Regional Haze SIP Development Overview

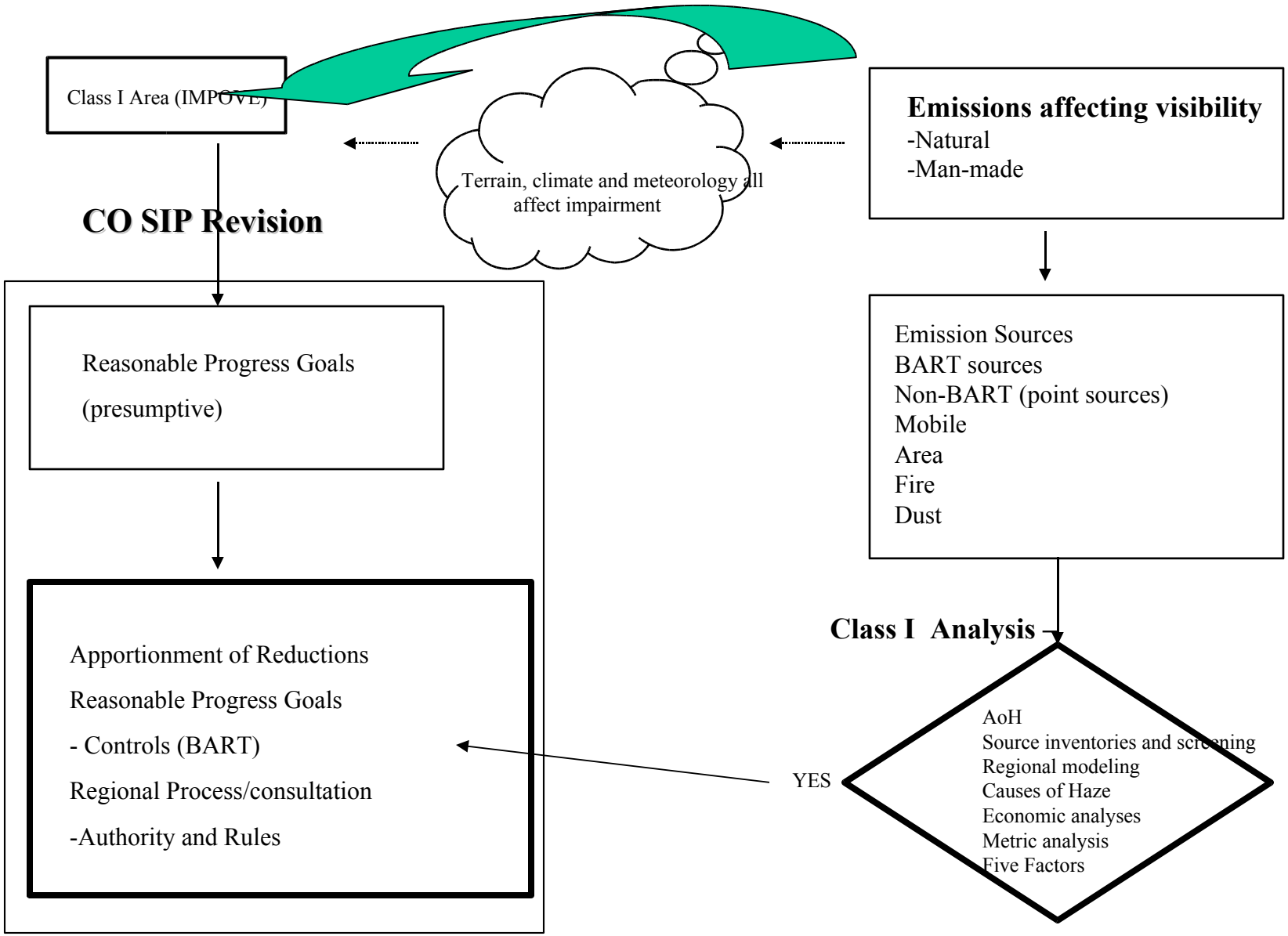
AQCC Presentation

July 2005

Discussion Topics

- RH SIP overview and current status
- Class I Area Analyses Appraoch -- Weminuche Test Case –using IMPROVE and WRAP attribution techniques
- RH SIP timetable and future activities

State Visibility SIPs will be Based on a Class I Area-specific Approach



Regional Haze Rule—Summary of Requirements

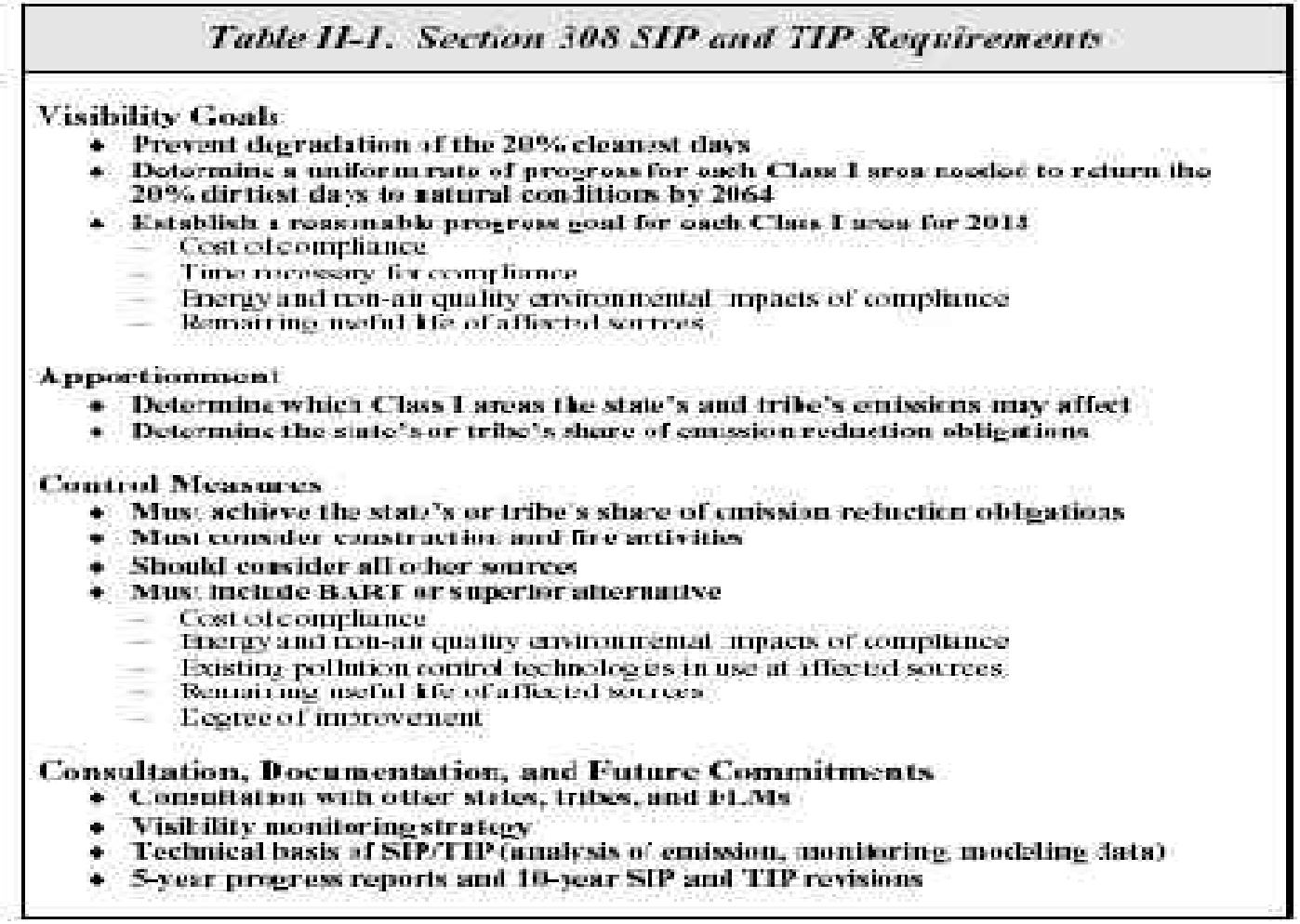


Table II-1. Section 308 SIP and TIP Requirements

Visibility Goals
- Prevent degradation of the 20% cleanest days
- Determine a uniform rate of progress for each Class I area needed to return the 20% dirtiest days to natural conditions by 2064
- Establish a reasonable progress goal for each Class I area for 2018
  - Cost of compliance
  - Time necessary for compliance
  - Energy and non-air quality environmental impacts of compliance
  - Remaining useful life of affected sources

Apportionment
- Determine which Class I areas the state's and tribe's emissions may affect
- Determine the state's or tribe's share of emission reduction obligations

Control Measures
- Must achieve the state's or tribe's share of emission reduction obligations
- Must consider construction and fire activities
- Should consider all other sources
- Must include BART or superior alternative
  - Cost of compliance
  - Energy and non-air quality environmental impacts of compliance
  - Existing pollution control technologies in use at affected sources
  - Remaining useful life of affected sources
  - Degree of improvement

Consultation, Documentation, and Future Commitments
- Consultation with other states, tribes, and FLMs
- Visibility monitoring strategy
- Technical basis of SIP/TIP (analysis of emission, monitoring, modeling data)
- 5-year progress reports and 10-year SIP and TIP revisions

…from WRAP Strategic Plan…

Colorado RH 308 SIP Outline

1. Introduction and Background

2. Plan Development Process
This sections describes the processes of plan development and FLM consultation

3) Clean Air Act Section 110 Requirements
This section addresses all requirements of Section 110 of Clean Air ACT

4) Current Visibility Protection
This section describes the state's current Visibility SIP

5) *Visibility Conditions (1999-2004 IMPROVE data - available summer, 2005)*

6) *Sources/Source Regions of Regional Haze - Attribution of Haze report)*

7) Long Term Strategies to achieve the Reasonable Progress Goal
This sections describes

8) Reasonable Progress Demonstration (demonstration against glidepath)

9) Impacts on Class I areas outside of <state/tribal lands>

10) Future Commitments

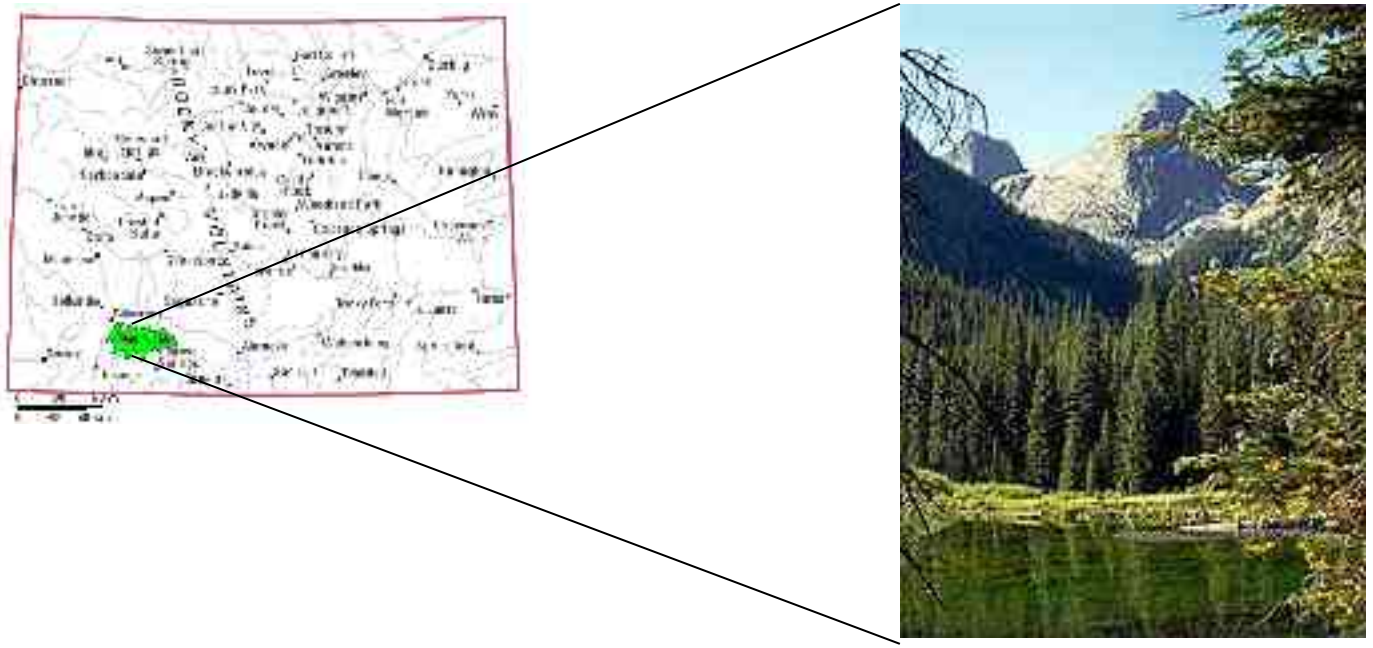
- **Appendices**
- **Definitions**
- **Technical Support Documentation**

AreaAnalyses --Utilize a Hierarchical Technical Approach

- Utilize IMPROVE data as starting point
- Utilize emissions and meteorological data
- Use TSSA and Back Trajectory projections results from Attribution of Haze report
- Integrate other data and assessment techniques where appropriate to understand state-by-state contributions to each Class I area in Colorado

Develop One Class I Area Test Case Area to Apply Analysis Process

Weminuche Wilderness Area



Note: Full technical report is on APCD web site:http://www.cdphe.state.co.us/ap/regionalhaze.html

Analysis Topics

- Visibility Conditions
- Haze impacting particles
- Emission Source Characterization
  - Regional Emission Maps
  - Back Trajectory Maps
  - Tagged Species Source Apportionment (TSSA) modeling

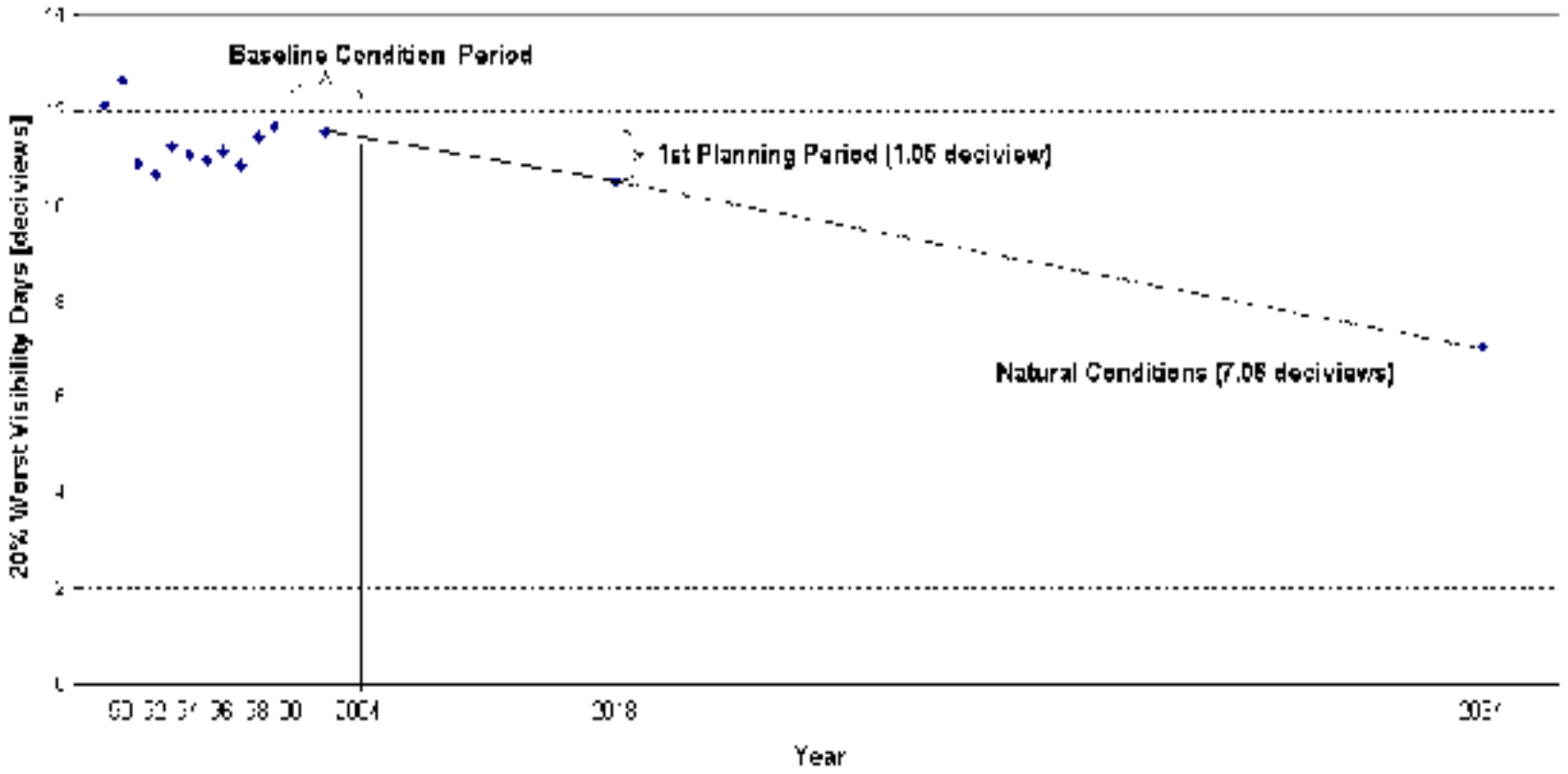
Visibility Conditions

- WinHaze split image photo (for all years)
- Weminuche Wilderness - Presumptive Glide Path

Weminuche WinHaze photo (20% best and 20% worst 2000-3)

Weminuche Wilderness

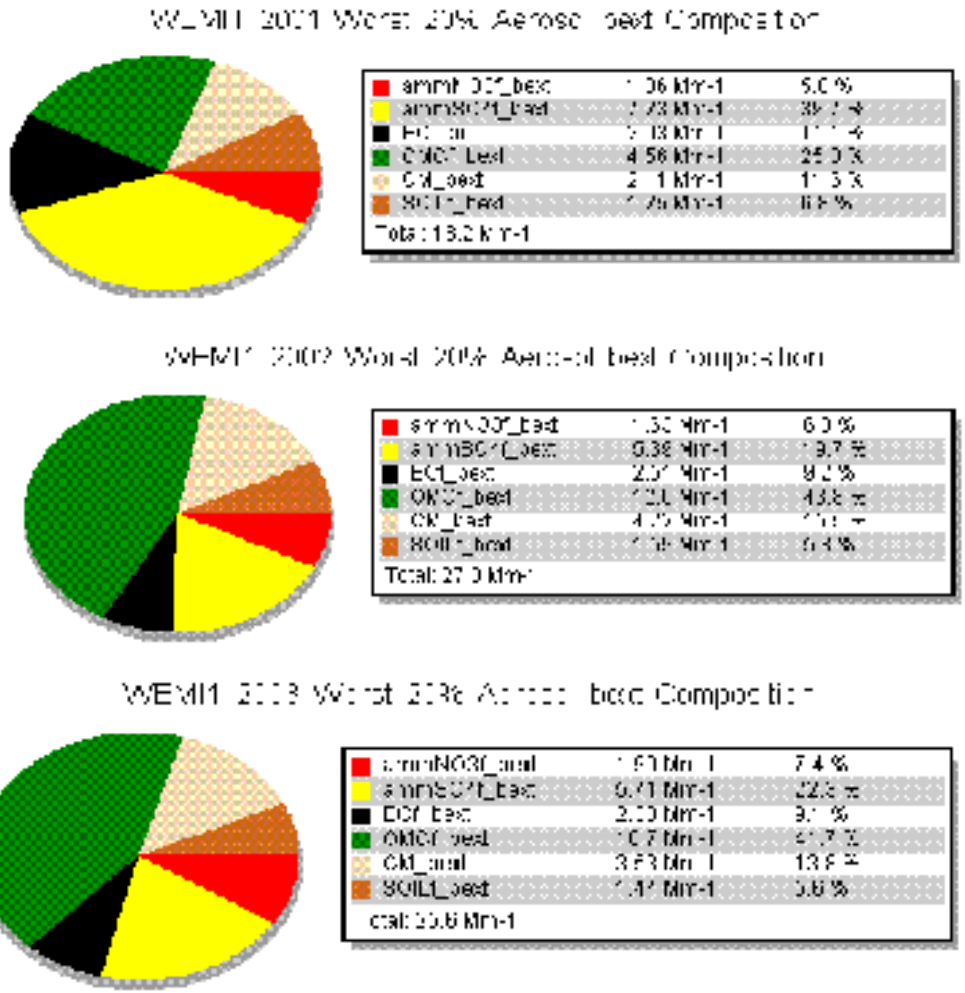
Uniform Rate of Progress



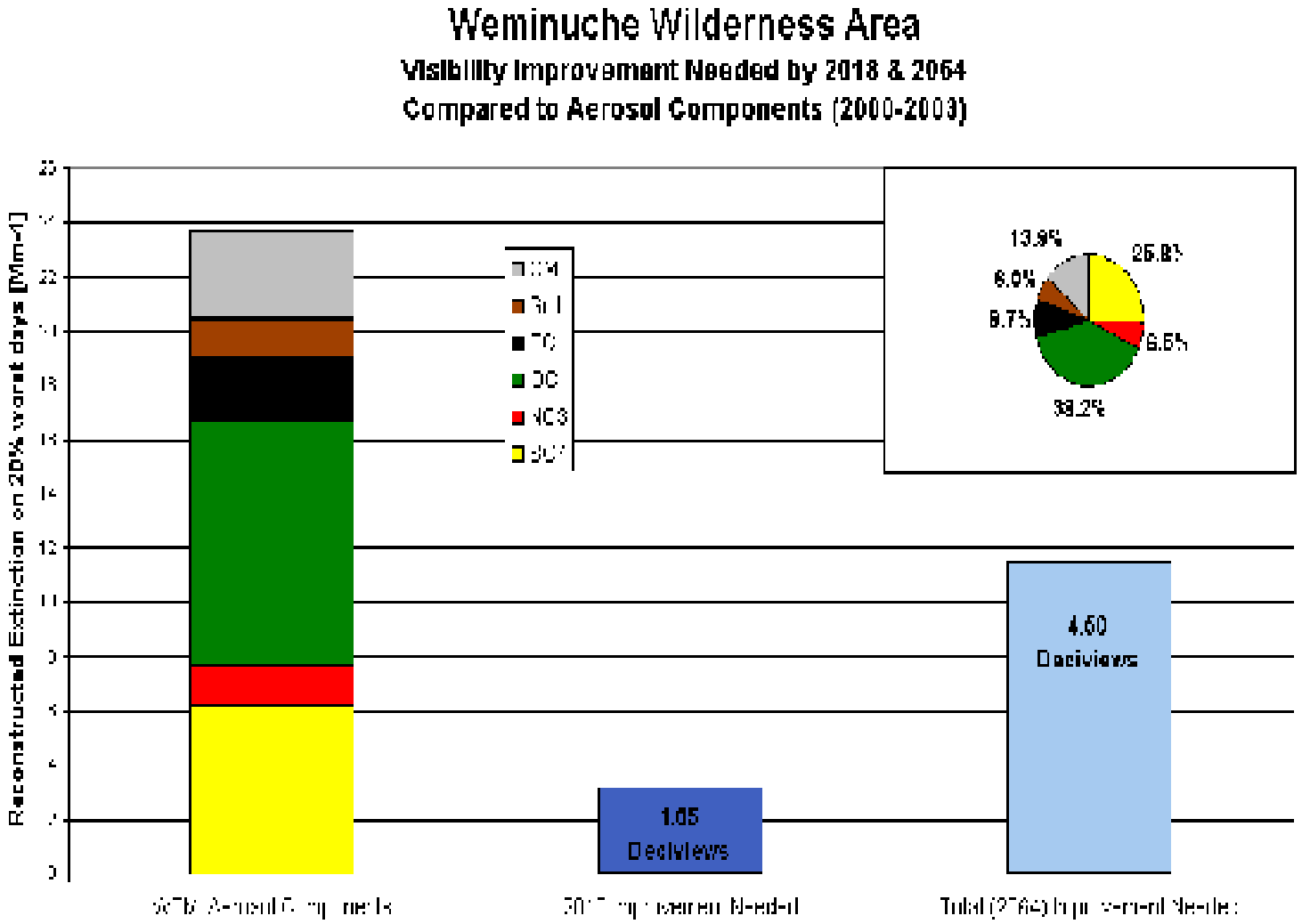
Haze Impacting Particles

- Aerosol Composition
  - Weminuche Wilderness - 20% Worst Day Annual Aerosol Composition (2000-03)
  - Weminuche Wilderness - Average Contributions Compared to Improvement Needed

Weminuche – Reconstructed Extinction

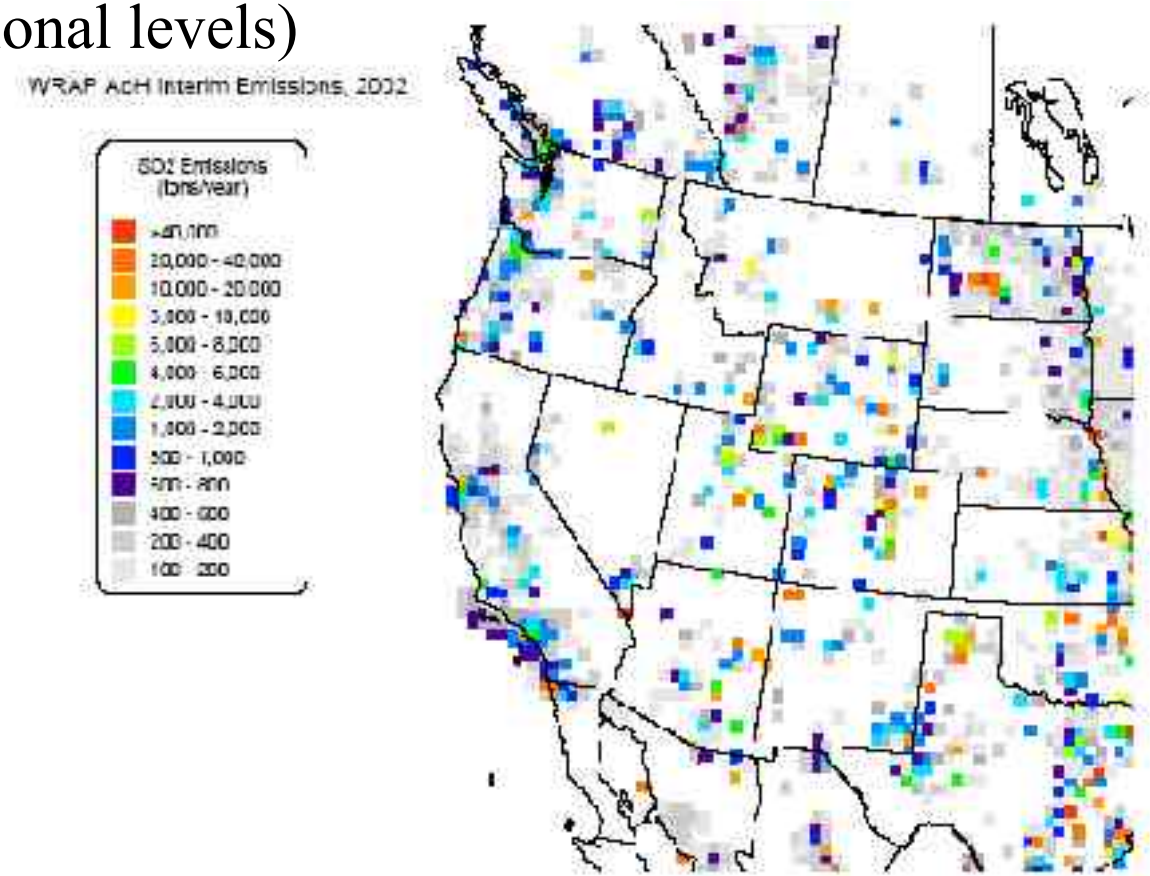


Weminuche – Reasonable Progress Goal Improvement Needed



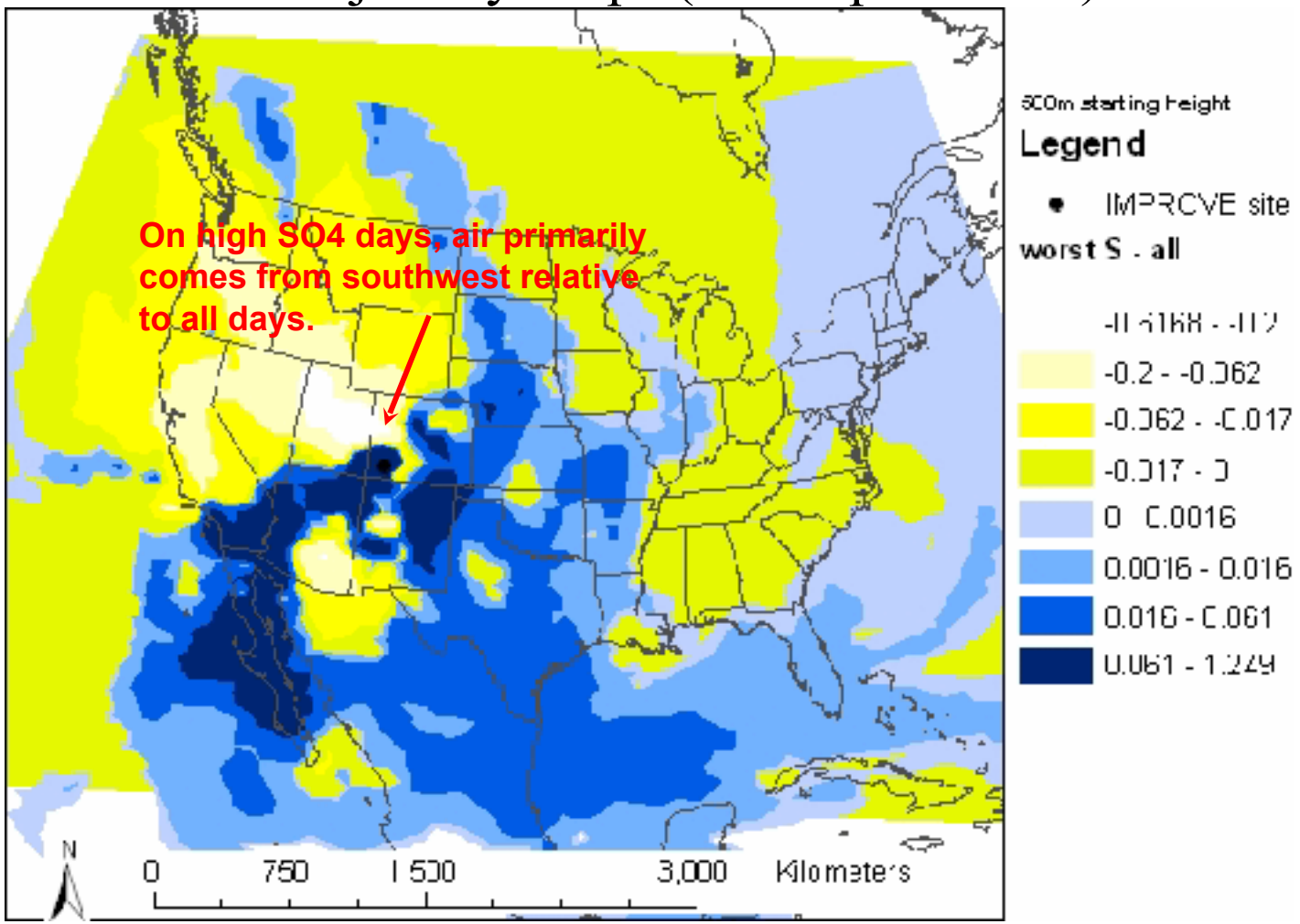
Emission Source Characterization

Emission Maps (for all pollutants at state and regional levels)

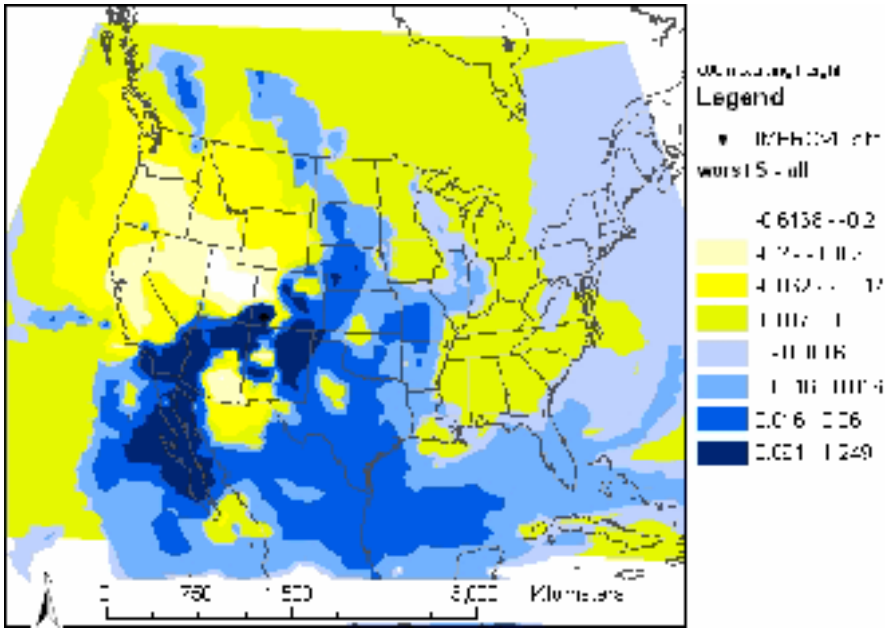


Emission Source Characterization

Assessment of Back Trajectory Maps (for all pollutants)



Side-by-Side Comparison of Emissions and Atmospheric Residence Time (for all pollutants)

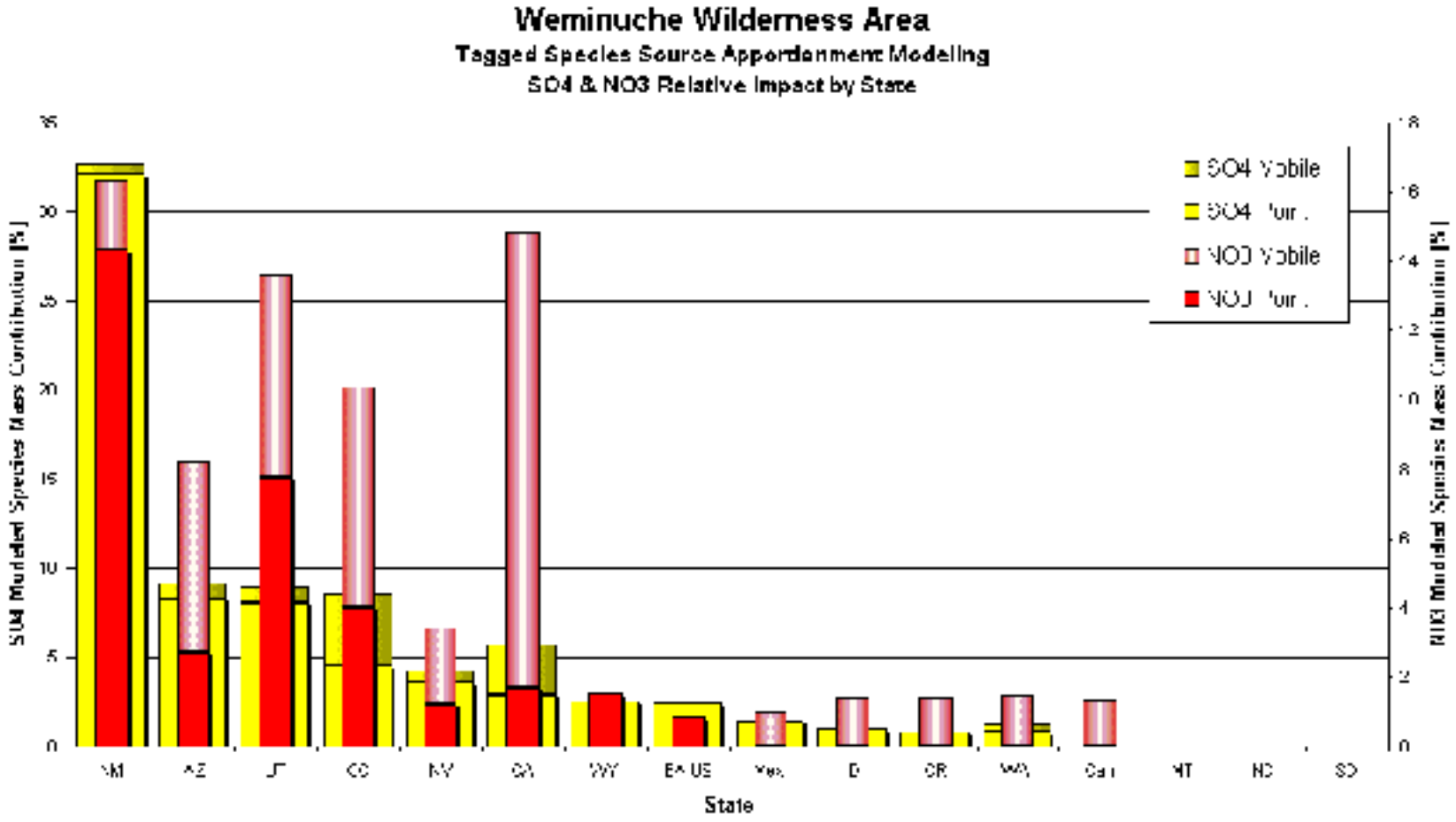


Note: Dark blue indicates the greatest residence time.

Tagged Species Source Apportionment Method

- **- The TSSA analysis is used to attribute particulate sulfate and nitrate from a specific area.**
- **- The TSSA algorithm applies nitrate-sulfate-ammonia chemistry to a system "tagged species" to track the chemical transformations, transport and removal of emissions.**
- **- Point and Mobile emissions account for approximately 80% of the WRAP NOx and SO2 emissions.**
- **- The remaining emissions (about 20%) are lumped into a category called "Other" that represents all sources not explicitly defined (e.g., Area, Fire, Biogenic, etc.).**
- **- For the 12 Class I Areas in Colorado, the "Other" category contribution ranges are approximately 10 – 27%.**

Tagged Species Source Apportionment (TSSA) by States (Sulfates and Nitrates)



Future Topics for SIP Development

- Attribution approach for organic/elemental carbon
- Completion of other eleven Class I Areas analyses for Colorado
- Effectiveness of Current Strategies for 2018 September, 2005
  - "On the books" and "On the way"
- Effectiveness of Additional Measures (if needed) December 2005
  - Development of Reasonable Progress Factors and Weight of Evidence protocols
  - 2018 Measures slated for evaluation include: CAIR, BART, Market Programs, Additional California Programs

Future Topics for SIP Development – (cont.)

- Request for Public Hearing on Colorado BART Review Process in August, 2005
- Next Commission briefing in October or November