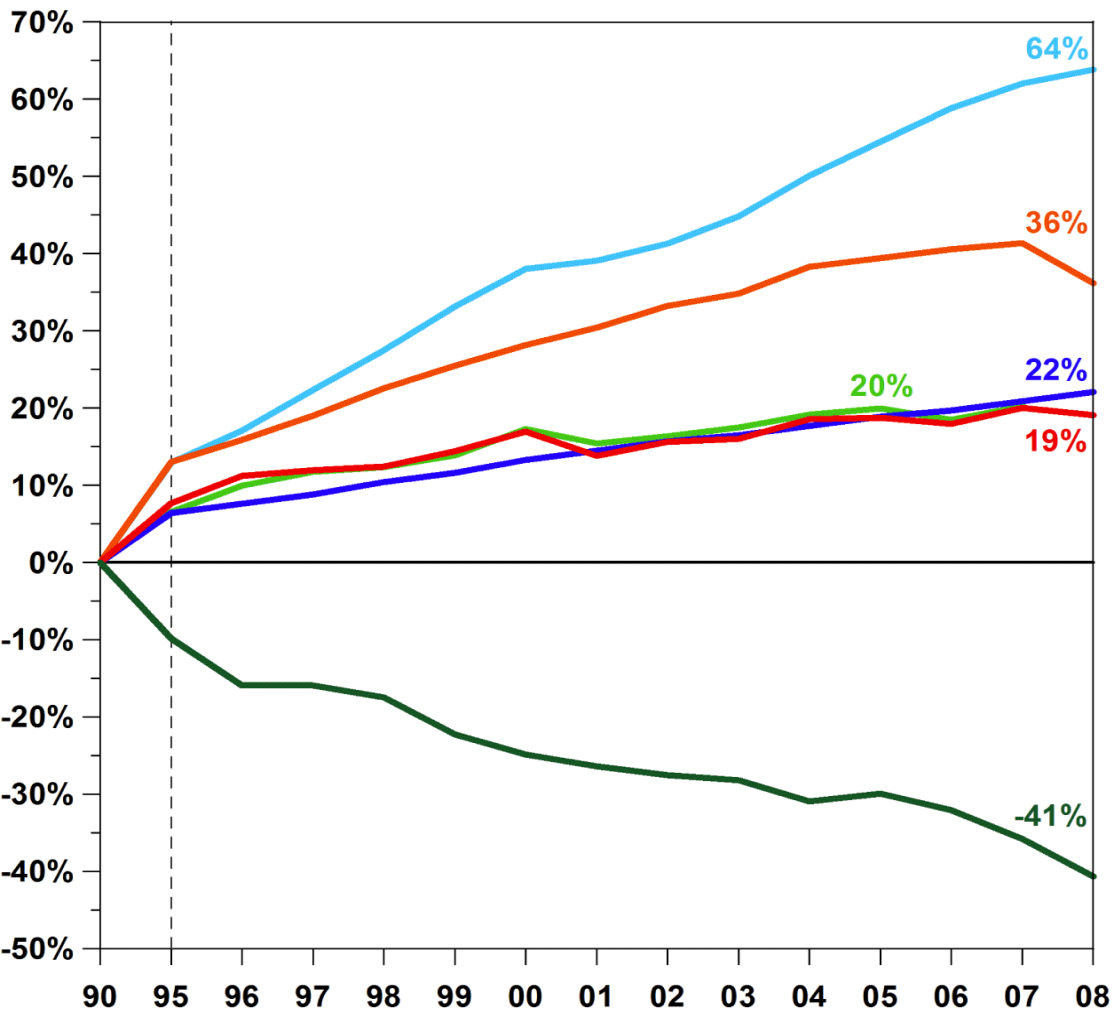


OZONE & AIR QUALITY

THE NATIONAL PICTURE

MICHAEL JAY, EPA REGION 7
WICHITA, KANSAS
OCTOBER 5, 2010





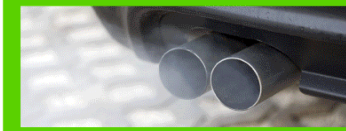
Gross Domestic Product



Vehicle Miles Traveled



Population



CO₂ Emissions



Energy Consumption



Aggregate Emissions (Six Common Pollutants)

Ozone Formation

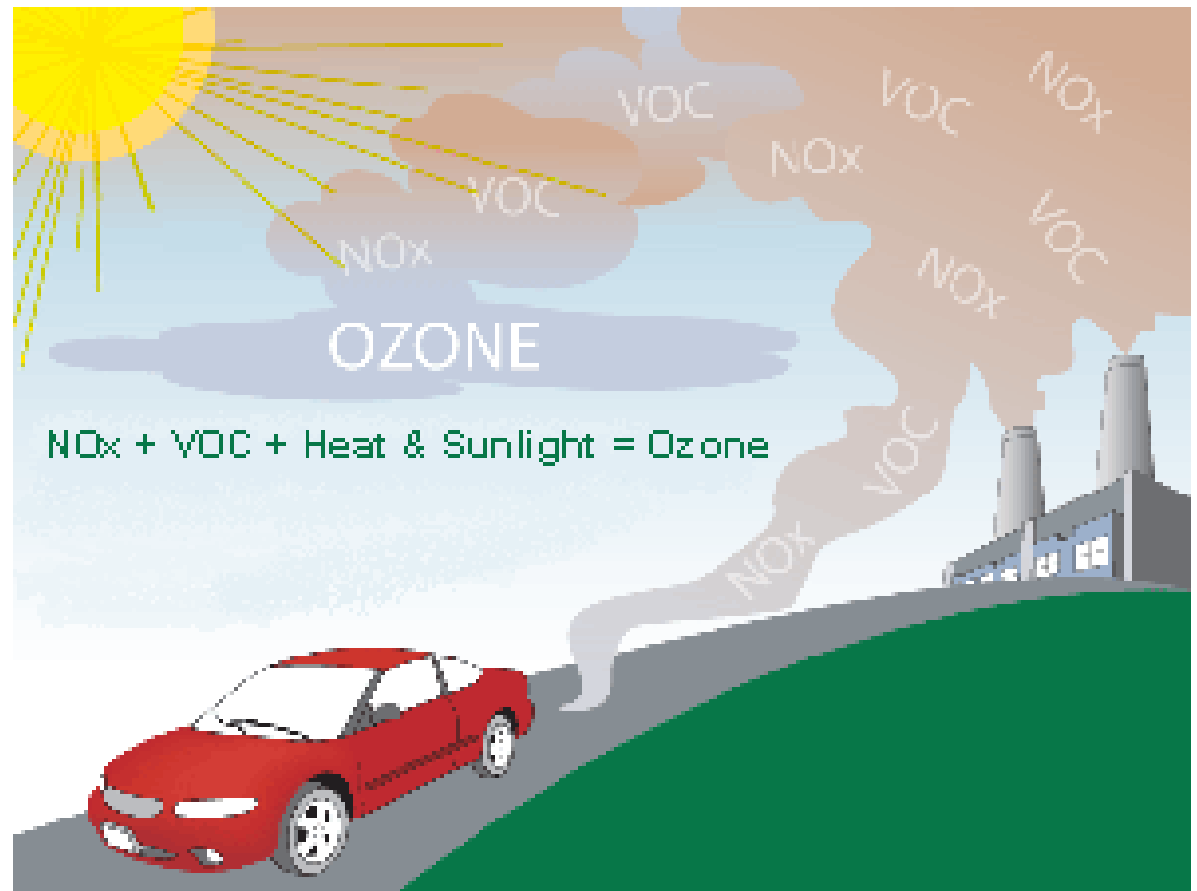
Ozone: good up high, bad nearby

- Ozone is a colorless, odorless gas that occurs both in the Earth's upper atmosphere and at ground level.
- Can be "good" or "bad" depending on its location.
- The “ozone layer” in the stratosphere protects us from solar radiation.
- At ground level, ozone is a pollutant that is a major ingredient of smog.



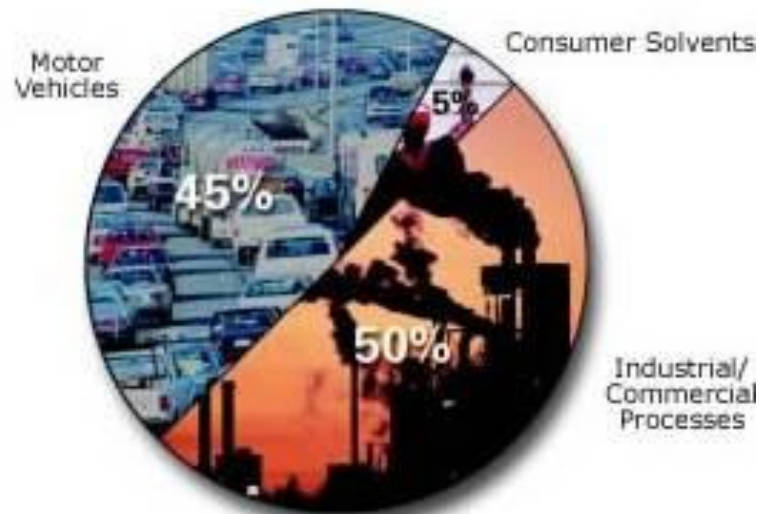
Ozone formation

Ozone season:
April – October



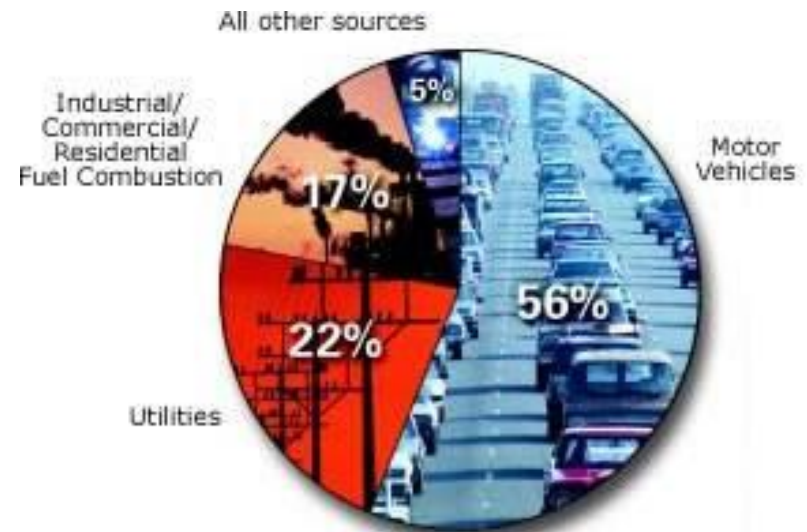
Where do NOx and VOCs come from?

Volatile Organic Compounds (VOCs)



Sources of VOC

Nitrogen Oxides (NOx)



Sources of NOx

Note: these are national figures.

Setting A National Ambient Air Quality Standard, Like Ozone

National Ambient Air Quality Standards (NAAQS)

- EPA sets standards for six “criteria” pollutants:
 - Particulate Matter
 - Carbon Monoxide
 - Nitrogen Dioxide
 - Sulfur Dioxide
 - Lead
 - **Ozone (ground-level)**



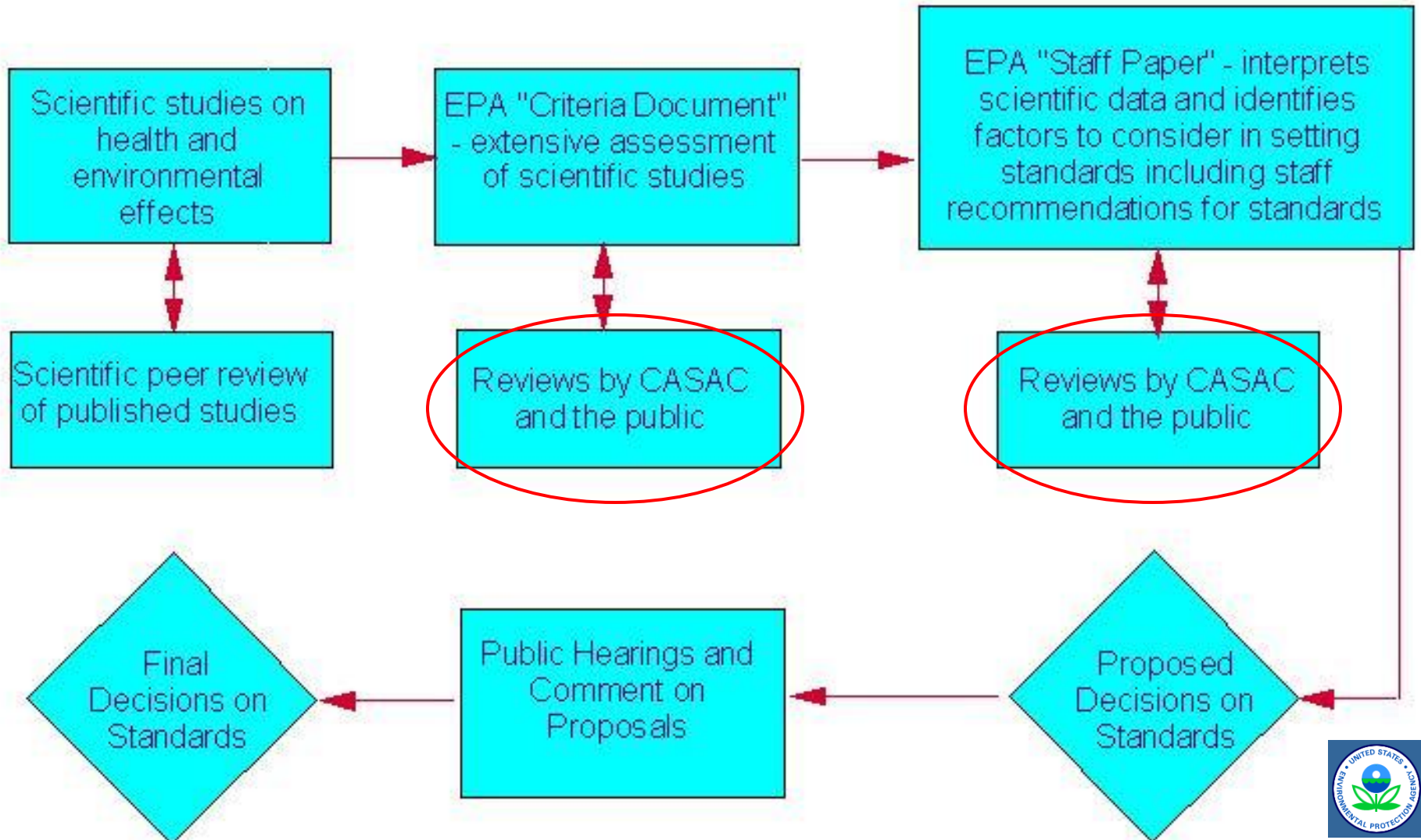
Setting National Air Quality Standards

- Standards reviewed every 5 years
- Extensive scientific review & public input
- Current review schedule (primary standards):

	Lead (Pb)	Nitrogen Dioxide (NO₂)	Sulfur Dioxide (SO₂)	Ozone (O₃)	Carbon Monoxide (CO)	Particulate Matter (PM)
Standard Proposed		June 2009	Nov 2009	Jan 2010	Oct 2010	Jan 2011
Standard Finalized	Oct 2008	Jan 2010	June 2010	Oct 2010	May 2011	Oct 2011

How's the NAAQS established?

Review Process for NAAQS



A lower Ozone standard in 2010 ?

- EPA is reconsidering the 2008 ozone standard
- Considering a range between 60-70 parts per billion (current level is 75)
- Considering a secondary standard in the range of 7-15 ppm-hours
- Level expected to be announced in Fall 2010

How EPA Will Reconsider the Standard

Review:

- Original studies used in 2008 decision (1700+)
- Public comments
- Clean Air Science Advisory Committee (CASAC) recommendations

2010 Ozone standard timeline



General timeline:

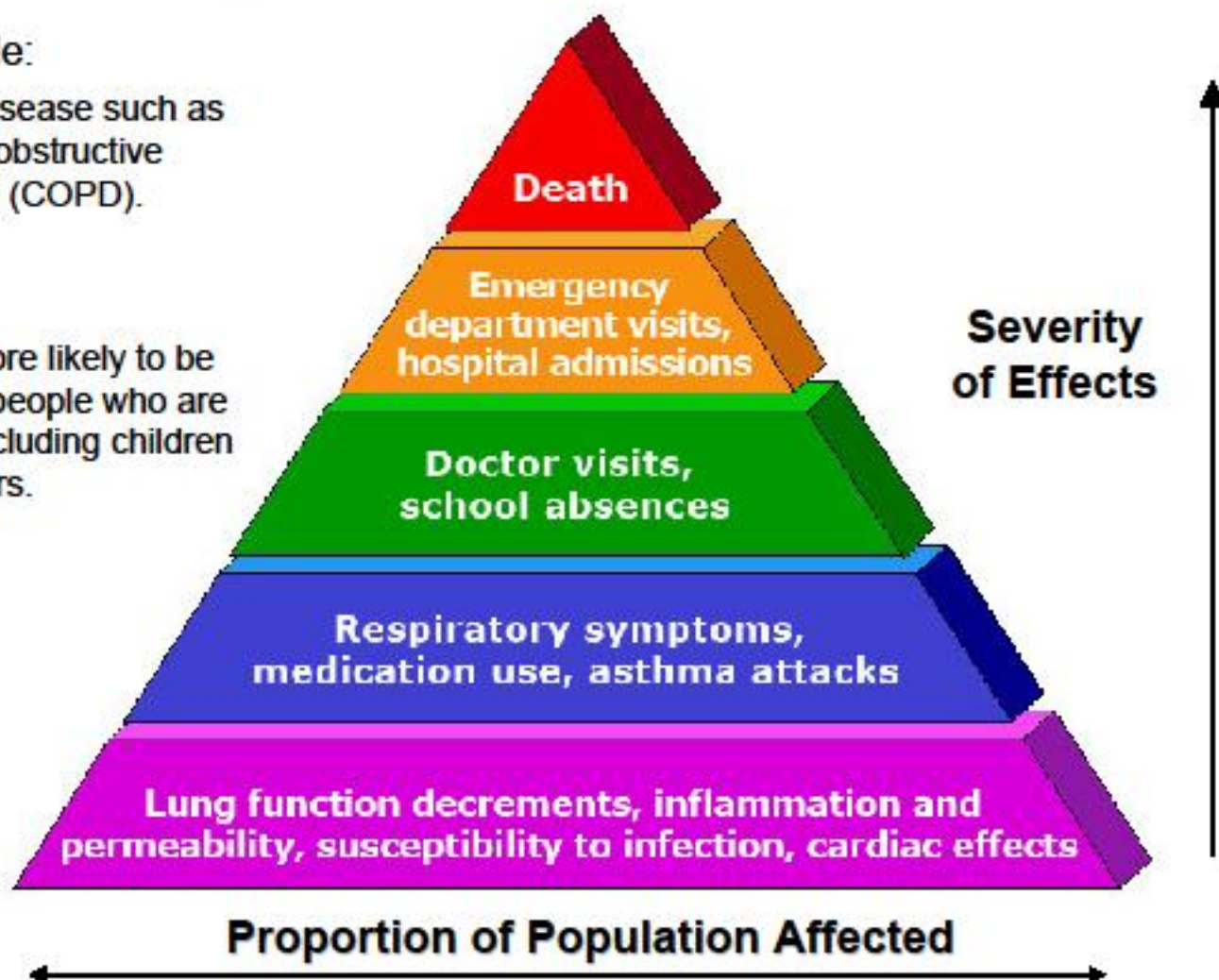
Implementation Timeline	
Final Rule	October 2010
States make designation recommendations to EPA	Usually 1 year – accelerated?
EPA makes designations	Usually 1 year – accelerated?
SIPs due to EPA	Usually 3 years – accelerated?
Attainment date	From 3 years (marginal) to 20 years (extreme)

Ozone & Public Health

Ozone Health Impacts: “Pyramid of Effects”

- At-risk groups include:

- People with lung disease such as asthma or chronic obstructive pulmonary disease (COPD).
- Children.
- Older adults.
- People who are more likely to be exposed, such as people who are active outdoors, including children and outdoor workers.



Estimated Number of Adverse Health Effects Avoided under Alternate Standard Levels in 2020*

	0.070 parts per million	0.060 parts per million
Chronic bronchitis	880	2,200
Nonfatal heart attacks	2,200	5,300
Hospital and emergency room visits	6,700	21,000
Acute bronchitis	2,100	5,300
Upper and lower respiratory symptoms	44,000	111,000
Aggravated asthma	23,000	58,000
Days when people miss work or school	770,000	2.5 million
Days when people must restrict their activities	2.6 million	8.1 million
Avoided premature mortality	1,500 to 4,300	4,000 to 12,000

*Includes benefits of reduced fine particle concentrations associated with illustrative ozone controls applied to meet a primary ozone standard in the proposed range

Ozone & Designations

Sec. 107(d)(1)(A)(i) Designations

Nonattainment Area ...

➤ *any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant.*

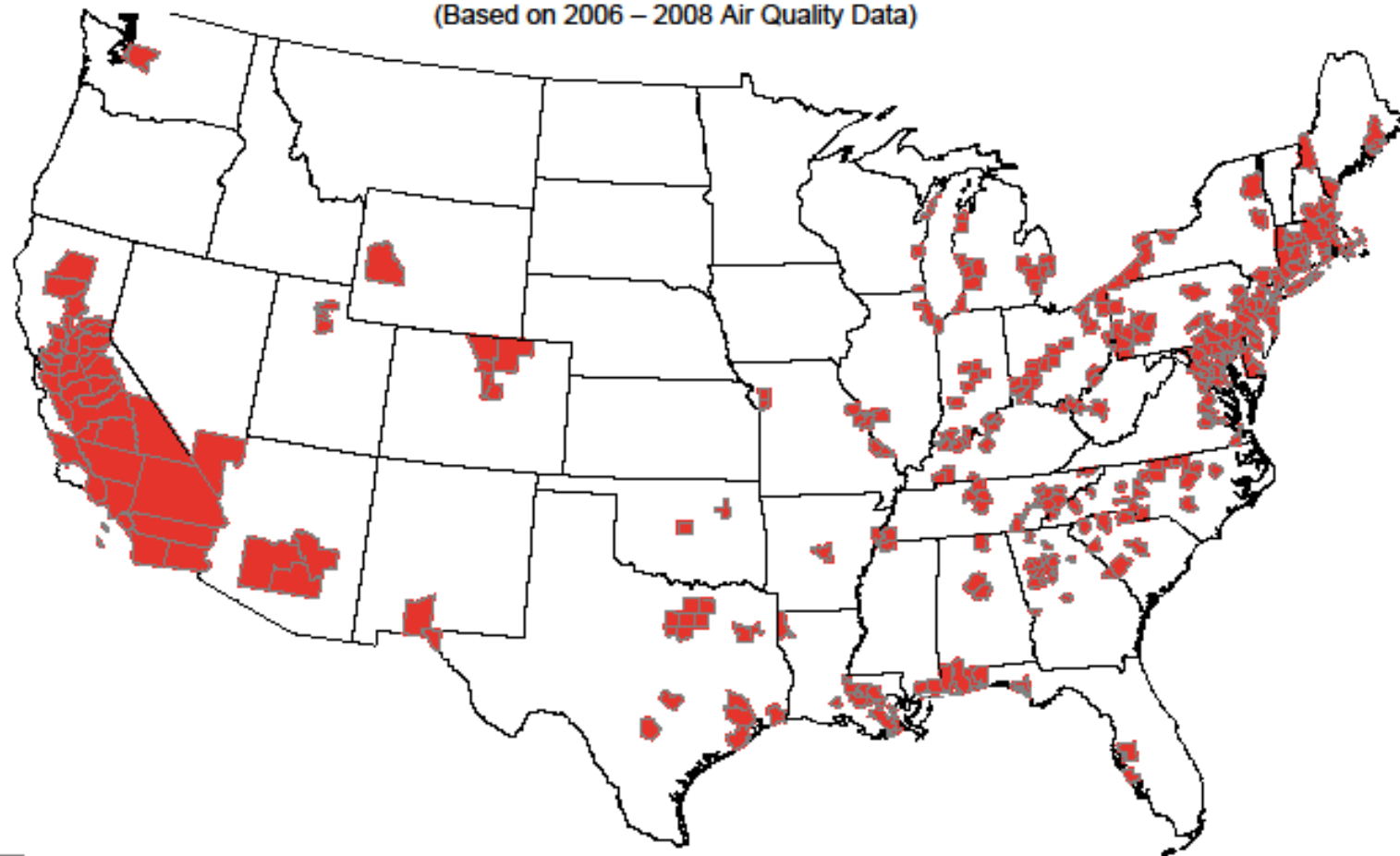


Designations: meeting the standard

- Area can be designated **attainment**, **nonattainment** or **unclassifiable** in meeting the air quality standard
- Nonattainment boundary is based on factors such as:
 - ▣ Air quality data (monitor readings)
 - ▣ Emissions data (location & contribution to violations)
 - ▣ Population density
 - ▣ Traffic and commuting patterns
 - ▣ Growth rates and patterns
 - ▣ Meteorology (weather/transport)
 - ▣ Geography/topography
 - ▣ Jurisdictional boundaries
 - ▣ Level of control of emissions

Counties With Monitors Violating the March 2008 Ground-Level Ozone Standards 0.075 parts per million

(Based on 2006 – 2008 Air Quality Data)



322 of 675¹ monitored counties violate the standard

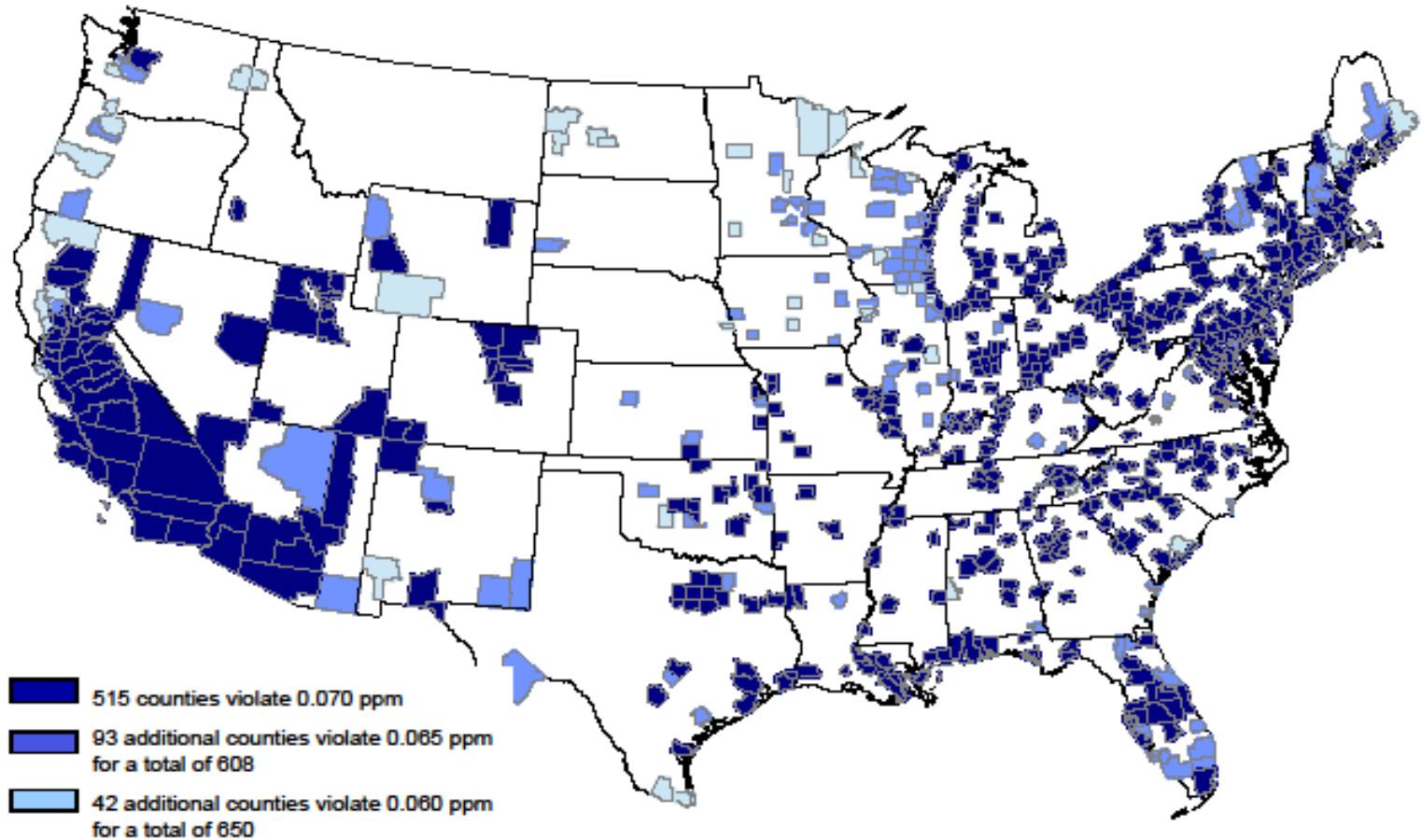
Notes:

1. Counties with at least one monitor with complete data for 2006 – 2008
2. To determine compliance with the March 2008 ozone standards, the 3-year average is truncated to three decimal places.

Counties With Monitors Violating Primary 8-hour Ground-level Ozone Standards 0.060 - 0.070 parts per million

(Based on 2006 – 2008 Air Quality Data)

EPA will not designate areas as nonattainment on these data, but likely on 2008 – 2010 data which are expected to show improved air quality.



Notes:

1. No monitored counties outside the continental U.S. violate.
2. EPA is proposing to determine compliance with a revised primary ozone standard by rounding the 3-year average to three decimal places.

How do these requirements take effect?

- State Implementation Plan (SIP): a legally enforceable plan for how the area will improve air quality
- Contains inventory of emissions, emission budgets, control strategies, and backup plans
- Sanctions imposed if State does not submit an acceptable SIP

Ozone information sources & Training

EPA's Ozone website:

www.epa.gov/ozone/

Air Pollution Training
Institute (APTI):

www.epa.gov/apti

Transportation
Conformity:

[http://www.fhwa.dot.gov/
environment/conform](http://www.fhwa.dot.gov/environment/conform)

Coming soon...EPA's ozone reduction strategies website:

Required Actions

[State Implementation Plan Status and Information](#) - Identifies how states and EPA work together to ensure that the agency's National Ambient Air Quality Standards (NAAQS) are met and maintained.

[State obligation and SIP Timeline](#) - Details what is required by the states to meet the current NAAQS.

[Clean Air Act](#) - Online resource to the full text of the Clean Air Act of 1990.

[NAAQS](#) - Up to date table on the primary and secondary standards for the six common air pollutants: ozone, particulate matter, carbon monoxide, nitrogen oxide, sulfur dioxide and lead.

[State Implementation Planning \(SIP\) toolkit](#) - Designed by the EPA to assist state, local, and tribal air quality agencies in developing plans to implement the 8-hour ozone standard.

[SIP timeline](#) - States are required to provide implementation plans to the EPA by December 2013. States will then be required to meet the primary standard between 2014 and 2031 depending on the severity of the problem.

Voluntary Actions

[Voluntary Ozone Reduction Strategies](#) - A one-stop-shop Website designed to assist ozone non attainment and near non attainment areas in meeting their air quality challenges. This site provides links to voluntary programs and regulatory actions.

[Basic Information](#) - The basics about EPA's voluntary ozone reduction strategies.

[Where You Live](#) - EPA's State partners are excellent sources of relevant information. They can help you brainstorm and leverage ideas for success.

[Tips to Reduce Ozone](#) - identify strategies for reducing ozone and precursors. Please follow the links to successful state and organization clean air program websites.

[Funding](#) - Here you will find links to grant and funding opportunities to help make your projects a reality.

[Information toolkit](#) - State Implementation Planning training videos, ozone fact sheets, brochures and multimedia materials for outreach campaigns.

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