

Air Quality and Greenhouse Gas Emissions Metropolitan Washington Area

**Metropolitan Washington
Council of Governments**

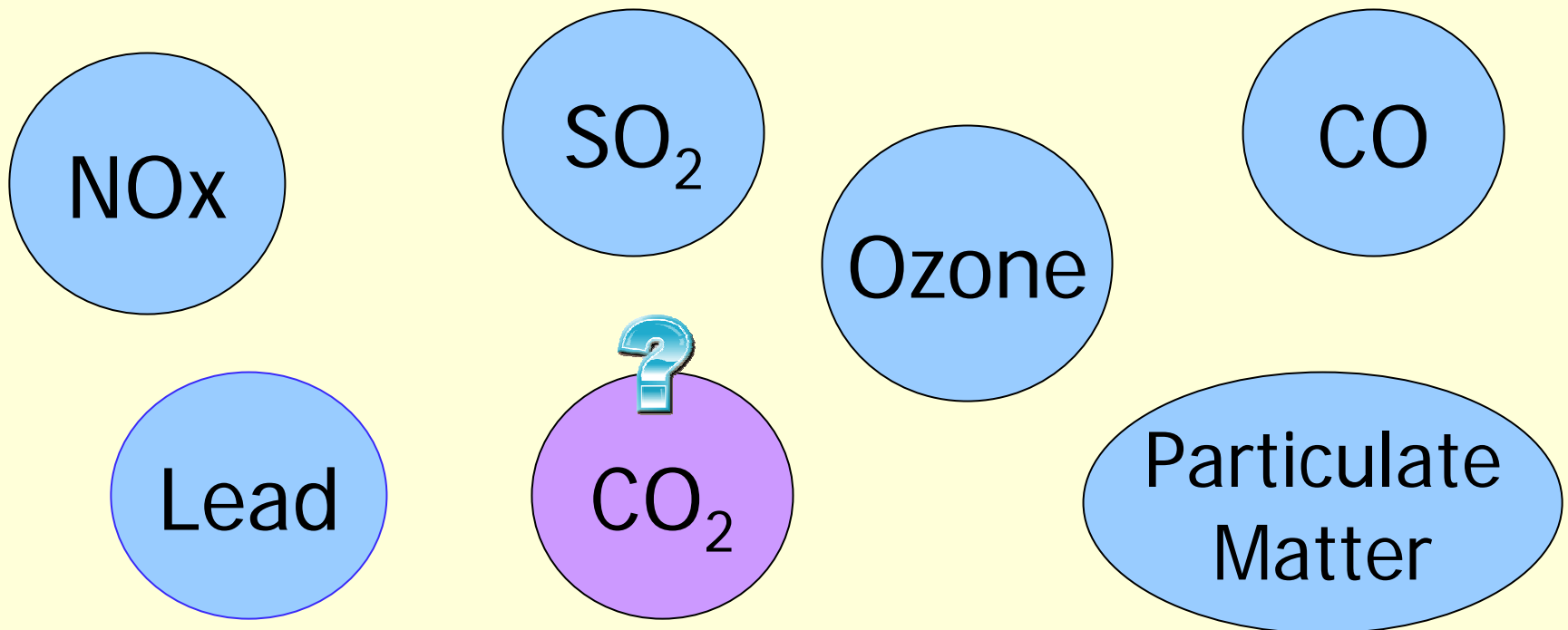
Joan Rohlfs, Chief,
Air Quality Planning
February 23, 2009

Outline

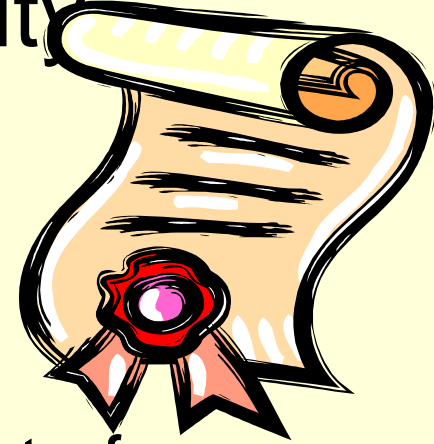
- Clean Air Act and the Metropolitan Washington Region
- Fine Particle Pollution, Ozone
- Climate Change Report, Recommendations
- Next Steps:
 - Climate Change Initiative

Clean Air Act Amendments 1990

EPA set federal health standards for ambient pollutants

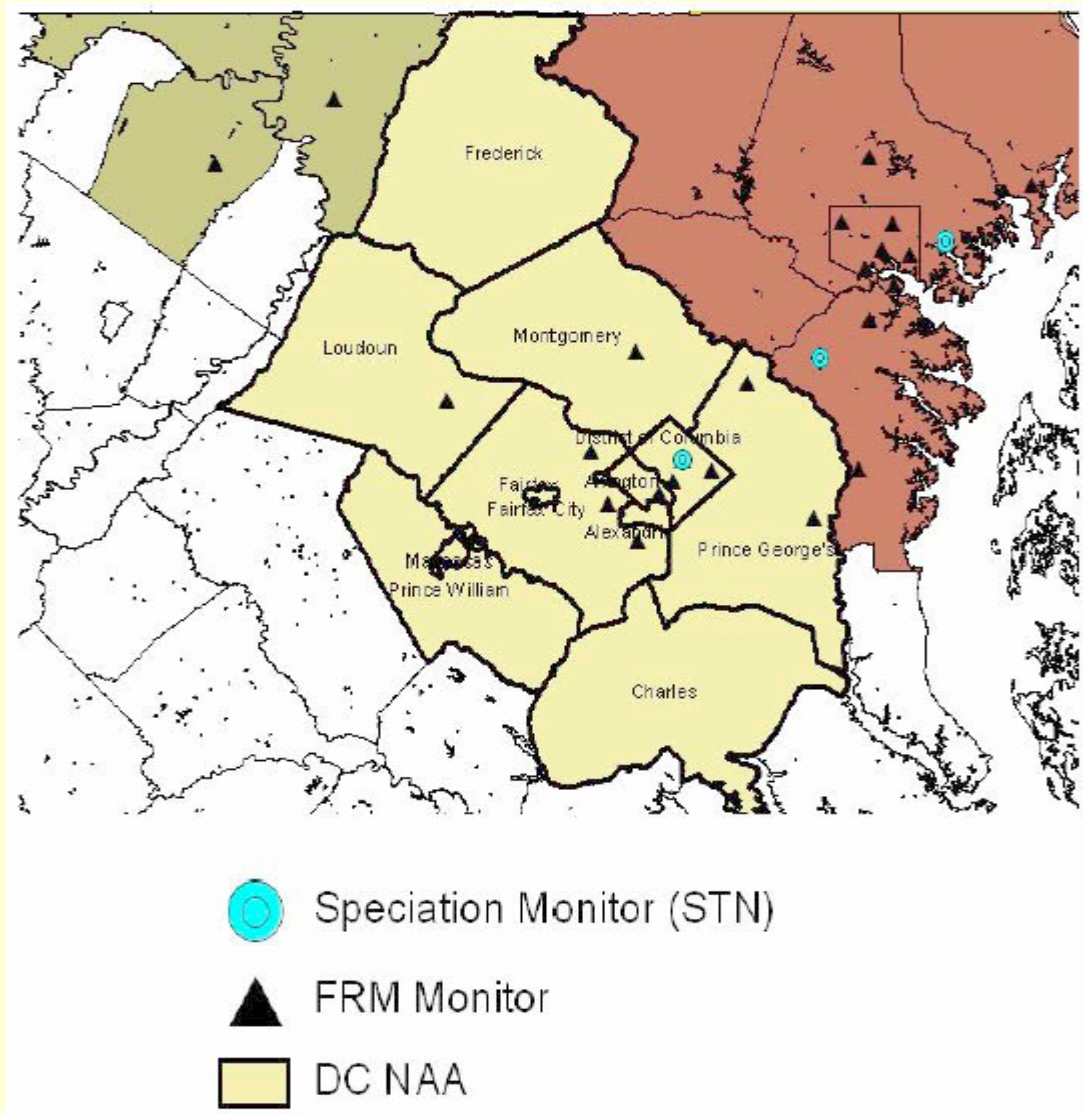


Metropolitan Washington Air Quality Committee (MWAQC)



- Certified in 1992 by Mayor of the District of Columbia and governors of MD and VA
- Purpose: to prepare regional air quality plans
- Membership includes local government elected officials, state air and transportation planning officials, and the Transportation Planning Board chair

Washington DC-MD-VA PM2.5 NAA



AIR QUALITY INDEX

AQI Range	AQI Color	8-Hr O ₃ Range (ppb)	24-Hr PM _{2.5} Range (µg/m ³)
201-300	Purple	125-374	150.5-250.4
151-200	Red	105-124	65.5-150.4
101-150	Orange	85-104	40.5-65.4
51-100	Yellow	65-84	15.5-40.4
0-50	Green	0-64	0-15.4

Federal Health Standard

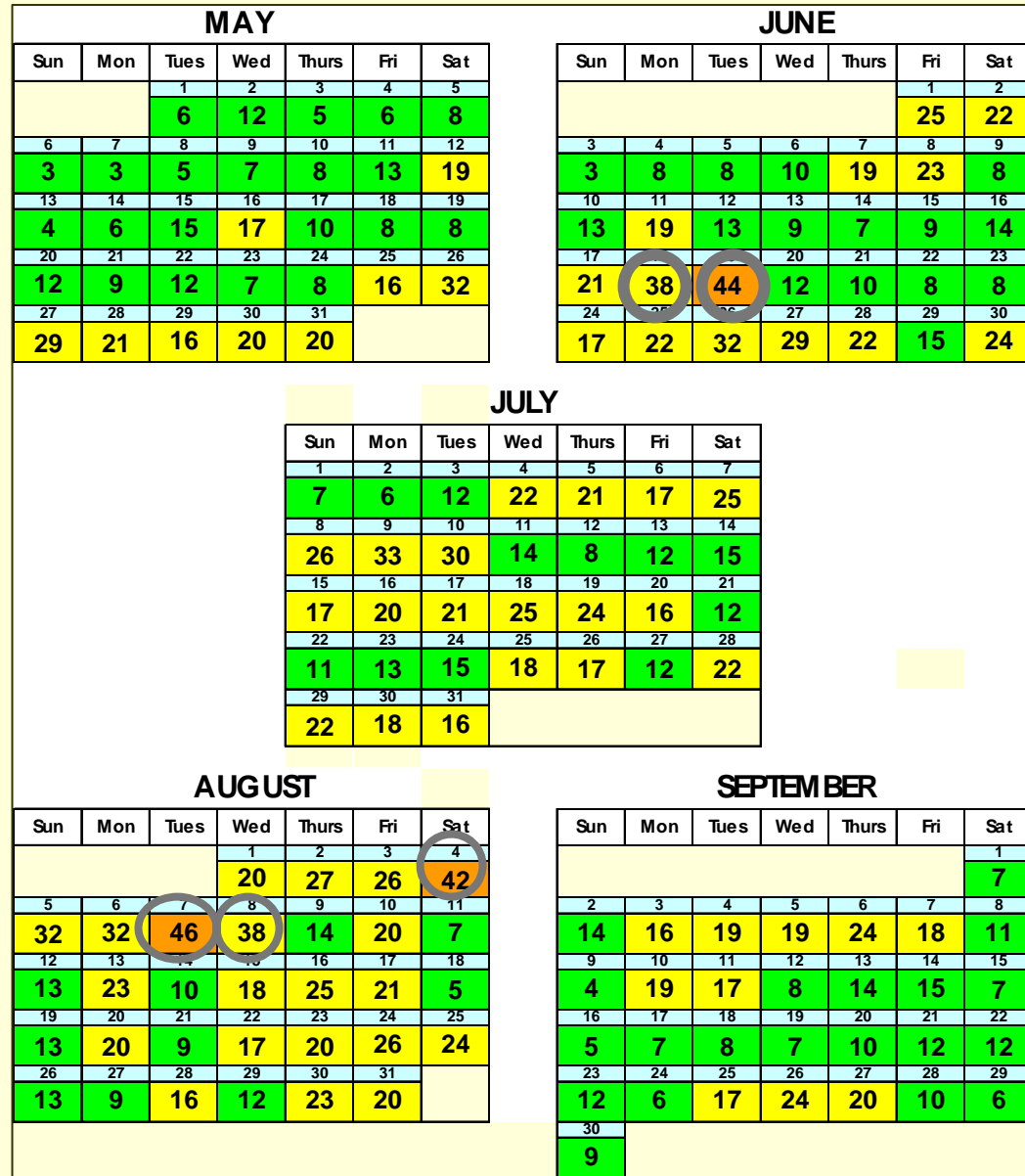
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Daily Peak Fine Particle Concentrations 2007

**Maximum 24-Hour PM2.5
Concentration: August 7 (46 µg/m³)**

Code Orange – 3 Days
Code Yellow – 70 Days
Code Green - 79 Days



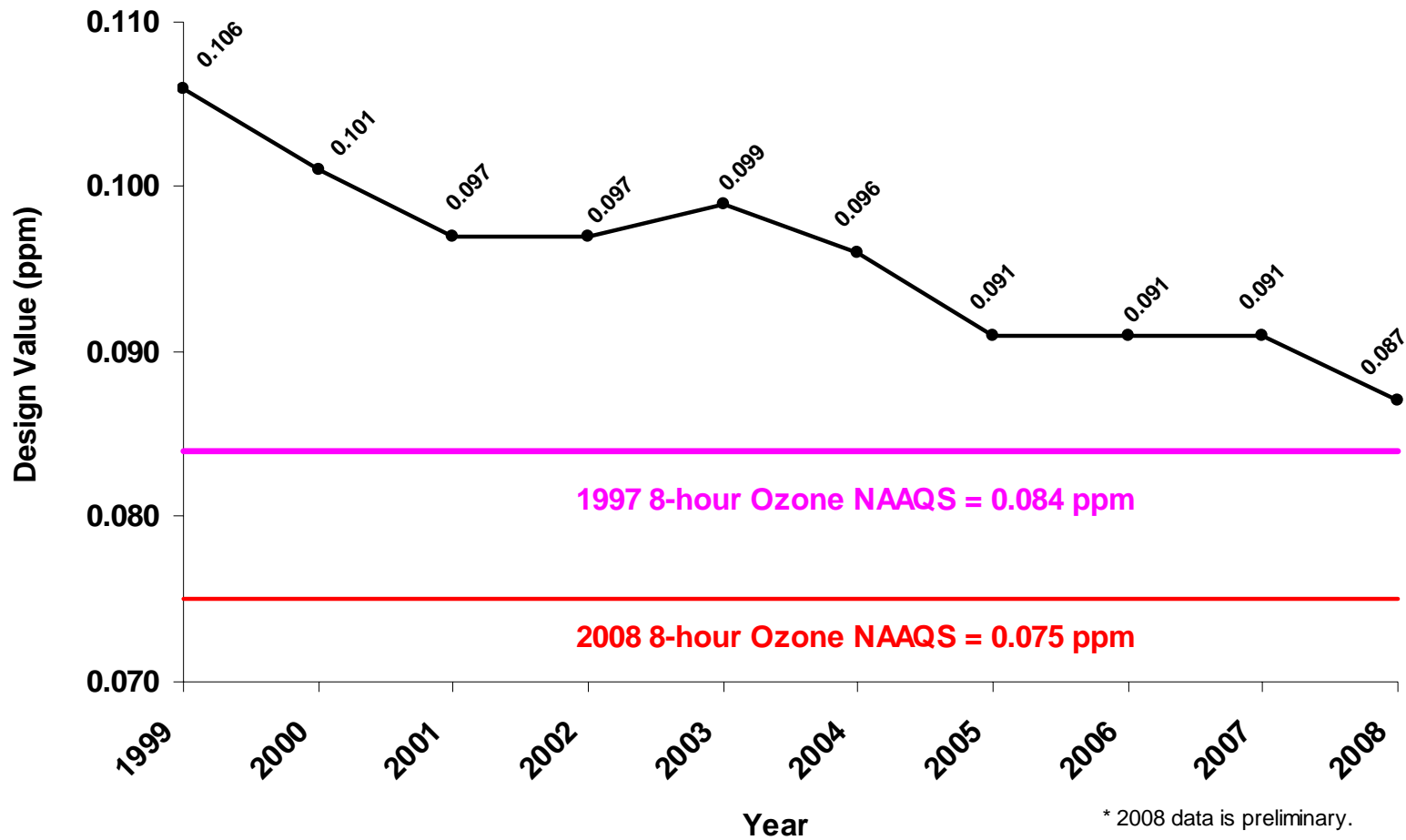
Air Quality Planning

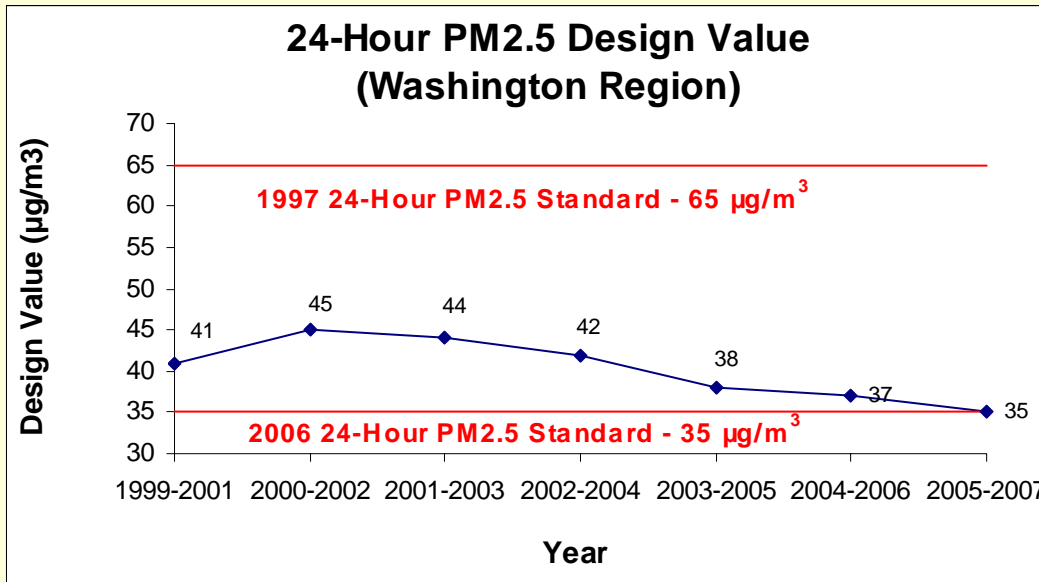
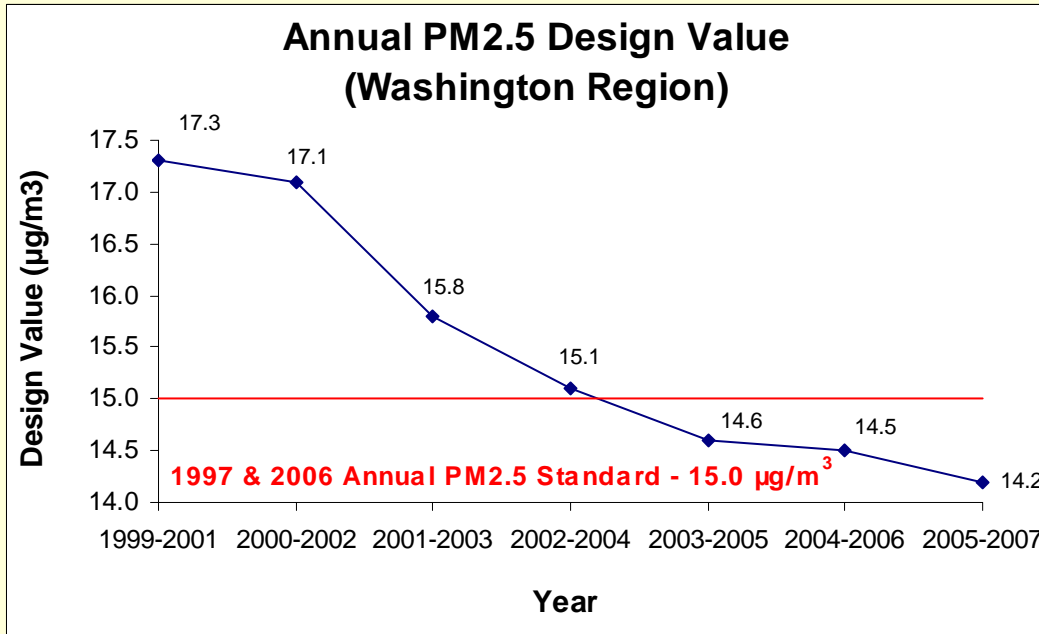
- Washington region does not meet the National Ambient Air Quality Standards for ozone
- The region prepares a plan (“SIP”)to meet the standard by a certain date
- Ozone SIP submitted May 2007; expect to meet ozone standard in 2009
- Fine Particle SIP submitted in April 2008; EPA issued Clean Data determination for Washington region, 1/12/09

Washington Region AQ Status

- 1997 Ozone Standard (85 ppb)
 - SIP Submitted, 2007 (no EPA action yet)
 - - Attainment deadline: 2009
- 1997 Annual Fine Particle Standard
 - Clean Data since 2005
 - SIP Submitted in 2008 (no EPA action yet)
 - Request redesignation?
- 2006 24-hr Fine Particle Standard (PM_{2.5})
Washington region in attainment, Dec. 2008

8-hour Ozone Design Value Washington, D.C. Region, 1999-2008



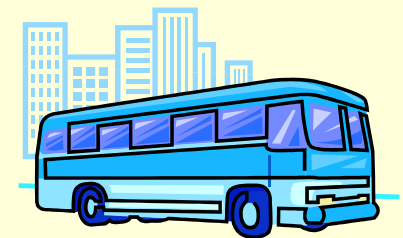


New Challenges

- 2008 Ozone Standard : 75 ppb
 - Designations in March 2010
 - SIPs due March 2013

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



Washington Region SIPs

www.mwcog.org/publications/departamental
(environment/air quality)

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

SIP Measures having Co-Benefits

- Power plants and transportation combustion are two major sources of Ozone precursors, Fine Particles ($PM_{2.5}$) and CO_2
- Measures reducing both Ozone precursors, $PM_{2.5}$ constituents and CO_2 from these sources are:
 - Telecommuting Initiative
 - Tree Canopy Programs
 - Wind Energy Purchases
 - Building Energy Efficiency
 - LED Traffic Signal Retrofits
 - Renewable Portfolio Standards







COG Board Action April 11, 2007



- **R31-07 creates COG Climate Change Steering Committee to:**
 - ❖ Prepare regional inventory of greenhouse gases
 - ❖ Identify best practices and policies
 - ❖ Examine climate change impacts
 - ❖ Recommend regional greenhouse gas reduction goal(s)
 - ❖ Recommend committee structure for climate change initiative
 - ❖ Propose advocacy positions
 - ❖ Prepare recommendations report to COG Board



Climate Change Steering Committee

Officers:

Chair: Hon. Nancy Floreen, Montgomery County Council

Vice-Chair: Hon. Gerry Connolly, Chairman, Fairfax County Board of Supervisors

Vice-Chair: Hon. Mary Cheh, Council of the District of Columbia

District of Columbia - Members

Rick Rybeck, District Dept. of Transportation

George Hawkins, District Dept. of the Environment

Harriet Tregoning, District Office of Planning

Maryland - Members

Tad Aburn, Director, Air and Radiation Management,
Maryland Dept. of the Environment

Hon. Roger Berliner, Montgomery County Council

Hon. Judith Davis, Mayor, Greenbelt

Hon. Camille Exum, Prince George's County Council

Virginia - Members

Hon. Paul Ferguson, Arlington County Clerk of the Circuit
Court

Mercury Payton, Manassas Park City Manager

**Hon. Andrea McGimsey, Loudoun County Board of
Supervisors**

Hon. Redella Pepper, Alexandria City Council

Hon. David Snyder, Falls Church City Council

Other Regional/State Organizations - Members

John Catoe, General Manager, Washington Metropolitan Area
Transit Authority

Robert Grow, Director, Government Relations, Greater
Washington Board of Trade

Nikki Rovner, Deputy Secretary of Natural Resources,
Commonwealth of Virginia

Alternates to Members:

Zach Dobelbower (alternate to Ms. Tregoning)

Mark Rawlings (alternate to Mr. Rybeck)

Jack Werner (alternate to Mr. Hawkins)

Elizabeth Entwisle (alternate to Mr. Aburn)

Hon. John Foust (alternate to Mr. Connolly)

Nat Bottigheimer (alternate to Mr. Catoe)

COG Staff:

Department of Environmental Programs:

Stuart Freudberg, Director

Joan Rohlf, Jeffrey King, George Nichols, Leah Boggs,

Ted Graham, Tanya Spano, Sunil Kumar, Tanisha Williams

Department of Transportation Programs:

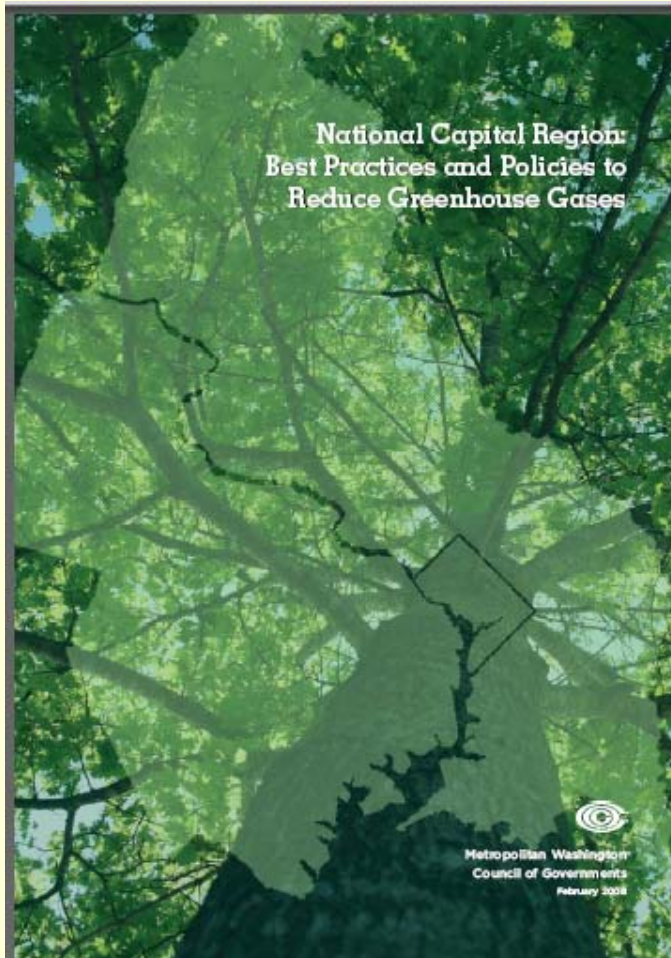
Ron Kirby, Monica Bansal, Eulalie Lucas, Daivamani Sivasailam

Major Accomplishments

- ❖ Greenhouse gas emissions inventory 2005-2050
- ❖ Best Practices Report
- ❖ Emission reduction goals for 2012, 2020, 2050
- ❖ Federal/state advocacy
- ❖ Draft Report July 9, 2008
- ❖ Listening July 9 – Sept. 30
- ❖ Final Report Adopted November 12, 2008



Best Practices Guide



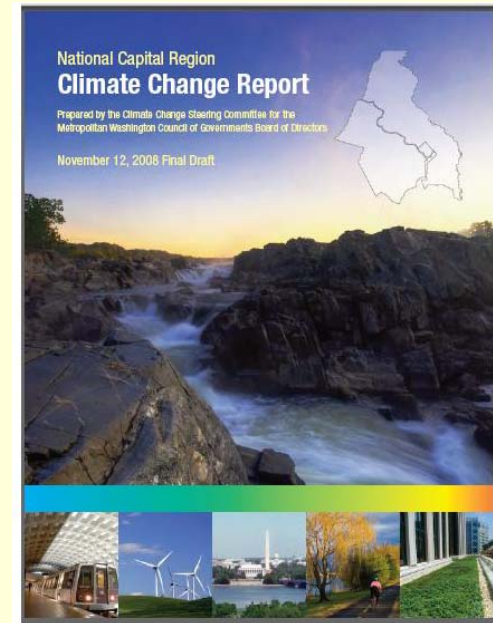
HIGHLIGHTS:

- Over 2/3 of local governments in the region purchase renewable energy
- Over 1/2 of the jurisdictions have adopted energy efficiency measures
- Nearly 90% of the communities in the region have embarked on transit oriented development and over 80% have “walkable community” initiatives
- About 70% of communities have green space protection and green infrastructure programs
- All communities in the region have recycling programs.



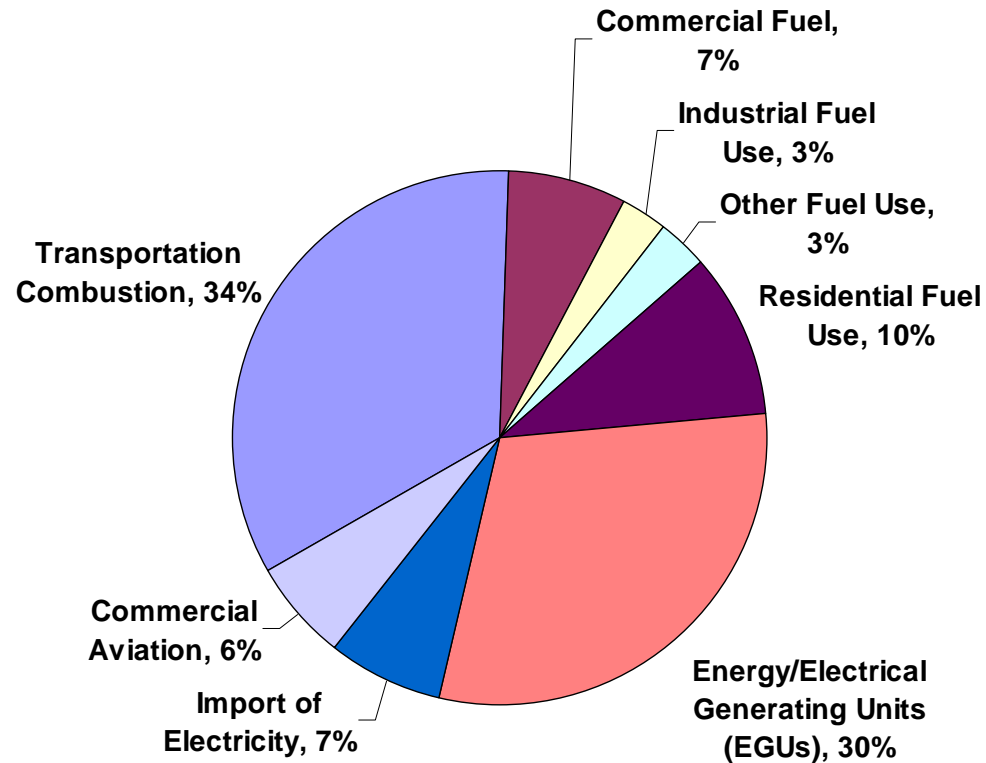
Climate Change Report

- I. Getting Smart on Climate Change**
*Climate Change, Potential Impacts on Region;
Current & Projected Regional Greenhouse Gas
Emission Inventory;
Regional Greenhouse Gas Reduction Targets*
- II. Taking Action**
*Energy Consumption;
Transportation and Land Use;
Economic Development; Preparing for Impacts,
Financing; Outreach and Education.*
- III. Moving Forward**
COG Climate Change Program
- IV. Reference Information**



Regional Greenhouse Emissions (2005)

CO₂e Emissions by Sector for Washington, DC-MD-VA Region
(2005)



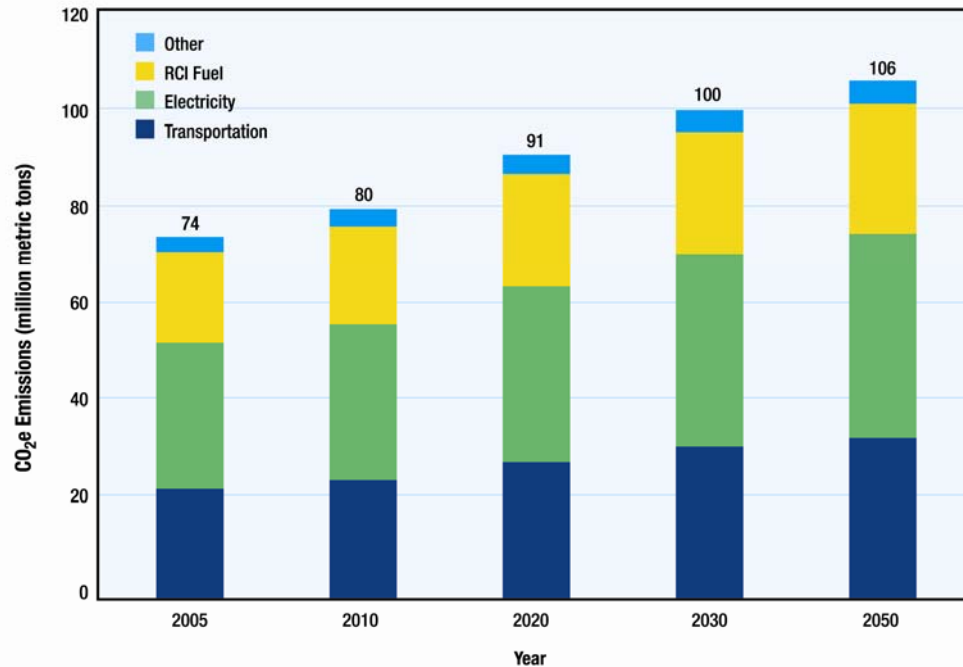
Source: MWCOG estimates.

Estimated Changes in Transportation Emissions, 2002-2030

	2002	2030	% Change
Households	2,893,646	4,162,621	44%
Employment	1,742,117	2,463,893	41%
Annual VMT (thous)	39,212	53,726	37%
NOx (tons/day)	259.23	34.90	-87%
VOC (tons/day)	101.12	39.41	-61%
CO₂ (tons/day)	23,273,168	34,450,922	48%

Projections of Regional Greenhouse Gas Emissions: 2005-2050

Projected Growth in CO₂e Emissions for the Washington Metropolitan Area Under a BAU Scenario: 2005–2050



Notes:

RCI fuel includes residential, commercial, and industrial natural gas, home heating oil, nonroad diesel, and aviation fuel.

Equivalent CO₂ (CO₂e) is the concentration of CO₂ that would cause the same level of radiative forcing as a given type and concentration of greenhouse gas, such as methane, perfluorocarbons, and nitrous oxide.

Other sources include methane from wastewater treatment and landfills, as well as high global-warming-potential gases used as refrigerants and solvents.

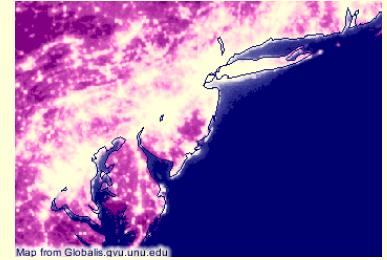
The inventory does not account for the 4.1 million metric tons of CO₂ emissions that are absorbed (or "sequestered") by the Washington metropolitan area's 1.3 million acres of undeveloped forests and grassland.

The business-as-usual projections do not account for new federal energy efficiency and corporate average fuel economy (CAFE) standards. The benefits of the new lower CAFE standards are 4.2 and 7.5 million tons of CO₂ in 2020 and 2030, respectively.

Proposed Regional Reduction Goals

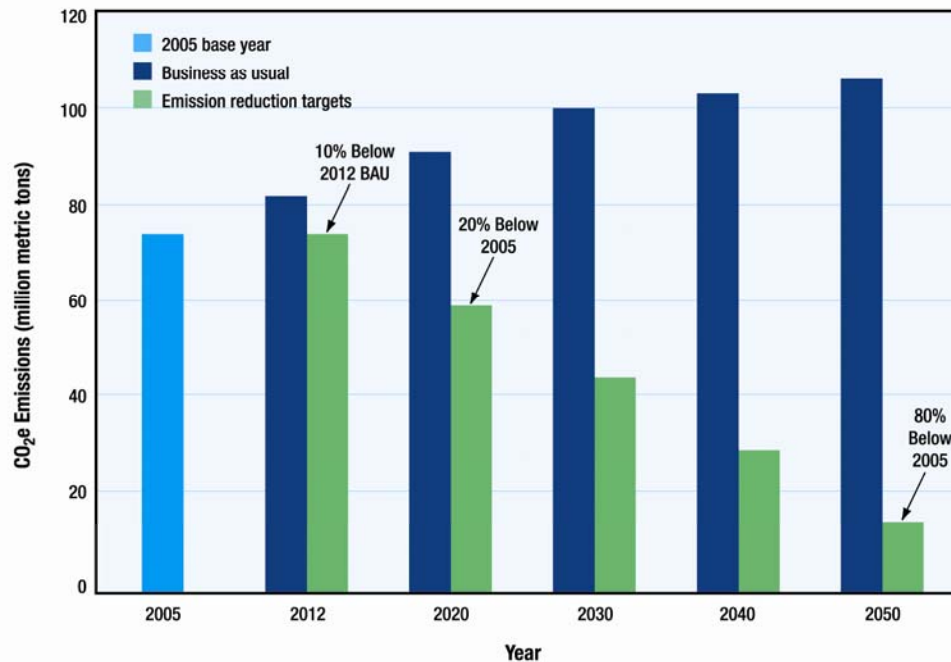


2012: 10% Below Business as Usual
2020: 20% Below 2005
2050: 80% Below 2005



Map from Globalis.gvu.unu.edu

Recommended Regional Greenhouse Gas Emission Reduction Targets Compared to Regional Greenhouse Gas Emissions Under BAU: 2005–2050



COG Targets

- 2012: 10% below BAU
- 2020: 20% below 2005 levels
- 2050: 80% below 2005 levels

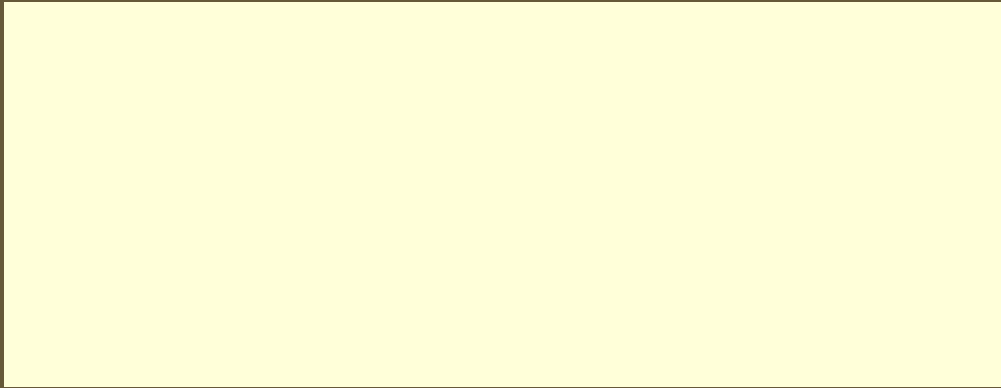


Improve Energy Efficiency/Reduce Energy Demand

- Implement COG Green Building Policy
- Implement Best Practices to reduce local government energy use by 15% by 2015
- Promote energy efficient building codes
- Promote energy performance contracting/cooperative purchasing
- Explore energy audit and retrofit program.
- Promote energy efficient street lighting.
- Collaborate with utilities on regional energy conservation program.
- Advocate for rate structure that rewards conservation investment.

Develop Clean Energy Alternatives

- Remove barriers to renewable energy implementation.
- Local Governments Purchase 20% Renewable Energy by 2015.

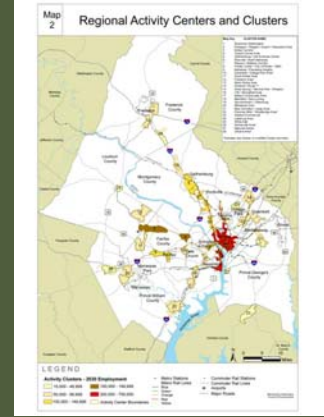
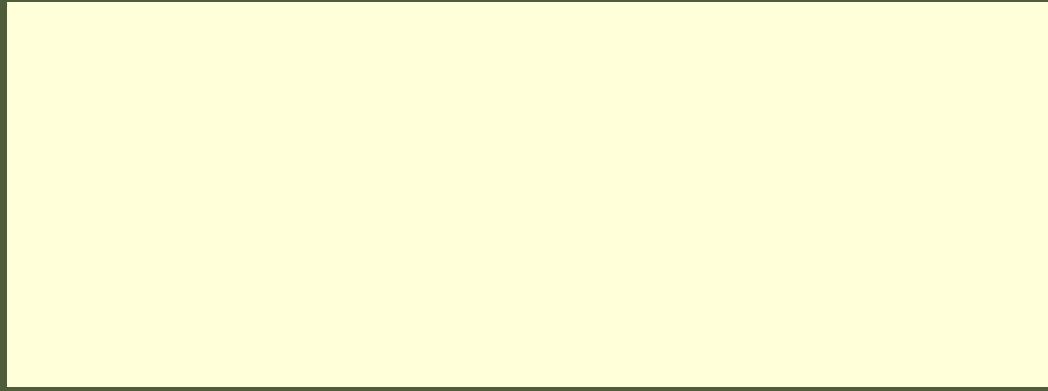


Increase Fuel Efficiency and Clean Fuel Vehicles

- Adopt Regional Green Fleet Policy
- Implement incentives for high mileage and alternative fueled vehicles
- Support California Low Emission Vehicle Standards
- Plan for alternative fuel infrastructure (natural gas, hybrid-electric, hydrogen)
- Explore state/regional alternative fuels standard.

Reduce Vehicle Miles Traveled

- Collaborate with TPB on:
 - “What Would it Take?” Analysis
 - Regional planning process for reducing transportation greenhouse gas emissions
- Invest/expand transit use and infrastructure
- Expand commuter options



Smart Growth/Comprehensive Planning

- Promote transit-oriented development and concentrated growth
 - Establish Transit-oriented development as the region's preferred growth strategy
 - Evaluate benefits from directing up to 95% of new development to activity centers
- Integrate greenhouse gas analyses into comprehensive planning and new capital projects
- Develop standard methodology for evaluating greenhouse gas emissions from proposed individual development projects

Tree Canopy Preservation

- Prepare plan to meet goal of increased tree canopy in region
- Consider density and height requirements for buildings to foster tree canopy goal



Additional Recommendations

Financing and Economic Development

- Evaluate financing mechanisms for energy efficiency projects
- Develop Regional Carbon Offset Fund for preserving tree canopy
- Promote green businesses and green jobs
- Promote cooperative regional green purchasing.

Outreach and Education

- Implement regional public education campaign
- Develop partnerships with private sector and other organizations.

Adaptation

- Partner with universities to research climate change and adaptation strategies
- Develop regional adaptation policies

Next Steps

- Develop climate change work program for 2009
- Develop Plan to Meet 2012 Goal
- Work with local governments to implement street light replacement, green fleet policy, renewable energy purchases, and other priority recommendations
- Work with Transportation Planning Board to address transportation greenhouse gas emissions
- Outreach and education program
- Advocacy to state and federal governments





For further information...

- To obtain an electronic copy of the final report:
http://www.mwcog.org/publications/departmenal.asp?CLASSIFICATION_ID=4&SUBCLASSIFICATION_ID=34
- Questions?
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- Stuart A. Freudberg, COG Environmental Director
 - sfreudberg@mwkog.org