

Introduction to State Air Quality Planning - State Implementation Plan (SIP)

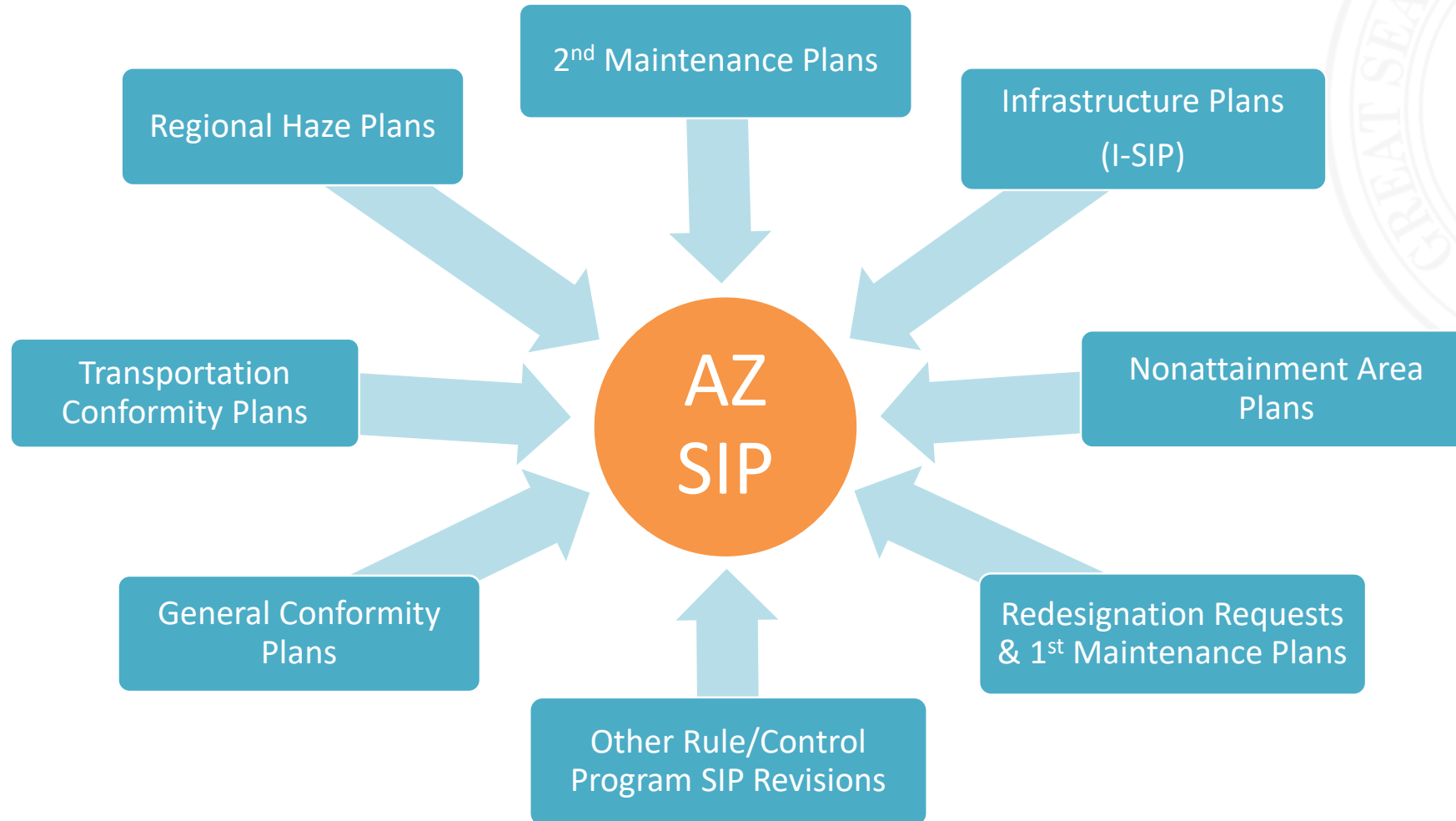
Ad Hoc Study Committee on Air Quality and Energy
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Daniel Czecholinski, CHMM
Director, Air Quality Division



What is a SIP?

Only one Arizona SIP with many “chapters”

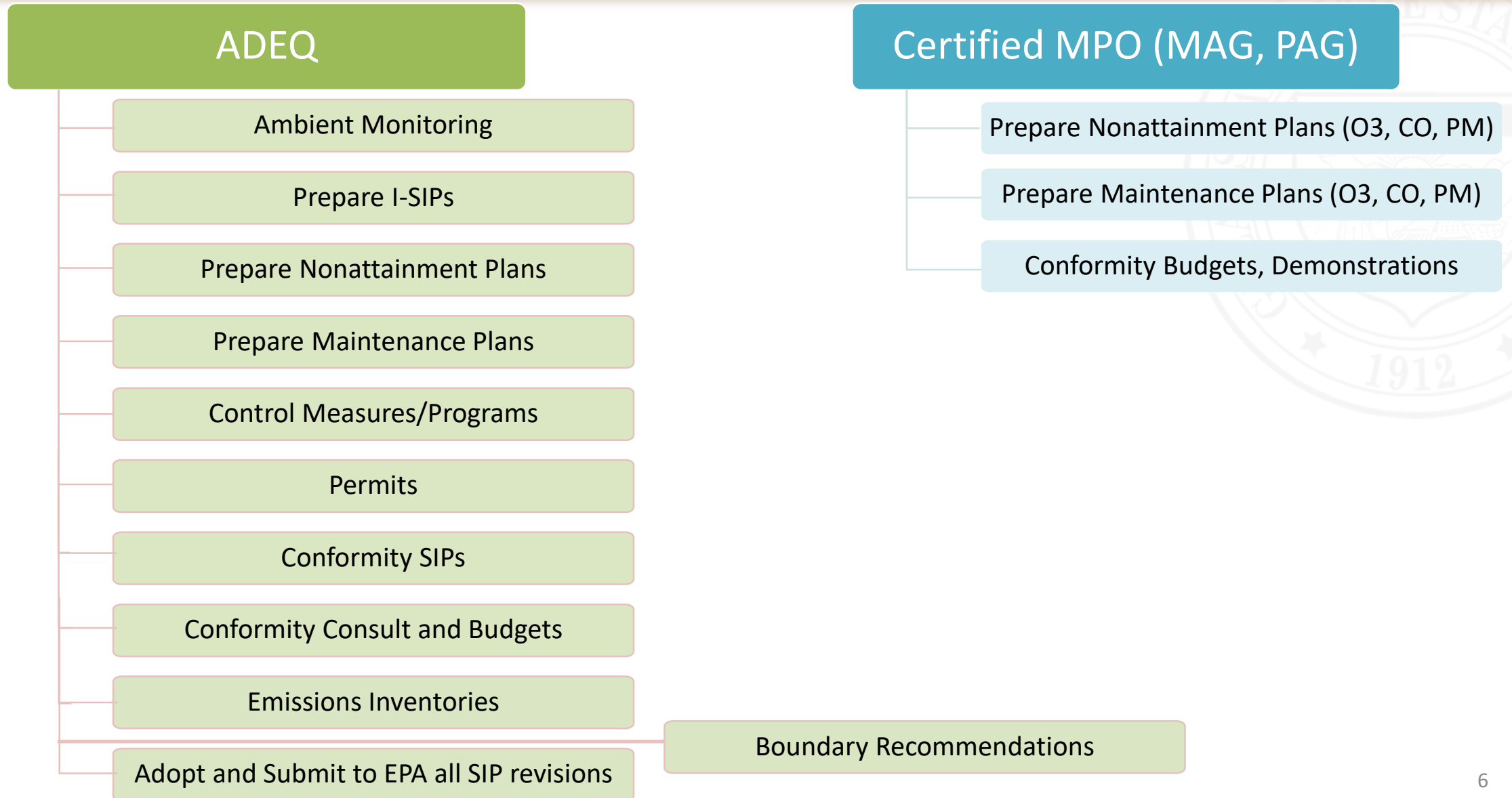


- State Implementation Plan (SIP)
 - *“Each State has a SIP containing the control measures and strategies used to attain and maintain the national ambient air quality standards (NAAQS).” – EPA*
- SIP is continually revised (sections added, changed, or removed)
 - Revisions to the SIP are developed by States (and locals), and after notice and public hearing, submitted to EPA for approval through Federal rulemaking
 - After EPA approval, SIP revisions and associated control measures are enforceable at both the state and federal levels

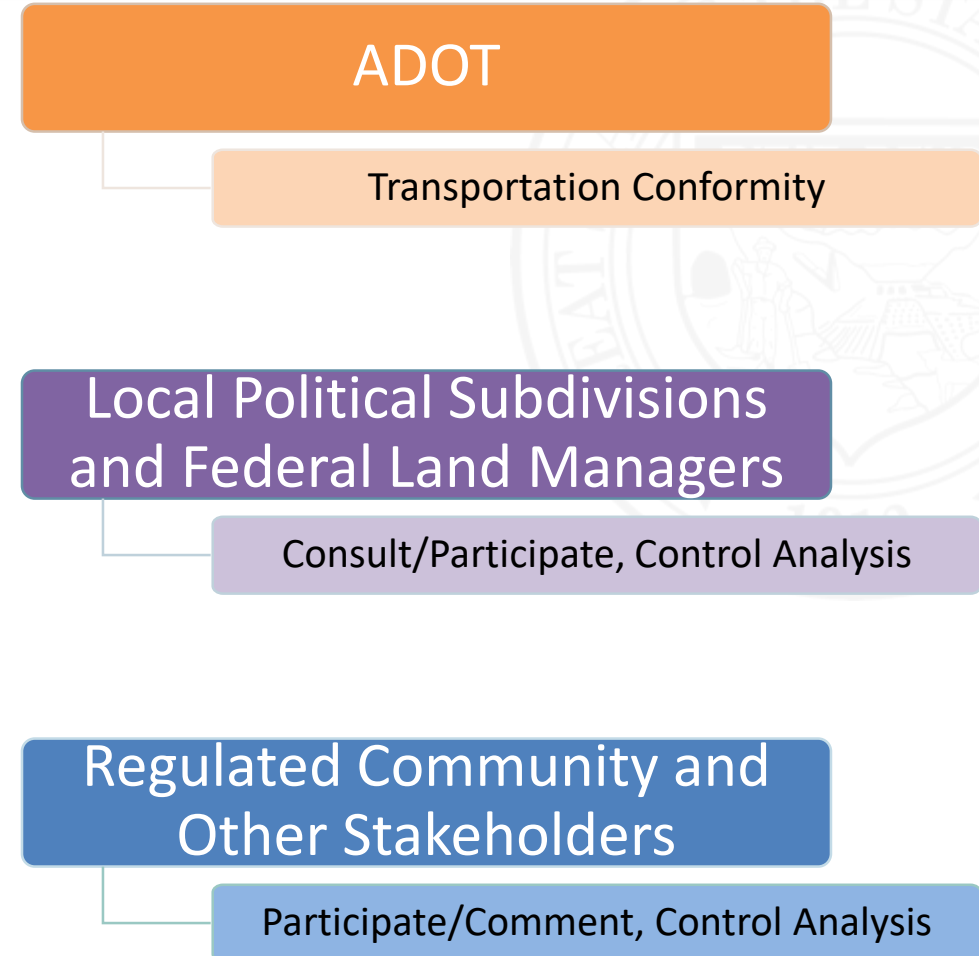
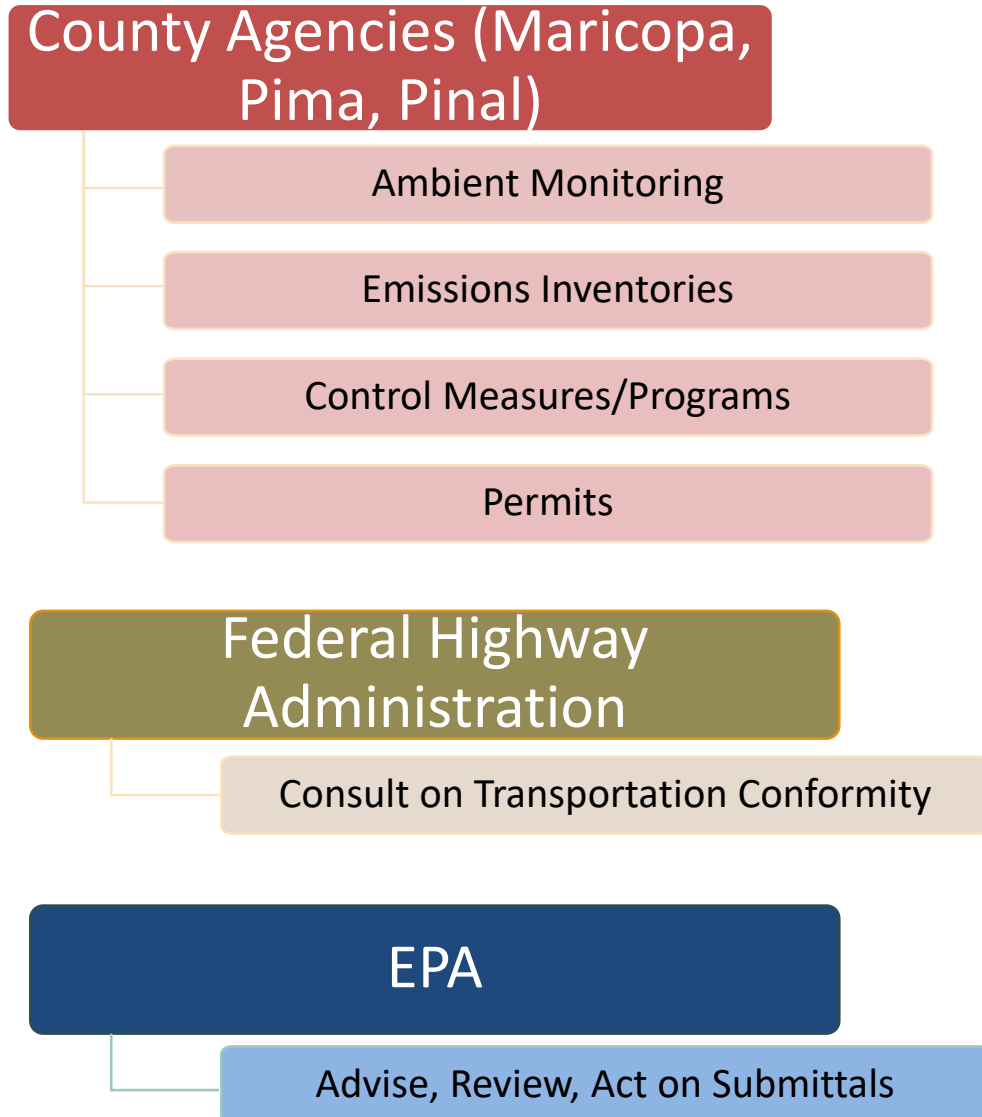
Where is the SIP?

- EPA compiles Federally-approved SIP
 - “The Federally-approved regulations, source-specific requirements, and nonregulatory provisions (entirely or portions of) submitted by each state agency have been compiled by the EPA into a “SIP compilation.” –EPA
- EPA approved plan for Arizona (applicable SIP) located in the U.S. Code of Federal Regulations at [40 CFR 52.120](#), “Identification of Plan”

WHO DEVELOPS THE SIP?

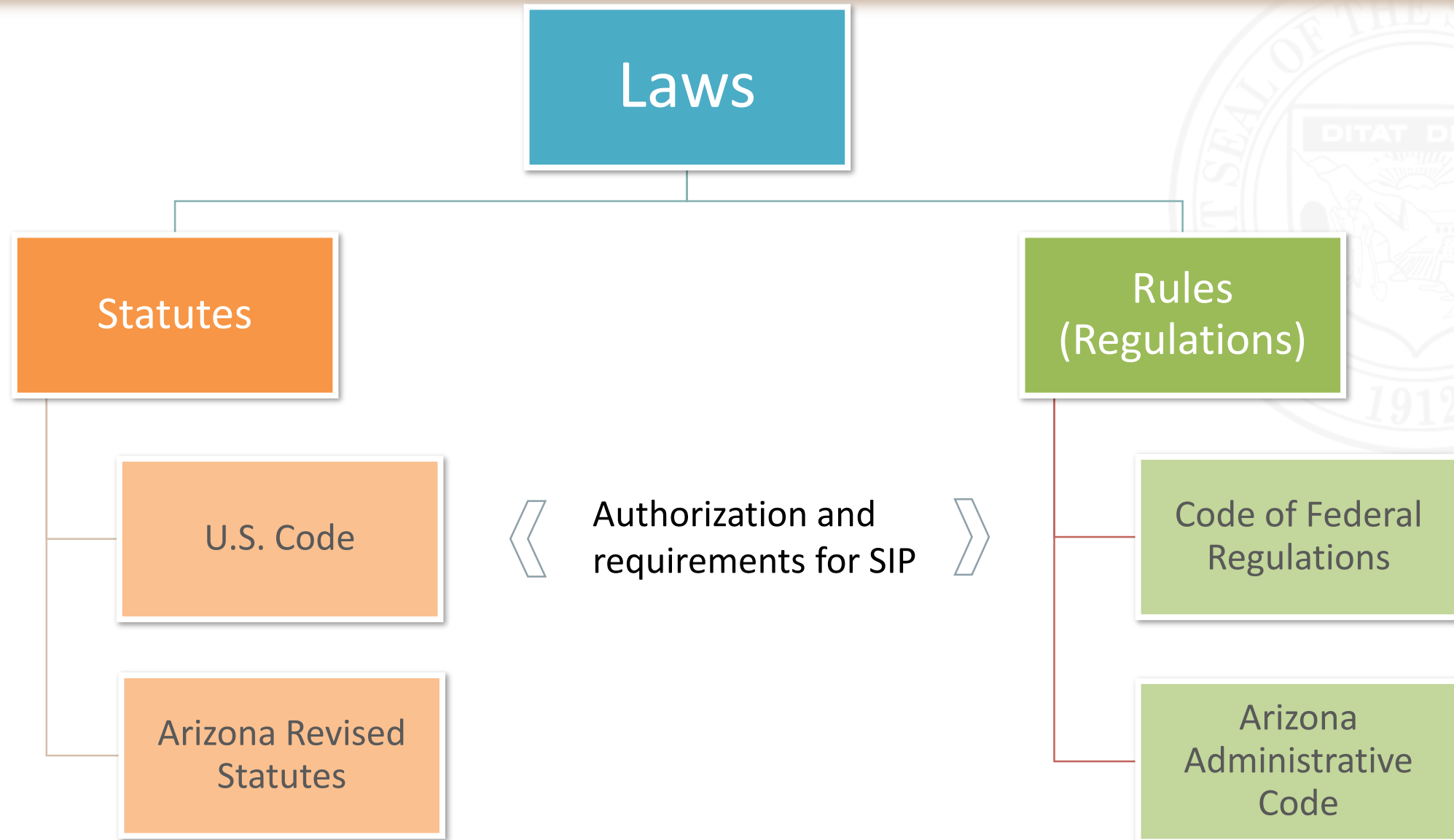


Agency and Stakeholder Roles in SIP Development and Implementation



SIP REQUIREMENTS

Laws: Statutes and Rules



SIP Requirements – CAA and CFR, Cont'd



SIP DEVELOPMENT TIMELINE

SIP Development Timeline for New or Revised NAAQS

- The following is a “Typical” SIP development scenario

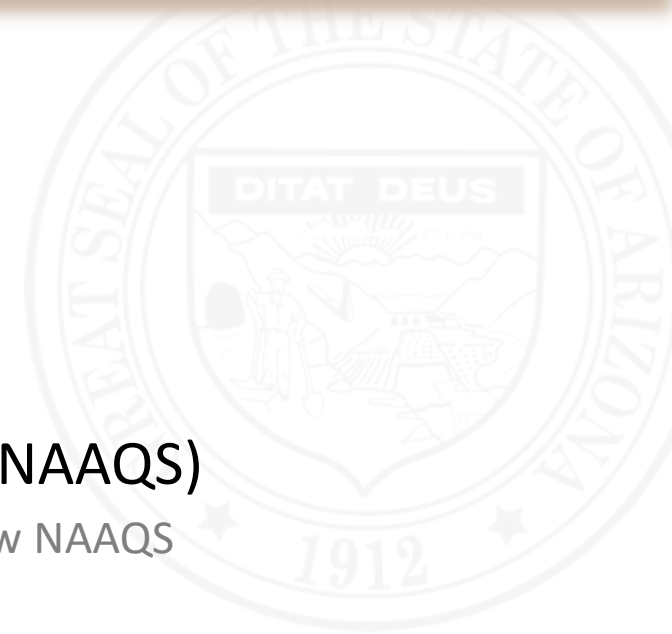
Step 1. EPA proposes then finalizes new NAAQS

Step 2. Boundary Designations (identify areas as meeting [attainment] or not meeting [nonattainment] new NAAQS)

- State designation recommendation due within 1 year after new NAAQS
- EPA decision 2 years after new NAAQS

Step 3. Infrastructure SIP

- Due 3 years after promulgation of new NAAQS



- If there are nonattainment areas

Step 4. Nonattainment Area SIP(s)

- State submittal required generally within 18-36 months after nonattainment designation (depends on pollutant and classification of area)

Step 5. Attain the NAAQS (nonattainment areas)

- Attainment required generally within 3-20 years after nonattainment designation (depends on pollutant and classification of area)

Step 6. Redesignation to attainment request and 1st maintenance plan (nonattainment areas)

- No deadline (state discretion to submit)

Step 7. 2nd maintenance plan

- Due 8 years after redesignation of nonattainment area to attainment

NATIONAL AMBIENT AIR QUALITY STANDARDS

- EPA establishes new or revises current NAAQS – CAA § 109
 - Current NAAQS for 6 pollutants (also called “criteria” air pollutants)



- Primary and Secondary NAAQS
 - Primary NAAQS: protection of human health
 - Secondary NAAQS: protection of human welfare (e.g., damage to animals, crops, vegetation, and buildings)
- EPA required to review NAAQS every 5 years to determine if changes are needed based on current scientific research

CAA Title I, Part A - NAAQS

Pollutant		Primary/Secondary	Averaging Time	Level ("exceedance")	Form ("violation")	
Carbon Monoxide (CO)		primary	8 hours	9 ppm	Not to be exceeded more than once per year	
			1 hour	35 ppm		
Lead (Pb)		primary and secondary	Rolling 3 month average	0.15 µg/m ³ ⁽¹⁾	Not to be exceeded	
Nitrogen Dioxide (NO ₂)		primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years	
		primary and secondary	1 year	53 ppb ⁽²⁾	Annual Mean	
Ozone (O ₃)		primary and secondary	8 hours	0.070 ppm ⁽³⁾	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years	
Particle Pollution (PM)		PM _{2.5}	primary	1 year	12.0 µg/m ³	annual mean, averaged over 3 years
			secondary	1 year	15.0 µg/m ³	annual mean, averaged over 3 years
			primary and secondary	24 hours	35 µg/m ³	98th percentile, averaged over 3 years
		PM ₁₀	primary and secondary	24 hours	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO ₂)		primary	1 hour	75 ppb ⁽⁴⁾	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years	
		secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year	

SIP Development Example

PREPARING A NONATTAINMENT AREA SIP REVISION

- Subpart 1, Nonattainment Areas in General
 - CAA 172(c) nonattainment plan provisions:
 - Reasonably Available Control Measures (RACM) & shall provide for attainment of NAAQS
 - Reasonable Further Progress (RFP)
 - Inventory (Emissions Inventory)
 - Identification and Quantification
 - Permits for New and Modified Stationary Sources (nonattainment NSR)
 - Enforceable Emissions Limits and Other Control Measures
 - Compliance with Section 110(a)(2) (infrastructure SIP)
 - Equivalent Techniques (modeling, EI, etc.)
 - Contingency Measures

- CAA 176(c) – Transportation & General Conformity
 - Transportation conformity is used to ensure that any federally funded transportation plan, program, or project does not interfere with an area's ability to attain or maintain the NAAQS
 - Similar to Transportation Conformity, which applies to highways and mass transit projects, General Conformity is applicable to all other federally supported activities to ensure that the actions taken by federal agencies in nonattainment and maintenance areas do not interfere with a state's plans to meet national air quality standards

CAA Part D Subpart 2 - Ozone

Overview of CAA Ozone Nonattainment Area Planning & Control Mandates by Classification

		NSR offset ratio	Major source threshold
<i>CAA § 182(e) (Extreme)</i>	EXTREME (20 years to attain)	1.5 : 1 Extreme	10
	TRAFFIC CONTROLS DURING CONGESTION		
	CLEAN FUELS REQUIREMENT FOR BOILERS		
<i>CAA § 182(d) (Severe)</i>	SEVERE (15/17 years to attain)	1.3 : 1 Severe	25
	PENALTY FEE PROGRAM FOR MAJOR SOURCES		
	LOW VOC REFORMULATED GAS		
	VMT GROWTH OFFSET		
	VMT DEMONSTRATION (& TCMs IF NEEDED)		
	NSR REQUIREMENTS FOR EXISTING SOURCE MODS		
<i>CAA § 182(c) (Serious)</i>	SERIOUS (9 years to attain)	1.2 : 1 Serious	50
	ENHANCED VEHICLE I/M		
	CLEAN FUELS PROGRAM (IF APPLICABLE)		
	MODELED DEMO OF ATTAINMENT		
	MILESTONE CONTINGENCY MEASURES FOR RFP		
	3% ANNUAL RFP UNTIL ATTAINMENT		
	ENHANCED MONITORING PLAN		
	STAGE II GASOLINE VAPOR RECOVERY		
	MOTOR VEHICLE EMISSIONS BUDGET		
<i>CAA § 182(b) (Moderate)</i>	MODERATE (6 years to attain)	1.15 : 1 Moderate	100
	BASIC VEHICLE I/M		
	CONTINGENCY MEASURES FOR FAILURE TO ATTAIN		
	ROP (15% RFP OVER 6 YEARS)		
	RACM CONTROL MEASURES		
	ENHANCED MONITORING		
	VOC/NOx RACT for MAJOR/CTG SOURCES		
	ATTAINMENT DEMONSTRATION		
<i>CAA § 182(a) (Marginal)</i>	MARGINAL (3 years to attain)	1.1 : 1 Marginal	100
	TRANSPORTATION CONFORMITY DEMONSTRATION (Motor Vehicle Emissions Budget not required)		
	NEW SOURCE REVIEW PROGRAM		
	EMISSION STATEMENTS		
	BASILENE EMISSION INVENTORY (EI)		
	PERIODIC EMISSION INVENTORY UPDATES		

- Determination of attainment as of attainment date
 - Also known as a “finding of attainment as of attainment date”
 - EPA required to make formal determination within 6 months of statutory attainment date
 - Generally verified by ambient monitoring network data
- Consequences for failure to attain may include
 - New SIP due (9-18 months)
 - New attainment date
 - Bump up to next highest classification (e.g., ozone, CO, PM)
 - New (more stringent) control measures
 - New annual rate of progress (emissions reduction) plans

- Sanctions [CAA 110(m), 179(a) and (b)]
 - Reasons for sanctions (starts sanctions clock)
 - Failure to submit SIP, a SIP element, or submits an incomplete SIP or SIP element for a nonattainment area
 - EPA disapproval of SIP or SIP element for a nonattainment area
 - State has failed to make any other required submission including an adequate maintenance plan or that EPA disapproves submission
 - Failure to implement approved plan
 - Types of sanctions
 - Highway funding
 - Offsets
 - Sanctions clock
 - 18 months → one sanction applied
 - 24 months → both sanctions applied
 - Approval of state correction stops clock

- Federal Implementation Plan (FIP) [CAA 110(c)(1)]
 - Reasons for FIP (starts FIP clock)
 - Finding state failed to make required submittal or submittal not complete
 - Disapproval of SIP submittal in whole or in part
 - FIP clock
 - 2 years → EPA must promulgate FIP
 - Approval of state submittal stops clock

