



TEXAS DEPARTMENT OF TRANSPORTATION



TRANSPORTATION AIR QUALITY BRIEFING

Prepared for the Texas Department of Transportation
Revised March 2016



Presentation Overview

Federal Air Quality Regulations



State Implementation Plan
(SIP)



Transportation Conformity

Federal Air Quality Regulations

- 1970 Clean Air Act (CAA)
 - Established National Ambient Air Quality Standards (NAAQS) for criteria pollutants
- 1977 CAA Amendments
 - Transportation conformity introduced
- 1990 CAA Amendments
 - More rigorous transportation conformity provisions

Emissions Sources

ANTHROPOGENIC

Point



Area



BIOGENIC



MOBILE

On-Road



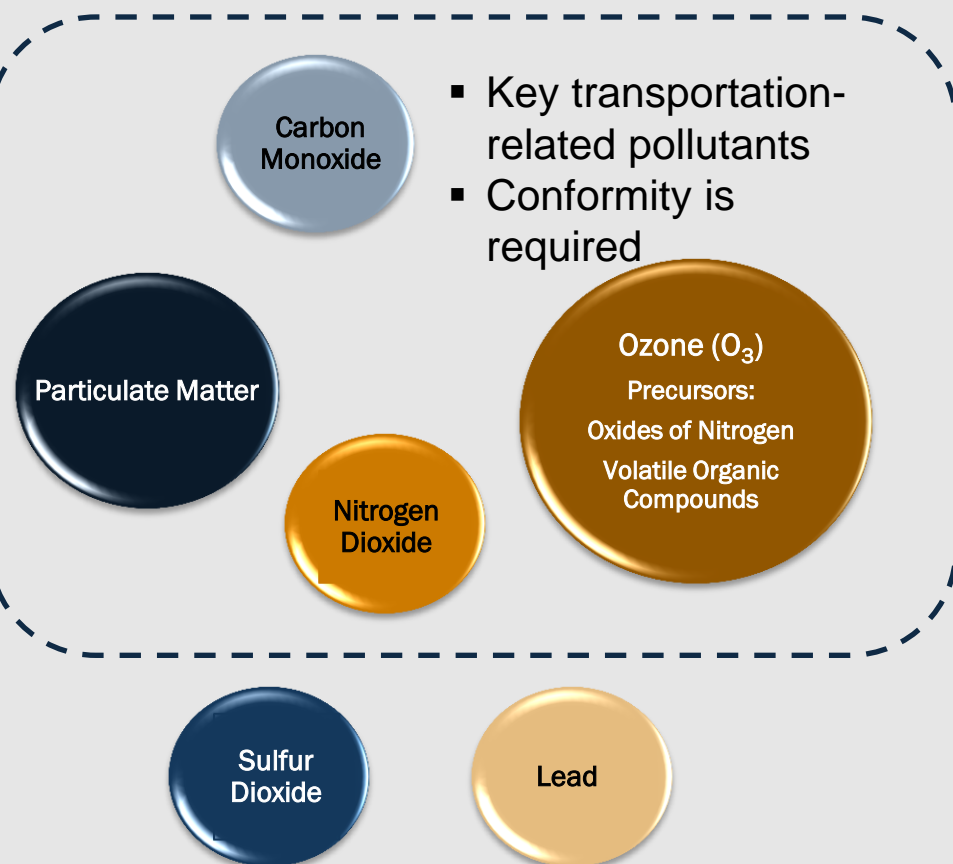
Non-Road



On-road mobile component is relevant to transportation conformity

Criteria Pollutants

Six common air pollutants that are regulated under CAA through NAAQS.

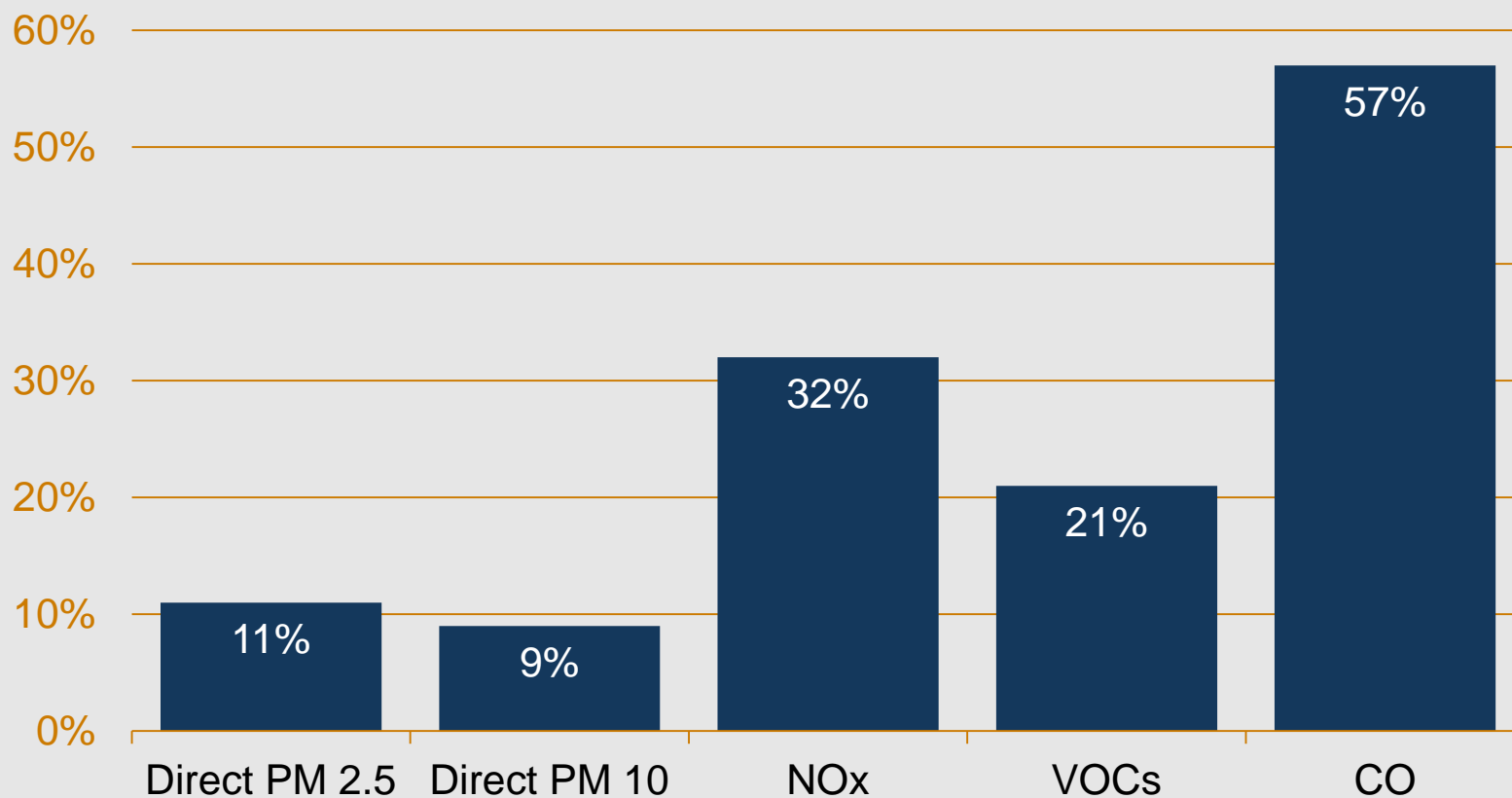


- Ozone (O_3)
 - Precursors – Oxides of Nitrogen (Nox) and Volatile Organic Compounds (VOCs)
 - Formed by precursors reacting in presence of sunlight
- Nitrogen Dioxide (NO_2)
- Carbon Monoxide (CO)
- Particulate Matter (PM_{10} , $PM_{2.5}$)
- Lead (Pb)
- Sulfur Dioxide (SO_2)

Other Transportation Emissions

- Other Mobile Source Emissions
 - Mobile Source Air Toxics
 - Benzene
 - Formaldehyde
 - Acetaldehyde
 - 1,3-Butadiene
 - etc
- Greenhouse Gases
 - Carbon Dioxide (CO₂)
 - Methane (CH₄)

Contribution of On-Road Mobile Source Emissions – U.S.



Source: U.S. Environmental Protection Agency Our Nation's Air: Status and Trends through 2008

Area Designations

- Based on air monitoring data
- Nonattainment Area
 - Does not meet NAAQS
 - Example –Ozone- (2008 8-hr ozone standard of 75 ppb)
 - 3-year average of the annual fourth-highest daily maximum 8-hr average ozone concentrations measured at each monitor within an area must not exceed NAAQS
- Maintenance Area
 - Area previously in nonattainment. Must demonstrate “maintenance” of attainment status for two 10-year periods.
- Attainment Area
 - Meet all NAAQS
- Unclassifiable
 - Insufficient information to make a classification

Texas Nonattainment Areas

Region	Counties	Pollutant	Status
Houston-Galveston-Brazoria	Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, Waller	8-hr Ozone (2008)	Marginal
Dallas-Fort Worth*	Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, Wise	8-hr Ozone (2008)	Moderate
El Paso	El Paso	PM-10	Moderate
El Paso	El Paso	CO	Attainment Maintenance

* Collin County is also in nonattainment for Lead, but conformity does not apply (not a transportation-related pollutant)

Impact of New 2015 Ozone Standard

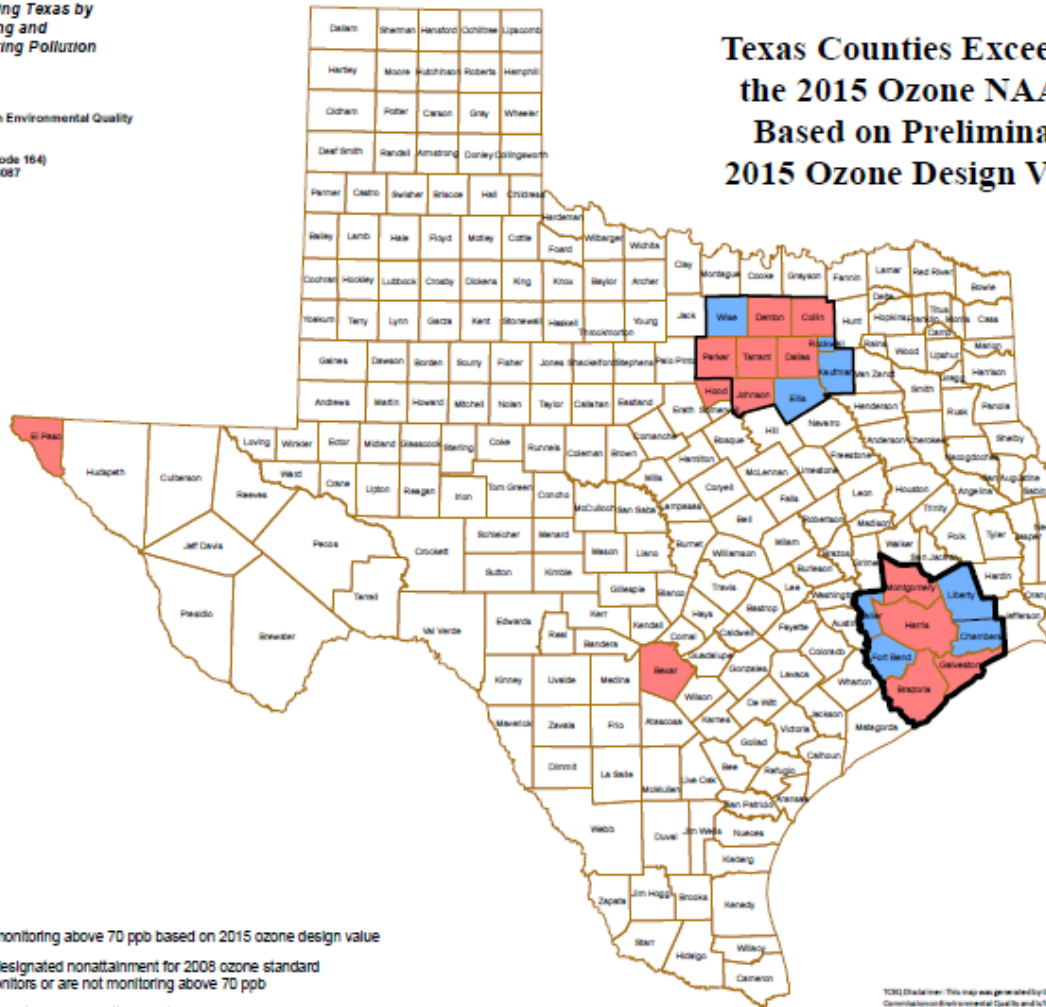
- On October 1, 2015, EPA revised the Ozone NAAQS from the existing 75 ppb to 70 ppb
- Proposed designations under the new standard due in October 2016
- Potential state designation recommendations for public comment currently list 21 counties in four areas for designation as nonattainment:
 - Bexar, Brazoria, Chambers, Collin, Dallas, Denton, El Paso, Ellis, Fort Bend, Galveston, Harris, Hood, Johnson, Kaufman, Liberty, Montgomery, Parker, Rockwall, Tarrant, Waller, Wise

Texas Counties Exceeding the 2015 Ozone NAAQS



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Air Quality Division
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Texas Counties Exceeding the 2015 Ozone NAAQS Based on Preliminary 2015 Ozone Design Values



- Counties monitoring above 70 ppb based on 2015 ozone design value
- Counties designated nonattainment for 2008 ozone standard with no monitors or are not monitoring above 70 ppb
- 2008 Ozone Standard Nonattainment Areas Boundaries

TCEQ Disclaimer: This map was generated by the Office of Air, Air Quality Division of the Texas Commission on Environmental Quality and is for informational purposes only and may not have been prepared for or suitable for legal, engineering, or surveying purposes. It does not represent an official government report or any other official government action. For more information or to request a copy of this map, please contact the Air Quality Division at (512) 281-1688.

Rej Nadhami February 26, 2016

Implications of Nonattainment Designation

- State Implementation Plan required
- Transportation Conformity
 - For Transportation Plans and Programs (MTP/TIP)
 - Timely implementation of transportation control measures (TCMs)
 - Regional emissions analysis
 - May include Motor Vehicle Emissions Budget
 - For Projects (Non-exempt federal projects)
 - May include hot-spot analyses
- *If conformity requirements are not met, non-exempt transportation projects cannot move forward.*

State Implementation Plan

- Plan for a state/area to attain (in the case of nonattainment areas) or maintain compliance (in case of maintenance areas) with NAAQS
 - Legal and federally enforceable
 - Collaborative public process
 - Signed by the Governor
 - Adopted by the State
 - Approved by EPA
 - Identifies control strategies to attain NAAQS
 - Addresses point, mobile, and area sources
 - Sets the Motor Vehicle Emissions Budget (MVEB)

SIP Components and Type

■ Components

- Monitoring
- Inventory
- Modeling
- Control Strategies
- MVEB

■ Types

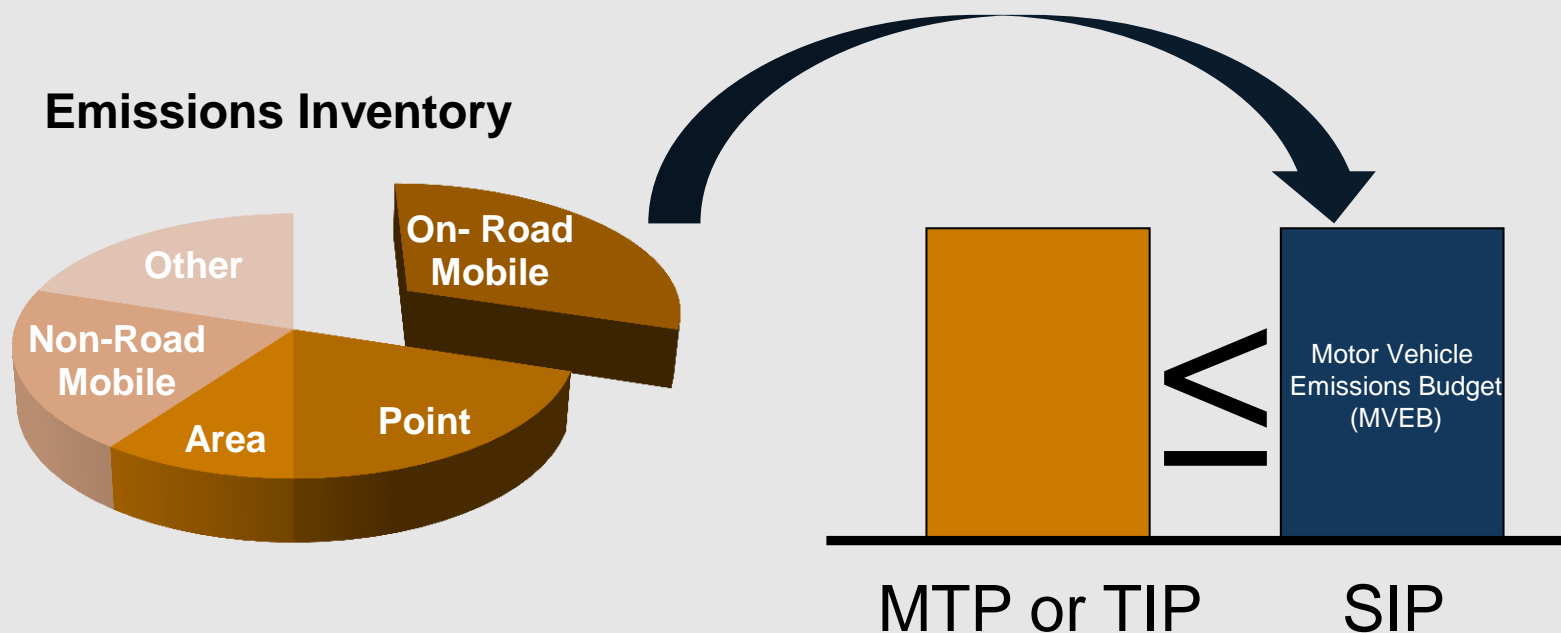
- Reasonable further progress (RFP)
- Conformity
- Attainment
- Maintenance
- Other



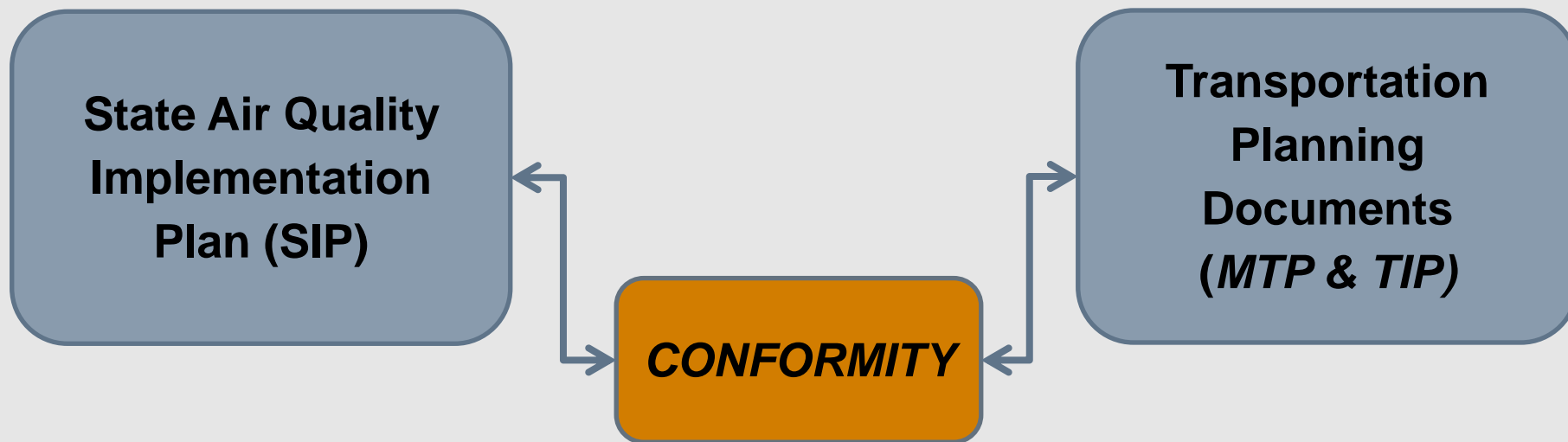
Source: www.epa.gov

SIP and Conformity

- “Attain” not the same as “Conform”
 - Attainment status linked to whether NAAQS are being met (based on monitoring)
 - Transportation Conformity – applies to on-road mobile sources in nonattainment and maintenance areas.



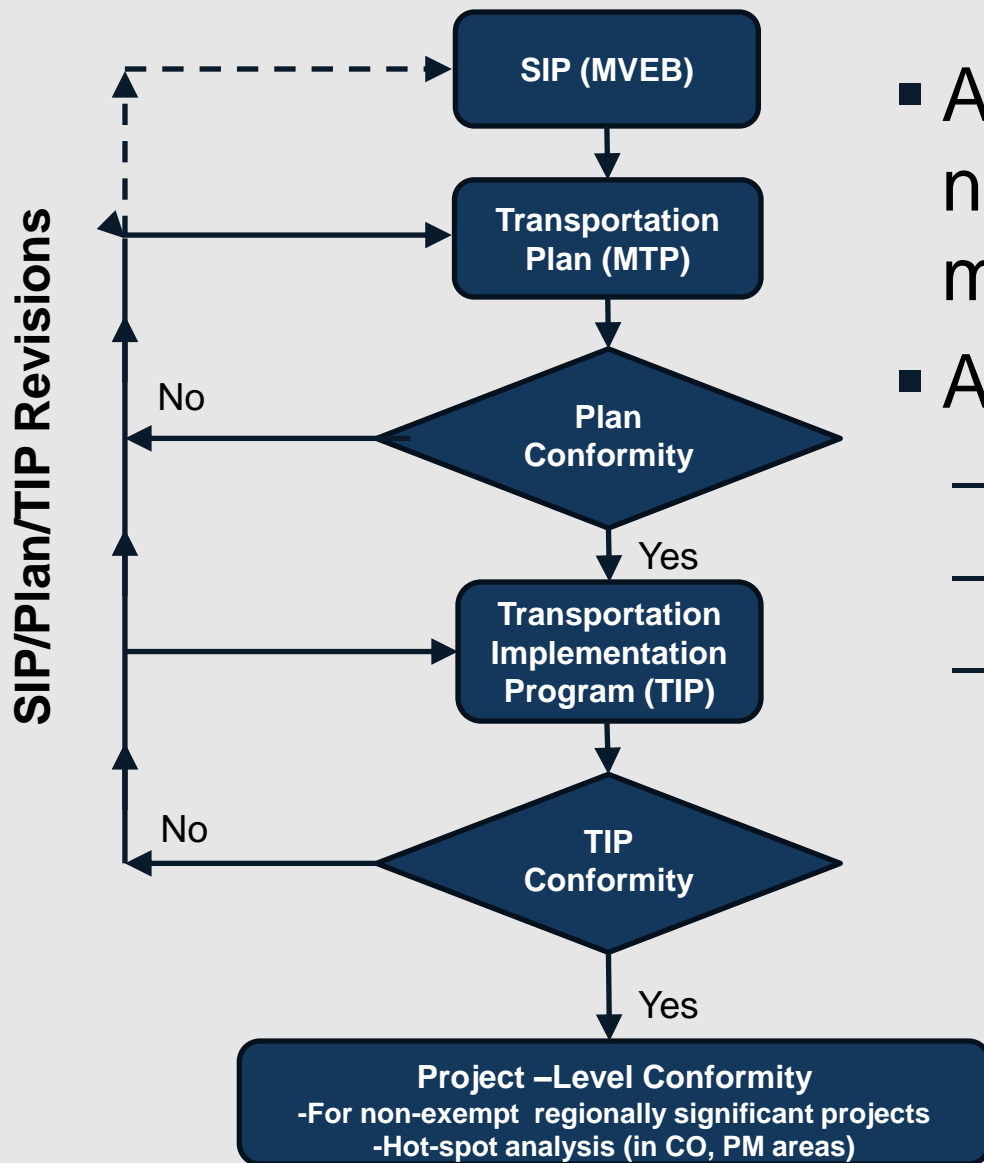
Transportation Conformity



Purpose - Ensures federal funding and approval are given to transportation plans, programs and projects consistent with air quality goals

Timelines – Conformity and SIP timelines do not necessarily correspond

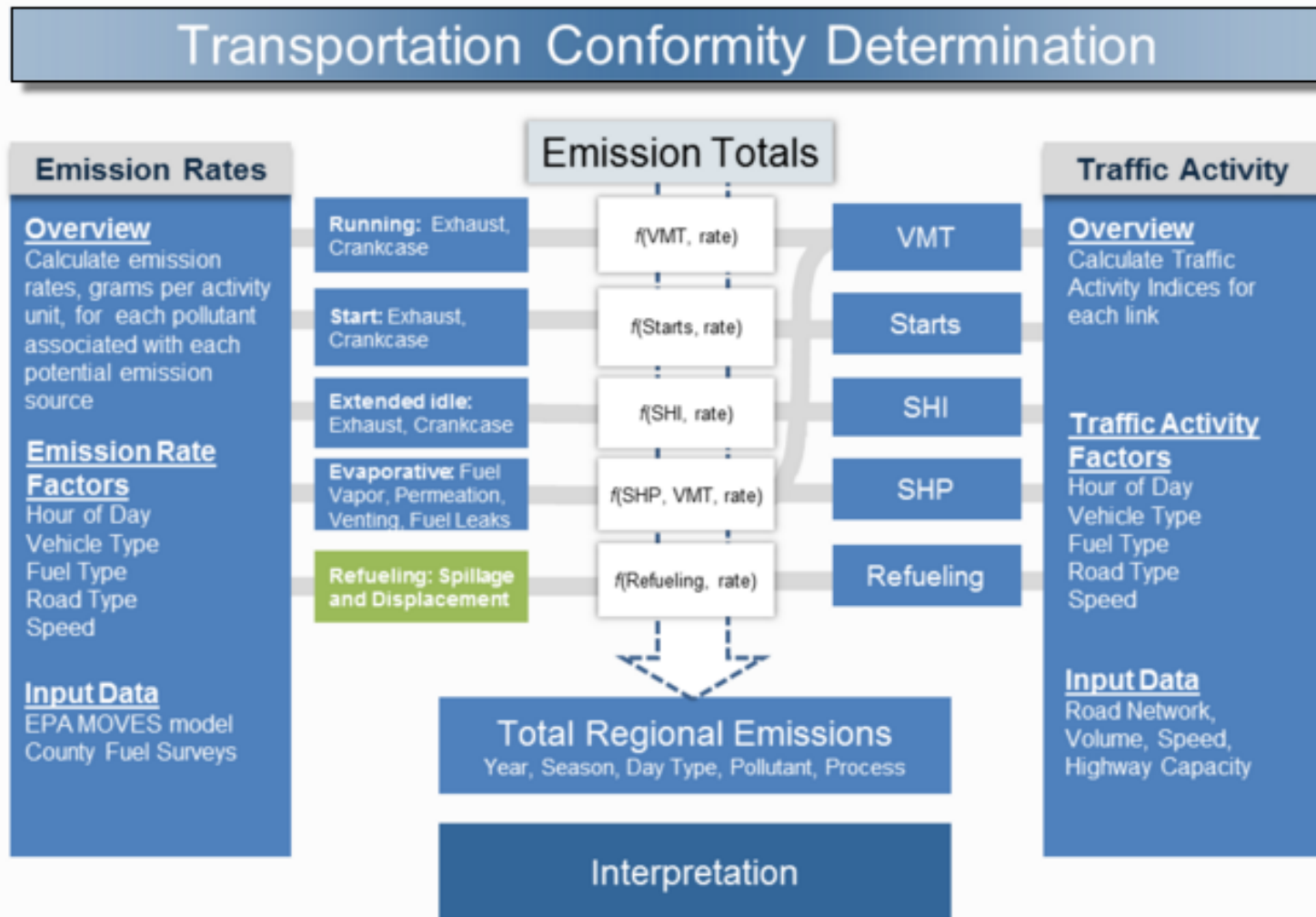
Conformity Overview



- Applies to nonattainment and maintenance areas
- Applies to
 - MTP
 - TIP
 - Non-exempt projects with FHWA/FTA funding or requiring FHWA/FTA approval at any stage

Conformity Demonstration Process

Regional Emissions Analysis



Consultation/Coordination

- **Technical Working Group (TWG)**
 - Statewide technical coordination
- **Interagency Consultative Partners**
 - For specific region/plan
 - Composition:
 - Federal
 - FHWA
 - FTA
 - EPA
 - State
 - TxDOT
 - TCEQ
 - Local
 - MPOs/COGs
 - Transit Agencies



Conformity Determination Triggers

- Every 4 years
- Changes to plans, programs, projects
- SIP revision that changes emission budgets
- Net change in TCMs (except within substitution rule)
- New NAAQS
- Re-designation of area

Conformity Lapse

- Implies conformity determination for a transportation plan or program has expired
- One year grace period (*does not apply for new NAAQS designations*)
- If deadline is missed
 - New project phases requiring a conformity determination cannot be advanced
 - Federally funded projects and regionally significant projects not advanced
 - Exemptions include transportation control measures, safety projects, mass transit, etc.

Summary

- The NAAQS are established for criteria pollutants, and nonattainment areas are designated on the basis of NAAQS
- Ozone, CO, PM and NO₂ are relevant to transportation, along with Ozone precursors (NO_x and VOCs)
- Currently, Texas has three regions in nonattainment of air quality standards – HGB, DFW, ELP
 - The 2015 Ozone NAAQS may result in additional nonattainment areas
- Transportation conformity applies to metropolitan transportation plans, transportation improvement programs, and non-exempt projects with FHWA/FTA funding or requiring FHWA/FTA approval
- Conformity determinations are required every four years or due to other triggers; an expired conformity determination will result in a conformity lapse.