TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

# AGENDA ITEM REQUEST

for Proposed State Implementation Plan Revision

**AGENDA REQUESTED:** 05/31/2023

**DATE OF REQUEST:** 05/12/2023

**INDIVIDUAL TO CONTACT REGARDING CHANGES TO THIS REQUEST, IF NEEDED:** Jamie Zech, Agenda Coordinator, (512) 239-3935

**CAPTION: Docket No. 2023-0320-SIP.** Consideration for publication of, and hearing on, the proposed Bexar County Moderate Area Reasonable Further Progress (RFP) State Implementation Plan (SIP) Revision for the 2015 Eight-Hour Ozone National Ambient Air Quality Standard (NAAQS).

To meet federal Clean Air Act requirements, the proposed SIP revision would include an analysis of RFP toward attainment of the 2015 eight-hour ozone NAAQS, and RFP motor vehicle emissions budgets for the 2023 attainment year. (Vanessa T. De Arman, Terry Salem; Project No. 2022-024-SIP-NR)

Richard C. Chism
**Director**

Donna F. Huff
**Division Deputy Director**

Jamie Zech
**Agenda Coordinator**

**Copy to CCC Secretary? NO ☒ YES ☐**

# Texas Commission on Environmental Quality
## Interoffice Memorandum

**To:** Commissioners **Date:** May 12, 2023

**Thru:** Laurie Gharis, Chief Clerk
Erin E. Chancellor, Interim Executive Director

**From:** Richard Chism, Director *RCC*
Office of Air

**Docket No.:** 2023-0320-SIP

**Subject:** Commission Approval for Proposed Bexar County Moderate Area Reasonable Further Progress (RFP) State Implementation Plan (SIP) Revision for the 2015 Eight-Hour Ozone National Ambient Air Quality Standard

Bexar County 2015 Ozone NAAQS Moderate RFP SIP Revision
Non-Rule Project No. 2022-024-SIP-NR

**Background and reason(s) for the SIP revision:**
Bexar County was previously classified as marginal nonattainment for the 2015 eight-hour ozone National Ambient Air Quality Standard (NAAQS) of 0.070 parts per million with a September 24, 2021 attainment date. Based on 2020 monitoring data, Bexar County did not attain the NAAQS in 2020 and did not qualify for a one-year attainment date extension in accordance with federal Clean Air Act (FCAA), §181(a)(5).[1] On October 7, 2022, the United States Environmental Protection Agency (EPA) published reclassifications for Bexar County to moderate, effective November 7, 2022 (87 *Federal Register* (FR) 60897).

Bexar County is now subject to the moderate nonattainment area requirements in FCAA, §182(b), and the Texas Commission on Environmental Quality (TCEQ) is required to submit a moderate classification attainment demonstration (AD) and RFP SIP revisions to EPA. The attainment date for the Bexar County moderate area is September 24, 2024, with a 2023 attainment year (87 FR 60897).[2] The EPA set a January 1, 2023, deadline for states to submit SIP revisions to address the 2015 eight-hour ozone standard moderate nonattainment area requirements.

**Scope of the SIP revision:**
As a result of the reclassification, the TCEQ is required to submit to EPA an RFP SIP revision consistent with FCAA requirements for moderate nonattainment areas. An attainment demonstration SIP revision proposal is being developed concurrent with this SIP revision (Project No. 2022-025-SIP-NR).

**A.) Summary of what the SIP revision would do:**
This proposed RFP SIP revision would demonstrate that the Bexar County 2015 ozone NAAQS nonattainment area will achieve emissions reductions in ozone precursors (nitrogen oxides ($NO_x$) and volatile organic compounds (VOC)), showing progress towards attaining the 2015 ozone NAAQS according to the following increments:

- a 15% emissions reduction in $NO_x$ and VOC within the six-year period from January 1, 2018 through December 31, 2023; and

[1] An area that fails to attain the 2015 eight-hour ozone NAAQS by its attainment date would be eligible for the first one-year extension if, for the attainment year, the area's fourth-highest daily maximum eight-hour average is at or below the level of the standard (70 parts per billion (ppb)); Bexar County's fourth-highest daily maximum eight-hour average for 2020 was 72 ppb. Bexar County's design value for 2020 was 73 ppb.
[2] The attainment year ozone season is the ozone season immediately preceding a nonattainment area's attainment deadline.

- a 3% emissions reduction in $NO_x$ and VOC for the one-year period from January 1, 2024 through December 31, 2024 as an attainment year RFP contingency.

This proposed RFP SIP revision would also provide motor vehicle emissions budgets (MVEB) for the 2023 attainment year. This proposed SIP revision demonstrates progress toward attainment of the 2015 ozone NAAQS using reductions of $NO_x$ and VOC emissions for the Bexar County 2015 ozone NAAQS moderate nonattainment area for the 2023 attainment year as well as the 2024 contingency year.

**B.) Scope required by federal regulations or state statutes:**
This proposed SIP revision is required to demonstrate that the Bexar County ozone NAAQS moderate nonattainment area will achieve emissions reductions consistent with the requirements of FCAA, §182(b)(1) and EPA's *Implementation of the 2015 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements; Final Rule* (2015 eight-hour ozone standard SIP requirements rule).

The RFP calculations documented in this proposed SIP revision rely on an RFP base year of 2017 and a 2023 attainment year. This proposed RFP SIP revision includes a 15% emissions reductions of ozone precursors for the six-year period from January 1, 2018 through December 31, 2023 for the nonattainment area. This proposed SIP revision also incorporates an additional 3% emissions reduction for the one-year period from January 1, 2024 through December 31, 2024 as RFP contingency.

**C.) Additional staff recommendations that are not required by federal rule or state statute:**
None.

**Statutory authority:**
The authority to propose and adopt SIP revisions is derived from the following sections of Texas Health and Safety Code, Chapter 382, Texas Clean Air Act (TCAA), §382.002, which provides that the policy and purpose of the TCAA is to safeguard the state's air resources from pollution; TCAA, §382.011, which authorizes the commission to control the quality of the state's air; and TCAA, §382.012, which authorizes the commission to prepare and develop a general, comprehensive plan for the control of the state's air. This SIP revision is required by FCAA, §110(a)(1) and is proposed under the commission's general authority under Texas Water Code, §5.102, General Powers and §5.105, General Policy. The SIP revision is also proposed under 42 United States Code, §§7420 *et seq*., and implementing rules in 40 Code of Federal Regulations Part 51, which requires states to submit SIP revisions that specify the manner in which the NAAQS will be achieved and maintained within each air quality control region of the state.

**Effect on the:**

**A.) Regulated community:**
The proposed Bexar County RFP SIP revision would set new $NO_x$ and VOC MVEBs for the 2023 attainment year. If found adequate or approved by the EPA for conformity purposes, use of the MVEBs could affect transportation planning conducted by local governments in the Bexar County area.

**B.) Public:**
The general public in the Bexar County 2015 eight-hour ozone nonattainment area will benefit from reduced ground-level ozone concentrations due to reduced emissions of ozone precursors documented in this RFP SIP revision.

Re: Docket No. 2023-0320-SIP

**C.) Agency programs:**
The proposed SIP revision would have no new impact on agency programs.

**Stakeholder meetings:**
The TCEQ hosted a virtual Bexar County Stakeholders meeting on June 8, 2022 related to the proposed SIP revision. The purpose of the meeting was to discuss what emission reduction strategies (primarily VOC) are being or could be implemented by different source sectors. The meeting was opened to the public, but the focus was on companies and industry in Bexar County with stationary sources of pollution. In addition, TCEQ hosted two virtual Technical Information Meetings on August 16, 2021 and August 22, 2022 to present technical and scientific information related to air quality modeling and analysis in the Bexar County nonattainment area. These TIMs included presentations on ozone planning, ozone design values, modeling platform updates, emissions inventory development, and updates from EPA.

If approved by the commission, this proposed SIP revision would go through a public review and comment period, including a public hearing to be offered in the affected area.

**Public Involvement Plan**
Yes.

**Alternative Language Requirements**
Yes. Spanish.

**Potential controversial concerns and legislative interest:**
The current project timeline allows for submission to EPA by the end of 2023, after EPA's January 1, 2023 SIP submittal deadline. Missing the submittal deadline could lead to EPA issuing a finding of failure to submit prior to TCEQ's planned submittal, which would start sanctions and federal implementation plan (FIP) clocks. EPA would be required to promulgate a FIP anytime within two years after finding TCEQ failed to make the required submission unless TCEQ submits, and EPA approves, a plan revision correcting the deficiency prior to promulgating the FIP. Sanctions could include transportation funding restrictions, grant withholdings, and 2-to-1 emissions offset requirements for new construction and major modifications of stationary sources in the Bexar County 2015 ozone nonattainment area.

Moderate ozone nonattainment areas are required to demonstrate a 15% VOC emissions reduction within six years after designation unless the requirement has already been met under a previous NAAQS according to the 2015 eight-hour ozone standard SIP requirements rule. Although Bexar County is newly designated as moderate nonattainment under the 2015 eight-hour ozone NAAQS, the required 15% emissions reduction in VOC is not included in this proposed RFP SIP revision. Existing VOC emissions reductions in Bexar County do not total 15% and will require additional analysis to determine the best means to address this requirement. No additional measures could be implemented in time to demonstrate the 15% reduction in VOC emissions from the 2017 base year to the 2023 attainment year. As noted in the Bexar County 2015 Ozone NAAQS Moderate Attainment Demonstrate (AD) SIP revisions (Project No. 2022-025-SIP-NR), $NO_X$ emissions reductions are expected to be more effective at reducing ozone concentrations in the Bexar County 2015 ozone NAAQS nonattainment area than VOC emissions reductions. Therefore, this proposed SIP revision uses both $NO_X$ and VOC reductions to demonstrate progress towards attaining the 2015 eight-hour ozone NAAQS for the first six-year analysis period.

A 2021 court ruling on the 2015 eight-hour ozone standard SIP requirements rule vacated provisions in the rule allowing for the use of previously implemented measures as contingency measures (*Sierra Club v. EPA*, 21 F.4th 815, D.C. Cir. 2021). EPA published draft guidance on

contingency measures in the *Federal Register* for public comment on March 23, 2023. Since EPA had not issued guidance to states regarding contingency measures at the time it was developed, this SIP revision relies on the historically approved approach of using surplus mobile source emissions reductions to fulfill the contingency measure requirements.

**Would this proposed revision affect any current policies or require development of new policies?**
No.

**What are the consequences if this SIP revision does not go forward? Are there alternatives to revision?**
The commission could choose to not comply with requirements to develop and submit an RFP SIP revision to the EPA. If the Bexar County RFP SIP revision is not submitted, EPA could impose sanctions on the state and promulgate a FIP. Sanctions could include transportation funding restrictions, grant withholdings, and 2-to-1 emissions offsets requirements for new construction and major modifications of stationary sources in the Bexar County 2015 ozone NAAQS nonattainment area. EPA could impose such sanctions and implement a FIP until the state submitted, and EPA approved, a replacement Bexar County 2015 eight-hour ozone RFP SIP revision for the area.

**Key points in the proposal SIP revision schedule:**
**Anticipated proposal date:** May 31, 2023
**Anticipated public hearing date:** July 13, 2023
**Anticipated public comment period:** June 2, 2023 through July 17, 2023
**Anticipated adoption date:** November 8, 2023

**Agency contacts:**
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cc: Chief Clerk, 2 copies
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REVISIONS TO THE STATE OF TEXAS AIR QUALITY
IMPLEMENTATION PLAN FOR THE CONTROL OF OZONE AIR
POLLUTION

BEXAR COUNTY 2015 EIGHT-HOUR OZONE STANDARD
NONATTAINMENT AREA

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. BOX 13087
AUSTIN, TEXAS 78711-3087

# BEXAR COUNTY MODERATE AREA REASONABLE FURTHER PROGRESS STATE IMPLEMENTATION PLAN REVISION FOR THE 2015 EIGHT-HOUR OZONE NATIONAL AMBIENT AIR QUALITY STANDARD

PROJECT NUMBER 2022-024-SIP-NR

Proposal
May 31, 2023

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## EXECUTIVE SUMMARY

Federal Clean Air Act (FCAA), §182, requires ozone nonattainment areas designated with a classification of moderate or higher to submit plans showing reasonable further progress (RFP) toward attainment of the ozone National Ambient Air Quality Standard (NAAQS). On October 26, 2015, the United States Environmental Protection Agency (EPA) published a final rule revising the eight-hour ozone standard from 0.075 parts per million (ppm) to 0.070 ppm (80 *Federal Register* (FR) 65292). On July 25, 2018, the EPA published its designation for Bexar County as marginal nonattainment for the 2015 eight-hour ozone NAAQS, effective September 24, 2018 (83 FR 35136).

As indicated in the EPA's *Implementation of the 2015 National Ambient Air Quality Standards for Ozone: Nonattainment Area Classifications Approach; Final Rule* published on March 9, 2018, the attainment date for the Bexar County marginal classification was September 24, 2021 with a 2020 attainment year (83 FR 10376).[1] Based on monitoring data from 2018, 2019, and 2020, Bexar County did not attain the 2015 eight-hour ozone NAAQS in 2020 and did not qualify for a one-year attainment date extension in accordance with FCAA, §181(a)(5).[2] On October 7, 2022, the EPA published a final notice reclassifying the Bexar County 2015 ozone NAAQS nonattainment area from marginal to moderate, effective November 7, 2022 (87 FR 60897).

Bexar County is now subject to the requirements in FCAA, §182(b) for moderate ozone nonattainment areas. The Texas Commission on Environmental Quality (TCEQ) is required to submit moderate classification attainment demonstration (AD) and RFP state implementation plan (SIP) revisions to the EPA. The attainment date for Bexar County under the moderate classification is September 24, 2024 with a 2023 attainment year (87 FR 60897). The EPA set a January 1, 2023 deadline for states to submit SIP revisions to address the 2015 eight-hour ozone standard moderate nonattainment area requirements.

This proposed Bexar County RFP SIP revision is not required to demonstrate attainment of the 2015 eight-hour ozone NAAQS but rather to demonstrate that the Bexar County 2015 ozone NAAQS nonattainment area will reduce ozone precursor emissions to show progress towards attainment of the standard. RFP requirements for ozone nonattainment areas, as specified in Section 182(b)(1) of the 1990 FCAA Amendments and in 40 Code of Federal Regulations §51.1310, involve reducing ozone precursor emissions (nitrogen oxides ($NO_X$) and volatile organic compounds (VOC)) at annual increments between the base year and the attainment year. Moderate ozone nonattainment areas are required to demonstrate a 15% VOC emissions reduction within six years after designation unless the requirement has already been met under a previous NAAQS according to the EPA's *Implementation of the 2015 National Ambient*

[1] The attainment year ozone season is the ozone season immediately preceding a nonattainment area's attainment deadline.

[2] An area that fails to attain the 2015 eight-hour ozone NAAQS by its attainment date would be eligible for the first one-year extension if, for the attainment year, the area's fourth-highest daily maximum eight-hour average is at or below the level of the standard (70 parts per billion (ppb)). Bexar County's fourth-highest daily maximum eight-hour average for 2020 was 72 ppb. Bexar County's design value for 2020 was 73 ppb.

*Air Quality Standards for Ozone: State Implementation Plan Requirements; Final Rule,* published on December 6, 2018 (83 FR 62998). Although Bexar County is newly designated as moderate nonattainment under the 2015 eight-hour ozone NAAQS, the required 15% emissions reduction in VOC is not included in this proposed RFP SIP revision. Existing VOC emissions reductions in Bexar County do not total 15% and will require additional analysis to determine the best means to address this requirement. To meet the 15% VOC requirement, additional measures would have had to be implemented by March 1, 2023 (beginning of ozone season in Bexar County) for potential reductions to be captured in the first six-year period. There were no measures that could have been implemented by March 1, 2023 to demonstrate the 15% reduction in VOC emissions from the 2017 base year to the 2023 attainment year; therefore, the RFP demonstration for this proposed SIP revision uses both $NO_X$ and VOC emissions reductions. Although the RFP demonstration uses both $NO_X$ and VOC emissions reductions, an analysis of ozone levels, as provided in the concurrent proposed Bexar County 2015 Ozone NAAQS Attainment Demonstration SIP revision (Project No. 2022-025-SIP-NR), indicates ozone formation appears to be predominantly $NO_X$-limited at the monitors with the highest ozone concentrations. As a result, $NO_X$ emissions reductions are expected to be more effective than VOC emissions reductions at reducing ozone concentrations in the nonattainment area. Therefore, this proposed RFP SIP revision demonstrates progress towards attaining the 2015 eight-hour ozone NAAQS using a combination of $NO_X$ and VOC emissions reductions.

This proposed SIP revision demonstrates that the Bexar County 2015 ozone NAAQS nonattainment area will achieve emissions reductions in $NO_X$ and VOC, showing progress towards attaining the 2015 ozone NAAQS according to the following increments:

- a 15% emissions reduction in $NO_X$ and VOC within the six-year period from January 1, 2018 through December 31, 2023; and
- a 3% emissions reduction in $NO_X$ and VOC for the one-year period from January 1, 2024 through December 31, 2024 as an attainment year RFP contingency.

The RFP methodology involves development of the base year, attainment year, and contingency year emissions inventories and emissions reductions for each analysis year. The amount of emissions reductions is determined through the RFP methodology. Once calculated, the target levels and emissions inventories can be compared to determine if the forecasted controlled (post-control) emissions inventories are less than the target level, thus meeting FCAA RFP requirements. The results of the Bexar County RFP analysis-year comparisons are provided in Chapter 3: *Progress Toward Meeting Target Emissions Levels.*

In addition to demonstrating ozone precursor emissions reductions, this proposed Bexar County RFP SIP revision also sets 2023 $NO_X$ and VOC motor vehicle emissions budgets for transportation conformity purposes, as detailed in Chapter 5: *Motor Vehicle Emissions Budget.*

## SECTION V-A: LEGAL AUTHORITY

General

The Texas Commission on Environmental Quality (TCEQ) has the legal authority to implement, maintain, and enforce the National Ambient Air Quality Standards (NAAQS) and to control the quality of the state's air, including maintaining adequate visibility.

The first air pollution control act, known as the Clean Air Act of Texas, was passed by the Texas Legislature in 1965. In 1967, the Clean Air Act of Texas was superseded by a more comprehensive statute, the Texas Clean Air Act (TCAA), found in Article 4477-5, Vernon's Texas Civil Statutes. In 1989, the TCAA was codified as Chapter 382 of the Texas Health and Safety Code. The TCAA is frequently amended for various purposes during the biennial legislative sessions.

Originally, the TCAA stated that the Texas Air Control Board (TACB) was the state air pollution control agency and was the principal authority in the state on matters relating to the quality of air resources. In 1991, the legislature abolished the TACB effective September 1, 1993, and its powers, duties, responsibilities, and functions were transferred to the Texas Natural Resource Conservation Commission (TNRCC). In 2001, the 77th Texas Legislature continued the existence of the TNRCC until September 1, 2013 and changed the name of the TNRCC to the TCEQ. In 2009, the 81st Texas Legislature, during a special session, amended section 5.014 of the Texas Water Code, changing the expiration date of the TCEQ to September 1, 2011, unless continued in existence by the Texas Sunset Act. In 2011, the 82nd Texas Legislature continued the existence of the TCEQ until 2023.

With the creation of the TNRCC (and its successor the TCEQ), the authority over air quality is found in both the Texas Water Code (TWC) and the TCAA. The general authority of the TCEQ is found in TWC, Chapter 5 and enforcement authority is provided by TWC, Chapter 7. TWC, Chapter 5, Subchapters A - F, H - J, and L, include the general provisions, organization, and general powers and duties of the TCEQ, and the responsibilities and authority of the executive director. TWC, Chapter 5 also authorizes the TCEQ to implement action when emergency conditions arise and to conduct hearings. The TCAA specifically authorizes the TCEQ to establish the level of quality to be maintained in the state's air and to control the quality of the state's air by preparing and developing a general, comprehensive plan. The TCAA, Subchapters A - D, also authorize the TCEQ to collect information to enable the commission to develop an inventory of emissions; to conduct research and investigations; to enter property and examine records; to prescribe monitoring requirements; to institute enforcement proceedings; to enter into contracts and execute instruments; to formulate rules; to issue orders taking into consideration factors bearing upon health, welfare, social and economic factors, and practicability and reasonableness; to conduct hearings; to establish air quality control regions; to encourage cooperation with citizens' groups and other agencies and political subdivisions of the state as well as with industries and the federal government; and to establish and operate a system of permits for construction or modification of facilities.

Local government authority is found in Subchapter E of the TCAA. Local governments have the same power as the TCEQ to enter property and make inspections. They also may make recommendations to the commission concerning any action of the TCEQ

that affects their territorial jurisdiction, may bring enforcement actions, and may execute cooperative agreements with the TCEQ or other local governments. In addition, a city or town may enact and enforce ordinances for the control and abatement of air pollution not inconsistent with the provisions of the TCAA and the rules or orders of the commission.

In addition, Subchapters G and H of the TCAA authorize the TCEQ to establish vehicle inspection and maintenance programs in certain areas of the state, consistent with the requirements of the federal Clean Air Act; coordinate with federal, state, and local transportation planning agencies to develop and implement transportation programs and measures necessary to attain and maintain the NAAQS; establish gasoline volatility and low emission diesel standards; and fund and authorize participating counties to implement vehicle repair assistance, retrofit, and accelerated vehicle retirement programs.

Applicable Law

The following statutes and rules provide necessary authority to adopt and implement the state implementation plan (SIP). The rules listed below have previously been submitted as part of the SIP.

Statutes

All sections of each subchapter are included with the most recent effective date, unless otherwise noted.

| | |
|---|---|
| TEXAS HEALTH & SAFETY CODE, Chapter 382 | September 1, 2021 |
| TEXAS WATER CODE | September 1, 2021 |

Chapter 5: Texas Natural Resource Conservation Commission
- Subchapter A: General Provisions
- Subchapter B: Organization of the Texas Natural Resource Conservation Commission
- Subchapter C: Texas Natural Resource Conservation Commission
- Subchapter D: General Powers and Duties of the Commission
- Subchapter E: Administrative Provisions for Commission
- Subchapter F: Executive Director (except §§5.225, 5.226, 5.227, 5.231, 5.232, and 5.236)
- Subchapter H: Delegation of Hearings
- Subchapter I: Judicial Review
- Subchapter J: Consolidated Permit Processing
- Subchapter L: Emergency and Temporary Orders (§§5.514, 5.5145, and 5.515 only)
- Subchapter M: Environmental Permitting Procedures (§5.558 only)

Chapter 7: Enforcement
- Subchapter A: General Provisions (§§7.001, 7.002, 7.0025, 7.004, and 7.005 only)
- Subchapter B: Corrective Action and Injunctive Relief (§7.032 only)
- Subchapter C: Administrative Penalties
- Subchapter D: Civil Penalties (except §7.109)
- Subchapter E: Criminal Offenses and Penalties: (§§7.177, 7.178-7.183 only)

Rules

All of the following rules are found in 30 Texas Administrative Code, as of the following latest effective dates:

Chapter 7: Memoranda of Understanding, §§7.110 and 7.119
December 13, 1996 and May 2, 2002, respectively

Chapter 19: Electronic Reporting — March 15, 2007
Subchapter A: General Provisions
Subchapter B: Electronic Reporting Requirements

Chapter 39: Public Notice
Subchapter H: Applicability and General Provisions, §§39.402(a)(1) – (a)(6), (a)(8), and (a)(10) – (a)(12); §§39.405(f)(3) and (g), (h)(1)(A), (h)(2) – (h)(4), (h)(6), (h)(8) – (h)(11), (i) and (j), §39.407, §39.409; §§39.411(a), (e)(1) – (4)(A)(i) and (iii), (4)(B), (e)(5) introductory paragraph, (e)(5)(A),(e)(5)(B), (e)(6) – (e)(10), (e)(11)(A)(i), (e)(11)(A)(iii) – (vi), (e)(11)(B) – (F), (e)(13) and (e)(15), (e)(16), (f) introductory paragraph, (f)(1) – (8), (g) and (h);39.418(a), (b)(2)(A), (b)(3), and (c); §39.419(e);39.420 (c)(1)(A) – (D)(i)(I) and (II), (c)(1)(D)(ii), (c)(2), (d) – (e), and (h), and Subchapter K: Public Notice of Air Quality Permit Applications, §§39.601 – 39.605 — September 16, 2021

Chapter 55: Requests for Reconsideration and Contested Case Hearings; Public Comment, all of the chapter, except §55.125(a)(5) and (a)(6) — September 16, 2021

Chapter 101: General Air Quality Rules — May 14, 2020

Chapter 106: Permits by Rule, Subchapter A — April 17, 2014

Chapter 111: Control of Air Pollution from Visible Emissions and Particulate Matter — November 12, 2020

Chapter 112: Control of Air Pollution from Sulfur Compounds — October 27, 2022

Chapter 114: Control of Air Pollution from Motor Vehicles — April 21, 2022

Chapter 115: Control of Air Pollution from Volatile Organic Compounds — July 22, 2021

Chapter 116: Control of Air Pollution by Permits for New Construction or Modification — July 1, 2021

Chapter 117: Control of Air Pollution from Nitrogen Compounds — March 26, 2020

Chapter 118: Control of Air Pollution Episodes — March 5, 2000

Chapter 122: Federal Operating Permits Program
§122.122: Potential to Emit — February 23, 2017

## SECTION VI: CONTROL STRATEGY

A. Introduction (No change)
B. Ozone (Revised)
    1. Dallas-Fort Worth (No change)
    2. Houston-Galveston-Brazoria (No change)
    3. Beaumont-Port Arthur (No change)
    4. El Paso (No change)
    5. Regional Strategies (No change)
    6. Northeast Texas (No change)
    7. Austin Area (No change)
    8. San Antonio Area (Revised)
    9. Victoria Area (No change)
C. Particulate Matter (No change)
D. Carbon Monoxide (No change)
E. Lead (No change)
F. Oxides of Nitrogen (No change)
G. Sulfur Dioxide (No change)
H. Conformity with the National Ambient Air Quality Standards (No change)
I. Site Specific (No change)
J. Mobile Sources Strategies (No change)
K. Clean Air Interstate Rule (No change)
L. Transport (No change)
M. Regional Haze (No change)

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## LIST OF ACRONYMS

| | |
|---|---|
| AD | attainment demonstration |
| AERR | Air Emissions Reporting Requirements |
| AEDT | Aviation Environmental Design Tool |
| APU | auxiliary power unit |
| BEX | Bexar County |
| BY | Base Year |
| DV | design value |
| EI | emissions inventory |
| EPA | United States Environmental Protection Agency |
| ERG | Eastern Research Group |
| FAA | Federal Aviation Administration |
| FCAA | federal Clean Air Act |
| FMVCP | Federal Motor Vehicle Control Program |
| FR | *Federal Register* |
| GSE | ground support equipment |
| I/M | inspection and maintenance |
| ICI | industrial, commercial, and institutional |
| MOVES3 | Motor Vehicle Emissions Simulator 3 |
| MVEB | motor vehicle emissions budget |
| NAAQS | National Ambient Air Quality Standard |
| NEI | National Emissions Inventory |
| NEMO | Nonpoint Emissions Methodology and Operator |
| $NO_x$ | nitrogen oxides |
| ppb | parts per billion |
| ppm | parts per million |
| RFP | reasonable further progress |
| RRC | Railroad Commission of Texas |
| RRF | relative response factor |
| RVP | Reid vapor pressure |
| SIP | state implementation plan |
| STARS | State of Texas Air Reporting System |
| TAC | Texas Administrative Code |

| | |
|---|---|
| TACB | Texas Air Control Board |
| TCAA | Texas Clean Air Act |
| TCEQ | Texas Commission on Environmental Quality (commission) |
| TDM | travel demand model |
| TERP | Texas Emissions Reduction Plan |
| TexN2.2 | Texas NONROAD utility version 2.2 |
| TNRCC | Texas Natural Resource Conservation Commission |
| TTI | Texas Transportation Institute |
| TWC | Texas Water Code |
| TxLED | Texas Low Emission Diesel |
| VMT | vehicle miles traveled |
| VOC | volatile organic compounds |

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# CHAPTER 1: GENERAL

## 1.1 REASONABLE FURTHER PROGRESS (RFP) BACKGROUND

Information on the Texas State Implementation Plan (SIP) and a list of SIP revisions and other air quality plans adopted by the commission can be found on the Texas State Implementation Plan webpage (https://www.tceq.texas.gov/airquality/sip) on the Texas Commission on Environmental Quality's (TCEQ) website (https://www.tceq.texas.gov).

### 1.1.1 2015 Eight-Hour Ozone National Ambient Air Quality Standard (NAAQS) History

On October 1, 2015, the United States Environmental Protection Agency (EPA) revised the primary and secondary eight-hour ozone standards to 0.070 parts per million. The 2015 eight-hour ozone NAAQS became effective on December 28, 2015 (80 *Federal Register* (FR) 65291). On July 25, 2018, the EPA designated Bexar County as marginal nonattainment for the 2015 eight-hour ozone NAAQS, effective September 24, 2018 (83 FR 35136). Under the marginal classification, Bexar County was required to attain the 2015 eight-hour ozone NAAQS by September 24, 2021 with a 2020 attainment year.[3]

The EPA published the *Implementation of the 2015 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements; Final Rule* (2015 eight-hour ozone standard SIP requirements rule) on December 6, 2018 (83 FR 62998).

#### 1.1.1.1 Marginal Classification for the 2015 Eight-Hour Ozone NAAQS

Under its marginal classification, Bexar County was required to attain the 2015 eight-hour ozone standard by the end of 2020 to meet a September 24, 2021 attainment date. On June 10, 2020, the commission adopted the 2015 Eight-Hour Ozone NAAQS Emissions Inventory (EI) SIP Revision for the Houston-Galveston-Brazoria (HGB), Dallas-Fort Worth (DFW), and Bexar County Nonattainment Areas (Non-Rule Project No. 2019-111-SIP-NR). The SIP revision satisfied federal Clean Air Act (FCAA), §172(c)(3) and §182(a)(1) EI reporting requirements for areas designated nonattainment for the 2015 eight-hour ozone NAAQS. The SIP revision also included certification statements to confirm that the emissions statement and nonattainment new source review requirements have been met for the HGB, DFW, and Bexar County 2015 ozone NAAQS nonattainment areas. On June 29, 2021, the EPA published final approval of the EI for the Bexar County 2015 ozone NAAQS nonattainment area (86 FR 34139). On September 9, 2021, the EPA published final approval of the nonattainment new source review and emissions statement portions of the SIP revision (86 FR 50456).

#### 1.1.1.2 Reclassification to Moderate for the 2015 Eight-Hour Ozone NAAQS

Based on monitoring data from 2018, 2019, and 2020, Bexar County did not attain the 2015 eight-hour ozone NAAQS in the 2020 attainment year and did not qualify for a

[3] The attainment year ozone season is the ozone season immediately preceding a nonattainment area's attainment deadline.

one-year attainment date extension in accordance with FCAA, §181(a)(5).[4] On October 7, 2022, the EPA published a final notice reclassifying the Bexar County 2015 ozone NAAQS nonattainment area from marginal to moderate, effective November 7, 2022 (87 FR 60897). The attainment date for the Bexar County moderate classification is September 24, 2024, with a 2023 attainment year. The EPA set a January 1, 2023 deadline for states to submit attainment demonstration and RFP SIP revisions to address the 2015 eight-hour ozone standard moderate nonattainment area requirements.

## 1.2 RFP REQUIREMENTS

FCAA, §110 requires states to submit SIP revisions that contain enforceable measures to achieve the NAAQS. FCAA, §182(b) also requires states with ozone nonattainment areas classified as moderate or above to submit plans showing reasonable further progress toward attainment. This proposed Bexar County RFP SIP revision is not required to demonstrate attainment of the 2015 eight-hour ozone NAAQS but rather to demonstrate that ozone precursor emissions (nitrogen oxides ($NO_X$) and volatile organic compounds (VOC)) will be reduced by specified amounts between a 2017 base year and the 2023 attainment year to show progress towards attainment.

The RFP requirements for ozone nonattainment areas, as specified in FCAA, §182 and in 40 Code of Federal Regulations §51.1310, involve reducing ozone precursor emissions at annual increments between the base year and the attainment year. Moderate ozone nonattainment areas are required to demonstrate a 15% VOC emissions reduction within six years after designation unless the requirement has already been met under a previous NAAQS according to the EPA's *Implementation of the 2015 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements; Final Rule,* published on December 6, 2018 (83 FR 62998). Although Bexar County is newly designated as moderate nonattainment under the 2015 eight-hour ozone NAAQS, the required 15% emissions reduction in VOC is not included in this proposed RFP SIP revision. Existing VOC emissions reductions in Bexar County do not total 15% and will require additional analysis to determine the best means to address this requirement. To meet the 15% VOC requirement, additional measures would have had to be implemented by March 1, 2023 (beginning of ozone season in Bexar County) for potential reductions to be captured in the first six-year period. There were no measures that could have been implemented by March 1, 2023 to demonstrate the 15% reduction in VOC emissions from the 2017 base year to the 2023 attainment year; therefore, the RFP demonstration for this proposed SIP revision uses both $NO_X$ and VOC emissions reductions. Although the RFP demonstration uses both $NO_X$ and VOC, an analysis of ozone levels, as provided in the concurrent proposed Bexar County 2015 Ozone NAAQS Attainment Demonstration SIP revision (Project No. 2022-025-SIP-NR), indicates ozone formation appears to be predominantly $NO_X$-limited at the monitors with the highest ozone concentrations. As a result, $NO_X$ emissions reductions

[4] An area that fails to attain the 2015 eight-hour ozone NAAQS by its attainment date would be eligible for the first one-year extension if, for the attainment year, the area's fourth highest daily maximum eight-hour average is at or below the level of the standard (70 parts per billion (ppb)). Bexar County's fourth-highest daily maximum eight-hour average for 2020 was 72 ppb. Bexar County's design value for 2020 was 73 ppb.

are expected to be more effective than VOC reductions at reducing ozone concentrations in the nonattainment area.

This proposed Bexar County RFP SIP revision demonstrates that the Bexar County 2015 ozone NAAQS nonattainment area will achieve emissions reductions in $NO_x$ and VOC according to the following increments:

- a 15% emissions reduction in $NO_x$ and VOC within the six-year period from January 1, 2018 through December 31, 2023; and
- a 3% emissions reduction in $NO_x$ and VOC for the one-year period from January 1, 2024 through December 31, 2024 as an attainment year RFP contingency.

The RFP calculations documented in this proposed SIP revision rely on an RFP base year of 2017 and a 2023 attainment year. In accordance with the 2015 eight-hour ozone standard SIP requirements rule, the 15% reduction requirement covers the period from January 1, 2018 through December 31, 2023. This proposed SIP revision incorporates an additional 3% emissions reduction to cover the one-year contingency period from January 1, 2024 through December 31, 2024. In addition to demonstrating progress toward attainment of the 2015 ozone NAAQS, this proposed SIP revision also provides motor vehicle emissions budgets for the 2023 attainment year.

This proposed SIP revision demonstrates RFP as progress toward attainment of the 2015 ozone NAAQS for Bexar County for the 2023 attainment year as well as the 2024 contingency year. A summary of the Bexar County area's progress toward meeting RFP requirements can be found in Appendix 1: *Bexar County Reasonable Further Progress Demonstration Spreadsheet*.

## 1.3 STAKEHOLDER PARTICIPATION AND PUBLIC MEETINGS

### 1.3.1 Bexar County Virtual Technical Information Meeting (TIM)

The Bexar County Air Quality TIMs are provided to present technical and scientific information related to air quality modeling and analysis in the Bexar County nonattainment area. The TCEQ hosted two virtual TIMs on August 16, 2021 and August 22, 2022. These TIMs included presentations on ozone planning, ozone design values, modeling platform updates, emissions inventory development, and updates from the EPA. More information is available on the San Antonio Air Quality TIM webpage (https://www.tceq.texas.gov/airquality/airmod@meetings/aqtim-sa.html).

### 1.3.2 Bexar County Stakeholders Meeting

The TCEQ hosted a virtual Bexar County Stakeholders meeting on June 8, 2022 related to the proposed SIP revision. The purpose of the meeting was to discuss what emission reduction strategies (primarily VOC) are being or could be implemented by different source sectors. The meeting was opened to the public, but the focus was on companies and industry in Bexar County with stationary sources of pollution.

## 1.4 PUBLIC HEARING AND COMMENT INFORMATION

The commission will offer a public hearing for this proposed Bexar County RFP SIP revision at the following time and location:

**Table 1-1: Public Hearing Information**

| City | Date | Time | Location |
|---|---|---|---|
| San Antonio | July 13, 2023 | 7:00 pm | Alamo Area Council of Governments<br>2700 NE Loop 410, Suite 101<br>San Antonio, TX 78217 |

The public comment period will open on June 2, 2023 and close on July 17, 2023. Written comments will be accepted via mail, fax, or through the TCEQ Public Comment system (https://tceq.commentinput.com/). File size restrictions may apply to comments being submitted via the TCEQ Public Comment system. All comments should reference the "Bexar County 2015 Ozone NAAQS Moderate RFP SIP Revision" and should reference Project Number 2022-024-SIP-NR. Comments submitted via hard copy may be mailed to Vanessa T. De Arman, MC 206, State Implementation Plan Team, Air Quality Division, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087 or faxed to (512) 239-4808. Comments submitted electronically must be submitted through the TCEQ Public Comments system. File size restrictions may apply to comments being submitted via the TCEQ Public Comments system. Comments must be received by 11:59pm CDT on July 17, 2023.

An electronic version of this proposed SIP revision and associated appendices can be found at the TCEQ's San Antonio: Latest Ozone Planning Activities webpage (https://www.tceq.texas.gov/airquality/sip/san/san-latest-ozone). An electronic version of the public hearing notice will be available on the Texas SIP Revisions webpage (https://www.tceq.texas.gov/airquality/sip/sipplans.html).

## 1.5 SOCIAL AND ECONOMIC CONSIDERATIONS

No new control strategies have been incorporated into this proposed Bexar County RFP SIP revision. Therefore, there are no additional social or economic costs associated with this revision.

## 1.6 FISCAL AND MANPOWER RESOURCES

The state has determined that its fiscal and manpower resources are adequate and will not be adversely affected through the implementation of this plan.

# CHAPTER 2: EMISSIONS INVENTORIES

## 2.1 INTRODUCTION

The federal Clean Air Act (FCAA) requires that reasonable further progress (RFP) emissions inventories be prepared for ozone nonattainment areas (April 16, 1992, 57 *Federal Register* (FR) 13498). Ground-level (tropospheric) ozone is produced when ozone precursor emissions, volatile organic compounds (VOC) and nitrogen oxides ($NO_X$), undergo photochemical reactions in the presence of sunlight.

The Texas Commission on Environmental Quality (TCEQ) maintains an inventory of current information for anthropogenic sources of $NO_X$ and VOC that identifies the types of emissions sources present in an area, the amount of each pollutant emitted, and the types of processes and emissions control devices at each source or source category. The total anthropogenic inventory of $NO_X$ and VOC emissions for an area is derived from estimates developed for three general categories of emissions sources: point, area, and mobile (both non-road and on-road). The emissions inventory (EI) also provides data for a variety of air quality planning tasks, including establishing baseline emissions levels, calculating reduction targets, developing control strategies to achieve emissions reductions, developing emissions inputs for air quality models, and tracking actual emissions reductions against established emissions growth and control budgets.

This proposed Bexar County Moderate Area RFP State Implementation Plan (SIP) Revision for the 2015 Eight-Hour Ozone National Ambient Air Quality Standard (NAAQS) demonstrates progress towards attainment of the 2015 eight-hour ozone NAAQS. Specifically, this proposed SIP revision demonstrates a 15% emissions reduction from calendar years 2018 through 2023 for Bexar County by combining $NO_X$ and VOC emissions reductions.

To complete the RFP calculations, a set of inventories and control measures reduction estimates is required. In accordance with the EPA's *Implementation of the 2015 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements; Final Rule* (2015 eight-hour ozone standard SIP requirements rule) published in the *Federal Register* (FR) on December 6, 2018 (83 FR 62998), this proposed SIP revision includes documentation of EIs for the 2017 base year, for the 2023 attainment year, and for the attainment year RFP contingency requirement (2024). Those EIs provide the basis for demonstrating how RFP emissions reductions will be met.

To develop an RFP SIP revision for the 2015 eight-hour ozone NAAQS, states must: (1) determine the base year emissions for ozone precursor emissions; (2) calculate RFP target emissions reductions levels based on the RFP percent reduction requirements; (3) determine the attainment year inventories according to RFP requirements; and (4) account for creditable emissions reductions in the attainment year EI in accordance with applicable requirements. When the RFP controlled emissions reductions meet or exceed the calculated target emissions reductions, then RFP is demonstrated.

This proposed SIP revision includes:

- a 2017 base year EI;

The base year EI is the starting point for calculating the target levels of emissions. A base year of 2017 was selected in accordance with the 2015 eight-hour ozone standard SIP requirements rule.

- a 2023 uncontrolled EI;

  The RFP analysis requires an uncontrolled EI with growth between the base year and the attainment year. The uncontrolled EI serves as the basis for determining the amount of emissions reductions required to meet the RFP target for the attainment year.

- quantification of control measure reductions for the 2023 attainment year;

  The RFP analysis requires the calculations of emissions reductions for control strategies, which are then subtracted from the uncontrolled or existing controlled emissions to determine the controlled RFP EI. The RFP emissions reductions are individually quantified for each control strategy that pertains to particular source categories. A discussion of RFP control strategies is provided in Chapter 4: *Control Measures to Achieve Target Levels*.

- a 2023 controlled EI; and

  The controlled EI represents the projected (forecasted) EI with all controls implemented. The controlled projected RFP EI is the result of subtracting the emissions reductions for controls that are used to demonstrate RFP from the uncontrolled or existing controlled projected EI.

- 2024 RFP contingency control reductions.

  The RFP analysis requires the calculation of the emissions reductions for control strategies in 2024, the year following the attainment year. These control reductions must be implemented if an RFP requirement is not met. A discussion of the RFP contingency control strategies for this proposed SIP revision is provided in Chapter 4.

The RFP calculations for this proposed Bexar County RFP SIP revision are documented in Chapter 3: *Progress Toward Meeting Target Emissions.* Details of the Bexar County ozone NAAQS nonattainment area's progress toward meeting RFP requirements can be found in Appendix 1*: Bexar County Reasonable Further Progress (RFP) Demonstration Spreadsheet.*

## 2.2 POINT SOURCES

### 2.2.1 Emissions Inventory Development

Stationary point source emissions data are collected annually from sites that meet the reporting requirements of 30 Texas Administrative Code (TAC) § 101.10. This rule, referred to as the TCEQ EI reporting rule, establishes point source EI reporting thresholds in ozone nonattainment areas that are currently at or less than major source thresholds in the Bexar County 2015 ozone NAAQS nonattainment area. Therefore, some minor sources in the Bexar County 2015 ozone NAAQS nonattainment area report to the point source EI.

To collect the data, the TCEQ sends notices to all sites identified as potentially meeting the reporting requirements. Companies are required to report emissions data and to provide sample calculations used to determine the emissions. Information characterizing the process equipment, the emissions control devices, and the emission points is also required. As required by FCAA, §182(a)(3)(B) and 30 TAC § 101.10(d)(1), company representatives certify that reported emissions are true, accurate, and fully represent emissions that occurred during the calendar year to the best of the representative's knowledge.

All data submitted are reviewed for quality-assurance purposes and then stored in the State of Texas Air Reporting System (STARS) database. EI guidance documents and historical point source emissions of criteria pollutants are available on the TCEQ's Point Source Emissions Inventory webpage (https://www.tceq.texas.gov/airquality/@point-source-ei/psei.html). Additional information is available upon request from the TCEQ's Air Quality Division.

### 2.2.2 Updated 2017 Base Year Inventory

The 2017 point source EI data were extracted from STARS on December 7, 2022. The extracted data include reported annual and ozone season daily emissions of $NO_X$ and VOC for each site in the Bexar County 2015 ozone NAAQS nonattainment area that submitted a 2017 EI. The data reflect revisions to the 2017 EI that were reviewed, approved, and entered into STARS on or before the extract date.

### 2.2.3 Updated 2023 Analysis Year Inventory

Updated attainment year inventories were developed according to the general requirements described in Section 2.2.1: *Emissions Inventory Development*. The TCEQ designated the 2019 EI as the starting point for EI projections. $NO_X$ and VOC emissions were projected to the 2023 attainment year using the maximum of the 2019 through 2021 emission rates. This approach follows the EPA's guidance, which assumes stable emissions trends when projecting future emissions.[5] Point source $NO_X$ emissions trends have been declining and point source VOC emissions trends have been flat in the Bexar County 2015 ozone NAAQS nonattainment area over the last 10 years. Emissions trend data are available at the TCEQ Air Success webpage (https://www.tceq.texas.gov/@airquality/airsuccess/airsuccessemissions).

The 2019 through 2021 point source EI data were extracted from STARS on December 7, 2022. The extracted data include reported annual and ozone season daily emissions of $NO_X$ and VOC for each site in the Bexar County 2015 ozone NAAQS nonattainment area that submitted a 2019, 2020, or 2021 EI. The data reflect revisions to the 2019 through 2021 EIs that were reviewed, approved, and entered into STARS on or before the extract date.

Summaries of the point source RFP inventories are presented in:

- Table 2-2: *Bexar County 2015 Ozone NAAQS Nonattainment Area RFP Summary of the 2017 Base Year Average Summer Weekday $NO_X$ and VOC Emissions (tons per day)*; and

[5] https://www.epa.gov/sites/default/files/2017-07/documents/ei_guidance_may_2017_final_rev.pdf

- Table 2-3: *Bexar County 2015 Ozone NAAQS Nonattainment Area RFP Summary of the 2023 Attainment Year Average Summer Weekday $NO_X$ and VOC Emissions (tons per day).*

## 2.3 AREA SOURCES

### 2.3.1 Emissions Inventory Development

Stationary emissions sources that do not meet the reporting requirements of 30 TAC §101.10 for point sources are classified as area sources. Area sources are small-scale stationary industrial, commercial, and residential sources that use materials or perform processes that generate emissions. Examples of area sources that emit VOC include: oil and gas production sources, printing operations, industrial coatings, degreasing solvents, house paints, gasoline service station underground tank filling, and vehicle refueling operations. Examples of typical fuel combustion area sources that emit $NO_X$ include: oil and gas production sources, stationary source fossil fuel combustion at residences and businesses, outdoor refuse burning, and structure fires.

Area source emissions are calculated as county-wide totals rather than as individual sources. Area source emissions are typically calculated by applying an EPA- or TCEQ-developed emissions factor (emissions per unit of activity) by the appropriate activity or activity surrogate responsible for generating emissions. Population is one of the more commonly used activity surrogates for area source calculations. Other activity data commonly used include the amount of gasoline sold in an area, employment by industry type, and crude oil and natural gas production.

### 2.3.2 Updated 2017 Base Year Inventory

The 2017 area source EIs were developed using EPA-generated EIs; TCEQ-contracted projects to develop emission inventories; TCEQ staff projects to develop emission inventories; and projecting 2014 EIs by applying growth factors derived from Eastern Research Group (ERG) study data, the Economy and Consumer Credit Analytics website (http://www.economy.com/default.asp), and the United States Energy Information Administration's *Annual Energy Outlook* publication. The documentation for development of the ERG study projection factors can be found in Appendix 2: *Growth Factors for Area and Point Sources.*

The EPA developed EIs for states to use for many area source categories as part of the National Emissions Inventory (NEI). The states access these individual inventories through the EPA's 2017 NEI webpage (https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data). These source categories include but are not limited to: industrial coatings; degreasing; residential, commercial/institutional, and industrial fuel use; commercial cooking; aviation fuel use; and consumer products. For some source categories, the TCEQ developed state-specific emissions estimates by acquiring current state-specific activity data and applying appropriate emissions factors. These source categories include, but are not limited to, gasoline storage tanks, structure fires, dry cleaners, and automobile fires.

The TCEQ committed significant resources to improve the oil and gas area source inventory categories for the 2017 base year EIs. The improvements included the development and refinement of a state-specific oil and gas area source emissions calculator. This oil and gas area source emissions calculator uses county-level

production and local equipment activity data with local emissions requirements to estimate emissions from individual production categories, including compressor engines, condensate and oil storage tanks, loading operations, heaters, and dehydrators. The documentation for development of the oil and gas emissions calculator can be found in Appendix 3: *Characterization of Oil and Gas Production Equipment and Develop a Methodology to Estimate Statewide Emissions*.

Another significant improvement made for the 2017 base year EI was the development of a Texas-specific industrial, commercial, and institutional (ICI) combustion emissions calculator. This improved upon the default calculations and parameters provided by the EPA for these fuel combustion sources. The documentation for development of the ICI combustion emissions calculator is provided in Appendix 4: *Industrial, Commercial, and Institutional (ICI) Fuel Use Study*.

For those area source categories affected by TCEQ rules, rule effectiveness factors are applied to the baseline emissions to estimate controlled emissions. These factors address the efficiency of the controls and the percentage of the category's population affected by the rule. Quality assurance of area source emissions involves ensuring that the activity data used for each category is current and valid. Data such as current population figures, fuel usage, and material usage were updated, and the EPA guidance on emissions factors was used. Other routine efforts such as checking calculations for errors and conducting reasonableness and completeness checks were implemented.

### 2.3.3 Updated Analysis Year Inventories

Updated attainment year inventories were developed according to the general requirements described in Section 2.3.1: *Emissions Inventory Development*. The TCEQ designated the 2020 EI as the starting point for EI projections of area source categories for the attainment year because it is the most recently available periodic inventory year.

The 2020 area source EI was developed in accordance with the requirements of the Air Emissions Reporting Requirements (AERR) rule. The 2020 EI was developed using EPA-generated emissions inventories, TCEQ-contracted projects to develop emission inventories, and TCEQ staff projects to develop emission inventories. A significant improvement made for the 2020 EI was the use of updated emission factors for Volatile Chemical Product (VCP) categories developed by EPA. The documentation for development of the improved VCP emissions is provided in Appendix 5: *2020 EPA Volatile Chemical Product (VCP) Nonpoint Emissions Methodology and Operator (NEMO) Instructions (Draft Solvents NEMO)*.

The area source oil and gas inventory production categories have been updated using 2020 production data from the Railroad Commission of Texas (RRC).

The updated 2023 attainment year EIs for the area source categories were developed using projection factors derived from Appendix 2. The study in this appendix contains individual projection factors for each source category and for each forecasting year. This projection method is the EPA standard and accepted methodology for developing future year EIs.

The 2023 area source EI was developed by applying the selected emissions projection factor to the 2020 emissions for each area source category. For sources where the 2020 activity data were significantly different than previous years due to the coronavirus pandemic or other affects, the 2023 area source EI was developed by applying the selected emissions projection factor to the 2017 emissions instead. Rules controlling emissions from industrial coatings, portable fuel containers, and gasoline station underground tank filling (Stage I) were applied in the base year inventory. Federal New Source Performance Standards Subpart OOOO emissions reductions were applied to the 2020 projection base year inventory but not the 2017 base year inventory due to applicable compliance deadlines.

A summary of the area source RFP inventories is presented in Table 2-2 and Table 2-3.

## 2.4 NON-ROAD MOBILE SOURCES

Non-road vehicles (non-road sources) do not normally operate on roads or highways and are often referred to as off-road or off-highway vehicles. Non-road emissions sources include: agricultural equipment, commercial and industrial equipment, construction and mining equipment, lawn and garden equipment, aircraft and airport equipment, locomotives, and drilling rigs.

For this proposed Bexar County RFP SIP revision, emissions inventories for non-road sources were developed for the following subcategories: NONROAD model categories, airports, locomotives, and drilling rigs used in upstream oil and gas exploration activities. The airport subcategory includes estimates for emissions from the aircraft, auxiliary power units (APU), and ground support equipment (GSE) subcategories relevant for airports added together and presented as a total. The sections below describe the emissions estimates methodologies used for the non-road mobile source subcategories discussed below.

### 2.4.1 NONROAD Model Categories Emissions Estimation Methodology

The Motor Vehicle Emission Simulator 3 (MOVES3) model is the EPA's latest mobile source emissions model for estimating non-road source category emissions. The TCEQ uses the most recent Texas-specific utility for the non-road mobile component of the MOVES3 model, called Texas NONROAD utility version 2.2 (TexN2.2), to calculate emissions from all non-road mobile source equipment and recreational vehicles with the exception of airports, locomotives, and drilling rigs used in upstream oil and gas exploration activities. Because emissions for airports, and locomotives are not included in either the MOVES3 model or the TexN2.2 utility, the emissions for these categories are estimated using other EPA-approved methods and guidance as described in the sections below. Although emissions for drilling rigs are included in the MOVES3 model and TexN2.2 utility, alternate emissions estimates were developed for that source category to develop more accurate county-level inventories as described in Section 2.4.2: *Drilling Rig Diesel Engines Emissions Estimation Methodology*. The equipment populations for drilling rigs were set to zero in the TexN2.2 utility to avoid double counting emissions from these sources.

The TCEQ has conducted equipment survey studies that focused on various equipment categories operating in different areas of Texas, including diesel construction equipment, liquid propane gas-powered forklifts, and agricultural equipment. The

resulting survey data contributed to the updating of inputs to the TexN2 utility to estimate non-road emissions more accurately for the State of Texas instead of using the national default values in the EPA's MOVES3 model.

The TexN2 utility was updated to be compatible with the MOVES3 model. In addition, enhancements were added to the utility to streamline the way TexN2 handles alternative equipment scrappage curves and generates county databases for submittal for the AERR and NEI, resulting in version TexN2.2. The NONROAD model category emissions included in this proposed SIP revision were developed from a TCEQ-commissioned study using the TexN2.2 utility. More information regarding the development of these emissions is provided in the ERG report in Appendix 6: *Development of the Nonroad Model RFP Emissions Inventories for the HGB Six-County, DFW Nine-County, and Bexar County Ozone Nonattainment Areas*.

### 2.4.2 Drilling Rig Diesel Engines Emissions Estimation Methodology

Although emissions for drilling rig diesel engines used in upstream oil and gas exploration activities are included in the TexN2.2 utility, alternate emissions estimates were developed for this source category to develop more accurate county-level inventories. The equipment populations for drilling rigs were set to zero in the TexN2.2 utility to avoid duplicating emissions.

Due to significant growth in the oil and gas exploration and production industry, a 2015 TCEQ-commissioned survey of oil and gas exploration and production companies was used to develop updated drilling rig emissions characterization profiles.[6] The uncontrolled and controlled drilling rig emissions characterization profiles from this study were combined with county-level drilling activity data obtained from the RRC to develop the drilling rigs EI. The documentation of procedures used in developing the drilling rigs EI can be found in Appendix 7: *2014 Statewide Drilling Rig Emissions Inventory with Updated Trends Inventories*.

### 2.4.3 Locomotive Emissions Estimation Methodology

The locomotive EI was developed from a TCEQ-commissioned study using EPA-accepted EI development methods.[7] The locomotive EI includes line haul and rail yard emissions activity data from all Class I and Class III (currently, there are no Class II operators in Texas) locomotive activity and emissions by rail segment. Documentation of methods and procedures used to develop the locomotive EI can be found in Appendix 8: *2020 Texas Statewide Locomotive and Rail Yard Emissions Inventory and 2011 through 2050 Trend Inventories*.

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[6] https://wayback.archive-it.org/414/20210527185246/https://www.tceq.texas.gov/assets/public/implementation/air/am/contracts/reports/ei/5821552832FY1505-20150731-erg-drilling_rig_2014_inventory.pdf

[7] https://www.tceq.texas.gov/downloads/air-quality/research/reports/emissions-inventory/5822111027-20211015-tti-texas-locomotive-railyard-2020-aerr-trend-ei.pdf

### 2.4.4 Airport Emissions Estimation Methodology

The airport EI was developed from a TCEQ-commissioned study using the Federal Aviation Administration's (FAA) Aviation Environmental Design Tool (AEDT) model.[8] AEDT is the most recent FAA model for estimating airport emissions.

The airport emissions categories used for this proposed SIP revision included aircraft (commercial air carriers, air taxis, general aviation, and military), APU, and GSE operations. Documentation of methodology and procedures used to develop the Bexar County 2015 ozone NAAQS nonattainment area airport emissions inventories can be found in Appendix 9: *2020 Texas Statewide Airport Emissions Inventory and 2011 through 2050 Trend Inventories*.

### 2.4.5 Updated 2017 Base Year Inventory

For certain non-road mobile source categories detailed below, the updated 2017 base year EI was developed from the 2020 periodic EI to provide consistency between emissions estimation approaches used for this proposed SIP revision. Exceptions and specific details about non-road source category inventory development are included in the relevant section below.

#### 2.4.5.1 Updated 2017 Base Year NONROAD Model Category Inventory

The 2017 base year EI used for all non-road mobile model-specific source categories was developed using TexN2.2 with updated county-specific input data, including 2017 meteorological input data, as detailed in Appendix 6.

#### 2.4.5.2 Updated 2017 Base Year Drilling Rig Diesel Engines Inventory

The 2017 base year EI for drilling rig diesel engines used in upstream oil and gas exploration activities was developed using the results of a 2015 statewide EI improvement study combined with 2017 drilling activity data from the RRC. The documentation of procedures used in developing the 2017 drilling rigs EI can be found in Appendix 7.

#### 2.4.5.3 Updated 2017 Base Year Locomotive Inventory

The 2017 base year locomotive emissions were taken from the 2017 trend EI developed as part of the TCEQ-commissioned study detailed in Appendix 8.

#### 2.4.5.4 Updated 2017 Base year Airport Inventory

The 2017 base year airport emissions were taken from the 2017 trend EI developed as part of the TCEQ-commissioned study detailed in Appendix 9.

### 2.4.6 Updated Uncontrolled Attainment Year Inventories

The NONROAD model category uncontrolled emissions for each analysis year (2017 base year and 2023 attainment year) were calculated by removing all federal and state control measures from the TexN2.2 utility runs as detailed in Appendix 6.

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[8] https://www.tceq.texas.gov/downloads/air-quality/research/reports/emissions-inventory/5822111196-20211015-tti-texas-airport-2020-aerr-trend-ei.pdf

The uncontrolled 2017 EI for drilling rigs was developed using 2017 drilling activity data and the uncontrolled factors from the ERG report found in Appendix 7. A 2023 EI for drilling rigs was developed using 2020 drilling activity data (the most recently available activity data) and the uncontrolled factors from the ERG report found in Appendix 7. Because future drilling activity is difficult to predict, the 2020 drilling activity data were held constant to the 2023 attainment year, since 2020 data were the most current available.

The TCEQ calculated updated, uncontrolled 2023 emissions from locomotives based on the information as detailed in Appendix 8.

The TCEQ calculated updated, uncontrolled 2023 emissions from airports based on the information as detailed in Appendix 9.

### 2.4.7 Updated Controlled Analysis Year Inventories

The NONROAD model category controlled emissions for each analysis year (2017 base year, 2023 attainment year, and 2024 contingency year) were calculated by accounting for all federal and state control measures in the TexN2.2 utility runs as detailed in Appendix 6.

Controlled 2023 emissions for diesel drilling rigs were based on 2020 drilling activity data (the most recently available activity data) combined with the 2023 year-specific controlled emission factors from the ERG report found in Appendix 7.

The TCEQ calculated updated controlled 2023 emissions from locomotives based on the information as detailed in Appendix 8.

The TCEQ calculated updated controlled 2023 emissions from airports based on the information as detailed in Appendix 9.

A summary of the non-road mobile source RFP inventories is presented in Table 2-2 and Table 2-3.

## 2.5 ON-ROAD MOBILE SOURCES

The 2017, 2023, and 2024 on-road mobile source EIs for this proposed SIP revision were developed under contract by the Texas A&M Transportation Institute (TTI) for the Bexar County 2015 ozone NAAQS nonattainment area. The data, methods, activity inputs, emissions factors, and results are documented in the TTI report provided in Appendix 10: *Bexar County 2015-Eight-Hour Ozone Nonattainment Area Reasonable Further Progress (RFP) On-Road Mobile Emissions Inventories*. As required by the 2015 eight-hour ozone standard SIP requirements rule, the on-road inventories are based on vehicle miles traveled (VMT) estimates and emission rates for an average summer work weekday. The latest major revision of the EPA's mobile source emission model, MOVES3 was used to estimate the summer weekday emission rates in units of grams per mile for $NO_X$ and VOC. The roadway link-level VMT estimates were obtained from travel demand modeling for the Bexar County 2015 ozone NAAQS nonattainment area for each analysis year.

### 2.5.1 On-Road Emissions Inventory Development

On-road mobile emissions sources consist of automobiles, trucks, motorcycles, and other motor vehicles traveling on public roadways. On-road mobile source ozone precursor emissions are usually categorized as combustion-related emissions or evaporative hydrocarbon emissions. Combustion-related emissions are estimated for vehicle engine exhaust. Evaporative hydrocarbon emissions are estimated for the fuel tank and other evaporative leak sources from the vehicle. To calculate emissions, both the rate of emissions per unit of activity (emission factors) and the number of units of activity must be determined.

Emission factors for this proposed Bexar County RFP SIP revision were developed using the EPA's mobile emissions factor model, MOVES3. The MOVES3 model may be run using national default information or the default information may be modified to simulate data specific to an area, such as the control programs, driving behavior, meteorological conditions, and vehicle characteristics. Because modifications to the national default values influence the emission factors calculated by the MOVES3 model, to the extent that local values are available, parameters that are used reflect local conditions. The localized inputs used for the on-road mobile EI development include vehicle speeds for each roadway link, vehicle populations, vehicle hours idling, temperature, humidity, vehicle age distributions for each vehicle type, percentage of miles traveled for each vehicle type, fuel control programs, and gasoline Reid vapor pressure (RVP) controls.

To estimate on-road mobile source emissions, emission factors calculated by the MOVES3 model must be multiplied by the level of vehicle activity. On-road mobile source emissions factors are expressed in units of grams per mile, grams per vehicle (evaporative), and grams per hour (extended idle); therefore, the activity data required to complete the inventory calculation are VMT in units of miles per day, vehicle populations, truck hoteling activity, and source hours idling. The level of vehicle travel activity is developed using travel demand models (TDM) run by the Texas Department of Transportation or by the local metropolitan planning organizations. The TDMs are validated against a large number of ground counts, i.e., traffic passing over counters placed in various locations throughout a county or area. For SIP EIs, VMT estimates are calibrated against outputs from the federal Highway Performance Monitoring System, a model built from a different set of traffic counters. Vehicle populations by source type are derived from the Texas Department of Motor Vehicles' registration database and as needed, national estimates for vehicle source type population.

In addition to the number of miles traveled on each roadway link, the speed on each roadway type or segment is also needed to complete an on-road EI. Roadway speeds, required inputs for the MOVES3 model, are calculated by using the activity volumes from the TDM and a post-processor speed model.

A summary of the on-road mobile source VMT used to develop the various $NO_x$ and VOC emissions estimates for the area are presented in Table 2-1: *Bexar County 2015 Ozone NAAQS Nonattainment Area RFP Ozone Season Weekday On-Road Mobile Source VMT (miles per day).*

The controlled and uncontrolled on-road mobile source emissions inventories are presented in Appendix 1 and summarized in Table 2-2 and Table 2-3.

For complete documentation of the development of the on-road mobile source emissions inventories for this proposed RFP demonstration, refer to Appendix 10. The complete set of input and output files are available upon request from the TCEQ's Air Quality Division.

**Table 2-1: Bexar County 2015 Ozone NAAQS Nonattainment Area RFP Ozone Season Weekday On-Road Mobile Source VMT1 (miles per day)**

| RFP Analysis Year | VMT |
|---|---|
| 2017 Base Year | 48,023,548 |
| 2023 Attainment Year | 56,682,813 |

Note 1: For this proposed Bexar County RFP SIP revision, the same VMT is used for the uncontrolled and controlled scenarios.

### 2.5.2 On-Road Mobile Updated 2017 Base Year Inventory

The 2017 base year EI for on-road mobile sources was updated using emission factors calculated using the MOVES3 model. Additional updates were made to incorporate the latest activity estimates from the Bexar County 2015 ozone NAAQS nonattainment area TDM 2017 networks. Only control strategies implemented prior to 2017 were included in the input to the EI development for the 2017 on-road mobile source base year emissions inventories. Those controls include: the pre-1990 Federal Motor Vehicle Control Program (FMVCP), the 1990 to 2017 FMVCP, the East Texas Regional Low RVP program, federal ultra-low sulfur diesel, and on-road Texas Low Emission Diesel (TxLED), where applicable. The activity levels used to calculate the EI reflect the 2017 roadway networks with 2017 VMT and speeds. A summary of the 2017 EIs is presented in Table 2-2. For complete documentation of the development of the EIs and details on MOVES3 model inputs, refer to Appendix 10.

### 2.5.3 On-Road Mobile Updated Uncontrolled Attainment Year Inventories

The uncontrolled on-road mobile EIs for the RFP attainment year were developed using emission factors that reflect only control strategies implemented prior to 1990. Those controls include pre-1990 FMVCP and the 1992 RVP control. MOVES3 was used to develop the emissions inventories for this proposed SIP revision. The activity levels were updated to include the latest output from the Bexar County 2015 ozone NAAQS nonattainment area TDM. The activity levels used to calculate the EI reflect the attainment roadway network, with attainment year VMT and speeds. A summary of the 2023 EIs is presented in Table 2-3. For complete documentation of the development of the EIs and details on MOVES3 model inputs, refer to Appendix 10.

### 2.5.4 On-Road Mobile Updated Controlled Attainment Year Inventories

The controlled on-road mobile EIs for the attainment year were developed using emission factors that include: the effects of pre-1990 control strategies, the effects of all control strategies between 1990 and 2017, and the effects of all control strategies from 1990 through the 2023 attainment year. The effects of the post-1990 control strategies between 2017 and the attainment year are creditable reductions used to demonstrate compliance with RFP requirements. The pre- and post-1990 controls include pre-1990 FMVCP, post-1990 FMVCP, the East Texas Regional Low RVP Gasoline Program, federal ultra-low sulfur diesel, and TxLED, where applicable. All control strategies used to demonstrate RFP for Bexar County are documented in Table 4-1: *Summary of Bexar County 2015 Ozone NAAQS Nonattainment Area RFP $NO_X$ and VOC*

*Cumulative Emissions Reductions from Control Strategies for 2017 through 2023 (tons per day)*. The on-road control strategies are documented in Appendix 10.

The activity levels used to calculate the attainment year emissions inventories reflect the 2023 roadway network, with 2023 VMT and speeds. A summary of the 2023 EIs is presented in Table 2-3. For complete documentation of the development of the EIs and details on MOVES3 model inputs, refer to Appendix 10.

Quantification of specific control reductions is documented in Chapter 4 with details presented in Appendix 1. Motor vehicle emissions budget calculations for the attainment year are documented in Chapter 5: *Motor Vehicle Emissions Budgets*.

## 2.6 EMISSIONS SUMMARY

Uncontrolled and controlled 2017 base year $NO_X$ and VOC emissions for each RFP source category are summarized in Table 2-2.

For the 2023 attainment year, the uncontrolled and controlled $NO_X$ and VOC emissions for each RFP source category and analysis year are summarized in Table 2-3.

Between 1990 and 2017, substantial emissions reductions have occurred in all EI source categories (stationary sources as well as mobile sources) due to regulations implemented at the federal, state, and local levels and innovative programs implemented by the TCEQ. As noted in Section 2.1, the 2017 EI for stationary sources includes all controls and associated reductions implemented by the end of the 2017 base year. No additional stationary source controls are quantified for this proposed Bexar County RFP SIP revision; therefore, the 2017 controlled stationary source EI is equivalent to the 2017 existing controlled stationary source EI.

Similarly, the 2023 attainment year inventory reflects: 1) all controls and associated reductions implemented by the end of the projection base EI year and 2) growth from the projection base EI. Where there is no difference between the uncontrolled and controlled emissions for the base year or the attainment year, there were no controls quantified for the projected source inventories.

**Table 2-2: Bexar County 2015 Ozone NAAQS Nonattainment Area RFP Summary of the 2017 Base Year Average Summer Weekday $NO_X$ and VOC Emissions (tons per day)**

| Emissions Inventory Source | Uncontrolled $NO_X$ | Controlled $NO_X$ | Uncontrolled VOC | Controlled VOC |
|---|---|---|---|---|
| Non-Road Mobile Sources | 27.21 | 11.62 | 51.49 | 11.92 |
| On-Road Mobile Sources | 33.94[1] | 33.94 | 17.35[1] | 17.35 |
| Area Sources | 6.83 | 6.83 | 77.45 | 77.45 |
| Point Sources | 29.88 | 29.88 | 3.56 | 3.56 |
| **Total of All Sources** | **97.86** | **82.27** | **149.85** | **110.28** |

Note 1: The Bexar County uncontrolled on-road EI values for 2017 reflect controls in place up to 2017, no post-2017 controls included.

**Table 2-3 Bexar County 2015 Ozone NAAQS Nonattainment Area RFP Summary of the 2023 Attainment Year Average Summer Weekday $NO_x$ and VOC Emissions (tons per day)**

| Emissions Inventory Source | Uncontrolled $NO_x$ | Controlled $NO_x$ | Uncontrolled VOC | Controlled VOC |
|---|---|---|---|---|
| Non-Road Mobile Sources | 31.80 | 10.27 | 58.33 | 12.56 |
| On-Road Mobile Sources | 356.10[1] | 20.63 | 225.67[1] | 12.38 |
| Area Sources | 7.09 | 7.09 | 73.86 | 73.86 |
| Point Sources | 28.29 | 28.29 | 4.20 | 4.20 |
| **Total of All Sources** | **423.28** | **66.28** | **362.06** | **103.00** |

Note 1: The Bexar County uncontrolled on-road EI values for 2023 reflect pre-1990 controls, no post-1990 controls included.

# CHAPTER 3: PROGRESS TOWARD MEETING TARGET EMISSIONS LEVELS

## 3.1 INTRODUCTION

### 3.1.1 General RFP Requirements

This chapter describes how the Bexar County 2015 ozone National Ambient Air Quality Standard (NAAQS) nonattainment area moderate reasonable further progress (RFP) demonstrations are calculated, documents the RFP calculations, and provides a summary of the RFP demonstration. The attainment date for the Bexar County ozone NAAQS nonattainment area is September 24, 2024, with an attainment year of 2023 (87 *Federal Register* (FR) 60897).

For this proposed Bexar County RFP SIP revision, a base year of 2017 was used to harmonize the RFP base year with the triennial reporting requirement of the Air Emissions Reporting Requirements (AERR) rule. The required emissions reductions for RFP, as detailed in Sections 3.1.2: *Fifteen Percent Emissions Reduction Requirement* and 3.1.3: *Contingency Requirement*, are calculated as a percentage of the base year (2017) emissions inventory (EI) and must occur no later than the required timeframe.

The RFP requirements for this proposed SIP revision are to demonstrate:

- a 15% emissions reduction for the six-year period from January 1, 2018 through December 31, 2023 for Bexar County; and
- a 3% emissions reduction for the one-year period between January 1, 2024 through December 31, 2024 as attainment year RFP contingency for Bexar County.

### 3.1.2 Fifteen Percent Emissions Reduction Requirement

The United States Environmental Protection Agency's (EPA) *Implementation of the 2015 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements; Final Rule* (2015 eight-hour ozone standard SIP requirements rule) requires states with moderate nonattainment areas to submit an RFP plan with a 15% emissions reduction from the RFP base year to the RFP attainment year. In accordance with the 2015 eight-hour ozone standard SIP requirements rule, if a state chooses 2017 as a base year for a moderate area designated nonattainment, the 15% reduction requirement covers the period from January 1, 2018 through December 31, 2023.

The first 15% RFP reduction achieved by an area under its initial ozone nonattainment designation should be from volatile organic compounds (VOC) emissions. In subsequent RFP demonstrations, if an area has demonstrated that nitrogen oxides ($NO_x$) is effective at reducing ozone, the 15% reduction requirement can be fulfilled with a combination of $NO_x$ and VOC emissions. Although Bexar County is newly designated as moderate nonattainment under the 2015 eight-hour ozone NAAQS, the required 15% emissions reduction in VOC is not included in this proposed RFP SIP revision. Existing VOC emissions reductions in Bexar County do not total 15% and will require additional analysis to determine the best means to address this requirement. To meet the 15% VOC requirement, additional measures would have had to be implemented by March 1, 2023 (beginning of ozone season in Bexar County) for potential reductions to be captured in the first six-year period. There were no measures that could have been implemented by March 1, 2023 to demonstrate the 15% reduction in VOC emissions from the 2017 base year to the 2023 attainment year;

therefore, the RFP demonstration for this proposed SIP revision uses 8.4% $NO_X$ emissions reductions and 6.6% VOC emissions reductions to achieve the total 15% reduction. The 6.6% VOC emissions reduction includes all available creditable VOC emissions reductions at the time of SIP development.

As noted in Section 5.2.4: *VOC and $NO_X$ Limitation* of the Bexar County 2015 Ozone NAAQS Moderate Attainment Demonstration (AD) SIP revision (Project No. 2022-025-SIP-NR), while photochemical modeling shows benefit from both $NO_X$ and VOC reductions, ozone decreases in larger amounts with the reductions in $NO_X$. Appendix B: *Conceptual Model for the Bexar County Nonattainment Area for the 2015 Eight-Hour Ozone National Ambient Air Quality Standard* of the Bexar County 2015 Ozone NAAQS Moderate AD SIP revision contains more detail about the $NO_X$-limited nature of ozone formation within Bexar County. As a result, $NO_X$ emissions reductions are expected to be more effective than VOC reductions at reducing ozone concentrations in the nonattainment area. Therefore, this proposed RFP SIP revision demonstrates progress towards attaining the 2015 eight-hour ozone NAAQS using a combination of $NO_X$ and VOC emissions reductions.

### 3.1.3 Contingency Plan

This proposed SIP revision also contains a contingency plan for 2024 as required by FCAA, §172(c)(9).

Contingency measures are control requirements that would take effect and result in emissions reductions if an area fails to attain a NAAQS by the applicable attainment date or fails to demonstrate RFP. Recent court decisions have invalidated key aspects of the EPA's historical approach to implementing the contingency measure requirement. At the time the proposed SIP revision was being developed, the EPA had historically accepted the use of surplus mobile source emissions reductions from previously implemented federal rules to fulfill the contingency measure requirements. However, the EPA's new draft guidance on contingency measures, published in the *Federal Register* for public comment on March 23, 2023 (88 FR 17571), indicates that contingency measures must be conditional and prospective (not previously implemented) based on the recent court rulings. The draft guidance also establishes an entirely new scheme for determining the amount of emissions reductions necessary to address the contingency requirement.

Since the EPA had not issued final guidance to states regarding contingency measures at the time this SIP revision was developed, this SIP revision relies on the historically approved approach of using surplus mobile source emissions reductions to fulfill the contingency measure requirements.

A summary of the RFP contingency plan is provided in Table 4-2: *Bexar County 2015 Ozone NAAQS Nonattainment Area RFP Contingency Plan for the 2023 Attainment Year (tons per day unless otherwise noted).*

### 3.1.4 RFP Demonstration Method

Required moderate nonattainment area RFP demonstration elements for the Bexar County 2015 ozone NAAQS nonattainment area include:

- the 2017 base year emissions;

- 2023 target levels;
- 2023 projected emissions, with growth; and
- individually quantified emissions reductions from control measures for 2023.

Progress toward the 2023 attainment year emissions reductions requirements is demonstrated using EPA methodologies to calculate the elements of the RFP demonstration and complete the RFP analyses. First, the emissions inventories and control reductions are developed for each analysis year. Second, the target level of emissions is calculated for each analysis year. Third, the RFP control measure reductions for each analysis year are subtracted from the uncontrolled or existing controlled EI for the corresponding analysis year. The difference includes growth from the base year to the selected analysis year. When the combined uncontrolled and existing controlled projected inventory for each analysis year minus the RFP controls is less than or equal to the target level of emissions for $NO_X$, and VOC the RFP requirement has been met.

A summary of the RFP demonstration for Bexar County is provided in Table 3-1: *Summary of the 2023 Bexar County 2015 Ozone NAAQS Nonattainment Area RFP Demonstration (tons per day)*. Details on how RFP is calculated for the Bexar County 2015 ozone NAAQS nonattainment area can be found in Appendix 1: *Bexar County Reasonable Further Progress Demonstration Spreadsheet*.

## 3.2 RFP DEMONSTRATION

The EPA's final 2015 eight-hour ozone standard SIP requirements rule requires the RFP control strategy plan to show ozone precursor ($NO_X$ and VOC) emissions reductions that will reduce controlled RFP analysis year emissions to values equal to or less than the emissions target values. As stated in Section 3.1.2, since $NO_X$ emissions reductions are anticipated to be more effective at reducing ozone concentrations in the Bexar County 2015 ozone NAAQS nonattainment area than VOC emissions reductions, this proposed SIP revision uses both $NO_X$ and VOC reductions to demonstrate RFP for the first six-year analysis period. Creditable RFP control reductions are subtracted from the uncontrolled or existing controlled forecast EI for each RFP analysis year. The RFP requirement is met for each analysis year if the resulting controlled RFP EI forecast is less than the target level of emissions. Details of the RFP demonstration are documented in Appendix 1. A summary of the 2023 RFP demonstration for the Bexar County 2015 ozone NAAQS nonattainment area is provided in Table 3-1.

**Table 3-1: Summary of the 2023 Bexar County 2015 Ozone NAAQS Nonattainment Area RFP Demonstration (tons per day)**

| Line | Description | $NO_X$ | VOC |
|---|---|---|---|
| Line 1 | Uncontrolled or existing controlled Bexar County 2023 emissions forecast with growth | 423.28 | 362.06 |
| Line 2 | Creditable Bexar County RFP control reductions between 2017 and 2023 | 357.01 | 259.06 |
| Line 3 | Controlled Bexar County 2023, RFP emissions forecast (Line 1 minus Line 2) | 66.27 | 103.00 |
| Line 4 | Amount of substituted $NO_X$ reductions | 0.00 | 0.00 |
| Line 5 | Controlled Bexar County 2023, accounting for $NO_X$ substitution (Line 3 plus Line 4) | 66.27 | 103.00 |

| Line | Description | $NO_x$ | VOC |
|---|---|---|---|
| Line 6 | Bexar County 2023 RFP target level of emissions | 75.36 | 103.00 |
| Line 7 | Excess (+) / Shortfall (-) (Line 6 minus Line 5) | 9.09 | 0.00 |
| Line 8 | Is controlled RFP EI less than target level of emissions? | Yes | Yes |

# CHAPTER 4: CONTROL MEASURES TO ACHIEVE TARGET LEVELS

## 4.1 OVERVIEW OF CONTROL MEASURES

The emissions reductions from control strategies for the 2023 attainment year to achieve the emissions reductions in nitrogen oxides ($NO_X$) and volatile organic compounds (VOC) to demonstrate reasonable further progress (RFP) for this proposed Bexar County 2015 Eight-Hour Ozone National Ambient Air Quality Standard (NAAQS) Moderate RFP State Implementation Plan (SIP) Revision are detailed in Appendix 1: *Bexar County Reasonable Further Progress Demonstration Spreadsheet* details. A summary of the reductions is provided in Table 4-1: *Summary of Bexar County 2015 Ozone NAAQS Nonattainment Area $NO_X$ and VOC Cumulative Emissions Reductions from Control Strategies for 2017 through 2023 (tons per day).*

The projected emissions reductions reflect the identified federal and state emissions controls. All state control measures are codified in regulations for the State of Texas.

**Table 4-1: Summary of Bexar County 2015 Ozone NAAQS Nonattainment Area RFP $NO_X$ and VOC Cumulative Emissions Reductions from Control Strategies for 2017 through 2023 (tons per day)**

| Control Strategy Description | $NO_X$ Reduction | VOC Reduction |
|---|---|---|
| Chapter 117 $NO_X$ controls[1] | 0.00 | 0.00 |
| Chapter 115 storage tank rules[1] | 0.00 | 0.00 |
| Coating/printing rules | 0.00 | 0.00 |
| Portable fuel containers | 0.00 | 0.00 |
| Federal Motor Vehicle Control Program (FMVCP) | 329.09 | 210.78 |
| Regional Low RVP conventional gasoline/Tier 3 Sulfur Gasoline/Ultra Low Sulfur Diesel | 5.67 | 2.51 |
| On-road Texas Low Emission Diesel (TxLED) | 0.71 | 0.00 |
| Tier I and II locomotive $NO_X$ standards | 0.11 | 0.00 |
| Small non-road spark ignition (SI) engines (Phase I)[2] | -2.07 | 16.90 |
| Heavy duty non-road engines | 0.20 | 0.18 |
| Tiers 2 and 3 non-road diesel engines | 0.63 | 0.13 |
| Small non-road SI engines (Phase II) | 1.50 | 16.94 |
| Large non-road SI and recreational marine | 5.61 | 2.61 |
| Non-road TxLED | 0.23 | 0.00 |
| Non-road Reformulated Gasoline | 0.00 | 0.00 |
| Tier 4 non-road diesel engines | 13.91 | 3.28 |
| Diesel recreational marine | 0.00 | 0.00 |
| Small SI (Phase III) | 1.42 | 5.73 |
| Drilling rigs: federal engine standards and TxLED | 0.00 | 0.00 |
| **Sum of reductions from projected uncontrolled or existing controlled emissions** | **357.01** | **259.06** |

Note 1: These rules had compliance deadlines before 2017 in Bexar County. The 2017 base year emissions inventory (EI) includes the effect of the control. No additional emissions reductions beyond 2017 are claimed.

Note 2: The small SI Phase 1 rule is shown to provide a substantial reduction in VOC emissions. A slight increase in $NO_X$ emissions is due to the engine modifications required to meet the VOC and CO standards of the Small SI Phase 1.

## 4.2 CONTINGENCY MEASURES

Contingency measures are control requirements that would take effect and result in emissions reductions if an area fails to attain a NAAQS by the applicable attainment date or fails to demonstrate RFP. Recent court decisions have invalidated key aspects of the EPA's historical approach to implementing the contingency measure requirement. At the time the proposed SIP revision was being developed, the EPA had historically accepted the use of surplus mobile source emissions reductions from previously implemented federal rules to fulfill the contingency measure requirements. However, the EPA's new draft guidance on contingency measures, published in the *Federal Register* for public comment on March 23, 2023 (88 FR 17571), indicates that contingency measures must be conditional and prospective (not previously implemented) based on the recent court rulings. The draft guidance also establishes an entirely new scheme for determining the amount of emissions reductions necessary to address the contingency requirement.

Since the EPA had not issued final guidance to states regarding contingency measures at the time this SIP revision was developed, this SIP revision relies on the historically approved approach of using surplus mobile source emissions reductions to fulfill the contingency measure requirements.

The RFP requirements include a 3% contingency plan for the one-year period after each RFP analysis year and the one-year period after the attainment year. In the event an RFP requirement is not met, the contingency control measures will provide the required emissions reduction. For this proposed SIP revision, the only RFP analysis year is the attainment year. The 3% contingency requirement is based on the RFP base year EI and may be met using VOC and $NO_x$ reductions. This section contains an attainment year RFP contingency plan based on the 2023 attainment year.

The proposed 3% attainment year RFP contingency analysis is based on a 1.5% reduction in $NO_x$ and a 1.5% reduction in VOC to be achieved for the one-year period from January 1, 2024 through December 31, 2024. EI analyses were performed for fuel control programs and for the fleet turnover effects for the federal emissions certification programs for on-road and non-road vehicles. The emissions reductions for the 2024 contingency year were estimated for those programs. Controlled (post-control) emissions reductions not previously used in the 2023 RFP demonstration were used to satisfy contingency requirements, so the excess emissions reductions from the 2023 RFP demonstration are included in the contingency analysis.

This proposed SIP revision does not provide for $NO_x$ and VOC motor vehicle emissions budget (MVEB) safety margins; the emissions reductions that would have been reserved from the contingency demonstration to account for the MVEB safety margins have been set to zero.

A summary of the 2023 attainment year RFP contingency analysis for the Bexar County 2015 ozone NAAQS nonattainment area is provided in Table 4-2: *Bexar County 2015 Ozone NAAQS Nonattainment RFP Contingency Plan for the 2023 Attainment Year (tons per day unless otherwise noted).*

**Table 4-2: Bexar County 2015 Ozone NAAQS Nonattainment Area RFP Contingency Plan for the 2023 Attainment Year (tons per day unless otherwise noted)**

| Line | Contingency Plan Description | $NO_x$ | VOC |
|---|---|---|---|
| Line 1 | Bexar County 2017 Base Year (BY) EI | 82.27 | 110.28 |
| Line 2 | Percent for contingency calculation (total of 3%) | 1.50 | 1.50 |
| Line 3 | Bexar County 2023 to 2024 required contingency reductions (BY EI x (contingency percent: Line 1 multiplied by Line 2, then divided by 100 and rounded up)) | 1.23 | 1.65 |
| | **Control Reductions to meet Contingency Requirements** | **$NO_x$** | **VOC** |
| Line 4 | Excess reductions from 2023 RFP demonstration (from Table 3-1: *Summary of the 2023 Bexar County 2015 Moderate Ozone Nonattainment Area RFP Demonstration*) (tons per day) | 9.09 | 0.00 |
| Line 5 | Subtract 2023 RFP demonstration motor vehicle emissions budget (MVEB) safety margin from excess reductions from 2023 RFP demonstration | 0.00 | 0.00 |
| Line 6 | 2023 to 2024 emissions reductions due to federal Motor Vehicle Control Program (FMVCP), East Texas Regional Low RVP, 2017 Low Sulfur Gasoline Standard, ultra-low sulfur diesel, and on-road TxLED. | 10.41 | 6.96 |
| Line 7 | 2023 to 2024 emissions reductions due to federal non-road mobile new vehicle certification standards and non-road TxLED | 0.25 | 0.83 |
| Line 8 | Total 2023 to 2024 Bexar County RFP demonstration contingency reductions (sum of Lines 4, 5, 6, and 7) | 19.75 | 7.79 |
| Line 9 | Contingency Excess (+) or Shortfall (-) (Line 8 minus Line 3) | 18.52 | 6.14 |

# CHAPTER 5: MOTOR VEHICLE EMISSIONS BUDGETS

## 5.1 INTRODUCTION

This proposed Bexar County Moderate Area Reasonable Further Progress (RFP) State Implementation Plan (SIP) Revision for the 2015 Eight-Hour Ozone National Ambient Air Quality Standard (NAAQS) establishes motor vehicle emissions budgets (MVEB), setting the allowable on-road mobile emissions an area can produce while continuing to demonstrate RFP. The Bexar County 2015 ozone NAAQS nonattainment area RFP MVEBs are calculated by subtracting the on-road mobile source control strategies emissions reductions necessary to demonstrate RFP from the uncontrolled, projected on-road mobile source emissions inventories. Local transportation planning organizations use applicable MVEBs to demonstrate that projected emissions from transportation plans, programs, and projects are equal to or less than the MVEBs, as required by the federal transportation conformity rule (40 Code of Federal Regulations Part 93, Subpart A).

The Texas Commission on Environmental Quality (TCEQ) developed updated on-road mobile source emissions inventories and control strategy reduction estimates using the latest planning assumptions and the United States Environmental Protection Agency's (EPA) Motor Vehicle Emissions Simulator, Version 3 (MOVES3) emissions factor model. Updated emissions inventory (EI) development included development of a 2017 base year EI, uncontrolled emissions inventories for 2023 and 2024, controlled emissions inventories for 2023 and 2024, and control strategies reduction estimates for 2023 and 2024. The TCEQ contracted Texas A&M Transportation Institute to develop the RFP emissions inventories and control strategies reductions for the Bexar County 2015 ozone NAAQS nonattainment area. Detailed documentation of the on-road mobile EI development is provided in the contractor report, Appendix 10: *Bexar County 2015-Eight-Hour Ozone Nonattainment Area Reasonable Further Progress (RFP) On-Road Mobile Emissions Inventories*.

## 5.2 MOTOR VEHICLE EMISSIONS BUDGETS FOR RFP ANALYSIS YEARS

The MVEBs in this proposed Bexar County RFP SIP revision are established from the on-road mobile source EIs for RFP analysis years and the on-road mobile source reductions strategies used to demonstrate RFP. A transportation conformity safety margin is allowed when there is an excess of emissions reductions beyond those required to demonstrate RFP. The Bexar County 2015 ozone NAAQS nonattainment area did not have sufficient excess emissions reductions to provide 2023 MVEB safety margins. Details for MVEB calculations are documented in Appendix 1: *Bexar County Reasonable Further Progress Demonstration Spreadsheet, Tab 06 Calc 2023 RFP MVEB*. A summary of the MVEB calculations for 2023 are presented in: Table 5-1: *2023 RFP MVEBs for the Bexar County 2015 Ozone NAAQS Nonattainment Area (tons per day)*. The 2023 Bexar MVEB safety margins are set to zero.

**Table 5-1: 2023 RFP MVEBs for the Bexar County 2015 Ozone NAAQS Nonattainment Area (tons per day)**

| Control Strategy Description | Nitrogen Oxides ($NO_x$) | Volatile Organic Compounds (VOC) |
|---|---|---|
| 2023 On-road mobile controlled inventory | 20.63 | 12.38 |
| Transportation conformity safety margin | 0.00 | 0.00 |

| Control Strategy Description | Nitrogen Oxides ($NO_x$) | Volatile Organic Compounds (VOC) |
|---|---|---|
| 2023 Bexar County MVEB | 20.63 | 12.38 |

*Appendices Available Upon Request*

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