

EPA Region 8: State Implementation Plan (SIP) Development and Approval Process

Colorado Legislative Interim Committee
on Ozone Air Quality

Sept. 22, 2023

Adrienne Sandoval, Director
Air and Radiation Division (ARD)

U.S. Environmental Protection Agency - Region 8

Agenda

- 1) Clean Air Act (CAA) SIP requirements
- 2) Criteria EPA uses when evaluating SIPs
- 3) Roles and Responsibilities
- 4) History of ozone nonattainment in Denver
 - 1997 standard
 - 2008 standard
 - 2015 standard
- 5) Planning requirements associated with each classification (e.g. Marginal, Moderate, Serious, Severe) of nonattainment area
- 6) Next steps



Basics of SIP Requirements

When EPA establishes a new national ambient air quality standard (NAAQS) or revises an existing NAAQS, it sets in motion two major actions aimed at ensuring that air quality throughout the country meets those standards:

- 1) EPA must designate areas as meeting (attainment) or not meeting (nonattainment) the standard; and
- 2) The Clean Air Act (CAA) requires states to develop State Implementation Plans (SIPs): a general plan to attain and maintain the NAAQS in all areas of the country, and a specific plan to attain the standards for each area designated nonattainment for a NAAQS.

There are six criteria pollutants that there are NAAQS for:

- 1) Ozone
- 2) PM 2.5
- 3) Nitrogen Dioxide
- 4) Sulfur Dioxide
- 5) Lead
- 6) Carbon Monoxide



State Plans Required for All States – Infrastructure SIPs

Within 3 years of EPA issuing the standard, all states are required to submit SIPs with general infrastructure elements showing the state has the capacity to attain, maintain, and enforce a new or revised NAAQS. These SIP submittals must include the basic program requirements for managing air quality required in section 110(a)(2) of the CAA such as:

- ambient air quality monitoring and data systems;
- programs for enforcement of control measures; and
- adequate authority and resources to implement the plan.

State Plans Required for States with Areas Not Meeting the Air Standard – Nonattainment SIPs

In addition to the basic required elements, CAA Section 172 requires states with nonattainment areas to adopt additional regulatory programs designed to achieve and maintain attainment of the relevant NAAQS.

Roles and Responsibilities

The EPA works closely with the Air Pollution Control Division (APCD) of the Colorado Department of Public Health and Environment (CDPHE) and with the Regional Air Quality Council (RAQC).

RAQC Responsibilities (local agency)

- Local planning agency appointed via executive order of the Governor
- Lead agency on control strategy SIP development for the Denver Metro Area
- No regulatory authority

CDPHE Responsibilities (state agency)

- Lead agency for air quality planning statewide
- Regulatory authority including permitting, rulemaking, enforcement, and SIP adoption
- The State has the authority and primacy for developing SIPs and associated revisions. This process includes:
 - Developing state rules designed to help achieve attainment and soliciting stakeholder input
 - Submitting SIP revisions, which include the revised rules, for approval by the Air Quality Control Commission (AQCC)
 - Once approved by the AQCC, Colorado SIP revisions go through a legislative review period and then are submitted to EPA for approval or disapproval.

EPA Responsibilities (federal agency)

- Evaluate SIP submittals and share recommendations or guidance applicable to SIP(s) being developed
- Provide comments during State public process, if necessary
- Take action to approve or disapprove Colorado's SIP submittals, this includes proposing approval or disapproval, taking public comments and then finalizing the action.



Criteria EPA Uses When Evaluating SIPs

Required Elements Based on Classification (e.g., Severe ozone nonattainment)

Enforceability

- Rule(s) affirmatively requires compliance testing methods, recordkeeping and associated reporting.
- Submitted regulations need to be in compliance with EPA policy and guidance and the 1990 CAA.
- SIP submittals should:
 - Be worded so the intent of the revision is clear and the regulations and definitions are not too narrow (covers all appropriate sources).
 - Identify what sources and source categories are being regulated.
 - Demonstrate the authority for incorporating Federal regulations into state law and the methods or rules are incorporated in the right way.

Public Comments

- States must engage in a public process when developing SIPs including providing reasonable notice and an opportunity for the public to comment.
- EPA is required to summarize all substantive public comments received on its rulemakings and provide a response as to why it agrees or disagrees with the commenter(s).

Impacts on Ambient Air Quality

- EPA looks at the impact of the proposed SIP revision action on attainment and maintenance of any applicable NAAQS.
- EPA also looks for a narrative describing:
 1. expected impacts of the various control measures and projected compliance status of affected sources on ambient air quality or emissions levels;
 2. expected emissions trends for the impacted area; and
 3. an analysis of the impact of potential growth in the affected area. The latter analysis would also apply to a proposed SIP action involving a comprehensive new source review/PSD program.

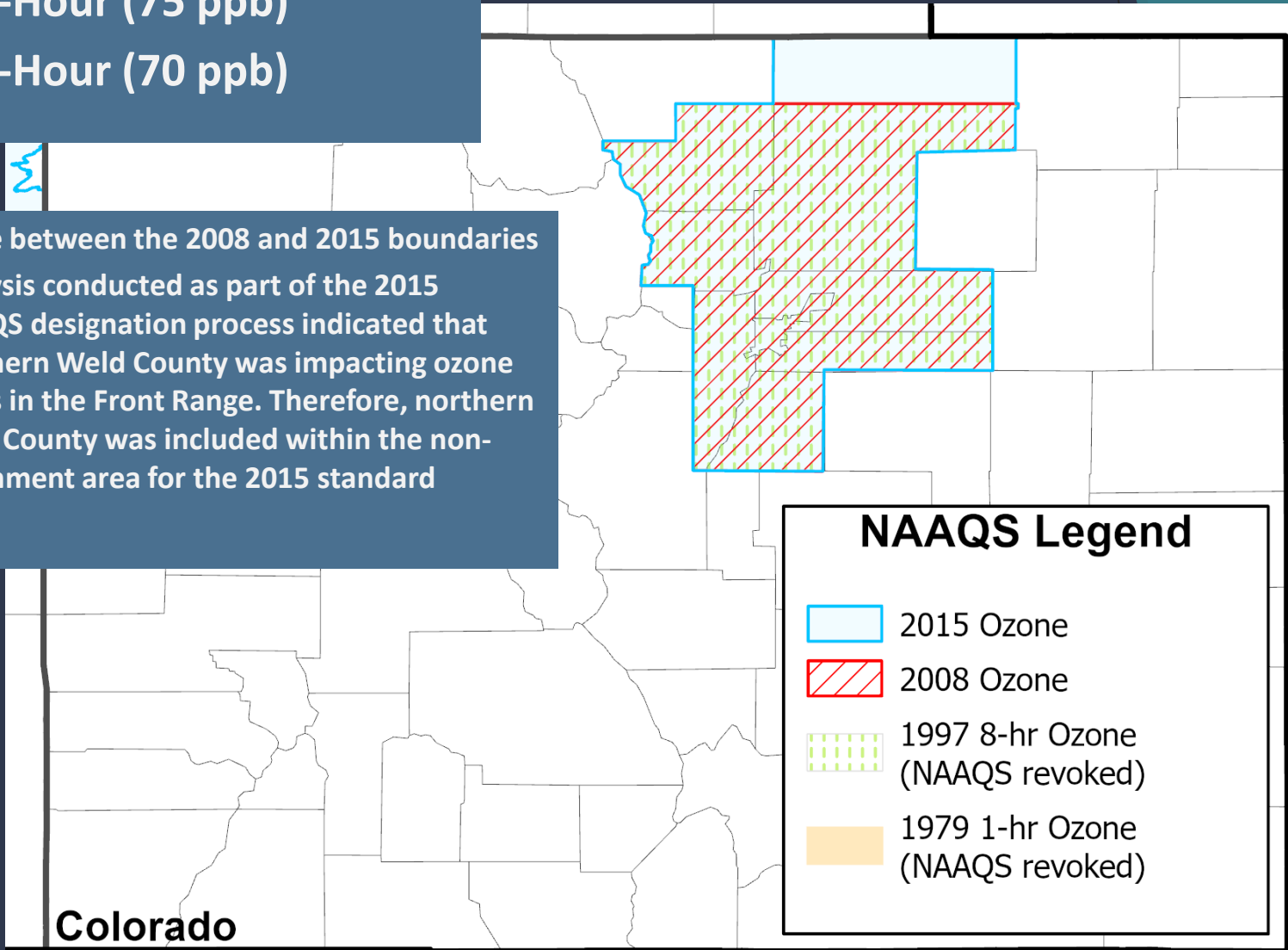
Colorado Ozone Nonattainment Areas

2008 8-Hour (75 ppb)

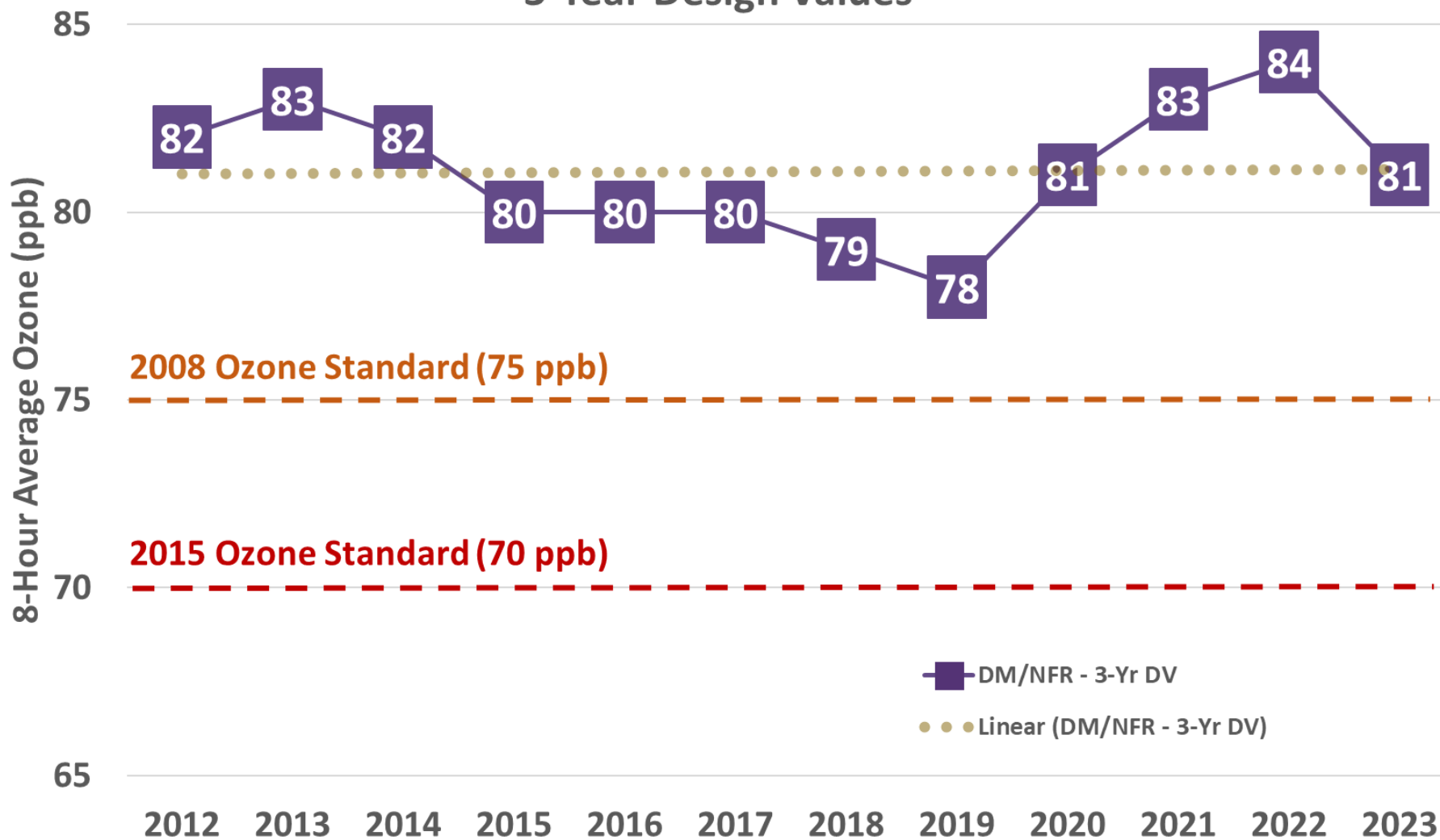
2015 8-Hour (70 ppb)

Difference between the 2008 and 2015 boundaries

- Analysis conducted as part of the 2015 NAAQS designation process indicated that Northern Weld County was impacting ozone levels in the Front Range. Therefore, northern Weld County was included within the non-attainment area for the 2015 standard



Denver Metro/North Front Range Ozone NAA 3-Year Design Values*



* Data current as of Sept. 13, 2023

Denver Metro/North Front Range (DM/NFR)



2008 8-Hour (75 ppb)

- Serious NAA (2022)
 - (Based on 2016-2018 DV = 79 ppb)
 - Attainment Date = July 20, 2021
 - (Based on 2018-2020 DV = 81 ppb)
- National 2008 Ozone DAAD*:
 - Bump-Up to Severe
 - New Attainment Date = July 20, 2027
 - (Based on 2024-2026 Data)
- Severe SIP
 - Due 18 months after DAAD (5/2024)
 - Potential SIP Issues
 - Contingency Measure deficiency

2015 8-Hour (70 ppb)

- Marginal NAA (2018)
 - (Based on 2014-2016 DV = 80 ppb)
 - Attainment Date = Aug. 3, 2021
 - (Based on 2018-2020 DV = 81 ppb)
- National 2015 Ozone DAAD*:
 - Bump-Up to Moderate
 - New Attainment Date = Aug. 3, 2024
 - (Based on 2021-2023 Data)
- Moderate SIP
 - Due January 2023 (received June 2023)
 - SIP Issues
 - Attainment modeling
 - Contingency Measure deficiency

*DAAD = Determination of Attainment by the Attainment Date

Ozone Planning Requirements By Classification

		NSR Offset	Major Source Threshold
EXTREME (20 years to attain)	TRAFFIC CONGESTION CONTROLS (if appropriate)	1.5:1	10 tpy
	CLEAN FUELS REQUIREMENT FOR BOILERS		
SEVERE (15/17 years to attain) RFG applies in areas reclassified as Severe	PENALTY FEE PROGRAM FOR MAJOR SOURCES	1.3:1	25 tpy
	VMT GROWTH DEMONSTRATION (& TCMs if needed)		
	VMT REPORTING		
	NSR REQUIREMENTS FOR EXISTING SOURCE MODS		
SERIOUS (9 years to attain)	CLEAN FUELS PROGRAM OR SUBSTITUTE MEASURE FOR LARGER POP. AREAS	1.2:1	50 tpy
	MODELED DEMO OF ATTAINMENT		
	MILESTONE DEMONSTRATIONS and CONTINGENCY MEASURES FOR RFP		
	3% ANNUAL RFP UNTIL ATTAINMENT		
	ENHANCED I/M for larger population areas		
	CONTINGENCY MEASURES FOR FAILURE TO ATTAIN		
MODERATE (6 years to attain)	ENHANCED MONITORING PLAN	1.15:1	100 tpy
	BASIC VEHICLE I/M for larger population areas		
	15% VOC ROP or 15% VOC/NOx RFP (OVER 6 YEARS)		
	VOC/NOx RACT for MAJOR/CTG SOURCES		
MARGINAL (3 years to attain)	ATTAINMENT DEMONSTRATION	1.1:1	100 tpy
	NONATTAINMENT NEW SOURCE REVIEW PROGRAM		
	EMISSIONS STATEMENTS		
	BASILENE EMISSIONS INVENTORY (EI)		
	PERIODIC EMISSIONS INVENTORY UPDATES		

NOTE: Transportation and General Conformity apply in all ozone nonattainment areas.

Nonattainment Area SIP Deadlines

Initial Designation/Classification		2008 NAAQS	2015 NAAQS
		Jul. 2012	Aug. 2018
Classification	# Years to Attain	Attainment Date	Attainment Date
Marginal	3	2015	2021
Moderate	6	2018	2024
Serious	9	2021	2027
Severe-15	15	2027	2033
Severe-17	17	2029	2035
Extreme	20	2032	2038

- Nonattainment classification is based on % monitoring data is above standard at the time of initial designation.
- Areas are reclassified (i.e. “bumped-up”) to the next highest classification within 6-months of failing to attain by the attainment date.
 - SIPs for each new classification are due by the start of the new attainment year.
 - Until area attains, state may have to do a SIP every 3 years unless state voluntarily requests bump-up to a higher classification.

What happens if EPA disapproves a SIP

1. Transportation Conformity Freeze - Immediately

- A conformity freeze occurs immediately upon control strategy SIP disapproval.
- A freeze means that some types of transportation projects can proceed, but no new projects can be implemented due to the area not being able to adopt a new transportation plan until a new SIP is submitted and approved by EPA.

2. Highway Funding Sanctions – 2 years

- Within two years of EPA's SIP disapproval, highway sanctions apply (under CAA section 179(b)(1)) and the freeze becomes a lapse (due to not being able to demonstrate conformity with a disapproved SIP).
- Funding for highway funding is limited due to not being able to adopt new TIPs nor show conformity with a new SIP.

3. Transportation Conformity Lapse

- A minimum of every 4-years, areas must show transportation plans conform to the SIP.
- Without an approved SIP, a conformity lapse will occur on date highway sanctions take effect.
 - *Lapse means* that the conformity determination for a transportation plan or TIP has expired, and thus there is no currently conforming transportation plan and TIP.

4. FIP Deadline – 2 years

- EPA must promulgate a Federal Implementation Plan (FIP) two years after a SIP disapproval
- A FIP is an air quality plan that, in the case of a disapproved SIP, EPA is required to develop in order to meet a CAA requirement unless the state makes the necessary modifications within the 2 year time frame

NOTE:

- Failing to attain the standard does NOT trigger these. Failing to attain the standard moves an area into the next nonattainment area classification
- Disapproval of required SIP elements DOES trigger these.



Next Steps

EPA has a number of SIP submittals in house from Colorado that relate to the 2008 and 2015 ozone standards

For 2008:

- EPA will be taking final action on several aspects of Colorado's 2008 ozone Serious attainment SIP later this fall.
- Challenges to some of EPA's past actions on parts of the Serious SIP are in litigation in the 10th Circuit.
- This SIP is due in May 2024 and is required to include a modeling demonstration that shows how the control strategies that Colorado is pursuing will bring the area into attainment by the required date of July 20, 2027.
 - Colorado submitted pieces of their 2008 ozone Severe attainment SIP in June 2023. The remaining pieces of the SIP will be submitted in spring 2024. EPA will be taking action on the attainment SIP after the full SIP is submitted.

For 2015:

- EPA will be taking action on the base year emission inventory SIP submitted as part of Colorado's 2015 ozone Marginal classification.
 - Provides a current and comprehensive data source for emissions contributing to ozone
 - While special consideration may be needed, the anthropogenic portion of the base year inventory serves as the ROP/RFP baseline inventory
- Colorado submitted its 2015 ozone Moderate SIP in June 2023. EPA expects to take action on the SIP submittal in 2024.

