

CONFORMITY DETERMINATION

**for the *2025 Regional Transportation Plan* and
the *2006-2008 Transportation Improvement Program*
for the **Houston-Galveston Transportation Management Area****

2005

**HOUSTON-GALVESTON AREA COUNCIL
TRANSPORTATION DEPARTMENT**

Board Resolution



Resolution

NO. 0510-RTP

CERTIFYING THAT THE 2025 REGIONAL TRANSPORTATION PLAN AND THE 2006-2008 TRANSPORTATION IMPROVEMENT PROGRAM ARE IN CONFORMITY WITH THE CLEAN AIR ACT OF 1990, AS AMENDED, AND THE TRANSPORTATION EQUITY ACT FOR THE 21ST CENTURY (TEA-21) OF 1998.

WHEREAS, it has become necessary to certify that the 2025 Regional Transportation Plan and the 2006-2008 Transportation Improvement Program were found to be in conformity for VOC and NOx motor vehicle emissions budget contained in *Revisions to the State Implementation Plan for the Control of Ozone Air Pollution, Houston / Galveston / Brazoria Ozone Nonattainment Area*; and

WHEREAS, the 2025 Regional Transportation Plan (RTP) and the 2006-2008 Transportation Improvement Program (TIP) have met the requirements set forth in the Conformity State Implementation Plan issued jointly by the U.S. Department of Transportation and the Environmental Protection Agency (EPA); and

WHEREAS, vehicle emissions estimates resulting from the implementation of the transportation facility and service improvements recommended in the 2025 Regional Transportation Plan and the 2006-2008 Transportation Improvement Program provide for expeditious implementation of transportation control measures in its applicable implementation plan; and

WHEREAS, the 2025 Regional Transportation Plan and the 2006-2008 Transportation Improvement Program contribute to annual emissions reductions consistent with Sections 182 (b)(1) and 187 (a)(7) of the Clean Air Act, as amended; and

WHEREAS, implementation of the transportation facilities and services recommended in the 2025 Regional Transportation Plan Update and the 2006-2008 Transportation Improvement Program would result in lower total vehicle emissions than the 1990 base year emissions and the motor vehicles emissions budget (MVEB); and

WHEREAS, approval of these proposed revisions is conditional upon completion of the Public Comment Period without significant public opposition.

NOW THEREFORE, be it resolved by the Transportation Policy Council for the Houston-Galveston Transportation Management Area that the 2025 Regional Transportation Plan and the 2006-2008 Transportation Improvement Program are in conformity with the 1990 U.S. Clean Air Act as amended, and the Transportation Equity Act for the 21st Century (TEA-21) of 1998.

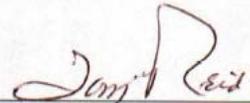
PASSED AND APPROVED this 22nd day of April 2005 at a regularly scheduled meeting of the Transportation Policy Council for the Houston-Galveston Transportation Management Area.

APPROVED:



Robert Eckels, Chairman
Transportation Policy Council

ATTEST:



Tom Reid, Secretary
Transportation Policy Council

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List of Abbreviations

AERCO:	Area Emission Reduction Credit Organization
ALVW:	Adjusted Loaded Vehicle Weight
AQI:	Air Quality Index
AQM:	Air Quality Model
BA:	Baseline Activity
BACT:	Best Available Control Technology
BAP:	Bureau of Air Policy
BAQC:	Bureau of Air Quality Control
BART:	Best Available Retrofit Technology
BCCA:	Business Coalition for Clean Air
BER:	Baseline Emission Rate
BPA:	Beaumont/Port Arthur Ozone Nonattainment Area
CAA:	Clean Air Act of 1990
CAAA:	Clean Air Act Amendments of 1990
CARE:	Clean Air Responsibility Enterprise
CEM:	Continuous Emission Monitor
CMAQ:	Congestion Mitigation/Air Quality funds under ISTEA and TEA21
CMSA:	Consolidated Metropolitan Statistical Area (the Houston-Galveston-Brazoria CMSA consists of the Houston PMSA [Chambers, Fort Bend, Harris, Liberty, Montgomery and Waller Counties], the Galveston-Texas City PMSA [Galveston County], and the Brazoria PMSA [Brazoria County]).
CNG:	Compressed Natural Gas
CO:	Carbon Monoxide
CO₂:	Carbon Dioxide
COAST:	Coastal Oxidant Assessment for Southeast Texas
COG:	Council of Governments
COPD:	Chronic Obstructive Pulmonary Disease
DERC:	Discrete Emission Reduction Credit
DFW:	Dallas/Fort Worth Ozone Nonattainment Area
EBTA:	Emissions Banking and Trading of Allowances (SB7)
EBTP:	Emissions Banking and Trading Program
EGF:	Electric Generating Facility
EPA:	Environmental Protection Agency
EPN:	Emission Point Number
ERC:	Emission Reduction Credit
ERP:	Emission Reduction Plan
ESAD:	Emission Specifications for Attainment Demonstration
ESL:	Effects Screening Level
ETR:	Employer Trip Reduction
FCAA:	Federal Clean Air Act
FCFF:	Federal Clean Fuel Fleet
FIN:	Facility Identification Number
FTA:	Federal Transit Administration

GHP:	Greater Houston Partnership
GHRCP:	Greater Houston Regional Clean Cities Program
GIS:	Geographic Information Systems
GVWR:	Gross Vehicle Weight Rating
HAP:	Hazardous Air Pollutant
HC:	Hydrocarbons
HCOEM:	Harris County Office of Emergency Management
HDDV2b:	Heavy-Duty Diesel Vehicles Class 2b (8,501-10,000 lbs. GVWR)
HDDV3:	Heavy-Duty Diesel Vehicles Class 3 (10,001-14,000 lbs. GVWR)
HDDV4:	Heavy-Duty Diesel Vehicles Class 4 (14,001-16,000 lbs. GVWR)
HDDV5:	Heavy-Duty Diesel Vehicles Class 5 (16,001-19,500 lbs. GVWR)
HDDV6:	Heavy-Duty Diesel Vehicles Class 6 (19,501-26,000 lbs. GVWR)
HDDV7:	Heavy-Duty Diesel Vehicles Class 7 (26,001-33,000 lbs. GVWR)
HDDV8a:	Heavy-Duty Diesel Vehicles Class 8a (33,001-60,000 lbs. GVWR)
HDDV8b:	Heavy-Duty Diesel Vehicles Class 8b (>60,000 lbs. GVWR)
HDDBS:	Heavy-Duty Diesel School Buses
HDDBT:	Heavy-Duty Diesel Transit and Urban Buses
HDGB:	Heavy-Duty Gasoline Buses (school, transit and urban)
HDGV2b:	Heavy-Duty Gasoline Vehicles Class 2b (8,501-10,000 lbs. GVWR)
HDGV3:	Heavy-Duty Gasoline Vehicles Class 3 (10,001-14,000 lbs. GVWR)
HDGV4:	Heavy-Duty Gasoline Vehicles Class 4 (14,001-16,000 lbs. GVWR)
HDGV5:	Heavy-Duty Gasoline Vehicles Class 5 (16,001-19,500 lbs. GVWR)
HDGV6:	Heavy-Duty Gasoline Vehicles Class 6 (19,501-26,000 lbs. GVWR)
HDGV7:	Heavy-Duty Gasoline Vehicles Class 7 (26,001-33,000 lbs. GVWR)
HDGV8a:	Heavy-Duty Gasoline Vehicles Class 8a (33,001-60,000 lbs. GVWR)
HDGV8b:	Heavy-Duty Gasoline Vehicles Class 8b (>60,000 lbs. GVWR)
HGA:	Houston/Galveston Ozone Nonattainment Area
H-GAC:	Houston-Galveston Area Council
HIRI:	Heat Island Reduction Initiative
HOV:	High-Occupancy Vehicle
HRM:	Houston Regional Monitoring Corporation
ILEV:	Inherently Low Emission Vehicle
I/M:	Inspection/Maintenance program (vehicle emissions control)
ISTEA:	Intermodal Surface Transportation Efficiency Act of 1991
LAER:	Lowest Achievable Emission Rate
LDDV:	Light-Duty Diesel Vehicles (passenger cars)
LDDT12:	Light-Duty Diesel Trucks 1 and 2 (0-6,000 lbs. GVWR)
LDDT34:	Light-Duty Diesel Trucks 3 and 4 (6,001-8,500 lbs. GVWR)
LDGV:	Light-Duty Gasoline Vehicles (passenger cars)
LDGT1:	Light-Duty Gasoline Trucks 1 (0-6,000 lbs. GVWR, 0-3,750 lbs. LVW)
LDGT2:	Light-Duty Gasoline Trucks 2 (0-6,000 lbs. GVWR, 3,751-5,750 lbs. LVW)
LDGT3:	Light-Duty Gasoline Trucks 3 (6,001-8,500 lbs. GVWR, 0-5,750 lbs. ALVW)
LDGT4:	Light-Duty Gasoline Trucks 4 (6,001-8,500 lbs. GVWR, 5,751 lbs. and greater ALVW)

LEV:	Low Emission Vehicle
LNG:	Liquefied Natural Gas
LOA:	Level of Activity
LPG:	Liquefied Propane Gas
LVW:	Loaded Vehicle Weight
MACT:	Maximum Achievable Control Technology
MAERT:	Maximum Allowable Emission Rate Table
MC:	Motorcycles (gasoline)
MDERC:	Mobile Discrete Emission Reduction Credit
MECT:	Mass Emission Cap and Trade
MERC:	Mobile Emission Reduction Credit
METRO:	Metropolitan Transit Authority of Harris County
MOA:	Memorandum of Agreement
MPO:	Metropolitan Planning Organization
MTBE:	Methyl Tertiary Butyl Ether
MTP:	Metropolitan Transportation Plan
MVEB:	Motor Vehicle Emissions Budget
µg:	Micrograms or 10 ⁻⁶ grams
NAAQS:	National Ambient Air Quality Standards
NAMS:	National Air Monitoring Stations
NESHAPs:	National Emission Standards for Hazardous Air Pollutants
NLEV:	National Low Emission Vehicle
NO₂:	Nitrogen Dioxide
NO_x:	Nitrogen Oxides
NSPS:	New Source Performance Standards
NSR:	New Source Review
NWS:	National Weather Service
O₂:	Oxygen
O₃:	Ozone
OTAG:	Ozone Transport Assessment Group
Pb:	Lead
PCC:	Program Compliance Credit
PM_{2.5}:	Particulate Matter less than 2.5 microns in size
PM₁₀:	Particulate Matter less than 10 microns in size
PMT:	Personal Miles Traveled
PPB:	Parts per Billion
PPM:	Parts per Million
PSD:	Prevention of Significant Deterioration
RACT:	Reasonably Available Control Technology
RAQPC:	Regional Air Quality Planning Committee
RCAP:	Regional Commute Alternatives Program
ROP:	Rate of Progress
RFG:	Reformulated Gasoline
RTP:	Regional Transportation Plan
SA:	Strategic Activity
SER:	Strategic Emission Rate

SIP:	State Implementation Plan
SLAMS:	State or Local Air Monitoring Station
SO₂:	Sulfur Dioxide
SOCMI:	Synthetic Organic Chemistry Manufacturing Industry
SOV:	Single-Occupant Vehicle
SO_x:	Oxides of Sulfur
SULEV:	Super Ultra Low Emission Vehicle
SUV:	Sport Utility Vehicle
TAC:	Technical Advisory Committee
TAFF:	Texas Alternative Fuel Fleet Program
TCAA:	Texas Clean Air Act
TCEQ:	Texas Commission on Environmental Quality (formerly TNRCC)
TCMs:	Transportation Control Measures
TCP:	Transportation Control Plan
TDM:	Transportation Demand Management
TEA21:	Transportation Equity Act for the 21 st Century (replaces ISTEA)
TERP:	Texas Emission Reduction Plan
TIP:	Transportation Improvement Program
TMA:	Transportation Management Area
TMO:	Transportation Management Organization
TNRCC:	Texas Natural Resource Conservation Commission (now TCEQ)
TOG:	Total Organic Gases
TPC:	Transportation Policy Council
TPD:	Tons per Day
TPY:	Tons per Year
TxAQS 2000:	Texas 2000 Air Quality Study
TxDOT:	Texas Department of Transportation (formerly Texas Highway Department)
UAM:	Urban Airshed Model
ULEV:	Ultra Low Emission Vehicle
USDOT:	United States Department of Transportation
VMEP:	Voluntary Mobile Emission Reduction Program
VMT:	Vehicle Miles Traveled
VOC:	Volatile Organic Compound
ZEV:	Zero Emission Vehicle

Executive Summary

Milestones

On June 4, 2002, the Federal Highway Administration certified that the Houston-Galveston area's 2002 *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* (SIP) (hereafter referred to as the December 2000 SIP) that was submitted to the U.S. Environmental Protection Agency (EPA) by the Texas Natural Resource Conservation Commission (TNRCC) on December 20, 2000.

In November 2004, the Texas Commission on Environmental Quality (TCEQ, 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 in December 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, the 2007 Attainment Demonstration budgets for on-road mobile emissions are at 186.13 tons per day of nitrogen oxides (NO_x) and 89.99 tpd for volatile organic compounds (VOC). The Mid-Course Review SIP also establishes new Rate-of-Progress (ROP) emissions budgets for 2005 and 2007. The EPA found the Attainment Demonstration Mid-Course Review SIP Motor Vehicle Emission Budgets (MVEB)s adequate, effective May 9, 2005 and approved the Rate-of-Progress budgets, effective on April 15, 2005. A conformity determination of the *2025 Regional Transportation Plan (RTP)* and the *2006-2008 Transportation Improvement Program* to the new MVEBs established in the Mid-Course Review SIP is required because: 1) the three-year period from the last conformity is about to expire, 2) an updated RTP and TIP have been submitted, and 3) conformity must be demonstrated within 18 months after SIP MVEBs have been found adequate. Conformity must be determined by June 4, 2005 or the RTP and the TIP will lapse.

The projects in year 2005 of the previous TIP, the *2004-2006 Transportation Improvement Program*, must also be in compliance with the MVEBs. A supplement was developed and incorporated into the *2006-2008 Transportation Improvement Program* which includes the 2005 projects that have not yet let to contract into the new TIP. The *2006-2008 Transportation Improvement Program* with supplement (hereafter referred to as the *2006-2008 TIP*) was adopted as the current TIP by the Transportation Policy Council.

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 on the latest emission estimation model available
- Interagency consultation, as well as a public involvement process, must be conducted during the analysis (found in Sections 7 and 8, respectively)
- Timely implementation of Transportation Control Measures (TCMs)
- An RTP and TIP that are consistent with the MVEBs established in the applicable SIP
- Include all regionally significant projects expected in the nonattainment area in the RTP and TIP

Regional Inventory

H-GAC conducts regional emission analyses of transportation plans and transportation improvement programs to ensure that 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 plans, 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	NO_x	VOC
2005	257.3	104.2
2007	210.0	90.0
Attainment Demonstration		
Budget (tpd)		
Year	NO_x	VOC
2007	186.13	89.99

Source: Mid-Course Review SIP, TCEQ

These 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 include 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 NO_x) 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 eight-hour ozone rule, if an adequate one-hour Attainment Demonstration budget is in place, that budget can be used for purposes of conformity as an alternate emissions test for the eight-hour attainment year. Since the Houston-Galveston-Brazoria area has been designated as

“Moderate” for the eight-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 *2006-2008 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 17, 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	321.700	--	391.10	--
2005 ROP	103.465	104.20	242.689	257.30
2007 ROP	89.231	90.00	198.983	210.00
2007 AD	89.765	89.99	184.55	186.13
2015 AD	50.970	89.99	75.64	186.13
2025 AD	40.740	89.99	38.32	186.13
2010 (8-hour Alternate Emissions Test)	71.840	89.99	140.63	186.13

FIGURE 1: VOC Emissions Summary

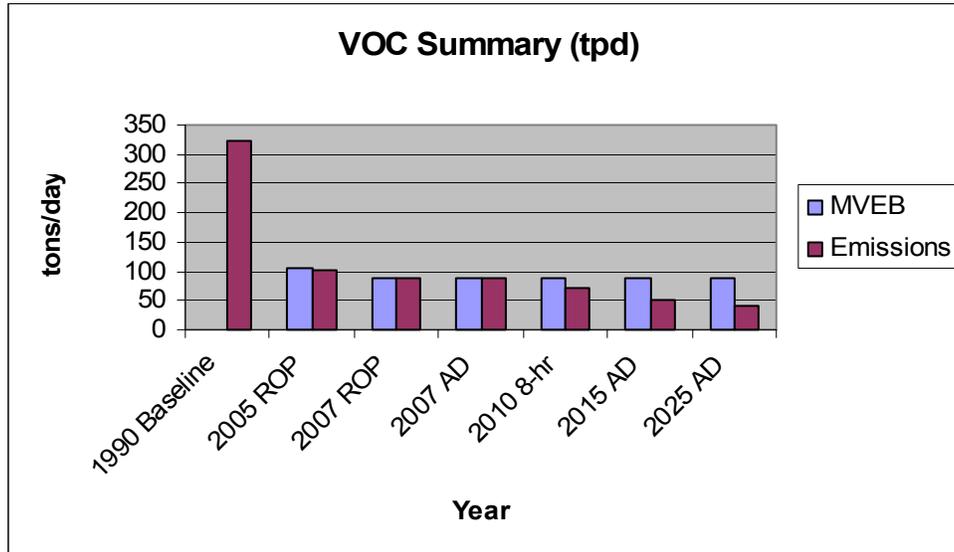
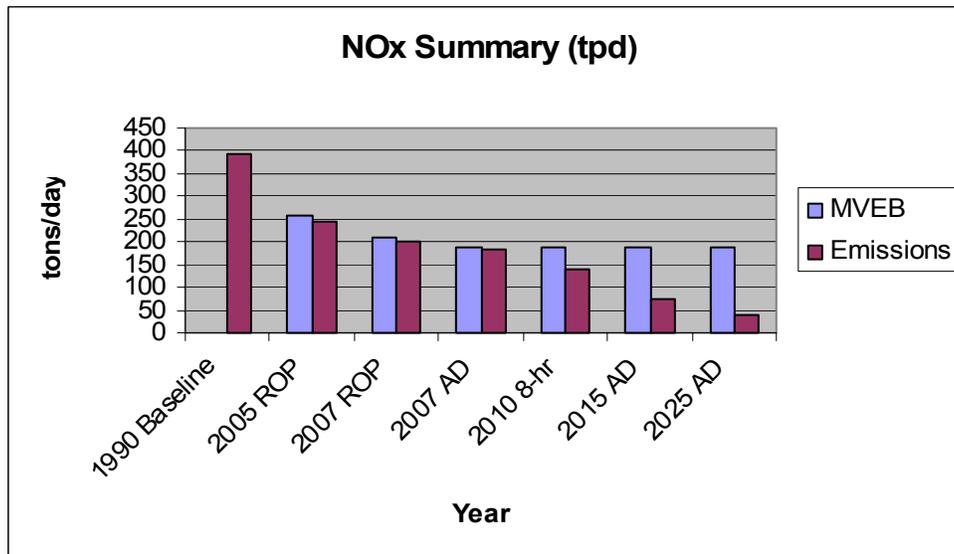


FIGURE 2: NOx Emissions Summary



Background Information on Conformity

More information on what conformity is and the regulations that apply to it can be found at: <http://www.fhwa.dot.gov/environment/conform.htm>.

This conformity determination involved a pre-analysis review discussion with the review agencies (Section 7) and a public comment period (Section 8).

1. Introduction

With the signing of the Clean Air Act Amendments of 1990 (CAAA) into law, the Houston-Galveston region was designated nonattainment for exceeding the National Ambient Air Quality Standard (NAAQS) for the pollutant ozone. On a scale ranging from marginal to extreme, the Houston-Galveston region was labeled as "Severe-II" and given until the year 2007 to attain the ozone standard. The CAAA requires each state to submit a state implementation plan (SIP) to the U.S. Environmental Protection Agency (EPA). The SIP is a legally binding document that defines the structure through which emissions will be reduced and the ozone standard will be attained. As the central focus of the air quality planning process, the SIP ties in transportation planning through the conformity provisions in the CAAA. These provisions verify that federal actions on transportation projects are consistent with the air quality objectives contained in the SIP. In many cases, transportation-related control measures identified in the SIP are contained and funded in the Regional Transportation Plan (RTP) and the Transportation Improvement Program (TIP).

Section 176(c)(4) of the CAAA requires the EPA to make rules regarding conformity determinations for transportation plans and programs. In response to this requirement, the EPA published its *Criteria and Procedures for Determining Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Funded Under Title 23 U.S.C. or the Federal Transit Act* in the *Federal Register* on November 24, 1993. This conformity rule requires metropolitan planning organizations (MPOs) and the U.S. Department of Transportation (U.S. DOT) to make conformity determinations on metropolitan transportation plans and transportation improvement programs before they are adopted, approved or accepted in air quality nonattainment areas. The EPA has promulgated four separate amendments to the conformity rule, most recently in July 2004. The EPA has proposed new rules affecting the conformity for the eight-hour ozone standard. This conformity takes advantage of Section 93.119 of the new conformity rule to use an interim emissions test for the purposes of the eight-hour conformity due by June 15, 2005. This conformity analysis fulfills the requirements of the one-hour conformity due by June 4, 2005 as well as the eight hour conformity.

1.1 MPO Organization and Role

The Houston-Galveston Area Council (H-GAC) has been designated by the State of Texas as the Metropolitan Planning Organization (MPO) charged with coordinating transportation planning for the region. H-GAC's Transportation Policy Council (TPC) is responsible for the development of the long-range, 20-year transportation plan for the eight-county Transportation Management Area (TMA). The ozone nonattainment boundaries are the same as the MPO boundaries. The TPC provides regional coordination with various stakeholders including cities and counties in the eight-county area, the Texas Department of Transportation (TxDOT), transportation agencies (such as transit, toll and port authorities) and citizens of the region.

H-GAC is required to review its regional transportation plan, the 2025 Regional Transportation Plan, and determine its conformity with the December 2004 *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*”), in accordance with EPA's final conformity rule published in the *Federal Register* on July 1, 2004.

This conformity is necessary to fulfill several requirements. Primarily, the updated RTP and TIP require a conformity finding. Secondly, the EPA designated the eight HGA 1-hour nonattainment counties as nonattainment for the 8-hour ozone standard. A conformity determination is required for the 8-hour by June 15, 2005. Because the nonattainment boundaries are the same, the area can utilize the 1-hour Attainment Demonstration MVEB as an interim emissions budget for the 8-hour standard. Finally, the three-year period from the last conformity determination expires June 4, 2005, thus the Conformity must perform 1-hour test with the latest MVEBs from the Mid-Course Review SIP.

1.2 Purpose

To demonstrate conformity, as defined by the EPA's final rule, analyses of transportation plans and TIPs must address the following criteria:

- Are the RTP and TIP consistent with the most recent estimates of on-road mobile source emissions?
- Does the RTP and TIP provide for expeditious implementation of transportation control measures (TCMs) in the applicable SIP?
- Does the RTP and TIP contribute to annual emission reductions consistent with Section 182(b) and Section 187(a)(7) of the CAAA?

This criteria is met and conformity is demonstrated if both VOC and NO_x emissions in each of the analysis years modeled conforms to the criteria in Section 1.3.

1.3 Conformity Criteria

The final conformity rule requires MPOs in air quality nonattainment areas to conduct conformity determinations on their transportation plans and TIPs. The conformity rule requires that conformity analyses adhere to a number of requirements:

- The analysis process must use the most recent planning assumptions in force at the time of the conformity determination and employ the latest available and approved emissions model.

- The transportation plan and TIP must provide for the timely implementation of transportation control measures (TCMs) from the applicable SIP.
- A regional emissions analysis must be conducted for significant air quality milestone years and the RTP horizon years.
- Volatile organic compounds (VOCs) and nitrogen oxide (NO_x) emissions from each analysis year must be less than the MVEB established in the applicable SIP.
- Emissions from each analysis year must be less than 1990 baseline emissions levels.

1.4 Document Format

The format and content of the conformity documentation was determined by the Technical Working Group (TWG). The TWG is a group of technical on-road modelers, planners, and engineers from MPOs and councils of government across the state, as well as representatives from state and federal agencies. This document includes:

- Summary of economic/demographic inputs to the travel modeling process by analysis year;
- Listing of emission model inputs by analysis year;
- Estimates of emission reductions from TCMs and a demonstration of their timely implementation;
- Adjustments to estimated vehicle miles traveled based on a historic comparison to the Highway Performance Monitoring System (HPMS);
- Summaries of travel demand forecasts (person, vehicle and transit trips by mode and purpose) and summaries of vehicle miles of travel (by major functional classifications and vehicle speed) for each analysis year;
- Listings of regionally significant federal, state and local added capacity highway and transit projects by analysis year, including funding source; and
- Network link listings by analysis year.

Each section of the travel demand and the emissions chapters is divided in two parts: a Rate-of-Progress and an Attainment Demonstration section. The on-road modeling in these two SIPs differs slightly. These differences are explained in each section.

1.5 Electronic Data Submittal

This document is available in hard copy and in electronic format. Submittal of the conformity to review agencies will be in electronic format, except to agencies that have specifically requested a printed copy. Additionally, this material is available on the H-GAC Conformity Web site:

<http://www.h-gac.com/HGAC/Departments/Transportation/Conformity/Documents.htm>

1.6 Checklist

The Documentation Subcommittee of the TWG created the checklist attached at the very beginning of this document. This checklist serves the dual function of reminding the submitting agency to submit everything listed on the sheet, and to serve as a quick reference for review agencies.

2. 2025 RTP & 2006-2008 TIP Conformity to the SIP

The purpose of this document is to demonstrate that the 2025 RTP and the 2006-2008 TIP conform to the motor vehicle emission budgets established in the Mid-Course Review SIP.

2.1 Overview

The *2025 Regional Transportation Plan (RTP)* considers the transportation needs of the eight-county Houston-Galveston region. It is a long-range plan that identifies mobility and access goals for our region, strategies to meet these goals, and priority actions to be implemented by 2025. The geographic area covered by this plan includes Harris, Galveston, Brazoria, Fort Bend, Montgomery, Liberty, Chambers, and Waller Counties. These counties make up the consolidated metropolitan statistical area (CMSA), a region of more than 7,000 square miles and almost 5 million residents.

2.2 Submittal Frequency

The RTP is required by federal statute to be updated every three years. The TIP is compiled every two years under the guidance of the TPC. The TIP is the three-year program of transportation investments and is considered the implementation tool of the long range plan. When either the RTP or the TIP is updated, a new conformity analysis must be conducted. Additional conformity triggers include the publication of SIPs containing new MVEBs and expiration of the three-year period for which a conformity determinations lasts.

2.3 Reasonable Available Control Measures

The 2006-2008 TIP includes and clearly identifies the reasonable available control measures committed to in the SIP for our region. The transportation activities in the 2006-2008 TIP conform to the regional air quality goals. The MPO is committed to completing these projects within the required attainment timeframe. The emissions benefits for these projects are located in Appendix H of the TIP.

The project selection process for the TIP requires project sponsors to provide information pertaining to their public involvement and environmental justice process. Each sponsor is encouraged to provide documentation including meeting schedules, minutes, comments and petitions/surveys. Information regarding outreach materials and meeting locations are also identified through the selection process. Sponsors include information regarding advertising and meetings conducted in multiple languages, low-income and elderly areas, and meeting locations accessible to transit.

2.4 Regionally Significant Projects

The 2006-2008 TIP includes all regionally significant projects regardless of funding source, since the Houston-Galveston region is a nonattainment area. Regionally significant projects using federal or state funds are located in Chapter 2 and locally funded regionally significant projects are identified in Chapter 4 of the TIP.

Regionally significant projects include, at a minimum, all facilities classified as principal arterial or higher, or fixed guideway extensions that offer an alternative to regional highway travel. Also, these projects include minor arterials that are included in the travel demand modeling process, which serve significant inter-regional and intra-regional travel by connecting rural population centers not already served by a principal arterial, or by connecting with intermodal transportation terminals not already served by a principal arterial.

2.5 Regionally Significant Travel Projects/Programs

The 2025 RTP has three fundamental policy strategies for managing mobility: system capacity (both roadway and transit), operations management, and travel demand management (TDM).

The RTP proposes to add system capacity in roadways, transit, port and airport facilities. For transit, the plan incorporates the 2025 METRO Solutions Plan and recommends some service expansions beyond the METRO service area based on increasing population densities and the locations of various population groups that have limited mobility options today.

Port and airport project expansion examples include:

- A major marine terminal complex called the Bayport Terminal Project at the Port of Houston;
- The Port of Galveston expansion plans reflect increases in their cruise ship activity;
- The Port of Freeport's major expansion plans include cargo handling;
- The northeast side of Bush Intercontinental Airport may provide access to the proposed I-69 NAFTA Superhighway; and
- Expansion of passenger facilities at Hobby Airport.

Operational improvements include the continuation of Computerized Traffic Management Systems (CTMS) with video camera surveillance and incident detection and response, ramp metering and Arterial Traffic Management Systems (ATMS) that will interconnect traffic signals along specific corridors.

Additional strategies are recommended related to Intelligent Transportation Systems (ITS) and the smart streets concept.

Smart Streets is another operations management concept. Smart Street enhancements will help decrease vehicle delay through a range of options, such as traffic light synchronization, deployment of roundabouts, medians, constructing or extending turn bays (as needed), consolidation of duplicate driveways and partial grade separation of some traffic lanes at major intersections, as appropriate.

Transportation Demand Management strategies include a relatively new tool called peak-period pricing. Peak-period pricing is the tolling of a roadway or segments of a roadway during peak travel periods in an attempt to encourage commuters to shift their travel activities to an off-peak period. Many of our region's roadways routinely experience more demand than can be accommodated during peak travel hours, while the transportation system has significant unused capacity during off-peak periods. Peak-period pricing tries to shift some of the demand from the peak-period to off-peak times. Peak-period pricing can be an effective strategy in our region because we do not have the resources to build roads indefinitely, and unlimited roadway expansion would not be desirable to the region.

2.6 Non-Federal Projects/Programs

Federal and state revenues for building and maintaining the region's transportation network are not keeping pace with travel demand. One method of generating additional resources is through the creation of toll facilities that would provide additional sources of local funding. These additional sources of revenue may provide the necessary funding for implementing regional improvements to the transportation network without necessarily requiring federal funds.

The following projects may be supported with toll revenue:

- I-10 West (Katy freeway) HOT lane (under construction)
- SH 99 (Grand Parkway) Full corridor (proposed)
- Northwest corridor (new facility) New corridor (proposed)
- SH 35 New corridor (proposed)
- U.S. 290 HOT lane (proposed)
- SH 288 HOT lane (proposed)

2.7 *Exempt Projects/Programs*

Exempt projects include safety, landscaping and those projects with minimal environmental impacts. Examples of such projects are:

Safety

- Hazard elimination program
- Shoulder improvements
- Pavement resurfacing and rehab
- Fencing
- Increasing sight distance
- Traffic control devices other than signalization

Mass Transit

- Purchase of support vehicles
- Construction of passenger shelters
- Purchase of office equipment
- Operating assistance to transit agencies

Other

- Projects that do not lead to construction activities
- Planning and technical studies
- Sign removal
- Landscaping
- Engineering to access social, economic or environmental impacts
- Repair of damage by natural disasters

2.8 *Constraints*

The EPA has designated the eight-county Houston-Galveston-Brazoria area as nonattainment for ground-level ozone (O₃). While transportation is not this region's primary source of ozone precursor pollutants, continued reductions of pollutants from on-road vehicles is an essential part of our plan to attain clean air standards. Consequently, the RTP and TIP are required to conform to emission limits set by the Texas Commission on Environmental Quality (TCEQ) and approved by the EPA.

In addition to the conformity requirements discussed above, the RTP and TIP must meet certain statutory planning requirements, as set out in 23 CFR Part 450 and 49 CFR part 613. The sections below discuss these constraints.

2.8.1 Long-Range Financial Constraint (RTP)

The fiscal constraint requirement is intended to ensure that the total estimated costs of projects included in the RTP and the estimated cost of constructing, operating, and maintaining the total (existing plus planned) transportation system over the period of the RTP does not exceed reasonably available estimated revenues. A conformity determination on fiscally constrained plans ensures that conformity findings are based on realistic plans and programs, and that TCMs and other projects which may be beneficial to air quality are funded.

The total investment in the 2025 RTP is \$77 billion. The 2025 RTP includes significant expansion of toll financing for limited access roadways and the use of ‘surplus’ toll funds for other regional transportation needs. The RTP estimates \$10 billion toll revenue through 2025 with potential for \$6 billion in revenue beyond construction, plus operations and maintenance costs for the toll facilities.

On-road mobile transportation is one of several broad categories contributing to the formation of ground-level ozone. To meet the federal air quality standard in this region, reductions are needed from all criteria pollutant sources. The 2025 RTP recommends increased funding for H-GAC’s emission reducing programs, such as:

- \$300 million for the Clean Vehicle Program over the life of the RTP
- \$40 million for the Vanpool program through 2025
- \$2.5 million for FY 2004-2025 for implementation of the Commute Solution’s telework initiative

2.8.2 Short-Range Financial Constraint (TIP)

The TIP was developed within the estimated allocations for the Houston-Galveston-Brazoria region for FY 2006-2008. The fiscal constraint for the TIP ensures that those projects committed to can be implemented within the three-year timeframe. Fiscal constraint of the TIP also ensures that our region will be financially able to maintain and operate the existing transportation infrastructure.

2.8.3 Air Quality/Motor Vehicle Emissions Budgets

The Mid-Course Review SIP contains MVEBs in both the ROP and Attainment Demonstration (AD) portions. The budgets, as they appear in the respective SIPs, are:

Rate of Progress 2005	
NO _x	257.3 tpd
VOC	104.2 tpd
2007	
NO _x	210.0 tpd
VOC	90.0 tpd
Attainment Demonstration 2007	
NO _x	186.13 tpd
VOC	89.99 tpd

The 2007 AD budgets also apply to the years 2015 and 2025. The 2007 AD budget was calculated by TCEQ according to EPA guidance on the development of budgets under the one-hour ozone standard.

This conformity also looks at the year 2010 as part of the requirement for the eight-hour ozone standard. As no eight-hour SIP has been developed for the Houston-Galveston-Brazoria area, this analysis makes use of the July 1, 2004 EPA Conformity Rule. This rule allows eight-hour nonattainment areas to use existing MVEBs providing that the one-hour nonattainment area has the same boundaries as the 8-hour area. Once an eight-hour SIP is developed, the budgets located, therein, will be used for conformity purposes.

3. Modeled Activity

This section describes the demographic modeling, as well as the travel demand modeling done for the conformity analysis years.

3.1 *Land-Use Model*

Base Year (1990) Inventory

The 2000 Census Summary File 1 (SF1) is the source of the 2000 Base Year population data for each of the eight counties and their respective census tracts. The 1999 ABI (now called Info USA) record-level employment file, with some adjustments and corrections based on 2000 Texas Workforce Commission wage and salary employment data and other sources of information on major employers, is the source of 2000 Base Year employment data. County Appraisal District data, supplemented by aerial photographic and satellite remote sensing imagery, is the source of the 2000 Base Year land use data.

Forecast Process

In May 2003, H-GAC adopted its Regional Growth Forecast, which provides forecasted population, household and employment data for use in travel demand modeling and conformity analysis. The forecast was produced in a two phase process, overseen by a Forecast Advisory Committee of experts on demographic and economic trends in the region.

The first phase was the preparation of county-level “control” totals of population, households and employment using an economic model developed by Regional Economic Models, Inc. (REMI). A “moderate” scenario was prepared using the REMI model’s default settings, with adjustments reflecting 2000 Census data, 1990-2000 industry growth trends, and “non-farm wage and salary” employment data from the Texas Workforce Commission. An “aggressive” scenario was also prepared, using REMI with the same modifications, as well as an upward adjustment of growth in the energy sector and related services. After comparing both scenarios with other widely used forecasts for the region, H-GAC concluded that the aggressive scenario was the most likely case, and elected to use it for transportation planning purposes.

The county-level totals were then allocated to smaller areas of geography using the UrbanSim, a public domain model developed at the University of Washington. UrbanSim attempts to replicate the dynamics of urban land development, taking into account land-use patterns, land cost, and accessibility, among other factors. UrbanSim allocates households and jobs to 1,000 x 1,000-foot grid cells, which can then be aggregated to TAZ, RAZ, Census Tract or other geographic boundaries.

The Forecast Advisory Committee reviewed preliminary model runs, including a validation test in which UrbanSim was used to approximate 1990-2000 growth patterns in portions of Harris and Fort Bend counties. With some modifications, the committee approved the draft forecast for public review and comment.

Forecast results were provided to all cities, counties and school districts within the TMA, and was placed on H-GAC's Web site for review by the public.

Feedback was received from seven local governments, one school district, one university and several private citizens. Input received from this process resulted in some minor changes but did not significantly alter the forecast. H-GAC's Board of Directors adopted the forecast in May 2003.

Conformity Analysis Years

The REMI control totals included single-year forecasts from 2001-2030.

Detailed UrbanSim forecasts were developed for the years 2005, 2007, 2010, 2015, 2022 and 2025.

There were two subsequent changes made to the May 2003 forecast update. One change was limited to Montgomery County only and the result was available for all modeling years. The second change was mainly within Brazoria County and it was adjusted for year 2025 only. The changes occurred when H-GAC gathered new information from consultants' corridor studies. Tables 3 and 4 display some current data features by county-level household size and regional household population and employment totals.

TABLE 3: Comparison of County-Level Household Size

County	Census 1990	Census 2000	H-GAC 2000	H-GAC 2025
Brazoria	2.90	2.82	2.82	2.63
Chambers	2.90	2.82	2.82	2.48
Fort Bend	3.10	3.14	3.14	2.94
Galveston	2.60	2.60	2.60	2.60
Harris	2.70	2.79	2.79	2.90
Liberty	2.80	2.80	2.80	2.86
Montgomery	2.80	2.83	2.83	2.76
Waller	2.80	2.79	2.81	3.09
Region	2.75	2.80	2.80	2.86

Source: H-GAC, December 2004

TABLE 4: Regional Household Population and Employment Estimates/Forecasts

(units in millions)	YEAR					
	1990	2005	2007	2010	2015	2025
Household Population	3.73	5.03	5.25	5.52	6.05	7.66
Employment	1.84	2.39	2.55	2.69	2.99	3.48

Source: H-GAC, December 2004

3.2 *Travel Demand Model*

To address the conformity tests, analysis year networks were developed for 2005, 2007, 2010, 2015 and 2025. Results from the 1990 base year network, developed for the Base Year Emission Inventory, are used for comparison. The Houston-Galveston regional travel models were used to estimate the daily travel inputs to this conformity analysis.

Section 3.2 details how both the ROP and AD networks were developed for this conformity. Where the two models differ, the subsection is further split to detail the modeling for both.

3.2.1 Model Description

To address the conformity tests, analysis year networks were developed for 2005, 2007, 2010, 2015 and 2025. Results from the 1990 base year network, developed for the Base Year Emission Inventory, are used for comparison. The Houston-Galveston regional travel models were used to estimate the daily travel inputs to this conformity analysis.

3.2.2 Model Validation

The Houston-Galveston regional travel models were used to estimate the daily travel inputs to this conformity analysis. These models have been validated to the year 1995. Documentation of this validation is presented in Appendix 9.4. The procedures used to develop disaggregate time-of-day travel and speed inputs are the same as those used in the development of the MVEBs located in the Mid-Course Review SIP for the Houston-Galveston nonattainment area. The 1995 Model Validation documentation is presented in Appendix 9.4.

3.2.3 Network Development

The regional roadway networks used in the conformity analysis represent the system of roadways assumed to be operational in each of the two analysis years. Therefore, the 2005 roadway network represents current roadways, plus roadways under construction, and roadways expected to be operational by the end of FY 2005. The 2007 network includes all roadways in the 2005 roadway network plus all roadways expected to be operational by the end of FY 2007. Table 6 summarizes the regional roadway networks for 2005 and 2007. Appendix 9.8 contains a link-level listing of the roadway modeling networks used in the analysis.

3.2.4 Model Adjustments

Travel Demand output is adjusted by two factors: highway performance monitoring system (HPMS) and seasonal adjustment factors.

The HPMS adjustment factor was used to adjust the 2007 travel demand model (TDM) for HPMS consistency. The current TDM validation year is 1995 and the TDM was revalidated in 2002. This factor was developed for the SIP using the 2002 TDM revalidation document (H-GAC, January 2004), the estimated intrazonal VMT for the 2002 TDM, and the 2002 HPMS vehicle miles of travel (VMT) reported by TxDOT. The HPMS factor is calculated as:

$$\text{HPMS VMT (AADT)} \times \text{ANSWT Adjustment Factor} = \text{HPMS VMT (ANSWT)}$$

(where average annual daily traffic is AADT, and average non-summer weekday travel is ANSWT)

$$\text{HPMS VMT (ANSWT)} / \text{Model VMT (ANSWT)} = \text{HPMS Factor}$$

The HPMS VMT (AADT) component was the eight-county total 2002 HPMS VMT (reported by TxDOT in the 2002 Roadway Inventory Functional Classification Record [RIFCREC] Report). The ANSWT adjustment factor (i.e., used to convert AADT to ANSWT) was based on automated traffic recorder (ATR) data aggregated from all ATR stations within the HGA eight-county TDM network area. The model VMT (ANSWT) was produced from the 2002 travel model assignments and estimated intrazonal VMT. The actual values for the HPMS factor calculation are:

$$122,832,328 \times 1.0558338 = 129,690,523.6$$

$$129,690,523.6 / 124,088,850.0 = 1.045142441$$

This HPMS factor used in the conformity analysis was the same that was utilized in the SIP. The seasonal factor used in this analysis differs from that used in the SIP due to the inclusion of another year of data since the SIP budgets were developed. The HGA regional ATR-based seasonal day-type factors adjust the travel model and estimated intrazonal VMT to VMT estimates characteristic of the day used to produce the MVEB. The factors are average episode day-type traffic count divided by the ANSWT traffic count.

3.2.5 Transit Systems

In September 1994, the Metropolitan Transit Authority (METRO) Board of Directors approved a fare increase. Prior to September 1994, there had been no transit fare increase since the previous conformity determination of the MTP. However, since summer 1997, ridership levels have risen. The analysis of marketing/survey data appears that revised fare structures and increased marketing efforts have played a role in the enhanced ridership levels.

Assumptions regarding the level of transit service for the conformity determination of the MTP are consistent with METRO's 2025 Regional Transit Plan and subsequently completed Major Investment Studies. Transit fares were assumed to remain at existing levels throughout the analysis period. Both existing and future toll facilities were evaluated assuming currently reflected toll pricing would remain at a fixed amount.

3.2.6 Roadway VMT

The following section is divided between the travel demand modeling conducted for the ROP and AD analysis years in sections 3.2.6.1 and 3.2.6.2, respectively.

3.2.6.1 *ROP VMT*

Base Year (1990) Inventory

Using the 1990 household and employment information for the eight-county TMA, trip generation (i.e., production and attraction) estimates were developed for each of six trip purposes: home-based work (HBW), home-based school (HBSCH), home-based shop (HBSHP), home-based other (HBO), non-home based (NHB) and truck-taxi trips (TRTX). The trip production models used to produce these estimates are cross-classification

models based on household size and income, while the attraction models are based on employment. The 1990 external-local and external-through trip tables were based on 1990 external station (cordon) volumes.

Table 5 details the resulting person and vehicle trip estimates by purpose for the year 1990. The HBSCH, HBSHP and HBO trips have been summed to a home-based, non-work (HBNW) total.

TABLE 5: Base Year (1990) Internal Trips by Purpose for the Eight-County Transportation Planning Region

Purpose	1990	% of Total
HBW Person Trips	2,200,543	17.1
HBNW Person Trips	6,155,066	48.0
NHB Person Trips	3,806,188	29.6
TRTX Vehicle Trips	675,625	5.3
Total Internal Trips	12,837,422	100.0

Source: H-GAC, 2000

Using a 1990 highway network and a set of F-factors calibrated to the year 1985 and validated to the year 1990, person trips by purpose, as well as the truck-taxi and external-local vehicle trips, were distributed using the Disaggregate Trip Distribution Model (the Atomistic Model) of the TxDOT Trip Distribution Package (TTDP). Table 6 details, by a general facility type structure, the 1990 network, which was used in the trip distribution, as well as the assignment phases of this scenario analysis.

TABLE 6: 1990 Network for the Eight-County Transportation Planning Region

Miles	Freeway/ Tollway	Principal Arterial	Other Arterial	Collector	HOV Lanes^A
Centerline	497.0	810.0	3,230.0	1,135.0	44.0
Lane	2,820.0	3,372.0	8,754.0	2,368.0	44.0

Source: H-GAC; A: excluding ramp structures, 2000

Transit mode shares were estimated based on METRO's 1990 Transit On-Board Survey. Following the estimation of transit mode share, the mezzo-level high-occupancy vehicle (HOV) carpool model of the TTDP was used to account for and estimate the level of usage of the HOV lane system by carpools and convert the person trip tables to vehicle trip tables. The HOV carpool demand on the 1990 HOV lane system was estimated based on the transit mode share estimates produced by METRO and the auto occupancy estimates from the 1984 H-GAC Regional Travel Survey (subsequently revised based on the 1990 Nationwide Personal Transportation Survey (NPTS)).

The vehicle trip tables were factored by trip purpose to represent the time periods desired for the estimation of time-of-day travel demand following the conversion of the person trip tables to vehicle trip tables. The procedure used by H-GAC to factor trip tables relies on time-of-day trip table factors by trip purpose and the trip table factoring procedures of the TTDP. The trip table factors were developed based on an analysis of the 1984 H-GAC Regional Travel Survey data. Because the Regional Travel Survey contained no data on truck/taxi and external travel, survey data from other urban areas was used to develop trip table factors for those trip purposes.

In addition to factoring the 24-hour trips to represent the desired time period, the trip tables were converted from production-to-attraction orientation to origin-destination orientation. The factors used to perform this step were also based on the 1984 H-GAC Regional Travel survey.

Time-of-Day Trip Table Factors

Based on analyses of the trip table factors developed in 30-minute intervals, the daily vehicle trip tables were separated into the following time periods:

A.M. Peak:	6:30 a.m. - 8:30 a.m.
Midday:	8:30 a.m. - 3:30 p.m.
P.M. Peak:	3:30 p.m. - 6:30 p.m.
Overnight:	6:30 p.m. - 6:30 a.m.

Following the separation of the 24-hour trip tables by purpose for each of the four time periods, the trip tables for each trip purpose were summed to develop a single time-of-day trip table (e.g., A.M. Peak trip table). Each time-of-day trip table was then assigned to the appropriate 1990 time-of-day network.

The time-of-day networks are the 1990 network with capacities reflective of the appropriate time-of-day. For example, the facilities represented in the 1990 a.m. peak network have two-hour, peak-period capacities that vary by facility type, number of lanes, and area type.

The resulting time-of-day link volume estimates were then entered into H-GAC's post-assignment speed model to develop link-level time-of-day speed estimates. The post-assignment speed model is based on procedures recommended in *Highway Vehicle Speed Estimation Procedures for Use in Emissions Inventories* prepared by Cambridge Systematic for the EPA in September 1991.

The speed estimation model relies primarily on the speed estimation techniques described in the Highway Capacity Manual (HCM). The HCM relationships are used to estimate the speeds for estimated volume-to-capacity ratios from zero to one. The extensions of the models for volume-to-capacity ratios exceeding one are based on the traditional Bureau of Public Roads (BPR) impedance adjustment function. The methods rely on the estimated volume-to-capacity ratio as a key measure of congestion for estimating the congested speed based on the constrained equilibrium volume of a link. Separate procedures are used for freeways and non-freeway streets.

The speed model was developed and calibrated by applying speeds to the 1985 a.m. and p.m. peak-period assignments for the Houston-Galveston region, and comparing the modeled directional speeds to more than 8,000 observed directional link speeds encoded in the link data. The models were also validated to year 1990 observed directional speeds.

The centroid connectors in the Houston-Galveston TMA networks represent local street facilities that provide access to higher-level roadway facilities. Local streets are generally low-volume, uncongested streets. Since there is not a one-to-one correspondence between centroid connectors and the local streets (i.e., a single centroid connector usually represents more than one local street) and since local streets generally operate without significant congestion, the speed models were not used to estimate the centroid connector speeds. The speeds for the VMT represented on centroid connectors were estimated based on the area type of the zone, which is connected to the roadway network by the centroid connector, and the length of the centroid connector. The estimated speed for intrazonal VMT (travel

within a zone) is developed from the average of the centroid connector speeds for the zone.

The estimated level of travel (VMT) and congestion (speed) by link serve as inputs to the emissions model.

Analysis Years (2005 and 2007)

Using the household and employment forecasts for 2005 and 2007, trip generation estimates (i.e., production and attraction) were developed for each of six trip purposes: home-based-work (HBW), home-based school (HBSCH), home-based shop (HBSHP), home-based other (HBO), non-home based (NHB), and truck-taxi trips (TRTX). The trip production models used to produce these estimates are cross-classification models based on household size and income, while the attraction models are based on employment. Trip generation estimates for external-local and external-through vehicle trips for all conformity scenario years were developed based on extrapolating historic growth in traffic between 1985 and 1996.

Table 7 summarizes the resulting person and vehicle trip estimates by purpose for the years 2005 and 2007. The HBSCH, HBSHP and HBO trips have been summed to a home-based non-work (HBNW) total.

TABLE 7: Internal Trips by Purpose for the Eight-County Transportation Planning Region for 2005 and 2007

Purpose	2005	% Of Total	2007	% Of Total
HBW Person Trips	2,964,995	17.1	3,094,174	17.1
HBNW Person Trips	8,286,253	47.6	8,645,787	47.6
NHB Person Trips	5,240,872	30.1	5,461,936	30.1
TRTX Vet. Trips	902,161	5.2	942,778	5.2
Total Trips	17,394,281	100.0	18,144,675	100.0

Source: H-GAC, December 2004

The regional roadway networks used in the conformity analysis represent the system of roadways assumed to be operational in each of the two analysis years. Therefore, the 2005 roadway network represents current roadways, plus roadways under construction, and roadways expected to be operational by the

end of FY 2005. The 2007 network includes all roadways in the 2005 roadway network plus all roadways expected to be operational by the end of FY 2007. Table 8 summarizes the regional roadway networks for 2005 and 2007. Appendix 9.8 contains a link-level listing of the roadway modeling networks used in the analysis.

TABLE 8: Roadway Networks for the Eight-County Transportation Planning Region for 2005 and 2007

	Miles	Freeway/ Tollway	Principal Arterial	Other Arterial	Collector	Managed ^A Lanes
2005	Centerline	634	1824	3240	1629	133
	Lane	3784	5803	9620	3577	173
2007	Centerline	663	1908	3224	1632	145
	Lane	4090	6176	9828	3635	201

Source: H-GAC, December 2004; A: excluding ramp structures

Using the highway networks and a set of F-factors developed as part of the 1995 regional travel model validation, estimates of person trips by purpose, as well as the truck-taxi and external-local vehicle trips, were distributed using the Disaggregate Trip Distribution Model (the Atomistic Model) of the TTDP.

The estimates of person trips by trip purpose, along with network descriptions of the roadway and transit facilities and services,¹ were then put into the regional mode choice model. This model developed forecasts of person trips by eight auto submodes (single-occupant non-toll, single-occupant toll, two-person non-toll, two-person toll, three-person non-toll, three-person toll, four-plus-person non-toll and four-plus-person toll) and six transit submodes (walk to local bus, walk to express bus, walk to commuter bus, walk to urban rail, drive to park and ride and drive to kiss and ride) for each of the two analysis years.

3.2.6.2 Attainment Demonstration VMT

Please note: The travel demand modeling done for the Attainment Demonstration resembles the modeling done for the Rate-of-Progress, with the exceptions listed below.

¹ Provided by the Metropolitan Transit Authority of Harris County (METRO)

Analysis Years (2007, 2010, 2015 and 2025)

Using the household and employment forecasts for 2010, 2015 and 2025, trip generation estimates (i.e., production and attraction) were developed for each of six trip purposes: home-based work (HBW), home-based school (HBSCH), home-based shop (HBSHP), home-based other (HBO), non-home based (NHB), and truck-taxi trips (TRTX). The trip production models used to produce these estimates are cross-classification models based on household size and income, while the attraction models are based on employment. Trip generation estimates for external-local and extrapolating historic growth in traffic between 1985 and 1996 developed external-through vehicle trips for all scenarios.

Table 9 summarizes the resulting person and vehicle trip estimates by purpose for the years 2010, 2015 and 2025. The HBSCH, HBSHP, and HBO trips have been summed to a home-based non-work (HBNW) total.

TABLE 9: Internal Trips by Purpose for the Eight-County Transportation Planning Region for 2010, 2015 and 2025

Purpose	2010	% Of Total	2015	% Of Total	2025	% Of Total
HBW Person Trips	3,253,580	17.1	3,566,693	17.0	4,462,344	17.0
HBNW Person Trips	9,092,121	47.6	9,970,311	47.7	12,599,235	48.1
NHB Person Trips	5,739,242	30.1	6,279,392	30.0	7,839,809	29.9
TRTX Vet. Trips	996,118	5.2	1,105,990	5.3	1,300,711	5.0
Total Trips	19,081,061	100.0	20,922,386	100.0	26,202,099	100.0

Source: H-GAC, December 2004

The regional roadway networks used in the conformity analysis represent the system of roadways assumed to be operational in each of the four analysis years. Therefore, the 2007 network includes all roadways in the 2005 roadway network and all roadways expected to be operational by the end of FY 2007. The 2010 roadway network includes all roadways in the 2007 network and all roadways expected to be operational by the end of FY 2010. The 2015 roadway network includes all roadways in the

2010 network and all roadways expected to be operational by the end of FY 2015. The 2025 roadway network includes all roadways in the 2015 roadway network and all remaining projects in the Houston-Galveston 2025 RTP. Table 10 summarizes the regional roadway networks for the years 2007, 2010, 2015 and 2025. Appendix 9.8 contains a link-level listing of the roadway modeling networks used in the analysis.

TABLE 10: Roadway Networks for the Eight-County Transportation Planning Region for 2007, 2010, 2015 and 2025

	Miles	Freeway/ Tollway	Principal Arterial	Other Arterial	Collector	Managed Lanes ^A
2007	Centerline	656	1905	3259	1627	147
	Lane	4038	6130	9785	3621	200
2010	Centerline	753	1951	3321	1660	152
	Lane	4668	6449	10516	3895	240
2015	Centerline	870	2067	3399	1676	206
	Lane	5354	6957	11144	4083	479
2025	Centerline	953	2907	2958	1562	206
	Lane	6005	11570	11025	4467	540

Source: H-GAC, December 2004; A: excluding ramp structures

Using the highway networks and a set of F-factors developed as part of the 1995 regional travel model validation, estimates of person trips by purpose, as well as the truck-taxi and external-local vehicle trips, were distributed using the Disaggregate Trip Distribution Model (the Atomistic Model) of the TTDP.

The estimates of person trips by trip purpose, along with network descriptions of the roadway and transit facilities and services², were then put into the regional mode choice model. This model developed forecasts of person trips by eight auto submodes (single-occupant non-toll, single-occupant toll, two-person non-toll, two-person toll, three-person non-toll, three-person toll, four-plus-person non-toll and four-plus-person toll) and six transit submodes (walk to local bus, walk to express bus, walk to commuter bus, walk to urban rail, drive to park and ride and drive to kiss and ride) for each of the analysis years.

² Provided by the Metropolitan Transit Authority of Harris County (METRO)

Time-of-Day Trip Table Factors

Based on analyses of the trip table factors developed in 60-minute (one-hour) intervals, the daily vehicle trip tables were separated into the following time periods:

A.M. Peak:	6 a.m. - 9 a.m.
Midday:	9 a.m. - 3 p.m.
P.M. Peak:	3 p.m. - 7 p.m.
Overnight:	7 p.m. - 6 a.m.

Following the conversion of the auto person trip tables by mode to auto vehicle trip tables by mode, the time of day vehicle trip tables were assigned to the appropriate analysis year network. The resulting forecasts of time of day volumes by roadway segment were then factored to 24 individual hourly volumes, after reconciliation to HPMS, for each roadway segment. Using the individual hourly volumes by roadway segment, forecasted individual hourly speeds by roadway segment were developed. The forecasted hourly volumes, converted to vehicle miles of travel, and speed served as the travel demand inputs to the emissions estimation process.

Travel Model Results

The results of the travel models reflect the expected demographic trends in the region over the next couple of decades, as shown in Table 11. From 2007 to 2025, VMT is forecasted to climb nearly 47 percent to a total of nearly 202.6 million VMT per day in the region. For a summary of HPMS and seasonal factors affecting the final VMT, please refer to the Pre-Analysis Consensus Plan in Appendix 9.16. This document is part of the interagency consultation process.

TABLE 11: Vehicle Miles Traveled for the Eight-County Transportation Planning Region for 2005, 2007, 2010, 2015 and 2025

<i>Analysis Year</i>	<i>Vehicle Miles of Travel (million VMT)</i>
2005 (ROP)	139,645,535.0
2007 (ROP)	145,536,894.0
2007 (AD)	142,264,698.0
2010 (8-hr)	149,683,399.0
2015 (AD)	167,016,834.0
2025 (AD)	209,637,686.2

Source: H-GAC, April 2005 (VMT HPMS Adjusted)

4. Emission Factors/MOBILE Model

The U.S. EPA MOBILE model is at the center of this conformity analysis. This model generates emission factors (in grams/mile) for 28 vehicle categories for a wide variety of years. This conformity analysis utilized MOBILE6.2.03, which is the most recent version of this model.

Emissions analysis methodologies in this conformity are consistent with procedures used to estimate the emissions budgets in the December 2004 Mid-Course Review SIP. The interagency consultative process was used to define any necessary changes to emission calculations due to federal or state control measures that have been promulgated since the modeling for the December 2004 Mid-Course Review SIP was conducted.

4.1 Overview

This conformity analysis used a directional link-based hourly methodology to develop emissions estimates. This methodology replicates the methodology used in setting the MVEB. EPA's MOBILE6.2.03 model was used to develop emissions factors by:

- Hour;
- MOBILE6 road type (or drive cycle); and
- 28 vehicle types.

The speed sensitive freeway and arterial emissions factors, and the fixed-speed ramp emissions factors were used. The freeway emissions factors were applied to links with interstate, freeway, and toll roads functional classification codes; the ramp emissions factors were used with links coded as ramp (for freeway, toll roads, and frontage roads); and arterial emissions factors were applied to all other links. Emission factors are later combined with the TDM output that has been adjusted using the HPMS and seasonal adjustment factors. The TCEQ selected August 30 out of the exceedance episode in the AD SIP as being most representative of mobile emissions, and thus the day that sets the on-road MVEB. ATR-based hourly travel fractions were applied to allocate the episode day type VMT by hour-of-day. Hourly, directional, average operational speeds were modeled by link. Vehicle classification data were used to estimate time-of-day VMT mixes for apportioning fleetwide link VMT for the three road type groups (freeway, arterial and ramp) to the 28 EPA vehicle types. Link-level emissions by vehicle type were calculated by hour.

4.2 MOBILE Input Parameters

A full list of MOBILE6 input parameters can be found in Appendix 9.9. These parameters correspond to the parameters used in the on-road modeling for the

ROP and AD SIPs, except where more recent planning assumptions have replaced the earlier data. New data includes updated registration distributions and new seasonal adjustment factors. It should also be noted that the Mid-Course SIP removed the Inspection and Maintenance (I/M) program in the rural counties. This modification is reflected in the MOBILE setups. Appendix 9.9 presents all data inputs, including activity data, local meteorological data, state control programs, federal control programs, and vehicle fleet characteristics.

4.3 Emission Factor Adjustments

Emissions factor post-processing was required to properly model the vehicle Anti-Tampering Program (ATP) and I/M Program, as well as the impacts of the Texas Low-Emissions Diesel Fuel Program (TxLED). The county-level, episode-day-specific emissions factors were organized into tables which were input to the emissions calculations (Section 6). Only the ROP emission factors were adjusted for the TxLED program at this point. The AD emission factors were adjusted for the TxLED program at a point later in the process, described in Section 6.

5. Mobile Source Emission Reduction Strategies

This category covers a variety of on-road emission control programs.

5.1 TCMs

A Transportation Control Measure (TCM) is a measure specifically committed to in a SIP for the purpose of reducing emissions from transportation sources. TCMs are further defined in 40 CFR §93.101, as amended by 62 FR 43780, 43803. The CAA required that TCMs be included in SIPs for regions designated as moderate and above ozone nonattainment areas.

The Houston-Galveston-Brazoria area is designated as “Severe II” for the 1-hour ozone standard. As a result TCMs must be included in the region’s SIP. The TCMs committed to in the SIP are listed in Appendix 9.14.

5.1.1 Timely Implementation of TCMs

The transportation conformity rule includes specific criteria for determining if TCMs that are included in a SIP are being implemented in a timely manner. The intent of these provisions is to ensure that TCMs which are eligible for Federal funding receive priority for funding and that the SIP schedules and commitments are enforced. Appendix 9.14 goes into detail about the current status of regional TCMs.

The TCM Appendix has emission estimates associated with each project. These were developed using the mobile source emission reduction strategies (MoSERS³) methodology in combination with MOBILE6 emission factors. While emissions were calculated for each project, these credits were not applied in this conformity analysis. Please refer to Section 6.

5.1.2 Project “Slippage”

For TCM projects that have slipped behind schedule, regions are required to identify the obstacle that caused the slippage and to document how the issue will be resolved. These requirements are detailed in 40 CFR §93.113(c)(1-3), as amended by 62 FR 43780, 43809-10. Discussion of TCM slippage can also be found in Appendix 9.14.

³ For more information on the Mobile Source Emission Reduction Strategy (MoSER) calculation methodologies, please see the handbook at <http://moser.tamu.edu/>.

5.2 *VMEPs*

The Voluntary Emissions Reduction Program (VMEP) includes a number of on-road and off-road emission reduction programs that go beyond current mandated programs. While this is a voluntary program, it is mandatory that the program generate the emissions specified in the Mid-Course Review SIP.

This region has committed to a range of VMEPs, which are detailed in Appendix 9.5. This Appendix also provides an updated estimate of emissions benefits resulting from these measures. Credit for the on-road measures will be applied to the final emission numbers in this conformity.

5.3 *TERM*

H-GAC is claiming credit for Transportation Emission Reduction Measures (TERMs) in this conformity. A TERM is a TCM-like project that is not committed to in a SIP or included as part of a VMEP measure, but produces emission reductions. The projects counted as TERMs in this conformity are the signalization projects implemented by the City of Houston. These projects were not committed to in the SIP or VMEP program. Credit was only taken for intersections completed to date. Please refer to Appendix 9.18 for a further description of TERMs and the calculation methodology used to quantify benefits.

5.4 *CMAQ*

The Congestion Mitigation and Air Quality Improvement Program (CMAQ) is a categorical funding program created with ISTEA and continued under TEA-21. This program directs funding to projects that contribute to meeting National Ambient Air Quality Standards. CMAQ funds generally may not be used for projects that result in the construction of new capacity available to single-occupant vehicles. For a listing of TIP-funded CMAQ projects, please refer to Appendix H of the 2006-2008 TIP.

5.5 *TERP*

The Texas Emissions Reduction Plan (TERP), established by the legislature in 2001, is a comprehensive set of incentive programs aimed at improving air quality in Texas. The Texas Commission on Environmental Quality (TCEQ) administers TERP grants and other financial TERP incentives.

The Mid-Course Review SIP adjusted the MVEB for the 2007 Attainment Demonstration by 3 tpd. This conformity analysis takes credit for this 3 tpd of NO_x generated by this program. Documentation of TERP progress to date is in

Appendix 9.19. Further information on TERP can be found on the TCEQ Web site, <http://www.tnrc.state.tx.us/oprd/sips/overview.html>.

5.6 Summary

The programs mentioned above typically cannot be modeled in the usual regional emissions modeling process. As a result, off-model credit must be calculated and applied. These calculations are detailed in the respective appendices.

These on-road programs illustrate the commitment this region has made to improving air quality.

6. Determination of Regional Transportation Emissions

Estimates of on-road mobile source emissions are based on recent model runs of H-GAC's travel demand forecasting models (Section 3) and the EPA's MOBILE6.2.03 emission factor model (Section 4), post-process adjustments (this section), and off-model credits (Section 5). Regional emissions analyses for conformity must contain the following:

- 1) All federal projects and all regionally significant non-federal projects;
- 2) All regionally-significant projects, regardless of funding source, are required to be included in the model; and,
- 3) VMT from all other projects (including TCMs) that are not required to be explicitly modeled must be estimated based on reasonable professional practice (see Section 5).

Conformity analyses must estimate emissions for certain future years called horizon years. These horizon years have very specific requirements:

- 1) Horizon years may be no more than 10 years apart;
- 2) The first horizon year may be no more than 10 years from the base year used to validate the transportation demand planning model;
- 3) If the attainment year is in the time span of the transportation plan, the attainment year must be a horizon year; and
- 4) The last horizon year must be the last year of the transportation plan's forecast period.

Based on these requirements, the years of 2005, 2007, 2010, 2015 and 2025 were selected for analysis in this conformity.

The Mid-Course Review SIP provided ROP budgets for 2005 and 2007, as well as AD budgets for 2007. Emissions calculations in a conformity must follow the calculations used in the SIP. This section summarizes the final steps in the emissions estimation process.

6.1 Procedure

The Texas Transportation Institute developed a suite of programs (hereafter referred to as the "TTI suite" or the "suite") that facilitates the calculation of regional emissions. The suite works in conjunction with the MOBILE6 model, discussed in Section 4, to generate emission factors, and applies these factors to the Travel Demand Modeling results in Section 3.

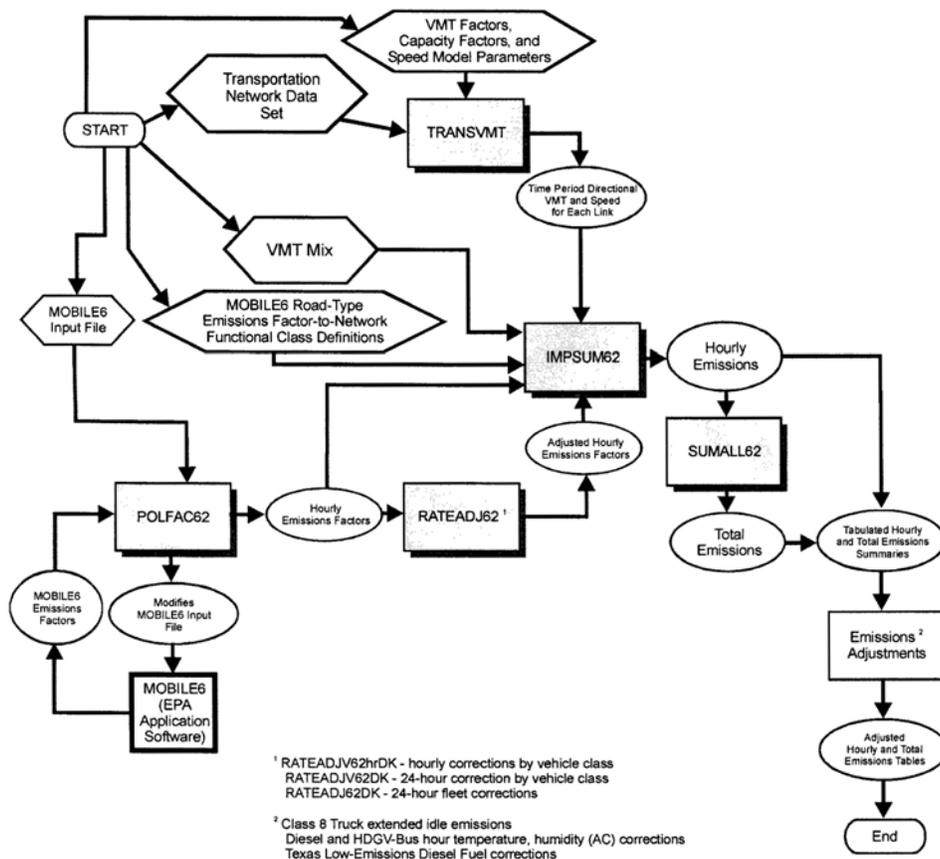
Figure 3 is a basic flowchart of how the TTI suite of programs is applied. The hexagons in this flow chart indicate where data inputs are required. The "Start" in the upper left hand corner symbolizes the point where the air quality modeler

has been given the travel demand modeling output. Following the down arrow, MOBILE6 input factors are developed as described in Section 4. At this point POLFAC62 is utilized to run MOBILE6.2.03 to produce emission factors for: 1) all control programs, 2) all counties, 3) all roadways, 4) all vehicle types, and 5) all hours of the day. The resulting emission factor files are then fed into the RATADJ62 program, which takes the multiple sets of emission factors for each county and combines them into a single set of emission factors. Additionally, for ROP runs, RATADJV62 was used to apply the TxLED adjustment to the emission factor. At this point, the emission factors are ready to combine with the Travel Demand Model output.

FIGURE 3: TTI Suite

Computational Process Flow

Travel Demand Model Network Link-Based Hourly MOBILE6 Emissions Estimates with Texas Mobile Source Emissions Software



Source: TTI, 2004

To the right of the “Start” in the flow chart is the TRANSVMT model. This model takes the Travel Demand Model output and puts it in the correct format. The TRANSVMT module operates in TransCAD®. These output are ready to be combined with the emission factors already generated. The IMPSUM program multiplies the appropriate emission factors with the appropriate VMT for each hour of the day. The hourly IMPSUM outputs are summed by SUMALL and reported in a tab delimited format (please see the “Emissions” folder in the electronic documentation). For the Attainment Demonstration years, the post-process adjustments are made to the SUMALL output. For the ROP files, all that remains is to take off-model credit for programs such as VMEP. Appendix 9.7 provides a more thorough explanation of the TTI Suite of programs.

6.2 *Calculated Link-Based Emissions*

The link-based emissions, as they are summarized by the SUMALL step, appear in Table 12. The ROP numbers in this table have been adjusted for the TxLED benefit, but no off-model credits. The AD years have further post-processing steps before they are final.

TABLE 12: Non-Adjusted Link-Based Emissions

	NOx (tpd)	VOC (tpd)
2005 (ROP)	246.04	104.38
2007 (ROP)	202.91	90.21
2007	204.92	90.75
2010	149.74	71.86
2015	79.89	51.07
2025	38.32	40.74

6.3 *Post-Process Adjustments*

Referring to the flow chart again, post-process adjustments take place in the last square before the end labeled “emissions adjustments.” The adjustments are slightly different between the ROP and AD numbers, so they will be discussed separately.

The ROP numbers have one step remaining, and that is the subtraction of the VMEP credits. This is illustrated in Table 13. Calculations of VMEP credits are presented in Appendix 9.5.

TABLE 13: Post-Processing for ROP Years

ROP	NOx (tpd)	VOC (tpd)
2005 Unadjusted emissions	246.040	104.382
2005 VMEP credits	-2.995	-0.469
2005 TERM credits	-0.356	-0.448
2005 Final numbers	242.689	103.465
2007 Unadjusted emissions	202.910	90.210
2007 VMEP credits	-3.600	-0.600
2007 TERM credits	-0.327	-0.379
2007 Final numbers	198.983	89.231

The AD emissions must go through an additional series of adjustments before being finalized. The AD SUMALL output is run through the TTI ADJ programs to adjust for diesel idling, temperature/humidity, motorcycle, and the TxLED measures. Detailed descriptions of these measures can be found in the Mid-Course Review SIP (also see Appendix 9.6). The adjustments applied in this step follow the same methodology that was developed for the SIP. These adjustments are outlined in Table 14. Please note that the “Idling” calculation is not an emission reduction: as in the SIP, this calculation redistributes 3 percent of the on-road heavy-duty vehicle emissions to idling vehicles at truck stops. Since no idling reduction measures are in place, no credit can be taken. This calculation was included in the conformity to ensure that the calculation process for conformity was as similar to the calculation in the SIP as possible.

TABLE 14: Post-Processing for AD Years

(units in tpd)	2007		2010*		2015*		2025*	
	NOx	VOC	NOx	VOC	NOx	VOC	NOx	VOC
Unadjusted	204.917	90.749	149.74	71.860	79.89	51.07	39.74	40.96
Idling	0	0	0	0	0	0	0	0
Temp/Humidity	-7.551	0	-4.94	0	-2.29	0	-0.74	0
Motorcycle/TxLED	-5.854	-0.007	-4.17	-0.026	-1.96	-0.10	-0.68	-0.22
VMEP	-3.600	-0.600	- - -	- - -	- - -	- - -	- - -	- - -
TERP	-3.000	- - -	- - -	- - -	- - -	- - -	- - -	- - -
TERM	-0.366	-0.377	- - -	- - -	- - -	- - -	- - -	- - -
Final Emissions	184.546	89.765	140.63	71.840	75.64	50.97	38.32	40.74

*: The VMEP, TERP and TERM programs are designed to generate emissions benefits prior to and for the attainment year. No credits were taken for these programs after the year 2007.

6.4 Final Emission Analysis Results

Mobile source emissions estimated for the 2025 RTP and the 2006-2008 TIP are consistent with the most recent projections of population, employment, travel and congestion available. The 2025 RTP demonstrates timely attainment of TCM targets established in the SIP and provides for expeditious implementation of additional measures designed to reduce congestion and vehicular travel demand.

VOC and NO_x emission estimates from all the analysis years, shown in Table 15, are lower than those estimated for the 1990 base year. Additionally, final VOC and NO_x emissions for the years 2005, 2007, 2010, 2015 and 2025 are lower than the VOC and NO_x budgets established by the Mid-Course Review SIP. The 2025 RTP and the 2006–2008 TIP, therefore, pass all conformity tests required under the EPA's Final Conformity Rule. The transportation improvements in the 2025 RTP Update and the 2006 -2008 TIP conform to both the SIP and the Clean Air Act, as amended.

TABLE 15: Final Emission Results

Analysis Year	VOC Emissions (tons/day)	VOC Budget (tons/day)	NO _x Emissions (tons/day)	NO _x Budget (tons/day)
1990 Baseline	321.700	--	391.100	--
2005 ROP	103.465	104.20	242.689	257.30
2007 ROP	89.231	90.00	198.983	210.00
2007 AD	89.765	89.99	184.550	186.13
2015 AD	50.970	89.99	75.640	186.13
2025 AD	40.740	89.99	38.320	186.13
2010 (8-hour Alternate Emissions Test)	71.840	89.99	140.630	186.13

7. Interagency Consultation

Interagency review and comment on the conformity finding were conducted in accordance with the consultative process identified in the Conformity SIP.

Local, state and federal transportation and air quality agencies affected by this conformity analysis were consulted on the scope, methodologies and products of the conformity finding. A conformity steering committee (Conformity Consultation Committee) composed of representatives of each of the following agencies is consulted regularly during the conformity process:

- Houston-Galveston Area Council (H-GAC)
- Metropolitan Transit Authority of Harris County (METRO)
- City of Houston (CoH)
- Harris County
- Texas Department of Transportation (TxDOT)
- Texas Commission on Environmental Quality (TCEQ)
- Texas Transportation Institute (TTI)
- Federal Highway Administration (FHWA)
- Federal Transit Administration (FTA)
- U.S. Environmental Protection Agency (EPA)

The purpose of this group was to ensure that the modeling methodology utilized in this conformity analysis was consistent with the on-road modeling utilized in the SIP and that the most recent planning assumptions were used. A comprehensive list of the CCC meeting agenda and decisions can be found in Appendix 9.16.

8. Public Participation

Public participation is an important part of the conformity process. A 30-day public comment period is required by Federal regulation. In an effort to better inform the public, H-GAC held an introductory conformity workshop in October 2004 (“Clean Air and Mobility: Understanding the Process”) to explain the Conformity process. Material from this workshop was posted on H-GAC’s Web site in November 2004 (<http://www.h-gac.com/HGAC/Departments/Transportation/Conformity/default.htm>). This Web site will be further utilized to post draft conformity material as it is developed by H-GAC and reviewed by the CCC. The actual public comment period will continue for more than the required 30 days.

The official public comment period begins on February 9, 2005, and concludes April 1, 2005. A public workshop to answer questions on Conformity will be held on February 12, 2005. A public meeting will be held on March 30, 2005 at H-GAC (3555 Timmons Lane, Houston, Texas). Comments received are responded to in Appendix 9.17. The minutes from the public hearing can also be found in the same Appendix.