Appendix 17

Pre-Analysis Consensus Template

1. Reason for the transportation conformity regional emissions analysis beginning 09/02/2010

(Check those boxes that apply and provide a brief explanation in the space provided.)

	New Metropolitan Transportation Plan (demographics, horizon year, etc.)
X	Modify existing Metropolitan Transportation Plan (interim year adjustments)
X	New or amended Transportation Improvement Program
	State Implementation Plan (SIP) Requirement
	Newly designated nonattainment
	Other

Explanation: *(please include important dates in your explanation, such as date of needed conformity approval, potential lapse date, etc.)*

NOTE (for information only) – For MPOs that are required to prepare a Regional Toll Analysis, if you are initiating a conformity process, you should coordinate within your MPO to determine IF an update to the Regional Toll Analysis may be required because of new or revised projects. No documentation as to the status of your Regional Toll Analysis is required as a part of the Conformity documentation.

2. Planning detail

- Metropolitan Transportation Plan/Transportation Improvement Program *(provide name of document and the years covered)*

Plan or Programs	Years covered
2011-2014 Transportation Improvement Program	2011-2014
2035 Regional Transportation Plan Update	2015-2035

- State Implementation Plan

SIP element	Description
Title of applicable SIP(s)	*Revisions of The Houston-Galveston-Brazoria 1997 Eight-Hour Nonattaintment Area Reasonable Further Progress State Implementation Plan*- Approved by EPA on April 22, 2009.
Motor vehicle emissions budgets (*list year and pollutant in tons-per-day of all applicable budgets*)	RFP SIP 2008 NOx= 186.13 tpd VOC= 86.77 tpd

Transportation Control Measures (*list brief title of all applicable SIPs and TCM substitutions, provide the dates of each)*	
Other	

- Conformity Analysis Years (*fill in all that apply*)

Requirement	Years
Conformity baseline year (*if applicable*)	NA
Attainment year	2018
Last year of maintenance plan (*if applicable*)	NA
Horizon or Intermediate analysis years	2011, 2025
Last year of transportation plan (MTP/RTP)	2035
Other	

- Demographics *(provide detail and source of data)*

Data element	Detail and source of data
Population	Use forecast approved by H-GAC board on February 2006. H-GAC uses a house developed model for regional econometric forecast, and feeds it into the UrbanSim model for local area forecasts.
Employment	H-GAC uses an in house developed model for regional econometric forecast – supplied data as baseline, and feeds this into the UrbanSim model for local area forecasts.
Socio-economic	H-GAC uses the latest available census data.
Other	

3. Activity detail

- Land-use model used (*describe the model and/or methodology*)

- Travel Demand Model:

Model factor	Detail and methodology
Model validation year	2005
Software	Cube Voyager
Mode split/mode choice	Updated and simplified model with help from Houston METRO
VMT adjustments	H-GAC will adjust the forecasted VMT to TxDOT's HPMS for all roadway facilities and seasonal adjustment factor - HPMS Factor = 1.001970381 Seasonal Factor = 0.97134
Counties covered by model	Harris, Galveston, Brazoria, Fort Bend, Montgomery, Liberty, Chambers and Waller
Other	

- Projects (*provide brief description here and attachments as applicable*)

Project element	Describe
Regionally significant definition (§93.122)	See attached document

Capacity changes	
CMAQ projects	
Non-federal projects	
Exempt projects	
Other	

4. Emissions detail (mobile emission factor model information)

- MOBILE6 external files for VMT aggregation

County link data parameter	Input and methodology
Summer Weekday: inputs to produce county, hourly, summer weekday virtual link VMT and speeds	
Annual	NA

VMT Distribution Parameter	Input and methodology
VMT by Hour	The hourly VMT fractions are developed as county hourly total VMT divided by county 24-hour

	total VMT. See Tables XX-XX
VMT by Speed	Generic input. Same for all counties. Inputs are set up to calculate emission factors by 14 MOBILE6 speed bin scenarios for MOBILE6 Freeway and Arterial road types. See Appendix 10.
VMT by Facility	VMT fractions by MOBILE6 road types combine the four road type emissions factors into the "all road types" emission factors. See Appendix 10.

- Development of emission factors (*insert description*):
  H-GAC will use the MOBILE6.2.03 model (released September 2003) to determine emission factors for this conformity analysis. The years calculated will be 2011, 2018, 2025 and 2035. The pollutants reported will be CO, NOx and VOC for the 28 EPA's vehicle class. The speed will be 1-65 mph with interpolation done by POLFACT62.

  County specific MOBILE6 input files will be provided for review at the H-GAC ftp site.

- Emissions factor post-processing (*insert procedures*)

- Emissions controls used for conformity credit

Emission reduction strategy	Modeling or post-processing

and years covered	approach
I/M programs	Modeling
Texas Low Emission Diesel Fuel (TxLED)	Modeling
Anti-tampering Program	Modeling
VMEPS	Post processing

- MOBILE 6 inputs; (*fill out tables 1 – 7)*

Table 1: MOBILE6 Pollutants and Emission Rates

Command	Function/Description	Input Parameter Source/Value
POLLUTANTS	Defines the basic set of pollutants to report.	NOx, VOC, CO
PARTICULATES	Enables computation of particulate matter (PM) and related emissions factors.	Not Applied
PARTICULATE EF	Specifies location of files that contain the particulate emissions factors when PARTICULATES command is used.	Not Applied

PARTICLE SIZE	Allows user to specify the maximum particulate size cutoff used by MOBILE.	Not Applied
EXPRESS HC AS VOC	One of five possible commands which allow the user to specify the particular HC species (NMHC, NMOG, THC, TOG, VOC) to report in the exhaust emissions output.	Applied
NO REFUELING	Directs MOBILE6 not to calculate refueling emissions factors.	Applied
AIR TOXICS	Enables the computation of air toxic emissions factors (six explicit pollutants) and specifies which to calculate.	Not Applied
ADDITIONAL HAPS	Allows entry of emissions factors or air toxic ratios for calculation of additional user-defined air toxic pollutant emissions factors.	Not Applied
MPG ESTIMATES	Allows entry of alternate fuel economy data by vehicle class and model year.	Not Applied

Table 2: MOBILE6 External Conditions

Command	Function/Description	Input Parameter Source/Value
CALENDAR YEAR	Identifies calendar year for which emissions factors are to be calculated. (Required to run model).	2011, 2018, 2025 and 2035
EVALUATION MONTH	Provides option of calculating January 1 or July 1 emissions factors for calendar year of evaluation.	7, July representing summer ozone season
MIN/MAX TEMPERATURE	Sets minimum and maximum daily temperatures. (Required to run model if the HOURLY TEMPERATURES command is not used.)	NA. Hourly temperatures used
HOURLY TEMPERATURES	Allows temperatures input for each hour of day (Required to run model if MIN/ MAX TEMPERATURE command is not used.)	County and hourly specific. Provided by TCEQ
ALTITUDE	Specifies high- or low-altitude for modeling area.	EPA default. Low.
ABSOLUTE HUMIDITY	Used to specify daily average humidity (directly affects NOx emissions). MOBILE6 also converts absolute humidity to heat index which affects HC and CO emissions for the portion of the fleet that MOBILE6 determines is using air conditioning.	NA

Environmental Effects on Air Conditioning:	Commands used by MOBILE6 to model the extent of vehicle air-conditioning usage.	EPA default
CLOUD COVER	Defines average percent cloud cover for given day.	EPA default. 0%
PEAK SUN	Specifies Mid-day hours with peak sun intensity.	EPA default.
SUNRISE/SUNSET	Allows user to specify time of sunrise and sunset.	Region specific. Provided by TCEQ.
RELATIVE HUMIDITY	Specifies use of 24 hourly relative humidity values entered by user. MOBILE6 will perform hour-specific calculations with hourly values rather than use single daily default absolute humidity value.	County and hourly specific. Provided by TCEQ
BAROMETRIC PRES	Specifies use of user input daily average barometric pressure for use with hourly relative humidity to calculate hourly absolute humidity values.	County specific. Provided by TCEQ.

Table 3: MOBILE6 Vehicle Fleet Characteristics

Command	Function/Description	Input Parameter Source/Value
REG DIST	Allows the user to supply registration distributions by age for any of the 16 composite (combined gasoline and diesel) vehicle types.	County specific. Provided by TTI using the 2009 TxDOT vehicle registration data.
DIESEL FRACTIONS	Permits user to supply locality-specific diesel fractions for 14 of the 16 composite vehicle categories by age.	Provided by TTI using the 2009 TxDOT vehicle registration data.
MILE ACCUM RATE	Allows the user to supply the annual mileage accumulation rates by vehicle type and age.	NA
NGV FRACTION	Lets user specify percent of natural gas vehicles (NGV) in the fleet by type and age certified to operate on either compressed or liquefied natural gas.	NA
NGV EF	Permits the user to enter alternate NGV emissions factors for each of the 28 vehicle types, for running and start emissions.	NA

Table 4: MOBILE6 Alternative Emissions Regulations and Control Measures

Command	Function/Description	Input Parameter Source/Value
NO CLEAN AIR ACT	Models vehicle emissions as if the Federal Clean Air Act Amendments of 1990 had not been implemented.	NA
HDDV NOx Off-Cycle Emissions Effects:		
NO DEFEAT DEVICE	Turns off the effects of the HDD vehicle NOx off-cycle emissions effects (defeat device emissions).	NA
NO NOX PULL AHEAD	Turns off HDD NOx emissions reduction effects of Pull- Ahead program.	NA
NO REBUILD	Turns off HDD NOx emissions reduction effects of Rebuild program.	NA
REBUILD EFFECTS	Allows user change Rebuild program effectiveness rate.	EPA default 90%

Tier 2 Emission Standards and Fuel Requirements:	Allow the overriding of the default Tier 2 emissions standards and fuel requirements settings.	
NO TIER2	Disables Tier 2 requirements.	NA
T2 EXH PHASE-IN	Allows alternate Tier 2 exhaust standard phase-in schedules.	NA
T2 EVAP PHASE-IN	Allows alternate Tier 2 evaporative standard phase-in schedules.	NA
T2 CERT	Allows user to specify alternate Tier 2 50,000-mile certification standards.	NA
94+ LDG IMPLEMENTATION	Allows use of alternate 1994 and later fleet penetration fractions for LDGVs under the Tier 1, NLEV (or California LEV 1), and Tier 2 emissions standard programs.	NA
NO 2007 HDDV RULE	Disables 2007 HDV emissions standards.	NA

Table 5: MOBILE6 ATP Descriptive Inputs by Analysis Year

Counties (*list counties*): Brazoria, Fort Bend, Galveston, Harris, Montgomery ATP start year (*YY*): **84 Harris** **03 Urban (Brazoria, Fort Bend, Galveston, Montgomery)**		
Analysis Year	MOBILE6 ATP (ANTI-TAMP PROG*) parameters (use separate line for each ATP)	
2011	Harris	ATP: 84 87 09 22222 22222222 2 11 096. 22112222
	Urban	ATP: 03 87 09 22222 22222222 2 11 096. 22112222

2018	Harris	ATP: 84 94 16 22222 22222222 2 11 096. 22112222
	Urban	ATP: 03 94 16 22222 22222222 2 11 096. 22112222
2025	Harris	ATP: 84 01 23 22222 22222222 2 11 096. 22112222
	Urban	ATP: 03 01 23 22222 22222222 2 11 096. 22112222
2035	Harris	ATP: 84 11 33 22222 22222222 2 11 096. 22112222
	Urban	ATP: 03 11 33 22222 22222222 2 11 096. 22112222

Table 6: MOBILE6 I/M Descriptive Inputs for Subject Counties

Counties:	Harris and Urban Counties (Brazoria, Fort Bend, Galveston, Montgomery)
MOBILE6 inputs:	
I/M GRACE PERIOD:	2
I/M EXEMPTION AGE:	25
I/M STRINGENCY:	20 (applied to only I/M program 1,2 and 3)
I/M COMPLIANCE:	96
I/M WAIVER RATES:	3 3
I/M EFFECTIVENESS:	1 1 1

I/M Program	I/M Model Years	I/M Vehicles
1 YYYY 2050 1 TRC 2500/IDLE	1987-2050	11111 22222222 2
2 YYYY 2050 1 TRC ASM 2525/5015 PHASE IN	1987-1995	22222 11111111 1
3 YYYY 2050 1 TRC OBD I/M	1996-2050	22222 11111111 1
4 YYYY 2050 1 TRC GC	1987-2050**:**	11111 22222222 2
5 YYYY 2050 1 TRC GC	1987-2050	22222 11111111 1
6 YYYY 2050 1 TRC EVAP OBD & GC	1996-2050	22222 11111111 1

The start year field, "YYYY", varies by county grouping and by I/M program emission type as follows:

1, 2, and 3 are exhaust programs for the county/start year: Harris, 1997; Urban, 2003;

4, 5, and 6 are evaporative programs for the county/start year: Harris, 1997; Urban, 2000.

Table 7: MOBILE6 Emissions Factor Post-Processing to be Performed by County and Year

Strategy and Post-Processing Result	Analysis Year	Counties	MOBILE6 Limit
I/M Program	2011, 2018, 2025, 2035	Harris, Brazoria, Fort Bend, Galveston, Montgomery	
Texas Low Emission Diesel Fuel (TxLED)	2011, 2018, 2025, 2035	Harris, Brazoria, Fort Bend, Galveston, Montgomery, Liberty, Chambers, Waller	
Anti-Tampering Program	2011, 2018, 2025, 2035	Harris, Brazoria, Fort Bend, Galveston, Montgomery	

Regionally Significant Projects Definition

Regionally significant roads are identified as: interstate/toll roads, other urban freeways or expressways, rural principal arterials, and urban minor arterial roads or streets. Regionally significant projects are defined as:

1. The project must be a non-exempt roadway project which meets the following criteria:
    a. Proposed roads that will likely meet federal criteria for all-arterial or higher functional classification.
    b. Upgrade to arterial or higher functional classification.
    c. An added capacity project being constructed on new alignments as a bypass to a principal arterial/interstate.
    d. Addition of through traffic lanes of 1 mile or more on roads that are functionally classified as an arterial or higher as defined in the travel model.
    e. New interchanges on roads that are functionally classified as an arterial or higher, that represent new connections.
    f. Adding or extending freeway auxiliary/weaving lanes from one interchange to a point beyond the next interchange.

2. As traffic conditions change in the future, the MPO's in consultation with the interagency consultation group, will consider regional significant all future roadways facilities that carry an average of 11,000 vehicles per day for a 2 lane facility and 20,000 vehicles per day for a 4 lane or greater facility between logical termini.

3. Any fixed guideway transit service including light rail, commuter rail, or portions of bus rapid transit that involve exclusive right-of-way (including barrier separated HOV lanes) shall be considered regionally significant.

4. Non-exempt projects not addressed in the above statements will be decided on a case-by-case basis through the interagency consultation process. The consultation will occur before taking the plan to TPC (either plan or TIP revision), and prior to the environmental determination.