Revised Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS)
Overview of NAAQS Reviews

- National ambient air quality standards (NAAQS) for "criteria" pollutants
  - "Primary" standards to protect public health with an adequate margin of safety;
  - "Secondary" standards to protect public welfare and the environment

- NAAQS set for: ground-level ozone (smog), particulate matter (measured as PM$_{10}$), carbon monoxide, lead, nitrogen dioxide, sulfur dioxide

- The Act requires EPA to review these standards every five years, with advice from the Clean Air Scientific Advisory Committee (CASAC)
Different Considerations Used in Setting and Achieving NAAQS

**Setting the Standards**
- Health Effects
- Environmental Effects

**Achieving the Standards**
- Costs
- Time to attain the standards
Review Process for NAAQS

Scientific studies on health and environmental effects

Scientific peer review of published studies

EPA "Criteria Document" - extensive assessment of scientific studies

Reviews by CASAC and the public

EPA "Staff Paper" - interprets scientific data and identifies factors to consider in setting standards including staff recommendations for standards

Reviews by CASAC and the public

Public Hearings and Comment on Proposals

Final Decisions on Standards

Proposed Decisions on Standards
Ozone-Related Health Effects of Concern

- Difficulty in breathing, shortness of breath
- Aggravated/prolonged coughing and chest pain
- Increased aggravation of asthma, susceptibility to respiratory infection resulting in increased hospital admissions and emergency room visits
- Repeated exposures could result in chronic inflammation and irreversible structural changes in the lungs, that can lead to premature aging of the lungs and illness such as bronchitis and emphysema
- Growing evidence suggests association with premature death
Populations at Risk from Exposures to Ozone

- Children active outdoors at greatest risk
- Outdoor workers (e.g., construction)
- Individuals with respiratory diseases (asthma, emphysema, chronic obstructive pulmonary disease)
- Highly sensitive healthy individuals who are more responsive to ozone exposures (5 to 20% of population)
EPA's Revised Ozone Standard

- **New 8-hour Primary NAAQS:**
  - 0.08 parts per million (ppm)
  - "Concentration-based" form
  - 3-yr avg of annual 4th-highest daily maximum 8-hour concentration

- **Replaces Secondary NAAQS with the level same as 8-hour Primary NAAQS**

- **Status of 0.12 ppm, 1-hr NAAQS:**
  - Continues to apply in an area until EPA finds it has attained
  - Finding will be based on 3 consecutive years of air quality data meeting the standard
  - Retention is to ensure a smooth, legal, and practical transition
Particulate Matter-Related Health Effects of Concern

- Increased premature deaths, primarily in the elderly and those with heart or lung disease
- Aggravation of respiratory and cardiovascular illness, leading to hospitalizations and emergency room visits in individuals with heart or lung disease and children
- Lung function decrements and symptomatic effects such as those associated with chronic bronchitis, particularly in children and asthmatics
- Increased work loss days and school absences
- Changes to lung structure and natural defense mechanisms
EPA 'S Revised PM Standards

- **PM$_{2.5}$ standards:**
  - 15 ug/m$^3$, annual arithmetic mean, allows for average of multiple community oriented monitors (averaged over 3 years)
  - 65 ug/m$^3$, 24-hour average, 98th percentile concentration (averaged over 3 years), maximum population oriented monitor in an area

- **PM$_{10}$ standards:**
  - Retain annual standard of 50 ug/m$^3$
  - Retain level of 24-hour standard (150 ug/m$^3$) but revise form to 99th percentile concentration (3 year average)

- Original PM$_{10}$ standards will remain in effect until area meets certain criteria
EPA'S Proposed Regional Haze Rules

- Fine particles -- major source of visibility impairment
- Secondary standards identical to proposed primary standards, in conjunction with proposed Regional Haze Rules to address regional visibility impairment
- Natural and current regional visibility varies significantly due to humidity, natural and anthropogenic emissions

East: Natural - 150 km  Current - 23-39 km
West: Natural - 230 km  Current - 50-150 km
EPA'S Proposed Regional Haze Rules

- Propose "presumptive reasonable progress targets" for improving visibility in each Class I area.
  - 1 deciview improvement every 10 to 15 years
- Improve visibility on the most impaired days (worst 20% of the days) and prevent further degradation on the least impaired days (best 20% of the days).
- States will have the option to propose alternate progress targets for approval as well.
- Every 3 years, States review progress in each Class I area.
EPA'S Proposed Regional Haze Rules

- Implementation plans due 12 months after final rules
  - Identify BART sources located in the State
  - Focus on providing for adequate future planning with other States

- Implementation plan addressing long term strategy, integration with PM and ozone NAAQS, and control measures - 5 years after rules

- SIP assessment every 3 years to review of progress and adjust long term strategy.
EPA'S Proposed Regional Haze Rules

- Proposal published on July 31, 1997
- Public Hearing in Denver on September 18, 1997
- Public Comment Period closes October 20, 1997
- Final rules to be issued in February 1998
Implementation Plan for Revised PM and Ozone Standards

- Memorandum from President Clinton to Administrator Browner - July 16, 1997

- Implementation of the standards should:
  - Maximize common sense, flexibility, and cost effectiveness
  - Ensure continued progress toward cleaner air
  - Reward States that take early actions
  - Address regional air pollution
  - Complete 5-year scientific review of PM standards prior to designations of nonattainment under the PM2.5 standards
  - Minimize paperwork burden
Implementation Plan for Ozone Standard

- 1-hour, 0.12 ppm ozone standard
  - Stays in effect until an area shows it attains the standard with 3-years of air quality data
  - All provisions of Clean Air Act (Subpart 2 of Part D) remain in effect until attainment

- "Transitional" Classification
  - Available to areas which meet the 1-hour standard but do not meet the 8-hour standards
  - Will require only minor revisions to existing NSR and transportation planning programs
  - EPA regional modeling can be "attainment demonstration" for many areas in OTAG region
Requirements for "Transitional" Classification

- Areas that attain 8-hour standard through implementation of regional NOx strategy in East
  - State submits implementation plan by 2000 including control measures for the emission reductions required by EPA's rule
  - No local modeling likely to be needed

- Areas that do not attain 8-hour standard through implementation of regional NOx strategy in East
  - State submits implementation plan by 2000 including control measures for the emission reductions required by EPA's rule and additional reductions necessary to achieve 8-hour standard
  - Attainment demonstration needed.
Implementation Timeline for Ozone Standard

- **1997** | EPA issues Final Ozone NAAQS
- **2000** | EPA designates areas
- **2003** | States submit implementation plans for meeting the 8-hour standard. For areas which haven't met the current 1-hour standard, ongoing efforts are sufficient through the current attainment dates.
- **2010 - 2012** | States have up to 10 years to meet standards plus two 1-year extensions.
Implementation Timeline for Ozone Standard for Areas Classified "Transitional"

- 1997: EPA issues Final Ozone NAAQS
- 2000: States submit implementation plans to address transported air pollution
  
  EPA classifies areas as "transitional." All new nonattainment areas are eligible to be "transitional."
- 2004: States achieve reductions from regional sources
- 2007: States assess effectiveness of regional reductions
- 2012: States have up to 10 years to meet standards plus two 1-year extensions
Implementation of PM$_{10}$ Standards

- Nonattainment areas that meet previous PM$_{10}$ standard
  - Standard will be revoked when EPA approves SIP that includes all adopted and implemented PM$_{10}$ measures and a section 110 SIP for the revised PM$_{10}$ standard

- Nonattainment areas that do not meet previous PM$_{10}$ standard
  - EPA promulgates rule under section 172(e) providing for "controls which are not less stringent than the controls applicable to areas designated nonattainment before such relaxation"
  - Standard revoked for these areas when the rule is issued.
Implementation Timeline for PM 2.5 Standard

- **1997**: EPA issues Final PM 2.5 NAAQS
- **1997**: EPA designates areas as "unclassifiable"
- **1999**: Monitors put in place nationwide
- **1998 - 2000**: Collect monitoring data
- **1998 - 2003**: EPA completes 5-year scientific review of standards
- **2002**: EPA designates nonattainment areas
- **2002 - 2005**: States submit implementation plans for meeting the standard
- **2005 - 2008**: States have up to 10 years to meet standards plus two 1-year extensions
- **2012 - 2017**
Cost-Effectiveness of Controls

- EPA will recommend States keep cost-effectiveness of control measures under $10,000/ton
- States should use market-based approaches and concepts such as Clean Air Trusts to reduce costs
- Clean Air Trust Concept
  - Sources facing costs of control greater than $10,000/ton could pay that amount annually into a fund
  - State could manage fund to purchase cheaper reductions from small sources or thru other measures