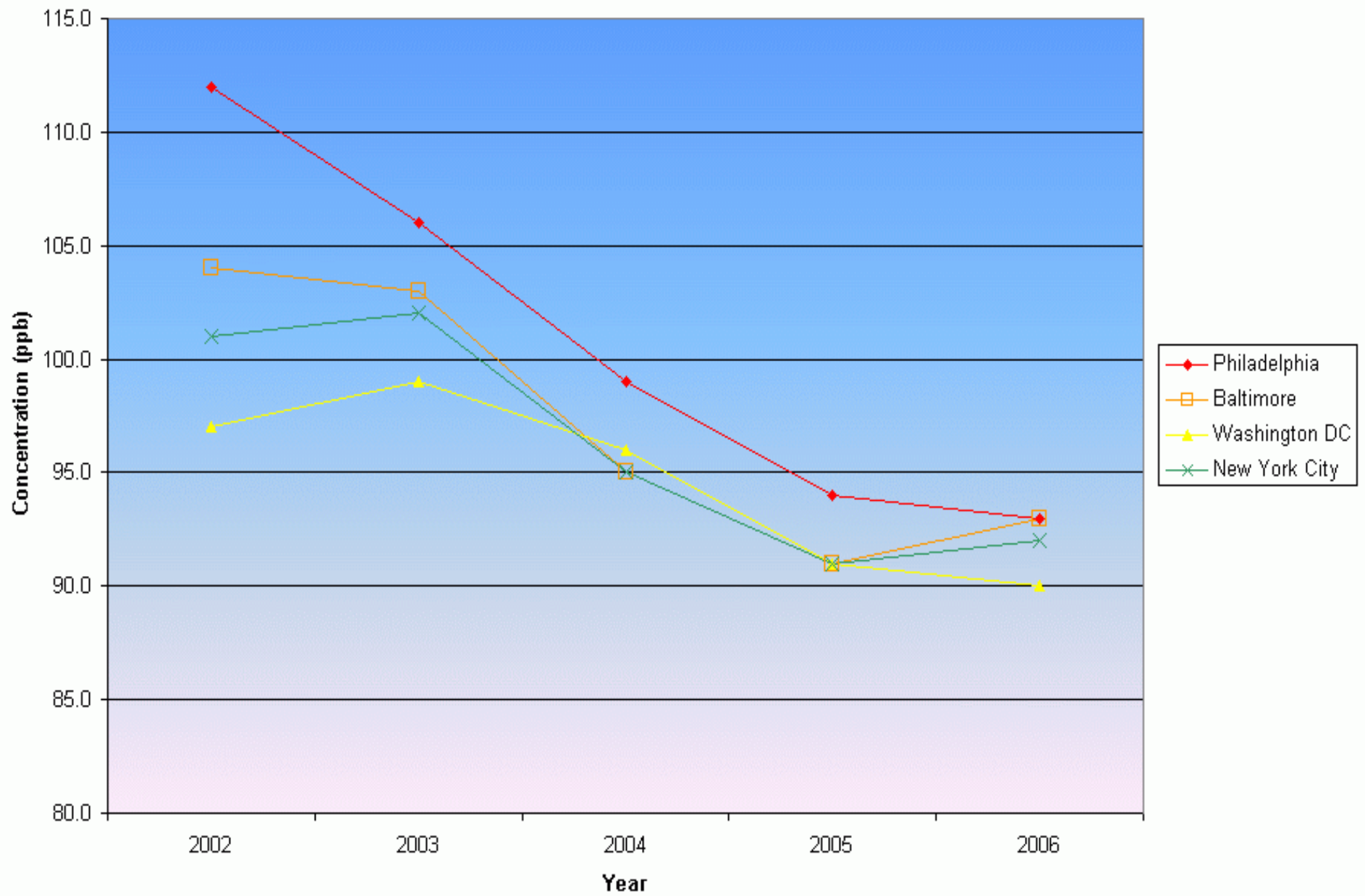


MARAMA Workshop on Weight of Evidence Demonstrations for Ozone SIPs

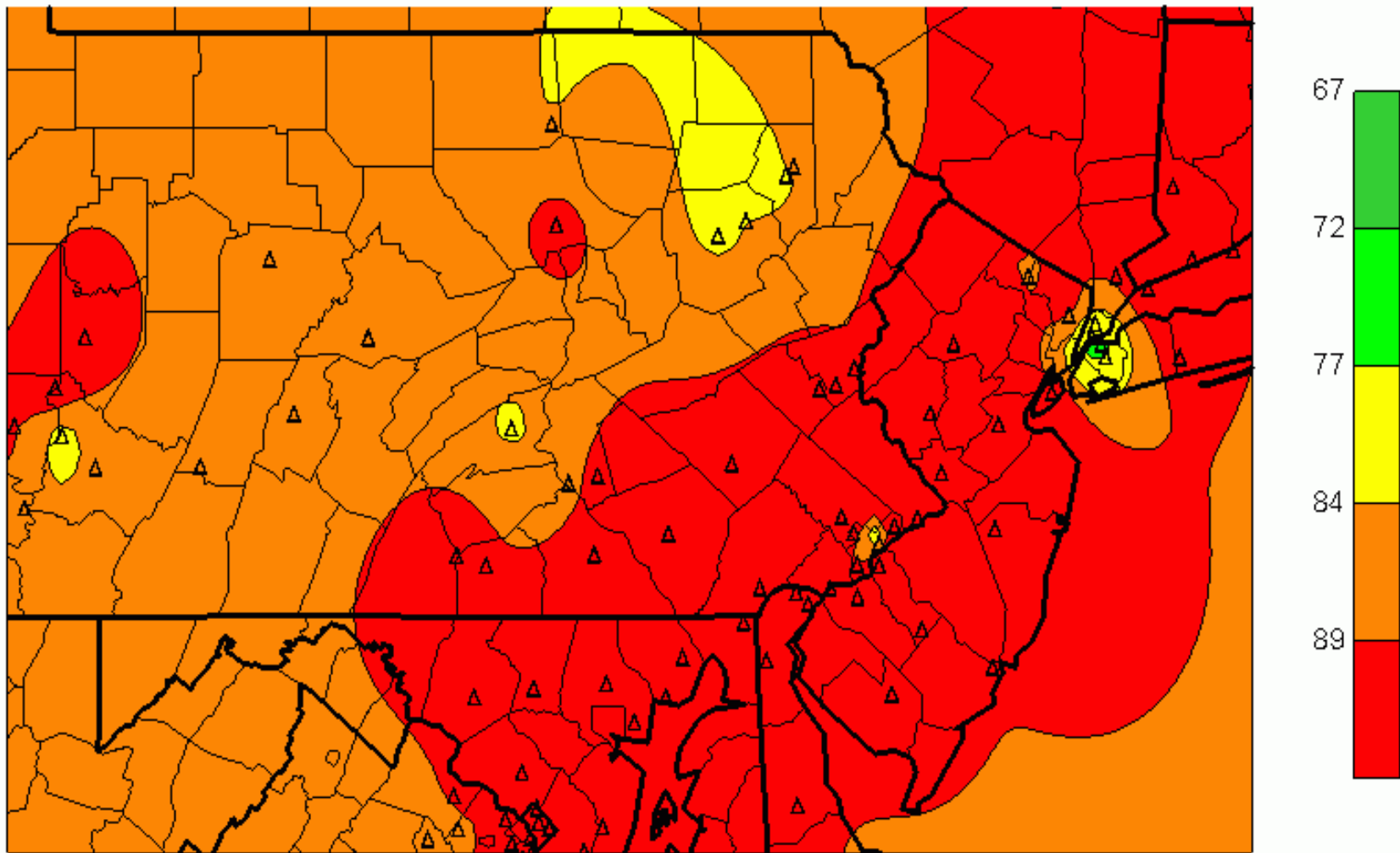
Identification of Issues

Wick Havens, PA DEP

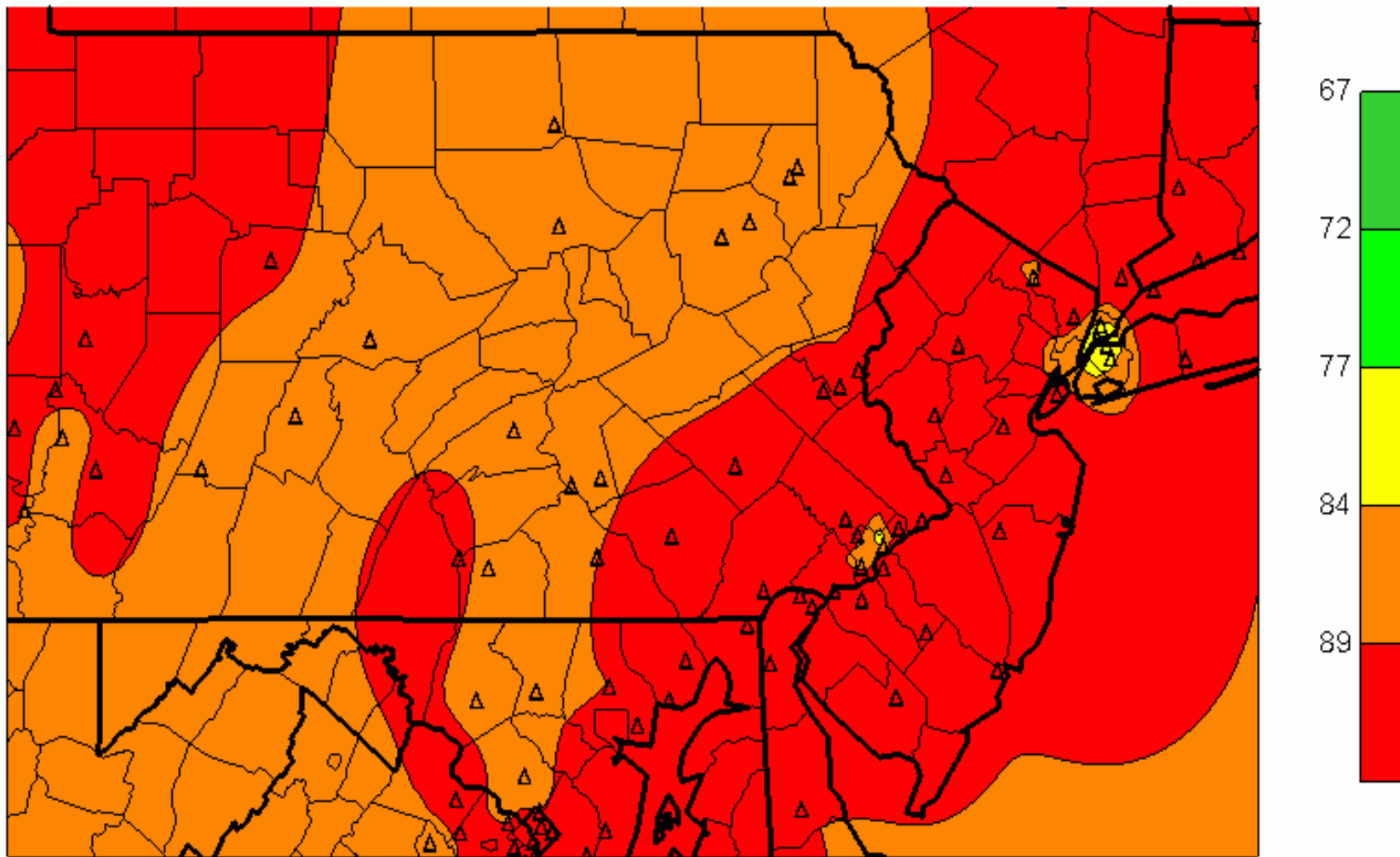
I-95 Corridor 8-Hour Ozone Design Value Trends



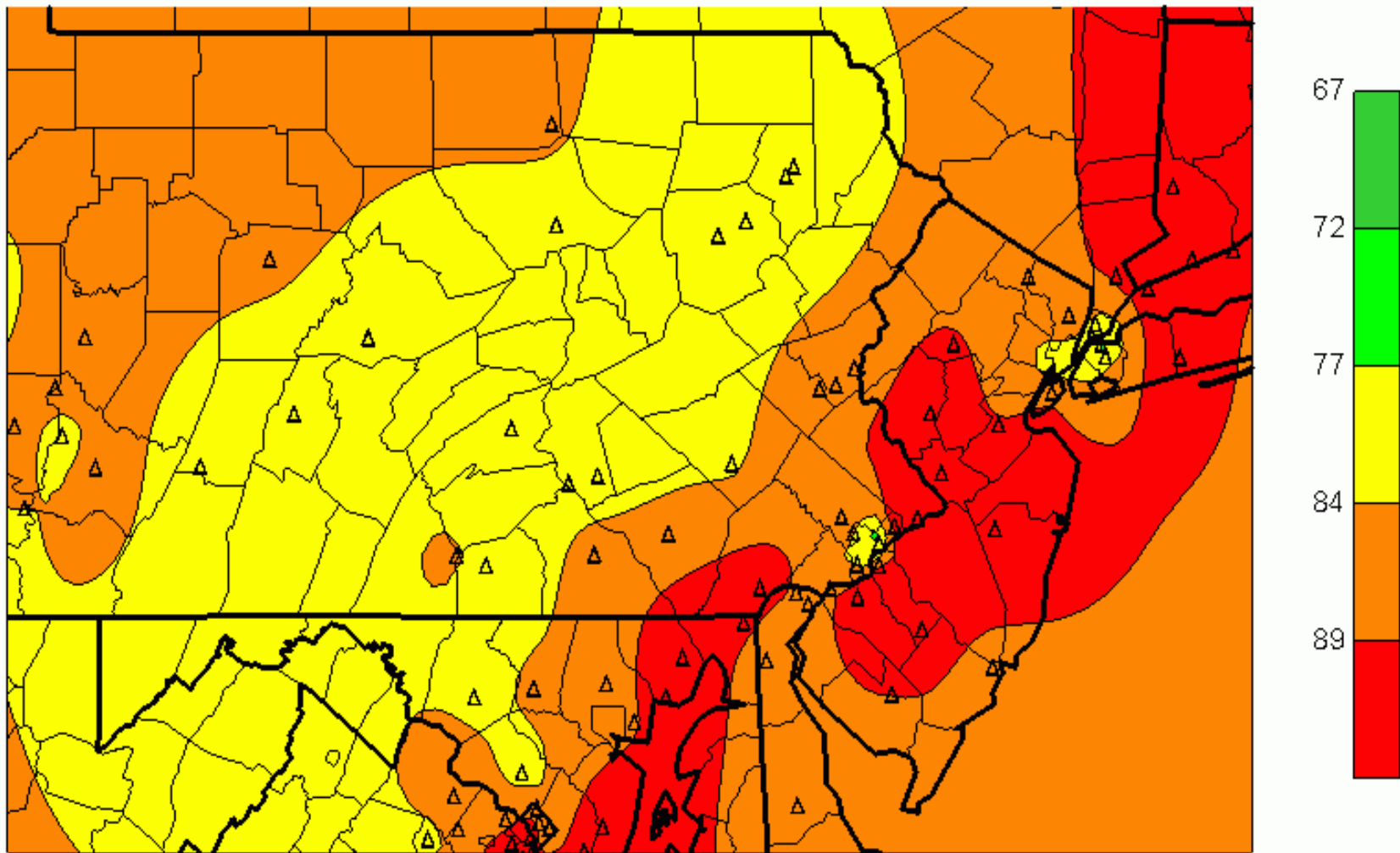
2002 8-Hour Ozone Design Value Concentration Map



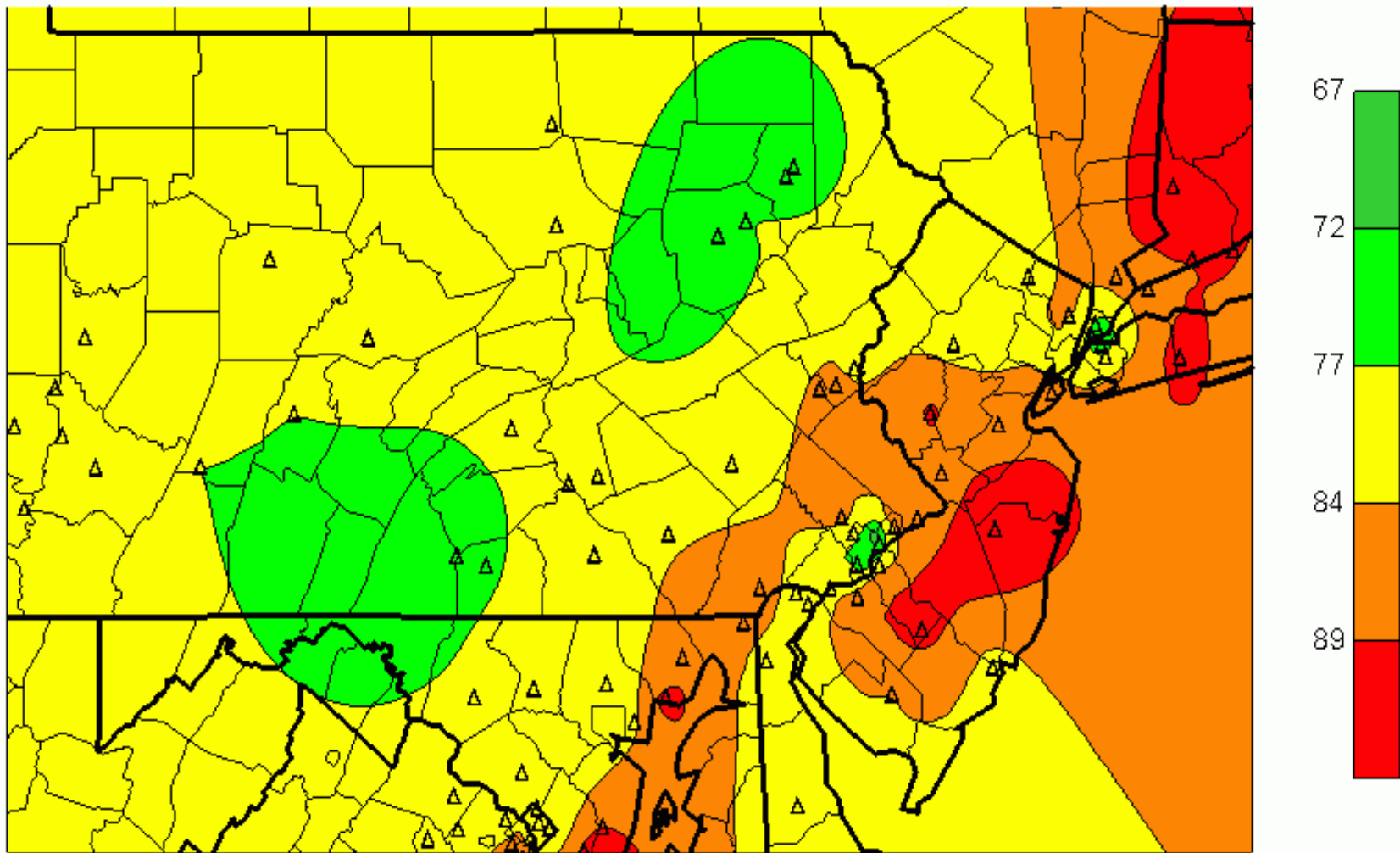
2003 8-Hour Ozone Design Value Concentration Map



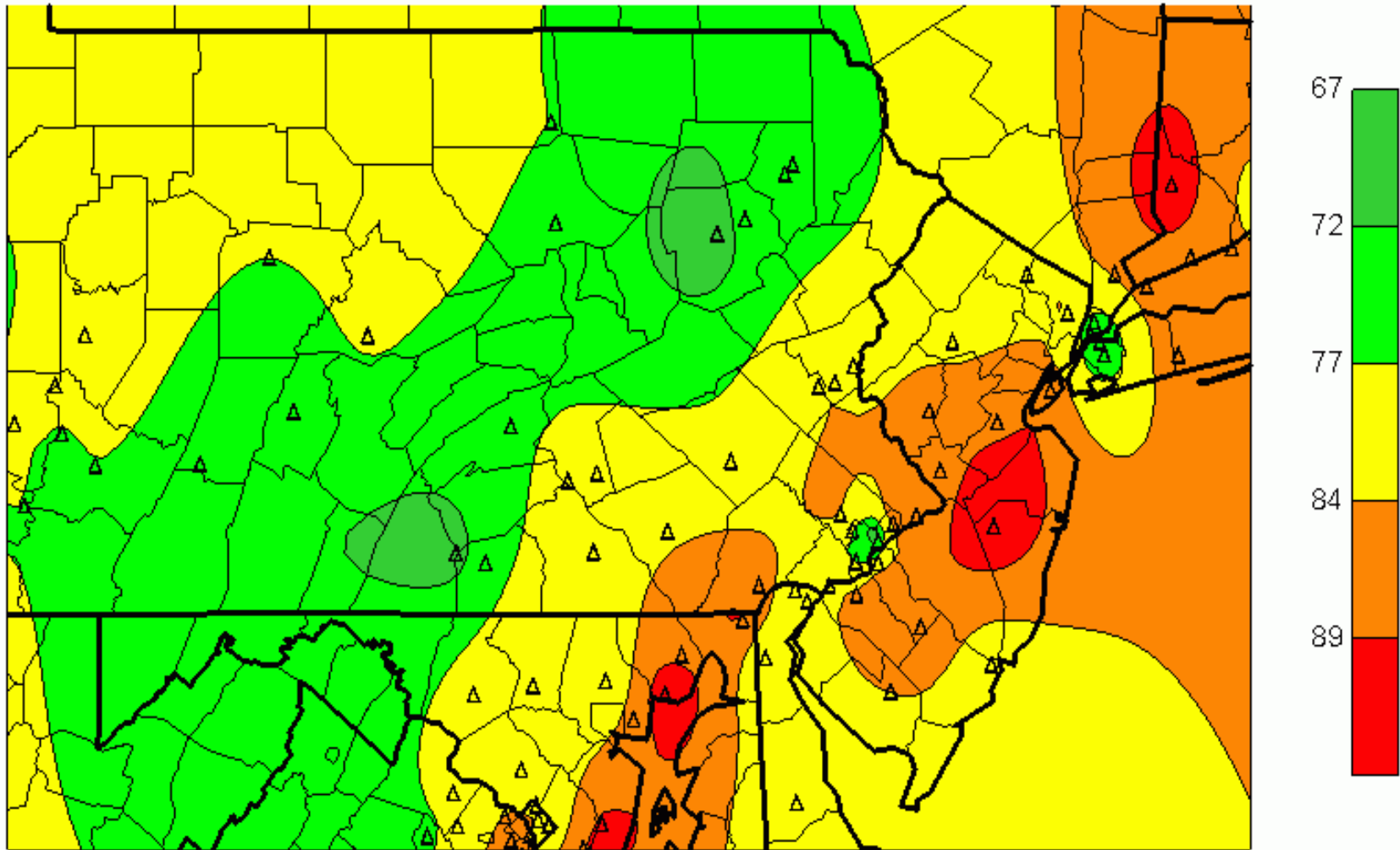
2004 8-Hour Ozone Design Value Concentration Map



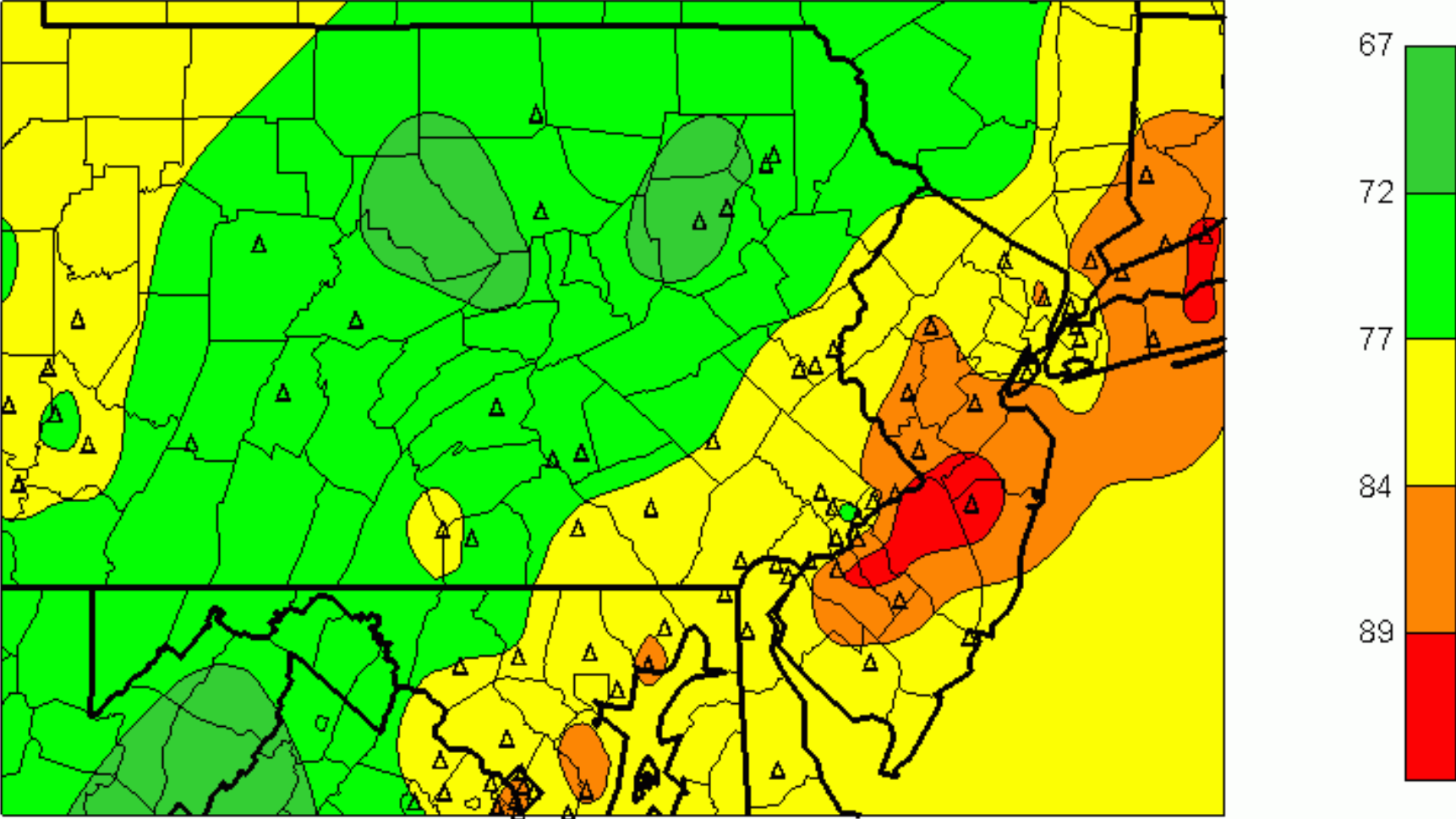
2005 8-Hour Ozone Design Value Concentration Map



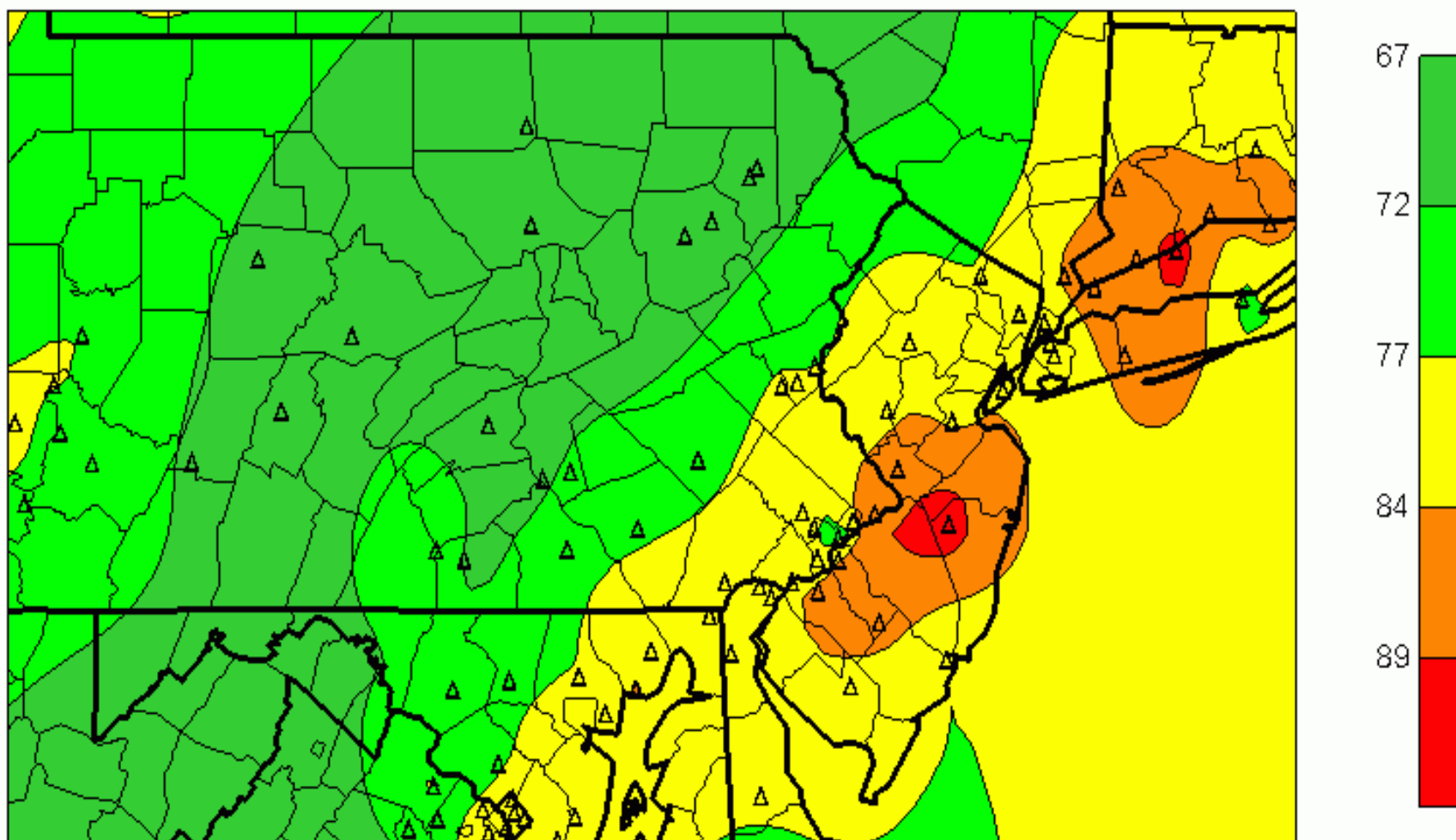
2006 8-Hour Ozone Design Value Concentration Map



OTC Modeling: 2009 "On The Way" Run



OTC Modeling: 2009 "Beyond On The Books" Run Using B3 Emissions



Preliminary 2009 Design Values above 84 ppb for OTW and BOTW control scenarios (B4 emissions)

AIRS-ID	Monitor	DVC	DVF_2009_OTW_BaseB4	Nonattainment Area
340290006	Colliers Mills	106.0	92	Philadelphia-Wilmin-Atlantic Ci,PA-NJ-MD-DE
361030009	Holtsville	97.0	90	New York-N. New Jersey-Long Island,NY-NJ-CT
90013007	Stratford	98.3	90	New York-N. New Jersey-Long Island,NY-NJ-CT
90093002	Madison	98.3	89	New York-N. New Jersey-Long Island,NY-NJ-CT
340070003	Camden	98.3	88	Philadelphia-Wilmin-Atlantic Ci,PA-NJ-MD-DE
340155001	Clarksboro	98.3	88	Philadelphia-Wilmin-Atlantic Ci,PA-NJ-MD-DE
420170012	Bristol	99.0	88	Philadelphia-Wilmin-Atlantic Ci,PA-NJ-MD-DE
90010017	Greenwich	95.7	87	New York-N. New Jersey-Long Island,NY-NJ-CT
421010024	Northeast (Air	96.7	87	Philadelphia-Wilmin-Atlantic Ci,PA-NJ-MD-DE
340071001	Ancora St. Hos	100.7	87	Philadelphia-Wilmin-Atlantic Ci,PA-NJ-MD-DE
90011123	Danbury	95.7	86	New York-N. New Jersey-Long Island,NY-NJ-CT
510130020	Arlington Co.	96.7	86	Washington, DC-MD-VA
510590018	Fairfax Co. -	96.7	86	Washington, DC-MD-VA
340210005	Rider Univ.	97.0	86	Philadelphia-Wilmin-Atlantic Ci,PA-NJ-MD-DE
361192004	White Plains	91.3	85	New York-N. New Jersey-Long Island,NY-NJ-CT
340030005	Teaneck	91.7	85	New York-N. New Jersey-Long Island,NY-NJ-CT
361030002	Babylon	93.7	85	New York-N. New Jersey-Long Island,NY-NJ-CT
90099005	Hamden	93.3	85	New York-N. New Jersey-Long Island,NY-NJ-CT
90019003	Westport	94.0	85	New York-N. New Jersey-Long Island,NY-NJ-CT
90070007	Middletown	95.7	85	New York-N. New Jersey-Long Island,NY-NJ-CT

If I Use A Weight Of Evidence Determination, What Does This Entail?

- 1) A fully-evaluated, high-quality modeling analysis that projects future values that are close to the NAAQS.
- 2) Multiple supplemental analyses in each of the three various categories discussed above (modeling, air quality/emissions trends, observational models).
- 3) A weighting for each separate analysis based on its ability to *quantitatively* assess the ability of the proposed control measures to yield attainment.
- 4) A description of each of the individual supplemental analyses and their results. Analyses that utilize well-established *analytical* procedures and are *grounded* with sufficient data should be weighted accordingly higher.
- 5) A written description as to why the aggregate analyses leads to a conclusive determination regarding the future attainment status of the area that differs from the modeled attainment test.

A fully-evaluated, high-quality modeling analysis that projects future values that are close to the NAAQS.

- Model Performance Evaluation as per Section 18 of EPA's Guidance on the Use of Models and Other Analyses for Demonstrating Attainment of Air Quality Goals for Ozone, PM_{2.5}, and Regional Haze (Draft 3.2- September 2006).
 - Demonstrate model is replicating base-line concentrations (statistical tests).
 - Regional and local concentrations should be examined.
 - Should include ozone and possibly precursor concentrations.
- Basically completed by OTC already.

Multiple supplemental analyses in each of the three categories (modeling, air quality/emissions trends, observational models).

Modeling

- **Use other modeling results to demonstrate consistency (CAIR, other RPOs if your domains overlap).**
- **Other Non-SIP quality modeling for WOE purposes.**
- **LADCO 2005 base year modeling for the OTR.**
- **Relative reduction factor and/or base year design value adjustments.**
- **Decreases in the extent and severity of nonattainment.**
- **Models inability to fully deal with transport.**

Air-Quality/Emission Trends

- **Are your model results similar to what's happening in your monitoring network (Model vs. Reality)?**
- **Keep an eye on 2007 data.**

Documentation of Methods, Weighing/Ranking of Analysis Components

- **A weighting for each separate analysis based on its ability to *quantitatively* assess the ability of the proposed control measures to yield attainment.**
- **A description of each of the individual supplemental analyses and their results. Analyses that utilize well-established *analytical* procedures and are *grounded* with sufficient data should be weighted accordingly higher.**
- **A written description as to why the aggregate analyses leads to a conclusive determination regarding the future attainment status of the area that differs from the modeled attainment test.**

Weight of Evidence Issues

- **Model results are good, but not good enough.**
 - Establish an ozone Δ large enough to lead to the possibility of attainment without invalidating the model results.
- **Emission programs lead to larger reductions than the model reproduces.**
 - Model “stiffness” without invoking/loosing additional controls.
 - SIP considerations for any additional control programs.
 - Timing considerations, what can we do by June 2007 and can we do more after the SIP is submitted.
- **How can we use qualitative methods to establish a quantitative result as the guidance dictates?**
 - Turning “Qualitative Analyses” into a numbers.
- **How can we use future measures or small reduction measures as part of a WOE?**