfur) gasoline**



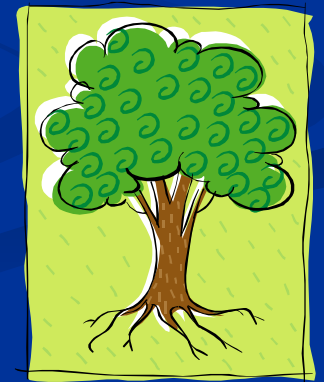
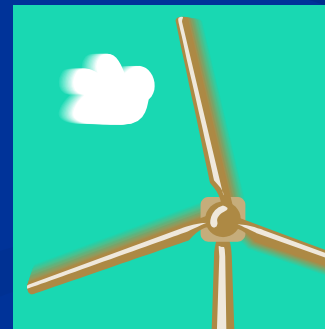
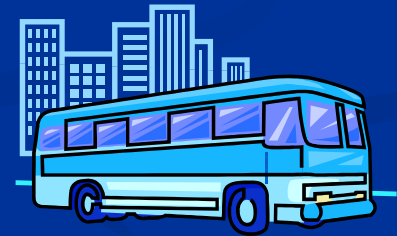
# Local Government Measures to Reduce Fine Particles

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



# Plan to Reduce Fine Particles

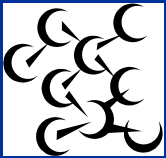
- **Point Source**
  - NOX SIP Call
  - Clean Air Interstate Rule (CAIR) - VA & DC
  - Maryland Healthy Air Act - MD
  - Utility Reductions (Possum Point Fuel Conversion) -VA
- **Area Source**
  - National Locomotives Rule
- **Nonroad Source**
  - 2004 Nonroad Heavy Duty Diesel Rule
- **Onroad Source**
  - Heavy-Duty Diesel Engine Rule
  - Tier 2 Motor Vehicle Emission Standards
  - Vehicle Inspection Program
- **Supplemental Measures:**
  - Telecommuting Initiative,
  - Tree Canopy Programs
  - Wind Energy Purchases,
  - Energy Efficiency in buildings,
  - LED Traffic Signal Retrofits,
  - Renewable Portfolio Standards



# Mobile Vehicle Emissions Budgets



- Ozone SIP: 2008, 2009, 2010



- PM2.5 SIP: 2009, 2010





# NEXT STEPS

- January 28: Public hearings held.
- February 12: TAC reviews comments and responses to comments
- March 7: *MWAQC votes to approve*
- April 5: States submit SIP to EPA

# Draft PM2.5 SIP

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