



Executive Summary

Transportation Air Quality Conformity Report for the
Houston-Brazoria-Galveston Region for the 2045 Regional
Transportation Plan Update and
2025-2028 Transportation Improvement Program

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1. EXECUTIVE SUMMARY

1.1 CONFORMITY OVERVIEW

The Clean Air Act Amendments of 1990 (CAAA) require transportation plans, programs, and projects in nonattainment and maintenance areas, funded or approved by the Federal Highway Administration (FHWA) or the Federal Transit Administration (FTA), to conform to the motor vehicle emissions budgets (MVEBs) established in the state implementation plan (SIP) and deemed adequate or approved by the U.S. Environmental Protection Agency (EPA).

Nonattainment areas with no MVEBs must demonstrate conformity by satisfying interim emissions tests. Satisfying MVEBs or interim emissions tests ensure that transportation plans, programs, and projects do not produce new air quality violations, worsen existing violations, or delay the timely attainment of National Ambient Air Quality Standards (NAAQS).

Section 176(c)(4) of the CAAA requires metropolitan planning organizations (MPOs), for areas designated as nonattainment and/or maintenance for a NAAQS, to conduct an air quality conformity analysis to demonstrate that regional transportation plans (RTPs) and transportation improvement programs (TIPs) are consistent with the region's air quality goals.

This conformity analysis requires MVEB tests that must demonstrate that the total emissions for the nonattainment or maintenance area are less than or equal to the applicable SIP MVEBs, which establish emissions ceilings for the regional transportation network.

As the Houston-Galveston-Brazoria regional MPO, H-GAC is responsible for conducting the air quality conformity analysis to address the severe designation for the 2008 8-hr Ozone standard and the serious designation for the 2015 8-hr Ozone standard.

1.2 AIR QUALITY AND NONATTAINMENT AREA

1.2.1 Air Pollution

Pollutants addressed in this conformity analysis include the following:

Precursors to ozone: Volatile organic compounds (VOCs) and nitrogen oxides (NO_x): “Ground-level ozone is a colorless compound formed when NO_x and VOC chemically react in the presence of sunlight. It is not directly emitted into the air. Ground level ozone is known to trigger a variety of health problems and is particularly harmful to children, older adults, and people of all ages who have lung diseases, such as asthma¹”.

1.2.2 Nonattainment Area

Figure 1-1 shows the H-GAC boundary map along with boundaries for the severe designation for the 2008 8-hr Ozone standard and the serious designation for the 2015 8-hr Ozone standard.

¹ <https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics>

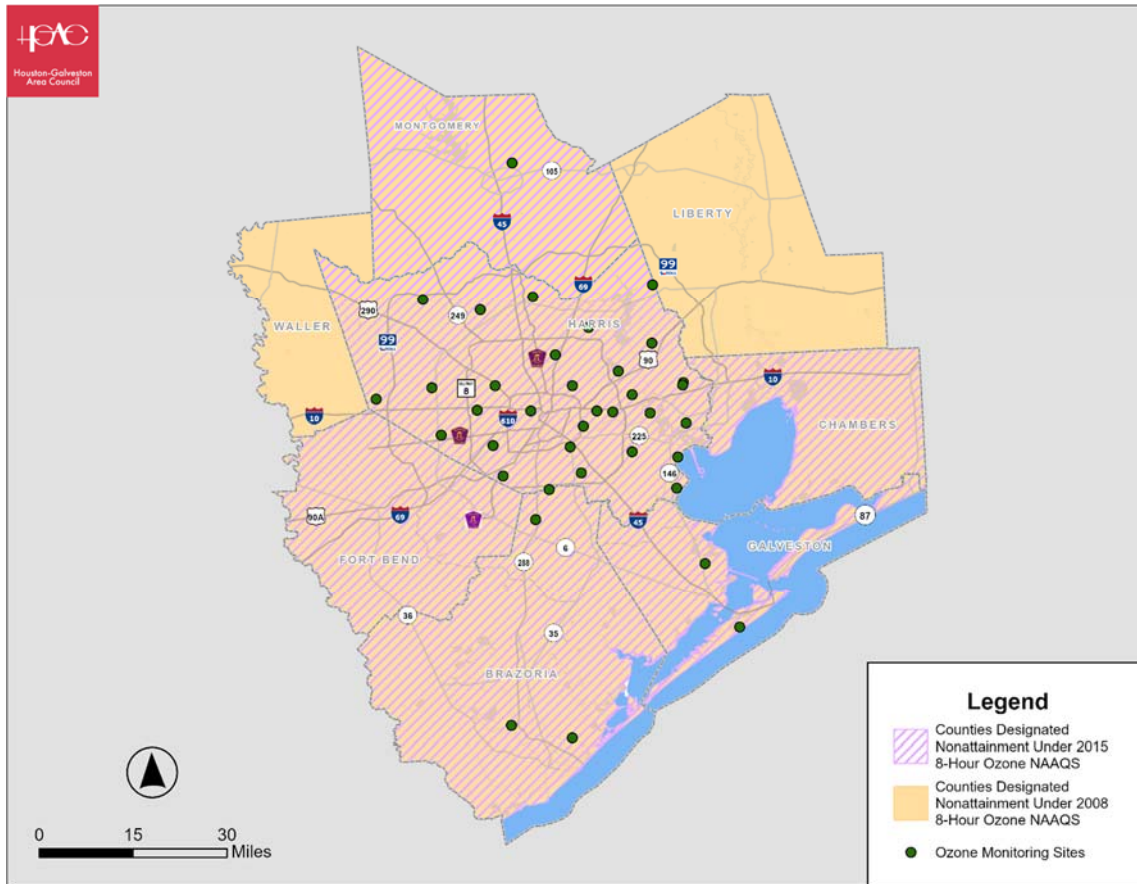


Figure 1-1. Houston-Galveston-Brazoria Nonattainment and Maintenance Boundaries

2008 Eight-Hour Ozone Standard Designations: Severe nonattainment, effective November 7, 2022 (87 FR 60926). On March 27, 2008, the EPA lowered the primary and secondary eight-hour ozone NAAQS to 0.075 ppm (73 FR 16436). An eight-county HGB area including Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties was designated nonattainment and classified marginal under the 2008 eight-hour ozone NAAQS, effective July 20, 2012. The HGB area includes the same eight counties that were designated nonattainment under the 1997 eight-hour ozone standard. The attainment deadline for the HGB marginal nonattainment area was July 20, 2015. On May 4, 2016, the EPA published a final rule in the Federal Register granting a one-year extension to the attainment deadline for the HGB 2008 eight-hour ozone marginal nonattainment area to July 20, 2016 (81 FR 26697). Because the HGB area's 2015 design value exceeded the 2008 eight-hour ozone NAAQS, the EPA published a final determination of nonattainment and reclassification of the HGB 2008 eight-hour ozone nonattainment area from marginal to moderate nonattainment on December 14, 2016, effective on the same date (81 FR 90207). The attainment deadline for the HGB moderate nonattainment area was July 20, 2018. On August 23, 2019, the EPA reclassified the eight-county HGB area from moderate to serious nonattainment. The attainment date for serious nonattainment areas was July 20, 2021, with a 2020 attainment year. On October 7, 2022, the EPA reclassified the eight-

county HGB area from serious to severe nonattainment. The attainment date for severe nonattainment areas is July 20, 2027, with a 2026 attainment year.

2015 Eight-Hour Ozone Standard Designations: Serious nonattainment, effective July 22, 2024 (89 FR 51829). On October 1, 2015, the EPA lowered the primary and secondary eight-hour ozone NAAQS to 0.070 parts per million (ppm) (80 FR 65292). A six-county HGB area including Brazoria, Chambers, Fort Bend, Galveston, Harris, and Montgomery Counties was designated nonattainment and classified marginal under the 2015 eight-hour ozone NAAQS, effective August 3, 2018. The HGB nonattainment area includes six of the eight counties that were designated nonattainment under the 2008 eight-hour ozone but does not include Liberty or Waller Counties, which were designated attainment/unclassifiable. The attainment date for the HGB marginal nonattainment area was August 3, 2021, with a 2020 attainment year. On October 7, 2022, the EPA reclassified the six-county HGB area from marginal to moderate nonattainment, effective November 7, 2022 (87 FR 60897). The attainment date for the HGB moderate nonattainment area was August 3, 2024, with a 2023 attainment year. On June 20, 2024, the EPA reclassified the six-county HGB area from moderate to serious nonattainment, effective July 22, 2024 (89 FR 51829). The attainment date for serious nonattainment areas is August 3, 2027, with a 2026 attainment year.

1.3 RTP AND TIP

This conformity determination is being prepared to ensure that the 2045 Regional Transportation Plan Update and 2025-2028 Transportation Improvement Plan meet the conformity-related requirements of the CAAA, SIP, and final conformity rule (Title 40 of the Code of Federal Regulations [CFR], Parts 51 and 93).

Per 23 CFR 450.324, all projects are constrained by the financial resources estimated to be reasonably available within the transportation plan time frame. A list of the projects in the 2045 Regional Transportation Plan Update and 2025-2028 Transportation Improvement Plan that affect this conformity analysis is included in Appendix B—RTP of this conformity report.

1.4 ANALYSIS

This emissions analysis for determining conformity was performed under 40 CFR 93.109(c)(2)(ii)(B): The analysis years for this conformity are 2023 (the base year for the 2045 RTP Update), 2026 (the potential attainment year when the area is reclassified to extreme under the 2008 8-hr standard, and severe under 2015 8-hr ozone NAAQS), 2030, 2040, and 2045 (the RTP horizon year).

EPA is reviewing the 2023 and 2026 RFP MVEBs for the Severe 2008 Ozone SIP submitted by TCEQ on May 7th, 2024. Although EPA has not yet found adequate/approved these MVEBs, they will be addressed in this conformity as a contingency should EPA find adequate/approve these MVEBs within the timeframe of this conformity process.

1.5 FINDINGS

The Nitrogen Oxide (NOx) and Volatile Organic Compounds (VOC) vehicle summer weekday results shown in Tables 1-1a and 1-1b below demonstrate that the Houston-Galveston-Brazoria nonattainment region meets the regional air quality conformity requirements for the 2008 8-hr Ozone severe and the 2015 8-hr Ozone serious designations.

Table 1-1a. Approved SIP Emissions Budgets

Analysis Year	Total Vehicle Miles of Travel	NOx Budget (tons/day)	NOx Emissions (tons/day)	VOC Budget (tons/day)	VOC Emissions (tons/day)
2023	195,013,204	87.69	62.07	57.70	35.42
2026	205,429,415	87.69	49.60	57.70	29.89
2030	221,533,727	87.69	42.36	57.70	25.91
2040	261,440,802	87.69	41.41	57.70	22.68
2045	280,966,835	87.69	43.86	57.70	22.80

Table 1-1b. Potential SIP and Emissions Budgets Currently Under Review^{1, 2}

Analysis Year	Total Vehicle Miles of Travel	NOx Budget (tons/day)	NOx Emissions (tons/day)	VOC Budget (tons/day)	VOC Emissions (tons/day)
2023	195,013,204	67.77	62.07	37.27	35.42
2026	205,429,415	56.12	49.60	31.88	29.89
2030	221,533,727	56.12	42.36	31.88	25.91
2040	261,440,802	56.12	41.41	31.88	22.68
2045	280,966,835	56.12	43.86	31.88	22.80

The results of the conformity determination demonstrate that 2045 Regional Transportation Plan Update and 2025-2028 Transportation Improvement Plan meet the requirements of the air quality SIP for the Houston-Galveston-Brazoria nonattainment area and are per the CAAA (Title 42 U.S. Code [USC], Parts 7504, 7506 [c], and 7506 [d]), as amended on November 15, 1990, and the final conformity rule (40 CFR 51 and 93). The results of the conformity determination demonstrate that 2045 Regional Transportation Plan Update and 2025-2028 Transportation Improvement Plan. meet the requirements of the air quality SIP for the Houston-Galveston-Brazoria nonattainment area and are per the CAAA (Title 42 U.S. Code [USC], Parts 7504, 7506 [c], and 7506 [d]), as amended on November 15, 1990, and the final conformity rule (40 CFR 51 and 93).

¹ EPA is reviewing the 2023 and 2026 RFP MVEBs submitted by TCEQ on May 7th, 2024. Although EPA has not yet found adequate/approved these MVEBs, they will be addressed in this conformity as a contingency should EPA find adequate/approve these MVEBs within the timeframe of this conformity process.

² Attainment year is 2026.