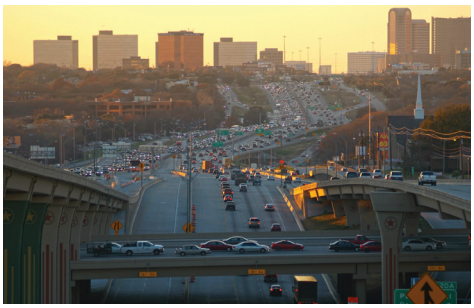


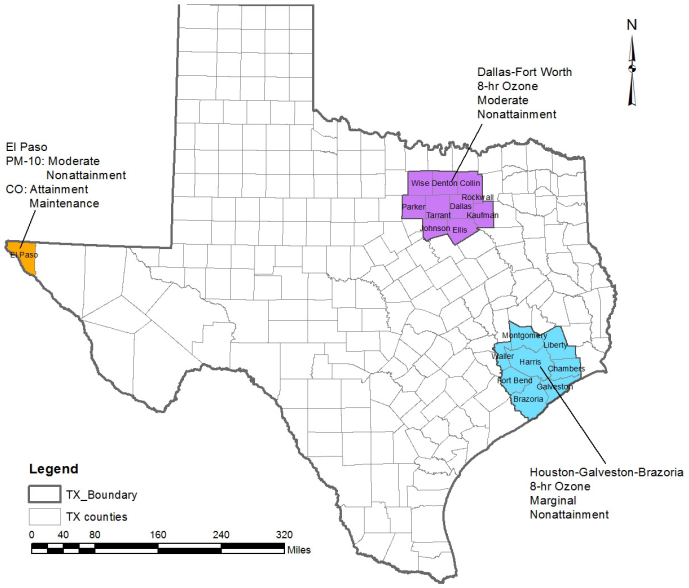
Introduction to Transportation and Air Quality

This document provides a high-level overview of key transportation and air quality regulations including transportation conformity for public officials and other stakeholders in Texas. According to federal law, the Texas Department of Transportation (TxDOT) in conjunction with the Texas Commission on Environmental Quality (TCEQ) has to ensure that transportation plans and projects do not violate the federal air quality standards. Within TxDOT, the Transportation Planning and Programming Division (TPP) and the Environmental Affairs Division (ENV) work with the Districts, Metropolitan Planning Organizations (MPOs), and other stakeholders to ensure that air quality regulations are being met.

Clean Air Act (CAA) and National Ambient Air Quality Standards (NAAQS)

This act established the NAAQS for criteria pollutants to protect public health. The NAAQS defined nonattainment areas as areas not meeting the air quality standards. In 1990, the CAA was amended to provide the Environmental Protection Agency (EPA) broader authority to implement and enforce regulations reducing both criteria pollutant and air toxics emissions. These amendments also established the quantitative analysis for transportation conformity and its formal review process.

The NAAQS establish concentrations for various pollutants that should not be exceeded. The NAAQS are set for six principal pollutants referred to as criteria pollutants (which include Ground Level Ozone, Nitrogen Dioxide, Carbon Monoxide, Particulate Matter, Lead and Sulfur Dioxide). Among these, the transportation sector contributes to emissions of Ozone (O3) precursors, Nitrogen Dioxide (NO2), Carbon Monoxide (CO), and Particulate Matter (PM10, PM2.5). Ground Level Ozone is created by chemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC) in the presence of sunlight.



Nonattainment and Maintenance Areas

The EPA is required to designate areas based on the NAAQS as follows: attainment (meeting air quality standards), non-attainment (not meeting air quality standards), and maintenance (previously in nonattainment and now meeting air quality standards). The designation is determined from air quality data collected by TCEQ air monitoring stations. Once nonattainment designations take effect, the state and local governments have three

years to develop implementation plans to reduce air pollutant emissions. The severity of the designation determines the time deadline an area has to meet the NAAQS. Specific designation levels apply for each pollutant. For example ozone has five: marginal, moderate, serious, severe, and extreme. The following map shows the areas in Texas that have been designated as non-attainment or maintenance.

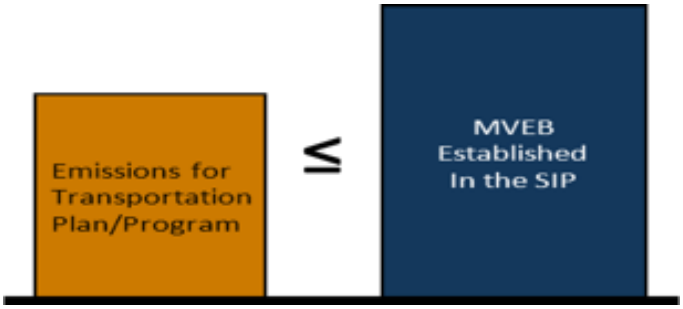
State Implementation Plan (SIP)

A SIP is the state air quality plan for meeting federal air quality standards and covers each nonattainment area. The SIP assigns emissions reductions for each pollutant or precursor for each source type, such as on-road motor vehicles, non-road equipment and vehicles, stationary, and area sources. SIP components broadly include monitoring, inventory, modeling, control strategies, and the motor vehicle emissions budget (MVEB). Only on-road mobile source emissions are regulated as part of transportation conformity, on the basis of the MVEB. All federally funded transportation projects and plans must conform to the SIP. Non-road mobile emission reductions may be a control requirement in the SIP, but is separate from transportation conformity.

Transportation Conformity—Linking SIP and Transportation Planning

Transportation conformity is a process required by the CAA, which establishes the framework to ensure federal funding and approval are given to transportation plans, programs, and projects consistent with air quality goals of a state's SIP. Conformity requirements apply in nonattainment and certain maintenance areas.

Conformity relating to the SIP means Federal Highway Administration/Federal Transit Administration (FHWA/FTA) funding and approvals are given to highway and transit activities that will not cause new air quality violations or worsen existing air quality violations. Therefore, emissions estimates based on the Metropolitan Transportation Plan (MTP) and Transportation Improvement Programs (TIP) need to be compared to the MVEB set by TCEQ. If no MVEB is yet available, then an alternative conformity test will be needed to demonstrate conformity. A conformity demonstration ensures that the total emissions from on-road travel on an area's transportation system are consistent with goals for air quality found in the SIP. FHWA/FTA makes the conformity determination in discussion with interagency consultative partners.



Project-Level Conformity

Project-level conformity requires that projects must come from a conforming MTP and TIP. Additionally, the design concept and scope (i.e. schedule and cost) of the project must not have changed significantly since the conformity determination or conformity must be re-established. The analyses conducted to demonstrate conformity must use the latest emissions model and planning assumptions. Project-level conformity requirements may also include hot-spot analyses in CO and PM nonattainment and maintenance areas.

Transportation Control Measures (TCMs)

TCMs are particular programs developed to reduce emissions from transportation sources through approaches such as decreasing motor vehicle use or changing traffic flow or congestion conditions. TCMs that are included in an approved SIP are subject to timely implementation, which must be demonstrated each time a conformity determination is made. A TCM in the SIP may also be eligible for emissions credits in the regional conformity analysis if certain conditions are met. Examples of TCM programs include improved public transit, construction of high-occupancy vehicle lanes, employer-based transportation management plans, and trip-reduction ordinances.