OZONE PROGRESS & FEDERAL AIR QUALITY STANDARDS

Board Presentation
May 26, 2011

OUTLINE

- Health Impacts and Standards
- Measures of Progress
- Profile of San Joaquin Valley and South Coast
- Current Standard Review
- Summary

OZONE HEALTH IMPACTS

- **Reduces lung function**
- **Aggravates asthma and other chronic diseases**
- **Can cause permanent lung damage**
- **Children, people with lung disease, and older adults are most susceptible**

FEDERAL AIR QUALITY STANDARDS

- **Clean Air Act requires EPA to set and review standards**
- **Standards based solely on health science**
- **State Implementation Plans (SIPs) must be designed to meet standard**

EVOLVING FEDERAL STANDARDS

- **Health studies lead to more stringent standards over time**
- **Peer reviewed by Clean Air Scientific Advisory Committee (CASAC)**
- **2007 SIPs transitioned from 1-hour to 8-hour ozone standard**

CLEAN AIR ACT PLANNING REQUIREMENTS

- **Design Value for region sets benchmark for SIP**
- **Reflects last location to meet standard**
- **Other indicators used to characterize progress within a region**

AIR QUALITY PROGRESS:
CURRENT FEDERAL 8-HOUR STANDARD

2004 Designations
(2001-2003 Data)

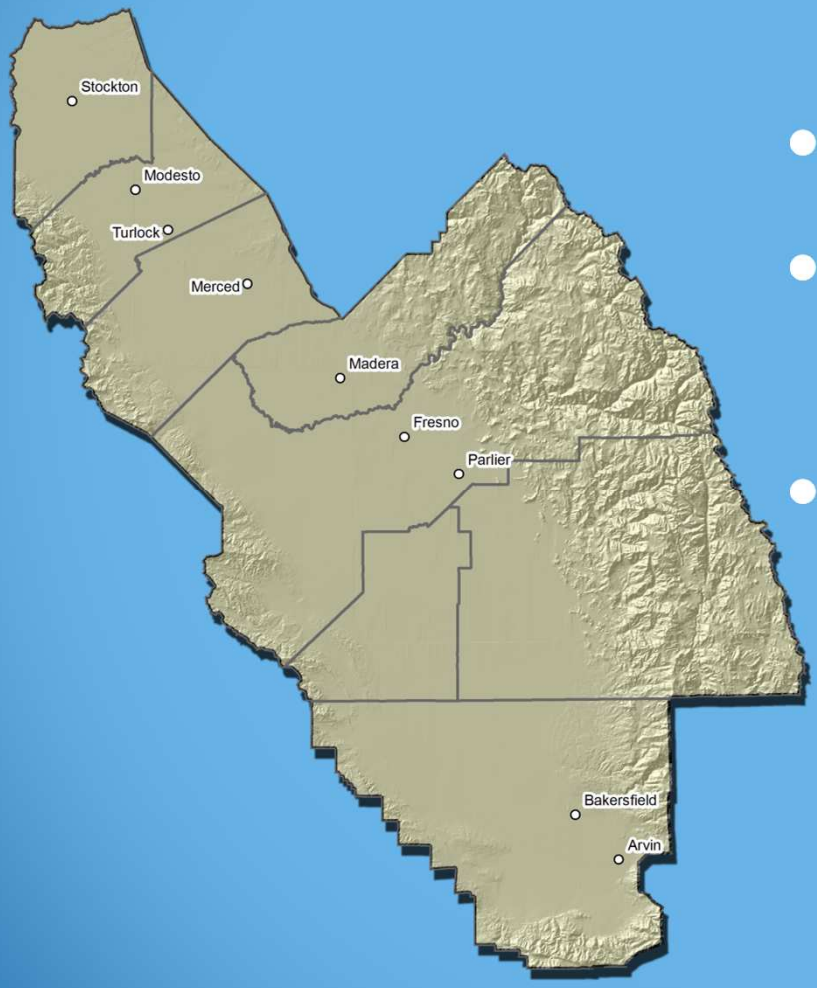
Current Air Quality
(2008-2010 Data)

AIR QUALITY IMPROVEMENTS

- **Fewer people exposed to levels over the standard**
- **Smaller geographic area above the standard**
- **Lower frequency of days over the standard**

San Joaquin Valley

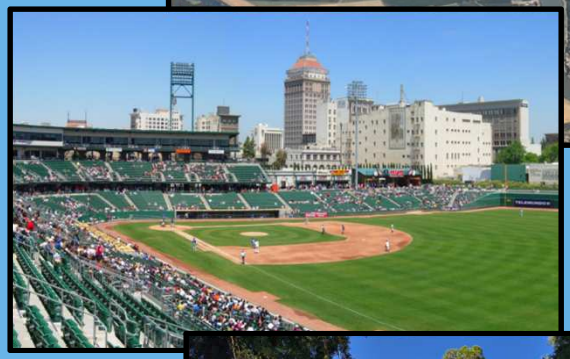
SAN JOAQUIN VALLEY CHARACTERISTICS



- **Basin traps pollution**
- **High temperatures throughout Valley**
- **Modest coastal benefit in Northern Valley**

CONTINUING CHALLENGES

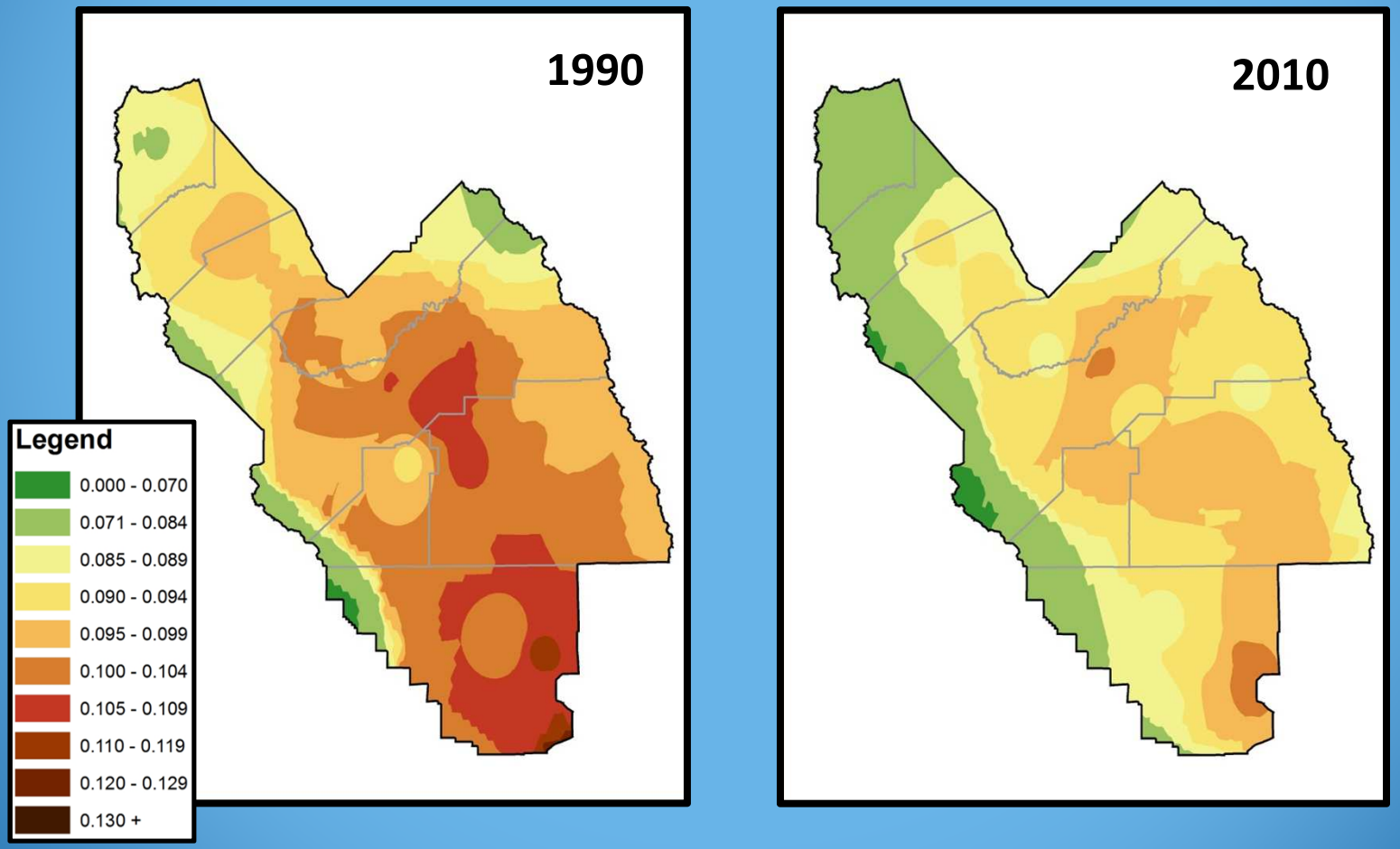
- **Still need 20% reduction in peak concentrations**
- **Greatest number of exceedance days occur downwind of Valley's urbanized areas**
- **These sites still exceed 20 to 30 days each year**



MORE PEOPLE BREATHING CLEANER AIR

- **1 million of Valley's 3 million residents now live in areas that meet current Federal ozone standard**
- **2 million breathing cleaner air, but still above standard**

OZONE LEVELS ARE LOWER, VALLEYWIDE



NATURE OF EXPOSURE
Northern San Joaquin Valley

- **Stockton and Modesto areas have transitioned to attainment over last decade**
- **Turlock is close**

NATURE OF EXPOSURE

Central & Southern San Joaquin Valley

- **Fresno & Bakersfield seeing different rates of air quality improvement**
- **Portions of region nearing standard**
- **All urban sites have fewer than 20 exceedance days**

NATURE OF EXPOSURE
Fresno Urban Area

- Valley's most challenging urban area
- Little progress in 1990s
- Greater progress in last decade
- Fewer than 20 exceedance days

NATURE OF EXPOSURE

Bakersfield Urban Area

- **Concentrations at Bakersfield sites lower than Fresno and within 10% of standard**
- **More consistent rate of progress**
- **10 or fewer exceedance days**

NATURE OF EXPOSURE

Downwind Areas

- More exceedance days than urban sites
- Arvin/Edison has made greater progress in reducing ozone levels
- Both areas now have fewer exceedance days

PLANNING CHALLENGE

- **30 days above standard at high site**
- **Peak concentration is 0.104 ppm at high site**
- **Current Federal standard is 0.08 ppm**

COMMUNITY & ENVIRONMENTAL JUSTICE CONSIDERATIONS

- San Joaquin Valley has large number of low income households exposed to high levels of ozone
- Many communities also experience high PM2.5 in Winter
- Socioeconomic factors affect vulnerability to air pollution

South Coast

SOUTH COAST CHARACTERISTICS

Distinct coastal and inland regimes

HISTORICAL PERSPECTIVE

- **Mid- to late-1970s:**
  - **Concentrations more than 3 times the standard**
  - **200 exceedance days in region**
  - **120 Stage I Alerts / Multiple Stage II Alerts**
- **Today:**
  - **No Smog Alerts**
  - **60% drop in peak levels and exceedance days**

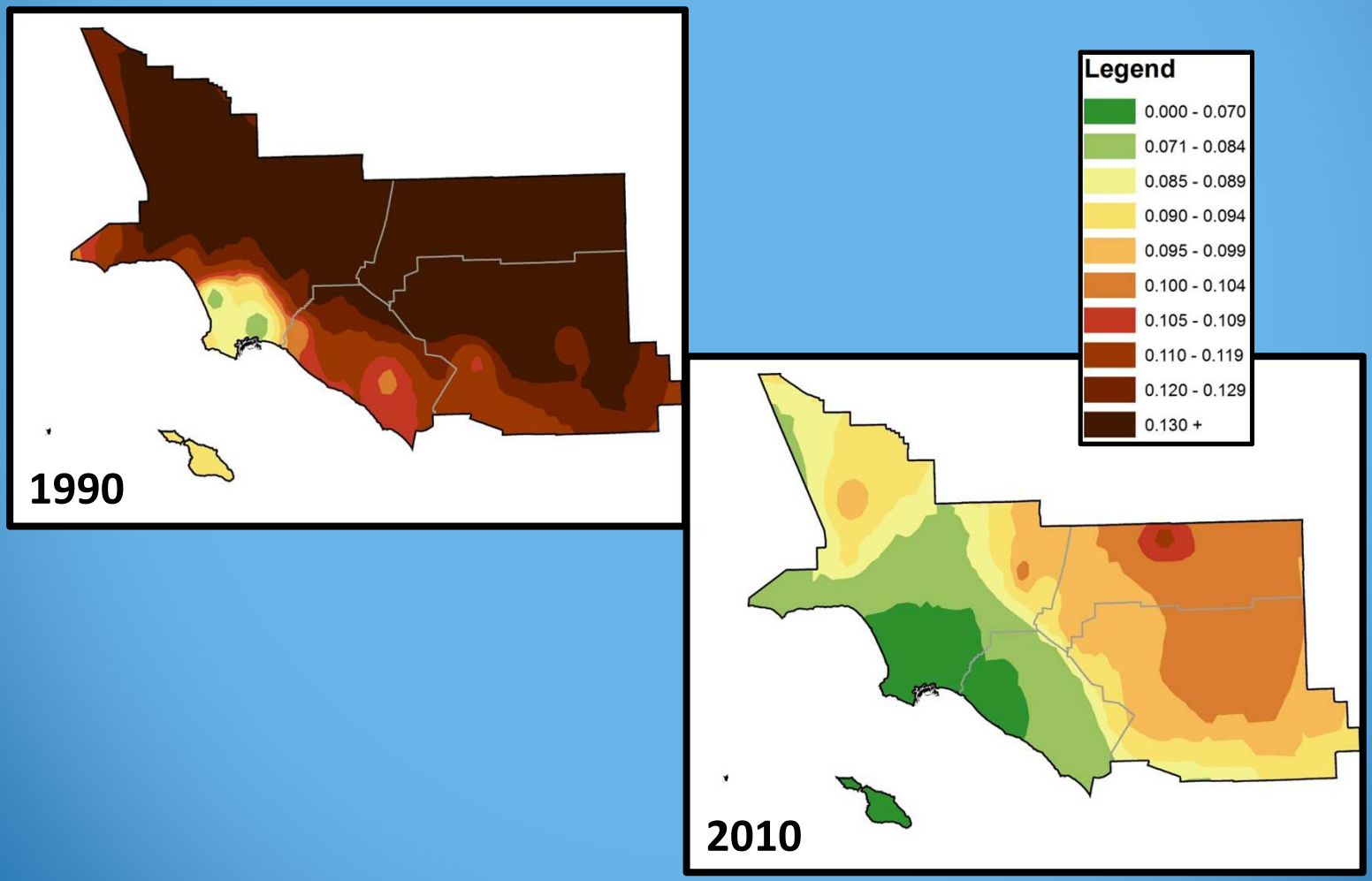
CONTINUING CHALLENGES

- **Still need 25% reduction in peak levels**
- **Highest concentrations in eastern basin**
- **Some sites still exceed 25 to 45 days each year**

CLEANER COMMUNITIES

- **10 million of South Coast's more than 14 million residents now live in areas that meet current Federal ozone standard**
- **More than 4 million breathing cleaner air but still above standard**

DRAMATIC IMPROVEMENT IN OZONE LEVELS



NATURE OF EXPOSURE

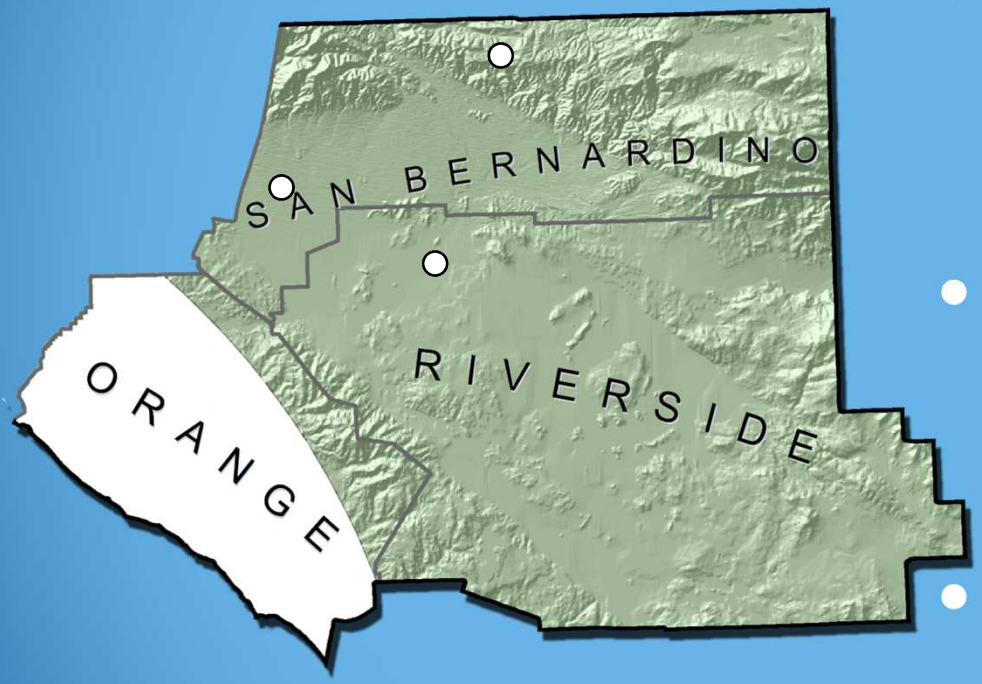
Coastal Area of South Coast

- **Coastal area has met standard for nearly a decade**
- **More than 8 million people live here**

NATURE OF EXPOSURE
Valley Areas of South Coast

- **Once had highest ozone levels in South Coast**
- **Much of area meets or is within 10% of standard**
- **10 or fewer exceedance days**
- **More than 3 million people live in this region**

NATURE OF EXPOSURE
Inland Area of South Coast



- **Concentrations decreased 40% over last 20 years**
- **Most communities have 15 to 25 exceedance days**
- **Most sites within 20% of standard**

PLANNING CHALLENGE

- **45 days above standard at high site**
- **Peak concentration is 0.112 ppm at high site**
- **Current Federal standard is 0.08 ppm**

COMMUNITY & ENVIRONMENTAL JUSTICE CONSIDERATIONS

- **Environmental Justice communities experience multi-pollutant exposures**
- **Key pollutants of concern are ozone, PM, and diesel particulate**
- **Focus on ports and railyards, as well as regional air pollution**

Current Standard Review

OZONE STANDARD REVIEW

- 1979: 1-hour standard of 0.12 ppm
- 1997: 8-hour standard of 0.08 ppm
- 2008: 8-hour standard of 0.075 ppm (currently under reconsideration)
- New proposed range between 0.060 ppm and 0.070 ppm

CURRENT CALIFORNIA STATUS

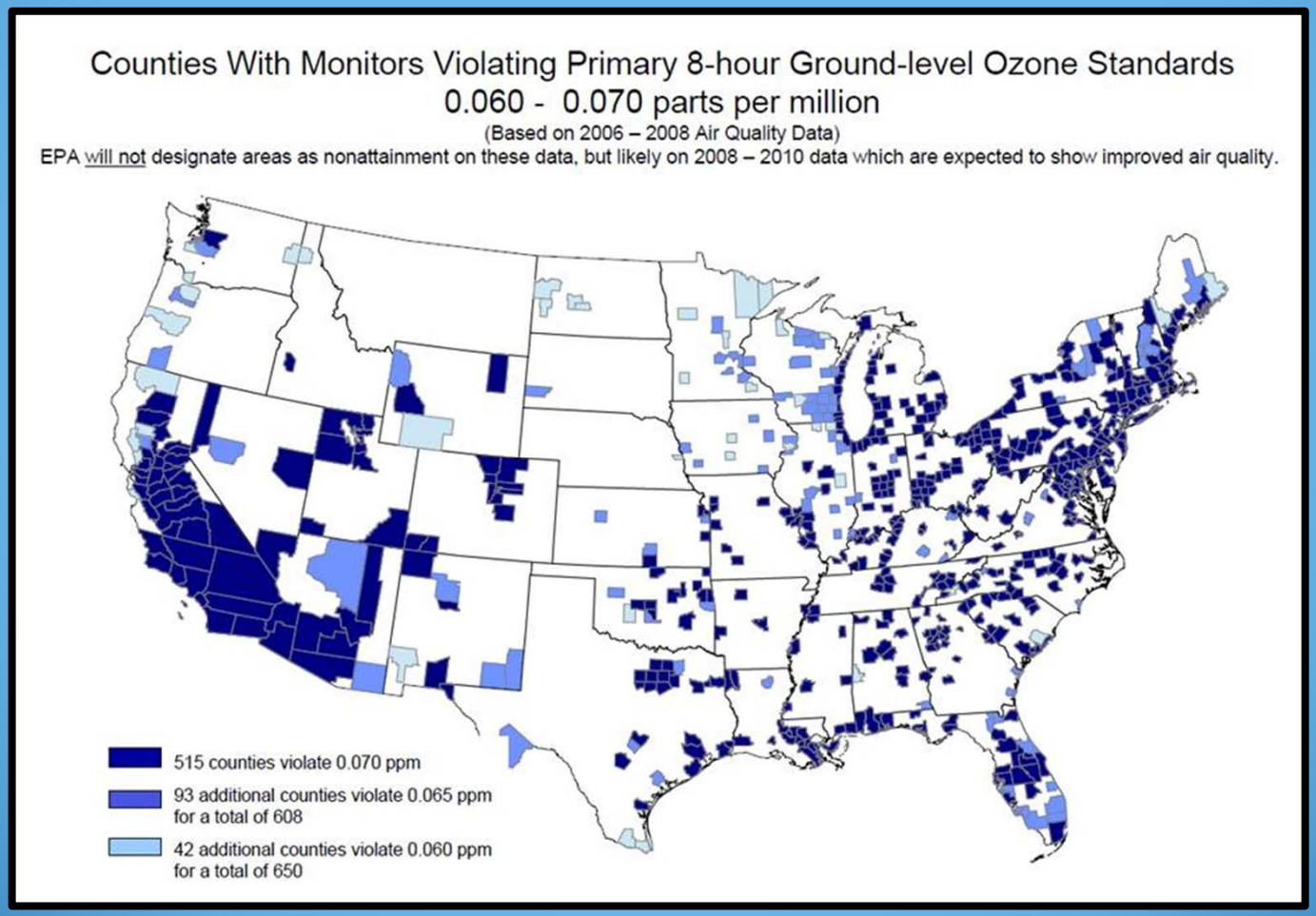
POTENTIAL NEW STANDARD

California

Areas not meeting
potential 0.060 ppm standard

Areas not meeting
potential 0.070 ppm standard

POTENTIAL NEW STANDARD National



SUMMARY

- **75% of Californians live in areas that meet current Federal ozone standard**
- **Air quality continues to improve even as standards are revised**
- **ARB continues to work to further reduce ozone levels**