



Public Information Meeting: Particulate Matter (PM) Standard Revision

June 26, 2024 – Houston Area

Preview

- Fine Particulate Matter (PM_{2.5}) Defined
- PM National Ambient Air Quality Standards (NAAQS)
- NAAQS Compliance and PM_{2.5} Design Value Calculation
- Potentially Affected Counties and Monitors
- Nonattainment Designation Process
- Permitting Impact

PM_{2.5} Defined

- PM_{2.5} – particles with diameters generally 2.5 micrometers and smaller
 - Smoke
 - Saharan Dust
 - Unpaved Roads
 - Construction Sites
 - Smokestacks
 - Chemical Reactions

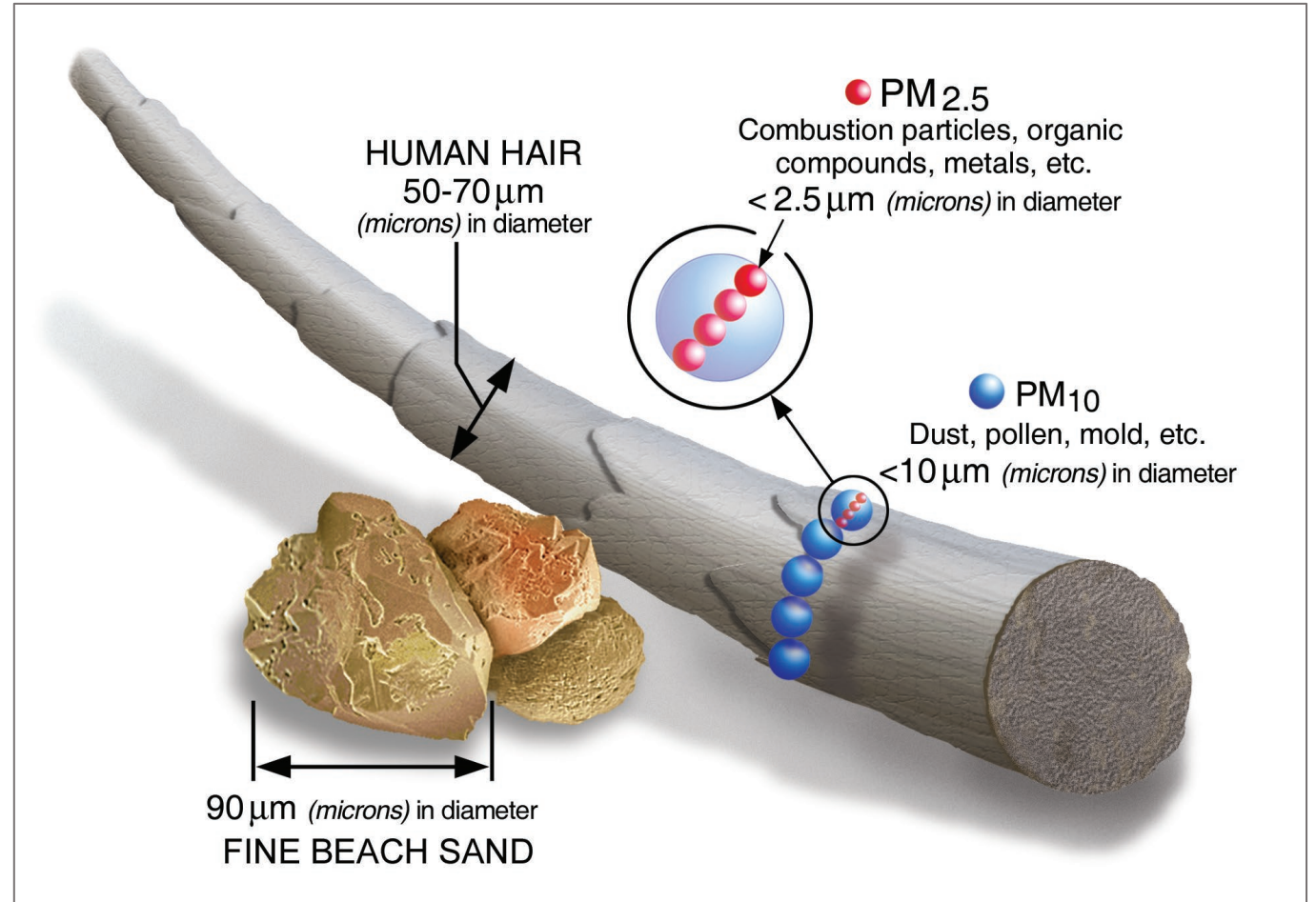


Image Courtesy of US EPA

Sources of Particulate Matter

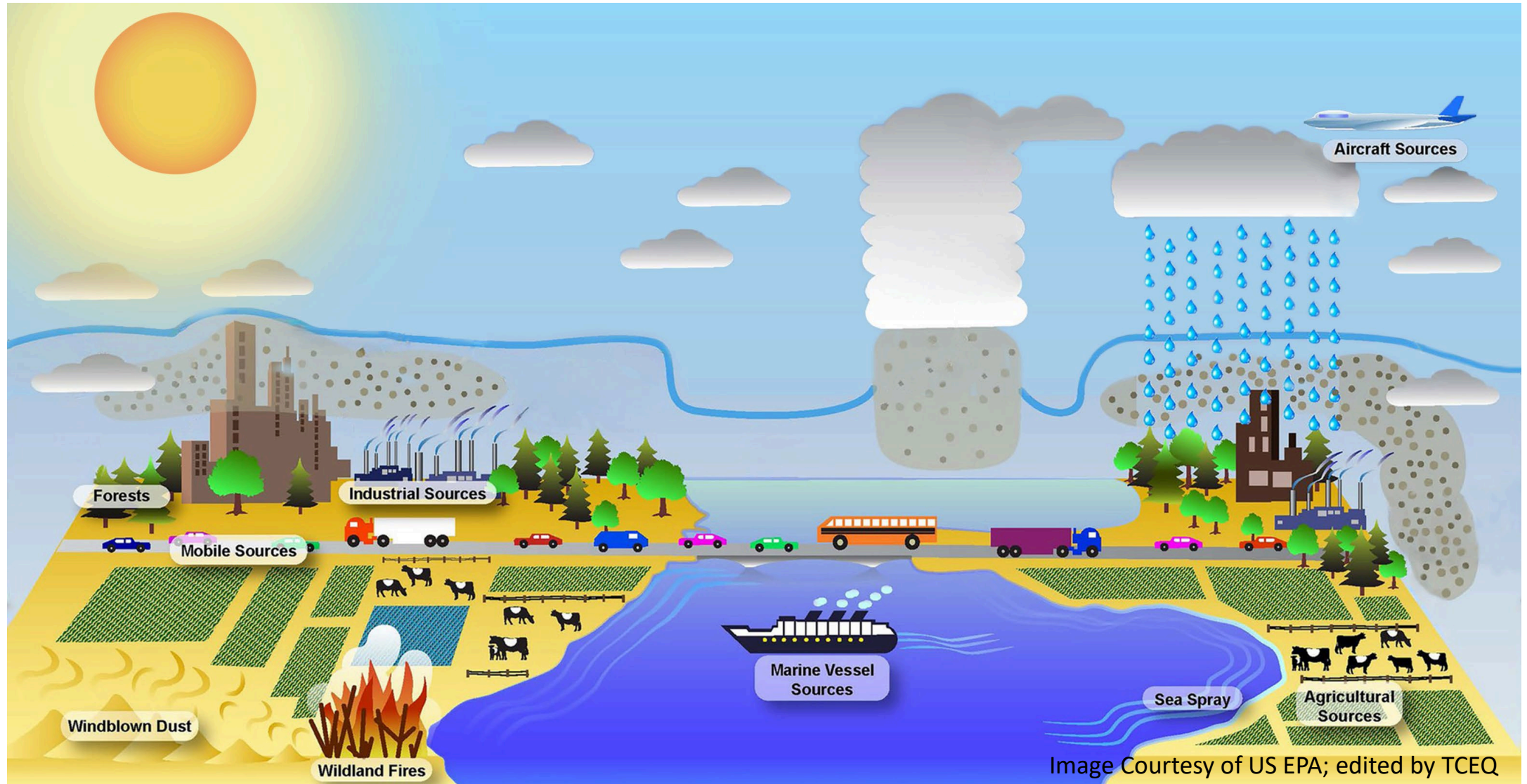


Image Courtesy of US EPA; edited by TCEQ



2012 PM NAAQS

- 2012 PM_{2.5} NAAQS
 - Primary Annual Standard: 12.0 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)
 - Secondary Annual Standard: 15.0 $\mu\text{g}/\text{m}^3$
 - Primary and Secondary 24-Hour Standard: 35 $\mu\text{g}/\text{m}^3$
- 2012 PM₁₀ NAAQS
 - Primary and Secondary Standard: 150 $\mu\text{g}/\text{m}^3$

2024 PM_{2.5} NAAQS Revision

- On February 7, 2024, the U.S. Environmental Protection Agency (EPA) took final action on the reconsideration of the PM_{2.5} NAAQS.
 - Lowered the primary annual standard from 12.0 to 9.0 µg/m³.
 - Retained the secondary annual standard of 15.0 µg/m³.
 - Retained the 24-hour standard of 35 µg/m³.
- The new 2024 primary annual PM_{2.5} standard became effective May 6, 2024.

NAAQS Compliance

- A design value (DV) is a statistic used to summarize air quality data for an area to determine compliance.
- Design values must be greater than the NAAQS for an area to exceed the standard.
- An area that monitors over the NAAQS is not automatically designated as nonattainment.
- The area must go through EPA's designation process to determine regulatory compliance.

PM_{2.5} Annual Design Value Calculation

1. Monitor A has three years of complete data, find the mean of the 24-Hr samples per quarter:

	2019 ($\mu\text{g}/\text{m}^3$)	2020 ($\mu\text{g}/\text{m}^3$)	2021 ($\mu\text{g}/\text{m}^3$)
Quarter 1	11.12	10.3	8.95
Quarter 2	15.6	11.13	12.61
Quarter 3	9.46	10.51	12.4
Quarter 4	10.1	8.45	5.82

2. Find the mean for each year:

$$\frac{8.95 + 12.61 + 12.4 + 5.82}{4} = 9.945 \mu\text{g}/\text{m}^3$$

	2019 ($\mu\text{g}/\text{m}^3$)	2020 ($\mu\text{g}/\text{m}^3$)	2021 ($\mu\text{g}/\text{m}^3$)
Annual Mean	11.57	10.0975	9.945

3. Find the 3 year average:

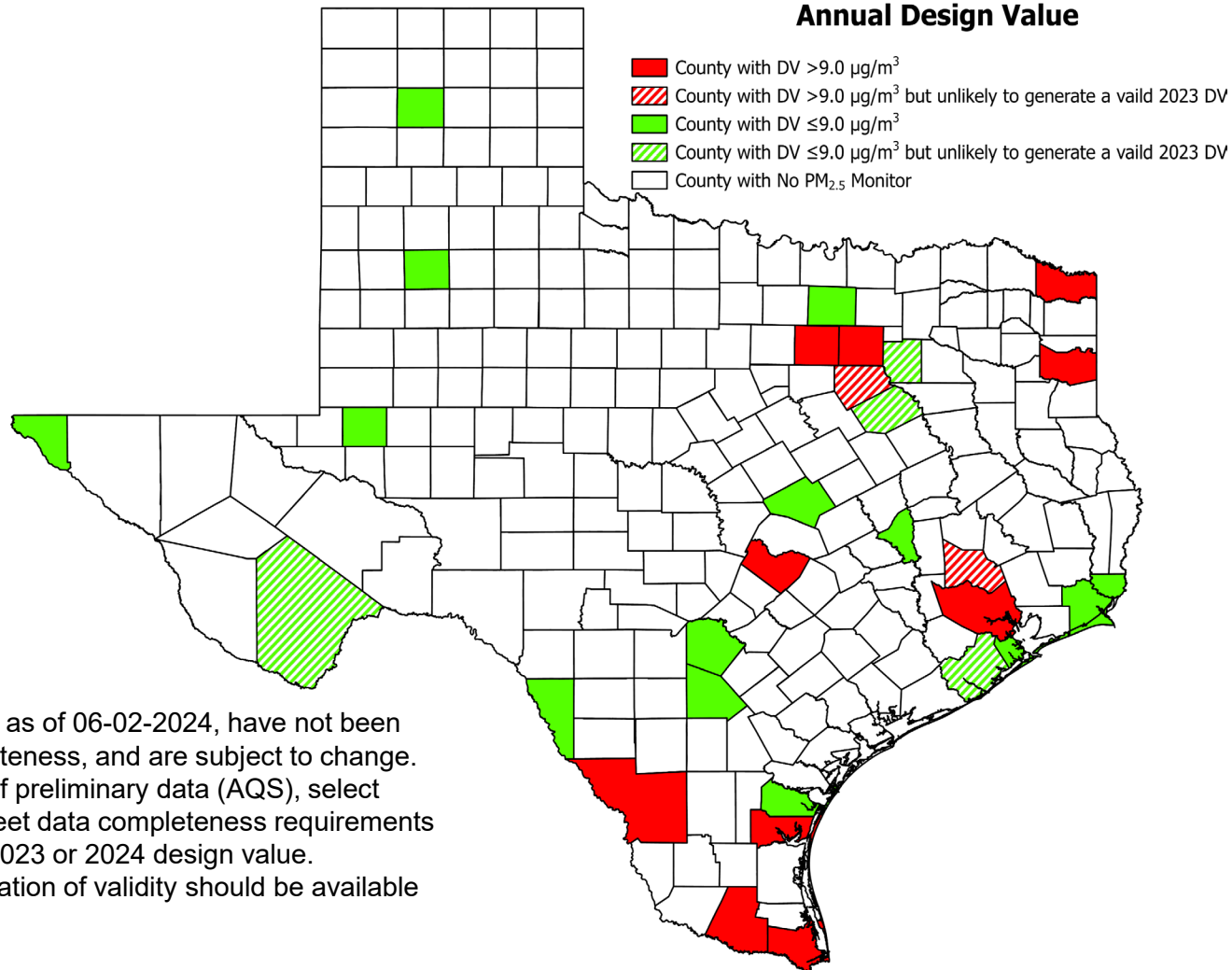
$$\frac{11.57 + 10.0975 + 9.945}{3} = 10.5375 \mu\text{g}/\text{m}^3$$

4. Round to 1 decimal place:

$$10.5375 \mu\text{g}/\text{m}^3 = 10.5 \mu\text{g}/\text{m}^3$$

This is the hypothetical 2021 annual PM_{2.5} design value.

Potentially Affected Counties



Notes:

- Data are preliminary as of 06-02-2024, have not been screened for completeness, and are subject to change.
- Based on a review of preliminary data (AQS), select monitors may not meet data completeness requirements to generate a valid 2023 or 2024 design value.
- The formal determination of validity should be available by June of 2024.

County	Preliminary 2023 Annual DV ($\mu\text{g}/\text{m}^3$)
Harris	12.5
Cameron	11.0
Bowie	10.3
Montgomery	10.0*
Dallas	9.9
Kleberg	9.9
Hidalgo	9.7
Webb	9.7
Tarrant	9.6
Travis	9.6
Harrison	9.5
Ellis	9.2**
Atascosa	9.0
El Paso	9.0
Bexar	8.9
Jefferson	8.8
Navarro	8.7**
Nueces	8.4
Brazoria	8.3**
Galveston	8.3
Orange	8.3
Kaufman	8.1*
Brazos	8.0
Maverick	7.9
Denton	7.7
Bell	7.4
Ector	7.3
Brewster	6.2*
Potter	6.0
Lubbock	5.7

*unlikely to generate a valid 2023 DV but may generate a valid 2024 DV

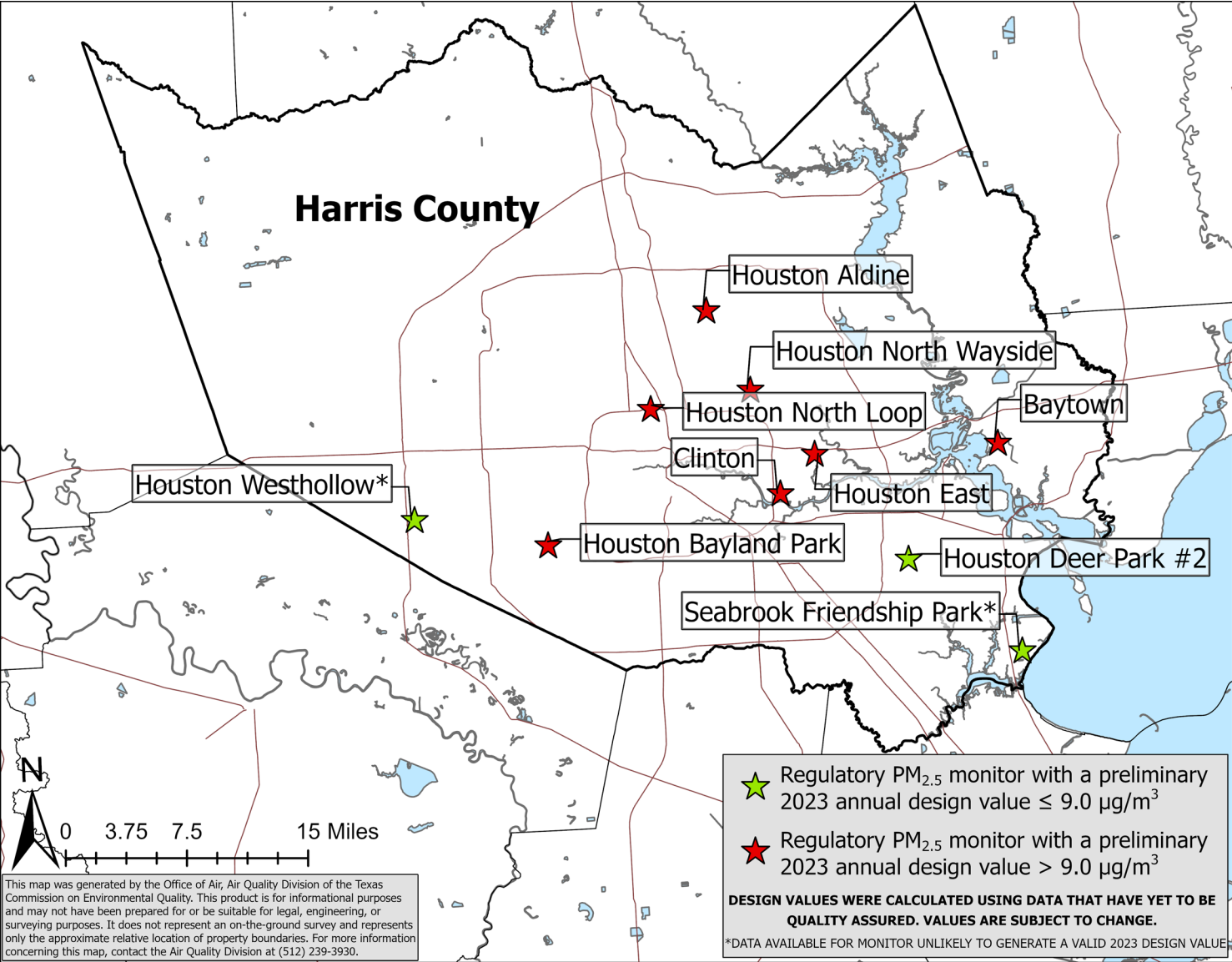
**unlikely to generate a valid 2023 or 2024 DV



Harris County Monitors Map

Harris County Design Values	
Preliminary 2023 Design Value Setting Monitor	Houston North Wayside
2022 Annual PM _{2.5} Design Value (µg/m³)	11.4
Preliminary 2023 Annual PM _{2.5} Design Value (µg/m³)	12.5

Note: The 2022 annual PM_{2.5} design value setting monitor was Houston North Loop.

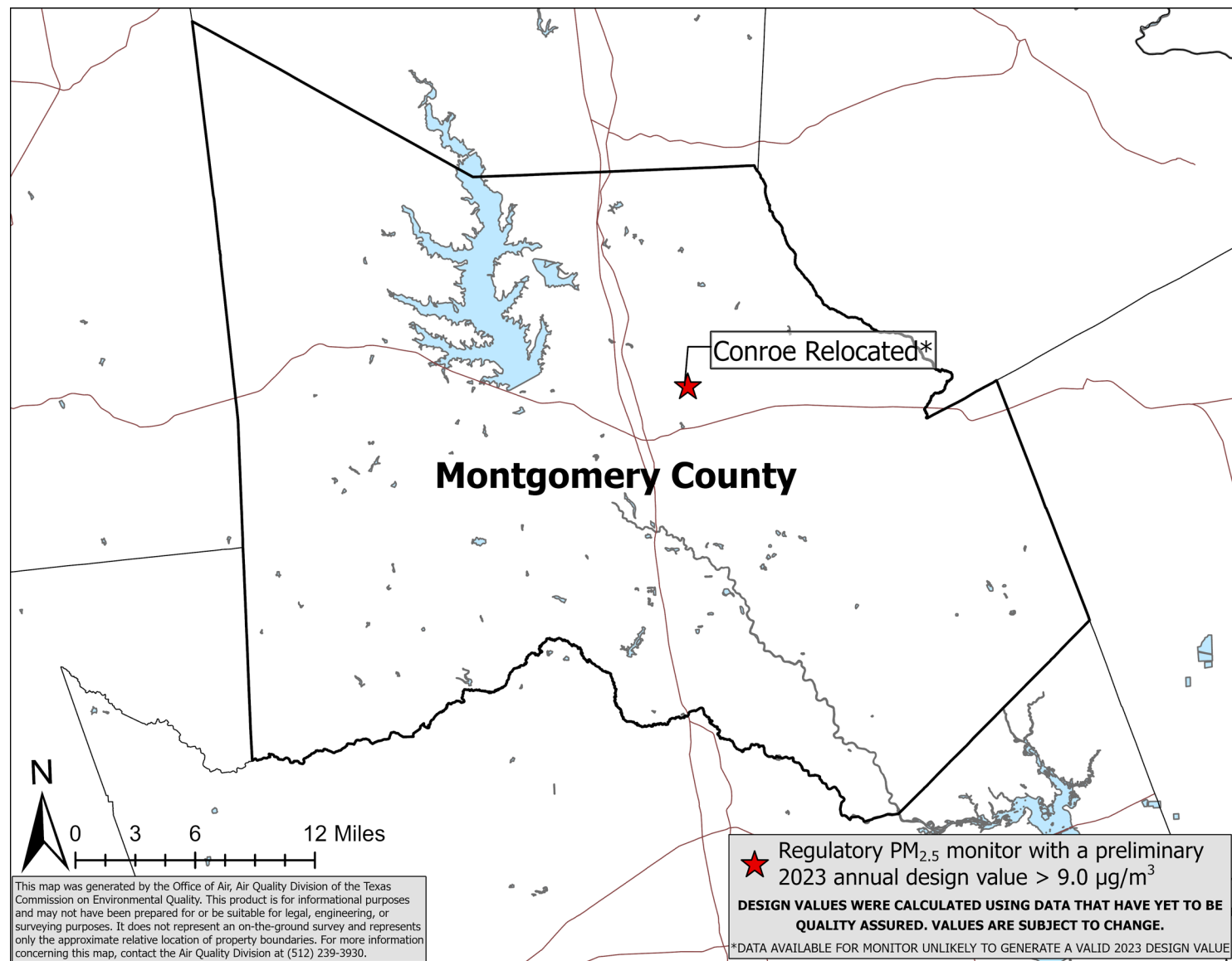


Montgomery County Monitor Map

Montgomery County Design Values

Preliminary 2023 Design Value Setting Monitor	Conroe Relocated
2022 Annual PM_{2.5} Design Value (µg/m³)	9.8*
Preliminary 2023 Annual PM_{2.5} Design Value (µg/m³)	10.0*

*Data available for monitor unlikely to generate a valid DV



Exceptional Events (EE)

- EE are unusual or natural occurrences (such as wildfires, certain prescribed fires, high dust events, etc.) that can affect air quality, and are not reasonably controllable or preventable. These events are either natural events or caused by human activity unlikely to recur at a particular location.
- Air agencies can request exclusion of data influenced by EE from use in regulatory decisions, such as initial area designations of a revised NAAQS if the data meet the criteria for exclusion, as specified in 2016 Exceptional Events Rule.

Important EE deadlines

- Initial notice to EPA of EE demonstration submittals for 2022 and 2023 dates: January 1, 2025.
- Submittal of EE demonstrations for 2022 and 2023 dates: February 7, 2025.
- Initial notice and submittal of EE demonstrations for 2024 dates to EPA: September 30, 2025.

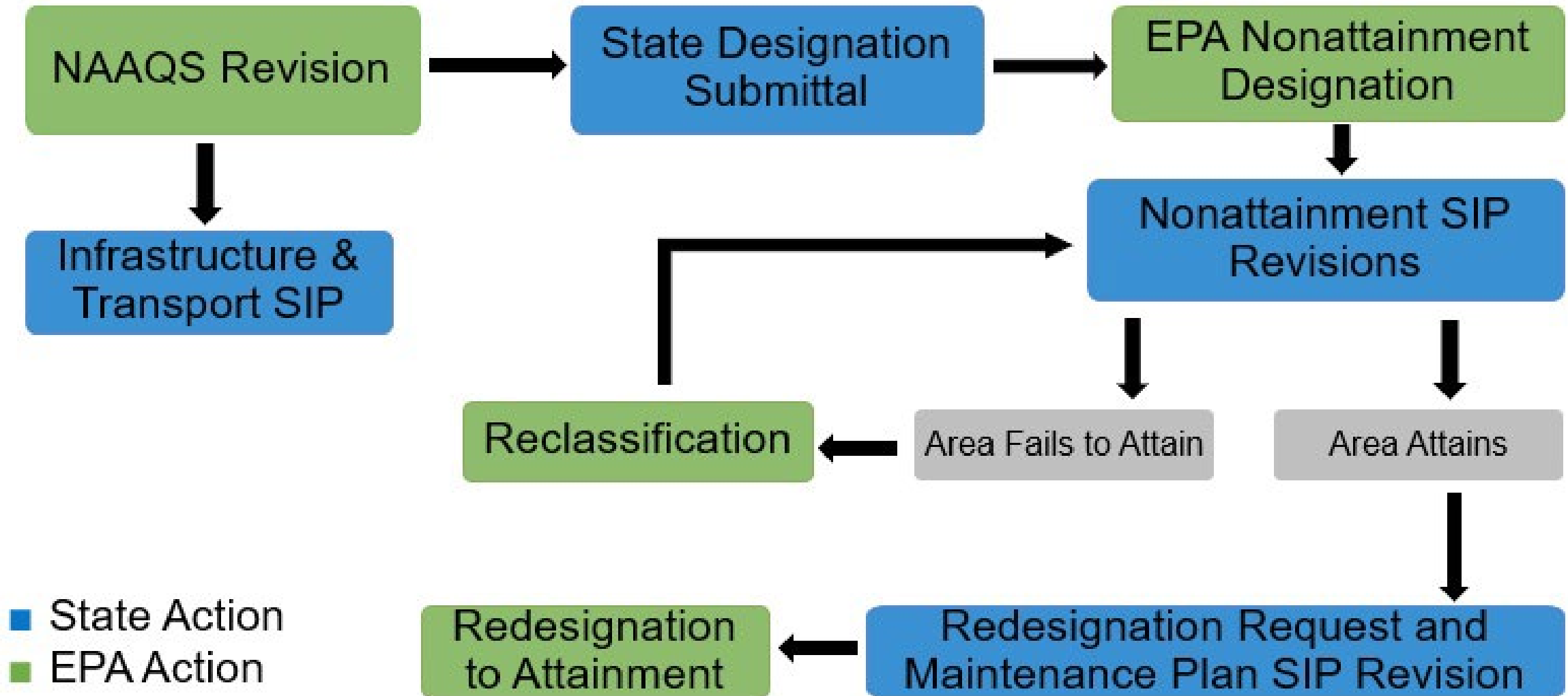
State Designations Submittal

- EPA sets a new or revised NAAQS.
- State designations submitted to EPA one year after promulgation of the revised NAAQS.
 - *Attainment*: the area meets the NAAQS
 - *Nonattainment*: the area does not meet the NAAQS
 - *Unclassifiable*: the area cannot be classified based on available information
- State designations submittal to be based on 2021 through 2023 monitoring data.

Final Designations

- EPA will consider initial state designations and exceptional events submittals in making final area designations.
- Final designations to be based on 2022 through 2024 monitoring data.
- 120-Day Letter
 - EPA will notify states concerning intended modifications to their state designations 120 days prior to final designations.
 - States will have 60 days to respond and provide additional information.
 - EPA will also provide an opportunity for public comment prior to final designations.

Designation and SIP Revision Cycle



Potential PM_{2.5} NAAQS Implementation Timeline

Date	Event
May 6, 2024	PM _{2.5} NAAQS revision effective
February 7, 2025	State designations due to EPA
October 9, 2025	120-day Letter from EPA to Governor
Early 2026	Final designations effective
February 7, 2027	Infrastructure and Transport SIPs due
September 2027	Nonattainment area SIPs due
December 2032	Attainment date

Nonattainment Area Requirements

- Moderate PM nonattainment area SIP requirements:
 - Nonattainment new source review permitting requirements; and
 - SIP revision due 18 months after initial designation.
- Reclassification to serious nonattainment if area fails to attain by the applicable moderate attainment date.
- EPA approval of redesignation request and maintenance plan SIP revision required to remove the nonattainment designation once area attains.

SIP Requirements for Nonattainment Areas

- Emissions Inventory
- Demonstration of Attainment
- Reasonable Further Progress
- Contingency Measures
- Transportation & General Conformity

Determining Conformity of Federal Actions to State or Federal Implementation Plans

- Transportation Conformity
 - Applies to federal actions concerning approval of transportation plans, programs, and projects by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA).
 - Conformity determination is required within 12 months of the effective date of a nonattainment designation.
 - Hot-spot analysis will be required for qualifying FHWA/FTA projects to demonstrate no localized PM_{2.5} violations.

Determining Conformity of Federal Actions to State or Federal Implementation Plans

- General Conformity
 - Applies to all federal actions not subject to transportation conformity or otherwise exempted (rulemaking, *de minimis*, etc.).
 - Conformity determinations for federal actions are required after 12 months from the effective date of a nonattainment designation.

Permitting Implications

- Two phases to be reviewed:
 - Pre-designation: Evaluate changes as prevention of significant deterioration (PSD)
 - Post-designation: Evaluate changes as Nonattainment
- Permitting thresholds:
 - Major Source
 - Moderate – 100 tons per year (tpy) PM_{2.5}, sulfur dioxide (SO₂), nitrogen oxides (NO_x), volatile organic compounds (VOC), and ammonia
 - Major Source Modification
 - 10 tpy PM_{2.5} and 40 tpy SO₂, NO_x, VOC
 - Initial classification will be moderate for all areas designated nonattainment.

Next Steps

- Informal public comment period on potential area designations: **July to August 2024.**
- Commissioner's Agenda meeting to consider TCEQ's recommendation to Governor Abbott for state designations submittal: **December 2024.**
- State designation submittal due to EPA: **February 7, 2025.**
- To join the SIP/Air Quality update e-mail list go to:
www.tceq.texas.gov/airquality/sip/sipcontact.html

Contact Information

- Vanessa De Arman, State Implementation Plan Team
 - vanessa.dearman@tceq.texas.gov
- Laramie Mahan, Air Modeling and Data Analysis
 - laramie.mahan@tceq.texas.gov
- Rick Goertz, Air Permits Division
 - richard.goertz@tceq.texas.gov