

# **Denver PM10 SIP Maintenance Plan Revision**



**Barbara MacRae**

**Air Pollution Control Division**

**Technical Service Program**

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## **Denver PM10 SIP Revision**

- **Revise SIP with Mobile6.2 (PM10, NO<sub>x</sub>, SO<sub>2</sub>)**
- **Revise Base year to 2001**
  - **more accurately reflect current day emissions scenario**
- **EPA suggested reviewing basis for secondary PM10 estimates**
  - **Use speciated PM2.5 data collected in the Denver metro area**
- **Remove I/M240 program**
  - **provides only a small NO<sub>x</sub> benefit**



# PM10 Emission Inventory Modeling

- **Analysis years**
  - 2001 Base Year
  - 2009
    - I/M 240 benefit phase-out (assume 12/31/07 termination)
  - 2010
    - no mobile source related controls
  - 2015, 2020, 2025, 2030 future years
  - 2022 Maintenance Year
- **Combustion related PM10 components**
  - modeled using the same methodologies as for CO
  - Mobile6.2 and EPA Nonroad model



# PM10 Emission Inventory Modeling

## ■ Geological PM10

- **Mobile Source: re-entrained & sanding**
  - Use 2001 current practice for control level
  - Assume SIP controls for future years
    - 30% region-wide (20% in foothills)
    - 50% in central Denver
    - 54% I-25 between University and 6<sup>th</sup> Ave
    - 72% CBD (Colfax Ave, Broadway, 20<sup>th</sup> St., Wynkoop and Speer Blvd.)
- **Construction – NEI**



## **PM10 Maintenance Demonstration**

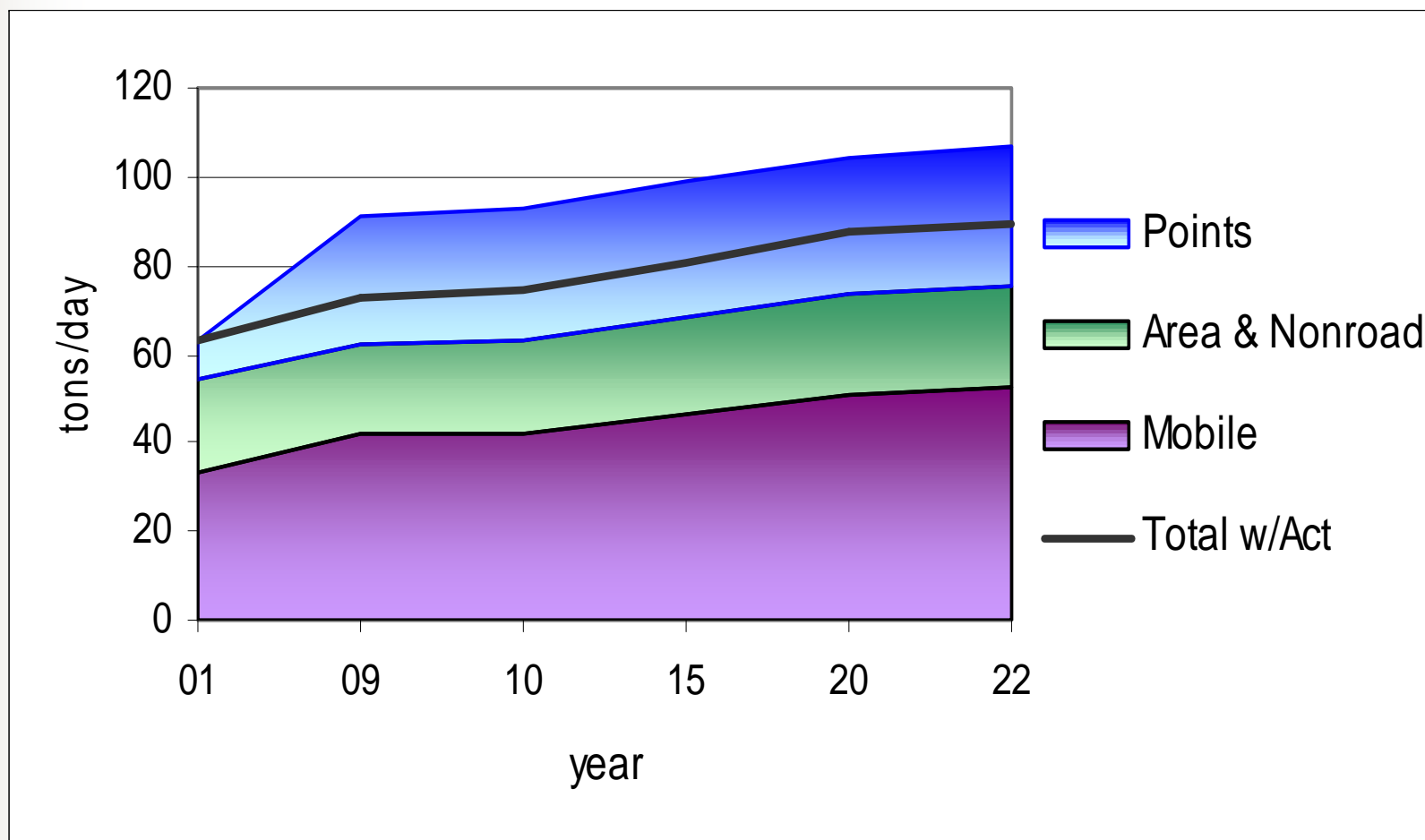
- **Four components**
  - **RAM modeling – ground level primary PM10**
  - **Estimate of secondary PM10 – NO<sub>x</sub> and SO<sub>2</sub>**
  - **Major point source contribution**
  - **Background concentrations (function of month)**
- **Sum of the four components represents an estimate of the maximum PM10 expected in the Denver metro area**



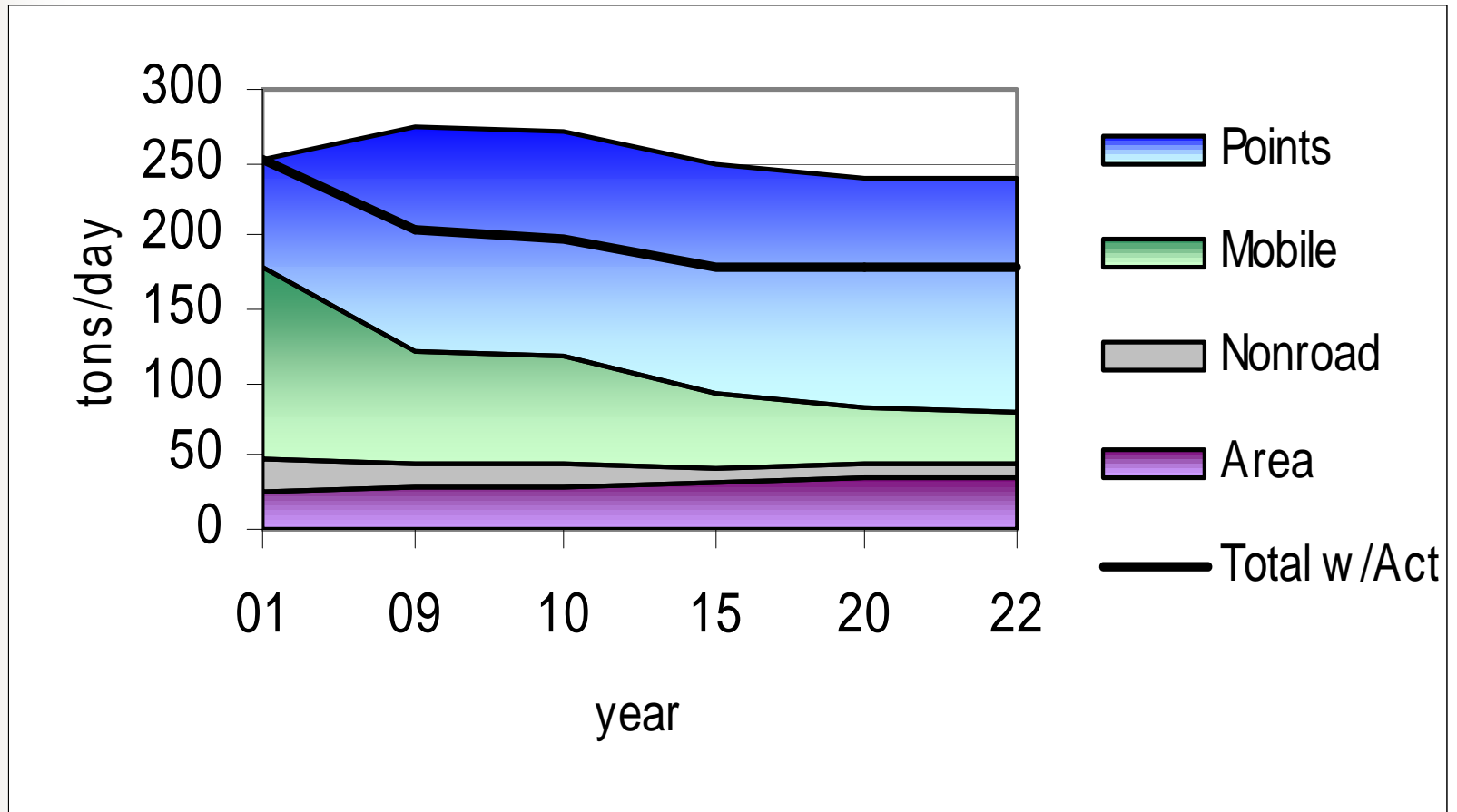
## **PM10 Maintenance Demonstration**

- **RAM dispersion modeling**
  - 1985-1989 meteorological data
  - Sixth-highest concentration will represent contribution to total PM10
- **Estimate of secondary PM10 – NO<sub>x</sub> and SO<sub>2</sub>**
  - 1986-1994 PM10 samples are basis of current secondary estimate
  - 1999 – March 2005 PM2.5 monitoring
    - PM2.5 samples collected at Welby
    - wintertime speciated samples
    - 26.9 micrograms/m<sup>3</sup>, highest monitored value
- **Major point sources – modeled with ISCST3**

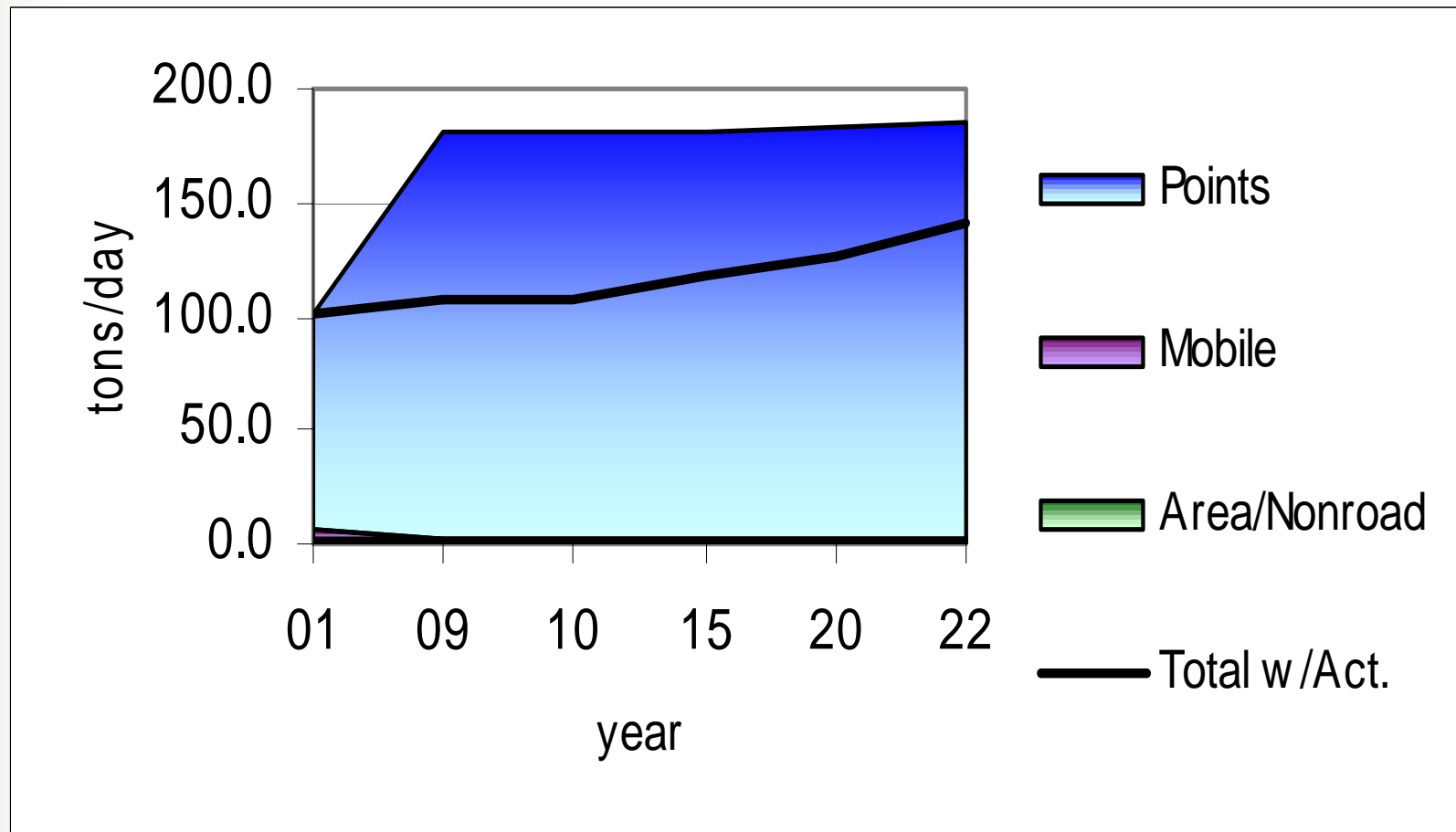
## Denver Primary PM10 Emissions Trend



## Denver Nitrogen Oxides Emissions Trend

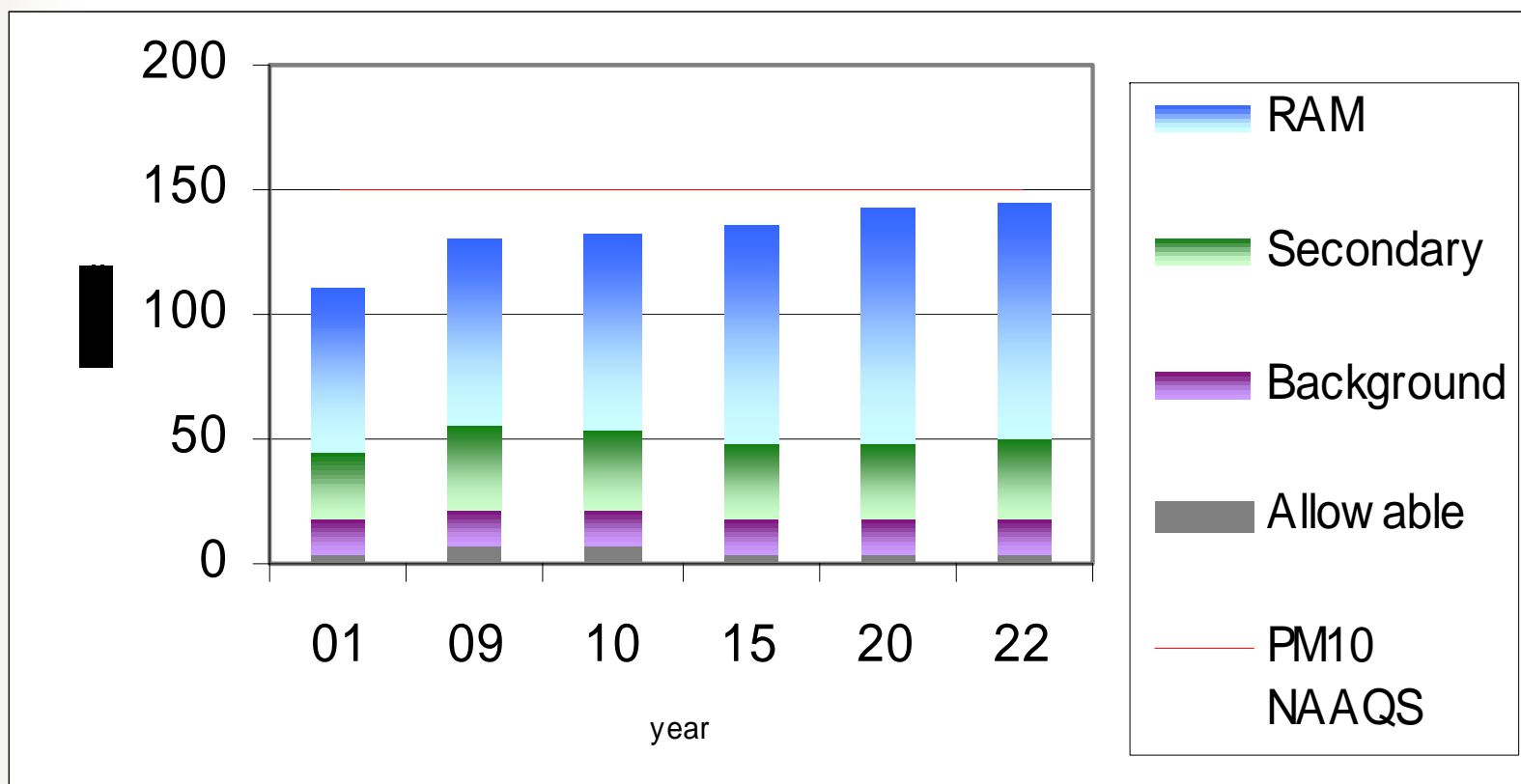


## Denver Sulfur Dioxide Emissions Trend



# Denver PM10 Maintenance Demonstration

2022 max=145.2 micrograms per cubic meter (< 150)



(major point source allowables from ISCST3 modeling)

# Denver PM10 Modeling Analysis

Major point source estimated actuals and current practice sand/sweep controls  
2022 max=131.9

