

Appendix E: Air Quality Conformity

Transportation Conformity Executive Summary

Milestones

On June 4, 2002, the Federal Highway Administration certified that the Houston-Galveston area's *2022 Metropolitan Transportation Plan (MTP) Update* and the *2002 – 2004 Transportation Improvement Program (TIP)* conformed with the requirements of the State Implementation Plan for the Houston-Galveston ozone nonattainment area. The June 4, 2002 conformity finding was established with the *Revisions to the State Implementation Plan for the Control of Ozone Air Pollution, Post-1999 Rate-of-Progress and Attainment Demonstration for the Houston-Galveston Ozone Nonattainment Area* State Implementation Plan (SIP) (hereafter referred to as the December 2000 SIP) that was submitted to the U.S. Environmental Protection Agency (EPA) by the Texas Natural Resources Conservation Commission (TNRCC) on December 20, 2000.

On November XX, 2004, the Texas Commission on Environmental Quality (TCEQ, the agency formerly known as TNRCC) submitted the Rate-of Progress portion of the *Revisions to the State Implementation Plan for the Control of Ozone Air Pollution, Houston/Galveston/Brazoria Ozone Nonattainment Area* (hereafter referred to as the “Mid-Course Review SIP”) to the EPA. The TCEQ submitted the Attainment Demonstration portion of the Mid-Course Review SIP to EPA on December XX, 2004. The on-road portion of the Mid-Course Review differs from the December 2000 SIP in several significant aspects: MOBILE6 was used, the latest demographics were used, the Inspection and Maintenance (I/M) programs for rural counties were removed, and temperature/humidity corrections were applied to vehicle categories. As a consequence, 2007 Attainment Demonstration budgets for on-road mobile emissions are at 175.49 tons per day of nitrogen oxides (NO_x), and 89.74 tpd for volatile organic compounds (VOC). The Mid-Course Review SIP also establishes new Rate-of-Progress emissions budgets for 2005 and 2007. The EPA found the Attainment Demonstration Mid-Course Review SIP MVEBs adequate, effective MONTH XX, 2005 and approved the Rate-of-Progress budgets on MONTH XX, 2005. The submission of these new budgets requires a conformity determination of the *2025 Regional Transportation Plan* and the *2002-2004 Transportation Improvement Program* to the new MVEBs established in the Mid-Course Review SIP. Conformity must be determined by June 4, 2005 or the RTP and the TIP will lapse.

Conformity Requirements

The Clean Air Act Amendments of 1990 (CAAA) require transportation plans, programs, and projects in nonattainment areas, which are funded or approved by the Federal Highway Administration (FHWA) or Federal Transit Administration (FTA), to conform to the SIP. This ensures that transportation plans, programs, and projects do not produce new air quality violations, worsen existing violations, or delay timely attainment of the National Ambient Air Quality Standards (NAAQS).

Additional requirements that apply include:

- Use of the latest planning assumptions
- Analysis based upon the latest emission estimation model available
- Interagency consultation as well as a public involvement process must be conducted during the analysis
- Timely implementation of Transportation Control Measures (TCMs)
- The RTP and the TIP must be consistent with the MVEBs established in the applicable SIP
- The RTP and the TIP must include all regionally significant projects expected in the nonattainment area

Regional Inventory

H-GAC conducts regional emission analyses of transportation plans and transportation improvement programs to ensure transportation activities are consistent with the air quality goals identified in the Mid-Course Review SIP. This conformity analysis of the Houston-Galveston-Brazoria nonattainment area accounts for emissions resulting from the nonattainment area's transportation plan, including all regionally significant projects, and the effects of emission control programs.

Motor Vehicle Emission Budgets

The budgets established in the Mid-Course Review SIP are as follows:

TABLE 1: Mid-Course Review Motor Vehicle Emission Budgets

Rate-of-Progress		
Budget (tpd)		
Year	NOx	VOC
2005	257.3	104.2
2007	210.0	90.0
Attainment Demonstration		
Budget (tpd)		
Year	NOx	VOC
2007	186.13	89.99

Source: Mid-Course Review SIP, TCEQ

These motor vehicle emission budgets (MVEBs) represent the maximum allowable amount of emissions that may be produced by on-road sources as a result of the implementation of the RTP and TIP. These budgets are developed based on the emission inventories and photochemical modeling conducted for the development of the Mid-Course Review SIP and includes emission reduction benefits from federal and state control programs.

Conformity Tests

As specified by the Code of Federal Regulations (40 CFR §93.109[c] as amended by 62 FR 43807, Aug. 15, 1997) all ozone nonattainment areas designated moderate and above must pass a motor vehicle emissions budget test if an adequate or approved SIP budget exists. The Houston-Galveston-Brazoria area is designated as "Severe 17" under the 1-hour ozone rule. Due to this

and the Mid-Course Review MVEBs, the budget test must be satisfied for conformity. This test is satisfied when emissions of the ozone pollutant's precursors (VOC and NOx) for each analysis year are less than or equal to the MVEBs established in the SIP. For the ROP test, each year with an MVEB must be modeled. Thus the ROP analysis will consist of the years 2005 and 2007. For the Attainment Demonstration test, the regional emission analysis may be performed for any years within the timeframe of the transportation plan, provided they are not more than ten years apart, and include the attainment year (2007) and plan horizon year (2025). To meet this requirement analysis, years 2007, 2015, and 2025 were selected. Finally, as allowed in Phase-1 of the 8-hour ozone rule (INSERT RULE HERE), if an adequate 1-hour Attainment Demonstration budget is in place, that budget can be used for purposes of conformity as an alternate emissions test for the 8-hour attainment year. Since the Houston-Galveston-Brazoria area has been designated as "Moderate" for the 8-hour standard with an attainment year of 2010, the year 2010 will be included in the analysis.

Modeling

Two modeling suites were used in this process. The Travel Demand Modeling at H-GAC uses the EMME/2 model, with a special post-mode choice speed model. On the emissions side, the TTI suite of emissions software is used in conjunction with the latest version of EPA's MOBILE6 model to replicate the on-road modeling performed in the SIP. The data used in this conformity analysis is consistent with what was used in the SIP, except where more recent planning assumptions have been developed.

Conformity Analysis Results

The results of this conformity determination show that the *2025 Regional Transportation Plan* and the *2006 - 2006 Transportation Improvement Program* for the Houston-Galveston Transportation Management Area meet the requirements of the SIP for the Houston-Galveston Ozone Nonattainment Area, as submitted December XX, 2004, according to the Clean Air Act (42 U.S.C. 7504, 7506 (c) and (d)), as amended on November 15, 1990, and the final conformity rule (40 CFR Parts 51 and 93).

TABLE 2: Conformity Analysis Summary

Analysis Year	VOC Emissions (tons/day)	VOC Budget (tons/day)	NOx Emissions (tons/day)	NOx Budget (tons/day)
1990 Baseline	321.7	--	391.1	--
2005 ROP		104.2		257.3
2007 ROP		90.0		210.0
2007 AD		89.99		186.13
2015 AD		89.99		186.13
2025 AD		89.99		186.13
2010 (8-hour Alternate Emissions Test)		89.99		186.13

FIGURE 1: VOC Emissions Summary

FIGURE 2: NOx Emissions Summary