

Chapter 6

TRANSPORTATION CONFORMITY

The U.S. EPA has established health-based standards for six criteria pollutants – referred to as the National Ambient Air Quality Standards (NAAQS). The Houston-Galveston-Brazoria (HGB) region does not meet the standard for ground level Ozone. The Clean Air Act requires the Houston-Galveston-Brazoria region to demonstrate that transportation projects contained in the TIP and the RTP conform to the Motor Vehicle Emission Budget (MVEBs). This process is called transportation air quality conformity (conformity).

Conformity is the way to ensure that federal funding and approval is only given to those projects and activities that are consistent with air quality goals. Under the Clean Air Act, proposed transportation projects and air quality modeling must be coordinated to ensure the TIP and RTP are consistent with or conform to the targets set by the State Implementation Plan (SIP). This integration of transportation planning and air quality review is designed to ensure that transportation plans, programs, and projects do not aggravate an existing NAAQS violation, cause a new violation, or delay the attainment of designated regional milestones.

MILESTONES AND BACKGROUND

On August 2, 2019, the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) certified that the Houston-Brazoria-Galveston region's 2045 Regional Transportation Plan (RTP) and the 2019-2022 Transportation Improvement Program (TIP) met all the requirements for a joint conformity determination to the Air Quality State Implementation Plan (SIP) for the Houston-Galveston-Brazoria (HGB) ozone nonattainment area.

This new conformity determination is being prepared to support the amendments to the 2045 RTP and update to the 2021-2024 TIP. These amendments will increase the total expenditure of the 2045 RTP by approximately \$9 Billion

Major elements of the amendments include:

- a. Construct Express lanes on IH 610 between IH 10 and IH 69
- b. Construct 2-way HOV lanes on IH 10 W between IH 610 west loop and IH 45 N
- c. Construct SH 35 6 lane freeway between Dixie Dr and City of Alvin.
- d. Change the Scope of Hempstead highway (US 290) between IH 610 to Grand Parkway (SH 99)
- e. Reconstruct and widen San Jacinto river bridge on IH 10 E
- f. Reconstruct Houston Ship Channel Bridge on IH 610 E
- g. Reconstruct IH 610 S between SH 35 (Mykawa Rd/SS 5) and SH 288 and IH 610 direct connectors at SH 35 (Mykawa Rd/SS 5)
- h. Widen Grand Parkway (SH 99) by adding Segments E and F.
- i. Reconstruct and Widen Beltway 8 (BW 8) frontage roads between E of Hardy Toll Rd to E of Aldine Westfield Rd
- j. Convert SH 288 to Freeway between future SH 99 to FM 1452

- k. Advance the IH 45 N interchange change at IH 10 W reconstruction and addition of IH 10 express lanes and IH 45 managed lanes part of the North Houston Highway Improvement Project (NHHIP) Segment 3 project to FY 2022.

In accordance with [23 CFR§450.324](#) all projects are constrained by the financial resources estimated to be reasonably available within the RTP timeframe. A complete listing of the projects in the RTP and TIP that affect this conformity analysis will be included in Appendix 3 of the conformity report.

Due to the timing of this conformity determination and the U.S. Environmental Protection Agency's (EPA) pending approval of a new Reasonable Further Progress (RFP) SIP for the HGB area, this conformity will demonstrate compliance to Motor Vehicle Emission Budgets (MVEBs) under two different SIPs as an either-or scenario:

- The MVEBs contained in the SIP revision to address the RFP requirements for the HGB moderate ozone nonattainment area for the 2008 8-hr ozone standard ("HGB moderate RFP SIP"). This SIP revision was due to EPA's December 14, 2016 reclassification¹ of the HGB area from "marginal" to "moderate" nonattainment under the 2008 8-hr ozone standard, with a 2017 attainment year. The 2017 MVEBs contained in the HGB moderate RFP SIP revision were found adequate by EPA on June 6, 2017 with an effective date of June 21, 2017.²
- The MVEBs contained in the SIP revision to address the RFP requirements for the HGB serious ozone nonattainment area for the 2008 8-hr ozone standard ("HGB serious RFP SIP"). This SIP revision was due to EPA's August 13, 2019,³ reclassification of the HGB area from "moderate" to "serious" nonattainment under the 2008 8-hr ozone standard, with a 2020 attainment year. The 2020 MVEBs contained in the HGB serious RFP SIP revision have not yet been found adequate or approved by EPA, but this could occur during the timeframe of this conformity determination, which would result in the 2020 MVEBs being the applicable MVEBs for transportation conformity purposes

This approach to demonstrating conformity is intended to address uncertainty in the timing of EPA's pending approval of the new HGB serious RFP SIP MVEBs. By demonstrating that the RTP and TIP are able to conform to MVEBs under both the moderate and serious RFP SIPs, we ensure that conformity documentation reflects the applicable MVEBs for transportation conformity purposes as of the date of FHWA's final approval of this conformity determination.

1- [81 FR 90207](#)

CONFORMITY REQUIREMENTS

H-GAC demonstrates transportation conformity by using a travel demand model to estimate the motor vehicle emissions from all of the regionally significant, nonexempt projects in the TIP and RTP, and comparing those emissions against the budget established by the state. The current ozone standard was proposed in 2008 and requires all regions meet a maximum 8-hour average of 75 parts per billion of ground level ozone by an attainment deadline of July 2018. In 2015, EPA issued a more stringent standard of 70 ppb with an attainment deadline of August 2021.

Conformity analysis is a robust procedure that consists of:

- The latest planning assumptions;
- Analysis based on the latest emission estimation model available;
- Interagency consultation, and a public involvement process;
- Timely implementation of Transportation Control Measures (TCMs);
- An RTP and TIP that are consistent with the MVEBs established in the applicable SIP; and
- All regionally significant projects expected in the nonattainment and maintenance are in the RTP and TIP.

REGIONAL INVENTORY

This conformity analysis developed an air quality regional inventory of the HGB nonattainment area. It accounts for emissions resulting from the nonattainment area's transportation plans, including all regionally significant projects and the effects of emission control programs, such as the inspection and maintenance programs.

MOTOR VEHICLE EMISSION BUDGETS

As mentioned previously, due to the timing of this conformity determination and EPA's pending approval of a new RFP SIP for the HGB area, H-GAC will conform to MVEBs under two different SIPs – the HGB moderate RFP SIP and the HGB serious RFP SIP – as an either-or scenario to demonstrate that the RTP and TIP are able to conform to the applicable MVEBs as of the date of FHWA's final approval of this conformity determination. The 2017 budgets established in the HGB moderate RFP SIP are as follows:

HGB Moderate RFP SIP 2017 MVEBs (2008 8-hr ozone standard)

RFP Demonstration Budgets (t/d)		
Year	NO _x	VOC
2017	121.81	68.04

Source: HGB moderate RFP SIP, TCEQ, effective June 21, 2017

The 2020 budgets established in the HGB serious RFP SIP are as follows:

HGB Serious RFP 2020 MVEBs (2008 8-hr ozone standard)

RFP Demonstration Budgets (t/d)		
Year	NO _x	VOC
2020	87.69	57.70

Source: HGB serious RFP SIP, TCEQ

EMISSIONS TESTS

As specified by the Code of Federal Regulations ([40 CFR 93.109\[c\]](#), as amended by [62 FR 43807, Aug. 15, 1997](#)) all ozone nonattainment areas designated moderate and above must pass a MVEB test if an approved SIP budget exists. At the time of this conformity determination, the HGB region has been re-classified as “serious” for the 2008 8-hr ozone standard, with an attainment year of 2020. However, the associated SIP revision to address the RFP requirements for the HGB serious ozone nonattainment area for the 2008 8-hr ozone standard has not yet been approved

by EPA, but it is in the process of being approved.⁴ Due to the potential for these 2020 MVEBs being found adequate and approved during the timeframe of this conformity determination, H-GAC has decided to also use these budgets for the conformity test.

The latest approved MVEBs is the RFP SIP budget coming from the “moderate” reclassification. This MVEB was found adequate by the EPA on June 6, 2017 with an effective date of June 21, 2017. In addition, the HGB region is classified “marginal” for the 2015 8-hr Ozone Standard

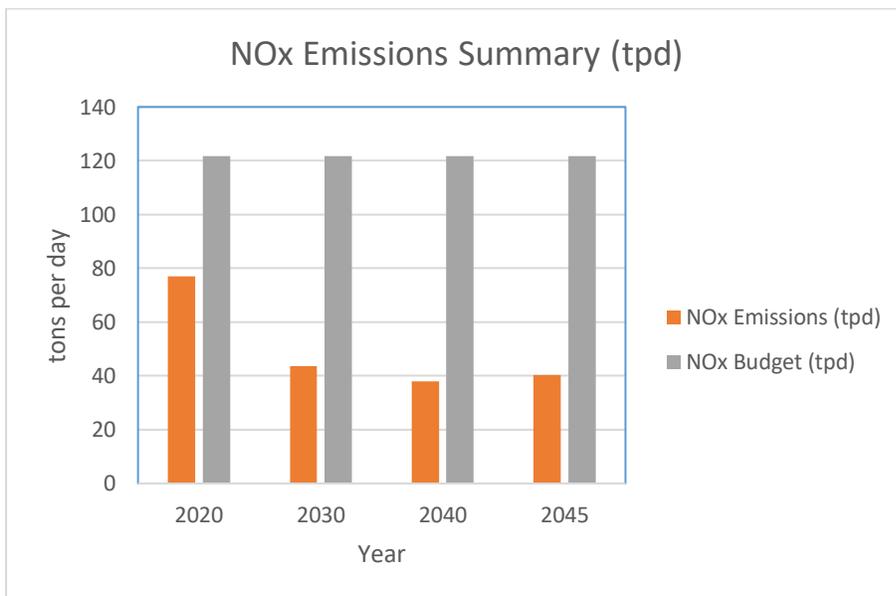
Since the “marginal” classification, the HGB region did not get new MVEBs, and therefore, according with the conformity rule, must use previous ones established in the SIP for the 2008 Eight-Hour Ozone Standard.

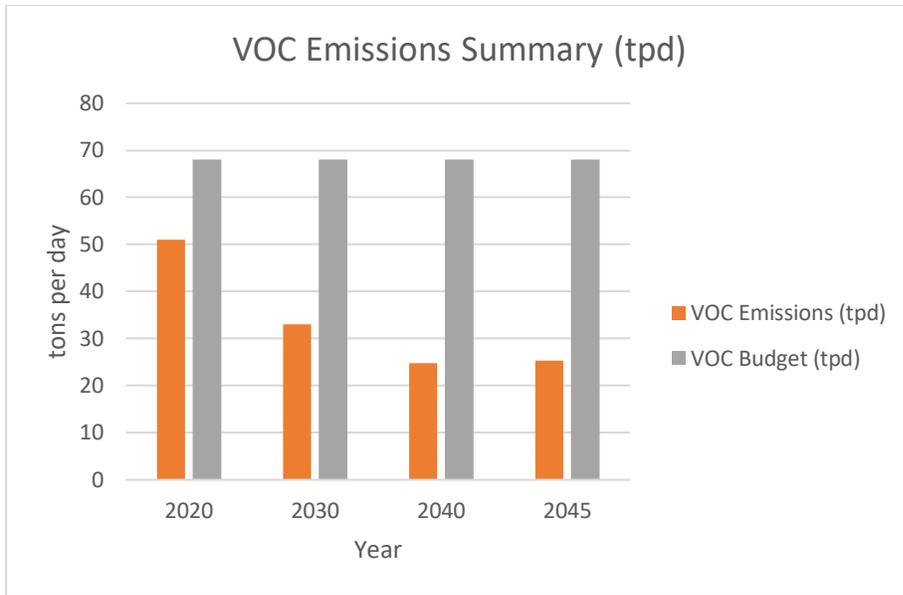
In this case, the budget test must be satisfied using the MVEBs established in the RFP SIP mentioned above as an either-or scenario. Specifically, this test is satisfied when ozone precursor (VOC and NO_x) emissions for each analysis year are less than or equal to the MVEBs established in the air quality SIP. For the test, the regional emission analysis should be performed for any years selected according to the conformity rule. The table below shows the results of this conformity analysis.

4- EPA proposed approval of the HGB serious RFP SIP and 2020 MVEBs September 29, 2020 [85 FR 60928](#)

Conformity Analysis Results versus HGB Moderate RFP SIP MVEBs

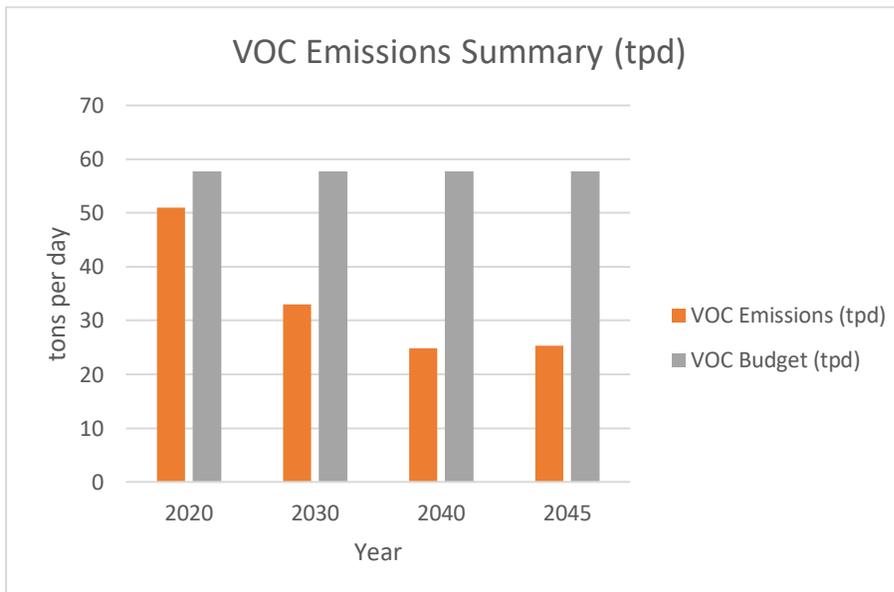
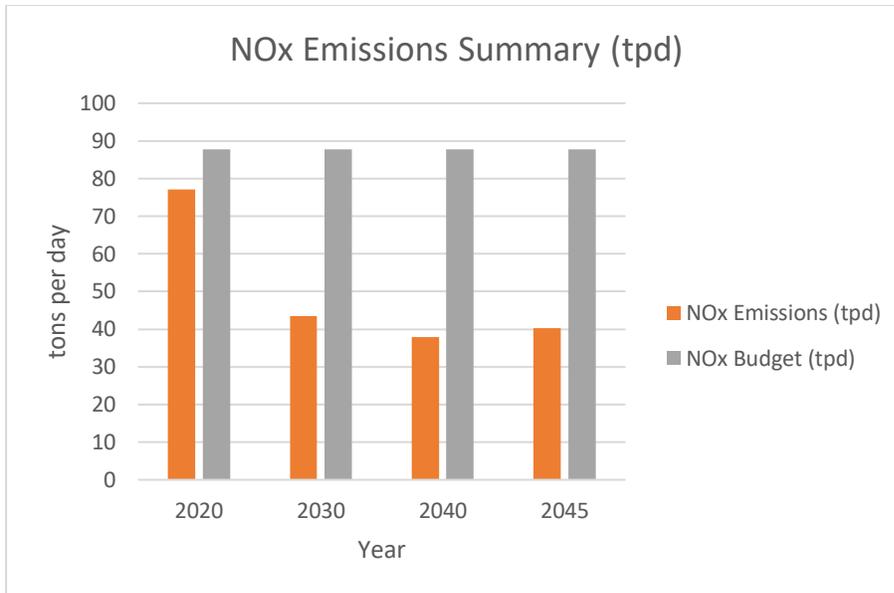
Year	NOx Emissions (tpd)	NOx Budget (tpd)	VOC Emissions (tpd)	VOC Budget (tpd)	VMT
2020	77.03	121.81	51.04	68.04	188,200,352
2030	43.54	121.81	33.01	68.04	228,967,318
2040	37.96	121.81	24.84	68.04	267,995,566
2045	40.25	121.81	25.32	68.04	286,876,227





Conformity Analysis Results versus HGB Serious RFP MVEBs

Year	NOx Emissions (tpd)	NOx Budget (tpd)	VOC Emissions (tpd)	VOC Budget (tpd)	VMT
2020	77.03	87.69	51.04	57.70	188,200,352
2030	43.54	87.69	33.01	57.70	228,967,318
2040	37.96	87.69	24.84	57.70	267,995,566
2045	40.25	87.69	25.32	57.70	286,876,227



The results of this conformity determination demonstrate that the amendments to the 2045 RTP and to the 2021-2024 TIP for the HGB TMA meet the requirements of the air quality SIPs for the HGB ozone nonattainment area and are in accordance with the Clean Air Act (42 U.S.C. 7504, 7506 (c) and (d)), as amended on November 15, 1990, and the final conformity rule (40 CFR Parts 51 and 93).