Weight of Evidence
“Content & Contingencies”

Mid-Atlantic Regional Air Agencies

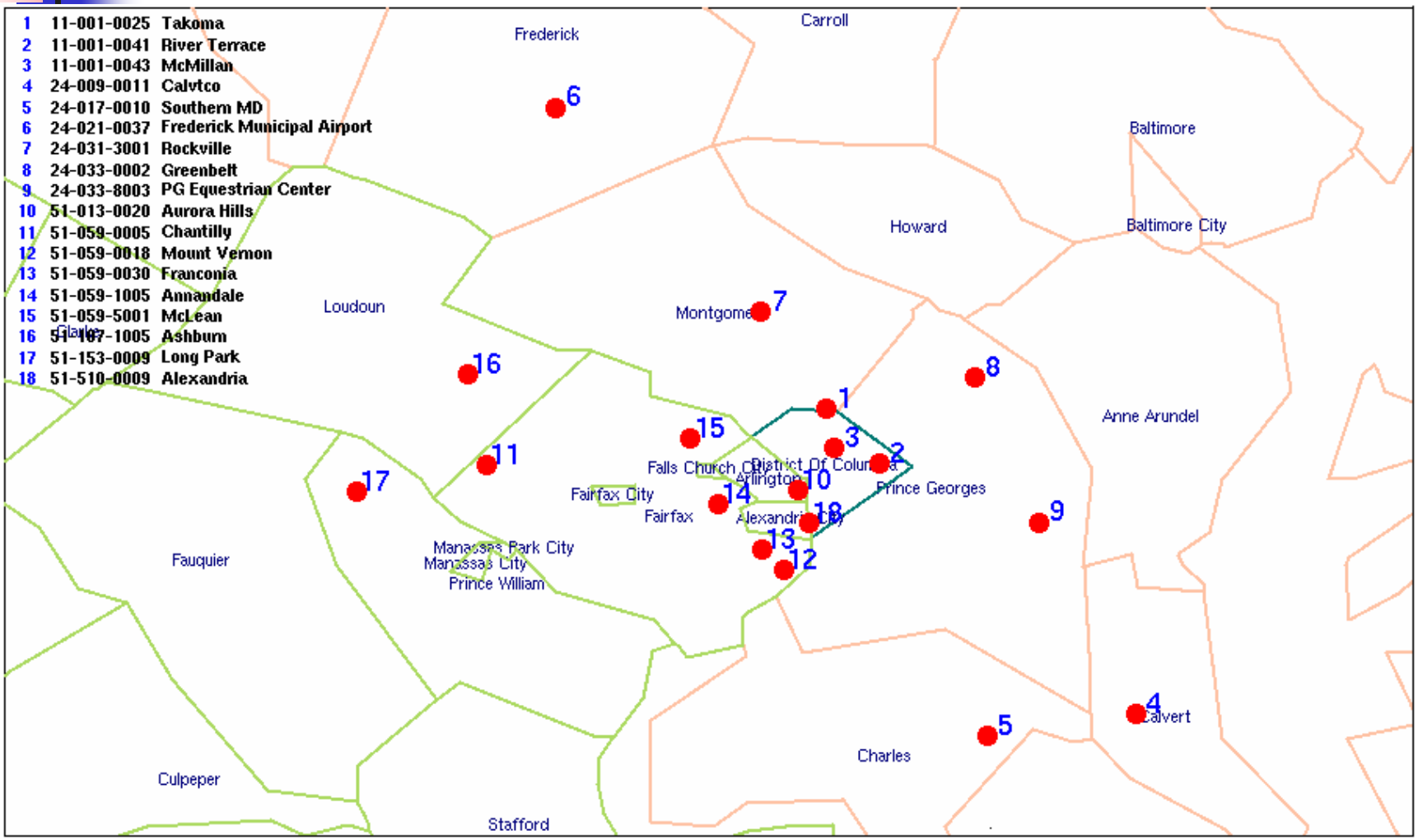
February 5, 2007

Presented by: VA Department of Environmental Quality

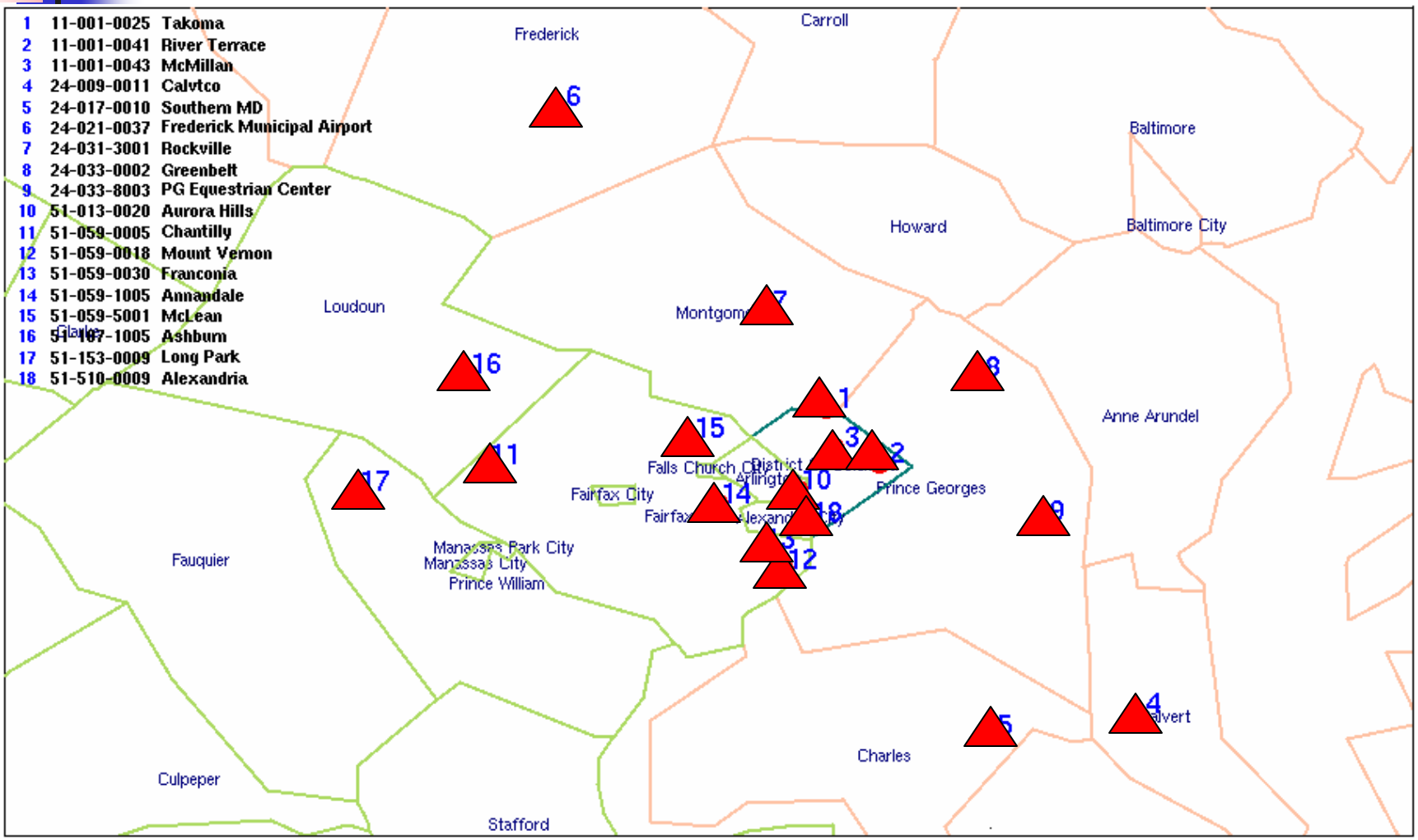
Presentation Outline

- DC area modeling results to date
- WOE Analyses:
  - Modeling efforts
  - Emissions & air quality trends
  - Model and other uncertainties
  - Voluntary measures
- Contingencies

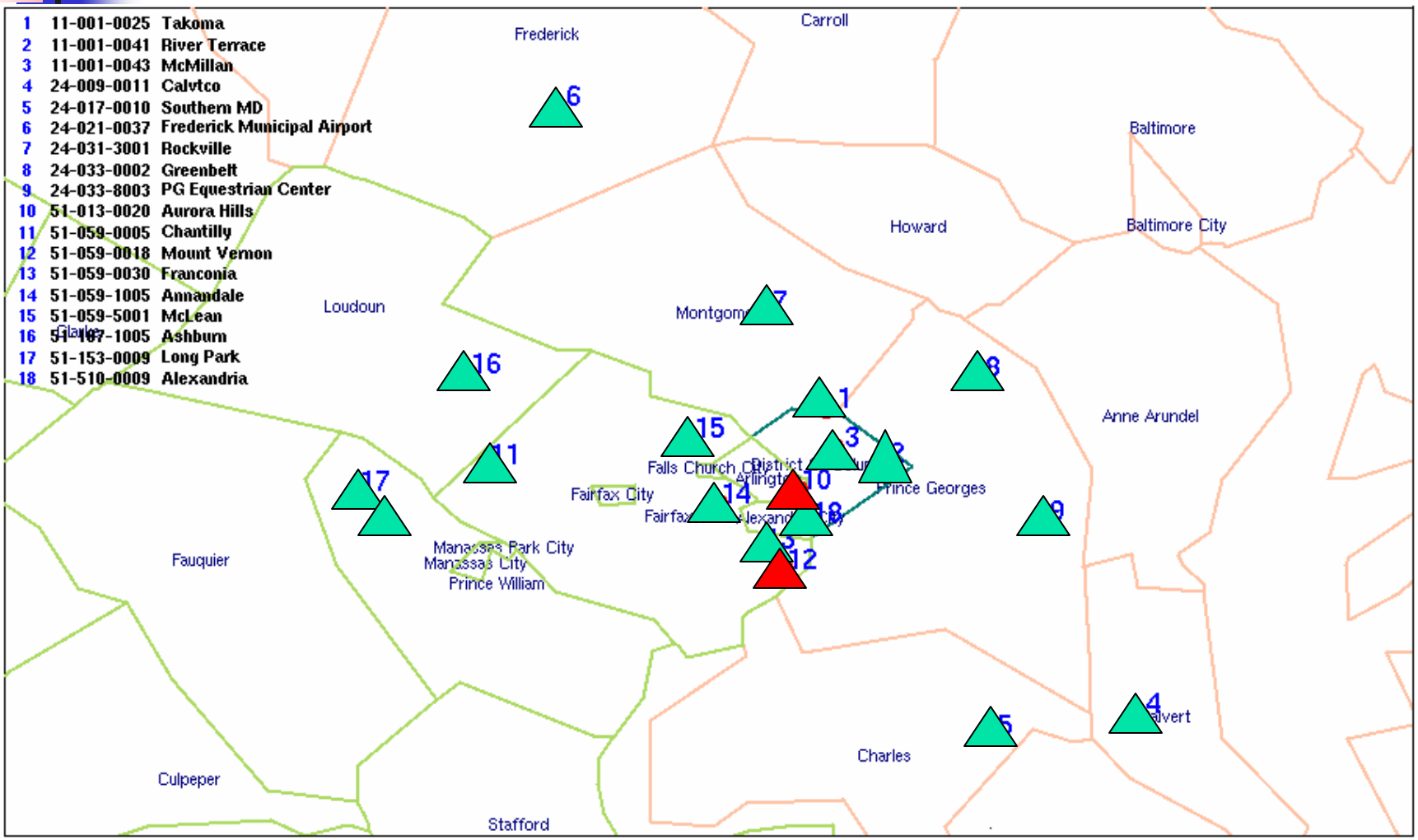
Location of DC Ozone Monitors



Actual Monitor Status – 2002



Predicted Monitor Status – 2009



Remaining 2009 8-Hour Ozone Problem Monitors

- Virginia
  - Arlington-0020 = 86 ppb
  - Fairfax-0018 = 85 ppb

Weight of Evidence (WOE)

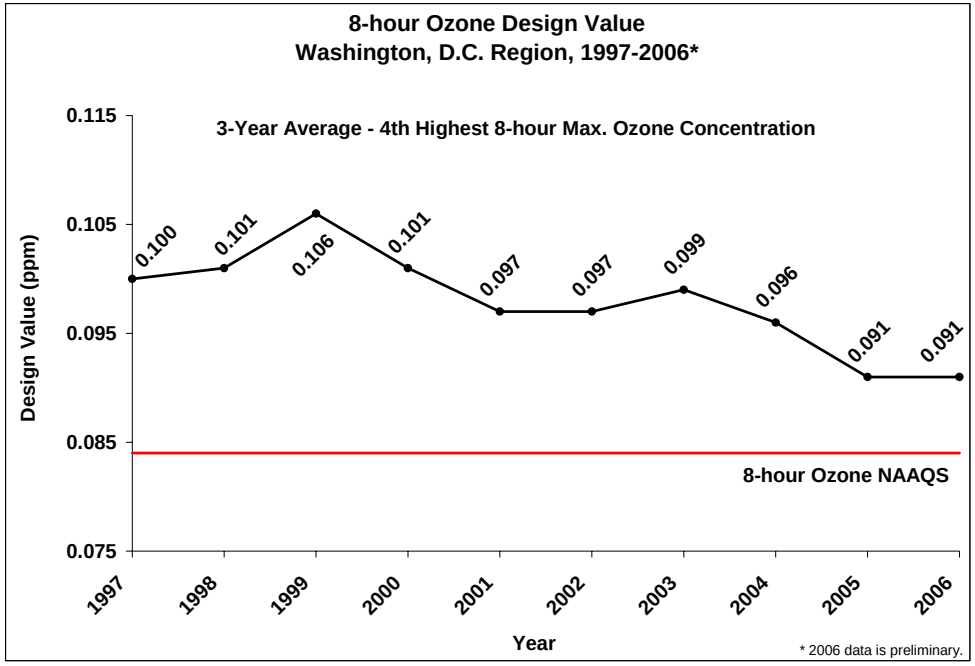
- Supplemental analyses supporting attainment demonstration
  - Acknowledges model uncertainties
- All DC monitors within WOE range
- Types of analyses:
  - Robust modeling effort
  - Emissions & air quality trends
  - Model and other uncertainties
  - Voluntary measures

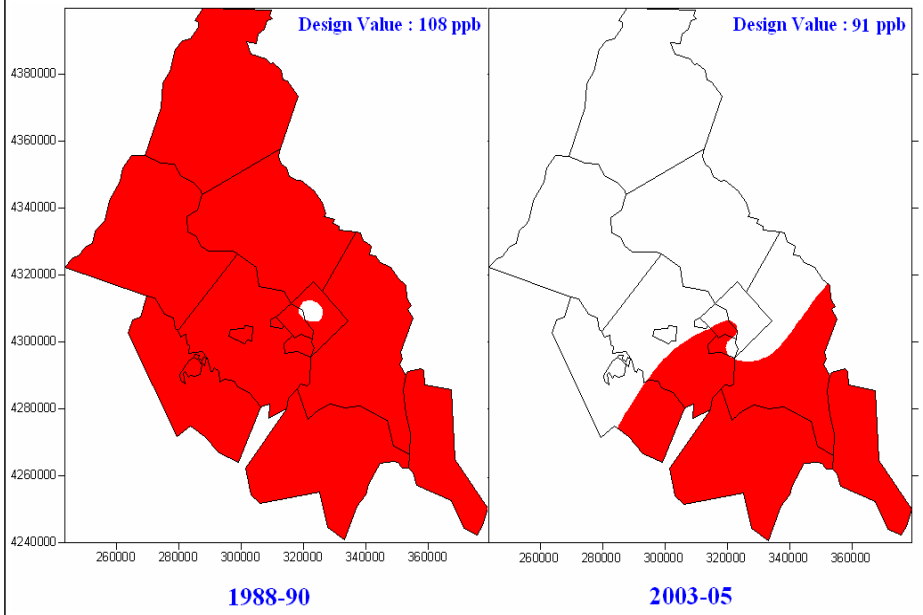
Robust Modeling Effort

- More sophisticated model (CMAQ)
- Modeled entire ozone season
- Relative reduction vs. model predictions
- Three separate modeling projects
  - VA DEQ, OTC, VISTAS
  - DC predictions all within 1 ppb (86-87)
- Uncertainties still exist

Washington Air quality trends

- Air quality continues to improve.....

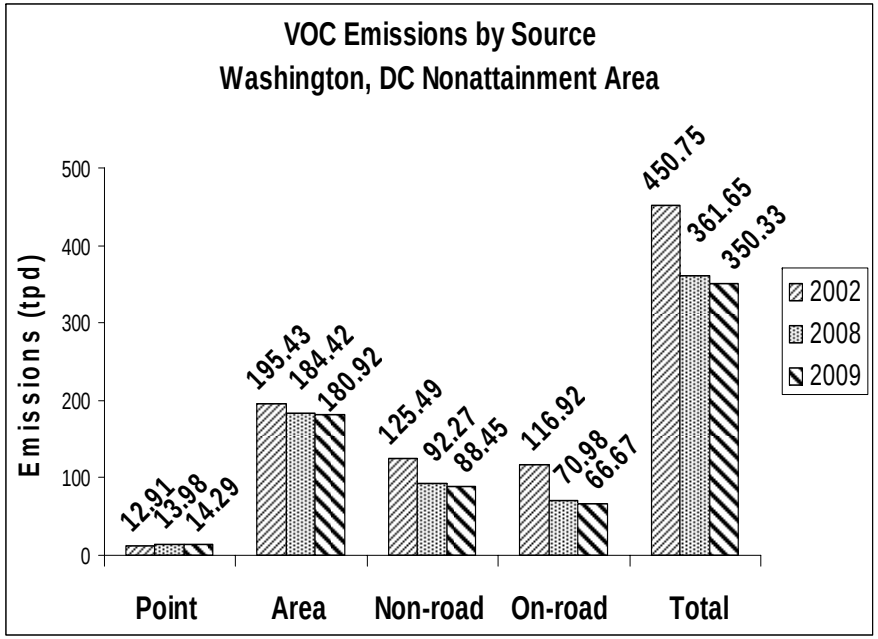


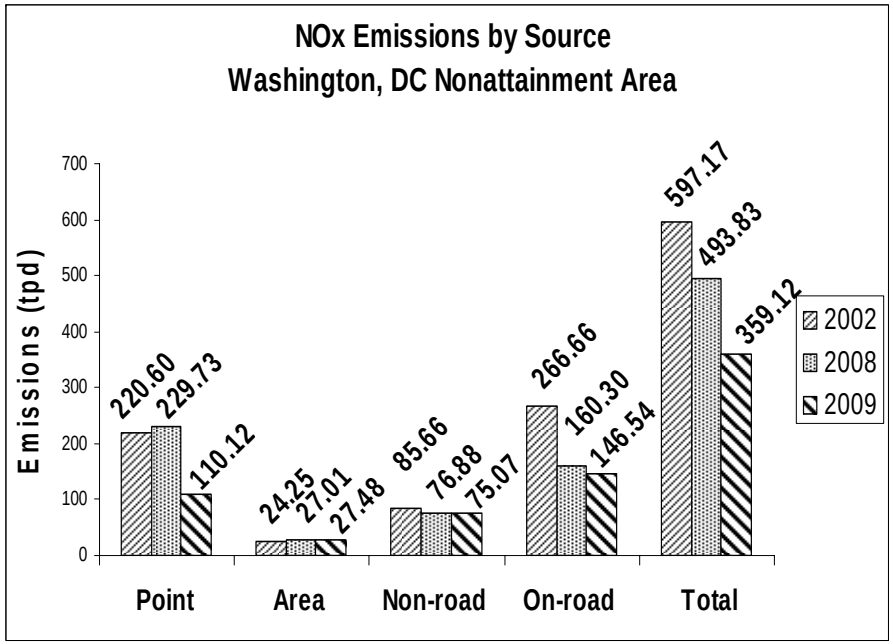


Provided by MWCOG

Washington Emissions trends

- And emissions continue to decrease





Provided by MWCOG

Model Uncertainties

- Model uncertainties:
  - Under-predicts observed values in the 2002 base case
  - Still with EPA acceptance criteria
  - Also under-predicts reduction benefits in transported ozone
  - Current design values close to or below 2009 predictions

Other Uncertainties

- Current & future design value calculations:
  - Alternatives outlined in EPA ozone guidance
  - Evaluating options for calculating baseline design values (DVB)
  - Evaluating Alternative Methodologies for Calculating Relative Reduction Factors (RRF)
- Could yield a range of modeling results

Voluntary Control Measures

- Voluntary controls may reduce ozone further:
  - Local voluntary bundle measures
  - Enhanced ozone action days program
  - High electricity demand day (HEDD) program
  - Urban tree canopy
- Significant high ozone day benefits
  - 2-4 ppb improvement on high ozone days

Contingency Measures
"*What if we don't attain?*"

- Required by Section 172(c)(9) of the CAAA
- Consist of measures implemented if:
  - Area fails to demonstrate reasonable further progress
  - Area fails to attain the NAAQS in a timely manner
- Measures must equate to a minimum of 3% of the either the VOC or NOx baseline inventory
- Without contingency measures, SIP is <u>not approvable</u>.

Contingency Measures
"What if we don't attain?"

- Additional measures = 3% of inventory
- ~14-16 tons/day in DC area
- Not much left for new controls
- Current options (post-2009):
  - OTC Phase II reductions
  - Nonroad engine reductions
  - Mobile reductions (2010 budget)
- 2012 modeling results soon available