

# NAAQS Overview 2008 Ozone Standard



*SIP Writers Workshop  
August 21, 2008  
U.S. EPA, Region 4*



# 2008 Ozone NAAQS

- **March 12, 2008 (published March 27, 2008)**
- **Primary & secondary standard**
  - 0.075 ppm
- **Long-range Next Steps**
  - **Designations**
  - **Development of Attainment Plans**



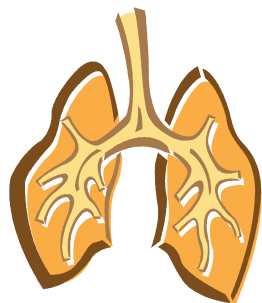
# Draft Timeline for Designations Process

| <b>Milestones</b>   | <b>2008 Ozone NAAQS Dates</b>  |
|---|--|
| <b>Final decision on level of NAAQS</b>                   | <b>March 12, 2008</b>  |
| <b>State/Tribal recommendations due</b>                   | <b>March 12, 2009</b>  |
| <b>EPA response</b>                                       | <b>No later than December 12, 2009</b><br>(120 days prior to final designations) |
| <b>State &amp; Tribes may provide additional comments</b> | <b>Prior to final designations</b>   |
| <b>Final designations</b>                                 | <b>No later than March 12, 2010*</b>   |

\* If the EPA Administrator determines that there is insufficient information to make final designations, then the date of final designations may be extended by up to one year but no later than March 12, 2011.

# New Air Quality Index (AQI)

| <b>Category</b>                                   | <b>AQI Value</b> | <b>1997<br/>8-hour<br/>(ppm)</b> | <b>2008<br/>8-hour<br/>(ppm)</b> |
|---|------------------|----------------------------------|----------------------------------|
| <b>Good</b>                                       | 0-50             | 0.000-0.064                      | 0.000-0.059                      |
| <b>Moderate</b>                                   | 51-100           | 0.065-0.084                      | 0.060-0.075                      |
| <b>Unhealthy<br/>for<br/>Sensitive<br/>Groups</b> | 101-150          | 0.085-0.104                      | 0.076-0.095                      |
| <b>Unhealthy</b>                                  | 151-200          | 0.105-0.124                      | 0.096-0.115                      |
| <b>Very<br/>Unhealthy</b>                         | 201-300          | 0.125-0.374                      | 0.116-0.374                      |
| <b>Hazardous</b>                                  | 301-400          | No Change                        | No Change                        |
|   | 401-500          | No Change                        | No Change                        |



# Health Benefits

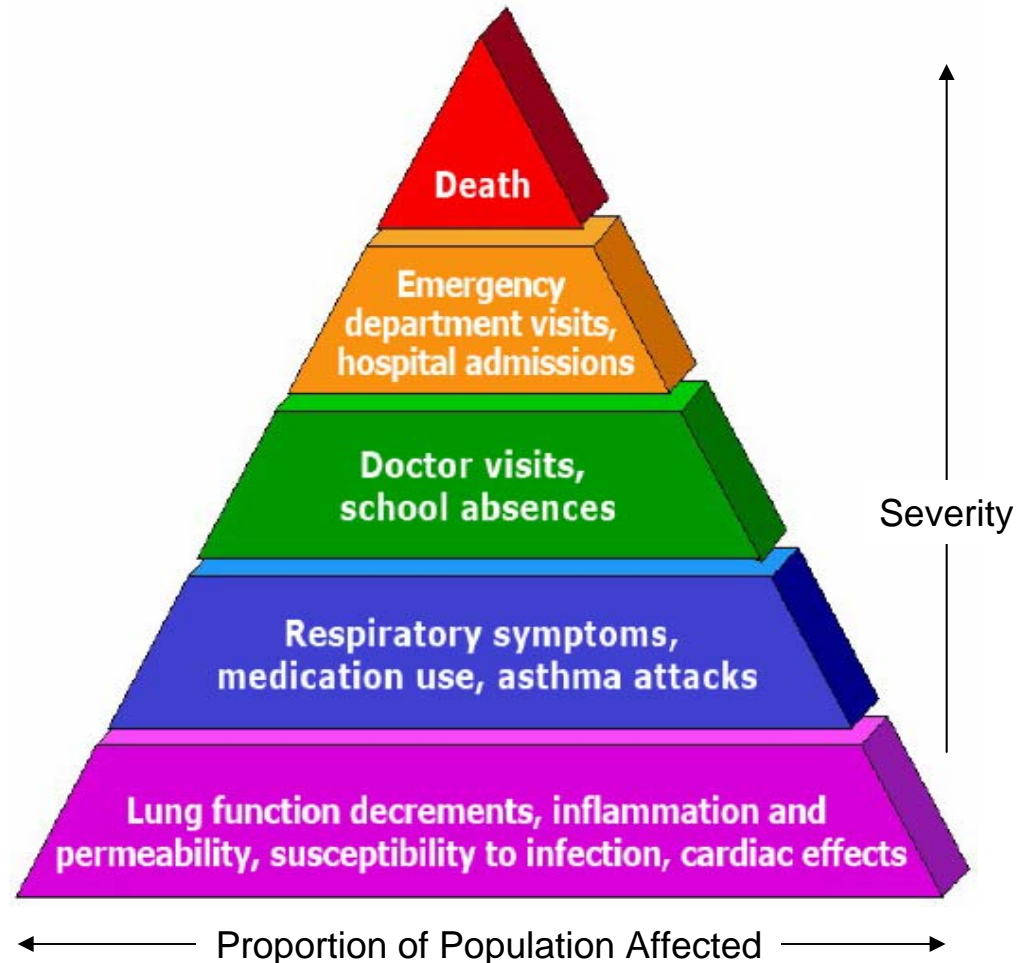


- Results of >1,700 studies – adverse health effects @ 1997 stnd level of 0.08 ppm
- Study estimates – premature deaths avoided annually in 2020
  - 260 to 2,000 (\$3 to \$17 billion benefit/yr)
  - 420 to 2,300 (\$4 to \$19 billion benefit/yr)

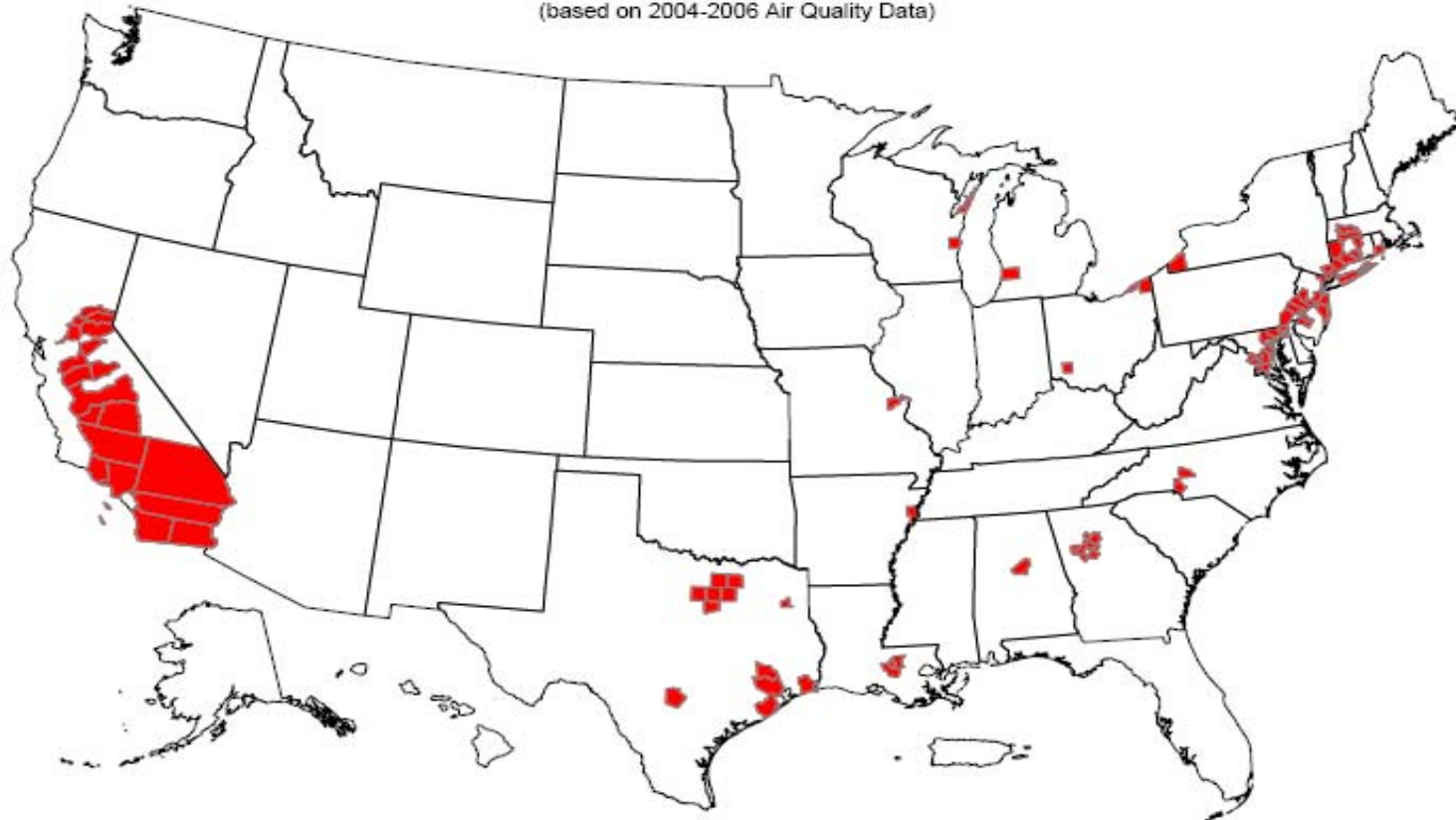
| Reduced cases of...                               | O <sub>3</sub> <sup>^</sup> |
|---|-----------------------------|
| Premature death                                   | ~260 to 2,300               |
| Chronic bronchitis                                | 380                         |
| Nonfatal heart attacks                            | 890                         |
| Hospital admissions & emergency department visits | 1,900                       |
| Acute bronchitis                                  | 1,000                       |
| Upper and lower respiratory symptoms              | 11,600                      |
| Aggravated asthma                                 | 6,100                       |
| Missed work or school days                        | 243,000                     |
| Restricted activity days                          | 750,000                     |

# Health Impacts of O<sub>3</sub> and PM<sub>2.5</sub>

- Premature death in people with heart and lung disease
- Increased hospital visits for respiratory diseases (and for CVD for PM<sub>2.5</sub>)
- Reduced lung function
- Increased symptoms (coughing, wheezing)
- Aggravation of chronic lung diseases
- Increased susceptibility to respiratory infection (O<sub>3</sub>)
- Heart rate variability, arrhythmias (PM<sub>2.5</sub>)



## Counties with Monitors Violating the 1997 8-Hour Ozone Standard of 0.08 parts per million (ppm) (based on 2004-2006 Air Quality Data)



Notes:

<sup>1</sup> 85 monitored counties violate.

<sup>2</sup> Monitored air quality data can be obtained from the AQS system at <http://www.epa.gov/ttn/airs/airsaqs/>

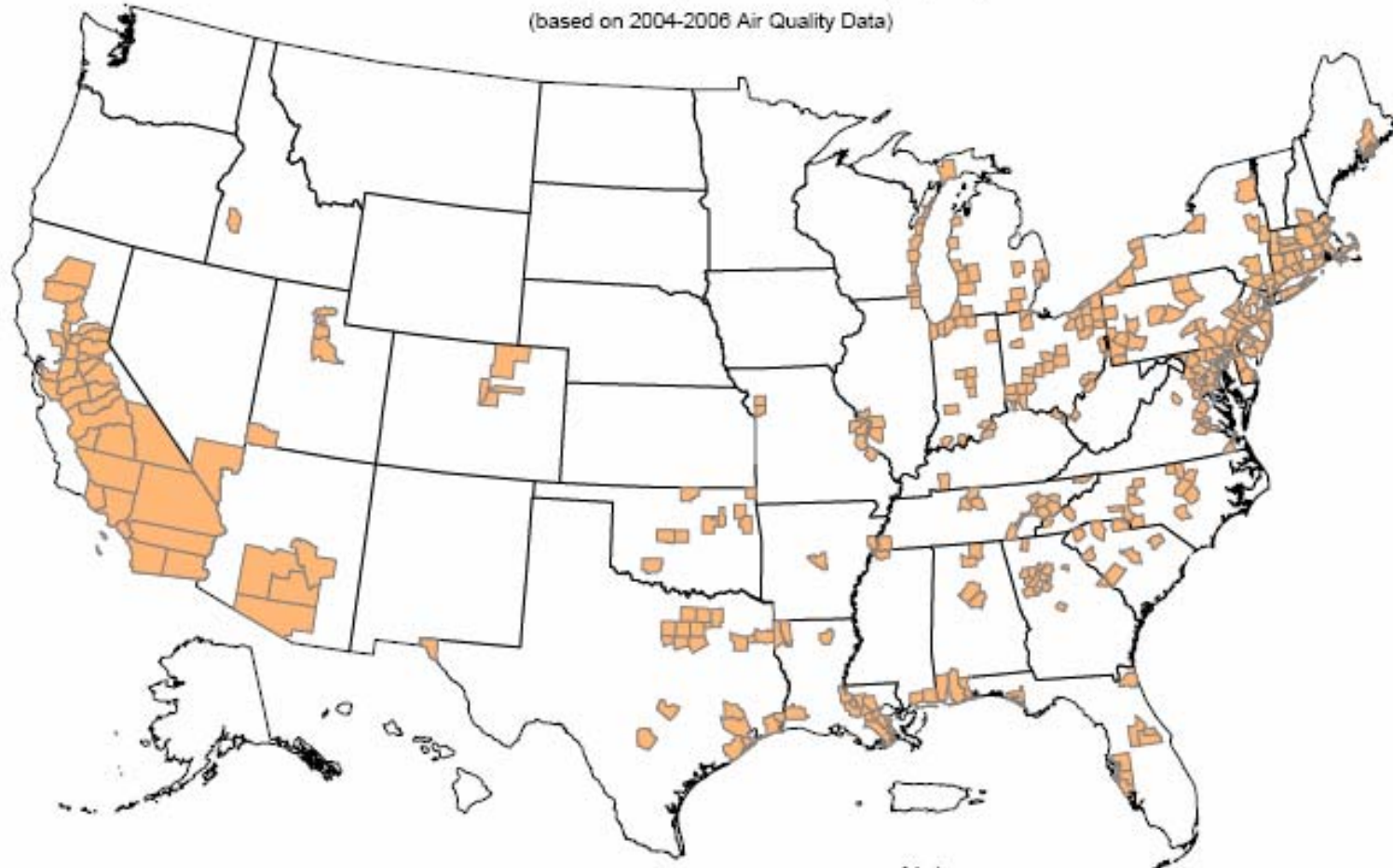
<sup>3</sup> The 1997 national ambient air quality standard (NAAQS) for ozone of 0.08 ppm is effectively expressed as 0.084 ppm when data handling conventions are applied.



Estimates are based on the most recent data (2004 – 2006). EPA will not designate areas as nonattainment on these data, but likely on data from 2006 – 2008 or later, which we expect to show improved air quality.

## Counties with Monitors Violating the 2008 8-Hour Ozone Standard of 0.075 parts per million (ppm)

(based on 2004-2006 Air Quality Data)



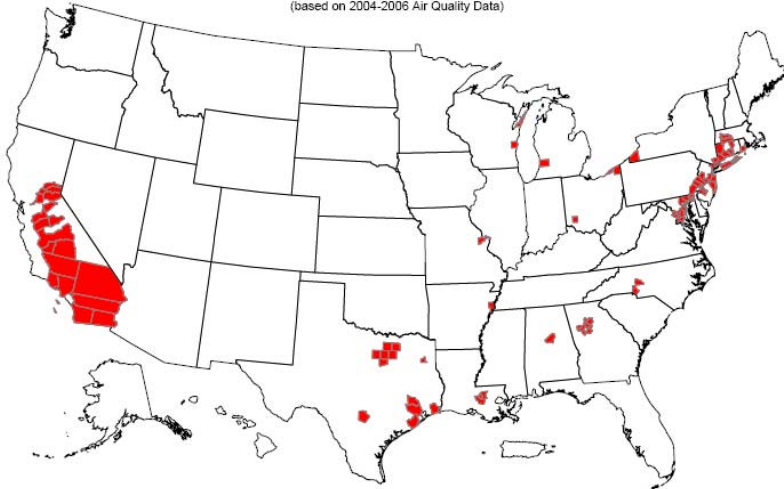
Notes:

<sup>1</sup> 345 monitored counties violate the 2008 8-hour ozone standard of 0.075 parts per million (ppm).

<sup>2</sup> Monitored air quality data can be obtained from the AQS system at <http://www.epa.gov/ttn/airs/airsaqs/>



**Counties with Monitors Violating the 1997 8-Hour Ozone Standard of 0.08 parts per million (ppm)**  
(based on 2004-2006 Air Quality Data)



Notes:

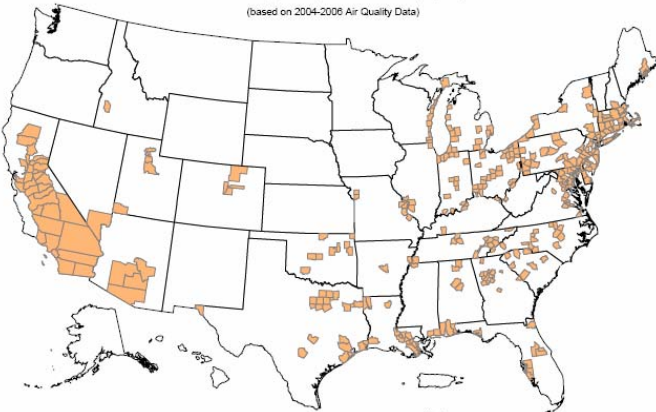
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- 85 monitored counties violated 0.08 ppm using 2004-2006 data

**Counties with Monitors Violating the 2008 8-Hour Ozone Standard of 0.075 parts per million (ppm)**  
(based on 2004-2006 Air Quality Data)



Notes:

<sup>1</sup> 345 monitored counties violate the 2008 8-hour ozone standard of 0.075 parts per million (ppm).

<sup>2</sup> Monitored air quality data can be obtained from the AQS system at <http://www.epa.gov/ttn/airs/airsaq/>

- 345 monitored counties violate the 0.075 ppm standard using 2004-2006 data.

# After EPA sets or revises a standard, how is it used?

As required by Section 107(d)(1), EPA designates areas as:

– **Nonattainment**

- *does not meet the standard, or*
- *contributes to an area that does not meet the standard*

– **Attainment**

- *meets the standard for the pollutant, and*
- *does not contribute to an area that does not meet the standard*

– **Unclassifiable**

- *cannot be classified based on available information*



# Designation Process



## Nonattainment:

- any county (or partial county) with a monitor showing a violation
- any nearby contributing area
- based on the most recent 3 consecutive years of air quality data

# Designation Process (cont.)

## Additional factors considered for nonattainment boundaries:

- Emissions and air quality in adjacent areas
- Population density and degree of urbanization
- Monitoring data representing concentrations in local areas and larger areas
- Location of emission sources
- Traffic and commuting patterns
- Expected growth
- Meteorology
- Geography/topography
- Jurisdictional boundaries
- Level of control of emission sources
- Regional emission reductions (e.g., NO<sub>x</sub> SIP call, CAIR)





# What Happens if an Area is Designated Nonattainment?

SIP revision would include these key components:

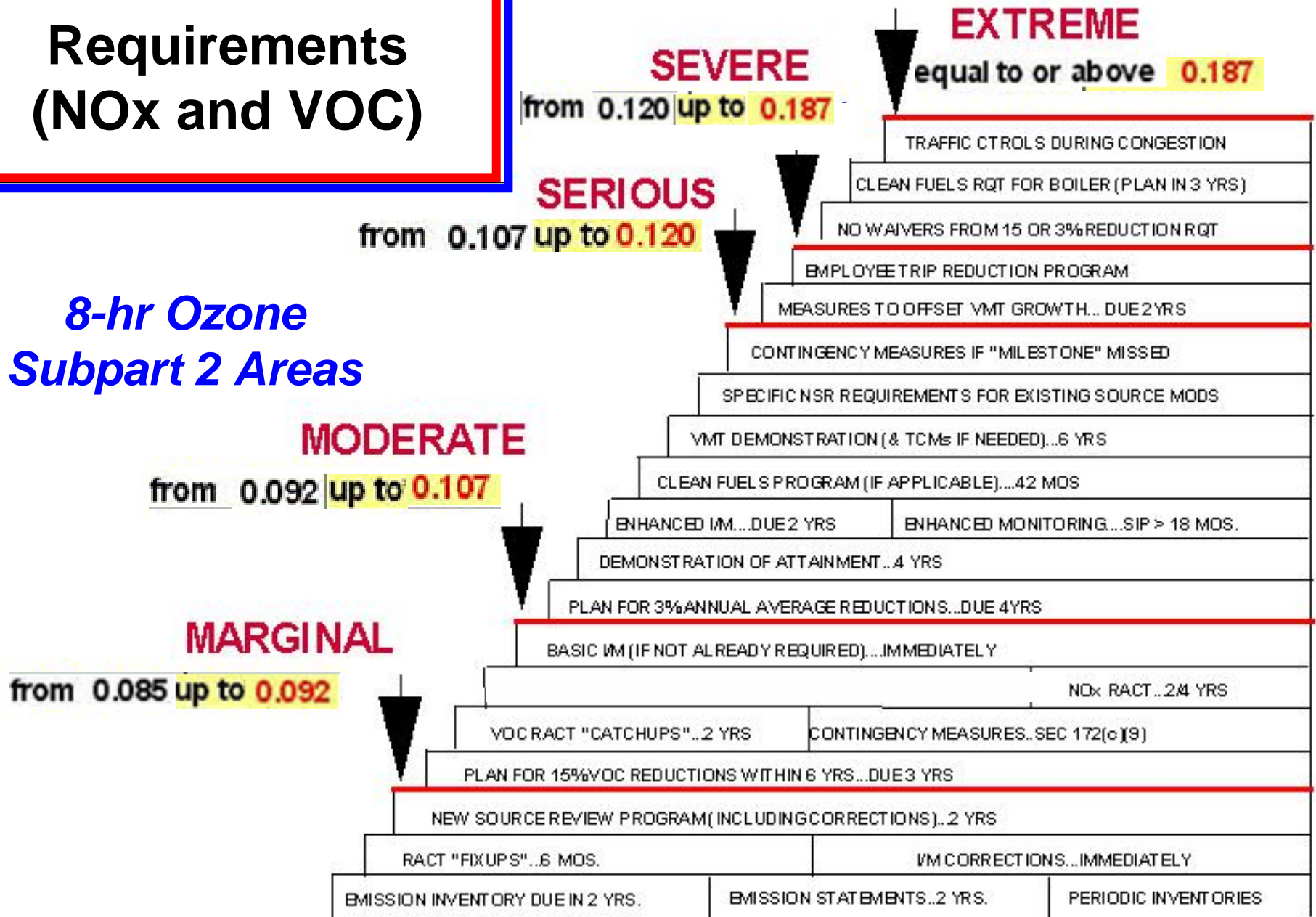
- Nonattainment NSR applies upon effective date of designations
- Transportation conformity applies 1 year from effective date of designations
- For classified areas:
  - Additional mandated controls
  - Must attain by attainment date or bumped up to next higher classification, if applicable



# Ozone Control Requirements (NOx and VOC)

Based on the 1997 Standard

## 8-hr Ozone Subpart 2 Areas

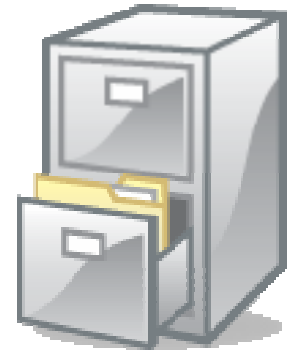




# After Designations

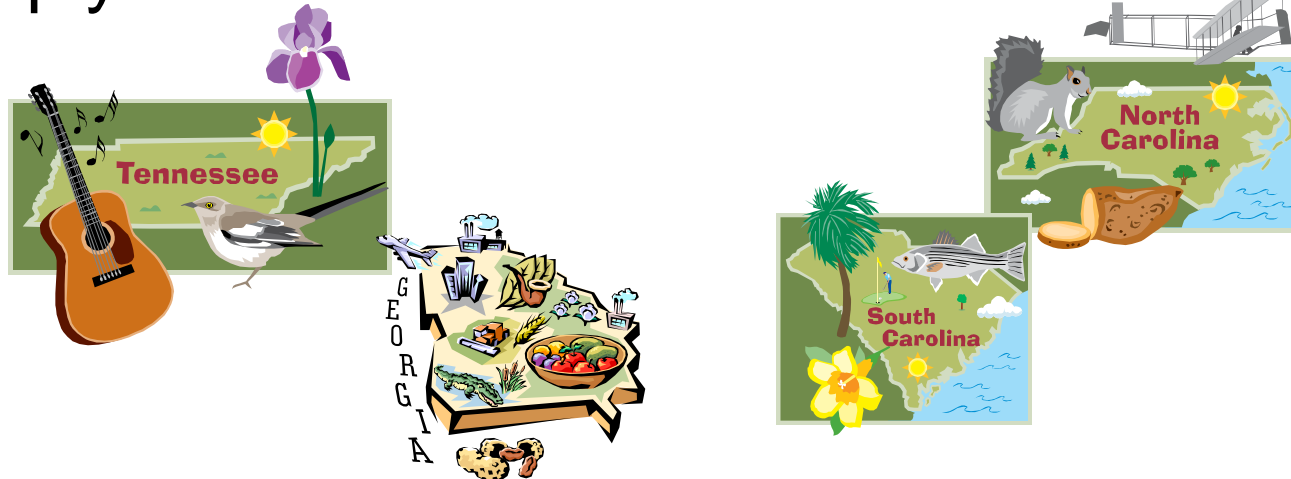
Within 3 years, states develop state implementation plans (SIPs) :

- Enforceable emission limits/control measure
- Emission Inventories
- Modeling
- Monitoring/Recordkeeping
- Enforcement



# Early Action Compacts (EACs)

- April 2, 2008 (73 FR 17897) – EAC attainment for 1997 8-hour Ozone NAAQS
  - April 15, **2008** (Effective) - All R4 NA-deferred EAC areas now attainment including Central Midlands EAC Area
  - April 15, **2009** – 1-hour standard will no longer apply to the EAC areas



# EPA Region 4/State/Local Outreach Program



- R4 Outreach Strategy Workgroup
  - Invited States/Locals to participate
  - Purpose
    - Assist States/Local to reach attainment asap
    - Provide outreach to counties and MSAs
    - Encourage proactive steps
  - Rely on existing conferences & outreach opportunities, possibly creating opportunities

# Early Actions



## Benefits:

- Cleaner Air Sooner
- Possible Attainment vs. nonattainment
- Ozone – possible lower classification



# How Will Ozone Reductions be Achieved?

- Local emissions reductions
- National reduction measures
- State and EPA providing technical assistance
- Public/private partnerships



# Federal Measures and Programs



- Regulatory Measures
  - Power Plants and Industry
  - Mobile Sources
- Voluntary Programs
  - Clean diesel
  - List of resources



# Power Plants and Industry

- **Clean Air Visibility Rule (CAVR)** - requires emission controls for industrial facilities emitting air pollutants that reduce visibility
- **Acid Rain Program** - cap and trade program that reduces power plant emissions of SO<sub>2</sub> and NOx
- **NOx SIP Call** - reduces fine particle formation by reducing emissions of NOx in the East

# Mobile Sources

- **2004 Clean Air Nonroad Diesel Rule** - set emission standards for engines; reduces sulfur in fuel
- **2007 Heavy Duty Highway Rule (the “2007 Highway Rule”)** - building a fleet that will be 95% cleaner than today’s trucks and buses
- **Tier 2 Vehicle Emission Standards and Gasoline Sulfur Program** - setting tailpipe emissions standards for all passenger vehicles; requiring reduced sulfur in gasoline
- **Motorcycle and other engine rules** – setting emissions standards for highway motorcycles and other engines
- **Locomotives and marine diesel engine rules** - to propose more stringent standards for locomotives and marine diesel engines

# EPA's Innovative Air Connections



<http://www.epa.gov/ttn/airinnovations/>

**Web page lists dozens of control measures sorted by pollutant**

- **Specific section on ozone that provides VOC and NOx control measures**

# Examples of SC Early Action Measures

- Air Quality Contact
- Gas can exchange plan
- Promote land-use planning to promote air quality
- Participate in Clean Cities
- Industry Advisory Panel
- Purchase electric instead of golf carts
- Reduce NOx, VOC emissions at International Paper
- Reduce NOx emissions from SCE&G - 2 coal fired boilers
- 40 % School Bus Retrofits
- Gas Can Exchange Events - 250 cans were distributed June 2004 & Oct. 2004
- Improvements to Park and Ride lot at Highway 378 & I-20
- Conversion of Commercial Vehicle Fleet to Propane



# Additional Examples of SC Voluntary Measures

- Facilities implementing local NOx emissions reductions
  - Duke Power Lee Steam Station
  - Transcontinental Gas Pipeline Corp
- Truck Stop electrification
- Idle Reduction Policies
- School Bus Retrofits
- Public Transit increased ridership
- Ozone Action Days
- SC SIP Maintenance for growth Plan



[http://www.epa.gov/ttn/naaqs/ozone/eac/20041231\\_eac\\_measures\\_full\\_list.pdf](http://www.epa.gov/ttn/naaqs/ozone/eac/20041231_eac_measures_full_list.pdf)

## 2008 8-Hour Ozone Standard

- <http://www.epa.gov/groundlevelozone/actions.html#mar07s>





Thank you!

Questions?

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