APPENDIX 14

Interagency Conformity Consultation Process

Conformity Conference Call 9/3/14
Meeting Summary

1. Participants

Chris VanSlyke (H-GAC), Graciela Lubertino (H-GAC), Alan Clark (H-GAC, David Wurdlow (H-GAC), Chi Ping Lam (H-GAC), Jinsan Lee (TxDOT)
Via Phone: Jose Campos (FHWA), Jeff Riley (EPA), Barbara Maley (FHWA), Jackie Ploch (TxDOT), Vincent Sanders (METRO), Janie Temple (TxDOT), Jamie Zech (TCEQ), Dennis Perkinson (TTI), Laura Norton (TxDOT), Charles Airiohuodion (TxDOT), Michelle Conkle (FHWA)

2. Discussion

a. Why is H-GAC doing a new conformity?

H-GAC is doing a conformity determination to the new transportation plan: the 2040 RTP and the 2015-2018 TIP. The deadline for approving the new transportation plan and its conformity is January 25th 2015. If the plan is not approved by this deadline, it will enter a 12 month grace period where neither the RTP nor the TIP can be amended until the new transportation plan is approved.

b. Conformity years

The based year or validation year for the conformity analysis is 2012. The years that will cover the air quality regional conformity determination are the following: 2015, 2017, 2018, 2025, 2035, and 2040. Below is a table of the conformity years and its emission budgets:

Conformity Years	Budgets		Budgets Source
	NOx (t/d)	VOC (t/d)	
2015	171.63	71.56	2014 budget – latest revision of 1997 8 hr ozone standard RFP SIP
2017	130.00	59.76	2017 budget - latest revision of 1997 8 hr ozone standard RFP SIP
2018	103.34	50.13	2018 budget - latest revision of 1997 8 hr ozone standard AD SIP
2025	103.34	50.13	2018 budget - latest revision of 1997 8 hr ozone standard AD SIP
2035	103.34	50.13	2018 budget - latest revision of 1997 8 hr ozone standard AD SIP
2040	103.34	50.13	2018 budget - latest revision of 1997 8 hr ozone standard AD SIP

H-GAC also mentioned that the calculations for the years 2017 and 2018 could be made through interpolation to save time and resources.

c. Regional Significant Definition

H-GAC is in the process of changing the definition of regional significant projects. Although H-GAC does not have the final language for the regionally significant projects definition, the network development will follow the following principles:

- Include all freeways and tollways included in the MTP
- Include all fixed guideway transit systems in the MTP
- Include all other current principal arterial highways
- Include select minor arterials that serve significant interregional and intraregional travel, and connect rural population centers not already served by a principal arterial, or connect with intermodal transportation terminals not already served by a principal arterial.

This is consistent with the federal definition of "regionally significant projects" in 23 CFR 450.104 and 40 CFR 93.101, as well as state administrative code 30 TAC §114.260(D)(2)(a)(iv)

d. Validation Report

2012 is the new validation year, which includes the Cargo Model that includes truck trip tables based on surveys done in 2010. The trucks considered are 18 wheelers and service trucks.

e. Further discussion

The conformity partners pointed out that they don't want to review networks if they will change later on, as a consequence they will start their review process after the public comment is over.

The conformity partners requested the timeline, which is below:

- Wednesday, November 21 2014 - Transportation Policy Council approval to enter into public comment period for the 2040 RTP and Conformity.
- Wednesday, December 17 2014 - Two Public Meetings at HGAC (Noon and 6 pm).
- Friday, January 9, 2015 - End public comment period (50 Days).
- Friday, January 23, 2015 - Transportation Policy Council approval of 2040 RTP and Conformity.

Conformity Conference Call
2/2/2015

Participants

Chris VanSlyke (H-GAC), Graciela Lubertino (H-GAC), Shelley Whitworth (H-GAC), Hans Michael Ruthe (H-GAC), Charles Airiohuodion (TxDOT), David Wurdlow (H-GAC)
Via Phone: Jose Campos (FHWA), Jeff Riley (EPA), Barbara Maley (FHWA), Jackie Ploch (TxDOT), Vincent Sanders (METRO), Janie Temple (TxDOT), Jamie Zech (TCEQ), Laura Norton

(TxDOT), Travis Milner (FHWA), Edmund Petry (METRO), Chris Kite (TCEQ), Daniel Perry (TCEQ), Mary McGarry-Barber (TCEQ)

2. Discussion

- The 2040 RTP and Conformity were approved by the Transportation Policy Council on January 23, 2015. All the conformity documentation was presented to the consultation partners http://www.hgac.com/taq/airquality_model/conformity/2014-phase-1.aspx This generated a big discussion since the air quality results for the years 2017 and 2018 were calculated using interpolation between the air quality emission results for the years 2015 and 2025. The interpolation is allowed for these specific years according the "EPA Transportation Conformity Guidance for the 2008 Ozone Nonattainment Areas", please refer to Example #1.

  Regardless, TCEQ told the partners that the calculations for the years 2017 and 2018 using interpolation was wrong since they could not reproduced the results using the linear interpolation formula.

- The new Regional Significant Definition was presented. The conformity partners did not have any objections about it.

- On December 23, 2014, the United States Court of Appeals for the District of Columbia Circuit ruled that when the Environmental Protection Agency (EPA) adopted the 2008 8-hour ozone National Ambient Air Quality Standard (NAAQS) it exceeded its statutory authority in two ways related to transportation conformity:

  - EPA erred when it revoked the previous 1997 8-hour ozone NAAQS for transportation conformity purposes only [a final rule revoking the 1997 standard for all purposes is pending publication]; and
  - EPA erred in adopting schedules for the demonstration of attainment which effectively granted nonattainment areas an additional year to achieve the 2008 standard.

  As a consequence of this ruling, the direct estimation of emissions for 2017 and 2018 may be necessary to enable federal approval of H-GAC's 2040 RTP conformity determination. These results may be used to support a finding by EPA and the Federal Highway Administration (FHWA) of conformity consistent with a classification of "severe 15" for the Houston-Galveston-Brazoria area under the 1997 8-hr ozone standard (84 ppb) with 2019 as the attainment year.

  The conformity partners agreed on going ahead and do the required calculations and have again a public comment period.

Conformity Conference Call 2/26/15

Meeting Summary

1. Participants

Chris VanSlyke (H-GAC), Graciela Lubertino (H-GAC), Shelley Whitworth (H-GAC), Hans Michael Ruthe (H-GAC), Charles Airiohuodion (TxDOT)
Via Phone: Jose Campos (FHWA), Jeff Riley (EPA), Barbara Maley (FHWA), Jackie Ploch (TxDOT), Vincent Sanders (METRO), Janie Temple (TxDOT), Jamie Zech (TCEQ), Dennis Perkynson (TTI), Laura Norton (TxDOT), Travis Milner (TxDOT), Edmund Petry (METRO), Chris Kite (TCEQ), Mary McGarry-Barber (TCEQ), Daniel Perry (TCEQ), Morris Brown (TCEQ)

2. Discussion

This conference call was to discuss Addendum #1 and how to proceed based on the EPA possible revocation of the 1997 8-hr ozone standard.

All the conformity documentation, included Addendum #1 can be found at http://www.h-gac.com/taq/airquality_model/conformity/2040-RTP-Conformity.aspx

The conformity partners agreed to move forward with the new air quality results for the years 2017 and 2018 and send them to the Transportation Policy Council for approval.

Anyway, EPA mentioned that they were moving very quickly with the total revocation of the 1997 8-hr ozone standard. Then, H-GAC mentioned that in that case the results could be interpolated for 2017 and 2018. TCEQ then objected that the interpolation was done wrong. EPA said that they were going to clarify what years could be interpolated in the case of the revocation of the 1997 standard.

TCEQ also objected on the use of 5 mph speed bins by SEE, instead of using 1 mph speed bins like is used in the TTI model. Due to this, H-GAC proposed to have a conference call with ERG and the conformity partners to show the very small difference in the modeling results.

Conformity Conference Call 3/12/15

Meeting Summary

1. Participants

Graciela Lubertino (H-GAC), Shelley Whitworth (H-GAC), Charles Airiohuodion (TxDOT)
Via Phone: Jeff Riley (EPA), Barbara Maley (FHWA), Jackie Ploch (TxDOT), Janie Temple (TxDOT), Jamie Zech (TCEQ), Dennis Perkinson (TTI), Laura Norton (TxDOT), Edmund Petry (METRO), Chris Kite (TCEQ), Mary McGarry-Barber (TCEQ), Daniel Perry (TCEQ), Allison DenBleyker (ERG), Sandeep Kishan (ERG), John Koupal (ERG), Scott Fincher (ERG), Catherine McCreight (TxDOT), Jinsan Lee (TxDOT)

2. Discussion

The main topic of conversation was the difference in on-road emission inventories between the SEE tool and the TTI approach. The main difference between both approaches is the speed bin resolution, with TTI method using 1 mph bins and the SEE tool using 5mph bins. To show the small difference between both methods, ERG did a 2018 SIP Budget benchmark calculation (including on-and off-network) for which the 8-county difference between both methods are

-0.02% for VOC, -0.43% for CO and -0.68% for NOx.

TCEQ concerns are that they required the TTI approach for developing the HGB area's SIP inventories, and the difference in results between using the TTI approach for the SIP and SEE for conformity may result in situations in which it will be difficult for TCEQ to reconcile conformity analyses. More specifically TCEQ referred to the following information:

- excerpts from EPA's MOVES technical guidance that recommends the same procedures be used when developing on-road inventories for SIP and conformity analyses;

- an illustration of how NOx and VOC emission rates vary as a function of speed for gasoline passenger cars and diesel long-haul trucks; and

- an explanation of why review and approval of conformity analyses based on emission rates constant within 5 mph speed bins will be difficult when compared with SIP budgets based on emission rates in 1 mph increments.

Due to the TCEQ's concerns regarding the 5 mph approach, H-GAC agreed to do the air quality calculations for 2015 and 2018 with SEE using 1 mph speed bins.

Also, the possible used of interpolation was discussed since the EPA is revoking the 1997 ozone standard. FHWA advised H-GAC to use linear interpolation for the year 2017 using the new air quality regional emissions results from the years 2015 and 2018 with the 1 mph speed bins.

TCEQ Comments (received on 3/18/2015) - - H-GAC 2040 RTP Transportation Conformity Determination Air Quality Analysis

TCEQ COMMENTS ON H-GAC CONFORMITY DOCUMENTATION

Table 1: TCEQ Comments on H-GAC Conformity Documentation from March 18, 2015

Location	Topic	Comment
Inputs	"county" database inputs	The 2018 barometric pressure inputs that are part of the "county" database tables are incorrect. They do not match the ones available on our FTP site at ftp://amdaftp.tceq.texas.gov/pub/Mobile_EI/HGB/mvs/2018/ that were used to set the 2018 attainment budget for conformity. If you open the "…inputs.zip" file, look for the file entitled "mvs-hgb-may-sep-2006-cty-county.tab" in the \MOVES\HGB\2018\met\ directory.
Inputs	SUT age inputs	The SUT age inputs do not match the mid-year 2011 ones that were used for the SIP analysis, since that work was done in 2012 and mid-2011 were the latest ones available at the time. I couldn't find any place where the source of these SUT inputs was documented. Are they from mid-year 2014 because that is the latest available? If so, it must be stated in the documentation somewhere.
I/M	I/M compliance factors	The I/M compliance factors in the MOVES run specs are outdated for the passenger truck and light commercial truck categories. The older ones were 87.53% and 81.95%, respectively, from older MOVES guidance. The ones from newer MOVES guidance are 91.26% and 86.60% for the passenger truck and light commercial truck categories, respectively. Not only are these the latest available inputs from EPA, but they will also result in more I/M benefit, and therefore slightly lower emissions, so they will help in demonstrating conformity. We recommend using them.
Page 8 of App. 7	Sulfur levels	The sulfur levels for gasoline are listed as 29.42 ppm in the MOVES run specs, but page 8 of Appendix 7 has different information. This latter information seems to match a recent TTI inventory development report that we have from December 2014. Refer to the "Houston" row in Table 24 on page 51 of this document: ftp://amdaftp.tceq.texas.gov/pub/Mobile_EI/Statewide/mvs/reports/mvs14_att_tex_06_12_18_technical_report_final_dec_2014.pdf. This latter information is more up-to-date (particularly the 10 ppm sulfur input) and should be used instead in the MOVES run specs. Based on federal law, gasoline sulfur is required to go from 30 ppm to 10 ppm starting in the 2017 calendar year.
General Comment	VMT	What years of raw data were used to obtain the VMT mix figures? And some specifics need to be provided about how the data were

	processed. The conformity documentation for VMT and VMT mix should be more specific than "We used the latest." Besides total VMT by county, the emission levels (especially for NOx) are very sensitive to the VMT mix distribution between the passenger fleet and diesel trucks. This is why both the development of VMT and VMT mix need to be well documented for review purposes.
Appendix 10 TxLED	The 2018 TxLED factors that you list in Appendix 10 are correct, and match the most recent ones TCEQ has available at ftp://amdaftp.tceq.texas.gov/pub/Mobile_EI/Statewide/mvs/txled/. The table headings for the 2017 and 2018 factors are a bit wrong, and should be fixed. The table above it appropriately labels reductions separate from adjustment factors. But the 2017/2018 table just says "factors" for all.

H-GAC answers to TCEQ comments:

2018 and 2015 New Results

4/14/2015

Background

In the last conformity conference call (March 12, 2015) TCEQ requested that H-GAC re-run the regional emissions analysis for the 2018 and 2015 budget years using the Spatial Emissions Estimator (SEE) tool with 1 mph speed bins instead of 5 mph bins. TCEQ requested this additional analysis because the MOVES-based emission budgets found adequate by EPA were developed using 1 mph speed bins. In addition, after reviewing all the input parameters for MOVES, TCEQ sent a list of parameters that might need to be updated to the latest available values:

- The 2018 barometric pressure (a change of 0.4%)
- The I/M compliance factor needed to be updated for the passenger truck and light commercial truck categories. The older ones were 87.53% and 81.95%, respectively, from older MOVES guidance. The ones from newer MOVES guidance are 91.26% and 86.60% for the passenger truck and light commercial truck categories, respectively; the latest available values from EPA's MOVES2014 Technical Guidance (January, 2015).
- The Tier 3 sulfur levels for reformulated gasoline (RFG) that become effective in 2017 (signed into law on March 2014). The sulfur level input for RFG needed to be changed from 29.42 ppm to 10 ppm.

Results

Due to TCEQ's request, H-GAC proceeded to change the parameters and bin selection for the calculations of 2018 and 2015.

Table 1 and 2 provide the results of this additional analysis for the 2018 budget year and include a breakdown of the effect each methodology or parameter change had on NOx and VOC emissions. Please note that the effect due to the change in barometric pressure was not independently calculated because the change in parameter value was negligible and the MOVES model is not especially sensitive to small changes in this parameter.

Tables 3 and 4 show the results for the 2015 analysis year. Please note that the RFG change will occur in 2017 and does not affect the 2015 analysis. As the new I/M and barometric pressure parameter values had a negligible effect on the 2018 analysis, an assessment of their contribution to the change in emissions results was not performed independent of applying 1 mph speed bins for this year.

Conclusions

Based on the results below, using 1 mph speed bins instead of 5 mph bins does not appear to significantly affect regional emissions analysis results, with 1 mph bins resulting in slight, even negligible, reductions in NOx and VOC emissions. Also, changes to regulations governing the sulfur content in on-road motor fuels has a considerable affect on the analysis.

Table 1: 2018 NOx Sensitivity Analysis (8 County Totals)

	NOx (tpd) 5 mph bins	NOx (tpd) 1 mph bins	% Change
old I/M, old P, old fuels	97.18649	97.06989	-0.12*
old I/M, old P, new fuels		91.26564	-5.98**
new I/M, new P, new fuels		91.19708	-0.08**

* indicates the percent change between 5 and 1 mph bins
** indicates the percent change for the parameters listed on the left column only between the 1mph bins

Table 2: 2018 VOC Sensitivity Analysis (8 County Totals)

	VOC (tpd) 5 mph bins	VOC (tpd) 1 mph bins	% Change
old I/M, old P, old fuels	48.17103	48.12937	-0.09*
old I/M, old P, new fuels		46.09978	-4.22**
new I/M, new P, new		45.98174	-0.26**

fuels			

* indicates the percent change between 5 and 1 mph bins
** indicates the percent change for the parameters listed on the left column only between the 1mph bins

Table 3: 2015 NOx Emissions (8 County totals)

NOx (tpd) 5 mph bins, old I/M	NOx (tpd) 1 mph bins, new I/M	% Change
124.92	124.29	-0.50

Table 4: 2015 VOC Emissions (8 County totals)

VOC (tpd) 5 mph bins, old I/M	VOC (tpd) 1 mph bins, new I/M	% Change
52.76	52.46	-0.57

TCEQ comment received on 4/16/2015:

Table 2: TCEQ Comments on H-GAC Conformity Documentation from April 14, 2015

Topic	Comment
Speed bin comparison	The comparison analysis between 1 and 5 mph speed bins conducted by H-GAC for analysis years 2015 and 2018 sufficiently demonstrated that there is not a significant enough difference to require 1 mph speed bins be used for this current conformity determination. However, this comparison is not representative of any future conformity analyses, which will be evaluated separately and individually. In the event that the results of a future conformity analysis are very close to a budget (e.g., within 1%), the TCEQ will likely request that a 1 mph analysis be done instead of a 5 mph one to be consistent with SIP methodology.
Speed bin comparison	TCEQ understands that H-GAC intends to use the conformity findings included on Page 2 of Addendum #1 to the Transportation Conformity Report for analysis years 2015, 2018, 2025, 2035, and 2040, which rely on 5 mph speed bins. Analysis year 2017 will be interpolated using linear interpolation and will be different from the finding reported in Addendum #1.
Speed bin comparison	Please add the 1 versus 5 mph speed bin comparison analysis as an appendix to the conformity documentation. We suggest that the difference in inventory development methodologies be briefly described

	in the main document with a reference to the appendix for more detail. This will help meet the requirement from Section 3.2.3 of EPA's MOVES Technical Guidance: "If different approaches are used for the SIP budget and the regional conformity analysis for practical reasons, the interagency consultation process should be used to determine how to address (and minimize) any differences in results. The methods, and those methods used to develop inventories should be fully documented in the SIP submission and conformity determinations."
Program/data updates	TCEQ understands that H-GAC does not intend to incorporate updates to I/M, 2018 barometric pressure, or RFG for this conformity analysis. In accordance with EPA guidance, please include these updates in all future work.
VMT documentation	H-GAC agreed to provide documentation concerning VMT for this analysis. We suggest, as has always been done in the past, that the regional VMT for each analysis year be included within the main document with reference to an appendix for more detail. We rechecked the documentation and appendices for both the initial 2040 RTP Conformity (http://www.h-gac.com/taq/airquality_model/conformity/2040-RTP-Conformity.aspx) and Addendum 1 to 2040 RTP Conformity (http://www.h-gac.com/taq/airquality_model/conformity/2040-RTP-Conformity-Updates.aspx). We could not find the VMT references in any of these locations.
SEE reference tables	Please provide reference tables produced using the SEE tool that are similar to the tab-delimited tables available using the TTI utilities. Examples of these very detailed tab-delimited tables can be found atftp://amdaftp.tceq.texas.gov/pub/Mobile_EI/HGB/mvs/2018/. The summer weekday scenario tables at this location provide the detail for the 2018 HGB on-road modeling inventory that established the current attainment MVEB of 103.34 NOx tpd and 50.13 VOC tpd. This additional level of detail by vehicle type, pollutant, roadway type, etc. is typically needed before a full review can be given.

H-GAC answers to TCEQ comments:

From: Lubertino, Graciela [mailto:graciela.lubertino@h-gac.com]
Sent: Thursday, May 14, 2015 2:45 PM
To: amma cobbinah; Andy Mao; barbara Maley; catherine mccreight; charles.airiohuodion@txdot.gov; Dennis Perkinson (d-perkinson@tamu.edu); Edmund J. Petry (epetry@ridemetro.org); Guy Donaldson (donaldson.guy@epa.gov); Holly Brightwell Ferguson; Jackie Ploch (jploch@dot.state.tx.us); Jamie Zech; Janie S. Temple; jeffrey riley; Jinsan Lee; Jose Campos (jose.campos@fhwa.dot.gov); Larry Badon (lbadon@ridemetro.org); Laura Norton; Michelle Conkle; Pam Hasker; Peggy Thurin; Travis Milner; vincent sanders

Cc: Van Slyke, Chris; Clark, Alan; Wurdlow, David; Ruthe, Hans-Michael; Whitworth, Shelley
Subject: TCEQ comments
Importance: High

Conformity Partners,

Since the meeting on 4/14 in Austin, H-GAC did the following changes in the calculations and documentation:

- Added the VMT for each analysis year
- The emissions and VMT for the year 2017 was linearly interpolated using the years 2015 and 2018
- Due to an error in the county names for the input files for I/M program the emissions had to be re-calculated
- The sulfur level for RFG was changed for years 2018 and later to 10 ppm
- Provided reference tables similar to the TTI tab-delimited tables for the output files.
- Corrected the table format for the TxLED factors (Appendix 10)
- Added a Memo on Appendix 8 to document the sensitivity study done with the SEE tool.
- The main conformity document was changed to reflect corrections requested by TCEQ and FHWA.

Please find attached the main conformity document, Appendix 8 and 10. For access to the input and output files please go to:

https://h-gac.sharefile.com/d-s9570bacf5174c87b

Best!

Graciela

Graciela Lubertino, Ph.D.

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TCEQ Comment received 6/10/2015:

Table 3: TCEQ Comments on H-GAC Conformity Documentation from June 10, 2015

Location	Topic	Comment
Page 4 of report	First paragraph under Table 1: "Due to federal . . ."	Please update to current status. Conformity was not approved by January 25, 2015, and the area is currently in its grace period.
Page 5 of report	"**Planning Detail** [40 CFR 93.110, 40 CFR 93.106]"	Please explain what is meant by this line. These citations do not constitute planning details. Do you mean that the CFR may be referenced for planning requirements? Is this a heading? Does it belong to Table 2?
Page 7 of report	Table 4, Row 1 – applicable SIP revision links	Since (1) the budgets were set by an update to the AD and RFP and (2) the originals and update are on the same webpage, please consider including the name and project number of the applicable SIP revision. It will help keep things clear. 2013 HGB MVEB Update SIP Revision for the 1997 Eight-Hour Ozone Standard (Project No. 2012-002-SIP-NR)
Page 19 of report	Table 13b – fuel properties	The fuel properties table has incorrectly documented the 2015 gasoline values for RVP, ETOH Volume and Benzene Content. The three values should be the same as the 2017 gasoline values: 7.0 should be 7.09; 0.7 should be 0.757; and 0.4 should be 0.495. Once the documentation is updated, the values will match the values used in the MOVES input files.
General Comment	Interpolation	Do you explain anywhere why and by what authority you're interpolating? It's worth noting.

H-GAC Answers to TCEQ comments from 6/10/2015:

- **Page 4 of report:** A bullet was added to the timeline indicating the beginning of the grace period.
- **Page 5 of report:** Titles and subtitles were changed in main document to make it easier to read.
- **Page 7 of report:** The tithe of the SIP revision was added to the website address.
- **Page 19 of report:** The table format was changed to show the correct numbers. Need to point out that ETOH by volume is 9.757.
- **General Comment:** A sentence was added at the end of tables that show the air quality analysis (table in Abstract, and Table 19) and Table 5 referring to the EPA document.

Conformity Conference Call 8/17/15

Meeting Summary

1. Participants

Graciela Lubertino (H-GAC), Shelley Whitworth (H-GAC), Chris VanSlyke (H-GAC), Chi Ping Lam (H-GAC), Frank Pagliei (H-GAC), Alan Clark (H-GAC)
Via Phone: Jeff Riley (EPA), Barbara Maley (FHWA), Jackie Ploch (TxDOT), Janie Temple (TxDOT), Jamie Zech (TCEQ), Dennis Perkinson (TTI), Laura Norton (TxDOT), Edmund Petry (METRO, Jinsan Lee (TxDOT), Charles Airiohuodion (TxDOT), Jose Campos (FHWA), Peggy Thurin (TxDOT)

2. Discussion

H-GAC told the participants that all the analyses were done and that all public and interagency comments received so far have been answered. In addition, all the materials were already submitted to the partners through the share folder website.

FHWA communicated that this conformity could be approved by September 11 (which is the STIP deadline), although they have some issues regarding the conformity networks and the 2017 interpolation. EPA, TxDOT, and TCEQ agreed on the approval date.

FHWA agreed to meet with H-GAC again to discuss their concern about the modeling of the 2018 network regarding freeway 290. Also, FHWA stated that they agree with H-GAC's answers to their comments regarding the conformity documentation.

FHWA has an issue with the 2017 interpolation because H-GAC presented to the public 2 different air quality analysis, the first one using interpolation and the second one doing the regional air quality analysis. The reason for doing the second set of calculations was due to the court ruling that made invalid the revocation of the 1997 8-hr ozone standard for conformity purposes only. Since then, EPA has revoked the 1997 8-hr ozone standard for all purposes effective April 6, 2015. As a consequence, H-GAC decided to use interpolation for the year 2017 since it is allowed according to the EPA rules on how to implement the 2008 8-hr ozone standard. TCEQ, TxDOT and EPA agreed with H-GAC's calculation for 2017 by using linear interpolation between 2015 and 2018 regional air quality analysis results.

TCEQ said that they will send a document summarizing all the comments sent by email. H-GAC agreed to include this document in Appendix 14 and delete the emails.

It was also requested that all the input parameters regarding 2017 in Appendix 7 be deleted.

EPA said that they did not have any comments regarding the documentation so far.

TxDOT Comments (received on 4/20, 4/23 and 5/8/2015) and FHWA Comments (received on 7/22/2015) - H-GAC 2040 RTP Transportation Conformity Determination Network Modeling and Project Listing (Appendix 3)

Part I: Corridor-Based Major Investments

1. **MPOID 16297**

   TxDOT comment: BW 8 Description is 6 to 8 lanes ----Under Main Lanes column (4,8) not (6,8)

   H-GAC response: ~~This was due to an error in typing and has been corrected to (4,8).~~ [Corrected, see below]

   FHWA comment: Network modeling indicates portions of SB and NB Beltway 8 at US 90 to be 4-lanes (2-lanes each direction), rather than 6-lanes (3-lanes each direction) as noted in the project description (widen from 6 to 8-lanes), for 2015, 2017, 2018 and 2025. Please clarify.

   FHWA Follow-up: It appears that the "main lanes" notation in the project description should be revised to reflect (6,8) rather than (4,8) as noted in response. [Project Listing Revision]

   Additionally, modeling indicates portions of SB and NB frontage roads near US 59 as 3-lanes each direction rather than 2-lanes each direction as noted in the project listing. Please explain. [Modeling Revision - all years]

   H-GAC response: The two network segments mentioned have been corrected to 3 lanes in both directions. The lane information in Appendix 3 has been corrected to show (6,8) main lanes. The EB and WB Frontage roads from US 59 to Mesa have been corrected to 4 lanes in all years.

2. **MPOID 257:**

   TxDOT comment: SH 99 Some ML in network limits are (4, 4), not (0, 4) as in project list, Frtg rds are (2, 4) in network, not (0, 4) as in project list

   H-GAC response: Some links (Frontage Road & HWY) are existing roadways (Arterials). Any changes in roadway type are reflected in the FTYPE column.

   FHWA comment: The modeling appears to indicate the following:

   - That the portion of existing SH 35 between CR 192 and FM 1462 will serve as the frontage road for the SH 99 toll road. It is noted that this portion of SH 35 appears to currently be an undivided roadway; however the modeling reflects a divided roadway configuration. Please clarify.
     - **Follow-up:** Modeling indicates LINK_ID 25431-33432 as being 1-lane in all analysis years, however it appears that this ramp only exists

after implementation of 4-lane tollway in 2025; and is reflected as an arterial in 2015, 2017 and 2018 via LINK_ID 25431-25533. Please explain. [Modeling Revision – 2015, 2017 and 2018]

- That there are currently 4-main lanes and 4-frontage road lanes on existing SH 35 between South Street and SH 6. Please clarify
- An entrance ramp from SH 35 to the proposed SH 35 frontage roads near the southern intersection of SH 99 and SH 35 as existing in 2015, 2017 and 2018. Please clarify.
- Several entrance/exit ramps between Loop 409 and Dickinson Road that are not reflected as part of the proposed project. Please verify that these ramps are not part of the proposed project.
    - **Follow-up:** It is our understanding that the noted ramps provide access to the proposed tollway facility. If so, these ramps should be reflected as part of the proposed project. Also, it is noted that the modeling indicates these ramps to exist in all analysis years; however, portions of the proposed tollway (in this section) do not exist in all analysis years. Please explain. [Modeling Revision – all years]

H-GAC response:

A. The network classification is 211 (Principal arterial undivided). All HWY segments have been graphically digitized separately for directionality. The correct movements are being made, however to be consistent with MPOID 367 and 315 the frontage road segments were recoded.
    - **Follow-up:** LINK 25431-33432 does not exist until 2025. The lanes have been corrected to 0 for 2015-17-18.

B. Confirmed using Google Maps.

C. The existing functional classification has been changed from 251 to 211. However, this will not significantly affect the regional emissions analysis as the functional classification for entrance and exits is not critical to capacity or travel demand model performance.

D. Ramps are digitized as per TxDOT Grand Parkway Schematics. Project IDs have been added to the network for reference.
    - **Follow-up:** Corrected ramps north of Dickinson as new in 2025 and corrected the direction of ramps (reverse direction) south of Dickinson in all years.

3. <u>MPOID 14248:</u>

TxDOT comment: SH 99 Network MLs are (0, 2), not (2, 2) as in project list

HGAC response: The existing main lanes refer to SH 99 main lanes, while the MPOIDs refer to projects to construct new direct connectors.

FHWA comment: Please verify the construction of 2-lane direct connectors.

FHWA Follow-up: Please verify that the proposed direct connectors are to be 2-lanes each.

HGAC response: Two direct connectors are planned for north of IH 10, operational in 2025. Per project sponsor, each connector will be one-lane. The project listing has been corrected to remove the number of lanes from the main lane and frontage road fields.

4. **MPOID 259:**

FHWA comment: Modeling includes a "crossing road" at SH 146. However, the modeling indicates one direction of this 2-lane roadway (BALANE) to be constructed in 2017 rather than 2018. Please explain.

HGAC response: Comment noted. A small segment between the north and south lanes has been removed.

5. **MPOID 15594:**

TxDOT comment: SH 99 Not in the network or Link list with this MPOID

HGAC response: This is due to the fact that overpass and approaches were not shown in the network. The project referenced here reflects no change to SH 99 main lanes.

FHWA comment: The main lane description is noted as "(0,4)." Are the proposed overpasses and approaches part of the construction of the SH 99 Toll road? If so, it appears that the overpasses and approaches would be part of an added capacity project (i.e., construction of SH 99 Segment I-2). As such it is expected that the project would be reflected in the modeling. Please explain.

HGAC response: The road exists as a 4-lane toll road today with main lanes mostly at grade; future thoroughfare and land use development (intersecting facilities) will require the construction of grade separated overpasses to implement a fully access-controlled toll facility. Main lane capacity will remain the same (4 lanes).

6. **MPOID 14264**

TxDOT comment: SH 99 Network has different # of lanes for MLs and Frtg Rds have 4 lanes in 2015, not 2018 as in project list.

HGAC response: Existing arterials were changed to frontage roads. The change is reflected in the FTYPE column.

FHWA comment: The modeling appears to indicate that an existing non-tolled roadway (SH 146 between Loop 201 and Lee Drive) will be converted to a tolled roadway without frontage roads. Please clarify.

FHWA Follow-up: Based upon response it is understood that existing non-tolled roadway is being converted to a tolled facility, however a non-tolled alternative is not being provided at this time.

HGAC response: Correct, per project sponsor the existing bridge crossing the channel will be reconstructed and converted to Toll. No plans to build elevated frontage roads across the water. Arterial to toll is reflected in the FTYPE.

7. **MPOID 16236**

TxDOT comment: SH 99 Network has 2 MLs in 2015--not in 2017 as in the project list
H-GAC response: Existing SH 99 will be replaced with 4 toll lanes and frontage roads. These frontage roads are currently under construction, and this project is for the later toll road main lanes. Some related links are "Existing Arterials" that were changed to "TOLL", as reflected in the "FTYPE" column.
FHWA comment: H-GAC's response to TxDOT's comment indicates that the existing facility will be replaced with toll lanes and frontage road lanes, and that the frontage road lanes are currently under construction. It is noted that the modeling indicates that the frontage roads along this portion of the roadway will not be completed until 2018; however the toll road is noted as being completed in 2017. Please explain. Additionally, the FTYPE reflected in the modeling reflects Chambers County; however the project appears to be located in Harris County. Please clarify.
FHWA Follow-up: Based upon response it is understood that construction of the toll road may be completed prior to construction of the associated frontage roads. Also, a project listing revision appears to be required based upon use of interpolation for the 2017 emissions analysis. [Project Listing Revision]
FTYPE reflected in modeling indicates Chambers County rather than Harris County for all segments. [Modeling Revision – all years (FTYPE)]
HGAC response: Segments for this facility are being built under separate CSJs. TxDOT will not complete the frontage portion until 2018, while the design-build schedule has the Toll road complete in 2017. This schedule is subject to change depending upon completion of the design-build contractor procurement and finalizing contract terms with the selected contractor.
Appendix 3 has been updated to reflect a 2018 analysis year for all projects shown in the previous "Addendum 1" version with a 2017 analysis year. As noted in the FHWA follow-up comment this is due to the fact that the 2017 budget test has been satisfied by interpolating results of the 2015 and 2018 emissions analyses.

8. **MPOID 315**

TxDOT comment: SH 99 2 links with this MPOID show up in 2015 and 2017
H-GAC response: Those links are the existing FM 1485, which will become the east-bound frontage roads in the future. This change is reflected in the "FTYPE" column.
FHWA comment: An FTYPE of "107" representing circumferential tollways without frontage roads is reflected in modeling; however, the project has frontage roads throughout. Please clarify.
FHWA Follow-up: Modeling reflects "BALANE18" as 1-lane for LINK_IDs 33476-35913 and 35913-33303. However, it is expected that "BALANE18" for these links would reflect 0-lanes. Please explain. [Modeling Revision – 2018]
H-GAC response: According to revisions made throughout the network, tollway classifications are 07 (circumferential) or 05 (Radial), disregarding any frontage road information. Frontage roads now have their own separate classification. LINKS 33476-35913 and 35913-33303The 2 are in error and have been corrected to BLANE18=0.

9. MPOID 367

TxDOT comment: SH 99 Some links show lanes in 2015, not (0, 4) as in project list
H-GAC response: Those links are the existing FM 1485, which will become the east-bound frontage roads. This change is reflected in the "FTYPE" column.
FHWA comment: Please verify the construction of 2-lane entrance and exit ramps as noted in the modeling.
FHWA Follow-up: Modeling indicates portion of EB frontage road (existing FM 1485) "BALANE18" as 1-lane. However, it is expected that the "BALANE18" for this portion of EB frontage road would be 0-lanes based upon the conversion of the existing FM 1485 roadway to frontage road. Please explain. [Modeling Revision – 2018]
H-GAC response: Comment noted. The ramps have been corrected to 1 lane. EB Links are in error and have all been corrected to BLANE18=0.

10. MPOID 14739

TxDOT comment: FM 1093 Networks have MLs at (0, 4) not (2, 4) as in project list and Frtg Rds at (2, 4), not (0, 4) as in the project list
H-GAC response: Those links refer to the currently existing FM 1093, which will be reconstructed as the frontage roads for the Westpark Tollway. The changes are reflected in the "FTYPE" column.
FHWA comment: The FTYPE noted in the modeling for the toll direct connector ramps and toll road do not appear appropriate (HOT ramp and tollways without frontage roads, respectively). Please clarify. Also, the modeling does not reflect two-way traffic in 2015 for the links on FM 1093 that are being converted to frontage road (see coding for MPO IDs 367 and 315). Please clarify.
FHWA Follow-up: Modeling reflects a FTYPE of "351" in 2015 for LINK_ID 26020-26022. However it is expected that there would be no 2015 FTYPE as this portion of EB frontage road does not exist in 2015. Please explain. [Modeling Revision – 2015]
Also, please clarify the modeling representation for the following LINK_IDs: 26020-26022 (2 segments) and 33886-35109 (three segments). It is noted that LINK_IDs 26020-26022 reflect EB frontage roads in all years with an increase from 1-lane to 2-lanes beginning in 2017. LINK_IDs 33886-35109 indicate a divided arterial in 2015 with 1-lane in each direction, transitioning into a 2-lane WB frontage road beginning in 2017. Do the EB frontage road and 2-lane arterial (1-lane each direction) both exist in 2015? Please clarify. [Modeling Revision – 2015]
H-GAC response: Noted. The ramps have been corrected to 352. All HWY/Toll segments had been graphically digitized separately for directionality. FM 1093 has been separated (future frontage). The correct model movements are being reflected, however, H-GAC recoded the frontage road segments to be consistent with MPOID 367 and 315. LINK 26020-26022 is in error and has been corrected to FTYPE15 & Lanes15 =0). LINK 33886-35109 is an existing 2 way arterial until 2017 when it converts to a frontage road for Westpark Toll.

11. MPOID 487

TxDOT comment: FM 1093 No MLs are associated with this MPOID
H-GAC response: ~~This MPOID refers to the 2-lane frontage road only. The main lanes are a partial reference to MPOID 14739 (Tollway 2017), which will be the tolled main lane project. The project description may be misleading, but the network links are coded correctly.~~ [Corrected, see below]
FHWA comment: H-GAC's response to TxDOT's comment indicates that although the project description includes the construction of partial toll lanes from West of Spring Green to West of Katy-Gaston, the construction of toll lanes is not part of the proposed project. If so, the project description should be revised to delete reference to toll lanes. It is noted that this appears inconsistent with previous project descriptions/project limits this and other associated projects (e.g., MPOID 14739). Please clarify. Additionally, the FTYPE noted for the existing FM 1093 should be verified (divided versus undivided facility). Also, the modeling does not reflect two-way traffic in 2015 for the links on FM 1093 that are being converted to frontage road (see coding for MPO IDs 367 and 315). Please clarify.
FHWA Follow-up: Need to verify revision to project description. [Project Listing Revision]
Based upon response to comment it is expected that the 2015 FTYPE for LINK_ID 26130-26129 would be "313" rather than "312." Please explain. [Modeling Revision – 2015]
H-GAC response: No revision to the project description is needed. This project will reconstruct FM 1093 as frontage roads for full limits, but new toll lanes will only be constructed for the shorter limits noted in the description. Due to travel demand model network segmentation, the modeling of the toll lanes associated with this project have not been separated/segmented from those to be constructed under MPOID 14739. Confirmed, FM 1093 is an undivided road FTYPE 313. Frontage road coding has been made consistent with MPOID 367 and 315.

12. <u>MPOID 16193</u>

TxDOT comment: FM 1093 No MLs are associated with this MPOID and 2 Frtg Rds exist in 2015, not (0,4) as in project list
H-GAC response: The existing FM 1093 will be reconstructed to be the frontage roads for Westpark Tollway.
FHWA comment: The modeling indicates the proposed project to be located west of FM 1463/FM 359 and not east of FM 1463/FM 359 as noted by the project limits. Please

clarify. Additionally, the modeling indicates the EB frontage road as existing in 2015 (1-lane, in one direction), however this appears inconsistent with the modeling for the WB frontage road, that reflects an existing 2-lane roadway (FM 1093, 1-lane in each direction) in 2015 being converted to a 2-lane frontage road beginning in 2017. Also, it appears that there should be no FTYPE reported for the EB frontage road in 2015. Please clarify.

FHWA Follow-up: Based upon the response to previous comment (MPOID 487) and the noted description of work for MPOID 487, it appears that this project proposes to conduct the same work and within the same time-frame as that reflected in MPOID 487. Please explain. [Project Listing Revision]

H-GAC response: Noted. The segment is directional; therefore the BALanes should have been 0. Frontage road coding has been made consistent with MPOID 367 and 315. As noted in the description, this project includes the necessary transition elements between two environmental documents which have independent utility and may be constructed separately. No change to the project scope/description is needed.

13. <u>MPOID 16192</u>

TxDOT comment: FM 1093 No Frtg Rds are associated with this MPOID, yet (4, 4) lanes are listed in the Frtg Rd column?

H-GAC response: Yes, the frontage roads will exist in 2017 (MPOID 487) before the toll lanes are constructed.

FHWA comment: The modeling indicates the eastern project limit as being west of FM 723 rather than east of FM 723 as noted in project description. Also, the toll ramp FTYPE noted in the modeling appears inconsistent with the proposed facility (HOT ramp versus tollway ramp). Please clarify.

FHWA Follow-up: The modeling indicates the project limits as East of FM 723 to FM 1463/FM 359. However, the project listing indicates limits of West of 723 to FM 1463/FM 359. Please clarify. [Modeling Revision – 2025, 2035 and 2040]
Also, based upon response to comment regarding MPOID 487, the project listing appears to have a gap regarding the construction of toll lanes (West Park Tollway), between "West of Katy Gaston Road" and "West of FM 723." Please explain. [Project Listing Revision]

H-GAC response: Noted. Thank you. Ramps have been changed to 352. No change is needed to the project description and no gap in toll lanes exists. See response above to MPOID 487.

14. <u>MPOID 14737</u>

TxDOT comment: FM 359 Facility listed as FM 1093 in networks, ML is listed as 3 in the network, and link ID 26132-26051 is associated with this MPOID

FHWA comment: Modeling indicates "BALANE15" as 2-lanes for majority of the proposed project. However, it is expected that this item (BALANE15) would reflect 1-lane based upon the existing facility (i.e., 2-lane facility, with 1-lane in each direction). Please clarify.

H-GAC response: All HWY/Toll segments had been graphically digitized separately for directionality. FM 1093 has been separated (future frontage). The correct model movements are being reflected, however, H-GAC recoded the frontage road segments to be consistent with MPOID 367 and 315.

15. <u>MPOID 12725</u>

TxDOT comment: I-45 N Frtg Rd Column has (4, 4) yet there is no description of Frtg Rd alteration --other descriptions put n/a if there is no Frtg Rd work

H-GAC response: The input "n/a" refers to there being no frontage roads, not to whether they are part of the project.

Note: Incorrect project id reference, not sure which project this refers to.

FHWA comment: The modeling indicates a "140" FTYPE corresponding to HOT lanes. Please verify the FTYPE for the proposed project (HOT lanes versus managed lanes).

FHWA Follow-up: Modeling is not consistent with project description. Project description indicates 4-lane frontage roads rather than 6-lane frontage roads as reflected in the revised modeling. Please explain. [Modeling Revision – all years]

H-GAC response: HGAC FTYPE "HOT LANES" = Managed lanes 40. FTPE list has not been updated.

The existing frontage roads along this corridor are 3 lanes in each direction (6 total) verified with Google maps. While the frontage roads lanes reduce to 2 at exit ramps from the main lanes, they are predominantly 3 lanes in each direction. The project information in Appendix 3 has been updated to reflect 6 existing lanes. This correction does not change the scope of the project.

16. <u>MPOID 12599</u>

TxDOT comment: I-45 N Frtg Rd Column has (4, 4) yet there is no description of Frtg Rd alteration --other descriptions put n/a if there is no Frtg Rd work

H-GAC response: ~~The input "n/a" refers to there being no frontage roads, not to whether they are part of the project.~~

FHWA comment: Modeling indicates existing SB and NB frontage roads near Loop 336 and the Harris County line to be 3-lanes rather than 2-lanes. Please explain.

FHWA Follow-up: Response and modeling is not consistent with project description. Project description indicates 4-lane frontage roads rather than 6-lane frontage roads as reflected in the revised modeling. Please explain. [Modeling Revision – all years]

H-GAC response: The existing frontage roads along this corridor are 3 lanes in each direction (6 total) verified with Google maps. While the frontage roads lanes reduce to 2 at exit ramps from the main lanes, they are predominantly 3 lanes in each direction. The project information in Appendix 3 has been updated to reflect 6 existing lanes. This correction does not change the scope of the project.

17. MPOID 6043

TxDOT comment: I-45 S Was there a change in Frtg Rds? Description is Widen to 8 MLs & 2 2-lane Frtg Rds. Project list is (4, 4) for Frtg Rds.

H-GAC response: There was no change in the number of frontage road lanes, but the frontage roads will be reconstructed. The project list should show (2,2). The network links are coded correctly.

FHWA comment: H-GAC's response to TxDOT's comment indicates that the existing 2-lane frontage roads (2-lanes in each direction) are being reconstructed with the proposed project and that the project listing should reflect (2,2) for the frontage road notation. It appears that the frontage road notation should remain (4,4) as 2-lane frontage roads (2-lanes in each direction) currently exist and will be reconstructed. This appears consistent with the modeling. Please clarify. Also, please verify that diamond lane connections reflected in the modeling are part of the proposed project. If so, recommend that the project description be revised to reflect this.

FHWA Follow-up: Need to verify revised project listing. [Project Listing Revision]

H-GAC response: For clarity, the project description has been changed to "WIDEN TO 8 MAIN LANES AND RECONSTRUCT EXISTING 2-LANE FRONTAGE ROADS)". This same description has also been applied to MPOIDs 6044 and 6045 which have identical scopes of work. This correction does not change the scope of the project.

18. MPOID 13836

TxDOT comment: I-45 S HOV in network is listed as 1?

H-GAC response: The 2-lane diamond references 2 ramps connecting to the reversible 1-lane HOV. The travel movement is reflected in the model network.

FHWA comment: Modeling indicates 1-lane HOV not a 2-lane HOV as noted in the project description. H-GAC's response to TxDOT's comment indicates that the 2-lane HOV noted in the project description is intended to reflect the 2-lane HOV ramps. This appears inconsistent with other project descriptions and it is recommended that the project description be revised to reflect a 1-lane HOV (i.e., project description typically reflects the facility being addressed rather than ramps, unless the scope of the project is the ramps). Also, please verify the FTYPE for IH-45 (i.e., noted as radial freeway without frontage roads).

FHWA Follow-up: Need to verify project description revision. [Project Listing Revision]

Modeling indicates a two lane HOV facility (one lane in each direction) in both the SB and NB bound direction for a total of four HOV lanes in 2035 and 2040. Please explain. [Modeling Revision – 2035 and 2040]

H-GAC response: Project description in Appendix 3 has been corrected to reflect a 1-lane HOV. This does not change the scope of the proposed project. The two referenced HOV links are the on and off points for the reversible single lane facility just north. However, they are directional so there are no BALANEs. BLanes have been corrected to 0.

19. MPOID 11375

TxDOT comment: I-610 Network has (3,) for Frtg Rds and (0,2) for Managed lanes
H-GAC response: Correct MPOID & CSJ for this section of Hempstead. Schematic for this section coincides with FEIS rendition of US 290 schematic. While interim projects for US 290 have been changed multiple times, the Hempstead Rd. toll road schematic (FEIS) has not changed.

FHWA Comment: Modeling indicates 3-lanes rather than 2-lanes as noted in the project description for the SB and NB frontage roads in all analysis years. H-GAC's response to TxDOT's comment indicates that the modeling is correct; however the project description requires revision. The project description should be revised to reflect the appropriate scope of work and number of managed and frontage road lanes. Additionally, the modeling appears to include a connection between the SB managed lanes and the US 290 HOV lanes in 2035 and 2040; and a 3-lane HOV on US 290 in 2035 and 2040. Please confirm that the US 290 managed lanes are to be operational in 2035 and 2040. Also, please verify the FTYPE for the managed lanes (HOT versus managed lanes).

FHWA Follow-up: Need to verify revised project description. [Project Listing Revision]

Modeling indicates the US 290 HOV lanes as 3-lanes in 2035 and 2040 for the following LINK_IDs: 33981-23775, 23775-23769 and 23769-33515. Please clarify. [Modeling Revision – 2035 and 2040]

H-GAC response: The project information in Appendix 3 has been modified to refer to Hempstead Rd in addition to IH 610. The lane information refers to Hempstead Rd and has been corrected to reflect 6 main lanes existing on Hempstead Rd today. The scope of the proposed project has not been changed.

Travel demand model network has been corrected. The number of frontage lanes has been corrected to 2-lanes in 2035 and 2040 to match the FEIS schematic. The US 290 HOV segments north of Hempstead will not exist in 2035-40 and have been removed from 2035 and 2040 networks. The FHWA referenced links will become the NB connector for IH 10 & NW Transit Center to the Hempstead managed lanes in 2035.

20. <u>MPOID 13842</u>

TxDOT comment: SH 146 Network has Expressway as (0,4) and Frtg Rds as (4,6)
H-GAC response: ~~Existing arterials (4) will be converted to frontage roads (6) along with newly-constructed express lanes (4). These changes are reflected in the "FTYPE" column.~~ [Corrected, see below]

FHWA comment: H-GAC's response to TxDOT's comment indicates that the existing arterials will be converted to frontage roads. As such it appears that the project description should be revised to reflect construction of 6 frontage road lanes rather than 6 arterial lanes. Additionally, the modeling does not reflect two-way traffic in 2015, 2017 and 2018, on the existing SH 146 arterial links being converted to frontage roads (see coding for MPO IDs 367 and 315). Please clarify. Also please verify the FTYPE for the Express Lanes (noted as radial freeway without frontage roads).

H-GAC response: The FTYPES were changed to Arterials. Arterial/Frontage roads are consistent with modeling projects MPOID 367 and 315. Model performance was not affected by these modifications.
Upon review, the express lanes were incorrectly represented as frontage road lanes in the project listing. Appendix 3 has been updated to reflect 10 main lanes (6 arterial + 4 express) and no frontage lanes. The scope of the proposed project has not been changed.

21. MPOID 467

TxDOT comment: SH 146 Network has overpass as (4,4)
H-GAC response: Thank you for the comment. The network has been corrected.
FHWA comment: Modeling revision has been verified.

22. MPOID 139

TxDOT comment: SH 146 Network has MLs at (4,8) an (0,8), and Frtg Rds at (4,4)
H-GAC response: Depending on the link in question, existing lanes will be widened or become frontage roads with main-lane overpasses at intersections. See the "FTYPE" column.
FHWA comment: Modeling identifies portions of SH 146 main lanes as "SH 99/SH 146 FRTG." Please clarify. Additionally, H-GAC's response to TxDOT's comment indicates that portions of the existing facility will be widened to become frontage roads. This is understood, however it appears that portions of the main lanes and frontage roads near Red Bluff Road are all being modeled as existing (2-lanes in each direction), resulting in an existing facility with 4-lanes in each direction. Please clarify.
FHWA Follow-up: Modeling includes LINK_IDs 33162-33780 and 33773-33777, that reflect 3-main lanes on SH 146 SB and NB at Red Bluff Road beginning in 2035. These links do not appear consistent with the improvement noted for MPOID 139 (4-lane main lanes). Additionally, LINK_ID 33776-30083 indicates an FTYPE of "111" in 2015, 2017 and 2018, however 0-lanes are noted for these years. Also, LINK_ID 33778-33162 appears to reflect a ramp to the new SH 146 lanes, but is noted as having 2-lanes in each direction in 2015, 2017 and 2018; with an FTYPE of "111" (undivided arterial) in 2015, 2017 and 2018. Please explain. In addition, please verify the FTYPE for the NB frontage road (currently indicates FTYPE "111" (undivided arterial)). [Modeling Revision – all years]
H-GAC response: The Northern portion has been corrected. Existing facility should be 4 lanes. However, Frontage roads are consistent with modeling projects MPOID 367 and 315.
LINKS 33162-33780 and 33773-33777 are north of Red Bluff and have the wrong MPOID reference. The links are part of MPOID 137 (North portion 6 lane 2035). The MPOID reference has been corrected.
LINK 33776-30083 has been corrected to 0 for FTYPE 15,17,18. Since lanes were 0 the model results were not affected.

LINK 33776-33162 has been corrected from FTYPE 111 to 152(ramp). The BLanes has been corrected to 0. Since the ramp had no connectivity to the mainlanes (2025) the model results were not affected.

23. MPOID 14632

TxDOT comment: SH 146 Network has Express Lane at (0,4) and Frtg Rds at (4,6)
H-GAC response: Existing arterials (4) will be converted to frontage roads (6) along with newly constructed express lanes (4). These changes are reflected in the "FTYPE" column.
FHWA comment: H-GAC's response to TxDOT's comment indicates that the existing arterials will be converted to frontage roads. As such it appears that the project description and main lane and frontage road notations should be revised to reflect construction of 6 frontage road lanes rather than 6 arterial lanes. It is noted that reference to 6-lane frontage roads appears inconsistent with previous descriptions of this project (i.e., 6-lane arterial versus 6-lane frontage roads).
FHWA Follow-up: Response indicates that SH 146 FTYPE was revised to arterial, however the FTYPE for the SB SH 146 reflects frontage road (150). Also, the FTYPE for NB SH 146 reflects both undivided and divided arterial. Please verify the appropriate FTYPE. [Modeling Revision – all years (FTYPE)]
H-GAC response: The FTYPES were changed to Arterials. Arterial/Frontage roads are consistent with modeling projects MPOID 367 and 315. Model performance was not affected. The SB portion is not existing and has been corrected. It will function as a frontage road for the new expressway in 2025. The NB arterial is in error and has been corrected to FTYPE 111 (undivided) for 15-17-18.
Upon review, the express lanes were incorrectly represented as frontage road lanes in the project listing. Appendix 3 has been updated to reflect 10 main lanes (6 arterial + 4 express) and no frontage lanes. The scope of the proposed project has not been changed.

24. MPOID 536

TxDOT comment: SH 146 Network has MLs at (0,6) and no Frtg Rds are associated with this MPOID in the network --other descriptions put n/a if there is no Frtg Rd work
H-GAC response: Thank you for the comment. The network has been corrected.
FHWA comment: Modeling revision (4-main lanes and 6-frontage road lanes) has been verified. Also, please verify the FTYPE noted for the main lanes (i.e., modeling indicates circumferential freeway without frontage roads).
H-GAC response: The FTYPE is 103 (circumferential frwy). Frontage roads have their own separate classification so the "with or without Frontage" qualifier has been eliminated.

25. MPOID 913

TxDOT comment: SH 249 MLs are in the network in 2015 - Project list has them coming open in 2018

H-GAC response: Main lanes are existing arterial links converted to Toll roads. The 2018 change is reflected in the "FTYPE" column.

FHWA comment: The modeling reflects the construction/conversion of the 6-lane tollway in 2018; however the project description indicates a 2025 transportation conformity analysis year. Please clarify. Additionally, based upon H-GAC's response to TxDOT's comment it appears that the project description should be revised to reflect the conversion of an existing 6-lane arterial to a 6-lane tollway, including the main lane and frontage road notations ((6,6) and (0,6) versus (0,6)) and (6,6)). Please clarify. Also, please verify the FTYPE noted for the tollway (i.e., modeling indicates radial tollway without frontage roads, it is noted that frontage roads are being constructed in 2018).

FHWA Follow-up: Modeling indicates the conversion of existing roadway lanes to toll lanes and construction of new frontage road lanes beginning in 2018. However, the project description indicates that the proposed project is to be completed in 2025 rather than 2018. Also, the project description includes construction of a grade separation at Brown Road, however the modeling does not appear to extend to Brown Road. Please explain. [Modeling Revision - all years]

H-GAC response: The project is expected to be open to traffic on a similar timeline as the other SH 249 projects and project information in Appendix 3 has been modified to reflect a 2018 analysis year. Also, as suggested the lane information has been modified to show 6 existing main lanes (arterial) and no existing frontage lanes [(6,6) main lanes and (0,6) frontage lanes], consistent with MPOID 339 (frontage road construction on same limits).

For simplicity in the model network the main lane links were not broken/segmented so the project limit appears to be north of Brown Rd at the end of existing on and off ramps. For modeling purposes this was a logical terminus point.

26. <u>MPOID 11570</u>

TxDOT comment: SH 249 Network has the Toll lanes at (0,6)

H-GAC response: Thank you for the comment. The network has been corrected.

FHWA comment: Modeling revision has been verified.

27. <u>MPOID 16026</u>

TxDOT comment: SH 288 Not in the network or Link list with this MPOID

H-GAC response: This has been corrected and the MPOIDs are now referenced in the network as they should be.

FHWA comment: Modeling revision has been verified. Please verify construction of 2-lane direct connectors.

FHWA Follow-up: Recommend revision of project listing to indicate construction of 2-lane direct connectors. Also, a project listing revision appears to be required based upon use of interpolation for the 2017 emissions analysis. [Project Listing Revision]

H-GAC response: Upon review with the project sponsor, each connector will be one-lane. The project listing has been modified to remove the number of lanes from the main lane and frontage road fields. This does not reflect a change to the scope of the project

and no other change to the description is needed. The network links have been corrected from 2 to 1-lane as applicable.

28. MPOID 16033

TxDOT comment: SH 288 Not in the network or Link list with this MPOID
H-GAC response: This has been corrected and the MPOIDs are now referenced in the network as they should be.
FHWA comment: Please verify construction of 2-lane direct connectors. Additionally, the modeling reflects additional ramps to and from the SB and NB SH 288 HOT lanes south of Beltway 8. Please verify that these ramps a part of the proposed project. If so, the project description should be revised to reflect this work. Also, are similar ramps required north of Beltway 8? Please clarify.
FHWA Follow-up: Recommend revision of project listing to reflect 2-lane direct connectors and inclusion of on and off ramps from SH 288 HOT lanes to the SH 288 main lanes. Also, a project listing revision appears to be required based upon use of interpolation for the 2017 emissions analysis. [Project Listing Revision]
H-GAC response: Upon review with the project sponsor, each connector will be one-lane. The project listing has been modified to remove the number of lanes from the main lane and frontage road fields. This does not reflect a change to the scope of the project. Access from the SH 288 non-toll main lanes to the interchange is a simplification based on the project schematics, and is similar to interchange access provided on other projects. No change to the project description appears necessary.

29. MPOID 253

TxDOT comment: SH 36 Lanes go up to 4 lanes in 2017 in the network - Project list has them coming open in 2035.
H-GAC response: The network reflects interim widenings of the southern sections both previously and in the near future (MPOID 14258-14712). They will reconstruct SH 36 to current standards.
FHWA Comment: Modeling indicates a portion of the proposed project limits to be 4-lanes in 2017 rather than 2035 as noted in the project description. H-GAC's response to TxDOT's comment indicates that this is due to other individual projects that will be completed prior to the proposed project. This understood, however the limits of the 4-lane section in 2017 extend beyond the limits noted for the other individual projects (i.e., MPO ID 14258 and 14712). Please clarify. Also, please verify the FTYPE for those sections reflecting 4-lanes in 2017 (i.e., modeling indicates principal arterials with some grade separations versus other arterials divided).
FHWA Follow-up: Project listing should be revised consistent with response. [Project Listing Revision]
H-GAC response: Reference to this MPOID has been removed from the network for the portion inside of City of Columbia (2017 widening). Network has been corrected. FTYPE has been corrected to 212.

As discussed with FHWA, the description identifies the from and to limits for each of the two segments included in the scope of work. No change to the description appears to be needed.

30. MPOID 14712

FHWA Comment: Please verify project limits noted in project description versus limits reflected in modeling (i.e., 200 feet north of CR 467). Also, 2015 FTYPE is noted as "other arterials – divided", however modeling does not appear to reflect a divided facility. Please clarify.

H-GAC response: Corrected to 2017. Project limits (200') are place at nearest node break. Project is restriping exiting road. Classification is 09.

31. MPOID 14258

FHWA Comment: Please verify project limits noted in project description versus limits reflected in modeling (i.e., 2000 feet south of SH 35). Also, 2015 FTYPE is noted as "other arterials – divided", however modeling does not appear to reflect a divided facility. Please clarify.

H-GAC response: Corrected to 2017. Project limits (2000') are place at nearest node break. Project is restriping exiting road. Classification is 09.

32. MPOID 255

TxDOT comment: SH 36 Has a typo in the Ftype for 2018. Has 21 when it should be 211.

H-GAC response: Thank you for the comment. FTYPE18 has been corrected.

FHWA comment: Modeling revision has been verified. However, modeling appears to reflect an undivided roadway, rather than divided as noted in the project description. Please clarify.

H-GAC response: This comment has been noted, and the FTYPE has been changed from 212 (Other Arterial Divided) to 210 (Principal Arterial Divided).

33. MPOID 464

TxDOT comment: SP 10 This MPOID also pulls up parts of Stratman Rd and Beadle Rd

H-GAC response: Thank you for the comment. The network has been corrected.

FHWA comment: Modeling revision has been verified. Also, please verify the project's limits as the network modeling reflects the project extending beyond the Waller County line to IH-10.

H-GAC response: SP 10 extension is modeled correctly according to Fort Bend County Thoroughfare map.

34. MPOID 11178

TxDOT comment: Fort Bend Pkwy Toll Rd Network has Toll Lanes as (0,4) not (4,4) as in the project list

H-GAC response: The S Post Oak will act as a frontage road and is currently a 3-lane facility. New toll lanes will also be built. The description will be changed to better reflect this intention.

FHWA comment: As noted in H-GAC's response to TxDOT's comment, the proposed project's description should be clarified including the "n/a" notation regarding frontage road lanes. Also, FTYPE for tollway needs to be verified (i.e., network modeling indicates radial tollway without frontage roads).

FHWA Follow-up: roject listing revision appears to be required based upon response. [Project Listing Revision]

Also, the response to TxDOT's comment indicates that existing South Post Oak (3-lanes each direction) will be converted to frontage roads for the new toll lanes. However, the modeling indicates a reduction from 3 to 2-lanes beginning in 2035 for the existing South Post Oak roadway. Please explain. [Modeling Revision – 2035 and 2040]

H-GAC response: Per sponsor, the working scope would reconstruct the existing arterial as 4 toll lanes and 4 frontage lanes. The project information in Appendix 3 has been corrected to show six existing main lanes and four proposed frontage lanes. The travel demand model network has been corrected.

35. <u>MPOID 6052</u>

TxDOT comment: US 59 S Network link ID 29123 is the only link that is (0,4), the rest are (4,4)

H-GAC response: Link_id 26564-26248 should also be (0,2).

FHWA Comment: Modeling revision has been verified. However, modeling indicates a portion of the SB frontage road with Link ID 28022-28381 to be part of the proposed project. Please verify that this portion of the SB frontage road is a part of the proposed project as it appears to extend beyond the noted project limits. Additionally, please verify that this link exists in 2015, 2017 and 2018, as the modeling reflects 2-lanes in one direction (SB) in these years. Also, please verify that the proposed project's construction time-frame is longer than the typically assumed 2-years (i.e., project is expected to let in 2016 but noted as having a 2025 transportation conformity analysis year).

H-GAC response: SB limit is extended to nearest modeling node. No effect to network. This segment is existing. Per sponsor, the anticipated date of substantial completion is beyond 2018 so the project has been modeled beginning in 2025.

As noted, an existing two-way frontage road exists today but is missing from the lane information. The project information in Appendix 3 has been corrected to show two existing frontage lanes. This does not reflect a change to the scope of the project.

36. <u>MPOID 6053</u>

TxDOT comment: US 59 S Network has the NB Frtg Rd as (4,4), not (0,4) as in the project list

H-GAC response: The north-bound links on the east side should show one lane in each direction until 2025.

FHWA comment: Per H-GAC's response to TxDOT's comment, it appears that a two-way frontage (one lane in each direction) along the east side of US 59 currently exists.

The modeling and project description should be revised accordingly. Also, please verify the FTYPE for the main lanes (modeling reflects radial freeways without frontage roads). Additionally, please verify that the proposed project's construction time-frame is longer than the typically assumed 2-years (i.e., project is expected to let in 2016 but noted as having a 2025 transportation conformity analysis year).

FHWA Follow-up: Please clarify project listing revision (i.e., what is being revised). [Project Listing Revision]

Additionally, please clarify T. E. Mitchele Road being designated a frontage road, as it appears that a separate frontage road facility also exists. Also, it is noted that the NB (existing) frontage road reflects an FTYPE of "316" indicating a major collector. Please explain. [Modeling Revision – all years (FTYPE)]

H-GAC response: As noted, an existing two-way frontage road exists today but is missing from the lane information. The project information in Appendix 3 has been corrected to show two existing frontage lanes. This does not reflect a change to the scope of the project.

Project has been verified per TXDOT. Per sponsor, the anticipated date of substantial completion is beyond 2018 so the project has been modeled beginning in 2025. The facility name in the network was in error and has been changed to "Southwest Front NB". Also the FTYPE for the existing road has been change from a 316 (collector) to 350 (frontage) for 2015-17-18.

37. <u>MPOID 6063</u>

TxDOT comment: US 59 S Network NBMLs do not go up to 6 lanes till 2035, and NB & SB Frtg Rds are (4,4) not (0,4) as in the project list

H-GAC response: For links 25706-25707, they have been corrected to carry two-way traffic until 2025. The north-bound main lanes should be 6-lane in 2025.

FHWA Comment: Modeling revision has been verified. However, please provide additional clarification concerning the frontage road links currently carrying two-way traffic noted in H-GAC's response to TxDOT's comment (T. E. Mitchell Road); as it appears that a NB frontage road currently exists along east side of US 59. Also, please verify the FTYPE for the main lanes (modeling reflects radial freeways without frontage roads).

FHWA Follow-up: Please clarify T. E. Mitchele Road being designated a frontage road, as it appears that a separate frontage road facility exists. [Modeling Revision – all years]

H-GAC response: Project has been verified per TXDOT. The FTYPE for main lanes are 01. Frontage roads have their own designations. The facility name in the network was erroneously shown as "T. E. Mitchele Road" and has been changed to "Southwest Front NB".

38. <u>MPOID 11565</u>

TxDOT comment: Hempstead Rd Network has Managed Lanes at (0,4), not (4,4) and Frtg Rds at (4,4) not (0,4) as in project list

H-GAC response: Plans call for existing roadways to be reconstructed as frontage roads; until then they are main lanes (4,4). Later, new managed lanes will be built (0,4). A possible solution could be to reverse the lane info in the listing.
FHWA comment: Please verify the northern project limit as the project appears to extend to Pinemont Drive versus Clay/43rd Street.
FHWA Follow-up: Modeling indicates FTYPE for LINK_IDs 31646-22466 and 22466-31645 changing to frontage road beginning in 2017 rather than 2035. Please explain. Additionally, it appears that the 2015, 2017 and 2018 FTYPE reflected for the SB frontage road is reversed (i.e., indicates undivided when the roadway appears to be divided and vice versa). Please explain. [Modeling Revision – all years]
H-GAC response: Modeling nodes for HOV terminate at Pinemont. Since the whole Hempstead project comes online in 2035 there was no need to break the segment. LINK ID 31646-22466 is in error and has been corrected to 113 (undivided) in 17-18.
All links associated with this project have been changed FTYPE 112 (divided) have been changed to 113(undivided) for 2015-17-18-25.

39. <u>MPOID 16237</u>

TxDOT comment: US 290 Network has MLs at (4,8) , not (0,8) as in project list
H-GAC response: The lane info in listing is incorrect, it should be (4,8) and (2,2). Thank you for your comment.
FHWA comment: H-GAC's response to TxDOT's comment indicates that the project description will be corrected to indicate main lanes as (4,8) and frontage roads as (2,2). It appears that the frontage roads should be reflected as (4,4) as the modeling indicates 2-lanes in each direction in all analysis years. Please clarify.
FHWA Follow-up: Need to verify project description change. [Project Listing Revision]
H-GAC response: As noted, the existing lane and future frontage lane information were missing from the project listing. The project information in Appendix 3 has been corrected to show 4 existing main lanes as well as 4 existing and future frontage lanes. This does not reflect a change to the scope of the project.

40. <u>MPOID 16021</u>

TxDOT comment: US 290 Network lanes go from 6 to 8 in 2017
H-GAC response: Please note that interim widening projects (8) constructed beforehand specified in PROJ_ID. Project PROJ_IDA shows a restriping project to 12 lanes. The network is correct.
FHWA comment: Please verify scope of work for project MPOID 11576. Also, modeling indicates a US 290 3-lane HOV beginning in 2017. Is it intended that the restriping noted for this project convert these HOV lanes to general purpose main lanes in 2035 and 2040? If so, then the modeling for the US 290 HOV lanes appears to require revision (i.e., HOV lanes noted in2035 and 2040).
H-GAC response: Has been corrected HOV has been removed from 2035 and 40.

41. <u>MPOID 16022</u>

TxDOT comment: US 290 Network lanes are 6, 4, 10 over the years

H-GAC response: Please note that interim widening projects (8) constructed beforehand specified in PROJ_ID. Project PROJ_IDA is a restriping to 10 lanes. The network is correct.

FHWA comment: Please verify the scope of work for projects MPOID 11577, 11949 and 11576. Also, modeling indicates a US 290 3-lane HOV beginning in 2017. Is it intended that the restriping noted for this project convert these HOV lanes to general purpose main lanes in 2035 and 2040? If so, then the modeling for the US 290 HOV lanes appears to require revision (i.e., HOV lanes noted in 2035 and 2040). In addition, please verify the FTYPE for the US 290 main lanes (modeling indicates radial freeway without frontage roads).

FHWA Follow-up: Modeling reflects a portion of US 290 HOV lanes as 2-lanes beginning in 2017. Should this portion of US 290 HOV remain 2-lanes in 2035 and 2040. Please clarify. Additionally, the modeling reflects two HOV lanes in 2015 (one lane each on two different links beginning north of Eldridge). Please verify existing 2-lane HOV. [Modeling Revision – all years/2035 and 2040]

H-GAC response: No change to the scope of the referenced MPOIDs, all of which have been let to construction, has been made. As noted, the FTYPE and LANES for 35 -40 for HOV Diamond are in error and have been corrected to 0. The two diamond lanes (one each direction) are in operation today.

42. <u>MPOID 16023</u>

TxDOT comment: US 290 Network lanes go from 6 to 8 in 2017

H-GAC response: Interim widening projects constructed beforehand specified in PROJ_ID. Project PROJ_IDA is a restriping to 8 lanes. The network is correct.

FHWA comment: Please verify the scope of work for project MPOID 11949. It is noted that modeling indicates widening to 8-lanes and implementation of a 2-lane HOV beginning in 2017. As such, please clarify the purpose of the proposed restriping project (i.e., 8 main lanes exist beginning in 2017). Also, please verify the FTYPE for the US 290 main lanes (modeling indicates radial freeway without frontage roads).

FHWA Follow-up: Modeling reflects US 290 HOV lanes as 2-lanes beginning in 2017. Should the US 290 HOV remain 2-lanes in 2035 and 2040. Please clarify. Additionally, modeling reflects two HOV lanes in 2015 (one lane each on two different links near Telge Road). Please verify existing 2-lane HOV. [Modeling Revision – all years/2035 and 2040]

H-GAC response: No change to the scope of the referenced MPOIDs, all of which have been let to construction, has been made. The HOV lanes are being moved to the Hempstead managed lane facility in the 2035 and 2040 analysis years, the US 290 road deck will be reconfigured to the shown number of main lanes plus auxiliary lanes. As noted, the FTYPE and LANES for 35 -40 for HOV Diamond are in error and have been corrected to 0. The two diamond lanes (one each direction) are in operation today.

43. <u>MPOID 16024</u>

TxDOT comment: US 290 Network lanes go from 6 to 8 in 2017
H-GAC response: Interim widening projects constructed beforehand specified in PROJ_ID. Project PROJ_IDA is a restriping to 8 lanes. The network is correct.
FHWA comment: Please verify the scope of work for project MPOID 11950. It is noted that the network modeling indicates widening from 6 to 8-lanes main lanes and implementation of a 2-lane HOV beginning in 2017. As such, please clarify the purpose of the proposed restriping project (i.e., 8 main lanes exist beginning in 2017). Additionally, the project limits are noted as SH 99 and East of Mueschke Road; however modeling reflects the eastern project limit as West of Mueschke Road. Please clarify. Also, please verify the FTYPE for the US 290 main lanes (modeling indicates radial freeway without frontage roads).
FHWA Follow-up: Modeling indicates portions of US 290 SB and NB main lanes as 4-lanes and 6-lanes in 2015. Existing 2035 RTP Update indicates interim widening from 6 to 8 main lanes. Please verify 4-lane section. Also, modeling reflects US 290 HOV lanes as 2-lanes beginning in 2017. Should the US 290 HOV remain 2-lanes in 2035 and 2040. Please clarify. [Modeling Revision – all years/2035 and 2040]
H-GAC response: No change to the scope of the referenced MPOIDs, all of which have been let to construction, has been made. The HOV lanes are being moved to the Hempstead managed lane facility in the 2035 and 2040 analysis years, the US 290 road deck will be reconfigured to the shown number of main lanes plus auxiliary lanes. This future project will modify US 290 main lane configuration currently under construction with MPOIDs 11950 (widen from 6 to 8) and 16237 (widen from 4 to 8). As noted, the FTYPE and LANES for 35-40 for HOV lanes are in error and have been corrected to 0.

44. <u>MPOID 16017</u>

TxDOT comment: US 290 Network lanes are (6, 10) not (9, 10) as in the project list
H-GAC response: Please note that interim widening projects will be constructed beforehand as specified in PROJ_ID. This project (referenced under the PROJ_IDA field) is a restriping to 10 lanes.
FHWA comment: Please verify the scope of work for project MPOID 11572. It is noted that modeling indicates implementation of a 3-lane HOV beginning in 2017. Is it intended that the restriping noted for this project convert these HOV lanes to general purpose main lanes in 2035 and 2040? If so, then the modeling for the US 290 HOV lanes appears to require revision (i.e., HOV lanes noted in 2035 and 2040). Additionally, please verify the (6,6) frontage road notation reflected in the project description. It is noted that the network modeling indicates 4 and 6-lane frontage roads within the project limits. Also, please verify the FTYPE for the US 290 main lanes (modeling indicates radial freeway without frontage roads).
FHWA Follow-up: MPOID 13826 (2035 RTP Update) indicates the construction of two 2-lane frontage roads within this section of US 290 however, the modeling reflects 6-lane frontage roads in all years. Please explain. Additionally, the modeling reflects a facility described as "SH 290/I-10 PROP R." What type of facility does this represent. [Modeling Revision – all years]

H-GAC response: No change to the scope of the referenced MPOIDs, all of which have been let to construction, has been made. The HOV lanes are being moved to the Hempstead managed lane facility in the 2035 and 2040 analysis years, the US 290 road deck will be reconfigured to the shown number of main lanes plus auxiliary lanes. The model network has been corrected for the HOV lanes north of Hempstead Toll for 2035 & 2040 (0 lanes). However, the southern portion will now be associated to Hempstead toll project 11375 and referenced in Proj_ida. Also 6 lane frontage roads for this section is referenced in project 13826. Most frontage roads in this section are existing 3 lane (6) facilities that reduce to 2 lanes (4) near ramps. Since the distance is so small the links are assigned as 3 lanes facilities. Also, the segments with the facility name "SH290/1-10 Prop R" have been renamed to "US 290/I 10 conn" to clarify they refer to the connectors between US 290 and IH 10.

45. <u>MPOID 16018</u>

TxDOT comment: US 290 Network lanes are 6 in 2012, 8 in 2017, and 12 in 2035
H-GAC response: Please note that interim widening projects will be constructed beforehand as specified in PROJ_ID. This project (referenced under the PROJ_IDA field) is a restriping to 12 lanes.
FHWA comment: Please verify the scope of work for project MPOID 11573. It is noted that modeling indicates widening from 6 to 8 main lanes and implementation of a 3-lane HOV beginning in 2017. Is it intended that the restriping noted for this project convert these HOV lanes to general purpose main lanes in 2035 and 2040? If so, then the modeling for the US 290 HOV lanes appears to require revision (i.e., HOV lanes noted in 2035 and 2040). Also, please verify the FTYPE for the US 290 main lanes (modeling indicates radial freeway without frontage roads).
H-GAC response: No change to the scope of the referenced MPOIDs, all of which have been let to construction, has been made. The HOV lanes are being moved to the Hempstead managed lane facility in the 2035 and 2040 analysis years, the US 290 road deck will be reconfigured to the shown number of main lanes plus auxiliary lanes. As noted, the FTYPE and LANES for 35-40 for HOV lanes are in error and have been corrected to 0.

46. <u>MPOID 16019</u>

TxDOT comment: US 290 Network lanes are 6 in 2012, 8 in 2017, and 10 in 2035
H-GAC response: Please note that interim widening projects will be constructed beforehand as specified in PROJ_ID. This project (referenced under the PROJ_IDA field) is a restriping to 10 lanes.
FHWA comment: Please verify the scope of work for projects MPOID 11574 and 15567. It is noted that the network modeling indicates widening from 6 to 8 main lanes and implementation of a 3-lane HOV beginning in 2017. Is it intended that the restriping noted for this project convert these HOV lanes to general purpose main lanes in 2035 and 2040? If so, then the modeling for the US 290 HOV lanes appears to require revision (i.e., HOV lanes noted in 2035 and 2040). Additionally, the modeling reflects a small

portion of 3-lane frontage road at the northern end of the project rather than a 2-lane frontage road as noted in the project description. Please clarify. Also, please verify the FTYPE for the US 290 main lanes (modeling indicates radial freeway without frontage roads).

FHWA Follow-up: Response indicates that NB frontage road west of Little York Road is 3-lanes, however our previous comment was directed a portion of the NB frontage just east of the Little York Road. Please explain. [Modeling Revision – all years]

H-GAC response: No change to the scope of the referenced MPOIDs, all of which have been let to construction, has been made. The HOV lanes are being moved to the Hempstead managed lane facility in the 2035 and 2040 analysis years, the US 290 road deck will be reconfigured to the shown number of main lanes plus auxiliary lanes. As noted, the FTYPE and LANES for 35-40 for HOV lanes are in error and have been corrected to 0. The WB portion of frontage road just east of Little York is in error and has been corrected to an existing 3 lane road in all years.

47. <u>MPOID 16020</u>

TxDOT comment: US 290 Network lanes are 6 in 2012, 10 in 2017

H-GAC response: Please note that interim widening projects will be constructed beforehand as specified in PROJ_ID. This project (referenced under the PROJ_IDA field) is a restriping to 10 lanes.

FHWA comment: Please verify the scope of work for projects MPOID 14750, 11575 and 11576. It is noted that modeling indicates widening from 6 to 10 main lanes and implementation of a 3-lane HOV beginning in 2017. As such, please clarify the purpose of the proposed restriping project (i.e., 10 main lanes exist beginning in 2017). In addition, the modeling indicates a portion of the NB US 290 main lanes (link ID 38057-21116) as being widened to 4-lanes in 2017 and 6-lanes 2035, rather than 10-lanes (5-lanes each direction) as noted in the project description. Also, the modeling reflects 4 and 6-lane frontage roads within the project limits rather than 4-lanes as noted in the project description. Please clarify. Additionally, please verify the FTYPE for the US 290 main lanes (modeling indicates radial freeway without frontage roads).

H-GAC response: No change to the scope of the referenced MPOIDs, all of which have been let to construction, has been made. The HOV lanes are being moved to the Hempstead managed lane facility in the 2035 and 2040 analysis years, the US 290 road deck will be reconfigured to the shown number of main lanes plus auxiliary lanes. As noted, the FTYPE and LANES for 35-40 for HOV lanes are in error and have been corrected to 0. Link ID 38057-21116 has been changed to 4 lanes and referenced as part of project 1602. Frontage road for these sections vary from 4 to 6 lanes. As lane information in the project listing identifies one value the predominant laneage (4) is indicated.

48. <u>MPOID 223</u>

TxDOT comment: US 59 N Not in the network or Link list with this MPOID

H-GAC response: The lane info in the listing is correct, however the project description is in error. The network has been corrected to reflect the following project description: "widen to 6-lanes".

FHWA Comment: Modeling revision (widening to 6-lanes beginning in 2025) has been verified. The project description indicates "n/a" for frontage roads, however, modeling indicates 1 and 2-lane (in each direction) discontinuous frontage roads along the US 59 main lanes. Accordingly, it appears that additional revision of the project description is required (main lane and frontage road information). Please clarify.

FHWA Follow-up: verify project description revision. [Project Listing Revision]

Also, the project location associated with MPOID 223 reflected in the revised modeling does not appear consistent with the limits noted in the project description (Montgomery County line to south end of Cleveland Bypass). Please explain. [Modeling Revision – 2025, 2035 and 2040]

H-GAC response: Based on discussion with the project sponsor, the description information in Appendix 3 has been modified to ""RECONSTRUCT AND WIDEN TO 6 LANE RURAL FREEWAY". The US 59 widening project to 6 lanes was originally coded in the wrong location on the network. The network has been corrected to reflect the project limits (Harris/Mont CL to Cleveland bypass) and the links coded in error returned to the existing 4 lanes.

Part II: Regional Investment Programs, Projects Subject to Conformity

49. General

FHWA comment: Recommend that the title of Part II be revised to clarify that projects reflected in this section are considered to be regionally significant and therefore subject to transportation conformity.

H-GAC response: Noted. Title has been revised to "Regional Investment Programs, Regionally Significant Projects Subject to Conformity"

50. General

FHWA Comment: It is noted that the modeling does not appear to reflect directional coding (i.e., one model link for each direction of travel) for arterial and collector roadways noted as divided facilities; however, directional coding is reflected for freeway and tollways noted as divided facilities. Please clarify.

H-GAC response: H-GAC response: In the past, when computer power is very limited all freeway and arterials links are non-directionally coded (except for one-way facility) to achieve maximum coding efficiency. There was no frontage road or ramp coded. Later, with improving computer power, ramp and frontage road are added to the network for better precision. However, putting those directional ramps/frontage and non-directional freeway/toll links causes unique ramp accessibility problem. Freeway and toll lanes are in fact a pair of barrier-separated parallel one-way facilities of opposition direction. A ramp could only access one direction of main lanes; for example, a NB entrance ramp can only access NB main lane but cannot access SB main lane. However, because the main lane was not

directional, it is impossible for the model automatically prohibit such impossible access/egress to opposite direction. In order to prevent a directional ramp access/egress to opposite directional main lane, modelers must manually provide a list of "prohibited turning movements" to disallow such movements. Maintaining the list of "prohibited turning movements" in a constantly evolving network is tedious and is probed to miss some ramps on the list. Therefore, in this conformity all freeway and toll main lanes are coded directionally to eliminate the needs of "prohibited turning movements."

51. MPOID 14224

FHWA comment: Modeling reflects an associated project (MPOID 15) for the widening of FM 2234 from 2 to 4-lanes divided beginning in 2017, from Fort Bend Parkway to FM 521. Project MPOID 15 is included in H-GAC's 2040 RTP; however, it is noted as not being subject to transportation conformity (Part III), while this project (MPOID 14224) appears to be considered regionally significant and therefore subject to conformity. Please clarify. Also, please verify the main lanes notation included in the project description (i.e., (2,4)).
FHWA Follow-up: Response does not appear consistent with modeling. Modeling indicates the widening of FM 2234 to 4-lanes (2-lanes each direction) from FM 521 to Fort Bend Tollway beginning in 2017 (MPOID 15). MPOID 15 is reflected in the 2040 MTP project listing as non-regionally significant, however, this portion of the roadway (MPOID 14224) is reflected within the regionally significant portion of the 2040 MTP. Please explain. Additionally, a project listing revision appears to be required based upon use of interpolation for the 2017 emissions analysis. Please clarify. [Project Listing Revision]
Additionally, it is noted that the modeling reflects LINK_ID 26532-26524 to be 2-lanes (1-lane in each direction) in all years. However, MPOID 15 indicates widening to 4-lanes beginning in 2017. Please explain. [Modeling Revision – 2015]
H-GAC response: ~~that project should not change the number of lanes, and hence it is not regional significant to be subjected to conformity. The confusion is caused by that this project is located at an intersection where a two-lane facility approaching a four-lane intersection. FM 2234 was a two-lane road west of Almeda and 4-lanes road east of Almeda. UPRR is 100 feet west of FM 521. At about 750 feet west of FM 521, FM 2234 widens to 4 lanes. This short 4-lanes segment crosses the UPRR and Almeda before connecting to the 4-lane segment east of Almeda. Given that the 4-lanes segment is very short, the entire segment could be coded as a 2-lane road (the extra two lanes are treated as auxiliary lanes to intersection and auxiliary lanes are not coded in modeling nework). Another coding alternative is splitting the 750 feet segment into a new link with 4 lanes.~~[Corrected below]

MPOID 14224 is part of the environmental document for the widening of FM 521 and elevated intersection over the UPRR (MPOIDs 495 and 534). As such, it has been included under Part II along with the FM 521 segments. The widening of FM 2234 (MPOID 15), currently under construction, was environmentally cleared under a separate document and as the facility is not a principal arterial it is shown under Part III as a not regionally significant project.

LINK 26523-26524 was in error and has been corrected to FTYPE 313(undivided) and LANES 1(2 in all) for 2015.

52. MPOID 10452

FHWA Comment: Modeling indicates a FTYPE change for all links in 2017; however the change in lanes reflected in the project description does not occur until 2025. Please clarify.

H-GAC response: FTYPES have been corrected.

53. MPOID 538

TxDOT comment: FM 2100 Network links listed as MPOID 538 does not seem to encompass the entire limits. Project list states the project is 7.6 miles long, network is only .53

H-GAC response: Thanks to this comment, the network has been corrected. Project limits have been adjusted from S Diamondhead to FM 1960.

FHWA comment: Modeling revision has been verified. However, FTYPE reflects other arterials undivided while the project description indicates widen to 4-lane divided. Please clarify. Please clarify.

FHWA _Follow-up: Modeling indicates portions of FM 2100 to be a divided facility in 2015 and 2017, prior to proposed widening. Please confirm that FM 2100 is a divided facility in these sections in 2015 and 2017. Additionally, a section of FM 2100 (LINK-ID 21760-36414) indicates a change in FTYPE between 2015 and 2017, prior to the proposed widening (2018). Please explain. [Modeling Revision – 2015 and 2017]

H-GAC response: FTYPES have been corrected to divided for 18-40. All links associated with this project have been corrected to FTYPE 113 (Undivided) for 2015-17.

54. MPOID 14711

FHWA Comment: Project description indicates widening to 4-lanes divided; however the FTYPE indicates other arterials undivided. Please clarify.

H-GAC response: FTYPES have been corrected.

55. MPOID 7564

TxDOT comment: FM 528 Project list is (0, 2) network ha (0, 4)

H-GAC response: Thanks to this comment, the links have been corrected to 2 lanes.

FHWA comment: Modeling revision has been verified. Please verify the FTYPE of the proposed FM 528 main lanes as the modeling does not appear to reflect a divided facility.

H-GAC response: West portion of existing FM 528 is a collector.

56. MPOID 16295

TxDOT comment: Fort Bend Pkwy Toll Rd Could not find MPOID

H-GAC response: Thank you for your comment. The MPOID number has been placed in the "PROJ_ID" column.

FHWA comment: Modeling revision has been verified. However, it is anticipated that the construction of the an overpass as noted, would result in the existing main lanes being converted to frontage road lanes or for new main lanes (overpass) to be reflected in the modeling. The modeling does not appear to reflect either of these anticipated changes. Please clarify.

FHWA Follow-up: A project listing revision appears to be required based upon use of interpolation for the 2017 emissions analysis. [Project Listing Revision]

Consistent with the response, the Fort Bend Parkway ramps at this location reflect 2-lanes in all analysis years and an FTYPE indicating frontage road. However, it is expected that the frontage road designation would not occur until implementation of the proposed overpass (i.e., in 2017 rather than 2015). Please clarify. [Modeling Revision – 2015]

H-GAC response: Exit ramps have been converted to existing 2 lane frontage roads. Since the toll road (overpass) does not yet exists at this location the existing roadway had been assigned as frontage roads since they function in the same manner and will in fact be frontage roads (2017) when the project is complete.

As noted under the response to MPOID 16236, Appendix 3 has been updated to reflect an 2018 analysis year for all projects shown in the previous "Addendum 1" version with a 2017 analysis year.

57. <u>MPOID 12007</u>

TxDOT comment: SH 105 Bypass is around 5 miles long in the network, project list has it at 2.07?

FHWA comment: Based upon TxDOT's comment and H-GAC's response, the project description should be revised to reflect the appropriate project length.

FHWA Follow-up: Need to verify revised project description. [Project Listing Revision]

H-GAC response: The mileage in listing is incorrect, and likely reflects some former split at US 59. The project information in Appendix 3 has been updated to reflect a 5.5 mile long project.

58. <u>MPOID 8077</u>

TxDOT comment: Veterans' Memorial Dr Lanes in project list are (4, 7) in the network they are (4, 6)

H-GAC response: The descriptions are correct, but the center flush median is the 7th lane. Model is correct, though we should fix lane info in listing to 6 lanes.

FHWA comment: Based upon TxDOT's comment and H-GAC's response, it appears that the median lane is not a travel lane. As such, it appears that the project description should be revised to reflect widening to 6-lane divided (median). Please clarify. Also, please verify the main lane FTYPE as the modeling indicates "other arterials undivided."

FHWA Follow-up: Based upon response provided it appears that the project description should be revised to reflect widening to 6-lanes. If flush median is intended to serve as a turning lane then it is recommended that project description be revised to reflect this. [Project Listing Revision]

Also, FTYPE (113) indicates an undivided arterial however the roadway appears to be a divided facility based upon response provided (i.e., flush median). Please explain. [Modeling Revision – all years (FTYPE)]

H-GAC response: The descriptions are correct, but the center flush median is the 7th lane. Based on the above response (center flush median),the FTYPE for 25-35-40 has been corrected to 112(divided).

As suggested the project information in Appendix 3 has been modified to reflect a 6-lane widening project with center left turn lane. This does not reflect a change to the scope of the project.

59. <u>MPOID 8078</u>

TxDOT comment: Veterans' Memorial Dr Lanes in project list are (4, 7) in the network they are (4, 6)

H-GAC response: The descriptions are correct, but the center flush median is the 7th lane. Model is correct, though we should fix lane info in listing to 6 lanes.

FHWA comment: Based upon TxDOT's comment and H-GAC's response, it appears that the median lane is not a travel lane. As such, it appears that the project description should be revised to reflect widening to 6-lane divided (median). Please clarify. Also, please verify the main lane FTYPE as the modeling indicates "other arterials undivided."

FHWA Follow-up: Based upon response provided it appears that the project description should be revised to reflect widening to 6-lanes. If flush median is intended to serve as a turning lane then it is recommended that project description be revised to reflect this. [Project Listing Revision]

Also, FTYPE (113) indicates an undivided arterial however the roadway appears to be a divided facility based upon response provided (i.e., flush median). Please explain. [Modeling Revision – all years (FTYPE)]

H-GAC response: The descriptions are correct, but the center flush median is the 7th lane. Based on the above response (center flush median),the FTYPE for 25-35-40 has been corrected to 112(divided).

As suggested the project information in Appendix 3 has been modified to reflect a 6-lane widening project with center left turn lane. This does not reflect a change to the scope of the project.

60. <u>MPOID 7060</u>

TxDOT comment: Main lanes are (0,2) in the project list, but there are 4 lanes in the network.

H-GAC response: Thank you for this comment. The network has been corrected.

FHWA comment: Modeling revision has been verified.

Part III: Regional Investment Programs, Exempt and Other Projects FY 2015-2024

61. General

FHWA comment: Suggest revision of Part III title and sub-headings to clarify that not all projects reflected in this part are considered exempt from transportation conformity. It is noted that Part III includes projects considered to be non-regionally significant; however these projects are not necessarily exempt from transportation conformity and should be reflected in H-GAC's travel demand modeling as appropriate.

H-GAC Response: Noted. Title has been revised for Section III on each page to read "Regional Investment Programs, Exempt and Not Regionally Significant Projects in First Ten Years (FY 2015-2024)".

62. General

FHWA Comment: It is noted that the modeling does not appear to reflect directional coding (i.e., one model link for each direction of travel) for arterial and collector roadways noted as divided facilities; however, directional coding is reflected for freeway and tollways noted as divided facilities. Please clarify.

H-GAC response: Please see comment #50.

63. MPOID 7860

FHWA Comment: This project does not appear to be reflected in modeling. Please clarify. Additionally, please clarify the proposed project's description (i.e., construction versus reconstruction).

FHWA Follow-up: Recommend that project description be revised to clarify that project is reconstructing existing facility. [Project Listing Revision]

H-GAC response: Reconstruction of Local Street. Local streets are not part of the network. Not regionally significant. The work "reconstruction" has been added to the project description in Appendix 3.

64. MPOID 7522

FHWA Comment: Modeling indicates construction of a 2-lane roadway (MPOID 7522) and subsequent widening to a 4-lane roadway beginning in 2035. The 4-lane widening appears to be associated with MPOID 7524 (noted as PROJ_IDA in modeling); however, MPOID 7524 does not appear to be reflected in the 2040 RTP project listing. Please clarify.

H-GAC response: Both projects on this facility are considered not regionally significant under the proposed H-GAC definition. As exempt and not regionally significant projects are less certain in timing and scope beyond the first ten years of the plan, they are not identified in the project listing and have been consolidated under the appropriate regional investment strategy for fiscal constraint purposes.

The inclusion of thoroughfare development within the travel demand model networks provides connectivity with developing land uses and is analogous to introducing new centroid connectors when travel analysis zones are subdivided. Currently, a total of 44.6 new lane miles are represented in the travel demand network by 2040 through

implementation of not regionally significant projects that are not individually identified in the project listing (e.g. beyond FY 2024).

65. <u>MPOID 11059</u>

FHWA Comment: Project description indicates reconstruction of 4-lane divided roadway, however modeling indicates widening to 6-lanes beginning in 2018. Also FTYPE indicates principal arterial undivided. Please clarify.

FHWA Follow-up: Modeling indicates portion of facility (LINK_ID 20725-23290) as 6-lanes (3-lanes in each direction) in all analysis years, rather than 4-lanes. Also, the FTYPE indicated for the majority of the roadway is "111 - principal arterials – undivided," however, the project description indicates reconstruction of a divided roadway. Please explain. [Project Listing Revision/Modeling Revision]

H-GAC response: Project is a reconstruction of a 4 lane facility. Network has been corrected to existing 4 lane facility. The MPOID reference has been removed. Link 20725-23290 has been corrected from 6 to 4lanes, also based on the project description (reconstruct divided), the FTYPE 25-35-40 has been changed to 110 (divided).

66. <u>MPOID 11013</u>

FHWA Comment: The project description indicates widening from 8 to 9-lanes; however, the modeling indicates 8-lanes (4-lanes each direction) in all analysis years. Please clarify.

FHWA Follow-up: Please provide further clarification is the 9th lane a general purpose lane or turning lane?

H-GAC response: Given the very short length of this project (< 0.5 mi), we have assumed this project will add storage capacity between the two adjacent intersections (US 59 SB frontage and Post Oak Blvd). A response from the sponsor with further clarification has not been received. This project is not regionally significant based on the proposed definition.

67. <u>MPOID 14573</u>

FHWA Comment: The project description indicates construction of a new location FM roadway and bridge/interchange; however the description does not indicate the number of roadway lanes to be constructed. It is noted that the modeling indicates 2–lanes (1-lane each direction) beginning in 2017. Please clarify.

FHWA Follow-up: Has the number of lanes associated with the new location roadway and bridge/interchange been verified with the project sponsor? If not, recommend that the number of lanes be confirmed with the project sponsor. [Project Listing Revision/Modeling Revision – all years]

H-GAC response: This project will construct a new 2 lane facility. The project description in Appendix 3 has been updated to include the lane in formation in the text of the description. This does not reflect a change to the scope of the project.

68. MPOID 16136

FHWA Comment: FTYPE reflects other arterials divided; however project description does not indicate a divided facility. Please clarify.
FHWA Follow-up: Recommend that project description (divided versus undivided) be verified with project sponsor. [Project Listing Revision/Modeling Revision – 2018, 2025, 2035 and 2040]
H-GAC response: Buffalo Spwy is a divided arterial (raised median) north and south of the proposed grade separation and this facility type has been assumed for the proposed project. No change to the project scope/description has been made at this time.

69. MPOID 5030

FHWA Comment: FTYPE reflects other arterials divided and undivided; however project description indicates widening to 4-lanes divided. Please clarify.
FHWA Follow-up: Revision of FTYPE for years 2018 to 2040 verified. However, modeling indicates existing (2015 and 2017) FTYPE for western portion of roadway as "other arterials –divided." Please confirm that this portion (LINK_IDs 21556-21557, 21558-21587, 21557-21558 and 21554-21556) of roadway is currently a divided facility. [Modeling Revision – 2015 and 2017]
H-GAC response: FTYPE has been corrected to divided 18- 40. All associated links have been verified and corrected to an existing 113(undivided) for FTYPE 15-17

70. MPOID 7936

FHWA Comment: FTYPE reflects other arterials undivided; however project description indicates widening to 4-lanes divided. Please clarify.
H-GAC response: Completed project of a major collector.

71. MPOID 16147

FHWA Comment: This MPOID does not appear to be reflected in the modeling. Also, the project description indicates widening to 4-lanes divided; however the modeling for this portion of roadway indicates 4-lanes in all analysis years. Please clarify.
FHWA Follow-up: Revision to FYTPE verified. However, modeling indicates a 4-lane facility (2-lanes each direction) beginning in 2015, rather than 2017. Please explain. [Modeling Revision – 2015]
H-GAC response: FTYPE has been corrected to divided 17- 40. The project is a reconstruction of an existing 4 lane undivided to a 4lane divided roadway by 2017.

72. MPOID 5007

FHWA Comment: Project description indicates widening to a 4-lane divided facility. Modeling reflects 2015 FTYPE as 112 (other arterials divided) for all but one link (link

ID 21129-21130, 113 – other arterials undivided)). FTYPE in all other analysis years is noted as 112, with widening to 4-lanes beginning in 2017. Please clarify.
FHWA Follow-up: Is response intended to indicate that except for the western portion of the roadway, the remainder of the existing facility is a 2-lane divided roadway? Please explain. [Modeling Revision – 2015]
H-GAC response: The west portion on the segment is an existing undivided facility. All associated links have been corrected to an existing undivided FTYPE 113 for 2015. Although the section between Campbell and Hempstead shows a 4 lane divided, it remains unfinished. In 2017 all links will be 4 lane divided 112.

73. MPOID 363

FHWA Comment: Modeling indicates project extending west of Pebble Glen Drive rather than ending at Pebble Glen Drive. Please clarify.
H-GAC response: Coded to the nearest modeling node.

FHWA Comments (received on 7/22/2015 and 8/27/2015) – H-GAC 2040 RTP Transportation Conformity Determination Documentation

Transportation Conformity Report

1. Page 2, Abstract: Recommend that the discussion in the first paragraph on this page be revised to refer to the initial conformity determination action for H-GAC's 2035 RTP Update, as this conformity determination addresses H-GAC's 2040 Plan update, as noted in the second paragraph on this page.
   H-GAC response: It was already there.

   FHWA: The information in this paragraph appears to refer to the Phase III amendments to the 2035 RTP Update, rather than the conformity determination for the initial 2035 RTP Update (January 2011). Please revise the discussion to address the initial 2035 RTP Update conformity determination.

   H-GAC: in the past in all the conformity documents we mentioned when the last conformity was approved. This is what I was doing and why I referred to the 7/19/2013 date.

2. Page 2, Abstract: Please revise the last sentence in the second paragraph on this page as follows: "… approved by January 25, 2015 to avoid initiation of a 1-year transportation conformity lapse grace period."
   H-GAC response: "1-year" was added to the sentence.

3. Page 2, Abstract: Recommend that reference to “effective by” in the last sentence of the fourth paragraph on this page be revised to “effective date.”
   H-GAC response: done.

4. Page 3, Abstract: It is noted that information provided with Addendum 1, includes an updated Table summarizing the emissions and applicable Motor Vehicle Emission Budgets (MVEB) for the 2015, 2017, 2018, 2025, 2035 and 2040 analysis years. The 2015 VOC MVEB reflected in the updated Table (Addendum 1, Page 2, Overview), appears inconsistent with the information provided in Appendix 2 – Applicable SIP Excerpts. Please clarify or revise as appropriate.
   H-GAC response: the 2015 budget for VOCs has been corrected.

5. Page 4, Introduction: Recommend that reference to “Beginning 9/3/2014” at the beginning of this section be clarified (e.g., as established during the transportation conformity pre-analysis consensus process).
   H-GAC response: H-GAC wrote that date because it was requested by the consultation partners to write the date of the first conformity conference call as the beginning of the conformity process. H-GAC did not have a pre-analysis consensus document for this conformity.
   FHWA: Please revise reference to the “9/3/2014” date, to reflect the significance of this date as discussed in the response to comment.

   H-GAC: This date was added to the timeline.

6. Page 4, Table 1: Please revise the format of this Table to ensure that all of the information contained within the cells is viewable. The formatting for other Tables elsewhere in the report should be reviewed to ensure that the headings and information within the tables is appropriately displayed.
   H-GAC response: already done.

7. Page 4, Table 1: The information in this Table reflects that the conformity determination was completed to address a new Transportation Plan and a new or amended Transportation Improvement Program (TIP). It is noted that H-GAC’s updated 2040 Regional Transportation Plan (RTP) was submitted as part of the conformity determination; however it does not appear that a new or amended TIP was provided as a part of the conformity determination. Please clarify.

H-GAC response: The conformity under review is for the new 2040 Regional Transportation Plan (RTP). The 2015-2018 Transportation Improvement Program (TIP) will be amended to reflect the changes proposed in the 2040 RTP that occur within the four-year period of the current TIP. As H-GAC is currently in a conformity lapse grace period these TIP amendments cannot be processed until after federal approval of the conformity determination is obtained. H-GAC is preparing to approve needed TIP modifications as soon as possible and is working with TxDOT to prepared for an out-of-cycle Statewide TIP revision.

FHWA: Understood. Recommend that the information reflected in the response concerning the TIP be clarified as a note to Table 1.

H-GAC: Table 1 has been modified to show that this conformity only covers a new MTP.

8. Page 4, Introduction: The information in the second paragraph on this page appears to provide instructions for completing the transportation conformity report. It is recommended that this paragraph be deleted or formatted in such a way as to distinguish this material from transportation conformity specific information. Similar instances elsewhere in the conformity report should also be revised as noted.
   H-GAC response: already done.

9. Page 4, Introduction: Please revise reference to "January 25th" in the second sentence in the third paragraph on this page to "January 25, 2015."
   H-GAC response: done.

10. Page 4, Introduction: Recommend that the draft time-line presented at the bottom of this page be deleted and replaced with the actual time-line of appropriate transportation conformity actions, including subsequent revisions for the 2017 and 2018 analysis years (i.e., intent of transportation conformity report is to document completed actions/specifics regarding the subject transportation conformity determination).
    H-GAC response: Done
    FHWA: Recommend additional detail be provided concerning the intent of the second public comment period initiated on February 13, 2015 (i.e., basis for the additional comment period). Also recommend that the sentence introducing the timeline be revised to reflect the purpose of the timeline (i.e., for completion of the transportation conformity determination).

    H-GAC response: done

11. Page 8, Table 5: It is noted that information provided with Addendum 1, includes an updated Table indicating the Conformity Analysis Years (Addendum 1, page 4, Table 5). It is recommended that a note clarifying the basis for the 2018 Attainment Year be added to Table 5.
    H-GAC response: since the 1997 8-hr Ozone standard was revoked by EPA on 4/6/2015 (effective date), then 2018 is not longer an attainment year.

    FHWA: Understood. However, it appears that 2018 should be identified as an intermediate analysis year, as a regional emissions analysis has been conducted for this year.

    H-GAC: 2018 is a budget year because it has a budget. Budget years are not intermediate years. The regional analysis was done for 2018 because a linear interpolation could not show consistency with the 2018 budgets.

12. Page 8, Table 6: Please clarify the information (Detail and Source Data) provided for the Socio-Economic data element (i.e., what is the basis for the socio-economic data - 2010 Census?).
    H-GAC response: Household: H-GAC developed the base year demographic on the basis of 2010 Census and American Community Survey (ACS) PUM. The base year demographic is fed into a house developed demographic evolution model to simulate future population mix. Employment: H-GAC forecasts the regional employments according to multiple sources such as Texas Workforce Commission, ACS PUM, and Woods & Poole.
    FHWA: Recommend that the information discussed in the response be included within Table 6 for the "Socio-economic" data element. Also, it appears that the second sentence in the response is intended to indicate that the base year demographic is fed into an in-house developed demographic evolution model. Please revise as appropriate. A similar comment applies to the first sentence of the "Population" data element discussion.

    H-GAC: the information has been incorporated into Table 6

13. Page 9, Travel Demand Modeling: Please clarify the intent of the first sentence in the last paragraph on this page (i.e., "… and property of being data-driven.").
    H-GAC response: Option 1: Data-driven means that inside each model there are dozens of tables with data elements that control the rules which govern the simulation. – Option 2: delete the last paragraph

    FHWA: Recommend that the first sentence in this paragraph be revised to clarify the intent of "… and property of being data-driven."

    H-GAC: the explanation was added.

14. Page 10, Travel Demand Modeling: Recommend that the discussion in the last paragraph on this page be revised to include information concerning the basis for the development of two seasonal correction factors (i.e., by TxDOT District).
    H-GAC response: The last paragraph already explains the basis. Perhaps we should explain why the two seasonal correction factors are needed, or get more details from Andy Mullins (TTI).
    FHWA: Previous FHWA comment was directed at the need for developing two seasonal correction factors rather than one correction factor (e.g., one correction factor for each TxDOT District, and why a correction factor for each District is needed). Please revise this discussion to reflect the basis for the two seasonal correction factors.

    H-GAC: the explanation was added.

15. Page 12, Table 10: It is noted that information provided with Addendum 1 includes an updated Table indicating centerline and lane miles (Addendum 1, page 4, Table 10). Please confirm an increase of three and one centerline miles between 2025 and 2035 and 2035 and 2040, respectively, as indicated in this table.
    H-GAC response: The centerline miles difference between 2025 and 2035 should be larger than 3 miles as there are a few projects built there. The year 2035 and 2040 network should be the same.

16. Page 13, Travel Demand Modeling: The discussion in the third paragraph on this page indicates that updates to the control totals for the Bush Intercontinental and Hobby airport special generators were completed. Were other special generators considered in H-GAC's travel demand modeling and were updates to other special generators completed. Please clarify. Airports are also discussed as special generators in Appendix 4 – 2012 Model Validation and Documentation Report, page 4-12.
    H-GAC response: There is no update made to other special generators. The truck traffics from and to ports of Houston, Galveston, and Freeport were used to be special generators in previous Conformity, but in this Conformity the travel demands from seaports are modeled by the new Cube Cargo-based truck model described below.

17. Page 14, Travel Demand Modeling: The fourth and fifth full paragraphs on this page discuss changes in traffic assignment for the Track-1 2012 model. What effect did these changes have on the number of daily trips? Also, were daily traffic assignments or summed time-of-day assignments used for previous transportation conformity determinations and SIP development?
    H-GAC response: A) Summed time-of-day assignments have been always being used for previous, current, and future Conformity and SIP. The intention of the fifth paragraph is to explain how to "locate" travel demand into each time period. B) Please remove the discussion of adding evening period as the Conformity still uses the four time-of-day periods. C)The new time-of-day factors do not change the number of daily trips; the new factor shifts some trip from peak periods to non-peak periods and maintain the same total of daily trips.
    FHWA: Is an "evening" period utilized in the travel demand modeling? If so, how is the "evening period" traffic volume reflected in the four time of day periods used for conformity (e.g., is the "evening" period incorporated into the existing four time of day periods).

    H-GAC: No, H-GAC is not using at this moment an evening period.

18. Page 16, Table 11: It is noted that information provided with Addendum 1 includes an updated Table indicating Model External Conditions (Addendum 1, page 5, Table 11). Information on page 14 (Time-of-Day Models) of the transportation conformity report indicates that five time periods were utilized in the new Track 1-2012 model, including an evening time period. However, the information in this Table only reflects the use of four time-periods (AM Peak, Midday, PM Peak and Overnight). Please clarify.
    H-GAC response: This has already been corrected. This conformity analysis only uses 4 time periods.

19. Additionally, please clarify the information reflected in Table 9 on page 11, reflecting time-period designations for the Overnight, AM Peak, Midday and PM Peak time-periods.
    H-GAC response: same as above.

20. Page 17, Table 12: Please revise the format of this Table to ensure that all of the information contained within the cells is viewable.
    H-GAC response: already done.
    FHWA: It appears that additional information in the "Description" column for the "Source Type Age Distribution" Input Parameter may not be viewable. Please clarify.

    H-GAC: correction done.

21. Page 18, Table 12: The information in the "Source" column for the "Fuel Engine Fraction/Diesel Fraction" parameter indicates that the MOVES default was used for light duty vehicles and buses. Is this information not available via the TxDMV registration data for July 2014 for light duty vehicles? Please clarify.
    H-GAC response: the table is correct. Please see TTI documentation on ftp://amdaftp.tceq.texas.gov/pub/Mobile_EI/Statewide/mvs/reports/mvs14_att_tex_06_12_18_technical_report_final_dec_2014.pdf

22. Page 20, Table 14: Please explain the meaning of the asterisks noted for the "Source Use Type" and "I/M Compliance" values.
    H-GAC response: source type 21 (passenger car) has a compliance percentage of 93.12, source type 31 (passenger truck) has a compliance percentage of 87.53% and source type 32 (light commercial truck) has a compliance percentage of 81.95%.
    FHWA: Understood. Recommend that a note explaining the relationship between the information provided in the "Source Use Type" and "I/M Compliance" rows (i.e., need for asterisks) be added to the Table or clarified within the Table.

    H-GAC: Correction done.

23. Page 24, Table 15: Please revise the format of this Table to ensure that all of the information contained within the headings and cells is viewable
    H-GAC response: already done.
    FHWA: It appears that some of the text in the column headings is still not completely viewable. Please revise as appropriate.

    H-GAC: correction done

24. Page 24, Table 16: The note for this Table references VMEP commitments in the SIP being used for conformity. Were VMEPs utilized in this conformity determination? If so, recommend that a summary of the VMEP related emission benefits (reductions) utilized in the conformity determination be provided in the conformity report.
    H-GAC response: VMPEs were not used in this conformity determination. Below the title on Table 16 it says "This table does not apply for this conformity".
    FHWA: Recommend that this Table be deleted and a summary discussion indicating that additional emission control credits were not utilized for this conformity determination be provided in its place; if the information in this Table is not required for this conformity determination.

    H-GAC: correction done

25. Page 25, Regional Transportation Emissions: Recommend that the Tables on this page be numbered for reference purposes. Additionally, the information in the second paragraph appears to provide instruction concerning the information to be provided in the report (see related comment 8 above). This instruction indicates the inclusion of a table such as the Table at the bottom of this page reflecting the emission results (modeled emissions minus off-model reduction strategies). It is noted that this Table does not appear to reflect adjustments for TxLED and VMEP emission reductions (see related comment 23 above). Also, it appears that revisions to the Table and associated notes are required regarding H-GAC's completion of emission analysis for 2017 and 2018. Please clarify.
    H-GAC response: the tables were already numbered in a newer version of the document. The instructions were already removed in the newer version of the document. With the SEE model the TxLED adjustment is done internally, so there is no need to do any subtraction. In addition, the VMEPs were not subtracted because they were not used in this conformity. Please refer to the last corrected version of the document for any revisions done to this table.

26. Page 26, Interagency Consultation: The information in this section refers to the "Pre-analysis consensus template" as being the conformity report. It is noted that this transportation conformity report is intended to document the transportation conformity determination for the 2040 RTP. Although the format and structure may be similar to the

"Pre-Analysis Consensus Plan", it is not the same document. Recommend that a distinction and separate Pre-Analysis Consensus Plan be provided/referenced to avoid confusion.

H-GAC response: H-GAC agrees that the "Pre-Analysis Consensus Plan" is a separate report and that part was already corrected in the updated document. However, H-GAC did not use a "Pre-Analysis Consensus Plan" for this conformity, so this document cannot be provided.

27. Page 26, Public Participation: It is noted that information provided with Addendum 1 includes an updated Public Participation section (Addendum 1, page 8). This updated material includes information concerning the public comment period utilized for the 2017 and 2018 emissions analyses. Recommend that the discussion in this section be revised to provide additional information/clarification concerning the public participation conducted for the development and adoption of the 2017 and 2018 emissions analysis, including the public comment time-frame (i.e., less than 30 days), dates, times and locations of public meetings and Transportation Policy Council (TPC) actions, as appropriate. Additionally, it is recommended that the information in this section be organized in chronological order.

    H-GAC response: the timeline has been corrected

    FHWA: Please revise the information provided in the fifth bullet in the Public Participation section, to provide additional information regarding the basis for the second public review and comment period (i.e., 2017 and 2018 regional emissions analyses and TPC action if any action taken).

    H-GAC: correction done

28. Page 27, Appendices:
    a. Appendix 11, "Final MOVES emission factors" is noted as "N/A"; however, it is our understanding that the MOVES emissions model was utilized for this conformity determination. Please clarify.

        H-GAC response: Yes, MOVES model was used for this conformity determination, but instead of being used at the emission factor level, it was used at the project level. As a consequence MOVES does not produce any emission factors output.

        FHWA: Please provide additional clarification concerning "emission factor level" versus "project level" regarding the development of the emissions factors. Were the emission factors utilized to complete the regional emissions analysis based upon the MOVES model? Please clarify.

        H-GAC: Yes, H-GAC used MOVES at the project level, as a consequence the emission factors are generated internally in the program and not as an output.

b. Appendix 13, "VMEPS" is noted as "N/A"; however, if VMEPs are included in the applicable SIPs it is anticipated that information concerning these VMEPs and their utilization in this conformity determination (if applicable) would be reflected in this appendix. Please clarify.
H-GAC response: VMEPS are not used in this conformity determination.
FHWA: Are VMEPs included in the applicable Houston SIPs? If so, recommend that the VMEPs be discussed in this appendix, including a note that VMEP emission reductions were not used to demonstrate conformity.

H-GAC: As was explained previously VMEPS were not used in this conformity and also were not included in the last revision of the SIP.

Appendix 1

29. Appendix 1 includes H-GAC's TPC January 23, 2015 resolution adopting the 2040 RTP and associated transportation conformity determination. If a formal TPC action was completed for addendum 1 to the 2040 RTP transportation conformity determination, the corresponding resolution should also be included in this Appendix. Please clarify.
H-GAC response: Addendum 1 was done to comply with the 1997 8-hr Ozone standard, since this standard was already revoked by EPA effectively on 4/6/2015, then there is no need for the resolution.
FHWA: Please clarify if TPC action was completed for Addendum 1. If so, recommend that this action be reflected within this Appendix.

H-GAC: there was not TPC action for Addendum 1.

Appendix 4

30. Page 5-45, Table 5.1: Please verify the value of HPMS Toll VMT indicated in this Table for Brazoria County.
H-GAC response: The 12 miles Toll VMT on Brazoria County is not a mistake. It is the correct value from TXDOT HPMS, published in the year 2012 TXDOT Standard Report. There is only one toll segment on Brazoria County -- the lightly-used San Luis Pass-Vacek Toll Bridge connecting between the Galveston Island and Brazoria County. The toll bridge is about 0.837 miles long, and 0.146 miles out of the 0.837 miles are on Brazoria County while the rest of the toll bridge is on Galveston County. The low traffic with a very short segment results in a very small toll VMT on the bridge.

Appendix 9

31. This Appendix has been revised (addendum 1) to reflect MOVES Input and Output file information for the 2017 and 2018 analysis years. However, the MOVES Input and

Output file information for the 2015, 2025, 2035 and 2040 analysis years was not retained from the initial version (January 2015) of this Appendix. Recommend that the 2015, 2025, 2035 and 2040 MOVES information also be reflected in this Appendix.
H-GAC response: Done.

Appendix 10

32. Recommend that the column headings for the 2017 and 2018 TxLED adjustment information included in the revised Appendix (addendum 1), be revised consistent with the information provided for 2015, 2025, 2035 and 2040.
H-GAC response: Done, but 2017 has not been included because it was interpolated.

Appendix 15

33. The information in this Appendix should be revised to reflect the public participation process conducted for the 2040 RTP and corresponding transportation conformity determination, and addendum 1 to the transportation conformity determination, including any public comments received and H-GAC's final/complete responses to these comments.
H-GAC response: Done.
FHWA: It is noted some of H-GAC's letters responding to public comment s are unsigned (e.g., January 13, 2015 letter to Air Alliance Houston and April 20, 2015 letter to Houston Regional Group of the Sierra Club). Please include signed versions of these responses.

Additionally, please confirm the April 20, 2015 response date to the Houston Regional Group of the Sierra Club, as it is our understanding that the official response was provided after April 20, 2015.

Also, please verify that follow-up comments provided by the Houston Regional Group of the Sierra Club via e-mail on April 11, 2015 have also been addressed.

H-GAC: still on –going

The following is a new comment based upon revised information provided on August 13, 2015 by H-GAC via share file as downloaded and transmitted by TxDOT-TPP on August 25, 2015:

Appendix 7

1. Recommend that the headings for the information provided in this Appendix be revised to delete reference to 2017, to avoid confusion concerning the interpolation of the emissions analysis for 2017.
H-GAC response: Done

From: Jose.Campos@dot.gov
Sent: Wednesday, September 09, 2015 10:30 AM
To: Lubertino, Graciela
Cc: Van Slyke, Chris; Wurdlow, David; Barbara.Maley@dot.gov
Subject: RE: conformity main document

Graciela,

I reviewed the revised conformity document and believe that most of the comments we discussed last Thursday (September 3, 2015) at H-GAC's offices have been adequately addressed. However, additional revisions/clarification may be required as noted below:

1. Abstract: It is noted that the 2015, 2017 and 2018 VMT indicated in the Table on page 3 of the abstract reflects a reduction from that previously reported, however revisions to the modeling network were previously noted to have resulted in an increase in 24-hour VMT for 2015 and 2018. Please explain.
   H-GAC: The revised 2015, 2035 and 2040 travel demand runs are complete. The VMT differences are, like 2015 and 2018, very small. Graciela will have the final SEE runs complete early next week. Per your conference call, we expect you letters by the end of this week.

   Also if you have not already taken a look at the information Graciela emailed yesterday, you might notice that the VMT delta for 2018 is dissimilar then the delta contained in my email from last week. The reason for this is because after my email, I took a close look the latest 2018 assignment and notices that the assignment failed after only two iterations, rather than the normal 40 iterations; this failure was due to a simple CPU overload. I resubmitted a 2018 assignment to a newer more powerful server, and this time the assignment completed the full 40 iterations. I apologize for any confusion this might have caused.

2. Section 3, Travel Demand Modeling: It appears that Table 10 on page 13, requires revision based upon revisions to the modeling network. Please clarify.
   H-GAC: Table 10 will be updated.

3. Section 7, Public Participation, Fifth bullet: Recommend revision of the second sentence in this item to provide additional clarification concerning the basis for the 2017 and 2018 emissions analyses that were the subject of the second public comment period. Suggest revision as follows: "Non-interpolation based emission analyses were completed for 2017 and 2018 to address the potential effects of a December 23, 2014 Court ruling that vacated EPA's revocation of the previous 1997 8-hour ozone NAAQS for conformity purposes only."
   H-GAC: done

4. Section 7, Public Participation, Conformity Timeline sub-bullet seven: Recommend revision of this item as follows: "… Court of Appeals ruling that reinstated …"
   H-GAC: done

5. Section 7, Public Participation: It is noted that a Conformity Timeline sub-bullet addressing the presentation of the 2017 and 2018 emissions analysis results to H-GAC's Transportation Policy Council on February 27, 2015 appears to have been deleted. Please explain the basis for deletion of this information.
   H-GAC: that bullet was added to the timeline

Thank you and please let me know if you should have any questions.

Jose Campos
Federal Highway Administration – Texas
(512) 536-5932