

AIR QUALITY PLANNING UPDATE

TRANSPORTATION COMMITTEE
LAND USE AND NATURAL RESOURCES COMMITTEE

AUGUST 28, 2014

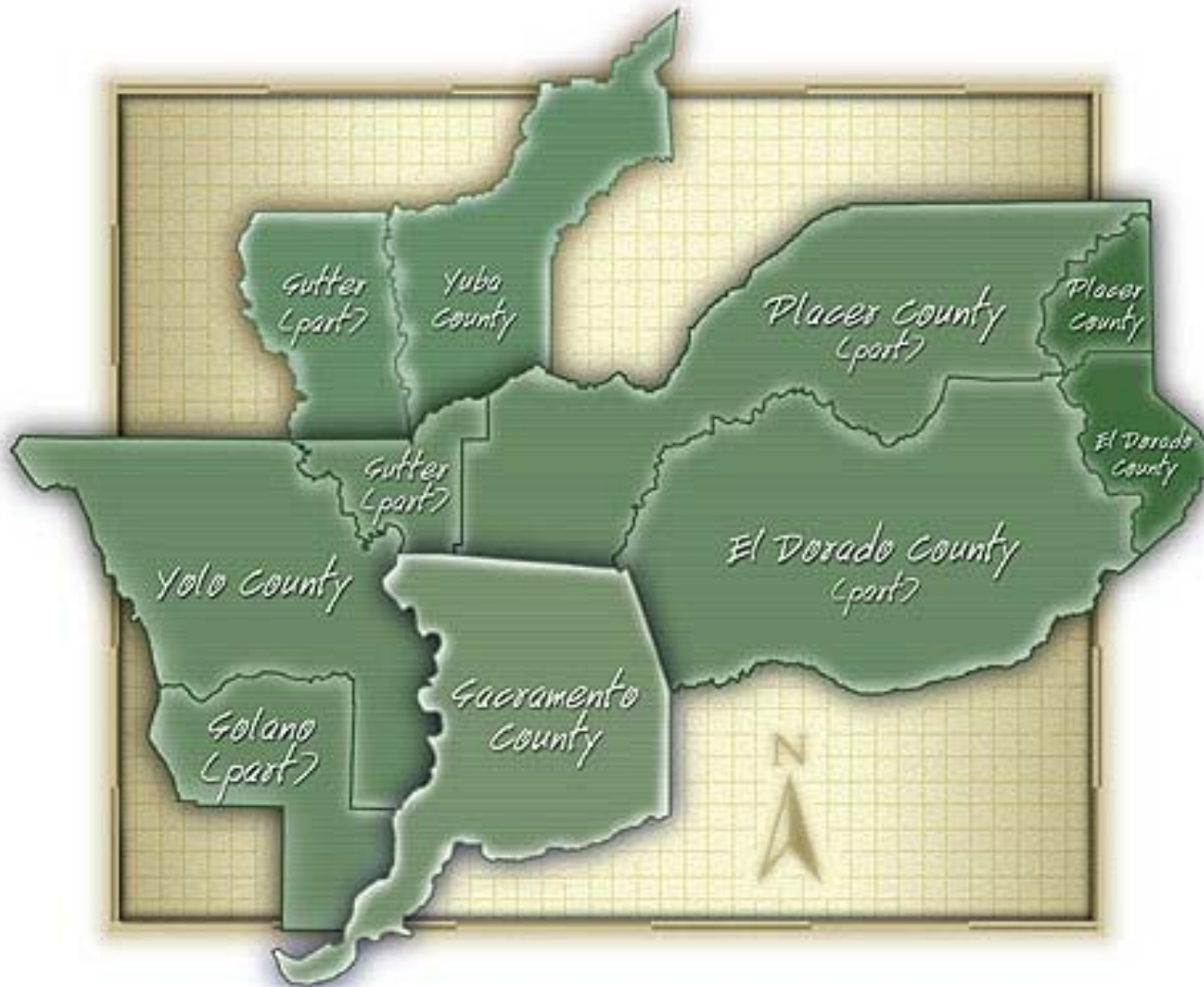
Larry Greene
Executive Director



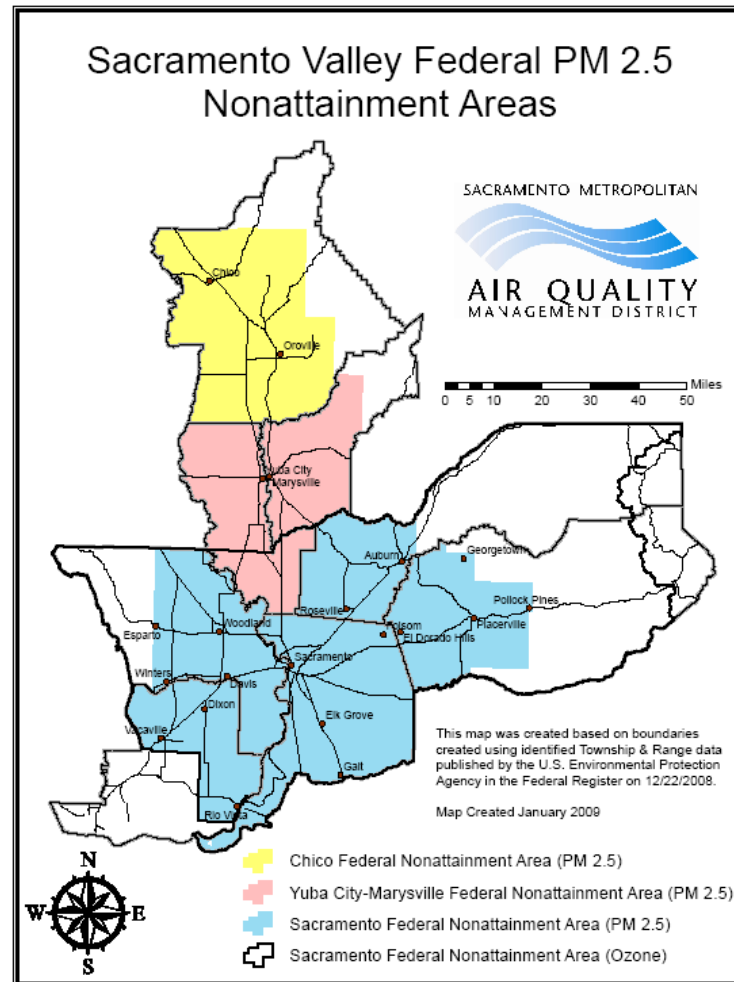
Conformity Budgets

- Motor Vehicle Emissions Budgets (MVEBs) are set in state implementation plans (SIPs).
- This is a standard requirement in SIPs that links regions' transportation and air quality plans.
- Motor vehicle emissions budgets (MVEBs) are set to ensure transportation plans do not interfere with meeting national ambient air quality standards (NAAQS) in a region or state.

Sacramento Regional Federal Ozone Non-attainment Area

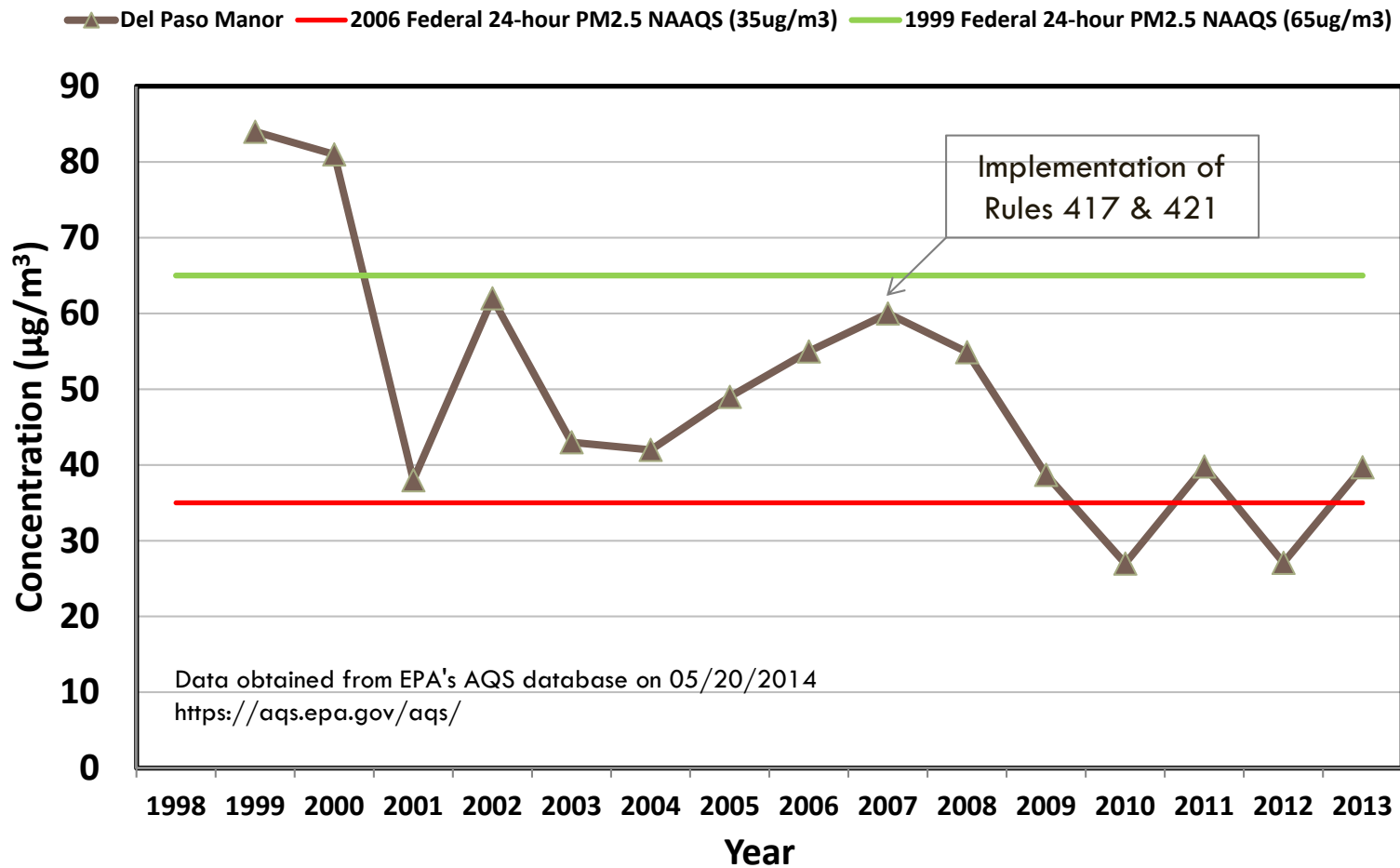


Regional PM2.5 Non-Attainment Areas



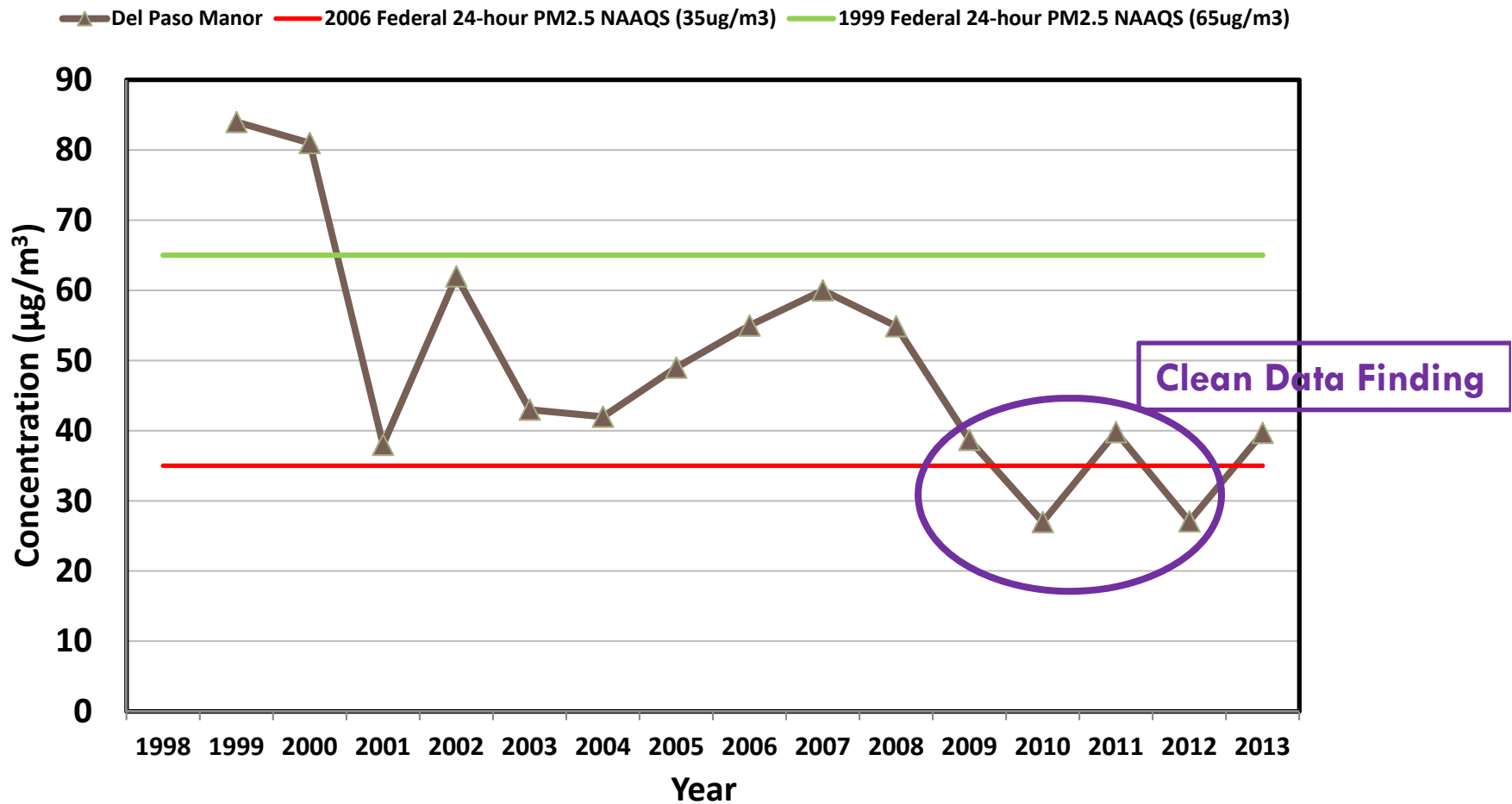
Air Quality Trends (PM_{2.5})

**National Yearly PM_{2.5} 24-Hour 98th Percentile
at the Del Paso Manor Site in Sacramento county (1998-2013)**



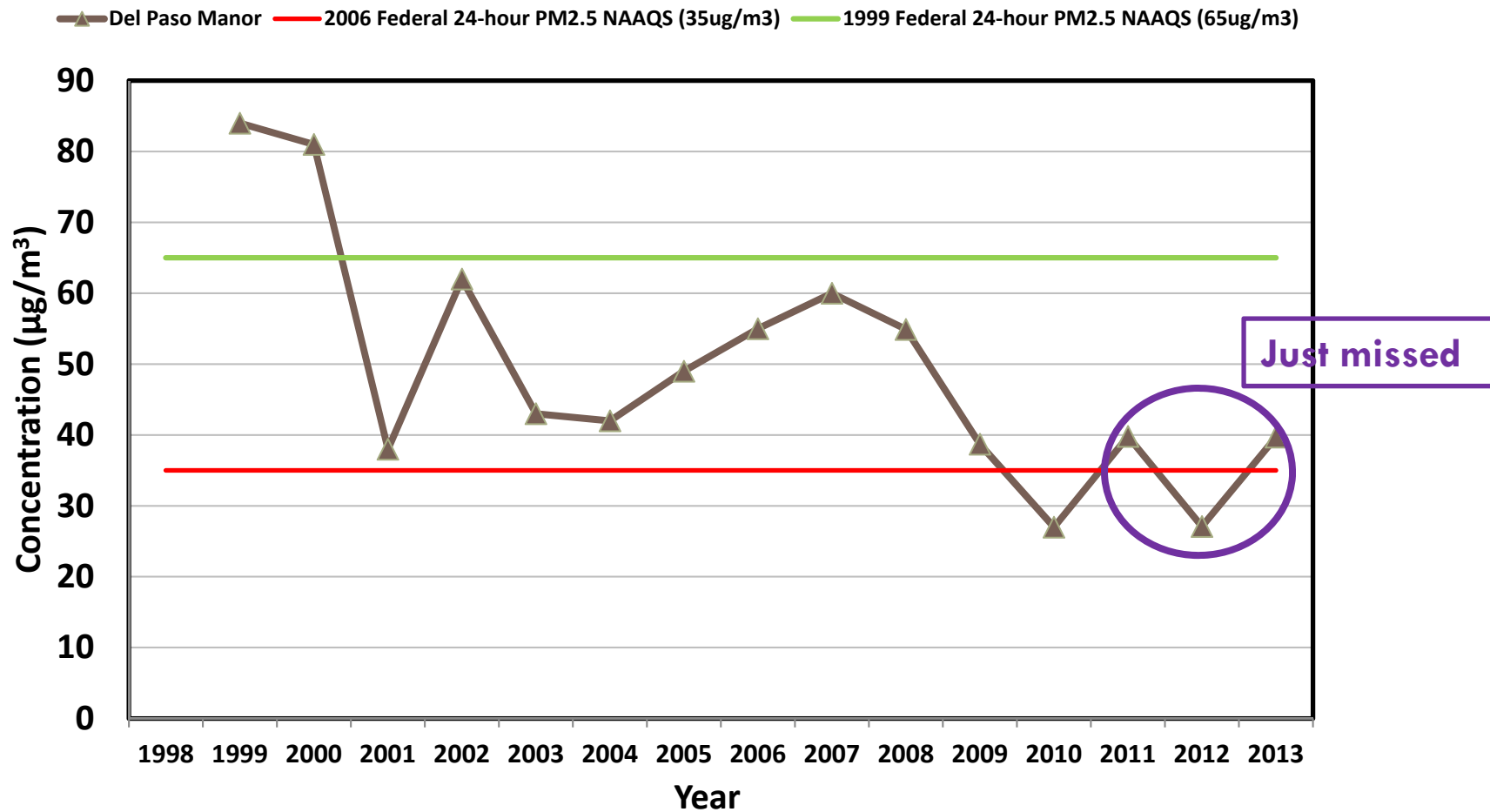
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Regional SIP Schedule PM2.5

Sacramento Clean Data finding by EPA (July 2013)

- ▣ Attainment plan requirement (new rules) was suspended
- ▣ We prepared a Maintenance Plan.
- ▣**BUT Couldn't submit it.**
 - **Sacramento did not attain in 2013, so the plan wasn't submitted (Missed on Dec 31, 2013)**
 - We will prepare an updated plan in 2015 **if** a clean data finding continues to be supportable with CY 2014 data
 - This plan will include a Motor Vehicle Emissions Budget for PM 2.5 for the area that previously didn't attain the standard.
 - Estimate EPA adequacy finding on MVEB in ~ 2018
- ▣ This new budget must be established when the maintenance plan is submitted

Regional SIP Schedule PM2.5

Critical Point

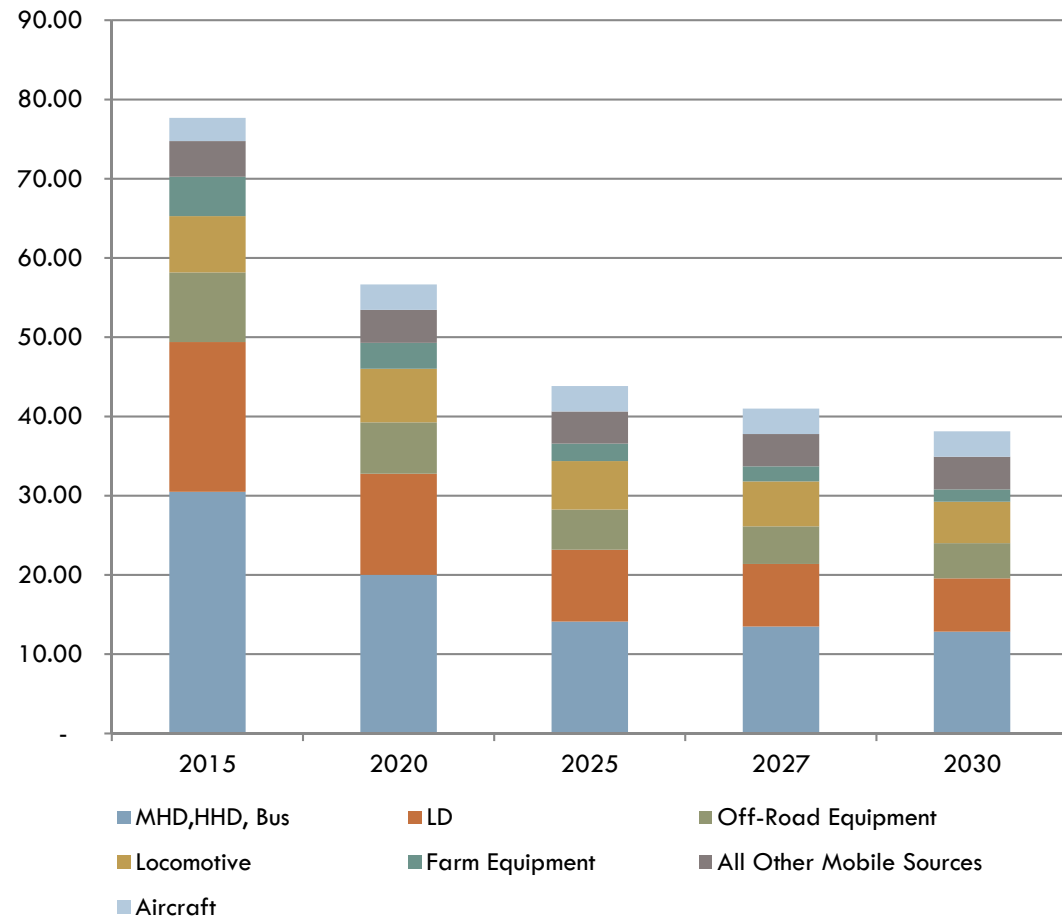
We have no freeboard for PM 2.5. If we miss this year we will need to submit an attainment plan with additional controls on industry and agriculture. Since motor vehicles emissions are a large component of our PM 2.5 inventory, what happens in the MTP is very important to managing future year emissions.

Attaining the Federal Ozone Standard

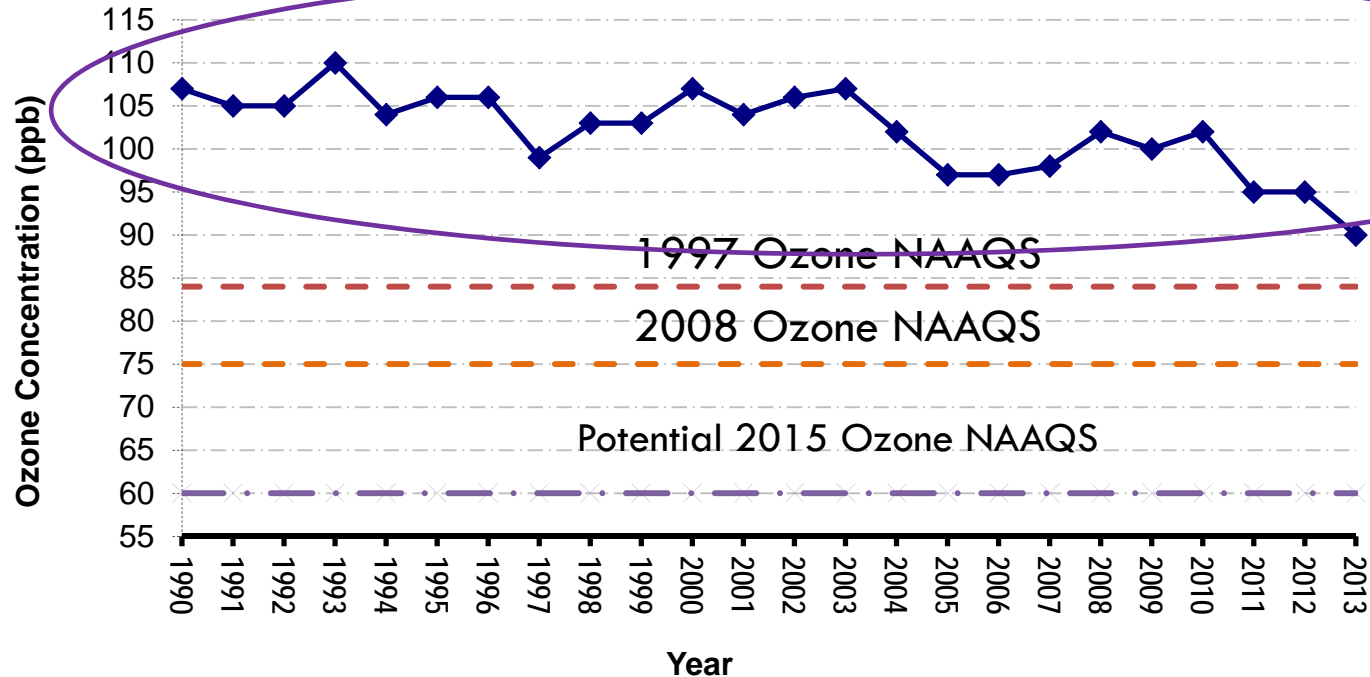
- Ground level ozone is formed from volatile organic compounds (VOCs) and nitrogen oxides (NO_x) + sunlight
- Modeling conducted in 2007 showed that NO_x emissions reductions were **7 times more effective** than VOC in reducing ozone concentrations
- NO_x reductions are essential to attainment
- In 2014, on-road and off-road mobile sources contribute over **80% of our NO_x emissions**
- **MTP performance directly impacts emissions from mobile sources in the SIP and is a critical element in our regional successes thus far and in the future.**

Mobile Sources of NOx

- The chart to the right shows the relative contributions of NOx from mobile sources.
- Medium and Heavy Duty vehicles remain the primary source followed by light duty, with locomotive moving to the 3rd highest source by 2030.

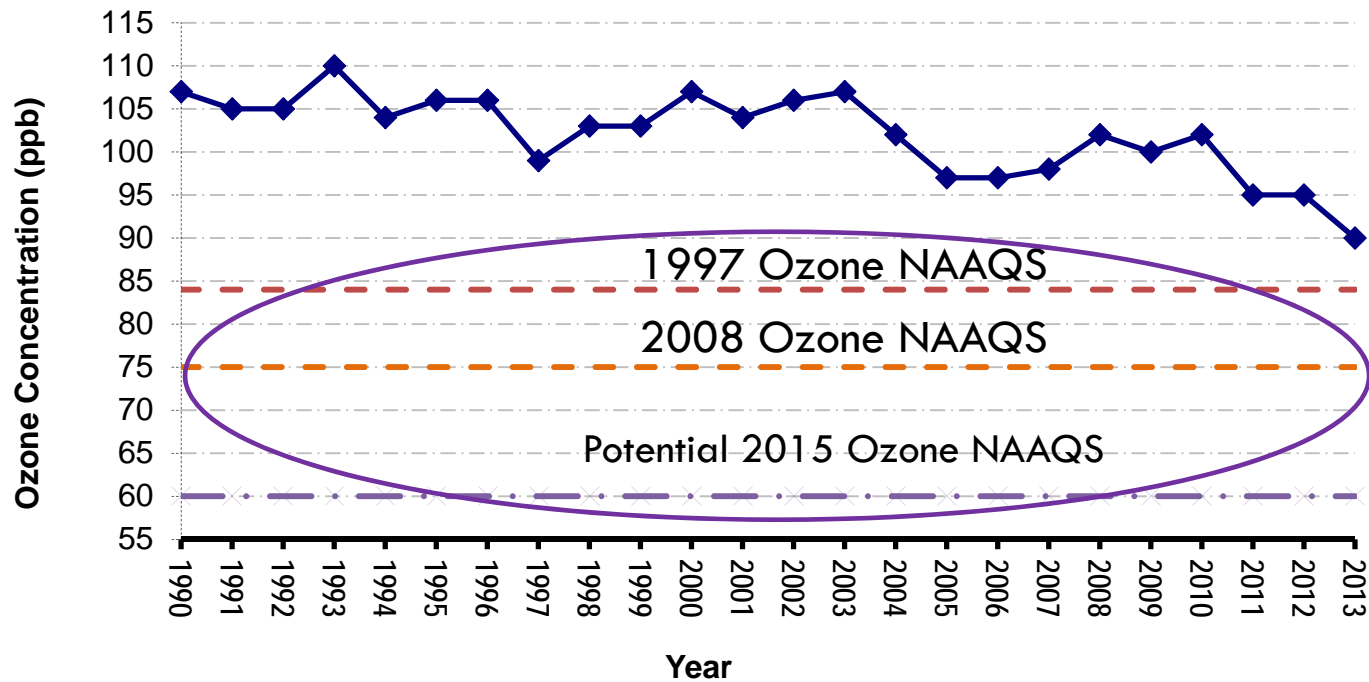


Ozone Levels in Sacramento



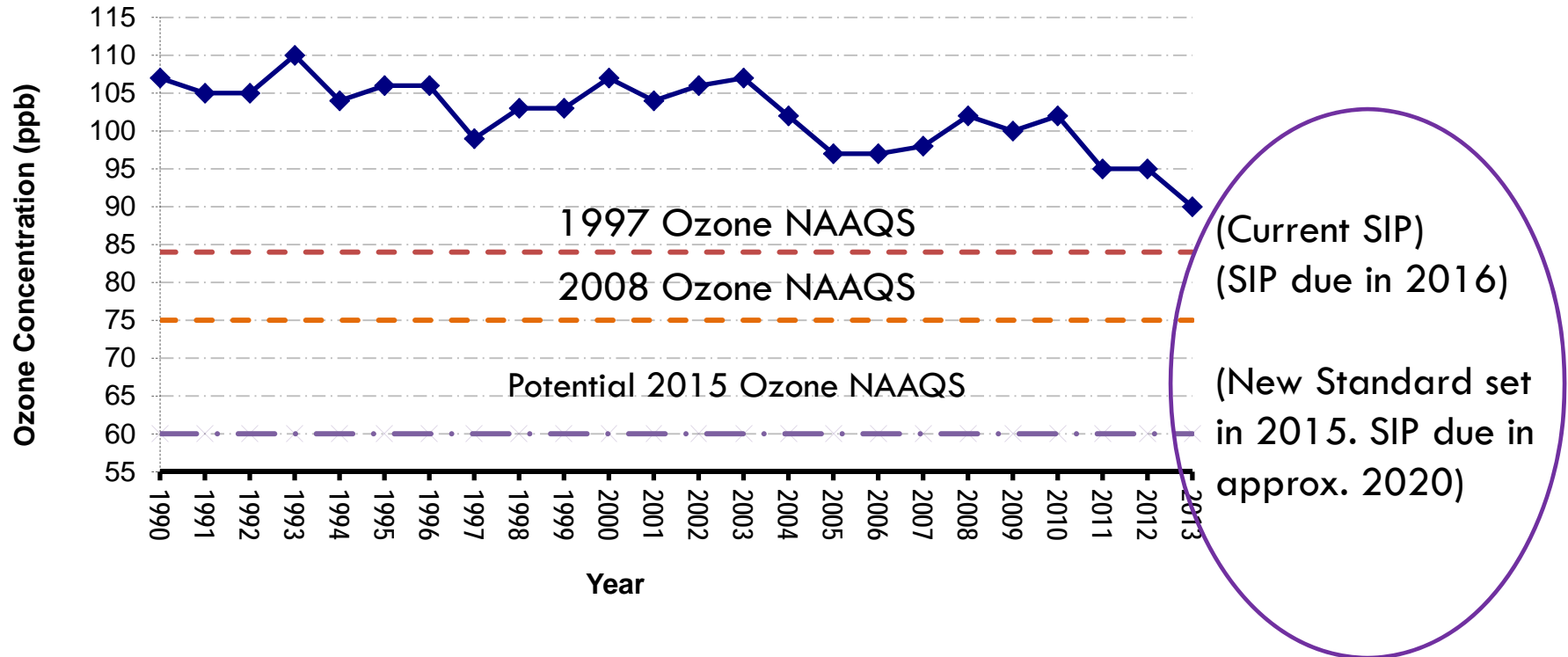
- Shows the highest 8-hour ozone design values, for each year location varies, most frequently (Folsom)
- Data source: CARB (<http://www.arb.ca.gov/adam/trends/trends2.php>)
Downloaded on 08/25/2014

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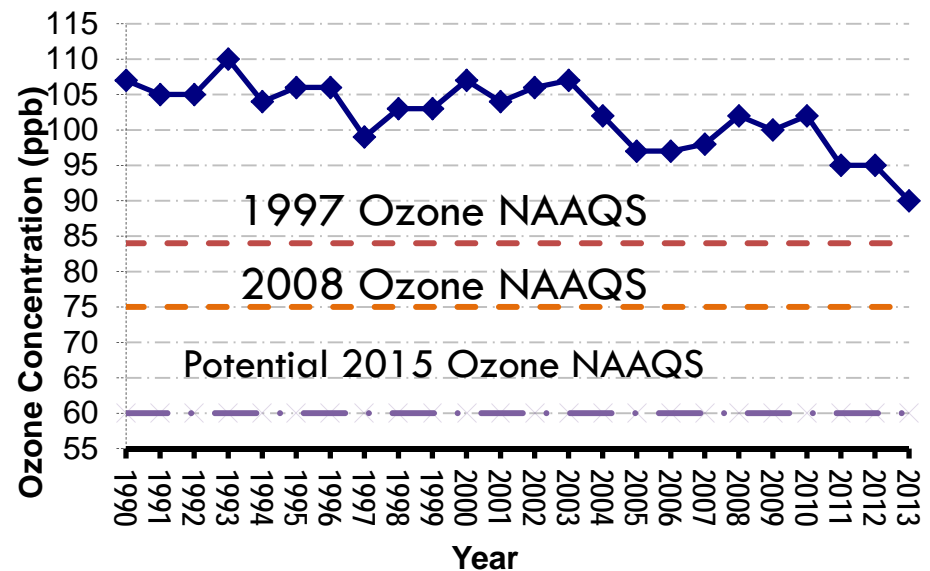
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Ozone Levels in Sacramento

- Actual monitored improvement
1990 to 2013 = 16%
- Additional improvement needed:
(monitored data)
 - 1997 NAAQS (Current SIP)
2013 to 2018 = 6%
 - 2008 NAAQS (SIP due in 2016)
2018 to 2027 = 8%
 - 2015 NAAQS (New standard)
2027 to 2031 \approx 14%



Need continued motor vehicle reductions

- Cleaner Vehicles – state regulations and robust incentives (Moyer, bond, Cap and Trade, SECAT)
- Cleaner Fuels
 - ▣ state and federal regulations
 - ▣ Technology transformation – hydrogen (fuel cell), electric, renewable fuels
- Reduced Vehicle Miles Traveled (VMT)
 - ▣ Continued support for transit, jobs/housing balance, Blueprint principles, biking/walking opportunities
 - ▣ SCS – greenhouse gas reductions also provide ozone and PM2.5 benefits
 - ▣ Transportation Control Measures – (Spare The Air, Freeway Service Patrol, SECAT)

Future Reductions from Mobile Sources

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- Medium and Heavy Duty Vehicles
 - ▣ Ultra low-NO_x engines
 - Current 2010 standards is 0.2 g/hp-hr engine
 - In development natural gas and diesel engines will be capable of achieving an alternate low NO_x standard of 0.02 g/hp-hr. An additional 90% reduction.
 - ▣ Electric and/or Fuel Cell engines (already available in the medium heavy duty category) – zero emission.
 - ▣ Hybrids that may get credit for increased fuel efficiency associated NO_x reductions
 - ▣ Electric fast charge transit buses (Protera)

Future Reductions from Mobile Sources

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- Light Duty Vehicles – passenger cars
- An accelerated roll out is needed in the following areas:
 - ▣ Electric Vehicles
 - ▣ Plug-in electric
 - ▣ Fuel Cell
 - ▣ Car share programs utilizing electric vehicles

SIP Schedule - Ozone

- New ozone SIPs must be submitted by 7/20/2016 to show how state will meet the 2008 NAAQS
 - 2008 NAAQS must be met by 2027 in Sacramento
 - New motor vehicle emissions tool (EMFAC2014)
 - State will set regional attainment targets in 2015
 - State working on freight strategy in parallel w/ SIP
- SACOG actions needed
 - State will request updated vehicle activity data from SACOG in September 2014
 - Evaluate availability of reasonably available transportation control measures (TCMs) in 2015
- Court order requires EPA to re-evaluate ozone NAAQS by October 2015, likely will be more stringent

Conformity Budgets

- Current Sacramento Region Emissions Budgets
 - **Ozone *** - New budgets found adequate effective 8/25/2014
 - SIP due in 2016 will establish a new more stringent budget, based on the current MTP under development.
 - **PM2.5 ***
 - No budget yet established for the Sacramento nonattainment area (SACOG uses a build/no-build evaluation)
 - Budget has been submitted for Yuba City Marysville
 - PM10 (Sacramento County only)
 - Carbon monoxide (Sacramento/Roseville urbanized area only)
- * Critical Pollutants