



Nitrogen Dioxide (NO₂): Primary National Ambient Air Quality Standard (NAAQS) Rule

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NO₂ Discussion Topics

- NO₂ NAAQS History and Background
- NO₂ Designation Timeline
- NO₂ Design Values
- NO₂ Monitoring
- Send Comments
- Questions



NO₂ NAAQS History

- 1971 Primary NO₂ NAAQS Rule
 - Annual Standard: 53 parts per billion (ppb)
- 1985 and 1996 EPA Reviews
 - Annual Standard: 53 ppb retained
- 2010 Primary NO₂ NAAQS Rule
 - Annual Standard: 53 ppb annual average retained
 - One-Hour Standard: 100 ppb 3-year average of 98th percentile concentration*

* 98th percentiles of the 1-hour daily maximum NO₂ concentrations would be calculated for each of 3 consecutive years. The 98th percentile concentrations for each of these 3 years would then be averaged together.



NO₂ NAAQS Background

- Why reduce NO₂ or NO_x?
 - to prevent health effects such as adverse respiratory effects including airway inflammation in healthy people and increased respiratory symptoms in people with asthma

Additionally, because NO_x contributes to ambient ozone concentrations and the formation of fine particulate matter, reductions of NO_x - the combination of NO₂ and nitric oxide (NO) - may result in improved air quality for other criteria air pollutants as well.



NO₂ NAAQS Background

- National Sources of NO₂
 - 58% Mobile sources
 - 22% Utilities
 - 12% Industrial-commercial-residential combustion
 - 8% Other

Source: EPA, based on 2002 National Emissions Inventory data



NO₂ Attainment Designation Timeline

Milestone	Date
Rule signed	January 22, 2010
Rule published in <i>Federal Register</i> *	February 9, 2010
Commissioner's Work Session to consider recommendations to governor	November 12, 2010
State designation recommendations to EPA	January 22, 2011: One year following promulgation (based on existing network data)
Designations	January 2012: EPA designates all/most areas as unclassifiable (because near-road monitors not in place)
New NO ₂ monitoring network	January 1, 2013: All monitors operating
Nonattainment designations (discretionary)	January 2016/2017 (depending on date that sites become operational)
Attainment date	January 2021/2022 (5 years after date of nonattainment designations)

*Complete rule at www.epa.gov/ttn/naaqs/standards/nox/fr/20100209.pdf



NO₂ Designation Timeline

- Initial Designations
 - The United States Environmental Protection Agency (EPA) intends to complete initial area designations by January 22, 2012.
 - The EPA anticipates using monitoring data from existing network from 2008 through 2010. Data from 2011 may be considered if it would change the designation.



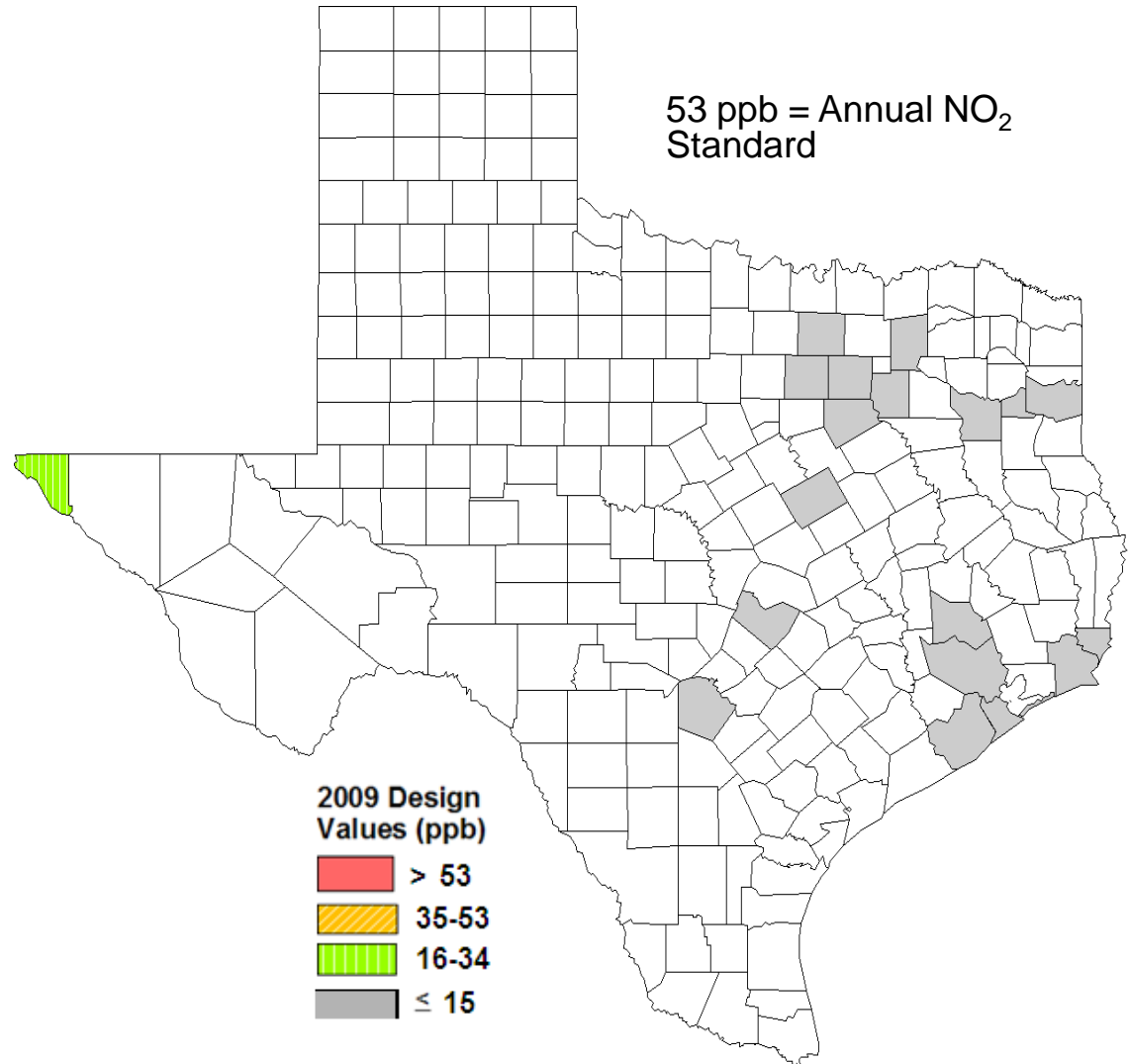
NO₂ Designation Timeline

- Future Designations
 - New NO₂ monitoring network required to be operating by January 1, 2013.
 - The EPA anticipates nearly all areas will be designated unclassifiable pending data collection from the new monitoring network (data from 2013-2015).
 - The EPA has stated that it is too soon to determine appropriate guidance for establishing nonattainment boundaries. Need to collect and assess more information on nature of violations.



2009* Annual NO₂ Design Values

Region	County	2009 NO ₂ Annual DV (ppb)*
ELP	El Paso	16
SAN	Bexar	13
HGB	Harris	13
DFW	Dallas	12
DFW	Tarrant	11
BPA	Jefferson	8
DFW	Ellis	7
HGB	Brazoria	6
DFW	Denton	6
NETX	Gregg	5
HGB	Montgomery	5
BPA	Orange	5
HGB	Galveston	4
DFW	Hunt	4
DFW	Kaufman	4
NETX	Smith	4
NETX	Harrison	3
ARR	Travis	3
WAC	McLennan	2



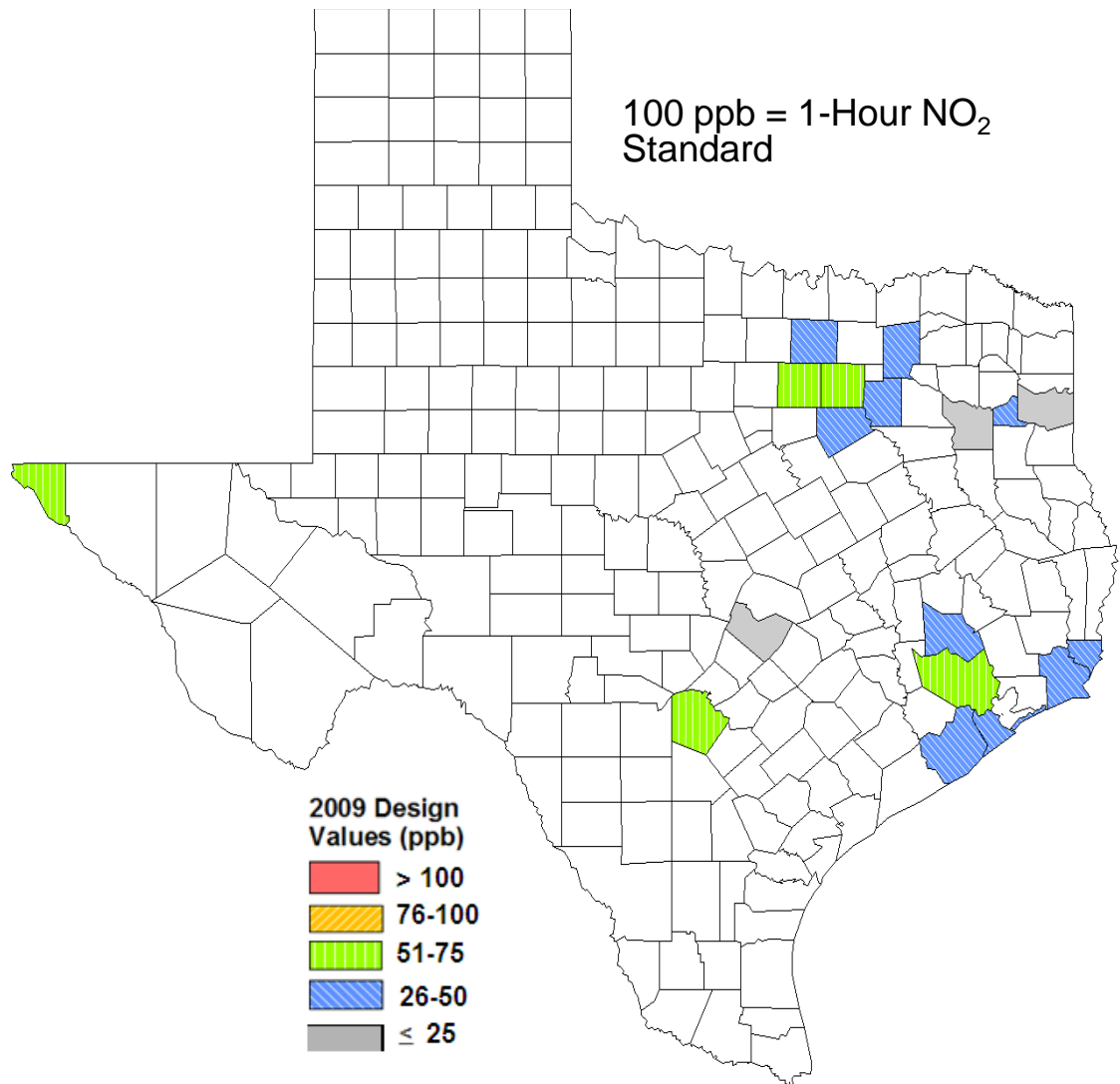
Above sites had one year of complete data (>75% complete hours), any sites not meeting this requirement was not included.

*Design values as of January 10, 2010 and are subject to change.



2009* 1-Hour NO₂ Design Values

Region	County	2009 NO ₂ 1-Hour DV (ppb)*
ELP	El Paso	65
DFW	Dallas	55
HGB	Harris	54
DFW	Tarrant	54
SAN	Bexar	52
DFW	Ellis	44
BPA	Jefferson	41
HGB	Brazoria	37
DFW	Denton	35
HGB	Montgomery	35
BPA	Orange	34
HGB	Galveston	32
NETX	Gregg	31
DFW	Hunt	30
DFW	Kaufman	30
ARR	Travis	24
NETX	Smith	21
NETX	Harrison	19



Above sites had 3 complete years of data (>75% days with >75% complete hours), any sites not meeting this requirement was not included.

*Design values as of January 10, 2010 and are subject to change.



NO₂ Monitoring

Monitoring Requirements

Urban Area with Population over 500,000	2008 Population	Required Near-Road Monitors	Required Community Wide Monitors	Currently Monitoring?
Dallas-Fort Worth-Arlington, TX	6,300,006	2	1	Yes
Houston-Sugar Land-Baytown, TX	5,728,143	2	1	Yes
San Antonio, TX	2,031,445	1	1	Yes
Austin-Round Rock, TX	1,652,602	1	1	Yes
El Paso, TX	742,062	1	0	Yes
McAllen-Edinburg-Mission, TX	726,604	1	0	No

Source: <http://www.epa.gov/air/nitrogenoxides/pdfs/ProposedMinimumNO2MonitorRequirements.pdf>

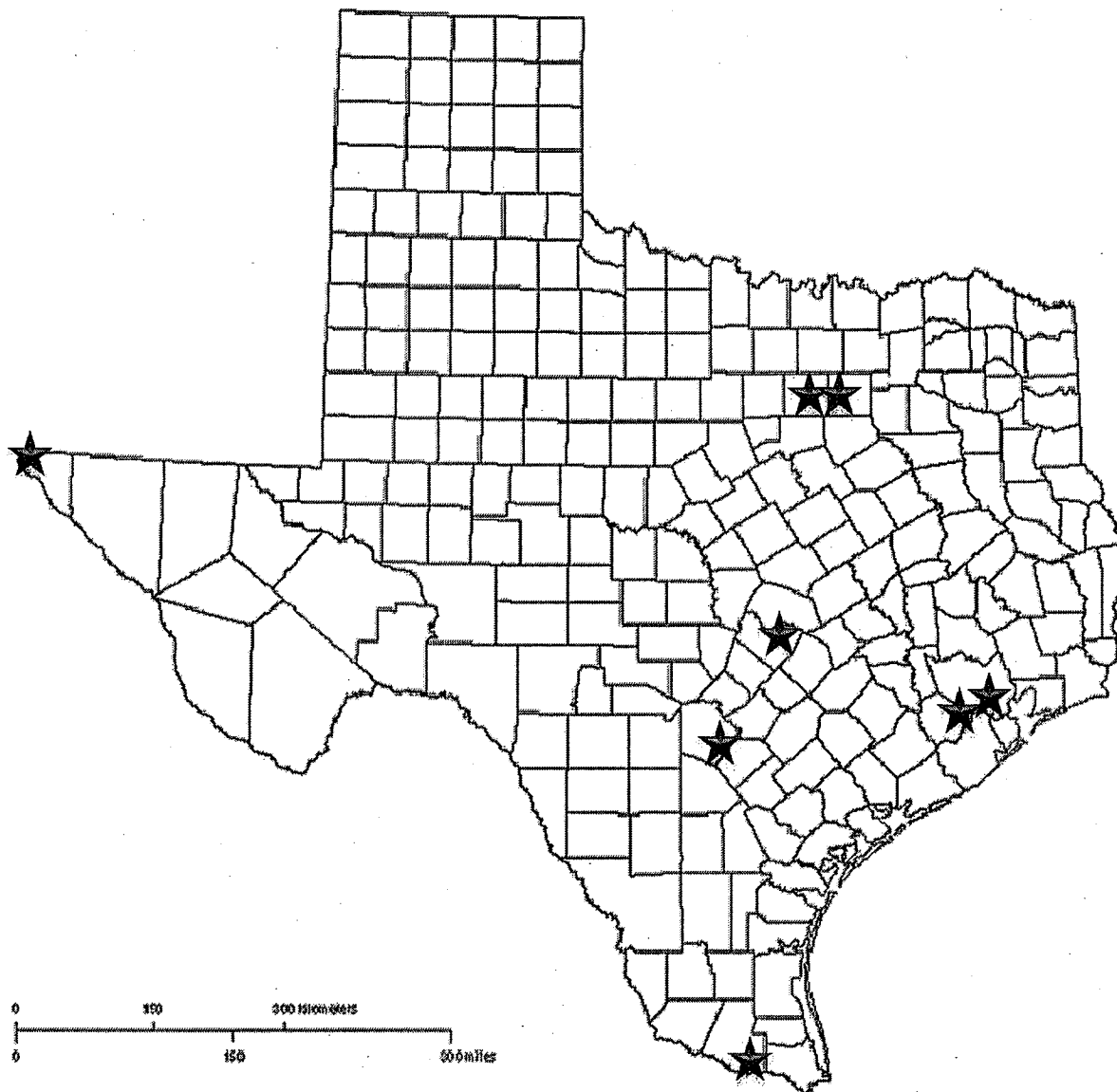


NO₂ Monitoring

- Near-road NO₂ Monitoring
 - One micro-scale site will be required in Core Based Statistical Areas (CBSAs) $\geq 500,000$ at a location of expected highest hourly NO₂ concentrations sited near a major road with high annual average daily traffic counts.
 - Texas is required to have
 - two sites each in the Dallas-Fort Worth and Houston areas; and
 - one site each in the San Antonio, Austin, El Paso, and McAllen-Edinburg-Mission areas.



Near-Road Nitrogen Dioxide Monitors in Texas



No claims are made to the accuracy or completeness of the data or to its suitability for a particular use.

This map is based on data generated by the Field Operations Support Division of the Texas Commission on Environmental Quality.



NO₂ Monitoring

- Why near-road monitors?
 - NO₂ concentrations on or near major roads are appreciably higher than those measured at monitors in the current network.
 - Individuals who spend time on or near major roads can experience short-term NO₂ exposures considerably higher than measured by the current network, which are of particular concern for at-risk populations, including people with asthma, children, and the elderly.

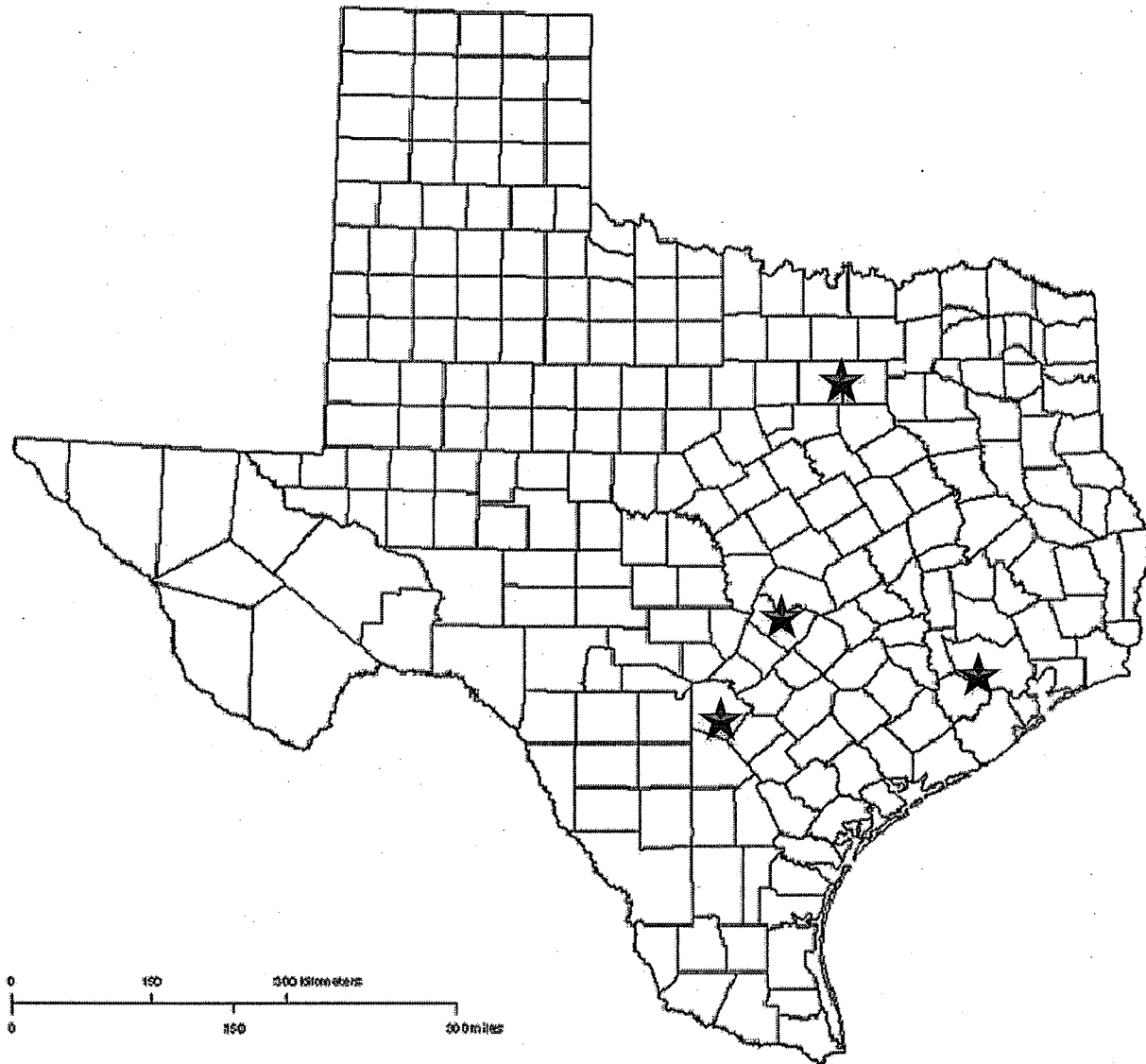


NO₂ Monitoring

- Community-wide Monitoring
 - One monitor will be required, at a location of expected highest NO₂ concentrations, in CBSAs with populations greater than or equal to one million.
 - Texas is required to have community-wide one monitor for each of the following areas: Dallas-Fort Worth, Houston, San Antonio, and Austin.
 - Currently, Texas has community-wide monitoring at one site in DFW, one site in Houston, one site in San Antonio, and one site in Austin.



Community-Wide Nitrogen Dioxide Monitors in Texas



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Conclusions

- No areas currently monitoring nonattainment for the new NO₂ standard.
- New near-road monitors required to be operational by January 1, 2013.
- In 2016, designations from near-road monitoring will be made.



Send Comments

- Send informal comments on NO₂ NAAQS recommendation to Margaret Earnest (512-239-4581) by Friday, October 1, 2010 via
 - e-mail: mearnest@tceq.state.tx.us
 - Fax: 512-239-5687
 - Mail: TCEQ
Attention: Margaret Earnest
MC-206, PO Box 13087
Austin, TX 78711-3087



Questions

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- Data: Jonathan Steets
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