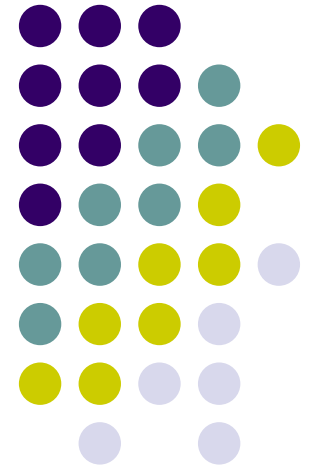


PM2.5 Planning Options

Joan Rohlfs
Chief, Air Quality Planning
Metropolitan Washington COG

July 25, 2007



Overview



- Fine Particles: Health Effects
- PM_{2.5}: Standards
- Options: Attainment SIP, Maintenance Plan
- Clean Data Policy
- Comparison of SIP and Maintenance Plan
- New 24-hour PM Standard



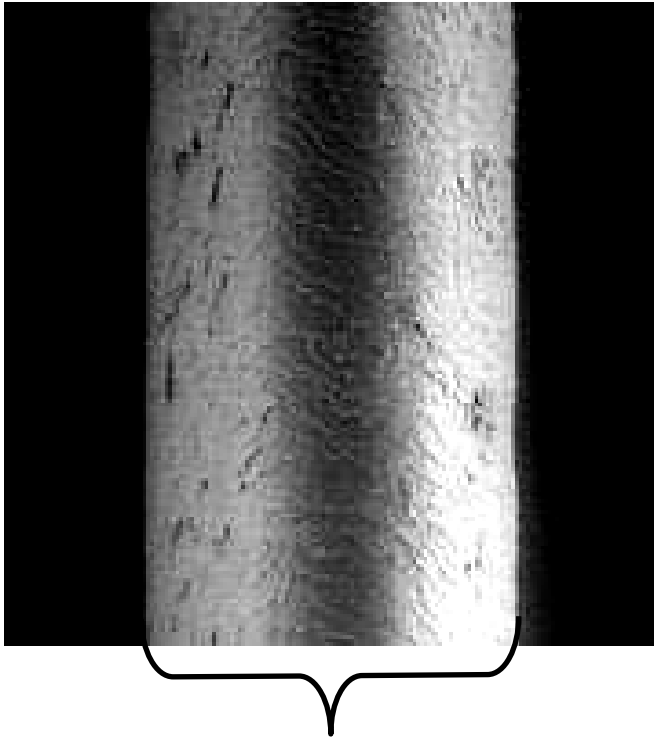
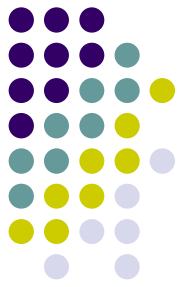
Particle Pollution



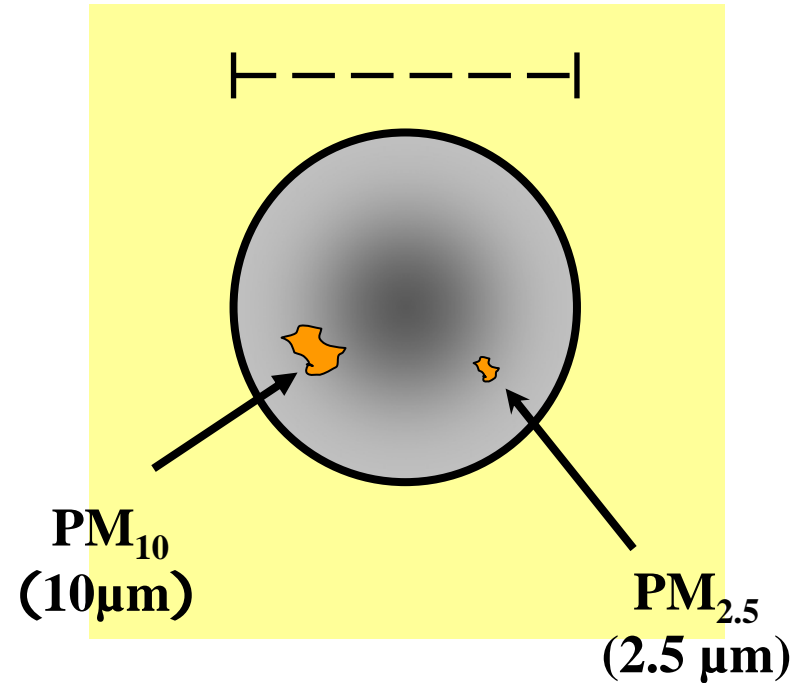
- Mixture of microscopic solid and liquid particles suspended in air.
- Particles vary in size.
- The size of the particles is directly linked to their potential for causing health problems.
- Particle pollution can occur year-round.



Particles are only a fraction of the size of a human hair



Human Hair (70 μm diameter)



Hair cross section (70 μm)



Health Effects of Particle Pollution



Respiratory System Effects

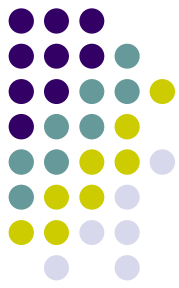
- Chronic bronchitis
- Asthma attacks
- Respiratory symptoms (cough, wheezing, etc.)
- Decreased lung function
- Airway inflammation

Cardiovascular System Effects

- Heart attack
- Cardiac arrhythmia
- Changes in heart rate and heart rate variability
- Premature death

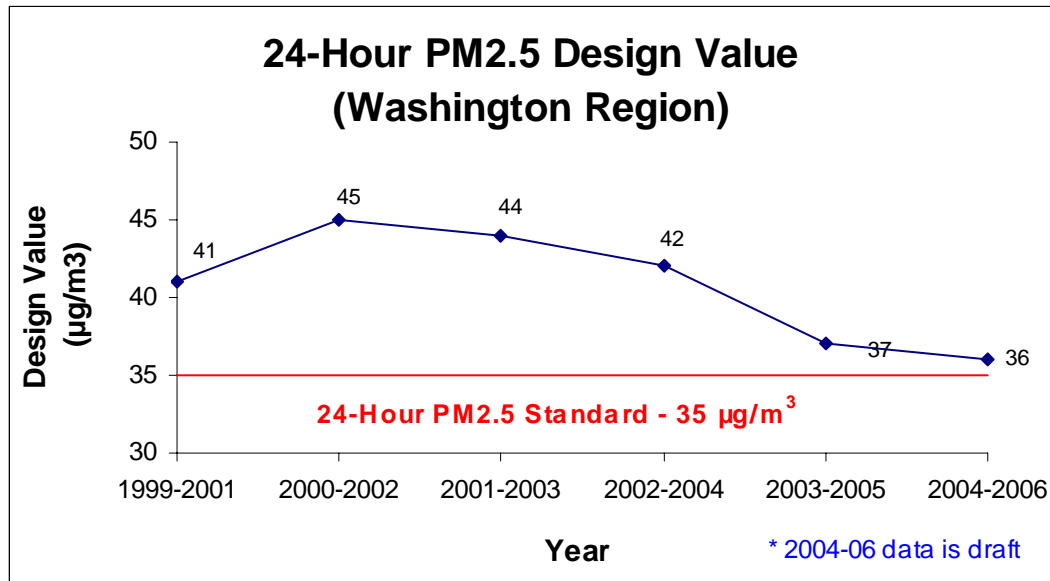
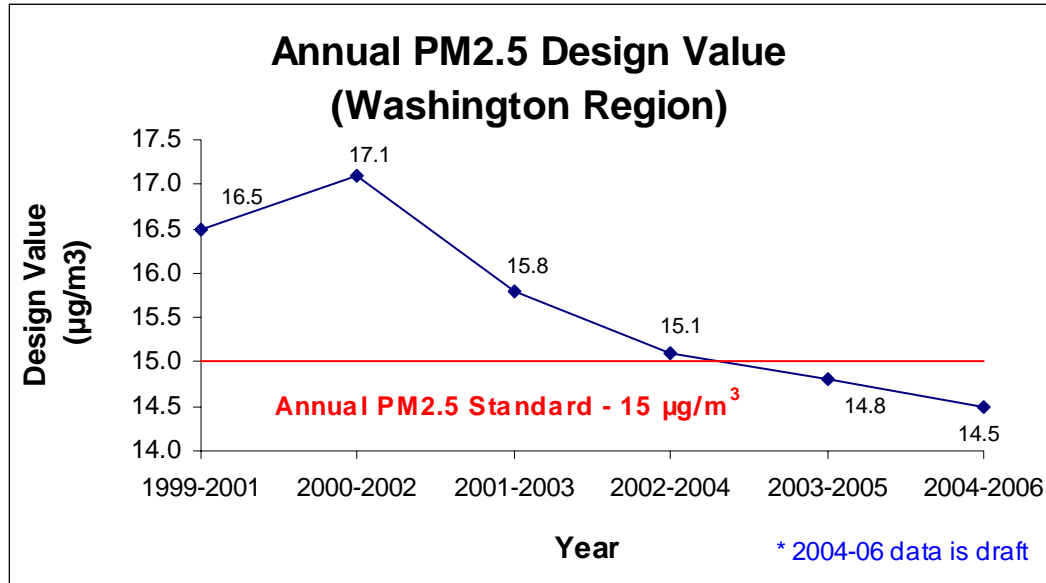
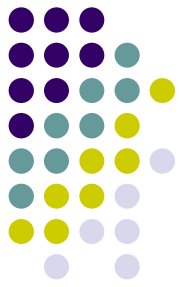


PM2.5 and Observed Data



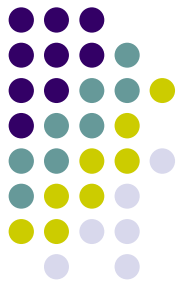
PM 2.5	Annual	Daily
EPA 1997	15 ug/m3	65 ug/m3
Science Advisors	13-14 ug/m3	35 ug/m3
EPA 2006	15 ug/m3	35 ug/m3
Observed Data		
2005	14.8 ug/m3	37 ug/m3
2006	14.5 ug/m3	36 ug/m3



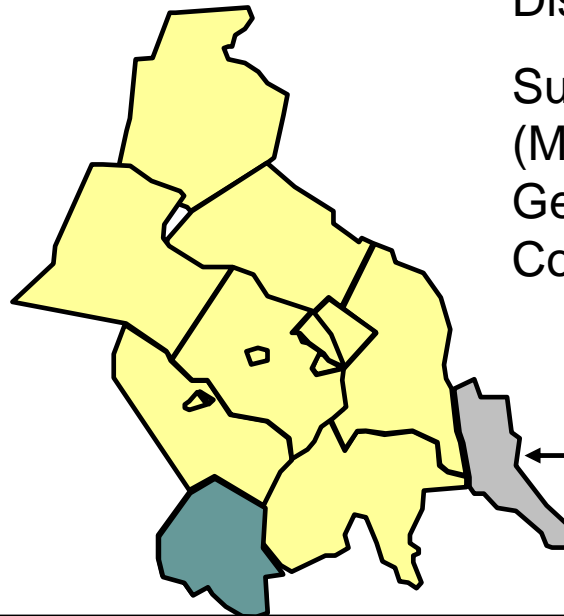


Metropolitan Washington DC-MD-VA Region Fine Particle Nonattainment Area

Annual Standard= $15 \mu\text{g}/\text{m}^3$



Virginia (Fairfax,
Arlington, Loudoun,
Prince William
Counties, City of
Alexandria)



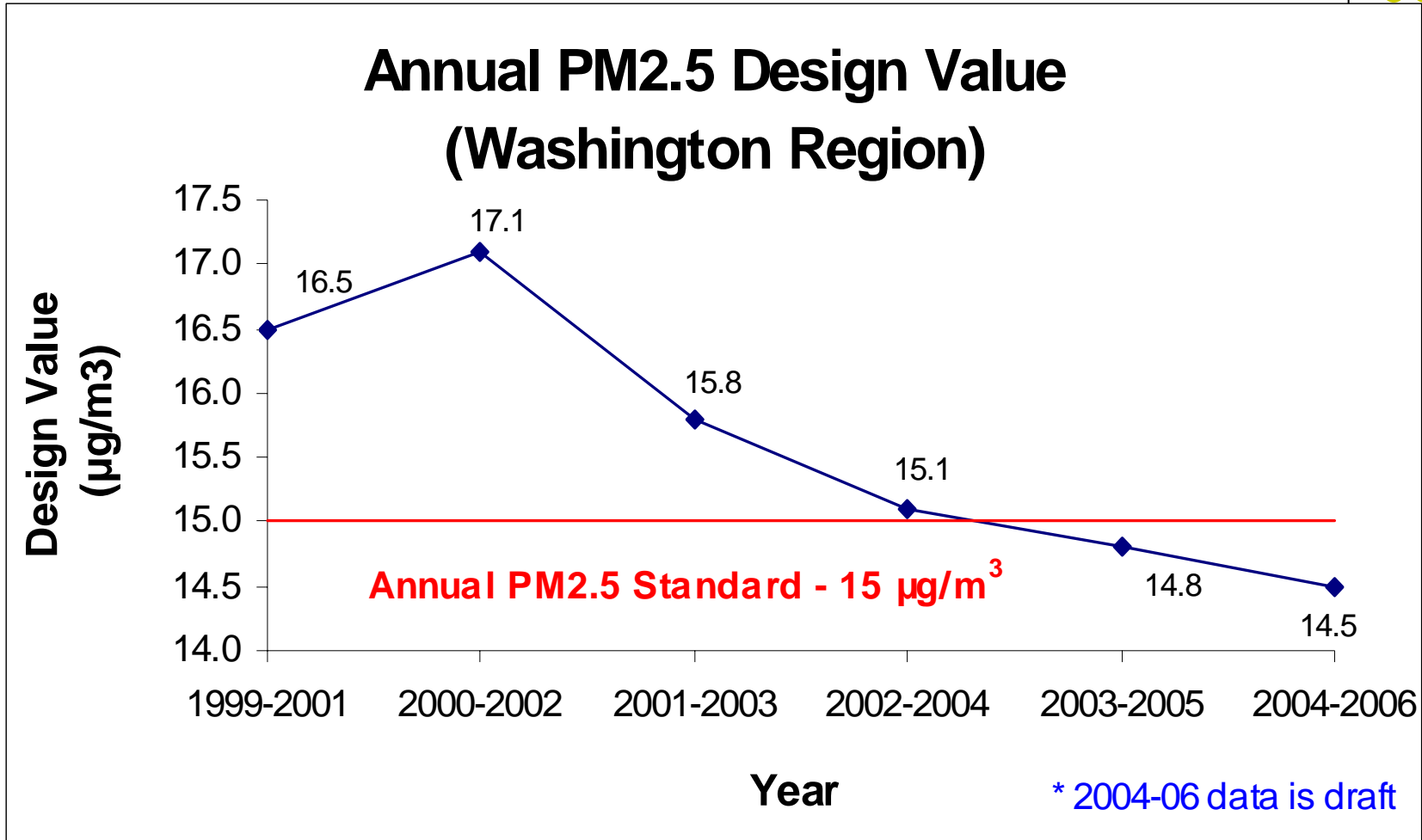
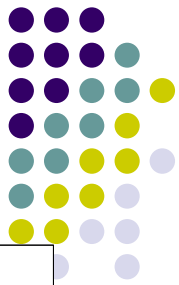
District of Columbia

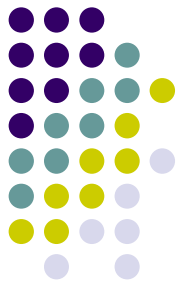
Suburban Maryland
(Montgomery, Prince
George's, Frederick, Charles
Counties)

← Calvert County

EPA designated the entire 8-hour ozone nonattainment area for PM, but excluded Calvert County.

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





Planning Options:

- Attainment SIP
- Due April 5, 2008
- Redesignation Request & Maintenance Plan
- Due April 5, 2008
- Clean Data Policy
- Submit letters by December 2007



Planning Options

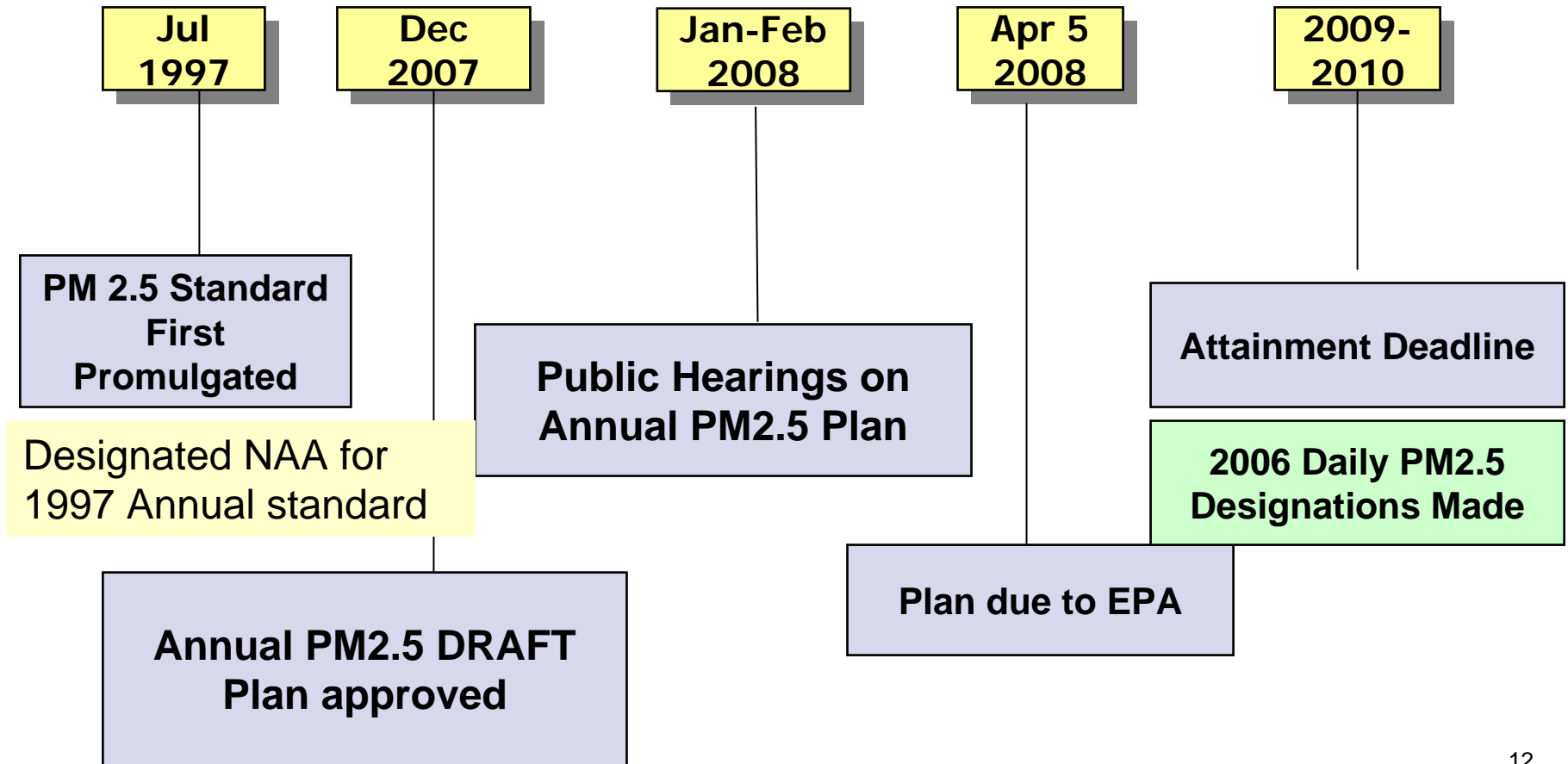


- Attainment SIP
- Maintenance Plan
- Clean Data Policy
- New controls for PM2.5
- Additional controls for PM2.5 (MD & DC)
- Usually followed by a Redesignation Request and Maintenance Plan

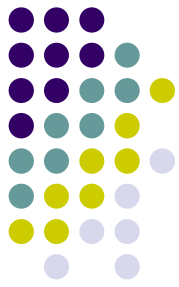


PM2.5 Planning Schedule: Annual

SIP and Redesignation Request/Maintenance plan have same schedule



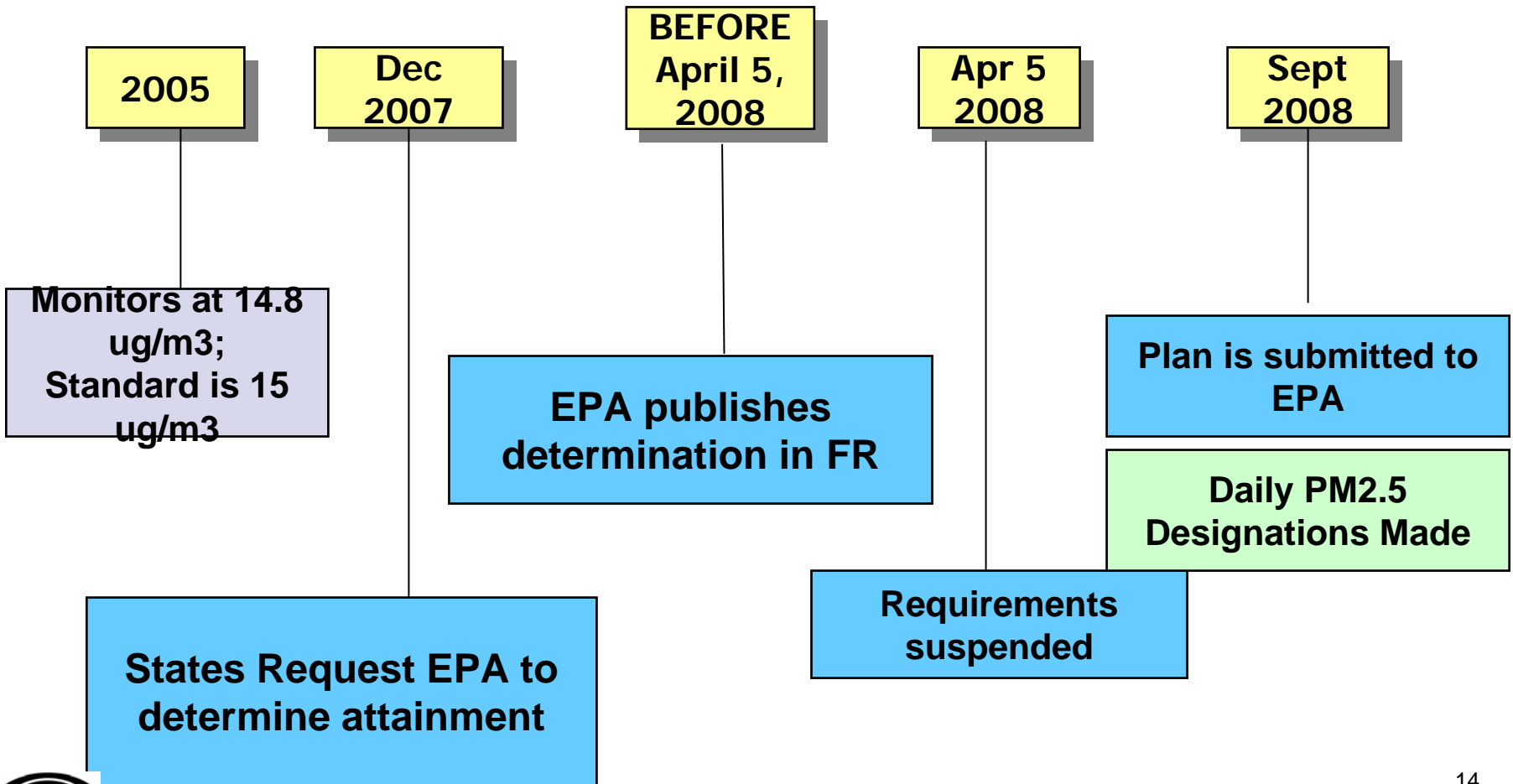
Clean Data Policy

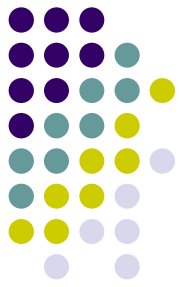


- Request Determination of attainment based on “clean data”
- EPA publishes determination in FR before April 5, 2008
- Provides temporary waiver for redesignation request and maintenance plan
- Conformity: continue to use interim* test



PM2.5 Clean Data Policy





Maintenance Plan

- Purpose: To demonstrate that the region will maintain the annual PM_{2.5} standard for 10 years after redesignation
- Need 3 inventories: attainment year (2005), interim and out-year inventories
- Modeling not required but useful to show declining emissions in future
- After redesignation, PSD permitting is required; NSR no longer required





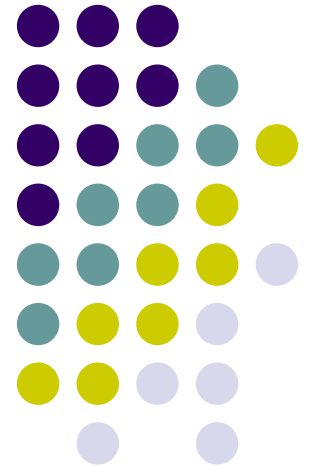
Comparison: SIP to Maintenance Plan

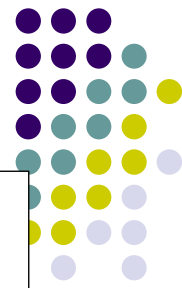
	SIP	Maintenance
• Emission Inventories	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Rate of Progress	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Conformity/Mobile Budget	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• RACM Analysis	<input checked="" type="checkbox"/>	NO
• Contingency Measures	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
• Attainment Demonstration	<input checked="" type="checkbox"/>	No Photochemical Modeling required
• NSR Permitting	<input checked="" type="checkbox"/>	PSD permitting



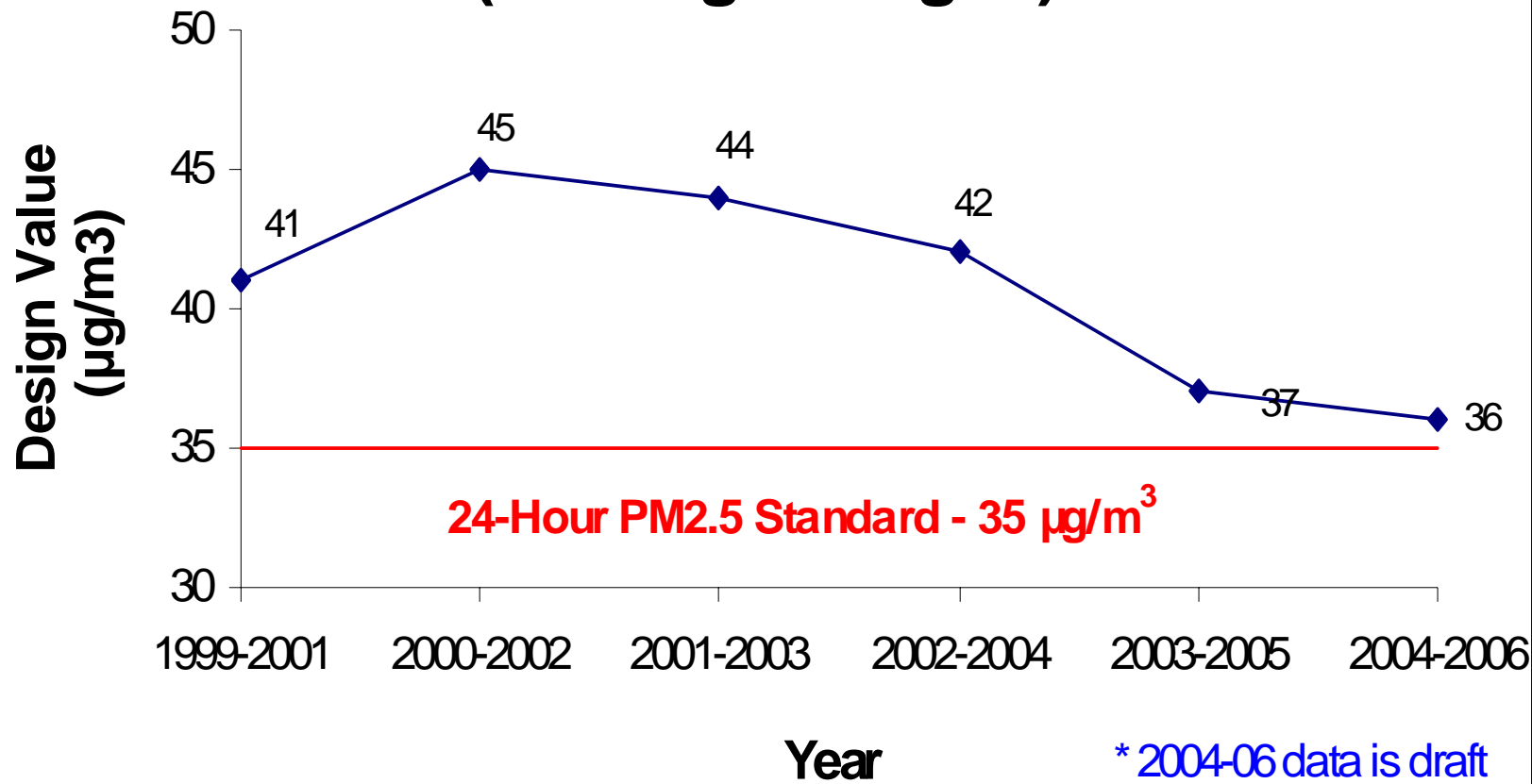
24-hour PM 2.5 Standard

2009

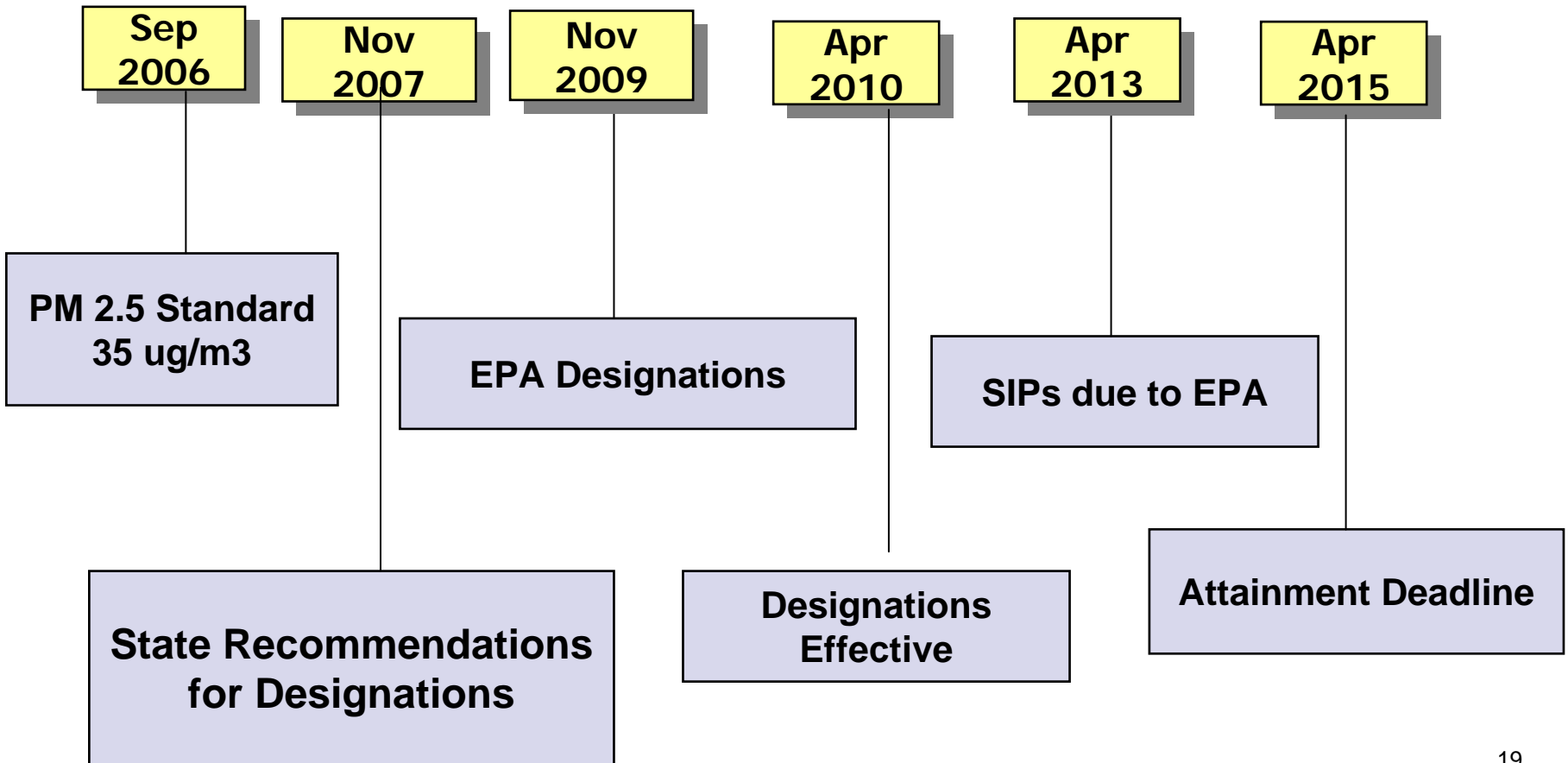




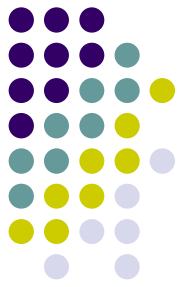
24-Hour PM2.5 Design Value (Washington Region)



24-Hour PM Planning Horizon



For More Information



mwcog.org/environment
mwcog.org/transportation
epa.gov
airnow.gov



<http://www.epa.gov/otaq/transp/conform/conf-regs.htm>

EPA Redesignation Guidance: Calcagni Memo, "Procedures for Processing Requests to Redesignate to Attainment," USEPA, Sept.9, 1992.