

California Transportation Commission: Workshop on Air Quality Conformity

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Overview



- ◆ Air Quality Overview
- ◆ What is Transportation Conformity?
- ◆ California Nonattainment Areas
- ◆ Why it Matters
- ◆ Who is in Charge?

Air Quality - Overview

- ◆ The Clean Air Act (CAA) sets forth provisions for the attainment and maintenance of...

...*National Ambient Air Quality Standards (NAAQS)*

- NAAQS are set for “criteria” pollutants - those that adversely affect *human health and safety*
- NAAQS are set at levels to ensure adequate *protection of the public*

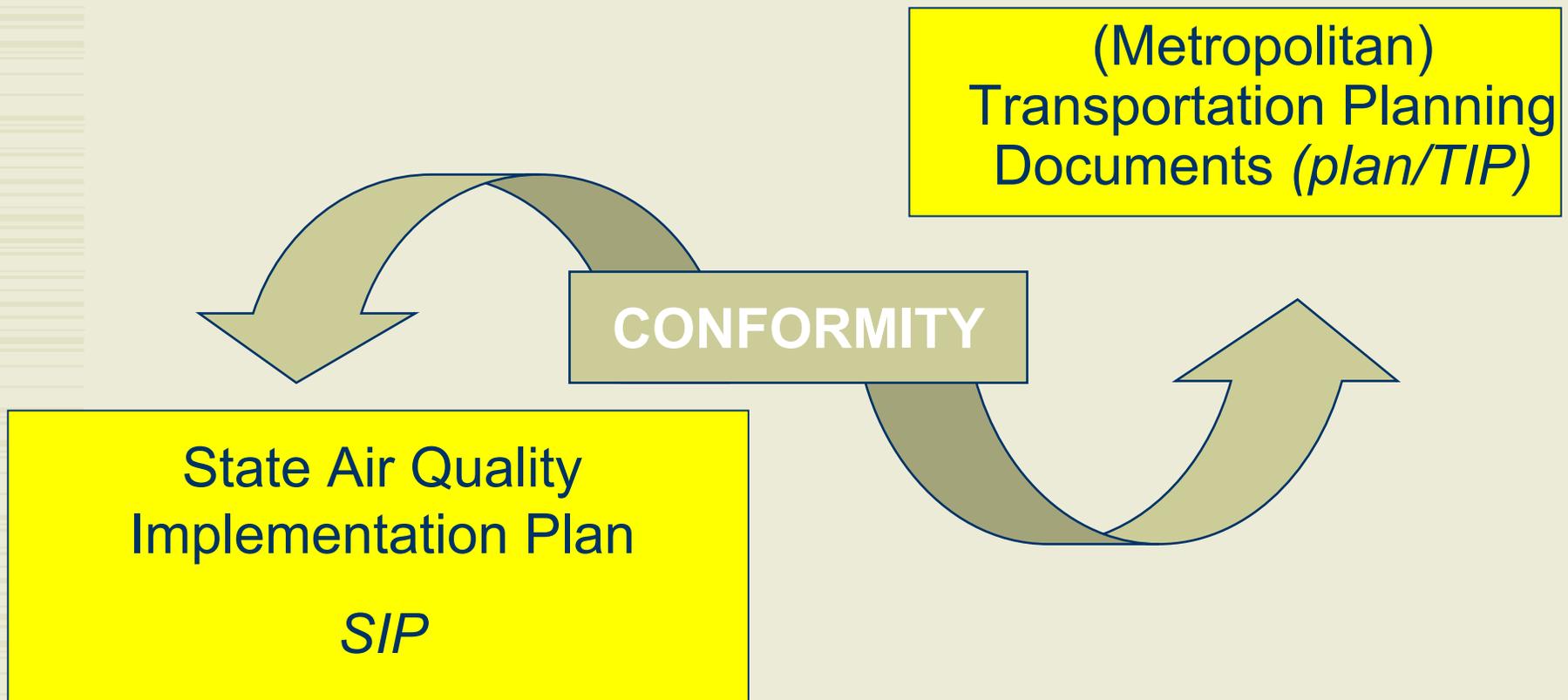
NAAQS and Attainment

- ◆ When an area violates a NAAQS standard it is designated as a “Nonattainment Area”
 - Attainment / Nonattainment designations are made individually for each NAAQS pollutant
 - Once designated, plans must be created to bring the area back into attainment
 - Once in attainment, must show 20 years of maintenance of the NAAQS

NAAQS

- ◆ NAAQS for the following pollutants:
 - Ozone (O₃)
 - Sulfur Dioxide (SO₂)
 - Nitrogen Dioxide (NO₂)
 - Carbon Monoxide (CO)
 - Lead (PB)
 - Particulate Matter (PM)
 - PM-10
 - PM-2.5

Transportation Conformity: A Link Between Air Quality and Transportation Planning



Link between Air Quality and Transportation Planning

- ◆ 1990 CAA amendments added specificity to the relationship between air quality planning and transportation planning
- ◆ ***How:*** By tying federal funding to conformity requirement
- ◆ ***Reason:*** Controlling mobile sources is critically important to meeting the NAAQS
- ◆ Transportation conformity is intended to help the State Implementation Plan (SIP) achieve its goal which is to attain the NAAQS

Applicability of Conformity Requirements

- ◆ Conformity applies to:
 - Long Range Metropolitan plans – (at least 20 years)
 - TIPs
 - Projects
- ◆ No conformity requirement on a statewide plan or STIP
- ◆ Applies in geographic areas where transportation-related pollutants:
 - Violate national air quality standards
 - Have violated national air quality standards in the past (i.e., conformity requirement applies to maintenance areas)

Conformity Overview

- ◆ Transportation conformity is a *process* whereby...
Transportation planning agencies demonstrate that plans, TIPs, and projects are consistent with the transportation-related elements of a state's approved air quality plan (SIP)
 - Demonstrated by MPO and signed-off by U.S.DOT
 - Ensures that Federal funding and approval are given to activities that are consistent with air quality goals

Who is responsible for conformity?

- Metropolitan Planning Organizations (MPOs)
 - Air Districts (15 Air Basins) (58 counties)
 - Caltrans
 - CARB
 - US DOT (FTA/FHWA)
 - US EPA
- ◆ U.S. DOT has final word
 - ◆ **CTC does not have a formal role in the process, BUT conformity can have a significant impact on CTC discretion and investment priorities.**

Ozone and Particulate Matter

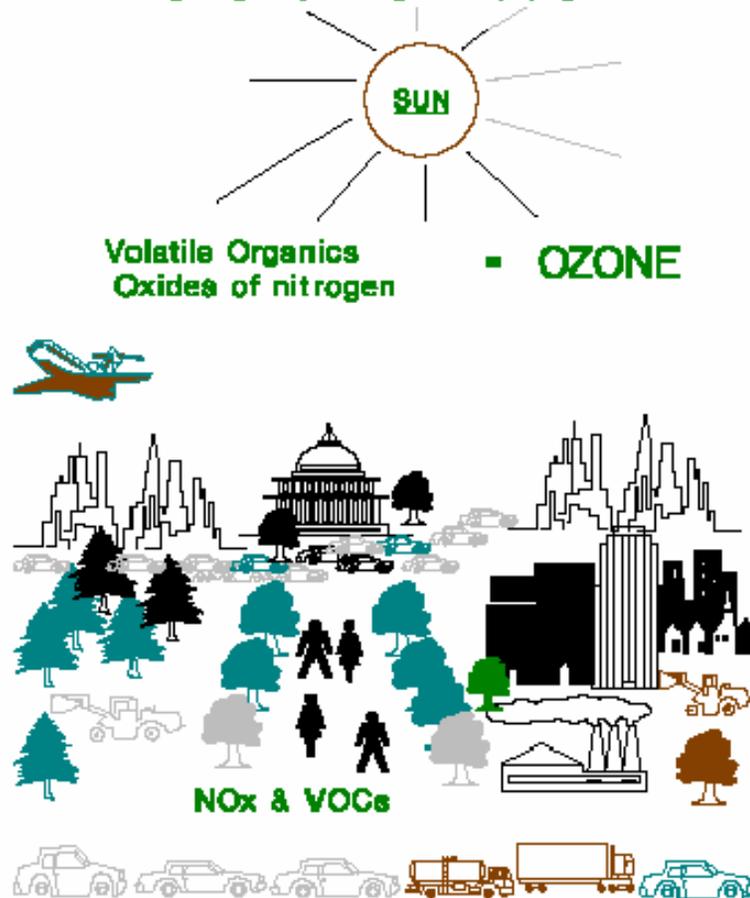
- ◆ Two pollutants merit a bit of explanation
 - Ozone
 - Particulate Matter
- ◆ Mobile Source Contribution is large
 - NOx (precursor to ozone)
 - All mobile sources – 83.5% of NOx emissions 2005
 - On-road mobile sources – 47.2% of NOx emissions 2005
 - PM2.5
 - All mobile sources – 13.3% of PM2.5 emissions 2005
 - On-road mobile sources – 4% of PM2.5 emissions 2005

NAAQS - Ozone

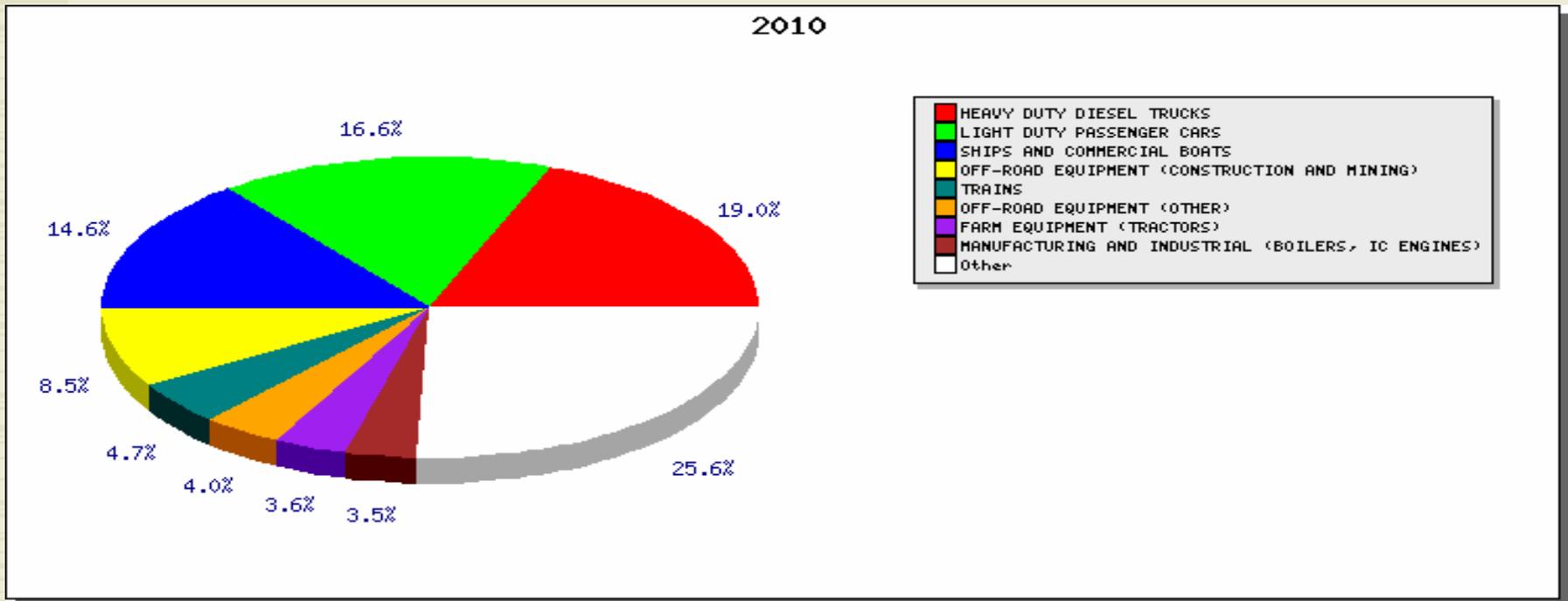
- ◆ Standards for ozone are unique because ozone is the result of chemical reactions in the atmosphere
 - As a result, ozone precursors are regulated
 - Volatile organic compounds (VOCs)
 - Nitrogen oxides (NO_x)
- ◆ These atmospheric reactions result in what is commonly called “smog”

How Ozone is Formed

Ozone Formation



Statewide NOx Emissions 2010



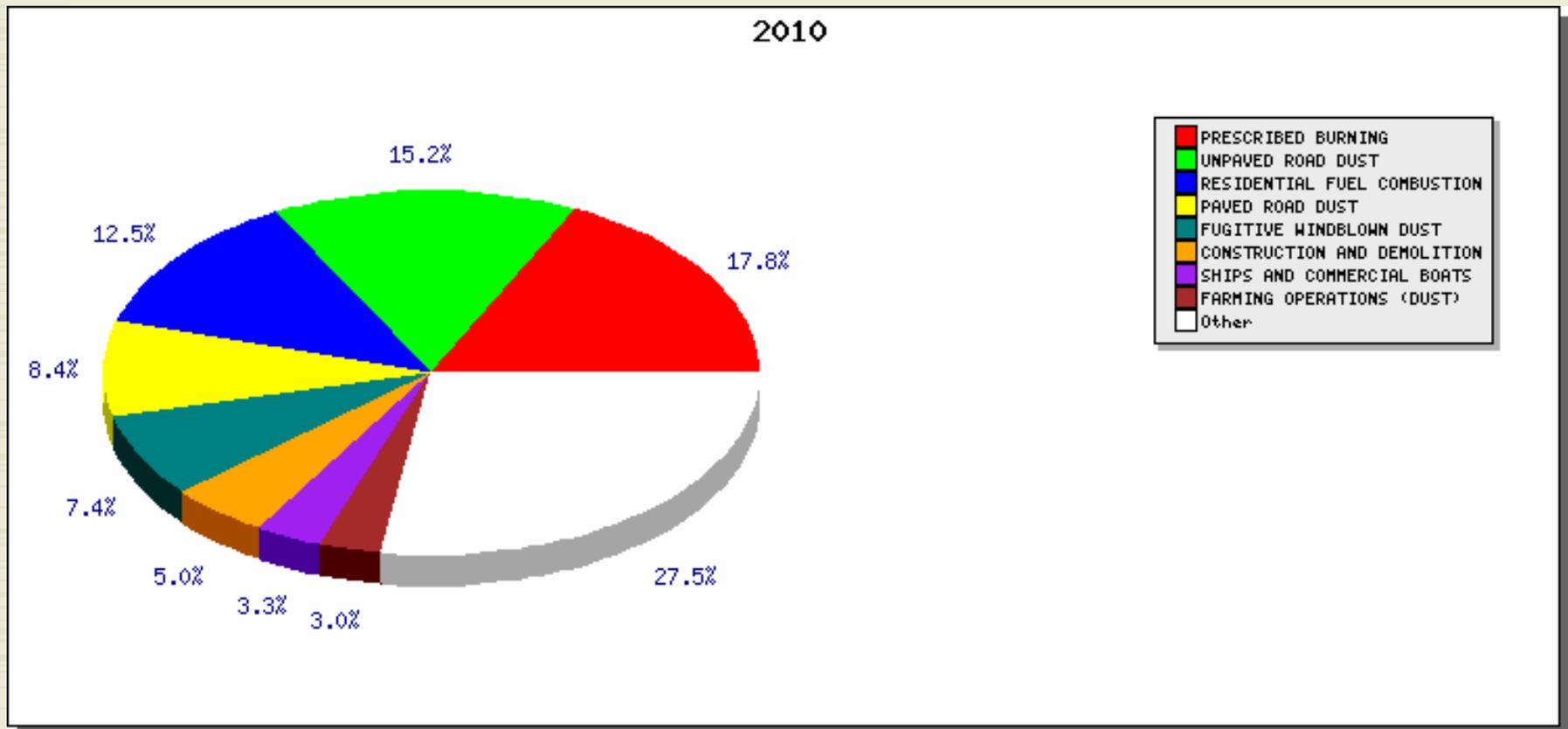
Particulate Matter

- ◆ Two NAAQS
 - PM10
 - PM2.5 – EPA adopted in July 1997
- ◆ Particles less than 10 micrometers in diameter appear to pose greatest health risk
 - Accumulate in human respiratory system

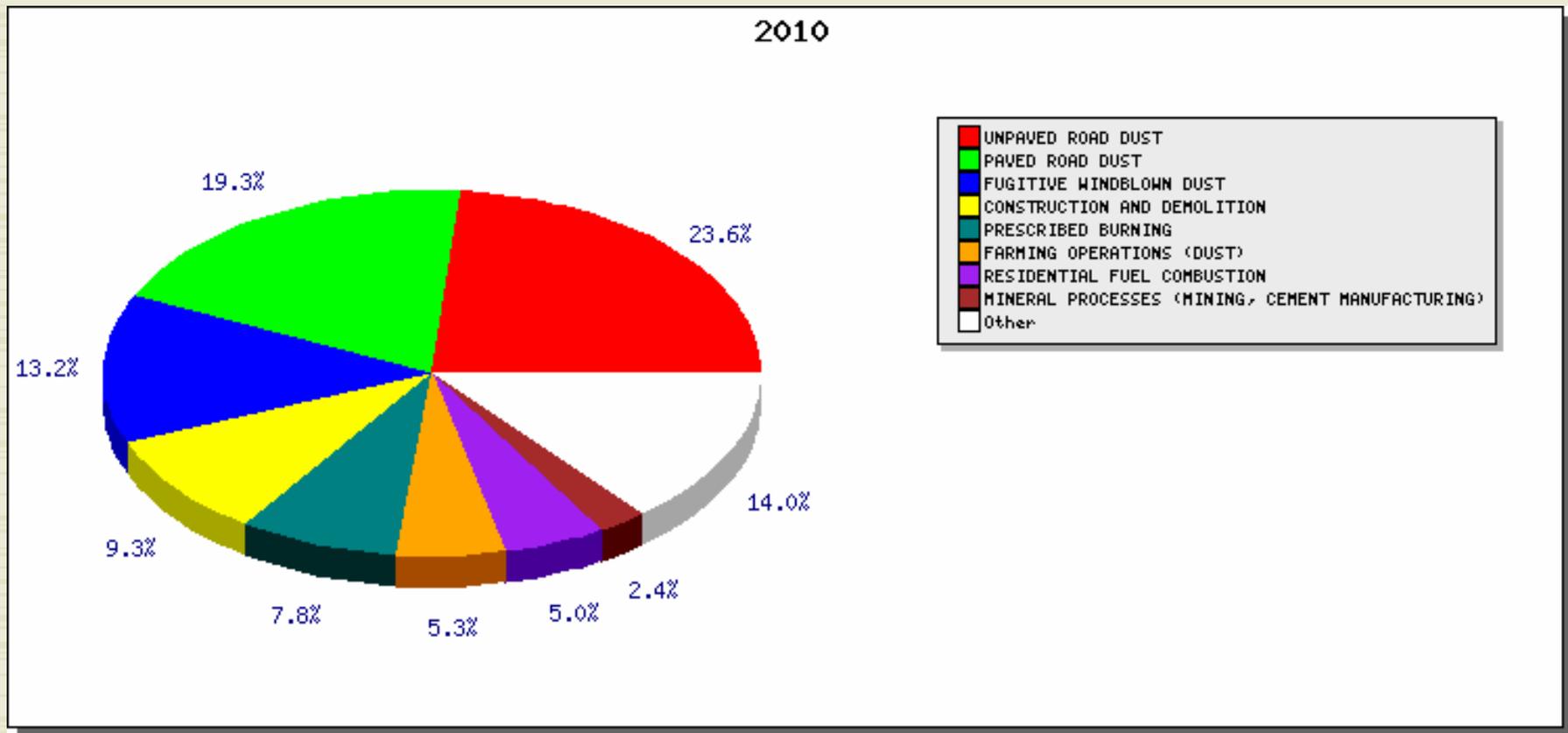
Particulate Matter

- ◆ Includes solid particles and liquid droplets
- ◆ Emitted directly into the air from
 - Man-made sources
 - Automobiles, trucks, trains, ships
 - Industrial boilers
 - Natural sources
 - Wild fires
- ◆ Particles also from as a result of chemical reactions between other pollutants emitted into the air

Statewide PM2.5 Emissions 2010



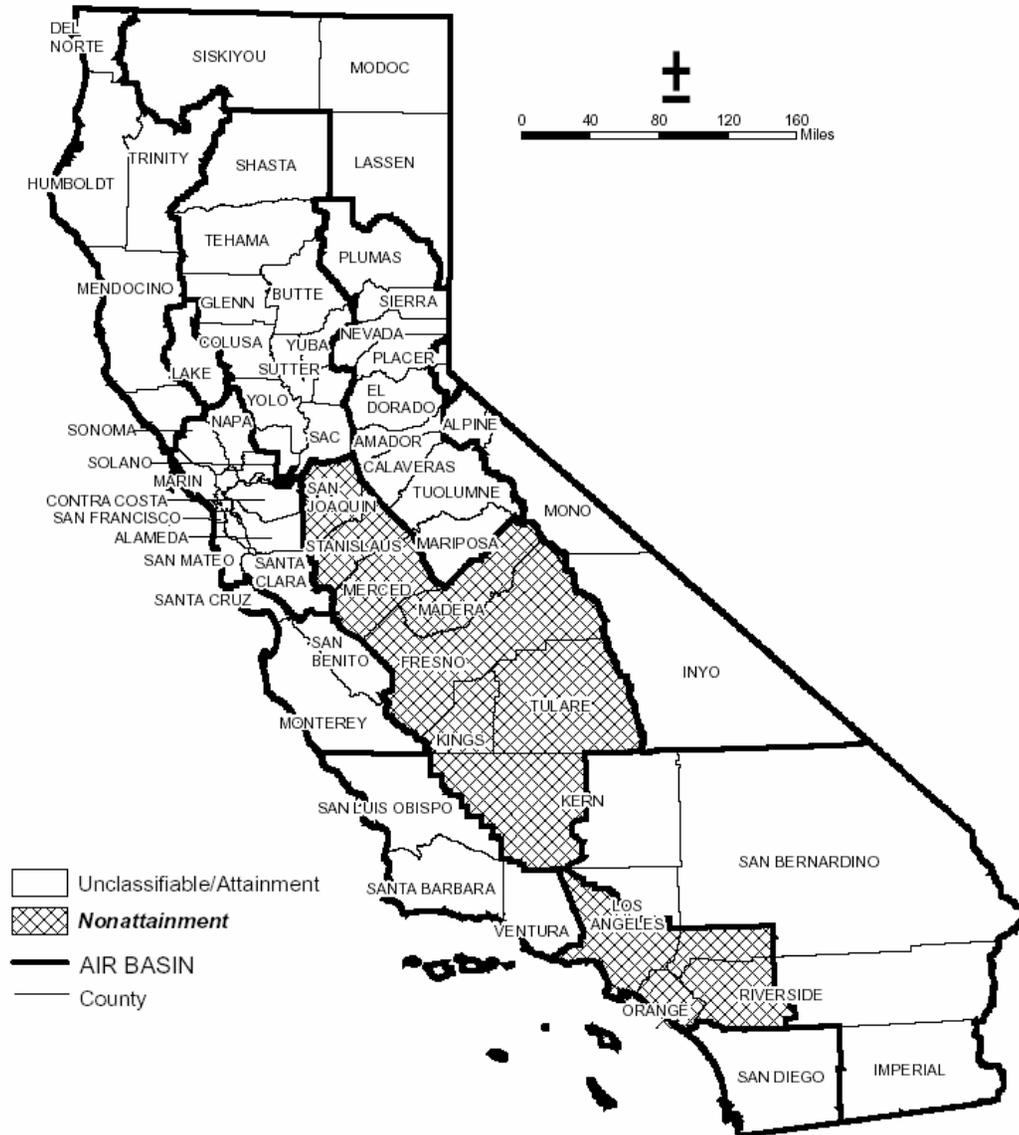
Statewide PM10 Emissions 2010



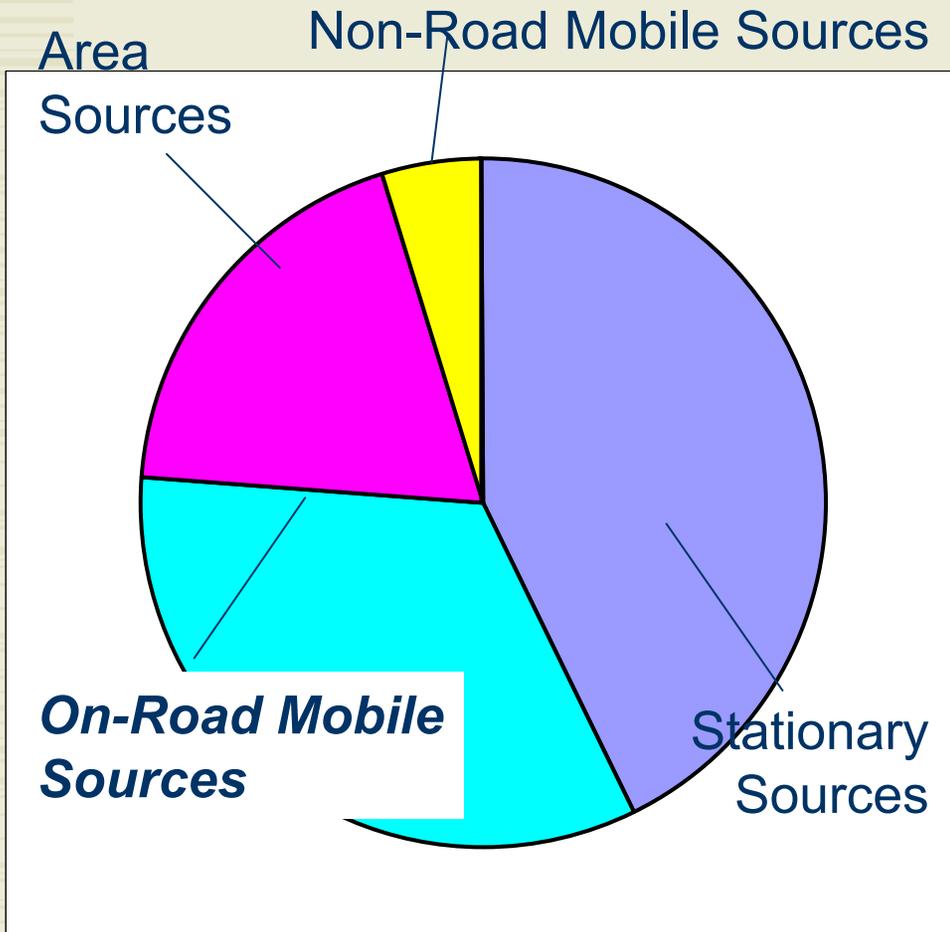
California Nonattainment/Maintenance areas

- ◆ 15 air basins/58 counties
- ◆ Over 28 million people live in nonattainment areas
- ◆ Ozone
- ◆ Particulate Matter
 - PM10
 - PM2.5
- ◆ Carbon monoxide

Area Designations for National Ambient Air Quality Standards PM2.5



Conformity: What Emissions Sources Does It Address?



- ◆ Transportation conformity covers just one piece of the emissions pie...
- ◆ On-road mobile sources are emissions created by cars, trucks, buses, etc...
- ◆ Transportation conformity addresses emissions only from on-road mobile sources

Why Does Conformity Matter?

◆ **Money**

- California receives on average, \$3.4 Billion per year (2005-2009) in Federal transportation funds
 - \$17.1 Billion over the life of SAFETEA-LU
- ◆ U.S. DOT (FHWA/FTA) - Can't approve projects and funding unless conformity requirements are met
- ◆ **All nonattainment and maintenance areas must, at all times, meet conformity requirements to insure federal funding continues**

Why it Matters

◆ **Project Delivery**

- Can stop or delay projects
 - Impacts costs and project delivery
 - Examples:
 - ◆ Delayed \$700 million in projects – Atlanta
 - ◆ Halted 21-mile road project in KY due to 200 ft. section in a nonattainment area
 - ◆ Threatened “lockdown” in all CA MPOs due to fiscal constraint issues

Why it Matters

◆ **Can be used to impede certain types of investments**

■ Examples:

- Atlanta – attempt to limit federal funding to non-road projects
- Sacramento – Plaintiffs opposed to a list of 53 road projects
- Houston – Efforts to stop Grand Parkway construction

Why it Matters

- ◆ **May distort investment decisions**
 - Investments perceived as being beneficial from an air quality standpoint, may not be best for mobility and system performance
 - Limited choice of projects if challenged by requirements or can't meet requirements (conformity lapse)
- ◆ **Bond Program – Capacity increasing projects? Where will there be conformity issues, challenges?**

Summary

- ◆ Conformity links transportation and air quality planning by requiring transportation plans/TIPs to be consistent with air plan (SIP)
 - Consequences for noncompliance are significant
 - Delay projects
 - Limit types of projects that can proceed
 - Increase costs of project delivery



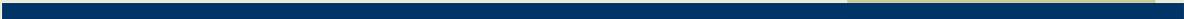
Summary



- ◆ Transportation agencies should invest in cost-effective on-road emission reductions
- ◆ CTC may be challenged to make needed infrastructure investments in nonattainment areas unless air quality issues are adequately addressed



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