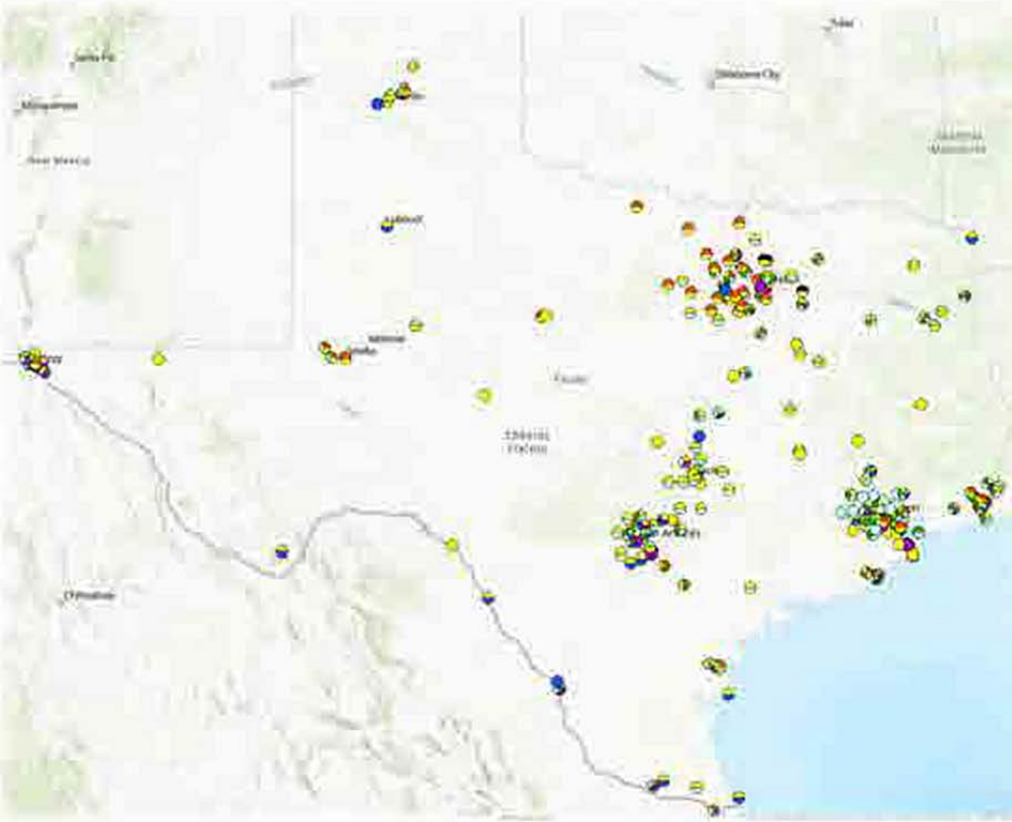
Texas Commission on Environmental Quality Annual Monitoring Network Plan



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Texas Commission on Environmental Quality 2024 Annual Monitoring Network Plan

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List of Acronyms and Abbreviations

– number
% – percent
> – greater than
≥ – greater than or equal to
< – less than
$\mu g/m^3$ – micrograms per cubic meter
AADT – annual average traffic count
AMNP – annual monitoring network plan
autoGC – automated gas chromatograph
CBSA – core based statistical area
CFR – Code of Federal Regulations
CO – carbon monoxide
DFW – Dallas-Fort Worth
DRR – Data Requirements Rule
EI – emissions inventory
EPA – United States Environmental Protection Agency
FEM – federal equivalent method
FRM – federal reference method
LBJ – Lyndon B. Johnson
LLC – limited liability company
MSA – metropolitan statistical area
NA – not applicable
NAAQS – National Ambient Air Quality Standards
NCore – National Core Multipollutant Monitoring Stations
NEI – National Emissions Inventory
NO_2 – nitrogen dioxide
NO – nitrogen oxide
NO_x – oxides of nitrogen
NO_y – total reactive nitrogen compounds
O_3 – ozone
OMB – United States Office of Management and Budget
PAMS – Photochemical Assessment Monitoring Stations
Pb – lead
PM_{10} – particulate matter of 10 micrometers or less in diameter
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter
$PM_{10-2.5}$ – coarse particulate matter
ppb – parts per billion
PWEI – population weighted emissions index
QC – quality control
RA-40 – Regional Administrator 40

SE – southeast
SETRPC – Southeast Texas Regional Planning Commission
SLAMS – State or Local Air Monitoring Stations
SO_2 – sulfur dioxide
SPM – special purpose monitor
TAD – technical assistance document
TCEQ – Texas Commission on Environmental Quality
TEOM – tapered element oscillating microbalance
tpy – tons per year
TSP – total suspended particulate
U.S. – United States
UTEP – University of Texas at El Paso
VOC – volatile organic compound

Introduction

Title 40 Code of Federal Regulations (CFR) Section 58.10 requires states to submit an annual monitoring network plan (AMNP) to the United States (U.S.) Environmental Protection Agency (EPA) by July 1 of each year. This monitoring plan is required to provide the implementation and maintenance framework for an air quality surveillance system, known commonly as the ambient air quality monitoring network.

The Texas Commission on Environmental Quality (TCEQ) reviews its ambient air quality monitoring network annually and creates the AMNP to demonstrate how Texas is meeting or will meet federal air monitoring requirements specified in 40 CFR Part 58 and its appendices. The AMNP presents the current TCEQ federal monitoring network established for use in evaluations to determine compliance with the National Ambient Air Quality Standards (NAAQS) as well as other monitors that support federal initiatives and provide additional information on air quality and the weather. The monitoring plan includes proposed changes from the previous year and future proposed changes to the monitoring network. Because the AMNP is focused on federally required monitoring, it does not include a review of state-initiated monitoring conducted in addition to federal requirements. This plan is limited to the portion of the TCEQ air monitoring network designed to comply with federal monitoring requirements and supported by federal funding.

The TCEQ posts the AMNP to solicit public comment for at least 30 days prior to submission to the EPA. The TCEQ submits the AMNP to the EPA for final review and approval with comments received during the 30-day inspection period, responses to the comments, and any appropriate changes based on the received comments. This plan includes the recommended federal monitoring network changes from July 1, 2023, through December 31, 2025, summarized in AMNP Appendix A. This plan also includes federal monitoring network changes recommended prior to July 1, 2023, that have been completed since that date or are still pending completion. Historical air monitoring network plans, associated public comments, and TCEQ responses are available on the TCEQ webpage TCEQ Air Monitoring Network Plans - Texas Commission on Environmental Quality - www.tceq.texas.gov.

The TCEQ continues to evaluate requests for ambient air monitoring submitted during previous AMNP public inspection and comment periods. Details regarding additional monitoring under consideration are included in this plan to solicit further public comment. Any future implementation of additional monitoring considerations may be included as part of the TCEQ federal ambient air monitoring network or as state-initiative monitoring. The proposals and implementation of proposals for monitoring under consideration are subject to change.

The TCEQ is federally required to operate between 129 and 156 air monitors. The TCEQ federal monitoring network includes 272 air quality monitors, approximately double the number of monitors required by federal rule. The number, type, and location of monitors within the TCEQ federal monitoring network is sufficient to characterize air quality for all areas required within Texas. The TCEQ and its monitoring partners (city, county, private, and industry) also operate a robust network of non-federal state-initiative monitors that support a variety of purposes, including potential health effects evaluation; however, these monitors are outside the scope of this document and are not included. The latest information regarding the entire Texas air monitoring network of federal and state-initiative monitors, monitoring data, and air quality forecast conditions for Texas' metropolitan areas is featured on the TCEQ webpage [Air Quality and Monitoring - Texas Commission on Environmental Quality - www.tceq.texas.gov].

Title 40 CFR Part 58, Appendix D provides the minimum design requirements for federal air monitoring networks including State or Local Air Monitoring Stations (SLAMS), Photochemical Assessment Monitoring Stations (PAMS), and National Core Multi-Pollutant Monitoring Stations (NCore). AMNP Appendix B lists the existing monitors established to meet federal monitoring requirements and objectives.

The TCEQ uses statistical-based definitions for core based statistical areas (CBSAs) or metropolitan statistical areas (MSAs), as defined and delineated by the U.S. Office of Management and Budget (OMB). The OMB defines a CBSA as a statistical geographic entity consisting of the county or counties associated with at least one urbanized area/urban cluster of at least 10,000 population, plus adjacent counties having a high degree of social and economic integration. MSAs (areas with populations greater than 50,000) and micropolitan statistical areas (areas with populations between 10,000 and 50,000) are the two categories of CBSAs. The OMB delineated CBSAs and MSAs overlap in Texas, and the terms are used in this plan according to their usage in 40 CFR Part 58. The OMB updated the CBSA delineation list in July 2023, and two Texas CBSA titles were updated. The Houston-The Woodlands-Sugar Land CBSA title was updated to Houston-Pasadena-The Woodlands (Houston) and the Austin-Round Rock-Georgetown CBSA title was updated to Austin-Round Rock-San Marcos (Austin). The OMB added one county to the Houston CBSA, San Jacinto County, and made no other changes to the Austin CBSA. The updated titles and counties are used in this AMNP and its appendices.

The AMNP annual air monitoring network evaluation uses the current Texas CBSA (or MSAs) OMB designation with the most recent 2022 U.S. Census Bureau population estimates. Each CBSA (or MSA) and associated population are evaluated by air pollutant based on requirements in 40 CFR Part 58 and 2020-2022 certified air monitoring data, as applicable. The TCEQ uses these data to evaluate the networks and determine the required monitor counts as documented in the AMNP and its appendices. Based on annual assessments performed to date, all monitoring sites supporting federal requirements and monitoring objectives are meeting the requirements defined in 40 CFR Part 58 and its Appendices A, C, D, E and G.

In 2023, the TCEQ noted that the Austin Audubon Society air monitoring site was not meeting siting criteria as required under 40 CFR Part 58, Appendix E due to recent tree growth. The property owner trimmed the trees in 2023, and Austin Audubon Society air monitors currently meet siting criteria. In 2020, the EPA approved the TCEQ request for a waiver under 40 CFR Part 58 Appendix E, Section 10.1.1 for the Austin Webberville air monitoring site. The Austin Webberville monitors are located less than ten meters from the roadway preventing the site from meeting siting criteria, however, air monitoring data are deemed representative of the neighborhood scale area due to the site deployment date, historical data, and low traffic count. The TCEQ will evaluate the Austin Webberville traffic counts and siting criteria with the Five-Year Assessments.

Regulatory Network Review

General Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 1 describes the monitoring objectives and general criteria for the required SLAMS ambient air monitoring stations. Ambient air monitoring networks must be designed to meet the three basic monitoring objectives listed below, though each objective is to be considered independently:

- Provide air pollution data to the public in a timely manner;
- Support compliance with ambient air quality standards and emissions strategy development; and
- Support air pollution research studies (for example NCore network data).

Ambient air monitoring federal reference methods (FRM) and federal equivalent methods (FEM) are designated by the EPA and must be operated in accordance with the requirements of 40 CFR Part 53. FRM and FEM methods are acceptable for use in air quality surveillance systems under 40 CFR Part 58 and are used for comparing an area's air pollution levels against the NAAQS. These methods must be used in strict accordance with associated operation and/or instruction manuals and with applicable quality assurance procedures. The EPA reviews and approves FRM and FEM designated instrumentation. The list of EPA designated reference and equivalent methods is available at Air Monitoring Methods - Criteria Pollutants | US EPA.

National Core Multipollutant Monitoring Stations (NCore) Requirements

NCore multipollutant sites, approved by the EPA Administrator, were selected to measure multiple pollutants utilizing continuous methods as available. NCore sites are intended to be long-term sites useful for a variety of applications including air quality trends analyses, model evaluation, and tracking metropolitan area statistics. NCore guidance suggests monitoring instruments capable of measuring trace levels (high sensitivity), where needed. The TCEQ NCore monitoring network includes the following measurements in compliance with NCore monitoring guidance and federal requirements listed in 40 CFR Part 58, Appendix D, Section 3, as discussed further in this section:

- nitrogen oxide (NO), high sensitivity;
- total reactive nitrogen compounds (NO_y), high sensitivity;
- sulfur dioxide (SO_2), high sensitivity;
- ozone (O_3);
- carbon monoxide (CO), high sensitivity;
- filter-based particulate matter of 2.5 micrometers or less in diameter ($PM_{2.5}$);
- continuous $PM_{2.5}$;
- speciated $PM_{2.5}$;
- coarse particulate matter ($PM_{10-2.5}$); and
- meteorology (ambient temperature, wind speed, wind direction, and relative humidity).

Monitoring Requirements

Texas is required to operate two to three urban NCore sites, due to multiple air sheds and MSAs, and meets the requirements listed in 40 CFR Part 58, Appendix D, Section 3(b) with three urban NCore sites and associated measurements listed below in AMNP Table 1. Additional air monitoring information for these sites is detailed in AMNP Appendix B.

Table 1: National Core Multipollutant Monitoring Stations and Parameters

Core Based Statistical Area	Site Name	NO_y* and NO*	SO_2*	O_3	CO*	$PM_{2.5}$ mass filter-based	$PM_{2.5}$ mass continuous	$PM_{2.5}$ speciation	$PM_{10-2.5}$	Meteorology
Dallas-Fort Worth-Arlington	Dallas Hinton	√	√	√	√	√	√	√	√	√
Houston-Pasadena-The Woodlands	Houston Deer Park #2	√	√	√	√	√	√	√	√	√
El Paso	El Paso Chamizal	√	√	√	√	√	√	√	√	√

*instrument capable of measuring trace levels (high sensitivity)
- number
CO – carbon monoxide
NO_y – total reactive nitrogen compounds
NO – nitrogen oxide
SO_2 – sulfur dioxide
O_3 – ozone
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter
$PM_{10-2.5}$ – coarse particulate matter
Meteorology – includes wind speed, wind direction, ambient temperature, and relative humidity

Photochemical Assessment Monitoring Stations (PAMS) Requirements

The PAMS network is an O_3 precursor monitoring network operated by state and local agencies that measures O_3, its precursors, and meteorological variables at NCore sites in metropolitan areas with a CBSA population of 1,000,000 or more persons. The main objective of the required PAMS sites is to develop a database of O_3 precursors and meteorological measurements to support O_3 model development and track trends of important O_3 precursor concentrations. The TCEQ PAMS network also includes enhanced O_3 monitoring in currently designated O_3 nonattainment areas and areas with previous O_3 nonattainment designations that have not been formally redesignated to attainment.

The minimum PAMS measurements include the following:

- speciated volatile organic compounds (VOCs);
- carbonyl compounds, three eight-hour samples on a 1-in-3 day schedule during June, July, and August;
- O_3;
- true (direct-read) nitrogen dioxide (NO_2);
- NO and $NO_{y;}$
- ambient temperature;
- wind direction and wind speed;

- atmospheric pressure;
- relative humidity;
- precipitation;
- mixing-height;
- solar radiation; and
- ultraviolet radiation.

Monitoring Requirements

State monitoring agencies are required to measure and report PAMS measurements at each required NCore site located in CBSAs with populations greater than 1,000,000, based on the latest available census figures. Two of the three NCore sites in Texas are located in CBSAs with populations meeting this requirement. The El Paso CBSA, according to the most recent census figures, does not meet this requirement. The Texas 2022 U.S. Census Bureau population estimates are listed in AMNP Appendix C. The TCEQ meets PAMS monitoring requirements listed in 40 CFR Part 58, Appendix D, Section 5(b) with the measurements at the two NCore/PAMS sites listed below in AMNP Table 2.

Table 2: Photochemical Assessment Monitoring Stations and Parameters

Core Based Statistical Area	Site Name	VOCs	Carbonyl compounds	O_3	True NO_2	NO_y and NO	Ambient Temperature	Wind Direction and Speed	Atmospheric Pressure	Relative Humidity	Precipitation	Mixing-Height*	Solar Radiation	Ultraviolet Radiation
Dallas-Fort Worth-Arlington	Dallas Hinton	√	√	√	√	√	√	√	√	√	√	√	√	√
Houston-Pasadena-The Woodlands	Houston Deer Park #2	√	√	√	√	√	√	√	√	√	√	√	√	√

*Mixing height requirement for the Houston-Pasadena-The Woodlands core based statistical area is met at the La Porte Airport site as approved by the EPA in a letter dated October 19, 2018, approving the 2018 Annual Monitoring Network Plan.
- number sign
VOCs – volatile organic compounds speciated
O_3 – ozone
NO_2 – nitrogen dioxide
NO_y – total reactive nitrogen compounds
NO – nitrogen oxide

The TCEQ developed an Enhanced Monitoring Plan detailing enhanced O_3 and O_3 precursor monitoring activities in addition to the PAMS requirements. The Enhanced Monitoring Plan was provided as an appendix to the 2019 AMNP and approved by the EPA. The Enhanced Monitoring Plan includes details on additional O_3, NO_x and/or NO_y, speciated VOC, and meteorology monitoring at locations other than those required. Air monitoring information for these additional Enhanced Monitoring Plan monitors, identified as PAMS in the Network column, is listed in AMNP Appendix B.

Nitrogen Dioxide (NO_2)

The TCEQ NO_2 network includes measurements for NO, NO_2, true NO_2, and NO_y parameters sited in compliance with federal monitoring requirements, as discussed further in this section. The TCEQ NO_2 network is designed to meet area-wide, Regional Administrator 40 (RA-40), near-road, PAMS, and NCore monitoring requirements, as specified in 40 CFR Part 58. The TCEQ is required to operate a total of 20 monitors that measure NO, NO_2, true NO_2, and NO_y and exceeds the requirements with 58 monitors that measure those parameters. AMNP Appendix D summarizes the monitoring requirements for NO, NO_2, true NO_2, and NO_y in each Texas CBSA. The TCEQ utilizes a variety of instruments to measure these parameters; including an oxides of nitrogen (NO_x) instrument that reports NO_2, NO, and NO_x data; an instrument that measures NO_2 directly, and an NO_y instrument that reports NO_y and NO data. TCEQ air monitoring instrumentation for these measurements varies by site. The instrumentation measurement method is based on the specific federal monitoring objective. AMNP Appendix B lists the air monitoring sites and instrumentation measurement method where NO_x, NO, NO_2, true NO_2, and NO_y are measured.

Monitoring Requirements

Area-Wide Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 4.3.3 requires one area-wide ambient air quality monitoring site in each CBSA with a population of 1,000,000 or more persons. The requirements stipulate that these sites be located in the areas with the highest expected NO_2 concentration that are also representative of a neighborhood or larger (urban) spatial scale. Title 40 CFR Part 58, Appendix D, Section 4.3.5 (3) and (4), define neighborhood scale monitoring as representative of ambient air concentrations in an area between 0.5 and 4.0 kilometers with relatively uniform land use. Urban scale monitoring is representative of ambient air concentrations over large portions of an urban area with dimensions between 4 and 50 kilometers.

Based on 2022 U.S. Census Bureau population estimates for Texas as noted in AMNP Appendix D, area-wide neighborhood or urban scale NO_2 monitoring is required in four Texas CBSAs. The NO_2 data derived at the sites below meet these area-wide requirements.

- Dallas-Fort Worth-Arlington (DFW) CBSA: Dallas Hinton
- Houston CBSA: Clinton
- San Antonio-New Braunfels (San Antonio) CBSA: San Antonio Northwest
- Austin CBSA: Austin North Hills Drive

Regional Administrator Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 4.3.4 states that the EPA Regional Administrators collaborate with the states to designate a minimum of 40 NO_2 monitoring stations nationwide that are positioned to protect susceptible and vulnerable populations (referred to as RA-40 monitoring requirements). The TCEQ collaborated with the EPA Regional Administrator to identify the four Texas RA-40 NO_2 monitoring sites (monitoring with NO_x instruments) listed below to meet the portion of this requirement attributed to Texas.

- DFW CBSA: Arlington Municipal Airport
- Houston CBSA: Clinton

- El Paso CBSA: Ascarate Park Southeast (SE)
- Beaumont-Port Arthur (Beaumont) CBSA: Nederland 17th Street

Near-Road Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 4.3.2 requires one microscale near-road NO_2 monitor located near a major road with high annual average daily traffic (AADT) counts in each CBSA with a population of 1,000,000 or more persons. An additional near-road monitor is required in each CBSA with a population of 2,500,000 or more persons. The TCEQ near-road monitoring network meets these requirements with the six current sites (monitoring with NO_x instruments) and one pending new site listed below.

- DFW CBSA: 2 sites - Dallas LBJ Freeway and Fort Worth California Parkway North
- Houston CBSA: 2 sites - Houston Southwest Freeway and Houston North Loop
- San Antonio CBSA: 2 sites - San Antonio Interstate 35 and San Antonio Interstate 10 West, (pending; new site detailed information listed in the AMNP NO_2 Previously Recommended Changes section below)
- Austin CBSA: 1 site - Austin North Interstate 35

Previously Recommended Changes

The TCEQ 2023 AMNP recommended deploying a second near-road monitoring station, San Antonio Sherwood Drive, in the San Antonio CBSA to meet near-road monitoring requirements. The TCEQ experienced unexpected challenges obtaining power to the recommended site and evaluated alternative near-road site options on the same road segment, ranked with an AADT of 10. The TCEQ identified a suitable location for the San Antonio near-road station on Interstate Highway (IH) 10 West Frontage Road and Scales Street. The EPA approved the revised location for the near-road air monitoring station, named San Antonio Interstate 10 West, in a letter dated November 27, 2023. The TCEQ expects to deploy the site and NO_x monitor shortly after site construction is completed, sometime before December 31, 2024.

Regulatory NO_2 Monitoring Network Changes

The TCEQ evaluated the current NO_2 monitoring network with the changes described above and determined the existing NO_2 network, with the addition of a second pending San Antonio near-road NO_2 monitoring site, meets all federal monitoring requirements; therefore, no changes are recommended.

Sulfur Dioxide (SO_2)

The TCEQ SO_2 network includes monitors sited to meet federal ambient SO_2 and high-sensitivity SO_2 monitoring requirements. The TCEQ SO_2 network is designed to meet the population weighted emissions index (PWEI) by CBSA, 2015 *Data Requirements Rule (DRR) for the 1-Hour Sulfur Dioxide Primary NAAQS*, and NCore monitoring requirements, as discussed above and further in this section. The TCEQ is required to operate a total of 18 SO_2 monitors and exceeds the requirements with 32 monitors. A summary of the CBSA PWEI calculations, associated monitoring requirement evaluations, and current number of SO_2 monitors in each CBSA is shown in AMNP Appendix E. AMNP Appendix B lists the air monitoring sites where SO_2 is measured.

Monitoring Requirements

Population Weighted Emissions Index Requirements

Title 40 CFR Part 58, Appendix D, Section 4.4.2 requires states to establish an SO_2 monitoring network based on the PWEI calculations for Texas CBSAs. These indices are calculated by multiplying the CBSA population by the emissions inventory (EI) data for counties within that CBSA, using an aggregate of the most recent EI data. The National Emissions Inventory (NEI) is released by the EPA every three years and combines emissions inventory estimates for point, nonpoint (area), on-road, non-road, and wildfire and prescribed burn event sources. The TCEQ updates point-source emissions data annually from sources that meet the criteria in 30 Texas Administrative Code §101.10. Data from the most recent NEI with the most recent point-source EI aggregate calculated values are divided by one million to obtain the CBSA PWEI. The PWEI monitoring requirements include the following:

- one monitor in CBSAs with a PWEI equal to or greater than 5,000, but less than 100,000;
- two monitors in CBSAs with a PWEI equal to or greater than 100,000, but less than 1,000,000; and
- three monitors in CBSAs with a PWEI equal to or greater than 1,000,000.

The TCEQ used the most recent quality assured data available – the 2022 U.S. Census Bureau population estimates and 2020 NEI data with 2022 TCEQ point-source EI data to calculate the PWEIs and determine the minimum monitoring requirements for each CBSA. AMNP Appendix E details this assessment by CBSA (with county level EI data) and lists the total number of required and existing SO_2 monitors per CBSA. The TCEQ meets the PWEI requirements with six monitors required in five CBSAs, as shown in AMNP Appendix E.

Data Requirements Rule (DRR) Requirements

Title 40 CFR Part 51, Subpart BB (the DRR) required air agencies to characterize air quality around applicable sources that emitted 2,000 tons per year (tpy) or more of SO_2 in the latest emissions inventory year (2014, at that time, for Texas). The TCEQ identified 24 sources for air quality characterization, including 13 sources identified for evaluation by monitoring. To meet the DRR requirement for characterization of air quality around those sources, 11 SO_2 source-oriented monitors, located near these 13 sources, were installed and operational by January 1, 2017. Details for the TCEQ's DRR SO_2 source evaluation, modeling, and monitoring recommendations are in the TCEQ 2017 AMNP.

The Rockdale John D. Harper and San Antonio Gardner Road SO_2 source-oriented monitors were decommissioned based on design values less than 50% of the 2010 one-hour SO_2 NAAQS, as provided by 40 CFR Section 51.1203(c)(3). The TCEQ Rockdale John D. Harper SO_2 monitor (and entire site), was decommissioned in 2020, due to the sale/lease of the property. This monitor was eligible for decommission based on a design value less than 50% of the 2010 one-hour SO_2 NAAQS from data collected during the first three-year period of operation. The source near the Rockdale John D. Harper site that required DRR SO_2 air quality characterization was shut down in 2017. The San Antonio Gardner Road SO_2 monitor (and entire site), was decommissioned in March 2023. This monitor was eligible for decommission based on a design value less than 50% of the 2010 one-hour SO_2 NAAQS. The source near the San Antonio Gardner Road SO_2 site that required DRR SO_2 air quality characterization was shut down in late

2018. The remaining TCEQ SO_2 monitors fulfilling DRR monitoring requirements are listed in AMNP Table 3.

Table 3: Data Requirements Rule Required SO_2 Monitoring Sites

Core Based Statistical Area	County Name	Air Monitoring Site Name
Amarillo	Potter	Amarillo Xcel El Rancho
Beaumont-Port Arthur	Orange	Orange 1st Street
Beaumont-Port Arthur	Jefferson	Port Arthur West 7th Street Gate 2
Big Spring*	Howard	Big Spring Midway
Borger*	Hutchinson	Borger FM 1559
College Station-Bryan	Robertson	Franklin Oak Grove
Corsicana*	Navarro	Richland Southeast 1220 Road
Longview	Harrison	Hallsville Red Oak Road
Mount Pleasant*	Titus	Cookville FM 4855

* Micropolitan statistical area
FM – farm to market
SO_2 – sulfur dioxide

Title 40 CFR Section 51.1205(b) requires the TCEQ to submit an annual report for areas where modeling of actual SO_2 emissions served as the basis for designating such area as attainment. The report must document the annual SO_2 emissions of each applicable source, provide an assessment of the cause of any emissions increase from the previous year, and make a recommendation regarding further modeling needs. The DRR-required assessment and recommendation are provided in AMNP Appendix F. Where allowable SO_2 emissions served as the basis for designating the area as attainment, air agencies are not subject to ongoing data requirements, see 40 CFR Section 51.1205(c).

Previously Recommended Changes

The TCEQ 2023 AMNP recommended no changes to the SO_2 monitoring network.

Regulatory SO_2 Monitoring Network Changes

The TCEQ evaluated the current SO_2 monitoring network and determined the existing SO_2 network meets all federal monitoring requirements; therefore, no changes are recommended.

Lead (Pb)

The TCEQ lead (Pb) network includes total suspended particulate (TSP) monitors sited in compliance with federal source-oriented SLAMS requirements, as discussed further in this section. The TCEQ Pb network is required to operate three TSP Pb monitors and meets this requirement. AMNP Appendix G lists the Pb network monitoring requirements and the total number of TSP Pb monitors. AMNP Appendix B lists the air monitoring sites with TSP Pb monitors.

Monitoring Requirements

The TCEQ Pb network meets 40 CFR Part 58, Appendix D, Section 4.5 monitoring requirements for Pb. The TCEQ fulfills Pb monitoring requirements with TSP Pb monitors. This section requires state agencies to conduct ambient air Pb monitoring near Pb sources that have been shown or are expected to contribute to a maximum ambient air Pb concentration in excess of the standard. Title 40 CFR Part 58, Appendix D, Section 4.5(a) requires a minimum of one source-oriented ambient air Pb monitoring site to measure maximum concentrations near each non-airport facility emitting 0.50 tpy or more of Pb annually, based on either the most recent NEI data or annual EI data submitted to meet state reporting requirements.

The TCEQ evaluated the 2020, 2021, and 2022 Pb point-source EI data. All Texas 2022 point-source emissions remain below the 0.50 tpy threshold that would trigger Pb monitoring requirements. AMNP Table 4 below includes information regarding historical data for sources that previously exceeded 0.50 tpy annual Pb point-source emissions, thus requiring source-oriented monitoring or a waiver in the last five years.

Table 4: 2020-2022 Lead Point-Source Emissions Inventory Data

Facility Name	County	2020 Pb Emissions (tpy)	2021 Pb Emissions (tpy)	2022 Pb Emissions (tpy)	TCEQ Comments
Lower Colorado River Authority	Fayette	0.1128	0.1320	0.1423	Pb waiver renewal approved April 29, 2021, see Pb Waivers section below for detail
Conecsus, LLC	Kaufman	0.1779	0.2130	0.0833	Pb is monitored at the Terrell Temtex site, pending relocation to Terrell Jamison Court*

*Site temporarily decommissioned on May 31, 2022, due to the property owner revocation of the lease agreement and is pending relocation. (see AMNP Table 12 for additional information)
LLC – limited liability company
Pb – lead
TCEQ – Texas Commission on Environmental Quality
tpy – tons per year

Pb Waivers

Under 40 CFR Part 58, Appendix D, Section 4.5(a)(ii), the EPA Regional Administrator may waive the requirement in 40 CFR Part 58, Appendix D, 4.5(a) for monitoring near specific Pb sources with sufficient demonstration that the Pb source will not contribute to a maximum concentration in ambient air greater than 50% of the NAAQS based on historical monitoring data, modeling, or other approved means. All approved waivers must be renewed every five years as part of the network assessment required under 40 CFR Part 58.10(d).

The TCEQ submitted a Pb modeling analysis for the Lower Colorado River Authority Fayette Power Plant in the 2020 TCEQ *Texas Five-Year Ambient Monitoring Network Assessment.* The Pb modeling analysis demonstration, necessary to request a waiver from the source-oriented Pb monitoring requirement, indicated the predicted maximum ground level concentration for a rolling three-month average continues to remain below 50% of the NAAQS. The EPA Region 6 approved the TCEQ Pb waiver renewal request in a letter dated April 29, 2021. Based on the Lower Colorado River Authority Fayette Power Plant 2020, 2021 and 2022 Pb point-source emission data shown above in AMNP Table 4, the Pb waiver is no longer required.

Collocation Requirements

Title 40 CFR Part 58, Appendix A, Section 3.4.4 requires a primary quality assurance organization to select 15% of the Pb monitoring sites within the network for collocated quality control (QC) monitoring. The first of these monitors should be the one measuring the highest Pb concentrations in the network. Based on the current network of primary Pb monitors, the TCEQ is required to maintain one collocated QC Pb monitor. The TCEQ previously exceeded this requirement with the operation of collocated QC Pb monitors at Frisco Eubanks and Terrell Temtex. Before the revocation of the lease agreement at Terrell Temtex, this monitor measured the highest 2021 network Pb concentrations. This site is currently being relocated and will be re-established as the Terrell Jamison Court site. The new location will include the collocated QC Pb monitor. Collocated QC Pb monitoring will continue at the Frisco Eubanks site.

Previously Recommended Changes

The TCEQ 2023 AMNP recommended no changes to the Pb monitoring network.

Regulatory Pb Monitoring Network Changes

The TCEQ evaluated the current Pb monitoring network and determined the existing Pb network meets all federal monitoring requirements, with the pending deployment of the Terrell Jamison Court site; therefore, no changes are recommended. AMNP Table 12 provides information on the pending relocation of the Terrell Temtex Pb monitoring site to the Terrell Jamison Court site, expected to be deployed by December 31, 2024.

Ozone (O_3)

The TCEQ O_3 network is designed to meet SLAMS, PAMS, and NCore monitoring requirements, as discussed further in this section. The TCEQ O_3 monitoring network is required to operate a total of 27 O_3 monitors in 14 MSAs and exceeds this requirement with 72 O_3 monitors in 15 MSAs and 2 micropolitan statistical areas. AMNP Appendix H lists the O_3 requirements and number of monitors in each MSA. AMNP Appendix B lists the air monitoring sites where O_3 is measured.

Monitoring Requirements

SLAMS Requirements

Title 40 CFR Part 58, Appendix D, Section 4.1 requires O_3 monitoring in each MSA with a population of 350,000 or more persons. Monitoring is also required in MSAs with lower populations if the design value for that MSA is equal to or greater than 85% of the NAAQS. Specific SLAMS O_3 minimum monitoring requirements are included below in AMNP Table 5, an excerpt of 40 CFR Part 58, Appendix D, Table D-2. The TCEQ evaluated 2022 U.S. Census Bureau population estimates and 2020-2022 eight-hour O_3 design values for each Texas MSA. AMNP Appendix H details this assessment by MSA and lists the total number of required and existing SLAMS and NCore/PAMS O_3 monitors per MSA. The TCEQ must operate a minimum of 24 SLAMS and three NCore/PAMS O_3 monitors in Texas MSAs to meet network requirements and exceeds this requirement by operating 72 total O_3 monitors.

Table 5: Ozone SLAMS Minimum Monitoring Requirements

MSA Population	Monitors required for MSAs with most recent 3-year design value concentrations ≥85% of any O_3 NAAQS[1]	Monitors required for MSAs with most recent 3-year design value concentrations <85% of any O_3 NAAQS[2, 3]
>10,000,000	4	2
4,000,000 to 10,000,000	3	1
350,000 to <4,000,000	2	1
50,000 to <350,000	1	0

[1]The ozone (O_3) National Ambient Air Quality Standards (NAAQS) levels are defined in 40 CFR Part 50.
[2] These minimum monitoring requirements apply in the absence of a design value.
[3]MSA must contain an urbanized area of 50,000 or more population and are designated by the United States Office of Management and Budget.
≥ - greater than or equal to
< - less than
> - greater than
% - percent
MSA – metropolitan statistical area
SLAMS – State or Local Air Monitoring Stations

Previously Recommended Changes

The TCEQ 2023 AMNP recommended no changes to the O_3 monitoring network.

Regulatory O_3 Monitoring Network Changes

The TCEQ evaluated the current O_3 monitoring network and determined the existing O_3 network meets all federal monitoring requirements; therefore, no changes are recommended.

Carbon Monoxide (CO)

The TCEQ CO network includes ambient CO and high sensitivity CO monitoring to meet federal monitoring requirements, as discussed here and in the NCore section above. The TCEQ CO network is designed to meet NCore and near-road monitoring requirements. The agency is required to operate seven total CO monitors and exceeds the requirements with 12 monitors: eight CO monitors measuring full-scale concentrations and four high sensitivity CO monitors measuring trace-level concentrations. AMNP Appendix I lists the required and current CO monitors in each CBSA. AMNP Appendix B lists the air monitoring sites where CO is measured.

Monitoring Requirements

Near-Road Requirements

Title 40 CFR Part 58, Appendix D, Section 4.2 requires collocating one CO monitor with one required near-road NO_2 monitor in CBSAs with populations of 1,000,000 or more persons. The TCEQ meets this requirement with CO monitors at the near-road sites below.

- DFW CBSA: Fort Worth California Parkway North
- Houston CBSA: Houston North Loop
- San Antonio CBSA: San Antonio Interstate 35
- Austin CBSA: Austin North Interstate 35

Previously Recommended Changes

The TCEQ 2019 AMNP recommended replacing the San Antonio Interstate 35 CO monitor with a high sensitivity CO monitor. Due to equipment resource constraints, the TCEQ removes this recommendation and will evaluate resources in the future to determine if replacement is possible.

Regulatory CO Monitoring Network Changes

The TCEQ evaluated the current CO monitoring network and determined the existing CO network meets all federal monitoring requirements; therefore, no changes are recommended.

Particulate Matter of 10 Micrometers or Less (PM_{10})

The TCEQ particulate matter of 10 micrometers or less in diameter (PM_{10}) network is designed to meet SLAMS monitoring requirements based on MSA populations and 24-hour concentration data, as discussed further in this section. The TCEQ is required to operate between 17 and 44 PM_{10} monitors, depending on the PM_{10} concentrations observed in each MSA, and meets this requirement with 24 monitors. AMNP Appendix J lists the required and current PM_{10} monitors in each MSA. AMNP Appendix B lists the air monitoring sites where PM_{10} is measured.

Monitoring Requirements

The TCEQ PM_{10} network is designed to meet the SLAMS requirements under 40 CFR Part 58, Appendix D, Section 4.6, which provides the minimum number of PM_{10} monitors required in MSAs based on population and available measured concentrations. Specific PM_{10} monitoring requirements are listed in AMNP Table 6 below, an excerpt of 40 CFR Part 58, Appendix D, Table D-4. Modifications from these PM_{10} monitoring requirements must be approved by the EPA Regional Administrator. Compliance with the PM_{10} standard is based on the number of measured exceedances of the 24-hour 150 micrograms per cubic meter ($\mu g/m^3$) standard averaged over three years. The TCEQ evaluated 2022 U.S. Census Bureau population estimates and 2020-2022 PM_{10} maximum 24-hour concentration data for each Texas MSA. AMNP Appendix J, Table 1, details this evaluation by MSA and lists the range of required and existing SLAMS PM_{10} monitors per MSA.

Table 6: Particulate Matter of 10 Micrometers or Less SLAMS Minimum Monitoring Requirements

MSA Population	PM_{10} monitors required for MSAs with high concentration[1]	PM_{10} monitors required for MSAs with medium concentration[2]	PM_{10} monitors required for MSAs with low concentration[3]
>1,000,000	6-10	4-8	2-4
500,000 to 1,000,000	4-8	2-4	1-2
250,000 to 500,000	3-4	1-2	0-1
100,000 to 250,000	1-2	0-1	0

> – greater than

[1]High Concentration areas are those for which ambient PM_{10} data show ambient concentrations exceeding the PM_{10} National Ambient Air Quality Standards (NAAQS) by 20 percent or more.

[2]Medium Concentration areas are those for which ambient PM_{10} data show ambient concentrations exceeding 80 percent of the PM_{10} NAAQS.

[3]Low Concentration areas are those for which ambient PM_{10} data show ambient concentrations less than 80 percent of the PM_{10} NAAQS.

MSA – metropolitan statistical area

PM_{10} – particulate matter of 10 micrometers or less in diameter

Collocation Requirements

Title 40 CFR Part 58, Appendix A, Section 3.3.4 requires a primary quality assurance organization to select 15% of the PM_{10} manual filter-based monitors within the network for collocated QC sampling. Collocated QC sampling for PM_{10} is only required for manual monitors. At least 50% of the selected manual filter-based monitors should have an annual mean particulate matter concentration among the highest in the network. AMNP Appendix J, Table 2 lists the PM_{10} manual filter-based monitors' maximum 24-hour concentration measurements during the three-year period from 2020-2022 and includes the 2020, 2021, and 2022 annual mean concentrations. The TCEQ evaluates the PM_{10} manual filter-based concentration data annually to ensure the PM_{10} collocated QC monitors continue to meet 40 CFR Part 58, Appendix A, Section 3.3.4.2. The Clinton monitor measured 2020 to 2022 PM_{10} annual mean concentrations among the highest in the TCEQ PM_{10} manual filter-based network. Based on the current network of 15 PM_{10} manual monitors, the TCEQ is currently required to operate two manual PM_{10} collocated QC monitors and exceeds this requirement with the three monitors listed below. As noted below, the number of required manual PM_{10} collocated QC monitors will change to one due to planned continuous monitor upgrades.

- Houston CBSA: Clinton - PM_{10} FRM manual filter-based with collocated QC PM_{10} FRM manual filter-based
- DFW CBSA: Convention Center - PM_{10} FRM manual filter-based with collocated QC PM_{10} FRM manual filter-based
- El Paso CBSA: Ojo De Agua - PM_{10} FRM manual filter-based with collocated QC PM_{10} FRM manual filter-based

Previously Recommended Changes

In the 2022 AMNP, the TCEQ recommended replacing the PM_{10} continuous non-NAAQS comparable monitors necessary to report $PM_{10\text{-}2.5}$ data at NCore sites (Dallas Hinton, El Paso Chamizal, and Houston Deer Park #2, detailed in AMNP Table 1) with PM_{10} FEM continuous monitors. These monitors were replaced in 2023 and the deployment dates are listed in below in AMNP Table 7.

In the 2023 AMNP, the TCEQ recommended replacing the Convention Center PM_{10} FRM manual filter-based monitor with a continuous PM_{10} FEM monitor, and this replacement is expected by December 31, 2024. The TCEQ also recommended to discontinue or relocate the PM_{10} FRM manual collocated QC monitors at Convention Center, Ojo De Agua, and Socorro Hueco when the primary PM_{10} FRM manual monitors were replaced with a continuous PM_{10} FEM monitor. The Socorro Hueco filter-based PM_{10} monitor was replaced with a continuous PM_{10} FEM monitor on May 8, 2024, and the redundant Socorro Hueco collocated QC PM_{10} FRM manual filter-based monitor was discontinued on May 7, 2024. The Convention Center and Ojo De Agua continuous PM_{10} FEM monitor replacements are pending and expected to be completed by December 31, 2024. PM_{10} FRM manual collocated QC monitors will continue to operate until the primary PM_{10} FRM manual monitors are replaced with continuous PM_{10} FEM monitors.

The Dona Park filter-based PM_{10} monitor was replaced with a continuous PM_{10} FEM monitor on January 31, 2024. The TCEQ continues to upgrade the PM_{10} network by replacing PM_{10} FRM manual filter-based monitors with PM_{10} FEM continuous monitors. The upgrade and deployment statuses are listed below in AMNP Table 7.

Table 7: Particulate Matter of 10 Micrometers or Less Monitor Upgrade Status

Metropolitan Statistical Area	Site Name	Existing Monitor	New Monitor	Status
Austin-Round Rock-San Marcos	Austin Webberville Road	PM_{10} FRM manual filter-based	PM_{10} FEM continuous	Completed November 9, 2023
Dallas-Fort Worth-Arlington	Convention Center	PM_{10} FRM manual filter-based	PM_{10} FEM continuous	Expected by December 31, 2024
Dallas-Fort Worth-Arlington	Dallas Bexar	PM_{10} FRM manual filter-based	PM_{10} FEM continuous	Expected by December 31, 2024
Dallas-Fort Worth-Arlington	Dallas Hinton	PM_{10} continuous (non-NAAQS comparable)	PM_{10} FEM continuous	Completed June 27, 2023
Corpus Christi	Dona Park	PM_{10} FRM manual filter-based	PM_{10} FEM continuous	Completed January 31, 2024
El Paso	El Paso Chamizal	PM_{10} continuous (non-NAAQS comparable)	PM_{10} FEM continuous	Completed July 12, 2023
El Paso	Ivanhoe	PM_{10} FRM manual filter-based	PM_{10} FEM continuous	Expected by December 31, 2024
El Paso	Ojo De Agua	PM_{10} FRM manual filter-based	PM_{10} FEM continuous	Expected by December 31, 2024
El Paso	Socorro Hueco	PM_{10} FRM manual filter-based	PM_{10} FEM continuous	Completed May 8, 2024
El Paso	El Paso Mimosa	PM_{10} FRM manual filter-based	PM_{10} FEM continuous	Expected by December 31, 2025
El Paso	Van Buren	PM_{10} FRM manual filter-based	PM_{10} FEM continuous	Expected by December 31, 2025
Houston-Pasadena-The Woodlands-	Clinton	PM_{10} FRM manual filter-based	PM_{10} FEM continuous	Expected by December 31, 2024
Houston-Pasadena-The Woodlands	Texas City Fire Station	PM_{10} FRM manual filter-based	PM_{10} FEM continuous	Expected by December 31, 2024
Houston-Pasadena-The Woodlands	New Site: Houston Finnigan Park, pending site deployment	None	PM_{10} FEM continuous	Expected by December 31, 2024
McAllen-Edinburg-Mission	Mission	PM_{10} FRM manual filter-based	PM_{10} FEM continuous	Completed October 11, 2023
San Antonio-New Braunfels	San Antonio Bulverde Parkway	PM_{10} FRM manual filter-based	PM_{10} FEM continuous	Completed November 15, 2023

- number
FEM – federal equivalent method
FRM – federal reference method designated for manual filter-based instruments
NAAQS – National Ambient Air Quality Standards
PM_{10} – particulate matter of 10 micrometers or less in diameter

Regulatory PM_{10} Monitoring Network Changes

The TCEQ recommends replacing and upgrading the Clinton, El Paso Mimosa, and the Van Buren PM_{10} FRM manual filter-based monitors with a continuous PM_{10} FEM monitor. All PM_{10} monitor upgrades and statuses are listed above in AMNP Table 7.

There is no federal requirement for continuous PM_{10} FEM method QC collocation and the TCEQ recommends relocating or discontinuing the PM_{10} FRM manual filter-based collocated QC monitors when the primary monitor is replaced with a continuous PM_{10} FEM monitor. The TCEQ will maintain 15% collocation of PM_{10} manual monitors to meet the collocation requirements described above. The TCEQ recommended to add a PM_{10} FRM manual filter-based collocated QC monitor to El Paso Mimosa in the 2023 AMNP. This recommendation will not be implemented due to the new plan to upgrade the El Paso Mimosa primary PM_{10} FRM manual filter-based monitor to PM_{10} FEM continuous. AMNP Table 7 above lists the pending PM_{10} network changes. With the completion of these changes of PM_{10} FRM manual filter-based monitor upgrades to continuous, the TCEQ will have six remaining PM_{10} FRM manual filter-based monitors requiring one manual PM_{10} collocated QC monitor. The PM_{10} FRM method QC collocation recommended changes are listed below.

- Clinton – relocate PM_{10} manual collocated QC monitor to Houston Monroe by December 31, 2024, (primary PM_{10} FEM continuous monitor will remain at Clinton).

Particulate Matter of 2.5 Micrometers or Less ($PM_{2.5}$)

The TCEQ $PM_{2.5}$ monitoring network includes a combination of non-continuous FRM, continuous FEM, and non-NAAQS comparable monitors designed to meet SLAMS area, regional background, regional transport, NCore, and near-road network requirements, as discussed further in this section. $PM_{2.5}$ monitor types are detailed in Appendix B and Appendix K, Table 2. The TCEQ is required to operate 37 FRM, FEM, $PM_{10\text{-}2.5}$, or speciated $PM_{2.5}$ monitors and exceeds the requirements with 71 monitors. An analysis of $PM_{2.5}$ monitoring requirements in each Texas MSA using the 2024 $PM_{2.5}$ NAAQS, 2022 U.S. Census Bureau population estimates, and 2020-2022 $PM_{2.5}$ design values is provided in AMNP Appendix K. AMNP Appendix K, Table 2 details 2020-2022 design values and the total number of existing $PM_{2.5}$ monitors per site per MSA. AMNP Appendix B lists the air monitoring sites where $PM_{2.5}$ is measured.

Monitoring Requirements

General and Continuous Requirements

Title 40 CFR Part 58, Appendix D, Section 4.7 requires SLAMS $PM_{2.5}$ monitoring in MSAs with populations of 500,000 or more persons and in MSAs with lower populations if measured $PM_{2.5}$ design values for an MSA equal or exceed 85% of the NAAQS. Specific $PM_{2.5}$ monitoring requirements are listed in AMNP Table 8 below, with an excerpt of 40 CFR Part 58, Appendix D, Table D-5. Under 40 CFR Part 58, Appendix D, Section 4.7.2, the TCEQ must operate continuous $PM_{2.5}$ monitors equal to at least one-half the required number of SLAMS-required sites in each MSA. The TCEQ meets and/or exceeds this requirement by operating continuous $PM_{2.5}$ monitors in all Texas MSAs, shown in AMNP Appendix K, Table 2. Additionally, 40 CFR Part 58, Appendix D, Section 4.7.3 requires each state to install and operate at least one $PM_{2.5}$ site to monitor for regional background and at least one $PM_{2.5}$ site to monitor regional transport. AMNP

Appendix B lists monitors meeting the regional background and transport requirements. Per 40 CFR Section 58.30, monitors that are not suitable for comparison against the annual or the 24-hour $PM_{2.5}$ NAAQS are noted individually as non-NAAQS comparable in the AMNP Appendix B site list and in AMNP Appendix K, Table 2.

Table 8: Particulate Matter of 2.5 Micrometers or Less SLAMS Minimum Monitoring Requirements

MSA population	$PM_{2.5}$ monitors required for MSAs with most recent 3-year design value ≥85% of any $PM_{2.5}$ NAAQS	$PM_{2.5}$ monitors required for MSAs with most recent 3-year design value <85% of any $PM_{2.5}$ NAAQS
>1,000,000	3	2
500,000 to 1,000,000	2	1
50,000 to <500,000	1	0

< – less than
> – greater than
≥ – greater than or equal to
% - percent
MSA – metropolitan statistical area
NAAQS – National Ambient Air Quality Standards
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter
SLAMS – State or Local Air Monitoring Stations

Near-Road $PM_{2.5}$ Requirements

Title 40 CFR Part 58, Appendix D, Section 4.7.1(b)(2) requires collocating one FRM or FEM $PM_{2.5}$ monitor with one required near-road NO_2 monitor in CBSAs with populations of 1,000,000 or more persons. The TCEQ meets this requirement with $PM_{2.5}$ monitors at the near-road sites listed below and listed in AMNP Appendix K, Table 2.

- DFW CBSA: Fort Worth California Parkway North
- Houston CBSA: Houston North Loop
- San Antonio CBSA: San Antonio Interstate 35
- Austin CBSA: Austin North Interstate 35

Collocation Requirements

Title 40 CFR Part 58, Appendix A, Section 3.2.3 requires a primary quality assurance organization to select 15% of the $PM_{2.5}$ primary monitors of each method designation (FRM or FEM) for collocated QC sampling. Based on the current network of five primary $PM_{2.5}$ FRM monitors, the TCEQ is required to operate one collocated QC $PM_{2.5}$ FRM (FRM/FRM collocation) monitor and exceeds this requirement with the two monitors listed below.

- Houston CBSA: Clinton $PM_{2.5}$ FRM with collocated QC $PM_{2.5}$ FRM, method 145
- DFW CBSA: Dallas Hinton $PM_{2.5}$ FRM with collocated QC $PM_{2.5}$ FRM, method 145

For each primary monitor designated as an FEM, 50% of the monitors designated for collocation shall be collocated with an FRM (FRM/FEM) and 50% shall be collocated with a monitor having the same method designation as the FEM primary monitor (FEM/FEM). Fifty percent of the collocated QC monitors must be deployed at sites with annual average or daily concentrations estimated to be within plus or minus 20% of either the annual or 24-hour standard.

Based on the current $PM_{2.5}$ network of 43 FEM monitors designated with method code 209, the TCEQ is required to operate six collocated QC monitors pursuant to 40 CFR

Part 58, Appendix A, Section 3.2.3.2(b). AMNP Appendix B and Appendix K, Table 2 identify site placement of BAM-1022 method code 209 monitors. The TCEQ meets the $PM_{2.5}$ method code 209 requirement with three same-method collocated (FEM/FEM collocation) monitors and four different-method collocated (FEM/FRM collocation) monitors at the sites listed below in AMNP Table 9.

Table 9: Method Code 209 Particulate Matter of 2.5 Micrometers or Less FEM Quality Control Collocation Monitor Types and Sites

$PM_{2.5}$ FEM Primary Monitor Method Code	Collocated QC Monitor Type and Method Code	Site Name
209	$PM_{2.5}$ FRM manual filter-based, method 145	Midlothian North Ward Road (pending site relocation)
209	$PM_{2.5}$ FEM, method 209	Corpus Christi Huisache
209	$PM_{2.5}$ FRM manual filter-based, method 145	San Antonio Northwest
209	$PM_{2.5}$ FEM, method 209	Fort Worth California Parkway North
209	$PM_{2.5}$ FRM manual filter-based, method 145	Houston Aldine
209	$PM_{2.5}$ FEM, method 209	Port Arthur Memorial School
209	$PM_{2.5}$ FRM manual filter-based, method 145	Ascarate Park Southeast (Deployed May 9, 2024)

FEM – federal equivalent method
FRM – federal reference method
$PM_{2.5}$ – particulate matter of 2.5 micrometers in diameter or less
QC – quality control

In 2023, the TCEQ deployed a new $PM_{2.5}$ FEM monitor designated by method code 638 to replace aging equipment. Based on the current $PM_{2.5}$ network of eight $PM_{2.5}$ FEM monitors designated with method code 638, the TCEQ is required to operate one collocated QC monitor. AMNP Appendix B and Appendix K, Table 2 identify site placement of T640x method code 638 monitors. The TCEQ exceeds the $PM_{2.5}$ method code 638 collocated QC requirement with two different-method collocated (FEM/FRM collocation) monitors and one same-method collocated (FEM/FEM collocation) monitor deployed May 7, 2024, at the sites listed below in AMNP Table 10.

Additional information regarding the TCEQ $PM_{2.5}$ collocation QC designations are listed in AMNP Appendix B.

Table 10: Method Code 638 Particulate Matter of 2.5 Micrometers or Less FEM Quality Control Collocation Monitor Types and Sites

$PM_{2.5}$ FEM Primary Monitor Method Code	Collocated QC Monitor Type and Method Code	Site Name
638	$PM_{2.5}$ FRM manual filter-based, method 145	Dallas Hinton
638	$PM_{2.5}$ FEM, method 638	Socorro Hueco (Deployed May 7, 2024)
638	$PM_{2.5}$ FRM manual filter-based, method 145	El Paso Chamizal

- number
FEM – federal equivalent method
FRM – federal reference method
$PM_{2.5}$ – particulate matter of 2.5 micrometers in diameter or less
QC – quality control

Previously Recommended Changes

The TCEQ 2022 AMNP recommended $PM_{2.5}$ monitoring at new sites in the Houston Fifth Ward, Houston Pleasantville neighborhood, and in the Gregory-Portland area in San Patricio County. In a letter dated March 3, 2023, the EPA acknowledged the new site additions and noted that the air monitoring sites were not federally required and were thus at the discretion of the TCEQ. The TCEQ utilized input from community groups to evaluate areas for the establishment of new ambient air monitoring sites at Finnigan Park in the Houston Fifth Ward and at Pleasantville Elementary School in the Houston Pleasantville area. Construction permits for the Houston Finnigan Park and Houston Pleasantville Elementary air monitoring sites are pending issuance by the City of Houston. The TCEQ expects to activate the special purpose monitors by December 31, 2024, shortly after the site construction is completed. The TCEQ is evaluating site options for the establishment of a new ambient air monitoring site in the Gregory-Portland area. The TCEQ continues to work with property owners to establish site usage agreements and to deploy the special purpose monitors by August 31, 2025.

In a letter dated April 23, 2024, the TCEQ recommended changing the $PM_{2.5}$ FEM method code 209 collocated QC monitor from Dona Park to Midlothian North Ward Road to meet federal requirements since the Dona Park primary $PM_{2.5}$ FEM monitor was upgraded to method code 638. The TCEQ also recommended changing the $PM_{2.5}$ FEM method code 209 collocated QC monitor from Austin Webberville to Ascarate Park SE, exceeding federal requirements, since the Austin Webberville primary $PM_{2.5}$ FEM monitor was upgraded to method code 638. The TCEQ deployed a $PM_{2.5}$ FRM method code 145 collocated QC monitor, sampling every 12th day, to Ascarate Park Southeast on May 9, 2024. The EPA approved the $PM_{2.5}$ FEM method code 209 QC collocation changes to Midlothian North Ward Road and Ascarate Park Southeast in a letter dated June 21, 2024. The TCEQ will continue to discuss method code 209 collocated QC requirements for the Austin CBSA with the EPA Region 6.

The EPA approved the TCEQ recommendation to change the site location of the previously approved $PM_{2.5}$ FEM method code 638 collocated QC monitor from the El Paso UTEP site to the Socorro Hueco site in a letter dated June 21, 2024. This site change will maximize current resources while the El Paso UTEP site relocation is pending redeployment. The TCEQ upgraded the Socorro Hueco non-NAAQS comparable $PM_{2.5}$ continuous monitor with a $PM_{2.5}$ FEM continuous method code 638 monitor on May 8, 2024, and deployed a $PM_{2.5}$ FEM method code 638 collocated QC monitor on May 7, 2024, as noted in Tables 10 and 11.

The TCEQ continues to complete previously recommended changes including the replacement of $PM_{2.5}$ FRM non-continuous monitors and non-NAAQS comparable $PM_{2.5}$ continuous monitors ($PM_{2.5}$ TEOMs) with $PM_{2.5}$ FEM continuous monitors. The status of previously approved $PM_{2.5}$ recommendations are listed in AMNP Table 11.

Table 11: Previously Approved Particulate Matter of 2.5 Micrometers or Less Summary of Changes

Site Name	Monitor(s) Replaced	New Monitor	Action	Status
Ascarate Park Southeast	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Completed May 9, 2024
Clinton	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Expected to be completed by December 31, 2024
Dallas Bexar Street	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Expected to be completed by December 31, 2024
Dona Park	$PM_{2.5}$ FEM, method code 209	$PM_{2.5}$ FEM, method code 638	Method code change	Completed January 31, 2024
El Paso UTEP	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Pending site relocation
Houston Finnigan Park (new site in Fifth Ward)	None – new monitor	$PM_{2.5}$ FEM continuous	Deploy	Expected to be completed by December 31, 2024
Houston Pleasantville (new site in Pleasantville neighborhood)	None – new monitor	$PM_{2.5}$ FEM continuous	Deploy	Expected to be completed by December 31, 2024
Midlothian North Ward Road	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Pending site relocation, expected to be completed by December 31, 2024
New site – Gregory-Portland area	None – new monitor	$PM_{2.5}$ FEM continuous	Deploy	Expected to be completed by August 31, 2025
Old Highway 90	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Deploy	Expected to be completed by August 31, 2024

Site Name	Monitor(s) Replaced	New Monitor	Action	Status
San Antonio Bulverde Parkway	$PM_{2.5}$ TEOM (state-initiative)	$PM_{2.5}$ FEM continuous	Add as federal special purpose monitoring for spatial coverage	Completed November 15, 2023
Skyline Park	None – new monitor	$PM_{2.5}$ FEM continuous	Deploy	Expected to be completed by August 31, 2024
Socorro Hueco	$PM_{2.5}$ TEOM	$PM_{2.5}$ FEM continuous	Method code change	Completed May 8, 2024

FEM – federal equivalent method
FRM – federal reference method
$PM_{2.5}$ – particulate matter of 2.5 micrometers or less in diameter
TEOM – tapered element oscillating microbalance
UTEP – University of Texas at El Paso

Regulatory $PM_{2.5}$ Monitoring Network Changes

The TCEQ plans to upgrade the $PM_{2.5}$ non-NAAQS comparable monitor at Clinton to a $PM_{2.5}$ FEM continuous monitor (listed in AMNP Table 11 above). Once the Clinton $PM_{2.5}$ FEM monitor is operational, the TCEQ recommends decreasing the Clinton $PM_{2.5}$ FRM filter-based manual monitor sampling frequency from daily to once every six days.

The Midlothian North Ward Road $PM_{2.5}$ FEM method code 209 monitor upgrade is expected by December 31, 2024. The existing Midlothian North Ward Road $PM_{2.5}$ FRM monitor, sampling every 6th day for special purpose speciation, will support QC collocation for $PM_{2.5}$ method code 209 FEM/FRM. The combination of the Midlothian North Ward Road primary $PM_{2.5}$ FEM method code 209 monitor and the $PM_{2.5}$ FRM method code 145 monitor will support QC collocation for $PM_{2.5}$ method code 209 FEM/FRM, also noted in Table 9.

Volatile Organic Compounds (VOC)

The TCEQ VOC network is designed to meet PAMS requirements, as discussed further in this section. The TCEQ is required to operate two VOC monitors and exceeds this requirement with 12 monitors. For purposes of meeting federal PAMS requirements, the TCEQ VOC network includes eight automated gas chromatograph (autoGC) continuous monitors and four non-continuous canister monitors. AMNP Appendix L, Table 1 lists the number of required and current VOC monitors in each Texas CBSA. AMNP Appendix B lists the air monitoring sites where VOCs are measured.

Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 5 requires state agencies to collect speciated VOC hourly-averaged measurements at NCore sites located in CBSAs with a population of 1,000,000 or more persons as part of the PAMS network requirements. The TCEQ exceeds PAMS required VOC monitoring requirements with autoGCs at the two PAMS sites listed in AMNP Table 2 and at six other sites as listed in AMNP Appendix B.

Previously Recommended Changes

The TCEQ 2022 and 2023 AMNPs recommended adding non-regulatory, state-initiative VOC monitoring at the new sites in the Houston Fifth Ward, Houston Pleasantville neighborhood, and in the Gregory-Portland area in San Patricio County. The TCEQ utilized input from community groups to evaluate areas for the establishment of a new ambient air monitoring site at Finnigan Park in the Houston Fifth Ward area and at Pleasantville Elementary School in the Houston Pleasantville area. Construction permits for the Houston Finnigan Park and Houston Pleasantville Elementary air monitoring sites are pending issuance by the City of Houston. The TCEQ expects to deploy the non-regulatory, state-initiative VOC monitors by December 31, 2024, shortly after the site construction is completed.

The TCEQ is evaluating site options for the establishment of a new ambient air monitoring site in the Gregory-Portland area. The TCEQ continues to work with the property owners to establish site usage agreements and to deploy the state-initiative, special purpose VOC monitor by August 31, 2025.

Regulatory and Non-Regulatory VOC Monitoring Network Changes

The TCEQ evaluated the current regulatory VOC monitoring network and determined the existing VOC network meets all federal monitoring requirements; therefore, no additional changes are recommended.

Carbonyls

The TCEQ carbonyl monitoring network is designed to meet PAMS requirements, as discussed further in this section. The TCEQ is required to operate two carbonyl monitors and exceeds this requirement with four monitors. AMNP Appendix L, Table 2 lists the number of required and current carbonyl monitors in each Texas CBSA. AMNP Appendix B lists the air monitoring sites where carbonyls are measured.

Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 5 requires state agencies to collect PAMS carbonyl measurements with three eight-hour averaged samples taken every third day at each NCore site located in CBSAs with a population of 1,000,000 or more persons. The TCEQ exceeds carbonyl monitoring requirements with carbonyl monitors at the two required PAMS sites listed in AMNP Table 2 and at two other sites listed in AMNP Appendix B.

Previously Recommended Changes

The TCEQ 2023 AMNP recommended no changes to the carbonyl monitoring network.

Regulatory Carbonyl Monitoring Network Changes

The TCEQ evaluated the current carbonyl monitoring network and determined the existing carbonyl network meets all federal monitoring requirements; therefore, no changes are recommended.

Meteorology

The TCEQ meteorology monitoring network includes surface meteorology parameters (solar radiation, wind speed, wind direction, and temperature), upper air measurements (mixing height), and other meteorological parameters, as discussed further in this section. Surface meteorology is measured at most air monitoring stations and additional meteorology parameters are required at PAMS monitoring stations. All meteorology monitors in the TCEQ network are included in AMNP Appendix B.

Monitoring Requirements

Title 40 CFR Part 58, Appendix D, Section 5 requires state agencies to collect PAMS surface and upper air meteorology measurements at all NCore sites in CBSAs with a population of 1,000,000 or more persons. Meteorological PAMS measurements at the required PAMS sites (or alternatively approved waiver locations) include measurements of wind speed, wind direction, outdoor temperature, atmospheric pressure, relative humidity, precipitation, hourly averaged mixing-height, solar radiation, and ultraviolet radiation. The TCEQ meets these meteorological monitoring requirements with measurements collected at the Dallas Hinton, Houston Deer Park #2, and La Porte Airport sites.

Previously Recommended Changes

The TCEQ 2019 AMNP recommended several meteorology monitoring changes that were approved by the EPA in a letter dated November 4, 2019. The TCEQ recommended deploying wind speed, wind direction, and outdoor temperature monitors to a new air monitoring site, Dallas Bexar Street, in the Dallas County southern sector. The new Dallas Bexar Street wind speed, wind direction, and outdoor temperature monitors are expected to be operational by December 31, 2024. The TCEQ recommended deploying a ceilometer to the San Antonio Northwest site, but due to equipment resource constraints, the TCEQ removes this recommendation and will evaluate resources in the future.

The TCEQ 2023 AMNP recommended deploying wind speed, wind direction, and outdoor temperature monitors to a second near-road monitoring station in the San Antonio CBSA at San Antonio Sherwood Drive. The TCEQ experienced unexpected challenges obtaining power to the recommended site and evaluated alternative near-road site options on the same road segment, ranked with an AADT of 10. The TCEQ identified a suitable location for the San Antonio near-road station on Interstate Highway (IH) 10 West Frontage Road and Scales Street. The EPA approved the revised location for the near-road air monitoring station, San Antonio Interstate 10 West, in a letter dated November 27, 2023. The TCEQ expects to deploy the site and wind speed, wind direction, and outdoor temperature monitors shortly after site construction is completed, sometime before December 31, 2024.

The TCEQ recommended deploying wind speed, wind direction, and outdoor temperature monitors to the new air monitoring sites in the Houston Fifth Ward, the Houston Pleasantville neighborhood, and the Gregory-Portland area. The Houston Fifth Ward and the Houston Pleasantville neighborhood monitors are expected to be operational by December 31, 2024. The Gregory-Portland area monitor is expected to be operational by August 31, 2025.

Regulatory Meteorology Monitoring Network Changes

The TCEQ is upgrading older meteorology technology to new all-in-one sonic weather sensors as equipment becomes available. The new sensor provides measurements of wind speed, wind direction, and ambient air temperature with options to report relative humidity and barometric pressure.

The TCEQ recommends redesignating the wind speed, wind direction, and outdoor temperature monitors at the Old Highway 90 site as federal special purpose monitors to support the federal $PM_{2.5}$ special purpose monitor.

Air Monitoring Site Relocations

The TCEQ establishes property site usage agreements as a contractual means to locate and operate a continuous air monitoring station on public or privately owned land. Property owners retain the right to revoke the usage agreement at any time. When possible, the TCEQ works with the existing property owner to identify another suitable air monitoring site location. In some circumstances, a new location must be identified, and a new site usage agreement implemented. The TCEQ is relocating the air monitoring sites listed in AMNP Table 12. The existing site and monitoring equipment remain operational unless noted. Existing site and air monitoring details are provided in Appendix B.

Table 12: Air Monitoring Site Relocations

Site Name	New Site Name	New Site Address	Reason for Relocation	Status
Baytown Garth	No change	4898 ½ Ashbel Cove Drive, Baytown, Texas	Relocation 0.33 mile northwest due to property owner revocation of usage agreement (sale of property), approved by the EPA in a letter dated November 15, 2022	Completed September 13, 2023
Earhart	Pending site selection	Pending site selection	Relocation due to property owner revocation of usage agreement	Site remains active, expected by December 2025
El Paso UTEP	Pending site selection	Pending site selection	Relocation pending due to property owner revocation of usage agreement (building expansion over site location)	Site temporarily deactivated November 2021, expected by December 2025
Houston Deer Park #2	Houston Deer Park	4413 Glenwood Avenue, Deer Park, Texas	Relocation less than 0.1 mile west of existing site due to property owner revocation of usage agreement (park expansion), approved by the EPA in a letter dated May 18, 2022	Site remains active, expected by December 2025

Site Name	New Site Name	New Site Address	Reason for Relocation	Status
Midlothian OFW	Midlothian North Ward Road	891 North Ward Road, Midlothian, Texas	Relocation approximately 0.7 mile southwest on current property due to property owner revocation of site access (new property owners), approved by the EPA in a letter dated November 17, 2023, site construction pending	Site temporarily deactivated April 22, 2022, expected by December 2024
Terrell Temtex	Terrell Jamison Court	8 Jamison Court, Terrell, Texas	Relocation approximately 0.2 mile south due to property owner revocation of usage agreement (building expansion), approved by the EPA in a letter dated January 9, 2024, site construction pending.	Site temporarily deactivated May 31, 2022, expected by December 2024
Mission	No change	No change	Relocation 40 feet west due to property owner revocation of site access (parking lot expansion), approved by the EPA in a letter dated March 2, 2023	Completed October 11, 2023

- number sign
EPA – United States Environmental Protection Agency
OFW – Old Fort Worth
UTEP – University of Texas at El Paso

Conclusion

As discussed in this report, the TCEQ has evaluated all federal requirements for ambient air quality monitoring and reviewed the TCEQ ambient air quality monitoring network. After consideration of the federal regulations, 2022 U.S. Census Bureau population estimate data, EI data, and 2020-2022 design values, the TCEQ has determined that it will meet or exceed all monitoring requirements with the above-mentioned recommendations for the next calendar year.

Appendix A

2024 Summary of Proposed Network Changes

Texas Commission on Environmental Quality
2024 Annual Monitoring Network Plan

Appendix A: 2024 Summary of Proposed Network Changes

Metropolitan Statistical Area	Air Monitoring Site Name	Parameter(s)	Proposed Action	Estimated Completion Date
El Paso	El Paso Mimosa	PM_{10} FEM continuous	Replace manual filter-based monitor with continuous FEM monitor	December 31, 2025
El Paso	Van Buren	PM_{10} FEM continuous	Replace manual filter-based monitor with continuous FEM monitor	December 31, 2025
Houston-Pasadena-The Woodlands	Houston Monroe	PM_{10} FEM continuous	Deploy manual filter-based collocated quality control monitor	December 31, 2024
Houston-Pasadena-The Woodlands	Clinton	PM_{10} FRM collocated quality control	Relocate redundant manual filter-based collocated quality control monitor	December 31, 2024
Houston-Pasadena-The Woodlands	Clinton	$PM_{2.5}$ FRM	Reduce sampling frequency to once every six days	December 31, 2024
Dallas-Fort Worth-Arlington	Midlothian North Ward Road	$PM_{2.5}$ FRM collocated quality control	Assign existing manual filter-based monitor as collocated quality control	December 31, 2024
San Antonio-New Braunfels	Old Highway 90	wind speed, wind direction, and outdoor temperature	Add existing monitors data to federal network	December 31, 2024

FEM – federal equivalent method
FRM - federal equivalent method
PM_{10} – particulate matter of 10 micrometers or less in diameter
PM_{10} – particulate matter of 10 micrometers or less in diameter

Appendix B

Ambient Air Monitoring Network Site List

Texas Commission on Environmental Quality
2024 Annual Monitoring Network Plan

Appendix B: Ambient Air Monitoring Network Site List

MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Amarillo, TX	Amarillo 24th Avenue	483751025	4205 NE 24th Avenue, Amarillo	SO_2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood	Suburban	35.236734	-101.787377
Amarillo, TX	Amarillo 24th Avenue	483751025	4205 NE 24th Avenue, Amarillo	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	35.236734	-101.787377
Amarillo, TX	Amarillo 24th Avenue	483751025	4205 NE 24th Avenue, Amarillo	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	35.236734	-101.787377
Amarillo, TX	Amarillo A&M	483750320	6500 Amarillo Blvd West, Amarillo	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Urban Scale	Urban and Center City	35.201597	-101.909263
Amarillo, TX	Amarillo Xcel El Rancho	483751077	Folsom Rd. & El Rancho Rd., Amarillo	SO_2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood	Rural	35.316507	-101.741745
Amarillo, TX	Amarillo Xcel El Rancho	483751077	Folsom Rd. & El Rancho Rd., Amarillo	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	35.316507	-101.741745
Amarillo, TX	Amarillo Xcel El Rancho	483751077	Folsom Rd. & El Rancho Rd., Amarillo	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	35.316507	-101.741745
Austin-Round Rock-Georgetown, TX	Austin Audubon Society	484530020	12200 Lime Creek Rd, Leander	O_3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Rural	30.483139	-97.872291
Austin-Round Rock-Georgetown, TX	Austin Audubon Society	484530020	12200 Lime Creek Rd, Leander	PM10 (FRM)	SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Rural	30.483139	-97.872291

Appendix B: Ambient Air Monitoring Network Site List

MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Austin-Round Rock-Georgetown, TX	Austin Audubon Society	484530020	12200 Lime Creek Rd, Leander	Solar Radiation	SPM	Photovoltaic	Continuous	Population Exposure	Urban Scale	Rural	30.483139	-97.872291
Austin-Round Rock-Georgetown, TX	Austin Audubon Society	484530020	12200 Lime Creek Rd, Leander	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Urban Scale	Rural	30.483139	-97.872291
Austin-Round Rock-Georgetown, TX	Austin Audubon Society	484530020	12200 Lime Creek Rd, Leander	Wind	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Urban Scale	Rural	30.483139	-97.872291
Austin-Round Rock-Georgetown, TX	Austin North Hills Drive	484530014	3824 North Hills Drive, Austin	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Urban Scale	Suburban	30.354914	-97.761709
Austin-Round Rock-Georgetown, TX	Austin North Hills Drive	484530014	3824 North Hills Drive, Austin	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	30.354914	-97.761709
Austin-Round Rock-Georgetown, TX	Austin North Hills Drive	484530014	3824 North Hills Drive, Austin	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Suburban	30.354914	-97.761709
Austin-Round Rock-Georgetown, TX	Austin North Hills Drive	484530014	3824 North Hills Drive, Austin	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Urban Scale	Suburban	30.354914	-97.761709
Austin-Round Rock-Georgetown, TX	Austin North Hills Drive	484530014	3824 North Hills Drive, Austin	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	30.354914	-97.761709
Austin-Round Rock-Georgetown, TX	Austin North Hills Drive	484530014	3824 North Hills Drive, Austin	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	30.354914	-97.761709

Appendix B: Ambient Air Monitoring Network Site List

MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Austin-Round Rock-Georgetown, TX	Austin North Interstate 35	484531068	8912 N IH 35 SVRD SB, Austin	CO	Near Road, SLAMS	Gas Filter Correlation	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	30.353847	-97.691573
Austin-Round Rock-Georgetown, TX	Austin North Interstate 35	484531068	8912 N IH 35 SVRD SB, Austin	NO, NO2, NOx	Near Road, SLAMS	Chemi-luminescence	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	30.353847	-97.691573
Austin-Round Rock-Georgetown, TX	Austin North Interstate 35	484531068	8912 N IH 35 SVRD SB, Austin	PM2.5 FEM	Near Road, SLAMS	Beta Attenuation, 209	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	30.353847	-97.691573
Austin-Round Rock-Georgetown, TX	Austin North Interstate 35	484531068	8912 N IH 35 SVRD SB, Austin	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	30.353847	-97.691573
Austin-Round Rock-Georgetown, TX	Austin North Interstate 35	484531068	8912 N IH 35 SVRD SB, Austin	Wind	SPM	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	30.353847	-97.691573
Austin-Round Rock-Georgetown, TX	Austin Webberville Rd	484530021	2600B Webberville Rd, Austin	PM10 FEM	SLAMS	Broadband spectrocopy, 639	Continuous	Population Exposure	Neighborhood	Urban and Center City	30.263226	-97.712728
Austin-Round Rock-Georgetown, TX	Austin Webberville Rd	484530021	2600B Webberville Rd, Austin	PM2.5 FEM	SLAMS	Broadband spectrocopy 638	Continuous	Population Exposure	Neighborhood	Urban and Center City	30.263226	-97.712728
Austin-Round Rock-Georgetown, TX	Austin Webberville Rd	484530021	2600B Webberville Rd, Austin	PM2.5 (FRM)	QA Collocated, SLAMS	Sequential FRM Gravimetric, 145	24 Hours; 1, 12 Days	Population Exposure, Quality Assurance	Neighborhood	Urban and Center City	30.263226	-97.712728
Austin-Round Rock-Georgetown, TX	Austin Webberville Rd	484530021	2600B Webberville Rd, Austin	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Urban and Center City	30.263226	-97.712728

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Austin-Round Rock-Georgetown, TX	Austin Webberville Rd	484530021	2600B Webberville Rd, Austin	Wind	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Urban and Center City	30.263226	-97.712728
Beaumont-Port Arthur, TX	Beaumont Downtown	482450009	1086 Vermont Avenue, Beaumont	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood	Suburban	30.036436	-94.071070
Beaumont-Port Arthur, TX	Beaumont Downtown	482450009	1086 Vermont Avenue, Beaumont	O3	PAMS, SLAMS	UV Photometric	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Suburban	30.036436	-94.071070
Beaumont-Port Arthur, TX	Beaumont Downtown	482450009	1086 Vermont Avenue, Beaumont	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood	Suburban	30.036436	-94.071070
Beaumont-Port Arthur, TX	Beaumont Downtown	482450009	1086 Vermont Avenue, Beaumont	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Precursor Emissions Impact	Neighborhood	Suburban	30.036436	-94.071070
Beaumont-Port Arthur, TX	Beaumont Downtown	482450009	1086 Vermont Avenue, Beaumont	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Suburban	30.036436	-94.071070
Beaumont-Port Arthur, TX	Beaumont Downtown	482450009	1086 Vermont Avenue, Beaumont	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Suburban	30.036436	-94.071070
Beaumont-Port Arthur, TX	Beaumont Downtown	482450009	1086 Vermont Avenue, Beaumont	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Suburban	30.036436	-94.071070
Beaumont-Port Arthur, TX	Beaumont Downtown	482450009	1086 Vermont Avenue, Beaumont	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Suburban	30.036436	-94.071070

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Beaumont-Port Arthur, TX	Hamshire	482450022	12552 Second St, Not In A City	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	General, Background, Regional Transport	Neighborhood, Urban Scale	Suburban	29.863961	-94.317805
Beaumont-Port Arthur, TX	Hamshire	482450022	12552 Second St, Not In A City	O3	SLAMS	UV Photometric	Continuous	General, Background, Regional Transport	Urban Scale	Suburban	29.863961	-94.317805
Beaumont-Port Arthur, TX	Hamshire	482450022	12552 Second St, Not In A City	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Suburban	29.863961	-94.317805
Beaumont-Port Arthur, TX	Hamshire	482450022	12552 Second St, Not In A City	Solar Radiation	SPM	Photovoltaic	Continuous	General, Background	Neighborhood	Suburban	29.863961	-94.317805
Beaumont-Port Arthur, TX	Hamshire	482450022	12552 Second St, Not In A City	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	29.863961	-94.317805
Beaumont-Port Arthur, TX	Hamshire	482450022	12552 Second St, Not In A City	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	29.863961	-94.317805
Beaumont-Port Arthur, TX	Jefferson County Airport	482450018	End of 90th Street @ Jefferson County Airport, Port Arthur	Precipitation	PAMS, SLAMS	Rain Gauge	Continuous	General, Background	Neighborhood	Suburban	29.942821	-94.000786
Beaumont-Port Arthur, TX	Jefferson County Airport	482450018	End of 90th Street @ Jefferson County Airport, Port Arthur	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	29.942821	-94.000786
Beaumont-Port Arthur, TX	Jefferson County Airport	482450018	End of 90th Street @ Jefferson County Airport, Port Arthur	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	29.942821	-94.000786

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Beaumont-Port Arthur, TX	Nederland 17th Street	482451035	1516 17th Street, Nederland	Barometric Pressure	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Suburban	29.979968	-94.004805
Beaumont-Port Arthur, TX	Nederland 17th Street	482451035	1516 17th Street, Nederland	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Neighborhood	Suburban	29.979968	-94.004805
Beaumont-Port Arthur, TX	Nederland 17th Street	482451035	1516 17th Street, Nederland	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Suburban	29.979968	-94.004805
Beaumont-Port Arthur, TX	Nederland 17th Street	482451035	1516 17th Street, Nederland	O3	PAMS, SLAMS	UV Photometric	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Suburban	29.979968	-94.004805
Beaumont-Port Arthur, TX	Nederland 17th Street	482451035	1516 17th Street, Nederland	Relative Humidity	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Suburban	29.979968	-94.004805
Beaumont-Port Arthur, TX	Nederland 17th Street	482451035	1516 17th Street, Nederland	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Precursor Emissions Impact	Neighborhood	Suburban	29.979968	-94.004805
Beaumont-Port Arthur, TX	Nederland 17th Street	482451035	1516 17th Street, Nederland	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Suburban	29.979968	-94.004805
Beaumont-Port Arthur, TX	Nederland 17th Street	482451035	1516 17th Street, Nederland	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Suburban	29.979968	-94.004805
Beaumont-Port Arthur, TX	Nederland 17th Street	482451035	1516 17th Street, Nederland	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Suburban	29.979968	-94.004805

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Beaumont-Port Arthur, TX	Nederland 17th Street	482451035	1516 17th Street, Nederland	UV Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Precursor Emissions Impact	Neighborhood	Suburban	29.979968	-94.004805
Beaumont-Port Arthur, TX	Nederland 17th Street	482451035	1516 17th Street, Nederland	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Suburban	29.979968	-94.004805
Beaumont-Port Arthur, TX	Orange 1st Street	483611083	2239 1st Street, Orange	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood	Urban and Center City	30.153786	-93.725954
Beaumont-Port Arthur, TX	Orange 1st Street	483611083	2239 1st Street, Orange	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Urban and Center City	30.153786	-93.725954
Beaumont-Port Arthur, TX	Orange 1st Street	483611083	2239 1st Street, Orange	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Urban and Center City	30.153786	-93.725954
Beaumont-Port Arthur, TX	Port Arthur Memorial School	482450021	2200 Jefferson Drive, Port Arthur	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Suburban	29.922923	-93.909000
Beaumont-Port Arthur, TX	Port Arthur Memorial School	482450021	2200 Jefferson Drive, Port Arthur	PM2.5 FEM	QA Collocated, SLAMS	Beta Attenuation, 209	Continuous	Quality Assurance	Neighborhood	Suburban	29.922923	-93.909000
Beaumont-Port Arthur, TX	Port Arthur West	482450011	623 Ellias Street, Port Arthur	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.897523	-93.991081
Beaumont-Port Arthur, TX	Port Arthur West	482450011	623 Ellias Street, Port Arthur	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood	Urban and Center City	29.897523	-93.991081

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Beaumont-Port Arthur, TX	Port Arthur West	482450011	623 Ellias Street, Port Arthur	Solar Radiation	SPM	Photovoltaic	Continuous	Population Exposure, Source Oriented	Neighborhood	Urban and Center City	29.897523	-93.991081
Beaumont-Port Arthur, TX	Port Arthur West	482450011	623 Ellias Street, Port Arthur	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Source Oriented	Neighborhood	Urban and Center City	29.897523	-93.991081
Beaumont-Port Arthur, TX	Port Arthur West	482450011	623 Ellias Street, Port Arthur	Wind	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure, Source Oriented	Neighborhood	Urban and Center City	29.897523	-93.991081
Beaumont-Port Arthur, TX	Port Arthur West 7th Street Gate 2	482451071	West 7th Street, Valero Port Arthur Gate 2, Port Arthur	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood	Rural	29.844118	29.844118
Beaumont-Port Arthur, TX	Port Arthur West 7th Street Gate 2	482451071	West 7th Street, Valero Port Arthur Gate 2, Port Arthur	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	29.844118	29.844118
Beaumont-Port Arthur, TX	Port Arthur West 7th Street Gate 2	482451071	West 7th Street, Valero Port Arthur Gate 2, Port Arthur	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	29.844118	29.844118
Beaumont-Port Arthur, TX	SETRPC 40 Sabine Pass	482450101	5200 Mechanic, Not In A City	O3	PAMS, SLAMS	UV Photometric	Continuous	Max Ozone Concentration	Neighborhood	Rural	29.727940	-93.894088
Beaumont-Port Arthur, TX	SETRPC 42 Mauriceville	483611100	Intersection of TX Hwys 62 & 12, Port Arthur	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Regional Transport, Upwind Background	Regional Scale	Suburban	30.194292	-93.867136
Beaumont-Port Arthur, TX	SETRPC 43 Jefferson Co Airport	482450102	Jefferson County Airport, Port Arthur	O3	SPM	UV Photometric	Continuous	Max Precursor Emissions Impact	Middle Scale	Suburban	29.942748	-94.000691

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Beaumont-Port Arthur, TX	West Orange	483611001	2700 Austin Ave, West Orange	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood	Urban and Center City	30.085274	-93.761359
Beaumont-Port Arthur, TX	West Orange	483611001	2700 Austin Ave, West Orange	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Urban and Center City	30.085274	-93.761359
Beaumont-Port Arthur, TX	West Orange	483611001	2700 Austin Ave, West Orange	Solar Radiation	SPM	Photovoltaic	Continuous	Source Oriented	Neighborhood	Urban and Center City	30.085274	-93.761359
Beaumont-Port Arthur, TX	West Orange	483611001	2700 Austin Ave, West Orange	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Source Oriented	Neighborhood	Urban and Center City	30.085274	-93.761359
Beaumont-Port Arthur, TX	West Orange	483611001	2700 Austin Ave, West Orange	Wind	SPM	AIO2 sonic weather sensor	Continuous	Source Oriented	Neighborhood	Urban and Center City	30.085274	-93.761359
Big Spring, TX	Big Spring Midway	482271072	1218 N. Midway Rd, Big Spring	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood	Rural	32.280432	-101.407119
Big Spring, TX	Big Spring Midway	482271072	1218 N. Midway Rd, Big Spring	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General, Background	Neighborhood	Rural	32.280432	-101.407119
Big Spring, TX	Big Spring Midway	482271072	1218 N. Midway Rd, Big Spring	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General, Background	Neighborhood	Rural	32.280432	-101.407119
Borger, TX	Borger FM 1559	482331073	19440 FM 1559, Borger	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood	Rural	35.676010	-101.440056

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Borger, TX	Borger FM 1559	482331073	19440 FM 1559, Borger	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	35.676010	-101.440056
Borger, TX	Borger FM 1559	482331073	19440 FM 1559, Borger	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	35.676010	-101.440056
Brownsville-Harlingen, TX	Brownsville East 6th Street	480611098	85 East 6th Street, Brownsville	PM2.5 FEM	SLAMS	Beta Attenuation, 209	Continuous	Population Exposure	Regional Scale	Urban and Center City	25.900963	-97.507793
Brownsville-Harlingen, TX	Brownsville East 6th Street	480611098	85 East 6th Street, Brownsville	Solar Radiation	SPM	Photovoltaic	Continuous	General, Background	Neighborhood	Urban and Center City	25.900963	-97.507793
Brownsville-Harlingen, TX	Brownsville East 6th Street	480611098	85 East 6th Street, Brownsville	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Urban Scale	Urban and Center City	25.900963	-97.507793
Brownsville-Harlingen, TX	Brownsville East 6th Street	480611098	85 East 6th Street, Brownsville	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Urban and Center City	25.900963	-97.507793
Brownsville-Harlingen, TX	Harlingen Teege	480611023	1602 W Teege Avenue, Harlingen	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	26.200346	-97.712699
Brownsville-Harlingen, TX	Harlingen Teege	480611023	1602 W Teege Avenue, Harlingen	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	26.200346	-97.712699
Brownsville-Harlingen, TX	Harlingen Teege	480611023	1602 W Teege Avenue, Harlingen	Wind	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	26.200346	-97.712699

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Brownsville-Harlingen, TX	Isla Blanca State Park Road	480612004	33174 State Park Road 100, South Padre Island	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Regional Transport	Urban Scale	Rural	26.071103	-97.157724
Brownsville-Harlingen, TX	Isla Blanca State Park Road	480612004	33174 State Park Road 100, South Padre Island	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Regional Transport	Regional Scale	Rural	26.071103	-97.157724
Brownsville-Harlingen, TX	Isla Blanca State Park Road	480612004	33174 State Park Road 100, South Padre Island	Wind (3m)	SPM	AIO2 sonic weather sensor	Continuous	Regional Transport	Regional Scale	Rural	26.071103	-97.157724
College Station-Bryan, TX	Bryan Finfeather Road	480411086	3670 Finfeather Road, Bryan	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure, Regional Transport	Neighborhood	Rural	30.628325	-96.362855
College Station-Bryan, TX	Bryan Finfeather Road	480411086	3670 Finfeather Road, Bryan	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	30.628325	-96.362855
College Station-Bryan, TX	Bryan Finfeather Road	480411086	3670 Finfeather Road, Bryan	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	30.628325	-96.362855
College Station-Bryan, TX	Franklin Oak Grove	483951076	8127 Oak Grove Road, Franklin	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood	Rural	31.168956	-96.482001
College Station-Bryan, TX	Franklin Oak Grove	483951076	8127 Oak Grove Road, Franklin	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	31.168956	-96.482001
College Station-Bryan, TX	Franklin Oak Grove	483951076	8127 Oak Grove Road, Franklin	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	31.168956	-96.482001

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Corpus Christi, TX	Corpus Christi Huisache	483550032	3810 Huisache Street, Corpus Christi	PM2.5 FEM	SLAMS	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Urban and Center City	27.804483	-97.431571
Corpus Christi, TX	Corpus Christi Huisache	483550032	3810 Huisache Street, Corpus Christi	PM2.5 FEM	QA Collocated, SLAMS	Beta Attenuation, 209	Continuous	Quality Assurance	Neighborhood	Urban and Center City	27.804483	-97.431571
Corpus Christi, TX	Corpus Christi Huisache	483550032	3810 Huisache Street, Corpus Christi	SO2	SLAMS	Pulsed Fluorescence	Continuous	Highest Concentration, Population Exposure	Neighborhood	Urban and Center City	27.804483	-97.431571
Corpus Christi, TX	Corpus Christi Huisache	483550032	3810 Huisache Street, Corpus Christi	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Middle Scale	Urban and Center City	27.804483	-97.431571
Corpus Christi, TX	Corpus Christi Huisache	483550032	3810 Huisache Street, Corpus Christi	Wind	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Middle Scale	Urban and Center City	27.804483	-97.431571
Corpus Christi, TX	Corpus Christi Tuloso	483550026	9860 La Branch, Corpus Christi	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	27.832429	-97.555417
Corpus Christi, TX	Corpus Christi Tuloso	483550026	9860 La Branch, Corpus Christi	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood	Suburban	27.832429	-97.555417
Corpus Christi, TX	Corpus Christi Tuloso	483550026	9860 La Branch, Corpus Christi	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Neighborhood	Suburban	27.832429	-97.555417
Corpus Christi, TX	Corpus Christi Tuloso	483550026	9860 La Branch, Corpus Christi	Wind	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Neighborhood	Suburban	27.832429	-97.555417

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Corpus Christi, TX	Corpus Christi West	483550025	902 Airport Road, Corpus Christi	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	27.765314	-97.434291
Corpus Christi, TX	Corpus Christi West	483550025	902 Airport Road, Corpus Christi	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood	Suburban	27.765314	-97.434291
Corpus Christi, TX	Corpus Christi West	483550025	902 Airport Road, Corpus Christi	Solar Radiation	SPM	Photovoltaic	Continuous	Population Exposure	Neighborhood	Suburban	27.765314	-97.434291
Corpus Christi, TX	Corpus Christi West	483550025	902 Airport Road, Corpus Christi	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	27.765314	-97.434291
Corpus Christi, TX	Corpus Christi West	483550025	902 Airport Road, Corpus Christi	Wind	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	27.765314	-97.434291
Corpus Christi, TX	Dona Park	483550034	5707 Up River Rd, Corpus Christi	PM10 FEM	SLAMS	Broadband spectrocopy, 639	Continuous	Population Exposure	Neighborhood	Urban and Center City	27.811847	-97.465688
Corpus Christi, TX	Dona Park	483550034	5707 Up River Rd, Corpus Christi	PM2.5 (Speciation)	SPM	Carbons, Elements, Ions, 2025,URG	24 Hours; 1, 6 Days	Population Exposure, Unknown	Neighborhood	Urban and Center City	27.811847	-97.465688
Corpus Christi, TX	Dona Park	483550034	5707 Up River Rd, Corpus Christi	PM2.5 FEM	SLAMS	Broadband spectrocopy 638	Continuous	Population Exposure	Neighborhood	Urban and Center City	27.811847	-97.465688
Corpus Christi, TX	Dona Park	483550034	5707 Up River Rd, Corpus Christi	PM2.5 Mass (Speciation)	SPM	Sequential FRM Gravimetric, 145	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Urban and Center City	27.811847	-97.465688

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Corpus Christi, TX	Dona Park	483550034	5707 Up River Rd, Corpus Christi	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Regional Scale	Urban and Center City	27.811847	-97.465688
Corpus Christi, TX	Dona Park	483550034	5707 Up River Rd, Corpus Christi	Wind	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Regional Scale	Urban and Center City	27.811847	-97.465688
Corsicana, TX	Corsicana Airport	483491051	Corsicana Airport, Corsicana	Dew Point	SPM	Derived at site	Continuous	General, Background		Rural	32.031946	-96.399146
Corsicana, TX	Corsicana Airport	483491051	Corsicana Airport, Corsicana	NO, NO2, NOx	SPM	Chemi-luminescence	Continuous	General, Background, Max Precursor Emissions Impact	Urban Scale	Rural	32.031946	-96.399146
Corsicana, TX	Corsicana Airport	483491051	Corsicana Airport, Corsicana	O3	SPM	UV Photometric	Continuous	General, Background, Max Ozone Concentration	Urban Scale	Rural	32.031946	-96.399146
Corsicana, TX	Corsicana Airport	483491051	Corsicana Airport, Corsicana	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Source Oriented	Neighborhood	Rural	32.031946	-96.399146
Corsicana, TX	Corsicana Airport	483491051	Corsicana Airport, Corsicana	Relative Humidity	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Urban Scale	Rural	32.031946	-96.399146
Corsicana, TX	Corsicana Airport	483491051	Corsicana Airport, Corsicana	SO2	SPM	Pulsed Fluorescence	Continuous	Source Oriented	Urban Scale	Rural	32.031946	-96.399146
Corsicana, TX	Corsicana Airport	483491051	Corsicana Airport, Corsicana	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Urban Scale	Rural	32.031946	-96.399146

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Corsicana, TX	Corsicana Airport	483491051	Corsicana Airport, Corsicana	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Urban Scale	Rural	32.031946	-96.399146
Corsicana, TX	Richland Southeast 1220 Road	483491081	Southeast 1220 Road, Richland	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood	Rural	31.904098	-96.351871
Corsicana, TX	Richland Southeast 1220 Road	483491081	Southeast 1220 Road, Richland	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General, Background	Neighborhood	Rural	31.904098	-96.351871
Corsicana, TX	Richland Southeast 1220 Road	483491081	Southeast 1220 Road, Richland	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General, Background	Neighborhood	Rural	31.904098	-96.351871
Dallas-Fort Worth-Arlington, TX	Arlington Municipal Airport	484393011	5504 South Collins Street, Arlington	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood	Suburban	32.656370	-97.088596
Dallas-Fort Worth-Arlington, TX	Arlington Municipal Airport	484393011	5504 South Collins Street, Arlington	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	32.656370	-97.088596
Dallas-Fort Worth-Arlington, TX	Arlington Municipal Airport	484393011	5504 South Collins Street, Arlington	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Neighborhood	Suburban	32.656370	-97.088596
Dallas-Fort Worth-Arlington, TX	Arlington Municipal Airport	484393011	5504 South Collins Street, Arlington	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Neighborhood	Suburban	32.656370	-97.088596
Dallas-Fort Worth-Arlington, TX	Arlington Municipal Airport	484393011	5504 South Collins Street, Arlington	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Neighborhood	Suburban	32.656370	-97.088596

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Cleburne Airport	482510003	1650 Airport Drive, Cleburne	O3	PAMS, SLAMS	UV Photometric	Continuous	Population Exposure	Urban Scale	Suburban	32.353605	-97.436733
Dallas-Fort Worth-Arlington, TX	Cleburne Airport	482510003	1650 Airport Drive, Cleburne	Radar Profiler	SPM	Radar Profiler	Continuous	Regional Transport	Regional Scale	Suburban	32.353605	-97.436733
Dallas-Fort Worth-Arlington, TX	Cleburne Airport	482510003	1650 Airport Drive, Cleburne	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	General, Background	Neighborhood	Suburban	32.353605	-97.436733
Dallas-Fort Worth-Arlington, TX	Cleburne Airport	482510003	1650 Airport Drive, Cleburne	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	32.353605	-97.436733
Dallas-Fort Worth-Arlington, TX	Cleburne Airport	482510003	1650 Airport Drive, Cleburne	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	32.353605	-97.436733
Dallas-Fort Worth-Arlington, TX	Convention Center	481130050	717 South Akard, Dallas	PM10 (FRM)	SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Urban and Center City	32.774264	-96.797694
Dallas-Fort Worth-Arlington, TX	Convention Center	481130050	717 South Akard, Dallas	PM10 (FRM)	QA Collocated, SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 12 Days	Population Exposure	Neighborhood	Urban and Center City	32.774264	-96.797694
Dallas-Fort Worth-Arlington, TX	Convention Center	481130050	717 South Akard, Dallas	PM2.5 FEM	SLAMS	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Urban and Center City	32.774264	-96.797694
Dallas-Fort Worth-Arlington, TX	Convention Center	481130050	717 South Akard, Dallas	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Urban and Center City	32.774264	-96.797694

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Convention Center	481130050	717 South Akard, Dallas	Wind	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Urban and Center City	32.774264	-96.797694
Dallas-Fort Worth-Arlington, TX	Dallas Bexar Street	481131096	5800 Bexar Street, Dallas	PM10 (FRM)	SPM	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Urban and Center City	32.742984	-96.753187
Dallas-Fort Worth-Arlington, TX	Dallas Bexar Street	481131096	5800 Bexar Street, Dallas	PM2.5 TEOM non-NAAQS comparable	SPM	TEOM Gravimetric, 702	Continuous	Population Exposure	Neighborhood	Urban and Center City	32.742984	-96.753187
Dallas-Fort Worth-Arlington, TX	Dallas Bexar Street	481131096	5800 Bexar Street, Dallas	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General, Background	Neighborhood	Urban and Center City	32.742984	-96.753187
Dallas-Fort Worth-Arlington, TX	Dallas Bexar Street	481131096	5800 Bexar Street, Dallas	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General, Background	Neighborhood	Urban and Center City	32.742984	-96.753187
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	Barometric Pressure	PAMS, SLAMS	Barometric pressure transducer	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	Carbonyl	PAMS, SLAMS	DNPH Silica HPLC	24 Hours; Seasonal, 8 Hour; Seasonal	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	Ceilometer	PAMS, SLAMS	Upper air measurement, mixing height	Continuous	Max Precursor Emissions Impact	Regional Scale	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	CO (High Sensitivity)	NCORE, SLAMS	Gas Filter Correlation	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	32.820068	-96.860123

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	NO2 (Direct)	PAMS, SLAMS	Direct-Read NO2	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	NOy (High Sensitivity)	NCORE, PAMS, SLAMS	Chemi-luminescence	Continuous	Highest Concentration	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	O3	NCORE, PAMS, SLAMS	UV Photometric	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	PM10 FEM	NCORE, SLAMS	Broadband spectrocopy, 639	Continuous	Population Exposure	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	PM10-2.5	NCORE, SLAMS	Broadband spectrocopy, 640	Continuous	Population Exposure	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	PM2.5 (FRM)	NCORE, SLAMS	Sequential FRM Gravimetric, 145	24 Hours; 1, 3 Days	Population Exposure	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	PM2.5 (FRM)	QA Collocated, SLAMS	Sequential FRM Gravimetric, 145	24 Hours; 1, 12 Days	Population Exposure	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	PM2.5 (Speciation)	Csn Stn, NCORE, SLAMS	Carbons, Elements, Ions, SASS, URG	24 Hours; 1, 3 Days	Population Exposure	Neighborhood	Urban and Center City	32.820068	-96.860123

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	PM2.5 FEM	NCORE, SLAMS	Broadband spectrocopy 638	Continuous	Population Exposure	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	Precipitation	PAMS, SLAMS	Rain Gauge	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	Relative Humidity	NCORE, PAMS, SLAMS	Humidity Sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	SO2 (High Sensitivity)	NCORE, SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Highest Concentration, Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	Temperature (Outdoor)	PAMS, SLAMS	Aspirated Thermister	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Highest Concentration, Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	UV Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.820068	-96.860123

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	Visibility	SPM	Visibility Sensor	Continuous	Population Exposure	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas Hinton	481130069	1415 Hinton Street, Dallas	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.820068	-96.860123
Dallas-Fort Worth-Arlington, TX	Dallas LBJ Freeway	481131067	8652 LBJ Freeway, Dallas	NO, NO2, NOx	Near Road, SLAMS	Chemi-luminescence	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	32.921146	-96.753507
Dallas-Fort Worth-Arlington, TX	Dallas LBJ Freeway	481131067	8652 LBJ Freeway, Dallas	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	32.921146	-96.753507
Dallas-Fort Worth-Arlington, TX	Dallas LBJ Freeway	481131067	8652 LBJ Freeway, Dallas	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	32.921146	-96.753507
Dallas-Fort Worth-Arlington, TX	Dallas North #2	481130075	12532 1/2 Nuestra Drive, Dallas	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood	Suburban	32.919216	-96.808513
Dallas-Fort Worth-Arlington, TX	Dallas North #2	481130075	12532 1/2 Nuestra Drive, Dallas	O3	PAMS, SLAMS	UV Photometric	Continuous	Population Exposure	Urban Scale	Suburban	32.919216	-96.808513
Dallas-Fort Worth-Arlington, TX	Dallas North #2	481130075	12532 1/2 Nuestra Drive, Dallas	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	General, Background	Neighborhood	Suburban	32.919216	-96.808513
Dallas-Fort Worth-Arlington, TX	Dallas North #2	481130075	12532 1/2 Nuestra Drive, Dallas	Temperature (Outdoor)	PAMS, SLAMS	Aspirated Thermister	Continuous	General, Background	Neighborhood	Suburban	32.919216	-96.808513

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Dallas North #2	481130075	12532 1/2 Nuestra Drive, Dallas	Wind	PAMS	Potentiometer Cup Anemometer	Continuous	General, Background	Neighborhood	Suburban	32.919216	-96.808513
Dallas-Fort Worth-Arlington, TX	Dallas Redbird Airport Executive	481130087	3277 W Redbird Lane, Dallas	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood	Suburban	32.676452	-96.872031
Dallas-Fort Worth-Arlington, TX	Dallas Redbird Airport Executive	481130087	3277 W Redbird Lane, Dallas	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Urban Scale	Suburban	32.676452	-96.872031
Dallas-Fort Worth-Arlington, TX	Dallas Redbird Airport Executive	481130087	3277 W Redbird Lane, Dallas	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General, Background	Neighborhood	Suburban	32.676452	-96.872031
Dallas-Fort Worth-Arlington, TX	Dallas Redbird Airport Executive	481130087	3277 W Redbird Lane, Dallas	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General, Background	Neighborhood	Suburban	32.676452	-96.872031
Dallas-Fort Worth-Arlington, TX	Denton Airport South	481210034	Denton Airport South, Denton	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Urban Scale	Rural	33.219076	-97.196272
Dallas-Fort Worth-Arlington, TX	Denton Airport South	481210034	Denton Airport South, Denton	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Max Ozone Concentration, Population Exposure	Urban Scale	Rural	33.219076	-97.196272
Dallas-Fort Worth-Arlington, TX	Denton Airport South	481210034	Denton Airport South, Denton	NOy (High Sensitivity)	PAMS, SLAMS	Chemi-luminescence	Continuous	Max Ozone Concentration, Population Exposure	Urban Scale	Rural	33.219076	-97.196272
Dallas-Fort Worth-Arlington, TX	Denton Airport South	481210034	Denton Airport South, Denton	O3	PAMS, SLAMS	UV Photometric	Continuous	Max Ozone Concentration, Population Exposure	Urban Scale	Rural	33.219076	-97.196272

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Denton Airport South	481210034	Denton Airport South, Denton	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Urban Scale	Rural	33.219076	-97.196272
Dallas-Fort Worth-Arlington, TX	Denton Airport South	481210034	Denton Airport South, Denton	Precipitation	PAMS, SLAMS	Rain Gauge	Continuous	Max Ozone Concentration	Urban Scale	Rural	33.219076	-97.196272
Dallas-Fort Worth-Arlington, TX	Denton Airport South	481210034	Denton Airport South, Denton	Relative Humidity	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Ozone Concentration	Urban Scale	Rural	33.219076	-97.196272
Dallas-Fort Worth-Arlington, TX	Denton Airport South	481210034	Denton Airport South, Denton	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Ozone Concentration	Urban Scale	Rural	33.219076	-97.196272
Dallas-Fort Worth-Arlington, TX	Denton Airport South	481210034	Denton Airport South, Denton	Speciated VOC (Canister)	PAMS, SLAMS	Canister GC-MS	24 Hours; 1, 6 Days	Max Ozone Concentration, Population Exposure	Urban Scale	Rural	33.219076	-97.196272
Dallas-Fort Worth-Arlington, TX	Denton Airport South	481210034	Denton Airport South, Denton	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Ozone Concentration	Urban Scale	Rural	33.219076	-97.196272
Dallas-Fort Worth-Arlington, TX	Denton Airport South	481210034	Denton Airport South, Denton	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Ozone Concentration	Urban Scale	Rural	33.219076	-97.196272
Dallas-Fort Worth-Arlington, TX	Eagle Mountain Lake	484390075	14290 Morris Dido Newark Rd, Eagle Mountain	NO, NO2, NOx	SPM	Chemi-luminescence	Continuous	Max Precursor Emissions Impact	Urban Scale	Rural	32.987894	-97.477176
Dallas-Fort Worth-Arlington, TX	Eagle Mountain Lake	484390075	14290 Morris Dido Newark Rd, Eagle Mountain	O3	SLAMS	UV Photometric	Continuous	Max Ozone Concentration	Neighborhood	Rural	32.987894	-97.477176

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Eagle Mountain Lake	484390075	14290 Morris Dido Newark Rd, Eagle Mountain	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Middle Scale	Rural	32.987894	-97.477176
Dallas-Fort Worth-Arlington, TX	Eagle Mountain Lake	484390075	14290 Morris Dido Newark Rd, Eagle Mountain	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Middle Scale	Rural	32.987894	-97.477176
Dallas-Fort Worth-Arlington, TX	Eagle Mountain Lake	484390075	14290 Morris Dido Newark Rd, Eagle Mountain	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Middle Scale	Rural	32.987894	-97.477176
Dallas-Fort Worth-Arlington, TX	Earhart	481130061	3434 Bickers (Earhart Elem School), Dallas	PM10 (FRM)	SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Urban and Center City	32.785380	-96.876567
Dallas-Fort Worth-Arlington, TX	Fort Worth California Parkway North	484391053	1198 California Parkway North, Fort Worth	CO	Near Road, SLAMS	Gas Filter Correlation	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	32.664755	-97.337900
Dallas-Fort Worth-Arlington, TX	Fort Worth California Parkway North	484391053	1198 California Parkway North, Fort Worth	NO, NO2, NOx	Near Road, SLAMS	Chemi-luminescence	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	32.664755	-97.337900
Dallas-Fort Worth-Arlington, TX	Fort Worth California Parkway North	484391053	1198 California Parkway North, Fort Worth	PM2.5 FEM	Near Road, SLAMS	Beta Attenuation, 209	Continuous	Population Exposure	Microscale	Urban and Center City	32.664755	-97.337900
Dallas-Fort Worth-Arlington, TX	Fort Worth California Parkway North	484391053	1198 California Parkway North, Fort Worth	PM2.5 FEM	QA Collocated, SLAMS	Beta Attenuation, 209	Continuous	Quality Assurance	Microscale	Urban and Center City	32.664755	-97.337900
Dallas-Fort Worth-Arlington, TX	Fort Worth California Parkway North	484391053	1198 California Parkway North, Fort Worth	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	32.664755	-97.337900

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Fort Worth California Parkway North	484391053	1198 California Parkway North, Fort Worth	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	32.664755	-97.337900
Dallas-Fort Worth-Arlington, TX	Fort Worth Northwest	484391002	3317 Ross Ave, Fort Worth	Carbonyl	PAMS, SLAMS	DNPH Silica HPLC	24 Hours; Seasonal	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.805813	-97.356539
Dallas-Fort Worth-Arlington, TX	Fort Worth Northwest	484391002	3317 Ross Ave, Fort Worth	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Middle Scale	Urban and Center City	32.805813	-97.356539
Dallas-Fort Worth-Arlington, TX	Fort Worth Northwest	484391002	3317 Ross Ave, Fort Worth	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	32.805813	-97.356539
Dallas-Fort Worth-Arlington, TX	Fort Worth Northwest	484391002	3317 Ross Ave, Fort Worth	O3	PAMS, SLAMS	UV Photometric	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	32.805813	-97.356539
Dallas-Fort Worth-Arlington, TX	Fort Worth Northwest	484391002	3317 Ross Ave, Fort Worth	PM2.5 FEM	SLAMS	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Urban and Center City	32.805813	-97.356539
Dallas-Fort Worth-Arlington, TX	Fort Worth Northwest	484391002	3317 Ross Ave, Fort Worth	Relative Humidity	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.805813	-97.356539
Dallas-Fort Worth-Arlington, TX	Fort Worth Northwest	484391002	3317 Ross Ave, Fort Worth	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.805813	-97.356539
Dallas-Fort Worth-Arlington, TX	Fort Worth Northwest	484391002	3317 Ross Ave, Fort Worth	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	32.805813	-97.356539

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Fort Worth Northwest	484391002	3317 Ross Ave, Fort Worth	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.805813	-97.356539
Dallas-Fort Worth-Arlington, TX	Fort Worth Northwest	484391002	3317 Ross Ave, Fort Worth	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	32.805813	-97.356539
Dallas-Fort Worth-Arlington, TX	Fort Worth Northwest	484391002	3317 Ross Ave, Fort Worth	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	32.805813	-97.356539
Dallas-Fort Worth-Arlington, TX	Frisco	480850005	6590 Hillcrest Road, Frisco	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Urban Scale	Suburban	33.132426	-96.786427
Dallas-Fort Worth-Arlington, TX	Frisco	480850005	6590 Hillcrest Road, Frisco	Solar Radiation	SPM	Photovoltaic	Continuous	General, Background	Urban Scale	Suburban	33.132426	-96.786427
Dallas-Fort Worth-Arlington, TX	Frisco	480850005	6590 Hillcrest Road, Frisco	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General, Background	Urban Scale	Suburban	33.132426	-96.786427
Dallas-Fort Worth-Arlington, TX	Frisco	480850005	6590 Hillcrest Road, Frisco	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General, Background	Urban Scale	Suburban	33.132426	-96.786427
Dallas-Fort Worth-Arlington, TX	Frisco Eubanks	480850009	6601 Eubanks, Frisco	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure, Source Oriented	Neighborhood	Suburban	33.144674	-96.828796
Dallas-Fort Worth-Arlington, TX	Frisco Eubanks	480850009	6601 Eubanks, Frisco	TSP (Pb)	SLAMS	HiVol ICP-MS	24 Hours; 1, 6 Days	Population Exposure, Source Oriented	Neighborhood	Suburban	33.144674	-96.828796

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Frisco Eubanks	480850009	6601 Eubanks, Frisco	TSP (Pb)	QA Collocated, SLAMS	HiVol ICP-MS	24 Hours; 1, 12 Days	Population Exposure, Source Oriented	Neighborhood	Suburban	33.144674	-96.828796
Dallas-Fort Worth-Arlington, TX	Frisco Eubanks	480850009	6601 Eubanks, Frisco	Wind (3m)	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood	Suburban	33.144674	-96.828796
Dallas-Fort Worth-Arlington, TX	Frisco Stonebrook	480850029	7202 Stonebrook Parkway, Frisco	TSP (Pb)	SPM	HiVol ICP-MS	24 Hours; 1, 6 Days	Population Exposure, Source Oriented	Neighborhood	Suburban	33.136054	-96.824481
Dallas-Fort Worth-Arlington, TX	Grapevine Fairway	484393009	4100 Fairway Dr, Grapevine	Barometric Pressure	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Ozone Concentration	Neighborhood	Suburban	32.984264	-97.063705
Dallas-Fort Worth-Arlington, TX	Grapevine Fairway	484393009	4100 Fairway Dr, Grapevine	Dew Point	SPM	Derived at site	Continuous	Highest Concentration, Max Ozone Concentration	Neighborhood	Suburban	32.984264	-97.063705
Dallas-Fort Worth-Arlington, TX	Grapevine Fairway	484393009	4100 Fairway Dr, Grapevine	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Max Ozone Concentration, Population Exposure	Neighborhood	Suburban	32.984264	-97.063705
Dallas-Fort Worth-Arlington, TX	Grapevine Fairway	484393009	4100 Fairway Dr, Grapevine	O3	PAMS, SLAMS	UV Photometric	Continuous	Max Ozone Concentration, Population Exposure	Neighborhood	Suburban	32.984264	-97.063705
Dallas-Fort Worth-Arlington, TX	Grapevine Fairway	484393009	4100 Fairway Dr, Grapevine	Relative Humidity	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Ozone Concentration	Neighborhood	Suburban	32.984264	-97.063705
Dallas-Fort Worth-Arlington, TX	Grapevine Fairway	484393009	4100 Fairway Dr, Grapevine	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Ozone Concentration	Neighborhood	Suburban	32.984264	-97.063705

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Grapevine Fairway	484393009	4100 Fairway Dr, Grapevine	Speciated VOC (Canister)	PAMS, SLAMS	Canister GC-MS	24 Hours; 1, 6 Days	Max Ozone Concentration, Population Exposure	Neighborhood	Suburban	32.984264	-97.063705
Dallas-Fort Worth-Arlington, TX	Grapevine Fairway	484393009	4100 Fairway Dr, Grapevine	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Ozone Concentration	Neighborhood	Suburban	32.984264	-97.063705
Dallas-Fort Worth-Arlington, TX	Grapevine Fairway	484393009	4100 Fairway Dr, Grapevine	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Ozone Concentration	Neighborhood	Suburban	32.984264	-97.063705
Dallas-Fort Worth-Arlington, TX	Greenville	482311006	824 Sayle Street, Greenville	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure, Upwind Background	Neighborhood	Suburban	33.153092	-96.115580
Dallas-Fort Worth-Arlington, TX	Greenville	482311006	824 Sayle Street, Greenville	O3	SLAMS	UV Photometric	Continuous	Population Exposure, Upwind Background	Neighborhood	Suburban	33.153092	-96.115580
Dallas-Fort Worth-Arlington, TX	Greenville	482311006	824 Sayle Street, Greenville	Solar Radiation	SPM	Photovoltaic	Continuous	General, Background	Neighborhood	Suburban	33.153092	-96.115580
Dallas-Fort Worth-Arlington, TX	Greenville	482311006	824 Sayle Street, Greenville	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General, Background	Neighborhood	Suburban	33.153092	-96.115580
Dallas-Fort Worth-Arlington, TX	Greenville	482311006	824 Sayle Street, Greenville	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General, Background	Neighborhood	Suburban	33.153092	-96.115580
Dallas-Fort Worth-Arlington, TX	Haws Athletic Center	484391006	600 1/2 Congress St, Fort Worth	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Urban and Center City	32.759189	-97.342292

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Italy	481391044	900 FM 667 Ellis County, Italy	Dew Point	SPM	Derived at site	Continuous	Upwind Background	Urban Scale	Rural	32.175430	-96.870180
Dallas-Fort Worth-Arlington, TX	Italy	481391044	900 FM 667 Ellis County, Italy	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Upwind Background	Urban Scale	Rural	32.175430	-96.870180
Dallas-Fort Worth-Arlington, TX	Italy	481391044	900 FM 667 Ellis County, Italy	O3	PAMS, SLAMS	UV Photometric	Continuous	Upwind Background	Urban Scale	Rural	32.175430	-96.870180
Dallas-Fort Worth-Arlington, TX	Italy	481391044	900 FM 667 Ellis County, Italy	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Upwind Background	Urban Scale	Rural	32.175430	-96.870180
Dallas-Fort Worth-Arlington, TX	Italy	481391044	900 FM 667 Ellis County, Italy	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Upwind Background	Urban Scale	Rural	32.175430	-96.870180
Dallas-Fort Worth-Arlington, TX	Italy	481391044	900 FM 667 Ellis County, Italy	Speciated VOC (Canister)	PAMS, SLAMS	Canister GC-MS	24 Hours; 1, 6 Days	Upwind Background	Urban Scale	Rural	32.175430	-96.870180
Dallas-Fort Worth-Arlington, TX	Italy	481391044	900 FM 667 Ellis County, Italy	Temperature (Outdoor)	PAMS, SLAMS	Aspirated Thermister	Continuous	Upwind Background	Urban Scale	Rural	32.175430	-96.870180
Dallas-Fort Worth-Arlington, TX	Italy	481391044	900 FM 667 Ellis County, Italy	UV Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Upwind Background	Urban Scale	Rural	32.175430	-96.870180
Dallas-Fort Worth-Arlington, TX	Italy	481391044	900 FM 667 Ellis County, Italy	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Upwind Background	Urban Scale	Rural	32.175430	-96.870180

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Johnson County Luisa	482511008	2420 Luisa Ln, Alvarado	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood	Suburban	32.469688	-97.169264
Dallas-Fort Worth-Arlington, TX	Johnson County Luisa	482511008	2420 Luisa Ln, Alvarado	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood	Suburban	32.469688	-97.169264
Dallas-Fort Worth-Arlington, TX	Kaufman	482570005	3790 S Houston St, Kaufman	Dew Point	SPM	Derived at site	Continuous	Highest Concentration	Neighborhood	Suburban	32.564966	-96.317690
Dallas-Fort Worth-Arlington, TX	Kaufman	482570005	3790 S Houston St, Kaufman	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Population Exposure, Upwind Background	Neighborhood, Urban Scale	Suburban	32.564966	-96.317690
Dallas-Fort Worth-Arlington, TX	Kaufman	482570005	3790 S Houston St, Kaufman	O3	PAMS, SLAMS	UV Photometric	Continuous	Population Exposure, Upwind Background	Urban Scale	Suburban	32.564966	-96.317690
Dallas-Fort Worth-Arlington, TX	Kaufman	482570005	3790 S Houston St, Kaufman	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Upwind Background	Urban Scale	Suburban	32.564966	-96.317690
Dallas-Fort Worth-Arlington, TX	Kaufman	482570005	3790 S Houston St, Kaufman	Relative Humidity	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Upwind Background	Urban Scale	Suburban	32.564966	-96.317690
Dallas-Fort Worth-Arlington, TX	Kaufman	482570005	3790 S Houston St, Kaufman	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure, Upwind Background	Neighborhood	Suburban	32.564966	-96.317690
Dallas-Fort Worth-Arlington, TX	Kaufman	482570005	3790 S Houston St, Kaufman	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Upwind Background	Urban Scale	Suburban	32.564966	-96.317690

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Kaufman	482570005	3790 S Houston St, Kaufman	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Upwind Background	Urban Scale	Suburban	32.564966	-96.317690
Dallas-Fort Worth-Arlington, TX	Kaufman	482570005	3790 S Houston St, Kaufman	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Upwind Background	Urban Scale	Suburban	32.564966	-96.317690
Dallas-Fort Worth-Arlington, TX	Keller	484392003	FAA Site off Alta Vista Road, Fort Worth	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Max Precursor Emissions Impact	Urban Scale	Suburban	32.922493	-97.282089
Dallas-Fort Worth-Arlington, TX	Keller	484392003	FAA Site off Alta Vista Road, Fort Worth	O3	PAMS, SLAMS	UV Photometric	Continuous	Max Ozone Concentration, Population Exposure	Neighborhood	Suburban	32.922493	-97.282089
Dallas-Fort Worth-Arlington, TX	Keller	484392003	FAA Site off Alta Vista Road, Fort Worth	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	General, Background	Urban Scale	Suburban	32.922493	-97.282089
Dallas-Fort Worth-Arlington, TX	Keller	484392003	FAA Site off Alta Vista Road, Fort Worth	Temperature (Outdoor)	PAMS, SLAMS	Aspirated Thermister	Continuous	General, Background	Urban Scale	Suburban	32.922493	-97.282089
Dallas-Fort Worth-Arlington, TX	Keller	484392003	FAA Site off Alta Vista Road, Fort Worth	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	General, Background	Urban Scale	Suburban	32.922493	-97.282089
Dallas-Fort Worth-Arlington, TX	Midlothian North Ward Road (pending deployment)	481390016	891 North Ward Road, Midlothian	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Source Oriented	Neighborhood	Suburban	32.482086	-97.026894
Dallas-Fort Worth-Arlington, TX	Midlothian North Ward Road (pending deployment)	481390016	891 North Ward Road, Midlothian	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Urban Scale	Suburban	32.482086	-97.026894

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Midlothian North Ward Road (pending deployment)	481390016	891 North Ward Road, Midlothian	PM2.5 (Speciation)	SPM	Carbons, Elements, Ions, 2025,URG	24 Hours; 1, 6 Days	Population Exposure, Source Oriented	Neighborhood, Regional Scale	Suburban	32.482086	-97.026894
Dallas-Fort Worth-Arlington, TX	Midlothian North Ward Road (pending deployment)	481390016	891 North Ward Road, Midlothian	PM2.5 FEM	SLAMS	Beta Attenuation, 209	Continuous	Regional Transport	Regional Scale	Suburban	32.482086	-97.026894
Dallas-Fort Worth-Arlington, TX	Midlothian North Ward Road (pending deployment)	481390016	891 North Ward Road, Midlothian	PM2.5 Mass (FRM)	QA Collocated, SLAMS	Sequential FRM Gravimetric, 145	24 Hours; 1, 6 Days	Population Exposure, Source Oriented	Regional Scale	Suburban	32.482086	-97.026894
Dallas-Fort Worth-Arlington, TX	Midlothian North Ward Road (pending deployment)	481390016	891 North Ward Road, Midlothian	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood	Suburban	32.482086	-97.026894
Dallas-Fort Worth-Arlington, TX	Midlothian North Ward Road (pending deployment)	481390016	891 North Ward Road, Midlothian	Solar Radiation	SPM	Photovoltaic	Continuous	General, Background	Neighborhood	Suburban	32.482086	-97.026894
Dallas-Fort Worth-Arlington, TX	Midlothian North Ward Road (pending deployment)	481390016	891 North Ward Road, Midlothian	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	32.482086	-97.026894
Dallas-Fort Worth-Arlington, TX	Midlothian North Ward Road (pending deployment)	481390016	891 North Ward Road, Midlothian	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	32.482086	-97.026894
Dallas-Fort Worth-Arlington, TX	Parker County	483670081	3033 New Authon Rd, Weatherford	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Urban Scale	Rural	32.868789	-97.905930
Dallas-Fort Worth-Arlington, TX	Parker County	483670081	3033 New Authon Rd, Weatherford	Solar Radiation	SPM	Photovoltaic	Continuous	Source Oriented	Neighborhood	Rural	32.868789	-97.905930

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Parker County	483670081	3033 New Authon Rd, Weatherford	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Source Oriented	Neighborhood	Rural	32.868789	-97.905930
Dallas-Fort Worth-Arlington, TX	Parker County	483670081	3033 New Authon Rd, Weatherford	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Source Oriented	Neighborhood	Rural	32.868789	-97.905930
Dallas-Fort Worth-Arlington, TX	Pilot Point	481211032	792 E Northside Dr, Pilot Point	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Regional Scale	Suburban	33.410654	-96.944598
Dallas-Fort Worth-Arlington, TX	Pilot Point	481211032	792 E Northside Dr, Pilot Point	Solar Radiation	SPM	Photovoltaic	Continuous	Upwind Background	Regional Scale	Suburban	33.410654	-96.944598
Dallas-Fort Worth-Arlington, TX	Pilot Point	481211032	792 E Northside Dr, Pilot Point	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Upwind Background	Regional Scale	Suburban	33.410654	-96.944598
Dallas-Fort Worth-Arlington, TX	Pilot Point	481211032	792 E Northside Dr, Pilot Point	Wind	SPM	AIO2 sonic weather sensor	Continuous	Upwind Background	Regional Scale	Suburban	33.410654	-96.944598
Dallas-Fort Worth-Arlington, TX	Rockwall Heath	483970001	100 E Heath St, Rockwall	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	32.936521	-96.459214
Dallas-Fort Worth-Arlington, TX	Rockwall Heath	483970001	100 E Heath St, Rockwall	Solar Radiation	SPM	Photovoltaic	Continuous	Population Exposure	Neighborhood	Suburban	32.936521	-96.459214
Dallas-Fort Worth-Arlington, TX	Rockwall Heath	483970001	100 E Heath St, Rockwall	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood	Suburban	32.936521	-96.459214

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Dallas-Fort Worth-Arlington, TX	Rockwall Heath	483970001	100 E Heath St, Rockwall	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood	Suburban	32.936521	-96.459214
Dallas-Fort Worth-Arlington, TX	Terrell Jamison Court (pending deployment)	482570020	8 Jamison Court, Terrell	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	32.731930	-96.317922
Dallas-Fort Worth-Arlington, TX	Terrell Jamison Court (pending deployment)	482570020	8 Jamison Court, Terrell	TSP (Pb)	SLAMS	HiVol ICP-MS	24 Hours; 1, 6 Days	Population Exposure, Source Oriented	Neighborhood	Rural	32.731930	-96.317922
Dallas-Fort Worth-Arlington, TX	Terrell Jamison Court (pending deployment)	482570020	8 Jamison Court, Terrell	TSP (Pb)	QA Collocated, SLAMS	HiVol ICP-MS	24 Hours; 1, 12 Days	Population Exposure, Source Oriented	Neighborhood	Rural	32.731930	-96.317922
Dallas-Fort Worth-Arlington, TX	Terrell Jamison Court (pending deployment)	482570020	8 Jamison Court, Terrell	Wind (3m)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	32.731930	-96.317922
Eagle Pass, TX	Eagle Pass	483230004	265 Foster Maldonado, Eagle Pass	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Regional Transport	Regional Scale	Urban and Center City	28.704625	-100.451185
Eagle Pass, TX	Eagle Pass	483230004	265 Foster Maldonado, Eagle Pass	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Regional Transport	Regional Scale	Urban and Center City	28.704625	-100.451185
Eagle Pass, TX	Eagle Pass	483230004	265 Foster Maldonado, Eagle Pass	Visibility	SPM	Visibility Sensor	Continuous	Regional Transport	Regional Scale	Urban and Center City	28.704625	-100.451185
Eagle Pass, TX	Eagle Pass	483230004	265 Foster Maldonado, Eagle Pass	Wind	SPM	AIO2 sonic weather sensor	Continuous	Regional Transport	Regional Scale	Urban and Center City	28.704625	-100.451185

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
El Paso, TX	Ascarate Park SE	481410055	650 R E Thomason Loop, El Paso	Barometric Pressure	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	31.746772	-106.402862
El Paso, TX	Ascarate Park SE	481410055	650 R E Thomason Loop, El Paso	Dew Point	SPM	Derived at site	Continuous	General, Background	Urban Scale	Suburban	31.746772	-106.402862
El Paso, TX	Ascarate Park SE	481410055	650 R E Thomason Loop, El Paso	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Highest Concentration, Upwind Background	Neighborhood, Urban Scale	Suburban	31.746772	-106.402862
El Paso, TX	Ascarate Park SE	481410055	650 R E Thomason Loop, El Paso	O3	PAMS, SLAMS	UV Photometric	Continuous	Max Ozone Concentration, Upwind Background	Neighborhood	Suburban	31.746772	-106.402862
El Paso, TX	Ascarate Park SE	481410055	650 R E Thomason Loop, El Paso	PM2.5 (FRM)	QA Collocated, SLAMS	Sequential FRM Gravimetric, 145	24 Hours; 1, 12 Days	Population Exposure	Neighborhood	Suburban	31.746772	-106.402862
El Paso, TX	Ascarate Park SE	481410055	650 R E Thomason Loop, El Paso	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Suburban	31.746772	-106.402862
El Paso, TX	Ascarate Park SE	481410055	650 R E Thomason Loop, El Paso	Relative Humidity	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	31.746772	-106.402862
El Paso, TX	Ascarate Park SE	481410055	650 R E Thomason Loop, El Paso	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Ozone Concentration, Upwind Background	Neighborhood	Suburban	31.746772	-106.402862
El Paso, TX	Ascarate Park SE	481410055	650 R E Thomason Loop, El Paso	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	31.746772	-106.402862

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
El Paso, TX	Ascarate Park SE	481410055	650 R E Thomason Loop, El Paso	Visibility	SPM	Visibility Sensor	Continuous	Highest Concentration, Population Exposure	Urban Scale	Suburban	31.746772	-106.402862
El Paso, TX	Ascarate Park SE	481410055	650 R E Thomason Loop, El Paso	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Background, Max Ozone Concentration, Upwind Background	Neighborhood	Suburban	31.746772	-106.402862
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	CO (High Sensitivity)	NCORE, SLAMS	Gas Filter Correlation	Continuous	Highest Concentration	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	Dew Point	SPM	Derived at site	Continuous	General, Background	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Highest Concentration, Max Precursor Emissions Impact	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	NOy (High Sensitivity)	NCORE, SLAMS	Chemi-luminescence	Continuous	Highest Concentration	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	O3	NCORE, PAMS, SLAMS	UV Photometric	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	PM10 FEM	NCORE, SLAMS	Broadband spectrocopy, 639	Continuous	Population Exposure	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	PM10-2.5	NCORE, SLAMS	Broadband spectrocopy, 640	Continuous	Population Exposure	Neighborhood	Urban and Center City	31.765682	-106.455241

MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	PM2.5 (FRM)	NCORE, QA Collocated, SLAMS	Sequential FRM Gravimetric, 145	24 Hours; 1, 3 Days	Highest Concentration, Population Exposure	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	PM2.5 (Speciation)	Csn Stn, NCORE, SLAMS	Carbons, Elements, Ions, SASS, URG	24 Hours; 1, 3 Days	Highest Concentration	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	PM2.5 FEM	NCORE, SLAMS	Broadband spectrocopy 638	Continuous	Population Exposure	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	Relative Humidity	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	SO2 (High Sensitivity)	NCORE, SLAMS	Pulsed Fluorescence	Continuous	Highest Concentration	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Highest Concentration, Max Precursor Emissions Impact	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Highest Concentration, Max Precursor Emissions Impact	Neighborhood	Urban and Center City	31.765682	-106.455241

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
El Paso, TX	El Paso Chamizal	481410044	800 S San Marcial Street, El Paso	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background, Max Precursor Emissions Impact	Neighborhood	Urban and Center City	31.765682	-106.455241
El Paso, TX	El Paso Mimosa	481410038	7501 Mimosa Avenue, El Paso	PM10 (FRM)	SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Suburban	31.735876	-106.377919
El Paso, TX	El Paso UTEP	481410037	250 Rim Rd, El Paso	CO	SPM	Gas Filter Correlation	Continuous	Highest Concentration	Neighborhood	Urban and Center City	31.768302	-106.501256
El Paso, TX	El Paso UTEP	481410037	250 Rim Rd, El Paso	Dew Point	SPM	Derived at site	Continuous	Max Ozone Concentration, Population Exposure	Neighborhood	Urban and Center City	31.768302	-106.501256
El Paso, TX	El Paso UTEP	481410037	250 Rim Rd, El Paso	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Max Ozone Concentration, Population Exposure	Neighborhood	Urban and Center City	31.768302	-106.501256
El Paso, TX	El Paso UTEP	481410037	250 Rim Rd, El Paso	O3	PAMS, SLAMS	UV Photometric	Continuous	Max Ozone Concentration, Population Exposure	Neighborhood	Urban and Center City	31.768302	-106.501256
El Paso, TX	El Paso UTEP	481410037	250 Rim Rd, El Paso	PM2.5 (FRM)	SLAMS	Sequential FRM Gravimetric, 145	24 Hours; 1, 6 Days	General, Background, Population Exposure	Neighborhood	Urban and Center City	31.768302	-106.501256
El Paso, TX	El Paso UTEP	481410037	250 Rim Rd, El Paso	PM2.5 TEOM non-NAAQS comparable	SPM	TEOM Gravimetric, 702	Continuous	Highest Concentration	Neighborhood	Urban and Center City	31.768302	-106.501256
El Paso, TX	El Paso UTEP	481410037	250 Rim Rd, El Paso	Precipitation	PAMS, SLAMS	Rain Gauge	Continuous	Max Ozone Concentration	Neighborhood	Urban and Center City	31.768302	-106.501256

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
El Paso, TX	El Paso UTEP	481410037	250 Rim Rd, El Paso	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Max Ozone Concentration	Neighborhood	Urban and Center City	31.768302	-106.501256
El Paso, TX	El Paso UTEP	481410037	250 Rim Rd, El Paso	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Ozone Concentration	Neighborhood	Urban and Center City	31.768302	-106.501256
El Paso, TX	El Paso UTEP	481410037	250 Rim Rd, El Paso	Temperature (Outdoor)	PAMS, SLAMS	Aspirated Thermister	Continuous	Max Ozone Concentration	Neighborhood	Urban and Center City	31.768302	-106.501256
El Paso, TX	El Paso UTEP	481410037	250 Rim Rd, El Paso	UV Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Ozone Concentration	Neighborhood	Urban and Center City	31.768302	-106.501256
El Paso, TX	El Paso UTEP	481410037	250 Rim Rd, El Paso	Wind	PAMS, SLAMS	Potentiometer Cup Anemometer	Continuous	Max Ozone Concentration	Neighborhood	Urban and Center City	31.768302	-106.501256
El Paso, TX	Ivanhoe	481410029	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	O3	SPM	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	31.785771	-106.323599
El Paso, TX	Ivanhoe	481410029	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	PM10 (FRM)	SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Suburban	31.785771	-106.323599
El Paso, TX	Ivanhoe	481410029	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	Relative Humidity	Border Grant, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	31.785771	-106.323599
El Paso, TX	Ivanhoe	481410029	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	31.785771	-106.323599

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
El Paso, TX	Ivanhoe	481410029	10834 Ivanhoe (Ivanhoe Fire Station), El Paso	Wind	Border Grant, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	31.785771	-106.323599
El Paso, TX	Ojo De Agua	481411021	6767 Ojo De Agua, El Paso	CO	SLAMS	Gas Filter Correlation	Continuous	Population Exposure	Neighborhood	Suburban	31.862493	-106.547324
El Paso, TX	Ojo De Agua	481411021	6767 Ojo De Agua, El Paso	O3	SPM	UV Photometric	Continuous	General, Background	Neighborhood	Suburban	31.862493	-106.547324
El Paso, TX	Ojo De Agua	481411021	6767 Ojo De Agua, El Paso	PM10 (FRM)	SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Suburban	31.862493	-106.547324
El Paso, TX	Ojo De Agua	481411021	6767 Ojo De Agua, El Paso	PM10 (FRM)	QA Collocated, SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 12 Days	Population Exposure	Neighborhood	Suburban	31.862493	-106.547324
El Paso, TX	Ojo De Agua	481411021	6767 Ojo De Agua, El Paso	Wind	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	31.862493	-106.547324
El Paso, TX	Skyline Park	481410058	5050A Yvette Drive, El Paso	O3	Border Grant, SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	31.893915	-106.425821
El Paso, TX	Skyline Park	481410058	5050A Yvette Drive, El Paso	Temperature (Outdoor)	Border Grant, SLAMS	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	31.893915	-106.425821
El Paso, TX	Skyline Park	481410058	5050A Yvette Drive, El Paso	Wind	Border Grant, SLAMS	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	31.893915	-106.425821

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
El Paso, TX	Socorro Hueco	481410057	320 Old Hueco Tanks Road, El Paso	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	31.667548	-106.287970
El Paso, TX	Socorro Hueco	481410057	320 Old Hueco Tanks Road, El Paso	PM10 FEM	Border Grant, SLAMS	Broadband spectrocopy, 639	Continuous	Population Exposure	Neighborhood	Suburban	31.667548	-106.287970
El Paso, TX	Socorro Hueco	481410057	320 Old Hueco Tanks Road, El Paso	PM2.5 FEM	QA Collocated, SLAMS	Broadband spectrocopy 638	Continuous	Population Exposure	Neighborhood	Suburban	31.667548	-106.287970
El Paso, TX	Socorro Hueco	481410057	320 Old Hueco Tanks Road, El Paso	PM2.5 FEM	SPM	Broadband spectrocopy 638	Continuous	Population Exposure	Neighborhood	Suburban	31.667548	-106.287970
El Paso, TX	Socorro Hueco	481410057	320 Old Hueco Tanks Road, El Paso	Radar Profiler	SPM	Radar Profiler	Continuous	Regional Transport	Regional Scale	Suburban	31.667548	-106.287970
El Paso, TX	Socorro Hueco	481410057	320 Old Hueco Tanks Road, El Paso	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	31.667548	-106.287970
El Paso, TX	Socorro Hueco	481410057	320 Old Hueco Tanks Road, El Paso	Wind	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	31.667548	-106.287970
El Paso, TX	Van Buren	481410693	2700 Harrison Avenue, El Paso	PM10 (FRM)	SPM	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Urban and Center City	31.813359	-106.464540
El Paso, TX	Van Buren	481410693	2700 Harrison Avenue, El Paso	Relative Humidity	SPM	Humidity Sensor	Continuous	Population Exposure	Neighborhood	Urban and Center City	31.813359	-106.464540

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
El Paso, TX	Van Buren	481410693	2700 Harrison Avenue, El Paso	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood	Urban and Center City	31.813359	-106.464540
El Paso, TX	Van Buren	481410693	2700 Harrison Avenue, El Paso	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood	Urban and Center City	31.813359	-106.464540
Granbury, TX	Granbury	482210001	200 N Gordon Street, Granbury	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	32.442314	-97.803536
Granbury, TX	Granbury	482210001	200 N Gordon Street, Granbury	Solar Radiation	SPM	Photovoltaic	Continuous	General, Background	Middle Scale	Suburban	32.442314	-97.803536
Granbury, TX	Granbury	482210001	200 N Gordon Street, Granbury	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General, Background	Middle Scale	Suburban	32.442314	-97.803536
Granbury, TX	Granbury	482210001	200 N Gordon Street, Granbury	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General, Background	Middle Scale	Suburban	32.442314	-97.803536
Houston-The Woodlands-Sugar Land, TX	Baytown	482010058	7210 1/2 Bayway Drive, Baytown	PM2.5 FEM	SLAMS	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Suburban	29.770689	-95.031226
Houston-The Woodlands-Sugar Land, TX	Baytown	482010058	7210 1/2 Bayway Drive, Baytown	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Neighborhood	Suburban	29.770689	-95.031226
Houston-The Woodlands-Sugar Land, TX	Baytown	482010058	7210 1/2 Bayway Drive, Baytown	Wind	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Neighborhood	Suburban	29.770689	-95.031226

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Baytown Garth	482011017	4898 Ashbel Cove Drive, Trailer A, Baytown	O3	SLAMS	UV Photometric	Continuous	Max Ozone Concentration	Neighborhood	Suburban	29.827182	94.988314
Houston-The Woodlands-Sugar Land, TX	Baytown Garth	482011017	4898 Ashbel Cove Drive, Trailer A, Baytown	Solar Radiation	SPM	Photovoltaic	Continuous	Population Exposure	Neighborhood	Suburban	29.827182	94.988314
Houston-The Woodlands-Sugar Land, TX	Baytown Garth	482011017	4898 Ashbel Cove Drive, Trailer A, Baytown	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	29.827182	94.988314
Houston-The Woodlands-Sugar Land, TX	Baytown Garth	482011017	4898 Ashbel Cove Drive, Trailer A, Baytown	Wind	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	29.827182	94.988314
Houston-The Woodlands-Sugar Land, TX	Channelview	482010026	1405 Sheldon Road, Channelview	Dew Point	SPM	Derived at site	Continuous	Highest Concentration	Neighborhood	Suburban	29.802723	-95.125489
Houston-The Woodlands-Sugar Land, TX	Channelview	482010026	1405 Sheldon Road, Channelview	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Population Exposure	Middle Scale, Neighborhood	Suburban	29.802723	-95.125489
Houston-The Woodlands-Sugar Land, TX	Channelview	482010026	1405 Sheldon Road, Channelview	O3	PAMS, SLAMS	UV Photometric	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Suburban	29.802723	-95.125489
Houston-The Woodlands-Sugar Land, TX	Channelview	482010026	1405 Sheldon Road, Channelview	Relative Humidity	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Suburban	29.802723	-95.125489
Houston-The Woodlands-Sugar Land, TX	Channelview	482010026	1405 Sheldon Road, Channelview	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Precursor Emissions Impact	Neighborhood	Suburban	29.802723	-95.125489

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Channelview	482010026	1405 Sheldon Road, Channelview	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Population Exposure	Neighborhood	Suburban	29.802723	-95.125489
Houston-The Woodlands-Sugar Land, TX	Channelview	482010026	1405 Sheldon Road, Channelview	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Suburban	29.802723	-95.125489
Houston-The Woodlands-Sugar Land, TX	Channelview	482010026	1405 Sheldon Road, Channelview	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Population Exposure	Neighborhood	Suburban	29.802723	-95.125489
Houston-The Woodlands-Sugar Land, TX	Channelview	482010026	1405 Sheldon Road, Channelview	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Suburban	29.802723	-95.125489
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	Barometric Pressure	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	Carbonyl	PAMS, SLAMS	DNPH Silica HPLC	24 Hours; Seasonal	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	CO (High Sensitivity)	SPM	Gas Filter Correlation	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	29.733808	-95.257623

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	O3	PAMS, SLAMS	UV Photometric	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	PM10 (FRM)	QA Collocated, SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 12 Days	Highest Concentration, Population Exposure	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	PM10 (FRM)	SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Highest Concentration, Source Oriented	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	PM2.5 (FRM)	SLAMS	Sequential FRM Gravimetric, 145	24 Hours; 1, 1 Days	Concentration, Population Exposure, Source Oriented	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	PM2.5 (FRM)	QA Collocated, SLAMS	Sequential FRM Gravimetric, 145	24 Hours; 1, 12 Days	Highest Concentration, Population Exposure	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	PM2.5 (Speciation)	SPM	Carbons, Elements, Ions, 2025, 2025	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	PM2.5 Mass (Speciation)	SPM	Sequential FRM Gravimetric, 145	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	PM2.5 TEOM non-NAAQS comparable	SPM	TEOM Gravimetric, 702	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	Precipitation	SPM	Continuous	Continuous	General, Background	Neighborhood	Urban and Center City	29.733808	-95.257623

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Concentration, Population Exposure, Source Oriented	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	Temperature (Outdoor)	PAMS, SLAMS	Aspirated Thermister	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Concentration, Population Exposure, Source Oriented	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	UV Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Clinton	482011035	9525 1/2 Clinton Dr, Houston	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	29.733808	-95.257623
Houston-The Woodlands-Sugar Land, TX	Conroe Relocated	483390078	9472A Hwy 1484, Conroe	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	General, Background, Population Exposure	Urban Scale	Suburban	30.350331	-95.425127

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Conroe Relocated	483390078	9472A Hwy 1484, Conroe	O3	PAMS, SLAMS	UV Photometric	Continuous	General, Background, Population Exposure	Urban Scale	Suburban	30.350331	-95.425127
Houston-The Woodlands-Sugar Land, TX	Conroe Relocated	483390078	9472A Hwy 1484, Conroe	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	General, Background	Neighborhood	Suburban	30.350331	-95.425127
Houston-The Woodlands-Sugar Land, TX	Conroe Relocated	483390078	9472A Hwy 1484, Conroe	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Highest Concentration	Neighborhood	Suburban	30.350331	-95.425127
Houston-The Woodlands-Sugar Land, TX	Conroe Relocated	483390078	9472A Hwy 1484, Conroe	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Highest Concentration	Neighborhood	Suburban	30.350331	-95.425127
Houston-The Woodlands-Sugar Land, TX	Conroe Relocated	483390078	9472A Hwy 1484, Conroe	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Highest Concentration	Neighborhood	Suburban	30.350331	-95.425127
Houston-The Woodlands-Sugar Land, TX	Freeport South Avenue I	480391012	207 South Avenue I, Freeport	PM2.5 (Speciation)	SPM	Elements	24 Hours; 1, 6 Days	Source Oriented	Middle Scale	Suburban	28.964407	-95.354970
Houston-The Woodlands-Sugar Land, TX	Freeport South Avenue I	480391012	207 South Avenue I, Freeport	PM2.5 Mass (Speciation)	SPM	Sequential FRM Gravimetric, 145	24 Hours; 1, 6 Days	Source Oriented	Middle Scale	Suburban	28.964407	-95.354970
Houston-The Woodlands-Sugar Land, TX	Freeport South Avenue I	480391012	207 South Avenue I, Freeport	SO2	SPM	Pulsed Fluorescence	Continuous	Source Oriented	Middle Scale	Suburban	28.964407	-95.354970
Houston-The Woodlands-Sugar Land, TX	Freeport South Avenue I	480391012	207 South Avenue I, Freeport	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Middle Scale	Suburban	28.964407	-95.354970

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Freeport South Avenue I	480391012	207 South Avenue I, Freeport	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Middle Scale	Suburban	28.964407	-95.354970
Houston-The Woodlands-Sugar Land, TX	Galveston 99th Street	481671034	9511 Avenue V 1/2, Galveston	Dew Point	SPM	Derived at site	Continuous	General, Background, Upwind Background	Middle Scale	Suburban	29.254467	-94.861283
Houston-The Woodlands-Sugar Land, TX	Galveston 99th Street	481671034	9511 Avenue V 1/2, Galveston	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	General, Background, Upwind Background	Middle Scale, Urban Scale	Suburban	29.254467	-94.861283
Houston-The Woodlands-Sugar Land, TX	Galveston 99th Street	481671034	9511 Avenue V 1/2, Galveston	O3	PAMS, SLAMS	UV Photometric	Continuous	Max Ozone Concentration, Upwind Background	Urban Scale	Suburban	29.254467	-94.861283
Houston-The Woodlands-Sugar Land, TX	Galveston 99th Street	481671034	9511 Avenue V 1/2, Galveston	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Regional Transport	Regional Scale	Suburban	29.254467	-94.861283
Houston-The Woodlands-Sugar Land, TX	Galveston 99th Street	481671034	9511 Avenue V 1/2, Galveston	Relative Humidity	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Urban Scale	Suburban	29.254467	-94.861283
Houston-The Woodlands-Sugar Land, TX	Galveston 99th Street	481671034	9511 Avenue V 1/2, Galveston	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Ozone Concentration, Upwind Background	Urban Scale	Suburban	29.254467	-94.861283
Houston-The Woodlands-Sugar Land, TX	Galveston 99th Street	481671034	9511 Avenue V 1/2, Galveston	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Urban Scale	Suburban	29.254467	-94.861283
Houston-The Woodlands-Sugar Land, TX	Galveston 99th Street	481671034	9511 Avenue V 1/2, Galveston	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Background, Max Ozone Concentration, Upwind Background	Urban Scale	Suburban	29.254467	-94.861283

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Houston Aldine	482010024	4510 1/2 Aldine Mail Rd, Houston	Barometric Pressure	PAMS, SLAMS	Barometric pressure transducer	Continuous	Max Ozone Concentration	Neighborhood	Suburban	29.901044	-95.326142
Houston-The Woodlands-Sugar Land, TX	Houston Aldine	482010024	4510 1/2 Aldine Mail Rd, Houston	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Urban Scale	Suburban	29.901044	-95.326142
Houston-The Woodlands-Sugar Land, TX	Houston Aldine	482010024	4510 1/2 Aldine Mail Rd, Houston	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Max Ozone Concentration, Population Exposure	Neighborhood	Suburban	29.901044	-95.326142
Houston-The Woodlands-Sugar Land, TX	Houston Aldine	482010024	4510 1/2 Aldine Mail Rd, Houston	NOy (High Sensitivity)	PAMS, SLAMS	Chemi-luminescence	Continuous	Max Ozone Concentration, Population Exposure	Neighborhood	Suburban	29.901044	-95.326142
Houston-The Woodlands-Sugar Land, TX	Houston Aldine	482010024	4510 1/2 Aldine Mail Rd, Houston	O3	PAMS, SLAMS	UV Photometric	Continuous	Max Ozone Concentration, Population Exposure	Neighborhood	Suburban	29.901044	-95.326142
Houston-The Woodlands-Sugar Land, TX	Houston Aldine	482010024	4510 1/2 Aldine Mail Rd, Houston	PM2.5 (FRM)	QA Collocated, SLAMS	Sequential FRM Gravimetric, 145	24 Hours; 1, 12 Days	Population Exposure	Neighborhood	Suburban	29.901044	-95.326142
Houston-The Woodlands-Sugar Land, TX	Houston Aldine	482010024	4510 1/2 Aldine Mail Rd, Houston	PM2.5 FEM	SLAMS	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Suburban	29.901044	-95.326142
Houston-The Woodlands-Sugar Land, TX	Houston Aldine	482010024	4510 1/2 Aldine Mail Rd, Houston	Relative Humidity	PAMS, SLAMS	Humidity Sensor	Continuous	Max Ozone Concentration	Neighborhood	Suburban	29.901044	-95.326142
Houston-The Woodlands-Sugar Land, TX	Houston Aldine	482010024	4510 1/2 Aldine Mail Rd, Houston	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Ozone Concentration	Neighborhood	Suburban	29.901044	-95.326142

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Houston Aldine	482010024	4510 1/2 Aldine Mail Rd, Houston	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Ozone Concentration	Neighborhood	Suburban	29.901044	-95.326142
Houston-The Woodlands-Sugar Land, TX	Houston Aldine	482010024	4510 1/2 Aldine Mail Rd, Houston	Wind	Other, PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background, Max Ozone Concentration	Middle Scale, Neighborhood	Suburban	29.901044	-95.326142
Houston-The Woodlands-Sugar Land, TX	Houston Bayland Park	482010055	6400 Bissonnet Street, Houston	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Middle Scale, Neighborhood	Suburban	29.695754	-95.499238
Houston-The Woodlands-Sugar Land, TX	Houston Bayland Park	482010055	6400 Bissonnet Street, Houston	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Middle Scale	Suburban	29.695754	-95.499238
Houston-The Woodlands-Sugar Land, TX	Houston Bayland Park	482010055	6400 Bissonnet Street, Houston	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Suburban	29.695754	-95.499238
Houston-The Woodlands-Sugar Land, TX	Houston Bayland Park	482010055	6400 Bissonnet Street, Houston	Solar Radiation	SPM	Photovoltaic	Continuous	General, Background, Max Precursor Emissions Impact	Middle Scale	Suburban	29.695754	-95.499238
Houston-The Woodlands-Sugar Land, TX	Houston Bayland Park	482010055	6400 Bissonnet Street, Houston	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background, Max Precursor Emissions Impact	Middle Scale	Suburban	29.695754	-95.499238
Houston-The Woodlands-Sugar Land, TX	Houston Bayland Park	482010055	6400 Bissonnet Street, Houston	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background, Max Precursor Emissions Impact	Middle Scale	Suburban	29.695754	-95.499238
Houston-The Woodlands-Sugar Land, TX	Houston Croquet	482010051	13826 1/2 Croquet, Houston	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	29.623963	-95.474337

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Houston Croquet	482010051	13826 1/2 Croquet, Houston	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood	Suburban	29.623963	-95.474337
Houston-The Woodlands-Sugar Land, TX	Houston Croquet	482010051	13826 1/2 Croquet, Houston	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood	Suburban	29.623963	-95.474337
Houston-The Woodlands-Sugar Land, TX	Houston Croquet	482010051	13826 1/2 Croquet, Houston	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood	Suburban	29.623963	-95.474337
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	Barometric Pressure	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	Carbonyl	PAMS, SLAMS	DNPH Silica HPLC	8 Hour; Seasonal, 24 Hours; Seasonal	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	CO (High Sensitivity)	NCORE, SLAMS	Gas Filter Correlation	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	Dew Point	SPM	Derived at site	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	NO2 (Direct)	PAMS, SLAMS	Direct-Read NO2	Continuous	Population Exposure, Source Oriented	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	NOy (High Sensitivity)	NCORE, PAMS, SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	O3	NCORE, PAMS, SLAMS	UV Photometric	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	PM10 FEM	NCORE, SLAMS	Broadband spectrocopy, 639	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	PM10-2.5	NCORE, SLAMS	Broadband spectrocopy, 640	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	PM2.5 (FRM)	NCORE, SLAMS	Sequential FRM Gravimetric, 145	24 Hours; 1, 3 Days	Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	PM2.5 (Speciation)	Csn Stn, Csn Supplemental, SLAMS	Carbons, Elements, Ions, SASS, URG	24 Hours; 1, 3 Days	Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	PM2.5 (Speciation)	Csn Stn, QA Collocated, SLAMS	Carbons, Elements, Ions, SASS, URG	24 Hours; 1, 6 Days, 24 Hours; 1, 3 Days	Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	PM2.5 FEM	NCORE, SLAMS	Broadband spectrocopy 638	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	Precipitation	PAMS, SLAMS	Rain Gauge	Continuous	General, Background	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	Relative Humidity	NCORE, PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	29.670044	-95.128503

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	SO2 (High Sensitivity)	NCORE, SLAMS	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	Speciated VOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	Temperature (Outdoor)	NCORE, PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	TNMOC (AutoGC)	PAMS, SLAMS	GC	Continuous	Max Precursor Emissions Impact, Population Exposure	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	UV Radiation	PAMS, SLAMS	Photovoltaic	Continuous	General, Background	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston Deer Park #2	482011039	4514 1/2 Durant Street, Deer Park	Wind	NCORE, PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Neighborhood	Urban and Center City	29.670044	-95.128503
Houston-The Woodlands-Sugar Land, TX	Houston East	482011034	1262 1/2 Mae Drive, Houston	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Highest Concentration, Population Exposure	Middle Scale, Neighborhood	Suburban	29.768025	-95.220567
Houston-The Woodlands-Sugar Land, TX	Houston East	482011034	1262 1/2 Mae Drive, Houston	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	29.768025	-95.220567

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Houston East	482011034	1262 1/2 Mae Drive, Houston	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Suburban	29.768025	-95.220567
Houston-The Woodlands-Sugar Land, TX	Houston East	482011034	1262 1/2 Mae Drive, Houston	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Urban Scale	Suburban	29.768025	-95.220567
Houston-The Woodlands-Sugar Land, TX	Houston East	482011034	1262 1/2 Mae Drive, Houston	Wind	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	29.768025	-95.220567
Houston-The Woodlands-Sugar Land, TX	Houston Harvard Street	482010417	160 Harvard Street, Houston	NO, NO2, NOx	SPM	Chemi-luminescence	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.772862	-95.395874
Houston-The Woodlands-Sugar Land, TX	Houston Harvard Street	482010417	160 Harvard Street, Houston	O3	SPM	UV Photometric	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.772862	-95.395874
Houston-The Woodlands-Sugar Land, TX	Houston Harvard Street	482010417	160 Harvard Street, Houston	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Urban and Center City	29.772862	-95.395874
Houston-The Woodlands-Sugar Land, TX	Houston Harvard Street	482010417	160 Harvard Street, Houston	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Urban and Center City	29.772862	-95.395874
Houston-The Woodlands-Sugar Land, TX	Houston Monroe	482010062	9726 1/2 Monroe, Houston	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	29.625637	-95.267033
Houston-The Woodlands-Sugar Land, TX	Houston Monroe	482010062	9726 1/2 Monroe, Houston	PM10 (FRM)	SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Suburban	29.625637	-95.267033

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Houston Monroe	482010062	9726 1/2 Monroe, Houston	Precipitation	SPM	Continuous	Continuous	General, Background	Neighborhood	Suburban	29.625637	-95.267033
Houston-The Woodlands-Sugar Land, TX	Houston North Loop	482011052	822 North Loop, Houston	CO	Near Road, SLAMS	Gas Filter Correlation	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	29.814392	-95.387818
Houston-The Woodlands-Sugar Land, TX	Houston North Loop	482011052	822 North Loop, Houston	NO, NO2, NOx	Near Road, SLAMS	Chemi-luminescence	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	29.814392	-95.387818
Houston-The Woodlands-Sugar Land, TX	Houston North Loop	482011052	822 North Loop, Houston	PM2.5 FEM	Near Road, SLAMS	Beta Attenuation, 209	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	29.814392	-95.387818
Houston-The Woodlands-Sugar Land, TX	Houston North Loop	482011052	822 North Loop, Houston	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	29.814392	-95.387818
Houston-The Woodlands-Sugar Land, TX	Houston North Loop	482011052	822 North Loop, Houston	Wind	SPM	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	29.814392	-95.387818
Houston-The Woodlands-Sugar Land, TX	Houston North Wayside	482010046	7330 1/2 North Wayside, Houston	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	29.828524	-95.283973
Houston-The Woodlands-Sugar Land, TX	Houston North Wayside	482010046	7330 1/2 North Wayside, Houston	PM10 TEOM non-NAAQS comparable	SPM	TEOM Gravimetric with modification, 879	Continuous	Population Exposure	Neighborhood	Suburban	29.828524	-95.283973
Houston-The Woodlands-Sugar Land, TX	Houston North Wayside	482010046	7330 1/2 North Wayside, Houston	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Suburban	29.828524	-95.283973

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Houston North Wayside	482010046	7330 1/2 North Wayside, Houston	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	29.828524	-95.283973
Houston-The Woodlands-Sugar Land, TX	Houston North Wayside	482010046	7330 1/2 North Wayside, Houston	Wind (3m)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	29.828524	-95.283973
Houston-The Woodlands-Sugar Land, TX	Houston Southwest Freeway	482011066	5617 Westward Avenue, Houston	NO, NO2, NOx	Near Road, SLAMS	Chemi-luminescence	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	29.721607	-95.492668
Houston-The Woodlands-Sugar Land, TX	Houston Southwest Freeway	482011066	5617 Westward Avenue, Houston	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	29.721607	-95.492668
Houston-The Woodlands-Sugar Land, TX	Houston Southwest Freeway	482011066	5617 Westward Avenue, Houston	Wind	SPM	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	29.721607	-95.492668
Houston-The Woodlands-Sugar Land, TX	Houston Westhollow	482010066	3333 1/2 Hwy 6 South, Houston	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	29.723360	-95.635890
Houston-The Woodlands-Sugar Land, TX	Houston Westhollow	482010066	3333 1/2 Hwy 6 South, Houston	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Suburban	29.723360	-95.635890
Houston-The Woodlands-Sugar Land, TX	Houston Westhollow	482010066	3333 1/2 Hwy 6 South, Houston	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood	Suburban	29.723360	-95.635890
Houston-The Woodlands-Sugar Land, TX	Houston Westhollow	482010066	3333 1/2 Hwy 6 South, Houston	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood	Suburban	29.723360	-95.635890

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	La Porte Airport C243	482011043	La Porte Airport, 2434 Buchanan Street, La Porte	Ceilometer	PAMS, SLAMS	Upper air measurement, mixing height	Continuous	General, Background	Regional	Suburban	29.672043	-95.064700
Houston-The Woodlands-Sugar Land, TX	La Porte Airport C243	482011043	La Porte Airport, 2434 Buchanan Street, La Porte	Precipitation	PAMS, SLAMS	Rain Gauge	Continuous	General, Background	Neighborhood	Suburban	29.672043	-95.064700
Houston-The Woodlands-Sugar Land, TX	La Porte Airport C243	482011043	La Porte Airport, 2434 Buchanan Street, La Porte	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	29.672043	-95.064700
Houston-The Woodlands-Sugar Land, TX	La Porte Airport C243	482011043	La Porte Airport, 2434 Buchanan Street, La Porte	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	29.672043	-95.064700
Houston-The Woodlands-Sugar Land, TX	Lake Jackson	480391016	109B Brazoria Hwy 332 West, Lake Jackson	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure, Source Oriented	Middle Scale, Neighborhood	Suburban	29.043752	-95.472959
Houston-The Woodlands-Sugar Land, TX	Lake Jackson	480391016	109B Brazoria Hwy 332 West, Lake Jackson	O3	SLAMS	UV Photometric	Continuous	Population Exposure, Source Oriented	Neighborhood	Suburban	29.043752	-95.472959
Houston-The Woodlands-Sugar Land, TX	Lake Jackson	480391016	109B Brazoria Hwy 332 West, Lake Jackson	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Middle Scale	Suburban	29.043752	-95.472959
Houston-The Woodlands-Sugar Land, TX	Lake Jackson	480391016	109B Brazoria Hwy 332 West, Lake Jackson	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Middle Scale	Suburban	29.043752	-95.472959
Houston-The Woodlands-Sugar Land, TX	Lake Jackson	480391016	109B Brazoria Hwy 332 West, Lake Jackson	Wind	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Middle Scale, Regional Scale	Suburban	29.043752	-95.472959

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Lang	482010047	4401 1/2 Lang Rd, Houston	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Middle Scale, Urban Scale	Suburban	29.834214	-95.489122
Houston-The Woodlands-Sugar Land, TX	Lang	482010047	4401 1/2 Lang Rd, Houston	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Urban Scale	Suburban	29.834214	-95.489122
Houston-The Woodlands-Sugar Land, TX	Lang	482010047	4401 1/2 Lang Rd, Houston	PM10 (FRM)	SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Suburban	29.834214	-95.489122
Houston-The Woodlands-Sugar Land, TX	Lynchburg Ferry	482011015	4364 Independence Parkway South, Baytown	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Source Oriented	Middle Scale, Neighborhood	Suburban	29.758974	-95.079341
Houston-The Woodlands-Sugar Land, TX	Lynchburg Ferry	482011015	4364 Independence Parkway South, Baytown	O3	SLAMS	UV Photometric	Continuous	Source Oriented	Middle Scale	Suburban	29.758974	-95.079341
Houston-The Woodlands-Sugar Land, TX	Lynchburg Ferry	482011015	4364 Independence Parkway South, Baytown	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Neighborhood	Suburban	29.758974	-95.079341
Houston-The Woodlands-Sugar Land, TX	Lynchburg Ferry	482011015	4364 Independence Parkway South, Baytown	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Neighborhood	Suburban	29.758974	-95.079341
Houston-The Woodlands-Sugar Land, TX	Lynchburg Ferry	482011015	4364 Independence Parkway South, Baytown	Wind	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Neighborhood	Suburban	29.758974	-95.079341
Houston-The Woodlands-Sugar Land, TX	Manvel Croix Park	480391004	4503 Croix Pkwy, Manvel	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Urban Scale	Suburban	29.520448	-95.392514

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Manvel Croix Park	480391004	4503 Croix Pkwy, Manvel	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Urban Scale	Suburban	29.520448	-95.392514
Houston-The Woodlands-Sugar Land, TX	Manvel Croix Park	480391004	4503 Croix Pkwy, Manvel	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	29.520448	-95.392514
Houston-The Woodlands-Sugar Land, TX	Manvel Croix Park	480391004	4503 Croix Pkwy, Manvel	Wind	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Suburban	29.520448	-95.392514
Houston-The Woodlands-Sugar Land, TX	Northwest Harris County	482010029	16822 Kitzman, Tomball	Dew Point	SPM	Derived at site	Continuous	General, Background	Microscale	Rural	30.039542	-95.673956
Houston-The Woodlands-Sugar Land, TX	Northwest Harris County	482010029	16822 Kitzman, Tomball	NO, NO2, NOx	PAMS, SLAMS	Chemi-luminescence	Continuous	Extreme Downwind, Population Exposure	Urban Scale	Rural	30.039542	-95.673956
Houston-The Woodlands-Sugar Land, TX	Northwest Harris County	482010029	16822 Kitzman, Tomball	O3	PAMS, SLAMS	UV Photometric	Continuous	Extreme Downwind, Population Exposure	Urban Scale	Rural	30.039542	-95.673956
Houston-The Woodlands-Sugar Land, TX	Northwest Harris County	482010029	16822 Kitzman, Tomball	Relative Humidity	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Urban Scale	Rural	30.039542	-95.673956
Houston-The Woodlands-Sugar Land, TX	Northwest Harris County	482010029	16822 Kitzman, Tomball	Solar Radiation	PAMS, SLAMS	Photovoltaic	Continuous	General, Background	Urban Scale	Rural	30.039542	-95.673956
Houston-The Woodlands-Sugar Land, TX	Northwest Harris County	482010029	16822 Kitzman, Tomball	Temperature (Outdoor)	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	General, Background	Urban Scale	Rural	30.039542	-95.673956

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Northwest Harris County	482010029	16822 Kitzman, Tomball	Wind	PAMS, SLAMS	AIO2 sonic weather sensor	Continuous	Downwind, General, Background, Upwind Background	Urban Scale	Rural	30.039542	-95.673956
Houston-The Woodlands-Sugar Land, TX	Park Place	482010416	7421 Park Place Blvd, Houston	Barometric Pressure	SPM	Barometric pressure transducer	Continuous	General, Background	Neighborhood	Urban and Center City	29.686293	-95.294726
Houston-The Woodlands-Sugar Land, TX	Park Place	482010416	7421 Park Place Blvd, Houston	Dew Point	SPM	Derived at site	Continuous	General, Background	Neighborhood	Urban and Center City	29.686293	-95.294726
Houston-The Woodlands-Sugar Land, TX	Park Place	482010416	7421 Park Place Blvd, Houston	NO, NO2, NOx	SPM	Chemi-luminescence	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.686293	-95.294726
Houston-The Woodlands-Sugar Land, TX	Park Place	482010416	7421 Park Place Blvd, Houston	O3	SPM	UV Photometric	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.686293	-95.294726
Houston-The Woodlands-Sugar Land, TX	Park Place	482010416	7421 Park Place Blvd, Houston	Precipitation	SPM	Continuous	Continuous	General, Background	Neighborhood	Urban and Center City	29.686293	-95.294726
Houston-The Woodlands-Sugar Land, TX	Park Place	482010416	7421 Park Place Blvd, Houston	Relative Humidity	SPM	Humidity Sensor	Continuous	General, Background	Neighborhood	Urban and Center City	29.686293	-95.294726
Houston-The Woodlands-Sugar Land, TX	Park Place	482010416	7421 Park Place Blvd, Houston	SO2	SPM	Pulsed Fluorescence	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.686293	-95.294726
Houston-The Woodlands-Sugar Land, TX	Park Place	482010416	7421 Park Place Blvd, Houston	Solar Radiation	SPM	Photovoltaic	Continuous	General, Background	Neighborhood	Urban and Center City	29.686293	-95.294726

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Park Place	482010416	7421 Park Place Blvd, Houston	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General, Background	Neighborhood	Urban and Center City	29.686293	-95.294726
Houston-The Woodlands-Sugar Land, TX	Park Place	482010416	7421 Park Place Blvd, Houston	UV Radiation	SPM	Photovoltaic	Continuous	General, Background	Neighborhood	Urban and Center City	29.686293	-95.294726
Houston-The Woodlands-Sugar Land, TX	Park Place	482010416	7421 Park Place Blvd, Houston	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General, Background	Neighborhood	Urban and Center City	29.686293	-95.294726
Houston-The Woodlands-Sugar Land, TX	Seabrook Friendship Park	482011050	4522 Park Rd, Seabrook	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Middle Scale, Neighborhood	Suburban	29.583056	-95.015572
Houston-The Woodlands-Sugar Land, TX	Seabrook Friendship Park	482011050	4522 Park Rd, Seabrook	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Suburban	29.583056	-95.015572
Houston-The Woodlands-Sugar Land, TX	Seabrook Friendship Park	482011050	4522 Park Rd, Seabrook	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Neighborhood	Suburban	29.583056	-95.015572
Houston-The Woodlands-Sugar Land, TX	Seabrook Friendship Park	482011050	4522 Park Rd, Seabrook	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Middle Scale	Suburban	29.583056	-95.015572
Houston-The Woodlands-Sugar Land, TX	Seabrook Friendship Park	482011050	4522 Park Rd, Seabrook	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Middle Scale	Suburban	29.583056	-95.015572
Houston-The Woodlands-Sugar Land, TX	Seabrook Friendship Park	482011050	4522 Park Rd, Seabrook	Wind	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Middle Scale	Suburban	29.583056	-95.015572

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Houston-The Woodlands-Sugar Land, TX	Smith Point Hawkins Camp	480710013	1850 Hawkins Camp Rd, Anahuac	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Source Oriented	Neighborhood	Suburban	29.546252	-94.787000
Houston-The Woodlands-Sugar Land, TX	Smith Point Hawkins Camp	480710013	1850 Hawkins Camp Rd, Anahuac	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Source Oriented	Neighborhood	Suburban	29.546252	-94.787000
Houston-The Woodlands-Sugar Land, TX	Texas City Ball Park	481670005	2516 1/2 Texas Avenue, Texas City	SO2	SPM	Pulsed Fluorescence	Continuous	Highest Concentration	Neighborhood	Urban and Center City	29.385237	-94.931531
Houston-The Woodlands-Sugar Land, TX	Texas City Fire Station	481670004	2516 Texas Avenue, Texas City	PM10 (FRM)	SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Highest Concentration	Neighborhood	Urban and Center City	29.384793	-94.931306
Killeen-Temple-Fort Hood, TX	Killeen Skylark Field	480271047	1605 Stone Tree Drive, Killeen	NO, NO2, NOx	SPM	Chemi-luminescence	Continuous	General, Background	Urban Scale	Urban and Center City	31.088008	-97.679746
Killeen-Temple-Fort Hood, TX	Killeen Skylark Field	480271047	1605 Stone Tree Drive, Killeen	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Urban Scale	Urban and Center City	31.088008	-97.679746
Killeen-Temple-Fort Hood, TX	Killeen Skylark Field	480271047	1605 Stone Tree Drive, Killeen	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Urban Scale	Urban and Center City	31.088008	-97.679746
Killeen-Temple-Fort Hood, TX	Killeen Skylark Field	480271047	1605 Stone Tree Drive, Killeen	Wind	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Urban Scale	Urban and Center City	31.088008	-97.679746
Killeen-Temple-Fort Hood, TX	Temple Georgia	480271045	8406 Georgia Avenue, Temple	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Urban Scale	Suburban	31.122445	-97.431032

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Killeen-Temple-Fort Hood, TX	Temple Georgia	480271045	8406 Georgia Avenue, Temple	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Urban Scale	Suburban	31.122445	-97.431032
Killeen-Temple-Fort Hood, TX	Temple Georgia	480271045	8406 Georgia Avenue, Temple	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	31.122445	-97.431032
Killeen-Temple-Fort Hood, TX	Temple Georgia	480271045	8406 Georgia Avenue, Temple	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	31.122445	-97.431032
Kingsville, TX	National Seashore	482730314	20420 Park Road, Corpus Christi	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Regional Transport	Regional Scale	Rural	27.422435	-97.300857
Kingsville, TX	National Seashore	482730314	20420 Park Road, Corpus Christi	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Regional Transport	Regional Scale	Rural	27.422435	-97.300857
Kingsville, TX	National Seashore	482730314	20420 Park Road, Corpus Christi	Wind	SPM	AIO2 sonic weather sensor	Continuous	Regional Transport	Regional Scale	Rural	27.422435	-97.300857
Laredo, TX	Laredo Bridge	484790017	700 Zaragosa St, Laredo	PM10 (FRM)	Border Grant, SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Highest Concentration	Microscale	Urban and Center City	27.501851	-99.502968
Laredo, TX	Laredo Bridge	484790017	700 Zaragosa St, Laredo	Speciated VOC (Canister)	Border Grant, SLAMS	Canister GC-MS	24 Hours; 1, 6 Days	Highest Concentration	Neighborhood	Urban and Center City	27.501851	-99.502968
Laredo, TX	Laredo Bridge	484790017	700 Zaragosa St, Laredo	Temperature (Outdoor)	Border Grant, SLAMS	Aspirated Thermister	Continuous	Population Exposure	Neighborhood	Urban and Center City	27.501851	-99.502968

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Laredo, TX	Laredo Bridge	484790017	700 Zaragosa St, Laredo	Wind	Border Grant, SLAMS	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Urban and Center City	27.501851	-99.502968
Laredo, TX	Laredo College	484790016	West End Washington Street, (corner of Taylor and Crawford Roads), Laredo	CO	Border Grant, SLAMS	Gas Filter Correlation	Continuous	Population Exposure	Neighborhood	Urban and Center City	27.507972	-99.524031
Laredo, TX	Laredo College	484790016	West End Washington Street, (corner of Taylor and Crawford Roads), Laredo	O3	Border Grant, SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Urban and Center City	27.507972	-99.524031
Laredo, TX	Laredo College	484790016	West End Washington Street, (corner of Taylor and Crawford Roads), Laredo	PM10 (FRM)	Border Grant, SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Population Exposure	Neighborhood	Urban and Center City	27.507972	-99.524031
Laredo, TX	Laredo College	484790016	West End Washington Street, (corner of Taylor and Crawford Roads), Laredo	Temperature (Outdoor)	Border Grant, SLAMS	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Urban and Center City	27.507972	-99.524031
Laredo, TX	Laredo College	484790016	West End Washington Street, (corner of Taylor and Crawford Roads), Laredo	Wind	Border Grant, SLAMS	AIO2 sonic weather sensor	Continuous	Population Exposure	Neighborhood	Urban and Center City	27.507972	-99.524031
Laredo, TX	World Trade Bridge	484790313	Mines Road 11601 FM 1472, Laredo	PM2.5 FEM	SLAMS	Beta Attenuation, 209	Continuous	Source Oriented	Microscale	Suburban	27.599615	-99.533422
Longview, TX	Longview	481830001	Gregg Co Airport near Longview, Longview	NO, NO2, NOx	SPM	Chemi-luminescence	Continuous	Population Exposure	Neighborhood	Rural	32.378678	-94.711814
Longview, TX	Longview	481830001	Gregg Co Airport near Longview, Longview	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Rural	32.378678	-94.711814

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Longview, TX	Longview	481830001	Gregg Co Airport near Longview, Longview	Precipitation	SPM	Rain Gauge	Continuous	General, Background	Neighborhood	Rural	32.378678	-94.711814
Longview, TX	Longview	481830001	Gregg Co Airport near Longview, Longview	SO2	SLAMS	Pulsed Fluorescence	Continuous	General, Background, Population Exposure	Neighborhood	Rural	32.378678	-94.711814
Longview, TX	Longview	481830001	Gregg Co Airport near Longview, Longview	Solar Radiation	SPM	Photovoltaic	Continuous	General, Background	Neighborhood	Rural	32.378678	-94.711814
Longview, TX	Longview	481830001	Gregg Co Airport near Longview, Longview	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	32.378678	-94.711814
Longview, TX	Longview	481830001	Gregg Co Airport near Longview, Longview	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	32.378678	-94.711814
Longview, TX	Tatum CR 2181d Martin Creek Lake	484011082	9515 County Road 2181d, Tatum	SO2	SPM	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood	Rural	32.277908	-94.570866
Longview, TX	Tatum CR 2181d Martin Creek Lake	484011082	9515 County Road 2181d, Tatum	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	32.277908	-94.570866
Longview, TX	Tatum CR 2181d Martin Creek Lake	484011082	9515 County Road 2181d, Tatum	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	32.277908	-94.570866
Lubbock, TX	Lubbock 12th Street	483031028	3901 East 12th Street, Lubbock	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure	Urban Scale	Urban and Center City	33.585560	-101.786947

Appendix B: Ambient Air Monitoring Network Site List

MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Lubbock, TX	Lubbock 12th Street	483031028	3901 East 12th Street, Lubbock	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Regional Scale	Urban and Center City	33.585560	-101.786947
Lubbock, TX	Lubbock 12th Street	483031028	3901 East 12th Street, Lubbock	Wind (3m)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Regional Scale	Urban and Center City	33.585560	-101.786947
Marshall, TX	Hallsville Red Oak Road	482031079	9206 Red Oak Road, Hallsville	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood	Rural	32.470217	-94.481608
Marshall, TX	Hallsville Red Oak Road	482031079	9206 Red Oak Road, Hallsville	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	32.470217	-94.481608
Marshall, TX	Hallsville Red Oak Road	482031079	9206 Red Oak Road, Hallsville	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	32.470217	-94.481608
Marshall, TX	Karnack	482030002	Hwy 134 & Spur 449, Not In A City	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	General, Background	Regional Scale, Urban Scale	Rural	32.668997	-94.167461
Marshall, TX	Karnack	482030002	Hwy 134 & Spur 449, Not In A City	O3	SLAMS	UV Photometric	Continuous	General, Background	Regional Scale	Rural	32.668997	-94.167461
Marshall, TX	Karnack	482030002	Hwy 134 & Spur 449, Not In A City	PM2.5 (Speciation)	Csn Supplemental, SLAMS	Carbons, Elements, Ions, 2025, 2025	24 Hours; 1, 6 Days, 24 Hours; 1, 3 Days	General, Background, Regional Transport	Regional Scale	Rural	32.668997	-94.167461
Marshall, TX	Karnack	482030002	Hwy 134 & Spur 449, Not In A City	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	General, Background	Regional Scale	Rural	32.668997	-94.167461

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Marshall, TX	Karnack	482030002	Hwy 134 & Spur 449, Not In A City	Solar Radiation	SPM	Photovoltaic	Continuous	General, Background	Urban Scale	Rural	32.668997	-94.167461
Marshall, TX	Karnack	482030002	Hwy 134 & Spur 449, Not In A City	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Urban Scale	Rural	32.668997	-94.167461
Marshall, TX	Karnack	482030002	Hwy 134 & Spur 449, Not In A City	Visibility	SPM	Visibility Sensor	Continuous	General, Background	Urban Scale	Rural	32.668997	-94.167461
Marshall, TX	Karnack	482030002	Hwy 134 & Spur 449, Not In A City	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Urban Scale	Rural	32.668997	-94.167461
McAllen-Edinburg-Mission, TX	Edinburg East Freddy Gonzalez Drive	482151046	1491 East Freddy Gonzalez Drive, Edinburg	PM2.5 FEM	SLAMS	Beta Attenuation, 209	Continuous	Population Exposure	Regional Scale	Urban and Center City	26.288492	-98.152059
McAllen-Edinburg-Mission, TX	Edinburg East Freddy Gonzalez Drive	482151046	1491 East Freddy Gonzalez Drive, Edinburg	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Regional Scale	Urban and Center City	26.288492	-98.152059
McAllen-Edinburg-Mission, TX	Edinburg East Freddy Gonzalez Drive	482151046	1491 East Freddy Gonzalez Drive, Edinburg	Wind (3m)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Regional Scale	Urban and Center City	26.288492	-98.152059
McAllen-Edinburg-Mission, TX	Mission	482150043	2300 North Glasscock, Mission	O3	SLAMS	UV Photometric	Continuous	General, Background	Neighborhood	Suburban	26.226210	-98.291069
McAllen-Edinburg-Mission, TX	Mission	482150043	2300 North Glasscock, Mission	PM10 FEM	SPM	Broadband spectrocopy, 639	Continuous	Population Exposure	Neighborhood	Suburban	26.226210	-98.291069

Appendix B: Ambient Air Monitoring Network Site List

MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
McAllen-Edinburg-Mission, TX	Mission	482150043	2300 North Glasscock, Mission	PM2.5 FEM	SPM	Broadband spectroscopy 638	Continuous	Population Exposure	Neighborhood	Suburban	26.226210	-98.291069
McAllen-Edinburg-Mission, TX	Mission	482150043	2300 North Glasscock, Mission	Solar Radiation	SPM	Photovoltaic	Continuous	General, Background	Neighborhood	Suburban	26.226210	-98.291069
McAllen-Edinburg-Mission, TX	Mission	482150043	2300 North Glasscock, Mission	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	26.226210	-98.291069
McAllen-Edinburg-Mission, TX	Mission	482150043	2300 North Glasscock, Mission	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	26.226210	-98.291069
Mount Pleasant, TX	Cookville FM 4855	484491078	385 CR 4855, Not In A City	SO2	SLAMS	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood	Rural	33.075132	-94.847301
Mount Pleasant, TX	Cookville FM 4855	484491078	385 CR 4855, Not In A City	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	33.075132	-94.847301
Mount Pleasant, TX	Cookville FM 4855	484491078	385 CR 4855, Not In A City	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	33.075132	-94.847301
Odessa, TX	Odessa Gonzales	481351014	2700 Disney, Odessa	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Highest Concentration	Regional Scale	Suburban	31.870262	-102.334760
Odessa, TX	Odessa Gonzales	481351014	2700 Disney, Odessa	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Population Exposure	Neighborhood	Suburban	31.870262	-102.334760

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Odessa, TX	Odessa Gonzales	481351014	2700 Disney, Odessa	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Population Exposure	Neighborhood	Suburban	31.870262	-102.334760
San Antonio-New Braunfels, TX	Calaveras Lake	480290059	14620 Laguna Rd, San Antonio	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous		Urban Scale	Rural	29.275387	-98.311694
San Antonio-New Braunfels, TX	Calaveras Lake	480290059	14620 Laguna Rd, San Antonio	O3	SLAMS	UV Photometric	Continuous	Source Oriented; Upwind Background	Urban Scale	Rural	29.275387	-98.311694
San Antonio-New Braunfels, TX	Calaveras Lake	480290059	14620 Laguna Rd, San Antonio	PM2.5 FEM	SLAMS	Beta Attenuation, 209	Continuous	Population Exposure, Source Oriented	Urban Scale	Rural	29.275387	-98.311694
San Antonio-New Braunfels, TX	Calaveras Lake	480290059	14620 Laguna Rd, San Antonio	SO2	SLAMS	Pulsed Fluorescence	Continuous	Population Exposure, Source Oriented	Neighborhood	Rural	29.275387	-98.311694
San Antonio-New Braunfels, TX	Calaveras Lake	480290059	14620 Laguna Rd, San Antonio	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Source Oriented	Urban Scale	Rural	29.275387	-98.311694
San Antonio-New Braunfels, TX	Calaveras Lake	480290059	14620 Laguna Rd, San Antonio	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Source Oriented	Urban Scale	Rural	29.275387	-98.311694
San Antonio-New Braunfels, TX	Camp Bullis	480290052	F Range (1000Yd marker off Wilderness Trail), Near Wilderness Rd, San Antonio	NO, NO2, NOx	SPM	Chemi-luminescence	Continuous	Max Precursor Emissions Impact	Urban Scale	Rural	29.632083	-98.564942
San Antonio-New Braunfels, TX	Camp Bullis	480290052	F Range (1000Yd marker off Wilderness Trail), Near Wilderness Rd, San Antonio	O3	SLAMS	UV Photometric	Continuous	Max Ozone Concentration, Population Exposure	Urban Scale	Rural	29.632083	-98.564942

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
San Antonio-New Braunfels, TX	Camp Bullis	480290052	F Range (1000Yd marker off Wilderness Trail), Near Wilderness Rd, San Antonio	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Urban Scale	Rural	29.632083	-98.564942
San Antonio-New Braunfels, TX	Camp Bullis	480290052	F Range (1000Yd marker off Wilderness Trail), Near Wilderness Rd, San Antonio	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Urban Scale	Rural	29.632083	-98.564942
San Antonio-New Braunfels, TX	Camp Bullis	480290052	F Range (1000Yd marker off Wilderness Trail), Near Wilderness Rd, San Antonio	Wind	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Urban Scale	Rural	29.632083	-98.564942
San Antonio-New Braunfels, TX	Floresville Hospital Boulevard	484931038	1404 Hospital Blvd, Floresville	NO, NO2, NOx	SPM	Chemi-luminescence	Continuous	Max Precursor Emissions Impact, Upwind Background	Urban Scale	Rural	29.130676	-98.148075
San Antonio-New Braunfels, TX	Floresville Hospital Boulevard	484931038	1404 Hospital Blvd, Floresville	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General, Background	Neighborhood	Rural	29.130676	-98.148075
San Antonio-New Braunfels, TX	Floresville Hospital Boulevard	484931038	1404 Hospital Blvd, Floresville	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General, Background	Neighborhood	Rural	29.130676	-98.148075
San Antonio-New Braunfels, TX	Frank Wing Municipal Court	480290060	401 South Frio St, San Antonio	PM10 (FRM)	SLAMS	HiVol Gravimetric, 141	24 Hours; 1, 6 Days	Population Exposure	Middle Scale	Urban and Center City	29.422193	-98.505437
San Antonio-New Braunfels, TX	Old Hwy 90	480290677	911 Old Hwy 90 West, San Antonio	PM2.5 TEOM non-NAAQS comparable	SPM	TEOM Gravimetric, 702	Continuous	Population Exposure	Neighborhood	Urban and Center City	29.423939	-98.580505
San Antonio-New Braunfels, TX	San Antonio Bulverde Parkway	480291087	3843 Bulverde Parkway, San Antonio	PM10 FEM	SLAMS	Broadband spectrocopy, 639	Continuous	Population Exposure	Neighborhood	Suburban	29.635139	-98.417676

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
San Antonio-New Braunfels, TX	San Antonio Bulverde Parkway	480291087	3843 Bulverde Parkway, San Antonio	PM2.5 FEM	SLAMS	Broadband spectroscopy 638	Continuous	Population Exposure	Neighborhood	Suburban	29.635139	-98.417676
San Antonio-New Braunfels, TX	San Antonio Bulverde Parkway	480291087	3843 Bulverde Parkway, San Antonio	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	29.635139	-98.417676
San Antonio-New Braunfels, TX	San Antonio Bulverde Parkway	480291087	3843 Bulverde Parkway, San Antonio	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Suburban	29.635139	-98.417676
San Antonio-New Braunfels, TX	San Antonio Interstate 35	480291069	9904 IH 35 N, San Antonio	CO	Near Road, SLAMS	Gas Filter Correlation	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	29.529416	-98.391381
San Antonio-New Braunfels, TX	San Antonio Interstate 35	480291069	9904 IH 35 N, San Antonio	NO, NO2, NOx	Near Road, SLAMS	Chemi-luminescence	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	29.529416	-98.391381
San Antonio-New Braunfels, TX	San Antonio Interstate 35	480291069	9904 IH 35 N, San Antonio	PM2.5 FEM	Near Road, SLAMS	Beta Attenuation, 209	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	29.529416	-98.391381
San Antonio-New Braunfels, TX	San Antonio Interstate 35	480291069	9904 IH 35 N, San Antonio	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	29.529416	-98.391381
San Antonio-New Braunfels, TX	San Antonio Interstate 35	480291069	9904 IH 35 N, San Antonio	Wind	SPM	AIO2 sonic weather sensor	Continuous	Max Precursor Emissions Impact	Microscale	Urban and Center City	29.529416	-98.391381
San Antonio-New Braunfels, TX	San Antonio Northwest	480290032	6655 Bluebird Lane, San Antonio	NO, NO2, NOx	SLAMS	Chemi-luminescence	Continuous	Population Exposure	Neighborhood	Suburban	29.515054	-98.620189

Appendix B: Ambient Air Monitoring Network Site List

MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
San Antonio-New Braunfels, TX	San Antonio Northwest	480290032	6655 Bluebird Lane, San Antonio	O3	SLAMS	UV Photometric	Continuous	Max Ozone Concentration, Population Exposure	Urban Scale	Suburban	29.515054	-98.620189
San Antonio-New Braunfels, TX	San Antonio Northwest	480290032	6655 Bluebird Lane, San Antonio	PM2.5 (FRM)	QA Collocated, SLAMS	Sequential FRM Gravimetric, 145	24 Hours; 1, 12 Days	Population Exposure, Quality Assurance	Urban Scale	Suburban	29.515054	-98.620189
San Antonio-New Braunfels, TX	San Antonio Northwest	480290032	6655 Bluebird Lane, San Antonio	PM2.5 FEM	SLAMS	Beta Attenuation, 209	Continuous	Population Exposure	Urban Scale	Suburban	29.515054	-98.620189
San Antonio-New Braunfels, TX	San Antonio Northwest	480290032	6655 Bluebird Lane, San Antonio	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	Highest Concentration	Urban Scale	Suburban	29.515054	-98.620189
San Antonio-New Braunfels, TX	San Antonio Northwest	480290032	6655 Bluebird Lane, San Antonio	Wind	SPM	Potentiometer Cup Anemometer	Continuous	Highest Concentration	Urban Scale	Suburban	29.515054	-98.620189
San Antonio-New Braunfels, TX	Von Ormy Highway 16	480131090	17534 North State Highway 16, Not In A City	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	Population Exposure, Source Oriented	Microscale	Rural	29.162847	-98.589137
San Antonio-New Braunfels, TX	Von Ormy Highway 16	480131090	17534 North State Highway 16, Not In A City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General, Background	Neighborhood	Rural	29.162847	-98.589137
San Antonio-New Braunfels, TX	Von Ormy Highway 16	480131090	17534 North State Highway 16, Not In A City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General, Background	Neighborhood	Rural	29.162847	-98.589137
Texarkana, TX-Texarkana, AR	Texarkana New Boston	480371031	2700 New Boston Rd, Texarkana	PM2.5 FEM	SLAMS	Beta Attenuation, 209	Continuous	Population Exposure	Urban Scale	Urban and Center City	33.436233	-94.077738

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Texarkana, TX-Texarkana, AR	Texarkana New Boston	480371031	2700 New Boston Rd, Texarkana	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Urban Scale	Urban and Center City	33.436233	-94.077738
Texarkana, TX-Texarkana, AR	Texarkana New Boston	480371031	2700 New Boston Rd, Texarkana	Wind (3m)	SPM	AIO2 sonic weather sensor	Continuous	Population Exposure	Urban Scale	Urban and Center City	33.436233	-94.077738
Tyler, TX	Tyler Airport Relocated	484230007	14790 County Road 1145, Tyler	NO, NO2, NOx	SPM	Chemi-luminescence	Continuous	General, Background	Urban Scale	Rural	32.344033	-95.415757
Tyler, TX	Tyler Airport Relocated	484230007	14790 County Road 1145, Tyler	O3	SLAMS	UV Photometric	Continuous	General, Background	Urban Scale	Rural	32.344033	-95.415757
Tyler, TX	Tyler Airport Relocated	484230007	14790 County Road 1145, Tyler	Precipitation	SPM	Rain Gauge	Continuous	General, Background	Neighborhood	Rural	32.344033	-95.415757
Tyler, TX	Tyler Airport Relocated	484230007	14790 County Road 1145, Tyler	Solar Radiation	SPM	Photovoltaic	Continuous	General, Background	Neighborhood	Rural	32.344033	-95.415757
Tyler, TX	Tyler Airport Relocated	484230007	14790 County Road 1145, Tyler	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	32.344033	-95.415757
Tyler, TX	Tyler Airport Relocated	484230007	14790 County Road 1145, Tyler	Wind	SPM	AIO2 sonic weather sensor	Continuous	General, Background	Neighborhood	Rural	32.344033	-95.415757
Victoria, TX	Victoria	484690003	106 Mockingbird Lane, Victoria	O3	SLAMS	UV Photometric	Continuous	Population Exposure	Neighborhood	Urban and Center City	28.836224	-97.005512

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Victoria, TX	Victoria	484690003	106 Mockingbird Lane, Victoria	Solar Radiation	SPM	Photovoltaic	Continuous	Highest Concentration	Neighborhood	Urban and Center City	28.836224	-97.005512
Victoria, TX	Victoria	484690003	106 Mockingbird Lane, Victoria	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Neighborhood	Urban and Center City	28.836224	-97.005512
Victoria, TX	Victoria	484690003	106 Mockingbird Lane, Victoria	Wind	SPM	AIO2 sonic weather sensor	Continuous	Highest Concentration	Neighborhood	Urban and Center City	28.836224	-97.005512
Waco, TX	Waco Mazanec	483091037	4472 Mazanec Rd, Waco	CO	SLAMS	Gas Filter Correlation	Continuous	Upwind Background	Urban Scale	Rural	31.653086	-97.070694
Waco, TX	Waco Mazanec	483091037	4472 Mazanec Rd, Waco	O3	SLAMS	UV Photometric	Continuous	Upwind Background	Regional Scale	Rural	31.653086	-97.070694
Waco, TX	Waco Mazanec	483091037	4472 Mazanec Rd, Waco	PM2.5 TEOM non-NAAQS comparable	SPM	TEOM Gravimetric, 702	Continuous	Regional Transport	Regional Scale	Rural	31.653086	-97.070694
Waco, TX	Waco Mazanec	483091037	4472 Mazanec Rd, Waco	SO2	SLAMS	Pulsed Fluorescence	Continuous	Upwind Background	Urban Scale	Rural	31.653086	-97.070694
Waco, TX	Waco Mazanec	483091037	4472 Mazanec Rd, Waco	Solar Radiation	SPM	Photovoltaic	Continuous	Regional Transport	Urban Scale	Rural	31.653086	-97.070694
Waco, TX	Waco Mazanec	483091037	4472 Mazanec Rd, Waco	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Regional Transport	Urban Scale	Rural	31.653086	-97.070694

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
Waco, TX	Waco Mazanec	483091037	4472 Mazanec Rd, Waco	Wind	SPM	AIO2 sonic weather sensor	Continuous	Regional Transport	Urban Scale	Rural	31.653086	-97.070694
z_ not applicable	Bravo Big Bend	480430101	Big Bend National Park, Big Bend Nat Park	PM2.5 FEM	SPM	Beta Attenuation, 209	Continuous	General, Background	Regional Scale	Rural	29.302568	-103.177901
z_ not applicable	Bravo Big Bend	480430101	Big Bend National Park, Big Bend Nat Park	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General, Background	Microscale	Rural	29.302568	-103.177901
z_ not applicable	Bravo Big Bend	480430101	Big Bend National Park, Big Bend Nat Park	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General, Background	Regional Scale	Rural	29.302568	-103.177901
z_ not applicable	Fairfield FM 2570 Ward Ranch	481611084	488 FM 2570, Fairfield	SO2	SPM	Pulsed Fluorescence	Continuous	Source Oriented	Neighborhood	Rural	31.797835	-96.103136
z_ not applicable	Fairfield FM 2570 Ward Ranch	481611084	488 FM 2570, Fairfield	Temperature (Outdoor)	SPM	AIO2 sonic weather sensor	Continuous	Source Oriented	Neighborhood	Rural	31.797835	-96.103136
z_ not applicable	Fairfield FM 2570 Ward Ranch	481611084	488 FM 2570, Fairfield	Wind	SPM	AIO2 sonic weather sensor	Continuous	Source Oriented	Neighborhood	Rural	31.797835	-96.103136
z_ not applicable	Karnes County	482551070	1100B East Main Avenue, Karnes City	NO, NO2, NOx	SPM	Chemi-luminescence	Continuous	Max Precursor Emissions Impact, Upwind Background	Urban Scale	Rural	28.880444	-97.888059
z_ not applicable	Karnes County	482551070	1100B East Main Avenue, Karnes City	Temperature (Outdoor)	SPM	Aspirated Thermister	Continuous	General, Background	Neighborhood	Rural	28.880444	-97.888059

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MSA , CBSA	Site Name	Site Number	Address	Monitor Type	Network	Methods	Operating Schedule	Monitoring Objective	Spatial Scale	Location Setting	Latitude	Longitude
z_ not applicable	Karnes County	482551070	1100B East Main Avenue, Karnes City	Wind	SPM	Potentiometer Cup Anemometer	Continuous	General, Background	Neighborhood	Rural	28.880444	-97.888059

Appendix C

Population and Criteria Pollutant Monitor Requirements and Count Summary by Metropolitan Statistical Area

Texas Commission on Environmental Quality
2024 Annual Monitoring Network Plan

Appendix C: Population and Criteria Pollutant Monitor Requirements and Count Summary by Metropolitan Statistical Area

Texas Metropolitan Statistical Area	2022 Population Estimate[1]	NO_2 and NO / NO_y Monitors Required[2,3]	NO_2 and NO / NO_y Monitors Existing[2,3]	SO_2 Monitors Required[2]	SO_2 Monitors Existing[2,4]	Pb Monitors Required	Pb Monitors Existing	O_3 Monitors Required	O_3 Monitors Existing	CO Monitors Required[2]	CO Monitors Existing[2,4]	PM_{10} Monitors Required[4]	PM_{10} Monitors Existing[4]	$PM_{2.5}$ Monitors Required[4]	$PM_{2.5}$ Monitors Existing[4]
Dallas-Fort Worth-Arlington	7,943,685	6	17	2	3	3	3	4	18	2	2	4-8	4	8	13
Houston-Pasadena-The Woodlands	7,340,118	6	20	3	6	0	0	4	21	2	3	4-8	6	8	18
San Antonio-New Braunfels	2,655,342	3	5	1	1	0	0	2	3	1	1	2-4	2	4	6
Austin-Round Rock-San Marcos	2,421,115	2	2	0	1	0	0	2	2	1	1	2-4	2	3	3
McAllen-Edinburg-Mission	888,367	0	0	0	0	0	0	1	1	0	0	1-2	1	2	2
El Paso	872,195	2	4	1	1	0	0	3	7	1	3	4-8	6	5	7
Killeen-Temple	496,228	0	1	0	0	0	0	2	2	0	0	0-1	0	0	1
Brownsville-Harlingen	425,208	0	0	0	0	0	0	1	1	0	0	0-1	0	1	2
Corpus Christi	421,628	0	0	0	3	0	0	2	2	0	0	0-1	1	1	3
Beaumont-Port Arthur	393,575	1	4	3	4	0	0	2	7	0	0	0-1	0	1	3
Lubbock	328,283	0	0	0	0	0	0	0	0	0	0	0-1	0	0	1
Longview (includes Marshall)	291,219	0	2	2	3	0	0	1	2	0	0	0-1	0	1	2
Waco	283,885	0	0	0	1	0	0	1	1	0	1	0-1	0	0	1
College Station-Bryan	277,824	0	0	1	1	0	0	0	0	0	0	0-1	0	1	1
Amarillo	271,171	0	0	1	2	0	0	0	0	0	0	0-1	0	0	1
Laredo	267,780	0	0	0	0	0	0	0	1	0	1	0-1	2	1	1
Tyler	241,922	0	1	0	0	0	0	1	1	0	0	0	0	0	0
Abilene	179,308	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Midland	177,216	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Odessa	160,869	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Wichita Falls	149,299	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Texarkana	146,408	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Sherman-Denison	143,131	0	0	0	0	0	0	0	0	0	0	0	0	0	0
San Angelo	121,839	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Victoria	98,196	0	0	0	0	0	0	1	1	0	0	0	0	0	0
Granbury[5]	66,373	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Eagle Pass[5]	57,843	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Corsicana[5]	54,636	0	1	1	2	0	0	0	1	0	0	0	0	0	1
Mount Pleasant[5]	43,924	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Big Spring[5]	33,672	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Kingsville[5]	30,720	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Borger[5]	20,215	0	0	1	1	0	0	0	0	0	0	0	0	0	0
Karnes County[6]	NA	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Freestone County[6]	NA	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Big Bend National Park[6]	NA	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Totals[3]		**20**	**58**	**18**	**32**	**3**	**3**	**27**	**72**	**7**	**12**	**17-44**	**24**	**37**	**71**

[1]United States Census Bureau population estimates as of July 1, 2022. Metropolitan and Micropolitan Statistical Areas Population Totals: 2020-2022 (census.gov)
[2]Required and existing counts include NO_y, high-sensitivity SO_2, and high-sensitivity CO monitors.
[3]Required monitor pending deployment is discussed in the applicable AMNP section.
[4]Individual monitors may fulfill multiple requirements and are only counted once. Collocated quality control monitors are not included in totals.
[5]Area is classified as a micropolitan statistical area and not subject to SLAMS (State or Local Air Monitoring Stations) requirements.
[6]Area not classified as a metropolitan or micropolitan statistical area; county population data is not applicable.
Metropolitan Statistical Areas are delineated by the United States Office of Management and Budget Delineation Files (census.gov)

CO - carbon monoxide
NA - not applicable
NO_2 and NO/NO_y - nitrogen dioxide, nitrogen oxide, and total reactive nitrogen compounds
Pb - lead
PM_{10} - particulate matter of 10 micrometers or less
$PM_{2.5}$ - particulate matter of 2.5 micrometers or less
O_3 - ozone

Appendix D

Nitrogen Dioxide, Nitrogen Oxide, and Total Reactive Nitrogen Monitor Requirements and Count Assessment

Texas Commission on Environmental Quality
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Appendix D: Nitrogen Dioxide, Nitrogen Oxide, and Total Reactive Nitrogen Monitor Requirements and Count Assessment

Core Based Statistical Areas	2022 Population Estimate[1]	Required NO_2 Area-Wide Monitors	Required NO_2 RA-40 Monitors	Required NO_2 Near-Road Monitors	Required True NO_2 PAMS Monitors	Required NO / NO_y PAMS / NCore Monitors	Total Required NO_2 and NO / NO_y Monitors	Total Existing NO_2 and NO / NO_y Monitors[2]
Dallas-Fort Worth-Arlington	7,943,685	1	1	2	1	1	6	17
Houston-Pasadena-The Woodlands	7,340,118	1	1	2	1	1	6	20
San Antonio-New Braunfels	2,655,342	1	0	2	0	0	3	5
Austin-Round Rock-San Marcos	2,421,115	1	0	1	0	0	2	2
McAllen-Edinburg-Mission	888,367	0	0	0	0	0	0	0
El Paso	872,195	0	1	0	0	1	2	4
Killeen-Temple	496,228	0	0	0	0	0	0	1
Brownsville-Harlingen	425,208	0	0	0	0	0	0	0
Corpus Christi	421,628	0	0	0	0	0	0	0
Beaumont-Port Arthur	393,575	0	1	0	0	0	1	4
Lubbock	328,283	0	0	0	0	0	0	0
Longview	291,219	0	0	0	0	0	0	2
Waco	283,885	0	0	0	0	0	0	0
College Station-Bryan	277,824	0	0	0	0	0	0	0
Amarillo	271,171	0	0	0	0	0	0	0
Laredo	267,780	0	0	0	0	0	0	0
Tyler	241,922	0	0	0	0	0	0	1
Abilene	179,308	0	0	0	0	0	0	0
Midland	177,216	0	0	0	0	0	0	0
Odessa	160,869	0	0	0	0	0	0	0
Wichita Falls	149,299	0	0	0	0	0	0	0
Texarkana	146,408	0	0	0	0	0	0	0
Sherman-Denison	143,131	0	0	0	0	0	0	0
San Angelo	121,839	0	0	0	0	0	0	0
Victoria	98,196	0	0	0	0	0	0	0
Corsicana[3]	54,636	0	0	0	0	0	0	1
Karnes County[4]	NA	0	0	0	0	0	0	1
Totals		**4**	**4**	**7**	**2**	**3**	**20**	**58**

[1]United States Census Bureau population estimates as of July 1, 2022. Metropolitan and Micropolitan Statistical Areas Population Totals: 2020-2022 (census.gov)
[2]Monitors may fulfill multiple monitoring requirements and are only counted once.
[3]Area is classified as a micropolitan statistical area and not subject to SLAMS (State or Local Air Monitoring Stations) requirements.
[4]Area not classified as a metropolitan or micropolitan statistical area; county population data is not applicable.
NCore - National Core Multipollutant Monitoring Stations
NO - nitrogen oxide
NO_2 - nitrogen dioxide
NO_Y - total reactive nitrogen compounds
PAMS - Photochemical Assessment Monitoring Stations
RA-40 - Regional Administrator 40
Core Based Statistical Areas are delineated by the United States Office of Management and Budget Delineation Files (census.gov)

Appendix E

Sulfur Dioxide Monitor Requirements and Count Assessment

Texas Commission on Environmental Quality
2024 Annual Monitoring Network Plan

Appendix E: Sulfur Dioxide Monitor Requirements and Count Assessment

Core Based Statistical Area	County	2022 Population Estimates[1]	2022 Point Source Data (tpy)	2020 NEI Data (tpy)	2020 Point Source Data (tpy)	2020 NEI Non-Point Source Data with 2022 Point Source Data (tpy)	PWEI	Required SO_2 PWEI Monitors	Required SO_2 DRR Monitors	Required SO_2 NCore Monitors (high-sensitivity)	Total Required SO_2 Monitors	Existing Monitors[2]
Dallas-Fort Worth-Arlington		7,943,685				6,190	49,170	1	0	1	2	3
	Collin		6	153	11	148						
	Dallas		237	1,025	345	916						
	Denton		299	437	342	394						
	Ellis		3,402	2,995	2,931	3,466						
	Hunt		2	48	1	50						
	Johnson		74	103	63	113						
	Kaufman		72	146	89	129						
	Parker		117	178	154	141						
	Rockwall		0	10	0	10						
	Tarrant		20	793	20	793						
	Wise		13	28	12	30						
Houston-Pasadena-The Woodlands		7,340,118				44,347	325,510	2	0	1	3	6
	Austin		4	14	3	15						
	Brazoria		503	674	547	629						
	Chambers		213	293	252	255						
	Fort Bend		34,150	23,979	23,881	34,248						
	Galveston		1,070	1,272	1,077	1,264						
	Harris		6,280	8,125	6,692	7,713						
	Liberty		9	29	11	27						
	Montgomery		79	121	30	170						
	San Jacinto		0	5	1	4						
	Waller		0	23	2	21						
San Antonio-New Braunfels		2,655,342				12,832	34,074	1	0	0	1	1
	Atascosa		9,629	10,920	10,615	9,933						
	Bandera		0	2	0	2						
	Bexar		1,756	1,574	1,267	2,063						
	Comal		246	352	325	274						
	Guadalupe		99	176	128	147						
	Kendall		2	10	2	10						
	Medina		0	10	0	10						
	Wilson		217	397	219	394						

Appendix E: Sulfur Dioxide Monitor Requirements and Count Assessment

Core Based Statistical Area	County	2022 Population Estimates[1]	2022 Point Source Data (tpy)	2020 NEI Data (tpy)	2020 Point Source Data (tpy)	2020 NEI Non-Point Source Data with 2022 Point Source Data (tpy)	PWEI	Required SO_2 PWEI Monitors	Required SO_2 DRR Monitors	Required SO_2 NCore Monitors (high-sensitivity)	Total Required SO_2 Monitors	Existing Monitors[2]
Austin-Round Rock-San Marcos		2,421,115				1,772	4,289	0	0	0	0	1
	Bastrop		81	102	88	95						
	Caldwell		0	22	0	22						
	Hays		1,114	1,459	1,428	1,144						
	Travis		118	377	129	367						
	Williamson		78	70	4	144						
McAllen-Edinburg-Mission		888,367				117	104	0	0	0	0	0
	Hidalgo		32	114	29	117						
El Paso		872,195				298	260	0	0	1	1	1
	El Paso		168	292	171	290						
	Hudspeth		6	9	6	9						
Killeen-Temple		496,228				172	86	0	0	0	0	0
	Bell		101	75	17	159						
	Coryell		0	8	0	8						
	Lampasas		0	5	0	5						
Brownsville-Harlingen		425,208				79	34	0	0	0	0	0
	Cameron		3	78	2	79						
Corpus Christi		421,628				1,095	461	0	0	0	0	3
	Aransas		0	12	0	12						
	Nueces		639	716	508	846						
	San Patricio		207	89	60	236						
Beaumont-Port Arthur		393,575				15,994	6,295	1	2	0	3	4
	Hardin		1	8	1	8						
	Jefferson		12,403	11,981	11,762	12,621						
	Orange		3,318	3,912	3,866	3,365						
Lubbock		328,283				860	282	0	0	0	0	0
	Cochran		0	609	0	609						
	Crosby		0	3	0	3						
	Garza		0	69	0	69						
	Hockley		56	47	1	102						
	Lubbock		6	74	9	71						
	Lynn		0	6	0	6						

Appendix E: Sulfur Dioxide Monitor Requirements and Count Assessment

Core Based Statistical Area	County	2022 Population Estimates[1]	2022 Point Source Data (tpy)	2020 NEI Data (tpy)	2020 Point Source Data (tpy)	2020 NEI Non-Point Source Data with 2022 Point Source Data (tpy)	PWEI	Required SO_2 PWEI Monitors	Required SO_2 DRR Monitors	Required SO_2 NCore Monitors (high-sensitivity)	Total Required SO_2 Monitors	Existing Monitors[2]
Longview		291,219				19,269	5,611	1	1	0	2	3
	Gregg		26	80	20	85						
	Harrison		1,300	1,947	1,913	1,334						
	Rusk		17,828	43,744	43,729	17,842						
	Upshur		0	9	2	7						
Waco		283,885				3,397	964	0	0	0	0	1
	Bosque		1,190	1,316	1,310	1,195						
	Falls		0	7	0	7						
	McLennan		2,096	2,496	2,397	2,195						
College Station-Bryan		277,824				11,155	3,099	0	1	0	1	1
	Brazos		10	51	9	51						
	Burleson		0	7	0	7						
	Robertson		11,093	11,182	11,178	11,097						
Amarillo		271,171				15,851	4,298	0	1	0	1	2
	Armstrong		1	2	1	2						
	Carson		16	3	0	19						
	Oldham		0	1	0	1						
	Potter		15,632	8,273	8,217	15,688						
	Randall		110	115	83	141						
Laredo		267,780				221	59	0	0	0	0	0
	Webb		179	388	347	221						
Tyler		241,922				675	163	0	0	0	0	0
	Smith		619	481	425	675						
Abilene		179,308				67	12	0	0	0	0	0
	Callahan		0	3	0	3						
	Jones		31	26	22	35						
	Taylor		0	29	0	29						
Midland		177,216				5,845	1,036	0	0	0	0	0
	Martin		67	3,532	39	3,559						
	Midland		288	2,121	123	2,286						
Odessa		160,869				1,758	283	0	0	0	0	0
	Ector		1,204	959	404	1,758						

Appendix E: Sulfur Dioxide Monitor Requirements and Count Assessment

Core Based Statistical Area	County	2022 Population Estimates[1]	2022 Point Source Data (tpy)	2020 NEI Data (tpy)	2020 Point Source Data (tpy)	2020 NEI Non-Point Source Data with 2022 Point Source Data (tpy)	PWEI	Required SO_2 PWEI Monitors	Required SO_2 DRR Monitors	Required SO_2 NCore Monitors (high-sensitivity)	Total Required SO_2 Monitors	Existing Monitors[2]
Wichita Falls		149,299				649	97	0	0	0	0	0
	Archer		0	2	0	2						
	Clay		63	61	59	66						
	Wichita		516	553	489	581						
Texarkana		146,408				47	7	0	0	0	0	0
	Bowie		27	56	35	47						
Sherman-Denison		143,131				60	9	0	0	0	0	0
	Grayson		8	57	6	60						
San Angelo		121,839				64	8	0	0	0	0	0
	Irion		0	34	0	34						
	Tom Green		1	31	1	30						
Victoria		98,196				8,279	813	0	0	0	0	0
	Goliad		8,217	7,959	7,955	8,221						
	Victoria		34	52	29	57						
Corsicana[3]		54,636				3,619	198	NA	1	0	1	2
	Navarro		3,596	3,630	3,607	3,619						
Mount Pleasant[3]		43,924				10,965	482	NA	1	0	1	1
	Camp		0	48	45	2						
	Morris		0	13	0	13						
	Titus		10,916	8,203	8,169	10,950						
Big Spring[3]		33,672				7,018	236	NA	1	0	1	1
	Howard		4,617	6,380	3,979	7,018						
Borger[3]		20,215				5,307	107	NA	1	0	1	1
	Hutchinson		5,296	7,827	7,815	5,307						
None		not available					NA	NA	NA	0	0	1
	Freestone[4]		14	20	15	19						
	Sterling		1	8	1	8						
Total Monitors								**6**	**9**	**3**	**18**	**32**

1United States Census Bureau population estimates as of July 1, 2022. [Metropolitan and Micropolitan Statistical Areas Population Totals: 2020-2022 (census.gov)]

[2]Monitors may fulfill multiple monitoring requirements and are only counted once.

[3]Micropolitan statistical area

[4]Area not classified as a metropolitan or micropolitan statistical area.

Core Based Statistical Areas are defined by the United States Office of Management and Budget [Delineation Files (census.gov)]

DRR - Data Requirements Rule

NA - not applicable

NCore - National Core Multipollutant Monitoring Stations

NEI - National Emissions Inventory [Air Emissions Inventories | US EPA]

PWEI - population weighted emission index (Core Based Statistical Area Population*[2020 NEI non-point source data and 2022 point source data]/1,000,000)

SO_2 - sulfur dioxide

tpy - tons per year

Appendix F

Sulfur Dioxide Ongoing Data Requirements Annual Report

Texas Commission on Environmental Quality
2024 Annual Monitoring Network Plan

Appendix F: Sulfur Dioxide Ongoing Data Requirements Annual Report

As required by 40 Code of Federal Regulations (CFR) Section 51.1205(b), this report provides the Texas Commission on Environmental Quality's (TCEQ) annual assessment of sulfur dioxide (SO_2) emissions changes for areas designated attainment/unclassifiable for the 2010 SO_2 National Ambient Air Quality Standard (NAAQS), where the designations were based on characterization of air quality by modeling actual SO_2 emissions.

Out of all Texas counties (or portions of counties) currently designated attainment/unclassifiable for the 2010 SO_2 NAAQS, only the seven counties shown in Table 1 were designated based on modeled actual SO_2 emissions. The most recent (2022) total estimated SO_2 emissions, based on quality assured data from the relevant sources in each county, are listed in Table 1. The table includes emissions from the previous year (2021) and the change in SO_2 emissions from 2021 to 2022. The relevant source in Wilbarger County was shut down in 2020 resulting in zero emissions for 2021-2022.

The relevant sources in Goliad and Robertson Counties had emission decreases from the previous year. Since the emissions have decreased for these locations from the previous year, the original designation modeling for each county provides reasonable assurance that the areas continue to meet the 2010 one-hour SO_2 primary NAAQS.

The relevant sources in Fort Bend, Lamb, and Limestone Counties had emission increases from the previous year. Table 2 shows the average county SO_2 emissions data used in the 2012-2014 designation modeling. Table 2 also shows the average emissions data for years 2020-2022, which would likely be used for any new modeling initiated to reevaluate compliance with the 2010 SO_2 NAAQS. This comparison shows that the original designation modeling evaluated higher emissions for each area. Since higher emissions were evaluated, the original designation modeling provides reasonable assurance that the areas continue to meet the 2010 one-hour SO_2 primary NAAQS.

The relevant source in Atascosa County had an emission increase from the previous year. The comparison in Table 2 shows that the Atascosa County 2020-2022 average emissions data exceeds the average of the 2012-2014 emissions data used for designation modeling by 218 tons per year. This represents a 2.4 percent (%) increase over the 2012-2014 emissions modeled for the original designation. A conservative assumption to account for the increase in emissions would be to multiply (increase) the previous design value (111.5 micrograms per cubic meter [$\mu g/m^3$]), which includes a background concentration, by 2.4%. This results in an increase in the previously modeled design value to 114.2 $\mu g/m^3$. This is well below the 2010 SO_2 NAAQS (196.4 $\mu g/m^3$), and the increase of SO_2 emissions would not be expected to change the attainment/unclassifiable designation determined from the original modeling.

For any area where SO_2 monitoring was conducted to characterize air quality pursuant to 40 CFR Section 51.1203, the TCEQ continues to operate the monitor(s) used to meet those requirements and reports quality assured data pursuant to existing ambient monitoring regulations, unless the monitor(s) have been approved for shut down by the EPA Regional Administrator pursuant to 40 CFR Section 51.1203(c)(3) or 40 CFR Section 58.14.

The TCEQ recommends that no additional SO_2 air quality modeling is needed to determine compliance with the 2010 SO_2 NAAQS for any of the seven Texas counties listed in Table 1.

Appendix F: Sulfur Dioxide Ongoing Data Requirements Annual Report

Table 1: 2021 to 2022 Emissions Comparisons

County	Relevant Source	2021 SO_2 (tpy)	2022 SO_2 (tpy)	Difference 2021 to 2022	Cause for Emission Increase
Atascosa	San Miguel Electric Plant	7,579	9,489	1,910	Higher power production and boiler usage
Fort Bend	W.A. Parish Electric Generating Station	33,870	34,136	266	Turbine generator fire caused outage to one unit which caused other sources to operate more
Goliad	Coleto Creek Power Station	10,402	8,206	-2,196	NA
Lamb	Tolk Station Power Plant	6,913	8,667	1,754	More fuel burned and higher sulfur content in fuel
Limestone	Limestone Electric Generating Station	5,104	6,337	1,233	Increased heat input to both units
Robertson	Twin Oaks Power Station	2,346	2,316	-30	NA
Wilbarger	Oklaunion Power Station (shut down in late 2020)	0	0	0	NA

NA – not applicable
SO_2 – sulfur dioxide
tpy – tons per year

Table 2: Average Emissions Comparison

County	Relevant Source	2012-2014 SO_2 Average (tpy)	2020-2022 SO_2 Average (tpy)	Three Year Average SO_2 Comparison Change
Atascosa	San Miguel Electric Plant	8,942	9,160	218
Fort Bend	W.A. Parish Electric Generating Station	41,520	30,634	-10,886
Lamb	Tolk Station Power Plant	18,457	6,747	-11,710
Limestone	Limestone Electric Generating Station	24,718	5,454	-19,264

SO_2 – sulfur dioxide
tpy – tons per year

Appendix G

Total Suspended Particulate Lead Monitor Requirements and Count Assessment

Texas Commission on Environmental Quality
2024 Annual Monitoring Network Plan

Appendix G: Total Suspended Particulate Lead Monitor Requirements and County Assessment

Metropolitan Statistical Area	County	Pb Source (Facility Name) or Monitoring Requirement	2020 Pb Source Emissions (tpy)	2021 Pb Source Emissions (tpy)	2022 Pb Source Emissions (tpy)	Site Name	Required Monitors[1]	Existing Monitors[1]
Dallas-Fort Worth-Arlington							3	3
	Collin	Maintenance Area	NA	NA	NA	Frisco Eubanks[1,2]	1	1
	Collin	Maintenance Area	NA	NA	NA	Frisco Stonebrook[2]	1	1
	Kaufman	Conecsus, LLC	0.1779	0.2130	0.0833	Terrell Temtex, pending relocation to Terrell Jamison Court[1]	1	1
Totals							**3**	**3**

[1]Collocated quality control monitors are not included in totals.

[2]Monitor required to fulfill State Implementation Plan commitments.

LLC - Limited Liability Company

NA - not applicable

Pb - lead

tpy - tons per year

Appendix H

Ozone Monitor Requirements and Count Assessment

Texas Commission on Environmental Quality
2024 Annual Monitoring Network Plan

Appendix H: Ozone Monitor Requirements and Count Assessment

Metropolitan Statistical Area	2022 Population Estimates[1]	2020-2022 8-Hour Design Value (ppm)	Design Value as Percent of NAAQS[2]	Total Required SLAMS Monitors	Total Required NCore/PAMS Monitors	Total Required Monitors[3]	Total Existing Monitors[4]
Dallas-Fort Worth-Arlington	7,943,685	0.077	110%	3	1	4	18
Houston-Pasadena-The Woodlands	7,340,118	0.078	111%	3	1	4	21
San Antonio-New Braunfels	2,655,342	0.075	107%	2	0	2	3
Austin-Round Rock-San Marcos	2,421,115	0.064	91%	2	0	2	2
McAllen-Edinburg-Mission	888,367	0.056	80%	1	0	1	1
El Paso	872,195	0.073	104%	2	1	3	7
Killeen-Temple	496,228	0.067	96%	2	0	2	2
Brownsville-Harlingen	425,208	0.055	79%	1	0	1	1
Corpus Christi	421,628	0.062	89%	2	0	2	2
Beaumont-Port Arthur	393,575	0.063	90%	2	0	2	7
Lubbock	328,283	NA	NA	0	0	0	0
Longview	291,219	0.061	87%	1	0	1	2
Waco	283,885	0.064	91%	1	0	1	1
College Station-Bryan	277,824	NA	NA	0	0	0	0
Amarillo	271,171	NA	NA	0	0	0	0
Laredo	267,780	0.055	79%	0	0	0	1
Tyler	241,922	0.065	93%	1	0	1	1
Abilene	179,308	NA	NA	0	0	0	0
Midland	177,216	NA	NA	0	0	0	0
Odessa	160,869	NA	NA	0	0	0	0
Wichita Falls	149,299	NA	NA	0	0	0	0
Texarkana	146,408	NA	NA	0	0	0	0
Sherman-Denison	143,131	NA	NA	0	0	0	0
San Angelo	121,839	NA	NA	0	0	0	0
Victoria	98,196	0.060	86%	1	0	1	1
Granbury[5]	66,373	0.069	99%	0	0	0	1
Corsicana[5]	54,636	0.065	93%	0	0	0	1
Totals				**24**	**3**	**27**	**72**

[1]United States Census Bureau population estimates as of July 1, 2022. Metropolitan and Micropolitan Statistical Areas Population Totals: 2020-2022 (census.gov)
[2]2015 eight-hour ozone National Ambient Air Quality Standard (NAAQS) is 0.070 parts per million (ppm).
[3]Total Required Monitors is a sum of requirements for SLAMS, PAMS, and NCore.
[4]Monitors may fulfill multiple monitoring requirements and are only counted once.
[5]Area is classified as a micropolitan statistical area and is not subject to SLAMS requirements.
NA - not applicable
NCore - National Core Multipollutant Monitoring Stations
PAMS - Photochemical Assessment Monitoring Stations
SLAMS - State or Local Air Monitoring Stations
Metropolitan Statistical Areas are delineated by the United States Office of Management and Budget Delineation Files (census.gov)

Appendix I

Carbon Monoxide Monitor Requirements and Count Assessment

Texas Commission on Environmental Quality
2024 Annual Monitoring Network Plan

Appendix I: Carbon Monoxide Monitor Requirements and Count Assessment

Core Based Statistical Area[1]	2022 Population Estimates[2]	Site Name	Required CO NCore Monitors	Required CO Near-Road Monitors	Total Required Monitors[3]	Total Existing Monitors[4]
Dallas-Fort Worth-Arlington	7,943,685		1	1	2	2
		Dallas Hinton[5]	1	0	1	1
		Fort Worth California Parkway North	0	1	1	1
Houston-Pasadena-The Woodlands	7,340,118		1	1	2	3
		Clinton[5]	0	0	0	1
		Houston Deer Park #2[5]	1	0	1	1
		Houston North Loop	0	1	1	1
San Antonio-New Braunfels	2,655,342		0	1	1	1
		San Antonio Interstate 35	0	1	1	1
Austin-Round Rock-San Marcos	2,421,115		0	1	1	1
		Austin North Interstate 35	0	1	1	1
El Paso	872,195		1	0	1	3
		El Paso Chamizal[5]	1	0	1	1
		El Paso UTEP	0	0	0	1
		Ojo De Agua	0	0	0	1
Waco	283,885		0	0	0	1
		Waco Mazanec	0	0	0	0
Laredo	267,780		0	0	0	1
		Laredo Vidaurri	0	0	0	1
Totals			**3**	**4**	**7**	**12**

[1]This list does not include core based statistical areas with zero requirements and zero monitors.
[2]United States Census Bureau population estimates as of July 1, 2022.
[Metropolitan and Micropolitan Statistical Areas Population Totals: 2020-2022 (census.gov)]
[3]Total Required Monitors is a sum of requirements for NCore and Near-Road.
[4]Monitors may fulfill multiple monitoring requirements and are only counted once.
[5]High-Sensitivity CO monitor
\# - number
CO - carbon monoxide
NCore - National Core Multipollutant Monitoring Stations
UTEP – University of Texas at El Paso

Appendix J

Particulate Matter of 10 Micrometers or Less Monitor Requirements and Count Assessment

Texas Commission on Environmental Quality
2024 Annual Monitoring Network Plan

Appendix J: Particulate Matter of 10 Micrometers or Less Monitor Requirements and Count Assessment

Table 1: Particulate Matter of 10 Micrometers or Less Monitoring Requirements Assessment and Monitor Locations[1]

Metropolitan Statistical Area	2022 Population Estimates[2]	Site Name	2020-2022 Maximum Concentration (µg/m[3])	Percent of NAAQS[3] (%)	Required Monitors[4]	Existing Monitors[4]
Dallas-Fort Worth-Arlington	**7,943,685**		**125**	**83**	**4-8**	**4**
		Convention Center (planned PM_{10} FEM continuous) (collocated QC manual filter-based pair)	125	83		
		Dallas Bexar Street[5] (monitor deployed September 2021) (planned PM_{10} FEM continuous)	25.3	16.9		
		Dallas Hinton (NEW! PM_{10} FEM continuous monitor activated June 2023)	NA	NA		
		Earhart (planned relocation)	97	65		
Houston-Pasadena-The Woodlands	**7,340,118**		**156**	**104**	**4-8**	**6**
		Clinton (collocated QC manual filter-based pair) (planned PM10 FEM continuous)	122	81		
		Houston Deer Park #2[5] (NEW! PM_{10} FEM continuous monitor activated February 2023)	NA	NA		
		Houston Monroe	156	104		
		Houston North Wayside[5] (monitor deployed September 2021, non-NAAQS comparable)	NA	NA		
		Lang	103	69		
		Texas City Fire Station (planned PM_{10} FEM continuous)	149	99		
San Antonio-New Braunfels	**2,655,342**		**117**	**78**	**2-4**	**2**
		San Antonio Bulverde Parkway[5] (NEW! PM_{10} FEM continuous monitor activated November 2023)	101	67		
		Frank Wing Municipal Court	117	78		
Austin-Round Rock-San Marcos	**2,421,115**		**97**	**65**	**2-4**	**2**
		Austin Webberville Road (NEW! PM_{10} FEM continuous monitor activated November 2023)	97	65		
		Austin Audubon Society	90	60		

Appendix J: Particulate Matter of 10 Micrometers or Less Monitor Requirements and Count Assessment

Metropolitan Statistical Area	2022 Population Estimates[2]	Site Name	2020-2022 Maximum Concentration ($\mu g/m^3$)	Percent of NAAQS[3] (%)	Required Monitors[4]	Existing Monitors[4]
McAllen-Edinburg-Mission	**888,367**		**97**	**65**	**1-2**	**1**
		Mission (NEW! PM_{10} FEM continuous monitor activated October 2023)	97	65		
El Paso	**872,195**		**153**	**102**	**4-8**	**6**
		El Paso Mimosa (previously Riverside) (planned PM_{10} FEM continuous)	153	102		
		El Paso Chamizal (NEW! PM10 FEM continuous monitor activated July 2023)	NA	NA		
		Ivanhoe (planned PM_{10} FEM continuous)	142	95		
		Ojo De Agua (planned PM10 FEM continuous)	126	84		
		Socorro Hueco (NEW! PM10 FEM continuous monitor activated May 2024)	116	77		
		Van Buren (planned PM_{10} FEM continuous)	135	90		
Killeen-Temple	**496,228**		**NA**	**0**	**0-1**	**0**
Brownsville-Harlingen	**425,208**		**NA**	**0**	**0-1**	**0**
Corpus Christi	**421,628**		**89**	**59**	**0-1**	**1**
		Dona Park (NEW! PM_{10} FEM continuous monitor activated January 2024)	89	59		
Beaumont-Port Arthur	**393,575**		**NA**	**0**	**0-1**	**0**
Lubbock	**328,283**		**NA**	**0**	**0-1**	**0**
Longview	**291,219**		**NA**	**0**	**0-1**	**0**
Waco	**283,885**		**NA**	**0**	**0-1**	**0**
College Station-Bryan	**277,824**		**NA**	**0**	**0-1**	**0**
Amarillo	**271,171**		**NA**	**0**	**0-1**	**0**

Appendix J: Particulate Matter of 10 Micrometers or Less Monitor Requirements and Count Assessment

Metropolitan Statistical Area	2022 Population Estimates[2]	Site Name	2020-2022 Maximum Concentration (µg/m³)	Percent of NAAQS[3] (%)	Required Monitors[4]	Existing Monitors[4]
Laredo	**267,780**		**111**	**74**	**0-1**	**2**
		Laredo College (previously Laredo Vidaurri)	88	59		
		Laredo Bridge	111	74		
Totals					**17-44**	**24**

[1]This list doesn't include metropolitan statistical areas with zero requirements and zero monitors.
[2]United States Census Bureau population estimates as of July 1, 2022. Metropolitan and Micropolitan Statistical Areas Population Totals: 2020-2022 (census.gov)
[3]Current PM_{10} NAAQS is 150 micrograms per cubic meter (µg/m³).
[4]Collocated quality control manual filter-based monitors are not counted.
[5]Monitor deployed 2020-2023, incomplete design values are not used for regulatory compliance.
% - percent
FEM - federal equivalent method
NAAQS - National Ambient Air Quality Standards
PM_{10} - particulate matter of 10 micrometers or less in diameter
QC - quality control
µg/m³ - micrograms per cubic meter
Metropolitan Statistical Areas are delineated by the United States Office of Management and Budget Delineation Files (census.gov)

Appendix J: Particulate Matter of 10 Micrometers or Less Monitor Requirements and Count Assessment

Table 2: Particulate Matter of 10 Micrometers or Less Manual Filter-Based Monitor Concentrations[1]

Site Name	2020-2022 Maximum Concentration[2] (µg/m³)	2022 Annual Mean Concentration (µg/m³)	2021 Annual Mean Concentration (µg/m³)[2]	2020 Annual Mean Concentration (µg/m³)[3]
El Paso Mimosa (previously Riverside) (planned FEM continuous)	153	49	49	45
Laredo Bridge	111	35	35	22
Clinton (collocated QC pair)[3] (planned FEM continuous)	122	35	35	30
Houston Monroe (planned collocated QC pair)[3]	156	32	32	22
Ivanhoe (planned FEM continuous)	142	31	31	32
Van Buren (planned FEM continuous)	135	30	30	27
Convention Center (collocated QC pair) (planned FEM continuous)	125	28	28	22
Earhart (planned relocation)	97	26	21	21
Frank Wing Municipal Court	98	25	25	23
Dallas Bexar Street[4] (monitor deployed September 2021) (planned FEM continuous)	83	25	25	NA
Ojo De Agua (collocated QC pair) (planned FEM continuous)	126	25	25	22
Lang	103	22	22	22
Texas City Fire Station (planned FEM continuous)	149	21	21	21
Laredo College (previously Laredo Vidaurri)	88	20	20	25
Austin Audubon Society	89	18	18	17

[1]Particulate matter of 10 micrometers or less (PM_{10}) continuous methods have no collocated QC requirements and are not evaluated in this table.
[2]Data associated with pending exceptional event reports are not included.
[3]Highest annual mean concentrations, confirms at least half of collocated QC monitoring occurs at network sites among the highest.
[4]New monitor deployed in 2020-2022, resulting in incomplete design value. Incomplete design values are not used for regulatory compliance.
QC - quality control

Appendix K

Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Texas Commission on Environmental Quality
2024 Annual Monitoring Network Plan

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Table 1: Particulate Matter of 2.5 Micrometers or Less Monitor Requirement and Count Summary

Metropolitan Statistical Area	2022 Population Estimates[1]	2020-2022 DV (µg/m³) Annual (for Area)	2020-2022 DV (µg/m³) 24-Hour (for Area)	Percent of NAAQS Annual[2] (for Area)	Percent of NAAQS 24-Hour[3] (for Area)	Required FRM / FEM Monitors	Required NCore Monitors	Required Near-Road Monitors	Total Required Monitors[4]	Total Existing Monitors[4]
Dallas-Fort Worth-Arlington	7,943,685	9.4	24	104	69	3	4	1	8	13
Houston-Pasadena-The Woodlands	7,340,118	11.4	28	127	80	3	4	1	8	18
San Antonio-New Braunfels	2,655,342	8.6	23	96	66	3	0	1	4	6
Austin-Round Rock-San Marcos	2,421,115	9.3	22	103	63	3*	0	1	3	3
McAllen-Edinburg-Mission	888,367	10.1	28	112	80	2	0	0	2	2
El Paso	872,195	9.2	22	102	63	2*	4	0	5	7
Killeen-Temple	496,228	7.4	21	82	60	0	0	0	0	1
Brownsville-Harlingen	425,208	9.1	31	101	89	1	0	0	1	2
Corpus Christi	421,628	8.7	25	97	71	1	0	0	1	3
Beaumont-Port Arthur	393,575	8.3	20	92	57	1	0	0	1	3
Lubbock	328,283	5.8	18	64	51	0	0	0	0	1
Longview[5]	291,219	9.4	20	104	57	1	0	0	1	2
Waco	283,885	NA	NA	NA	NA	0	0	0	0	1
College Station-Bryan[5]	277,824	8.0	21	89	60	1	0	0	1	1
Amarillo	271,171	5.9	15	66	43	0	0	0	0	1
Laredo	267,780	10.1	27	112	77	1	0	0	1	1
Odessa	160,869	7.4	19	82	54	0	0	0	0	1
Texarkana	146,408	10.0	21	111	60	1	0	0	1	1
Eagle Pass[6]	57,843	7.9	23	88	66	0	0	0	0	1
Corsicana[5,6]	54,636	NA	NA	NA	NA	0	0	0	0	1
Kingsville[6]	30,720	10.3	31	114	89	0	0	0	0	1
Big Bend National Park[7]	NA	5.5	16	61	46	0	0	0	0	1
Totals*						**23**	**12**	**4**	**37**	**71**

[1]United States Census Bureau population estimates as of July 1, 2022. [Metropolitan and Micropolitan Statistical Areas Population Totals: 2020-2022 (census.gov)]

[2]2024 $PM_{2.5}$ Annual NAAQS is 9.0 micrograms per cubic meter (µg/m³).

[3]2024 $PM_{2.5}$ 24-hour NAAQS is 35 µg/m³.

[4]Individual monitors may fulfill multiple requirements and are only counted once. Collocated quality control monitors are not included in totals.

[5]Annual values do not meet completeness criteria; monitors deployed in 2020 to 2023. Incomplete design value information is not used for the purposes of regulatory compliance.

[6]Area is classified as a micropolitan statistical area and is not subject to SLAMS (State or Local Ambient Monitoring Stations) requirements.

[7]Area not classified as a metropolitan or micropolitan statistical area.

*Near-Road or NCore monitors fulfills multiple requirements

This list does not include metropolitan statistical areas with no requirement and no monitors.

DV - design value

FEM - federal equivalent method

FRM - federal reference method

NA - not applicable

NAAQS - National Ambient Air Quality Standards

NCore - National Core Multipollutant Monitoring Stations

µg/m³ - micrograms per cubic meter

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Table 2: Particulate Matter of 2.5 Micrometers or Less Monitor Design Value, Location, Monitor Type, and Requirements Assessment

Metropolitan Statistical Area[1]	2022 Population Estimates[2]	Site Name	Monitor Type(s)	2020-2022 Annual DV ($\mu g/m^3$)	2020-2022 24-Hour DV ($\mu g/m^3$)	Percent of NAAQS (Annual[3])	Percent of NAAQS (24-Hour[4])	Total Existing Monitors[5]
Dallas-Fort Worth-Arlington	**7,943,685**			**9.4**	**24**	**104**	**69**	**13**
		Convention Center	BAM 1022 (planned T640x)	9.4	22	104	63	1
		Dallas Hinton (collocated QC pair)	Partisol 2025, T640x PM2.5, T640x PM10-2.5, SASS/URG Speciation[6] (Partisol 2025 QC)	8.2	19	91	54	4
		Dallas Bexar Street	TEOM[7] (planned BAM 1022)	NA	NA	NA	NA	1
		Denton Airport South	BAM 1022	7.5	20	83	57	1
		Fort Worth California Parkway North (collocated QC pair)	BAM 1022 (BAM 1022 QC)	8.5	23	94	66	1
		Fort Worth Northwest	BAM 1022	9.1	23	101	66	1
		Haws Athletic Center	BAM 1022	8.9	24	99	69	1
		Kaufman[8]	BAM 1022	8.1	25	90	71	1
		Midlothian North Ward Road[8] (site temporarily inactive for relocation) (collocated QC pair)	BAM 1022 and (Partisol 2025 QC) (pending deployment), URG/2025 Speciation	8.9	17	99	49	2
Houston-Pasadena-The Woodlands	**7,340,118**			**11.4**	**28**	**127**	**80**	**18**
		Baytown	BAM 1022	10.1	22	112	63	1
		Clinton (collocated QC pair)	Partisol 2025, (Partisol 2025 QC), TEOM[7] (planned T640x continuous), Partisol 2025 Speciation	10.4	24	116	69	3
		Conroe Relocated[8]	BAM 1022	9.8	23	109	66	1

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Metropolitan Statistical Area[1]	2022 Population Estimates[2]	Site Name	Monitor Type(s)	2020-2022 Annual DV (µg/m³)	2020-2022 24-Hour DV (µg/m³)	Percent of NAAQS (Annual[3])	Percent of NAAQS (24-Hour[4])	Total Existing Monitors[5]
		Galveston 99th Street	BAM 1022	7.9	23	88	66	1
		Freeport South Avenue I[8]	Partisol 2025 with speciation (NEW in 2023)	NA	NA	NA	NA	1
		Houston Aldine (collocated QC pair)	BAM 1022, (Partisol 2025 QC)	10.0	22	111	63	1
		Houston Bayland Park[8]	BAM 1022	9.5	27	106	77	1
		Houston Deer Park #2 (speciation collocated QC pair)	Partisol 2025, T640X PM2.5, T640X PM10-2.5, SASS/URG Speciation[6] (SASS/URG Speciation QC[6])	8.7	23	97	66	4
		Houston East	BAM 1022	10.2	23	113	66	1
		Houston North Loop	BAM 1022	11.4	28	127	80	1
		Houston North Wayside[8]	BAM 1022	12.2	27	136	77	1
		Houston Westhollow[8]	BAM 1022	8.1	21	90	60	1
		Seabrook Friendship Park[8]	BAM 1022	7.6	18	84	51	1
San Antonio-New Braunfels	**2,655,342**			**8.6**	**23**	**96**	**66**	**6**
		Calaveras Lake	BAM 1022	7.1	21	79	60	1
		Old Highway 90	TEOM 1405[7] (planned BAM 1022 continuous)	NA	NA	NA	NA	1
		San Antonio Bulverde Parkway	T640x (NEW in 2023)	NA	NA	NA	NA	1
		San Antonio Interstate 35	BAM 1022	8.5	21	94	60	1
		San Antonio Northwest (collocated QC pair)	BAM 1022, (Partisol 2025 QC)	8.6	23	96	66	1

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Metropolitan Statistical Area[1]	2022 Population Estimates[2]	Site Name	Monitor Type(s)	2020-2022 Annual DV (µg/m³)	2020-2022 24-Hour DV (µg/m³)	Percent of NAAQS (Annual[3])	Percent of NAAQS (24-Hour[4])	Total Existing Monitors[5]
		Von Ormy Highway 16 (previously Palo Alto)[8]	BAM 1022	9.1	24	101	69	1
Austin-Round Rock-San Marcos	**2,421,115**			**9.3**	**22**	**103**	**63**	**3**
		Austin North Interstate 35	BAM 1022	9.3	22	103	63	1
		Austin North Hills Drive (previously Austin Northwest)[8]	BAM 1022	7.4	19	82	54	1
		Austin Webberville Road	T640x, (Partisol 2025 QC)	9.2	22	102	63	1
McAllen-Edinburg-Mission	**888,367**			**10.1**	**28**	**112**	**80**	**2**
		Edinburg East Freddy Gonzalez Drive	BAM 1022	10.1	28	112	80	1
		Mission[8]	T640x	10.1	27	112	77	1
El Paso	**872,195**			**9.2**	**22**	**102**	**63**	**7**
		Ascarate Park SE (collocated QC pair)	BAM 1022 (NEW in 2024), (Partisol 2025 QC)	NA	NA	NA	NA	1
		El Paso Chamizal	Partisol 2025, T640x PM2.5, T640x PM10-2.5, URG/SASS Speciation[6]	9.2	22	102	63	4
		El Paso UTEP[8] (site temporarily inactive due to relocation)	T640x (pending deployment)	8.1	26	90	74	1
		Socorro Hueco (collocated QC pair)	T640x (New in 2024), (T640x QC)	NA	NA	NA	NA	1
Killeen-Temple	**496,228**			**7.4**	**21**	**82**	**60**	**1**

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Metropolitan Statistical Area[1]	2022 Population Estimates[2]	Site Name	Monitor Type(s)	2020-2022 Annual DV (µg/m³)	2020-2022 24-Hour DV (µg/m³)	Percent of NAAQS (Annual[3])	Percent of NAAQS (24-Hour[4])	Total Existing Monitors[5]
		Temple Georgia	BAM 1022	7.4	21	82	60	1
Brownsville-Harlingen	**425,208**			**9.1**	**31**	**101**	**89**	**2**
		Brownsville	BAM 1022	9.1	29	101	83	1
		Isla Blanca State Park Road[8]	BAM 1022	11.0	31	122	89	1
Corpus Christi	**421,628**			**8.7**	**25**	**97**	**71**	**3**
		Corpus Christi Huisache (collocated QC pair)	BAM 1022 (BAM 1022 QC)	8.1	23	90	66	1
		Dona Park	T640x, URG/2025 Speciation	8.7	25	97	71	2
Beaumont-Port Arthur	**393,575**			**8.3**	**20**	**92**	**57**	**3**
		Hamshire[8]	BAM 1022	7.7	19	86	54	1
		Port Arthur Memorial School (collocated QC pair)	BAM 1022, (BAM 1022 QC)	8.3	20	92	57	1
		SETRPC 42 Mauriceville	BAM 1022	8.2	20	91	57	1
Lubbock	**328,283**			**5.8**	**18**	**64**	**51**	**1**
		Lubbock 12th Street	BAM 1022	5.8	18	64	51	1
Longview[8]	**291,219**			**9.4**	**20**	**104**	**57**	**2**
		Karnack[8]	BAM 1022, URG/SASS Speciation[6]	9.4	24	104	69	2
Waco	**283,885**			**NA**	**NA**	**NA**	**NA**	**1**
		Waco Mazanec	TEOM 1405[7]	NA	NA	NA	NA	1

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Metropolitan Statistical Area[1]	2022 Population Estimates[2]	Site Name	Monitor Type(s)	2020-2022 Annual DV (µg/m³)	2020-2022 24-Hour DV (µg/m³)	Percent of NAAQS (Annual[3])	Percent of NAAQS (24-Hour[4])	Total Existing Monitors[5]
College Station-Bryan[8]	**277,824**			**8.0**	**21**	**89**	**60**	**1**
		Bryan Finfeather Road[8]	BAM 1022	8.0	21	89	60	1
Amarillo	**271,171**			**5.9**	**15**	**66**	**43**	**1**
		Amarillo A&M	BAM 1022	5.9	15	66	43	1
Laredo	**267,780**			**10.1**	**27**	**112**	**77**	**1**
		World Trade Bridge	BAM 1022	10.1	27	112	77	1
Odessa	**160,869**			**7.4**	**19**	**82**	**54**	**1**
		Odessa Gonzales	BAM 1022	7.4	19	82	54	1
Texarkana	**146,408**			**10.0**	**21**	**111**	**60**	**1**
		Texarkana New Boston	BAM 1022	10.0	23	111	66	1
Eagle Pass[9]	**57,843**			**7.9**	**23**	**88**	**66**	**1**
		Eagle Pass	BAM 1022	7.9	23	88	66	1
Corsicana[8,9]	**54,636**			**8.5**	**25**	**94**	**71**	**1**
		Corsicana Airport[8]	BAM 1022	8.5	25	94	71	1
Kingsville[9]	**30,720**			**10.3**	**31**	**114**	**89**	**1**
		National Seashore	BAM 1022	10.3	31	114	89	1
Big Bend National Park[10]	**NA**			**5.5**	**16**	**61**	**46**	**1**
		Bravo Big Bend	BAM 1022	5.5	16	61	46	1
Totals								**71**

[1]This list does not include metropolitan statistical areas with no requirements and no monitors.

Appendix K: Particulate Matter of 2.5 Micrometers or Less Monitor Requirements and Count Assessment

Metropolitan Statistical Area[1]	2022 Population Estimates[2]	Site Name	Monitor Type(s)	2020-2022 Annual DV (µg/m^3)	2020-2022 24-Hour DV (µg/m^3)	Percent of NAAQS (Annual[3])	Percent of NAAQS (24-Hour[4])	Total Existing Monitors[5]

[2]United States Census Bureau population estimates as of July 1, 2022.
[3]2024 $PM_{2.5}$ Annual NAAQS is 9.0 µg/m^3.
Metropolitan and Micropolitan Statistical Areas Population Totals: 2020-2022 (census.gov)
[4]2024 $PM_{2.5}$ 24-hour NAAQS is 35 µg/m^3.
[5]Collocated quality control monitor types are not included in totals.
[6]Speciation monitor for NCore or Chemical Speciation Network (CSN).
[7]$PM_{2.5}$ TEOM monitors are non-FEM/FRM (non-NAAQS comparable).
[8]Annual values do not meet completeness criteria; monitors deployed in 2020 - 2023. Incomplete design value (gray font) information is not used for regulatory compliance.
[9]Area is classified as a micropolitan statistical area and is not subject to SLAMS requirements.
[10]Area not classified as a metropolitan or micropolitan statistical area.

\# - number
DV - design value
FEM - federal equivalent method
FRM - federal reference method
NA - not applicable
NAAQS - National Ambient Air Quality Standards
NCore - National Core Multipollutant Monitoring Stations require $PM_{2.5}$ FRM mass, $PM_{2.5}$ FEM continuous mass, $PM_{10-2.5}$ and $PM_{2.5}$ CSN speciation
OFW - Old Fort Worth
$PM_{2.5}$ FRM mass method code 145 by Partisol 2025 or 2025i
$PM_{2.5}$ FEM mass method code 209 by beta attenuation method (BAM) 1022
$PM_{2.5}$ FEM mass method code 638 by broadband spectroscopy T640x
$PM_{2.5}$ non-regulatory mass method code 702 by tapered element oscillating microbalance (TEOM)
$PM_{2.5}$ speciation method codes 810, 811, 812, 826, 831, 838, 839, 840, 841, 842, 846, and 849
$PM_{10-2.5}$ method code 640 by broadband spectroscopy T640x
QC - quality control
SASS - second generation speciation sampling system (for Chemical Speciation Network [CSN] only)
SETRPC - Southeast Texas Regional Planning Commission
SE - southeast
SLAMS - State or Local Air Monitoring Stations
URG - University Research Glassware speciation sampler
UTEP - University of Texas at El Paso
µg/m^3 - micrograms per cubic meter
Metropolitan Statistical Areas are delineated by the United States Office of Management and Budget
Delineation Files (census.gov)
Monitors marked "NEW!" were recently deployed continuous FEM. If the FEM replaced a FRM, then a design value will still be applicable for regulatory compliance.

Appendix L

Volatile Organic Compound and Carbonyl Monitor Requirements and Count Assessment

Texas Commission on Environmental Quality
2024 Annual Monitoring Network Plan

Appendix L: Volatile Organic Compound and Carbonyl Monitor Requirement and Count Summary

Table 1: Volatile Organic Compound Monitor Requirement and Count Assessment

Core Based Statistical Area[1]	Required PAMS VOC AutoGC Monitors	Existing VOC Canister Monitors	Existing VOC AutoGC Monitors	Total Existing VOC Monitors
Dallas-Fort Worth-Arlington	1	3	2	5
Houston-Pasadena-The Woodlands	1	0	3	3
El Paso	0	0	1	1
Beaumont-Port Arthur	0	0	2	2
Laredo	0	1	0	1
Totals	**2**	**4**	**8**	**12**

[1]This list does not include core based statistical areas with zero requirements and zero monitors.
AutoGC – automated gas chromatograph
PAMS – Photochemical Assessment Monitoring Stations
VOC – volatile organic compound

Table 2: Carbonyl Monitor Requirement and Count Summary

Core Based Statistical Area[1]	Required PAMS Carbonyl Samplers	Total Existing Carbonyl Samplers
Dallas-Fort Worth-Arlington	1	2
Houston-Pasadena-The Woodlands	1	2
Totals	**2**	**4**

[1]This list does not include core based statistical areas with zero requirements and zero monitors.
PAMS – Photochemical Assessment Monitoring Stations

Appendix M

TCEQ Response to Comments Received on the draft 2024 Annual Monitoring Network Plan

Texas Commission on Environmental Quality 2024 Annual Monitoring Network Plan

Appendix M: TCEQ Response to Comments Received on the draft 2024 Annual Monitoring Network Plan

Introduction

As required under Title 40 Code of Federal Regulations (40 CFR) Section (§) 58.10, the Texas Commission on Environmental Quality (TCEQ) posted the draft *2024 Annual Monitoring Network Plan* (AMNP or the Plan) for public inspection for 30 days prior to submittal to the United States Environmental Protection Agency (EPA). The AMNP provided information on the current TCEQ ambient air monitoring network established to determine compliance with federal monitoring requirements specified in 40 CFR Part 58 and its appendices. The AMNP presented the current federal network established for use in evaluations to determine compliance with the National Ambient Air Quality Standards (NAAQS) and to meet federal monitoring requirements and objectives. This Plan is limited to the portion of the TCEQ air monitoring network designed to comply with federal monitoring requirements and supported by federal funding, referred to as the "federal monitoring network". This document includes the recommended federal monitoring network changes from July 1, 2023, through December 31, 2025.The TCEQ also operates a robust network of state-initiative monitors that support a variety of purposes, including potential health effects evaluation; however, these monitors are outside the scope of this document and are not included.

The TCEQ continues to evaluate additional ambient air monitoring requested during previous AMNP public inspection and comment periods. Details regarding the potential monitors under consideration may be included in the Additional Monitoring Considerations section of the Plan to solicit further public comment. Any future implementation of these monitoring considerations may be included as part of the TCEQ federal monitoring network or as state-initiative monitors. No new additional monitoring considerations were included in the 2024 AMNP.

During the public comment period from April 17, 2024, to May 16, 2024, the TCEQ received comments from Achieving Community Tasks Successfully (ACTS), Bullard Center for Environmental and Climate Justice at Texas Southern University, Citizens Climate Lobby, Coalition of Responsible Environmental Aggregate Mining (CREAM), Crestmont Park Civic Alliance (CPCA), Environmental Community Advocates for Galena Park, Environmental Defense Fund (EDF), Environmental Integrity Project (EIP), Harris County Pollution Control (HCPCS), Laudato Si' Movement – Texas Chapter, Midlothian Breathe, North Beach Community Association (NBCA), Northeast Houston Redevelopment Council (NEHRC), One Breath Partnership, South Union Community Development Corporation (SUCDC), Sunnyside Community Redevelopment Organization (SCRO), Teeter Totter Village, Texas Federation of the People Environmental Justice Awareness Committee, Texans for Responsible Aggregate Mining (TRAM), and 10 individuals. In addition, Lone Star Legal Aid (LSLA) provided comments on behalf of its respective clients including Air Alliance Houston, New Liberty Road Community Development Corporation (NLRCDC), Coalition of Community Organizations, ACTS, Public Citizen, and 12 community organizations (Port Arthur Community Action Network, Westry Mouton Project, Southend Charlton-Pollard Greater Historic Community, Caring for Pasadena Communities, Super Neighborhood 48 Trinity Gardens/Houston Gardens, Super Neighborhoods 49/50, Pleasantville Area Super Neighborhood 57, Progressive Fifth Ward Community Association, Dyersforest

Heights Civic Club, East Aldine Civic Association, Better Brazoria – Clean Air & Water, Houston Department of Transformation). TCHD Consulting LLC provided comments on behalf of its client Ingleside on the Bay Coastal Watch Association (IOBCWA).

Comments received by the TCEQ during the 30-day comment period are summarized below and are addressed with responses in this appendix. Comments received on the draft 2024 AMNP are included in AMNP Appendix N.

The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources, and for those reasons, cannot always satisfy every monitoring request. The TCEQ appreciates recent short-term, one-time federal grant opportunities. These short-term grant resources allow the TCEQ to purchase and upgrade aging air monitoring equipment and to meet changes in technical ozone monitoring requirements. However, long-term resources to operate and audit air monitors and to quality assure and validate data are necessary for air monitoring network expansion. Long-term resources have not increased over time. The TCEQ will continue to evaluate air monitoring needs against existing federal monitoring requirements and available short and long-term resources in the 2025 AMNP. Further, the TCEQ will conduct the *Texas 2025 Five-Year Ambient Monitoring Network Assessment* (FYA) to confirm that the existing network continues to meet the objectives in 40 CFR §58, Appendix D and to evaluate whether individual network monitors should be added, relocated, or decommissioned to best understand and evaluate air quality with existing resources. No changes were made to the draft 2024 AMNP based on the comments summarized below.

Comment Summaries and TCEQ Responses

Comment 1: Harris County Pollution Control Services (HCPCS) submitted a letter suggesting TCEQ place a particulate matter of 2.5 micrometers or less in diameter ($PM_{2.5}$) federal equivalent method (FEM) continuous monitor in south Houston, ideally east of Highway 288, between South Loop 610 and Sam Houston Tollway. HCPCS identified twenty-seven concrete batch plants in the south Houston area, all of which are bordered by South Loop 610, Sam Houston Tollway, South Post Oak Road, and Interstate 45. HCPCS suggested it would be beneficial for TCEQ to characterize $PM_{2.5}$ in the south Houston area, given its high population density and numerous concrete batch plant facilities. HCPCS stated that TCEQ currently has no $PM_{2.5}$ monitoring in this area. Additionally, the letter acknowledged that TCEQ plans on implementing two new monitoring locations for $PM_{2.5}$ and volatile organic compounds (VOCs) at Finnigan Park and Pleasantville.

Response 1: The TCEQ appreciates the HCPCS comments and support. As demonstrated in the Plan, since 2021, the TCEQ has added three additional $PM_{2.5}$ monitors in the Houston-The Woodlands-Sugar Land (Houston) metropolitan statistical area (MSA) at the existing Houston Westhollow, Houston North Wayside, and Houston Bayland Park sites and plans to add two new pending sites in the Houston Fifth Ward and Pleasantville neighborhoods. The TCEQ Houston area $PM_{2.5}$ federal monitoring network includes 18 active $PM_{2.5}$ monitors (plus two pending deployment) at 13 area sites to measure ambient $PM_{2.5}$ concentration data. The TCEQ exceeds the Houston area federal requirement for a minimum of eight $PM_{2.5}$ monitors. Houston area air monitoring sites are shown in Figure A below with $PM_{2.5}$ monitors indicated by a dark blue section.

As discussed in the introduction, the TCEQ also operates a robust network of state-initiative monitors that support a variety of purposes. Though the TCEQ state-initiative monitors are outside of the scope of this document, this state-initiative monitoring network provides valuable information for assessing public health.

As stated in the introduction, the 2024 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. Air monitoring sites are generally placed to be representative of regional air quality, rather than monitoring emissions from specific sources. The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources and for those reasons, cannot always satisfy every monitoring request. The TCEQ will continue to evaluate $PM_{2.5}$ air monitoring needs in the Houston MSA, including in south Houston east of Highway 288, between South Loop 610 and the Sam Houston Tollway, as resources are available.

Appendix M: TCEQ Response to Comments Received on the draft 2024 Annual Monitoring Network Plan

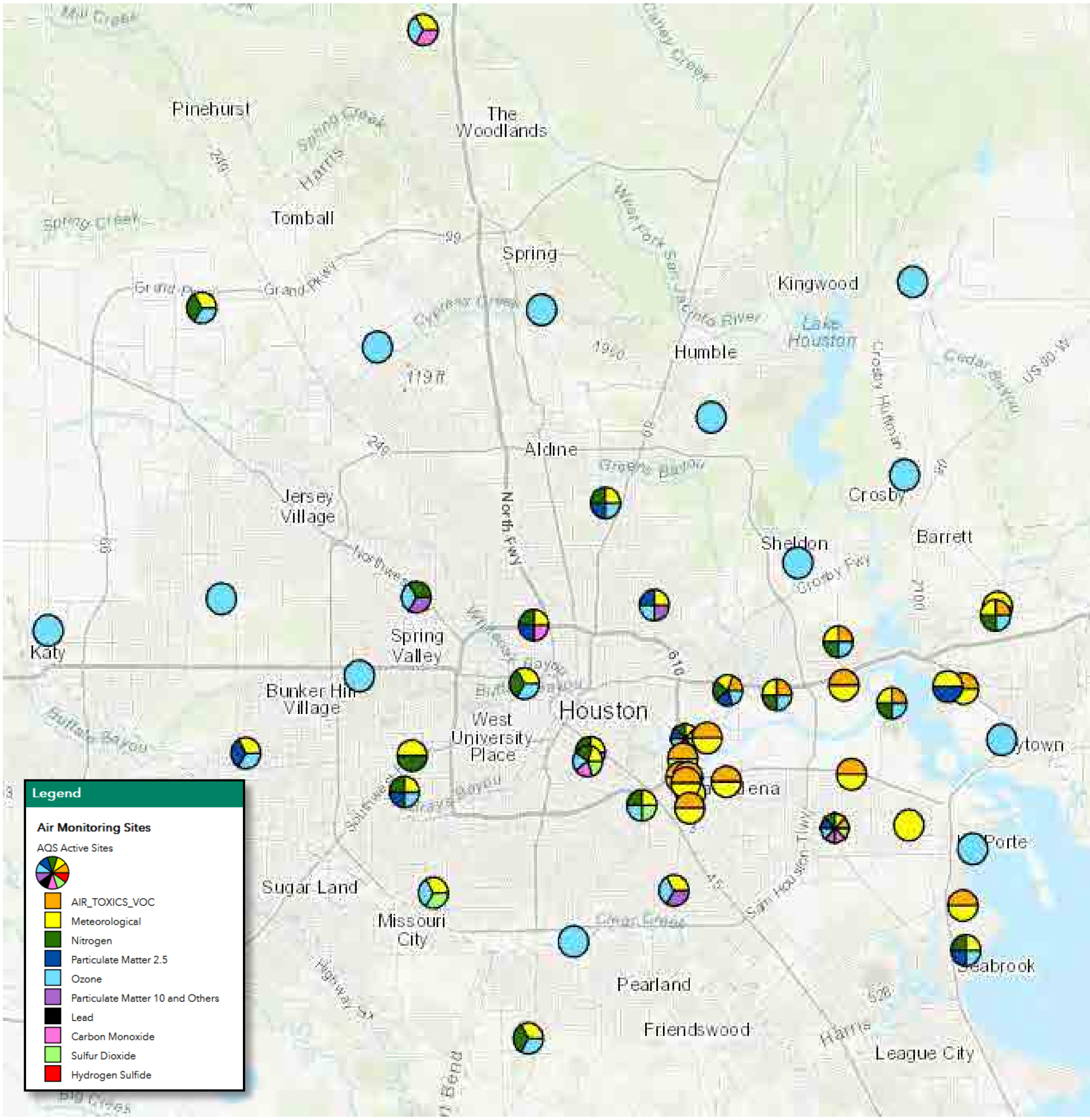

Figure A: Houston Area Sites and Monitors

Comment 2: One Breath Partnership submitted a letter that included two petitions from The Action Network (a website for community organization campaigns). One Breath Partnership noted in the letter that 119 individuals <sic> had signed the first petition and 126 <sic> individuals had signed the second petition to request a speciated VOC canister monitor, $PM_{2.5}$ monitor, and a nitrogen dioxide (NO_2) monitor in Houston's Sunnyside neighborhood, a historical community of color. In addition, some individuals noted in the petition that the Sunnyside community was vulnerable to poor air quality from a range of sources emitting hazardous air pollutants including metal recycling facilities, concrete batch plants, transportation, and nearby industrial facilities. The TCEQ notes that the petition names overlapped in the two letters submitted, and there were 115 individual signatures on the petition(s), including two individuals with zip codes outside of Texas.

Achieving Community Tasks Successfully, Bullard Center for Environmental and Climate Justice at Texas Southern University, CPCA, ECAGP, EDF, Laudato Si' Movement, NEHRC, SCRO, SUCDC, Teeter Totter Village, and Texas Federation of the People Environmental Justice Awareness Committee also supported deploying a VOC canister monitor, $PM_{2.5}$ monitor, and NO_2 monitor to the Sunnyside neighborhood.

The EDF noted that the Sunnyside neighborhood was in the 90th percentile or above for lower life expectancy with increased rates of developing heart disease and asthma. CPCA, EDF, ECAGP, NEHRC, SUCDC, and Teeter Totter Village noted that since the closure of the $PM_{2.5}$ monitor at Houston Park Place, there was no city or state operated monitor located within seven miles of the Sunnyside community, with the nearest monitors located at Bayland Park and Clinton. ECAGP commented that without a VOC canister monitor, $PM_{2.5}$ monitor, and NO_2 monitor neither TCEQ nor residents would have a complete understanding of the extent of potential exposure. The ECAGP, EDF, and SCRO commented that the residents of Sunnyside have a right to know if they are breathing air toxins.

Response 2: The TCEQ appreciates the recommendations for expanded air monitoring in the Sunnyside community. As demonstrated in the Plan, the TCEQ federal air monitoring network in the Houston core based statistical area (CBSA) includes 18 active $PM_{2.5}$ monitors at 13 sites, three continuous VOC monitors by automated gas chromatograph (autoGC), and 18 NO_2 (nitrogen oxides [NO_X] monitors measure NO_2) monitors. TCEQ expects to deploy two more $PM_{2.5}$ monitors at two new sites in 2024. The TCEQ exceeds the federal requirement for a minimum of eight $PM_{2.5}$ monitors in the Houston CBSA. Additionally, the TCEQ exceeds the federal requirement for a minimum of five NO_2 monitors and one VOC monitor in the Houston CBSA. As stated in the introduction, state-initiative monitoring is not included in this Plan, however, the TCEQ also operates a robust network of non-federal state-initiative monitors that support a variety of purposes. The TCEQ state-initiative monitoring network in the Houston area includes an additional six continuous VOC monitors (for a total of nine continuous VOC monitors), and eight VOC canister monitors at 13 sites. The TCEQ federal and state air monitoring sites and monitors are shown below in Figure B with $PM_{2.5}$ monitors indicated by a dark blue section, NO_X /NO_2 monitors indicated by a dark green section, and VOC monitors indicated by an orange section.

As stated in the introduction, the 2024 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. Air monitoring sites are generally placed to be representative of regional air quality, rather than monitoring emissions from specific sources. The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources and for those reasons, cannot always satisfy every monitoring request. However, the TCEQ will continue to evaluate air monitoring requests in the Houston CBSA against federal requirements and available resources.

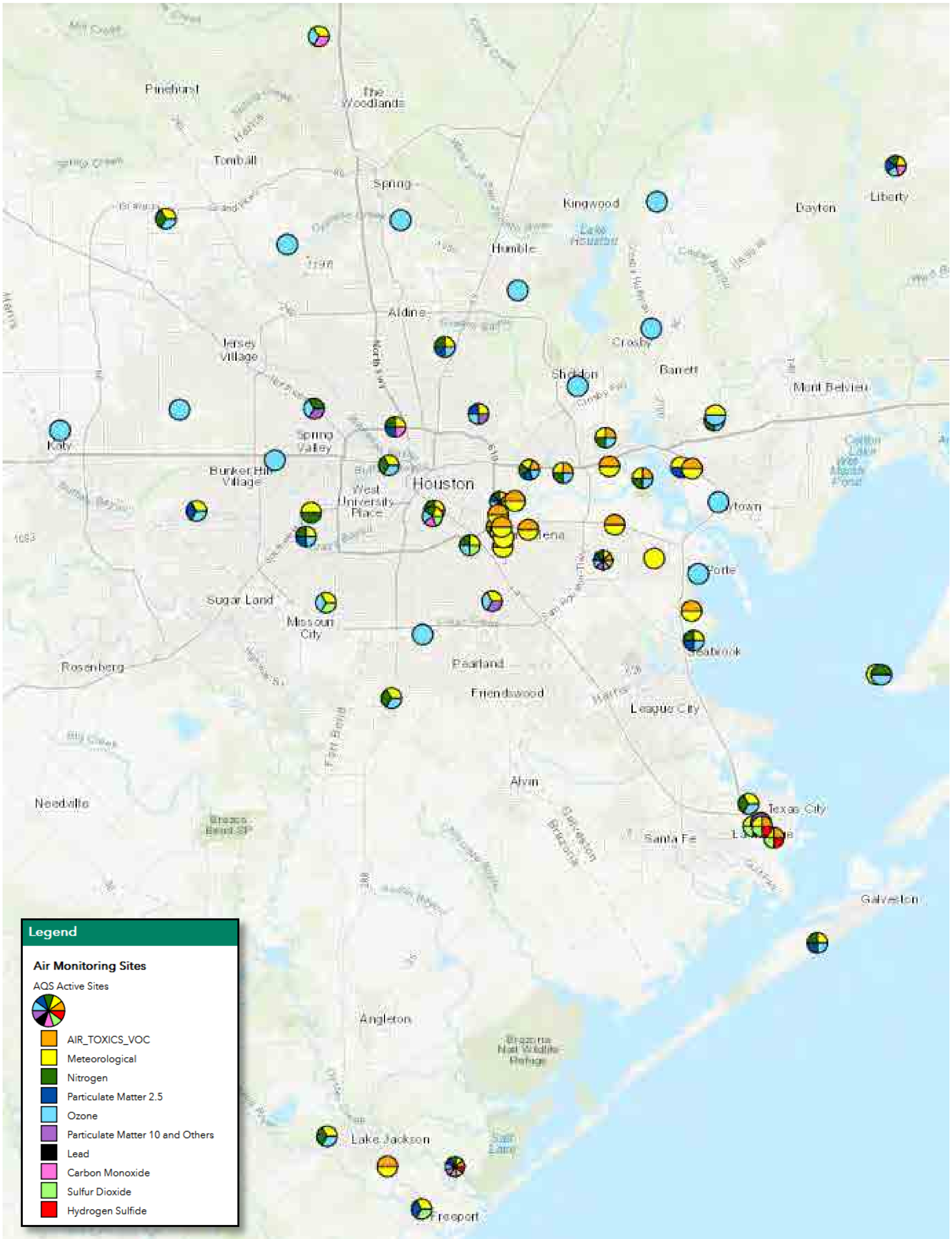

Figure B: Houston CBSA Sites and Monitors

Appendix M: TCEQ Response to Comments Received on the draft 2024 Annual Monitoring Network Plan

Comment 3: EDF and LSLA (on behalf of their client ACTS) opposed the TCEQ recommendation to reduce the frequency the Clinton $PM_{2.5}$ federal reference method (FRM) filter-based sampling frequency from daily to once every six days. EDF stated sampling frequency should be maintained at the current frequency as the capacity for speciation afforded by this type of monitor would help aid the TCEQ and the Houston region with source apportionment and development of the State Implementation Plan for $PM_{2.5}$. LSLA commented that TCEQ did not provide justification for the sampling reduction and noted concern that much of Houston may be in violation of the new EPA standards. LSLA recommended that the Clinton $PM_{2.5}$ speciation frequency be increased and that filter-based samples continue to be collected daily.

The EDF expressed support in upgrading the $PM_{2.5}$ FRM monitor to a $PM_{2.5}$ FEM monitor at Clinton. EDF declared their support for the Clinton monitor upgrade was contingent on two things: whether TCEQ could confirm that the proposal to upgrade the $PM_{2.5}$ non-NAAQS comparable monitor at Clinton would not reduce the $PM_{2.5}$ observations contributing to the design value for $PM_{2.5}$ for the region and that changing the equipment would not reset the three-year data collection requirement for the monitor data to be considered for the design value calculations. Additionally, EDF commented that deploying additional particulate matter monitors could potentially provide speciated data that could be used to identify the particulate matter composition so targeted mitigation strategies can be implemented. EDF stated that the Houston region is unlikely to meet new annual $PM_{2.5}$ standard given the number of particulate matter sources in the Houston region. EDF noted there was interest in deploying additional $PM_{2.5}$ FEM monitors, particularly in overburdened communities. It was noted by EDF that EPA methods could be utilized to better understand predominant sources contributing to high particulate matter measurements at site locations, including concrete facilities, diesel engines, rail, and metal recycling sources.

LSLA (on behalf of their client Public Citizen) noted concern that a change in monitoring at Clinton might exclude data from regulatory purposes and that the Clinton monitor data were important to reflect the regions' air quality as the monitor had some of the highest readings in the region. LSLA commented the new proposed FRM monitor at Clinton should be a regulatory monitor and that the data obtained should be included with prior data collected there. The LSLA noted there should not be a three-year waiting period for the FRM data to become actionable if the data reveals NAAQS violations for $PM_{2.5}$.

Response 3: The TCEQ appreciates the support to upgrade the $PM_{2.5}$ FRM monitor to a $PM_{2.5}$ FEM monitor at Clinton. The TCEQ does not agree with objections to reduce the Clinton $PM_{2.5}$ FRM filter-based sampling frequency. Ambient air monitoring is the systematic, long-term assessment of pollutant levels by measuring the quantity and types of certain pollutants in the surrounding, outdoor air. The EPA sets the annual ambient air monitoring sampling schedule to ensure nation-wide data consistency, which allows for one 24-hour sample every six days. The TCEQ follows this EPA-established nation-wide schedule and monitoring protocol as required under 40 CFR §58.12. The TCEQ clarifies that $PM_{2.5}$ speciation is measured every sixth day according to the EPA-established schedule at the Clinton site, providing excellent long-term assessment and source apportionment data. No changes are recommended to the proposed Clinton $PM_{2.5}$ speciation sampling schedule.

The TCEQ clarifies that according to federal regulations only one $PM_{2.5}$ monitor can be designated as "primary" to provide data in comparison to the NAAQS. Primary monitors are defined as suitable monitors designated by a state or local agency in their annual network plan (and in the EPA's Air Quality System [AQS] database). Primary monitors are the default data source for creating a site record for purposes of NAAQS comparisons. Additional $PM_{2.5}$ monitors at a site may provide quality assurance information, or support speciation analyses, but cannot be submitted to the EPA's AQS as the primary qualifying monitor. The TCEQ plans to upgrade the non-NAAQS comparable $PM_{2.5}$ continuous monitor with a continuous FEM regulatory $PM_{2.5}$ monitor. When the TCEQ activates the continuous $PM_{2.5}$ FEM monitor, the new monitor will be designated as the site's primary $PM_{2.5}$ monitor. The Clinton $PM_{2.5}$ FRM filter-based monitor must be redesignated in the EPA's AQS, and can no longer be the primary monitor, effectively making daily sampling redundant. The proposal to upgrade the current Clinton primary $PM_{2.5}$ FRM filter-based monitor to continuous $PM_{2.5}$ FEM (both data are regulatory) would not reduce the number of $PM_{2.5}$ observations contributing to the design value for $PM_{2.5}$ for the region. Data collected from the current $PM_{2.5}$ FRM primary monitor and the future new $PM_{2.5}$ FEM primary monitor will be used in the design value calculation. The combination of primary $PM_{2.5}$ data will not reset the three-year data collection requirement. The TCEQ notes that multiple similar monitor upgrades (FRM to FEM) have occurred in the TCEQ network with no reset to the three-year data collection requirement. In fact, the new continuous $PM_{2.5}$ FEM monitor will strengthen air quality monitoring by providing continuous regulatory data to the EPA's AQS and AirNOW. The EPA encourages State, Local, and Tribal agencies to update filter-based monitors to continuous for these same reasons.

The TCEQ also appreciates EDFs interest in expanding air monitoring in Houston. The 2024 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. Air monitoring sites are generally placed to be representative of regional air quality, rather than monitoring emissions from specific sources. Stationary monitors are generally not intended to assess the emissions from individual sources or to document events for investigations or enforcement actions. Data from the TCEQ's air monitoring network are used to determine compliance with the federal air quality standards, evaluate pollutant trends, forecast daily air quality conditions, perform air quality and human health impact studies, and inform regulatory decisions. The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources and for those reasons, cannot satisfy every request for monitoring. The TCEQ will continue to evaluate air monitoring needs with available resources in the Houston CBSA and no further changes are recommended at this time. Comments related to utilizing methods to better understand predominant sources contributing to high particulate matter measurements are beyond the scope of this Plan.

Comment 4: EDF urged the TCEQ to deploy one or more monitors for ozone and its precursors in the Permian Basin in order to accurately assess the air quality impacts of oil and gas developments. EDF stated that air monitoring data from the New Mexico portion of the Permian displayed increased levels of harmful ozone pollution, with measured concentrations exceeding the ozone NAAQS of 70 parts per billion (ppb).

EDF noted that according to TCEQ's 2023 Annual Enforcement Report, Midland led the state of Texas in total emissions reported under 30 TAC Chapter 101. The EDF additionally stated that research indicated that Permian Basin methane emissions, often co-emitted with VOCs, which is an ozone precursor, are two to three times higher than what EPA estimated. EDF commented that among other factors, the Permian Basin's geographic size, meteorology, adjacent ozone monitoring programs, and measured air quality indicators, in addition to record oil and gas development, warrant additional monitoring for harmful ozone and the pollutants that produce it.

Response 4: The TCEQ appreciates the recommendation for expanded air monitoring in the Permian Basin. The TCEQ does not agree with EDFs recommendation to deploy one or more monitors for ozone and its precursors in the Permian Basin in order to accurately assess the air quality impacts of oil and gas developments. Federal ozone monitoring requirements are triggered by the MSA population based on the latest available census figures (see 40 CFR Part 58.50(c) and Table D-2 of 40 CFR Part 58, Appendix D). The Texas Permian Basin area contains two MSAs, Odessa and Midland, as delineated by the Federal Office of Management and Budget (OMB). The 2022 United States Census Bureau population estimates indicate the Odessa and Midland MSAs have estimated populations of 160,869 and 177,216, respectively. The individual MSA populations do not trigger ozone monitoring requirements (MSA populations with greater than 350,000 persons). Expansion of oil and gas developments does not require installation and monitoring of ozone and its precursors (NO_x and VOCs). The purpose of the 2024 AMNP is to demonstrate how the TCEQ air monitoring network complies with federal monitoring requirements detailed in 40 CFR Part 58. TCEQ meets federal ozone monitoring requirements for the MSAs in the Permian Basin area, as detailed in the 2024 AMNP and in Appendix C of this Plan, and no additional changes are recommended at this time.

As stated in the introduction, state-initiative monitoring is not included in this Plan; however, the TCEQ deployed three Permian Basin state-initiative air monitoring sites that continuously monitor for VOCs, sulfur dioxide (SO_2), and hydrogen sulfide (H_2S) in Odessa, Goldsmith, and Midland in 2020 and 2021. In addition, the TCEQ operated a non-continuous VOC canister monitor at the Odessa Hays air monitoring site from 1993 to 1999, a continuous VOC monitor from 1999 to 2015, and currently operates a non-continuous VOC canister monitor since 2015. The Permian Basin active air monitoring sites are illustrated below in Figure C. The latest information regarding the Texas air monitoring network and monitoring data, including information on the Permian Basin sites, are available on the webpage TCEQ Air Quality and Monitoring. Comments related to undercounted emissions inventory reports are outside the scope of this Plan.

Appendix M: TCEQ Response to Comments Received on the draft 2024 Annual Monitoring Network Plan

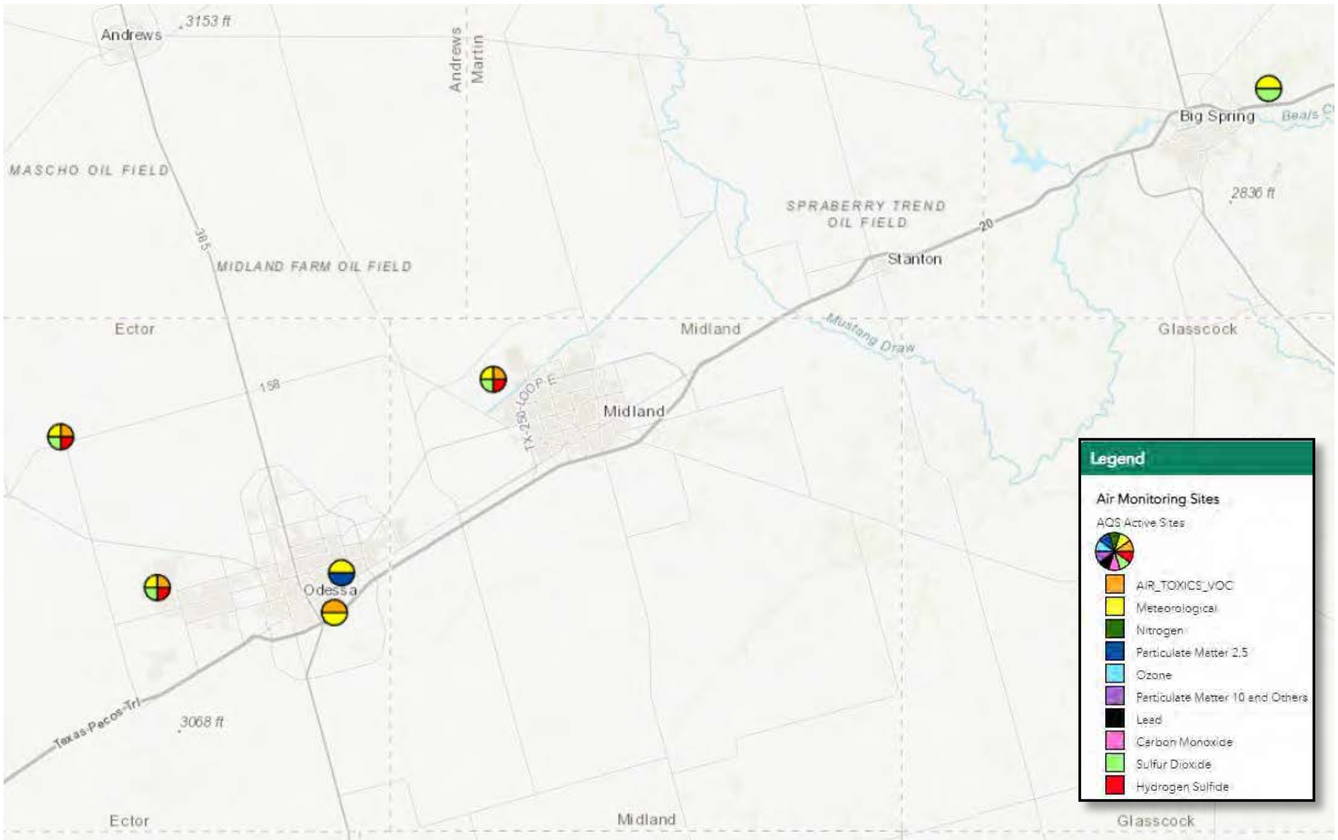

Figure C: Permian Basin Area Sites and Monitors

Comment 5: Three individuals located in Granbury, Texas expressed concern regarding air pollution, emissions, and excessive noise created by the Wolf Hollow I and II electric generating power plants and the nearby bitcoin mining operation. One individual noted that Wolf Hollow power plants were only being expanded to fuel the nearby bitcoin mining operation. Two individuals commented there had been an increase in health issues due to the emissions of the power plants and the affected population was comprised of impoverished residents who are unable to express their concerns. One individual commented that the bitcoin mining could be heard about 10 miles away and the pollution and noise were harmful to people and animals. Additionally, an individual requested air monitoring equipment to be installed near the gas-powered generating plants and that their concerns were related to nitrogen oxides, mercury, ozone, carbon monoxide (CO), SO_2, lead, $PM_{2.5}$ FEM, and particulate matter of 10 micrometers or less in diameter (PM_{10}).

Response 5: The TCEQ appreciates the recommendations for expanded air monitoring. As stated in the introduction, the 2024 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. Under [Title 30 Texas Administrative Code §101.4], nuisance complaints regarding air contaminant discharges under the TCEQ's jurisdiction can be submitted 24-hours a day on the TCEQ's website [Make an Environmental Complaint - TCEQ.] The TCEQ exceeds federal monitoring requirements for the Granbury micropolitan statistical area with one air quality monitoring site for ozone. Air monitoring sites are generally placed to be representative of regional air quality, rather than emissions from specific sources such as power plants. The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources and for those reasons, cannot satisfy every request for monitoring. The TCEQ clarifies that air monitors do not monitor noise pollution. Noise pollution is outside of TCEQ jurisdiction and the scope of this Plan. No further changes are recommended.

Comment 6: One individual requested air quality monitors be placed in the City of Corsicana. The individual noted a factory near the downtown area had caused a foul smell in the city. The individual also requested air monitors be placed within a ten-mile radius of the Riot Platforms Bitcoin mine in Navarro County, Texas; as they were concerned about the effects of the facility on air, water quality, and noise levels.

Response 6: The TCEQ appreciates the recommendations for expanded air monitoring in Corsicana. As stated in the introduction, the 2024 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. Under Title 30 Texas Administrative Code §101.4, nuisance complaints regarding air contaminant discharges (such as foul smells) under the TCEQ's jurisdiction can be submitted 24-hours a day on the TCEQ's website Make an Environmental Complaint – TCEQ. The TCEQ exceeds federal monitoring requirements for the Corsicana micropolitan statistical area with 11 total pollutant monitors at two monitoring sites. Air monitoring sites are generally placed to be representative of regional air quality, rather than monitoring emissions from specific sources. The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources and for those reasons, cannot satisfy every request for monitoring. The TCEQ will continue to evaluate air monitoring needs with available resources in the Corsicana area and no further changes are recommended at this time. The TCEQ clarifies that air monitors do not monitor noise pollution. Noise pollution is outside of TCEQ jurisdiction and the scope of this Plan. No further changes are recommended.

Comment 7: Midlothian Breathe commented regarding concerns over the ongoing delays in reactivating the Midlothian OFW air quality monitor, which has been out of service since April 2022. Midlothian Breathe noted that the monitor's data are crucial for public health and recommended requiring pre-identified backup monitoring sites to prevent future delays caused by lease revocation or other issues such as new permitting requirements. Midlothian Breathe proposed collaborating with TCEQ and local authorities to expedite the site relocation process and prevent miscommunications that have contributed to delays.

Additionally, Midlothian Breathe noted the 2024 Draft AMNP indicated that the former FRM monitor at Midlothian OFW will be retained at the new site to provide quality control (QC) collocation data. Midlothian Breathe requested that the FRM monitor instead be used at a secondary location to monitor downwind of the Holcim facility. Midlothian Breathe commented that monitoring both upwind and downwind is scientifically sound and that additional data are warranted. Midlothian Breathe emphasized the importance of continuous, accurate data to meet new $PM_{2.5}$ and ozone standards, noting Ellis County accounted for 42.2% of 2022 point source NO_x emissions in the ten-county North Texas region. They seek a collaborative approach with TCEQ to address these issues and improve air quality monitoring.

Response 7: The TCEQ appreciates the comments regarding air monitoring in Midlothian and relocating the Midlothian OFW air monitoring site. As stated in the

2024 AMNP, the TCEQ was required to temporarily deactivate the Midlothian air monitoring site due to the property owner revoking the TCEQ's access to the site. The TCEQ evaluated monitoring site locations that would appropriately and sufficiently characterize regional air quality in an area with multiple sources. The TCEQ collectively considered property owner agreement, predominant wind flow, and logistical constraints such as space, power availability, terrain, grade, and drainage. The TCEQ ensured the potential site locations complied with the federal requirements listed in 40 CFR Part 58, Appendix E regarding siting criteria. In addition, the TCEQ considered the comprehensive toxicological *Evaluation of the Midlothian, Texas Ambient Air Collection and Analytical Chemical Analysis Data (Midlothian Evaluation)*, available on the TCEQ webpage. The TCEQ routinely works with city permitting entities, all over the State of Texas, with little to no issues to deploy or relocate air quality monitoring sites. The TCEQ is currently experiencing challenging delays in obtaining permits for the construction (site pad, fence, and electrical) of the new Midlothian North Ward Road site. The TCEQ is actively addressing the current challenges and appreciates the support of local communities to ensure a timely deployment of the Midlothian North Ward Road site. In certain situations, the TCEQ may have a back-up air monitoring site identified during the site deployment process, however, in Midlothian, four other viable locations were identified on city owned property that were denied.

The TCEQ further clarifies that collocated monitoring supports monitoring data QC requirements and quality assurance (QA) (see 40 CFR Part 58, Appendix A) and the requirements are independent from federal monitoring requirements under 40 CFR Part 58, Appendix D. The TCEQ must follow the QC requirements listed in 40 CFR Part 58, Appendix A and emphasizes that QC collocated monitoring is performed in addition to the federally required monitoring. As defined under 40 CFR Part 58 Appendix A, for each pair of collocated monitors, one sampler is designated as the primary monitor whose concentrations are used to report air quality for the site, and the other is designated as the QC monitor (i.e., there are two monitors at the site, the primary monitor reports site air quality data, and the QC collocated monitor provides QA and QC data to ensure data quality objectives are met). The EPA requires a minimum of 15 percent collocated QC monitors in the federal network to be operated in addition to the primary monitors. The TCEQ would not meet this $PM_{2.5}$ federal requirement if the collocated QC monitor was deployed at a second Midlothian site. Details regarding the TCEQ additional collocated QC monitors for $PM_{2.5}$ are discussed in the corresponding TCEQ AMNP section.

As stated in the introduction, the 2024 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. Air monitoring sites are generally placed to be representative of regional air quality, rather than monitoring emissions from specific point sources. Stationary monitors are not intended to assess the emissions from individual sources or to document events for investigations or enforcement actions. Data from the TCEQ's air monitoring network are used to determine compliance with the federal air quality standards, evaluate pollutant trends, forecast daily air quality conditions, perform air quality and human health impact studies, and inform regulatory decisions. The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources, and for those reasons, cannot always satisfy every monitoring request. However, the TCEQ will continue to evaluate air monitoring needs in Midlothian against existing federal monitoring requirements and available resources.

Comment 8: TCHD Consulting LLC (on behalf of IOBCWA) expressed appreciation for the opportunity to submit comments and noted that there were no federal or state-funded ambient air monitoring stations in the Texas Coastal Bend area north of Corpus Christi Bay to characterize local air quality with respect to recent industrial development in the area. The IOBCWA acknowledged that the TCEQ federal monitoring network includes 272 air quality monitors which is double the number of monitors required by federal rule. IOBCWA also stated that since there was a lack of federal or state real-time continuous air monitoring data generated in the Coastal Bend area north of Corpus Christi Bay, the TCEQ's statement "the TCEQ federal monitoring network is sufficient to characterize air quality for all areas required within Texas", was not accurate and was misleading to IOBCWA and community members.

The IOBCWA also stated that the current Plan provided no information regarding long-term air quality evaluations that are/have been conducted in the Taft, Gregory, Portland, Ingleside, Aransas Pass, and Ingleside on the Bay communities. The IOBCWA noted that the Plan highlighted the lack of ambient air monitoring resources in the surrounding areas of the Gregory-Portland CBSA that is also impacted by industrial pollution. The IOBCWA requested multiple monitoring stations in different locations in Ingleside, Texas, home to the largest oil export terminal, to address the gaps in technical air quality knowledge and data.

The IOBCWA noted an inconsistency with the deployment and operational date for the planned meteorological and $PM_{2.5}$ FEM continuous monitor at the Gregory-Portland site listed in Table 11 of the Plan, thus making it unclear to the IOBCWA whether the monitor will be deployed and operational by December 31, 2024, or August 31, 2025. The IOBCWA also stated that the information regarding the special purpose VOC monitor at the planned Gregory-Portland site was non-definitive as it was lacking specificity with respect to location, type of monitoring being considered, and urgency for the current need.

The IOBCWA noted that while the 2024 Plan stated that TCEQ will meet or exceed all monitoring requirements and that the EPA acknowledged acceptance of TCEQ 2022 and 2023 Plans as such, it was obvious that though TCEQ was meeting minimum siting locations and requirements, the details were not locked in place, as demonstrated by the EPA's acceptance letters recommending that the TCEQ add air monitors in the Permian Basin and west Dallas areas. The IOBCWA also noted that the TCEQ has not made use of the multiple years of data collected by the IOBCWA's equivalent passive monitoring network, which includes six SCI air monitors, for the development of a monitoring network or air monitoring site.

The IOBCWA stated that Coastal Bend communities north of Corpus Christi Bay had experienced massive industrial expansion, with 15 TCEQ-permitted industrial sites and 14 more pending permit actions that if approved, would greatly increase existing air and water emissions along with existing pollution from large ships which dock in the Corpus Christi Bay and Channel. The IOBCWA requested that TCEQ plan, build, develop, and deploy an extensive ambient air monitoring network in Texas Coastal Bend communities north of Corpus Christi Bay to characterize air emissions for surrounding industries. The IOBCWA commented that the network should accurately characterize public health and permit compliance regardless of whether the infrastructure is funded by the federal government or the State of Texas. The IOBCWA stated it is obvious from reviewing the 2022, 2023, and 2024 AMNPs that the TCEQ can request additional funding from the Texas legislature or from the federal government to develop an air monitoring network for the Coastal Bend area and requested the TCEQ to do so.

Response 8: The TCEQ appreciates the recommendations for expanded monitoring in the Coastal Bend area north of Corpus Christi Bay. As stated in the introduction, the 2024 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58 and its appendices. The TCEQ air monitoring network is designed to measure pollutant concentrations for assessing regional air quality representative of areas frequented by the public and to provide information about compliance with the NAAQS. Air monitoring sites are generally placed to be representative of regional air quality, rather than to characterize emissions from specific sources. The TCEQ notes that federal monitoring regulations do not require ambient air monitors in every county in an CBSA. The TCEQ meets and/or exceeds air monitoring requirements in the Corpus Christi CBSA (shown in AMNP Appendix C). The Corpus Christi CBSA includes the counties of Aransas, Nueces, and San Patricio. As demonstrated in the Plan, TCEQ federal monitoring network in the Corpus Christi CBSA includes eight pollutant monitors across four air monitoring sites in Nueces County, with an additional site and two monitors planned for San Patricio County in Gregory-Portland, in 2025. As stated in the introduction, state-initiative monitoring is not included in this Plan, however, the TCEQ also operates a robust network of non-federal state-initiative monitors that support a variety of purposes. The TCEQ state-initiative monitoring network in the Corpus Christi CBSA includes five pollutant monitors at an additional three sites. The TCEQ federal and state air monitoring sites and monitors are shown below in Figure D.

Appendix M: TCEQ Response to Comments Received on the draft 2024 Annual Monitoring Network Plan

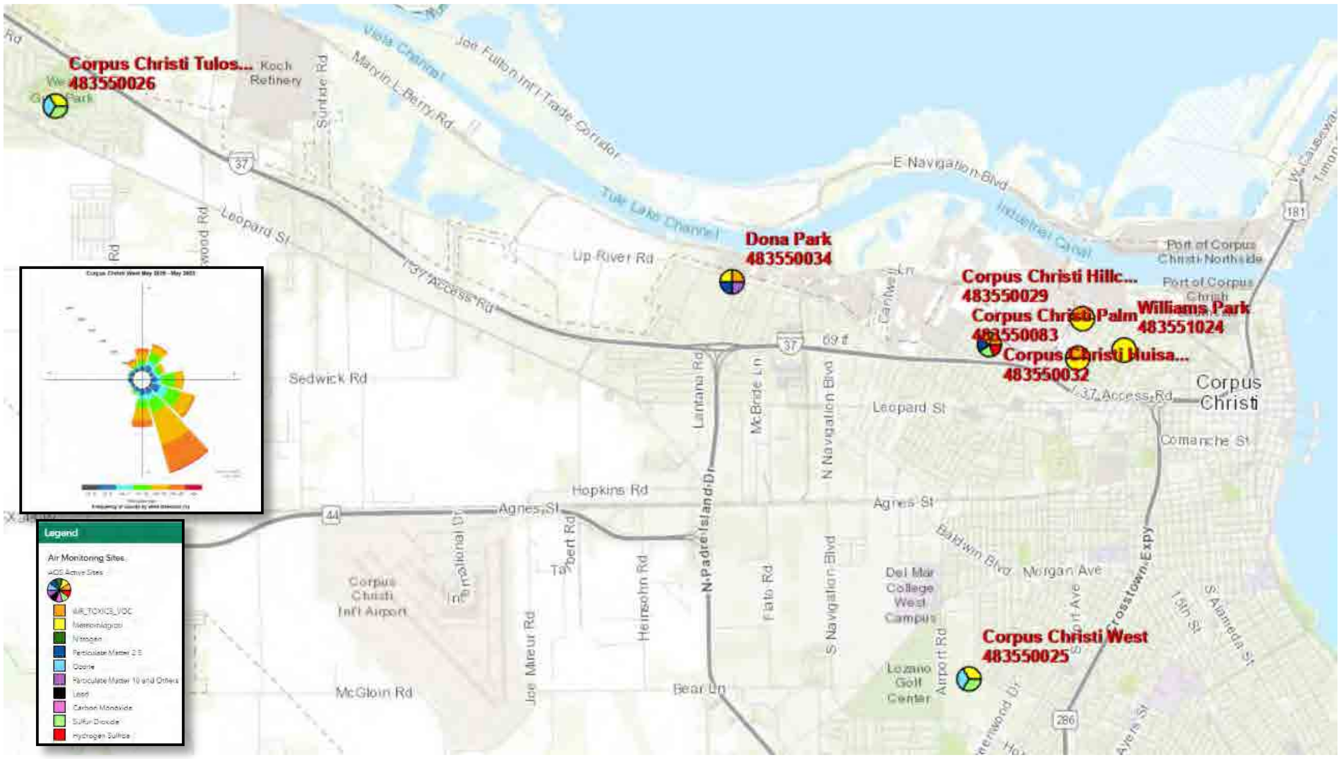

Figure D: Corpus Christi Sites, Monitors, and Wind Rose

The TCEQ also partners with local entities through grant activities, including the City of Corpus Christi and subgrantee, Texas A&M University at Corpus Christi, to fund and provide additional Corpus Christi CBSA air monitoring data. City of Corpus Christi air monitoring includes ozone, NO_x, and wind direction at five air monitoring stations in Nueces and San Patricio Counties using federal equivalent method analyzers with plans to add a future site at the City of Corpus Christi Health Department in 2024-2025. The City of Corpus Christi also partners with the Coastal Bend Air Quality Partnership to display and host the air quality data from the existing five sites. Monthly, the partnership posts ozone and NO_x concentrations from each air monitoring site on their website at [Air Quality Data - Coastal Bend Air Quality Partnership (cbairquality.org)](cbairquality.org). The City of Corpus Christi, through a similar TCEQ grant partnership, is in preliminary discussions to add $PM_{2.5}$ sampling to the area as well. Though the data from these non-regulatory monitors do not meet requirements specified in 40 CFR Part 58 for comparison to the NAAQS, the data provides a more complex understanding of the ozone formation in the region and can support the area's air quality planning decisions. Figure E below illustrates the Coastal Bend Air Quality Partnership monitoring sites, as provided on their website.

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Figure E: Coastal Bend Air Quality Partnership Image of Active Sites

The TCEQ also notes that three air monitoring stations have been deployed in the Gregory-Portland area, further expanding air quality monitoring in San Patricio County, through a public-private partnership between area industry, the Gregory-Portland ISD, the University of Texas at Austin, and independent monitoring contractors. These three air monitoring stations, located at the Gregory-Portland High School, Stephen F. Austin Elementary School, and Old East Cliff Elementary School, measure $PM_{2.5}$, NO_x, SO_2, and 46 speciated VOCs. Data from the stations are provided on a publicly available website, https://gpair.ceer.utexas.edu/. Per the partnership, the University of Texas at Austin provides independent air monitoring data analyses and ensures data are obtained using methods and quality assurance protocols that meet or exceed the EPA's air quality monitoring requirements.

The TCEQ agrees that the EPA has approved all TCEQ preceding Plans, including the Plans submitted in 2022 and 2023, and that the EPA recommended additional air monitoring that was beyond minimum requirements. The TCEQ acknowledges the referenced data collected through the IOBCWA's equivalent passive monitoring network, including SCI, but is unable to identify such a network and only found mention of air monitoring by citizen scientists with sensors on the IOBCWA website (iobcwa.org) that acknowledges a total of 160 members.

The TCEQ acknowledges the expected deployment dates for the Gregory-Portland air quality monitors listed in the AMNP were inconsistent and have changed over time due to resource constraints. The TCEQ continues to evaluate several site options in Portland for the establishment of a new ambient air monitoring site in the Gregory-Portland area and will utilize a variety of factors, including publicly available air quality data along with siting criteria and logistical requirements, to determine the final site location. The TCEQ will work with property owners to establish site usage agreements and deploy the new air quality monitoring site with $PM_{2.5}$ FEM continuous, meteorological, and special purpose, VOCs by canister, monitors by August 31, 2025.

The TCEQ's air monitoring network, which meets all federal requirements, is designed to measure pollutant concentrations that are representative of regional areas. These areas include many communities located near heavily industrialized areas. TCEQ has always met its legal requirements to ensure that the network provides the information necessary to properly monitor and regulate all communities within Texas. The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources. As noted in the introduction, the TCEQ appreciates recent short-term, one-time federal grant opportunities that allow the TCEQ to purchase and upgrade aging air monitoring equipment, but long-term resources to operate and audit air monitors and to validate and quality assure data are necessary for air monitoring expansion. The TCEQ will continue to evaluate Texas air monitoring needs, including those of the Coastal Bend Corpus Christi area, against existing federal monitoring requirements and available short and long-term resources in the 2025 AMNP. Furthermore, the TCEQ will conduct the *Texas 2025 Five-Year Ambient Monitoring Network Assessment* to confirm that the existing network continues to meet the objectives in 40 CFR Part 58, Appendix D and to evaluate whether individual network monitors should be added, relocated, or decommissioned to best understand and evaluate air quality with existing resources. Requests for the TCEQ to ask or apply for additional funding from the Texas Legislature or the Federal Government are outside of the scope of this Plan; however it is important to recognize that any resource request submitted to the Texas Legislature must compete against other state priorities for limited resources and are not guaranteed. Requests for the TCEQ to characterize air emissions for permit compliance are outside of the Plan scope.

Comment 9: Two individuals commented that the 2024 AMNP draft did not include monitoring in Corpus Christi where many people live, work and shop. Both individuals proposed siting $PM_{2.5}$ and ozone monitors at the Texas Department of Transportation office along South Padre Island Drive (SPID), which is close to La Palmera Mall where Corpus Christi citizens spend most of their time. The individuals alternatively proposed relocating the Dona Park and Corpus Christi West air monitoring sites to that area and requested TCEQ to consider the prevailing wind direction in the siting of the new monitor.

One individual noted that there was an increased need of air monitors around the Port of Corpus Christi, particularly in historic neighborhoods like Hillcrest and North Beach, and up the refinery row in Dona Park and Oak Park. The North Beach Community Association (NBCA) requested that air quality monitoring stations be installed to monitor $PM_{2.5}$ and PM_{10}, as well as other potential air contamination in the area between the Inner Harbor industrial plants and the North Beach neighborhood. The NBCA also noted that when the wind blew in from the north and from the west, the wind would flow into the North Beach neighborhood.

Another individual commented on the need for fence-line benzene monitoring in Corpus Christi due to the smell and the need for the area to stay out of a non-attainment designation for benzene. The same individual also recommended that new air monitoring sites be located on the perimeter of potential gas flaring sites based upon the amount of gas flaring observed. The individual requested publicly reported monitoring of both benzene and $PM_{2.5}$ in the Hillcrest and North Beach neighborhoods, as well as the highly trafficked areas of Greenwood & Horne, Everhart and SPID, and the Gregory-Portland area. The individual suggested locating an air monitoring site in the Whataburger Field parking lot and outside area schools to monitor for benzene and $PM_{2.5}$.

Response 9: The TCEQ does not agree with the recommendation to site additional $PM_{2.5}$, PM_{10}, and ozone monitors in the Corpus Christi CBSA beyond those proposed in the Plan. As demonstrated in the Plan, the TCEQ federal air monitoring network in the Corpus Christi CBSA includes three active $PM_{2.5}$ monitors across two sites, two ozone monitors across two sites, and one continuous PM_{10} monitor. The TCEQ currently exceeds the federal requirement for a minimum of one $PM_{2.5}$ monitor and meets the federal requirement for two ozone monitors and zero to one PM_{10} monitor in the Corpus Christi CBSA. An additional site is planned for San Patricio County in the Gregory-Portland area in 2025 with $PM_{2.5}$ continuous, state-initiative VOC by canister, and meteorological monitors.

As noted above in Response 8, the TCEQ also partners with local entities through grant activities, including the City of Corpus Christi and subgrantee, Texas A&M University at Corpus Christi, to fund and provide additional Corpus Christi CBSA air monitoring data. City of Corpus Christi air monitoring includes ozone, NO_x, and wind direction at five air monitoring stations in Nueces and San Patricio Counties using federal equivalent method analyzers with plans to add a future site at the City of Corpus Christi Health Department in 2024-2025. The TCEQ notes that the City of Corpus Christi operates ozone and NO_x air monitoring at the Holly Road site, just a few blocks off SPID and less than one mile from the La Palmera Mall. The City of Corpus Christi partners with the Coastal Bend Air Quality Partnership to display and host the air quality data from the existing five sites. Monthly, the partnership posts ozone and NO_x concentrations from each air monitoring site on their website at Air Quality Data - Coastal Bend Air Quality Partnership (cbairquality.org). The City of Corpus Christi, through a similar TCEQ grant partnership, is in preliminary discussions to add $PM_{2.5}$ sampling to the area as well. Though the data from these non-regulatory monitors do not meet requirements specified in 40 CFR Part 58 for comparison to the NAAQS, the data provides a more complex understanding of the ozone formation in the region and can support the area's air quality planning decisions. Figure E above illustrates the Coastal Bend Air Quality Partnership monitoring sites, as provided on their website.

The TCEQ clarifies that the current TCEQ air monitoring network already includes ambient air monitoring around the Port of Corpus Christi, in the historic neighborhood of Hillcrest and along refinery row in Dona Park. The Dona Park air monitoring station is actively monitoring for PM_{10}, $PM_{2.5}$, VOCs by canister, and meteorological parameters. There are three air monitoring sites in the Hillcrest neighborhood, including Corpus Christi Hillcrest, Corpus Christi Palm, and Williams Park as part of the TCEQ state-initiative monitoring network. These air monitoring stations monitor for VOCs and meteorological parameters, as shown in Figure F below.

The 2024 AMNP also includes ambient air monitoring in Corpus Christi where many people live, work, and shop. For example, the TCEQ Corpus Christi West air monitoring site is located in an area where people live, work, and shop. Figure G shows an aerial overview of the land use within one mile (radius shown in yellow) surrounding the Corpus Christi West air monitoring site with multiple residences, schools, parks, and businesses frequented by members of the public. The wind rose in Figure D shows that the current placement of TCEQ sites will monitor air pollution downwind of the Corpus Christi industrial sector along the ship channel when the prevailing wind blows from the northwest. The TCEQ previously monitored for $PM_{2.5}$ at Corpus Christi West from 2000 to 2013, and due to low annual concentration data, the resource was reallocated. The TCEQ further notes that the Corpus Christi Tuloso air monitoring site northwest of the city center, industry, and shipping channel is also located where many people live, work, and shop, as shown in Figure H. The Corpus Christi Tuloso site is located on public school grounds adjacent to a public park. Other land uses within the one-mile radius (shown in yellow) include residential neighborhoods, townhomes, restaurants, shopping centers, and religious centers.

The TCEQ would also like to clarify that a non-attainment area is an area that exceeds the national ambient air quality standard for one or more criteria pollutants, which include ozone, particulate matter (PM_{10}/$PM_{2.5}$), lead, CO, SO_2, and/or NO_2. Benzene is not a criteria pollutant. The criteria pollutants and their respective limits are defined in the [National Ambient Air Quality Standards](). Under [Title 30 Texas Administrative Code §101.4](), nuisance complaints regarding air contaminant discharges (such as odors) under the TCEQ's jurisdiction can be submitted 24-hours a day on the TCEQ's website [Make an Environmental Complaint – TCEQ](). Comments related to benzene specific fence-line monitoring and real time reporting of gas flaring incidents are outside the scope of this Plan.

The TCEQ continues to evaluate several site options in Portland for the establishment of a new air quality monitoring site in the Gregory-Portland area and will utilize a variety of factors, including publicly available air quality data along with siting criteria and logistical requirements, to determine the final site location. The TCEQ will work with property owners to establish site usage agreements and to deploy the new air quality monitoring site with $PM_{2.5}$ FEM continuous, meteorological, and special purpose VOCs by canister monitors by August 31, 2025.

The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources and for those reasons, cannot satisfy every request for monitoring. The TCEQ will continue to evaluate air monitoring needs with available resources in the Corpus Christi CBSA and no additional changes are recommended at this time.

Appendix M: TCEQ Response to Comments Received on the draft 2024 Annual Monitoring Network Plan

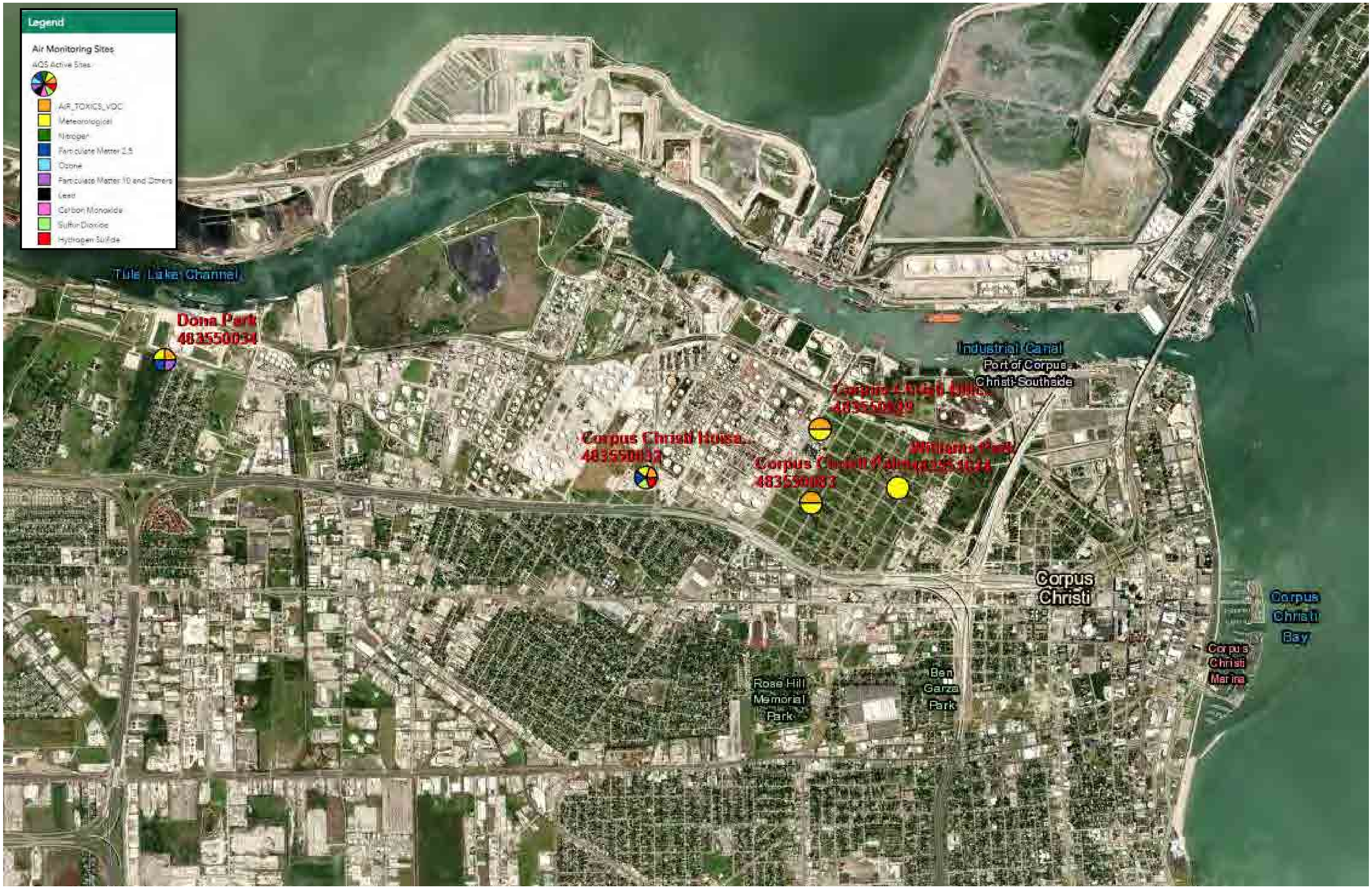

Figure F: Corpus Christi Hillcrest Neighborhood and Dona Park Sites and Monitors

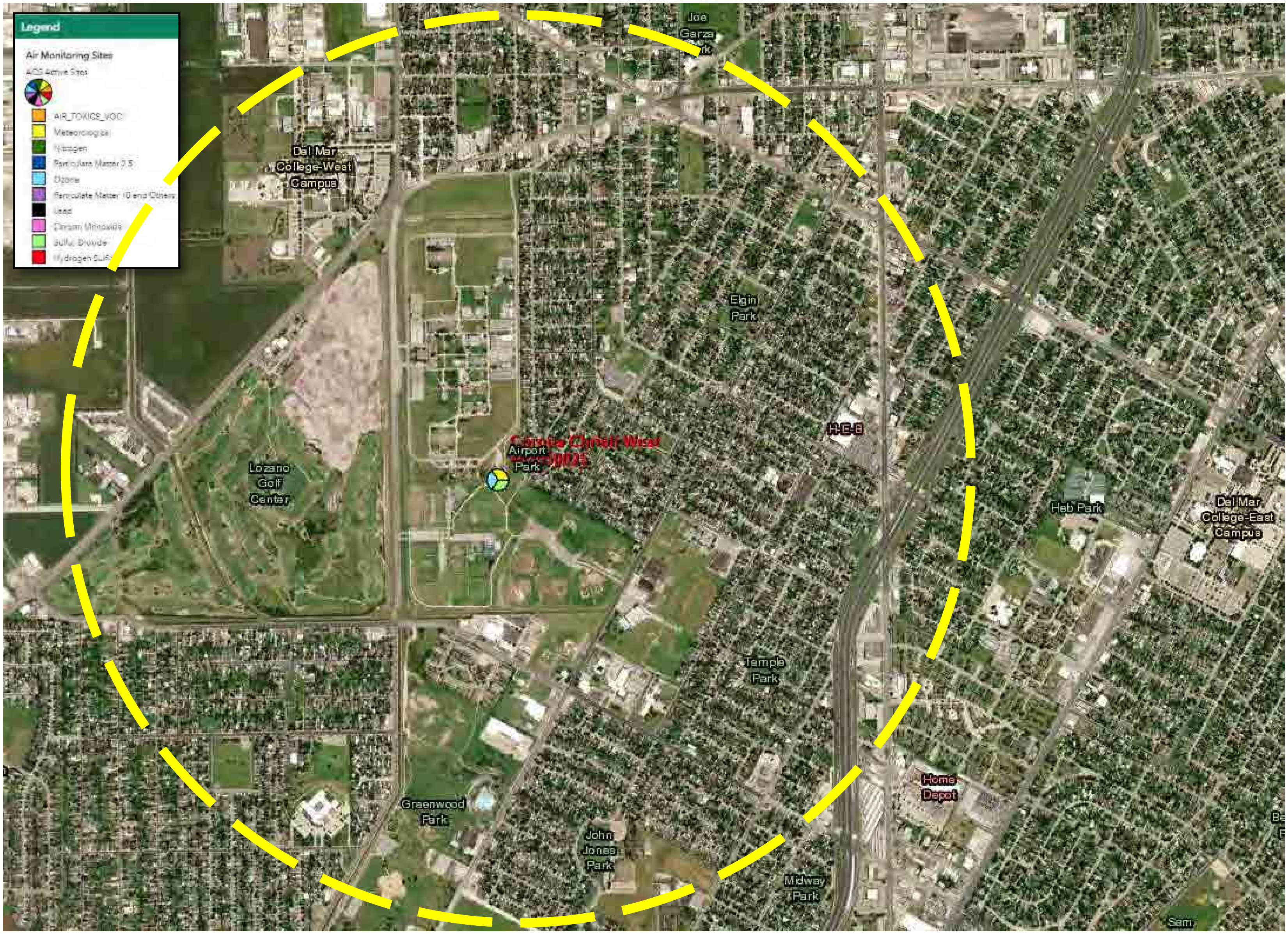

Figure G: Aerial Overview Around the Corpus Christi West Site

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Figure H: Aerial Overview Around the Corpus Christi Tuloso Site

Comment 10: TRAM and CREAM expressed their appreciation for the opportunity to provide written comments and requested the TCEQ improve $PM_{2.5}$ monitoring in areas with significant aggregate production operations (APOs) and concrete batch plants (CBPs). TRAM and CREAM requested the TCEQ increase air monitoring efforts to assess the cumulative impacts of APOs and CBPs on public health and the environment. TRAM also suggested that monitors should be placed downwind of industrial operations to accurately capture emissions and dispersion patterns. TRAM recommended the TCEQ deploy air quality monitors in areas with high concentrations of APOs, including Dallas, Harris, Williamson, and Comal counties.; CREAM requested that the TCEQ add at least one new $PM_{2.5}$ monitor near Sun City and the cluster of APOs and CBPs in the northern portion of Williamson County (Wilco).

CREAM stated the Capital Area Council of Governments (CAPCOG) Regional Air Quality Plan identified substantial gaps in knowledge and the monitoring data for regional $PM_{2.5}$, with limited spatial coverage of $PM_{2.5}$ monitors operated within the region and all located in Travis County. CREAM stated that the northern portion of Wilco has a high concentration of surface mining operations and noted that residents routinely observe fugitive dust. CREAM noted that the EPA's National Emissions Inventory (NEI) does not accurately reflect $PM_{2.5}$ emission estimates for operations which are currently operating in Wilco. CREAM noted the data gap in NEI emission estimates is particularly concerning given the large number of CBPs in the area and their proximity to residential zones. CREAM referenced a study by Indiana University that found that while individual CBPs emit modest amounts of $PM_{2.5}$, their cumulative emissions are substantial, placing CBPs as the 80th most polluting industry. CREAM noted that the EPA expressed concerns that cumulative emissions from CBPs could exceed national air quality standards, especially in areas with multiple plants. CREAM further referenced an EPA recommendation for additional engineering controls for dust suppression measures and the installation of fence-line $PM_{2.5}$ and PM_{10} monitors at all CBPs.

CREAM stated that the Sun City retirement community in Georgetown, Texas faces health concerns due to poor air quality and fine dust from nearby aggregate production operations (APOs) and concrete batch plants (CBPs). CREAM noted the proximity of multiple quarries and CBPs to residential areas, particularly in Sun City, which highlighted the need for better regulation and monitoring to protect the health of this sensitive population.

CREAM acknowledged that the TCEQ currently operates multiple regulatory $PM_{2.5}$ monitors in Travis County and Bell County; however, none are suitable to determine Wilco's (Williamson County's) attainment status with the NAAQS for $PM_{2.5}$. CREAM noted that further air monitoring would be needed in response to the reduction of the $PM_{2.5}$ NAAQS. CREAM acknowledged that the TCEQ operates one $PM_{2.5}$ air quality monitor located in Jarrell, which was installed in July 2020 as part of an enforcement action. CREAM notes that the Jarrell monitor was intended to be deployed for 90 days but has been in operation for over 3 years; CREAM is unsure of what TCEQ intends to do with this $PM_{2.5}$ monitor since it has exceeded its initial deployment timeframe. CREAM stated that monitoring data from the Jarrell monitor showed the annual $PM_{2.5}$ levels exceeded the primary $PM_{2.5}$ NAAQS in 2022, and that $PM_{2.5}$ levels surpassed the 24-hour limit on five occasions between 2022 to 2024 and were close to the limit on two other occasions. CREAM also referenced a 2023 TCEQ report on PM emissions from APO facilities which indicated that while PM_4 crystalline silica levels were below harmful thresholds, $PM_{2.5}$ levels often exceeded safe limits.

CREAM acknowledged that the TCEQ does not use the Purple Air monitors for regulatory decisions. However, CREAM suggested that they could use the data from Purple Air monitors at Georgetown Municipal Airport and Lake Georgetown when making decisions about where to place new regulatory $PM_{2.5}$ monitors. CREAM also commented that the TCEQ should consider data (both corrected and uncorrected) from a University of Texas in Dallas sensor installed in Live Oak Park when making a decision about placement of a new $PM_{2.5}$ monitor in Wilco.

CREAM additionally requested the TCEQ to engage in discussions with the community about the current data, as the results from a CREAM panel discussion with residents and online survey indicated concerns with the adverse impacts of fugitive dust from APOs. CREAM expressed willingness to further engage with TCEQ in future decision-making processes.

Response 10: The TCEQ appreciates the recommendations to improve $PM_{2.5}$ monitoring in areas with significant aggregate APOs and CBPs. As stated in the introduction, the 2024 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. The TCEQ meets or exceeds particulate matter federal air monitoring requirements under 40 CFR Part 58 in the Dallas-Fort Worth-Arlington, Houston, San Antonio-New Braunfels, and Austin-Round Rock-San Marcos CBSAs. The TCEQ clarifies that federal monitoring regulations do not require ambient air monitors in every county in a CBSA. The TCEQ notes that Williamson County is part of the Austin-Round Rock-San Marcos CBSA along with Travis, Hays, Caldwell, and Bastrop, and this area is meeting all federal monitoring requirements. The TCEQ strengthened the Texas $PM_{2.5}$ monitoring network by adding/relocating four air quality monitoring sites in Comal County, north and south Bexar County, and in Atascosa County in late 2019 and 2020 to monitor regional PM concentrations in areas with multiple APOs. The TCEQ also added two $PM_{2.5}$ monitors to existing sites in the Houston CBSA to expand spatial coverage in areas with high predicted concentrations of PM in 2021 and 2022 and has two new air quality monitoring sites with $PM_{2.5}$ monitoring under development. Additionally, the TCEQ added an additional Dallas County PM monitoring site in 2022.

The TCEQ air monitoring network is designed to measure pollutant concentrations for assessing regional air quality representative of areas frequented by the public and to provide information about compliance with the NAAQS. Monitors can measure the impact on air quality from industrial sources present in an area but do not generally capture emissions and/or dispersion patterns from individual sources.

The TCEQ acknowledges the data collected through the Purple Air $PM_{2.5}$ sensors in Williamson County and data collected by the University of Texas in Dallas sensor at Live Oak. These sensors are not federal reference or equivalent methods and, as noted by CREAM, tend to produce data of a higher concentration when compared to regulatory-grade monitors. Additionally, the Purple Air sensors collect and report instantaneous measurements that are not appropriate for comparison to the 24-hour or annual average federal standards.

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As shown in the 2024 AMNP Appendix C, the TCEQ meets or exceeds particulate matter federal air monitoring requirements under 40 CFR Part 58 in the Dallas-Fort Worth-Arlington, Houston, San Antonio-New Braunfels, and Austin-Round Rock-San Marcos CBSAs. The TCEQ clarifies that federal monitoring regulations do not require ambient air monitors in every county in a CBSA. The TCEQ notes that Williamson County is part of the Austin-Round Rock-San Marcos CBSA along with Travis, Hays, Caldwell, and Bastrop, and this area is meeting all federal monitoring requirements. The TCEQ strengthened the Texas $PM_{2.5}$ monitoring network by adding/relocating four air quality monitoring sites in Comal County, north and south Bexar County, and in Atascosa County in late 2019 and 2020 to monitor regional PM concentrations in areas with multiple APOs. The TCEQ also added two $PM_{2.5}$ monitors to existing sites in the Houston CBSA to expand spatial coverage in areas with high predicted concentrations of PM in 2021 and 2022 and has two new air quality monitoring sites with $PM_{2.5}$ monitoring under development. Additionally, the TCEQ added an additional Dallas County PM monitoring site in 2022.

The TCEQ does not agree with the commenter's comparison of the Jarrell FM487 monitor data to the $PM_{2.5}$ primary and 24-hour NAAQS. The EPA revised the 2024 primary $PM_{2.5}$ NAAQS to 9.0 $\mu g/m^3$ with no revision to how the design value was calculated, i.e. the annual arithmetic mean, averaged over three consecutive years. The EPA maintained the level of the 2012 24-hour $PM_{2.5}$ NAAQS at 35 $\mu g/m^3$ with the design value calculated as the annual 98th percentile of the daily concentration values, averaged over three consecutive years. The commenter's claim that the Jarrell FM487 monitoring data showed the annual $PM_{2.5}$ levels exceeded the primary $PM_{2.5}$ NAAQS in 2022 is based on an inappropriate comparison of only one year of data to the $PM_{2.5}$ NAAQS. In addition, statements regarding concentrations exceeding $PM_{2.5}$ 24-hour levels do not constitute a NAAQS exceedance since the standard is based on the annual 98th percentile of the daily concentration values averaged of three consecutive years. More information regarding design value calculations and federal requirements can be found at Air Quality Design Values | US EPA.

The TCEQ would like to further clarify that the Jarrell FM487 monitor was not deployed as a result of an enforcement action but was sited on a temporary basis to assess local air quality impacts of nearby particulate matter sources. Jarrell FM487 $PM_{2.5}$ data trend well with the other three regional $PM_{2.5}$ monitors within the Austin-Round Rock-San Marcos CBSA, and mean daily concentrations are generally below that of the other regional monitors. The TCEQ continues to evaluate $PM_{2.5}$ monitoring data from the state-initiative Jarrell FM487 monitor, and air monitoring data from the site is publicly accessible on the (TAMIS) webpage.

The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources, and for those reasons, cannot always satisfy every monitoring request. However, the TCEQ will continue to evaluate air monitoring needs in Dallas, Harris, Williamson, and Comal counties against existing federal monitoring requirements and available resources. Comments related to engineering controls for dust suppression, CBP fence-line monitoring requirements, and undercounted emissions inventory reports and estimates are outside the scope of this Plan. Additionally, comments related to $PM_{2.5}$ monitoring improvement plans, gaps in the CAPCOG's Regional Air Quality Plan, are beyond the scope of this Plan.

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Comment 11: One individual noted that a recently built plant that moved in on them was causing the individual medical problems including issues with breathing, sleeping, and thinking.

Response 11: The TCEQ appreciates the comment on recent industry development, however, additional information is necessary to provide a detailed response. Under [Title 30 Texas Administrative Code §101.4](), nuisance environmental complaints under the TCEQ's jurisdiction can be submitted 24-hours a day on the TCEQ's website [Make an Environmental Complaint – TCEQ]().

Comment 12: EIP expressed its appreciation for the opportunity to submit comments and noted that the monitoring network provided crucial data to understand pollution sources and health risks facing nearby communities. EIP stated that no other sources provided high-quality, verifiable air quality data that could provide checks on inventory reports which often undercount emissions. EIP commented that considering the rapid expansion of oil and gas production throughout the Texas's Permian Basin, the lack of ozone monitoring was unacceptable. EIP requested the TCEQ implement EPA's recommendations for installation of additional monitoring for ozone and its precursors, NO_x and VOCs, in the Permian Basin. The additional monitoring would achieve a comprehensive ozone monitoring program and would better protect public health of Texans living in the Permian Basin.

Response 12: The TCEQ appreciates the commenter's appreciation and ambient air monitoring support but disagrees with the statement regarding additional ozone monitoring in the Texas Permian Basin. Federal ozone monitoring requirements are triggered by the MSA population based on the latest available census figures (see 40 CFR Part 58.50(c) and Table D-2 of 40 CFR Part 58, Appendix D). The Texas Permian Basin contains two MSAs, Odessa and Midland, as delineated by the Federal Office of Management and Budget (OMB). The 2022 United States Census Bureau population estimates indicate the Odessa and Midland MSAs have estimated populations of 160,869 and 177,216, respectively. The individual MSA populations do not trigger ozone monitoring requirements (MSA populations with greater than 350,000 persons). Expansion of oil and gas production does not require installation and monitoring of ozone and its precursors (NO_x and VOCs). The purpose of the 2024 AMNP is to demonstrate how the TCEQ air monitoring network complies with federal monitoring requirements detailed in 40 CFR Part 58. TCEQ meets federal ozone monitoring requirements for the MSAs in the Permian Basin area, as detailed in the 2024 AMNP and Appendix C of this Plan, and no additional changes are recommended at this time.

As stated in the introduction, state-initiative monitoring is not included in this Plan; however, the TCEQ deployed three Permian Basin state-initiative air monitoring sites that continuously monitor for VOCs, SO_2, and H_2S in Goldsmith, Odessa, and Midland in 2020 and 2021. In addition, the TCEQ operated a non-continuous VOC canister monitor at the Odessa Hays air monitoring site from 1993 to 1999, a continuous VOC monitor from 1999 to 2015, and currently operates a non-continuous VOC canister monitor since 2015. The Permian Basin state-initiative air monitoring sites are illustrated above in Figure C. The latest information regarding the Texas air monitoring network and monitoring data, including information on the Permian Basin sites, are available on the TCEQ webpage [TCEQ Air Quality and Monitoring](). Comments related to undercounted emissions inventory reports are outside the scope of this Plan.

Comment 13: EIP commented that TCEQ should improve monitoring in Houston for ozone and its precursors, especially in environmental justice communities. The EIP noted that the 2022 attainment status reclassification from serious to severe in the Houston-Galveston-Brazoria (HGB) region showed that more action is needed to address local ozone pollution. The EIP encouraged TCEQ to consider additional monitoring to provide a more complex understanding of the ozone formation drivers in the region. The EIP also commented that the TCEQ should consider collocating ozone monitors with NO_x and VOC monitors at sites that regularly exceed federal standards.

Response 13: The TCEQ does not agree with these comments. The TCEQ is federally required to operate a minimum of four ozone monitors in the Houston-Pasadena-The Woodlands (Houston) MSA and currently operates 21 ozone monitors. The TCEQ also collocates additional ozone precursor monitors at 16 of the 21 ozone monitoring sites. Ozone monitoring sites are listed in Table A below with ozone precursor monitors including: NO_x or NO_2 direct monitors, total reactive nitrogen oxides (NO_y) monitors, carbonyl monitors, and continuous VOCs by autoGC.

Table A: TCEQ Houston Area Ozone and Ozone Precursor Monitors

TCEQ Air Monitoring Site Name	Ozone	NO_x or NO_2	NO_y	VOCs	Carbonyl
Baytown Garth	✓				
Channelview	✓	✓		✓	
Clinton	✓	✓		✓	✓
Conroe Relocated	✓	✓			
Galveston 99th Street	✓	✓			
Houston Aldine	✓	✓	✓		
Houston Bayland Park	✓	✓			
Houston Croquet	✓				
Houston Deer Park #2	✓	✓	✓	✓	✓
Houston East	✓	✓		Non-continuous	
Houston Harvard Street	✓	✓			
Houston Monroe	✓				
Houston North Wayside	✓				
Houston Westhollow	✓				
Lake Jackson	✓	✓		Non-TCEQ	
Lang	✓	✓			
Lynchburg Ferry	✓	✓		Non-TCEQ	
Manvel Croix Park	✓	✓			
Northwest Harris County	✓	✓			
Park Place	✓	✓			
Seabrook Friendship Park	✓	✓			

NO_2 – nitrogen dioxide
NO_x – oxides of nitrogen
NO_y – total reactive nitrogen oxides
TCEQ – Texas Commission on Environmental Quality
VOC – volatile organic compounds by automated gas chromatograph, unless otherwise specified

As stated in the introduction, state-initiative monitoring is not included in this Plan. However, the TCEQ and its monitoring partners (city, county, private, and industry) also operate a robust network of non-federal state-initiative monitors that support a variety of purposes, including measurements for ozone and its precursors. TCEQ monitoring partners support the area with 22 additional non-regulatory ozone monitors in the Houston MSA (ozone monitors are indicated with a light blue section above in Figure B). Though the data from these non-regulatory monitors do not meet requirements specified in 40 CFR Part 58 for comparison to the NAAQS, the data does provide support for understanding ozone formation and can support the area's air quality planning decisions. Data from these additional non-federal state-initiative monitors are located on the TCEQ TAMIS webpage.

The TCEQ's air monitoring network, which meets all federal requirements, is designed to measure pollutant concentrations that are representative of regional areas. These areas include many minority and low-income communities located near heavily industrialized areas. TCEQ has always met its legal requirements to ensure that the network provides the information necessary to properly monitor and regulate all communities within Texas. Comments related to attainment status reclassification and actions to address local ozone pollution are beyond the scope of this Plan. The TCEQ greatly exceeds ozone monitoring requirements in the Houston MSA, and no additional changes are recommended at this time.

Comment 14: The EIP commented that TCEQ should increase the number of carbonyl monitoring sites to better understand ozone formation and concentrations of ozone precursors in the HGB area. The EIP further commented that that the TCEQ should add carbonyl monitors to sites with existing VOC monitors, allowing for a complete reactivity weighted assessment of the contribution of VOCs to ozone formation.

Response 14: The TCEQ does not agree with the EIP comment that additional carbonyl monitors are needed in the Houston MSA (or HGB area). The TCEQ Photochemical Assessment Monitoring Stations (PAMS) network is designed to meet federal requirements and support enhanced ozone and ozone precursor monitoring activities. The TCEQ emphasizes that TCEQ PAMS monitoring exceeds minimum monitoring requirements in the Houston MSA. The TCEQ is federally required to operate one carbonyl monitor to meet PAMS requirements at Houston Deer Park number (#)2 and exceeds this requirement with a second carbonyl monitor at the Clinton air monitoring site. The TCEQ enhanced ozone and ozone precursor monitors are detailed above in Table A. The TCEQ exceeds PAMS carbonyl sampling requirements in the Houston MSA, and no additional changes are recommended at this time.

Comment 15: EIP noted support for the planned new $PM_{2.5}$ monitoring sites in the Houston Fifth Ward, Houston Pleasantville neighborhood, and in Gregory-Portland and encouraged the TCEQ to complete their installation without further delay. EIP called on the TCEQ to identify and expand air monitoring to additional communities at elevated risk from $PM_{2.5}$ exposure. EIP commented that the TCEQ must not overlook community monitoring data collected in the Houston Sunnyside neighborhood and the well-founded requests for regulatory-grade monitoring. EIP commented that the TCEQ ought to take action to reduce $PM_{2.5}$ emissions where regulatory monitoring was not yet being conducted.

Response 15: The TCEQ appreciates the support for the pending new $PM_{2.5}$ monitoring sites in the Houston Fifth Ward, Houston Pleasantville neighborhood, and in Gregory-Portland. The TCEQ is experiencing delays obtaining permits and obtaining written permission for property usage at the Houston Pleasantville Elementary site and Houston Fifth Ward site at Finnigan Park, respectively. The TCEQ is actively addressing these challenges with the City of Houston.

As stated in the introduction, the 2024 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. Air monitoring sites are generally placed to be representative of regional air quality, rather than monitoring emissions from specific sources. The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources and for those reasons, cannot always satisfy every monitoring request. However, the TCEQ will continue to evaluate air monitoring requests for the Houston Sunnyside neighborhood against federal requirements and available resources.

Comment 16: EIP commented that TCEQ should transparently incorporate a review of all data available to support monitor siting decisions, including data generated by community-based monitoring projects and particularly in environmental justice communities. The EIP commented that TCEQ should act swiftly to incorporate new monitors when a need is identified. The EIP encouraged TCEQ to continue to use data generated outside of its regulatory monitoring network and stated TCEQ should consider data being collected in San Patricio County for the planned Gregory-Portland monitor.

Response 16: The TCEQ appreciates the recommendations regarding monitor siting decisions. Placement of air monitors is determined consistent with federal air monitoring rules using population trends, reported emissions inventory data, local meteorological data, and, if available, existing air monitoring data for a given area. The TCEQ then evaluates monitoring site locations that would appropriately and sufficiently characterize regional air quality in an area. The TCEQ collectively considers predominant wind flow, property owner agreement, and logistical constraints, such as space, power availability, terrain, grade, and drainage. The TCEQ ensures the potential site locations comply with the federal requirements listed in 40 CFR Part 58, Appendix E regarding siting criteria.

Locating an air monitoring station is a complex process requiring many independent steps. Finding a suitable location that meets federal siting requirements and logistical constraints (listed above) with an agreeable property owner presents a significant challenge. To ensure data continuity and availability to the public, the TCEQ seeks locations that are viable for an extended timeframe due to the extensive amount of time and cost associated with locating an air monitoring site. Once a viable site is identified with an amenable property owner, the TCEQ must obtain EPA concurrence, procure the site preparation construction, obtain construction permits, and finally construct the site. Each individual step can take between two and six months to complete, and even longer in some cases. The TCEQ clarifies that the complex site deployment process requires many months and frequently extends beyond one year.

The TCEQ is currently evaluating site options for the establishment of a new ambient air monitoring site in the Gregory-Portland area and plans to use publicly available air monitoring data and sites to recommend placement. The TCEQ continues to work with property owners to establish site usage agreements and to deploy the special purpose monitors by August 31, 2025. The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources.

The TCEQ also notes that three air monitoring stations have been deployed in the Gregory-Portland area through a public-private partnership between area industry, the Gregory-Portland ISD, the University of Texas at Austin, and independent monitoring contractors. These three air monitoring stations, located at the Gregory High School, Stephen F. Austin Elementary, and at the Old East Cliff Elementary School, measure $PM_{2.5}$, NO_x, SO_2, and 46 speciated VOCs. Data from the stations are provided on a publicly available website, https://gpair.ceer.utexas.edu/. Per the partnership, the University of Texas at Austin provides independent air monitoring data analyses and ensures data are obtained using methods and quality assurance protocols that meet or exceed the EPA's air quality monitoring requirements.

Comment 17: The LSLA commented that the TCEQ should view the 2024 AMNP as an important opportunity to fulfill TCEQ's obligations under Title VI of the Civil Rights Act of 1964. The LSLA commented that TCEQ has an obligation to monitor "at-risk" communities differently and TCEQ should have monitoring stations sited near sources in at-risk communities. The LSLA commented that the communities discussed in their comments are proximate to air pollution sources and face social and economic factors which raise health and healthcare challenges.

Response 17: The TCEQ's air monitoring network, which meets all federal requirements, is designed to measure pollutant concentrations that are representative of regional areas. These areas include many minority and low-income communities located near heavily industrialized areas. TCEQ has always met its legal requirements to ensure that the network provides the information necessary to properly monitor and regulate all communities within Texas.

C**omment 18:** LSLA commented that it was crucial that West Port Arthur have accurate and appropriate air monitoring due to its vulnerability and susceptibility to air pollution harms. The LSLA commented they repeatedly raised concern that the Port Arthur West 7th Street Gate 2 monitor, used to fulfill Data Requirements Rule (DRR) requirements for Oxbow Calcining, does not adequately capture the highest SO_2 levels, particularly in light of Oxbow Calcining's modifications to its plant. The LSLA noted that the Port Arthur West 7th Street Gate SO_2 monitor is not located at one of the highest ranked modeled receptors (and attached the TCEQ image of top 10 ranked receptors as LSLA Figure 49). The LSLA commented that the TCEQ must include a better placed monitor(s) near and around Oxbow: to comply with the DRR, ensure SO_2 levels in Port Arthur are not exceeding the NAAQS, and to fully reflect the reality of emissions in the area.

Response 18: The TCEQ does not agree with these comments. The TCEQ performed additional modeling in July 2019 based on the current permitted Oxbow emissions (accounting for Oxbow's modified operations, stack parameters, and recent meteorological data). The 2019 model followed the recommended procedures outlined in the EPA's *SO_2 NAAQS Designations Source-Oriented Monitoring Technical Assistance Document* using the EPA's recommended AERMOD modeling system. The 2019 model showed that the site location at Port Arthur West 7th Street Gate 2 (shown in Figure I) was predicted to monitor concentrations 91% to 100% relative to the maximum normalized design value (NDV) concentration. Areas south of the facility, where the model indicated locations likely to experience both high NDV and high frequencies of one-hour daily maximum concentrations during favorable wind conditions, were not viable for a monitoring site due to property access restrictions or lack of available power.

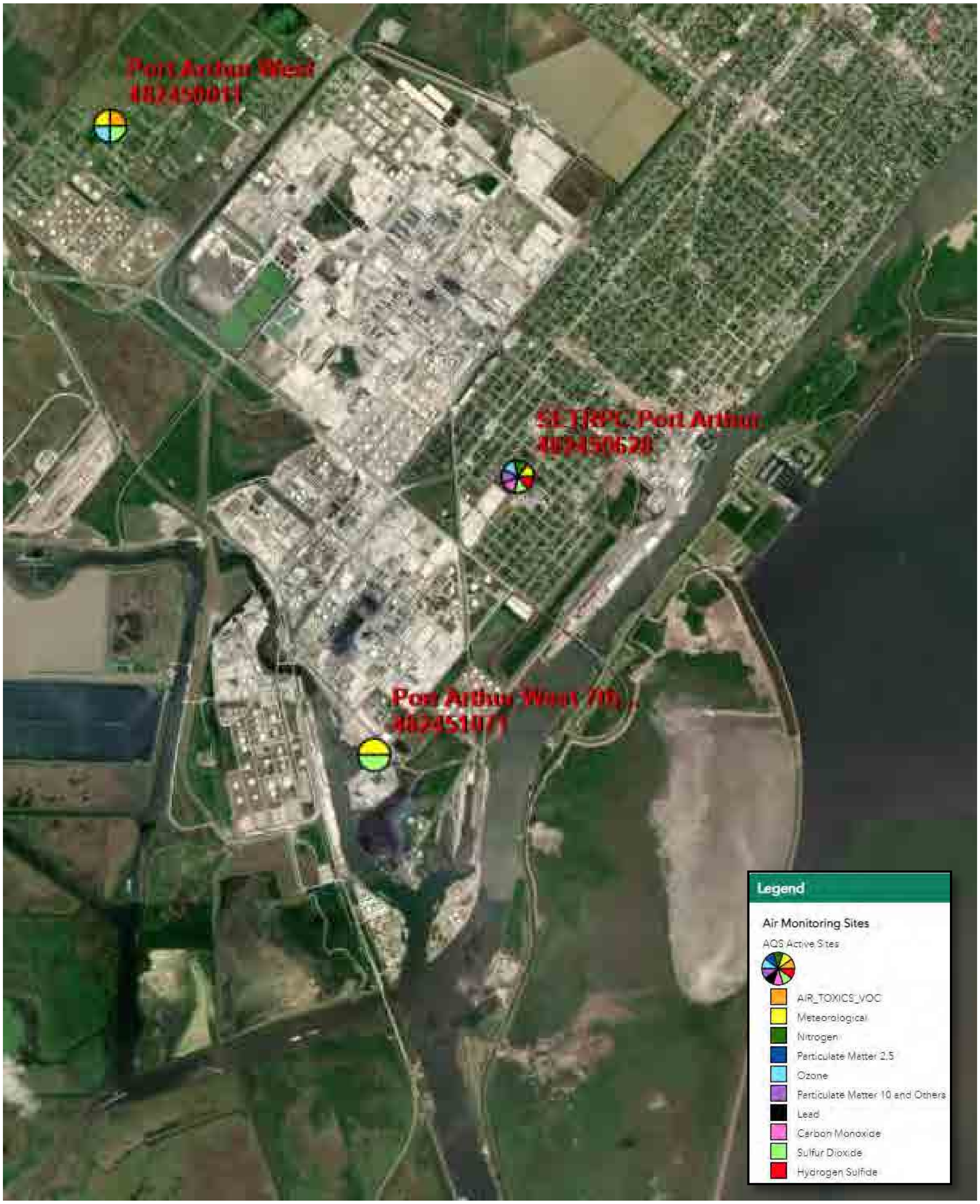

Figure I: Port Arthur West 7th Street Gate 2 Air Monitoring Site Location

Appendix M: TCEQ Response to Comments Received on the draft 2024 Annual Monitoring Network Plan

The TCEQ emphasizes that the location of the Port Arthur West 7th Street Gate 2 air monitoring site (Figure I) is located directly adjacent to the number one top receptor predicted to exceed the SO_2 NAAQS. The top ten ranked receptors are illustrated below in Figure J. The areas surrounding the remaining receptors, numbered 2-10, were not viable for an air monitoring site due to property access restrictions or lack of available power. The TCEQ is in compliance with the DRR as evidenced by the EPA approval of the current location in a letter dated August 23, 2019, and no additional changes are recommended at this time.

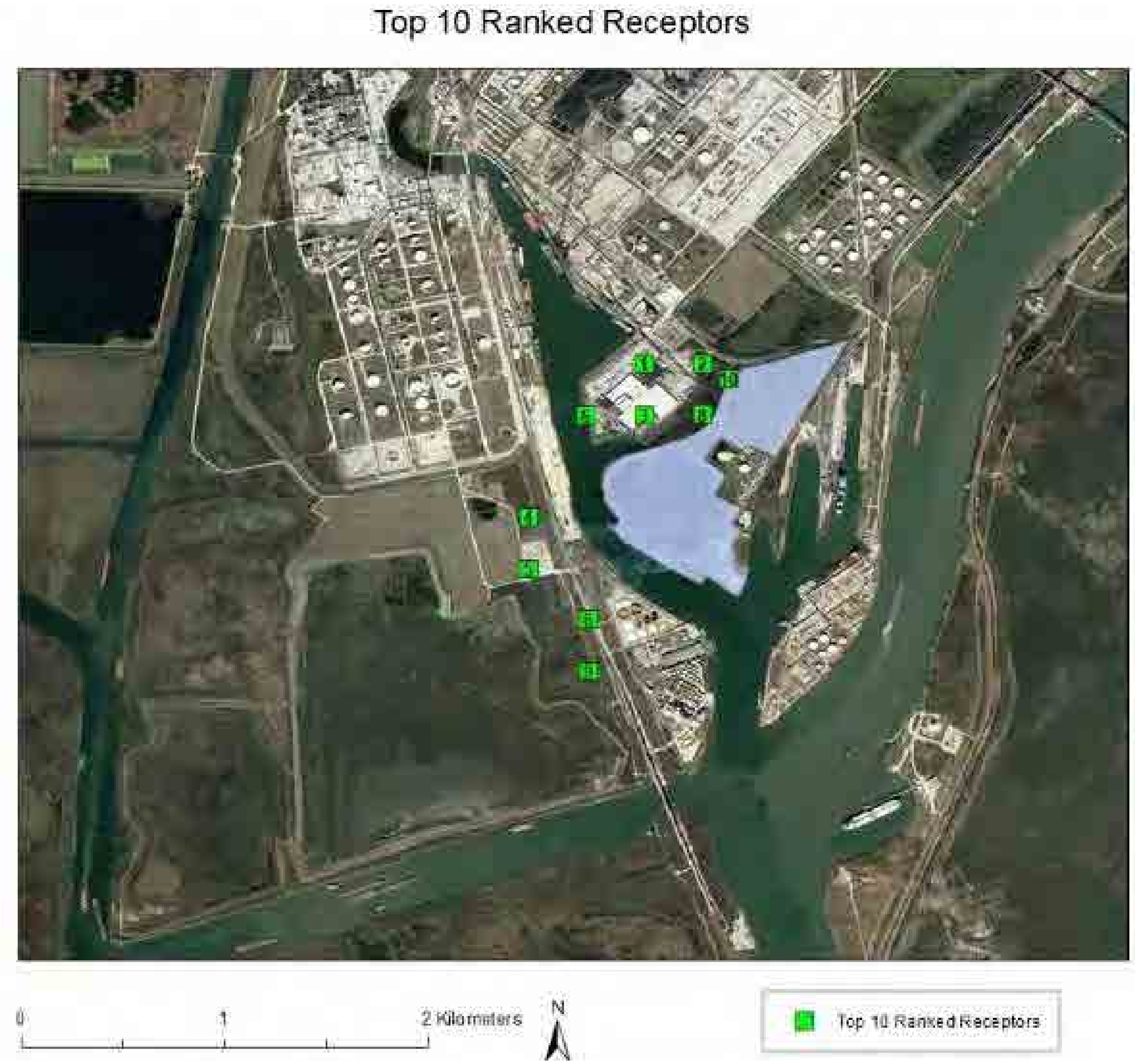

Figure J: TCEQ 2019 Modeling Analysis Top Ten Ranked Receptors

In addition to the TCEQ air monitors in the area, the TCEQ monitoring partner, South East Texas Regional Planning Commission (SETRPC), supports ambient air monitoring at the nearby SETRPC Port Arthur site (shown in Figure I above) with CO, H_2S, NO_2, SO_2, ozone, PM_{10}, and $PM_{2.5}$ non-regulatory monitors. The SETRPC Port Arthur air monitoring site is located where industry intersects the community adjacent to Abraham Lincoln Middle School. Though the data from these non-regulatory monitors do not meet requirements specified in 40 CFR Part 58 for comparison to the NAAQS, the TCEQ considers the data from monitoring partners as additional supporting information. Data from these additional monitors are publicly available on the TCEQ TAMIS webpage.

Comment 19: LSLA commented that the Beaumont Mary monitor, in central Beaumont near Charlton-Pollard, measured hydrogen sulfide and VOCs. LSLA noted this was good and believed NO_x and CO monitoring were warranted under the federal air monitoring regulations at the Beaumont Mary site. LSLA commented a NO_x monitor should be required at the existing Beaumont Mary monitoring site or along the nearby Interstate 10 corridor through central Beaumont. LSLA stated the Beaumont Interstate 10 corridor was both “susceptible and vulnerable” and had high annual average daily traffic (AADT) and other notable NO_x sources and included a footnote reference to 40 CFR Part 58, Appendix D, § 4.3.4(b). LSLA recognized that the Beaumont Downtown monitor measured NO_x, but stated it was not located in or near residential areas and was far from Interstate 10 and upwind of area local sources. LSLA noted the Charlton-Pollard area in Beaumont was downwind of several large point sources of NO_x emissions and adjacent to mobile sources such as road traffic, railroads, and ships and activities at the Port of Beaumont.

Response 19: The TCEQ is required to operate one NO_x monitor in the Beaumont-Port Arthur (BPA) CBSA supporting Regional Administrator (RA-40) requirements as listed in 40 CFR Part 58, Appendix D, § 3.4.3(b) and exceeds the requirement with four NO_x monitors. The current RA-40 NO_x monitor in Nederland was approved by the EPA Regional Administrator as meeting the RA-40 federal monitoring objectives. The BPA CBSA Beaumont Downtown, Hamshire, Nederland 17th Street, and West Orange NO_x monitors continue to meet their monitoring objectives and support regional air quality needs for Beaumont and the surrounding areas. Figure K below identifies the TCEQ BPA area NO_x monitors with a green section.

Near-road NO_x federal monitoring requirements under 40 CFR Part 58, Appendix D, Section 4.3.2, require one microscale near-road NO_x monitor located near a major road in each Core Based Statistical Areas (CBSAs) with a population of 1,000,000 or more persons. The most current estimated population for the Beaumont-Port Arthur CBSA is 393,575, well below the population level required for a near-road monitor. The EPA has concurred with the TCEQ review of Texas CBSA populations in past TCEQ AMNPs to assess and establish the required near-road monitors. The TCEQ is meeting federal requirements for near-road monitors and no further changes are recommended.

The TCEQ and its monitoring partners (city, county, private, and industry) also operate a robust network of non-federal state-initiative monitors that support a variety of purposes, including measurements for ozone and its precursors like NO_x. TCEQ monitoring partners support the area with four additional non-regulatory NO_x monitors in Beaumont-Port Arthur. Though the data from these non-regulatory monitors do not meet requirements specified in 40 CFR Part 58 for comparison to the NAAQS, the TCEQ considers the data as supporting information for the area’s air quality decisions. Data from these additional NO_x monitors are located on the TCEQ TAMIS webpage.

Appendix M: TCEQ Response to Comments Received on the draft 2024 Annual Monitoring Network Plan

The TCEQ air monitoring network is designed to measure pollutant concentrations for assessing regional air quality representative of areas frequented by the public and to provide information about compliance with the NAAQS. Monitors can measure the impact on air quality from industrial sources present in an area, but do not generally measure the emissions from individual sources. The TCEQ does not agree with the comment that NO_x monitors should be added Beaumont to achieve monitoring network objectives and no additional changes are recommended at this time.

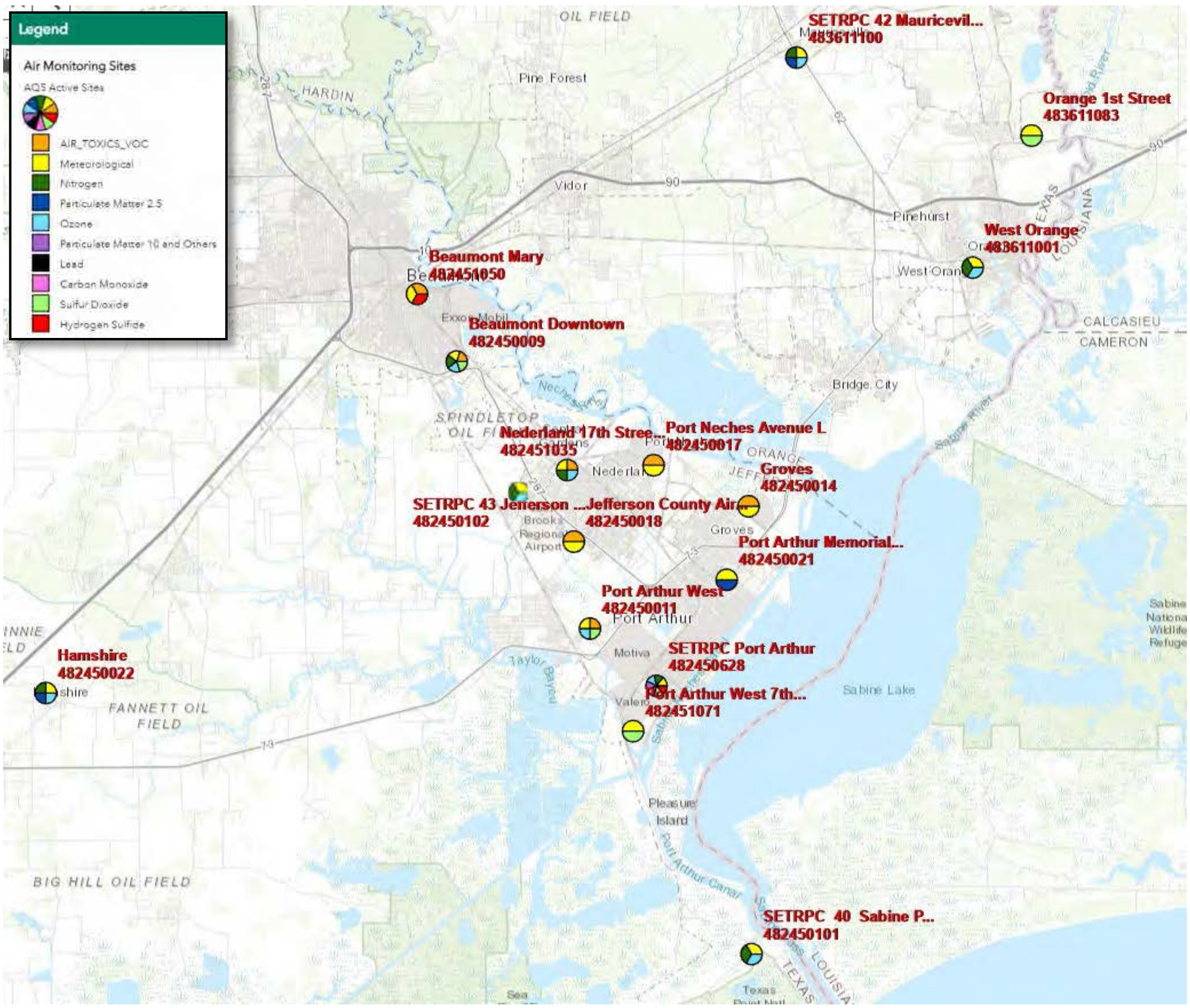

Figure K: Beaumont-Port Arthur Sites and Ambient Air Monitors

Comment 20: LSLA commented TCEQ is required to place 0-1 PM_{10} monitors in the Beaumont-Port Arthur area. The Draft AMNP proposes 0 such monitors in the area as part of the plan, rather than electing to place at least 1. LSLA commented that a PM_{10} monitor should be located at the Beaumont Mary site or a new near-road monitor located near Interstate-10 (discussed in the comment listed above). LSLA commented that Charlton-Pollard neighborhood and the East Side of Beaumont meet the criteria for Neighborhood Scale PM monitoring. LSLA noted Interstate 10 through downtown Beaumont was one of the state's busier roadways and the area had numerous other PM sources including many railroads, the Port of Beaumont, and major industrial facilities.

Response 20: Federal regulations require PM_{10} monitoring in MSAs based on population and available measured concentration. Federal PM_{10} monitoring regulations provide flexibility regarding the number of required monitors since sources of pollutants and local control efforts can vary across the country. Federal regulations further note that the selection of an urban area and actual numbers of PM_{10} monitors per area is to be jointly determined by EPA and the state agency. The TCEQ, in conjunction with the EPA, determined that several areas in Texas meet the flexible requirements without having additional PM_{10} monitors in the Beaumont-Port Arthur area. The TCEQ air monitoring network is designed to measure pollutant concentrations for assessing regional air quality representative of areas frequented by the public and to provide information about compliance with the NAAQS. Monitors can measure the impact on air quality from industrial sources present in an area, but do not generally measure the emissions from individual sources. The TCEQ previously monitored for PM_{10} at Beaumont Downtown from 1989 to 1996, and due to low annual concentration data, the resource was reallocated. The TCEQ monitoring partner, SETRPC, supports ambient air monitoring at SETRPC Port Arthur (site shown in Figures I and K above) with PM_{10} and $PM_{2.5}$ non-regulatory monitors, among others. Though the data from these non-regulatory monitors do not meet requirements specified in 40 CFR Part 58 for comparison to the NAAQS, the TCEQ considers the data from monitoring partners as additional supporting. Data from these additional monitors are publicly available on the [TCEQ TAMIS webpage].

Current $PM_{2.5}$ monitors provide data supporting area-wide particulate matter air quality throughout the MSA. As shown in the 2024 AMNP, the TCEQ is meeting or exceeding federal requirements for PM_{10} and $PM_{2.5}$ monitoring. The TCEQ does not agree with the comment that a PM_{10} monitor should be added Beaumont to achieve monitoring network objectives and no additional changes are recommended at this time.

Comment 21: LSLA commented that the single monitor in the City of Pasadena does not monitor ozone and the nearest ozone monitors were at Park Place, Clinton Drive, Houston Monroe, Seabrook Friendship Park, and Houston Deer Park #2. LSLA noted that Pasadena residents cannot know their exposure levels to ozone without a monitor. LSLA commented that TCEQ should place an ozone-specific monitor in Pasadena to ensure Pasadena residents can address a vital health, safety, and environmental issue that is otherwise undocumented in the area.

Response 21: The TCEQ does not agree with these comments. The TCEQ is federally required to operate a minimum of four ozone monitors in the Houston MSA and currently operates 21 ozone monitors. As stated in the introduction, state-initiative monitoring is not included in this Plan. However, the TCEQ and its monitoring partners (city, county, private, and industry) also operate a robust network of non-federal state-initiative monitors that support a variety of purposes, including measurements for ozone and its precursors. TCEQ monitoring partners support the Houston MSA with 22 additional non-regulatory ozone monitors (Houston MSA ozone monitors are illustrated in Figure L with a light blue circle). Though the data from these non-regulatory monitors do not meet the requirements specified in 40 CFR Part 58 for comparison to the NAAQS, the data provides a more complex understanding of the ozone formation drivers in the region and can support the area's air quality decisions.

Data from these additional non-federal state-initiative monitors are located on the TCEQ TAMIS webpage.

Federal air monitoring sites are generally placed to be representative of regional air quality and the lack of a certain pollutant monitor does not indicate a lack of information for an area. While air monitoring data can vary slightly from one site to another, TCEQ meteorologists provide daily regional ozone forecasts during the ozone season. Citizens can access a map of current one-hour ozone levels, Current Ozone One-Hour Levels - TCEQ, view the day's air quality forecast, Today's Texas Air Quality Forecast - TCEQ, or view the air quality index report Air Quality Index Report – TCEQ. The TCEQ is greatly exceeding federal monitoring requirements for ozone in the ten county Houston MSA; and all of these ozone monitors provide data that are helpful in assessing ozone levels in the general Houston area, including Pasadena. Ozone monitors in and around the general Houston area (33 total for this subset area map), including Pasadena, are shown in Figure L below with light blue circles.

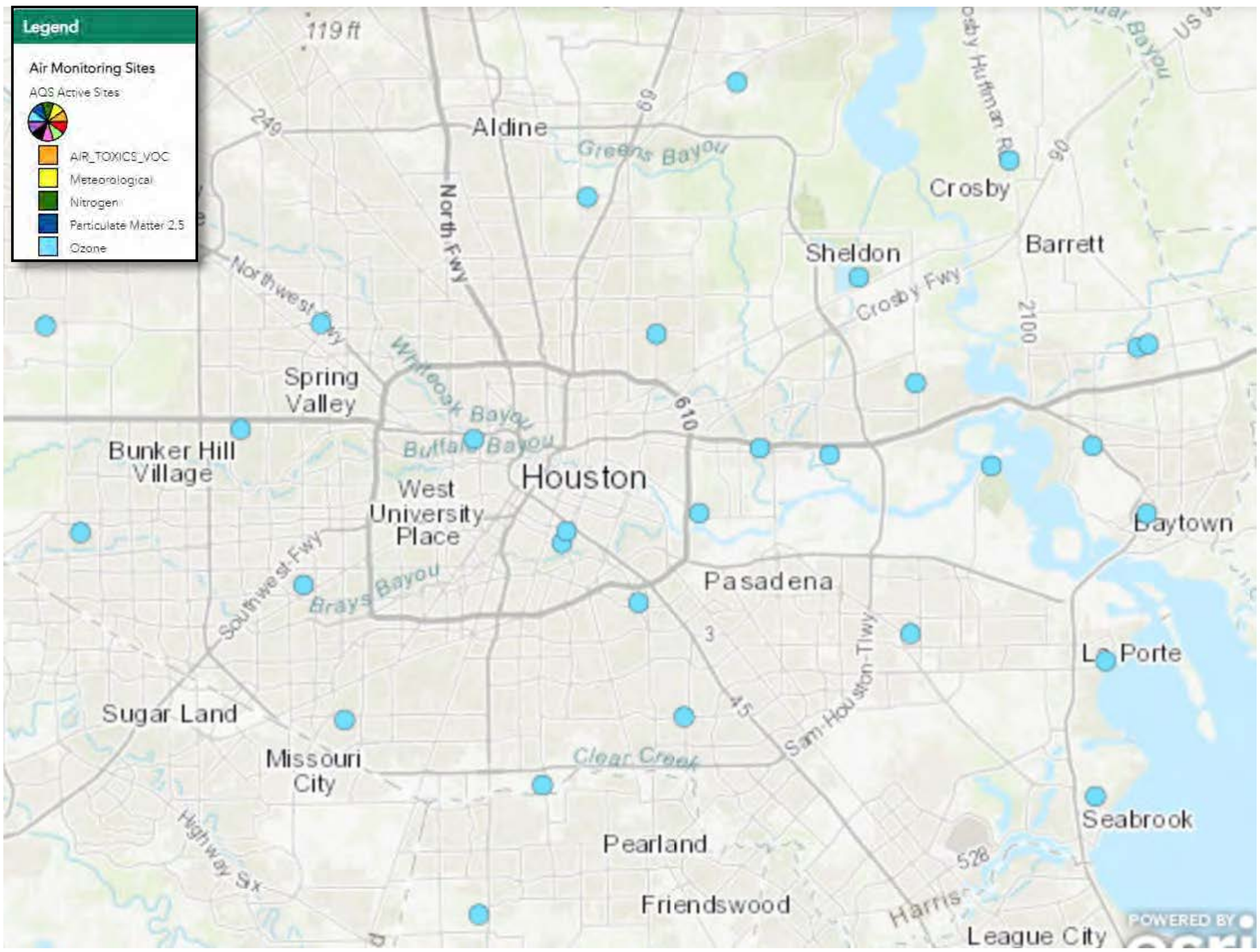

Figure L: Ozone Monitoring Sites in the Houston and Pasadena Areas

Comment 22: LSLA commented that the City of Pasadena suffered from a lack of adequate monitoring as there were several adjacent facilities that emitted large quantities of SO_2 and sulfur compounds. LSLA stated Pasadena should have at least one SO_2 monitor to ensure that citizens were protected from these emissions. LSLA stated that several members have smelled the rotten-egg odor indicative of SO_2 pollution. LSLA stated a SO_2 monitor in central Pasadena would enable TCEQ to "measure typical concentrations in areas of high population density," and would further the monitoring goal of providing "air pollution data to the general public in a timely manner."

Response 22: Title 40 CFR Part 58, Appendix D, § 4.4.2, requires states to establish an SO_2 monitoring network using the population weighted emissions index (PWEI) calculations. Based on 2022 United States Census Bureau population estimates and 2020 national emissions inventory (NEI) data with 2022 TCEQ point-source emissions inventory data, two SO_2 monitors are required in the Houston MSA, and the TCEQ exceeds the requirement with six SO_2 monitors. Three of these monitors are located at sites in the vicinity of Pasadena including: Houston Deer Park #2 (three miles to the east), Park Place (six miles to the west), and Clinton (six miles to the northwest). Air monitoring sites are generally placed to be representative of regional air quality, rather than monitoring emissions from specific sources. Environmental complaints (such as odors) under the TCEQ's jurisdiction can be submitted 24 hours a day on the TCEQ's website Make an Environmental Complaint - TCEQ. The TCEQ SO_2 monitoring network in the Houston MSA is representative of the regional area, including Pasadena, and exceeds the federal requirements and no additional changes are recommended at this time. Comments unrelated to federally required monitoring are beyond the scope of this plan.

Comment 23: LSLA commented that there are no PM monitors in the City of Pasadena and the residents face a high risk of respiratory health issues thus PM monitoring is necessary to protect Pasadena residents' health. LSLA commented the TCEQ should shore up its network by increasing the amount of PM monitors in the area starting with Pasadena. LSLA commented TCEQ should deploy more monitors capable of tracking both PM_{10} and $PM_{2.5}$ not only along the ship channel, but also away from it within residential areas of Pasadena, La Porte, and Galena Park. LSLA also encouraged the TCEQ to consider the placement of PM monitoring in the Houston community of Manchester.

Response 23: As demonstrated in the Plan, TCEQ $PM_{2.5}$ federal monitoring network in the Houston CBSA includes 18 active $PM_{2.5}$ monitors at 13 sites, with two more $PM_{2.5}$ monitors expected this year at two new sites, to measure ambient $PM_{2.5}$ concentration data. The TCEQ exceeds the federal requirement for a minimum of eight $PM_{2.5}$ monitors in the Houston CBSA. Similarly, the TCEQ is federally required to operate between four to eight PM_{10} monitors in the Houston MSA and operates six active monitors, based on population and maximum concentration. Houston area air monitoring sites are shown above in Figure A with $PM_{2.5}$ monitors indicated by a dark blue section and PM_{10} indicated by a purple section.

The TCEQ air monitoring network is designed to measure pollutant concentrations for assessing regional air quality representative of areas frequented by the public and to provide information about compliance with the NAAQS. Current PM monitors provide data supporting area-wide air quality throughout the Houston MSA which includes the communities in Pasadena, La Porte, Galena Park, and Manchester. As shown in the 2024 AMNP, the TCEQ is currently meeting or exceeding federal requirements for both PM_{10} and $PM_{2.5}$ monitoring in the Houston MSA, and no additional changes are recommended at this time.

Comment 24: LSLA commented that the Pasadena Richey Elementary VOC monitor was insufficient for monitoring air quality due to the city's square miles and population. LSLA commented that Deer Park had more monitors per square mile and per person and this discrepancy indicated one air monitor was not enough in Pasadena. LSLA noted the Pasadena Richey Elementary monitor's location was deficient since the wind often blows from the southeast and many facilities are in the southeastern<sic> part of the city. LSLA commented that TCEQ should install additional monitors in Pasadena that can better capture air quality impacts of these facilities and should include non-VOC chemicals and particulate matter.

LSLA recognized that there were 14 air monitors measuring 27 pollutant types around the Houston Ship Channel surrounding Pasadena. LSLA stated these monitors did not reflect the air pollutants in the Pasadena community and did not ensure adequate air quality monitoring in Pasadena. LSLA commented that the Pasadena Richey Elementary VOC monitor did not ensure accurate monitoring for the many VOC-emitting facilities in Pasadena. LSLA noted that the Pasadena Richey Elementary monitor was five miles away from the ITC Pasadena facility and not in the prevailing wind direction. LSLA noted that they expected the TCEQ to monitor the ITC Pasadena facility due to the VOC emissions. LSLA commented that more VOC monitors in Pasadena were necessary. LSLA commented more monitors would help protect fence-line communities in and around Pasadena who bear the brunt of exposure to VOC emissions whenever nearby industrial facilities malfunction or weather a disaster. LSLA commented that placing VOC monitors in ship channel communities and Pasadena was important to ensure that the readings were captured and the community and regulatory agencies were fully informed of the impacts. The LSLA commented that TCEQ must ensure stronger air monitoring in Pasadena that recognized this environmental justice community and protected Pasadena residents who bear disproportionate air pollution harms.

Response 24: The TCEQ does not agree with these comments. As previously stated, the purpose of the 2024 AMNP is to demonstrate how the TCEQ air monitoring network complies with federal monitoring requirements detailed in 40 CFR Part 58. The TCEQ exceeds the Houston CBSA federal air monitoring requirements for all criteria pollutants required under 40 CFR Part 58, as shown in the 2024 AMNP Appendix C. Additionally, the TCEQ exceeds PAMS network requirements for VOCs in the Houston CBSA, as shown in the 2024 AMNP Appendix L, and operates 14 additional state-initiative VOC monitors in the Houston CBSA. The TCEQ clarifies that federal regulations do not require air monitor placement based on a city's square mileage or individual population. Comments unrelated to federally required monitoring, are beyond the scope of this Plan.

As discussed in the introduction, the TCEQ also operates a robust network of state-initiative monitors that support a variety of purposes. Though the TCEQ state-initiative monitors are outside of the scope of this document, this state-initiative monitoring network provides valuable information for assessing public health. The TCEQ significantly enhanced its state-initiative air monitoring capabilities along the Houston Ship Channel with three new autoGC sites capable of continuous VOC measurements and added a non-continuous VOC by canister monitor to the existing Houston East site. One of these state-initiative enhancements was to relocate and upgrade the previous Pasadena North non-continuous VOC monitor to a continuous VOC monitor that could provide data 24 hours, seven days a week. The Pasadena North air monitoring site was located north-northwest of residential Pasadena areas and was not where the citizens resided. The TCEQ evaluated monitoring site locations that would appropriately and sufficiently characterize regional air quality in an area with multiple sources. The TCEQ collectively considered predominant wind flow, property owner agreement, and logistical constraints, such as space, power availability, terrain, grade, and drainage. After a lengthy evaluation of potential air monitoring sites in and around the City of Pasadena, the site was relocated less than one mile south to Richey Elementary School. Richey Elementary School is in an area containing many residences, schools, parks, and businesses frequented by members of the public in the City of Pasadena, thus meeting air quality monitoring objectives. The TCEQ would also like to note that air monitoring sites are generally placed to be representative of regional air quality, rather than monitoring for instances of emissions from specific sources.

The TCEQ notes LSLA's recognition of the numerous air monitoring sites with multiple pollutant types around the Houston Ship Channel surrounding Pasadena. Figure M illustrates the multiple air monitoring sites in and around the City of Pasadena.

The TCEQ emphasizes that the TCEQ's air monitoring network, which meets all federal requirements, is designed to measure pollutant concentrations that are representative of regional areas. These areas include many minority and low-income communities located near heavily industrialized areas. TCEQ has always met its legal requirements to ensure that the network provides the information necessary to properly monitor and regulate all communities within Texas. The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources, and for those reasons, cannot always satisfy every monitoring request. However, the TCEQ will continue to evaluate air monitoring needs in the Houston CBSA, against existing federal monitoring requirements and available resources.

Appendix M: TCEQ Response to Comments Received on the draft 2024 Annual Monitoring Network Plan

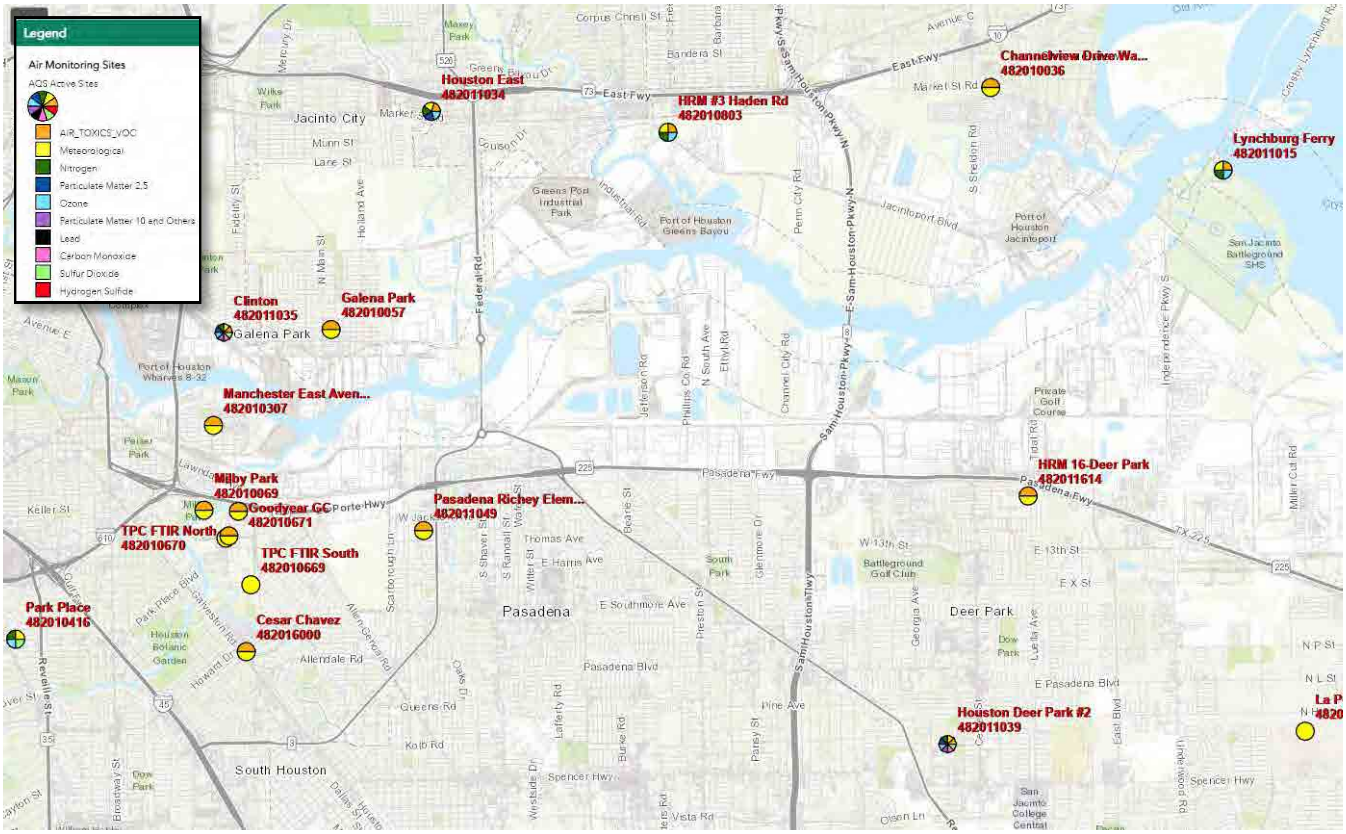

Figure M: Houston Ship Channel Sites and Monitors

Comment 25: LSLA encouraged TCEQ to collect VOC data at the (Houston) North Wayside monitor so that the adjacent communities can understand the health impacts of living near facilities with metal emissions. LSLA referenced TCEQ collected mobile monitoring data that showed high concentrations of toluene at Mesa and Ley Road near the North Wayside monitor. LSLA stated 9 parts per billion by volume (ppbv) was the safe exposure level to VOCs, and the mobile monitor picked up 94 ppbv toluene emissions.

Response 25: The TCEQ would like to clarify information regarding the mobile monitoring data LSLA noted in the comment regarding VOCs around the Houston North Wayside air monitoring site.

The TCEQ clarifies that 9 ppbv is not a TCEQ screening level or health exposure level for toluene. This value was included in a summary email to describe the highest VOC concentration detected for compounds other than toluene and is not in any way related to health-based levels. The Duvas analyzer measured an instantaneous concentration of 94 ppbv of toluene at the corner of Mesa and Ley Road. The maximum observed instantaneous toluene concentration of 94 ppbv is well below the mobile monitoring comparison value (MMCV) one-second exposure mitigation health-based action level of 24,000 ppbv. The VOC concentrations measured during the mobile monitoring trip do not indicate the need for stationary monitoring at Houston North Wayside and no further changes are recommended.

The TCEQ Toxicology, Risk Assessment, and Research Division establishes MMCVs as screening levels used in TCEQ's evaluation of mobile air monitoring data. Health-based

MMCVs are safe levels at which exposure is unlikely to result in adverse health effects.

Comment 26: LSLA commented the TCEQ should consider adding lead monitoring to the Houston Fifth Ward to evaluate the community's exposure to lead because of many lead sources present in the area, e.g., the number of surrounding metal recycling facilities.

Response 26: As previously stated, this plan addresses federally required monitoring and demonstrates the TCEQ's compliance with requirements under 40 CFR Part 58. Federal Pb monitoring regulations require monitoring near Pb sources with emissions greater than 0.50 tons per year (tpy) or near sources expected to exceed the Pb NAAQS. No sources meeting these criteria are in the Fifth Ward. The TCEQ is meeting federal requirements for Pb monitoring and no additional changes are recommended.

Comment 27: LSLA stated that aggregate facilities were disproportionately located in North and Northeast Houston and remained a significant threat in this area. LSLA commented that the TCEQ should ensure adequate North and Northeast Houston area monitoring to determine if these facilities were in compliance with their permits and to monitor impacts on human health. The community of Dyersforest and the adjacent neighborhood of East Aldine host concrete facilities. LSLA stated that new EPA monitoring requirements to enhance air quality protection for communities subject to disproportionate impacts required a monitor be sited in an at-risk community with anticipated $PM_{2.5}$ effects such as East Aldine and Dyersforest. LSLA requested a FEM monitor, based on the rule change, be placed in or near these communities or near the other area concrete facilities to evaluate exposure to $PM_{2.5}$, inform the TCEQ's permitting decisions, and enhance protections to the air quality in these communities. LSLA stated that East Aldine and Dyersforest areas qualify as at-risk communities and had a disproportionate number of concrete and other aggregate facilities in their communities, and therefore, requested that a FEM monitor be placed in these communities to monitor for $PM_{2.5}$.

Response 27: The TCEQ appreciates the recommendations for expanded Houston air monitoring. As stated in the introduction, the 2024 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. The TCEQ's air monitoring network is designed to measure pollutant concentrations for assessing regional air quality representative of areas frequented by the public. Air monitoring objectives determine site locations and sites are generally placed to be representative of regional air quality, rather than monitoring emissions from specific sources to document permit compliance or to make permitting decisions. The TCEQ operates an existing air monitoring site, Houston Aldine, shown below in Figure N, in the East Aldine Management District area aligning with the LSLA Figure area map. The TCEQ Houston Aldine air monitoring site measures NO_x, NO_y, ozone, $PM_{2.5}$ FEM continuous, and meteorology. TCEQ air monitoring sites in North-Northeast Houston, including the existing Houston Aldine site, are shown in Figure N below. The Figure N Legend correlates the pollutants measured at the air monitoring site.

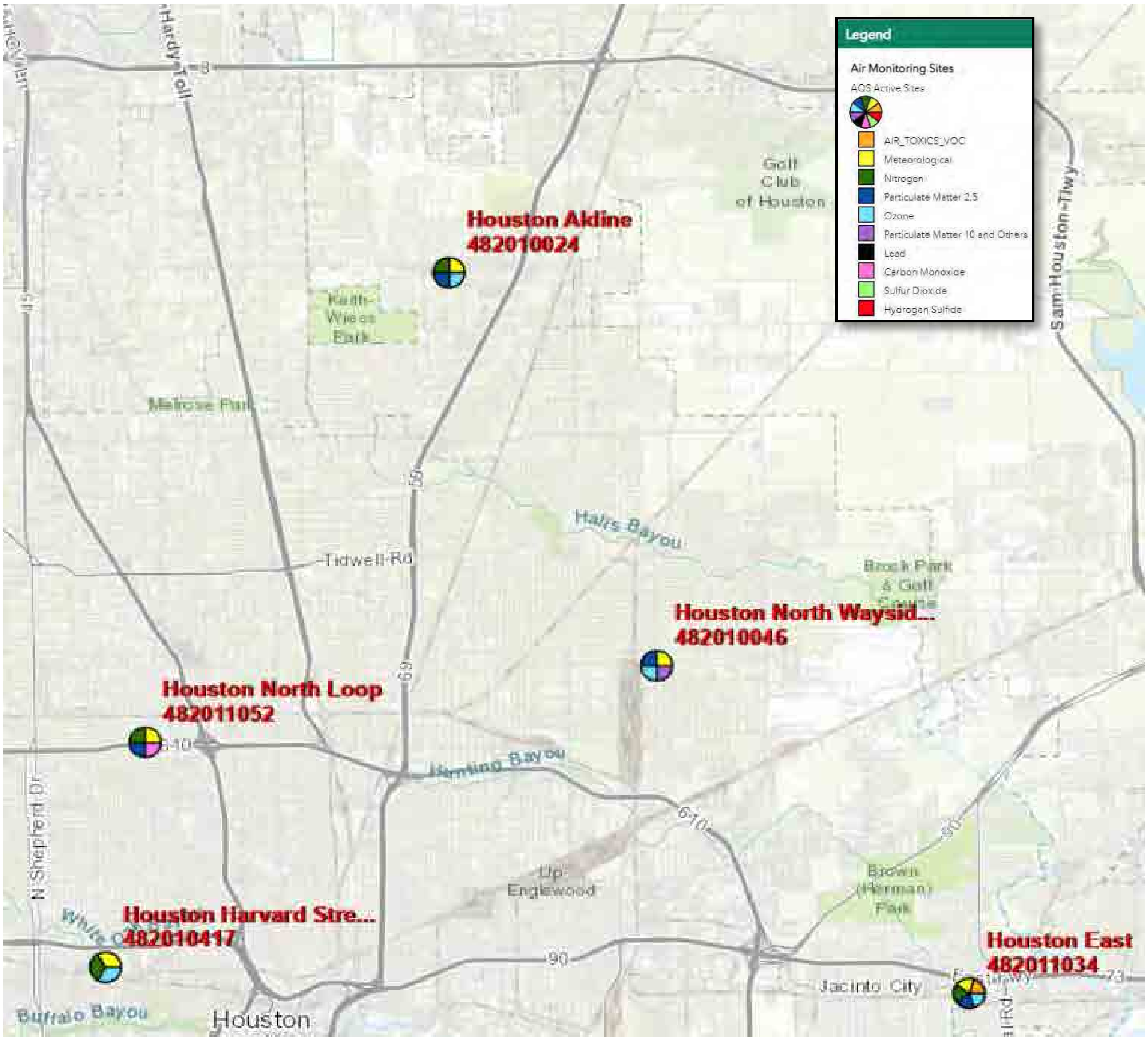

Figure N: North-Northeast Houston and East Aldine Sites and Monitors

As demonstrated in the Plan, TCEQ $PM_{2.5}$ federal monitoring network in the Houston CBSA includes 18 active $PM_{2.5}$ monitors at 13 sites. In addition, the TCEQ has two new sites scheduled for the Houston Fifth Ward and Pleasantville neighborhoods, to measure ambient $PM_{2.5}$ concentration data by federally equivalent methods. The TCEQ exceeds the federal requirement for a minimum of eight $PM_{2.5}$ monitors in the Houston CBSA. The TCEQ meets the new EPA monitoring requirements: to site a $PM_{2.5}$ monitor in an at-risk community, particularly where there are anticipated effects from sources in the area; with multiple existing Houston area sites, including the Houston Aldine air monitoring site shown in Figure N above.

The TCEQ's air monitoring network, which meets all federal requirements, is designed to measure pollutant concentrations that are representative of regional areas. These areas include many minority and low-income communities located near heavily industrialized areas. TCEQ has always met its legal requirements to ensure that the network provides the information necessary to properly monitor and regulate all communities within Texas. In addition, the TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources and for those reasons, cannot always satisfy every monitoring request. However, the TCEQ will continue to evaluate air monitoring requests in the Houston CBSA and North-Northeast Houston areas against federal requirements and available resources.

Comment 28: LSLA commented that the one monitor at (Houston) North Wayside that evaluated ozone, PM_{10}, $PM_{2.5}$, wind, and temperature was insufficient for the predominately residential North and Northeast Houston area covering 25.74 square miles. LSLA noted the one monitor in the region was insufficient to understand the air quality and to assess emissions from multiple different industrial facilities. Given the number and scope of industrial users near the North Wayside monitor, and the uptick in $PM_{2.5}$ values, the LSLA additionally requested (i) a VOC cannister, (ii) metal emissions monitoring; and (iii) an additional State of Texas-run monitor that tests for speciated values of PM_{10} and $PM_{2.5}$ to also be deployed in Northeast Houston where these industrial facilities have congregated.

Response 28: The TCEQ does not agree with the commenter's assertion that the Houston North Wayside air monitoring site is insufficient. The TCEQ would like to clarify that the comment referencing "one monitor," such as the statement above "one monitor at Houston North Wayside, evaluating only PM_{10}, $PM_{2.5}$, O_3, wind, and temperature" is inaccurate. The TCEQ currently operates four monitors at Houston North Wayside, which includes one monitor for PM_{10}, one monitor for $PM_{2.5}$, one monitor for ozone, and one monitor for wind and temperature. As previously stated, the 2024 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58. The TCEQ exceeds the Houston CBSA federal air monitoring requirements for all criteria pollutants required under 40 CFR Part 58, as shown in the 2024 AMNP Appendix C. Additionally, the TCEQ exceeds PAMS network requirements for VOCs in the Houston CBSA, as shown in the 2024 AMNP Appendix L, and operates 14 additional state-initiated VOC monitors in the Houston CBSA. The TCEQ enhanced VOC monitoring in 2024 by adding a state-initiative VOC monitor at the Houston East air monitoring site that is five miles upwind of Houston North Wayside. TCEQ further notes that two more state-initiative VOC monitors are planned for Houston Finnigan Park and Houston Pleasantville Elementary later in 2024. The three, new and planned, VOC monitors are within five miles of Houston North Wayside and will provide additional spatial coverage for this area.

Air monitoring objectives determine site locations and sites are generally placed to be representative of regional air quality, rather than monitoring emissions from specific sources or multiple facilities. Comments regarding metals emissions and particulate speciation are unrelated to federally required monitoring and are beyond the scope of this Plan. The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources and for those reasons, cannot always satisfy every monitoring request. However, the TCEQ will continue to evaluate air monitoring requests in the Houston CBSA and North-Northeast Houston areas against federal requirements and available resources.

Comment 29: LSLA expressed its appreciation that the TCEQ responded to requests by allocating air monitors to the Houston Fifth Ward area. However, the LSLA stated it has taken a very long time to see the monitors installed at Finnigan Park. The LSLA stated that area community data obtained from a Clarity air monitor recorded 242 days out of 365 where the $PM_{2.5}$ monitor registered above 12.0 micrograms per cubic meter ($\mu g/m^3$), demonstrating the need for monitoring industrial sites. LSLA reiterated its appreciation for the TCEQ's commitment to air monitoring in the Houston Fifth Ward and requested an update from TCEQ regarding the timeline for the installation of the monitors at Finnegan<sic> Park. LSLA stated local communities and signatories were willing to help support the air monitoring request to ensure the monitor was installed.

Response 29: The TCEQ greatly appreciates the support and appreciation from LSLA regarding the new air monitoring site in the Fifth Ward Finnigan Park. Unfortunately, the TCEQ has experienced unexpected delays beyond its control regarding the Houston Finnigan Park site deployment. The TCEQ has been unable to obtain the required property usage agreement signatures from the property owner after months of attempts. The TCEQ continues to actively address these challenges with the property owner, and notes that attempts to communicate with the other parties often go unanswered for great lengths of time extending the delays further. The TCEQ appreciates the support of local communities to ensure the timely air monitoring site deployment.

Comment 30: LSLA appreciated TCEQ's plans to install air monitors at Pleasantville Elementary in Pleasantville by December 31, 2024, as originally announced in 2022. LSLA stated these VOC and PM monitors will help the community assess its exposure to particulate matter from the industrial facilities, truck traffic, and port operations. LSLA noted concern about the lack of monitoring data prior to the increases of industrial activity, planned freeway expansion, and ship channel dredging. LSLA noted the community are anxious to see these monitors installed, having waited for almost two years for their installation. LSLA noted TCEQ's contractor should work closely with HISD to expedite the installation and obtain the approvals to get the monitors installed at Pleasantville Elementary this year.

Response 30: The TCEQ greatly appreciates the support and appreciation from LSLA regarding the new air monitoring site in the Houston Pleasantville neighborhood. Unfortunately, the TCEQ has experienced unexpected delays beyond its control regarding the Pleasantville site deployment. After lengthy negotiations and property owner delays, the TCEQ successfully obtained the approved property usage agreement and procured a contractor to construct the necessary site peripherals (fence, site pad, and electrical). There were additional delays in obtaining the property owner signature on a deed restriction form for the permit application. However, the TCEQ contractor has been unsuccessful in obtaining the remaining necessary construction permits from the City of Houston to date. The TCEQ is actively working to address these issues with the contractor.

Comment 31: LSLA commented that in Freeport, metal emissions and SO_2 emissions were a major concern and there were ozone concerns as well. LSLA requested that the historic Clute monitor that previously monitored ozone be reinstated. LSLA requested the reinstatement of the ozone monitor to adequately evaluate compliance with the NAAQS. LSLA commented this constituent of concern should be added back to the Clute monitor to capture the region's ozone emissions more wholistically.

Response 31: The TCEQ does not agree that an ozone monitor at the Clute air monitoring site is required to evaluate the area's compliance with the NAAQS. The TCEQ is federally required to operate a minimum of four ozone monitors in the Houston MSA and currently operates 21 ozone monitors. The TCEQ clarifies that ozone is formed in the atmosphere and is not an emitted pollutant. The Clute ozone monitor was relocated to Lake Jackson in 2003 after considerable evaluation was performed by a TCEQ workgroup of modelers and data users. The workgroup concluded that the Lake Jackson site was a superior location for ozone measurements, and the ozone measurements would be collocated with ozone precursor measurements of NO_x measured by TCEQ and continuous VOCs measured by a TCEQ monitoring partner. The workgroup also concluded that the location was also superior to Clute due to the physical aspects of ozone formation. Since ozone forms over time, there is more potential for ozone formation as you move away from a VOC source. The Lake Jackson ozone monitor would be expected to measure the maximum ozone concentration for that area based on the predominant southeasterly wind direction and geographic location of industry. The Lake Jackson ozone monitor design value trends (0.065 ppm for 2020 and 2021 and 0.067 ppm for 2022) do not indicate a need for additional area monitoring.

In addition, TCEQ monitoring partners (city, county, private, and/or industry) support ambient air monitoring at nearby Oyster Creek (site shown in Figure O below) with CO, H_2S, NO_2, SO_2, ozone, PM_{10}, and $PM_{2.5}$ non-regulatory monitors. Though the data from these non-regulatory monitors do not meet requirements specified in 40 CFR Part 58 for comparison to the NAAQS, the TCEQ considers the data from monitoring partners as supporting information for the area's air quality decisions. Data from these additional monitors are available near real-time on the TCEQ TAMIS webpage. The TCEQ strives to strategically balance meeting federal monitoring requirements and state and local needs with available funding and staffing resources and for those reasons, cannot always satisfy every monitoring request. However, the TCEQ greatly exceeds ozone monitoring requirements in the Houston MSA, and no additional changes are recommended at this time.

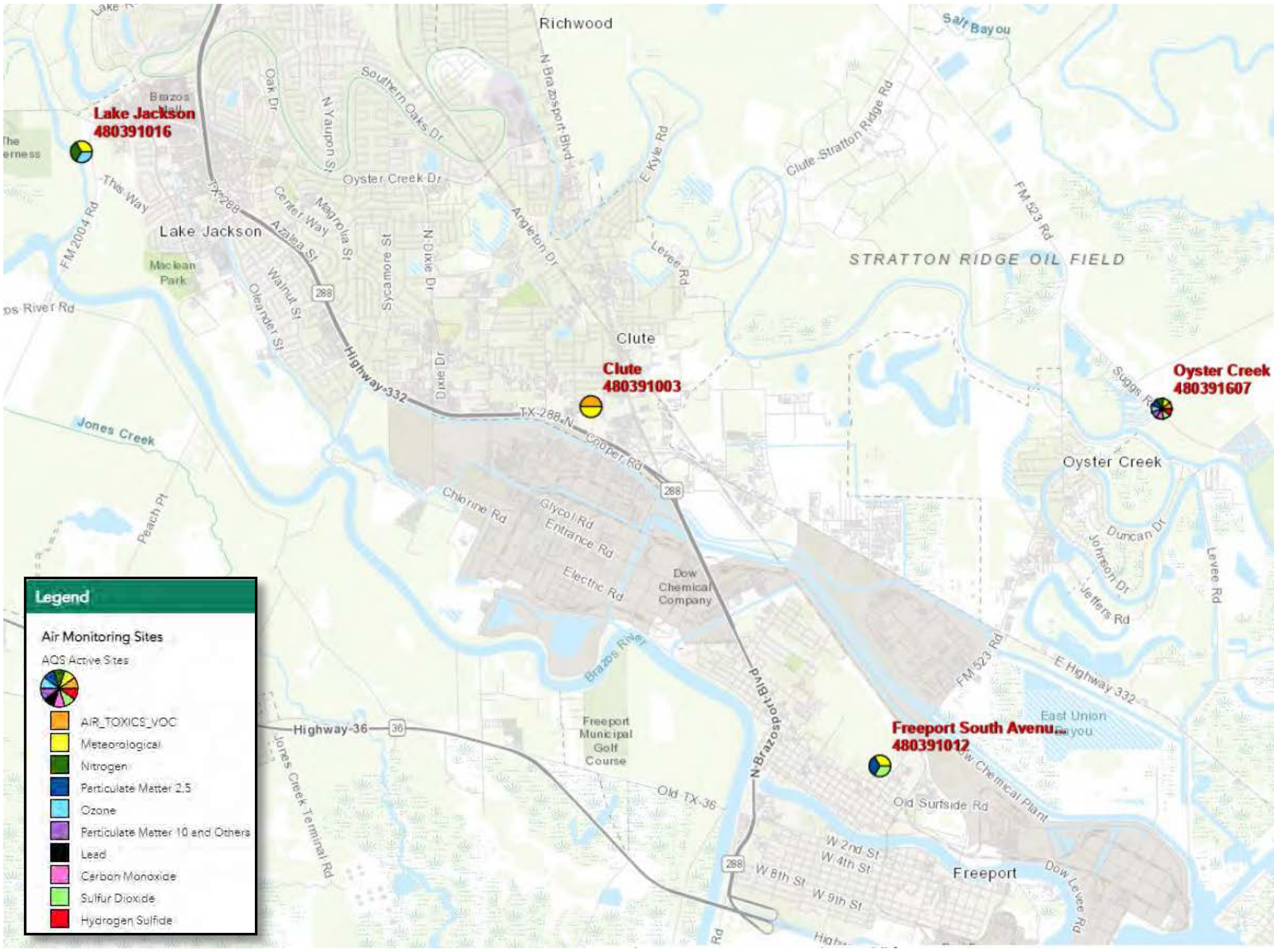

Figure O: Freeport and Lack Jackson Area Sites and Monitors

Comment 32: LSLA commented that a near-road NO_x monitor should be placed near Interstate 45 north of its intersection with Beltway 8 (also known as the Sam Houston Tollway) in northern Houston. LSLA recommended the placement of the monitor to be between Beltway 8 and no further north than Richey Road (Exit 64 of Interstate 45). LSLA noted that according to the Texas Department of Transportation (TxDOT)'s Average Annual Daily Traffic (AADT) Annuals Database this stretch of Interstate 45 was one of the busiest road segments in Harris County and the entire state with over 270,000 daily trips (AADT) in 2022. LSLA commented that the segment of Interstate 45 north of Beltway 8 was therefore a prime candidate for a near-road NO_x monitor under the regulatory design criteria. LSLA commented that the segments of current near-road sites Houston North Loop and Houston Southwest Freeway warranted NO_x monitoring, however the segment along Interstate 45 north of Beltway 8 had several other factors and had more daily trips that both the current near-road NO_x monitor segments. LSLA noted that the area around Interstate 45 and Beltway 8 had a mix of residential, commercial, and industrial areas which provided varied exposure pathways and its residents were among the most susceptible and vulnerable residents in Texas. LSLA commented since it was appropriate for TCEQ to place a near-road NO_x monitor along Interstate 45 north of Beltway 8, it would also be appropriate to collocate a CO monitor at that location. LSLA noted the TCEQ had a CO monitor at the Houston North Loop

NO_x near-road monitoring station and that location had 25% fewer daily vehicle trips than the stretch of Interstate 45 north Beltway 8.

Response 32: The TCEQ does not agree with these comments. Near-Road monitoring plans for CBSAs having 1 million or more persons were due to the EPA by July 1, 2013, and were required to be operational by January 1, 2014. Similarly, near-road monitoring plans for CBSAs having 2.5 million or more persons were required to be submitted to the EPA a year later, by July 1, 2014, and operational by January 1, 2015. Details on the TCEQ evaluation and recommendation for near-road monitoring sites were included with the TCEQ 2014 and 2015 AMNPs. The TCEQ used the latest available Texas Department of Transportation (TxDOT) 2010 AADT counts for the near-road monitoring plan evaluation. The requirements stipulated that sites must be deployed in areas of maximum expected hourly NO_2 concentrations within 50 meters or less of a major road with high AADT counts with consideration to fleet mix, roadway design, congestion patterns, terrain, and meteorology. The TCEQ also collectively considered logistical constraints, such as space, power availability, terrain, highway grade, safe access, property owner agreement, and long-term risk to the continued viability of site use due to planned roadway construction projects. The TCEQ recommended, and the EPA approved, the Houston Southwest Freeway site with an AADT ranking and Fleet Equivalent AADT of 1, and the site was activated in January 2014. Similarly, the TCEQ evaluated the traffic counts, requirements, and logistical constraints, and recommended the Houston North Loop site with an AADT ranking and Fleet Equivalent AADT of 46, in the 2015 AMNP as the next viable air monitoring location. The EPA approved this location, and the site was activated in April 2015. There are no federal requirements stipulating site relocation if the traffic counts change in an area. The TCEQ is meeting all Houston CBSA near-road federal monitoring requirements, and no changes are recommended.

Comment 33: The LSLA urged the TCEQ and the EPA to require facilities to monitor ethylene oxide emissions at their fence lines and submit real-time reporting of release incidents safeguarding neighboring communities from this threat. The LSLA requested the TCEQ to deploy an EtO monitor that meets Federally Equivalent Method monitoring standards in the Harris County region.

Response 33: As stated in the introduction, the 2024 AMNP is intended to demonstrate the TCEQ's compliance with federal air monitoring requirements under 40 CFR Part 58 and its monitoring objectives, which do not include monitoring for ethylene oxide. The TCEQ notes that air monitoring sites are generally placed to be representative of regional air quality, rather than monitoring for instances of emissions from specific sources. In addition, Federally Equivalent Methods are developed for the monitoring of Clean Air Act criteria pollutants, and these do not include ethylene oxide. TCEQ federally funded ambient air monitoring sites operate ambient air monitors that conform to EPA methods for measuring ambient concentrations of specified air pollutants designated as FRM or FEM in accordance with 40 CFR Part 53. The TCEQ clarifies there are no federal monitoring requirements for ethylene oxide. Comments related to industry-specific fence line monitoring of ethylene oxide and real-time reporting of release incidents are outside the scope of this Plan. The TCEQ meets or exceeds all federal monitoring requirements in the Harris County region and no further changes are recommended.

Appendix N

Comments Received on the Draft 2024 Annual Monitoring Network Plan

Texas Commission on Environmental Quality
2024 Annual Monitoring Network Plan

From: Van Vleck, Matt (PCS) <Matt.VanVleck@pcs.hctx.net>
Sent: Thursday, May 16, 2024 8:17 AM
To: tceqamnp
Subject: 2024 Annual Monitoring Network Plan Comment Harris County Pollution Control Service Department
Attachments: 2024 AMNP Comment HCPCS.pdf

See attached file.

Matt Van Vleck
Air Monitoring Services Manager | Technical Division
Harris County Pollution Control

Email: matt.vanvleck@pcs.hctx.net
Direct: (713) 274-6412 | Main: (713) 920-2831
Address: 101 South Richey Suite H Pasadena, TX 77506

Harris County
Pollution Control
Harris County Pollution Control Services
Dr. Latrice Babin, Executive Director
Established in 1953

May 16, 2024

Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Re: 2024 Texas Commission on Environmental Quality Annual Monitoring Network Plan

Dear Ms. Landuyt:

Thank you for the opportunity to submit comments regarding the 2024 Texas Commission on Environmental Quality (TCEQ) Annual Monitoring Network Plan (AMNP). Harris County Pollution Control Services Department (PCS) is the local regulatory enforcement authority for air, water, and solid waste issues in Harris County, Texas. We understand that TCEQ has solicited comments regarding the above plan.

PCS understands that TCEQ is implementing two new monitoring locations for $PM_{2.5}$ and VOCs in Harris County in 2024:

- Finnigan Park
- Pleasantville

PCS also recommends TCEQ place a $PM_{2.5}$ FEM continuous monitor in south Houston, ideally east of Highway 288, between South Loop 610 and the Sam Houston Tollway. There are twenty-seven concrete batch plants in the area bordered by South Loop 610, the Sam Houston Tollway, South Post Oak Road, and Interstate 45. PCS believes it would be beneficial for TCEQ to characterize $PM_{2.5}$ in this area given its high population density and numerous concrete batch plant facilities. TCEQ currently has no $PM_{2.5}$ monitoring in this area.

Main (713) 920-2831
Complaint line: (713) 920-2831
101 South Richey, Suite H
Pasadena, TX 77506
pollution.control@pcs.hctx.net
pcs.harriscountytx.gov

Thank you for the opportunity to provide these comments regarding the 2024 Annual Monitoring Network Plan. Should you have any questions, please contact Matt Van Vleck at 713-274-6412 or via email at matt.vanvleck@pcs.hctx.net.

Sincerely,

Dr. Latrice Babin
Executive Director

cc: Anna Brewster Harris County Judge's Office
Alan DeLeon Harris County Precinct 1
Sarah Utley - Harris County Attorney's Office
Nicole Bealle - TCEQ Region 12

From: Allyn West via ActionNetwork.org <info@sg.actionnetwork.org>
Sent: Thursday, May 16, 2024 2:48 AM
To: tceqamnp
Subject: Texas Commission on Environmental Quality, Tell TCEQ: We need air monitoring in Houston's Sunnyside
Attachments: tell-tceq-we-need-air-monitoring-in-houstons-sunnyside_signatures_202405160747.pdf

Texas Commission on Environmental Quality,

119 people have signed a petition on Action Network telling you to Tell TCEQ: We need air monitoring in Houston's Sunnyside.

Here is the petition they signed:

> RE: 2024 Annual Monitoring Network Plan
>
> I support the deployment of a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas.
>
> Historical communities of color, like Sunnyside, have borne an inequitable pollution burden for too long. Sunnyside residents have a right to know what they are breathing. We all have a right to breathe clean air.
>
> We urge TCEQ, as recommended by EPA in their response to the 2023 AMNP, to evaluate sites for ambient air monitoring with respect to environmental justice concerns. It is critical for both residents and local government agencies to have more information to make the best decisions to protect the health of Houston residents.

You can view each petition signer and the comments they left you in the attached PDF.

Thank you,

One Breath Partnership

Sent via Action Network, a free online toolset anyone can use to organize. Click here to sign up and get started building an email list and creating online actions today.

Action Network is an open platform that empowers individuals and groups to organize for progressive causes. We encourage responsible activism, and do not support using the platform to take unlawful or other improper action. We do not control or endorse the conduct of users and make no representations of any kind about them.

You can unsubscribe or update your email address or change your name and address by changing your subscription preferences here.

Texas Commission on Environmental Quality,

119 people have signed a petition on Action Network telling you to Tell TCEQ: We need air monitoring in Houston's Sunnyside.

Here is the petition they signed:

> RE: 2024 Annual Monitoring Network Plan
>
> I support the deployment of a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas.
>
> Historical communities of color, like Sunnyside, have borne an inequitable pollution burden for too long. Sunnyside residents have a right to know what they are breathing. We all have a right to breathe clean air.
>
> We urge TCEQ, as recommended by EPA in their response to the 2023 AMNP, to evaluate sites for ambient air monitoring with respect to environmental justice concerns. It is critical for both residents and local government agencies to have more information to make the best decisions to protect the health of Houston residents.

You can view each petition signer and the comments they left you below.

Thank you,

One Breath Partnership

---

1. Abbie Culver (*ZIP code: 77532)*

2. Adam Campbell (*ZIP code: 77006)*

3. Laura Graham (*ZIP code: 78228)*
Add a new regulatory air monitor site in Sunnyside so people will be able to know what they are breathing and act accordingly.

4. An anonymous signer (*ZIP code: 77044)*

5. Al Jasso (*ZIP code: 77055)*

6. Alejandro Perez (*ZIP code: 77022)*
Trash ass companies abusing no zoning.

7. Alicia Fontenot (*ZIP code: 77051)*
I have asthma along with many family members and I was born and raised in Sunnyside Houston

8. Alison Wenzel (*ZIP code: 78751)*

9. Altheria Henley (*ZIP code: 77051)*

10. Amanda Bonam (*ZIP code: 70128)*
The National Black Environmental Justice Network (NBEJN) supports Sunnyside residents in their call for TCEQ to evaluate sites for ambient air monitoring with respect to environmental justice concerns.

11. Anna Weiss (*ZIP code: 77007)*
I support the deployment of a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas.

Historical communities of color, like Sunnyside, have borne an inequitable pollution burden for too long. Sunnyside residents have a right to know what they are breathing. We all have a right to breathe clean air.

We urge TCEQ, as recommended by EPA in their response to the 2023 AMNP, to evaluate sites for ambient air monitoring with respect to environmental justice concerns. It is critical for both residents and local government agencies to have more information to make the best decisions to protect the health of Houston residents.

12. Angelina Spencer (*ZIP code: 77033)*

13. anthony Davis (*ZIP code: 77045)*
Anthony Davis

14. Treasa Antony (*ZIP code: 77047)*
As a resident of Sunnyside with a family and friends that I deeply care for I and my neighborhood have a right to be informed about the air we are breathing.

15. Archie Phillips (*ZIP code: 78737)*
Archie

16. Allyn West (*ZIP code: 77021)*

17. Bethany Morrison (*ZIP code: 78750)*

18. Helen Bernard (*ZIP code: 77051)*

19. Beth Shook (*ZIP code: 77006)*

20. Raymond Thompson (*ZIP code: 77021)*

21. Robert Stubblefield (*ZIP code: 77007)*

Sunnyside needs an air monitoring system to mitigate toxic exposure, especially among our youth who are at risk by simply taking a breath in their neighborhood. This investment could save hundreds from facing severe respiritory health issues permanently affecting quality of life.

22. Goldie Brown (*ZIP code: 77033)*

23. Charles Cave (*ZIP code: 77048)*
This is information we need to improve the health and well-being of our community.

24. Ayana Walker (*ZIP code: 77033)*

25. Candace Cooper (*ZIP code: 77059)*

26. Carmen Ivonne (*ZIP code: 77023)*
I support air conditioner for Sunnyside and everybody what needed

27. Cecelia Fontenot (*ZIP code: 77033)*

28. Christopher Parma (*ZIP code: 77007)*

29. Connor Flinn (*ZIP code: 78751)*

30. Carol Biggs (*ZIP code: 77845-8156)*
Let's make Texas the healthiest state in the country - right now Texas is one of the worst. :-(

31. Cheryl Fontenot (*ZIP code: 77051)*
The air in the area is causing breathing problems for me and my family. Several of us have asthma and many times, it’s aggravated when we’re outside.

32. Christopher Jenkins (*ZIP code: 77004)*
Christopher Jenkins

33. Claire Sebesta (*ZIP code: 77429)*

34. Christopher Newton (*ZIP code: 77006)*

35. Charlie Tutson (*ZIP code: 77051)*
Charlie Tutson

36. Cuong Luu (*ZIP code: 77080)*

37. Justin Coates (*ZIP code: 77008)*

38. Darlene Watson (*ZIP code: 78757)*

39. Daron Chatman (*ZIP code: 77089)*

40. Diane Duesterhoeft (*ZIP code: 78228)*
Please add a new regulatory air monitor site in Sunnyside.

41. Denae King (*ZIP code: 77004)*

42. Deborah Viser (*ZIP code: 77053)*

43. Eileen Chao (*ZIP code: 90620)*

44. Edward Garza (*ZIP code: 77061)*
Sunnyside residents have the right to know what they are breathing. They have the right to breathe clean air. To this end, a monitoring site must be installed, and promptly.

45. Efrem Jernigan (*ZIP code: 77004)*
Yeah for more monitors!!!

46. Emily Hynds (*ZIP code: 77021-1143)*

47. Ellen Sprovach (*ZIP code: 77008)*

48. Elvis Sevilla (*ZIP code: 77065)*

49. everett blaylock (*ZIP code: 77578)*

50. Ruth Ann Wathen (*ZIP code: 77062)*
Need clean air.

51. Gloria Garza (*ZIP code: 77061)*
For both the short- and long-term health of Sunnyside's residents, it's imperative that an air monitoring site be established in the community.

52. Herbert Sims (*ZIP code: 77051)*

53. Henry Price iii (*ZIP code: 77053)*

54. Pamela Holmes (*ZIP code: 77584)*

55. Angela Sealana (*ZIP code: 78245)*

56. Isabel Arbelaez (*ZIP code: 77009)*

57. Iva Jean-Jacques (*ZIP code: 77051)*
MANY RESIDENTS ARE SUFFERING FROM Asthma and respiratory illnesses because of air pollution in Sunnyside..Air Monitoring is very necessary immediately

58. Bridgette James (*ZIP code: 77033)*

59. Jeanette Eaglin (*ZIP code: 77051)*

60. Jessica Hinojosa (*ZIP code: 77008)*

61. Jo Ann Burbridge (*ZIP code: 77033)*

62. Jared Conway (*ZIP code: 77051)*

63. Chantel Vital (*ZIP code: 77051)*

64. Kelsey Huse (*ZIP code: 78705)*

65. Kevin Strickland (*ZIP code: 77008)*
We know that underserved communities suffer the most because they are ignored, not heard, not seen, not in the room when these decisions are made. TCEQ must fund and install this equipment.

66. Kimberly Phipps-Nichol (*ZIP code: 77098)*
My husband grew up in Sunnyside and this community is important to me.
As someone who does a lot of work in the design justice & equity space, I am asking you to please add a new regulatory air monitor site in Sunnyside. We can't make things better if we don't have a solid metric/baseline from which to work.

67. Larry McKinzie (*ZIP code: 77021)*

68. Laura Smith (*ZIP code: 77845)*
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71. Loren Denton (*ZIP code: 77389)*

72. LaLover Horace (*ZIP code: 77051)*

73. Lynn Porfirio (*ZIP code: 77546-2630)*
All love for Sunnyside.

74. Gail Williams (*ZIP code: 77051)*
Request for more information.

Thank you

75. Marian Sturm (*ZIP code: 77901)*
Not taking care of this matter only shows that some people are considered more important than others which, of course, is false. All people are created by God with dignity and must be treated in this way with equity. Please monitor the air pollution in Sunny Side.

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77. Melynda Nuss (*ZIP code: 78731)*

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I support this and it's long overdue

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Parthenia C

83. Quentin Upshaw (*ZIP code: 77082)*
Cannot continue to ruin our beautiful downtown whether it's aesthetically, or through air quality all in the name of shaving of a couple minutes off suburban commute. Aka ruining Houston in order to serve people that don't live there.

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85. Dr. Henry Price (*ZIP code: 77584)*

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Monitor Houston's air quality

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TXFPF supports this petition. Sunnyside needs air monitoring systems.

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We need to ensure that the air quality is safe and reliable for everyone in our community to live.

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I am signing this petition in union with the Laudato Si' Movement - Texas Chapter - a Catholic organization devoted to promoting environmental stewardship through an integral ecology in response to the cry of the poor and of the earth.

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Sunnyside to get a Regulatory Monitor from TCEQ.

101. Wesley Conner III (*ZIP code: 77338)*
I am writing to express my full support for the crucial initiative spearheaded by the One Breath Partnership to address the pressing issue of air pollution in Sunnyside, an underserved African-American community on the south side of Houston.

The concentration of metal recycling facilities, concrete batch and crushing facilities, freeways, and substantial industrial activity in Sunnyside poses a significant threat to public health. Despite the evident risks, the absence of regulatory-grade air monitors in the vicinity leaves the community in a distressing state of uncertainty regarding the extent of their exposure to harmful pollutants.

The decision to remove the state-run regulatory-grade air monitor at the City of Houston Park Place office without replacement has left Sunnyside as an air pollution blind spot, depriving residents of vital information necessary to safeguard their health and well-being. This lack of monitoring equipment not only undermines the fundamental right of individuals to know what they are breathing but also perpetuates environmental injustices that disproportionately affect communities with deep cultural histories like Sunnyside.

The statistics are alarming. Studies have shown that exposure to air pollution, particularly fine particulate matter such as PM2.5, contributes to thousands of premature deaths and billions of dollars in economic damages annually. Moreover, residents of Sunnyside face heightened risks of heart disease, high blood pressure, lung cancer, and respiratory diseases, as evidenced by the area's elevated asthma rates and frequent ambulance utilization for asthma attacks.

It is imperative that we take immediate action to rectify this disparity and provide Sunnyside with the same level of environmental monitoring equipment afforded to other parts of the city. By reinstating a regulatory-grade air monitor in Sunnyside, we can empower residents with the information they need to advocate for their right to clean air and hold accountable those responsible for polluting their environment.

I commend all the Houston communities of color like Sunnyside for their tireless efforts to address this critical issue and stand ready to offer any assistance necessary to advance this cause such as Fifth Ward, Galena Park, and Pleasantville. Together, we can ensure that every individual, regardless of their zip code, has the right to breathe clean air and live in a healthy environment.

Thank you for your dedication to improving the lives of those in Sunnyside and for your commitment to environmental justice.

Sincerely,

Wesley "Trey" Conner III
President of TC Construction
Houston, TX

102. Tracy Stephens (*ZIP code: 77051)*

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Sunnyside desperately needs regulatory monitors.

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Air monitoring is vital to understand how much these companies are poisoning us.

107. Windy Beck (*ZIP code: 70006)*
An air monitor is necessary to protect the community and ensure the responsibility of industry. It is long overdue that this air monitor is replaced with something that will inform the city, regulators, and communities of the quality of air in the area.

108. Yvittia Harris (*ZIP code: 77033)*

From: Allyn West via ActionNetwork.org <info@sg.actionnetwork.org>
Sent: Thursday, May 16, 2024 9:31 AM
To: tceqamnp
Subject: Texas Commission on Environmental Quality, Tell TCEQ: We need air monitoring in Houston's Sunnyside
Attachments: tell-tceq-we-need-air-monitoring-in-houstons-sunnyside_signatures_202405160231.pdf

Texas Commission on Environmental Quality,

126 people have signed a petition on Action Network telling you to Tell TCEQ: We need air monitoring in Houston's Sunnyside.

Here is the petition they signed:

> RE: 2024 Annual Monitoring Network Plan
>
> I support the deployment of a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas.
>
> Historical communities of color, like Sunnyside, have borne an inequitable pollution burden for too long. Sunnyside residents have a right to know what they are breathing. We all have a right to breathe clean air.
>
> We urge TCEQ, as recommended by EPA in their response to the 2023 AMNP, to evaluate sites for ambient air monitoring with respect to environmental justice concerns. It is critical for both residents and local government agencies to have more information to make the best decisions to protect the health of Houston residents.

You can view each petition signer and the comments they left you in the attached PDF.

Thank you,

One Breath Partnership

To help protect your privacy, Microsoft Office prevented automatic download of this picture from the Internet.
Action Network

Sent via Action Network, a free online toolset anyone can use to organize. Click here to sign up and get started building an email list and creating online actions today.

Action Network is an open platform that empowers individuals and groups to organize for progressive causes. We encourage responsible activism, and do not support using the platform to take unlawful or other improper action. We do not control or endorse the conduct of users and make no representations of any kind about them.

You can unsubscribe or update your email address or change your name and address by changing your subscription preferences here.

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You can view each petition signer and the comments they left you below.

Thank you,

One Breath Partnership

---

1. Abbie Culver (*ZIP code: 77532)*

2. Adam Campbell (*ZIP code: 77006)*

3. Laura Graham (*ZIP code: 78228)*
Add a new regulatory air monitor site in Sunnyside so people will be able to know what they are breathing and act accordingly.

4. An anonymous signer (*ZIP code: 77044)*

5. Al Jasso (*ZIP code: 77055)*

6. Alejandro Perez (*ZIP code: 77022)*
Trash ass companies abusing no zoning.

7. Alicia Fontenot (*ZIP code: 77051)*
I have asthma along with many family members and I was born and raised in Sunnyside Houston

8. Alison Wenzel (*ZIP code: 78751)*

9. Altheria Henley (*ZIP code: 77051)*

10. Amanda Bonam (*ZIP code: 70128)*
The National Black Environmental Justice Network (NBEJN) supports Sunnyside residents in their call for TCEQ to evaluate sites for ambient air monitoring with respect to environmental justice concerns.

11. Anna Weiss (*ZIP code: 77007)*
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12. Angelina Spencer (*ZIP code: 77033)*

13. anthony Davis (*ZIP code: 77045)*
Anthony Davis

14. Treasa Antony (*ZIP code: 77047)*
As a resident of Sunnyside with a family and friends that I deeply care for I and my neighborhood have a right to be informed about the air we are breathing.

15. Archie Phillips (*ZIP code: 78737)*
Archie

16. Allyn West (*ZIP code: 77021)*

17. Bethany Morrison (*ZIP code: 78750)*

18. Helen Bernard (*ZIP code: 77051)*

19. Beth Shook (*ZIP code: 77006)*

20. Raymond Thompson (*ZIP code: 77021)*

21. Robert Stubblefield (*ZIP code: 77007)*

Sunnyside needs an air monitoring system to mitigate toxic exposure, especially among our youth who are at risk by simply taking a breath in their neighborhood. This investment could save hundreds from facing severe respiritory health issues permanently affecting quality of life.

22. Goldie Brown (*ZIP code: 77033)*

23. Charles Cave (*ZIP code: 77048)*
This is information we need to improve the health and well-being of our community.

24. Ayana Walker (*ZIP code: 77033)*

25. Candace Cooper (*ZIP code: 77059)*

26. Carmen Ivonne (*ZIP code: 77023)*
I support air conditioner for Sunnyside and everybody what needed

27. Cecelia Fontenot (*ZIP code: 77033)*

28. Christopher Parma (*ZIP code: 77007)*

29. Connor Flinn (*ZIP code: 78751)*

30. Carol Biggs (*ZIP code: 77845-8156)*
Let's make Texas the healthiest state in the country - right now Texas is one of the worst. :-(

31. Cheryl Fontenot (*ZIP code: 77051)*
The air in the area is causing breathing problems for me and my family. Several of us have asthma and many times, it’s aggravated when we’re outside.

32. Chloe Cook (*ZIP code: 77006)*

33. Christopher Jenkins (*ZIP code: 77004)*
Christopher Jenkins

34. Claire Sebesta (*ZIP code: 77429)*

35. Christopher Newton (*ZIP code: 77006)*

36. Charlie Tutson (*ZIP code: 77051)*
Charlie Tutson

37. Cuong Luu (*ZIP code: 77080)*

38. Justin Coates (*ZIP code: 77008)*

39. Darlene Watson (*ZIP code: 78757)*

40. Daron Chatman (*ZIP code: 77089)*

41. Diane Duesterhoeft (*ZIP code: 78228)*
Please add a new regulatory air monitor site in Sunnyside.

42. Denae King (*ZIP code: 77004)*

43. Daniel Piette (*ZIP code: 77006-4303)*

44. Deborah Viser (*ZIP code: 77053)*

45. Eileen Chao (*ZIP code: 90620)*

46. Edward Garza (*ZIP code: 77061)*
Sunnyside residents have the right to know what they are breathing. They have the right to breathe clean air. To this end, a monitoring site must be installed, and promptly.

47. Efrem Jernigan (*ZIP code: 77004)*
Yeah for more monitors!!!

48. Emily Hynds (*ZIP code: 77021-1143)*

49. Ellen Sprovach (*ZIP code: 77008)*

50. Elvis Sevilla (*ZIP code: 77065)*

51. everett blaylock (*ZIP code: 77578)*

52. Ruth Ann Wathen (*ZIP code: 77062)*
Need clean air.

53. Gloria Garza (*ZIP code: 77061)*
For both the short- and long-term health of Sunnyside's residents, it's imperative that an air monitoring site be established in the community.

54. Herbert Sims (*ZIP code: 77051)*

55. Henry Price iii (*ZIP code: 77053)*

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Thank you for your dedication to improving the lives of those in Sunnyside and for your commitment to environmental justice.

Sincerely,

Wesley "Trey" Conner III
President of TC Construction
Houston, TX

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114. Rafferty Deeds (*ZIP code: 77009)*
Add an air monitor, everybody deserves to know what we could be breathing

115. Yvittia Harris (*ZIP code: 77033)*

From: Jo ann Burbridge <joann.burbridge@yahoo.com>
Sent: Tuesday, May 14, 2024 7:36 PM
To: tceqamnp
Cc: Debra Walker; Bridgette Murray; stefanie17210@gmail.com; Juan Flores; Cruz Hinojosa; King Denae; Tangi Smith; Efrem Jernigan
Subject: TCEQ Air Monitoring Letter of Support
Attachments: ECAGP Letter of Support for SCRO 2.docx; TCEQ LOS SCRO.pdf; South Union CDC Letter of Support Air Monitors.pdf; TXFPF GROUP Letter of Support.pdf; Bullard Center 2024 Air Monitoring Plan Comments.pdf

Ms. Holly Landuyt,

Attached are letters to support the Sunnyside Community Redevelopment Organization's request to have a regulatory air monitor deployed in Sunnyside.
Jo Ann Burbridge, MA
Vice-President, SCRO

ENVIRONMENTAL COMMUNITY ADVOCATES OF GALENA PARK

1217 15Th St. Galena Park, Texas 77547

May 15, 2024

Texas Commission on Environmental Quality

P.O. Box 13087

Attention: Holly Landuyt, MC-165

Austin, Texas 78711-3087

Dear Ms. Landuyt,

I write in response to the draft of the 2024 Annual Monitoring Network Plan.

Our organization recommends deploying more monitors across the eight-county PM2.5 non-attainment region, including the deployment of a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas to be included in the 2024 TCEQ Air Monitoring Network Plan.

Since the closure of the reference grade monitor at the City of Houston Park Place, there is no regulatory monitor within seven miles to understand particulate matter and criteria pollutants despite the concentration of metal recycling facilities, concrete batch/crushing facilities, transportation, and substantial industrial activity in and around our community. Studies have shown 1 that levels of air pollution can vary by up to eight times within one city block.

In 2021, community leaders in Sunnyside developed and deployed a community-owned air monitoring network to observe PM2.5 and NO2 in the neighborhood. Understanding that these sensors do not provide regulatory data that can be compared to the federal equivalent, the data collected through citizen installed network can be useful in understanding an overall picture of air quality in an area. The data demonstrate trends that might indicate a lack of compliance with federal air quality standards in the area and concerning peaks that exacerbate existing health disparities in this environmental justice community. As recommended by EPA in their response to the 2023 AMNP, TCEQ should continue to evaluate areas with respect to environmental justice related to ambient air monitoring. It is critical for both residents and local government agencies to have more information to make the best decisions to protect the health of Houston residents.

The residents of Sunnyside and nearby areas have a right to know if they are breathing air toxics. They have a right to breathe clean air every day. Please consider deploying a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas.

Sincerely,

Cruz R. Hinojosa, Jr.

Cruz R. Hinojosa, Jr.

President

Environmental Community Advocates of Galena Park

1 https://www.edf.org/airqualitymaps/oakland

TXFPF GROUP

PO BOX 740746 HOUSTON, TEXAS 77274-0746| PHONE: 713-538-0466| TXFPF.ORG

May 14, 2024

Texas Commission on Environmental Quality

Elias Ramires Building

5425 Polk St. Houston, TX 77023

Dear TCEQ,

On behalf of the Texas Federation of the People Environmental Justice Awareness Committee, I am writing to express our strong support for the Sunnyside community's SCROs request for the installation of air monitoring systems in their area.

Sunnyside is a vibrant and growing community, yet it faces significant environmental challenges, particularly concerning air quality. The health and well-being of its residents are of paramount importance, and access to accurate and timely air quality data is essential in addressing and mitigating potential health risks associated with air pollution.

The implementation of air monitoring systems will provide invaluable data that can be used to identify pollution sources and develop targeted strategies to improve air quality. This initiative is crucial for protecting the health of all residents, especially vulnerable groups such as children, the elderly, and individuals with preexisting respiratory conditions.

We believe that the installation of these air monitoring systems aligns with TCEQ's commitment to safeguarding public health and the environment. By supporting this request, TCEQ will be taking a significant step toward environmental justice and ensuring that all communities, regardless of socioeconomic status, have the necessary tools to protect their health.

We strongly urge you to prioritize and approve the Sunnyside air monitoring request. Thank you for your attention to this critical matter and for your continued dedication to improving environmental quality in Texas.

Sincerely,

Tangi Smith

Executive Director

Texas Federation of the People Environmental Justice Awareness

Sincerely yours,

Tangi Smith

Tangi Smith B.A., M.P.A.

— SOUTH UNION —
COMMUNITY DEVELOPMENT CORPORATION
Sowing Seeds of Success

President:
Efrem B. Jernigan
LBI- (Retired)

Vice President:
Alvis Prince
US Govt-Retired

Secretary:
Madeline Allison
US Government

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NASA

Board of Directors:

Lindsey Bengue
Amazon

James Wilson
CHESS, LLC.

Executive Director:
Rita O'Neal Jones

May 13, 2024

Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087
Attention: Holly Landuyt, MC-165

Dear Ms. Landuyt,
I write in response to the draft of the 2024 Annual Monitoring Network Plan.

Our organization recommends deploying more monitors across the eight-county PM2.5 non-attainment region, including the deployment of a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas. Especially around the perimeter of the 240-acre landfill that is adjacent to the Sunnyside Park. (Let's ensure that the fumes / methane from this site is not released when they begin to build the future Solar Farm).

Since the closure of the reference grade monitor at the City of Houston Park Place, there is no regulatory monitor within seven miles to understand particulate matter and criteria pollutants despite the concentration of metal recycling facilities, concrete batch/crushing facilities, transportation, and substantial industrial activity in and around our community. Studies have shown that levels of air pollution can vary by up to eight times within one city block.

In 2021, community leaders in Sunnyside developed and deployed a community-owned air monitoring network to observe PM2.5 and NO2 in the neighborhood. Understanding that these sensors do not provide regulatory data that can be compared to the federal equivalent, the data collected through citizen installed network can be useful in understanding an overall picture of air quality in an area. The data demonstrate trends that might indicate a lack of compliance with federal air quality standards in the area and concerning peaks that exacerbate existing health disparities in this environmental justice community. As recommended by EPA in their response to the 2023 AMNP, TCEQ should continue to evaluate areas with respect to environmental justice related to ambient air monitoring. It is critical for both residents and local government agencies to have more information to make the best decisions to protect the health of Houston residents.

The residents of Sunnyside and nearby areas have a right to know if they are breathing air toxics. They have a right to breathe clean air every day. Please consider deploying a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas

Sincerely,

Efrem B. Jernigan
Efrem B. Jernigan - President

4823 Higgins Street   Houston, TX 77033   (713) 419-8352   www.southunioncdc.org

BULLARD CENTER
FOR ENVIRONMENTAL
& CLIMATE JUSTICE
TEXAS SOUTHERN UNIVERSITY

May 14, 2024

Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Dear Ms. Landuyt,

The Bullard Center for Environmental and Climate Justice at Texas Southern University writes to share a response to the draft of the 2024 Annual Monitoring Network Plan. Our organization recommends increasing the number of federal equivalent air monitors deployed across the eight-county $PM_{2.5}$ non-attainment region, including the deployment of a new continuous multi-pollutant regulatory monitor to assess $PM_{2.5}$, NO_2 and speciated VOCs in the Sunnyside community of Houston, Texas as part of the 2024 TCEQ Air Monitoring Network Plan.

Although there are several transportation-related and industrial type facilities in or near the Sunnyside community, there is no regulatory monitor within a seven-mile radius that can be used to understand particulate matter and criteria pollutant exposure for residents. Community leaders in the Sunnyside area developed and deployed a community-owned air monitoring network to examine $PM_{2.5}$ and NO_2 in their neighborhood. Based on the data from their community air monitoring network, pollutants from the metal recycling and concrete crushing facilities, as well as, highway traffic during peak times, travel quite a distance. The findings from the low-cost sensors demonstrate the need for a federal equivalent grade air monitor to assess air quality. As recommended by EPA in their response to the 2023 AMNP, TCEQ should continue to evaluate areas with respect to environmental justice related to ambient air monitoring. The Sunnyside community has expressed concerns related to adult and childhood asthma that could potentially be associated with the cumulative impacts of the concentration of industrial facilities and mobile sources of air pollution.

Please consider deploying a new continuous multipollutant regulatory site to monitor $PM_{2.5}$, NO_2 and speciated VOCs in the Sunnyside community of Houston, Texas

Sincerely,

Denae King

Denae King, PhD
Associate Director
Bullard Center for Environmental and Climate Justice
Denae.king@tsu.edu

ACHIEVING COMMUNITY TASKS SUCCESSFULLY

Mission:
ACTS (Achieving Community Tasks Successfully) is a community-based nonprofit organization that seeks to leverage citizen science, training, and community engagement to address environmental, climate, and social justice. Our work is directed toward neighborhood empowerment through expert resource collaborations, and implementing initiatives that serve and impact the community

Vision:
Transforming communities to empower residents

May 15, 2024

Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Dear Ms. Landuyt,

I write in response to the draft of the 2024 Annual Monitoring Network Plan.

Our organization is supportive of the request to deploy more monitors across the eight-county PM2.5 non-attainment region, including the deployment of a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas to be included in the 2024 TCEQ Air Monitoring Network Plan.

Since the closure of the reference grade monitor at the City of Houston Park Place, there is no regulatory monitor within seven miles to understand particulate matter and criteria pollutants despite the concentration of metal recycling facilities, concrete batch/crushing facilities, transportation, and substantial industrial activity in and around that area of Houston. Studies have shown[1] that levels of air pollution can vary by up to eight times within one city block.

In 2021, community leaders in Sunnyside developed and deployed a community-owned air monitoring network to observe PM2.5 and NO2 in the neighborhood. Understanding that these sensors do not provide regulatory data that can be compared to the federal equivalent, the data collected through citizen installed network can be useful in understanding an overall picture of air quality in an area. The data demonstrates trends that might indicate a lack of compliance with federal air quality standards in the area and concerning peaks that exacerbate existing health disparities in this environmental justice community. As recommended by EPA in their response to the 2023 AMNP, TCEQ should continue to evaluate areas with respect to environmental justice related to ambient air monitoring. It is critical for both residents and local government agencies to have more information to make the best decisions to protect the health of Houston residents.

[1] https://www.edf.org/airqualitymaps/oakland

The residents of Sunnyside and nearby areas have a right to know if they are breathing air toxics. They have a right to breathe clean air every day. Please consider deploying a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas

Sincerely,

Bridgette Murray

Bridgette Murray
Executive Director
Achieving Community Tasks Successfully

From: LSMTexas <laudatositexas@gmail.com>
Sent: Tuesday, May 14, 2024 7:46 AM
To: tceqamnp
Subject: Comment on 2024 Annual Monitoring Network Plan
Attachments: TCEQ May 14.pdf

Please see attached memo. Thank you.

Peace be with you,
Linda Sandish
Chapter Animator
https://www.facebook.com/laudatositexas/
https://www.instagram.com/laudatositexas/

LAUDATO SI' MOVEMENT
TEXAS

To: Texas Commission on Environmental Quality
From: LSM TX – Linda Sandish, Chapter Leader
Date: May 14, 2024
Re: 2024 Annual Monitoring Network Plan

The Laudato Si' Movement – Texas Chapter (LSM TX) is a faith-based organization that works to inspire and mobilize people of faith to care for our common home and achieve ecological justice. On behalf of LSM TX, I respectfully ask that TCEQ deploy a new continuous multipollutant site to monitor PM 2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas.

Historical communities of color, like Sunnyside, have borne an inequitable pollution burden for too long. Sunnyside residents have a God given right to know what they are breathing as do all beings of God's creation. This is a Pro-Life issue so we stand with the EPA's recommendation to evaluate sites for ambient air monitoring with respect to ecological justice concerns. Knowledge is power and it is the duty of government agencies such as the TCEQ to provide such information to the public so that better decisions can be made as to how to protect the health of residents in the area monitored.

We pray you will do what is morally correct to protect the people who reside in Sunnyside, Houston, Texas.

From: buildonsuccess@gmail.com
Sent: Tuesday, May 14, 2024 3:19 PM
To: tceqamnp
Cc: 'Jo ann Burbridge'
Subject: TCEQ Air Monitoring Letter of Support
Attachments: CPCA Letter of Support - Air Monitors for Sunnyside .pdf

Attached is a letter of support for the Sunnyside Community Redevelopment Organization's request to have a regulatory air monitor deployed in Sunnyside.

Charles Cave, President
Crestmont Park Civic Alliance
www.crestmontpark.org
832-752-2082

CPCA
CRESTMONT PARK
CIVIC ALLIANCE
SERVICE ◆ UNITY ◆ COMMUNITY

CPCA
CRESTMONT PARK
CIVIC ALLIANCE
SERVICE ◆ UNITY ◆ COMMUNITY

May 14, 2024

Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Dear Ms. Landuyt,

I am writing in response to the draft of the 2024 Annual Monitoring Network Plan.

Our organization recommends deploying more monitors across the eight-county PM2.5 non-attainment region, including the deployment of a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in the Sunnyside neighborhood of Houston.

Since the closure of the reference grade monitor at the City of Houston Park Place, there is no reference grade regulatory monitor near Sunnyside to understand particulate matter and criteria pollutants despite the lack of compliance with federal air quality standards in the area and demonstration of concerning pollutant trends due to the concentration of metal recycling facilities, concrete batch/crushing facilities, transportation and substantial industrial activity in and around the Sunnyside community. The nearest TCEQ PM2.5 monitors are at Bayland Park and Clinton Park, each more than seven miles away. Sunnyside is an air quality blind spot and there is a serious need to address the contribution of criteria and hazardous air pollutants to existing health disparities in this environmental justice community. As recommended by EPA in their response to the 2023 AMNP, TCEQ should continue to evaluate areas with respect to environmental justice related to ambient air monitoring. It is critical for both residents and local government agencies to have more information to make the best decisions to protect the health of Houston residents.

The residents of Sunnyside and nearby areas have a right to know if they are breathing air toxins. They have a right to breathe clean air every day. EDF requests that TCEQ deploy a new continuous regulatory monitor for PM2.5, NO2 with a speciated VOC monitor in the Sunnyside neighborhood.

Sincerely,

Charles A Cave

Charles Cave, President
Crestmont Park Civic Alliance

From: Carol Biggs <chbiggs64@gmail.com>
Sent: Wednesday, May 15, 2024 10:12 AM
To: tceqamnp
Subject: Air Monitoring in Houston's Sunnyside District

As a member of the Citizens Climate Lobby – Texas Chapter (CCL TX), a nonpartisan political action group that works to educate and mobilize the public, and our elected leaders, on the affordable options and economic paybacks. to care for our common home and achieve ecological justice.

On behalf of LSM TX, I respectfully ask that TCEQ deploy a new continuous multipollutant site to monitor PM 2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas. Communities of color, like Sunnyside, have borne an inequitable pollution burden for too long. Sunnyside residents have a right to know what they are breathing as do all beings. We stand with other conservation orgs, including Laudato Si, and the EPA's recommendation to evaluate sites for ambient air monitoring with respect to ecological justice concerns. Knowledge is power and it is the duty of government agencies, such as the TCEQ, to provide such information to the public so better decisions can be made as to how to protect the health of residents in the area monitored.

We hope you will do what is morally correct to protect the people who reside in Sunnyside, Houston, Texas.

Sincerely,
Carol Biggs, with Citizens Climate Lobby

From: Jo ann Burbridge <joann.burbridge@yahoo.com>
Sent: Wednesday, May 15, 2024 4:01 PM
To: tceqamnp
Cc: Debra Walker; Claudette Edwards
Subject: TCEQ Air Monitoring Letter of Support
Attachments: Air Quality Letter.pdf

Good Afternoon Ms. Landuyt,
A letter of support is attached from TEETER TOTTER VILLAGE, a community organization in Sunnyside supporting the need to have a regulatory air monitor in Sunnyside.

Jo Ann Burbridge, Vice-
President, SCRO

TEETER TOTTER VILLAGE
9133 Scott St.
Houston, TX 77051

It takes a village to raise a child

May 15, 2024

Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Dear Ms. Landuyt,

I write in response to the draft of the 2024 Annual Monitoring Network Plan.

Our organization recommends deploying more monitors across the eight-county PM2.5 non-attainment region, including the deployment of a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas to be included in the 2024 TCEQ Air Monitoring Network Plan.

Since the closure of the reference grade monitor at the City of Houston Park Place, there is no regulatory monitor within seven miles to understand particulate matter and criteria pollutants despite the concentration of metal recycling facilities, concrete batch/crushing facilities, transportation, and substantial industrial activity in and around our community. Studies have shown[1] that levels of air pollution can vary by up to eight times within one city block.

In 2021, community leaders in Sunnyside developed and deployed a community-owned air monitoring network to observe PM2.5 and NO2 in the neighborhood. Understanding that these sensors do not provide regulatory data that can be compared to the federal equivalent, the data collected through citizen installed network can be useful in understanding an overall picture of air quality in an area. The data demonstrate trends that might indicate a lack of compliance with federal air quality standards in the area and concerning peaks that exacerbate existing health disparities in this environmental justice community. As recommended by EPA in their response to the 2023 AMNP, TCEQ should continue to evaluate areas with respect to environmental justice related to ambient air monitoring. It is critical for both residents and local government agencies to have more information to make the best decisions to protect the health of Houston residents.

The residents of Sunnyside and nearby areas have a right to know if they are breathing air toxics. They have a right to breathe clean air every day. Please consider deploying a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas

Sincerely,

Claudette Edwards

Claudette Edwards

[1] https://www.edf.org/airqualitymaps/oakland

From: King, Denae <Denae.King@tsu.edu>
Sent: Wednesday, May 15, 2024 7:40 PM
To: tceqamnp
Subject: TCEQ 2024 Annual Monitoring Network Plan Comment
Attachments: Bullard Center 2024 Air Monitoring Plan Comments.pdf

Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Dear Ms. Landuyt,

The Bullard Center for Environmental and Climate Justice at Texas Southern University writes to share a response to the draft of the 2024 Annual Monitoring Network Plan. Our organization recommends increasing the number of federal equivalent air monitors deployed across the eight-county $PM_{2.5}$ non-attainment region, including the deployment of a new continuous multi-pollutant regulatory monitor to assess $PM_{2.5}$, NO_2 and speciated VOCs in the Sunnyside community of Houston, Texas as part of the 2024 TCEQ Air Monitoring Network Plan.

Although there are several transportation-related and industrial type facilities in or near the Sunnyside community, there is no regulatory monitor within a seven-mile radius that can be used to understand particulate matter and criteria pollutant exposure for residents. Community leaders in the Sunnyside area developed and deployed a community-owned air monitoring network to examine $PM_{2.5}$ and NO_2 in their neighborhood. Based on the data from their community air monitoring network, pollutants from the metal recycling and concrete crushing facilities, as well as, highway traffic during peak times, travel quite a distance. The findings from the low-cost sensors demonstrate the need for a federal equivalent grade air monitor to assess air quality. As recommended by EPA in their response to the 2023 AMNP, TCEQ should continue to evaluate areas with respect to environmental justice related to ambient air monitoring. The Sunnyside community has expressed concerns related to adult and childhood asthma that could potentially be associated with the cumulative impacts of the concentration of industrial facilities and mobile sources of air pollution.

Please consider deploying a new continuous multipollutant regulatory site to monitor $PM_{2.5}$, NO_2 and speciated VOCs in the Sunnyside community of Houston, Texas.

Denae King, PhD
Associate Director

BULLARD CENTER FOR ENVIRONMENTAL & CLIMATE JUSTICE
TEXAS SOUTHERN UNIVERSITY

3100 Cleburne Street, PAB 205F
Houston, TX 77004
denae.king@tsu.edu
Phone: 713-313-4804

From: Karen Carrizales <karencarrizales22@gmail.com>
Sent: Wednesday, May 15, 2024 9:12 AM
To: tceqamnp
Subject: Houston Air Quality Monitoring Network Plan

To: Texas Commission on Environmental Quality
Date: May14,2024
Re: 2024 Annual Monitoring Network Plan

Good morning, I am a member of Ladauto Si Movement in Texas and I would like to support the Action Network's petition to monitor the air quality in Sunnyside.

The Laudato Si' Movement – Texas Chapter (LSM TX) is a faith-based organization that works to inspire and mobilize people of faith to care for our common home and achieve ecological justice. On behalf of LSM TX, **I respectfully ask that TCEQ deploy a new continuous multipollutant site to monitor PM 2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas.**

Historical communities of color, like Sunnyside, have borne an inequitable pollution burden for too long. Sunnyside residents have a God given right to know what they are breathing as do all beings of God's creation. This is a Pro-Life issue so we stand with the EPA's recommendation to evaluate sites for ambient air monitoring with respect to ecological justice concerns. Knowledge is power and it is the duty of government agencies such as the TCEQ to provide such information to the public so that better decisions can be made as to how to protect the health of residents in the area monitored.

I pray you will do what is morally correct to protect the people who reside in Sunnyside, Houston, Texas.

Thank you for your consideration of this important issue that affects our neighbors.

In solidarity with our neighbors,

Karen Carrizales
LSM ANIMATOR
Austin, Texas

From: Beth Bondurant <bbondurant700@gmail.com>
Sent: Wednesday, May 15, 2024 12:20 PM
To: tceqamnp
Subject: Sunnyside VOCs

To: Texas Commission on Environmental Quality

From: Beth Bondurant

Date: May 15, 2024

Re: 2024 Annual Monitoring Network Plan

I respectfully ask that TCEQ deploy a new continuous multipollutant site to monitor PM 2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas. I am a member of the Laudato Si' Movement in Texas and part of our mission is to advocate for ecological social justice and it is an integral part of our faith.

Historical communities of color, like Sunnyside, have borne an inequitable pollution burden for too long. Sunnyside residents have a God given right to know what they are breathing as do all beings of God's creation. This is a Pro-Life issue so we stand with the EPA's recommendation to evaluate sites for ambient air monitoring with respect to ecological justice concerns. Knowledge is power and it is the duty of government agencies such as TCEQ to provide such information to the public so that better decisions can be made as to how to protect the health of residents in the area monitored

I pray you will do what is morally correct to protect the people who reside in Sunnyside, Houston, Texas.

Thank you,

Beth Bondurant

From: laurasmith579@gmail.com
Sent: Wednesday, May 15, 2024 11:11 AM
To: tceqamnp
Subject: Sunnyside community - pollutant site monito

Dear TCEQ,
I am a citizen member of The Citizens Climate Lobby – Texas Chapter (CCL TX), a nonpartisan political action group that works to educate and mobilize the public, as well as our elected leaders, on the affordable options and economic paybacks that care for our common home and achieve ecological justice. In conjunction with Laudato Si' TX, I respectfully ask that TCEQ deploy a new continuous multipollutant site to monitor PM 2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas. Communities of color, like Sunnyside, have borne an inequitable pollution burden for too long. Sunnyside residents have a right to know what they are breathing, as do all beings. We stand with other conservation orgs, including Laudato Si, and the EPA's recommendation to evaluate sites for ambient air monitoring with respect to ecological justice concerns. Knowledge is power and it is the duty of government agencies, such as the TCEQ, to provide such information to the public so better decisions can be made as to how to protect the health of residents in the area monitored.

We hope you will do what is morally correct to protect the people who reside in Sunnyside, Houston, Texas.

Sincerely,
Laura Smith with Citizens Climate Lobby

From: Jennifer Hardee <jhardee@ourladyofangels.com>
Sent: Tuesday, May 14, 2024 9:53 AM
To: tceqamnp
Subject: 2024 Annual Monitoring Network Plan

Good morning,

I am a member of The Laudato Si' Movement – Texas Chapter (LSM TX), which is a faith-based organization that works to inspire and mobilize people of faith to care for our common home and achieve ecological justice. On behalf of LSM TX, I respectfully ask that TCEQ deploy a new continuous multipollutant site to monitor PM 2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas.

Historical communities of color, like Sunnyside, have borne an inequitable pollution burden for too long. Sunnyside residents have a God-given right to know what they are breathing as do all beings of God's creation. This is a Pro-Life issue, so we stand with the EPA's recommendation to evaluate sites for ambient air monitoring with respect to ecological justice concerns. Knowledge is power and it is the duty of government agencies such as the TCEQ to provide such information to the public so that better decisions can be made as to how to protect the health of residents in the area monitored.
We pray you will do what is morally correct to protect the people who reside in Sunnyside, Houston, Texas.

Thank you,

Jennifer Hardee
Our Lady of Angels Catholic Church
Adult Faith Formation Director
Catholic Social Teaching Ministry

LAUDATO SI' MOVEMENT TEXAS

"Where you do not find love, put love; and you will draw out love." – St. John of the Cross

From: Lisa Brenskelle <gcs.lrc@gmail.com>
Sent: Wednesday, May 15, 2024 9:49 PM
To: tceqamnp
Subject: 2024 Annual Monitoring Network Plan

To: Texas Commission on Environmental Quality

I respectfully ask that TCEQ deploy a new continuous multipollutant site to monitor PM 2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas. I am a member of the Laudato Si' Movement in Texas, founder of the Interfaith Environmental Network of Houston, and leader of Lutherans Restoring Creation - Gulf Coast and part of the mission of all of these organizations is to advocate for ecological justice which is an integral part of our faith.
Historical communities of color, like Sunnyside, have borne an inequitable pollution burden for too long. Sunnyside residents have a right to know what they are breathing as do all beings of God's creation. On this matter of justice, we stand with the EPA's recommendation to evaluate sites for ambient air monitoring with respect to ecological justice concerns. Knowledge is power and it is the duty of government agencies such as TCEQ to provide such information to the public so that better decisions can be made as to how to protect the health of residents in the area monitored.
I pray you will do what is morally correct to protect the people who reside in Sunnyside, Houston, Texas.

Thank you for this opportunity to tender comments

Lisa A. Brenskelle

From: John Suenram <jmsocd@me.com>
Sent: Wednesday, May 15, 2024 8:01 AM
To: tceqamnp
Subject: Monitors

To: Texas Commission on Environmental Quality
From:
Date: May 14, 2024
Re: 2024 Annual Monitoring Network Plan

I respectfully ask that TCEQ deploy a new continuous multipollutant site to monitor PM 2.5, NO2 and speciated VOCs in Sunnyside, Houston, Texas. I am a member of the Laudato Si' Movement in Texas and part of our mission is to advocate for ecological social justice and it is an integral part of our faith.

Historical communities of color, like Sunnyside, have borne an inequitable pollution burden for too long. Sunnyside residents have a God given right to know what they are breathing as do all beings of God's creation. This is a Pro-Life issue so we stand with the EPA's recommendation to evaluate sites for ambient air monitoring with respect to ecological justice concerns. Knowledge is power and it is the duty of government agencies such as TCEQ to provide such information to the public so that better decisions can be made as to how to protect the health of residents in the area monitored.

I pray you will do what is morally correct to protect the people who reside in Sunnyside, Houston, Texas.

Sincerely Yours,

Rev. John M Suenram
Little Flower Basilica
906 Kentucky Ave.
San Antonio, TX. 78201

From: huey wilson <wilson_huey@sbcglobal.net>
Sent: Wednesday, May 15, 2024 11:19 AM
To: tceqamnp
Subject: Fw: NEHRC Letter of Support for Sunnyside Air Monitor
Attachments: 20240515_085408.jpg

Please find attached a Letter of Support for Sunnyside Community Air Monitor.

Sincerely,

Huey German-Wilson, President
NEHRC

Sent from AT&T Yahoo Mail on Android

Northeast Houston Redevelopment Council (NEHRC)
9654 N. Sam Houston Pkwy East, Ste 150 #228
Humble, TX 77396
www.nehoustonrc.com

May 15, 2024

Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Dear Ms. Landuyt,

I write in response to the draft of the 2024 Annual Monitoring Network Plan.

Our organization recommends deploying more monitors across the eight-county PM2.5 non-attainment region, including the deployment of a new continuous multipollutant regulatory site to monitor PM2.5, NO2 and speciated VOCs in the Sunnyside neighborhood of Houston.

Since the closure of the reference grade monitor at the City of Houston Park Place, there is no reference grade regulatory monitor near Sunnyside to understand particulate matter and criteria pollutants despite the lack of compliance with federal air quality standards in the area and demonstration of concerning pollutant trends due to the concentration of metal recycling facilities, concrete batch/crushing facilities, transportation and substantial industrial activity in and around the Sunnyside community. The nearest TCEQ PM2.5 monitors are at Bayland Park and Clinton Park, each more than seven miles away. Sunnyside is an air quality blind spot and there is a serious need to address the contribution of criteria and hazardous air pollutants to existing health disparities in this environmental justice community. As recommended by EPA in their response to the 2023 AMNP, TCEQ should continue to evaluate areas with respect to environmental justice related to ambient air monitoring. It is critical for both residents and local government agencies to have more information to make the best decisions to protect the health of Houston residents.

The residents of Sunnyside and nearby areas have a right to know if they are breathing air toxins. They have a right to breathe clean air every day. EDF requests that TCEQ deploy a new continuous regulatory monitor for PM2.5, NO2 with speciated VOC monitor in the Sunnyside neighborhood.

Sincerely,

Huey German Wilson, President
Northeast Houston Redevelopment Council

From:	Stephanie Coates
To:	tceqamnp
Subject:	TCEQ Draft 2024 Air Monitoring Network Plan
Date:	Wednesday, May 15, 2024 5:23:09 PM
Attachments:	2024 AMNP EDF Comments final.docx

Good evening,

Please find attached Environmental Defense Fund's comments on the Draft 2024 AMNP.

Thank you,
stephanie

Stephanie Coates
Project Manager, Climate & Health
Environmental Defense Fund

scoates@EDF.org
C 803 606 8572 (call or text)
W 512 691 3411

Houston, TX
EDF.org | A vital Earth. For everyone.
Follow us: Facebook | Instagram

May 15, 2024

Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087
Or sent via email to: tceqamnp@tceq.texas.gov

RE: TCEQ Draft 2024 Air Monitoring Network Plan

Dear Ms. Landuyt,

The Environmental Defense Fund (EDF), working in Houston, Texas, writes in response to the draft of the 2024 Annual Monitoring Network Plan (AMNP). First, EDF conditionally supports TCEQ's proposal to upgrade the $PM_{2.5}$ non-NAAQS comparable monitor at Clinton to a $PM_{2.5}$ FEM continuous monitor, but EDF disagrees with TCEQ's proposal to decrease the Clinton $PM_{2.5}$ FRM filter-based manual monitor sampling frequency from daily to once every six days. Instead, EDF recommends maintaining the sampling frequency of the FRM filter-based manual monitor. Second, EDF urges TCEQ to deploy more monitors across the eight-county $PM_{2.5}$ non-attainment region starting with the deployment of new continuous regulatory multi-pollutant monitors for $PM_{2.5}$, NO_2 with speciated VOCs in the Sunnyside neighborhood of Houston. Finally, EDF urges TCEQ to install one or more ozone and ozone precursor monitors in the Permian Basin.

Do not reduce sampling frequency to once every six days for $PM_{2.5}$ FRM at Clinton

EDF disagrees with TCEQ's proposal to decrease the Clinton $PM_{2.5}$ FRM filter-based manual monitoring sampling frequency from daily to once every six days. The sampling frequency should be maintained because the capacity for speciation afforded by this type of monitor will be useful to TCEQ and the Houston region for source apportionment and development of the State Implementation Plan (SIP) for $PM_{2.5}$ as the region is expected to be in non-attainment. Upgrading equipment to an FEM continuous monitor for $PM_{2.5}$ will provide more data to demonstrate compliance with recently updated $PM_{2.5}$ standard and aid in regulatory enforcement issues. However, upgrading to the FEM does not warrant decreasing the FRM filter-based data collection frequency. EDF conditionally supports the upgrade of equipment at Clinton as long as TCEQ can confirm that if the proposal to upgrade the $PM_{2.5}$ non-NAAQS comparable monitor at Clinton to a $PM_{2.5}$ FEM continuous monitor occurs, 1) this change will not reduce the $PM_{2.5}$ observations contributing to the design value for $PM_{2.5}$ for the region and 2) that changing the equipment will not re-set the three-year data collection requirement for the monitor to be considered for the design value. If upgrading the equipment will result in either of these outcomes, EDF recommends not upgrading the equipment.

Further, as the Houston region is unlikely to meet new annual $PM_{2.5}$ annual standards, and given sources of particulate matter vary spatially and hyperlocally, there is impetus for deploying additional FEM filter-based $PM_{2.5}$ instruments particularly in overburdened communities. These sensors would provide speciated data that can be used to understand the particulate matter composition so targeted mitigation strategies can be included in the regional SIP. EPA methods can be used to understand predominant sources contributing to measurements at site locations including, but not limited to, concrete facilities, diesel engines, rail, and metal recycling sources.

Deploy new continuous regulatory monitors for $PM_{2.5}$, NO_2 and speciated VOCs in the Sunnyside neighborhood of Houston

EDF acknowledges TCEQ's AMNP exceeds federal requirements for the number of $PM_{2.5}$ monitors, however, EDF recommends deploying additional monitors across the eight-county $PM_{2.5}$ non-attainment region, starting with the deployment of a new continuous multipollutant regulatory site to monitor $PM_{2.5}$, NO_2 and speciated VOCs in the Sunnyside neighborhood of Houston. Harris County has the highest concentration of facilities emitting urban air toxics in the nation and residents benefit from speciated VOC data to understand levels of hazardous air pollutants. This assists in public health responsiveness and emergency response to industrial events that occur with consistent frequency in Harris County. Deploying a multipollutant FEM in Sunnyside will also provide needed background pollutant measurements in a part of the city lacking sensors to strengthen public health protections.

Sunnyside, on the south side of Houston, TX (zip code 77021, 77033, 77045, 77051, 77054) is an environmental justice community with a population of about 29,000 as of 2018. Seventy-nine percent of the population there is non-Hispanic Black and 17% is Hispanic. Sunnyside has borne an inequitable pollution burden for too long. This burden, a result of economic and systemic racial oppression, negatively impacts health and contributes to higher rates of chronic diseases and cancer.

Within the borders of Sunnyside, the EPA regulates three brownfields, three facilities for air pollution and twelve facilities for hazardous waste. A report from the University of Texas School of Environmental Law Clinic identified 187 toxic air pollutants from these sources including particulate matter. According to EPA's EJScreen, parts of Sunnyside are in the 90th percentile or above for lower life expectancy with some of the highest rates of heart disease and asthma compared to the rest of the country. Four out of five of Sunnyside's zip codes were identified by the City of Houston Public Health department to be asthma high burden zip codes defined as "high rates of ambulance utilization to treat asthma attacks."

Since the loss of the $PM_{2.5}$ reference grade monitor at the City of Houston Park Place, there is no city or state operated monitor to understand particulate matter despite the concentration of metal recycling facilities, concrete batch/crushing facilities, transportation and substantial industrial activity in and around the Sunnyside community. The nearest TCEQ $PM_{2.5}$ monitors are at Bayland Park and Clinton Park, each more than seven miles away. Sunnyside is an air quality blind spot and has installed a community-owned sensor network to observe $PM_{2.5}$. While EDF understands these data are not comparable to regulatory data, they have demonstrated concerning pollutant trends. As recommended by EPA in their response to the 2023 AMNP, TCEQ should continue to evaluate areas with respect to environmental justice related to ambient air monitoring. It is critical for both residents and local government agencies to have more information to make the best decisions to protect the health of Houston residents.

The residents of Sunnyside and nearby areas have a right to know if they are breathing air toxics and criteria pollutants and how much. They have a right to breathe clean air every day. EDF requests that TCEQ deploy a new continuous regulatory monitor for $PM_{2.5}$, NO_2 with speciated VOC monitor in the Sunnyside neighborhood.

Deploy new ozone and ozone-precursor monitors in the Permian Basin

EDF urges TCEQ to deploy one or more monitors for ozone and its precursors in the Permian Basin so that the air quality impacts of prolific oil and gas development in the Basin can be properly assessed. Monitoring data from the New Mexico portion of the Permian show increasing levels of harmful ozone pollution, with measured concentrations exceeding the ozone NAAQS of 70 parts per billion. The American Lung Association's 2024 State of the Air report gives Culberson County, the lone Texas county in the Permian with an ozone monitor, an "F" grade for ozone. According to TCEQ's 2023 Annual Enforcement Report, Region 7 – Midland led the state in total emissions reported under 30 TAC Chapter 101 with nearly 18,000,000 pounds of unauthorized contaminants emitted from sources in the Region. EDF's research indicates that Permian methane emissions – often co-emitted with VOCs, an ozone precursor – are two to three times higher than what EPA estimates in its inventory of greenhouse gas emissions.

Despite these indications of the industry's adverse impact on air quality, TCEQ has not proposed ozone or additional ozone precursor monitors as part of its federally required monitoring network or state-based initiatives and therefore cannot ensure the health and safety of residents of West Texas and other areas impacted by the Permian Basin's pollution. We agree with EPA that Table D-2 of Appendix D to Part 58 does not account for the full breadth of additional factors that would be considered in designing a complete ozone monitoring program for an area. Among other factors, the Permian Basin's geographic size, meteorology, adjacent ozone monitoring programs and measured air quality indicators, in addition to record oil and gas development, warrant additional monitoring for harmful ozone and the pollutants that produce it.

Sincerely,

Stephanie Coates, Project Manager, Environmental Defense Fund
Grace Tee Lewis, Senior Health Scientist, Environmental Defense Fund
Elizabeth Lieberknecht, Regulatory & Legislative Manager, Midcontinent, Environmental Defense Fund

From: cheryl shadden <cherylshadden@yahoo.com>
Sent: Thursday, May 16, 2024 5:41 AM
To: tceqamnp
Subject: Pollution at Wolf Hollow

Hello- I am Cheryl Shadden, I live across the street from Wolf Hollow 1 & 2, including the crypto mine that drains who knows what massive amount of electricity from the Texas Grid. My address is 8405 Contrary Creek, Granbury TX 76048, United States. My phone number is (817) 313-2521. It is not acceptable to have increased emissions coming out of this power plant complex. This area already has tremendous health issues from the combined pollution from Wolf Hollow and the Bitcoin mine owned by Marathon Digital. The short stacks spewing emissions from Wolf Hollow 1 seems dangerous. It is also not acceptable for them to add on polluting Hood and Somervell Counties. I further would request their emissions be monitored closer and install 24/7 emissions monitoring. There is a population of impoverished residents in this area that are unable to speak up here and defend themselves. It is also unacceptable that Wolf Hollow expands only to fuel a bitcoin mine expansion. The pollution from these combined plants broadcasts up to 10 miles away. We are awaiting the public and contested hearing with TCEQ regarding these issues. Thank you, Cheryl Shadden
Sent from my iPhone

From: Cynthia Highsmith <jhcurbman@gmail.com>
Sent: Thursday, May 16, 2024 9:43 AM
To: tceqamnp
Subject: Monitors Needed at Wolf Hollow I and II in Hood County, Texas

Dear TCEQ:
We are requesting that air monitoring equipment be installed close to the Wolf Hollow I and II gas powered generating plants. There is a request by Wolf Hollow II for air permits for an additional eight turbines. There are four existing turbines now between Wolf Hollow I and II. There is no air monitoring equipment at present provided by TCEQ. Our concerns are:
NO
NO2
NOx
Hg
O3
CO
SO2
Pb
PM 2.5 FEM
PM 10
Sincerely
John and Cynthia Highsmith
9712 Bellechase Road
Granbury, TX 76049
832-704-8275
Sent from Mail for Windows

From: Karen Russell <puzzlequeen74@yahoo.com>
Sent: Thursday, May 16, 2024 3:51 PM
To: tceqamnp
Subject: Pollution

Dear sirs. I live in Somerville county. I can hear the bitcoin mining from my house. I live about 10 miles from this plant. I can hear them, 24/7. I am having many health issues from this mining. The pollution and noise coming from this place is harmful to people and animals. This situation needs to be corrected before someone dies. Please, correct these issues. Thank you. Karen Russell

Sent via the Samsung Galaxy S23+ 5G, an AT&T 5G smartphone
Get Outlook for Android

From: Midlothian Breathe <midlothianbreathe@gmail.com>
Sent: Thursday, May 16, 2024 2:10 PM
To: tceqamnp
Cc: Jane Voisard; Laura Hunt
Subject: Midlothian Breathe comments on 2024 air monitor plan

Midlothian Breathe is a group of local residents in Midlothian, the proclaimed "cement capital" of Texas. As you are aware, the Midlothian OFW monitor has been out of commission since April 2022, and though slated to be relocated and activated by the end of August, faces more delays to meet local city permitting requirements.
Since the monitor provides the only actionable data used to safeguard public health, Midlothian Breathe has been very concerned about this long, protracted gap in air quality information.
We're extremely interested in helping prevent this type of delay and have a suggestion we urge you to take.

Back-up sites
We realize that searching for monitoring sites, once land owners revoke the leases or other events occur, can be a long process. For areas of serious concern like ours, which emit high levels of pollution, we would like to see a requirement that a back-up location for those air monitors be determined in advance. Though traditionally TCEQ does not work with local groups like ours, helping find viable back-up sites could be a productive collaboration. In our specific instance, we could lobby the city to change their response to your inquiry about four possible locations on city-owned property.
That would also reduce the last-minute discovery about new permitting requirements, which is currently extending the timeline for reactivation of Midlothian air monitoring, probably to the end of third-quarter 2024. The move to a new location, on a newly constructed street, brought with it city-required upgrades about access and appearance. Hence, your standard buildout wasn't adequate, and now you are having to rework the land agreement and put the construction out for bidding again. Part of this may have come about because one arm of the city did not communicate well with other areas of the city, but again, preplanned back-up sites would solve this type of problem, as well.

Midlothian Breathe also has another, specific request concerning air monitoring in our area.

Better use of the original monitor
Your annual air monitor plan has indicated that you will retain the former FRM monitor to provide QC collocation at the new site. Instead, we would like to see it used to collect data downwind of our biggest particulate matter (PM) polluter.
That would be to the north/northwest of Holcim. Prevailing winds blow in that direction...and it's an area that has consistently shown higher levels of PM on our citizen sensors than the area closest to Martin Marietta and Gerdau, where the new monitoring site will be (and which is close to the former site).
It's solid science that you should be monitoring both upwind and downwind of major polluters, and because we are in a very unique situation—in the middle of three cement plants and a steel mill—that additional data is warranted.
We realize using the original monitor in a second location requires a site and additional funding, and perhaps that's an area where a citizen's group could help, as well.

In short, it is not "okay" for an area like ours to be without the public health safeguards TCEQ has been entrusted to secure.
-New PM 2.5 caps are going into effect, and along with areas around the Dallas Convention Center and Fort Worth's Haws Athletic Center and California Parkway, Midlothian may not meet attainment for that.
-We're also in an area that very likely will be in nonattainment of ozone standards and could see TCEQ tasked with implementing per-ton penalty fees as soon as 2028. In the 10-county North Texas region, Ellis County accounts for 42.2% of point source emissions for NOx according to your 2022 data.

Action plans for both of these issues require data. Which is why we expect TCEQ to take our local concerns seriously. We would like to be involved in figuring out how to prevent the gaps in data we have experienced. And we want that data, once monitors are operational, to be as representative of overall Midlothian air quality as possible.
Please respond directly to our organization about establishing a back-up site and relocating the FRM monitor. In the past, TCEQ has issued an arms-length rebuttal of any concerns submitted. ***Our hope is for discussion, and at best, actual collaboration with you in areas of public health.***

From: Midlothian Breathe <midlothianbreathe@gmail.com>
Sent: Thursday, May 16, 2024 2:48 PM
To: tceqamnp
Cc: Jane Voisard; Laura Hunt
Subject: Re: Midlothian Breathe comments on 2024 air monitor plan

I just realized our group needed to provide a name, email and physical address as part of the comment process, so I am providing my personal information now:
Jane Voisard
jvoisardpcomm@gmail.com
5030 Vernon Point
Midlothian, TX 76065

To be sure you receive the comment, resending that, too.

Midlothian Breathe is a group of local residents in Midlothian, the proclaimed "cement capital" of Texas. As you are aware, the Midlothian OFW monitor has been out of commission since April 2022, and though slated to be relocated and activated by the end of August, faces more delays to meet local city permitting requirements.
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On Thu, May 16, 2024 at 2:10 PM Midlothian Breathe <midlothianbreathe@gmail.com> wrote:

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From:	James Doty
To:	tceqamnp
Subject:	2024 Draft AMNP Comments - Ingleside on the Bay Coastal Watch Association (IOBCWA)
Date:	Thursday, May 16, 2024 10:39:33 PM
Attachments:	IOBCWA Comments on TCEQ 2024 Draft AMNP (051624).pdf

Hello Holly -

I am submitting these technical comments on the TCEQ 2024 draft AMNP on behalf of IOBCWA.

Please let me know if you have questions.

I hope you are well and had a successful Trade Fair this week.

Thanks!

--
Tim Doty
TCHD Consulting, LLC
Owner/Manager
ITC Level III Thermographer
512-644-4830

TCHD Consulting LLC
309 Barberry Park
Driftwood, Texas 78619

May 16, 2024

Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Re: Comments on the 2024 TCEQ Draft Annual Monitoring Network Plan (AMNP)

To Whom It May Concern –

Thank you for the opportunity to comment on the Texas Commission on Environmental Quality (TCEQ) 2024 Annual Monitoring Network Plan. Title 40 Code of Federal Regulations Part 58.10 requires states to submit an annual monitoring network plan to the United States Environmental Protection Agency (EPA) by July 1 of each calendar year. As you know, this monitoring plan is required to provide the implementation and maintenance framework for an air quality surveillance system, known commonly as the ambient air quality monitoring network. It provides information on the State of Texas' network of ambient air monitors established to meet regulatory requirements of the National Ambient Air Quality Standards and other monitors that support federal initiatives and provide additional information on air quality and the weather.

I am writing to you on behalf of my client, Ingleside on the Bay Coastal Watch Association (IOBCWA). IOBCWA is a Texas-based 501(c)(3) non-profit organization that was founded in 2019 to mitigate the negative effects of rapid industrialization, larger and more frequent ship traffic, and rising sea levels in Ingleside on the Bay and nearby surrounding communities of the Texas Coastal Bend. Currently consisting of more than 160 people, this group's membership includes scientists, engineers, business owners, and educators that foster strategic partnerships using constructive and diverse opinions to develop positive outcomes for the surrounding community and the environment. There are great human health concerns from IOBCWA members and the surrounding community, as there are currently no federal or state-funded ambient air monitoring stations in the Texas Coastal Bend area north of Corpus Christi Bay to characterize local air quality with respect to recent and never-ending industrial development in the area.

Though TCEQ is meeting its federal statutory obligations by requesting public comment on its federally-funded stationary monitoring network, the following brief technical narrative is being submitted to provide meaningful and relevant technical comments from a narrowly focused geographic perspective only, as observed from a holistic viewpoint. As described, this TCEQ solicitation of comments is based on the appropriateness of current federally-funded ambient air monitoring sites, coupled with the development of new monitoring sites and/or the relocation of existing ones. However, as you likely already know, affected parties, IOBCWA and its individual members have concerns about whether the public health of surrounding communities and downwind receptors are currently being accurately characterized and properly protected by the State of Texas. Consequently, these relevant comments were constructed to be considered in that context, especially considering that the 2024 draft AMNP was organized in a comparable manner in its explanatory narrative.

Issues For Consideration

On page 7 of the 2024 draft AMNP, it states that "the TCEQ is federally required to operate between 129 and 156 air monitors. The TCEQ federal monitoring network includes 272 air quality monitors, approximately double the number of monitors required by federal rule." First, it is obvious that TCEQ has wide-discretion in the placement and development of its ambient air monitoring network considering it has many more air monitors than what is required, thus the development of additional stationary monitoring sites is not prohibited rather it is a choice that has been and can be made. In addition, since there has been no federal or state real-time continuous ambient air monitoring data that is/has been generated in the Coastal Bend area north of Corpus Christi Bay to ensure that existing air quality is protective of public health beyond modeling assumptions that have been made in modeling assumptions, there is a current need for real-time monitoring. Therefore, TCEQ's statement that "the number, type, and location of monitors within the TCEQ federal monitoring network is sufficient to characterize air quality for all areas required within Texas" is not accurate and is misleading to IOBCWA and community members.

Moreover, per page 7, it states that "the TCEQ and its monitoring partners (city, county, private, and industry) also operate a robust network of non-federal state-initiative monitors that support a variety of purposes, including potential health effects evaluation; however, these monitors are outside the scope of this document and are not included." Though it is accepted that this 2024 draft AMNP is intended to address the federally-funded monitoring network and not the state-initiated network, the current proposed details provide no information regarding any kind of long-term air quality evaluations that are/have been conducted in the Taft, Gregory, Portland, Ingleside, Aransas Pass, and Ingleside on the Bay communities, thus no continuous monitoring sites currently exist to produce relevant data for health evaluations in the Coastal Bend area north of Corpus Christi Bay.

In reviewing the draft AMNP, it states that it ".... also includes federal monitoring network changes recommended prior to July 1, 2023, that have been completed since that date or are still pending completion. Historical air monitoring network plans, associated public comments, and TCEQ responses are available on the TCEQ webpage TCEQ Air Monitoring Network Plans -

Texas Commission on Environmental Quality - www.tceq.texas.gov." Consequently, the relevant documents were reviewed as suggested and are included in context within this technical evaluation.

On page 8 of the draft AMNP, it states that "the TCEQ uses statistical-based definitions for core based statistical areas (CBSAs) or metropolitan statistical areas (MSAs), as defined and delineated by the U.S. Office of Management and Budget (OMB)." This is understandable, and thus the Gregory-Portland area is relevant in its lack of current ambient air monitoring resources, but this does not account for the Taft, Ingleside, Arkansas Pass, and Ingleside on the Bay communities which are all impacted by the same ever-increasing industrial pollution. The lack of federal and state stationary air quality monitoring in this area is eerily like what is currently happening (or not happening) in the Permian Basin, as a myriad of smaller communities are being negatively impacted by upstream and midstream oil and gas emissions with no air monitoring characterization. This is relevant in Ingleside, Texas since it is home to the largest oil export terminal in the United States per the Port of Corpus Christi Authority. The lack of relevant technical air quality knowledge and data in the Ingleside area warrants having multiple monitoring stations deployed in differing locations – not just one.

On page 25 of the draft AMNP under the Previously Recommended Changes' Section, it states that "the TCEQ is evaluating site options for the establishment of a new ambient air monitoring site in the Gregory-Portland area. The TCEQ continues to work with property owners to establish site usage agreements and to deploy the special purpose monitors by August 31, 2025." In reviewing the data in Table 11 right below it, it states that a New Site – Gregory-Portland Area with a $PM_{2.5}$ FEM continuous monitor is expected to be completed by December 31, 2024. This seems to be inconsistent with the information listed in the two paragraphs above it. Therefore, it is unclear in the Draft Plan if the monitor will be deployed and operational by December 31, 2024, versus August 31, 2025.

Subsequently, when continuing to review related comments on page 27 of the draft AMNP, it states that "the TCEQ 2022 and 2023 AMNPs recommended adding non-regulatory, state-initiative VOC monitoring at the new sites in the Houston Fifth Ward, Houston Pleasantville neighborhood, and in the Gregory-Portland area in San Patricio County. The TCEQ utilized input from community groups to evaluate areas for the establishment of a new ambient air monitoring site at Finnigan Park in the Houston Fifth Ward area and at Pleasantville Elementary School in the Houston Pleasantville area. The TCEQ is evaluating site options for the establishment of a new ambient air monitoring site in the Gregory-Portland area. The TCEQ continues to work with the property owners to establish site usage agreements and to deploy the state-initiative, special purpose VOC monitor by August 31, 2025." The information provided appears relevant to IOBCWA, but it is non-definitive because it is again lacking in specificity with respect to location, type of monitoring (real-time gas chromatography or passivated stainless-steel canister) being considered, and urgency for the current need.

Moreover, the draft AMNP also states on page 29 that ".... TCEQ recommended deploying wind speed, wind direction, and outdoor temperature monitors to the new air monitoring sites in the Houston Fifth Ward, the Houston Pleasantville neighborhood, and the Gregory-Portland area. The Houston Fifth Ward and the Houston Pleasantville neighborhood monitors are expected to be operational by December 31, 2024. The Gregory-Portland area monitor is expected to be operational by August 31, 2025. Presumably, the meteorological network will be developed in the same location and in the same timeframe, as the other monitoring parameters. Certainly, this is not clear in the narrative, nor is it clear why community groups were utilized for input in the Houston Fifth Ward and Pleasantville areas when there has been no apparent effort for TCEQ public outreach for potential monitoring locations in the Coastal Bend area, north of Corpus Christi Bay with IOBCWA and/or its equivalent community partners in the same geographic area that have similar interests and concerns. Outwardly, it as though the Gregory-Portland area monitors are not a high priority for TCEQ, especially considering that pages 27 and 28 of the finalized 2023 AMNP stated the VOC monitor and meteorological infrastructure was expected to be operational by December 31, 2024, rather than the August 31, 2025, date that is listed inconsistently within this draft AMNP.

On page 30, it states, "As discussed in this report, the TCEQ has evaluated all federal requirements for ambient air quality monitoring and reviewed the TCEQ ambient air quality monitoring network. After consideration of the federal regulations, 2022 U.S. Census Bureau population estimate data, EI data, and 2020-2022 design values, the TCEQ has determined that it will meet or exceed all monitoring requirements with the above-mentioned recommendations for the next calendar year." Taken in combination with letters dated March 3, 2023, and January 24, 2024, from EPA Region 6 Air and Radiation Division Director, David F. Garcia, P.E. acknowledging the acceptance of TCEQ's 2022 and 2023 AMNPs, it seems quite obvious that though TCEQ may be meeting minimum siting locations and requirements in its 2024 Draft Plan, the details are not locked into place, as demonstrated by EPA's statement of "One recommendation is for installing one or more ozone monitors in the Permian Basin to ensure the impacts of the burgeoning oil production are accurately monitored and recorded, pursuant to 40 CFR Part 58, Appendix D, Section 4.1 .... for the health benefits of citizens in both Texas and New Mexico." This is quite ironic considering TCEQ seemingly has shown no effort to comply with this EPA request to ensure community protectiveness for those individuals that are impacted by the same upstream oil and gas streams that are being transferred via pipeline to Ingleside, Texas for terminal export out of the United States.

Moreover, it is also interesting to note that in EPA's March 3, 2023, letter to TCEQ's Ms. Brandi Brooks, there is a recommendation that "TCEQ should review local sensor data (three Purple Air sensors around the GAF facility) and engage in discussions with the community about the current data, and based on this review, consider siting a $PM_{2.5}$ monitor in the west Dallas area to better understand the $PM_{2.5}$ levels in the community." Though it is acknowledged that there can be known Purple Air data limitations, the EPA was supportive of reviewing the community collected passive data for lack of a more rigid alternatives. This is of special note because IOBCWA has its own equivalent passive monitoring network that includes six SCI air monitors in the relevant geographic area of interest, and TCEQ has not made use of the multiple years of data that have been collected for strategic planning in the development of a monitoring network or site.

Conclusion

Texas Coastal Bend communities north of Corpus Christi Bay are in urgent need of air monitoring data that characterizes current air quality to ensure public health protectiveness. There has been massive industrial development and expansion in the relevant geographic area that not only includes Ingleside on the Bay residents, but also the communities of Taft, Gregory, Portland, Ingleside, and Arkansas Pass. The development of TCEQ-permitted industrial sites in the Coastal Bend area since 2015 includes but is not limited to: Gibson Energy – South Texas Gateway Terminal, Cheniere – Corpus Christi LNG Facility, Enbridge – Ingleside Energy Center, Flint Hills Resources – Ingleside LLC Marine Terminal, Gulf Coast Growth Ventures – An ExxonMobil and SABIC joint venture, Midstream Texas Operating LLC Corporation, TPCO, Kiewitt, Plains Pipeline LP – Taft Station, voestalpine Texas LLC, and two other large industrial processing facilities that were built prior to 2015 - Oxy Occidental Chemical and the Chemours Ingleside Texas facility. There are also another fourteen more apparent permitting actions that are pending that if/when approved will include additional industrial sites that will greatly increase existing air emissions (and water pollution) in the area. This of course, does not account for the dozens of large ships that both dock and transport commodities within Corpus Christi Bay and the Corpus Christi Channel, both of which lie just south and adjacent to IOBCWA community homes and businesses, on a daily basis since the massive industrial expansion.

IOBCWA respectively requests that TCEQ plan, build, develop, and deploy an extensive ambient air monitoring network to characterize air emissions that are being actively released from surrounding industries. This network should accurately characterize public health and permit compliance regardless of whether the infrastructure is funded by the federal government or the State of Texas. On January 6, 2024, the neighboring Flint Hills Resources Terminal had an estimated 2,915-barrel oil leak at 10:30 pm that resulted in multiple Ingleside on the Bay residents sheltering in place with towels tucked underneath doorways and duct tape applied across window casings to minimize further adverse health effects that were already being experienced including but not limited to headaches, nausea, and numbed/tingling skin.

Affected residents and potential downwind receptors in the general area need state and regulatory authorities to do what they are statutorily obligated to do whether popular or not with the regulated community. It is obvious from reviewing the 2022, 2023, and the 2024 draft AMNP that TCEQ can request additional federal funding to develop an ambient air monitoring network that would properly characterize air quality in the Coastal Bend area beyond meeting the minimal federal requirements of having monitoring in Corpus Christi area south of Corpus Christi Bay. This conclusion was obvious from the language that was used in the EPA response letters, and the fact that TCEQ is certainly capable of using existing funding and/or requesting additional monetary funding through the Texas legislature to provide protectiveness to its citizens, and thus IOBCWA is respectively requesting it to do so.

Please feel free to contact me directly regarding these matters and any questions that you may have.

Sincerely,

Tim Doty
TCHD Consulting LLC - President
ITC Level III Thermographer
512.644.4830
tchdconsultingllc@gmail.com

Technical Background

TCHD Consulting LLC is located in Driftwood, Texas and provides technical, environmental, safety, and thermography consulting services to a variety of customers in the United States, Canada, South America, and Europe. Mr. Tim Doty worked for TCEQ for +28 years and served as the Agency's mobile air monitoring manager for 17 years. He performed and managed ambient air monitoring and environmental assessments that were conducted both inside and outside of many hundreds of industrial facilities, including but not limited to those in the Corpus Christi, Texas area, that included EPA interaction, expert witness testimony, and the development of potential TCEQ CAMS locations based on field findings and the identification of holes in the then existing stationary monitoring network. He also managed the TCEQ's Mobile Response Team and all the Agency's emergency response assets for two years and has planned/managed/participated on many manmade and natural disaster responses.

Mr. Doty is a certified Infrared Training Center Level III thermographer that provided thermography and OGI instruction to some +150 TCEQ staff members after helping to establish OGI field uses and policies within the TCEQ from 2005 - 2018. He also served as a technical advisor to the TCEQ Director of Compliance and Enforcement. He now provides technical, air monitoring, environmental assessments, and OGI and general thermography consulting services, including instruction, to both students and relevant parties including but not limited to those associated with affected communities, environmental causes, safety, the public interest, and the media.

From:	Jason Hale
To:	tceqamnp
Subject:	The draft 2024 Annual Monitoring Network Plan comments
Date:	Thursday, May 16, 2024 1:18:35 PM

Dear TCEQ,

After reviewing the 2024 annual monitoring network plan, I have a few comments related to the air shed in and around the Corpus Christi metropolitan area.

I have heard rumors for at least a year that San Patricio County is going to get a monitor. It looks like a PM2.5 monitor will be deployed in that area by Dec. 31st of this year. The people that live in that area will be happy.

It seems that Huisache, Donna Park and even Tuloso and West are all in the same area when looking at a map. The only other monitor in the airshed is listed in Kingsville and located on the National Seashore (no people live at the National Seashore and few people work there). I am interested in the space between the Island, Bluff, and where the other 4 monitors are located. This is the space where the majority of the population lives, works, and shops. That would be along South Padre Island Drive (SPID). Why aren't any monitors located there? I would think we would want to monitor the air where most of the people, spend most of their time. I think the perfect location would be at La Palmera Mall. Speaking with a TECQ employee, I found out it is best to have them located on state or federal owned land because the TCEQ doesn't have to worry about loosing their lease agreement. How about adding new monitors to the Texas Department of Transportation's office on 1701 SPID, or moving the Dona Park and the West monitors to the TexDOT location and co-locating them there? That would spread them out some and get a little coverage in that area. Preferably they would be co-located closer to 5488 SPID (La Palmera Mall).

In conclusion, I recommend new PM and O3 monitors be located as close to 5488 SPID as possible or that the Dona Park and West monitors are relocated in that area. Currently the monitors are not located where most people live, work and shop. Also, keep in mind where the prevailing wind comes from.

Thank you,
Jason Hale
4421 Hamlin Dr.
Corpus Christi TX, 78411

From:	John W
To:	tceqamnp
Subject:	The draft 2024 Annual Monitoring Network Plan comments
Date:	Wednesday, May 15, 2024 4:42:03 PM
Attachments:	image.png image.png

Dear TCEQ,

After reviewing the 2024 annual monitoring network plan, I have a few comments related to the air shed in and around the Corpus Christi metropolitan area.

I have heard rumors for at least a year that San Patricio County is going to get a monitor. It looks like a PM2.5 monitor will be deployed in that area by Dec. 31st of this year. The people that live in that area will be happy.

It seems that Huisache, Donna Park and even Tuloso and West are all in the same area when looking at a map. The only other monitor in the airshed is listed in Kingsville and located on the National Seashore (no people live at the National Seashore and few people work there). I am interested in the space between the Island, Bluff, and where the other 4 monitors are located. This is the space where the majority of the population lives, works, and shops. That would be along South Padre Island Drive (SPID). Why aren't any monitors located there? I would think we would want to monitor the air where most of the people, spend most of their time. I think the perfect location would be at La Palmera Mall. Speaking with a TECQ employee, I found out it is best to have them located on state or federal owned land because the TCEQ doesn't have to worry about loosing their lease agreement. How about adding new monitors to the Texas Department of Transportation's office on 1701 SPID, or moving the Dona Park and the West monitors to the TexDOT location and co-locating them there? That would spread them out some and get a little coverage in that area. Preferably they would be co-located closer to 5488 SPID (La Palmera Mall).

In conclusion, I recommend new PM and O3 monitors be located as close to 5488 SPID as possible or that the Dona Park and West monitors are relocated in that area. Currently the monitors are not located where most people live, work and shop. Also, keep in mind where the prevailing wind comes from.

Thank you,
John Weber
Corpus Christi, TX

See the monitor map and population density maps below.

Monitor map

Population density map

From:	Eli McKay
To:	tceqamnp
Subject:	2024 Annual Monitoring Network Plan
Date:	Wednesday, May 15, 2024 7:46:58 PM

TCEQ,
There needs to be more air monitors around the Port of Corpus Christi, especially in historic neighborhoods surrounding them, such as Hillcrest and North Beach. There should also be air monitors up the refinery row in neighborhoods like Dona Park and Oak Park. There are multiple schools in this area, and it is very important that we understand the air quality issues they may be facing.

Respectfully,

Eli McKay

From:	Lois Huff
To:	tceqamnp
Subject:	Air Monitoring, Corpus Christi area
Date:	Thursday, May 16, 2024 12:30:42 PM

Regarding the air quality monitoring in the Corpus Christi area. (The more the merrier.)

Benzene. This commonly used chemical is extremely hazardous, according to the CDC in the American Cancer Society. in 1998 a friend who worked in a German petrochemical facility and was amazed that he could smell benzene when we toured the port. Everyone, including industry, wants to stay out of attainment. And the best way to do that is to monitor chemicals like benzene in low lying areas. Additionally, I have heard claims of cancer causing properties of benzene affecting low income areas close to the port and downtown. Publicly reported monitoring of this chemical in Hillcrest, North Beach, highly trafficked areas such as Greenwood & Horne, Everhart & SPID, Gregory, TX and Portland, TX plus outside each facility's perimeter, will hopefully be part of the plan. It might even make sense to monitor air quality in the WAB parking lot and outside area schools.

Particulate Matter. The amount of flaring that I observe makes me think that we should have air quality monitoring sites close to each potential flaring site. I would note that the WHO reports it has to estimate particulate data because of the small amount of ground measurement data available. The same sites mentioned earlier for benzene monitoring (Hillcrest, North Beach, highly trafficked areas such as Greenwood & Horne, Everhart & SPID, Gregory, TX and Portland, TX plus outside each facility's perimeter, will hopefully be part of the plan. It might even make sense to monitor air quality in the WAB parking lot and outside area schools) would benefit from monitoring particulate matter, in particular the PM 2.5 and under.

Thank you for trying to make our area healthier.

Lois Huff
5818 St Andrews Drive
Corpus Christi, TX 78413
361-774-1500
LCH784@gmail.com

From: North Beach Community Association
To: tceqamnp
Subject: Requesting Air Quality Monitoring on North Beach as part of 2024 Annual Monitoring Network Plan
Date: Wednesday, May 15, 2024 8:12:52 PM

Dear TCEQ,

Please accept this as my comment to the draft 2024 Annual Monitoring Network Plan.

On behalf of hundreds of citizens who own residential property and live in condos, homes and apartments on North Beach in Corpus Christi, I am requesting that **Air Quality Monitoring Stations** be installed to monitor Particulate Matter (PM) 2.5 and 10, as well as other potential air contamination in the area between the Inner Harbor industrial plants and our neighborhood on North Beach.

Although the predominant wind is SE, when the wind blows from the north and from the west it blows into our neighborhood, coming directly from the refineries and other industries in the Inner Harbor Port of CC area.

Respectfully,

Carrie Meyer. Secretary
North Beach Community Association
NBCA email - northbeachcommunity@gmail.com
NBCA website - https://northbeachcommunity.com/
NBCA mailing address - PO Box 2361, Corpus Christi, TX, 78403

NBCA's Mission: Encouraging the development and preservation of North Beach and working to create a safe and environmentally sound neighborhood.

From: Private Account
To: tceqamnp
Subject: 2024 Annual Monitoring Network Plan COMMENT
Date: Wednesday, May 15, 2024 6:36:03 PM

To whom it may concern,

Please place air quality monitors in the city of Corsicana, Texas. There is a factory (Oil City Iron Works) near the downtown that continuously contaminates the air we breathe. This past week our air quality has been below optimal. Today the air smelled so foul it was difficult to be outside for more than two minutes. I would say that about half the time I visit the downtown, it smells extremely bad. It is unbearable and forces you to go indoors

Please put air quality monitors in the city of Corsicana.

Likewise, please place air quality monitors near and within a 10 mile radius of the Bitcoin mine, Riot Platforms. This mine is expected to be the biggest in the WORLD. We are highly concerned about what this will do to our air, water quality and noise levels. Riot Platforms Bitcoin Mine is in Navarro County, Texas. Ten minutes from Corsicana.

This is especially of concern given that residents of Hood County, city of Granbury, have endured for two years noise pollution/contamination and health problems because of the Bitcoin mine, Marathon.

Sincerely,

Cindee

From: Cliff Kaplan
To: tceqamnp
Cc: Sydney Beckner
Subject: Comments on the 2024 Annual Monitoring Network Plan, on behalf of TRAM
Date: Thursday, May 16, 2024 6:41:33 PM
Attachments: Outlook-signature_.png
Outlook-cf4qwgba.png
2024_0516_TRAM Comments on TCEQ Annual Monitoring Network Plan.pdf

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Ms. Landuyt,

Thank you for the opportunity to comment on the Annual Monitoring Network Plan. I am submitting attached comments on behalf of Texans for Responsible Aggregate Mining. Several of our member organizations, including Midlothian Breathe, Air Alliance Houston, and Coalition for Responsible Environmental Aggregate Mining have submitted their own, more technical comments, specific to their parts of the state. We fully endorse these comments as well.

Many thanks,

Cliff Kaplan
Program Director
Hill Country Alliance | P.O. Box 151675 | Austin, TX 78715
(cell) 512-387-3097 | cliff@hillcountryalliance.org | he/him
Donate | Subscribe | Facebook | Twitter | Instagram

Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Re: TRAM Comments on TCEQ Draft 2024 Annual Monitoring Network Plan

Dear Ms. Landuyt,

Texans for Responsible Aggregate Mining (TRAM) appreciates the opportunity to provide input on the Draft 2024 Annual Monitoring Network Plan. TRAM is a statewide coalition of grassroots and nonprofit organizations dedicated to promoting responsible aggregate mining practices that prioritize the health and well-being of Texans and safeguard the environment. Central to our mission is a commitment to ensuring clean air for all residents living near industrial operations. We urge the TCEQ to prioritize robust air quality monitoring measures in areas with significant industrial activity and would like to see the following points incorporated in an updated plan.

★ **Addressing Cumulative Impacts:** Air quality monitoring plays a pivotal role in assessing the cumulative impacts of multiple Aggregate Production Operations (APOs) and associated industries on public health and the environment. Concrete batch plants, cement plants, and aggregate mines emit various pollutants, particulate matter chief among them, which can have severe adverse health effects. Without comprehensive monitoring, the full extent of the cumulative impacts of industry remains unknown, leaving communities vulnerable to health risks.

★ **Placement of Monitors Downwind of Operations:** Placing monitors downwind rather than upwind of industrial operations is essential for accurately capturing emissions and their dispersion patterns. Monitoring upwind of APOs may underestimate the extent of pollution exposure experienced by nearby residents, as pollutants disperse in the downwind direction. By strategically locating monitors downwind, we can obtain more representative data on ambient air quality, enabling better-informed decision-making and targeted mitigation efforts to protect public health.

- ★ **Placement of Monitors in High-Concentration Areas:** It is imperative to deploy air quality monitors in areas with high concentrations of aggregate operations, including Dallas, Harris, Williamson, and Comal Counties. These regions experience significant industrial activity associated with concrete and cement production, as well as aggregate mining, posing potential risks to nearby communities. By situating monitors in these areas, we can accurately assess air quality impacts, identify pollution hotspots, and implement measures to reduce emissions and protect the health and well-being of residents.

In conclusion, TRAM urges the TCEQ to prioritize comprehensive air quality monitoring near concrete batch plants, cement plants, and aggregate mines to address cumulative impacts, ensure proper placement downwind of operations, and target high-concentration areas for monitoring efforts. By taking proactive measures to monitor and mitigate air pollution from APOs, we can safeguard the health of Texans and preserve the quality of our environment for generations to come.

Thank you for considering our comments and we trust that you will incorporate the practices outlined above in your final 2024 Annual Monitoring Network Plan to protect public health and the environment.

Sincerely,

Cliff Kaplan
Secretary
Texans for Responsible Aggregate Mining

From:	christina@coto-consulting.com
To:	tceqamnp
Subject:	Comments on Draft AMNP
Date:	Thursday, May 16, 2024 1:15:38 PM
Attachments:	COMMENTS TO TCEQ on 2024 Draft AMNP - FINAL.pdf

Dear Ms. Landuyt,

Attached are comments from Coalition of Responsible Environmental Aggregate Mining (CREAM) about TCEQ's Draft AMNP. If you have any questions, please do not hesitate to contact me.

Christina Schwerdtfeger, PhD
407 Old Blue Mountain Ln
Georgetown, TX 78633
Phone: 949-378-0573

May 16, 2024

Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Transmitted: Via email: tceqamnp@tceq.texas.gov

Subject: Comments on TCEQ's Draft 2024 Annual Monitoring Network Plan

Dear TCEQ:

Thank you for the opportunity to provide written comments on TCEQ's Draft 2024 Annual Monitoring Network Plan (AMNP). Coalition for Responsible Environmental Aggregate Mining (CREAM) is a non-profit organization which seeks to minimize the impacts of Aggregate Production Operations (APOs) and Concrete Batch Plants (CBPs) on local communities. CREAM has over 200 members.

I. Objective

Fugitive dust and fine particulate matter (PM2.5) are air pollutants emitted by APOs and CBPs that have a negative impact on residents of Williamson County (Wilco). An investigation by the Austin-American Statesman in 2019 describes how these industries have expanded recently:

> *Since 2012, the number of registered quarries, rock mining operations and aggregate plants operating in Texas has increased 1,690%, from dozens of mostly family-run enterprises to hundreds of sprawling operations. And a six-month American-Statesman and KVUE-TV investigation has found that the industry's growth, particularly the rise of controversial quarries, has far outpaced state regulatory oversight.*[1]

TCEQ's Draft AMNP does not include any PM2.5 monitoring systems in Wilco despite there being 37 active APOs and 44 CBPs within the county boundaries. These two industries are extremely dusty and generate substantial quantities of fugitive dust which travels off-site and negatively impacts nearby residents.

This letter provides technical data and a justification why TCEQ should add at least one PM2.5 monitor to Wilco in order to more clearly determine the county's attainment status according to the National Ambient Air Quality Standard (NAAQS). At present, the nearest regulatory PM2.5 monitors operated by TCEQ are located in Travis and Bell Counties. These are too far away to provide any useful or relevant data for Wilco.

We request that TCEQ adds at least one new PM2.5 monitor to the northern portion of Wilco.

II. Background

Capital Area Council of Governments (CAPCOG) is responsible for creating a Regional Air Quality Management Plan for its Metropolitan Statistical Area (MSA) in order to adopt particulate matter (PM) emission reduction commitments and strategies.

CAPCOG describes substantial gaps in knowledge and the monitoring data for regional PM2.5. These deficiencies were described in the CAPCOG Regional Air Quality Plan[2] as follows:

> 3.10 Gaps
>
> During this planning effort, CAPCOG and the CACAC identified a number of important gaps to our technical knowledge about regional PM pollution and issues related to PM2.5 that this plan does not yet address.
>
> 3.10.2 Limited Spatial Coverage of PM2.5 Monitors within the Region
>
> There are only a few PM2.5 monitors operated within the region and all of them are located in Travis County, providing limited insight into geographic variability in PM2.5 concentrations and regional transport of PM2.5 into and within the region.

More details will be provided in subsequent sections of this report to describe these data gaps.

III. Location and Impact of APOs in Wilco

Wilco has a high concentration of naturally occurring limestone, which is extracted and processed for use as dimension limestone and crushed stone.[3] Dimension stone is used mostly for monuments and home and building exteriors. Crushed stone, gravel and sand are consumed in large quantities by the construction industry since aggregate is used to build roads, sidewalks, bridges and other infrastructure. The northern portion of Wilco has a high concentration of surface mining operations, with decorative limestone operations in the northwest portion of the county and crushed limestone operations throughout the county.

Wilco has the largest number and highest concentration of APOs in Texas with 37 registered operations as of March 1, 2024.[4] Figure 1 shows the location of limestone quarries in Wilco.[5] The majority of these are located in northern Wilco, west of the I-35. Anyone driving by an active quarry or rock pit will see blankets of white dust on the roadside instead of green or golden grass. Instead of oak and cedar's muted olive and emerald, you'll see branches hanging heavy with white powder. Instead of the clear, hot air typically seen in a less populated area of the county, you'll see a haze of dust. Some residents say that northwestern Wilco either looks like a snowstorm has just passed through or like we've been transported to a desert in the Middle East.

These observations by residents are in stark contrast to the emission inventory data and methods currently being used by TCEQ and USEPA to estimate PM2.5 impacts. At present, USEPA's National Emission Inventory (NEI) only includes certain activities for nonpoint mining and quarrying emissions estimates:[6]

- Overburden removal;
- Drilling and blasting; and
- Loading and unloading activities.

Figure 1. Map Showing APO Locations in Williamson County. Source: USEPA's ECHO Website

USEPA's estimates do not include the following activities which may be significant:

- Emissions from any internal combustion engines used on-site for either mobile or stationary equipment;
- Fugitive dust emissions from paved and unpaved roads; and
- Any offsite emissions from stationary plants.

In an attempt to overcome this data gap in the NEI, CAPCOG added fugitive dust emissions from two large quarries (Austin White Lime and Texas Lehigh Cement Company) to its Regional Air Quality Plan. This effort was a step in the right direction, but it did not go far enough. There are another 35 quarries which are currently operating in Wilco, but their PM2.5 emission estimates are not accurately reflected in any regional or national emission inventories.

IV. Location and Impact of CBPs in Wilco

Another large source of fugitive dust in Wilco is CBPs. Per USEPA's ECHO website, there are forty-four (44) CBPs located in Williamson County per Figure 2.[7]

When driving by a CBP in Wilco, there are typically large accumulations of white dust on the roads and vegetation near each facility. When the wind blows, dust is lifted from open stockpiles, paved and unpaved areas, then drifts over the property line and settles off-site. In addition, ready-mix trucks typically drag dust onto the roadway on their wheels when leaving the CBP. The reality of living or driving near a CBP and experiencing the excessive dust is in stark contrast to the emission inventory data for this industry.

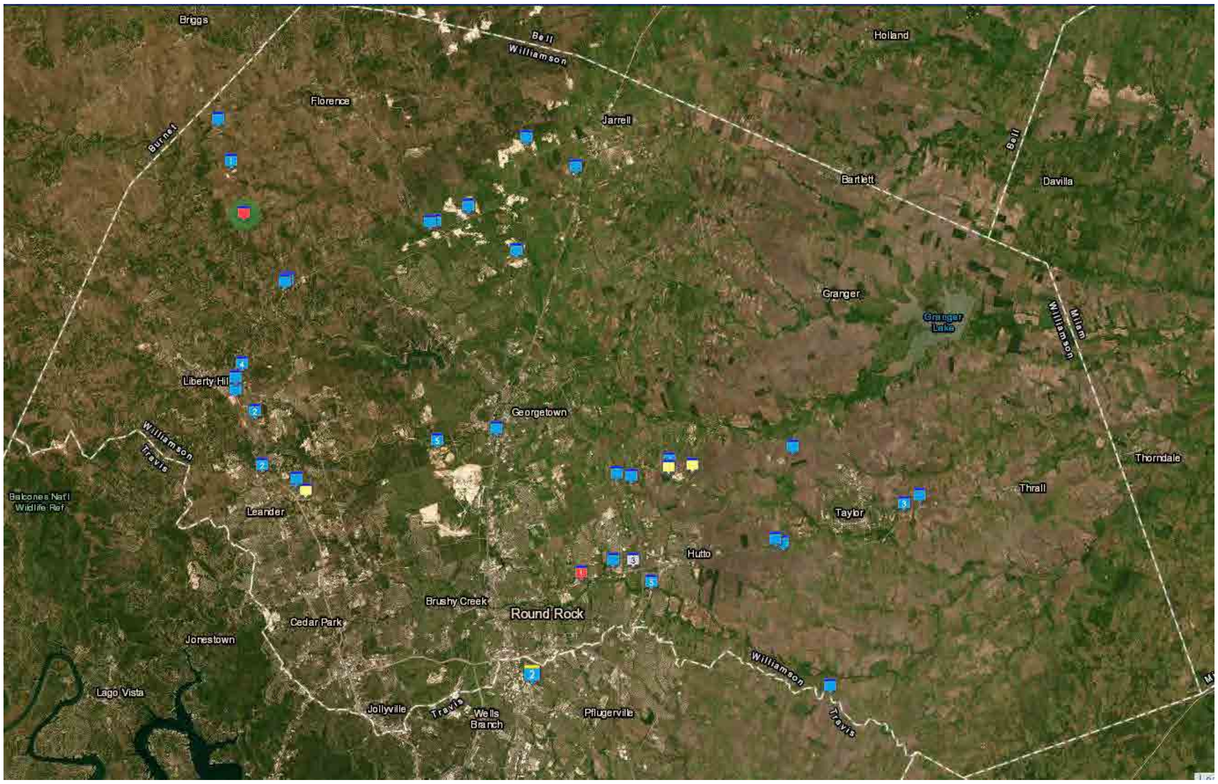

Figure 2. Location of CBPs in Williamson County. Source: USEPA's ECHO Website

CAPCOG describes the data gaps for PM2.5 emissions from CBPs in federal, state and local emission inventories as follows:[8]

> 3.10.3 Lack of Concrete Batch Plants within National/State/Regional Emissions Inventories
>
> In the course of this planning effort, CAPCOG discovered that concrete batch plants appear to not be accounted for anywhere within the National Emissions Inventory (NEI) data for the region. While these facilities are subject to a standard permit from the TCEQ, they do not report emissions annually to TCEQ as a point source, and EPA does not have a non-point source emissions category covering these emissions. There are numerous concrete batch plants across the region, including in locations very close to residential areas, and the lack of emissions data from this source is a potentially very significant gap in our understanding of PM pollution within the region. Since there are also controls available that can significantly reduce PM pollution from these facilities as well, the lack of emissions data also limits our understanding of the extent to which emissions from these facilities can be further controlled. A regional concrete batch plant emissions inventory would be very useful to close this gap.

The Economic Census confirms this data gap. Emissions from only 3 CBPs in Texas were reported to the USEPA's NEI despite Texas having the highest number of CBPs (534) in the country.[9]

This data gap was further described in a study published in Journal of Environmental Science and Technology in 2023 by Indiana University. This study quantified PM2.5 emissions from 131 CBPs in Houston.[10] The researchers concluded that:

- No previous studies have systematically investigated emissions from all CBPs in a large geographic area.
- CBPs are frequently considered by regulators to be a small industrial source.

- CBPs typically operate under permits with less documentation and regulatory review compared to other types of permits (i.e., Title V).
- Individual CBPs emit modest amounts of PM, but their aggregate emissions as an industrial category are quite substantial.
- CBPs are typically located in proximity to population centers.

The researchers at Indiana University also concluded that CBPs make a substantial contribution to emissions of PM2.5 and are the 80th most polluting industry based on PM2.5 emissions per Figure 3.

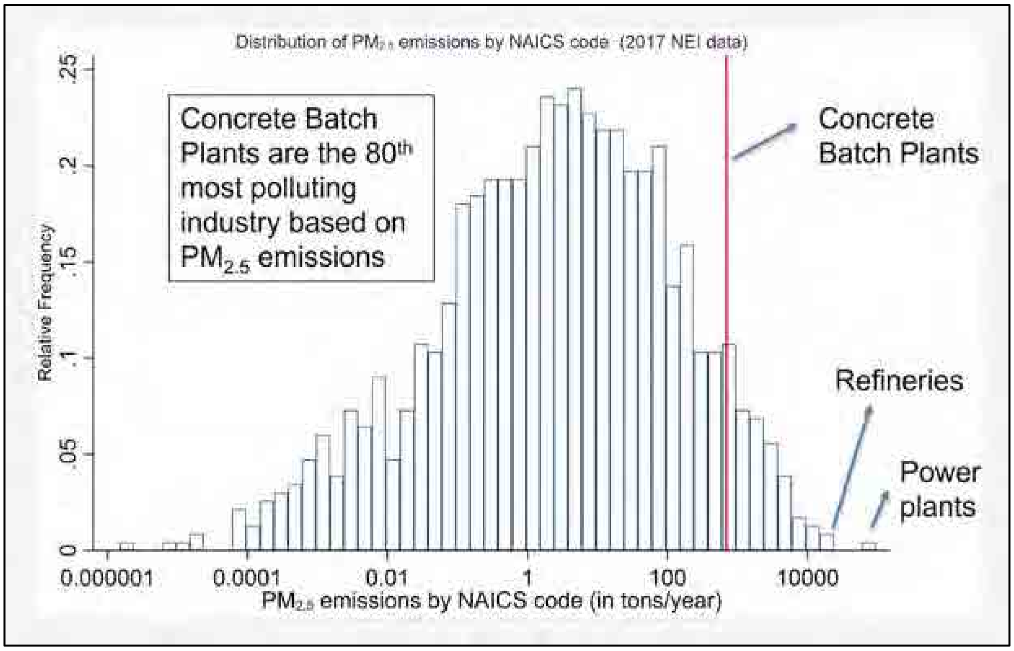

Figure 3. Distribution of PM2.5 Emission by NAICS Code. Source: Indiana University

USEPA expressed concerns in June 2023 to TCEQ[11] that the PM2.5 emissions from CBPs could potentially exceed NAAQS, especially when there are multiple CBPs located near one another:

- In addition to engineering controls for dust suppression, EPA suggests that TCEQ require all CBPs to install fenceline PM2.5/10 sensors or monitors.

- The protectiveness review should be updated to evaluated and account for possible overlap of impacts of multiple concrete batch plants authorized under the standard permit located in close proximity to each other to fully demonstrate that cumulative impacts from the amended CBP Standard Permit (SP) will not lead to violations of the NAAQS and/or state health effects levels, or cause nuisance level impacts on local residents and businesses.

Given all of these shortcomings with estimating emissions from CBPs and the 44 CBPs which currently operate in Wilco, TCEQ should consider adding a PM2.5 monitoring system in Wilco.

V. Location of Sensitive Receptors

Sun City is a retirement community located in Georgetown, Texas with 9,300 homes and 18,500 senior residents. Poor air quality and fine dust from nearby APOs and CBPs are a concern because of the adverse impact to the health of senior citizens who are more likely to have heart disease and lung disease. This is why seniors are included in USEPA's definition of "sensitive groups".

Figure 4 shows the location of Sun City and other residential neighborhoods such as Shady Oaks, Berry Creek Highlands and Live Oak Park relative to the quarries and CBPs.

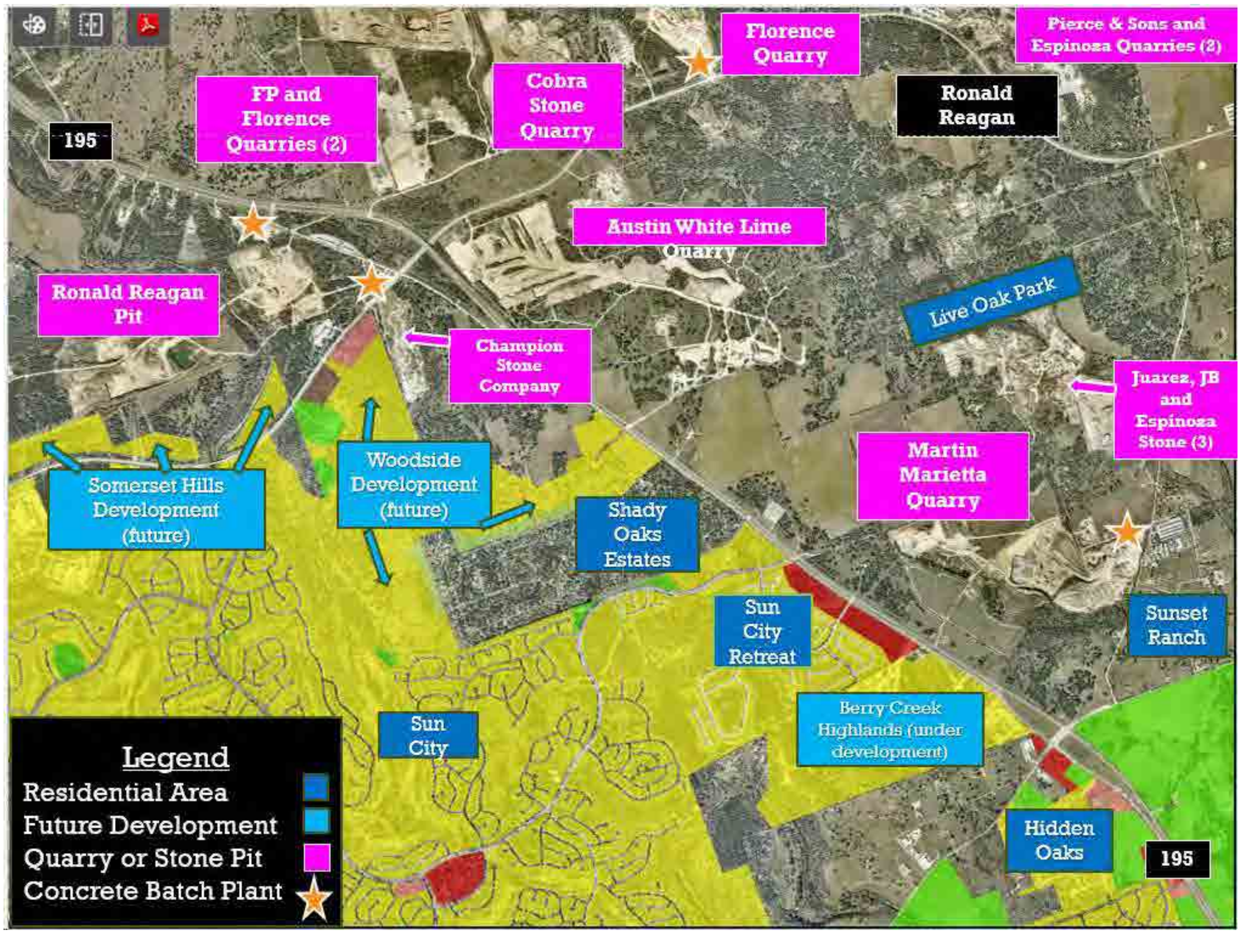

Figure 4. Location of Quarries Versus Residential Neighborhoods in Northern Wilco in 2024. Sources: City of Georgetown Planning Reference Map and USEPA's Environmental Compliance and History Online (ECHO) Map

Table 1 lists the distances between residential homes and active quarries. Some of the distances are concerning – there is zero buffer between the residents of Live Oak Park and two active quarries. In addition, there is one proposed neighborhood (Somerset Hills) which will have a buffer zone of only 150 feet. It is clear that Wilco has multiple quarries and CBPs located in close proximity to multiple residential neighborhoods and to a large sensitive population in Sun City.

Table 1. Distance from Residential Neighborhoods to Nearby Quarries[12]

Name of Residential Neighborhood	Nearest Quarry Name	Distance (feet) From Residential Lots to Active Quarry Working Area	Senior Residents?
Live Oak Park	JB Stone LLC; Juarez Stone	0	Some
Somerset Hills (proposed)	Ronald Reagan Pit	150	Unknown
Rock Bluff Ranch (proposed)	Ronald Reagan Pit	560	Unknown
Sun City	Martin Marietta	2,100	Yes

VI. Location and Data from PM2.5 Monitors

There are multiple PM2.5 monitors already operating in Central Texas. However, none is suitable to determine Wilco's attainment status for NAAQS. This section discusses the location, type of data collected and suitability of each one for TCEQ to determine Wilco's attainment status with NAAQS.

A. TCEQ Regulatory Monitors in AMNP

Currently, TCEQ has four PM2.5 monitors in Travis and Bell counties per Figure 5 which are being used to determine the NAAQS attainment status of those counties.

- Travis County: North Hills Drive, North I-35 and Webberville Rd.
- Bell County: Temple Georgia

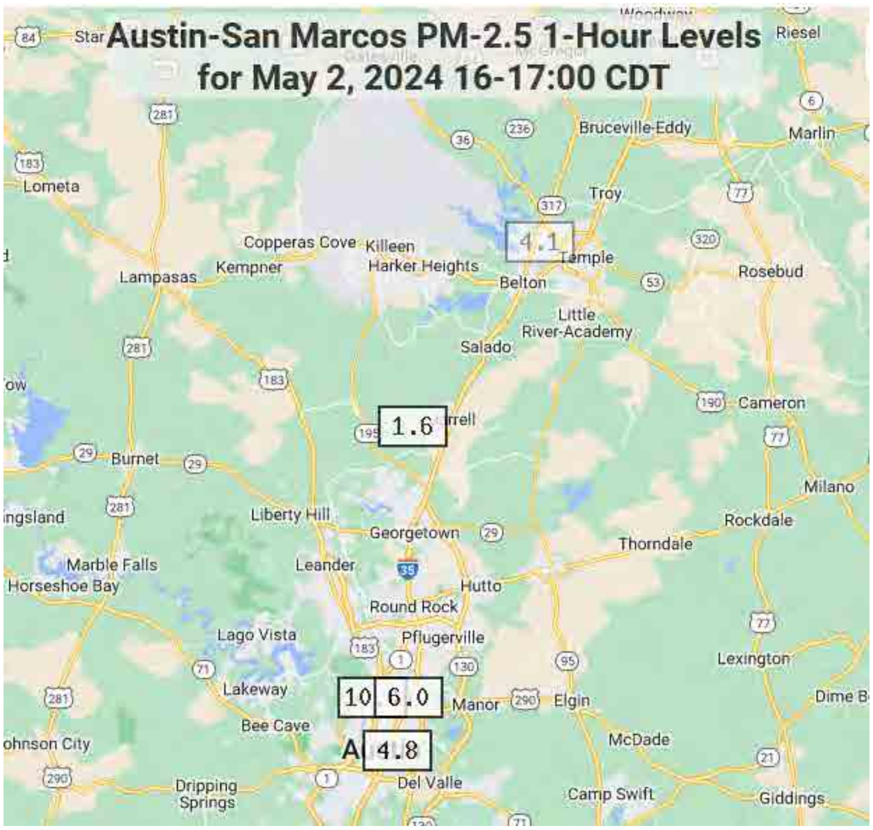

Figure 5. Location of TCEQ's Existing PM2.5 Monitors in Travis and Bell Counties

The monitor which is located in Jarrell is not part of the AMNP. It is being used for compliance purposes and will be discussed below. None of TCEQ's regulatory PM2.5 monitors are located in Wilco. Hence, TCEQ is unable to determine Wilco's attainment status with the NAAQS for PM2.5.

B. Non-Regulatory Monitors

There are four air quality monitors per Figure 6 in northern Wilco for PM2.5 which are not part of TCEQ's AMNP. None can be used to determine the attainment status for NAAQS, but they provide insight into the current PM2.5 levels in this area. Each monitor will be discussed in detail.

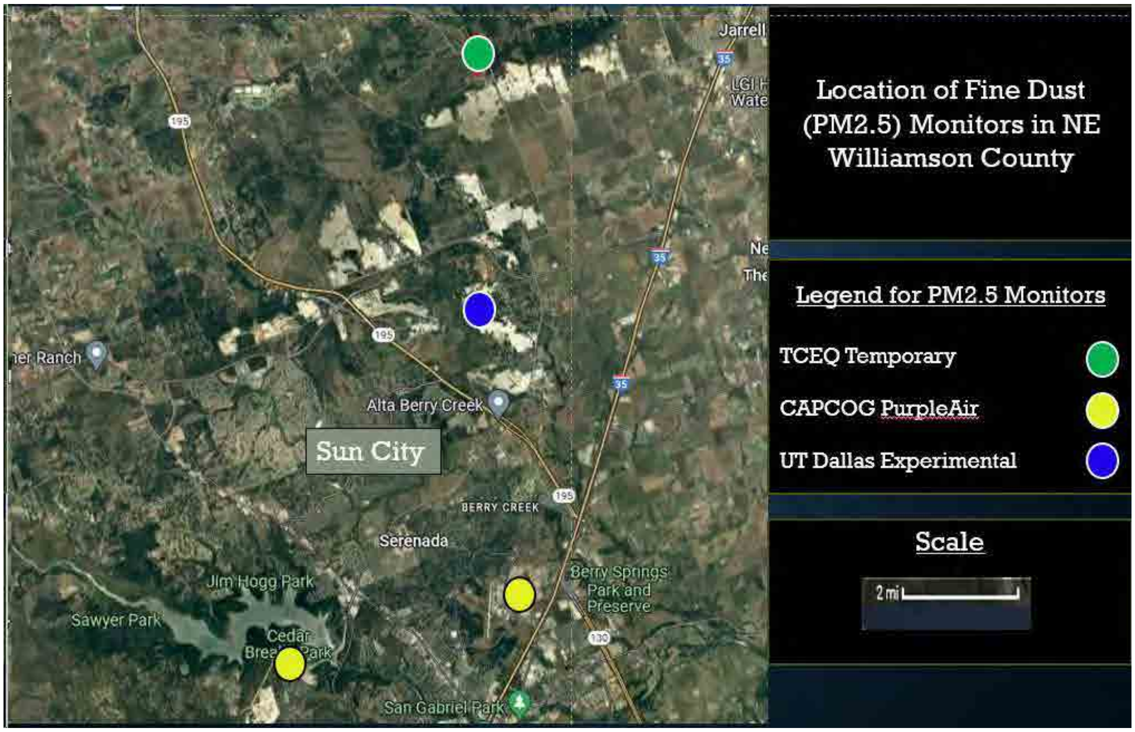

Figure 6. Location of Non-Regulatory Air Quality Monitors for PM2.5 in Northern Wilco

1. TCEQ Compliance Monitor

TCEQ has one air quality monitor (C1094) located in Jarrell that is being used for compliance purposes. It is located approximately seven (7) miles north of Sun City and the large cluster of APOs. TCEQ installed this sensor in July 2020 as part of an enforcement action. It was only intended to be deployed for 90 days but has been in operation for 3.5 years. It is not clear what TCEQ intends to do with this PM2.5 monitor since it has exceeded its initial deployment timeframe.

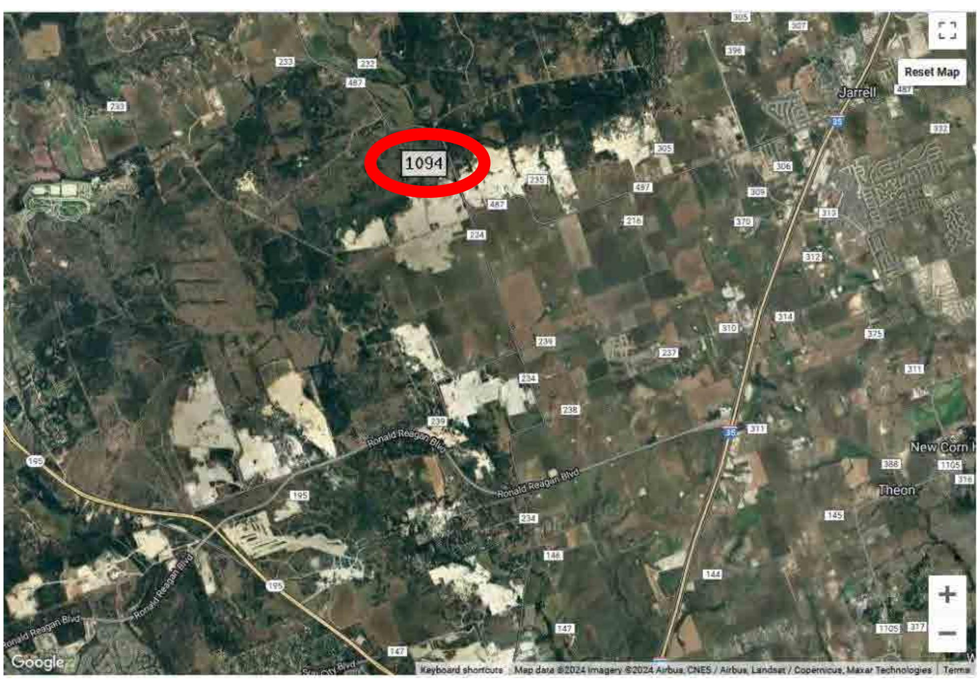

Figure 7. Location of TCEQ Monitor C1094 in Jarrell on FM487.

Monitoring data from July 2020 through April 2024 was retrieved from TCEQ's website for Compliance Air Monitoring System (CAMS) 1094 in Jarrell. Table 1 contains the yearly average PM2.5 data. Table 2 contains the four highest 24-hour PM2.5 concentrations in each year. Table 3 is the updated air quality index (AQI) levels and breakpoints for good, moderate, unhealthy, very unhealthy and hazardous concentrations of PM2.5. The data in Tables 1 and 2 was color-coded with the AQI levels to indicate the severity of the readings each year.

The current federal limits for PM2.5 which will be effective on May 6, 2024 are:

- PM2.5 Primary Annual NAAQS is 9.0 μg/m^3
- PM2.5 Secondary Annual NAAQS standard is 15.0 ug/m^3
- 24-hour NAAQS is 35 μg/m^3

Primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.[13]

TCEQ's data in Tables 1 from CAMS 1094 in Jarrell shows that the annual NAAQS was exceeded in 2022 and there were multiple days with very high spikes. The yearly maximum values ranged from 68.6 to 315.7 ug/m^3.

TCEQ's data in Table 2 from CAMS 1094 in Jarrell shows that the 24-hour concentrations were exceeded on five occasions in 2022, 2023 and 2024. On two other occasions in 2022 and 2023, the 24-hour concentrations were barely below the regulatory threshold of 35 μg/m^3.

Table 1. Yearly Average PM2.5 Data at TCEQ CAMS 1094 in Jarrell[14]

Year	Yearly Max (ug/m^3)	Yearly Second Highest (ug/m^3)	Yearly Min (ug/m^3)	Yearly Avg (ug/m^3)	Yearly Standard Deviation	Yearly Capture Rate
2024	68.6	67.7	-4.9	7.8	7.6	98.6 %
2023	315.7	198.7	-4.8	9.1	10.3	96.0 %
2022	83.6	73.8	-9.6	7.5	6.9	99.0 %
2021	173.1	112.9	-9.8	7.6	6.8	96.7 %
2020	105.8	60.7	-8.1	6.2	5.7	99.0 %

Notes: Sensor began operating on July 23, 2020. Data collected through 5-15-24.

Table 2. Four Highest 24-Hour PM-2.5 Concentrations Per Year at TCEQ CAMS 1094 in Jarrell[15]

Year	Highest		Second Highest		Third Highest		Fourth Highest	
	Date	Value (ug/m^3)	Date	Value (ug/m^3)	Date	Value (ug/m^3)	Date	Value (ug/m^3)
2024	05/08/24	**40.9**	05/09/24	**31.3**	04/01/24	**24.9**	04/27/24	**22.8**
2023	07/29/23	**84.4**	08/01/23	**36.5**	06/13/23	**33.6**	06/15/23	**30.3**
2022	06/13/22	**36.4**	06/16/22	**36.0**	06/14/22	**34.3**	07/17/22	**31.8**
2021	04/09/21	**26.5**	01/16/21	**23.9**	07/24/21	**23.5**	06/21/21	**20.5**
2020	09/19/20	**22.0**	09/01/20	**20.4**	08/31/20	**16.5**	09/20/20	**16.4**

Notes: Sensor began operating on July 23, 2020. Data collected through 5-15-24.

Table 3. Final Updates to the Air Quality Index (AQI) for Particulate Matter Showing Color Coding of Each Health Category[16]

AQI Category and Index Value	Previous AQI Category Breakpoints (ug/m^3)	Updated AQI Category Breakpoints (ug/m^3)
Good (0 – 50)	0.0 to 12.0	0.0 to 9.0
Moderate (51 – 100)	12.1 to 35.4	9.1 to 35.4
Unhealthy for Sensitive Groups (101 – 150)	35.5 to 55.4	35.5 to 55.4
Unhealthy (151 – 200)	55.5 to 150.4	55.5 to 125.4
Very Unhealthy (201 – 300)	150.5 to 250.4	125.5 to 225.4
Hazardous (301+)	250.5 to 350.4 and 350.5 to 500	225.5+

In a separate effort, TCEQ evaluated PM emissions from APO facilities in 2022 and published a report[17] in 2023 to determine the health impacts of particulate matter that may contain respirable crystalline silica (RCS) on local communities. Figure 8 shows the monitoring results, including PM2.5 levels collected between June and October 2022.

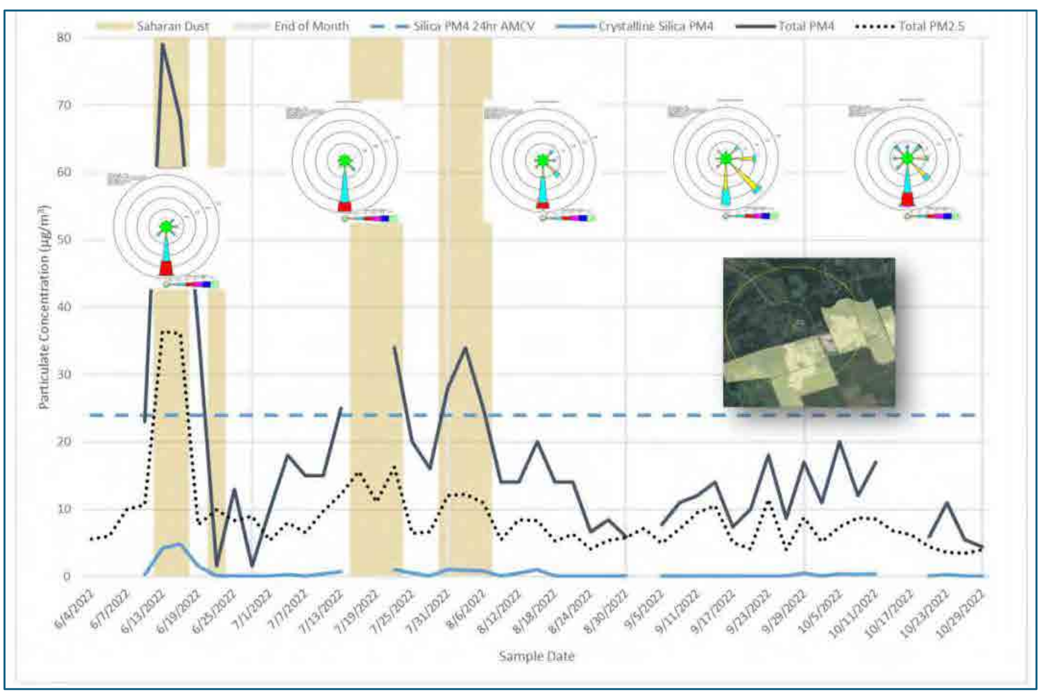

Figure 8. Crystalline Silica PM$_4$, Total PM$_4$ and Total PM$_{2.5}$ 24-Hour Average Concentrations (ug/m^3) Measured at Jarrell (Located Near a Quarry)

TCEQ chose the Jarrell site because of "its close proximity to a quarry that includes several rock crusher and stone cutter facilities." TCEQ concluded that "… all 24-hour PM_4 crystalline silica measurements are well below the health-based 24-hr Air Monitoring Comparison Values (AMCV). Therefore, exposure to these monitored concentrations would not be expected to cause short-term adverse health effects." TCEQ provides no commentary or conclusions about PM2.5 levels, even though measurements in Figure 8 clearly exceeded 35.0 ug/m^3 on several days.

TCEQ concluded that "A minimum of one year's worth of measurements is needed to evaluate these data from a long-term health perspective."

2. Purple Air Monitors

There are two "Purple Air" monitors in Georgetown near the APOs – one at Georgetown Municipal Airport and one at Lake Georgetown which is operated by CAPCOG as CAMS 690. The locations of these monitors are provided in Figure 9 below. Both of these monitors are located approximately 3 miles south of Sun City and the cluster of APOs.

We recognize that TCEQ does not use the Purple Air monitors for regulatory decisions but they are used by local government agencies such as CAPCOG to measure air quality for local initiatives and decision-making. Nonetheless, TCEQ can use data from nearby Purple Air monitors when making decisions about where to place new regulatory PM2.5 monitors.

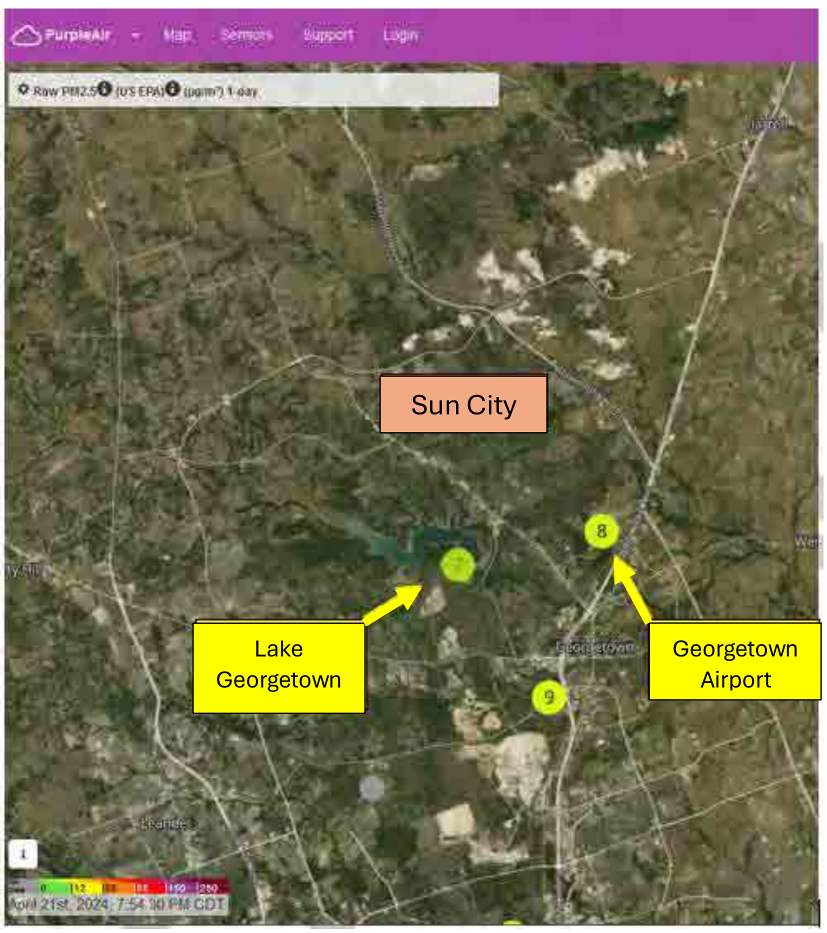

Figure 9. Location of Purple Air Monitors in Georgetown, TX Approximately 3 Miles South of Sun City

For example, in 2022 and 2023, USEPA provided written comments to TCEQ about flaws in the design of its AMNP. USEPA encouraged TCEQ to review and consider data from Purple Air monitoring system in the Dallas area and add new PM2.5 monitors. USEPA determined that TCEQ's AMNP was deficient because of these missing PM2.5 monitors.

On January 24, 2024, USEPA stated:

> *"The EPA is approving the 2023 Plan as meeting the minimum requirements per 40 CFR Part 58 and Appendices, including Section 58.10 and Section 58.14, except for monitoring for … particulate matter 2.5 ($PM_{2.5}$)…"*
>
> *"Another ongoing recommendation is for additional PM2.5 monitoring in the west Dallas community. This recommendation is based on review of PM2.5 data and trends in the area, including Purple Air sensor measurements as well as monitoring data at the Convention Center site (AQS 48-113-0050 were also considered. These PM2.5 data indicate possible spikes and upward trends in PM2.5."*
>
> *"Although review of PM2.5 data in the west Dallas community by the TCEQ was encouraged last year, we did not receive a response or information that TCEQ had reviewed air monitor or sensor data in the area. We continue to recommend that the TCEQ engage in discussions with the community about the current data, and any possible opportunities to site a PM2.5 monitor in the west Dallas area to better understand the PM2.5 levels in the community.*

A year earlier, USEPA stated on March 3, 2023:

> *We also recently reviewed Purple Air PM2.5 sensor data in west Dallas that routinely show spikes in elevated PM2.5 sensor measurements, but it is currently unclear whether these are "channel" issues with the monitor. There are currently three Purple Air sensors around the GAF facility. They are identified as the Akron, Kingbridge, and Bedford sensors and the data can be accessed on Purple Air's website. We believe the TCEQ should review that local sensor data and engage in discussions with the community about the current data. and based on this review consider siting a PM2.5 monitor in the west Dallas area to better understand the PM2.5 levels in the community. We are also aware that the City of Dallas has recently started monitoring PM2.5 in the area, and we encourage you to review that data as they begin posting it to assist in determining whether a new monitor is needed in the community.*

Based on USEPA's comments about the Dallas area and PM2.5 monitoring, we believe that TCEQ should review PM2.5 monitoring data from the Purple Air monitors located in Wilco to consider placement of new regulatory PM2.5 sensors.

CREAM retrieved the monitoring data for PM2.5 from the Purple Air website for Georgetown Municipal Airport and Lake Georgetown.

The sensor at lake Georgetown was installed and went online on April 30, 2023.[18] Data from Channels A and B at Lake Georgetown are provided in Figures 10 and 11, respectively. Channel A shows an annual average PM2.5 concentration of 5.7 ug/m^3. There were multiple days with spikes over 20 ug/m^3. This sensor is not located near Sun City or the cluster of APOs in the northern portion of Wilco.

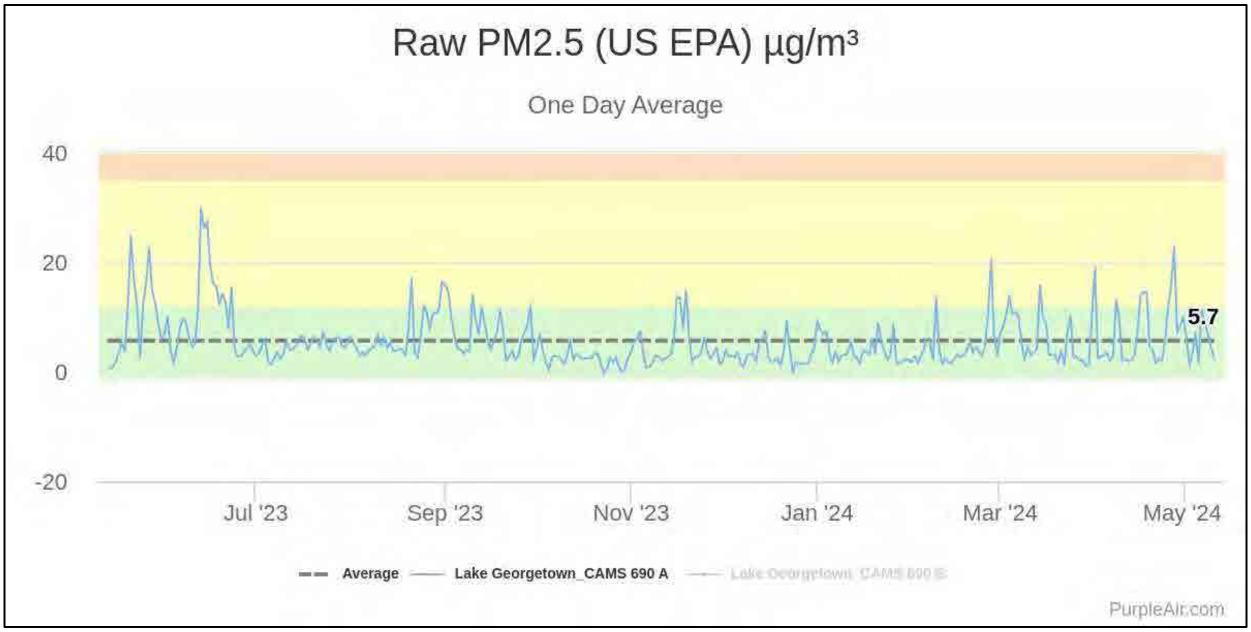

Figure 10. PM2.5 Monitoring Data from Purple Air Sensor at Georgetown Municipal Airport – Channel A

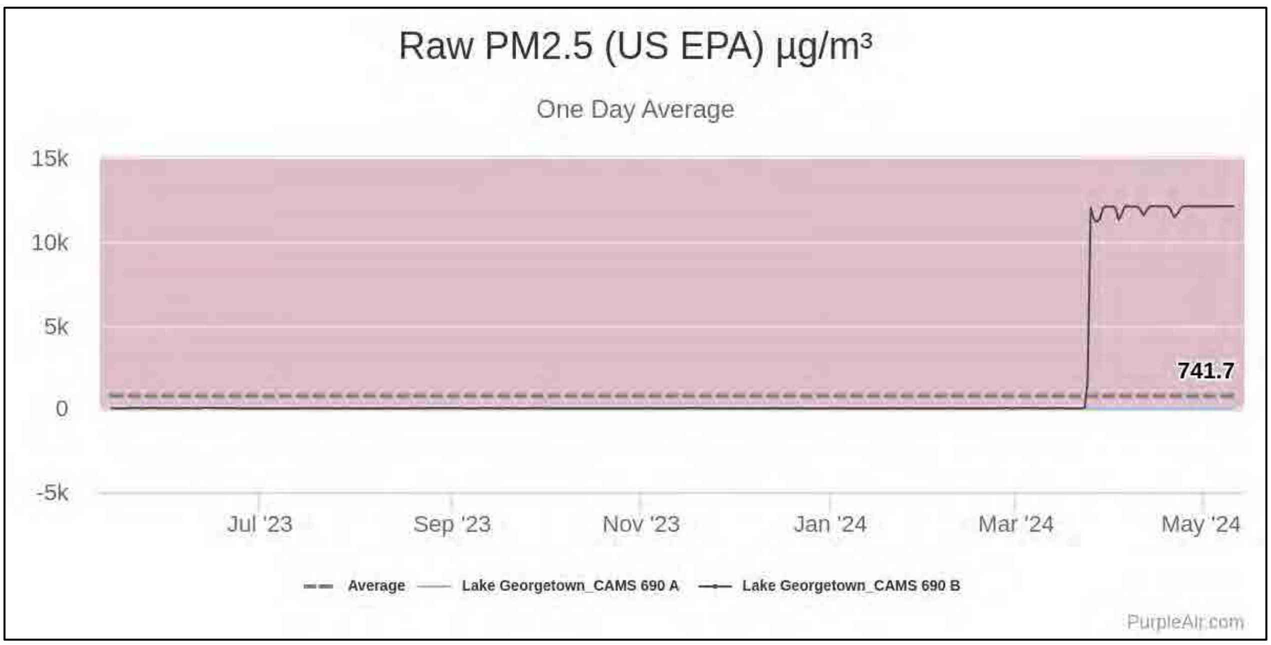

Figure 11. PM2.5 Monitoring Data from Purple Air Sensor Located at Lake Georgetown – Channel B

The monitoring data from Channel B of Lake Georgetown is of particular concern with a 24-Hour average PM2.5 concentration of 742 ug/m^3. This is considered hazardous according to the AQI rating system. Conversations with CAPCOG revealed that these anomalously high readings are likely due to debris or something else obstructing the laser counter. CAPCOG has instructed its contractor, AECOM, to clean the sensor and put Channel B back online as soon as possible.[19]

When the anomalous readings beginning on March 24, 2024 are removed from the dataset, the 24-Hour average PM2.5 concentration for Channel B is calculated as 6.6 ug/m^3.

The monitoring data from Georgetown Municipal Airport shows an annual 24-hour average of 7.1 ug/m^3. This sensor is not located near Sun City or the cluster of APOs in the northern portion of

Wilco. It only provides meaningful data about traffic on I-35 which is nearby. There are multiple days with spikes over 20 ug/m^3.

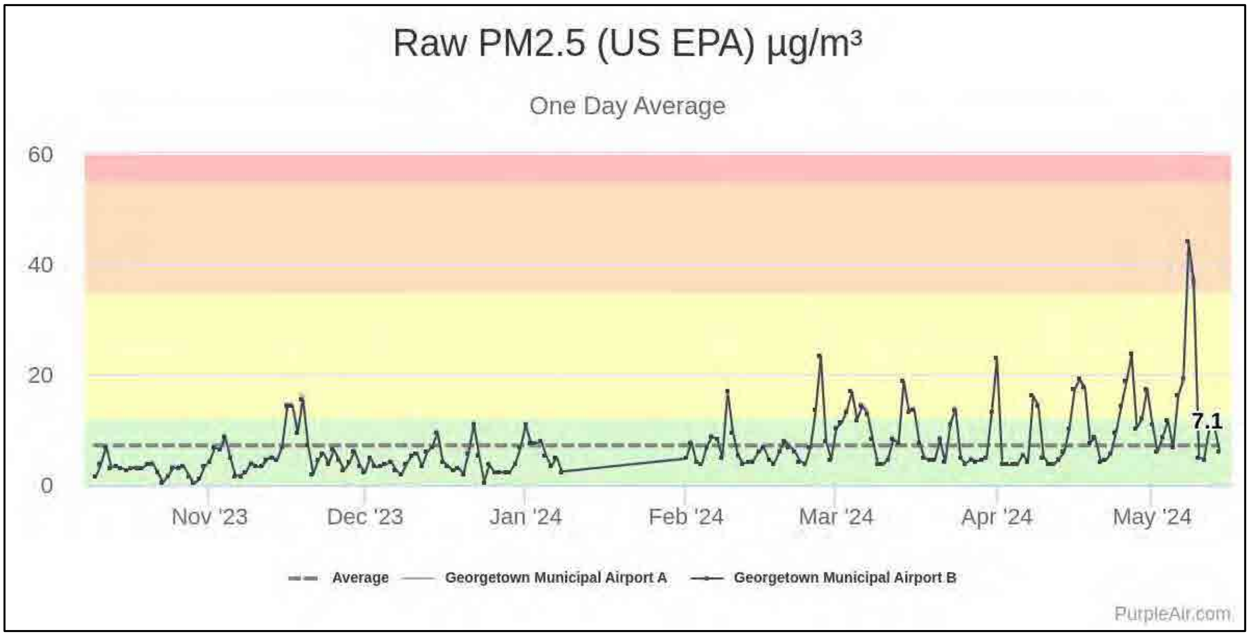

Figure 12. PM2.5 Monitoring Data from Purple Air Sensor Located at Georgetown Municipal Airport

In conclusion, the Purple Air sensors are showing frequent spikes of PM2.5 readings in the Georgetown area, but they are located too far away from Sun City or the cluster of APOs in northern Wilco to provide accurate readings.

3. UT Dallas Sensor

University of Texas in Dallas (UT Dallas) installed one sensor in Live Oak Park as part of an engineering study sponsored by USEPA in the SharedAirDFW Network.[20] This sensor is located in the backyard of a home which is immediately adjacent to two active quarries (JB Stone LLC and Juarez Stone) per Figure 13.

Data was retrieved from the SharedAirDFW Network for PM2.5 and is shown in Figure 14.[21] Displayed underneath the data is the SharedAirDFW scale that shows evidence-based targets for air quality management to protect populations from the adverse health effects of air pollution.

Per Figure 14, the readings from this sensor indicate that PM2.5 readings were above 10 ug/m^3 on quite a few days during 2023 because of excessive quantities of dust. This is consistent with photos and other anecdotal evidence from residents who live nearby.

Figure 13. Aerial Photo of Live Oak Park, Active Quarry and UT Dallas Sensor Location. Source: GoogleEarth

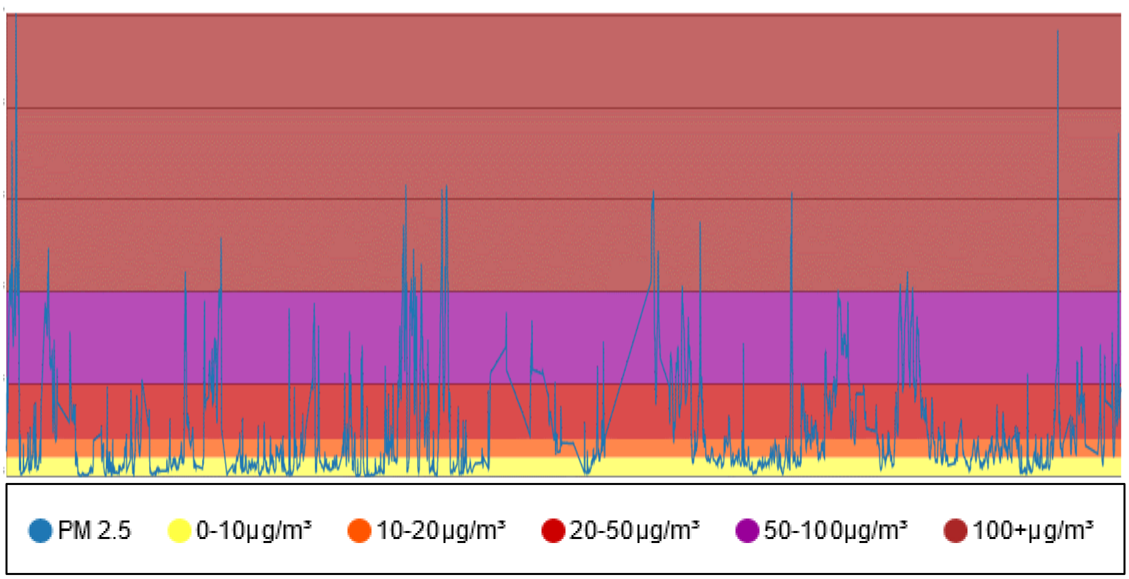

Figure 14. PM2.5 Readings Collected in Live Oak Trail Georgetown (March 1 – Sept 1, 2023).
Source: SharedAirDFW Network.

The principal investigator at UT Dallas for this project is Dr. David Lary.[22] He presented the results of his research on Multi-Scale Integrated Intelligent Interactive Sensing (MINTS-AI) on March 3, 2024 in the UT Dallas: Air Sensor Summit. Attendees included representatives from: USEPA Region VI, North Central Texas County of Governments, etc.

One of Dr. Lary's students, Prabuddha Dewage, is studying the effect of hydroscopic growth on inexpensive PM2.5 sensors. He stated:

- Under conditions of high relative humidity (RH), particles can undergo hygroscopic growth as water vapor condenses on them.

- The amount of water vapor that condenses on the particles depends on their size and composition.
- Inexpensive sensors lack of drying mechanisms, which leads to a potential overestimation of particle sizes under conditions of high RH.

Using a machine learning correction, Mr. Dewage calculated "corrected MINTS" data based on RH and compared it to monitoring results from USEPA. Statistical and error analyses were conducted:

- Root Mean Square Error (RMSE) was calculated as 2.633.
- Correlation Factor (R) was calculated as 0.927.

TCEQ should consider this data (corrected and uncorrected) that is available from UT Dallas when making a decision about placement of a new PM2.5 monitor in Wilco.

VII. Community Concerns

In addition to reviewing available PM2.5 monitoring data, USEPA urged TCEQ in 2023 to "*engage in discussions with the community about the current data"*. Luckily, this has already been completed by CREAM.

CREAM held a Panel Discussion in Sun City in Georgetown, Texas on February 29, 2024 entitled "How Quarries Can Be Better Neighbors". Two hundred-fifty (250) people registered for the panel discussion, and it was covered by KVUE News and several newspapers:

- "Williamson County Residents, Leaders Raise Rock Quarry Concerns as Industry Grows" by Chloe Young, Community Impact on March 1, 2024.[23]
- "Rock Quarries Spark Concerns" by Chloe Young, Community Impact on April 16, 2024.[24]
- "Wilco Neighbors Eye Advisory Council as Possible Path to Co-existence" by Katherine Anthony, Williamson County Sun on March 5, 2024.[25]
- "Concern Grows over Booming Williamson County Rock Quarry Industry" by Lauren Rangel, Fox 7 News beginning on February 29, 2024.[26]

CREAM assembled a distinguished panel to provide their expertise and insights into APO operations (including fugitive dust) and how to make improvements in Williamson County:

- Terry Wilson - Texas Representative for District 20 who has sponsored previous legislation.
- Jill Shackelford - Retired quarry owner and expert witness for mining
- Molly Cagle - Senior Environmental attorney with Baker Botts LLC
- Heather Beatty - Geoscientist at Cambrian Environmental and former TCEQ employee.
- Christina Schwerdtfeger, PhD - Moderator and retired environmental scientist

Four neighborhoods provided statements about the adverse impacts from APOs on their homes and asked questions to the panel members:

- Sun City Neighborhoods 81, 82, 83, 84, 85, 86 and 87;
- Shady Oaks Estates;
- Berry Creek Highlands; and
- Live Oak Park.

During the panel discussion, residents of Live Oak Park described their frustration with excess quantities of fugitive dust from the nearby quarry which travels over the property line and deposits thick layers of quarry dust onto trees, nearby houses, pools and backyard furniture. See Figures 15 and 16. In addition, fugitive dust is spread onto roads by trucks leaving the APO per Figure 17.

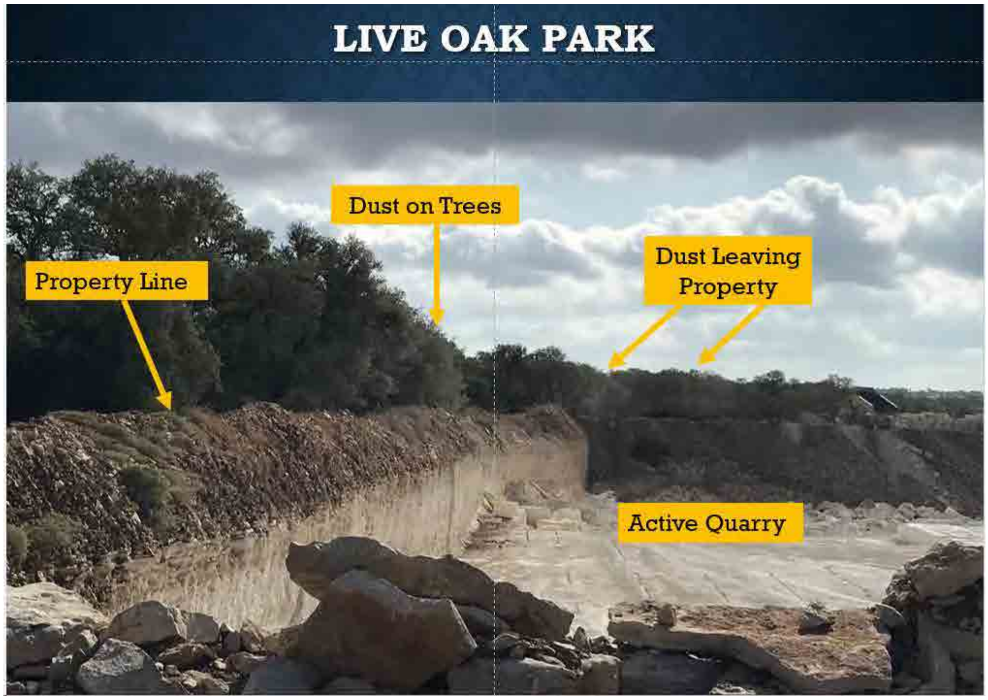

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Figure 15. Photo of Fugitive Dust Leaving Quarry and Proximity to Property Line

Figure 16. Photo of Fan from Live Oak Park Covered with Quarry Dust Before and After Cleaning

Figure 17. Photo of Truck Carrying Aggregate with Open Tarp Leaving a Cloud of Dust

VIII. Online Survey

To collect community feedback, CREAM conducted an online survey of residents in Wilco between January 26, 2024 and March 15, 2024. One hundred seventy-eight (178) people responded to the survey. These are their comments and verbatim statements about fugitive dust:

- *The dust makes everything so nasty inside and out.*
- *The dust is horrendous and my windows look horrible and it's not good to sit out there and breathe that.*
- *The dust issue is obvious after driving on wet roads like 195. Your car is a mess on the outside and in the door wells. That's why the car wash business in Georgetown is booming.*
- *Tired of the dust*
- *Please help control the dust - it permeates everything here just off 195 and Sun City Blvd*
- *When I moved to Shady Oaks in 2016 there was only CC Aggregates in the area... Dust was minimal. I had no idea that Williamson County would allow so many quarries next to each other in the Georgetown area. I can't ride my bike down the country roads near Martin Murieta or AWL as there is so much dust you can barely see the roads and I don't want to inhale all that dust and dirty air. Not the quality of life I was looking for in my retirement years.*
- *Extreme dust in our home*
- *The dust coming off the roads from the quarries is devastating. You cannot drive with windows down or sunroof open, much less open the windows of our home. Many of the very old oak trees have died that are close to the quarry side of our property.*
- *We are constantly having to clean/dust the inside of our home. It doesn't seem to ever go away. It is a constant nuisance.*

These are the comments and verbatim statements about poor air quality and the impacts on their health:

- *I'm worried about my lungs with all of this dust. It might be a valid reason for moving out of Georgetown.*
- *My greatest concern is the air quality around these plants and the level of blasting.*

- *The dust affects my asthma.*
- *You can see how bad the air quality is just by looking at the air/sky. It has caused major health/lung issues for my husband and I. We have never had lung issues before now.*
- *Air quality is a big concern.*
- *Concerned for my health…being impacted due to blasts and danger of trucks.*
- *I have more severe environmental allergies now but I have no way to prove that it is caused by additional dust or air quality issues.*

From the panel discussion on February 29, 2024 and the online survey, it is obvious that APOs create and spread substantial quantities of fugitive dust that leaves the APO property and adversely impacts the health and well-being of local communities.

IX. Conclusion

There are multiple gaps in the emission inventories for CBPs and APOs which underestimate their contribution to regional PM2.5 emission estimates and air quality, particularly in Wilco. Other sources of monitoring data, outside of TCEQ's AMNP, show regular and significant spikes in PM2.5 concentrations.   Coupled with the personal statements, photos and experiences of local communities, it is obvious that PM2.5 monitoring in Wilco needs substantial improvement. It is requested that TCEQ adds at least one new PM2.5 monitor to its AMNP near Sun City and the cluster of APOs and CBPs in northern Wilco.

In closing, we very much appreciate the opportunity to provide comments on TCEQ's Draft AMNP and we kindly request that our technical comments be given due consideration. We also express our willingness to further engage with TCEQ, should you require additional information, clarification, or collaborative opportunities to address the concerns raised in our comments.

Thank you for your attention to this matter. We look forward to a productive and fruitful collaboration with TCEQ and appreciate the opportunity to contribute to the decision-making process.

Sincerely,

Christina Schwerdtfeger, PhD

Retired Environmental Consultant

Michael Spano

Co-Founder of Coalition for Responsible Environmental Aggregate Mining (CREAM)

Endnotes

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[11] USEPA provided written comments to TCEQ on June 14, 2023 for the proposed amendments to the Non-Rule Air Quality Standard Permit for Concrete Batch Plants.
[12] Distances measured on Williamson Central Appraisal District (WCAD) Map accessed at: https://publicdata.wcad.org/parcelmap/?query=Parcels,PIN,R515996
[13] USEPA NAAQS Table accessed at: https://www.epa.gov/criteria-air-pollutants/naaqs-table
[14] TCEQ CAMS 1094, PM-2.5 (Local Conditions) Summary accessed at: https://www.tceq.texas.gov/cgi-bin/compliance/monops/yearly_summary.pl
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[20] University of Texas at Dallas, Multi-Scale Integrated Intelligent Interactive Sensing and SharedAirDFW accessed at: https://mints.utdallas.edu/2021/01/01/sharedairdfw/
[21] SharedAirDFW Network for PM2.5 Ambient Air Concentrations, University of Texas Dallas. Accessed at: https://www.sharedairdfw.com/
[22] Dr David Lary, Professor of Physics, Hanson Center for Space Sciences and Founding Director of MINTS. Accessed at: https://mints.utdallas.edu/affiliates/
[23] "Williamson County Residents, Leaders Raise Rock Quarry Concerns as Industry Grows" by Chloe Young, Community Impact on March 1, 2024. Accessed at: https://communityimpact.com/austin/cedar-park-far-

northwest-austin/government/2024/03/01/williamson-county-residents-leaders-raise-rock-quarry-concerns-as-industry-grows/

[24] "Rock Quarries Spark Concerns" by Chloe Young, Community Impact on April 16, 2024. (No hyperlink. Available as hardcopy only.)

[25] "Wilco Neighbors Eye Advisory Council as Possible Path to Co-existence" by Katherine Anthony, Williamson County Sun on March 5, 2024. Accessed at: https://www.wilcosun.com/news-georgetown-jarrell-liberty-hill-florence-hutto-taylor-east-williamson-county-round-rock-117

[26] "Concern Grows over Booming Williamson County Rock Quarry Industry" by Lauren Rangel, Fox 7 News beginning on February 29, 2024. Accessed at: https://www.fox7austin.com/news/concern-grows-over-booming-williamson-county-rock-quarry-industry

From:	Lauren Fleer
To:	tceqamnp
Cc:	Sara Brodzinsky
Subject:	Comments on 2024 Draft Annual Monitoring Network Plan
Date:	Thursday, May 16, 2024 6:01:23 PM
Attachments:	image001.png 2024-05-16_TX-AMNP_EIP-Comments.pdf

Dear Ms. Landuyt:

Environmental Integrity Project (EIP) respectfully submits the attached comments on the Texas Commission on Environmental Quality 2024 Draft Annual Monitoring Network Plan. Thank you for your consideration of these comments. Please confirm receipt.

Sincerely,

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May 16, 2024

Texas Commission on Environmental Quality
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tceqamnp@tceq.texas.gov

RE: Comments on Texas Commission on Environmental Quality 2024 Draft Annual Monitoring Network Plan

Dear Ms. Landuyt:

Environmental Integrity Project (EIP) respectfully submits the comments below on the Texas Commission on Environmental Quality (TCEQ) 2024 Draft Annual Monitoring Network Plan (Draft AMNP). We appreciate the opportunity to submit these comments. The Draft AMNP describes the existing air monitoring network and proposed changes to the network to meet federal monitoring requirements.

A robust air quality monitoring network is critical for understanding and addressing air pollution. Ozone and particulate matter emissions, discussed in the comments below, cause adverse health effects. The monitoring network provides crucial data to understand pollution sources and the health risks facing nearby communities. No other source provides high-quality, verifiable data on air quality and can provide a check on inventory reports which often undercount emissions. Texas and other states allow even the largest facilities to report annual emissions calculated using EPA's AP-42 compilation and other emission factors, or on "engineering judgments" that are unsupported. The AP-42 emission factors are decades out of date, and many are based on data that may not be representative of the sources to which they apply.[1] Significantly, efforts to predict fenceline concentrations of toxic VOC at refineries and chemical plants based on the emissions reported by those sources have fallen short.[2]

---

[1] An example is the D rated emission factors for refinery cooling towers and oil-water separators. See AP42-5.1-16, https://www3.epa.gov/ttn/chief/ap42/ch05/final/c05s01_2015.pdf.

[2] An example is the extensive sampling at multiple plants that was used to inform EPA's new standards for organic chemical plants which revealed a broad gap between concentrations predicted from emission reports and fenceline concentrations of multiple VOC carcinogens. See U.S. EPA, Memorandum to EPA Docket No. EPA-HQ-OAR-2022-0730 regarding "Clean Air Act Section 112(d)(6) Technology Review for Fenceline Monitoring located in the SOCMI Source Category that are Associated with Processes Subject to HON and for Fenceline Monitoring that are Associated with Processes Subject to Group I Polymers and Resins NESHAP" (Mar. 2023) at 11-18. https://www.regulations.gov/document/EPA-HQ-OAR-2022-0730-0091

EPA regulations provide that state monitoring networks be designed to meet three basic objectives: a) Provide air pollution data to the general public in a timely manner; b) Support compliance with ambient air quality standards and emissions strategy development; and c) Support for air pollution research studies.[3] We offer five recommendations below to improve the ability of TCEQ's ambient air monitoring network to meet these objectives.

I. Add monitoring in the Permian Basin for ozone and its precursors.

For two consecutive years, EPA has recommended that TCEQ deploy one or more monitors in the Permian Basin for NO_x, volatile organic compounds (VOC), and ozone, "to ensure that the impacts of the burgeoning oil production are accurately monitored and recorded."[4] Monitors in southeast New Mexico indicate that since 2017, measured concentrations have exceeded the 8-hour ozone National Ambient Air Quality Standard (NAAQS) of 70 parts per billion. We share EPA's belief that ozone and ozone precursor concentrations should be measured on the Texas side of the state line.

Ozone concentrations measured at New Mexico's Permian monitors in Lea and Eddy counties have steadily risen in the last several years, as have the design values for those monitors. Ozone pollution in New Mexico has worsened steadily as oil and gas extraction in the region has expanded rapidly.[5] Likewise, in Texas, production of oil, gas, and condensate in the Permian Basin has also skyrocketed in the last decade, as shown in Table 1.

Table 1. Permian Basin Oil and Gas Production in Texas[6]

	Oil Production Volume (BBL)	**Casinghead Production Volume (MCF)**	**Gas Production Volume (MCF)**	**Condensate Production Volume (BBL)**
January 2014	35,733,593	77,830,186	38,424,669	1,070,772
January 2024	85,160,151	289,657,090	132,345,103	13,884,479
Percent increase	138%	272%	244%	1197%

[3] Appendix D to Part 58, Title 40. https://www.ecfr.gov/current/title-40/part-58/appendix-Appendix D to Part 58
[4] United States Environmental Protection Agency. Letter to Mrs. Brandy Brooks, Deputy Director, Monitoring Division, Texas Commission on Environmental Quality with comments on Comments on Texas 2022 Annual Monitoring Network Plan. March 3, 2023. https://www.tceq.texas.gov/downloads/air-quality/air-monitoring/network/historical/epa-response-to-2022-amnp.pdf
[5] Jeremy Nichols, "Petition to Designate Permian Basin of Southeast New Mexico a Nonattainment Area Due to Ongoing Violations of Ozone Health Standards," March 2, 2021, https://pdf.wildearthguardians.org@pdf.wildearthguardians.org/support_docs/2021-3-2%20FINAL%20Permian%20Basin%20Ozone%20Nonattainment%20Petition.pdf.
[6] Railroad Commission of Texas, Permian Basin Historical Production, https://www.rrc.texas.gov/oil-and-gas/major-oil-and-gas-formations/permian-basin/.

EPA has identified oil and gas production as the primary industrial producer of VOC—one of two groups of ground-level ozone precursors.[7] Internal combustion engines, drilling, hydraulic fracturing activities, and gas, oil, and water transport infrastructure all release VOC and NO_x, which in turn react with sunlight to create ground-level ozone.[8] Considering the rapid expansion of oil and gas production throughout Texas's Permian Basin, the lack of monitoring for ozone, shown in Figure 1, is unacceptable.

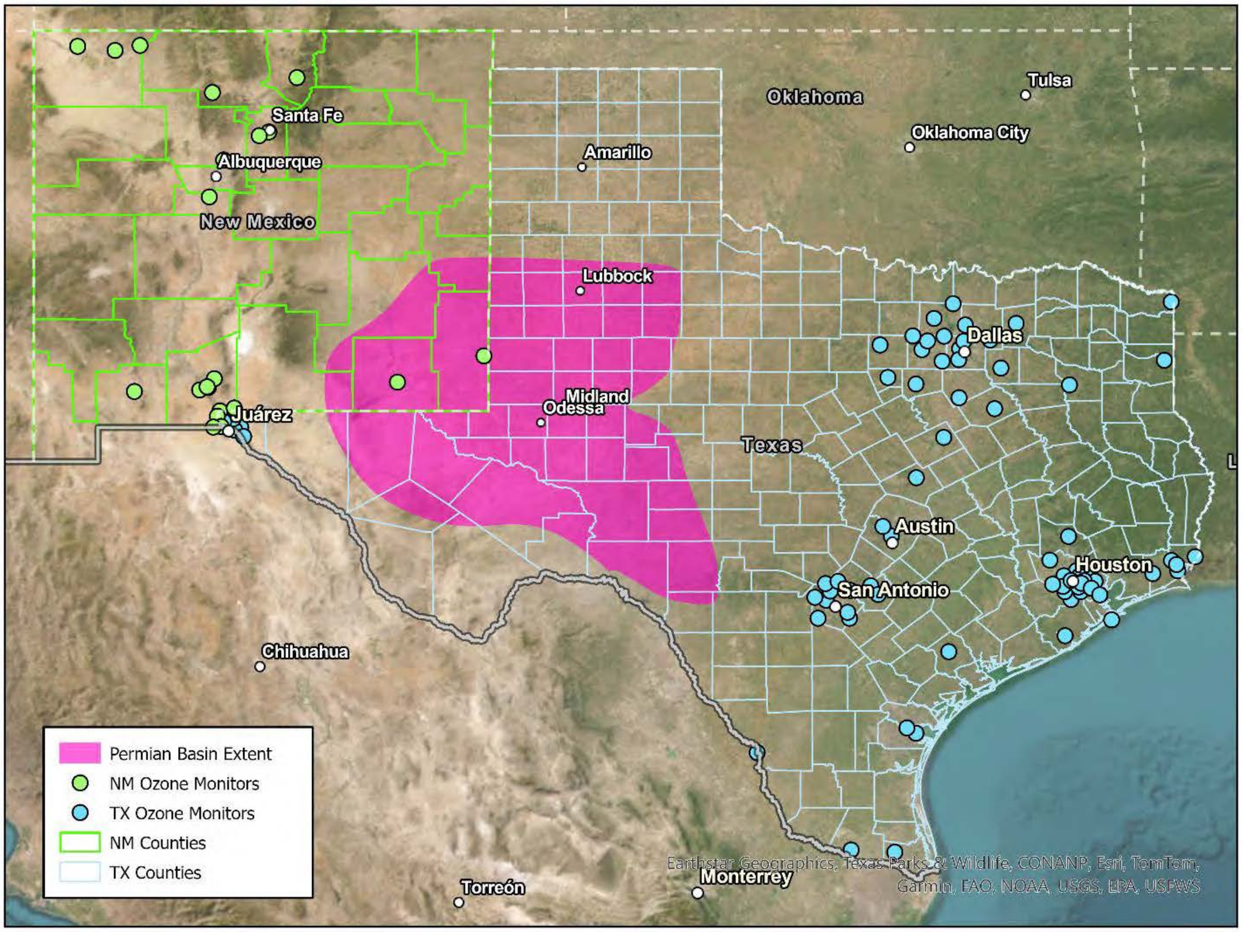

Figure 1. Locations of Ozone Monitors in Texas and New Mexico

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7 EPA, "Basic Information about Oil and Natural Gas Air Pollution Standards," Other Policies and Guidance, September 20, 2016, https://www.epa.gov/controlling-air-pollution-oil-and-natural-gas-operations/basic-information-about-oil-and-natural.

8 David T. Allen, "Emissions from Oil and Gas Operations in the United States and Their Air Quality Implications," *Journal of the Air & Waste Management Association* 66, no. 6 (June 2, 2016): 549–75, https://doi.org/10.1080/10962247.2016.1171263.

Ground-level ozone poses significant risks to humans and to ecosystems. Ozone creates and exacerbates complications for persons with asthma and other existing respiratory ailments. It causes chronic restrictive pulmonary disease and can even lead to death.[9]

We call on TCEQ to implement EPA's repeated recommendations for immediate installation of additional monitoring in the Permian Basin for ozone and its precursors, NO_x and VOC, in order to achieve a comprehensive ozone monitoring program and better protect public health of Texans living in the Permian Basin.

II. Improve monitoring in Houston for ozone and its precursors, especially in environmental justice communities.

While the Draft AMNP demonstrates that TCEQ is meeting the minimum requirements for ozone monitoring, the 2022 reclassification of the attainment status of the Houston-Galveston-Brazoria (HGB) region from serious to severe shows that more action is needed to address local pollution from ozone and its precursors.[10] We encourage TCEQ to consider additional monitoring to provide a more complete understanding of the drivers of ozone formation in the region.

Ozone pollution in the HGB region disproportionately affects environmental justice communities. In a recently published report by EIP about ozone levels in the Greater Houston Area, EIP found that people of color and low-income residents were more likely to live where ozone concentrations reached the highest levels in the summer of 2023 and over the three years from 2021 to 2023.[11] The report identified six locations in the Houston area that recorded at least one 8-hour ozone level higher than 100 ppb in 2023, which is far above the current air quality standard of 70 ppb ozone. More than 90 percent of those living within three miles of four of these monitors—Houston East, Clinton, Haden Road, and Park Place—are people of color, who also account for 73 percent of the population near a fifth monitor at Baytown Garth. While 34 percent of Texans statewide live in low-income households, the proportion is much higher among the populations within three miles of four of these six locations, ranging from 46 percent (Haden Road) to 53 percent (Park Place).[12]

---

[9] American Lung Association, "Ozone," accessed May 15, 2024, https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/ozone; OAR US EPA, "Health Effects of Ozone Pollution," Overviews and Factsheets, June 14, 2022, https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution.

[10] TCEQ, "Houston-Galveston-Brazoria: Ozone History,", accessed May 16, 2024, https://www.tceq.texas.gov/airquality/sip/hgb/hgb-ozone-history.

[11] EIP, "Increase in Houston Ozone Violations Hits Communities of Color Hardest," Nov. 2023, https://environmentalintegrity.org/wp-content/uploads/2023/11/EIP_Report_HoustonOzone_Final.pdf

[12] The ozone data used in this analysis was downloaded from the TCEQ yearly air quality monitor summary reports for each monitoring location and the demographic data estimates within three miles of the monitors mentioned came from EPA's Environmental Justice Screening and Mapping Tool Version 2.2 (EJSCREEN 2.2). For more information, see EIP's report, "Increase in Houston Ozone Violations Hits Communities of Color Hardest."

TCEQ noted in its recent Houston-Galveston-Brazoria (HGB) Severe Classification Attainment Demonstration (AD) State Implementation Plan (SIP) Revision for the 2008 Eight-Hour Ozone National Ambient Air Quality Standard (NAAQS) (HGB SIP) that some ozone monitors that regularly exceed the 2008 Eight-Hour Ozone NAAQS design values are not collocated with both NOx and VOC monitors which would allow for the calculation of VOC-to-NOx ratios.[13] These ratios of ozone precursors, including calculations that account for the reactivity of VOC species, are an important input to planning for ozone reductions. The ratio can indicate which pollutant should be the primary target for reductions in planning for ozone pollution reductions. As shown in Table 2, only two of the 10 monitors that exceeded federal ozone standards for 2021-2023 include all three parameters. To better inform planning for ozone reductions, TCEQ should consider collocating monitors for all three parameters at all sites that regularly exceed federal standards.

Table 22. Demographics and Monitoring Parameters at Locations Exceeding Federal Ozone Standards for 2021-2023[14]

Monitor Name (County)	4th Highest Ozone (3-year average)	3-mile Population	3-mile %POC	3-mile %Low Income	Monitoring Parameters		
					Ozone	VOC	NOx
Houston Bayland Park (Harris)	83	229,074	79%	51%	✓		✓
Houston East (Harris)	80	74,707	93%	49%	✓		✓
West Houston (Harris)	79	91,548	76%	32%	✓		
Houston Croquet (Harris)	78	127,234	90%	43%	✓		
Houston Harvard Street (Harris)	78	185,846	46%	17%	✓		✓
Park Place (Harris)	78	133,566	94%	53%	✓		✓
Haden Road (Harris)	77	78,894	91%	46%	✓	✓	✓
Manvel Croix Park (Brazoria)	77	53,446	68%	13%	✓		✓
Clinton (Harris)	76	75,494	94%	51%	✓	✓	✓
Tom Bass (Harris)	76	53,549	77%	18%	✓		

III. Add carbonyl monitoring sites (including formaldehyde).

To better understand ozone formation and concentrations of ozone precursors in the Houston-Galveston-Brazoria (HGB) non-attainment area, TCEQ should increase the number of

[13] TCEQ, Houston-Galveston-Brazoria Severe Area Attainment Demonstration State Implementation Plan Revision for the 2008 Eight-Hour Ozone National Ambient Air Quality Standard, page 5-21

[14] See footnote 12 regarding data sources.

carbonyl monitoring sites. Currently, there are only two carbonyl monitors in the HGB non-attainment area – Houston Deer Park and Clinton – and just four total across the state.

Certain carbonyls are VOC that contribute to ozone formation, and at least one carbonyl, formaldehyde, is a highly reactive VOC (HRVOC). HRVOC are VOC that are exceptionally reactive and thus contribute disproportionately to ozone formation. Formaldehyde has a very similar maximum incremental reactivity to ethylene, which is a regulated as a HRVOC in the HGB non-attainment area (30 TAC § 115.10) and is therefore similarly efficient at producing ground-level ozone.

Incorporating the maximum incremental reactivity (MIR) to weight the concentrations of VOC provides a more complete picture of the drivers of ozone formation and appropriate targets for pollution reduction. The prevalence of highly reactive VOC (HRVOC) has been demonstrated in studies of ozone precursors in the region. For example, the TexAQS 2000 and TexAQS II air quality studies found that the Texas Emissions Inventory undercounted emissions of VOC and HRVOC and verified that observed HRVOC in the Houston area are associated with industrial emissions. TexAQS 2000 showed that estimates of VOC emissions from petrochemical facilities, in particular alkenes such as ethylene and propylene, were significantly underestimated.[15] The TexAQS II study, conducted in 2005 and 2006, found that, while emissions of HRVOC had decreased, the inventory estimates were still undercounting regulated HRVOC emissions by approximately an order of magnitude.[16] Monitoring for these ozone precursors is critical for understanding their actual contribution to ozone formation in the region.

To more fully characterize the VOC and HRVOC concentrations in the HGB non-attainment area, TCEQ should add carbonyl monitors at additional sites where there are existing VOC monitors to allow for a complete reactivity weighted assessment of the contribution of VOCs to ozone formation.

IV. Improve $PM_{2.5}$ monitoring to ensure attainment of new annual NAAQS.

In March 2024,the EPA's final Reconsideration of the National Ambient Air Quality Standards for Particulate Matter lowered the primary annual $PM_{2.5}$ NAAQS to 9.0 $\mu g/m^3$ and revised the $PM_{2.5}$ monitoring network design criteria to require expanded monitoring in at-risk communities. Communities at potentially greater risk from $PM_{2.5}$ exposures include children, lower socioeconomic status populations, minority populations (particularly Black populations), and people with certain preexisting diseases (particularly cardiovascular disease and asthma).[17]

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[15] Ryerson, T. B., et al., Effect of petrochemical industrial emissions of reactive alkenes and NOx on tropospheric ozone formation in Houston, Texas, J. Geophys. Rsch., Apr. 2003 at 21.
[16] Parrish, D. D., et al., Overview of the Second Texas Air Quality Study (TexAQS II) and the Gulf of Mexico Atmospheric Composition and Climate Study (GoMACCS), J. Geophys. Rsch., Apr. 2009, at 2, 8.
[17] "Reconsideration of the National Ambient Air Quality Standards for Particulate Matter," Federal Register, March 6, 2024, https://www.federalregister.gov/documents/2024/03/06/2024-02637/reconsideration-of-the-national-ambient-air-quality-standards-for-particulate-matter.

The TCEQ 2022 AMNP included plans for new $PM_{2.5}$ monitoring at sites in the Houston Fifth Ward, Houston Pleasantville neighborhood, and in Gregory-Portland. These new monitoring sites were proposed again in the 2023 AMNP but are not yet installed. The proposed monitors now appear a third time in the 2024 AMNP, with estimated completion dates of December 2024 (Fifth Ward and Pleasantville monitors) and December 2025 (Gregory-Portland monitor). We support the installation of these monitors and encourage TCEQ to complete their installation without further delay.

The Gregory-Portland Air Quality project, a partnership between industry and government, operates three Federal Equivalent Method (FEM) monitors to continuously measure $PM_{2.5}$. Their data shows that $PM_{2.5}$ concentrations are already elevated and are increasing. Their 2023 design value is 8.4 $\mu g/m^3$ averaged over three years, just below the recently revised Annual $PM_{2.5}$ NAAQS. This data underscores the importance of TCEQ's attention to Gregory and Portland, as industrial operations seek permits to expand and push $PM_{2.5}$ concentrations closer to the national ambient air quality standard.

We call on TCEQ to begin work immediately to identify and expand air monitoring to additional communities at elevated risk from $PM_{2.5}$ exposures. Environmental justice communities have previously requested fine particulate matter and nitrogen oxides monitoring in the Sunnyside neighborhood of Houston, where metal recycling facilities, concrete batch/crushing facilities, transportation and other industrial activities are concentrated, and where the Houston Health Department has identified the highest rates of asthma in the city.[18] As TCEQ works to meet the revised $PM_{2.5}$ monitoring network design criteria, it must not overlook community monitoring data collected in Sunnyside and well-founded requests for regulatory-grade monitoring.

EPA lowered the primary annual PM2.5 NAAQS in response to evidence that concentrations below the previous standard negatively impact human health. According to EPA's 2022 design value report, 16 monitoring stations in 10 Texas counties have annual design values greater than the 2024 PM2.5 Annual NAAQS, as shown in Table 3. While states are not yet asked to demonstrate attainment with the 2024 standard, TCEQ ought to take action in the near-term to reduce $PM_{2.5}$ emissions in these and other communities where regulatory monitoring is not yet being conducted.

[18] Houston Public Health Data Portal, "Houston Public Health Data Portal :: Indicators :: Adults with Current Asthma", https://www.houstonstateofhealth.com/indicators/index/view?indicatorId=79&localeTypeId=11&periodId=245 (accessed May 16, 2024).

Table 3. Air Quality Design Values for Annual PM2.5 NAAQS

County Name	Local Site Name	2020-2022 Annual Design Value (µg/m^3)
Harris	Houston North Loop	11.4
Harris	Clinton	10.4
Kleberg	National Seashore	10.3
Harris	Houston East	10.2
Harris	Baytown	10.1
Hidalgo	Mission	10.1
Hidalgo	Edinburg East Freddy Gonzalez Drive	10.1
Webb	World Trade Bridge	10.1
Bowie	Texarkana New Boston	10.0
Harris	Houston Aldine	10.0
Dallas	Convention Center	9.4
Travis	Austin North Interstate 35	9.3
El Paso	El Paso Chamizal	9.2
Travis	Austin Webberville Rd	9.2
Cameron	Brownsville	9.1
Tarrant	Fort Worth Northwest	9.1

V. Incorporate data from community monitoring using non-regulatory methods such as low-cost sensors.

TCEQ should transparently incorporate a review of all data available to support monitor siting decisions, including data generated by community-based monitoring projects and particularly in environmental justice communities. Data from community-based monitoring projects can provide valuable information about spatial variability in air quality that can inform regulatory monitor planning and siting. EPA has described this as an appropriate use of sensor data in its 2017 guidance for Enhanced Monitoring Plans and in a 2020 memorandum on the use of air sensor data.[19]

TCEQ has used such data in the past to respond to community concerns, such as in its decision to site $PM_{2.5}$ and VOC monitors in the Pleasantville Neighborhood of Houston. However, TCEQ should act swiftly to incorporate new monitors when a need is identified. While we are encouraged that a site has been selected and that the installation of the Pleasantville monitors is expected to be completed by the end of 2024, it is concerning that this work is not yet completed as the need for a $PM_{2.5}$ monitor in the neighborhood was first identified in TCEQ's annual AMNP in 2021, three years ago.

[19] Anne L. Idsal Memorandum to EPA Regional Administrators Regions I-X, Subject: Air Sensors, June 22, 2020, https://www.epa.gov/sites/default/files/2020-07/documents/air_sensors_memo_june_22.2020.pdf; EPA, Technical Note – Guidance for Developing Enhanced Monitoring Plans, May 2017, https://www.epa.gov/amtic/enhanced-monitoring-plan-guidance.

We encourage TCEQ to continue to use data generated outside of its regulatory monitoring network. For example, as TCEQ considers siting for the planned Gregory-Portland monitor, it should consider data already being collected in San Patricio County. There are two non-regulatory sources of $PM_{2.5}$ data in the county. The Gregory-Portland Air Quality project operates three stations through a partnership between industry and public agencies using Met One BAM 1020 monitors and Speciated Volatile Organic Compound (VOC) Measurement via automated gas chromatography.[20] In addition, Ingleside on the Bay Coastal Watch Association (IOBCWA) and University of Texas researchers are collecting data on ambient concentrations of $PM_{2.5}$, total VOC, and additional criteria pollutants via a sensor network deployed at several locations around San Patricio County.[21] These two additional data sources, while not collected by regulatory monitors, can provide information to support selection of an appropriate site for the proposed Gregory-Portland monitor.

The availability of non-regulatory data to inform decisions about the air monitoring network will only increase. As part of the American Rescue Plan, EPA has awarded over $3 million in grants to local governments, community-based organizations, and advocacy groups in Texas to conduct air quality monitoring in communities with environmental and health disparities.[22] These projects will generate valuable information about local air quality in environmental justice communities that TCEQ should thoughtfully incorporate in its decision-making process for siting monitors.

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[20] Information about Gregory-Portland Air Quality stations is available at https://gpair.ceer.utexas.edu/about-stations.php (accessed May 15, 2024).

[21] Michelle Hummel et al, Implementing an integrated, wireless monitoring network to enhance decision making in communities impacted by environmental and industrial change, https://www.iobcwa.org/uploads/1/2/7/6/127667617/nsf_scc_overview_mhummel_uta.pdf

[22] EPA, "ARP Enhanced Air Quality Monitoring for Communities - Competitive Grant," https://www.epa.gov/arp/arp-enhanced-air-quality-monitoring-communities-competitive-grant (accessed May 15, 2024).

VI. Conclusion

EIP believes that TCEQ must substantially revise the 2024 Annual Monitoring Network Plan to address the concerns described above. If TCEQ continues to ignore EPA's previous recommendations for Permian Basin ozone monitoring and other network improvements, EPA should disapprove of the plan in its current form.

Thank you for your consideration of these comments.

Sincerely,

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From:	Caroline Crow
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Subject:	Public Comments on the TCEQ Draft 2024 Air Monitoring Network Plan
Date:	Thursday, May 16, 2024 2:39:46 PM
Attachments:	2024-05.16 - FINAL- AMNP Comments (2024) (PDF).pdf

Good afternoon,

Please see the attached comments on the TCEQ's Draft 2024 Air Monitoring Network Plan.

Thank you!

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May 16, 2024

VIA EMAIL tceqamnp@tceq.texas.gov
Texas Commission on Environmental Quality
P.O. Box 13087
Attention: Holly Landuyt, MC-165
Austin, Texas 78711-3087

Re: TCEQ's Draft 2024 Annual Monitoring Network Plan

Dear Sirs:

On behalf of its respective clients identified below[1] and their represented communities, Lone Star Legal Aid (LSLA), Air Alliance Houston, New Liberty Road Community Development Corporation (NLRCDC), Coalition of Community Organizations, Achieving Community Tasks Successfully d/b/a ACTS, and Public Citizen submit these comments to the Texas Commission on Environmental Quality (TCEQ) regarding TCEQ's Draft 2024 Annual Monitoring Network Plan (2024 AMNP). The undersigned signatories appreciate the TCEQ's prompt response to these comments and hope these comments are reflected in the final version of the 2024 Air Monitoring Network Plan for Texas submitted to the U.S. Environmental Protection Agency (EPA).

[1] In submitting these comments, Lone Star Legal Aid is representing the following community organizations: Port Arthur Community Action Network, Westry Mouton Project, Southend Charlton-Pollard Greater Historic Community, Caring For Pasadena Communities, Super Neighborhood 48 Trinity Gardens / Houston Gardens, Super Neighborhoods 49 / 50, Pleasantville Area Super Neighborhood 57, Progressive Fifth Ward Community Association, Dyersforest Heights Civic Club, East Aldine Civic Association, Houston Department of Transformation, and Better Brazoria—Clean Air & Water.

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I. COMMENTERS

A. Lone Star Legal Aid

LSLA's mission is to protect and advance the civil legal rights of the millions of Texans living in poverty by providing free advocacy, legal representation, and community education to ensure equal access to justice. LSLA's service area encompasses one-third of the State of Texas, including 72 counties in the eastern and Gulf Coast regions of the state. LSLA's Environmental Justice team focuses on the right to the fair distribution of environmental benefits and burdens and the right to equal protection from environmental hazards. LSLA advocates for these rights on behalf of impacted individuals and communities in LSLA's service area. These comments are submitted on behalf of the following organizations which serve and represent low-income environmental justice communities and their residents:

1. Port Arthur Community Action Network;
2. Westry Mouton Project;
3. Southend Charlton-Pollard Greater Historic Community;
4. Caring for Pasadena Communities;
5. Super Neighborhood 48 Trinity Gardens / Houston Gardens;
6. Super Neighborhoods 49/50;
7. Pleasantville Area Super Neighborhood 57;
8. Progressive Fifth Ward Community Association;
9. Dyersforest Heights Civic Club;
10. East Aldine Civic Association;
11. Better Brazoria—Clean Air & Water; and
12. Houston Department of Transformation.

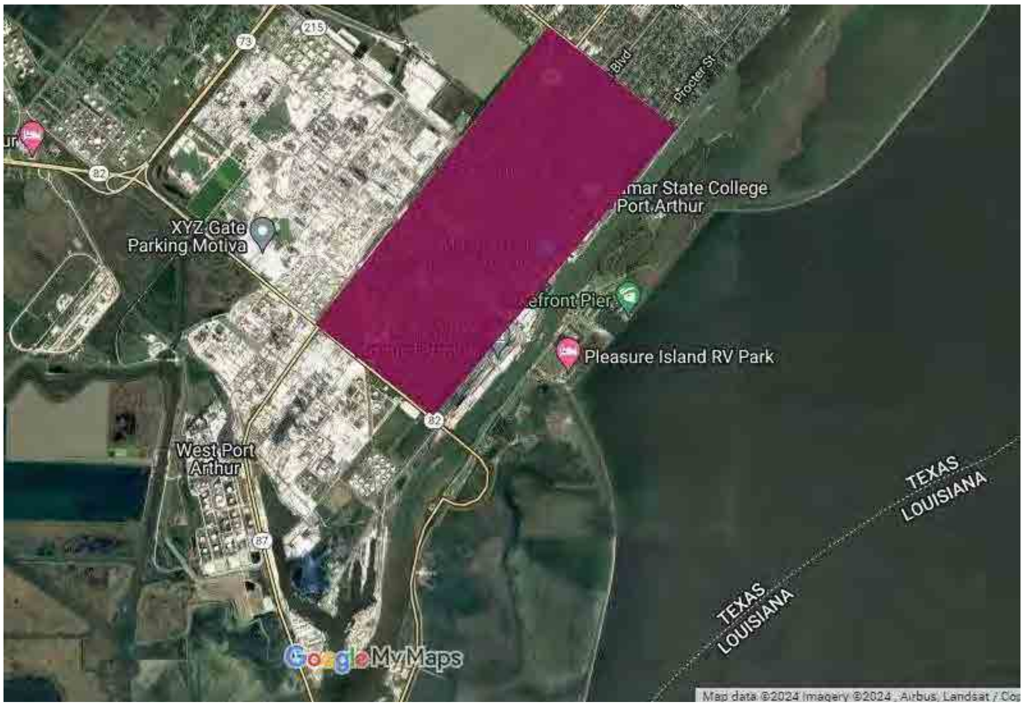
<u>**Community Organizations Represented by Lone Star Legal Aid**</u>

1. Port Arthur Community Action Network

The Port Arthur Community Action Network (PACAN) is a not-for-profit community-based organization in the West Port Arthur neighborhood of Port Arthur that mobilized in the immediate aftermath of Hurricane Harvey to address a slew of environmental releases and problems associated with the storm. The organization was responsible for hosting disaster relief legal clinics for the citizens of Port Arthur and advocated for a more effective response to the storm by local governmental authorities. In addition, PACAN has and remains active in reviewing, commenting, and challenging air permit applications in the West Port Arthur area that would compound existing issues with air and water quality in the neighborhood and larger city. PACAN is also active in commenting on statewide and federal plans regarding environmental protection and regulation, including several iterations of TCEQ's Annual Monitoring Network

Plan. PACAN is committed to improving the quality of life of residents in Port Arthur, Texas. West Port Arthur is surrounded by major petrochemical and other large industrial facilities, the Port of Beaumont, and crisscrossed by railroads and truck routes related to those industrial sites.

Figure 1: Location of Residential West Port Arthur in Port Arthur[2]



2. *Westry Mouton Project*

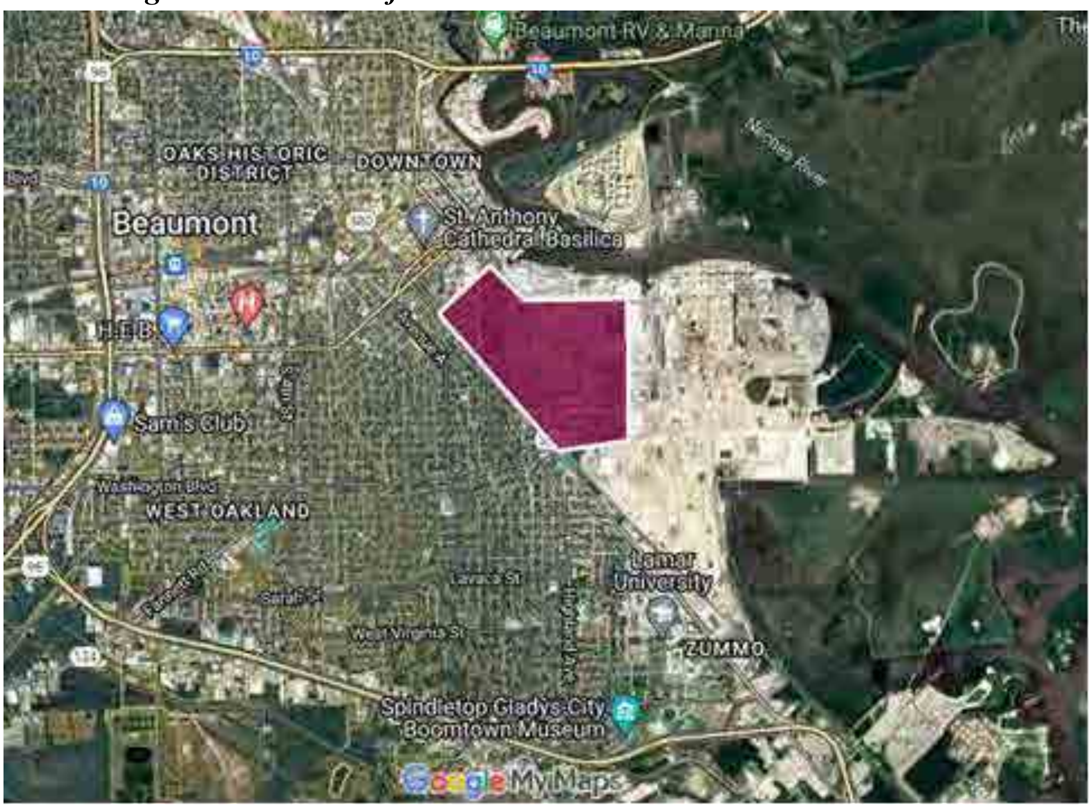
The Westry Mouton Project (WMP) is a not-for-profit community-based organization that serves the Beaumont, Texas area. WMP's primary focus is on Beaumont's "East Side", which is historically, and remains, a lower-income, largely Black community. The East Side is the half of Beaumont east of Interstate-10 and US Highway 287. The East Side is bisected by those major highways, many railways, the Port of Beaumont, and numerous large industrial facilities. WMP focuses on ensuring Beaumont's youth are provided with a healthy environment, broadly understood, to develop and succeed in life. WMP's work includes a summer camp for local young girls and working with at-risk youth to teach them how to find job opportunities. WMP also works to improve the natural environment in Beaumont so it can provide the area's youth with clean air and clean water, and so that WMP can ensure the health consequences of pollution do not affect their development and ability to succeed. WMP has previously commented on the several iterations of Air Monitoring Network Plan and has performed other advocacy to support a healthy environment for Beaumont's youth.

[2] Screenshot taken from Google Maps, www.google.com/maps.

3. Southend Charlton-Pollard Greater Historic Community

The South End Charlton-Pollard Greater Historic Community Association (SECPGHCA) represents the Charlton-Pollard neighborhood and adjacent residents on Beaumont's East Side. Charlton-Pollard is a historically Black and low-income neighborhood that has seen substantial urban degradation in recent years. SECPGHCA aims to promote community engagement, pride, and development via various community projects, including a community garden and sponsoring youth sports programs. SECPGHCA has also engaged in environmental justice advocacy, including commenting on air permits for major industrial facilities and now, commenting on air monitoring in the area.

***Figure 2: Location of Residential Charlton Pollard in Beaumont*[3]**



4. Caring for Pasadena Communities

Caring for Pasadena Communities (CPC) is a community-based nonprofit organization committed to raising awareness of environmental issues affecting residents of Pasadena and nearby communities along the Houston Ship Channel, where many of its members live and work. CPC is organized to advocate for these communities, improve public education on environmental issues, and to ensure equal treatment for low-income residents in environmental matters. This work has entailed direct involvement in the public participation process of numerous projects by

[3] Screenshot taken from Google Maps, www.google.com/maps.

highlighting environmental justice concerns for various permitting agencies that would otherwise go unnoticed and unaccounted for.

5. *Super Neighborhood 48 – Houston Gardens / Trinity Gardens*

Super Neighborhood 48 "Trinity / Houston Gardens" takes its name from two communities: Trinity Gardens and Houston Gardens in Houston, Texas, also known as the "Gardens." The City of Houston defines the area known as Super Neighborhood 48 by the geographic boundary shown below, which is within City Council District B and comprises 4,395 acres (6.87 sq. miles) in the Northeastern part of the City of Houston, Texas:

Figure 3: Location of Super Neighborhood 48 in Northeast Houston

6. *Super Neighborhood 49/50 – East Houston & Settegast*

Super Neighborhood 49/50 is made up of East Houston and Settegast. These two neighborhoods are also in Northeast Houston.

East Houston is adjacent to McCarty Road Landfill, a Harris County landfill, and a major industrial park, Railwood. The positioning of this community between these industrial operations and waste sites makes it a particularly vulnerable community to pollution and degraded air quality. East Houston is a predominantly Black community.

Settegast is about 8 miles from downtown Houston and sits outside of Loop Interstate-610. Settegast is a predominantly Black community. The Settegast community is surrounded by interstates and industrial users—Loop Interstate-610 to the south, U.S. Highway 90 to the east, and Union Pacific Railroad intermodal terminal to the west. The eastern portion of Settegast also shares its eastern boundary with two of Harris County's active landfills, McCarty Road Landfill and Ralston Road landfill. Settegast is subject to particularly poor air quality resulting from its industrial neighbors.

Settegast and East Houston have a community air monitoring network implemented by Air Alliance Houston to evaluate this area's disproportionately impacted air quality.

Figure 4: Super Neighborhood 49 – East Houston

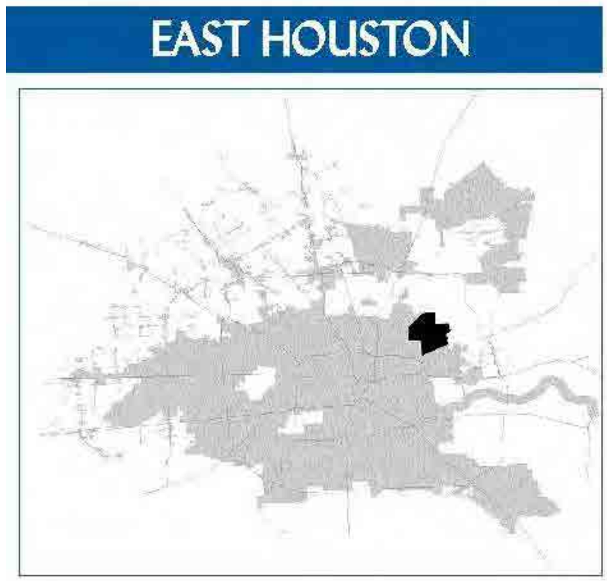
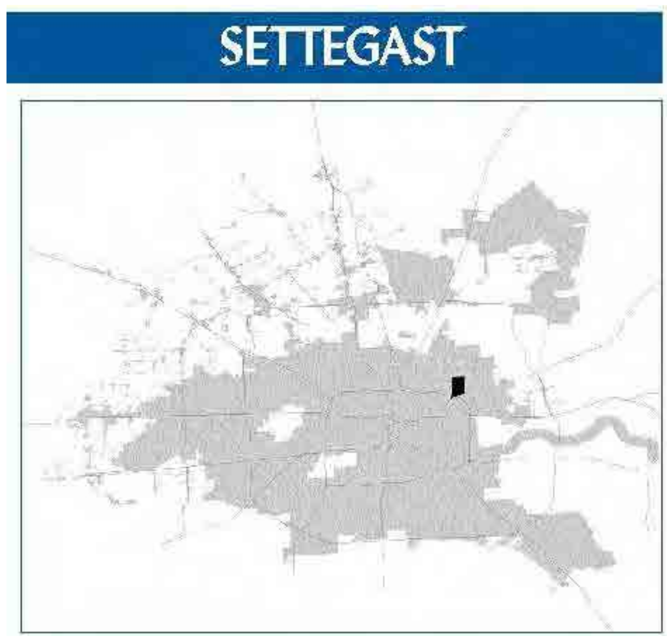


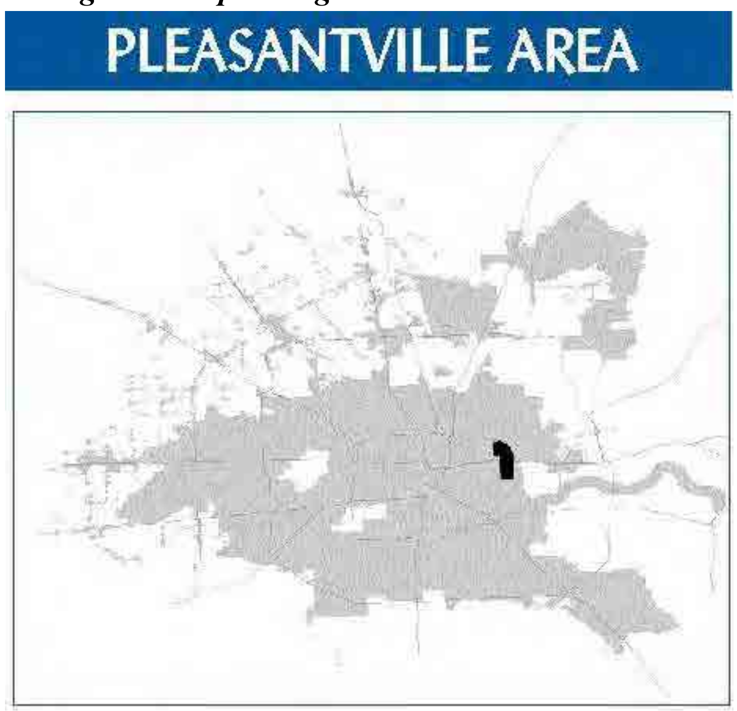
Figure 5: Super Neighborhood 50 – Settegast



7. Pleasantville Area Super Neighborhood 57

Pleasantville Area Super Neighborhood 57 is an organization in Houston, Texas representing individuals, civic clubs, and businesses located within two neighborhoods close to the Houston Ship Channel. Pleasantville was developed after World War II and remains a historic, predominantly Black community. Given its proximity to port-related activities, Super Neighborhood 57 and other community groups in the area like Achieving Community Tasks Successfully (ACTS) are extremely focused on environmental justice issues and air quality in the area. Recently, the neighborhood installed one of the first community-led air monitoring programs in the country.

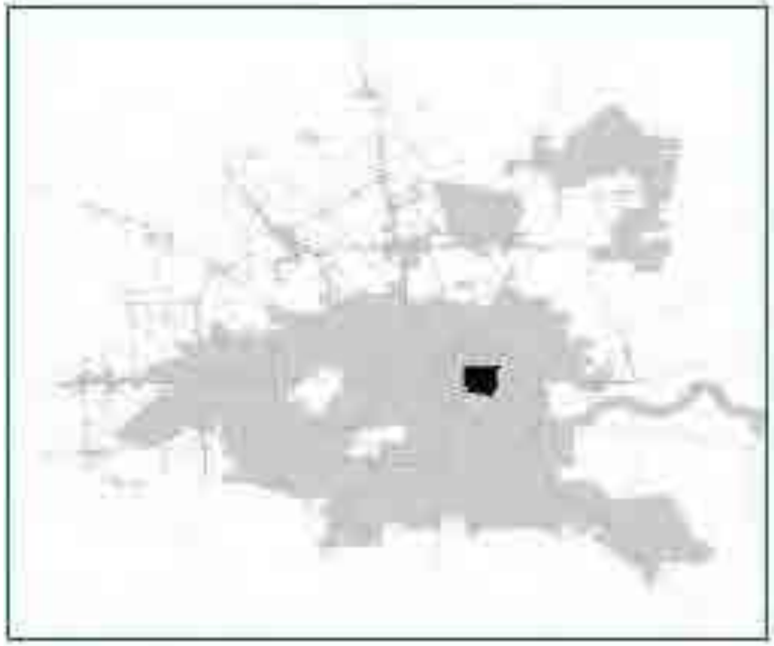
Figure 6: Super Neighborhood 57 – Pleasantville



8. Progressive Fifth Ward Community Association

Progressive Fifth Ward Community Association (Progressive Fifth Ward) is an incorporated community association serving the Greater Fifth Ward of Houston, also known as Super Neighborhood 55. The City of Houston defines Greater Fifth Ward by the geographic boundary shown below in **Figure 7**, which comprises 3,192 acres (4.99 sq. miles) in the Northeastern part of the City of Houston:

Figure 7: Location of Greater Fifth Ward in Northeast Houston

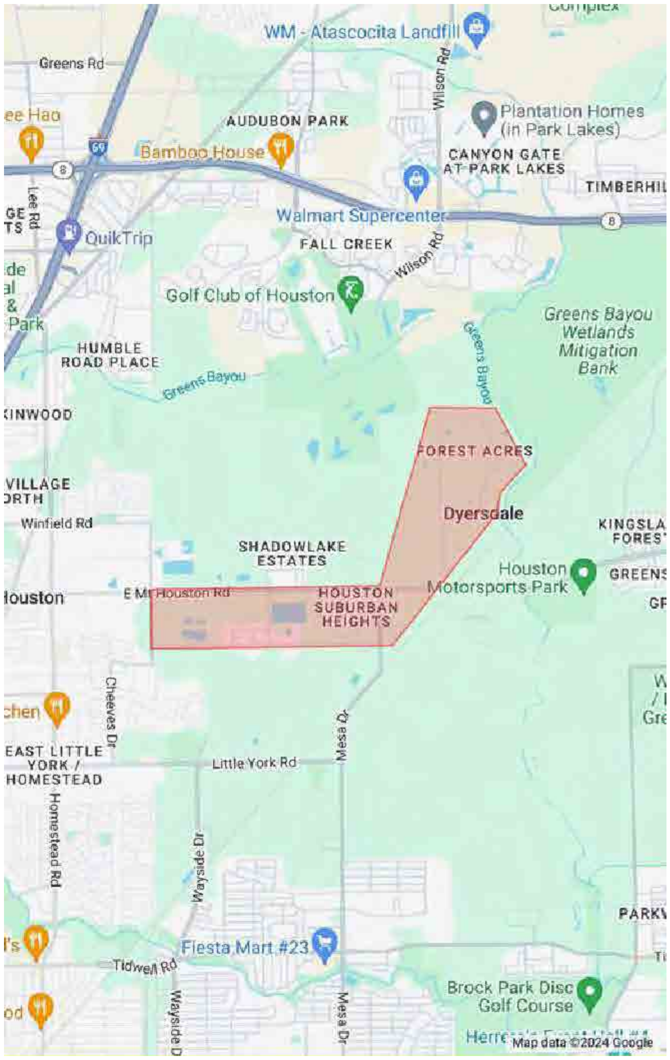


As a community association, Progressive Fifth Ward's purposes include: promoting civic engagement of residents, encouraging improvements in the appearance of public and private properties in the area, and taking concerted actions in matters pertaining to the welfare of residents in the neighborhood. Progressive Fifth Ward has been and remains active in efforts to combat local sources of pollution within the community and highlighting these issues to governmental entities.

9. Dyersforest Heights Civic Club

Dyersforest Heights Civic Club ("Dyersforest") is nonprofit civic club incorporated under the laws of the State of Texas. The group was created to promote civic and social welfare and well-being of the residents and property owners of Dyersforest Heights. Dyersforest Heights includes: Dyersdale, Forest Acres, and Houston Heights subdivisions which are all situated in the historic Dyersdale area in Houston and Harris County. Dyersforest Heights Civic Club has lead the charge for their community against harmful concrete facilities that pollute the community's air and water.

Figure 8: Dyersforest Heights Boundaries[4]

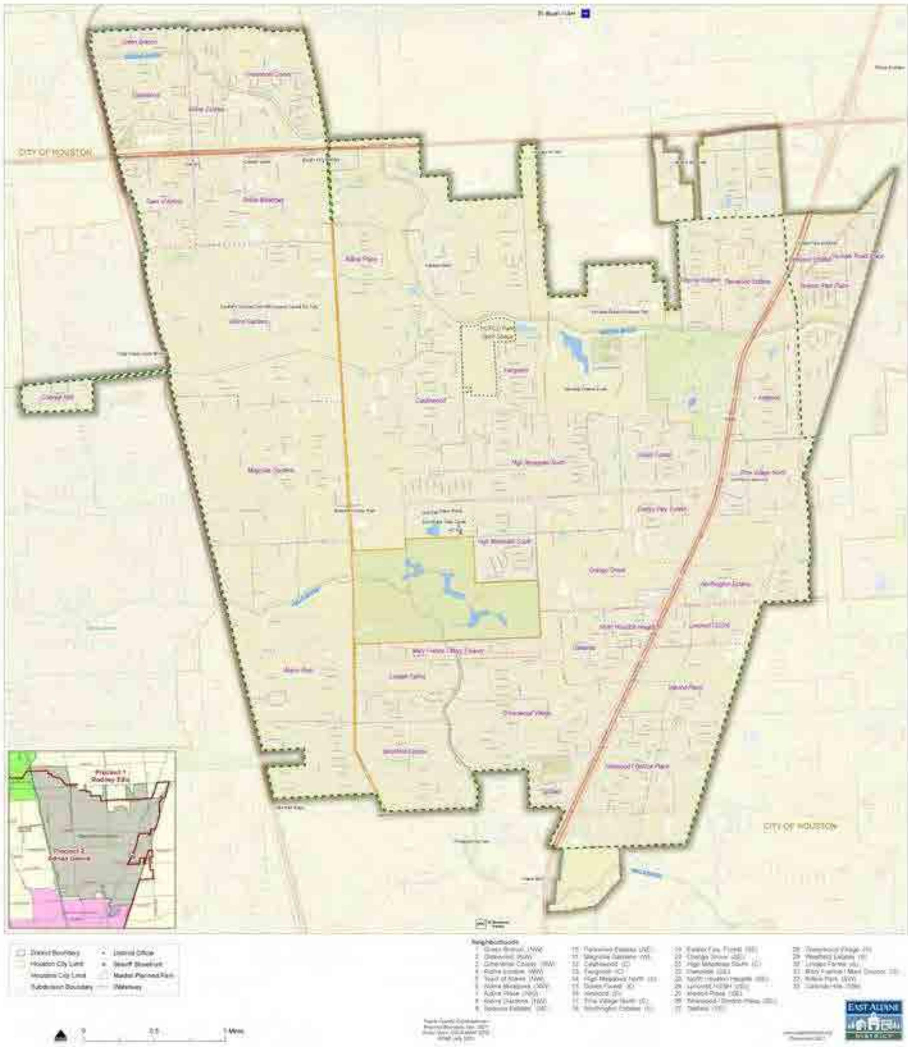


10. East Aldine Civic Association

East Aldine Civic Association is an unincorporated association formed with the purpose of promoting and supporting the well-being and improvement of the East Aldine community and its residents. The Civic Association strives to inspire greater participation in community engagement activities by developing new leaders, bringing forward community enhancement ideas and projects that are consistent with community values, and by working to improve the quality of life of the people of East Aldine and its surrounding communities. East Aldine Civic Association's current leadership has more recently focused on reforming dangerous concrete facilities which are damaging the community's air quality.

[4] Screenshot taken from Google Maps, www.google.com/maps.

Figure 9: East Aldine Management District Map



11. Houston Department of Transformation

The Houston Department of Transformation is a grassroots community-based nonprofit organization which operates in multiple neighborhoods in north-central along the Interstate 45 and Hardy Toll Road corridors, as well as in communities in Northeast Houston such as East Aldine. The organization largely operates on a project-based basis, completing projects across northern Houston to improve the health and safety of neighborhoods, as well as promote community cohesion and pride. As part of this work, the Houston Department of Transformation has previously worked with other organizations in the Houston area on developing local air monitoring networks to help gauge air quality in the area.

12. Better Brazoria - Clean Air & Water

Better Brazoria – Clean Air & Water (Better Brazoria) was formed to educate Freeport residents about environmental issues and to advocate for solutions to protect and improve air and water quality. To accomplish this mission, Better Brazoria holds community meetings to raise awareness about potentially harmful air and water pollution events in Freeport, Texas and Brazoria County. The group communicates with TCEQ and other state and local governmental entities to remain up to date on the latest developments in the area. Better Brazoria continues to engage with the public participation component of the environmental permitting process by submitting comments, and engaging in hearings on air, water, and waste permits, and submitting comments, like these, on air monitors in the region. The group's goal is to encourage protection of public health through compliance with permitting schemes and environmental laws.

B. Air Alliance Houston

Air Alliance Houston is a recognized Texas 501(c)(3) non-profit advocacy organization working to reduce the public health impacts of air pollution and advance environmental justice through applied research, education, and advocacy. Air Alliance Houston takes a strong stance against disproportionate exposure to air pollution in overburdened communities of color and lower income by focusing attention on health equity and environmental justice.

C. New Liberty Road Community Development Corporation

New Liberty Road Community Development Corporation (NLRCDC), as a Texas 501(c)(3) community development corporation, stands at the forefront of addressing pressing issues at the intersection of community development, climate change, environmental sustainability, public health, and social justice. NLRCDC based in Fifth Ward, Houston, Texas is committed to fostering positive change through applied research, education, and advocacy initiatives. NLRCDC's steadfast dedication to reducing disparities and promoting equity in environmental and social outcomes and public health initiatives. By prioritizing the well-being of overburdened communities, particularly those of color and lower income, NLRCDC exemplifies the government's commitment to fostering a more just and sustainable society. Their collaborative efforts are instrumental in advancing health equity and environmental justice for residents of Fifth Ward with community-driven initiatives in driving meaningful progress.

D. Coalition of Community Organizations

The Coalition of Community Organization's mission is to help facilitate the flow of information in order to educate, empower, and enhance the lives of individuals and families with the goal of helping them make informed decisions in an effort to obtain healthy and sustainable communities. The organization's vision is to distribute information to this generation of communities and the next. Our future goal is to become a powerbase within communities that is politically, economically, socially, academically, and spiritually strong to increase community involvement.

E. Achieving Community Tasks Successfully (ACTS)

Achieving Community Tasks Successfully (ACTS) is a 501c3 nonprofit representing the Pleasantville and Clinton Park communities in Houston. ACTS' mission is to leverage citizen science, training, and community engagement to address climate, environmental and social justice. Its ongoing relevant projects include community air monitoring of criteria pollutants and hazardous air pollutants (HAPs), disseminating results of recently completed baseline health survey for public health and disaster preparedness planning, and stakeholder engagement with Port Houston advocating for environmental and climate justice for port communities.

F. Public Citizen

Public Citizen is a nonprofit consumer advocacy organization that champions the public interest in the halls of power. We defend democracy, resist corporate power and work to ensure that government works for the people – not for big corporations. Public Citizen's Texas office works to protect the health and prosperity of our communities and families. We support a just energy transition that creates green jobs, living wages, and a strong economy.

II. PLACEMENT OF AIR MONITORS IN ENVIRONMENTAL JUSTICE COMMUNITIES

Environmental justice is an ongoing struggle to remedy environmental discrimination in this country. The EPA defines environmental justice as follows:

> Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA has this goal for all communities and persons across this Nation. It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work.[5]

The EPA defines "fair treatment" as ensuring "that no group of people should bear a disproportionate burden of environmental harms and risks, including those resulting from the

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[5] U.S. Environmental Protection Agency, Environmental Justice-Related Terms As Defined Across the PSC Agencies (05/13/2013), https://www.epa.gov/sites/production/files/2015-02/documents/team-ej-lexicon.pdf.

negative environmental consequences of industrial, governmental, and commercial operations of programs and policies."[6]

Environmental discrimination and the uneven spread of environmental harms and risks have historically been evident in the process of selecting and building environmentally hazardous sites, including waste disposal, manufacturing, and energy production facilities. The locations of busy roads and railroads follow a similar pattern. The siting of such hazardous infrastructure in communities of color and/or low-income communities has had a disproportional negative impact on the overall health and well-being of those communities.

TCEQ must recognize the inclusion of "government…programs and policies" in the definition of fair treatment. A well designed and inclusive air monitoring program can be an effective tool to identifying and alleviating risks and harms. An air monitoring program which does not sufficiently monitor the many air pollutants released into environmental justice communities has the potential to perpetuate the challenges faced by those communities. In other words, TCEQ should view the 2024 AMNP as an important opportunity to fulfill TCEQ's obligations under Title VI of the Civil Rights Act of 1964 as well as basic tenets equal protection.

Additionally, TCEQ has an obligation to monitor in "at-risk" communities, differently than those communities which are not categorically "at-risk."[7] According to the EPA, an "at-risk" community is defined as a community with an increased risk of related health effects caused by pollution sources of concern.[8] Those communities identified as "at-risk" should have monitoring stations sited near sources. Importantly, the communities represented in these comments are categorically at-risk.

The EPA's air monitoring regulations similarly require TCEQ consider "vulnerable and susceptible populations" in placement of monitors.[9] According to EPA research:

> Residents of low-income neighborhoods and communities may be more vulnerable to air pollution because of proximity to air pollution sources such as factories, major roadways and ports with diesel truck operations. They also may be more susceptible to air pollution because of social and economic factors.[10]

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[6] *Id.*
[7] *See e.g.* 40 C.F.R. 58.10(b)(14).
[8] U.S. Environmental Protection Agency, Air Monitoring for Fine Particle Pollution ($PM_{2.5}$) Fact Sheet, https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-monitoring-fact-sheet.pdf
[9] *See e.g.* 40 C.F.R. 58.10(b)(12).
[10] U.S. Environmental Protection Agency, EPA Research: Environmental Justice and Air Pollution, https://www.epa.gov/ej-research/epa-research-environmental-justice-and-air-pollution#

The communities described below all fit squarely into these agency definitions of “at-risk” and “vulnerable and susceptible.” The represented communities are all proximate to air pollution sources and face social and economic factors which raise health and healthcare challenges.

A. West Port Arthur

West Port Arthur is a historically Black and low-income neighborhood located in south/southwest Port Arthur, Texas. West Port Arthur is a US EPA Region 6 “Environmental Justice Showcase Community” due to its legacy of environmental and public health challenges.[11] The neighborhood is home to “many facilities including chemical plants, refineries and a hazardous waste incinerator.”[12]

Residential West Port Arthur, also known as the “West Side” of Port Arthur, is a neighborhood that is predominantly a low-income, community of color. The neighborhood is bisected and surrounded by major industrial facilities, many of which are among Texas’ largest emitters of criteria pollutants. **Figure 10** shows a satellite image of the area. Residential West Port Arthur can be seen along the right side of the image while the areas numerous, and massive, industrial cites largely appear white or grey across the center of the image. In addition, the Port of Beaumont and railways cut along the Sabine Neches Canal to the left of residential West Port Arthur. Point sources plus truck, rail, and ship traffic all combine to make West Port Arthur one of the most vulnerable communities to air pollution in Texas.

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[11] U.S. Environmental Protection Agency, Region 6 EJ Showcase Community: Port Arthur, TX, https://archive.epa.gov/environmentaljustice/grants/web/html/ej-showcase-r06.html.
[12] *Id.*

***Figure 10: Satellite Image of Residential and Industrial West Port Arthur*[13]**

[13] Screenshot from Google Maps, www.google.com/maps.

Figure 11: Railroads in West Port Arthur[14]

The following two figures, **Figure 12** and **Figure 13**, show the prevalence of people of color in Port Arthur as a national percentile, and the prevalence of low-income households as a national percentile. In each figure, the areas with red (the highest rates of poverty of people of color) are West Port Arthur. The figures show that West Port Arthur has one of highest rates of poverty and one of the highest proportions of people of color in the entire country.

[14] U.S. Department of Transportation, Bureau of Transportation Statistics, North American Rail Network Lines, https://geodata.bts.gov/datasets/usdot::north-american-rail-network-lines/about.

Figure 12: People of Color in Port Arthur[15]

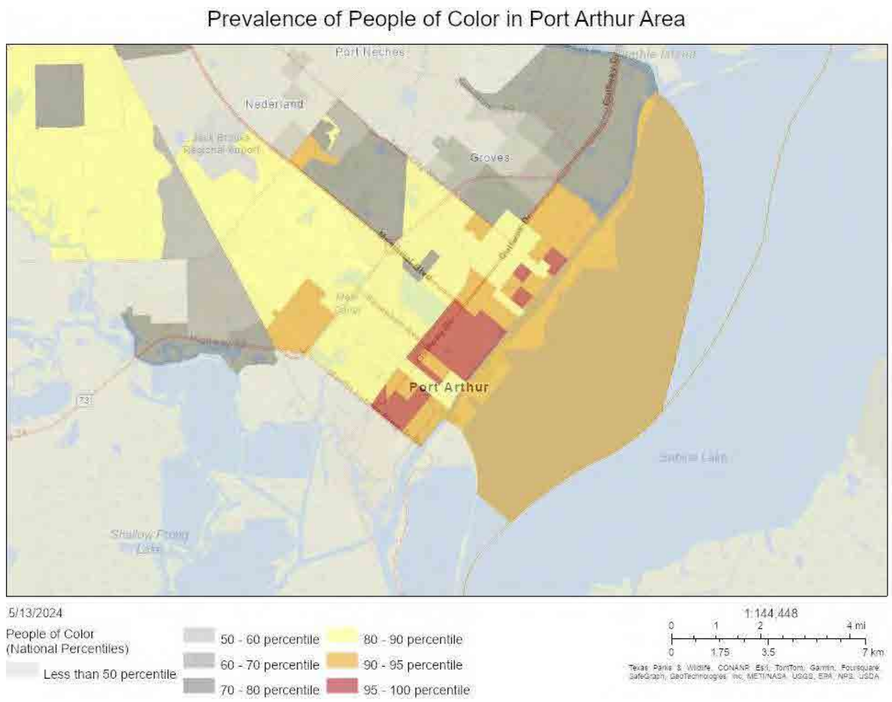
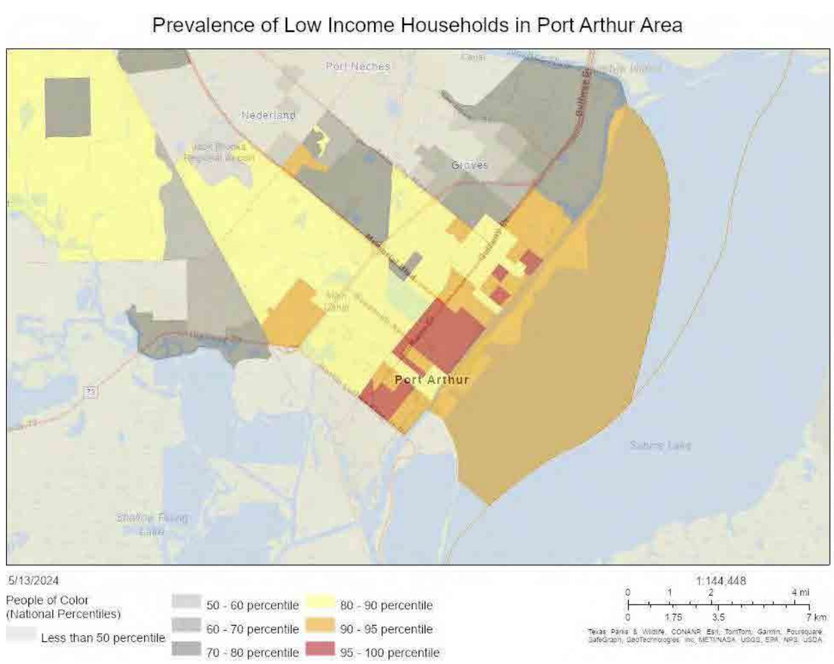


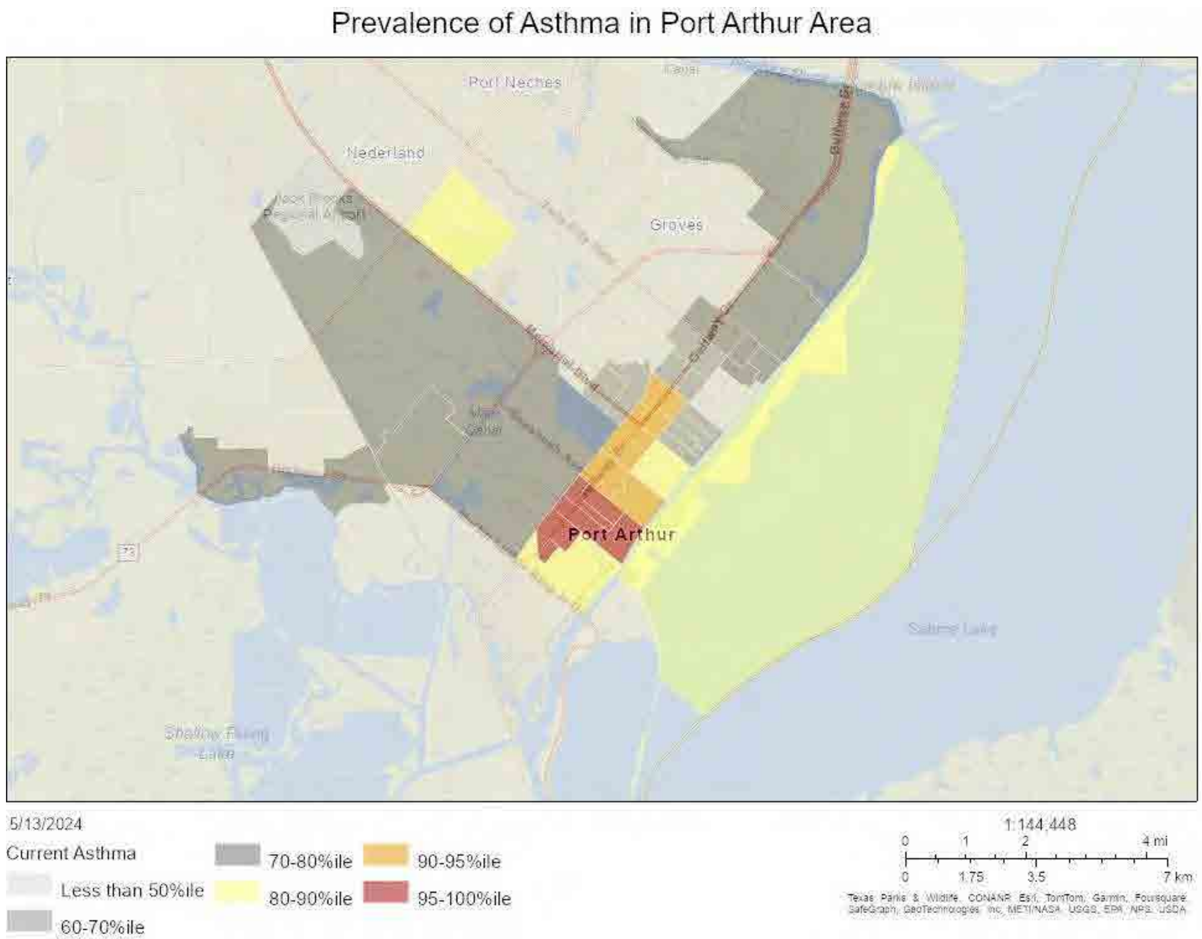
Figure 13: Low Income Households in Port Arthur[16]



[15] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.
[16] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

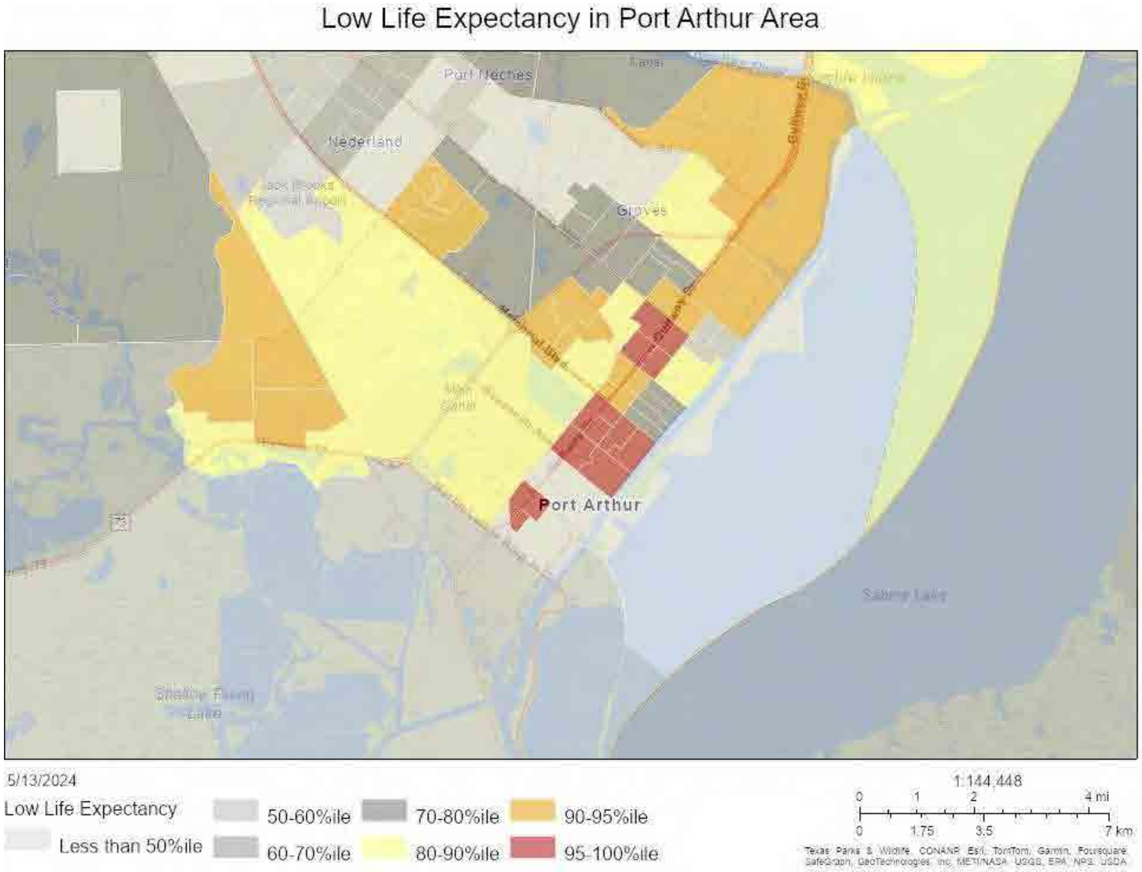
It is not surprising that West Port Arthur faces significant health challenges. The community has, for example, high rates of asthma and notably low life expectancy. Most of West Port Arthur is in the 95th or higher national percentile for asthma. West Port Arthur is also mostly in the 95th or higher national percentile for low life expectancy.

Figure 14: Prevalence of Asthma in Port Arthur[17]



[17] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

Figure 15: Prevalence of Low Life Expectancy in Port Arthur[18]



It is crucial that West Port Arthur have accurate and appropriate air monitoring due to its vulnerability and susceptibility to air pollution harms. PACAN maintains and reiterates its longstanding concerns about SO_2 monitoring near the Oxbow Calcining facility located just south and upwind of residential West Port Arthur.

B. Beaumont

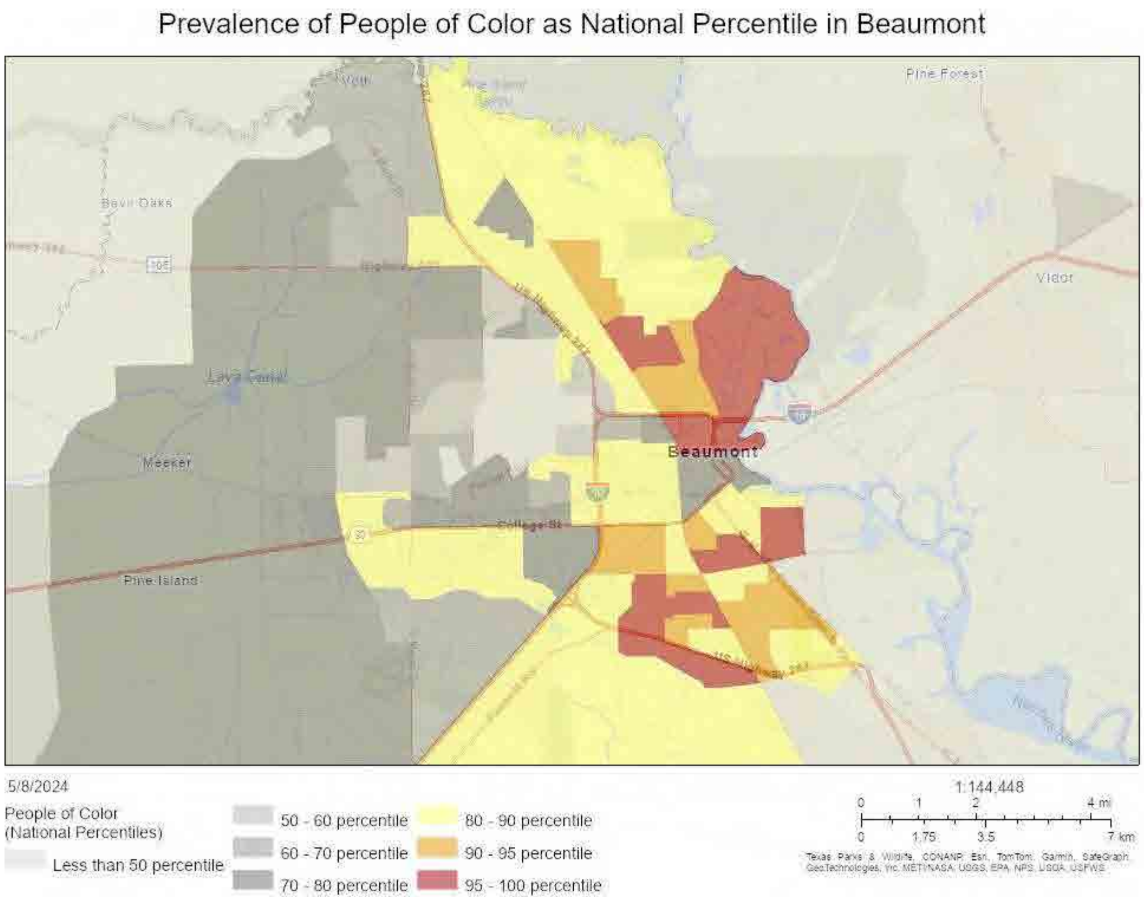
Together, WMP and SECPGHCA represent Beaumont's "East Side", the historically lower income and majority-minority portion of Beaumont located east of Interstate 10 and U.S. Highway 96. Beaumont is the historic and spiritual home to Texas' oil and gas industry—Spindletop was struck in 1901 and the city is still home to oil and gas production, as well as multiple major industrial facilities and associated infrastructure. For example, Beaumont's East Side is home to one of the largest petrochemical facilities in the world, Exxon Mobil's vast

[18] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

Beaumont refining complex.[19] SECPGHCA's concern goes well past Exxon Mobil, including emissions related to other major industrial facilities, the Port of Beaumont, the areas many railroads, and the busy Interstate 10 corridor through the center of the city.

Beaumont can largely be divided into "west" and "east" by Interstate 10 and US-Highway 96. There are stark income, race, and health related divides between these two sides of town. The following figures, **Figure 16, Figure 17, and Figure 18**, show the prevalence of people of color, households below the poverty level, and the prevalence of asthma. Beaumont's East Side is largely people of color, living below the poverty level, and face elevated health challenges such as high rates of asthma, for example.

Figure 16: People of Color as National Percentile in Beaumont[20]



[19] ExxonMobil, Beaumont Operations, https://corporate.exxonmobil.com/locations/united-states/beaumont-operations.
[20] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

Figure 17: Low Income Households as National Percentile in Beaumont[21]

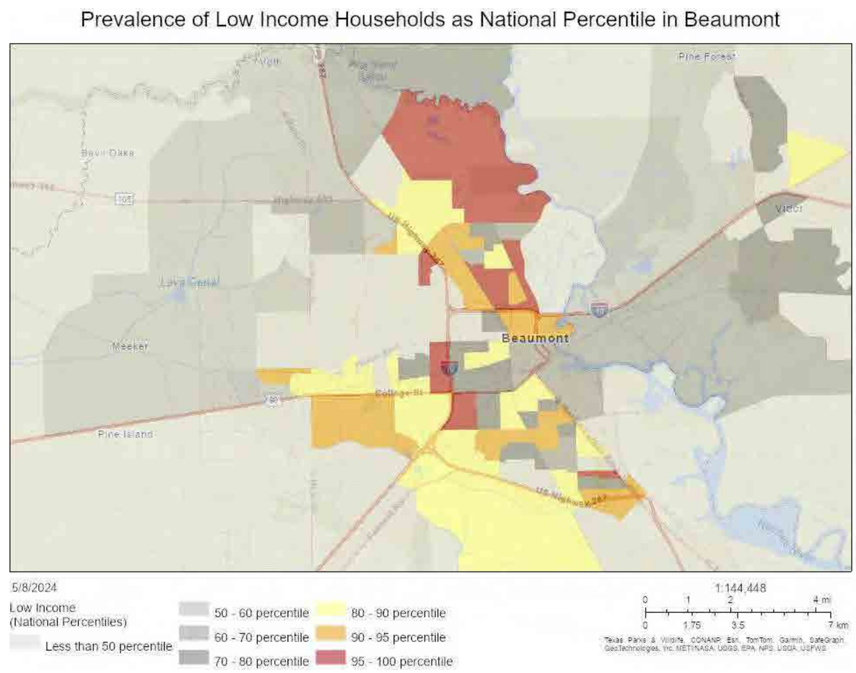
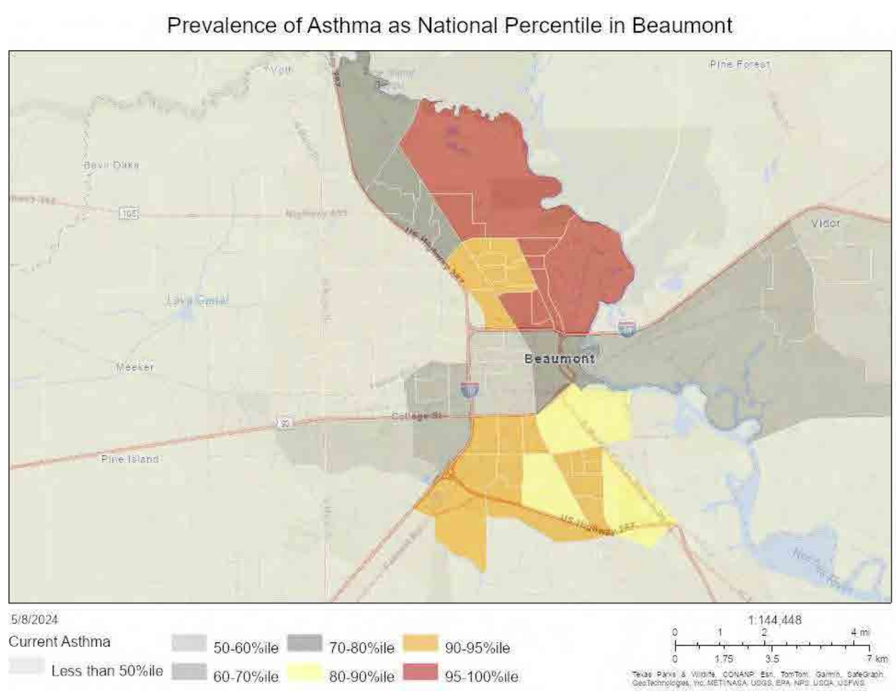


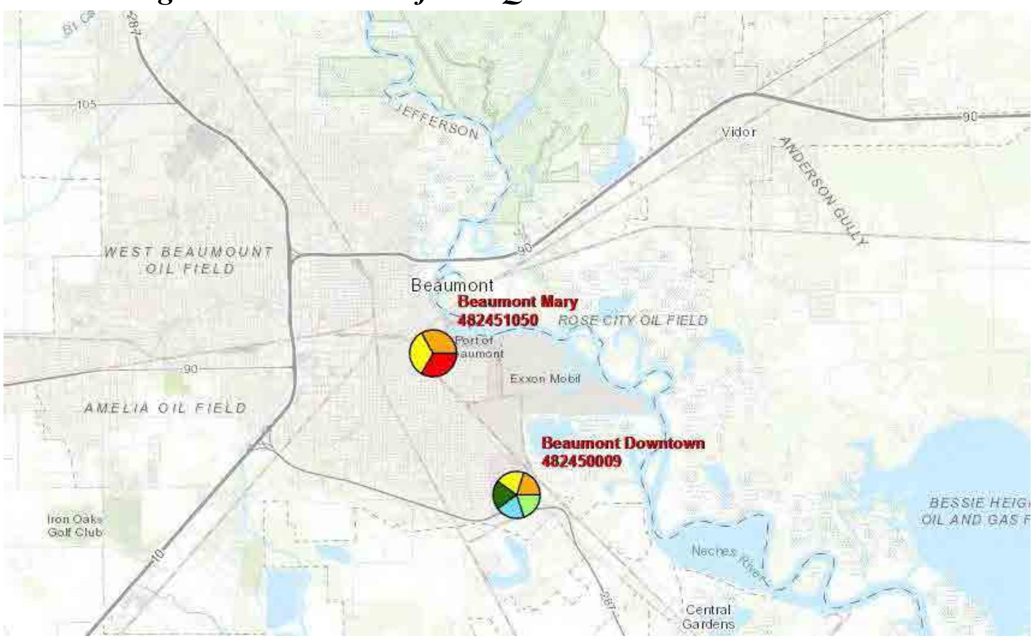
Figure 18: Asthma Prevalence as National Percentile in Beaumont[22]



[21] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.
[22] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

In short, Beaumont's East Side faces significant environmental justice concerns. For the purposes of these comments, SECPGHCA and WMP start by pointing out the general lack of air monitoring in the heart of Beaumont. The "Beaumont Downtown" monitor is not located in central, downtown Beaumont but is rather located on Beaumont's far south side, on the edge of urban Beaumont. The "Beaumont Mary" monitor is in central Beaumont, near Charlton Pollard, but only measures hydrogen sulfide and VOCs. While this is good, WMP and SECPGHCA believe NO_x and CO monitoring is warranted under the federal air monitoring regulations at the Beaumont Mary site or a near-road monitor along the Interstate 10 corridor on Beaumont's East Side.

Figure 19: Location of TCEQ Air Monitors in Beaumont[23]



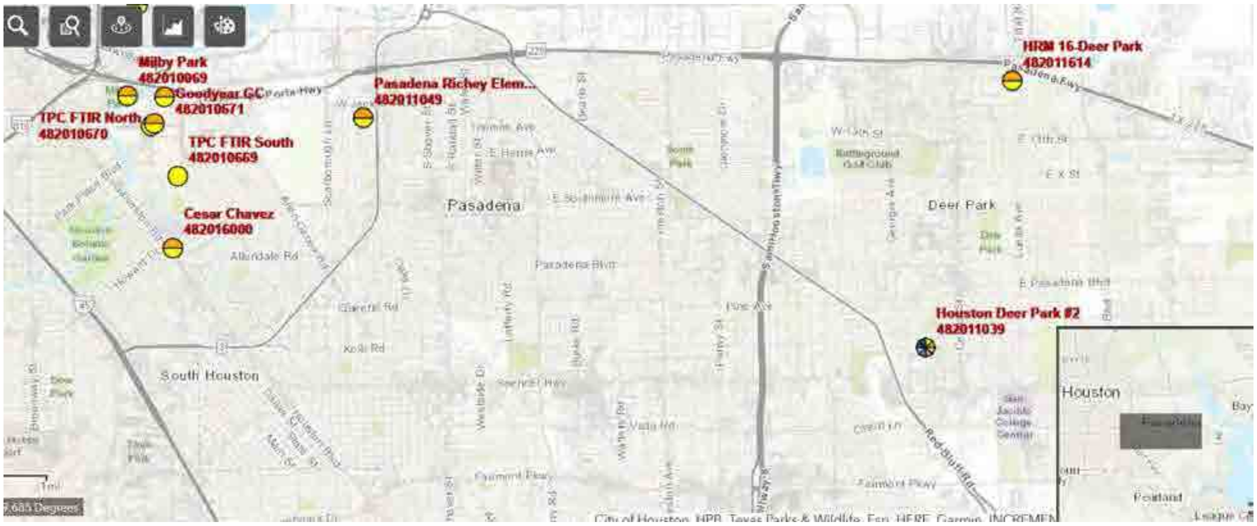
C. Pasadena and Surrounding Communities near the Houston Ship Channel

As shown below in **Table 1** and **Figure 20**, TCEQ only has one air monitor in the City of Pasadena, Pasadena Richey Elementary (#482011049), a VOC monitor located at 610 2/3 South Richey Street, Pasadena, Texas. This monitor is insufficient for monitoring air quality for Pasadena residents for a number of reasons.

TABLE 1: PASADENA AIR MONITOR			
EPA Site No.	**Monitor Name**	**Location**	**Pollutant(s) Monitored**
482011049	Pasadena Richey Elementary School	610 2/3 South Richey Street	VOCs

[23] Texas Commission on Environmental Quality, Air Monitoring Sites, GeoTAM Map Viewer, https://www.tceq.texas.gov/airquality/monops/sites/air-mon-sites.

Figure 20: Air Monitors in Pasadena[24]



First, Pasadena is a city covering 44.74 square miles with a population of 147,662 in 2022.[25] Pasadena is the 20th most populous city in Texas, and the second largest city in Harris County, Texas. Given the city's large size, the Pasadena Richey Elementary monitor, located in the upper northwestern corner of Pasadena, cannot accurately capture air quality for much of the city. By comparison, the neighboring city of Deer Park, Texas is a quarter of Pasadena's size in area (10.57 square miles) and population (33,468),[26] yet it has two monitors: (1) a VOC monitor, HRM 16-Deer Park (#482011614), and (2) a more comprehensive monitor, Houston Deer Park #2 (#482011039), which tracks VOCs, nitrogen, $PM_{2.5}$ and PM_{10}, O_3, SO_2, NO_2, NO_y, CO, and carbonyl. Both Pasadena and Deer Park are highly industrial regions; however, Deer Park has a monitor for every 5.285 square miles (or a monitor per 16,734 people), whereas Pasadena has one monitor for 44.74 square miles (or a monitor per 147,662 people). Even if the TCEQ does not install an air monitor to cover every five square miles in Pasadena, the discrepancy between Pasadena and Deer Park demonstrates that one air monitor is not enough.

Second, the Pasadena Richey Elementary monitor's location likely is deficient because the wind in Pasadena often blows from the southeast. As **Figure 21** shows, many facilities that are part of the U.S. EPA's Toxics Release Inventory (TRI) program in Pasadena are in the southeastern part of the city. TCEQ should place another air monitor in Pasadena that can better capture the air quality impacts of these facilities specifically on Pasadena residents.

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[24] Texas Commission on Environmental Quality, Air Monitoring Sites, GeoTAM Map Viewer, https://www.tceq.texas.gov/airquality/monops/sites/air-mon-sites.

[25] U.S. Census Bureau, Quick Facts, Pasadena city, Texas, https://www.census.gov/quickfacts/pasadenacitytexas.

[26] U.S. Census Bureau, Quick Facts, Deer Park, city, Texas; Pasadena city, Texas, https://www.census.gov/quickfacts/fact/table/deerparkcitytexas,pasadenacitytexas/PST045219.

Figure 21: Wind Direction in Pasadena

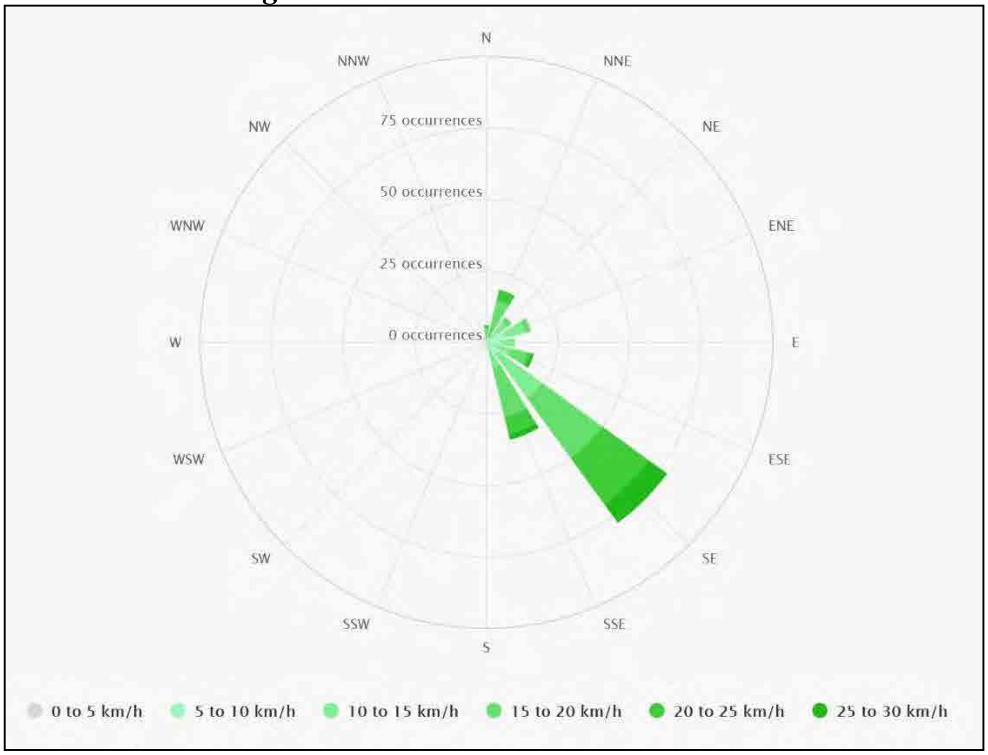
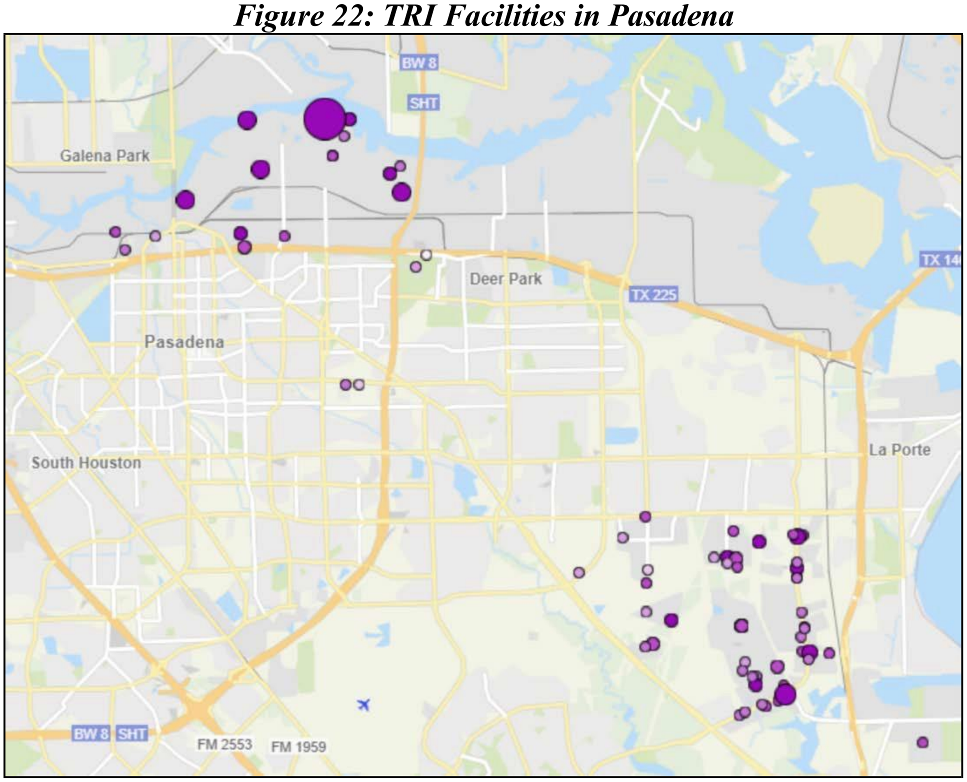


Figure 22: TRI Facilities in Pasadena



Third, Pasadena Richey Elementary only tracks VOCs. There are at least 62 facilities located in Pasadena, Texas registered with the EPA and regularly making TRI reports.[27] These facilities report not only VOCs, but also other chemicals, including ammonia and heavy metal compounds—such as cobalt, nickel, and zinc compounds. In addition, other types of facilities, including five concrete batch plants, emit particulate matter. TCEQ should install additional monitors in Pasadena that can better capture non-VOC chemicals and particulate matter.

CPC recognizes that there are other air monitors in municipalities surrounding Pasadena, such as Deer Park, Houston, Shore Acres, Seabrook, and League City that measure other air pollutants in addition to VOCs. However, these monitors listed in Table 2 do not reflect the air pollutants inside the Pasadena community. Accordingly, the presence of monitors around Pasadena do not guarantee that air quality is being adequately monitored in Pasadena, nor that the public has a complete picture of air pollutants in Pasadena.

TABLE 2: AIR MONITORS AROUND HOUSTON SHIP CHANNEL

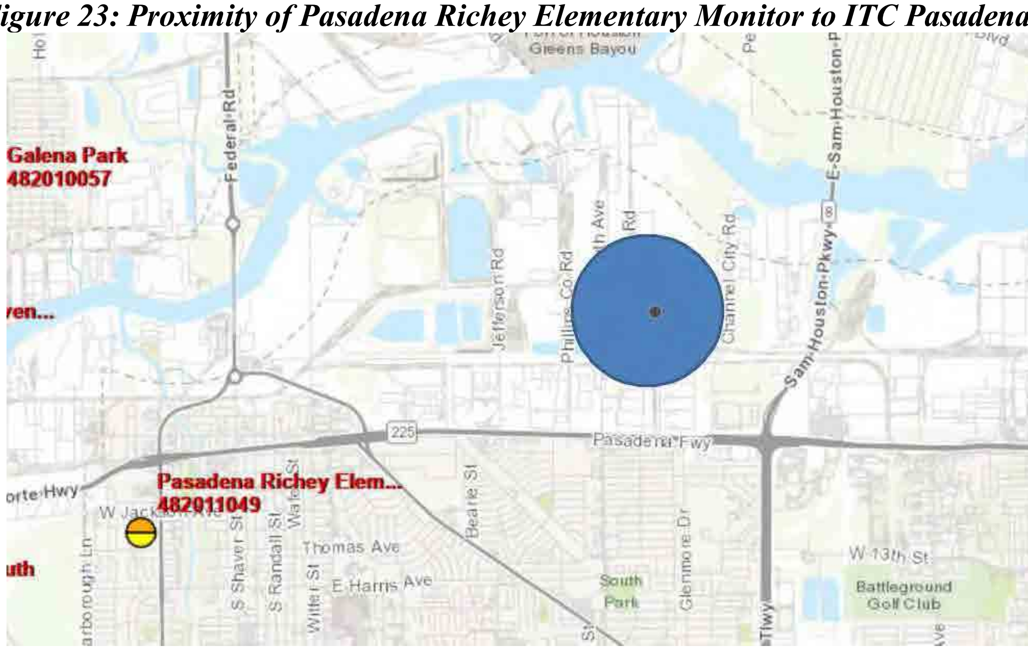
EPA Site No.	**Monitor Name**	**Location**	**Pollutant(s) Monitored**
482016000	Cesar Chavez	4829A Galveston Rd (Houston)	VOC
482011035	Clinton	9525 1/2 Clinton Dr. (Houston)	NO_x, O_3, $PM_{2.5}$, PM_{10}, SO_2, VOC
482010671	Goodyear GC	9728 West Road (Houston)	VOC
482010673	Goodyear Houston Site #2	2000 Goodyear Dr. (Houston)	VOC
482010062	Houston Monroe	9726 1/2 Monroe St. (Houston)	O_3, PM_{10}
482010307	Manchester East Avenue N	9415 East Avenue N (Houston)	VOC
482010069	Milby Park	2201A Central St. (Houston)	VOC
482010416	Park Place	7421 Park Place Blvd (Houston)	NO_x, O_3, SO_2
482010669	TPC FTIR South	8600 Park Place Blvd (Houston)	VOC
482011039	Houston Deer Park #2	4514 1/2 Durant St. (Deer Park)	O3, $PM_{2.5}$, SO_2, VOC
482010057	Galena Park	1713 2nd St.	VOC

[27] U.S. Environmental Protection Agency, 2022 TRI Factsheet: City – Pasadena, TX (2022 dataset), https://enviro.epa.gov/triexplorer/tri_factsheet.factsheet?pzip=&pstate=TX&pcity=PASADENA&pcounty=&pyear=2022&pParent=TRI&pDataSet=TRIQ1.

TABLE 2: AIR MONITORS AROUND HOUSTON SHIP CHANNEL			
EPA Site No.	**Monitor Name**	**Location**	**Pollutant(s) Monitored**
		(Galena Park)	
482010061	Shore Acres	3903 ½ Old Hwy 146 (La Porte)	VOC
482011050	Seabrook Friendship Park	4522 Park Rd (Seabrook)	NO_x, O_3, $PM_{2.5}$
482011614	HRM 16-Deer Park	600-658 Luella Ave (Deer Park)	VOC

Fourth, even though the Pasadena Richey Elementary monitor tracks VOCs, the monitor does not ensure accurate monitoring for the many facilities in Pasadena emitting VOCs. For example, CPC has commented on permit applications submitted by Intercontinental Terminals Company's Pasadena facility (ITC Pasadena), located at 1030 Ethyl Road, Pasadena, Texas. In 2021, TCEQ approved ITC Pasadena's New Source Review permit, which treated the facility as a minor source for VOCs, even though the aggregate VOC emissions from the facility, as a whole, would exceed the major source threshold. Given ITC Pasadena's VOC emissions, CPC would expect the TCEQ to monitor the facility. However, the Pasadena Richey Elementary monitor is five miles away from ITC Pasadena. Moreover, the monitor is located southwest of ITC Pasadena, which means the monitor is not in the range of prevailing winds.

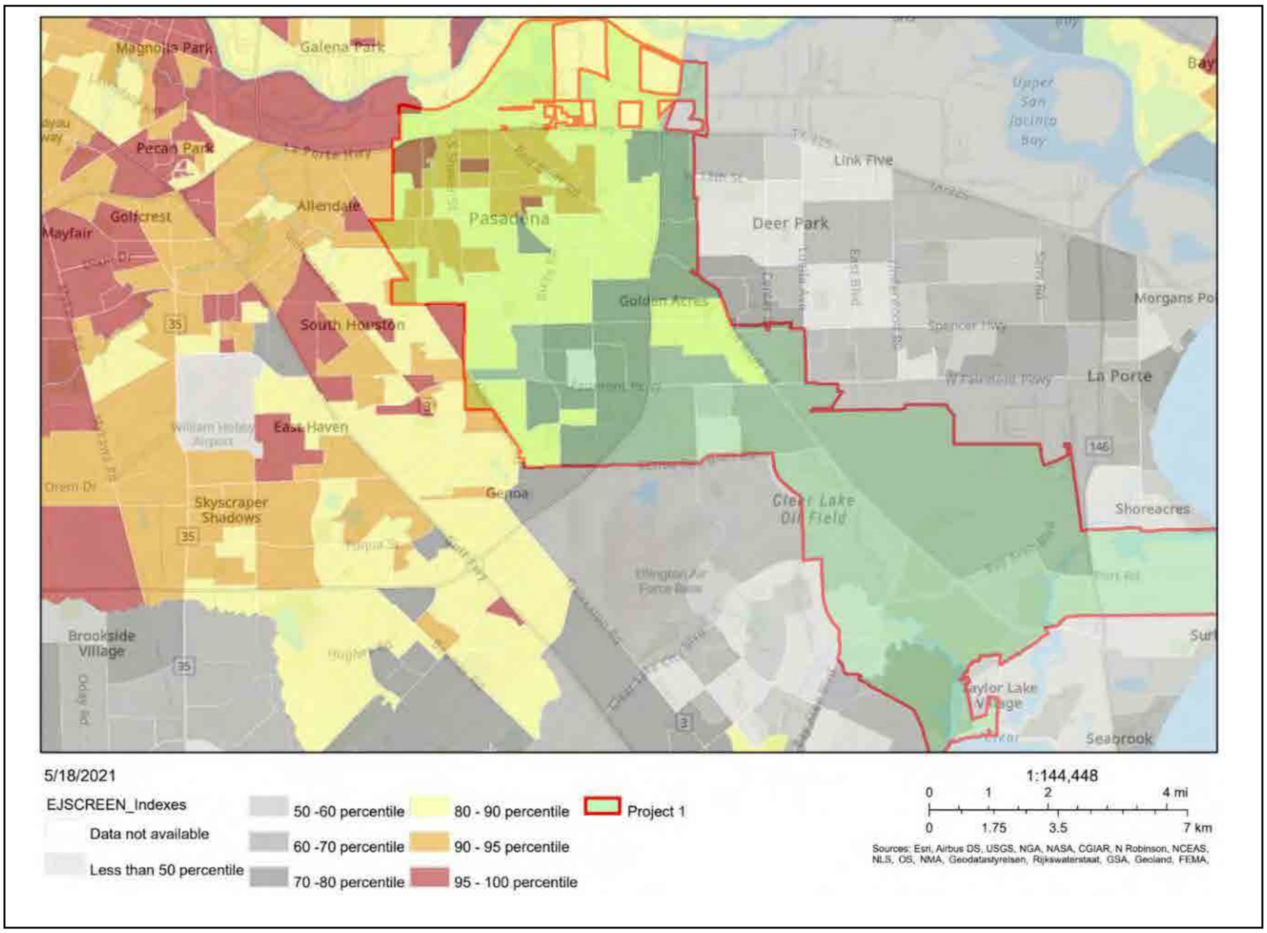
***Figure 23: Proximity of Pasadena Richey Elementary Monitor to ITC Pasadena*[28]**



[28] Texas Commission on Environmental Quality, Air Monitoring Sites, GeoTAM Map Viewer, https://www.tceq.texas.gov/airquality/monops/sites/air-mon-sites.

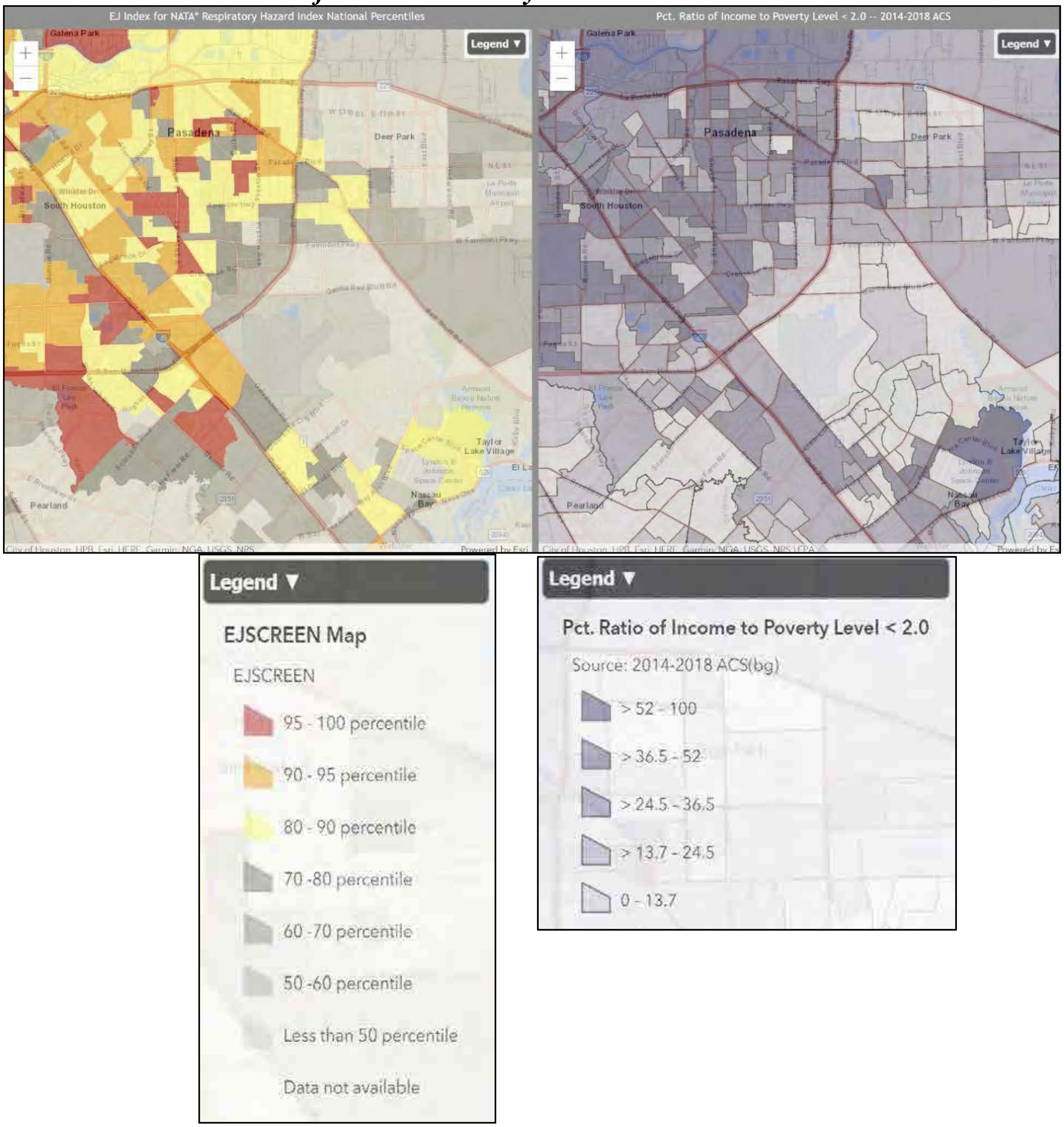
Finally, Pasadena residents form an environmental justice community surrounded by hazards from existing and new facilities regulated by TCEQ. As **Figure 24** below shows, most northern Pasadena residents are people of color and low-income. Pasadena residents are in the 85th percentile nationally for being at risk of air toxics cancer; 98th percentile for Risk Management Plan site proximity—or proximity to facilities that use extremely hazardous substances; and 86th percentile for exposure to higher levels of $PM_{2.5}$ pollution. By comparison, the residents of neighboring Deer Park, which has two air monitors, are not an environmental justice community. TCEQ must ensure stronger air monitoring in Pasadena that recognizes this environmental justice community and protects Pasadena residents who bear disproportionate air pollution harms.

Figure 24: EJScreen Map of Pasadena by People of Color[29]



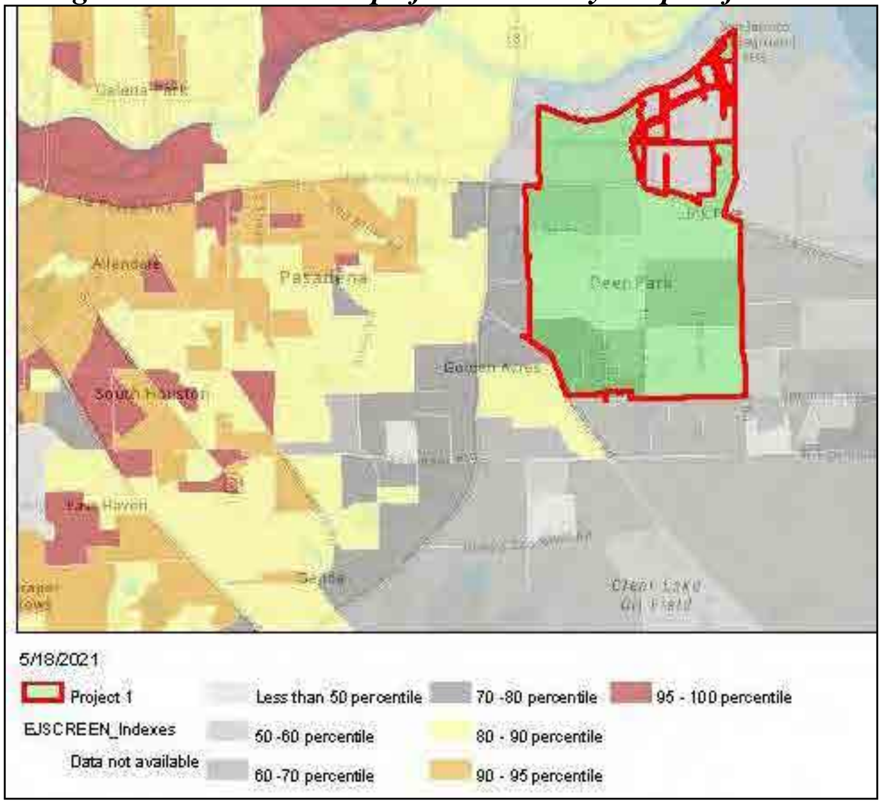
[29] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

Figure 25: Side-by-Side Maps Comparing the Respiratory Hazard Index with the Ratio of Income to Poverty Level in Pasadena[30]



[30] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

Figure 26: EJScreen Map of Deer Park by People of Color[31]



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The 2024 Draft Plan does not propose any additional air monitors for Pasadena. For the reasons mentioned above and further explained in Section IV, TCEQ should site additional air monitors in Pasadena.

D. North and Northeast Houston

For purposes of these comments, North and Northeast Houston Neighborhoods refers to several super neighborhoods and areas of Houston, including Super Neighborhood 48, Super Neighborhood 49/50, East Aldine, Dyersforest Heights Civic Club, and areas served by the Houston Department of Transformation.

Aggregate Facilities are Concentrated in North and Northeast Houston Causing Concerns about Significant Exposures to Particulate Matter Pollution.

The proliferation of concrete batch plants and other concrete facilities remains a significant threat in North and Northeast Houston. According to the TCEQ's February 2022 presentation to the Houston Galveston Area Council PM Advance Committee, there are 24

[31] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

registered aggregate production operations in Harris County[32]—not to mention all the potentially unregistered aggregate facilities. These aggregate facilities are disproportionately located in North and Northeast Houston.[33] Ensuring that there is adequate monitoring in the North and Northeast Houston Neighborhoods is important to determine not only whether these facilities are in compliance with their permits—but also—monitor the impacts on human heath in this area resulting from the number of facilities already permitted in the North and Northeast Houston Neighborhoods. The table below illustrates how numerous these sources of PM pollution are in North and Northeast Houston by showing ***some*** of the permitted concrete batch plants in North and Northeast Houston.

Table 3: Permitted Concrete Batch Plants in Harris County[34]

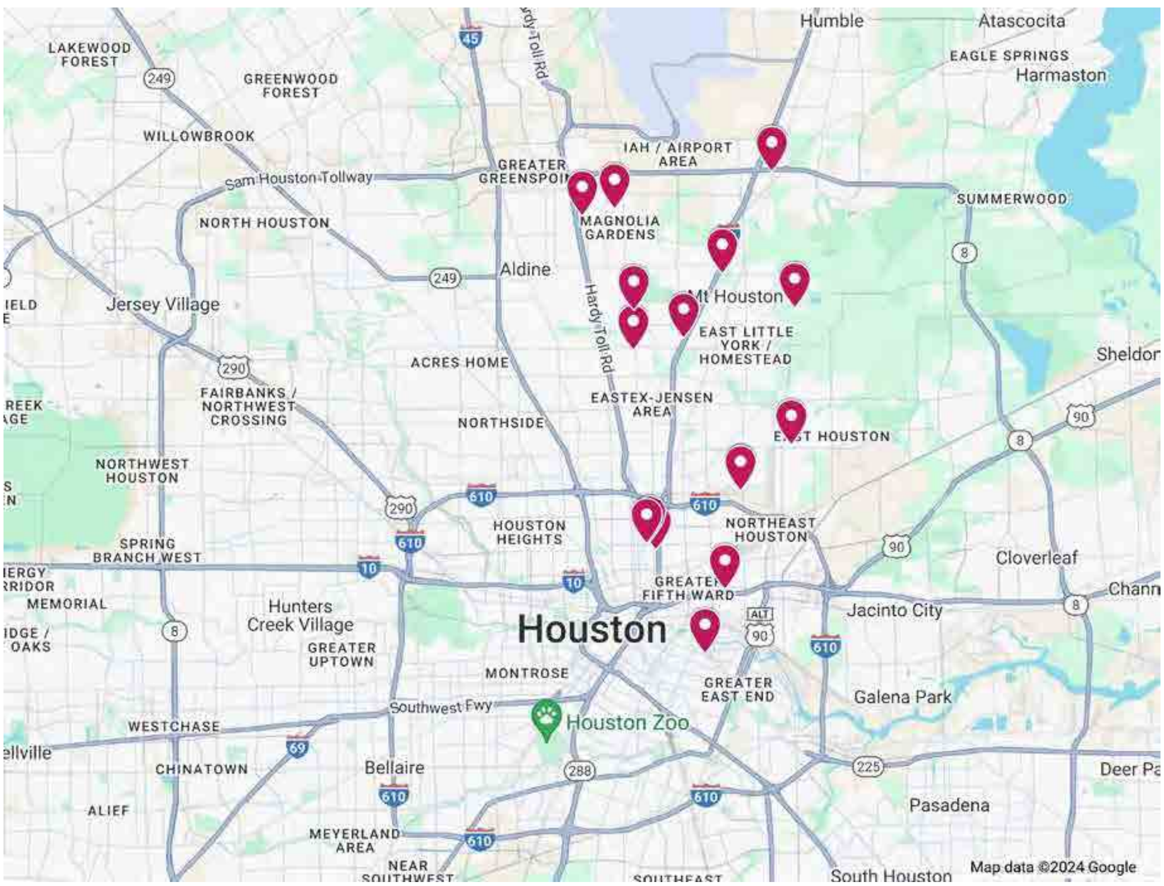
Permit No.	**Permit Type**	**Legal Name**	**Physical Location (Harris County)**	**Impacted Community**
25243	2009 Permit by Rule	Southern Star Concrete Inc	1123 Goodnight Trail	Greater Greenspoint
78606	2012 Standard Permit	Integrity Ready Mix Concrete LLC n/k/a Yellow Jacket Readymix	2219 Hartwick Rd	East Aldine
116476	2012 Standard Permit	Texas Concrete Enterprise, L.L.C./ Tex Con Ready Mix #3	3315 Carr Street	Fifth Ward
121798	2012 Standard Permit	Texas Concrete Enterprise, L.L.C. ./ Tex Con Ready Mix #2	3506 Cherry Street	Fifth Ward
122677	2012 Standard Permit	CEMEX Construction Materials South, LLC	5307 Navigation Blvd	East Aldine

[32] Texas Commission on Environmental Quality, HGAC $PM_{2.5}$ Presentation (February, 2022), at 14.
[33] Houston-Galveston-Brazoria (HGB) $PM_{2.5}$ Advance Path Forward Update (2019) at 36-37.
[34] Texas Commission on Environmental Quality, TCEQ New Source Review ("NSR") Permit Search for Concrete Batch Plant Standard Permits, TCEQ - NSR, TV and CapTrade Searchs (texas.gov); filter Region: Harris, filter Unit Rule: Concrete Batch Plants.

Permit No.	Permit Type	Legal Name	Physical Location (Harris County)	Impacted Community
131665	2012 Standard Permit	Five Star Ready Mix, LLC	8001 Ley Rd	Super Neighborhood 49/50
135498	2012 Standard Permit	CEMEX Construction Materials South, LLC	1902 Rothwell Street	Fifth Ward
136479	2012 Standard Permit	Texan Concrete Enterprise Ready Mix, Inc.	Approximately 0.5 Miles North From The Intersection Of 610 And Homestead Road	Super Neighborhood 49/50
136883	2012 Standard Permit	Houston Ready Mix, LLC / SMYRNA	5220 Winfield Road	Dyersforest / East Aldine
139955	Concrete Crushing Permit (NSR)	Cherry Crushed Concrete	9200 Winfield Road	Dyerforest
148312	2012 Standard Permit	Baker Ready Mixed Concrete, LLC	1731 Peach Leaf St	East Aldine
150603	2012 Standard Permit	Texan Concrete Enterprise Ready Mix, Inc.	6001 Homestead Rd	Super Neighborhood 48
89909	2012 Standard Permit	Wilbert Vaults Of Houston, L.L.P.	10645 Aldine Westfield Rd	East Aldine
138309	2021 Standard Permit	CemTech Concrete Ready Mix Inc	3116 Jensen Dr	Fifth Ward
157195	2022 Standard Permit	Rocket Materials LLC	914 Pinafore Ln	East Aldine

Permit No.	Permit Type	Legal Name	Physical Location (Harris County)	Impacted Community
164280	2021 Standard Permit	Always Ready Concrete, LLC	6510 N Sam Houston Pkwy E	East Aldine
167400	2021 Standard Permit	Cs Concrete Ready Mix Inc.	7515 Furay Rd	Super Neighborhood 49/50
167453	2021 Standard Permit	Avant Garde Construction Co.	10945 Eastex Fwy	East Aldine

Figure 27: Map of Some of the Concrete Batch Plants in Northeast Houston



Not only do the above concrete batch plants affect the North and Northeast Neighborhoods of Houston, but the community of Dyersforest is inundated with particulate matter from Cherry Crushed Concrete—a 7,947,739 square foot Concrete Crushing Plant, pug mill, and soil stabilization plant.[35] And the adjacent neighborhood, East Aldine, hosts 7 different concrete facilities. The Greater Greenspoint neighborhood is home to several concrete batch plants, adding to air quality concerns from the area's heavy vehicle traffic.

Figure 28: East Aldine's Exposure to Concrete Batch Plants[36]

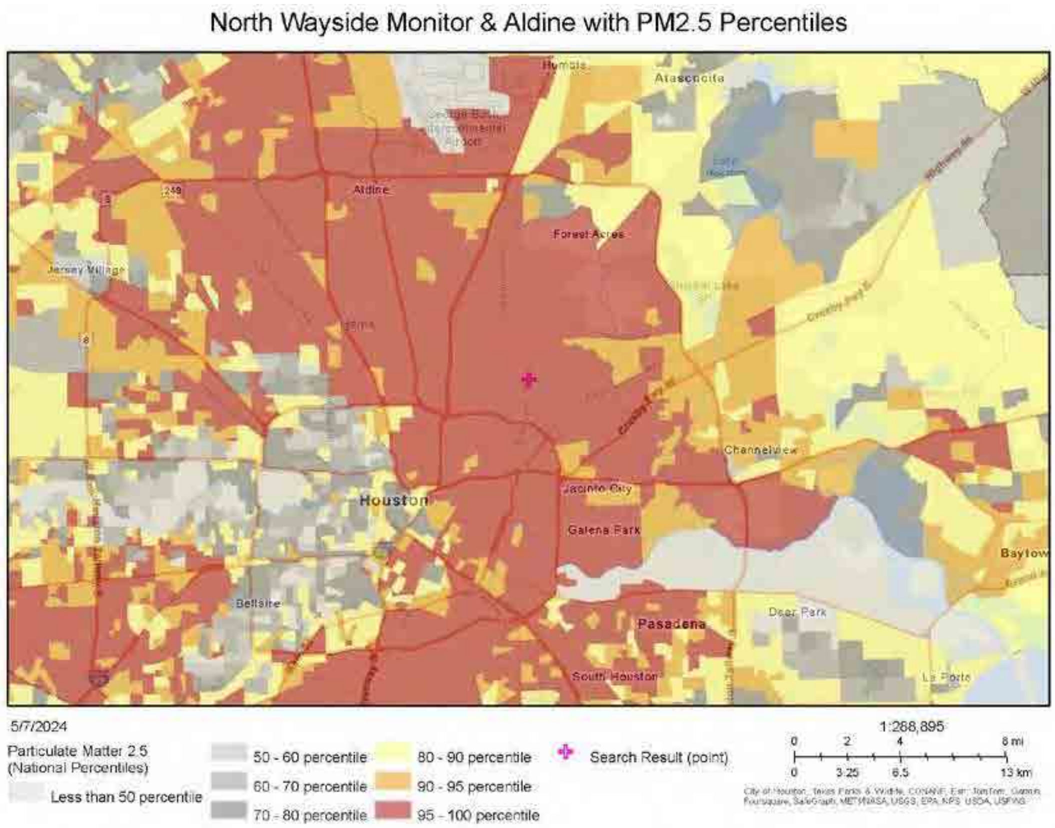
Figure 4: Map showing the proximity of 7 CBPs and 2 concrete crushing facilities within a 3-mile radius in the East Aldine Community of Harris County.

Aldine is particularly inundated with concrete batch plants, and the community has significant concerns about particulate matter. However, the closest monitor to Aldine and Dyersforest is North Wayside. The Map below illustrates (1) Aldine's and Dyersforest's inundation with $PM_{2.5}$ showing concentrations in the 95-100 percentiles as compared to national averages, and (2) the distance of the North Wayside monitor (shown by the pink cross) from the Aldine area.

[35] Harris County Appraisal District Parcel Search for Cherry Crush Properties located at 0 Winfield Rd. Houston, Texas 77050.

[36] Harris County Attorney Office Public Comments on TCEQ Non-Rule Project No. 2022-033-OTH-NR (June 14, 2023).

Figure 29: North Wayside Monitor's Distance from Aldine and $PM_{2.5}$ Exposure[37]



When the EPA strengthened the National Ambient Air Quality Standards (NAAQS) for $PM_{2.5}$ in February, 2024, the EPA also updated air quality monitoring requirements.[38] These monitoring requirements changed to enhance air quality protection for communities that are subject to disproportionate impacts by now including an environmental justice factor to account for populations at increased risk of $PM_{2.5}$ health effects.[39] The new rule requires that a monitor be sited in an at risk community, particularly where there are anticipated effects from sources of $PM_{2.5}$ in the area—such as East Aldine and Dyersforest. When the EPA changed the $PM_{2.5}$ standard, the EPA anticipated that number of *minimally* required monitors would also increase.[40] Based on the rule change, the community's credible concerns, and the community's demonstrated exposure to $PM_{2.5,}$ East Aldine, the Houston Department of Transformation, and Dyersforest request a Federally Equivalent Method (FEM) monitor be placed in or near their communities, near Cherry Crush, or near the other 7 concrete facilities to evaluate the

[37] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

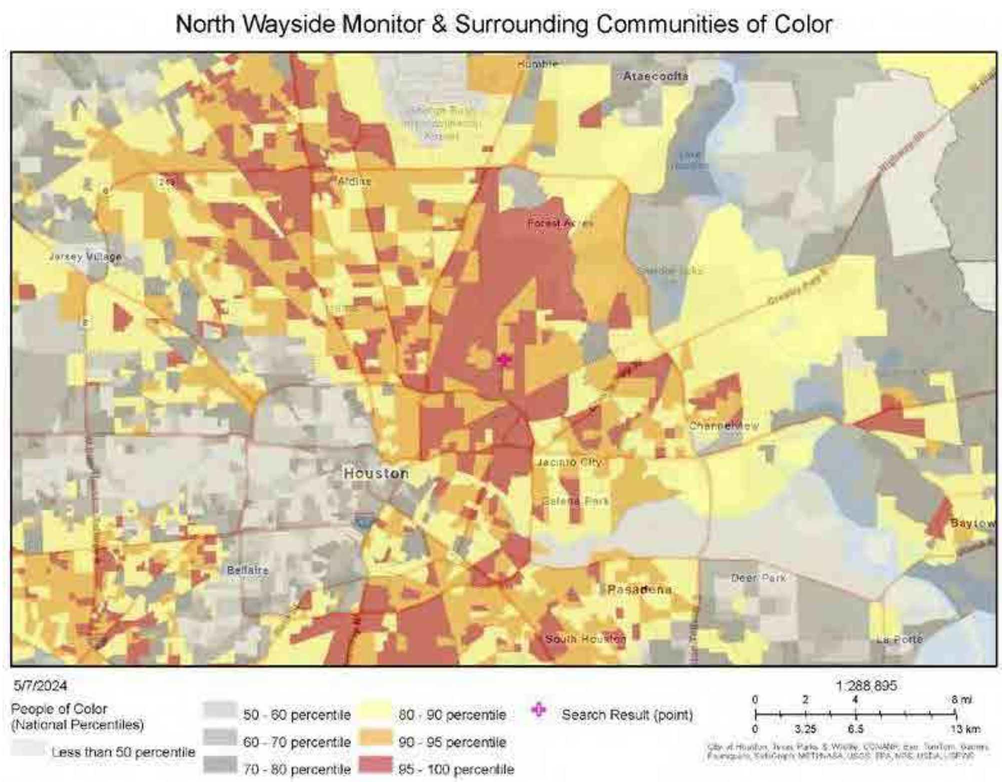
[38] U.S. Environmental Protection Agency, Air Monitoring for Fine Particle Pollution ($PM_{2.5}$) Fact Sheet, https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-monitoring-fact-sheet.pdf

[39] U.S. Environmental Protection Agency, Air Monitoring for Fine Particle Pollution ($PM_{2.5}$) Fact Sheet, https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-monitoring-fact-sheet.pdf

[40] U.S. Environmental Protection Agency, Air Monitoring for Fine Particle Pollution ($PM_{2.5}$) Fact Sheet, https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-monitoring-fact-sheet.pdf

community's exposure to $PM_{2.5}$, inform the TCEQ's permitting decisions, and enhance protections to the air quality in these communities.

Figure 30: The North Wayside Monitor is Surrounded by Communities of Color[41]



Concentrated Exposure to Other Industrial Polluters

The first three years of operations for the North Wayside monitor reveal average annual background concentrations for $PM_{2.5}$ of 12.8 $\mu g/m^3$ (May 4, 2021-Jan 2022), 11.8 $\mu g/m^3$ (Jan 2022-Dec 2022), and 13.1 $\mu g/m^3$ (Jan 2023-Dec 2023), and 12.3 $\mu g/m^3$ (Jan 2024-May 2, 2024).[42]

Shortly after the North Wayside monitor's deployment, TCEQ began identifying individual members of industry in hopes of resolving the violations at the North Wayside monitor under the 2012 National Ambient Air Quality Standards (NAAQS). The list below represents the industrial users TCEQ identified as potentially responsible for the community's

[41] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

[42] TCEQ, Regulatory Air Monitoring Data for Houston North Wayside C405/C1033 - EPA Site: 48_201_0046, https://www.tceq.texas.gov/cgi-bin/compliance/monops/yearly_summary.pl.

exposure to pollutants and the 2012 and 2024 NAAQS exceedances.[43] These facilities located within 2 miles of the North Wayside monitor:

1. Gold Star Metals (0.12 miles E)
2. Invictus Transport (0.13 miles NE)
3. XLR8 Truck Lines (0.20 miles NE)
4. Five Star Ready Mix (0.37 miles NE)
5. Texas Concrete Ready Mix (1.4 miles SW)
6. Texas Concrete Ready Mix (1.4 miles SW)
7. Queen Ready Mix (1.75 miles SE)
8. Union Pacific Rail Yard (0.40 miles SW-W)

But, there are many more concerning industrial operations in Northeast Houston within five miles from the North Wayside monitor, including the following:

1. McCarty Road Landfill
2. Longhorn Glass Plant
3. Anheuser Busch Houston Brewery
4. 69th Street Wastewater Treatment Plant
5. Owens Corning
6. Greens Bayou Electric Generating Station
7. Whispering Pines Landfill
8. McCarty Road Landfill Gas Recovery Facility
9. Johns Manville
10. Magellan Pipeline Terminals East Houston Tank Farm

While these communities are encouraged that a single monitor was deployed to serve all these Northeast communities, the results of this monitor are deeply concerning. Further, four Super Neighborhoods with increasing industrial encroachment in predominately residential subdivisions covering 25.74 sq. miles only have one monitor in the region to understand the quality of the air they are breathing. The one community monitor at North Wayside evaluating only PM_{10}, $PM_{2.5}$, Ozone, Wind & Temperature is insufficient to assess emissions from multiple different industrial facilities.

Even among community-run and City of Houston-run air monitoring programs, there are very few monitors deployed in this highly industrialized 25+ square mile residential area. In fact, the Northeastern portions—like East Aldine and Dyersforest—are also completely lacking community monitors. More importantly, State of Texas-run monitors are critical in this area where $PM_{2.5}$ is problematic to document elevated levels because when communities voice

[43] TCEQ, North Wayside Monitor Update May 2021-January 2022, (Feb. 8, 2022) at 3.

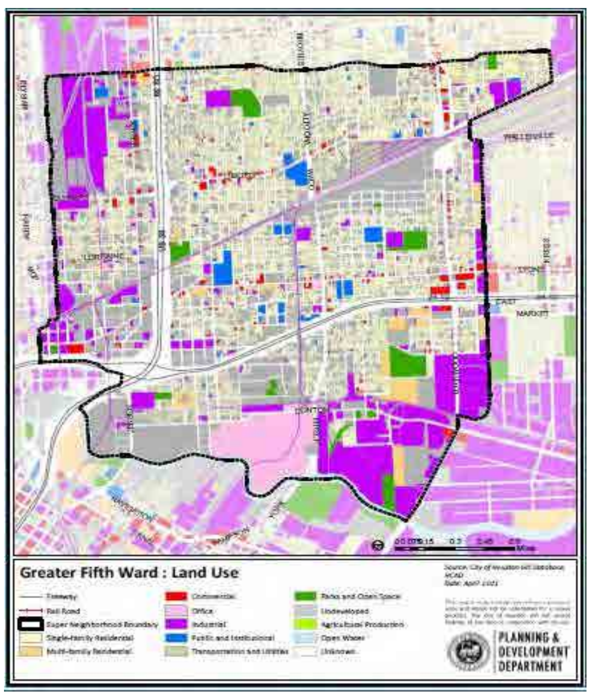
concerns to TCEQ or other authorities based on elevated readings on monitors, they are told that because the monitors are not TCEQ or EPA regulated air monitors, these readings are unreliable. As a result, the communities' valid concerns often go unaddressed.

Given the number and scope of industrial users near the North Wayside monitor, and the uptick in $PM_{2.5}$ values, the Northeast Houston Neighborhoods additionally request (i) a VOC cannister, (ii) metal emissions monitoring; and (iii) an additional State of Texas-run monitor that tests for speciated values of PM_{10}, $PM_{2.5}$ to also be deployed in Northeast Houston where these industrial facilities have congregated.

E. Fifth Ward

Progressive Fifth Ward advocates on behalf of Fifth Ward, which is an often neglected and low-income minority community, with 94% of the population identifying as either Black or Hispanic.[44] It is one of Houston's residential neighborhoods with substantial industrial land use surroundings, as shown below in purple in **Figure 31**:

Figure 31. Land Use within the boundaries of Fifth Ward[45]



[44] City of Houston Planning & Development Department Super Neighborhood Resource Assessment, http://www.houstontx.gov/planning/Demographics/2019%20Council%20District%20Profiles/Greater_FifthWard_Final.pdf.

[45] City of Houston, Planning and Development Department, Super Neighborhoods Profile for Super Neighborhood 55, Greater Fifth Ward, Neighborhood Resource Pamphlet ("Demographics"), https://www.houstontx.gov/superneighborhoods/55.html.

Industrial uses include the inundation of concrete batch plants (CBPs). The table below lists CBPs affecting Fifth Ward:

Table 4. Concrete Batch Plants Affecting Fifth Ward

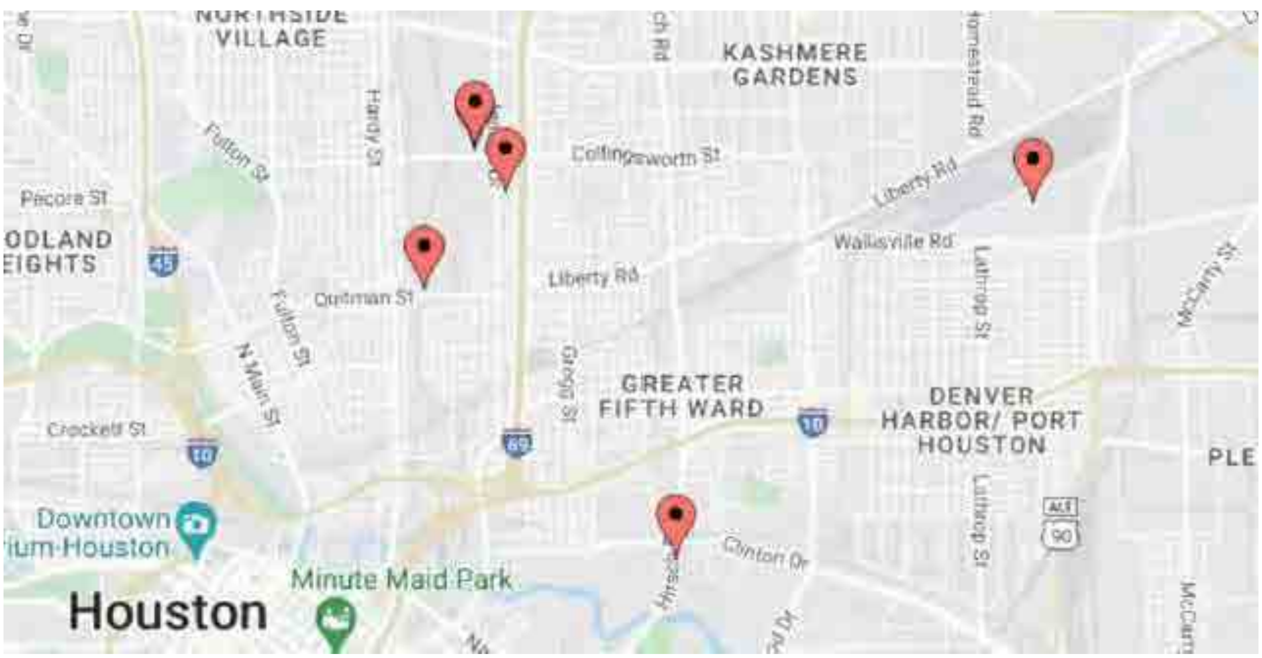
Concrete Batch Plant	**Location within Fifth Ward**
Texas Concrete Enterprise	3506 Cherry St. (77026)
Texas Concrete Enterprise	3508 Cherry St. (77026)
TexCon Ready Mix	3315 Carr St. (77026)
Cemex Rothwell Concrete Batch Plant	1902 Rothwell St (77020)
Cemtech Ready Mix Inc.	**3116 Jensen Drive (77026)**

Metal recycling facilities are also disproportionately located in or around the Fifth Ward The table below lists recycling facilities affecting Fifth Ward:

Table 5. Metal Recycling Facilities Affecting Fifth Ward

Metal Recycling Facility	**Location within Fifth Ward**
Derichebourg Recycling USA	7501 Wallisville Rd. (77020)
CMC Recycling	2015 Quitman St. (77026)
Sims Metal	90 Hirsch Rd. (77020)

Figure 32: Map of Industrial Sites Affecting Fifth Ward[46]



[46] Map created by inputting information from Tables 4 & 5 into https://batchgeo.com/

As the map in **Figure 32** above demonstrates, there are several industrial sites near Fifth Ward, which is highly burdensome for a community of less than 5 square miles. Both CBPs and metal recycling facilities are known emitters of air pollutants, including particulate matter, crystalline silica, lead, and other VOCs. When inhaled, these pollutants can cause a range of health issues, including respiratory and cardiovascular diseases. With a dense population of approximately 20,000, or 4,000 people per square mile[47], it is imperative that the proposed monitors are placed in locations that accurately reflect the community's dire situation with respect to air pollution caused by these industries.

Progressive Fifth Ward is particularly concerned about their most sensitive populations, such as children and older adults. In 2019, the City of Houston determined 25% of Fifth Ward's population was under 17 years, and 11% of the population was 65 year or older.[48] Several schools, day care centers, and senior centers are all located in proximity to culprits of toxic air pollutants. For example, Sims Metal recycling facility is approximately only 1 mile from East Orange Ame Church Day Care, Phillis Wheatley High School, and YES Prep Secondary School. Both Cemtech Concrete Ready Mix and CMC Recycling are a little over 1 mile from Dogan Elementary School. These industrial facilities are also close to JW Peavy Senior Center and Community Fellowship's Senior Citizens Center, both within the Fifth Ward area.

Progressive Fifth Ward is further concerned about individuals with health issues that are both brought on and further exacerbated by the industrial polluters in the community. For example, both the EPA's EJ Screen Mapping Tool and the Houston Health Department (HHD) confirm that Fifth Ward falls within the worst 25% of neighborhoods in Texas with respect to prevalence of asthma in adults, a health condition in which a person's air passages become inflamed, and the narrowing of the respiratory passages makes it difficult to breathe.[49] Nearly 11% of all adults in the Fifth Ward area have been told by a healthcare provider that they currently have asthma.[50] Similarly, Fifth Ward falls within the worst 25% of neighborhoods in Texas with respect to prevalence of coronary heart disease in adults, with more than 8% of adults receiving a diagnosis of heart disease.[51] The proposed air monitoring should ensure that the concerns regarding these sensitive populations are adequately addressed.

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[47] City of Houston, Planning and Development Department, Super Neighborhoods Profile for Super Neighborhood 55, Greater Fifth Ward, Neighborhood Resource Pamphlet ("Demographics"), https://www.houstontx.gov/superneighborhoods/55.html.

[48] City of Houston, Planning and Development Department, Super Neighborhoods Profile for Super Neighborhood 55, Greater Fifth Ward, Neighborhood Resource Pamphlet ("Demographics"), https://www.houstontx.gov/superneighborhoods/55.html.

[49] Data compiled using Houston State of Health Data Portal, "Find Data by Neighborhood" tool, https://www.houstonstateofhealth.com/tiles/index/display?alias=neighborhood.

[50] Data compiled using Houston State of Health Data Portal, "Find Data by Neighborhood" tool, https://www.houstonstateofhealth.com/tiles/index/display?alias=neighborhood.

[51] Data compiled using Houston State of Health Data Portal, "Find Data by Neighborhood" tool, https://www.houstonstateofhealth.com/tiles/index/display?alias=neighborhood.

Progressive Fifth Ward appreciates that TCEQ acknowledges Fifth Ward needs more air monitoring. In 2022 and 2023, TCEQ's AMNP proposed a PM_{10} FEM continuous monitor, a $PM_{2.5}$ FEM continuous monitor, a canister to measure VOCs every sixth day, and meteorological monitors to measure wind speed, wind direction, and outdoor temperatures, in Fifth Ward. For years (2020-2022), residents and advocates for Fifth Ward have submitted comments on TCEQ's AMNP, and TCEQ has responded to these concerns by allocating air monitors to the area. However, it has taken a very long time to see the monitors installed. The 2024 AMNP states that these monitors will be deployed by December 31, 2024, at Houston Finnegan Park.

Fifth Ward needs these regulatory monitors to be installed as soon as possible. Progressive Fifth Ward also notes that prior to TCEQ's proposal of FEM monitoring in Fifth Ward, the City of Houston initiated limited community air monitoring in the area. As highlighted in our 2022 AMNP comments, the City of Houston installed a Clarity air monitor to evaluate $PM_{2.5}$, and this monitor is mere steps from Texas Concrete Ready Mix, a BARC animal shelter, and near a local park named Brewster Park. **Table 6** shows that over 66% of the days over the last year (May 13, 2023-May 13, 2024) where there were exceedances of the old NAAQS for $PM_{2.5}$ at this monitor.

[52] Data available at https://openmap.clarity.io/.

Table 6. $PM_{2.5}$ from Clarity Monitor Near Fifth Ward—3300 Carr St. (77026)[52]

Date	$PM_{2.5}$ (µg/m^3)
05/08/2024	34.54
12/31/2023	32.13
05/07/2024	27.94
06/06/2023	26.07
11/22/2023	26.03
06/16/2023	25.59
11/18/2023	25.58
11/28/2023	25.27
03/14/2024	25.15
03/31/2024	25.05
02/18/2024	25.02
04/16/2024	24.53
04/17/2024	24.46
04/08/2024	24.43
05/06/2024	24.15
04/26/2024	23.6
03/27/2024	23.55
06/14/2023	23.48
05/23/2023	23.38
01/21/2024	23.34
07/26/2023	23.32
04/18/2024	23.15
05/22/2023	23.12
07/16/2023	22.87
06/15/2023	22.78
04/27/2024	22.77
07/15/2023	21.97
06/19/2023	21.77
02/27/2024	21.74
07/27/2023	21.67
06/20/2023	21.6
05/21/2023	21.29
05/26/2023	21.19
07/25/2023	20.84
06/22/2023	20.76
07/28/2023	20.64
08/24/2023	20.29
04/15/2024	20.2
12/14/2023	20.18
04/19/2024	20.14
08/31/2023	20.11
09/17/2023	19.86
07/14/2023	19.79
01/28/2024	19.74

Date	$PM_{2.5}$ (µg/m^3)
03/01/2024	19.73
04/01/2024	19.6
03/07/2024	19.55
04/07/2024	19.45
12/02/2023	19.35
02/26/2024	19.28
01/22/2024	19.18
05/25/2023	18.89
06/13/2023	18.87
03/23/2024	18.73
07/18/2023	18.73
06/05/2023	18.67
07/09/2023	18.56
06/18/2023	18.53
01/06/2024	18.46
10/17/2023	18.46
11/23/2023	18.37
11/30/2023	18.36
09/10/2023	18.18
05/05/2024	18.12
07/13/2023	18.12
05/24/2023	18.12
12/05/2023	18.11
08/30/2023	18.01
08/23/2023	17.97
07/19/2023	17.94
10/27/2023	17.93
11/24/2023	17.85
03/13/2024	17.84
01/17/2024	17.78
08/25/2023	17.68
02/01/2024	17.67
03/22/2024	17.62
03/16/2024	17.55
01/18/2024	17.54
10/25/2023	17.47
05/27/2023	17.43
05/20/2023	17.43
03/03/2024	17.25
01/05/2024	17.24
06/01/2023	17.22
12/01/2023	17.09
04/06/2024	16.99
09/18/2023	16.97

Date	$PM_{2.5}$ (µg/m^3)
05/09/2024	16.89
04/28/2024	16.89
12/21/2023	16.87
09/01/2023	16.69
07/11/2023	16.56
07/17/2023	16.47
11/17/2023	16.38
04/25/2024	16.37
02/09/2024	16.34
01/11/2024	16.29
05/14/2023	16.28
02/10/2024	16.22
08/22/2023	16.12
06/17/2023	16.07
03/24/2024	16.03
07/29/2023	16.03
01/07/2024	16.02
08/21/2023	15.99
12/22/2023	15.96
07/20/2023	15.94
12/20/2023	15.92
12/17/2023	15.92
08/12/2023	15.84
06/21/2023	15.81
10/16/2023	15.8
01/14/2024	15.77
08/29/2023	15.75
12/04/2023	15.67
12/26/2023	15.65
03/05/2024	15.64
03/04/2024	15.63
12/16/2023	15.6
09/13/2023	15.51
08/20/2023	15.45
04/03/2024	15.38
02/05/2024	15.28
09/27/2023	15.24
02/22/2024	15.21
01/31/2024	15.19
04/09/2024	15.18
10/03/2023	15.16
11/14/2023	15.14
02/08/2024	15.1
09/26/2023	15.06

Date	$PM_{2.5}$ (µg/m^3)
07/31/2023	14.99
12/10/2023	14.98
12/30/2023	14.81
08/11/2023	14.81
06/08/2023	14.78
08/13/2023	14.74
09/14/2023	14.73
05/01/2024	14.7
05/04/2024	14.69
02/23/2024	14.68
03/30/2024	14.65
12/18/2023	14.65
02/19/2024	14.64
08/27/2023	14.64
12/12/2023	14.61
02/25/2024	14.56
01/25/2024	14.5
01/03/2024	14.44
09/28/2023	14.43
11/16/2023	14.39
05/17/2023	14.39
05/31/2023	14.38
10/01/2023	14.37
07/10/2023	14.35
06/26/2023	14.35
07/06/2023	14.33
09/11/2023	14.32
11/02/2023	14.23
05/30/2023	14.2
12/06/2023	14.19
08/09/2023	14.19
08/28/2023	14.16
03/02/2024	14.14
03/15/2024	14.12
05/03/2024	14.09
09/09/2023	13.92
07/12/2023	13.92
10/24/2023	13.9
08/26/2023	13.85
08/04/2023	13.83
02/21/2024	13.8
04/29/2024	13.71
11/04/2023	13.7
02/12/2024	13.68

Date	$PM_{2.5}$ (µg/m³)
11/03/2023	13.68
08/19/2023	13.64
10/26/2023	13.62
04/14/2024	13.6
12/15/2023	13.59
05/02/2024	13.58
10/02/2023	13.55
12/08/2023	13.48
06/02/2023	13.48
11/12/2023	13.46
02/06/2024	13.4
12/24/2023	13.39
01/02/2024	13.36
06/04/2023	13.31
07/23/2023	13.3
08/14/2023	13.29
09/16/2023	13.27
07/30/2023	13.21
05/11/2024	13.15
07/02/2023	13.13
08/16/2023	13.12
08/10/2023	13.12
08/02/2023	13.12
07/08/2023	13.1
04/24/2024	13.09
06/23/2023	13.02
10/19/2023	13.01
07/21/2023	12.98
12/13/2023	12.97
04/30/2024	12.96
02/13/2024	12.93
05/18/2023	12.92
11/25/2023	12.86
02/14/2024	12.85

Date	$PM_{2.5}$ (µg/m³)
01/01/2024	12.82
03/12/2024	12.78
11/29/2023	12.78
11/01/2023	12.74
01/12/2024	12.7
01/10/2024	12.64
12/11/2023	12.64
09/25/2023	12.63
08/06/2023	12.63
12/29/2023	12.61
10/28/2023	12.58
03/09/2024	12.56
01/20/2024	12.53
09/12/2023	12.5
09/02/2023	12.48
08/08/2023	12.47
07/04/2023	12.45
06/24/2023	12.44
11/11/2023	12.42
01/29/2024	12.41
12/28/2023	12.37
04/04/2024	12.36
09/19/2023	12.34
05/29/2023	12.28
01/30/2024	12.27
08/07/2023	12.27
08/01/2023	12.24
09/04/2023	12.22
08/17/2023	12.21
09/08/2023	12.17
10/10/2023	12.11
06/25/2023	12.08

The data obtained over the last year at this monitor, which recorded 242 days out of 365 days where the monitor registered above 12.0 µg/m³ for $PM_{2.5}$ further demonstrates the need for monitoring industrial sites, such as concrete batch plants, located in residential communities. Accordingly, Progressive Fifth Ward reiterates its appreciation of TCEQ's commitment to air monitoring in Fifth Ward and requests an update from TCEQ regarding the timeline for the installation of the monitors at Finnegan Park. To the extent that TCEQ's contractor is having difficulty obtaining approvals for the installation of the air monitor at Finnegan Park, Progressive Fifth Ward and other signatories are willing to help support that request to ensure this monitor is installed.

In addition, Progressive Fifth Ward believes TCEQ should consider monitoring Fifth Ward for lead exposure because there are many sources of lead present in the area, e.g., the number of metal recycling facilities surrounding the community. Lead in the air is a problem not only because people may breathe it in, but also because people, particularly children, can swallow lead dust that has settled onto surfaces like soil, dust, and water. Lead in soil and dust stays around for many years because it does not decay or decompose.

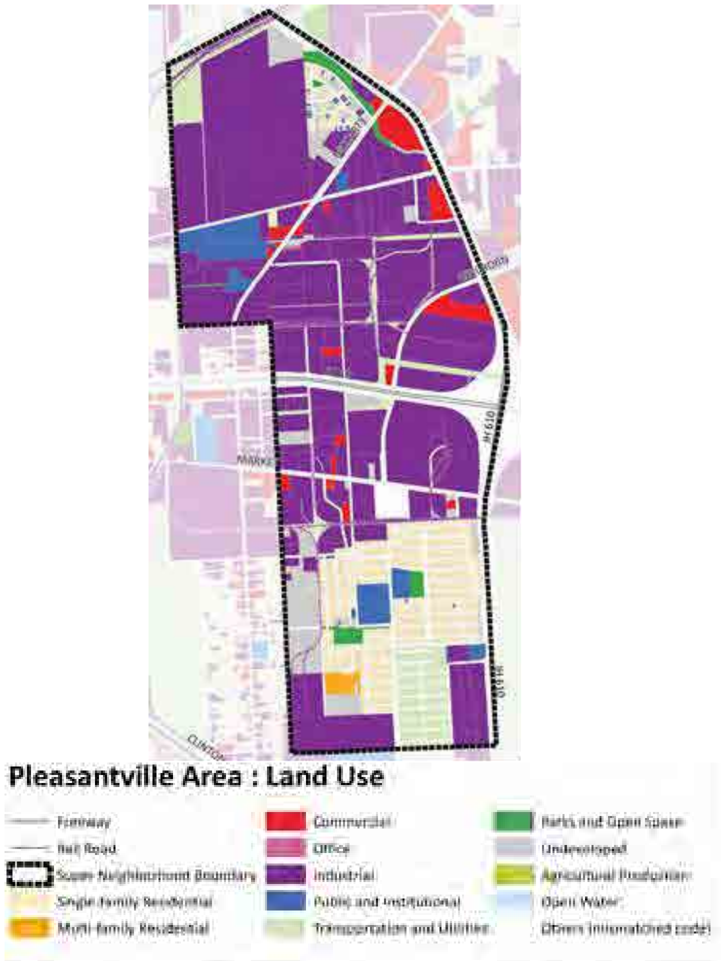
F. Pleasantville

The Pleasantville Area, designated as part of Houston's Super Neighborhood 57, includes many industrial areas, as well as two distinct residential areas. Groveland Terrace is a small residential area in the north, and south of Interstate 10 (East Freeway) is the Pleasantville subdivision. The high homeownership rate and strong neighborhood identity in Pleasantville has staved off deterioration even as the residential area has been surrounded by warehouses and industries.

The Pleasantville neighborhood is predominantly Black/African American and Latino/Hispanic, with 64% of Pleasantville Elementary School's 301 students identified as Black/African American, 34% as Latino/Hispanic, and 2% as white or mixed race. Ninety-five percent of Pleasantville Elementary students qualify for free or reduced-price lunch and 15% are learning as English as a second language.

A map created by the City of Houston Planning and Development Department of Neighborhood 57 and the related land usage in the area is shown below:

Figure 33: Land Use in the Pleasantville Area[53]



As shown in the map above, most of the land use in Super Neighborhood 57 is industrial. There are a few pockets of single-family residential properties found in the Super Neighborhood boundaries: Groveland Terrace, at the northern end of the Super Neighborhood, and Pleasantville in the southern part. Despite the industrial presence in the neighborhood, the single-family homes in this area are no less deserving of protection from contamination caused by their industrial neighbors. Air monitoring is critical to ensure that the air they breathe is not contaminated with pollution from the ship channel facilities and truckyards nearby.

Along with ACTS, Super Neighborhood 57 has advocated for air monitoring within its borders because of the proximity to the Houston Ship Channel and various port-related activities. These organizations have worked to implement community-led air monitoring program in the

[53] City of Houston, Planning and Development Department, Super Neighborhoods Profile for Super Neighborhood 57, Pleasantville, Neighborhood Resource Pamphlet ("Demographics"), https://www.houstontx.gov/planning/Demographics/2019%20Council%20District%20Profiles/Pleasantville_Final.pdf.

neighborhood with at least one continuous air monitor installed in 2020 utilizing funding through available through the Environmental Defense Fund.

Super Neighborhood 57 and ACTS are glad the TCEQ still plans to install air monitors at Pleasantville Elementary in Pleasantville by December 31, 2024, as originally announced in 2022. These VOC and PM monitors will help the community assess its exposure to particulate matter from the industrial build out in the area, particularly truck traffic along Loop Interstate-610 related to port operations nearby. These groups are anxious to see these monitors installed, having been waiting for almost 2 years for their installation. TCEQ's contractor should work closely with HISD to obtain the approvals to get the monitors installed at Pleasantville Elementary this year.

ACTS Requests Full Installation of the Pleasantville Air Monitoring Site

ACTS and the Pleasantville community have concerns that air pollution levels may exceed health based and regulatory standards within their neighborhood. Without the new TCEQ instruments installed, it is difficult to fully understand the levels and associated risk. Since 2019, ACTS has been operating a first-in-the-state community-led air monitoring network. Results of those monitors show that in 2023, four of six monitors in the neighborhood exceeded the updated $PM_{2.5}$ NAAQS standard of 9 µg/m3. ACTS recently added a total VOC measurement and plans to conduct additional air toxics monitoring to better understand those risks as well.

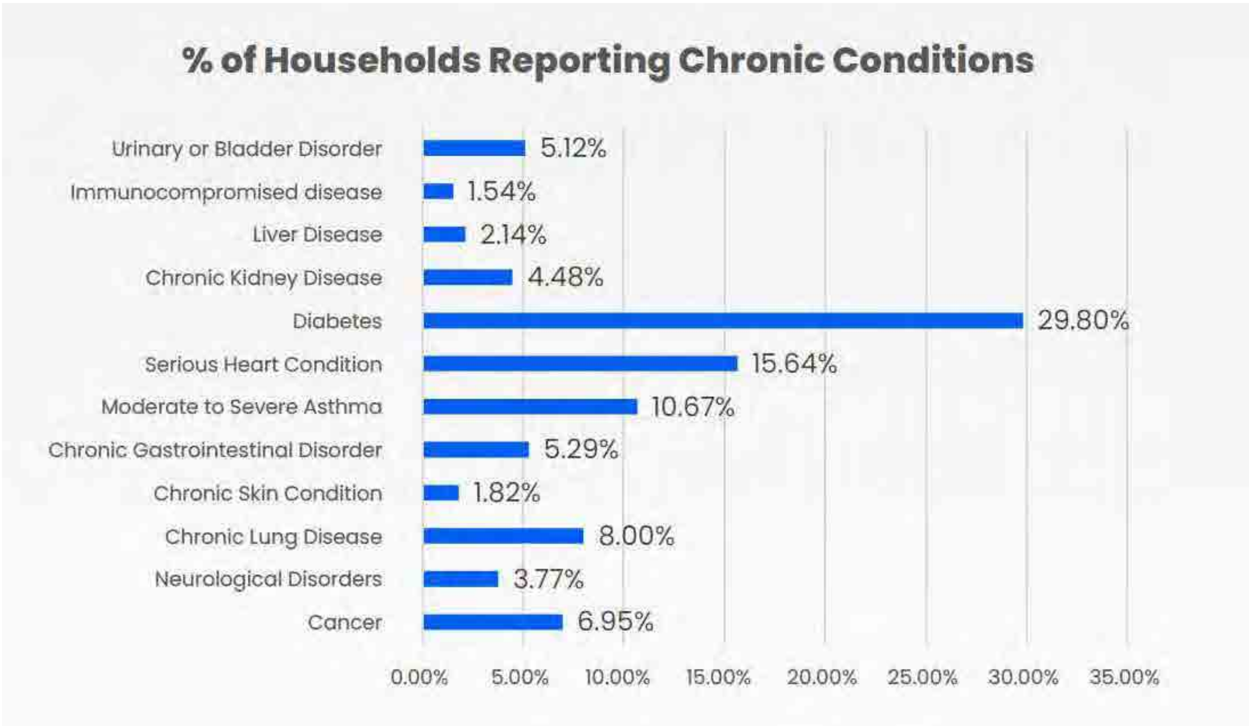
Table 7: Mean $PM_{2.5}$ readings from community-based monitors in Pleasantville for 2023.

Monitor	Mean $PM_{2.5}$ ($\mu g/m^3$)	Mean AQI
1	11.5	45.6
2	5.6	28.5
3	13.6	51.7
5	13.9	60.6
6	7.4	30.5
7	12	47.1

Highlighted cells represent monitors indicating exceedance of updated NAAQS standard.

The Pleasantville community participated in a health survey recently, which found high rates of chronic conditions exacerbated by air pollution. Within the community 15.6% of residents have serious heart conditions, 10.7% have moderate to serious asthma, and 8% have chronic lung disease. Community members express concerns about health conditions in the community and continue to need additional air monitoring data in order to protect vulnerable community members during high pollution events.

Figure 34: Rates of chronic health conditions among Pleasantville residents.



The community is also concerned about a lack of monitoring data while there is an increase in industrial activity and emissions planned in the years to come, including a planned expansion of the 610 freeway and increased emissions from Project 11 ship channel dredging material being brought into the community. It will be essential to have enough baseline air monitoring data *prior* to these activities beginning to ensure that their impacts can be accurately measured. For all of these reasons, we urge the TCEQ to work closely with the City of Houston and HISD to expedite the installation of the planned Pleasantville monitor. We also encourage TCEQ to work to keep ACTS updated on progress of the monitor installation process.

G. Freeport

Freeport, Texas is a small industrial city on the Gulf Coast located in Brazoria County, Texas. A large percentage of Freeport's approximately 12,169 residents are minorities: over 64% are of Hispanic descent, while another 14% identify as Black or African American. Freeport has a higher minority population than 82% of American communities. Freeport is also in the 82nd percentile nationally for the proportion of low-income residents, with a per capita income of $19,277 and 55% of the population classified as low-income. Thirty-five percent of residents have less than a high school education, which is worse than 93% of American communities.

And 10% are linguistically isolated, well above the national average of 4%. Freeport residents are closer to facilities handling hazardous waste than 92% of American communities.

Freeport residents also rank highly in proximity to Superfund sites, since nearly the entire population lives within five miles of the GulfCo Marine Maintenance Superfund site. GulfCo Marine Maintenance was the site of barge cleaning operations for three decades and became a Superfund site when evidence revealed that hazardous substances were migrating from the site and posing a threat to nearby drinking water supplies and downstream sensitive environments. And, Freeport residents are closer to facilities that discharge water pollution than 98% of American communities. Not only is water pollution a problem, but air quality remains a major concern.

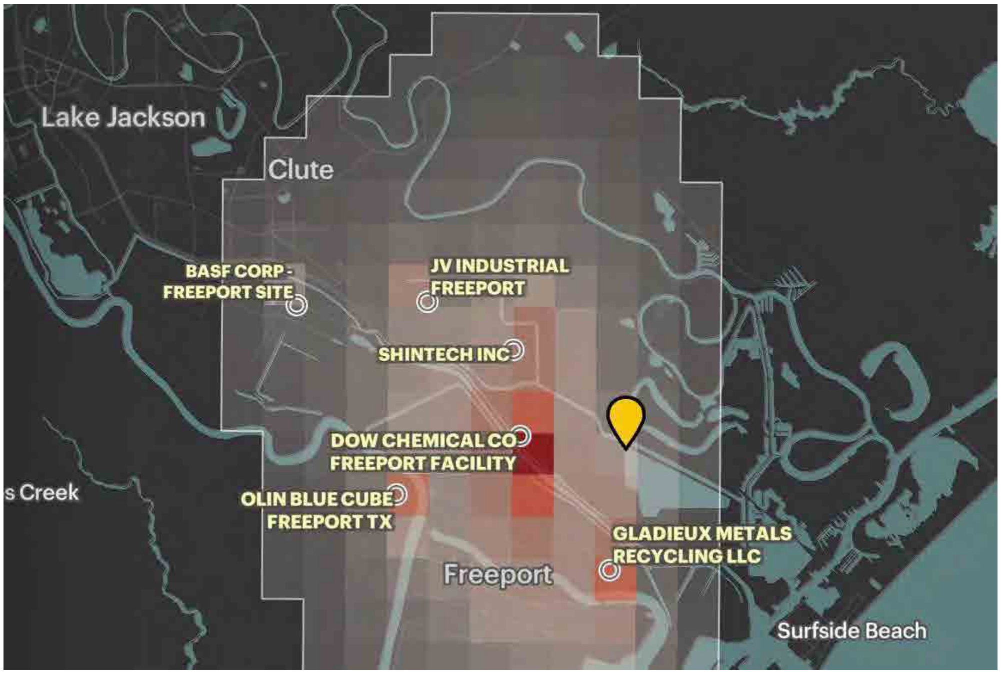
This combination of a high concentration of minority and low-income residents in conjunction with a high concentration of large industrial polluters is indicative of an environmental justice community. In Freeport, as along much of the Texas gulf coast, minority and low-income populations continue to bear a wildly disproportionate burden of the toxic pollution from the state's petrochemical industry, while being denied a share in the economic prosperity that the industry has brought to other parts of the state.

ProPublica's recent study on cancer causing industrial air pollution in the United States, identified Freeport as a hot spot.[54] This analysis reviewed five years of modeled EPA data and identified more than 1,000 toxic hot spots across the country.[55] The map below in **Figure 34** illustrates the facilities in Freeport, Texas, and the dark red spots denote the most problematic areas.

[54] Al Shaw and Lylla Younes, The Most Detailed Map of Cancer-Causing Industrial Air Pollution in the U.S., Pro Publica, (Nov. 2, 2021 updated Mar. 15, 2022), https://projects.propublica.org/toxmap/.

[55] Al Shaw and Lylla Younes, The Most Detailed Map of Cancer-Causing Industrial Air Pollution in the U.S., Pro Publica, (Nov. 2, 2021 updated Mar. 15, 2022), https://projects.propublica.org/toxmap/.

Figure 34: Pro Publica Map of Facilities in Freeport, TX that Emit Toxic Chemical Emissions[56]



The major facilities contributing to toxic air emissions in Freeport include:

- Gladieux Metals Recycling: (responsible for emitting Cobalt compounds, Arsenic compounds and Nickel compounds); contributes to **47.3%** of the estimated ***excess*** cancer risk in Freeport;
- Nalco Champion: (responsible for emitting Ethylene oxide, Formaldehyde, Propylene oxide and 3 more carcinogens); contributes to 40.9% of the estimated ***excess*** cancer risk in Freeport; and
- Dow Chemical (responsible for emitting Ethylene oxide, Butadiene, 1,3-, Dichloroethane, 1,2- and 40 more carcinogens); contributes to 11% of the estimated ***excess*** cancer risk in Freeport.[57]

Dow is an additionally problematic facility. According to the Texas Attorney General's (OAG) lawsuit against Dow in 2021[58], the OAG alleges that the Dow Plant has experienced "continuing problems associated with errors and equipment malfunctions resulting in emissions

[56] Al Shaw and Lylla Younes, The Most Detailed Map of Cancer-Causing Industrial Air Pollution in the U.S., Pro Publica, (Nov. 2, 2021 updated Mar. 15, 2022), https://projects.propublica.org/toxmap/.
[57] Al Shaw and Lylla Younes, The Most Detailed Map of Cancer-Causing Industrial Air Pollution in the U.S., Pro Publica, (Nov. 2, 2021 updated Mar. 15, 2022); https://projects.propublica.org/toxmap/
[58] Cause No. D-1-GN-21-002123, State of Texas v. Dow Chemical Company, Travis County District Court, 250th Judicial District; Original Petition and Application for Injunctive relief (May 10, 2021) at 8.

events that emit unauthorized contaminants into the environment."[59] And, during 2016-2021, TCEQ entered six administrative orders against Dow for air emission violations.[60]

While Dow remains an ongoing air quality concern, the Gladieux Facility (f/k/a Gulf Chemical and Metallurgical) also has a sordid criminal environmental history that continues to cause the local Freeport community ongoing concerns about metal emissions in the air. Especially because in 2005, the area around the Gladieux Facility was added to the Air Pollutant Watchlist as a result of elevated short-term Arsenic, Cobalt, Nickel, and Vanadium levels, which exceeded their respective air monitoring comparison values (AMCVs).[61] AMCV is a collective term used to describe chemical-specific air concentrations used to evaluate air monitoring data that are set to protect human health and welfare. Short-term AMCVs are based on data concerning acute health effects, odor potential, and acute vegetation effects.

TCEQ defined a large area where short-term exposure from this air pollution may cause respiratory symptoms and worsen existing medical conditions. As shown on the following map as **Figure 35**, this area covers nearly the entire city of Freeport.

[59] Cause No. D-1-GN-21-002123, State of Texas v. Dow Chemical Company, Travis County District Court, 250th Judicial District; Original Petition and Application for Injunctive relief (May 10, 2021) at 8.
[60] *See*, Orders entered into the following dockets: Docket No. 2014-1053-AIR-E on May 23, 2015; Docket No. 2014-1881-AIR-E on Oct. 1, 2015; Docket No. 2015-1242-AIR-E on Jul. 13, 2016; Docket No. 2015-1671-AIR-E on Nov. 8, 2016; Docket No. 2017-0378-AIR-E on Feb. 27, 2018; and Docket No. 2016-1940-AIR-E on May 30, 2018.
[61] *See* Texas Commission on Environmental Quality's Air Pollutant Watch List Area Map of 1201, Freeport, Texas.

Figure 35: TCEQ Air Pollutant Watchlist Map showing all of Freeport affected[62]

Gladieux purchased the Gulf Chemical facility out of bankruptcy in 2017, and the facility is not yet fully operational. As the TCEQ issues Gladieux more permits to begin and expand its operations in Freeport, the community remains concerned about metal emissions and about SO_2 emissions in the community. The community is especially concerned because Gladieux has applied for permits with de minimis air emission limits, and the facility does not yet (and may not be required to) have a Title V permit which would identify facility-wide emissions.

Freeport is additionally already home to the Freeport LNG terminal. This LNG terminal emits tons of pollutants, like sulfur dioxide, which can damage lungs.[63] Moreover, an explosion and fire occurred at the Freeport LNG facility on June 8, 2022 (Incident No. 381194) releasing 476,698 lbs. of CO and 55,592 lbs. of NOx (Incident No. 381191). The direct cause of the June 2022 explosion is the subject of full investigative report by IFO Group for the Pipeline and

[62] Texas Commission on Environmental Quality, Air Pollutant Watch List Area Map of 1201, Freeport, Texas.
[63] Environmental Integrity Project, Troubled Waters for LNG: The COVID-19 Recession and Overproduction derail Dramatic Expansion of Liquefied Natural Gas Terminals (Oct. 5, 2020); https://environmentalintegrity.org/wp-content/uploads/2020/10/LNG-REPORT-10.5.20.pdf

Hazardous Materials Safety Administration (PHMSA),[64] and this incident resulted in a $163,054 fine by EPA.

While metal emissions and SO_2 emissions are a major concern, Freeport, specifically, has significant ozone concerns as well. Accordingly, Better Brazoria is advocating for the existing historic Clute monitor to additionally monitor for ozone pollution. As detailed below, with the region's pending re-designation from "serious" nonattainment to "severe," Freeport has growing concerns about whether there is adequate monitoring in the region to capture accurate ozone measurements. There are an unusually high number of pipelines in the area, and the town is bordered on one side by Dow Chemical and BASF plants. These plants are both major suppliers of polyurethane raw materials and systems—which contribute major emissions that increase ozone pollution. According to local residents, the air in Freeport, and all of Brazoria County, will often irritate residents' eyes on a windy day—other times there are noxious chemical clouds. All of these industries contribute to ozone pollution, and the community is concerned that additional ozone monitoring is needed with thoughtful placement. The community is requesting that the historic Clute monitor (EPA site number: 48-039-1003) located at 426 Commerce Street, Clute, Texas 77531 that previously measured ozone be reinstated, given the EPA's redesignation of the region from "serious" to "severe."

For these reasons, Better Brazoria requests that ozone monitoring be reinstated at the Clute monitor to adequately evaluate the region's compliance with NAAQS.

III. COMMENTS ON REGULATORY NETWORK REVIEW

A. Nitrogen Dioxide (NO_2)

Nitrogen dioxide and other nitrogen oxides can harm airways in the human respiratory system.[65] Exposures over only short periods to elevated concentrations of NO_2 can "aggravate respiratory diseases, particularly asthma, leading to respiratory symptoms…hospital emissions and visits to emergency rooms."[66] Exposure over long periods to NO_2 and NO_x contributes to the development of asthma and increases risks of respiratory infections.[67] The American Lung Association summarizes harmful health effects of NO_2 as:

- Increased inflammation of the airways;

[64] IFO Group, Freeport LNG, Quintana Island, Texas, June 8, 2022 - Loss of Primary Containment, Incident Investigation Report (October 30, 2022). A heavily redacted version of the published report is available here: https://www.phmsa.dot.gov/sites/phmsa.dot.gov/files/2022-11/IFO-Group-RCFA-Report-final-redacted.pdf.
[65] U.S. Environmental Protection Agency, Basic Information about NO_2, https://www.epa.gov/no2-pollution/basic-information-about-no2.
[66] U.S. Environmental Protection Agency, Basic Information about NO_2, https://www.epa.gov/no2-pollution/basic-information-about-no2.
[67] U.S. Environmental Protection Agency, Basic Information about NO_2, https://www.epa.gov/no2-pollution/basic-information-about-no2.

- Worsened cough and wheezing;
- Reduced lung function;
- Increased asthma attacks;
- Greater likelihood of emergency department and hospital admissions;
- Cardiovascular harm;
- Low birth weights;
- Increased risk of premature death;
- Likely cause of asthma in children;
- Likely cause of lung cancer.[68]

North Houston Concerns

A near-road NO_x monitor should be placed near Interstate 45 north of its intersection with Beltway 8 (also known as the Sam Houston Tollway) in northern Houston. The best placement of the monitor would likely be between Beltway 8 and no further north than Richey Road (Exit 64 of Interstate 45). According to the Texas Department of Transportation (TxDOT)'s Average Annual Daily Traffic (AADT) Annuals Database, this stretch of Interstate 45 is one of the busiest road segments in Harris County and the entire state.[69] Only a segment of Interstate 10 between Loop Interstate-610 and Beltway 8 on Houston's west side has more sustained annual average daily traffic. The following TxDOT traffic stations represent a four mile stretch of Interstate 45 with over 250,000 daily trips on average.

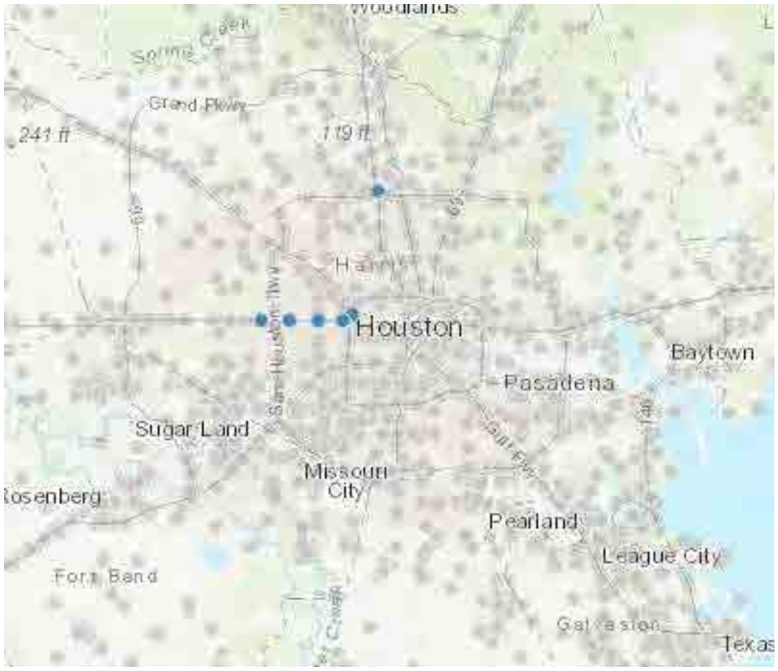
Table X: Average Annual Daily Traffic on Interstate 45 North of Beltway 8[70]

Traffic Station ID	2022 AADT	2021 AADT
245009	271,905	267,992
245121	251,227	250,376
227937	251,458	247,232

The following graphic from the TxDOT AADT Annuals database displays TxDOT Traffic Stations with more than 270,000 daily trips. It shows Interstate 10 west of central Houston is the only stretch of road with more traffic than Interstate 45 at Beltway 8 (the blue dot in the upper center of the graphic represents Traffic Station ID 245009).

[68] American Lung Association, Nitrogen Dioxide, https://www.lung.org/clean-air/outdoors/what-makes-air-unhealthy/nitrogen-dioxide.
[69] Texas Department of Transportation AADT Annuals Database, https://gis-txdot.opendata.arcgis.com/datasets/txdot-aadt-annuals.
[70] Table created using data compiled from the Texas Department of Transportation's AADT Annuals Database, https://gis-txdot.opendata.arcgis.com/datasets/txdot-aadt-annuals.

Figure 36: Average Annual Daily Traffic Above 270,000 in Houston Area[71]



This segment of Interstate 45 is therefore a prime candidate for a near-road NO_x monitor under the regulatory design criteria. "The near-road NO_2 monitoring sites shall be selected by ranking all road segments within a CBSA by AADT…"[72] This segment of Interstate 45 has more daily trips than the two segments with near-road NO_x monitors in Harris County. The segment of Loop Interstate-610 near the Houston North Loop monitor has less than 200,000 average daily trips. (See TxDOT Traffic Station ID 239641, which had 196,723 daily trips in 2022). While a segment of US-Highway 59/Interstate 69 at the Loop I-610 interchange just northeast of the Houston Southeast Freeway monitor has comparable daily trips, the actual Houston Southeast Freeway monitor is located just southwest of this segment of road which most immediately has around 170,000 daily trips. (See TxDOT Traffic Station ID 224679 which had 169,220 in 2022.)

Moreso, the following graphic from the EPA's EJScreen Mapping tool shows Traffic Proximity as calculate with data from U.S. Department of Transportation National Transportation Atlas Database, Highway Performance Monitoring System. It shows AADT on major roads divided by distance.[73] Much of the Interstate 45 corridor is amongst the 95th percentile or higher nationally. Meanwhile, the northwest portion of the Interstate-610 loop and even the Interstate 10 corridor in west Houston score much lower when considering all major

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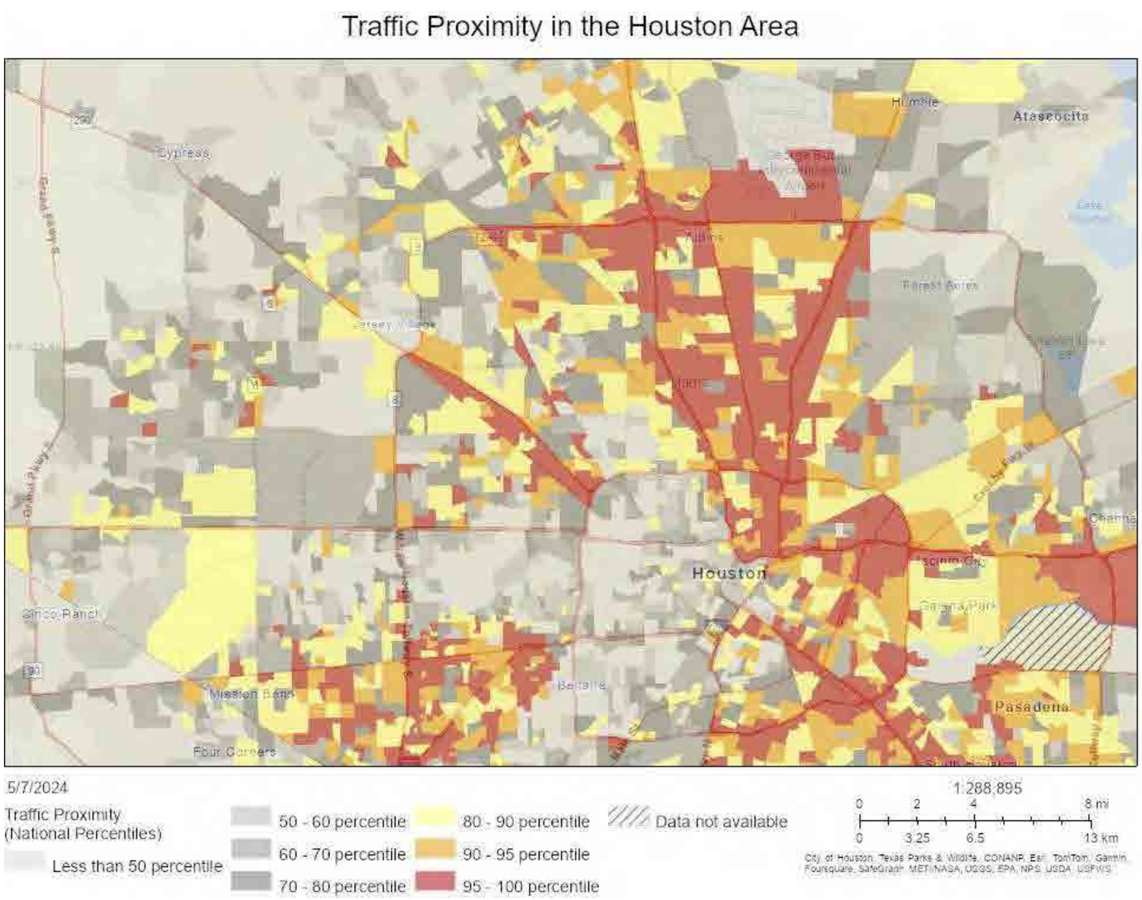
[71] Texas Department of Transportation AADT Annuals Database, https://gis-txdot.opendata.arcgis.com/datasets/txdot-aadt-annuals.
[72] 40 CFR Part 58, Appendix D, 4.3.2(a)(1).
[73] U.S. Environmental Protection Agency, EJScreen Map Descriptions, Supplemental Descriptions, https://www.epa.gov/ejscreen/ejscreen-map-descriptions#supp.

roads in the area. Traffic Proximity along Interstate 45 is comparable to the US Highway 59/Interstate 69 stretch in southwest Houston which has near-road NO_x monitoring.

Figure 37: Traffic Proximity in the Houston Area[74]



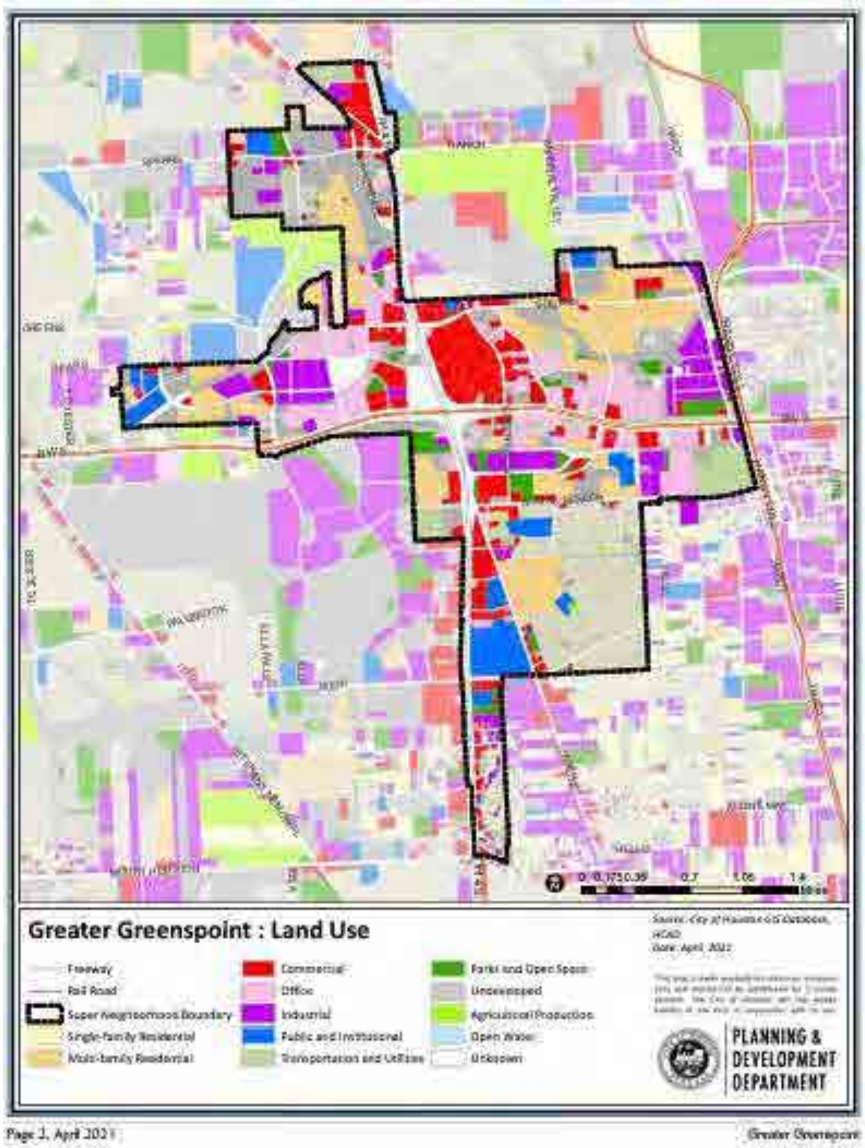
While the Houston North Loop and Houston Southwest Freeway segments certainly warrant NO_x monitoring, other factors weigh in favor of NO_x monitoring along Interstate 45 north of Beltway 8. The area on and around this segment of Interstate 45, known as Greater Greenspoint (centered around the Interstate 45/Beltway 8 interchange), has a mix of residential, commercial, and industrial areas and sites, which lend the area to both varied exposure pathways to NO_x and a varied fleet mix of traffic along Interstate 45. Further, its residents are among the most "susceptible and vulnerable" residents in Texas.

The following graphic, produced by the City of Houston's Planning and Development Department, shows the diverse and varied land use in the Greater Greenspoint area near the Interstate 45 and Beltway 8 interchange. Immediately around the Beltway 8/Interstate 45

[74] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

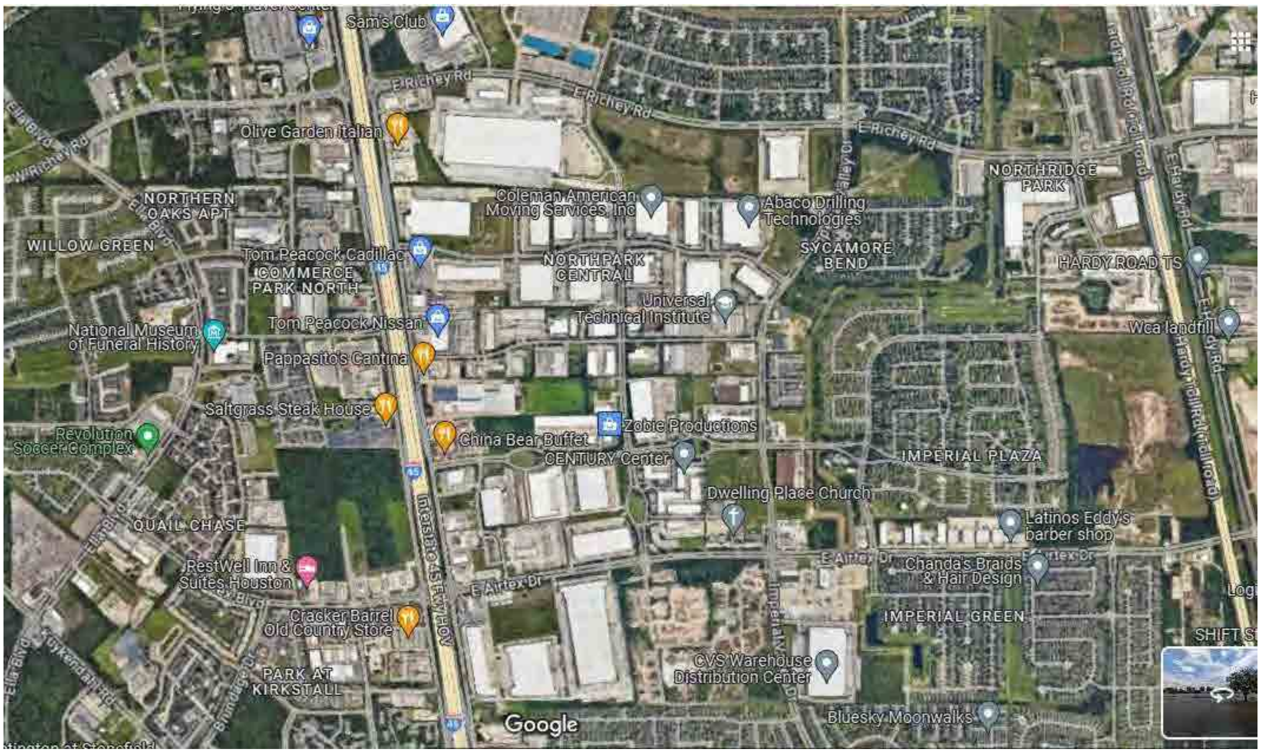
interchange are commercial towers and buildings. There are areas with both multi-family and single-family neighborhoods. And there are multiple industrial facilities. Specifically, there are numerous warehouses and truck depots east of Interstate 45 and west of the Hardy Toll Road. North of this area, between Richey Road and Airtex Road, along Interstate 45's east side are numerous warehouses frequented by large trucks and surrounded by single and multi-family housing, as seen in the following Google Maps satellite image of the area.

Figure 38: Greater Greenspoint Area Land Use[75]



[75] City of Houston, Planning and Development Department, Super Neighborhoods Profile for Super Neighborhood 2 Greater Greenspoint, Neighborhood Resource Pamphlet ("Demographics"), https://www.houstontx.gov/superneighborhoods/2.html.

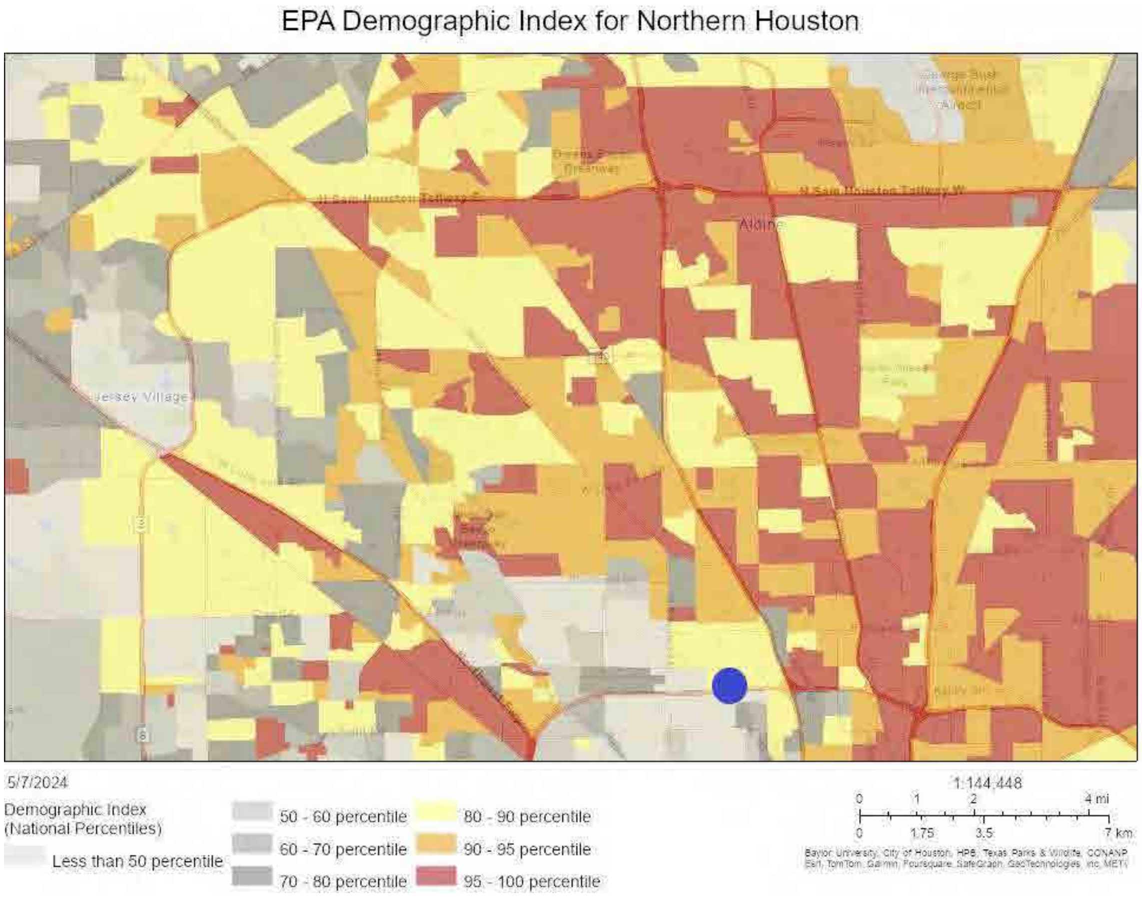
Figure 39: Land Use on Interstate 45-Harvey Toll Road Corridor North of Beltway 8[76]



The following graphic shows the EPA's EJScreen Demographic Index for the northern half of greater Houston. The EPA's Demographic Index is a combination of percent low-income residents and percent minority residents.[77] The area near Interstate 45 and Beltway 8 is nearly entirely in the 90th-100th percentile, while the area around the Houston North Loop monitor, located in the center bottom of the graphic and represented by the circle, ranks much lower.

[76] Screenshot taken from Google Maps, www.google.com/maps.
[77] U.S. Environmental Protection Agency, EJScreen Map Descriptions, Supplemental Descriptions, https://www.epa.gov/ejscreen/ejscreen-map-descriptions#supp.

Figure 40: Demographic Index for North Houston[78]

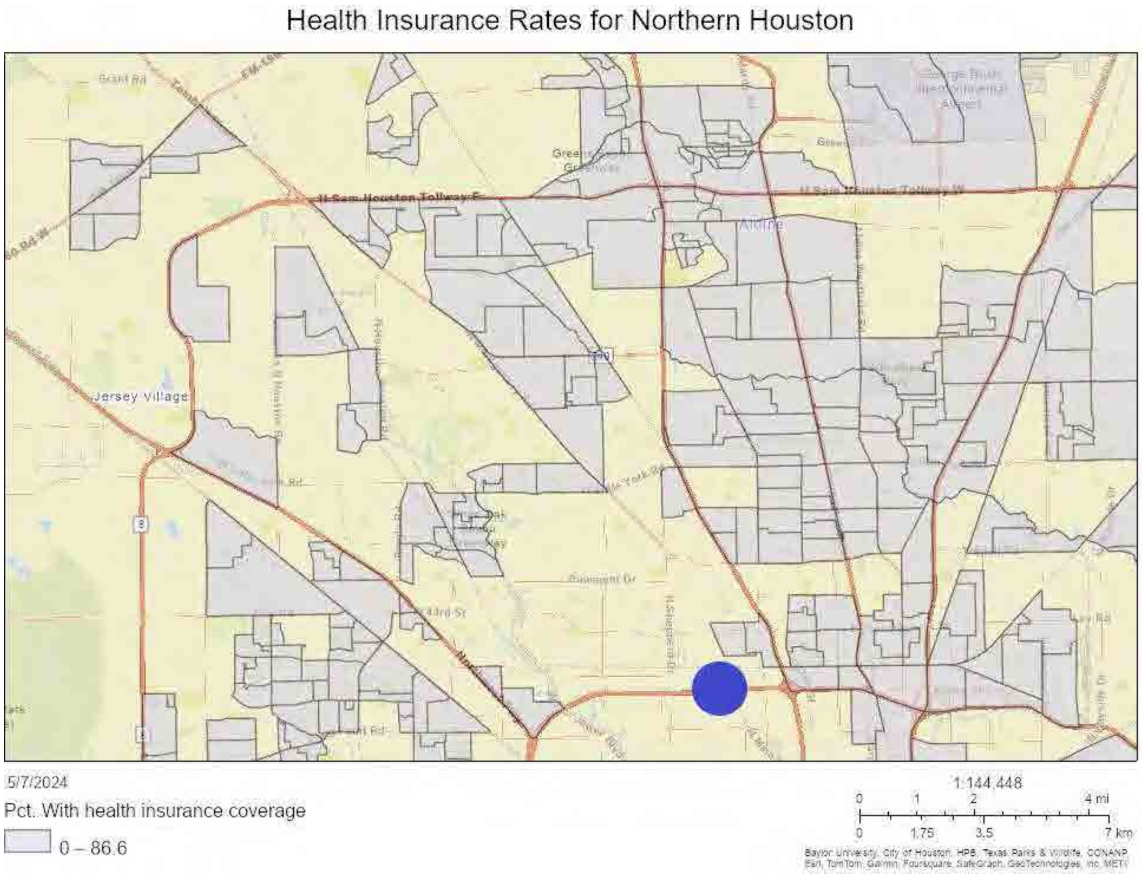


The following graphic, also from the EPA's EJScreen tool, shows census tracts where only 70% or less of the residents have health insurance. The area around the Interstate 45 and Beltway 8 interchange is entirely underinsured while the area around the Houston North Loop monitor is better insured. The residents in the Greater Greenspoint area and north along Interstate 45 lack access to affordable healthcare, making them more vulnerable and susceptible to the harms of air pollution.[79]

[78] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

[79] *See* Matthew Lavietes, World Economic Forum, Air Pollution Costs Each American $2,5000 a Year in Healthcare—Study Finds (July 1, 2021), https://www.weforum.org/agenda/2021/06/air-pollution-cost-america-healthcare-study/; Alejandra O'Connell-Domenech, The Hill, Traffic-related Air Pollution Linked to Higher Health Care Costs (August 10, 2022), https://thehill.com/changing-america/sustainability/environment/3596081-traffic-related-air-pollution-linked-to-higher-health-care-costs/.

Figure 41: Health Insurance Coverage in North Houston[80]



Beaumont Area Concerns

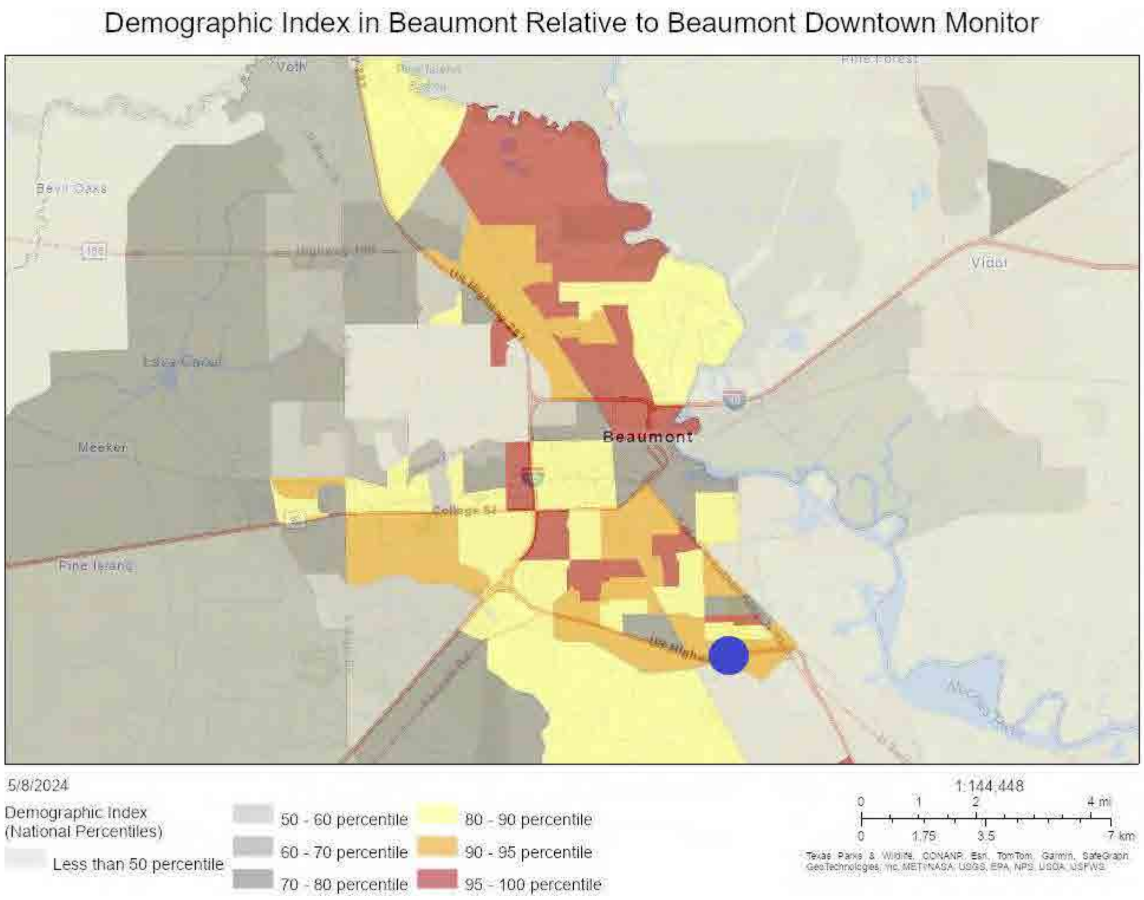
A NO_x monitor should be required in Beaumont, Texas, either at the existing Beaumont Mary monitoring site or along the nearby Interstate 10 corridor through central Beaumont. This area is both "susceptible and vulnerable" and has high AADT and other notable NO_x sources.[81]

The Beaumont Mary monitor is located in the historic Charlton Pollard neighborhood and within the larger East Side of Beaumont. Charlton Pollard is an especially vulnerable neighborhood—it is low-income, majority minority, and surrounded by large industrial facilities, the Port of Beaumont, and highways and railroad tracks. As mentioned above, Beaumont's East Side is generally low-income and at-risk for health problems from air pollution. The following two graphics show EPA's EJScreen Demographic Index for Beaumont and EJScreen's Low Life

[80] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.
[81] *See* 40 CFR Part 58, Appendix D 4.3.4(b).

Expectancy Index with the location of the existing Beaumont Downtown NO_x monitor marked with a blue circle. The monitor is not located directly in the higher percentile areas.

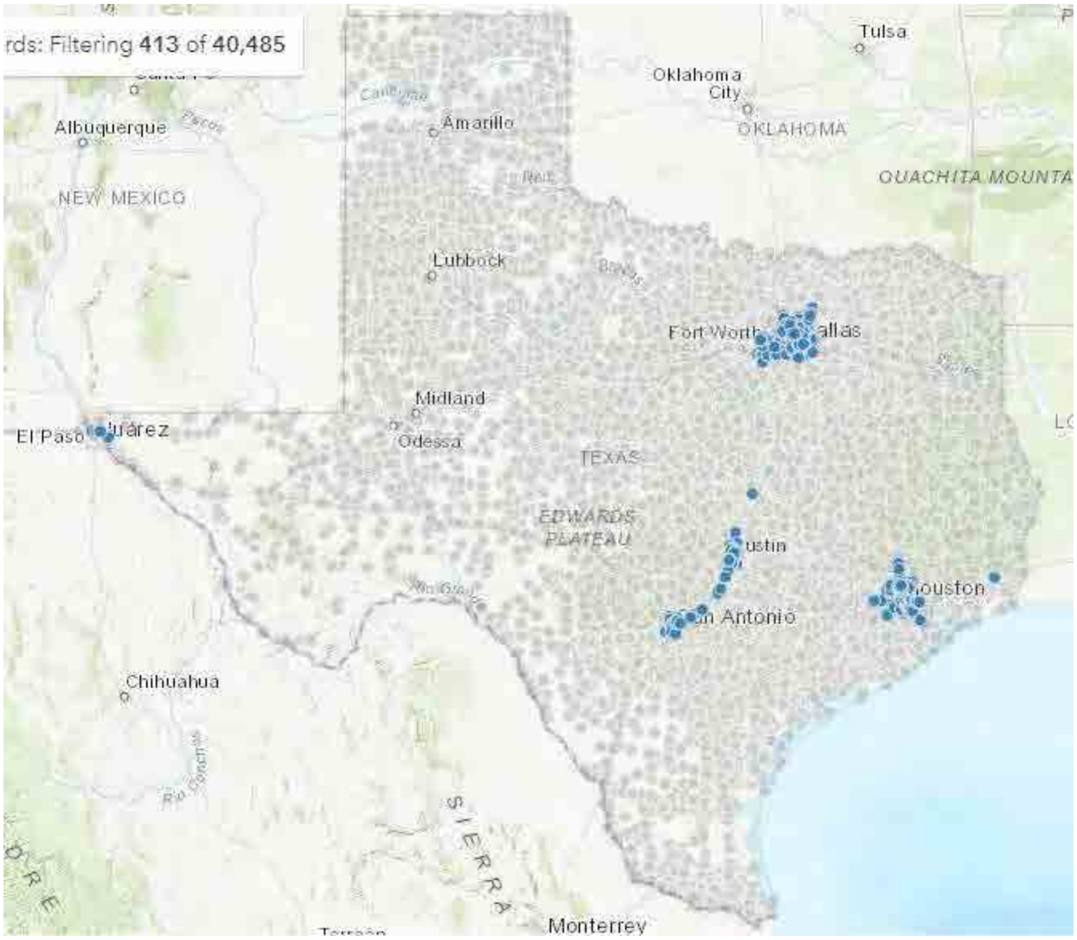
Figure 42: Demographic Index in Beaumont[82]



Interstate 10, which crosses through central Beaumont just north of Charlton Pollard is one of the busiest stretches of road in the entire State of Texas. TxDOT's AADT Annuals database shows Interstate 10 in central Beaumont as one of only two locations outside the major CBSA's of D/FW, Austin, San Antonio, El Paso, and Houston with more than 130,000 daily trips. The other location, in Belton, might be a worthy location for a NO_x monitor due to heavy traffic, as well, but is otherwise not as threatened by industrial activity nor as susceptible and vulnerable to healthcare challenges as Charlton Pollard and Beaumont's larger East Side.

[82] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

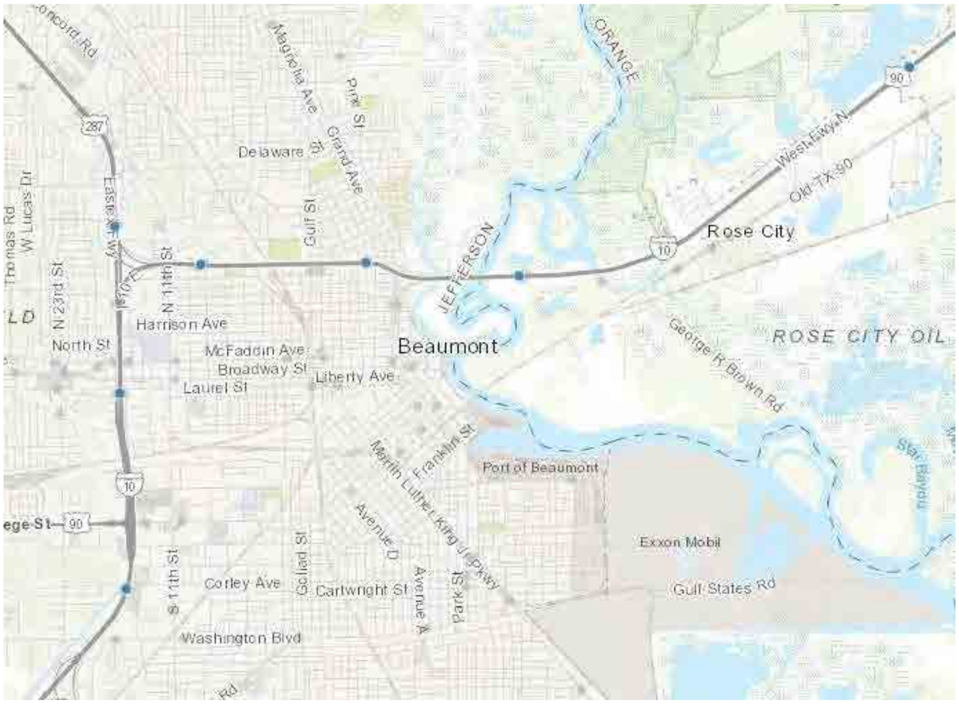
Figure 43: Average Annual Daily Traffic Sites Above 130,000 Trips in Texas[83]



The following graphic shows traffic stations with 2022 AADT of over 75,000 in Beaumont. The graphic also notes the location of the Port of Beaumont and the large Exxon Mobil facility.

[83] Texas Department of Transportation AADT Annuals Database, https://gis-txdot.opendata.arcgis.com/datasets/txdot-aadt-annuals.

Figure 44: TxDOT Traffic Stations in Beaumont with Average Annual Daily Traffic Above 75,000[84]



The following chart shows 2022 and 20221 AADT in Beaumont along the Interstate 10 corridor, providing a clear basis to consider NO_x monitoring in the area.

Table 8: Highest Average Annual Daily Traffic at Traffic Stations in Beaumont[85]

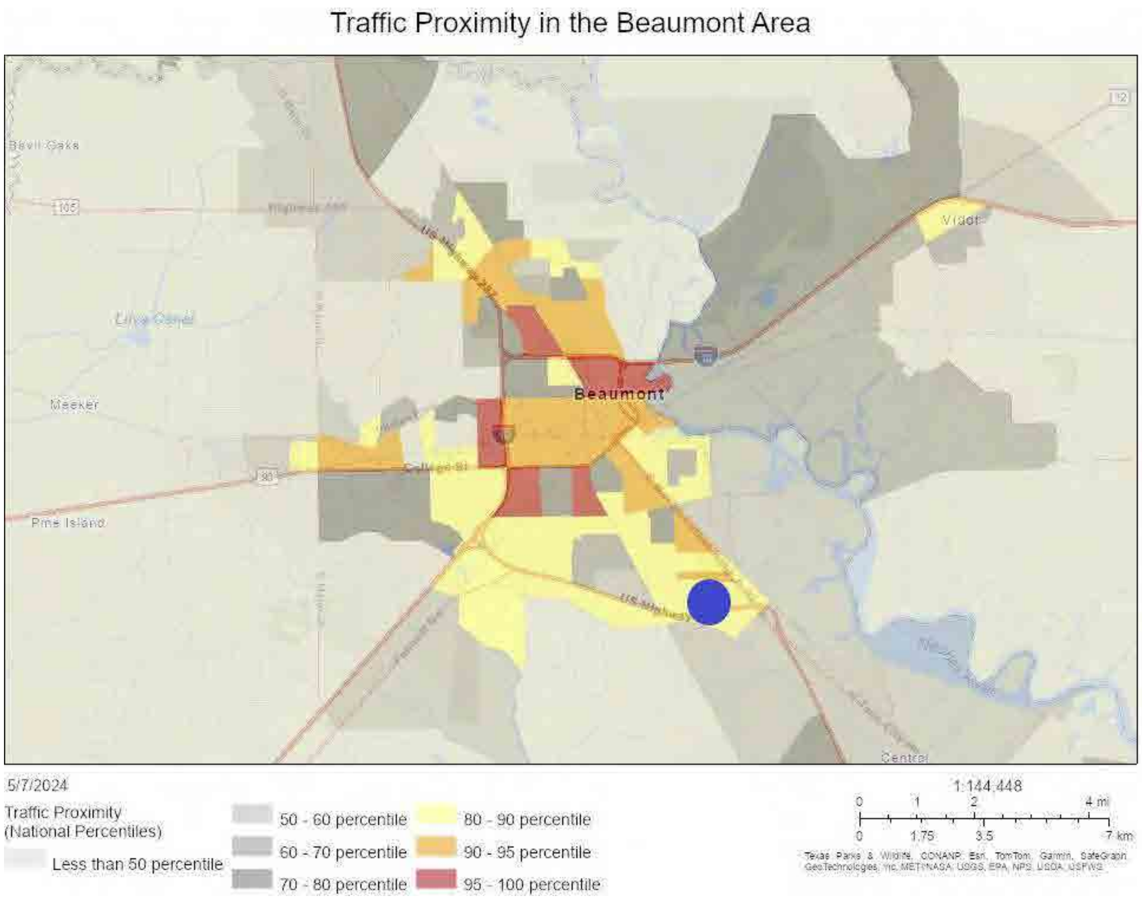
Traffic Station ID	2022 AADT	2021 AADT
295177	130,685	117,050
295457	111,265	113,792
295537	81,672	83,705
295593	85,825	92,367
297177	78,230	86,619
297225	77,615	85,918
297297	76,169	82,431

While commenters do recognize the Beaumont Downtown monitor measures NO_x, it is located on the southern edge of Beaumont and generally not in or near residential areas. Additionally, it is over 4 miles from Interstate 10 and generally upwind from the Port of Beaumont, most rail lines and traffic, and the large Exxon Mobil facility and other industrial sites near more densely populated areas of Beaumont. The following graphic shows the EPA

[84] Texas Department of Transportation AADT Annuals Database, https://gis-txdot.opendata.arcgis.com/datasets/txdot-aadt-annuals.
[85] Table compiled using data from the Texas Department of Transportation's AADT Annuals Database, https://gis-txdot.opendata.arcgis.com/datasets/txdot-aadt-annuals.

EJScreen's Traffic Proximity factor. The existing NO_x monitor at the Beaumont Downtown monitor is marked with a circle and is in area with notably less traffic proximity than central Beaumont and the area along Interstate 10.

Figure 45: Traffic Proximity in Beaumont[86]



The following graphic shows railroads in the Beaumont area, according to the U.S. Department of Transportation's Bureau of Transportation Statistics.[87] Beaumont's East Side, and in particular, the Charlton Pollard area and adjacent neighborhoods have a high density of railroads. These railroads help move cargo to and from the Port of Beaumont and to and from the many industrial facilities in the area in addition to long haul trains moving through the area from Houston, Louisiana and elsewhere.

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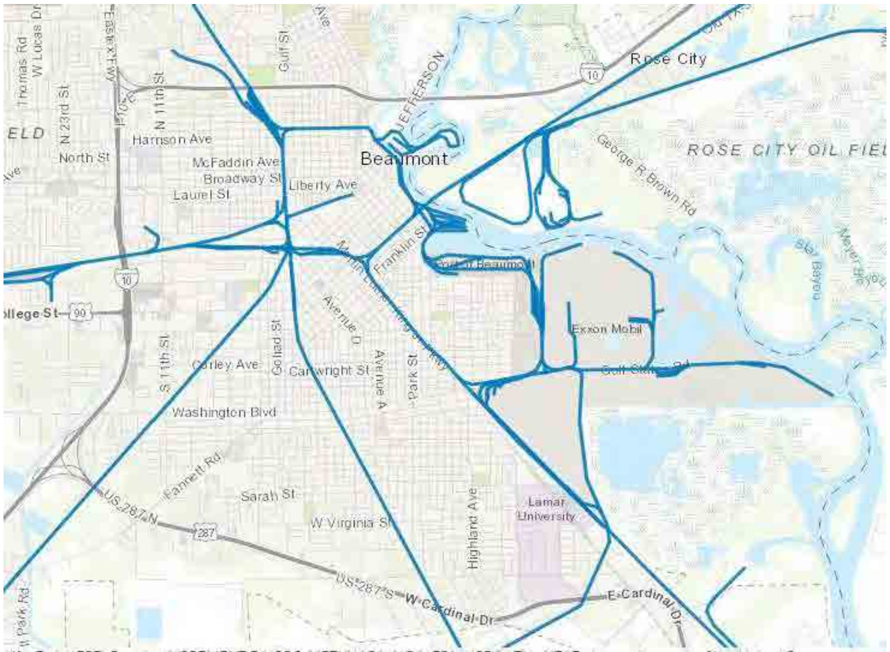
[86] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

[87] U.S. Department of Transportation, Bureau of Transportation Statistics, North American Rail Network Lines, https://geodata.bts.gov/datasets/usdot::north-american-rail-network-lines/about.

Figure 46: Railroads in Beaumont Area[88]



In addition to mobile sources such as road traffic, railroads, and ships and activities at the Port of Beaumont, Beaumont's East Side and in particular, Charlton Pollard are downwind of several large point sources of NO_x emissions. According to the NEI, the Beaumont Mary monitor is located near some of Jefferson County's (and the whole region's) highest emitters of NO_x. Two of Jefferson County's four largest emitters are located within 1 to 1.5 miles of the Beaumont Mary monitoring site. These are the Exxon Mobil Beaumont refinery and the Exxon Mobil chemical plant. The location of the sprawling integrated ExxonMobil plant can be seen on the above map—they are located just east of the Beaumont Mary monitor. Together, in 2017, those two facilities emitted over 2,474 tons of NO_x. (The refinery emitted 1,783 tons and the chemical plant emitted 691 tons.)[89] These facilities alone make up nearly 25% of the approximately 10,300 tons of NO_x emitted in all of Jefferson County.

B. Sulfur Dioxide (SO_2)

SO_2 is an air toxic associated with a variety of negative health effects. Short term exposures to SO_2 can harm the respiratory system and cause a variety of symptoms making breathing difficult.[90] Children and people with existing pulmonary issues such as asthma are

[88] U.S. Department of Transportation, Bureau of Transportation Statistics, North American Rail Network Lines, https://geodata.bts.gov/datasets/usdot::north-american-rail-network-lines/about.
[89] U.S. Environmental Protection Agency, Environmental 2017 National Emissions Inventory, https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data.
[90] U.S. Environmental Protection Agency, Sulfur Dioxide Basics, What are the harmful effects of SO_2, https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#effects.

especially vulnerable to the negative effects of SO_2.[91] Additionally, SO_2 can react with other compounds in the air to form particulate matter, another criteria pollutant and potent respiratory irritant discussed below.[92]

According to the EPA, the largest source of SO_2 in the atmosphere is the burning of fossil fuels by power plants and other industrial facilities.[93] Other lesser sources of SO_2 emissions include: industrial processes such as extracting metal from ore; natural sources such as volcanoes; and locomotives, ships and other vehicles and heavy equipment that burn fuel with a high sulfur content.

Port Arthur Concerns

One of the largest SO_2 emitters in all of Texas is located in West Port Arthur and of immense concern to residents in that environmental justice community. The Oxbow Calcining facility, located due south of residential Port Artur, emits around 11,500 tons of SO_2 per the National Emissions Inventory.[94] Amongst the state's largest emitters, Oxbow Calcining is uniquely situated near a relatively dense urban area. Oxbow Calcining's emissions should therefore be recognized as a serious public health concern, and an environmental justice concern.

PACAN has and continues to advocate for better emissions controls and air monitoring from Oxbow Calcining. Despite known concerns, Oxbow Calcining has for decades refused to install modern pollution controls. Rather, Oxbow Calcining has modified its plant to attempt to avoid NAAQS exceedances at the Port Arthur 7th Street Gate 2 SO_2 monitor, which ostensibly is supposed to detect peak SO_2 concentrations under the 2015 Data Requirements Rule (DRR) for the 1-hour SO2 NAAQS.[95]

To better understand the dispersion of SO_2 emissions from Oxbow Calcining and to hopefully assist TCEQ in best locating an SO_2 monitor(s) in and around Oxbow Calcining and West Port Arthur, PACAN commissioned an expert, I2M Associates, LLC, to conduct an SO_2 air quality analysis for Port Arthur. The modeling results raised concerns, including that:

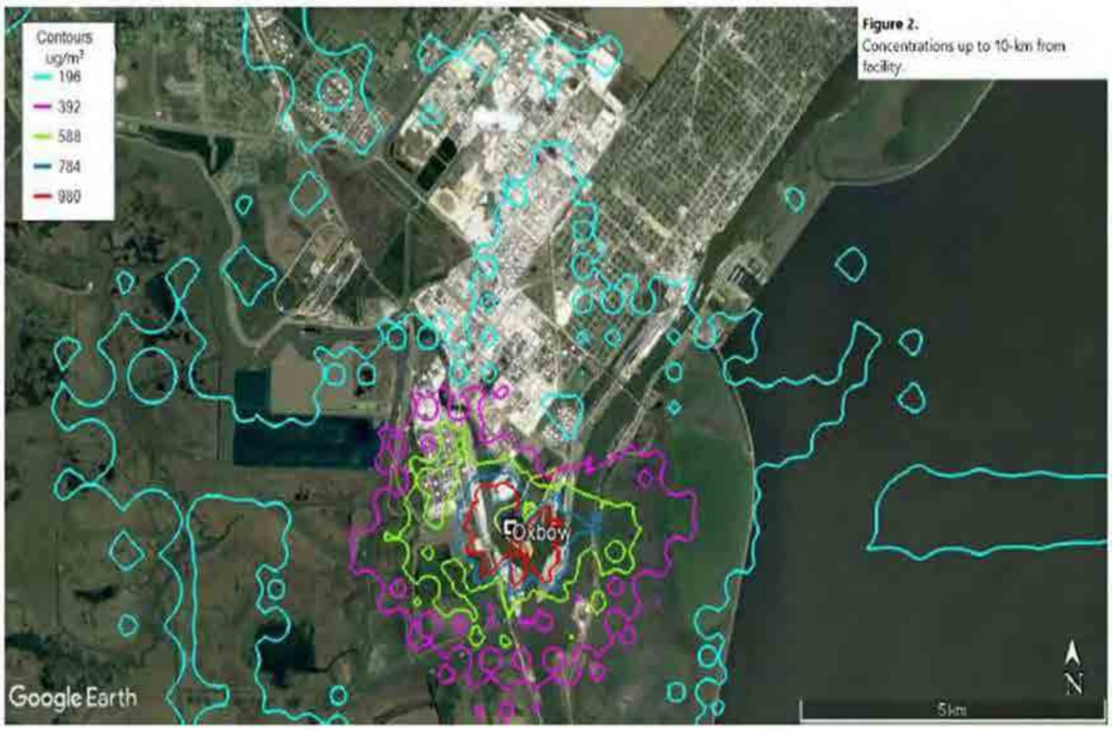
> Oxbow's SO_2 emissions at their permitted rates are predicted, based on AERMOD modeling of Oxbow hot stacks using Oxbow's emission point input

[91] U.S. Environmental Protection Agency, Sulfur Dioxide Basics, What are the harmful effects of SO_2, https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#effects.
[92] U.S. Environmental Protection Agency, Sulfur Dioxide Basics, What are the harmful effects of SO_2, https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#effects.
[93] U.S. Environmental Protection Agency, Sulfur Dioxide Basics, What are the harmful effects of SO_2, https://www.epa.gov/so2-pollution/sulfur-dioxide-basics#effects.
[94] U.S. Environmental Protection Agency, Air Emissions Inventories, National Emissions Inventory, https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei.
[95] Texas Commission on Environmental Quality, 2024 Draft Air Monitoring Network Plan, at 15; 40 C.F.R. Part 51, Subpart BB.

parameter values, to result in significant numbers of exceedances of the SO_2 NAAQS one-hour standard in Port Arthur, Texas and Jefferson County. The modeling results are consistent with the ambient monitoring data for local monitors, substantiating the exceedances of the SO_2 NAAQS one-hour standard in Jefferson County.[96]

Results of the I2M modeling are included below in **Figure 47** and **Figure 48**. **Figure 47** shows concentrations up to 10km from Oxbow. Figure X shows the area where modeling receptors were predicted to exceed the SO_2 NAAQS one-hour standard of 196 ug/m3 (75 ppb) based on 2017 information from the EPA's NEI.

Figure 47: Modeled Concentrations of SO_2 Near the Oxbow Calcining Facility in West Port Arthur[97]



[96] I2M Associates, Report of Findings, Port Arthur Industrial Source Sulfur Dioxide (SO2) Air Quality Modeling—Oxbow SO2 Emissions Assessment, Jefferson County, Texas (July7, 2021), at 23.
[97] I2M Associates, Report of Findings, Port Arthur Industrial Source Sulfur Dioxide (SO2) Air Quality Modeling—Oxbow SO2 Emissions Assessment, Jefferson County, Texas (July7, 2021), at 19.

Figure 48: Modeled Locations of One-Hour NAAQS Exceedances for SO_2 Near the Oxbow Calcining Facility in West Port Arthur[98]

Figure 49 shows the 10 top receptor locations based on the frequency of 1-hour exceedances and high normalized values per modelling and analysis performed by TCEQ itself. To comply with the DRR and ensure SO_2 levels in Port Arthur are not exceeding the NAAQS, TCEQ must include a better placed monitor(s) near and around Oxbow to fully reflect the reality of emissions in the area.

[98] I2M Associates, Report of Findings, Port Arthur Industrial Source Sulfur Dioxide (SO2) Air Quality Modeling—Oxbow SO2 Emissions Assessment, Jefferson County, Texas (July7, 2021), at 21.

Figure 50: Top Modeling Receptors Near the Oxbow Calcining Facility in West Port Arthur[99]

PACAN has repeatedly raised concern that the Port Arthur West 7th Street Gate 2 monitor used to fulfill its DRR requirements vis a vis Oxbow Calcining is not adequately capturing the highest SO_2 levels, particularly in light of Oxbow Calcining's modifications to its plant. The monitor is not located at one of the highest ranked receptors noted in **Figure 50.**

Pasadena and Surrounding Communities Concerns

As discussed above, the City of Pasadena suffers from a lack of adequate monitoring. The city contains and is adjacent to a number of facilities that emit SO_2 and sulfur compounds in large quantities and should have at least one SO_2 monitor to ensure that citizens are protected from these emissions. The following map, identified as **Figure 51**, shows the location of sulfur-emitting facilities (in red), and existing SO_2 monitors (in yellow).

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[99] Texas Commission on Environmental Quality, PA Report, Air Modeling for 2019 Air Monitoring Network Plan (June 21, 2019).

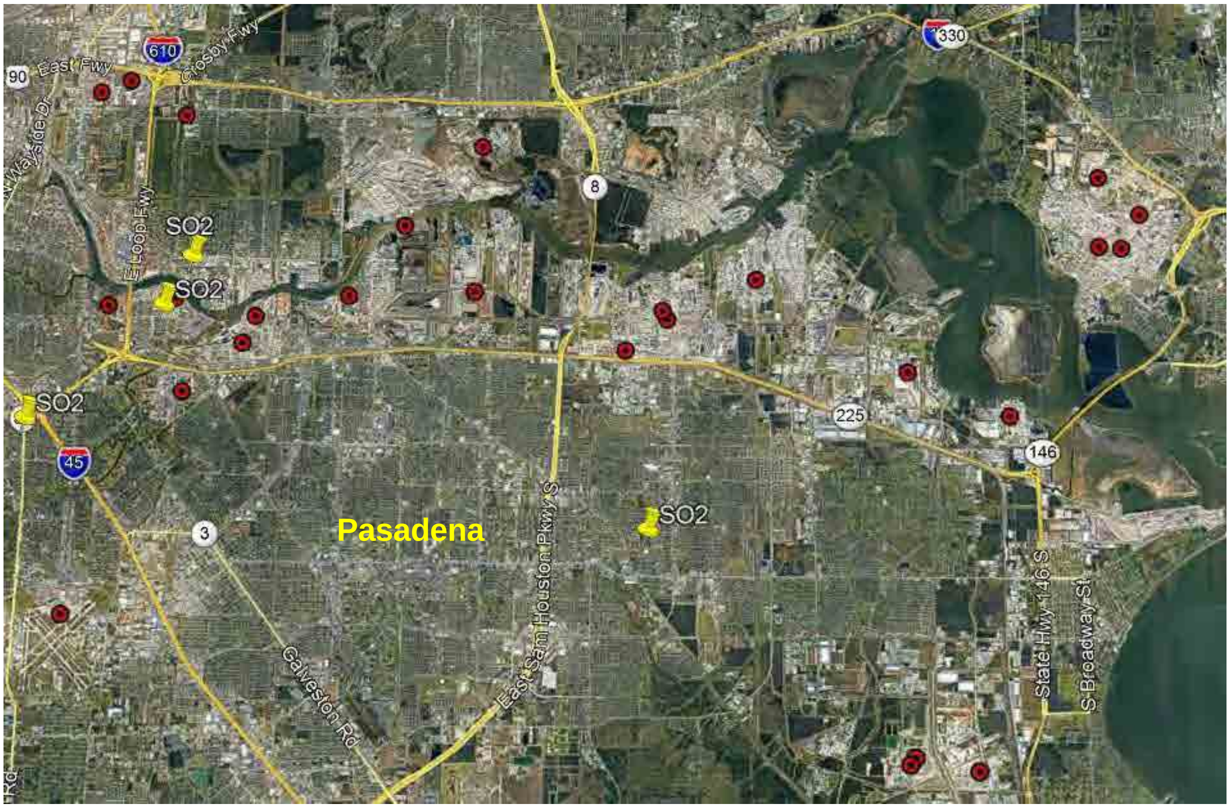

Figure 51: SO_2 *Monitors and Facilities near Pasadena*[100]

Several of these facilities near Pasadena are major emitters of SO_2. For example, in 2014 Exxon's Baytown Refinery released 2,203 tons of SO_2, Pasadena Refining System's Refinery released 1,064 tons of SO_2, Eco-services' Houston Plant released 918 tons of SO_2, Motiva's Houston Refinery released 366 tons of SO_2, and Arkema's Houston Plant released 372 tons of SO_2, among many others.[101] Despite their proximity to this collection of high-emitting facilities, most residents of Pasadena live three to five miles from the nearest SO_2 monitors in either Manchester or Deer Park.

Several members of CPC have smelled and continue to smell the rotten-egg odor that is indicative of SO_2 pollution. SO_2 is clearly in the air, but without any monitors it is impossible to know exposure levels. The community deserves to know if the air they are breathing contains harmful levels of SO_2, and TCEQ has a duty to collect and share that information. An SO_2 monitor in central Pasadena would enable TCEQ to "measure typical concentrations in areas of

[100] Monitor data from Texas Commission on Environmental Quality, Air Monitoring Sites, GeoTAM Map Viewer, https://www.tceq.texas.gov/airquality/monops/sites/air-mon-sites.
[101] U.S. Environmental Protection Agency, 2014 National Emissions Inventory Report, available at https://gispub.epa.gov/neireport/2014/.

high population density," and would further the monitoring goal of providing "air pollution data to the general public in a timely manner."[102]

C. Lead (Pb)

Lead is a soft, dense, naturally occurring metal that has long been used in a wide variety of applications. Exposure to lead in the ambient air can be harmful to human health. Lead exposure can severely harm much of the human body. Exposure can harm the nervous system, kidney function, immune system, reproductive and development systems, and the cardiovascular system.[103] It can also harm the capacity of blood to carry oxygen throughout the body. Infants and children are especially at risk to lead related harms.[104] Those exposed to lead at a young age may develop behavioral problems and learning deficits.[105]

Lead is commonly used in the manufacture of building materials, lead-acid batteries, ammunition, weights, medical equipment, and coatings for high-voltage power cables. Sources that contribute to lead in the ambient air include smelters, metals processing, mining operations, waste incinerators, battery recycling, and the production of lead shot and fishing sinkers.[106] Lead is also released by the burning of coal, oil, solid waste, and the use of leaded aviation gasoline in piston engine powered aircraft. Prior to the phase-out of leaded gasoline between 1973 and 1996, motor vehicles were the largest source of lead in the atmosphere. It can also be found in water pipes, as well as homes built before 1978, when lead-based paint was used in construction.[107] When lead-based paint peels and cracks, it makes lead dust, which can be harmful when inhaled, especially by children.[108]

<u>Fifth Ward Area Concerns</u>

TCEQ should add lead monitoring to Fifth Ward to evaluate the community's exposure to lead because there are concentrated sources of lead present in the area, e.g., the number of metal recycling facilities surrounding the community as noted above in Section II-E. Lead in the air is a problem not only because people may breathe it in, but also because people, particularly

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[102] 40 C. F. R. 58 Appx. D 1.1.1(b), 1.1 (a).

[103] U.S. Environmental Protection Agency, Basic Information about Lead Air Pollution, https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#health.
[104] U.S. Environmental Protection Agency, Basic Information about Lead Air Pollution, https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#health.
[105] U.S. Environmental Protection Agency, Basic Information about Lead Air Pollution, https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#health.
[106] U.S. Environmental Protection Agency, Basic Information about Lead Air Pollution, https://www.epa.gov/lead-air-pollution/basic-information-about-lead-air-pollution#health.
[107] U.S. Centers for Disease Control and Prevention, Sources of Lead Exposure, https://www.cdc.gov/nceh/lead/prevention/sources.htm.
[108] U.S. Centers for Disease Control and Prevention, Sources of Lead Exposure, https://www.cdc.gov/nceh/lead/prevention/sources.htm.

children, can swallow lead dust that has settled onto surfaces like soil, dust, and water. Lead in soil and dust stays around for many years because it does not decay or decompose.

D. Ozone (O_3)

As the main ingredient of "smog", ground level ozone is a harmful air pollutant which negatively affects human health and the environment. Breathing O_3 can trigger a variety of health problems including chest pain, coughing, throat irritation, and airway inflammation.[109] It can also reduce lung function and harm lung tissue.[110] O_3 exposure can worsen bronchitis, emphysema, and asthma, leading to increased medical care needs and expenses.[111] People most at risk of harm from breathing O_3 include those with asthma, children, older adults, and people who are active outdoors, including outdoor workers.[112] In addition, people with certain genetic characteristics and people with reduced intake of certain nutrients, such as vitamins C and E, are at greater risk of harm from O_3 exposure.[113]

Due to the serious consequences of ground level ozone, it is critically important that levels of O_3 be sufficiently monitored in environmental justice communities such as Northeast Houston, the Pleasantville Area, Port Arthur, the east side of Beaumont, and Brazoria County. All these communities already are vulnerable and have compromised health and limited access to health care due to other social and economic factors.

Brazoria County Concerns

As was explained above, the EPA's redesignation of the Houston-Galveston-Brazoria County area from "serious" to "severe" is cause for concern in the Freeport community. This concern about ozone pollution and air quality justifies adequate monitoring in the region to apprise the local community of their air quality. According to Better Brazoria's members, the Clute monitor was originally thoughtfully placed and brought online in 1974 to address regional concerns. Because a monitor was already carefully placed in Clute and previously measured ozone pollution, it would make sense for the TCEQ to add this constituent of concern, back to the Clute monitor to capture the region's ozone emissions more wholistically. Better Brazoria requests that ozone monitoring be reinstated at this monitor, given the EPA's recent significant concerns about NAAQS compliance for ozone in the region.

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[109] U.S. Environmental Protection Agency, Health Effects of Ozone Pollution, https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution.
[110] U.S. Environmental Protection Agency, Health Effects of Ozone Pollution, https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution.
[111] U.S. Environmental Protection Agency, Health Effects of Ozone Pollution, https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution.
[112] U.S. Environmental Protection Agency, Health Effects of Ozone Pollution, https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution.
[113] U.S. Environmental Protection Agency, Health Effects of Ozone Pollution, https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution.

Pasadena and Surrounding Communities Concerns

Pasadena itself is wholly without any comprehensive monitoring network save the single monitor on the north end of the City. TCEQ can and should remedy this under the proposed network monitoring plan. Any plan to deploy new monitors in and around Pasadena should include ozone tracking capabilities since the amount of exposure is currently unassessed and unknown.

The single monitor in the City of Pasadena does not monitor ozone. The nearest ozone monitors are Park Place, Clinton Dr., Houston Monroe, Seabrook Friendship Park, and Houston Deer Park #2. Without an ozone monitor, Pasadena residents cannot know their exposure levels to ozone. TCEQ should place an ozone-specific monitor in Pasadena to ensure Pasadena residents can address a vital health, safety, and environmental issue that is otherwise undocumented in the area. The recent redesignation of the HGB area to severe would justify additional ozone monitoring in the Pasadena area given the number of facilities contributing to air quality degradation in the immediate area based in Pasadena.

E. Carbon Monoxide (CO)

Exposure to CO "reduces the amount of oxygen that can be transported in a person's blood stream to the body's organs."[114] When the brain, heart, and other critical organs do not receive enough blood, "dizziness, confusion, unconsciousness, and death" can happen.[115] While these severe effects are most usually tied to indoor exposures, outdoor exposure is of "particular concern for people with some types of heart disease."[116] When exercising, working outside, or under increased stressed, "short-term exposure to elevated CO may result in reduced oxygen to the heart accompanied by chest pain."[117]

North Houston Concerns

As described above, it would be appropriate for TCEQ to place a near-road NO_x monitor along Interstate 45 north of Beltway 8 and south of Richey Road (Exit 64 of Interstate 45). Therefore, it would also be appropriate to collocate a CO monitor at that location.[118] While TCEQ currently locates a CO monitor at the Houston North Loop NO_x near-road monitoring

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[114] U.S. Environmental Protection Agency, Basic Information about Carbon Monoxide (CO) Outdoor Air Pollution, https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution.
[115] U.S. Environmental Protection Agency, Basic Information about Carbon Monoxide (CO) Outdoor Air Pollution, https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution.
[116] U.S. Environmental Protection Agency, Basic Information about Carbon Monoxide (CO) Outdoor Air Pollution, https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution.
[117] U.S. Environmental Protection Agency, Basic Information about Carbon Monoxide (CO) Outdoor Air Pollution, https://www.epa.gov/co-pollution/basic-information-about-carbon-monoxide-co-outdoor-air-pollution.
[118] 40 CFR Part 58, Appendix D, 4.2(a).

station, that location, as described below, has 25% fewer daily vehicle trips than the stretch of Interstate 45 north of the Beltway 8 interchange.

F. Large Particulate Matter (PM_{10})

Particulate matter (PM) refers to microscopic particles in the atmosphere that are hazardous to human health. PM, sometimes referred to in everyday language as soot, dust, or smoke, consists of very small solid particles or liquid droplets suspended in the air.[119] While some PM can be seen with the naked eye, some are so small that they can only be seen by an electron microscope.[120] The smaller the particles, typically the more threatening they are to human health—smaller particles are more capable and likely to penetrate deep into the respiratory system and lodge themselves into a person's lungs.[121] Recent studies indicate PM can have many effects on the human body, including:

- Cause lung irritation, leading to increased permeability in lung tissue;
- Aggravate the severity of lung disease, causing rapid loss of airway function;
- Cause inflammation of lung tissue, resulting in the released of chemical which can negatively impact heart function;
- Cause changes in blood chemistry that can result in clots which may lead to heart attacks; and
- Increase susceptibility to viral and bacterial pathogens leading to pneumonia in vulnerable persons unable to clear those pathogens and infections.

The NAAQS regulate both $PM_{2.5}$ and PM_{10}. $PM_{2.5}$—those with a diameter of 2.5 micrometers or less—are considered of greatest health concern. Still, PM_{10}—those with a diameter of 10 micrometers or less—are considered inhalable and can negatively impact human health. PM can also get into a person's bloodstream. TCEQ must ensure its monitoring plan adequately monitors both $PM_{2.5}$ and PM_{10}.

PM is also the main cause of reduced visibility in the United States. Just as other criteria pollutants are precursors of O_3, including SO_x, NO_x, VOCs, these criteria pollutants are precursors of PM. Other chemicals such as ammonia are also considered precursors to PM. Thus, while facilities may directly emit PM, PM may be formed by other emissions and TCEQ must be mindful of this when it anticipates or models future PM concentrations.

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[119] U.S. Environmental Protection Agency, Particulate Matter Basics, What Are the Harmful Effects of PM, https://www.epa.gov/pm-pollution/particulate-matter-pm-basics#effects.
[120] U.S. Environmental Protection Agency, Particulate Matter Basics, What Are the Harmful Effects of PM, https://www.epa.gov/pm-pollution/particulate-matter-pm-basics#effects.
[121] U.S. Environmental Protection Agency, Particulate Matter Basics, What Are the Harmful Effects of PM, https://www.epa.gov/pm-pollution/particulate-matter-pm-basics#effects.

Beaumont Area Concerns

TCEQ is required to place 0-1 PM_{10} monitors in the Beaumont-Port Arthur area.[122] The Draft AMNP proposes 0 such monitors in the area as part of the plan, rather than electing to place at least 1. A PM_{10} monitor should be located at the Beaumont Mary site or a new near-road monitor located near Interstate-10, as discussed above. As noted in the regulations, '[p]eople moving through downtown areas or living near major roadways or stationary sources, may encounter particle pollution that would be adequately characterized by measurements" at the middle scale. Neighborhood scale monitors can be appropriate for "areas where people commonly live and work for extended periods."[123]

As discussed above, the Charlton-Pollard neighborhood and East Side of Beaumont meet these criteria. Interstate 10 through downtown Beaumont is one of the state's busier roadways and the area has numerous other PM sources including many railroads, the Port of Beaumont, and major industrial facilities. Additionally, the residents of Beaumont's East Side are particularly susceptible and vulnerable to health issues.

Fifth Ward Area Concerns

Similarly, Progressive Fifth Ward is appreciative of TCEQ's recognition of the need for air monitoring in their Fifth Ward community. However, these monitors are only helpful if actually installed. It has been two years since TCEQ announced its intention to install these monitors, and Progressive Fifth Ward wants to see the monitors installed by the end of December 2024 as represented in the 2024 AMNP.

Dyersforest & East Aldine Area Concerns

Given East Aldine and Dyersforest both qualify as at-risk communities and have a disproportionate number of concrete and other aggregate facilities in their communities, these communities request that a FEM be placed in these communities to monitor for PM_{10}.

G. Small Particulate Matter ($PM_{2.5}$)

$PM_{2.5}$ are fine inhalable particles, with diameters that are generally 2.5 micrometers and small. These airborne particles are small enough to travel deeply into the respiratory tract reaching the lungs.[124] $PM_{2.5}$ generally consists of soot, which is generally made up of elemental organic carbon from sources including soil and sources of sulfates, nitrates as well as other ionic

[122] Texas Commission on Environmental Quality, 2024 Draft Air Monitoring Network Plan, at 19.
[123] 40 C.F.R. 58, Appendix D, 4.6(b)(3).
[124] U.S. Environmental Protection Agency, Health and Environmental Effects of Particulate Matter (PM), https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm.

species formed in the atmosphere.[125] Exposure to $PM_{2.5}$ can have adverse health impacts, including: premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and/or increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing.[126] Sources of $PM_{2.5}$ include: unpaved roads, construction sites, smokestacks, fires, concrete batch plants.[127]

On February 7, 2024, EPA strengthened the primary (or health-based) standard National Ambient Air Quality Standards (NAAQS) for $PM_{2.5}$ from 12 micrograms per cubic meter to 9 micrograms per cubic meter.[128] This change reflects the new science available identifying the health harms caused by particle pollution.[129] EPA stated that this strengthened standard will result in "significant public health net benefit that could be as high as "$46 billion in 2032."[130] To develop this final rule, EPA considered "thousands of studies"—including "information available on how particle pollution affects children, older adults, people with asthma, people with heart and other respiratory problems, and communities of color and low socioeconomic status populations."[131] The studies informing EPA's strengthened standard support a causal relationship between long and short term exposures to $PM_{2.5}$ and cardiovascular, respiratory, nervous system effects and cancer.[132]

According to the EPA, Harris County is predicted not to meet the new more stringent $PM_{2.5}$ standards.[133] Because of this predicted failure, it is paramount that overburdened communities have sufficient FEM monitors in place so that the TCEQ and EPA can make the most informed permitting decisions and issue permits with strong controls in place.

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[125] U.S. Environmental Protection Agency, $PM_{2.5}$ Advance Path Forward 2018 Update Final at 9 (2018), https://www.epa.gov/sites/default/files/2018-10/documents/update_2018.plan_.pdf.
[126] U.S. Environmental Protection Agency, Health and Environmental Effects of Particulate Matter (PM), https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm.
[127] U.S. Environmental Protection Agency, Health and Environmental Effects of Particulate Matter (PM), https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm.
[128] U.S. Environmental Protection Agency, Final Reconsideration of the National Ambient Air Quality Standard for Particulate Matter, Final Rule to Strengthen the National Air Quality Health Standard for Particulate Matter Fact Sheet, https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-overview.pdf.
[129] U.S. Environmental Protection Agency, Final Reconsideration of the National Ambient Air Quality Standard for Particulate Matter (PM), https://www.epa.gov/pm-pollution/final-reconsideration-national-ambient-air-quality-standards-particulate-matter-pm.
[130] U.S. Environmental Protection Agency, Final Reconsideration of the National Ambient Air Quality Standard for Particulate Matter, Final Rule to Strengthen the National Air Quality Health Standard for Particulate Matter Fact Sheet, https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-overview.pdf
[131] U.S. Environmental Protection Agency, Final Reconsideration of the National Ambient Air Quality Standard for Particulate Matter, Final Rule to Strengthen the National Air Quality Health Standard for Particulate Matter Fact Sheet, https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-overview.pdf
[132] U.S. Environmental Protection Agency, Final Reconsideration of the National Ambient Air Quality Standard for Particulate Matter, Final Rule to Strengthen the National Air Quality Health Standard for Particulate Matter Fact Sheet, https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-overview.pdf
[133] U.S. Environmental Protection Agency, EPA Projects 52 Counties would not Meet the Strengthened Standard in 2032 (pdf), https://www.epa.gov/system/files/documents/2024-02/projected-county-list-2032-for-web.pdf

Additionally, because of this regulatory change, TCEQ identified monitors in and around Harris County with design values exceeding 9.0 µg/m3.

Figure 52[134]

Southeast Texas Design Values

Counties with Preliminary 2022 $PM_{2.5}$ Annual Design Values Exceeding 9.0 µg/m³					
County	2021 AQS $PM_{2.5}$ Design Value (µg/m³)	Preliminary 2022 $PM_{2.5}$ Design Value (µg/m³)	Preliminary 2022 Design Value Setting Monitor Name	Regulatory Monitors with Preliminary 2022 $PM_{2.5}$ Design Values > 9.0 µg/m³	Regulatory $PM_{2.5}$ Monitors in County
Harris	11.1	12.2	Houston North Wayside	7*	10
Jefferson	8.3	8.3	Port Arthur Memorial School	0	2
Montgomery	NA	9.8	Conroe Relocated	1	1

Notes:
Only monitors that have values in EPA's AQS spreadsheet for 2022 are included.
Data are preliminary, current as of 1/12/2023, and subject to change.
**In addition to Houston North Wayside, monitors in Harris County with preliminary data resulting in a 2022 PM2.5 annual design values that exceeded 9.0 µg/m3 included Houston North Loop, Clinton, Houston East, Houston Aldine, Baytown, and Houston Bayland Park.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY Air Quality Division • Proposed PM NAAQS Revision – Southeast Texas • March 3, 2023

In formulating the new NAAQS for $PM_{2.5}$, the EPA has consistently recognized that populations with demographics similar to the communities represented in these comments are the most at-risk.

- EPA acknowledged that, "the highest concentrations in an area tend to be measured at monitors located in areas where the surrounding population is more likely to have lower education and income levels, and higher percentages of minority populations…the intended purposes of the form of the annual standard . . . may not be adequate to avoid substantially greater exposures in some areas, potentially resulting in disproportioned impacts on these potentially vulnerable subpopulations."[135]

- Noting that the FCAA requires the Administrator to set a standard that "reduces risks sufficiently so as to protect public health, including the health of at-risk populations, with an adequate margin of safety."[136]

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134 Texas Commission on Environmental Quality, Air Quality Division, Southeast Texas Design Values for $PM_{2.5}$ (March, 3 2023), https://www.tceq.texas.gov/downloads/air-quality/sip/pm/designations/naaqs-pm25-2012/pm-naaqs-revision-meeting_houstonsetx_final.pptx, at 12.
135 71 FR 61, 29 (Oct. 17, 2006).
136 78 FR 3086, 3161 (Jan. 15, 2013).

- And, the EPA again acknowledged, "'[t]here is strong evidence demonstrating that black and Hispanic populations, in particular, have higher $PM_{2.5}$ exposures than non-Hispanic white populations' and that 'there is consistent evidence across multiple studies demonstrating an increase in risk for nonwhite populations.'"[137]

- EPA again, noted that "[t]he scientific evidence evaluated . . . indicates that sub-populations at potentially greater risk from $PM_{2.5}$ exposures include: children, lower socioeconomic status . . . populations, minority populations (particularly Black populations), and people with certain preexisting diseases (particularly cardiovascular disease and asthma)."[138]

Notably, this rule change also introduced an environmental justice factor that would be included in the design criteria for communities who may be at an increased risk of adverse health impacts from $PM_{2.5}$ exposure.[139] And, while EPA did not change requirements associated with the number of ***minimally*** required monitors, the new standard for $PM_{2.5}$ will increase the number of minimally required monitors under the existing requirements.[140] Importantly, these rules only govern the minimum number of monitors, Commenters believe additional monitors are necessary to adequately evaluate the air quality in certain at risk communities.

Currently, EPA determines the minimum number of monitors for an area based on population and the expected air quality NAAQS designation. $PM_{2.5}$ monitoring requirements are as follows: one monitor at the site of expected maximum $PM_{2.5}$ concentrations, if the population is over 1 million an additional monitor must be located at a near-road site, and a third monitor will be required in an area of particularly poor air quality.[141] With the more stringent $PM_{2.5}$ standard, the EPA also added a monitoring requirement, that the monitor be placed in an at-risk community as defined above.[142] Commenters request below additional monitoring in certain at risk communities for the extreme risk that $PM_{2.5}$ is posing to community health and well-being.

Fifth Ward Area Concerns

As mentioned above, Progressive Fifth Ward is appreciative of TCEQ's recognition of the need for air monitoring in their Fifth Ward community. However, these monitors are only helpful if actually installed. It has been two years since TCEQ announced its intention to install

[137] 85 FR 82884, 82703 (Dec. 18, 2020).
[138] 88 FR 5558, 5673 (Jan. 27, 2023).
[139] 88 FR 5558, 5673 (Jan. 27, 2023).
[140] 88 FR 5558, 5673 (Jan. 27, 2023); *see also* U.S. Environmental Protection Agency, EPA Air Monitoring for Fine Particulate Pollution ($PM_{2.5}$) Fact Sheet, https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-monitoring-fact-sheet.pdf.
[141] U.S. Environmental Protection Agency, Air Monitoring for Fine Particulate Pollution ($PM_{2.5}$) Fact Sheet, https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-monitoring-fact-sheet.pdf.
[142] U.S. Environmental Protection Agency, Air Monitoring for Fine Particulate Pollution ($PM_{2.5}$) Fact Sheet, https://www.epa.gov/system/files/documents/2024-02/pm-naaqs-monitoring-fact-sheet.pdf.

these monitors, and Progressive Fifth Ward wants to see the monitors installed by the end of December 2024 as represented in the 2024 AMNP.

Dyersforest & East Aldine Area Concerns

Given East Aldine and Dyersforest both qualify as at-risk communities and have a disproportionate number of concrete and other aggregate facilities in their communities, these communities request that a FEM monitor be placed in these communities to monitor for $PM_{2.5}$.

Pasadena and Surrounding Communities Concerns

The City of Pasadena does not currently have any PM monitors within its city limits. The nearest monitors that track either type of PM are the Park Place Monitor ($PM_{2.5}$) and the Clinton Dr. Monitor (PM_{10} and $PM_{2.5}$), both located outside Pasadena's city limits. As previously mentioned, however, Pasadena residents face a high risk of respiratory health issues, including air toxics cancer. Thus, PM monitoring in Pasadena is necessary to protect Pasadena residents' health.

The PM_{10} measurements at the Clinton Dr. Monitor have the highest measured concentrations during the 2016-18 evaluation period.[143] Because this is the only monitor along the Houston Ship Channel that is measuring for PM, CPC is of the opinion that TCEQ can shore up its network by increasing the amount of PM monitors in the area, starting with Pasadena. CPC urges the TCEQ to augment the Clinton Dr., Houston Monroe, Seabrook Friendship, and Houston Deer Park #2 monitors by deploying more monitors capable of tracking both PM_{10} and $PM_{2.5}$. These enhancements can be accomplished by installing monitors in the cities of Pasadena, La Porte, and Galena Park. CPC urges the TCEQ to install these monitors not only along the ship channel, where there is the highest concentration of industry, but also away from the Ship Channel and within residential areas of each of the respective municipalities. CPC also encourages TCEQ to consider the placement of PM monitoring capabilities in the Houston community of Manchester. The monitor currently deployed in Manchester is often not functional with regard to its non-methane organic compounds monitoring capabilities, which is an ongoing issue that merits immediate attention.

[143] Texas Commission on Environmental Quality, 2024 Draft Annual Monitoring Network Plan, 2019, at 16.

Pleasantville Area Concerns from ACTS

Reduction in Filter-Based PM2.5 Measurement at Clinton

In their draft monitoring plan, TCEQ indicates that they will reduce the frequency of filter-based FRM[144] $PM_{2.5}$ measurements from once daily to once every six days at their Clinton Dr. monitoring site. The reduction in FRM measurements will happen in conjunction with the installation of a new continuous FEM instrument at the site.

We oppose the reduction in filter-based measurements at the Clinton site and recommend keeping the FRM measurements at once-daily and increasing the frequency of speciation analysis done at the site. In February of this year, the EPA updated its $PM_{2.5}$ annual NAAQS value from 12 $\mu g/m^3$ to 9 $\mu g/m^3$, a change that will place much of Houston's east end in non-attainment status. Data from the continuous $PM_{2.5}$ non-NAAQS comparable monitor at Clinton showed an annual average of 11.5 $\mu g/m^3$ in 2023, which exceeds the new threshold. In their draft plan, TCEQ did not give a rationale or justification for reducing filter-based sampling at the site, and we have concerns that reducing filter-based sampling while we have evidence that much of Houston will be in violation of new EPA standards handicaps our communities and regulators as we try to advocate for cleaner air and comply with NAAQS requirements, respectively.

Unlike the proposed continuous FEM monitor, filter-based PM samples offer the unique ability to analyze what specific PM components are in the pollution measured. This speciated PM data then allows for a better understanding of the pollution sources contributing most to the pollution burden, which will be key in meeting the new NAAQS standard. Currently TCEQ and the Houston Health Department public speciated analysis of the Clinton FRM data every six days. We recommend that frequency be increased, and that filter-based samples continue to be collected daily at the Clinton site.

Public Citizen Concerns

Even with TCEQ's stated intention to upgrade monitoring capabilities at Clinton Dr., Public Citizen echoes ACTS' concerns about making changes at the Clinton Dr. Monitor. Historically, the readings for fine Particulate Matter at the Clinton Drive monitor have been well above the NAAQS, and the monitor has had some of the highest readings in the region. We are concerned that any change in the monitoring parameters at the Clinton Drive site might exclude

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[144] Federal Reference Method (FRM) and Federal Equivalent Methods (FEM) refer to EPA's formal process for the evaluation of technologies proposed for use as Federal Reference Method (FRM) or Federal Equivalent Method (FEM) monitors that are used for monitoring compliance with the National Ambient Air Quality Standards (NAAQS). FRM and FEM monitors are considered the gold standard for air quality monitoring. *See* EPA, Frequent Questions About Air Sensors, https://www.epa.gov/air-sensor-toolbox/frequent-questions-about-air-sensors#:~:text=EPA%20has%20a%20formal%20process%20for%20the%20evaluation,considered%20the%20gold%20standard%20for%20air%20quality%20monitoring.

its data from those considered for regulatory purposes. Even a small gap in regulatory data could cause the Clinton site to be excluded for NAAQS compliance purposes for three years, until sufficient data had been collected again. This data from the Clinton Dr. Monitor is important to reflect the region's air quality.

The new proposed FRM monitor at Clinton Dr. should be a regulatory monitor. Under applicable EPA guidance, a monitor which is intending to use FRM/FEM/ARM method (40 C.F.R. Part 58 Appendix C), meets the siting requirements (40 C.F.R. Part 58, Appendix E), and meets the QA requirements specified by EPA (40 C.F.R. Part 58, Appendix A) should be considered a regulatory monitor. For regulatory and enforcement purposes, the data obtained from the new FRM monitor should be included with prior data collected at the Clinton Dr. Monitor. There should not be a three-year waiting period for this data from the FRM monitor to become actionable if existing data at the site reveals NAAQS violations for $PM_{2.5}$.

H. Volatile Organic Compounds (VOCs)

VOCs are gases which may adversely affect the health of those exposed to them in the short and long-term. VOCs combine with nitrogen oxides and sunlight to create ground-level ozone and smog; breathing ground-level ozone is harmful for any person, but especially for the elderly, children, and those with health issues like asthma. VOCs also directly cause breathing difficulty and irritation to the respiratory system. Finally, VOCs encompass many harmful toxic or carcinogenic pollutants that are also regulated as HAPs, discussed below.

Hazardous Air Pollutants (HAPs) are known as toxic air pollutants or air toxics which cause or may cause cancer or other serious health effects such as "damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory and other health problems." Examples of HAPs include benzene, perchloroethylene, and methylene chloride. These three chemicals are all volatile organic compounds also known as VOCs. HAPs/VOCs are significant challenges across the communities represented in these comments. VOCs react with nitrogen oxide and can form ozone.[145] Sources of VOCs include car exhaust, gasoline powered lawn equipment, gas stations, industrial coating operations, printing shops, paints, chemical manufacturing, refineries, factories, and metal production.[146]

<u>Pasadena and Surrounding Communities Concerns</u>

As already mentioned, the only air monitor in Pasadena is a VOC monitor. However, as detailed above, the monitor does not ensure adequate VOC monitoring for facilities in Pasadena

[145] U.S. Environmental Protection Agency, Volatile Organic Compound Exemptions, https://www.epa.gov/ground-level-ozone-pollution/volatile-organic-compound-exemptions
[146] U.S. Environmental Protection Agency, Technical Overview of Volatile Organic Compounds, https://www.epa.gov/indoor-air-quality-iaq/technical-overview-volatile-organic-compounds

that are not located near the Pasadena Richey Elementary monitor, including ITC Pasadena. Thus, more VOC monitors in Pasadena are necessary.

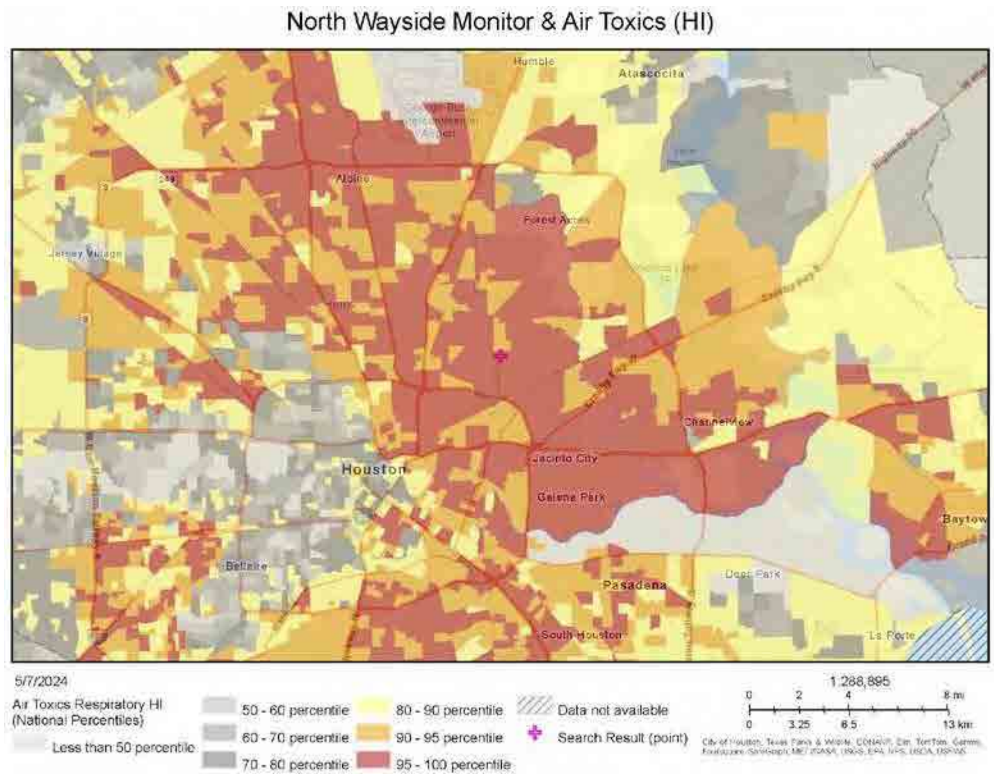
More monitors would help protect fence line communities in and around Pasadena who bear the brunt of exposure to VOC emissions whenever nearby industrial facilities malfunction or weather a disaster. During Hurricane Harvey, for example, elevated benzene readings were measured by the EPA and a private monitoring firm hired by Environmental Defense Fund and Air Alliance Houston, who both did mobile monitoring in the Manchester area in early September 2017 after the nearby Valero Refinery suffered a damaged storage tank during the storm. After reviewing the air monitoring results, the EPA acknowledged Valero had significantly underestimated the amount of benzene that leaked out and had failed to fully report the community's exposure. Placing VOC monitors in the ship channel communities and Pasadena is important to making sure that these readings are captured, and the community and regulatory agencies are fully informed of these impacts.

Northeast Houston Concerns

Local community members on and near Dockal Road are often complaining about strong odors and smells emanating from Gold Star Metals. Gold Star Metals is estimated to be only .12 miles from the North Wayside Monitor.

According to a research project conducted by the University of Texas Health and other partners, metal air pollution was evaluated near CMC Metal Recycling located at 2015 Quitman Street, Houston, TX 77026. This study rated the Hazard Index (HI) created from the metal emissions at this site and found that the HI for developing nasal irritation and upper respiratory distress ranged from 0.4 to 1.6. The HI for developing bronchitis, lung inflammation and difficulty breathing ranged from 0.4 to 1.6. And, generally, the study found: "the risks for diseases other than cancer would decrease if metal air pollution decreases; the risks would increase if metal air pollution increases." Taking this study as true and applying to similarly situated communities in Northeast Houston where there are many more metal facilities, including: Gold Star Metals, Steel Castings, Hydril Premium Connections, Modern Welding Co Houston Plant, and Mauser Corp—these Northeast Neighborhoods are legitimately concerned about their air quality. Below is a map illustrating the Hazard Index in Northeast Houston as demarked by the North Wayside monitor.

Figure 52: Hazard Index in Northeast Houston[147]



Further, metal facilities are located near to the North Wayside Monitor, which has documented 2012 and 2024 NAAQS exceedances for $PM_{2.5}$. Because the North Wayside Monitor does not currently evaluate other concerning pollutants, the Northeast Neighborhoods represented in these comments encourage TCEQ to also collect VOC data at the North Wayside monitor so that the adjacent communities can understand the health impacts of living near facilities with metal emissions. Moreover, recently, TCEQ has collected mobile monitoring data, and this data showed extremely high concentrations of Toluene, a specific VOC, at Mesa and Ley Road near the North Wayside monitor. Where 9 parts per billion (ppbv) is the safe exposure level to VOCs—the mobile monitor picked up 94 ppbv Toluene emissions.[148]

Therefore, the communities in Northeast Houston are requesting that VOC monitoring be added to the North Wayside Monitor.

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[147] U.S. Environmental Protection Agency, EJScreen: Environmental Justice Screening and Mapping Tool, https://www.epa.gov/ejscreen.

[148] "In these neighborhood, the SMART-RA van performed 4 surveys, with the Duvas measuring an individual VOC concentration no greater than 9 ppbv, aside from Toluene which was measured at 94 ppbv at the corner of Mesa and Ley. The SMART-RA van also performed stationary monitoring at one location for approximately 1.25 hours." (Jan. 24, 2023 Email from Marie Stephenson re: RE: FWP2301 20230126 Monitoring Update.

IV. ADDITIONAL AIR MONITORING CONCERNS

A. Ethylene Oxide (EtO)

Ethylene Oxide (EtO) is a colorless gas that is used to make products like antifreeze, textiles, plastics, detergents and adhesives.[149] EtO is also used to sterilize medical and dental equipment as well as herbs, dried vegetables, sesame seeds and walnuts.[150] Acute short-term exposure to EtO may not result in immediate adverse health consequences, but it can cause headache, dizziness, nausea, fatigue, respiratory irritation, vomiting or gastrointestinal distress.[151] Long-term exposure, however, can cause cancer. This exposure may happen by living, working, going to school or daycare near a facility that emits EtO, and various factors increase a person's risk. For example, the distance from the individual to the emitter, and whether the person being exposed is a child or an adult. [152]

Although EtO is a concerning carcinogen, very little monitoring exists, and—in fact—there is no monitoring in Texas. Below is an image of the National Air Toxics Trends Station Network developed to monitor for long-term air toxics, including EtO, as illustrated, there are no National Air Toxics Trends Sites in Texas, currently.

[149] U.S. Environmental Protection Agency, Our Current Understanding of Ethylene Oxide (EtO), https://www.epa.gov/hazardous-air-pollutants-ethylene-oxide/our-current-understanding-ethylene-oxide-eto
[150] U.S. Environmental Protection Agency, Our Current Understanding of Ethylene Oxide (EtO), https://www.epa.gov/hazardous-air-pollutants-ethylene-oxide/our-current-understanding-ethylene-oxide-eto
[151] U.S. Environmental Protection Agency, Our Current Understanding of Ethylene Oxide (EtO), https://www.epa.gov/hazardous-air-pollutants-ethylene-oxide/our-current-understanding-ethylene-oxide-eto
[152] U.S. Environmental Protection Agency, Our Current Understanding of Ethylene Oxide (EtO), https://www.epa.gov/hazardous-air-pollutants-ethylene-oxide/our-current-understanding-ethylene-oxide-eto

Figure 53: National Air Toxics Trends Sites[153]

New Liberty Road Community Development Corporation's Concerns

Despite not being listed on the NAAQS table, Elevated EtO levels pose a grave threat to public health. Three of the most toxic chemicals released include **ethylene oxide**, hexavalent chromium, and nickel, all potent human carcinogens.[154] The EPA's on epidemiological evidence that exposure to ethylene oxide is carcinogenic was shared with TCEQ in 2021. Why? Ethylene oxide is an alkylating agent; it has irritating, sensitizing and narcotic effects. **Chronic exposure to ethylene oxide is also mutagenic.**[155] Ethylene oxide's toxicity is multifaceted, manifesting in irritating, sensitizing, and narcotic effects. Chronic exposure further amplifies its danger, as it is mutagenic and increases the risk of cancer. According to the EPA, even low doses of ethylene

[153] U.S Environmental Protection Agency, National Air Toxics Trends Sites, https://www.epa.gov/amtic/air-toxics-ambient-monitoring

[154] U.S. Environmental Protection Agency, EPA Issues Final Rule to Reduce Toxic Air Pollution from the Synthetic Organic Chemical Manufacturing Industry and the Polymers and Resins Fact Sheet, https://www.epa.gov/system/files/documents/2024-04/chem-sector-final-rule.-overview-fact-sheet_0.pdf, U.S. Environmental Protection Agency, NAAQS Table, https://www.epa.gov/criteria-air-pollutants/naaqs-table; Cheryl Hogue, Chemical and Engineering News, *EPA Affirms ethylene Oxide's health hazards: Agency rejects industry-backed assessment from Texas agency that gas is less toxic*, (Dec. 30, 2022) https://cen.acs.org/environment/pollution/EPA-affirms-ethylene-oxides-health/100/web/2022/12

[155] Wikipedia, Ethylene Oxide, Physiological Effects, https://en.wikipedia.org/wiki/Ethylene_oxide#Physiological_effects

oxide inhalation over a lifetime could significantly elevate an individual's cancer risk. The EPA estimated in 2016 that for low doses, **the inhalation of ethylene oxide for a lifetime could increase an individual's lifetime cancer risk by as much as 3.0 × 10−3 per µg/m3** (without considering that early-life exposures are likely more potent).[156] EPA strengthened the 2020 rule by requiring ethylene oxide emission limits to apply at all times, and not allow exemptions for plant malfunctions that cause releases to spike. However, more proactive measures are imperative. We continue to urge both TCEQ and EPA to require facilities to monitor ethylene oxide emissions at their fence lines and submit real-time reporting of release incidents safeguarding neighboring communities from this insidious threat.[157]

V. REQUESTED RELIEF

1. **NOx (Nitrogen Dioxide):**
    a. Harris County: Add near-road NO_2 monitoring along Interstate 45 north of Beltway 8.
    b. Jefferson County: Add NO_2 monitoring in central Beaumont near Interstate 10.
2. **SO_2 (Sulfur Dioxide):**
    a. Jefferson County: Review and properly adjust placement of DRR-required SO_2 monitor near Oxbow Calcining facility in Port Arthur.
    b. Harris County: Add SO_2 monitor in Pasadena area.
3. **O_3 (Ozone):**
    a. Brazoria County: Add O_3 capabilities back to the Clute monitoring site.
    b. Harris County: Add ozone monitor in Pasadena area.
4. **Pb (Lead):**
    a. Harris County: Evaluate lead monitoring needs for Fifth Ward community.
5. **CO (Carbon Monoxide):**
    a. Harris County: Add co-located CO monitor at new near-road NO_2 monitor along Interstate 45 north of Beltway 8.
6. **Particulate Matter:**
    a. Harris County: Commit to installing the new $PM_{2.5}$ and PM_{10} monitors in Fifth Ward and Pleasantville Area before December 31, 2024.
    b. Harris County: Install a monitor that meets Federally Equivalent Method monitoring standards in the East Aldine / Dyersforest area in an at-risk community to evaluate community concerns with concrete facilities.

[156] Wikipedia, Ethylene Oxide, Physiological Effects, https://en.wikipedia.org/wiki/Ethylene_oxide#Physiological_effects.
[157] Katie Watkins, Houston Public Media, Report: Houston Has 10 Of The Most Toxic Industrial Polluters In The U.S. (February 26, 2020), https://www.houstonpublicmedia.org/articles/news/energy-environment/2020/02/26/361978/report-houston-has-10-of-the-most-toxic-industrial-polluters-in-the-u-s/.

c. Harris County: At the Clinton Drive monitor, increase frequency of filter-based FRM $PM_{2.5}$ monitoring and speciation analysis, and continue collecting filter-based samples daily.

7. **VOC (Volatile Organic Compounds):**
   a. Harris County: Commit to installing the new VOC monitor at Pleasantville Elementary before December 31, 2024.
   b. Harris County: Commit to adding VOC monitoring to the North Wayside Monitor in Settegast / East Houston.
   c. Harris County: Commit to installing more VOC monitors in Pasadena and in the Houston Ship Channel communities like Manchester.
8. **Non-Criteria Pollutants:**
   a. **Ethylene Oxide (EtO) Monitoring in Harris County:**
      i. Deploy a EtO monitor that meets Federally Equivalent Method monitoring standards in the Harris County region.
      ii. Require facilities to monitor ethylene oxide emissions at their fence lines and submit real-time reporting of release incidents safeguarding neighboring communities from this insidious threat.

VI. CONCLUSION

For these reasons, LSLA, on behalf of its twelve group clients participating in these comments, and the other commenters undersigned below, hope TCEQ will reflect these comments in its final 2024 air monitoring network plan and would appreciate a complete response from TCEQ in response to the comments and concerns raised in this letter. Please contact the undersigned counsel if you have any questions or need clarification regarding the comments contained herein.

Respectfully submitted,

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COALITION OF COMMUNITY ORGANIZATIONS

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