

Emission Inventory Development

*Ozone Attainment Demonstration Plan
Workshop*

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What is an Emissions Inventory?

- **Listing of sources of air pollution and corresponding quantities of air pollutants emitted per unit time**



Types and Uses of Inventories

■ Planning

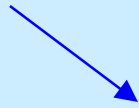
- Baseline
- Projected
- Seasonal

■ Modeling

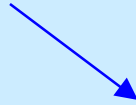
- Gridded
- Episode-specific



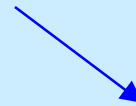
Planning Inventory



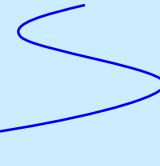
**1. Temporal
allocation**



**2. Spatial
allocation**



**3. Chemical
speciation**



**Inventory ready for
input to model**



Sources

- **Stationary**
- **Area-Wide**
- **Mobile**
- **Non-Anthropogenic**



Who Prepares Inventories?

■ Local Districts

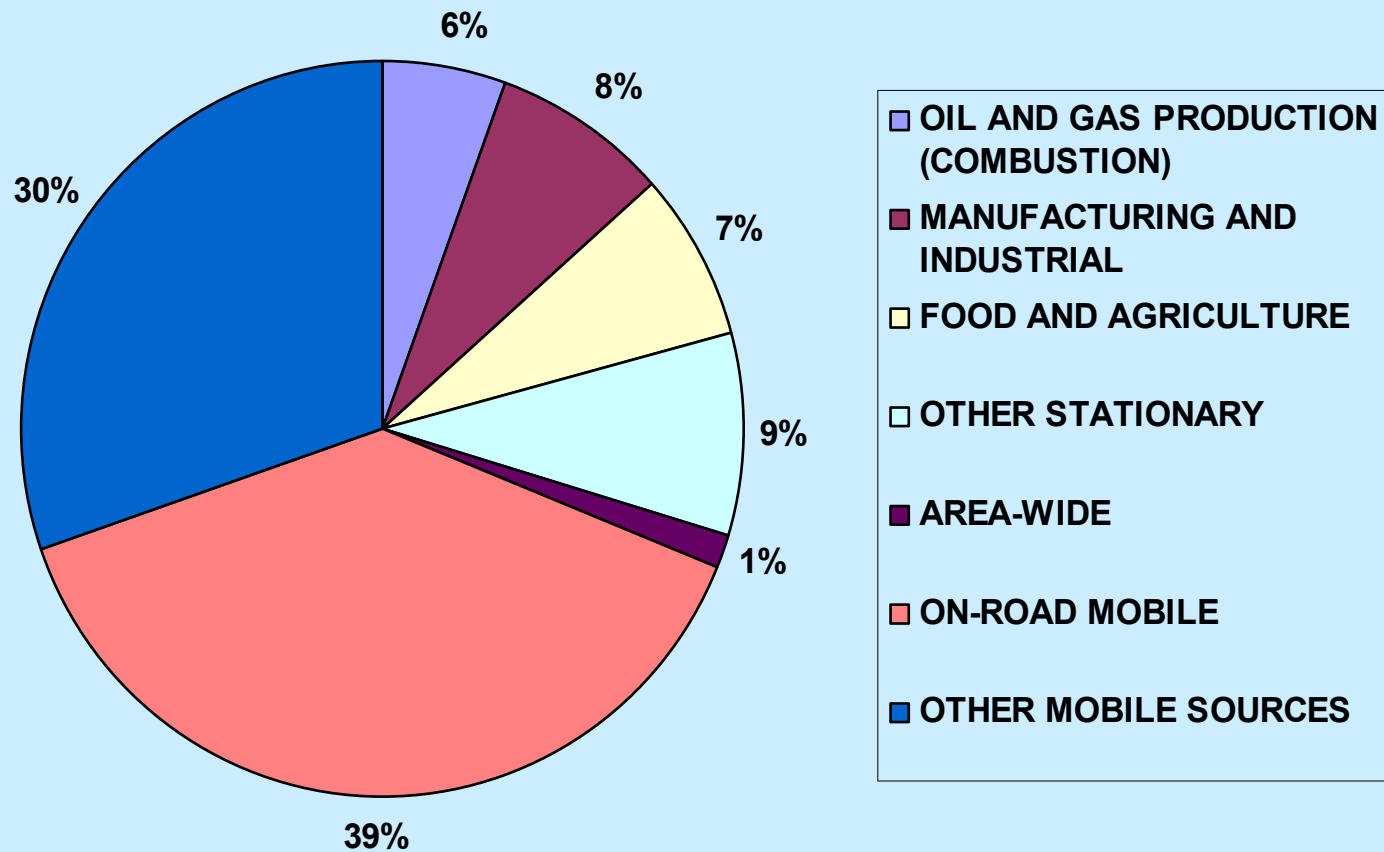
- Develop Local Point Source Inventory
- Estimate Emissions for ~1/3 of Area Source Categories

■ ARB

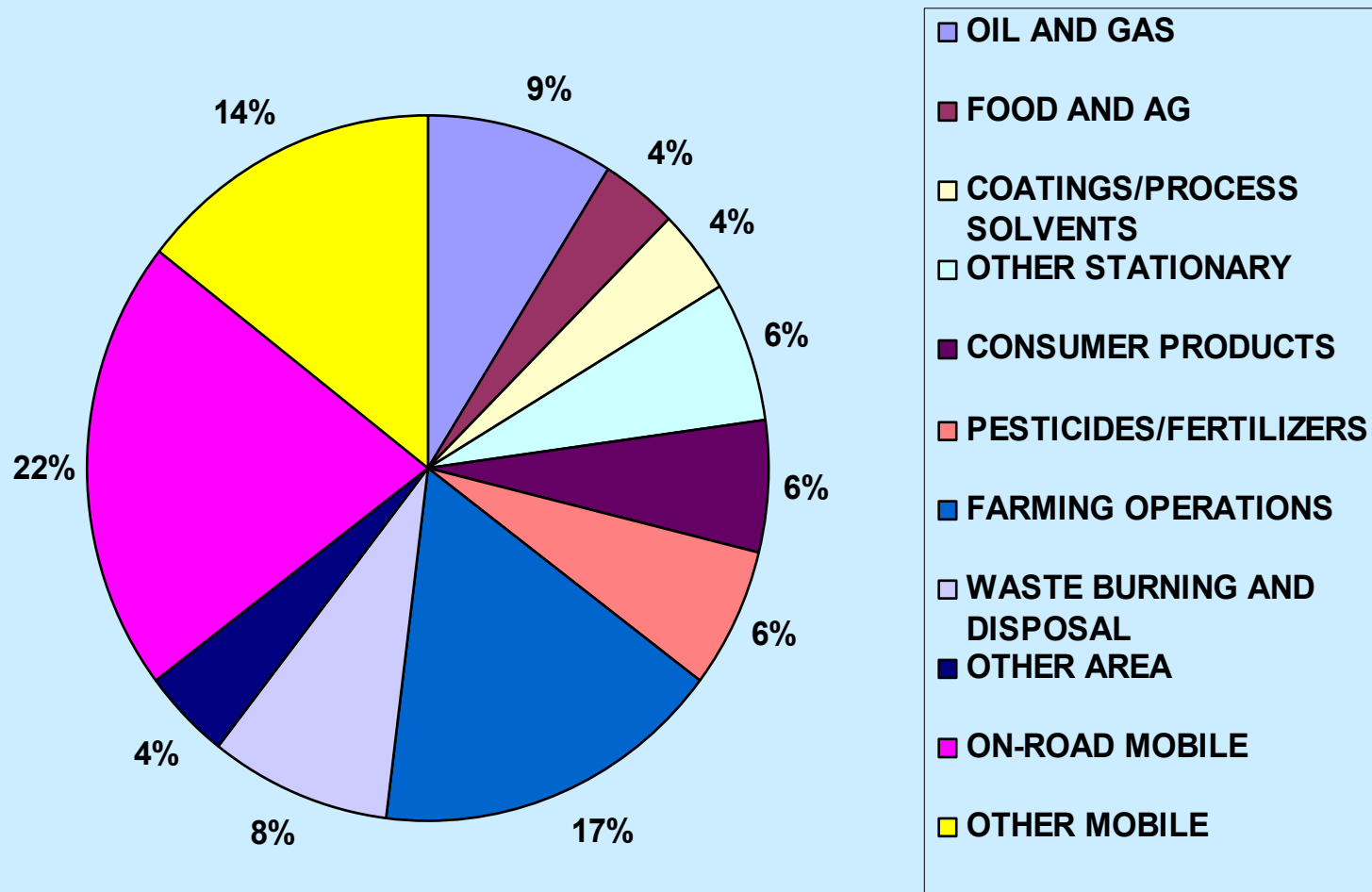
- Estimate Mobile & Non-Anthropogenic Source Emissions
- Estimate Emissions for ~2/3 of Area Source Categories
- Develop and Report Statewide Inventory



2005 Estimated Summer Average Emissions of Oxides of Nitrogen



2005 Estimated Summer Average Emissions of VOC



Preparing for the Ozone Plan

- Updates to the VOC and NOx emission inventories began in 1998
- Inventory continues to be updated and changed as better data become available
- Inventory reflects only regulations and controls currently in place
- These updates cover all sections of the emission inventory



Updates include:

- **Agricultural irrigation pumps**
- **Oil and gas production**
- **Oil refining**
- **Agricultural burning**
- **Livestock emissions**
- **Train inventory and associated projections**
- **Non-agricultural stationary IC engine emissions**



CCOS v2.11 Updates (VOC)

Decreases

Farming Operations: 10 tpd

Pesticides/Fertilizers: 5 tpd

On-Road Mobile: 4 tpd

Increases

Food and Ag Processing: 0.6 tpd

Off-Road Equipment: 8 tpd

Trains: 0.4 tpd



CCOS v2.11 Updates (NOx)

Decreases

Fuel Combustion: 8 tpd

Food and Ag Processing: 5 tpd

On-Road Mobile: 1 tpd

Increases

Trains: 12 tpd

Off-Road Equipment: 0.3 tpd



Area Source Updates in Progress

- **Portable Engines**
- **Wine Fermentation**
- **Water Heaters and Boilers**
- **Biosolids Management**
- **Imported Livestock Waste**
- **Soil Remediation**
- **Foam Product Manufacturing**
- **Civilian Aircraft**
- **Aircraft Refueling**
- **Oil and Gas Production Sumps**



Stationary Point Sources

Updated all point sources above 10 tons per year

- **Verified location of emission points**
- **Monthly, weekly, and daily breakdown of emissions**
- **Stack diameter, velocity, and temperature**



On-Road Mobile

- Sources include exhaust, running and resting losses from on-road vehicles
- ARB using updated models and activity estimates

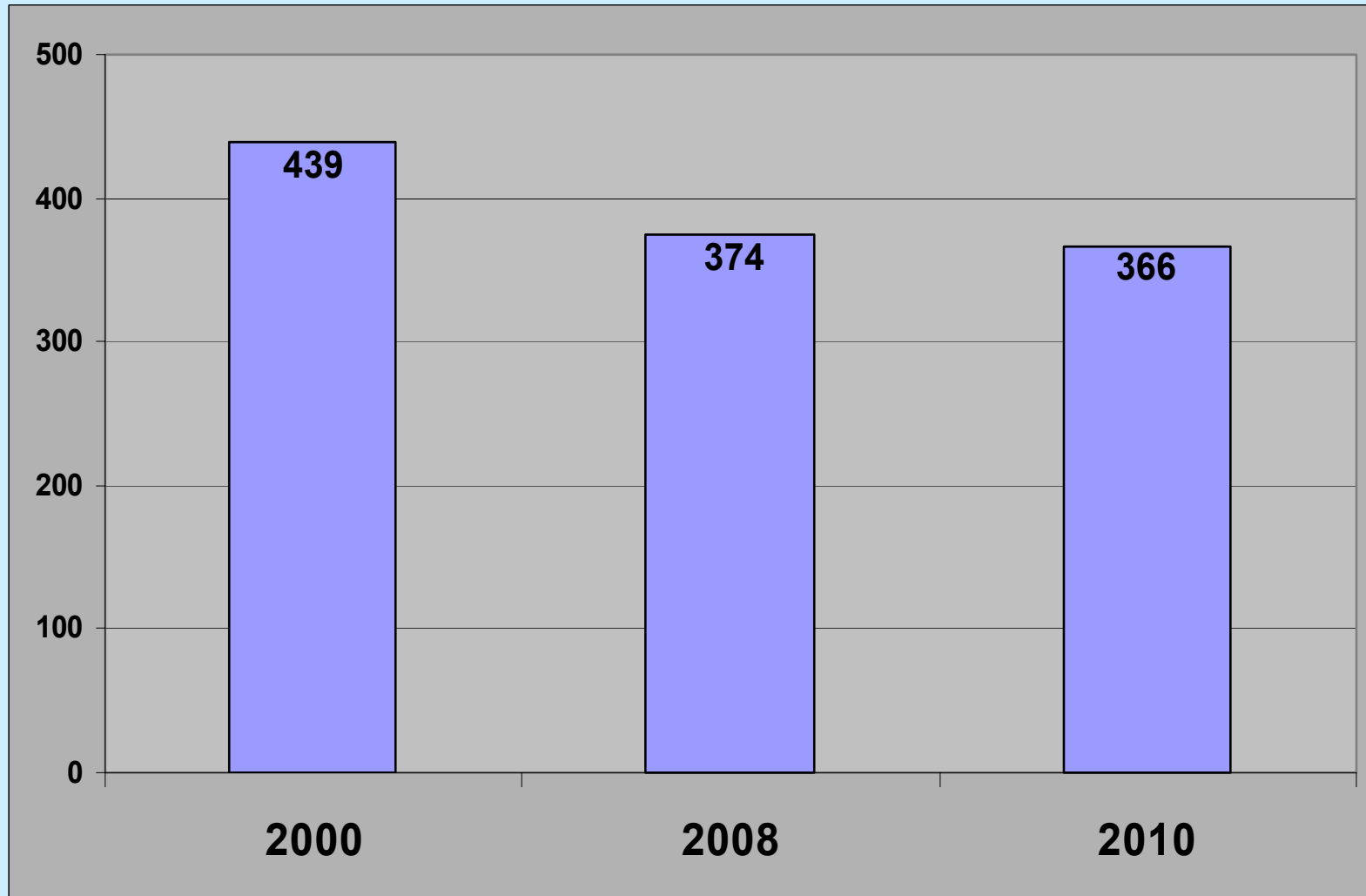


SJVAB Inventory Status

- Planning inventories are available from ARB for 1990, 2002, 2005, 2008 and 2010 for inclusion in plan
- Modeling inventories are being developed for July-August 2000 and September 2000 episodes
- At some point inventory is “locked” and plan proceeds with this inventory
- Inventories can be viewed online at <http://www.arb.ca.gov/app/emsinv/ccos/index.php>



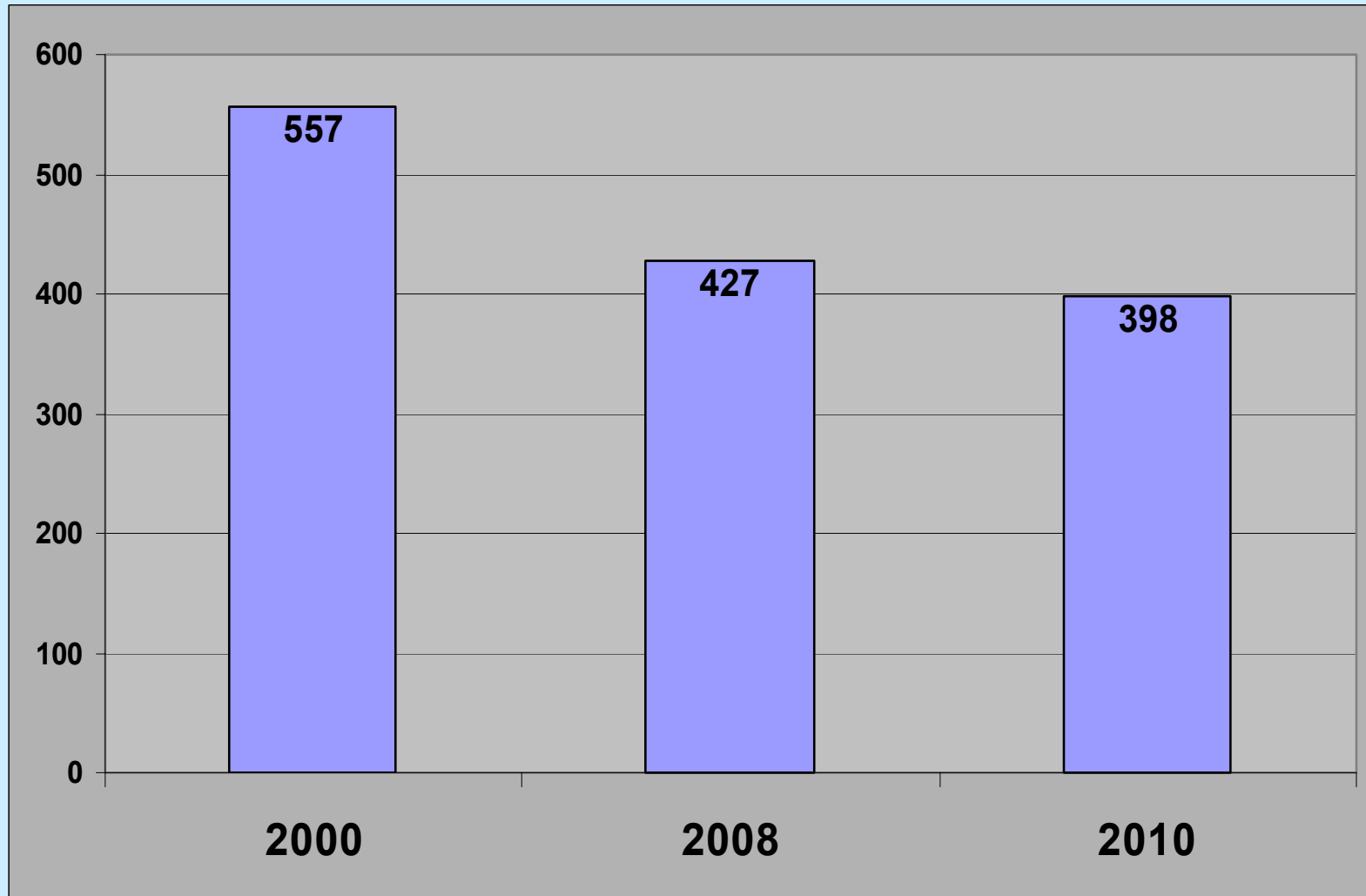
VOC Inventory 2000-2010



CCOS v2.11 Summer Seasonal Inventory



NOx Inventory 2000-2010



CCOS v2.11 Summer Seasonal Inventory



Summary

- **Emission inventories are being prepared for planning and modeling**
- **Inventories are continually updated**
- **Updates show changes in inventories**
 - **Overall decrease in base year emissions over previous inventories**
- **<http://www.valleyair.org>**
- **<http://www.arb.ca.gov/app/emsinv/ccos/index.php>**

