



National Ambient Air Quality Standards (NAAQS) and Texas Air Quality Update

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Environmental Trade Fair 2025

Today's Topics

- NAAQS
- Criteria Pollutant Trends in Texas
- Status of Air Quality Planning Efforts

NAAQS

- Air quality standards are established by the U.S. Environmental Protection Agency (EPA), as required by the federal Clean Air Act (FCAA).
- EPA sets these health-based standards for clean air, called NAAQS, for six criteria air pollutants:
 - Ground-Level Ozone (O_3);
 - Particulate Matter (PM);
 - Nitrogen Dioxide (NO_2);
 - Sulfur Dioxide (SO_2);
 - Carbon Monoxide (CO); and
 - Lead (Pb).

Current Primary NAAQS

Pollutant	Level	Averaging Time
Ozone (O ₃)	0.070 parts per million (ppm)*	Eight-Hour
Particulate Matter (PM _{2.5})	9.0 micro grams per cubic meter (µg/m ³)	Annual (Arithmetic Mean)
	35 µg/m ³	Twenty-Four-Hour
Particulate Matter (PM ₁₀)	150 µg/m ³	Twenty-Four-Hour
Nitrogen Dioxide (NO ₂)	53 parts per billion (ppb)	Annual (Arithmetic Mean)
	100 ppb	One-Hour
Sulfur Dioxide (SO ₂)	75 ppb	One-Hour
Carbon Monoxide (CO)	9.0 ppm	Eight-Hour
	35 ppm	One-Hour
Lead (Pb)	0.15 µg/m ³	Rolling Three-Month Average

* In 1997, EPA revoked the one-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) and in 2015 the EPA revoked the 1997 eight-hour ozone NAAQS (0.08 ppm); however, some areas have continued obligations under those standards (“anti-backsliding”). The 2008 eight-hour ozone NAAQS of 0.075 ppm remains in effect for designated areas.

Current Secondary NAAQS

- Secondary standards are set to provide public welfare protection, including protection against decreased visibility, damage to animals, crops, buildings, etc.
- Secondary NAAQS are the same as the primary NAAQS for all pollutants except PM_{2.5} (secondary NAAQS of 15.0 µg/m³, annually) and SO₂ (secondary NAAQS of 10 ppb).*
 - *On December 11, 2024, EPA revised the secondary SO₂ NAAQS changing the standard from a three-hour average of **500 ppb (0.5 ppm)** to **10 ppb**, averaged over three years.
 - The revised secondary annual SO₂ standard became effective January 25, 2025.

Determining NAAQS Compliance

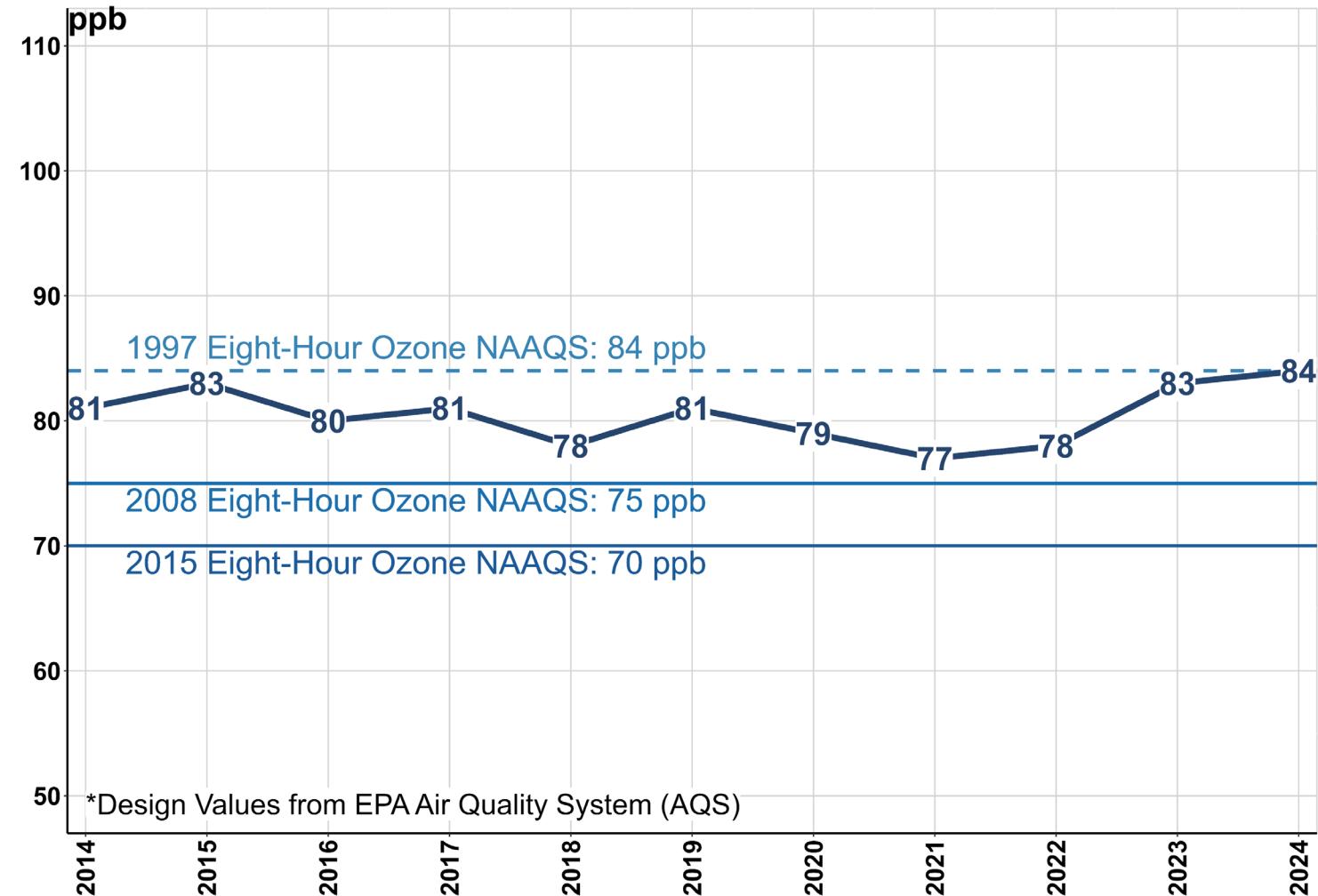
- A design value is a statistic that is used to summarize the air quality data for an area to determine compliance.
- Each criteria pollutant has a different form and level for its design value.
- Design values are calculated at each monitor.
- An areawide design value represents the maximum design value from all monitors within that area.
- 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.
- For more information on design values visit the [EPA's design value](https://www.epa.gov/air-trends/air-quality-design-values) webpage (<https://www.epa.gov/air-trends/air-quality-design-values>).

Criteria Pollutant Design Value Trends in Texas



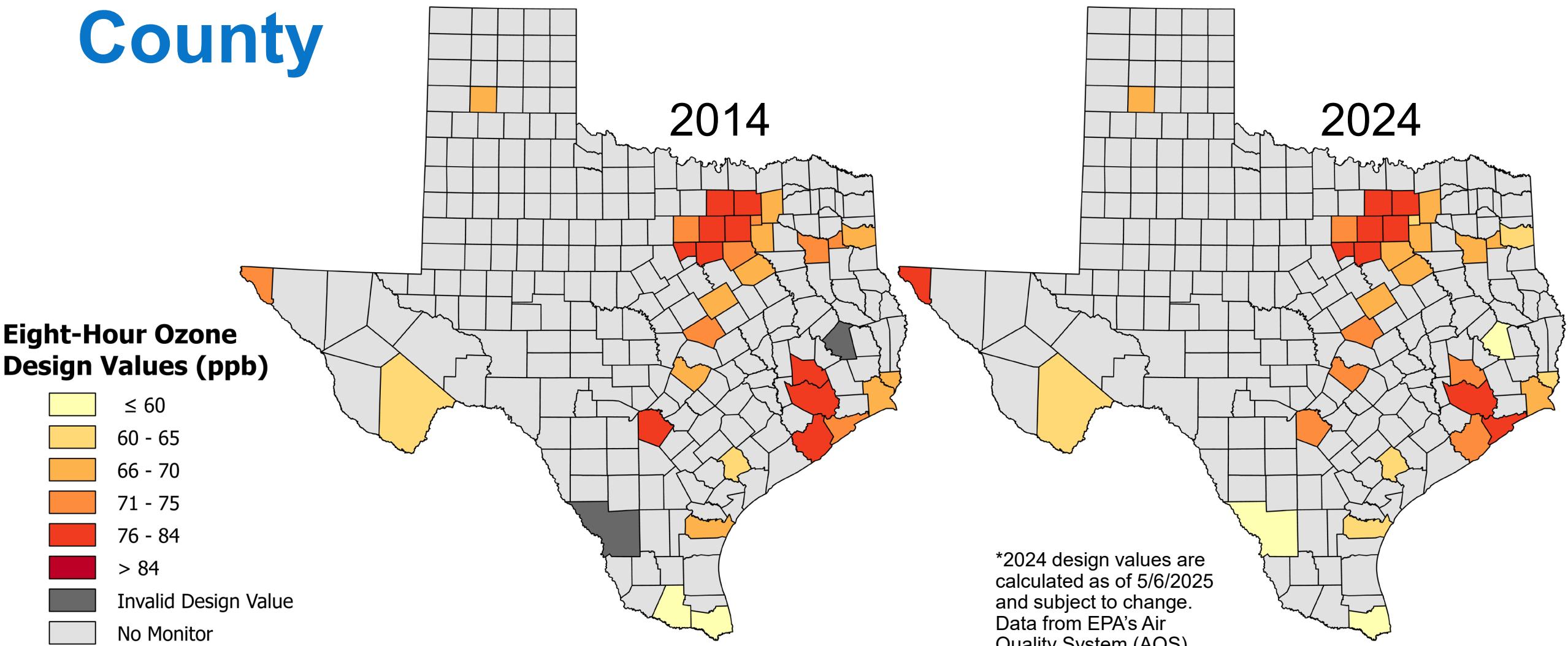
Eight-Hour Ozone Design Values in Texas

- Eight-hour ozone design values are the fourth-highest daily maximum eight-hour average ozone concentration, averaged over three years.
- Eight-hour ozone design values in Texas increased 4% from 2014 through 2024.
- Note: The 1997 standard was revoked.



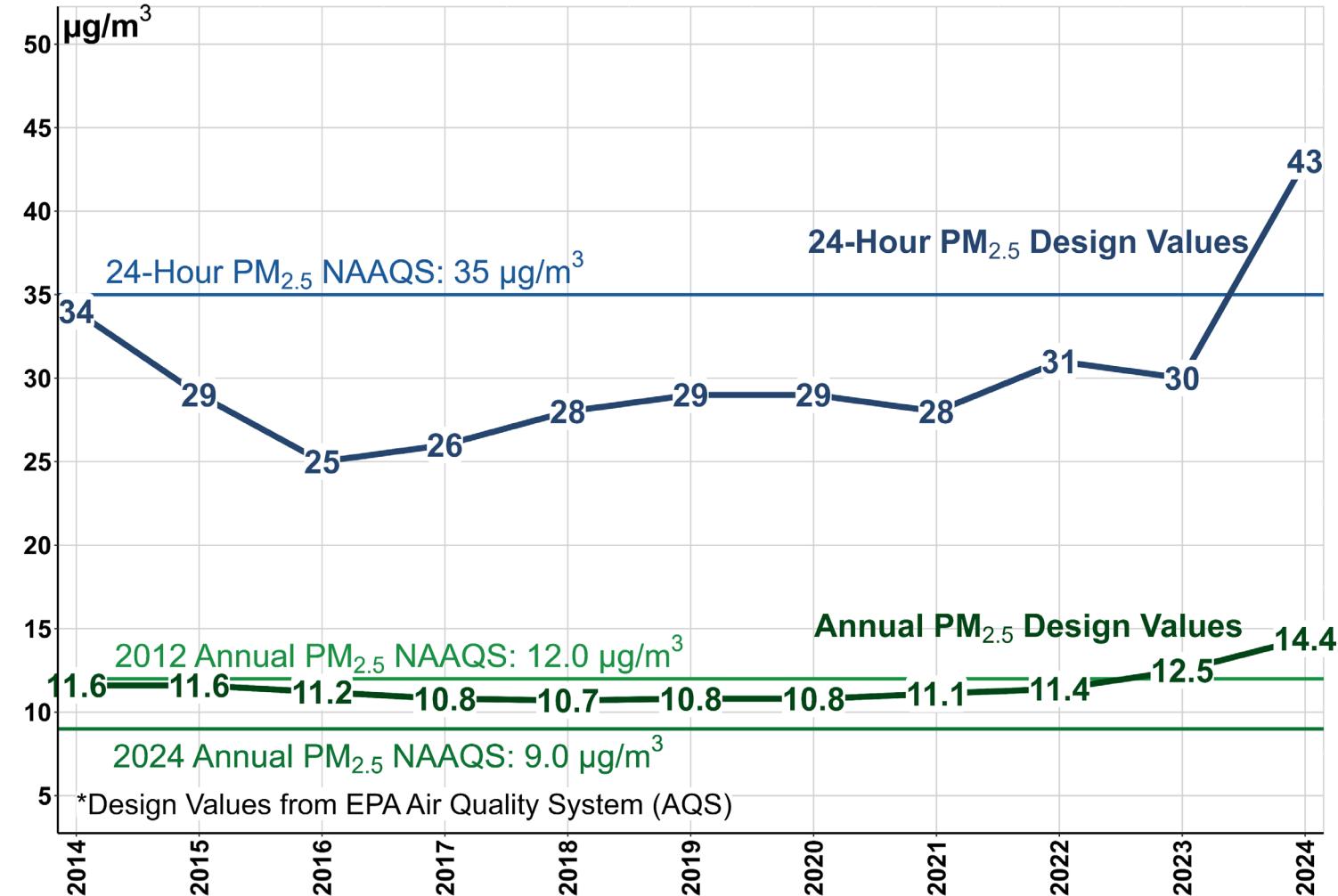
Note: The eight-hour ozone design value is the maximum design value from all Texas monitors for each year. Data for 2024 are current as of 5/6/2025 and subject to change.

Eight-Hour Ozone Design Values by County



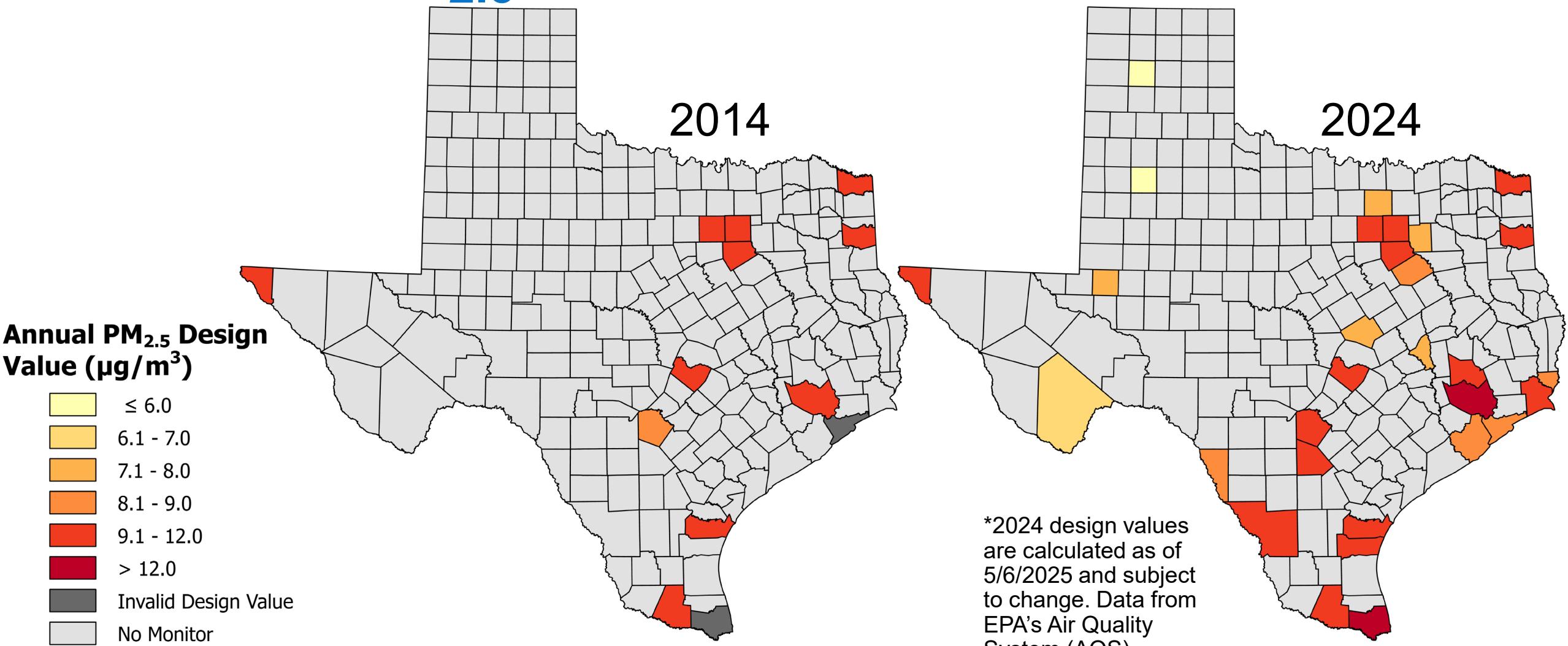
PM_{2.5} Design Values in Texas

- Annual PM_{2.5} design values are the weighted annual average PM_{2.5} concentration, averaged over three years.
- 24-hour PM_{2.5} design values are the 98th percentile PM_{2.5} concentration, averaged over three years.
- Annual PM_{2.5} design values in Texas increased 24% and 24-hour PM_{2.5} design values increased 26% from 2014 through 2024.

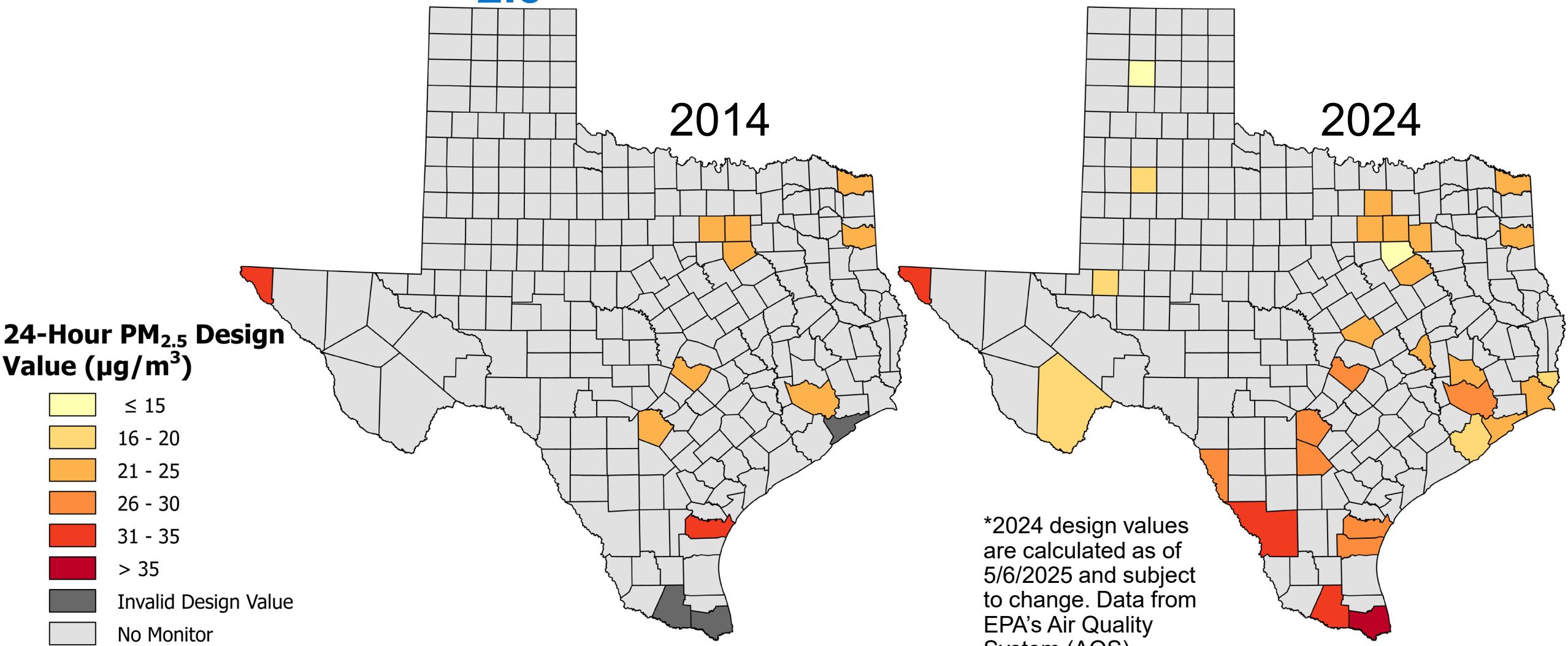


Note: The PM_{2.5} design values are the maximum design values from all Texas monitors for each year. Data for 2024 are current as of 5/6/2025 and subject to change.

Annual PM_{2.5} Design Values by County



24-Hour PM_{2.5} Design Values by County



TEXAS COMMISSION ON
ENVIRONMENTAL QUALITY

2024 Primary Annual PM_{2.5} NAAQS

- On February 7, 2024, EPA revised PM_{2.5} NAAQS:
 - Lowered the primary annual standard to 9.0 $\mu\text{g}/\text{m}^3$
 - Retained the 24-hour standard of 35 $\mu\text{g}/\text{m}^3$
 - The standard became effective May 6, 2024.
- Preliminary 2024 design values:
 - 2024 PM_{2.5} Annual Standard: **16 counties** have monitor(s) that are likely to generate a valid design value* above 9.0 $\mu\text{g}/\text{m}^3$.
 - 2012 PM_{2.5} Annual Standard: **two counties** (Cameron and Harris) have monitors with design values above 12.0 $\mu\text{g}/\text{m}^3$.*

*Based on preliminary 2024 data as of 5/6/2025; subject to change.

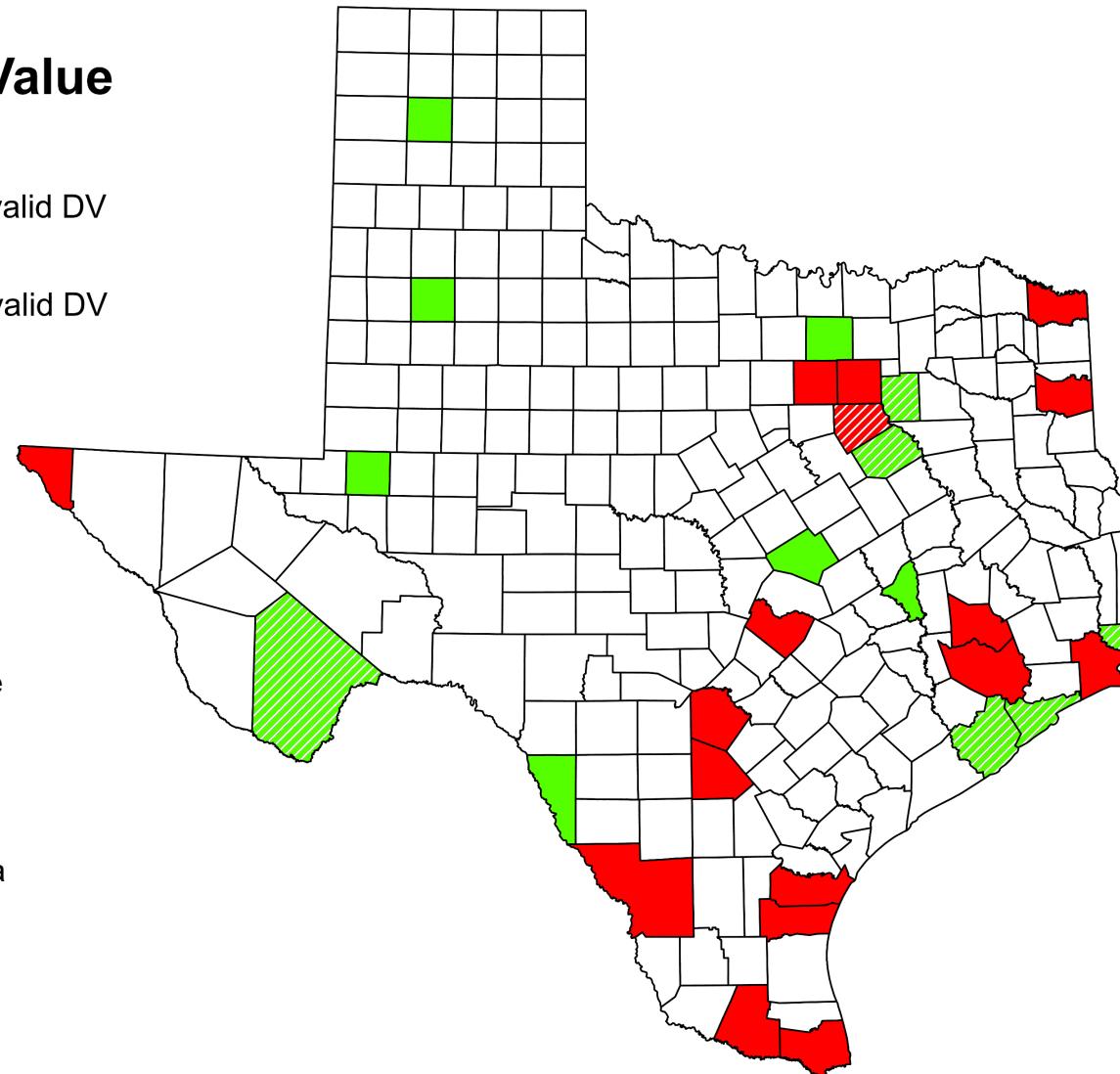
Potentially Affected Counties

Annual PM_{2.5} Design Value

- █ DV ≤ 9.0 µg/m³
- █ DV ≤ 9.0 µg/m³ unlikely to set valid DV
- █ DV > 9.0 µg/m³
- █ DV > 9.0 µg/m³ unlikely to set valid DV
- No PM_{2.5} Monitor

Notes:

- Data are preliminary as of 5/6/2025, have not been certified for completeness, and are subject to change.
- **Based on a review of preliminary data, select monitors may not meet data completeness requirements to generate a valid 2024 design value.
- The formal determination of validity should be available by June of 2025.



County	2024 Preliminary Annual DV (µg/m ³)
Cameron	14.4
Harris	12.7
Montgomery	10.7
Hidalgo	10.3
Dallas	10.1
Bowie	10.0
Travis	10.0
Kleberg	9.8
Jefferson	9.7
Webb	9.7
Ellis**	9.6
El Paso	9.6
Atascosa	9.5
Harrison	9.5
Tarrant	9.4
Nueces	9.3
Bexar	9.2
Navarro**	8.6
Orange**	8.6
Galveston**	8.3
Brazoria**	8.2
Maverick	8.2
Brazos	8.0
Denton	7.8
Kaufman	7.8
Bell	7.4
Ector	7.2
Brewster**	6.6
Potter**	5.8
Lubbock	5.2

Coarse Particulate Matter (PM₁₀) Expected Exceedances in Texas

- 24-hour PM₁₀ design values are the number of expected exceedances of 150 µg/m³, averaged over three years.

Notes:

- 2024 expected exceedances are calculated as of 5/6/2025 and are subject to change.
- A 'NV' indicates the DV for that year did not meet EPA's data completeness requirements and is therefore invalid.
- Blank cells indicate no active regulatory PM10 monitors in the county.
- Data from EPA's Air Quality System (AQS).
- CBSA = Core-Based Statistical Area
- CSA = Combined Statistical Area

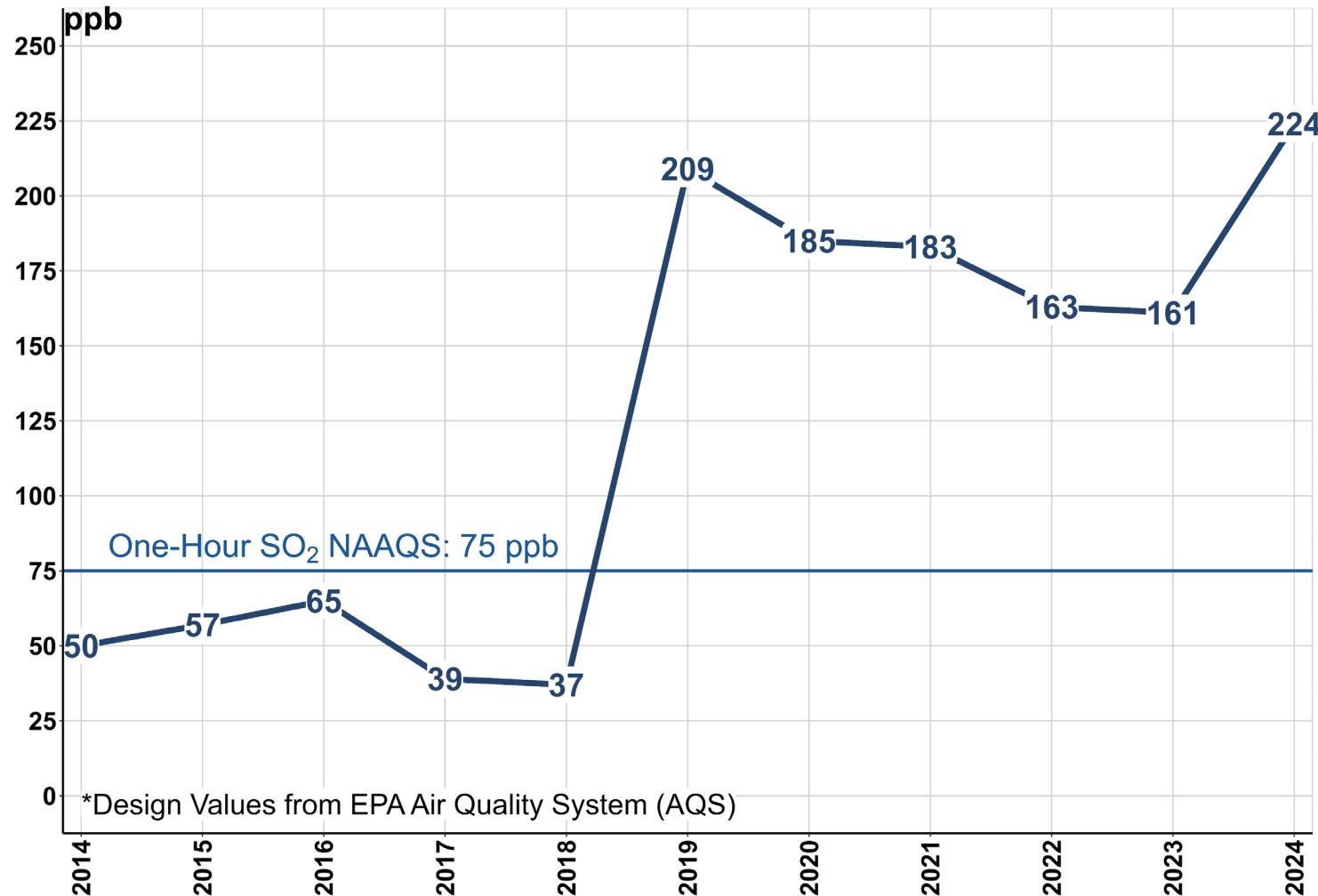
PM ₁₀ Expected Exceedances			
County	CBSA/CSA	2014	2024
Bexar	San Antonio-New Braunfels-Pearsall	0.0	0.0
Dallas	Dallas-Fort Worth (DFW)	0.0	0.0
El Paso	El Paso-Las Cruces	6.7	13.8
Galveston	Houston-The Woodlands	0.0	0.0
Harris	Houston-The Woodlands	0.0	0.0
Harrison	Longview-Marshall	0.0	
Hidalgo	McAllen-Edinburg	NV	0.0
Nueces	Corpus Christi-Kingsville-Alice	0.0	0.0
Tarrant	Dallas-Fort Worth	0.0	0.0
Travis	Austin-Round Rock-Georgetown	0.0	0.0
Webb	Laredo	0.0	2.0

Exceptional Events

- Exceptional Events 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.
- Air agencies can request exclusion of data influenced by Exceptional Events from use in regulatory decisions.
- TCEQ has submitted Exceptional Event Demonstrations to EPA for Ozone, PM₁₀, and PM_{2.5}. If EPA concurs with the demonstrations, the design values may change.
- Exceptional Events Demonstrations are publicly available on the TCEQ website.
 - **Ozone:** <https://www.tceq.texas.gov/airquality/airmod/docs/ozone-data-exceptional-event-flag-demonstrations>
 - **Particulate Matter:** https://www.tceq.texas.gov/airquality/monops/pm_flags.html

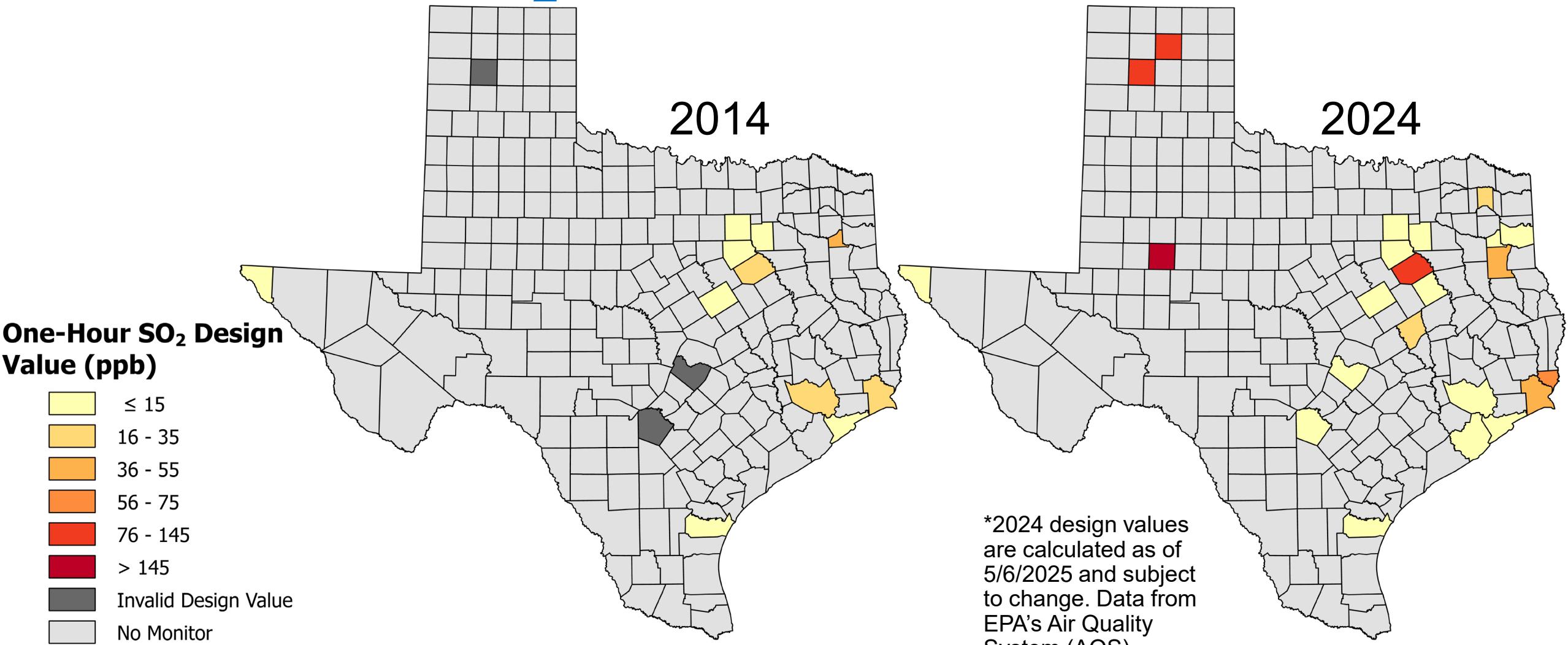
Sulfur Dioxide (SO₂) Design Values in Texas

- One-hour SO₂ design values are the 99th percentile daily-maximum one-hour SO₂ value, averaged over three years.
- In 2019 new source-oriented SO₂ monitors were deployed, resulting in an increase in design values.
- One-hour SO₂ design values in Texas increased 348% from 2014 through 2024.
- Note: All SO₂ monitors currently meet the secondary standard of 10 ppb, averaged over three years.



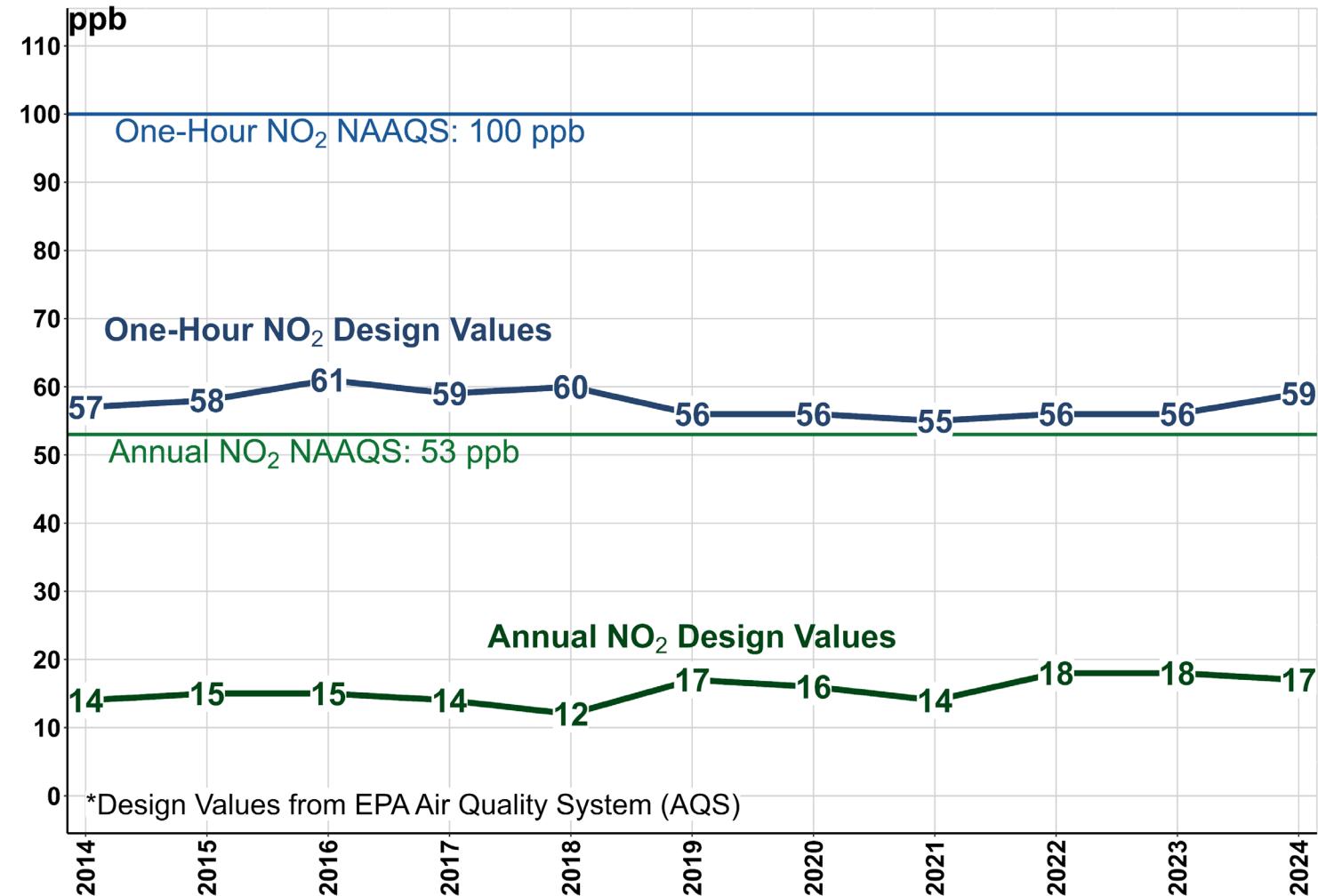
Note: The one-hour SO₂ design value is the maximum design value from all Texas monitors for each year. Data for 2024 are current as of 5/6/2025 and subject to change.

One-Hour SO₂ Design Values by County



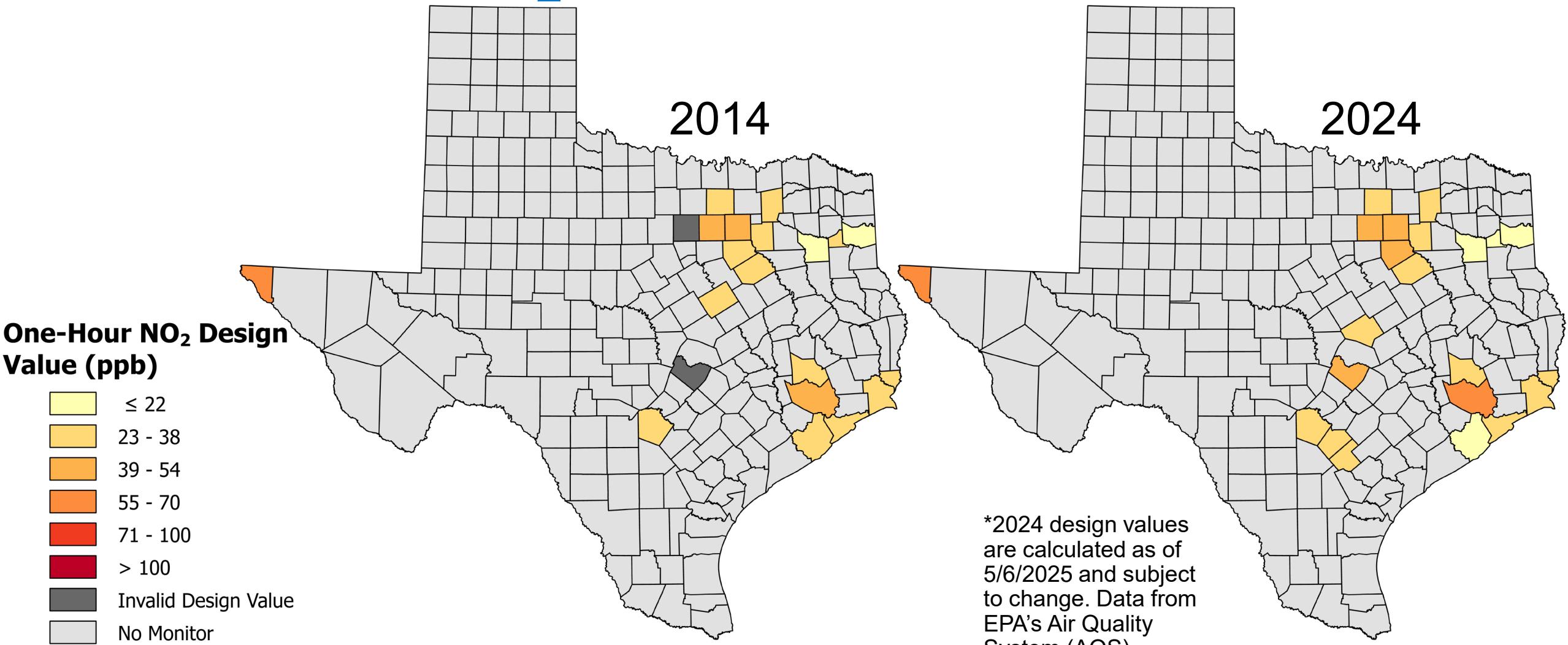
Nitrogen Dioxide (NO₂) Design Values in Texas

- Annual NO₂ design values are the annual average NO₂ concentration.
- One-hour NO₂ design values are the 98th percentile daily-maximum one-hour NO₂ concentration, averaged over three years.
- Annual NO₂ design values in Texas increased 21%, and one-hour NO₂ design values increased ~4% from 2014 through 2024.

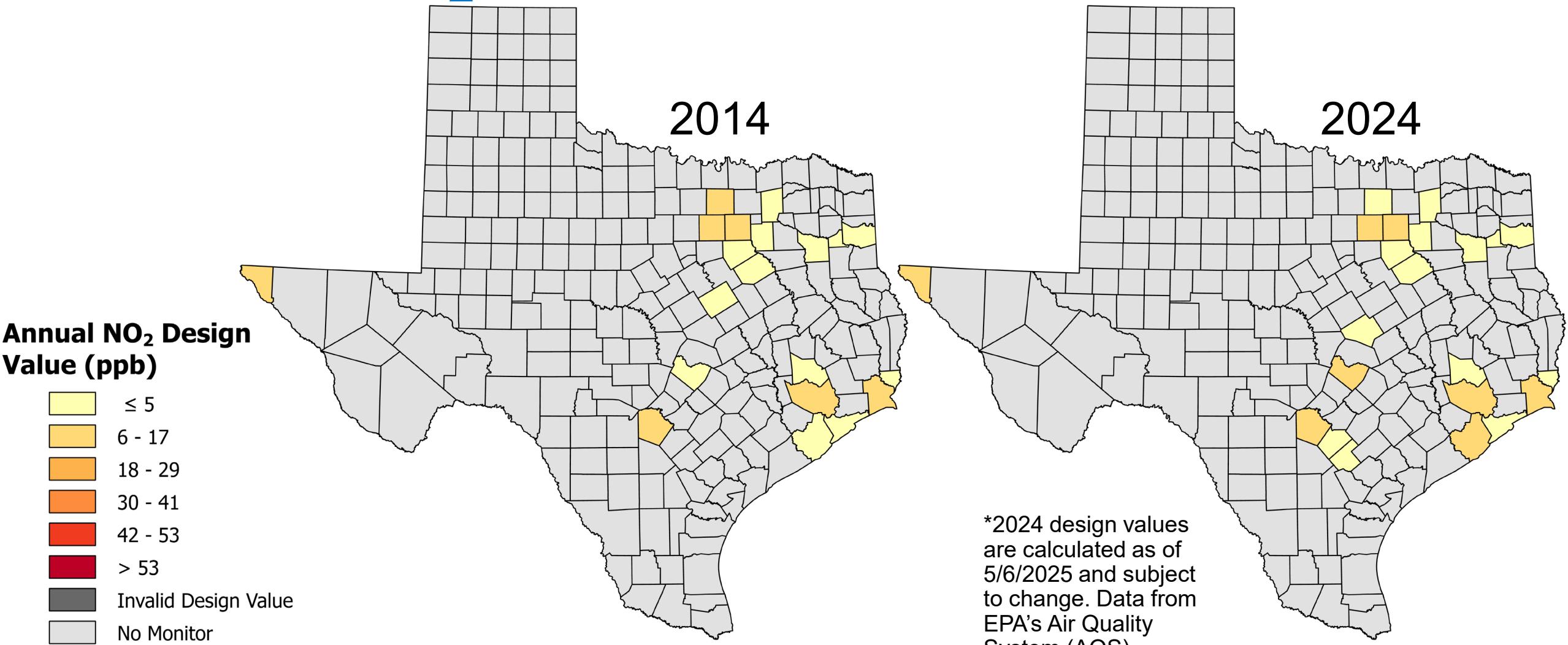


Note: The NO₂ design values are the maximum design values from all Texas monitors for each year. Data for 2024 are current as of 5/6/2025 and subject to change.

One-Hour NO₂ Design Values by County

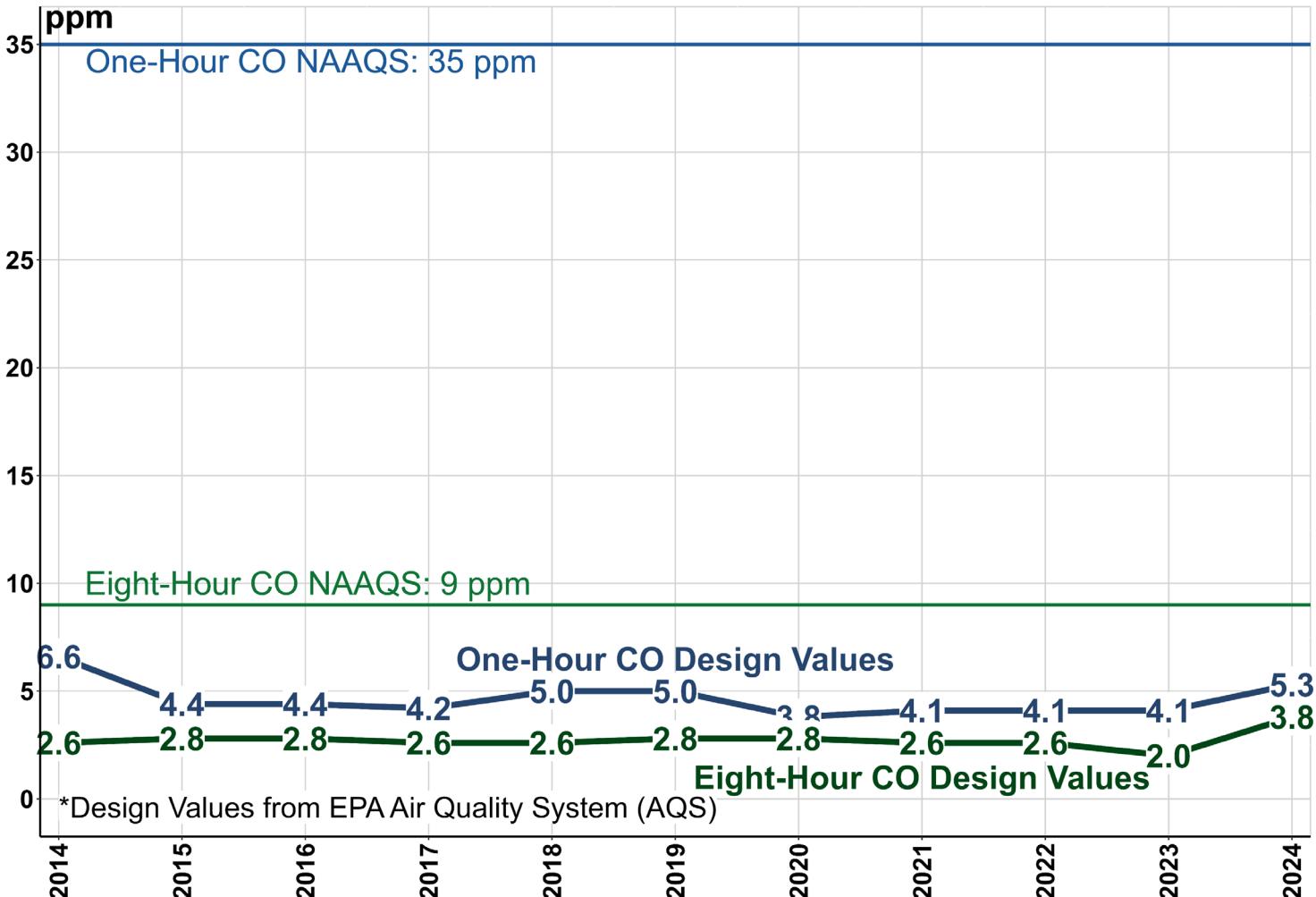


Annual NO₂ Design Values by County



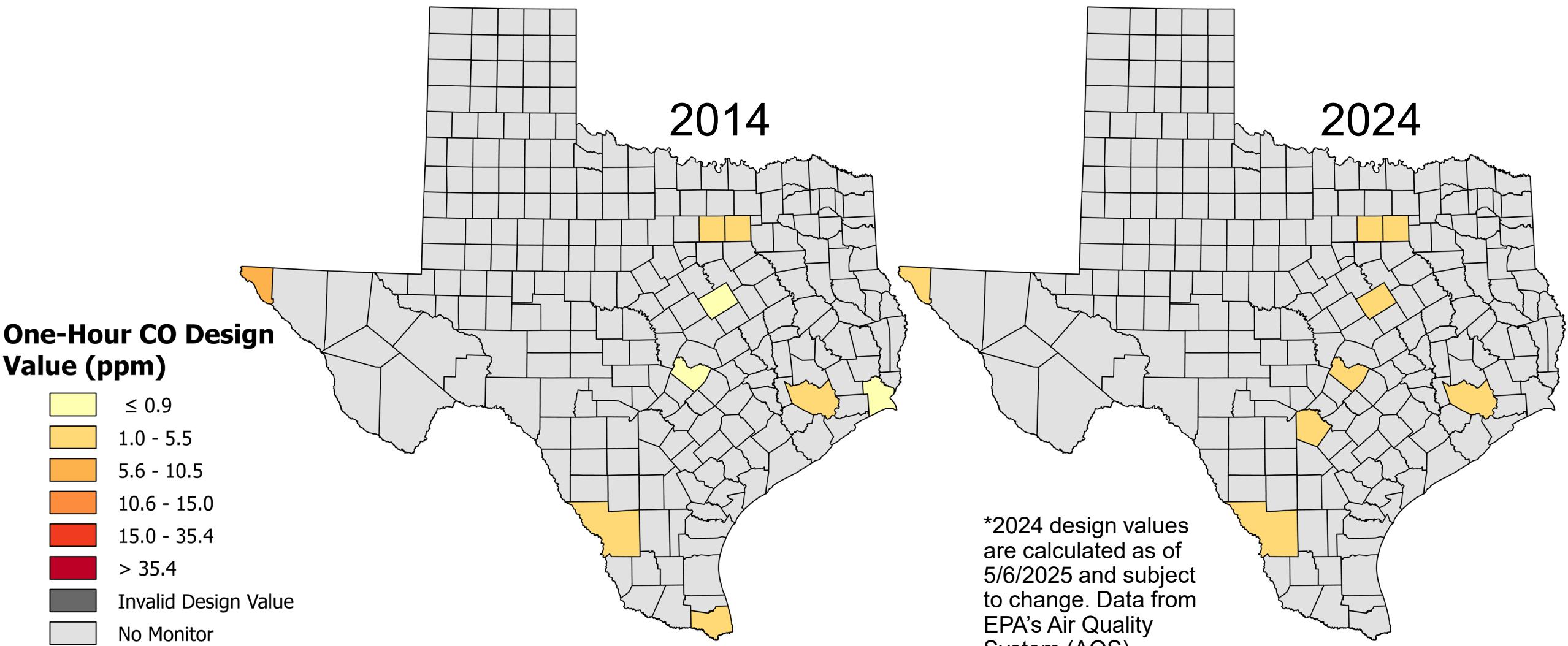
Carbon Monoxide (CO) Design Values in Texas

- One-Hour CO design values are the maximum second highest one-hour CO concentration over two years.
- Eight-hour CO design values are the maximum second-highest non-overlapping eight-hour averaged CO concentration over two years.
- One-hour CO design values in Texas decreased 20%, and eight-hour CO design values increased 46% from 2014 through 2024.

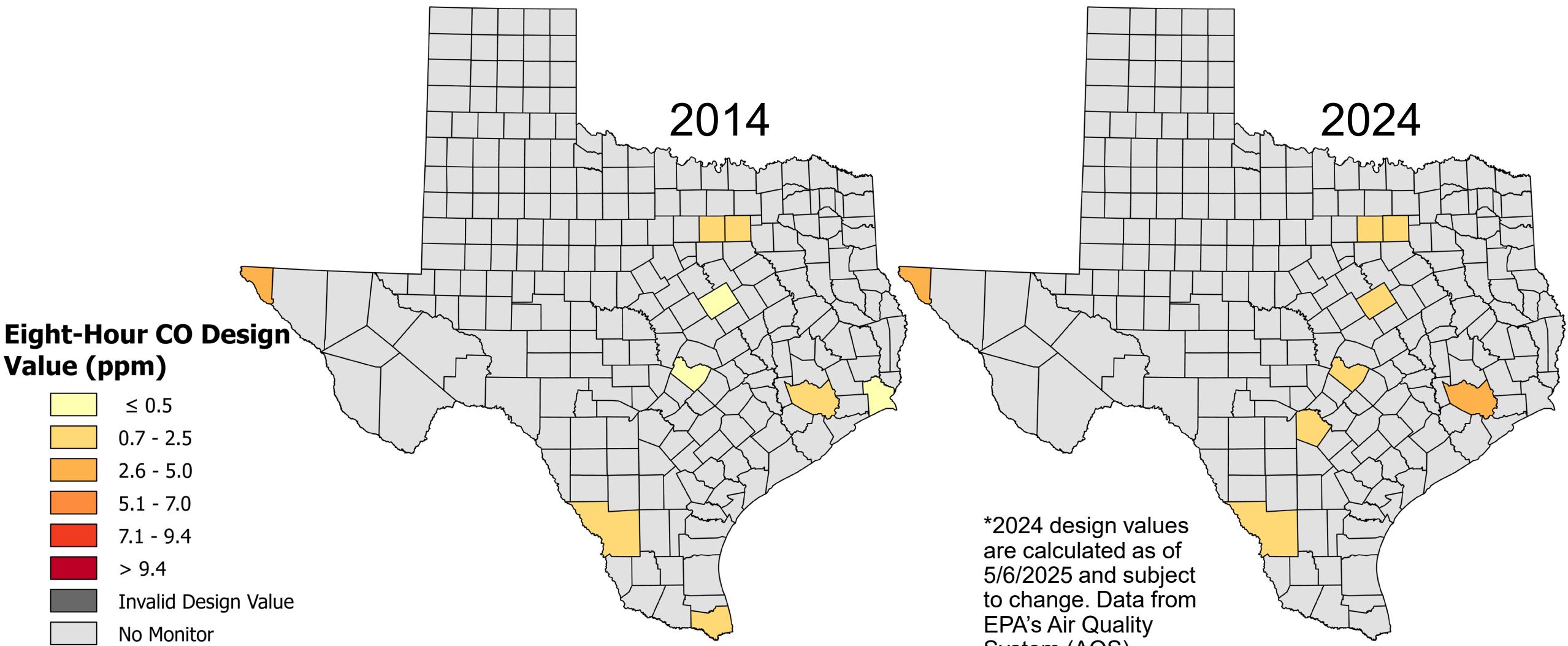


Note: The CO design values are the maximum design values from all Texas monitors for each year. Data for 2024 are current as of 5/6/2025 and subject to change.

One-Hour CO Design Values by County



Eight-Hour CO Design Values by County



Lead Design Values in Texas

- Lead design values are the maximum rolling three-month lead average over a three-year period.

County	CBSA/CSA	2014 Lead Design Value ($\mu\text{g}/\text{m}^3$)	2024 Lead Design Value ($\mu\text{g}/\text{m}^3$)	2008 Lead NAAQS ($\mu\text{g}/\text{m}^3$)
Collin	DFW	0.31	0.08	0.15
El Paso	El Paso-Las Cruces	0.02		0.15
Kaufman	DFW	0.05	0.05	0.15

Notes:

- 2024 design values are calculated as of 5/6/2025 and are subject to change.
- Blank cells indicate no active regulatory Pb monitors in the county.
- Data from EPA's Air Quality System (AQS).

Summary of Criteria Pollutant Trends

Criteria Pollutant	Statewide Design Value in 2014	Statewide Design Value in 2024**	Percent Change in Design Value
Eight-Hour Ozone	81 ppb	84 ppb	+4%
Annual PM _{2.5}	11.6 µg/m ³	14.4 µg/m ³	+24%
24-Hour PM _{2.5}	34 µg/m ³	43 µg/m ³	+26%
PM ₁₀	6.7 expected exceedances	13.8 expected exceedances*	+106%
SO ₂	50 ppb	224 ppb	+348%
One-Hour NO ₂	57 ppb	59 ppb	+4%
Annual NO ₂	14 ppb	17 ppb	+21%
One-Hour CO	6.6 ppm	5.3 ppm	-20%
Eight-Hour CO	2.6 ppm	3.8 ppm	+46%
Lead	0.31 µg/m ³	0.08 µg/m ³	-74%

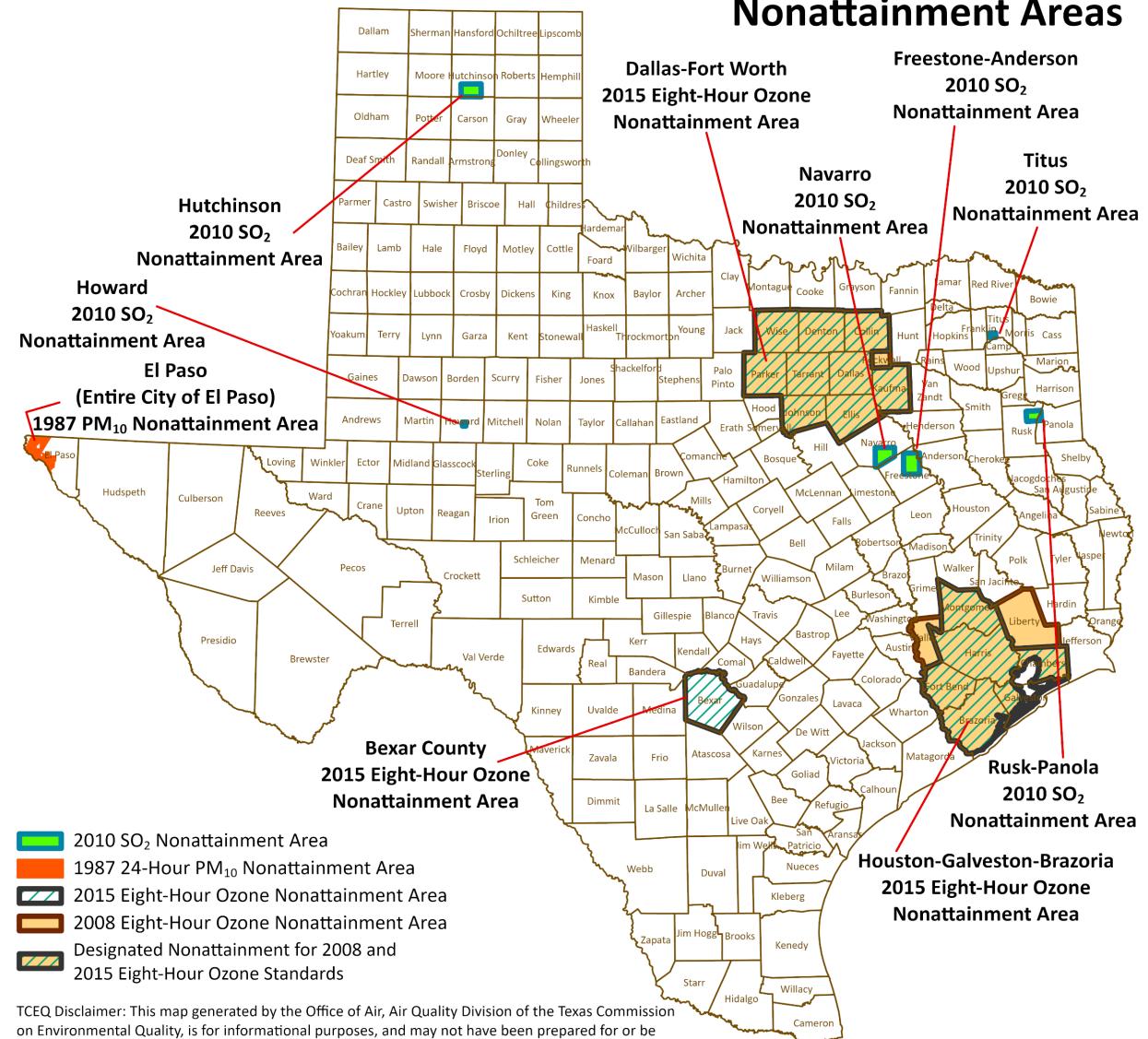
*TCEQ is working on Exceptional Event Demonstrations for PM₁₀, which may decrease the design value. **Data for 2024 are preliminary as of 5/6/2025 and subject to change.

Status of Texas Air Quality Planning Efforts



Texas Air Quality

Nonattainment Areas



Made by: Laramie Mahan March 6, 2025

Ozone



2008 Eight-Hour Ozone NAAQS History

- Standard is 0.075 ppm.
- EPA finalized designations effective July 20, 2012.
- Initial nonattainment designations consisted of:
 - an eight-county Houston-Galveston-Brazoria (HGB) Marginal Nonattainment Area (Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties); and
 - a 10-county DFW Moderate Nonattainment Area (Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise Counties).
- HGB area reclassified to moderate effective December 14, 2016.
- Both areas reclassified to serious effective September 23, 2019.

2008 Eight-Hour Ozone NAAQS Severe Reclassification

- DFW and HGB serious nonattainment areas did not attain by the end of 2020.
- On October 7, 2022, EPA reclassified the DFW and HGB areas to severe, effective November 7, 2022.
 - SIP revisions adopted by the commission on April 24, 2024, and submitted to EPA May 7, 2024.
 - FCAA, §185 fee program rules due by November 7, 2025.
 - Attainment by the end of 2026 to meet a July 20, 2027, attainment date.

2015 Eight-Hour Ozone NAAQS History

- Standard is 0.070 ppm.
- Nine-county DFW marginal nonattainment area included:
 - Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, and Wise Counties (Rockwall County not included).
 - Final EPA designation effective August 3, 2018.
- Six-county HGB marginal nonattainment area included:
 - Brazoria, Chambers, Fort Bend, Galveston, Harris, and Montgomery Counties (Liberty and Waller Counties not included).
 - Final EPA designation effective August 3, 2018.
- Bexar County designated as a marginal nonattainment area.
 - Final EPA designation effective September 24, 2018.

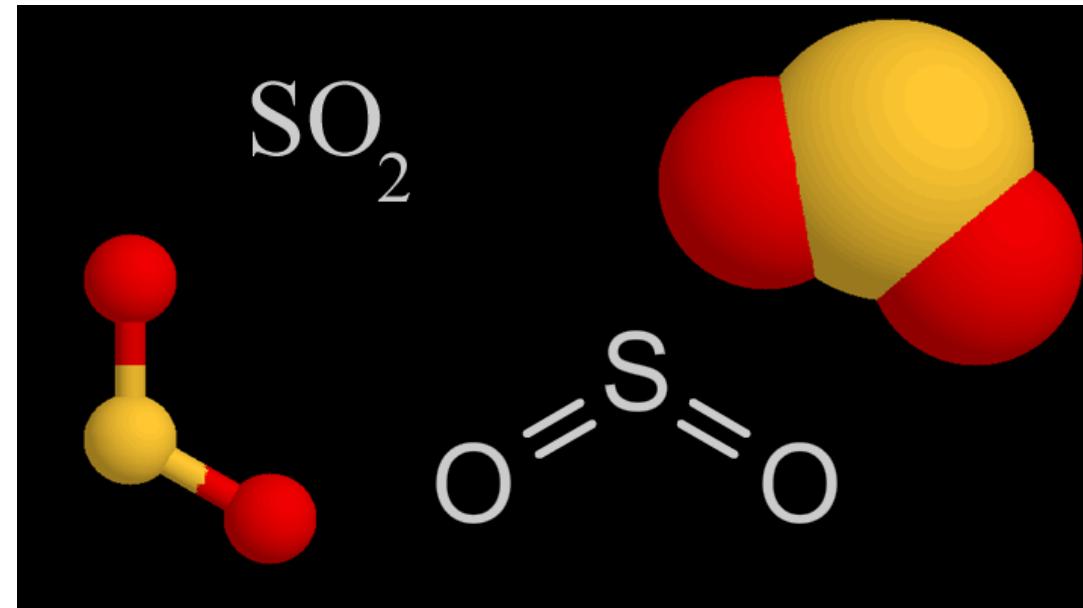
2015 Eight-Hour Ozone Moderate Reclassification

- The DFW, HGB, and Bexar County marginal areas did not attain by the end of 2020.
- Effective November 7, 2022, EPA reclassified DFW, HGB, and Bexar County to moderate nonattainment.
 - Attainment was required by the end of 2023 to meet the 2024 attainment dates.
- On October 18, 2023, EPA published a finding of failure to submit the required SIP revisions for Texas and 10 other states.

2015 Eight-Hour Ozone Voluntary Reclassification to Serious

- On October 12, 2023, Governor Abbott signed and submitted a letter to EPA to reclassify the three nonattainment areas for the 2015 ozone standard from moderate to serious.
- On June 20, 2024, EPA reclassified the three areas to serious.
 - Attainment for the serious classification will be required by the end of 2026 to meet 2027 attainment dates.
 - Deadline for submission of serious SIP revisions is January 1, 2026.
 - The Bexar County SIP and rule revisions are scheduled for proposal on June 6, 2025.

Sulfur Dioxide



Rusk-Panola Attainment Demonstration (AD) SIP and Agreed Order

- On August 10, 2020, EPA published final action finding that Texas failed to submit required SIP revisions for the Round 2 areas.
- The commission adopted an AD SIP revision for the Rusk-Panola area on February 9, 2022.
 - An associated Agreed Order with Martin Lake Power Plant provides the enforceable control strategy.
- On August 24, 2022, EPA issued a completeness determination for the AD SIP revision.

Rusk-Panola AD SIP and FIP

- On August 2, 2024, EPA proposed a limited approval and limited disapproval of the SIP revision, as well as a finding of failure to attain by the area's 2022 attainment date.
- On August 26, 2024, EPA proposed a federal implementation plan (FIP) to address the deficiencies in the SIP revision.
- On December 17, 2024, EPA finalized the failure to attain.
 - The area attained the standard based on 2021-2023 monitoring data.
 - On October 4, 2024, TCEQ requested a clean data determination to suspend the requirement to submit a new SIP revision for the area.
- EPA is under consent decree to take final action on the SIP and proposed FIP by June 30, 2025.

Freestone-Anderson and Titus Redesignation Request

- On May 14, 2021, EPA published final clean data determinations for the Freestone-Anderson and Titus County nonattainment areas.
 - The primary source of SO₂ emissions in each area has been decommissioned.
- The commission adopted a redesignation request and maintenance plan SIP revision on February 23, 2022.
- On December 16, 2024, EPA published a final determination that the areas attained by their 2022 attainment date.
 - EPA has not proposed action on the redesignation request and maintenance plan SIP revision submitted for these areas.

Howard, Hutchinson, and Navarro Counties

- On March 26, 2021, EPA published final nonattainment designations for portions of Howard, Hutchinson, and Navarro Counties, effective April 30, 2021.
- The AD SIP revisions and associated 30 Texas Administrative Code Chapter 112 rule revisions for the three nonattainment areas were adopted by the commission on October 5, 2022, and submitted to EPA on October 24, 2022.
- EPA has not acted on these SIP revisions.

Revised Secondary SO₂ NAAQS

- On December 11, 2024, EPA revised the existing secondary SO₂ standard to an annual average, averaged over three consecutive years, with a level of 10 ppb.
- All SO₂ monitors currently meet the standard.
- Potential secondary SO₂ NAAQS implementation timeline:

Date	Event
January 27, 2025	Secondary SO ₂ NAAQS revision effective
December 11, 2025	State designations due to EPA
August 11, 2026	120-day Letter from EPA to Governor
Early 2027	Final designations effective
December 11, 2027	Infrastructure and Transport SIPs due
Early 2030	Nonattainment area SIP revisions due

Particulate Matter



Current PM NAAQS

- 2024 PM_{2.5} NAAQS revision
 - Revised Primary Annual Standard: 9.0 $\mu\text{g}/\text{m}^3$
 - Retained Secondary Annual Standard: 15.0 $\mu\text{g}/\text{m}^3$
 - Retained Primary and Secondary 24-Hour Standard: 35 $\mu\text{g}/\text{m}^3$
- 1987 PM₁₀ NAAQS
 - Primary and Secondary Standard: 150 $\mu\text{g}/\text{m}^3$

Potential 2024 Primary Annual PM_{2.5} NAAQS Implementation Timeline

Date	Event
May 6, 2024	PM _{2.5} NAAQS revision effective
February 7, 2025	State designations submitted 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

PM₁₀ NAAQS

- The City of El Paso was designated as moderate nonattainment for PM₁₀ in 1990.
 - EPA approval of an FCAA, §179B demonstration prevented reclassification of the area to serious nonattainment.
 - The area remains designated as moderate nonattainment.
- All other areas in Texas are designated as attainment/unclassifiable for PM₁₀.

Other NAAQS Updates

- Lead
 - All areas in Texas are designated attainment.
 - The Collin County lead nonattainment area was redesignated effective September 27, 2017.
 - The Collin County Lead Second 10-year Maintenance Plan SIP Revision was proposed on April 3, 2025, and adoption is anticipated in September 2025.
 - The SIP revision is due to EPA by September 27, 2025.
- CO
 - All areas in Texas are designated attainment.
 - The El Paso CO nonattainment area was redesignated effective October 3, 2008.
- NO₂
 - All areas in Texas are designated attainment.

NAAQS Review Schedule

	Ozone	Lead	Primary NO ₂	Primary SO ₂	Secondary NO ₂ , SO ₂ , PM	PM	CO
Last Review Completed (final rule signed)	Dec 2020	Sept 2016	April 2018	Feb 2019	Dec 2024	Dec 2020/ Feb 2024	Aug 2011
Recent or Upcoming Major Milestone(s)	<u>Dec 20, 2024</u> Integrated Review Plan (IRP), Volumes 1 and 2 <u>Spring 2025</u> Clean Air Scientific Advisory Committee (CASAC) consultation on IRP Volume 3	<u>Feb 7, 2024</u> Final Integrated Science Assessment (ISA) <u>Early 2025</u> Draft Policy Assessment	<u>April 16, 2024</u> Draft IRP Volumes 1 and 2 released for consultation with CASAC <u>Fall 2025</u> Draft ISA and IRP Volume 3	<u>TBD</u>	<u>Dec 10, 2024</u> Final rulemaking signed (consent decree) <u>Dec 11, 2024</u> Revised secondary SO ₂ standard promulgated; all others retained	<u>Feb 7, 2024</u> Final rule promulgated <u>March 6, 2024</u> Final rule published <u>May 6, 2024</u> Final rule effective	<u>TBD</u>

Additional SIP Updates



Inspection and Maintenance (I/M)

- On November 29, 2023, the commission adopted the Bexar County I/M SIP Revision.
 - Implements a vehicle I/M program in Bexar County by no later than November 1, 2026.
- Proposed I/M Rule and SIP Revision:
 - House Bill 3297: eliminated the mandatory annual vehicle safety inspection program for noncommercial vehicles, effective January 1, 2025.
 - Senate Bill 2102: extended the initial registration and inspection period for rental vehicles to three years.
 - The SIP and rule revisions were proposed on April 17, 2025, and adoption is anticipated in September 2025.



Big Bend National Park



Regional Haze: Texas Class I Areas

Guadalupe Mountains National Park



First Planning Period (2009-2018)

- A regional haze SIP revision for the first 10-year planning period was submitted to EPA on March 31, 2009.
- A five-year Regional Haze Progress Report was submitted to EPA on March 20, 2014.
- On January 5, 2016, EPA published a final partial approval and partial disapproval of the 2009 SIP revision regarding reasonable progress and issued a FIP (Reasonable Progress FIP).
- On October 17, 2017, EPA published a final disapproval of Texas' regional haze SIP regarding Best Available Retrofit Technology (BART) and issued a FIP (BART FIP).

Reasonable Progress FIP

- EPA's 2016 reasonable progress FIP set SO₂ limits for 15 electric generating units (EGUs) located at coal-fired power plants.
 - The U.S. Court of Appeals for the Fifth Circuit stayed the FIP and later remanded the rule back to EPA.
- On July 26, 2023, EPA proposed a reconsidered disapproval and new reasonable progress FIP.
 - The proposal rescinded SO₂ emissions limits from the 15 Texas EGUs and proposed that no additional controls are needed due to facility retirements and the reconsidered BART FIP proposal.
 - EPA has not yet taken final action.
- On December 17, 2024, the Fifth Circuit vacated EPA's disapproval and FIP.

BART FIP

- EPA's 2017 BART FIP determined that Texas EGUs are not subject to BART for PM and provided BART alternatives for SO₂ and NO_x.
 - An intrastate trading program would address SO₂ emissions from certain EGUs.
 - Texas' participation in the Cross State Air Pollution Rule (CSAPR) for ozone-season NO_x would address NO_x emissions.
- On May 4, 2023, EPA proposed to reconsider its BART FIP for SO₂ and PM.
 - SO₂ and PM emissions limits would be established for specified EGUs in Texas.
 - EPA has not yet taken final action.

Second Planning Period (2019-2028)

- A regional haze SIP revision for the second planning period was submitted to EPA on July 20, 2021.
- On October 15, 2024, EPA proposed to partially approve and partially disapprove the 2021 SIP.
 - Proposed to approve the visibility analysis, visibility impairment evaluation strategy, and progress report elements.
 - Proposed to disapprove the long-term strategy, reasonable progress goals, and state/federal land manager coordination elements.
 - EPA has not yet taken final action.
- A progress report for the second planning period was submitted to EPA on January 15, 2025.

Contact Information

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- To join the SIP/Air Quality update e-mail list go to:
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Questions?

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