

US EPA ARCHIVE DOCUMENT

**STATE IMPLEMENTATION PLANS
GROUND-LEVEL OZONE
WEBINAR FOR STATE AND LOCAL AIR
AGENCIES**

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Caveats for this Webinar

- **This is a general overview. Always consult your own EPA Regional Office with regard to the requirements for a specific area.**
- **Whenever, the word State is used it could also mean Local agency when that agency has the responsibility to submit ozone related SIPs to EPA.**
- **When EPA proposes the Ozone Implementation Rule – please read it and submit your comments during the rulemaking process.**
- **The final Ozone Implementation Rule is your roadmap for SIP development and schedules.**

The Basics

- National Ambient Air Quality Standards
- Criteria Air Pollutants - Ozone
- CAA (Section 110 and Part D) and 40 CFR Part 51
- Designations
- Clean Data Findings & Redesignations
- Infrastructure SIPs
- Rate of Progress Plans – Reasonable Further Progress
- Attainment Plans
- Maintenance Plans
- Mobile Budgets
- Sanctions & Federal Implementation Plans

The NAAQS

- The *Clean Air Act (CAA)* requires EPA to set *National Ambient Air Quality Standards (NAAQS)* for pollutants considered harmful to public health and the environment. The CAA established two types of national air quality standards.
- *Primary standards* set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly.
- *Secondary standards* set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

CRITERIA AIR POLLUTANTS

- Particulate Matter (PM₁₀ PM_{2.5})
- Sulfur Dioxide (SO₂)
- Nitrogen Dioxide (NO₂)
- Carbon Monoxide (CO)
- Ozone (O₃)
- Lead (Pb)
- SEE 40 CFR PART 50

40 CFR PART 50

<http://epa.gov/air/criteria.html>

This is the place on EPA's website where a table of the current NAAQS is located. The footnotes are key.

State Implementation Plans (SIPs)

- Under the Clean Air Act (CAA), as amended in 1990, each state must develop a plan describing how it will attain and maintain the NAAQS.
- In other words, how it plans to get areas above the NAAQS to within (below) the standard and keep them clean.
- This plan is called the State Implementation Plan (SIP) and is required under Section 110 of the CAA (40 CFR Part 51, Subparts F & G).
- In general, the SIP is a collection of programs, including:

- a monitoring program, which is a collection of monitoring devices throughout the country which provide actual measurements of the concentrations in the air, to identify whether an area is meeting the air quality standards;
- emissions inventories, which describe the sources and categories of emissions to the air for a given pollutant (or its precursors), and how much is emitted by each source or source category;
- air quality calculations and computer modeling, which are used to predict future trends and the effects of emissions reduction strategies;

- **control strategy studies whose goal is finding the best way to reduce emissions in order to meet air quality standards;**
- **formal adoption of measures/regulations (enforceable by EPA, States and citizens) which ensure that we will achieve the reductions deemed necessary in the planning process;**
- **periodic review to evaluate whether those needed reductions were achieved in reality, and whether they had the predicted result.**

- **The air quality agency responsible for the State Implementation Plan, (usually a state agency) must provide the public an opportunity to review the plan before sending it to EPA for approval.**
- **In cases where the SIP is not approvable the Agency can issue and enforce a Federal Implementation Plan (FIP) to ensure attainment and maintenance of the NAAQS. In addition, the Clean Air Act contains penalties, referred to as "sanctions" which EPA can impose in areas not satisfying the State Implementation Plan requirements.**

Designations

- **How do we know an area is nonattainment?**
- **Design values**
- **Boundaries**
- **State Recommendations**

How Design Values Are Calculated

- Hourly ozone concentrations averaged over 8-hour period
- Daily maximum ozone concentration is the highest of the 24 possible 8-hr averages
- Determine the 4th highest 8-hr daily average for each ozone season (for three years)
- Design Value is the three-year average of the 4th highest concentration

Ozone monitors

- The monitor from which the data is used to determine the design value is referred to as the design monitor – the concept being that when this monitor's design value is within attainment, the entire nonattainment area should be in attainment.
- The ambient monitors used must meet criteria for location, operation, minimum data collection.

Nonattainment Boundaries

- The presumption of MSA or CMSA as the nonattainment boundary for ozone was specifically for the designations that occurred following passage of 1990 CAA amendments. There is no presumptive boundary for subsequent designations.
- In the past, the EPA has chosen to recommend the CSA or CBSA (new term) as the nonattainment boundary. In all cases, States may make recommendations for larger or smaller nonattainment areas based upon an analyses of factors provided by EPA's designation guidance and other relevant information.
- For the new 2010 ozone NAAQS, we will discuss what the presumptive nonattainment area should be, if we have one.
- Given the nature of ozone and the transport phenomenon, ozone nonattainment areas are generally larger than other criteria pollutant nonattainment areas.

State Recommendations for Designations

- After EPA promulgates a new or revised NAAQS, States generally have one year to make recommendations to EPA with regard to their nonattainment areas and boundaries.
- No later than 120 days prior to publishing final designations, EPA is required to notify States of any changes it makes to states' boundary recommendations ("120-day" letters).

- **There may be a 30 –day public comment period on the information considered for the determinations made in the 120-day letters.**
- **States may present/submit any new information or correct any erroneous information used by EPA to arrive at the determinations made in the 120-day letters.**
- **EPA makes the final designations and publishes them in the FR.**

When Are SIPs Due?

- **The Infrastructure SIPs are due 3 years from the effective date of a new or revised NAAQS. See 110(a) – (I). See 110(a)(2)(D). These are due by statute regardless of the designations process.**
- **“Usually” the ROP and attainment plan are due three years after the effective date of an area’s designation of nonattainment.**
- **Check the Implementation Rule for due dates of Part D SIP elements**
- **What happens if the area’s air quality attains before the SIP is due?**

A FINDING OF ATTAINMENT (Clean Data Finding)

- Relieves the State from having to do an ROP Plan and Attainment Demonstration
- Leaves the area still designated nonattainment
- State may request or EPA may initiate the action
- Is not a SIP revision
- Requires rulemaking

A REDESIGNATION

- Requires a State to submit requests satisfying five requirements
- The maintenance Plan is a critical element and is a SIP revision
- Redesignates an area from nonattainment to attainment
- Requires rulemaking

Clean Data Finding v. Redesignation

Clean Data Finding

3 years of violation free data (i.e., clean data – design value that indicates the area meets the NAAQS)

Redesignation – Section 107 of the CAA

- Fully approved 110 SIP (Infrastructure elements)
- 3 years of violation free data – design value meets the NAAQS
- Approved Part D SIP Requirements due as of the date as of the submittal of a complete redesignation request .
- Improvement in air quality from enforceable reductions
- Approved maintenance plan for 10 years out.

DESIGNING AN ATTAINMENT PLAN THE “TOOLS”

- **Monitoring**
- **Emission Inventories**
- **Modeling**

MONITORING

Ambient Air Quality Monitoring

- Approved networks
- Approved equipment (reference monitors/equivalent methods)
- QA'd/QC'd data that is certified
- Data in AQS

EMISSION INVENTORIES

- Stationary Sources (point sources)
- Mobile sources– On Road
- Mobile sources – Off Road
- Area sources
- Biogenics (especially for O₃)

PRECURSORS TOO

MODELING

Air Quality Planning Models

- Domains
- Transport

Emission Inventory Models

- MOBILE 1-6 (old school)
- MOVES (what is required now)

Air Quality Modeling

Requires expertise of meteorologists and atmospheric physicists (don't try this at home)

EPA approved models/guidance

Model evaluation

Modeling “runs”

Model projections

Demonstrating attainment

- **Popping every grid cell green v.**
- **Weight of Evidence (WOE)**

Rate of Progress Plan

- A base year is selected.
- The state must compile a complete base year Emission Inventory for the specific nonattainment area including documentation.
- Must “demonstrate” via calculations that a 3% reduction is achieved each year from the base year to the attainment year.
- First 15% historically has had to be all VOC. After that NO_x substitution is allowed.

- **A ROP Plan must identify mobile budgets.**
- **A ROP Plan must have contingency measures.**
- **See the Implementation Rule for additional info.**
- **The ROP Plan is a required element of the attainment plan.**

The Attainment Plan for Ozone

- Reasonably Available Control Measures (RACT & State mobile/area programs)
- Applicable Part D requirements
- NSR Permitting Program (minor & major)
- Additional State/Local measures needed for attainment
- Federal mobile/fuel measures -creditable
- Federal area source measures -creditable
- The Rate of Progress Plan (“ROP”) sometimes called the Reasonable Further Progress Plan, or “RFP”
- An attainment demonstration
- Mobile Budgets
- Contingency Measures

PART D REQUIREMENTS

- **The CAA mandated requirements for designated nonattainment areas.**
- **Increase in number and stringency depending upon the classification of a designated nonattainment area.**
- **Covered in the Implementation Rule issued by EPA when it promulgates a new NAAQS.**

The Control Strategy SIPs

- Rate of Progress (ROP) Plans
- Attainment Plans
- Maintenance Plans

These plans tally the creditable reductions and “demonstrate” attainment, ROP or Maintenance.

They all have:

- Mobile Budgets
- Contingency Measures

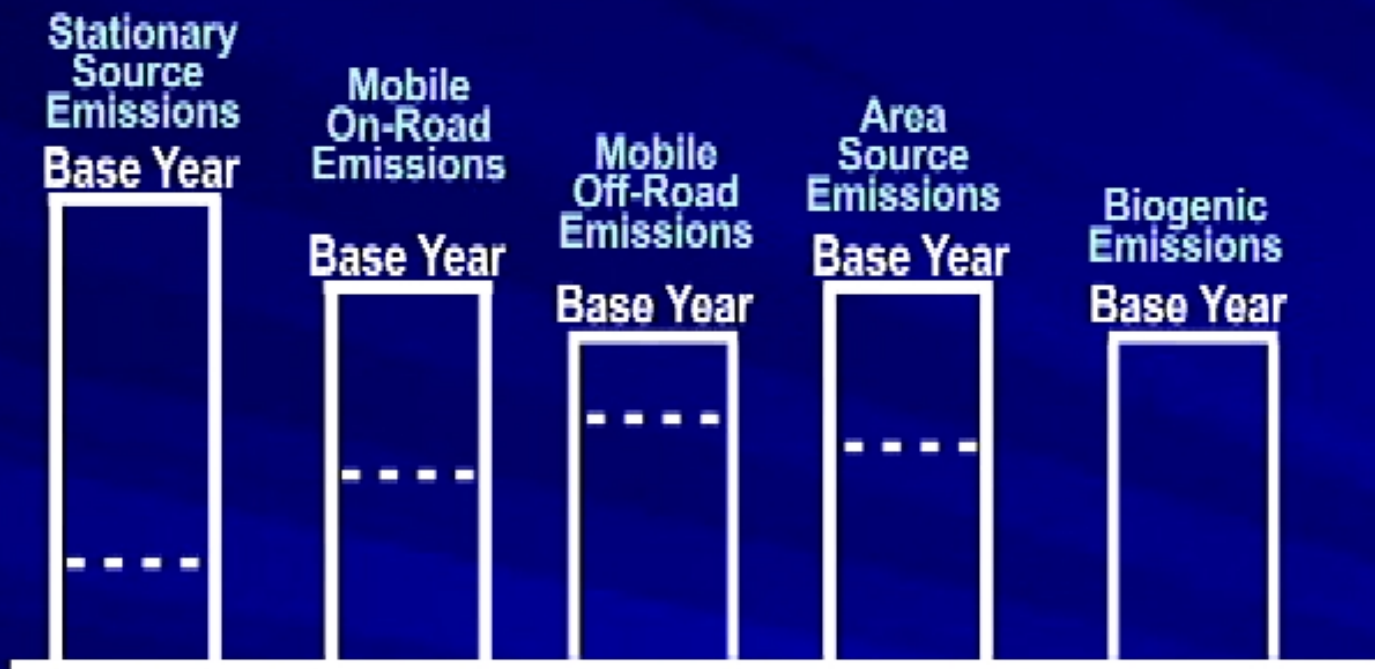
MOBILE BUDGETS

The amount of on-road mobile emissions specifically identified in a control strategy plan for a criteria pollutant and its precursors that may remain “in the air” after attainment, ROP or maintenance is demonstrated.

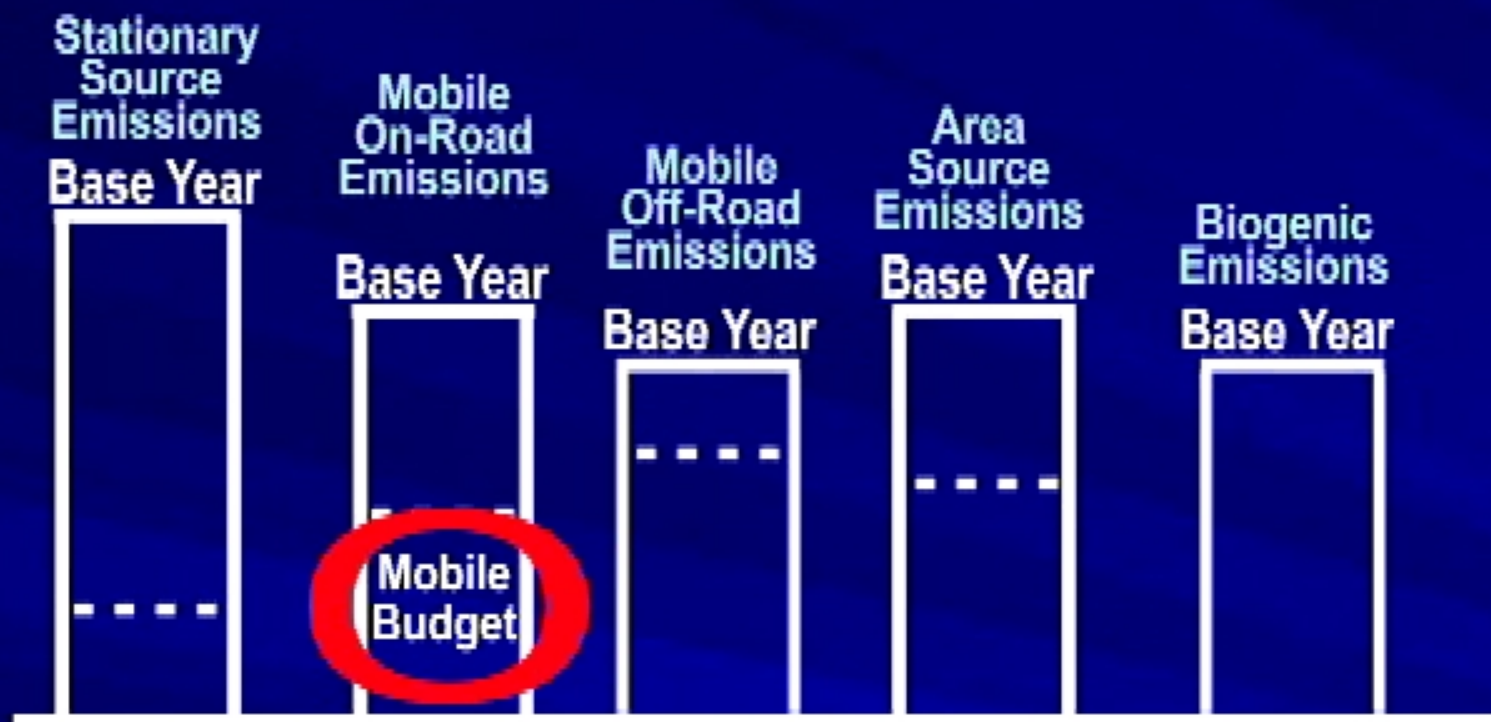
Budgets are used by MPO’s to demonstrate “transportation conformity.”

The “tightest” set applies.

Concept of a Mobile Budget



--- The Amount of Emissions "Remaining" in the Air After Reductions Necessary to Demonstrate Attainment, Rate of Progress or Maintenance



--- The Amount of Emissions "Remaining" in the Air After Reductions Necessary to Demonstrate Attainment, Rate of Progress or Maintenance

Contingency Measures

- **Attainment and ROP Plans - Measures that would go “automatically” into effect if a date by which progress or attainment is not met.**
- **Maintenance Plans – An identified set of measures that would be adopted and implemented should an area exceed/violate after it has been redesignated.**

Federal Implementation Plans (FIPs) in Nonattainment Areas

- EPA doesn't like them
- States don't like them
- Industry doesn't like them
- Different than a FIP in an attainment area or a 111(d)/129 FIP

Federal Regulations/Programs promulgated by EPA and directly enforced by EPA until a SIP is approved.

The Section 179 Sanctions

- **2 for 1 Offsets for Major Source NSR**
- **Loss of Federal Highway Funds Except for Safety-Related Projects**

Why Would Sanctions Be Imposed ?

Sanctions and FIP Clocks Commence for:

- A Finding of failure to submit a required Part D SIP element.
- A Finding of Incompleteness for a required SIP element.
- Disapproval of a Part D SIP element.
- Any of the above for a SIP for which EPA has issued a SIP call.

Order of Sanctions

- Under the CAA, once EPA makes the finding and publishes a FR notice, the sanctions and FIP clocks commence.
- Mandatory that the 2:1 Offset be imposed 18 months later and the Highway \$ sanctions 24 months later.
- But under the CAA, EPA may imposed either or both anytime after a finding is made.

What Halts Sanctions & FIP Clocks?

- The submittal of a complete SIP element for which EPA made a finding of failure to submit or of incompleteness halts the sanctions clock.
- The submittal and EPA approval of a SIP element that was disapproved halts that sanction clock.
- Only EPA approval of the SIP for which the FIP clock was started halts the FIP clock.

What Else Causes Problems

Transportation Conformity

Disapproval of an Attainment or ROP Plan

- If either of these SIPs (plans) are disapproved, then their mobile budgets are also disapproved.
- Until there are mobile budgets a new Transportation Improvement Plan (TIP) cannot be determined to conform
- So no new projects until the disapproval is “corrected” by the approval of the attainment or RFP plan.

Is There Any Way to Avoid a Conformity Freeze When an Attainment or RFP Plan is Disapproved?

YES*

* A protective finding

What is a Protective Finding?

- A protective finding is made to protect the mobile budgets of an attainment plan or RFP plan when such a plan is disapproved by EPA.
- Such a finding may be included in the rulemaking performed by EPA at the time it disapproves the attainment or RFP plan.

When Can a Protective Finding Be Made?

- A protective finding may be made when the reason for the disapproval of the ROP or attainment plan does not effect the validity of its mobile budgets.
- **Example:** The protective finding that Region 3 made when it had to disapprove the Maryland SIP for the Metro Washington DC area.

Please See These Websites

- Butch Stackhouse's SIP status reports web site:
<http://www.epa.gov/air/urbanair/sipstatus/>
- Quick links for some of the information:
 - Key page for the by status of the nonattainment and OTC requirements:
http://www.epa.gov/air/urbanair/sipstatus/reports/map_s.html
 - This page provides the Infrastructure SIP reports:
http://www.epa.gov/air/urbanair/sipstatus/reports/map_i.html
- Both the nonattainment and the Infrastructure SIP reports can be run by element/requirement for a national report. Here are the links to the national reports:
 - http://www.epa.gov/air/urbanair/sipstatus/reports/idx_en.html
 - http://www.epa.gov/air/urbanair/sipstatus/reports/idx_in.html

The EPA Regional Ozone SIP Contacts

- Region 1 – Anne Arnold
- Region 2 – Rick Ruvo
- Region 3 – Cristina Fernandez
- Region 4 – Dick Schutt
- Region 5 – Jay Bortzer
- Region 6 – Guy Donaldson
- Region 7 – Josh Tapp
- Region 8 - Monica Morales
- Region 9 - Lisa Hanf
- Region 10 - Michael McGown

For General Questions

- Marcia L. Spink
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- spink.marcia@epa.gov
- Work Schedule 8:30 – 7:00 Eastern Time

Access the following web page:

<http://www.epa.gov/eogapti1/broadcast.html#SIP0809>