



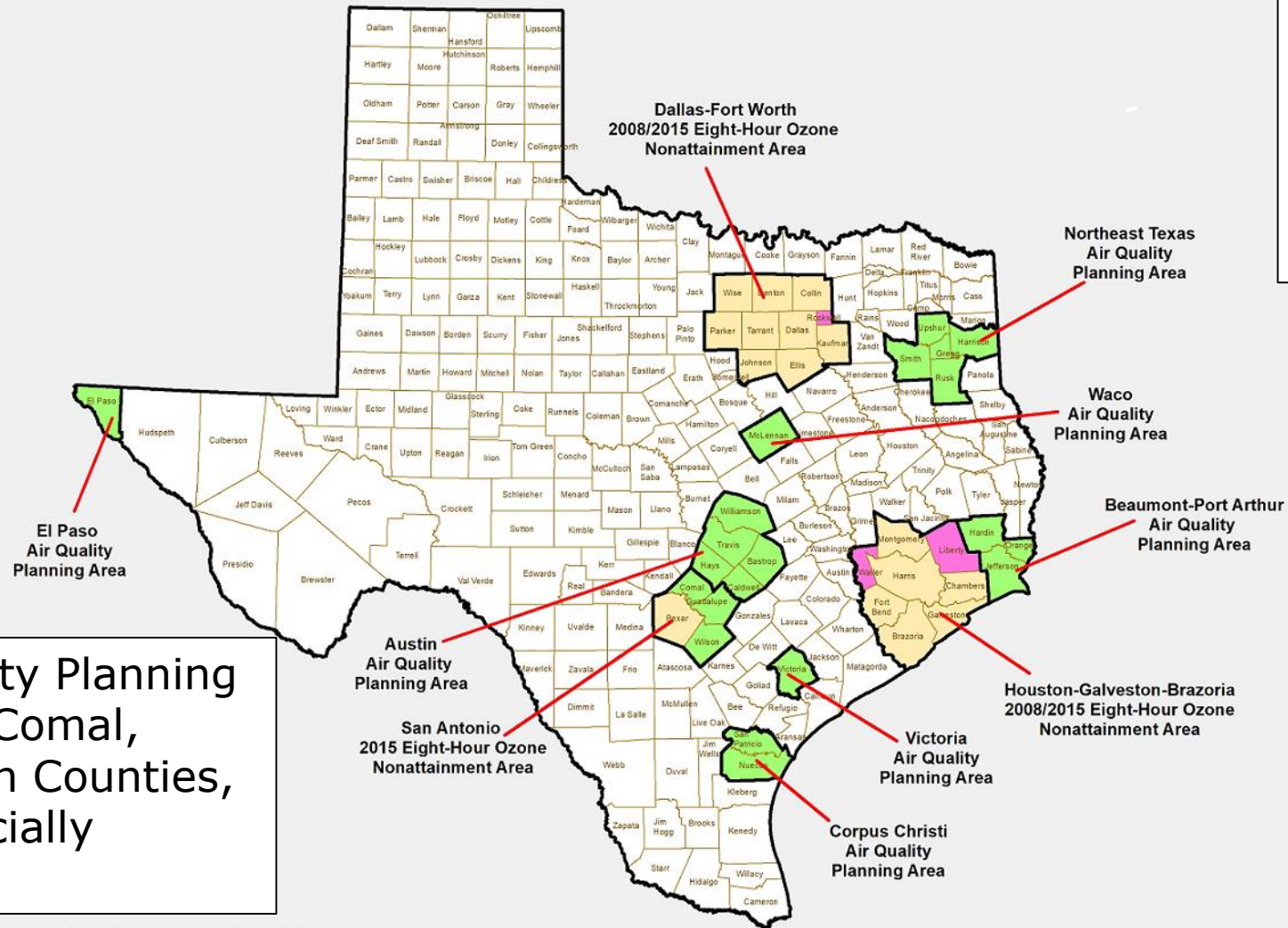
TCEQ Ozone NAAQS Update

Jim Smith
Air Modeling and Data Analysis Section
Air Quality Division

Association of Air Pollution Control Agencies Spring Meeting
Baton Rouge, Louisiana
March 26, 2019



Texas Ozone Nonattainment and Planning Areas in 2019



Counties shown in **magenta** are nonattainment for 2008 NAAQS but attainment for 2015 NAAQS.

San Antonio Air Quality Planning Area includes Bexar, Comal, Guadalupe and Wilson Counties, but only Bexar is officially nonattainment.

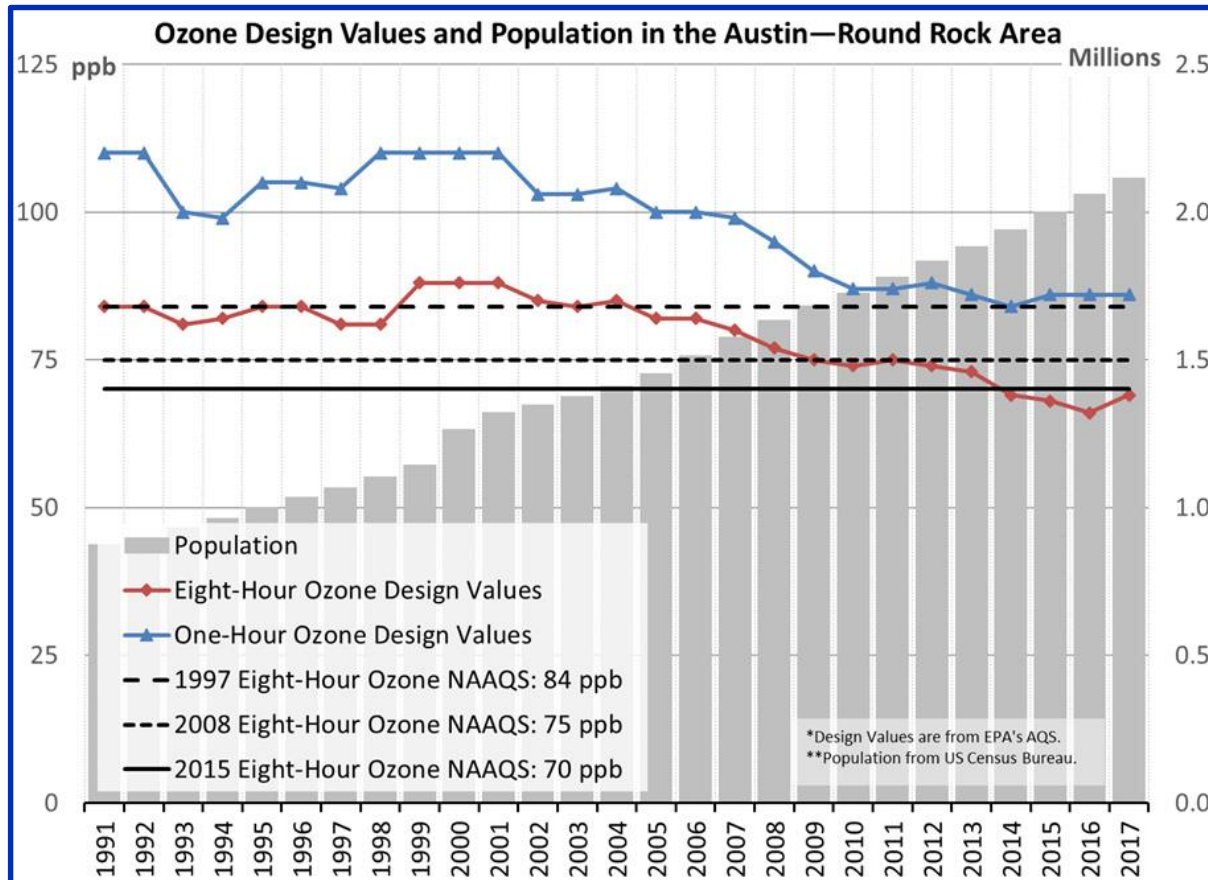
This map was generated by the Office of Air, Air Quality Division of the Texas Commission on Environmental Quality and is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. For information concerning this map, contact the Air Quality Division at (512) 239-1459.

March 6, 2019
Raj Nadkarni, GISP (512) 239-1934

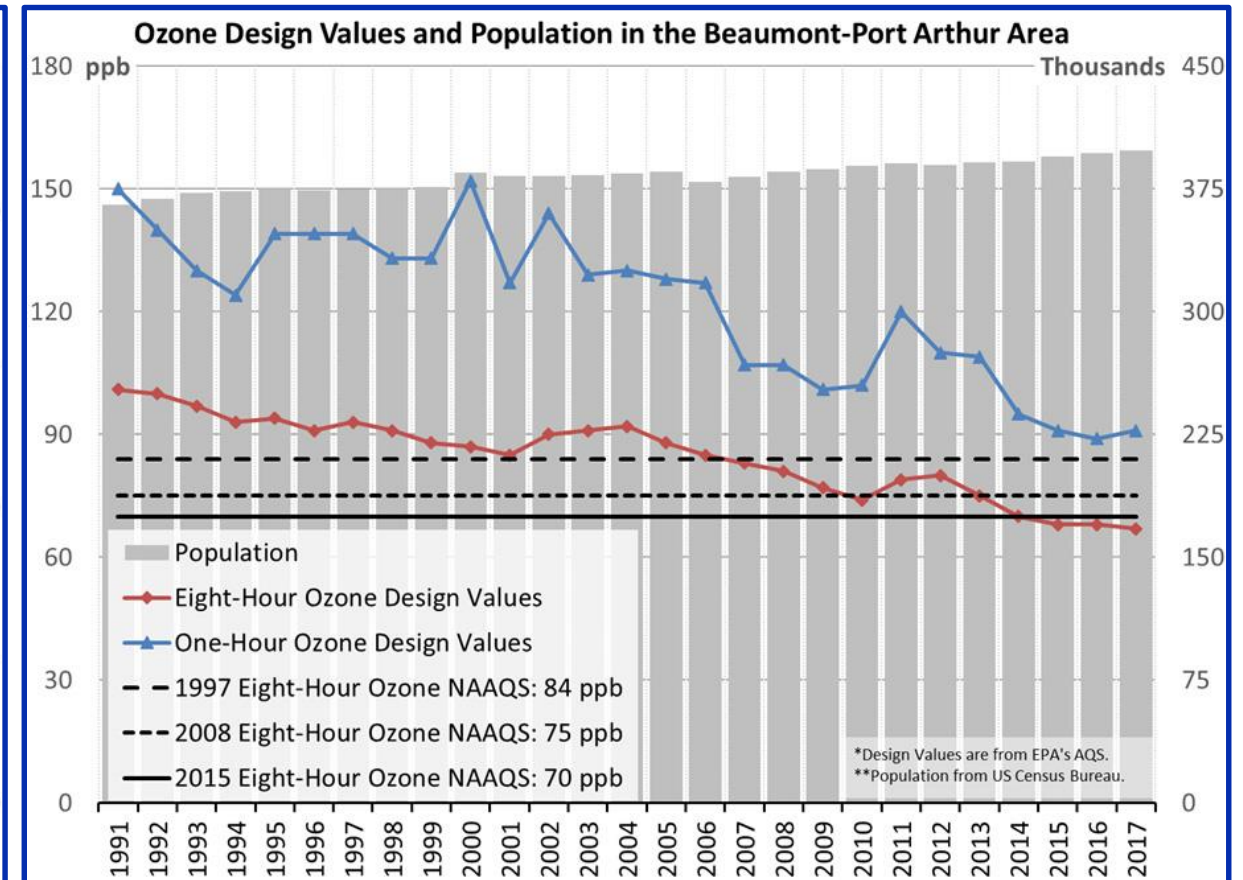


Ozone Attainment Status

Austin-Round Rock



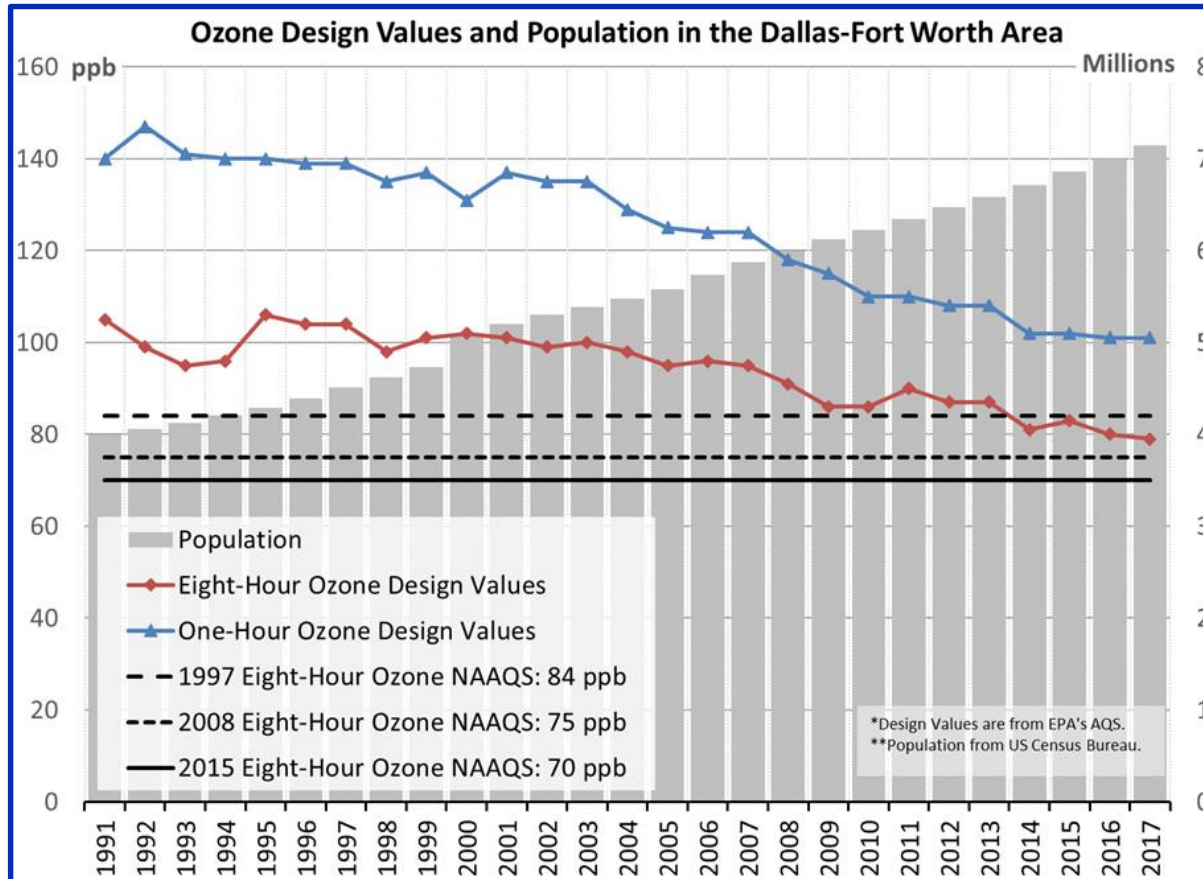
Beaumont-Port Arthur



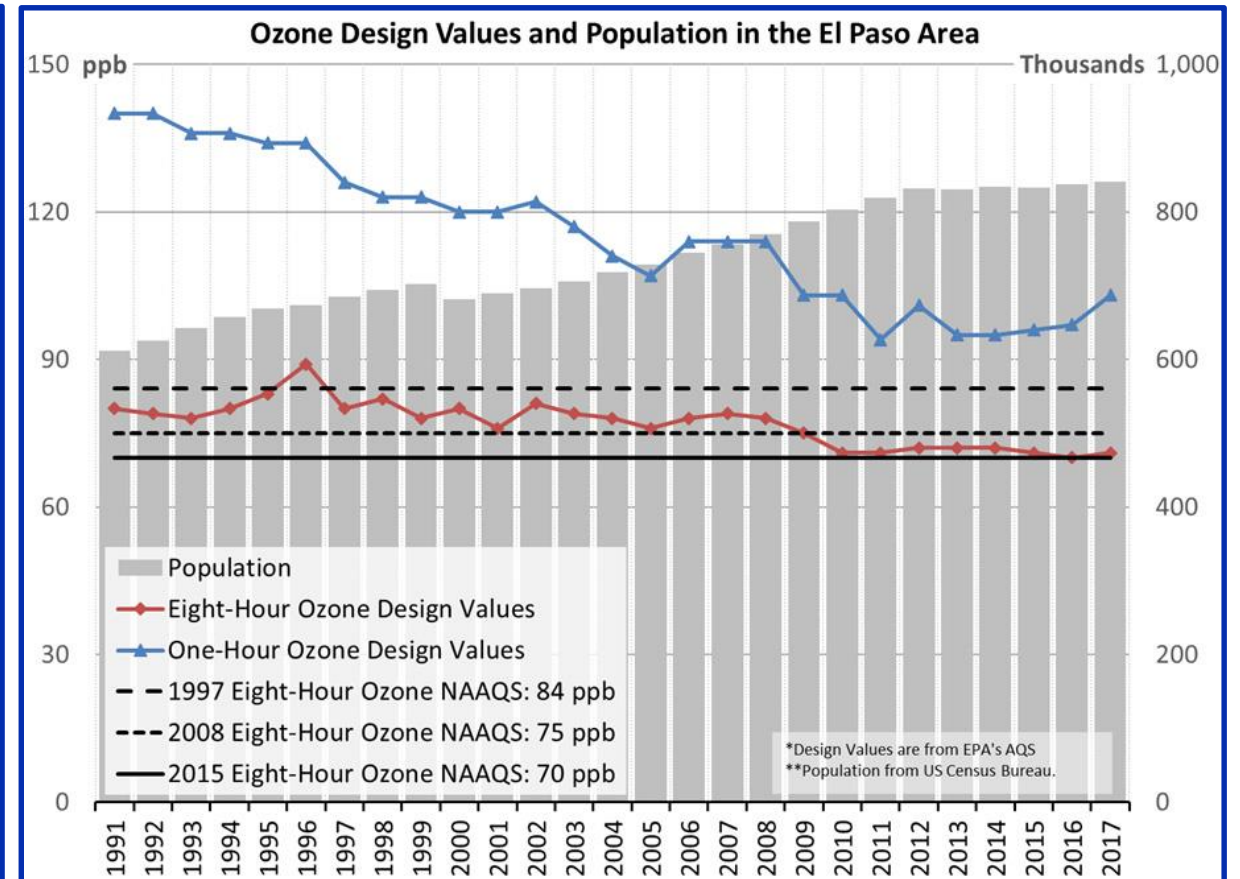


Ozone Attainment Status

Dallas-Fort Worth



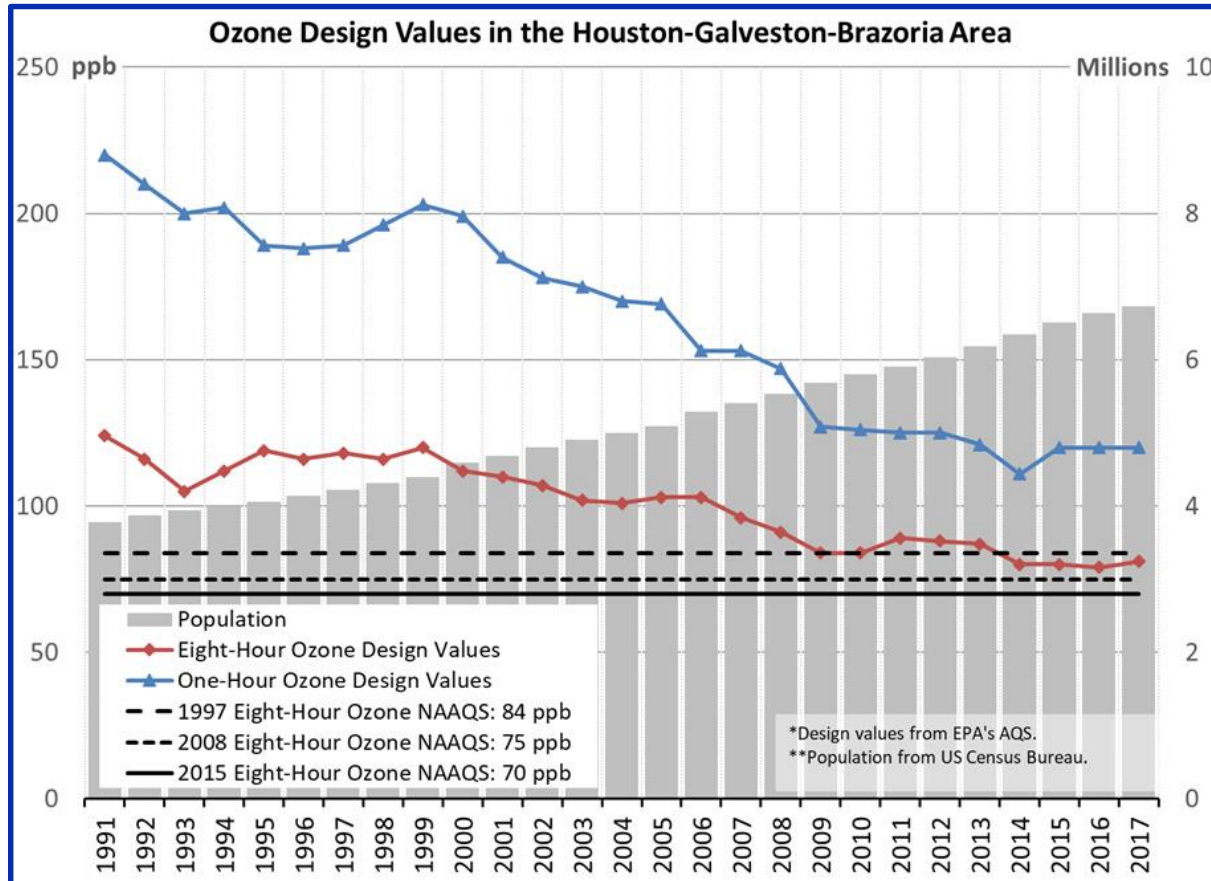
El Paso



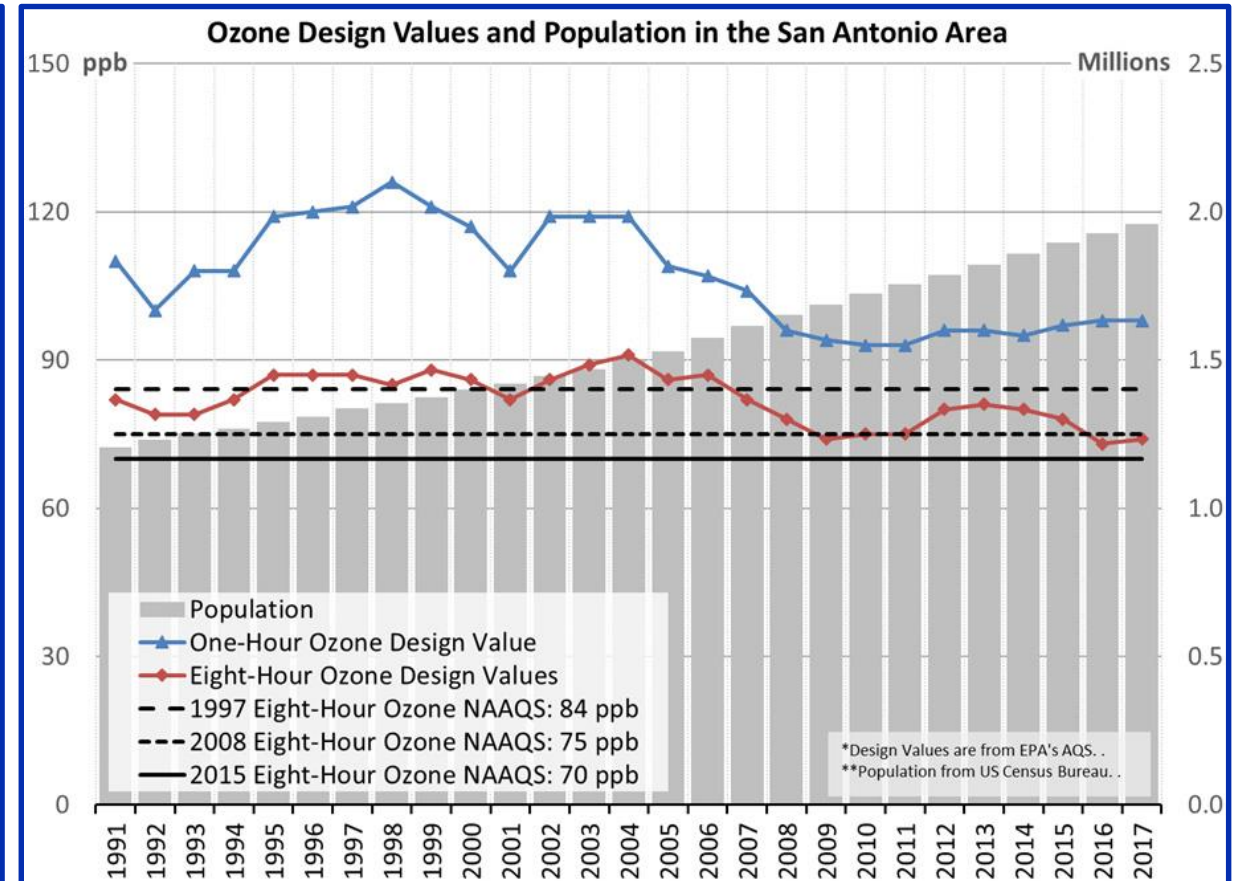


Ozone Attainment Status

Houston-Galveston-Brazoria



San Antonio





Texas Ozone Attainment History

		YEAR																																	
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019						
Houston-Galveston-Brazoria	1-Hour Ozone (1979) - NAAQS revoked	Severe-17																																	
	8-Hour Ozone (1997)- NAAQS revoked													Moderate	Severe-15																				
	8-Hour Ozone (2008)																					Marginal				Moderate									
	8-Hour Ozone (2015)																												Marginal						
Dallas-Fort Worth	1-Hour Ozone (1979) - NAAQS revoked	Serious																																	
	8-Hour Ozone (1997)- NAAQS revoked													Moderate							Serious														
	8-Hour Ozone (2008)																					Moderate													
	8-Hour Ozone (2015)																												Marginal						
San Antonio	8-Hour Ozone (2015)																												Marginal						
Beaumont-Port Arthur	1-Hour Ozone (1979) - NAAQS revoked	Serious																																	
	8-Hour Ozone (1997)- NAAQS revoked													Moderate						Attainment															
El Paso	1-Hour Ozone (1979) - NAAQS revoked	Serious													Attainment																				
Victoria	1-Hour Ozone (1979) - NAAQS revoked	Incomplete Data			Attainment																														

Nonattainment/Attainment Dates from EPA Green Book: https://www3.epa.gov/airquality/greenbook/anayo_tx.html

Houston-Galveston-Brazoria (HGB) Area Status and Updates



HGB

Revoked One-Hour and 1997 Eight-Hour Ozone NAAQS

- **Redesignation Request and Maintenance Plan SIP Revision for the One-Hour and 1997 Eight-Hour Ozone NAAQS**
 - Formal redesignation to lift severe nonattainment area anti-backsliding requirements since *South Coast II* decision vacated the Redesignation Substitute approach.
 - Texas submitted a SIP revision to EPA on December 14, 2018.
 - Proposed approval from EPA is expected in March 2019.

HGB

2008 Eight-Hour Ozone NAAQS

- **EPA Proposed Reclassification from Moderate to Serious Nonattainment on November 14, 2018**
 - Attainment date of July 20, 2021 with a 2020 attainment year (area must attain by the end of 2020)
 - Attainment Demonstration and Reasonable Further Progress SIP revisions due to EPA in early 2020
 - Proposal July 31, 2019
 - Adoption January 2020
 - Possible exceptional event demonstration(s)



HGB

2015 Eight-Hour Ozone NAAQS

- **Nonattainment Area Classified as Marginal**
 - Waller and Liberty Counties designated Attainment/Unclassifiable
 - Attainment date of August 3, 2021 with a 2020 attainment year (area must attain by the end of 2020)
- **Emissions Inventory (EI) SIP Revision**
 - Due two years after the effective date of the nonattainment designation
 - One EI SIP revision for all three nonattainment areas (HGB, Dallas-Fort Worth, San Antonio)



HGB

2015 Eight-Hour Ozone NAAQS (cont.)

- **Possible 179B Demonstration**
 - Demonstrate that the area would attain but for international emissions



TCEQ Modeling Activities



TCEQ's 2012 Modeling Platform

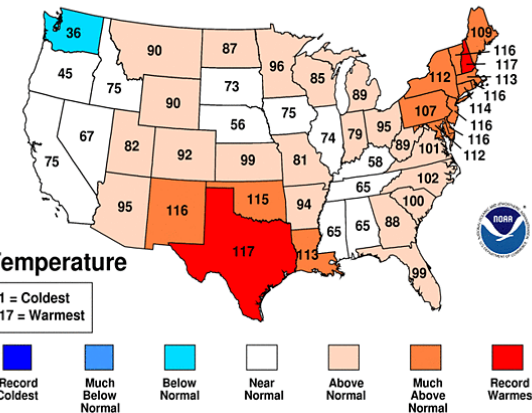
- HGB Moderate Classification Attainment Demonstration (AD) SIP for 2008 ozone standard (12/15/2016)
- 2015 Ozone Standard Transport SIP, aka "Good Neighbor" SIP (8/8/2018)
- Dallas-Fort Worth (DFW) and HGB Serious Classification AD SIP (aka "bump-Up") for 2008 ozone standard (in progress)
- Development of default inter-pollutant trading ratios for DFW, HGB, and San Antonio (in progress)
- Assessment of foreign contributions to Texas ozone design values aka "179B demonstration" (pending)

Why Not EPA's 2011 Platform?

2011 (EPA Platform)

May-October 2011 Statewide Ranks

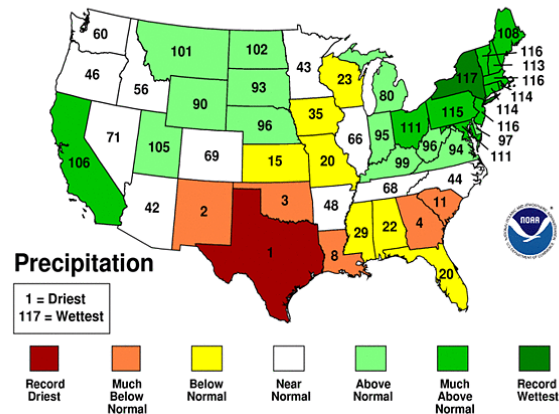
National Climatic Data Center/NESDIS/NOAA



2011 was the hottest and driest year on record in Texas!

May-October 2011 Statewide Ranks

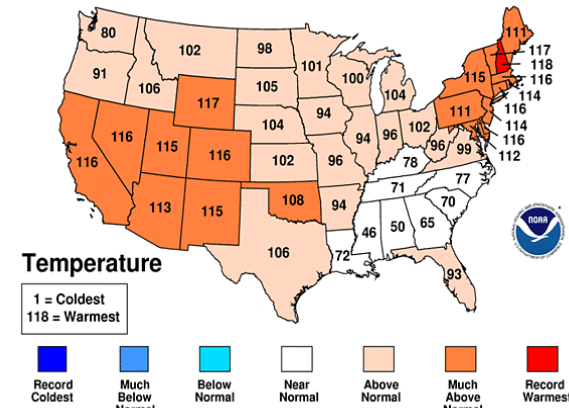
National Climatic Data Center/NESDIS/NOAA



2012 (TCEQ Platform)

May-October 2012 Statewide Ranks

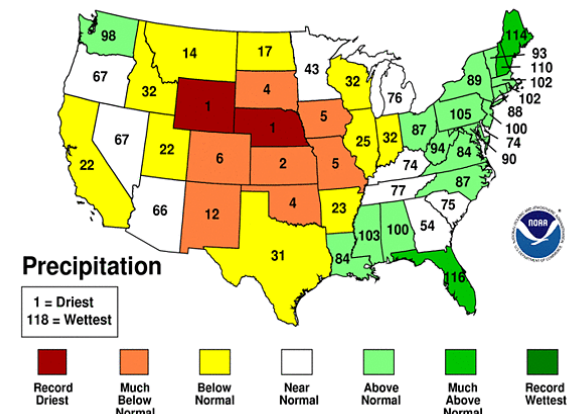
National Climatic Data Center/NESDIS/NOAA



2012 was hot and dry in Texas, but not so extreme as 2011.

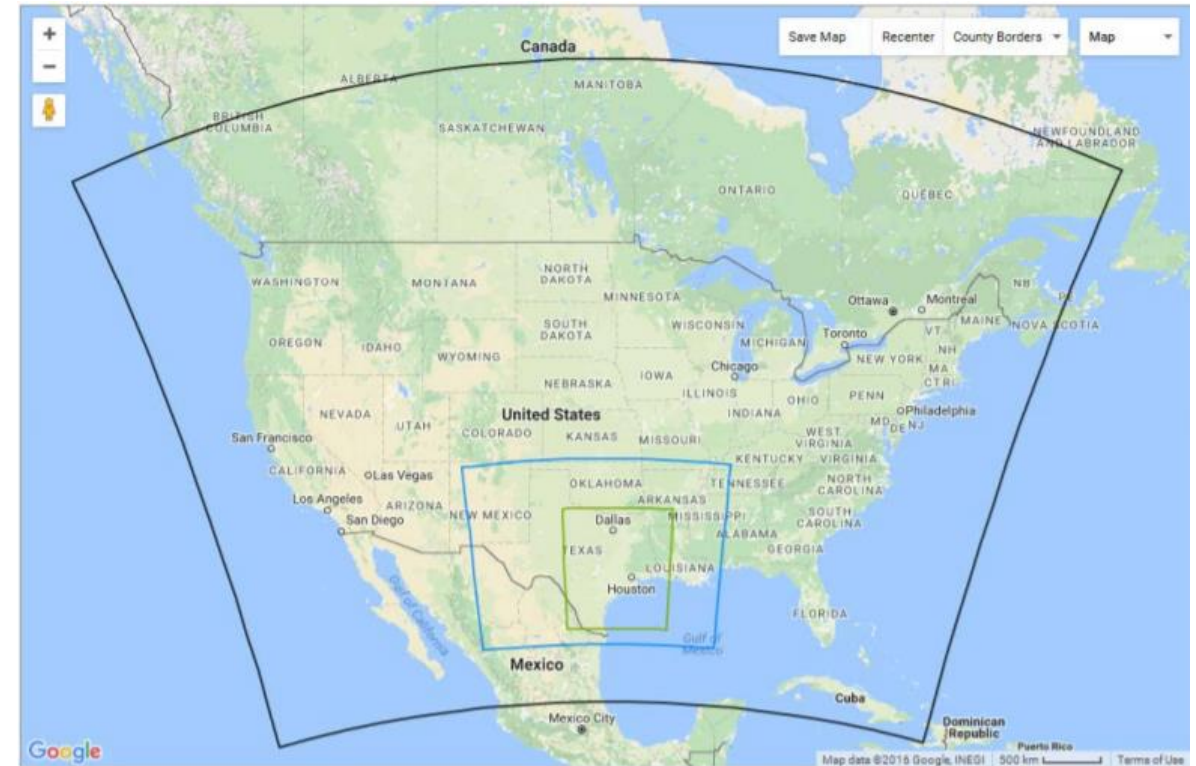
May-October 2012 Statewide Ranks

National Climatic Data Center/NESDIS/NOAA



HGB Moderate Attainment Demonstration Modeling for 2008 O₃ Standard

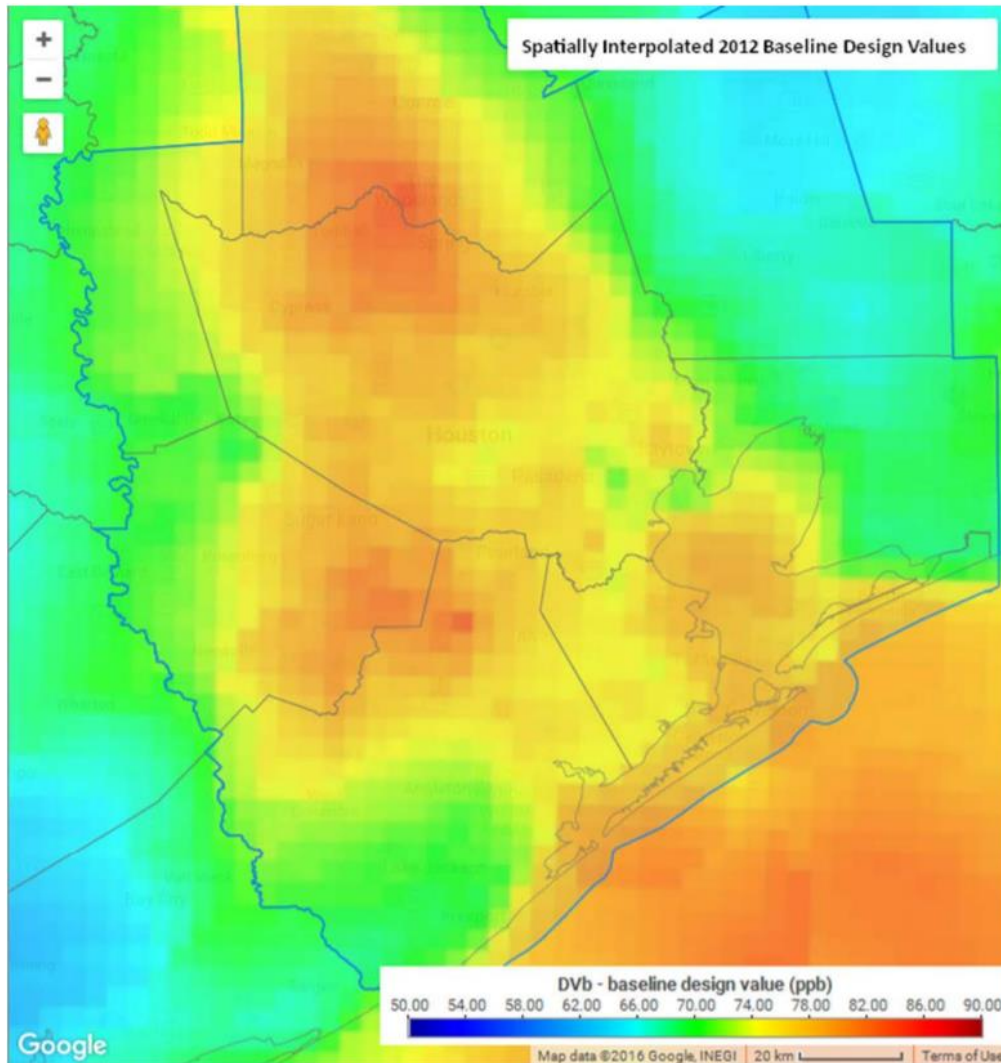
- 36/12/4 km Nested Grid with 29 vertical layers
- WRF v3.7.1 Meteorology
- GEOS-Chem v10-01 boundary conditions for 2012 & 2017*
- CAMx v6.31
- Carbon-Bond v6 r2 with halogen chemistry (CB6r2h)



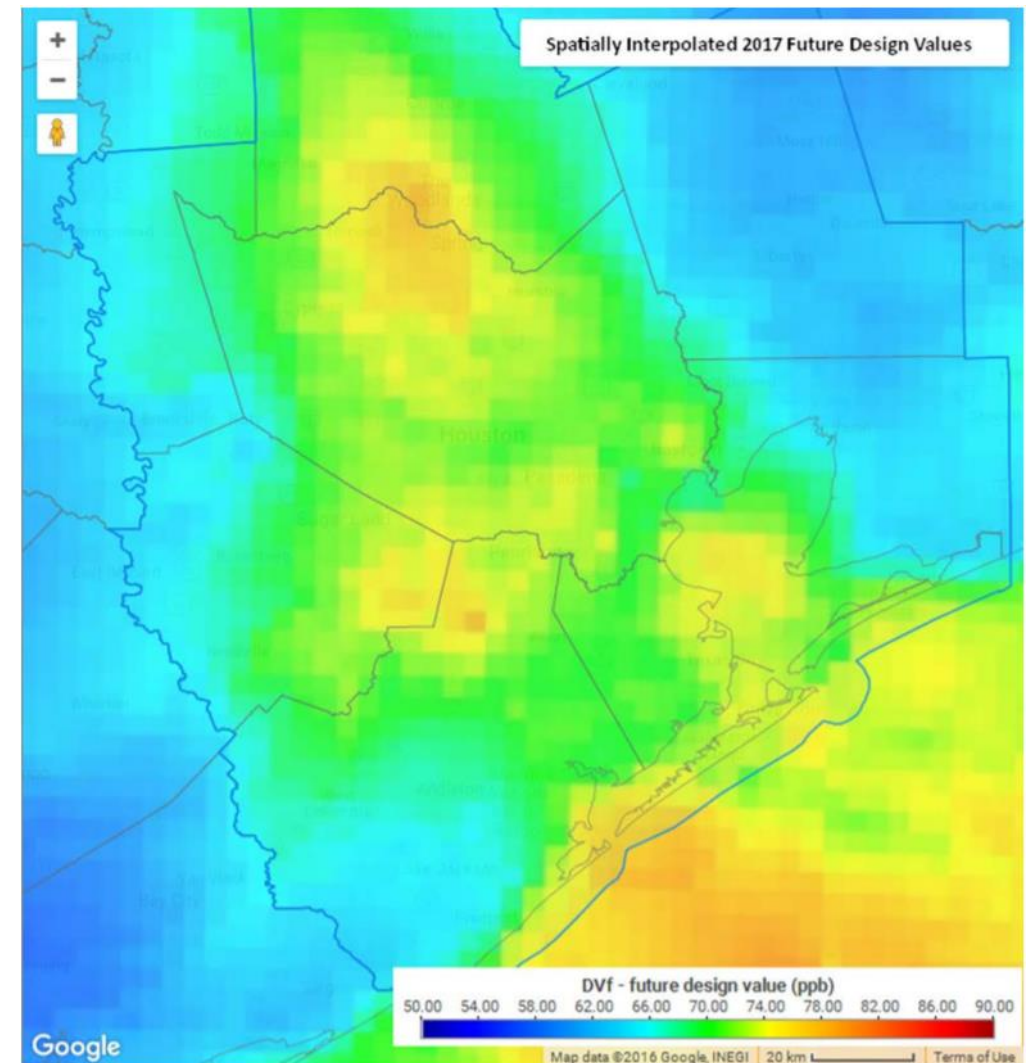
* Ramboll GEOS-Chem run

HGB Moderate AD SIP for 2008 O₃ Standard (cont.)

2012 Baseline



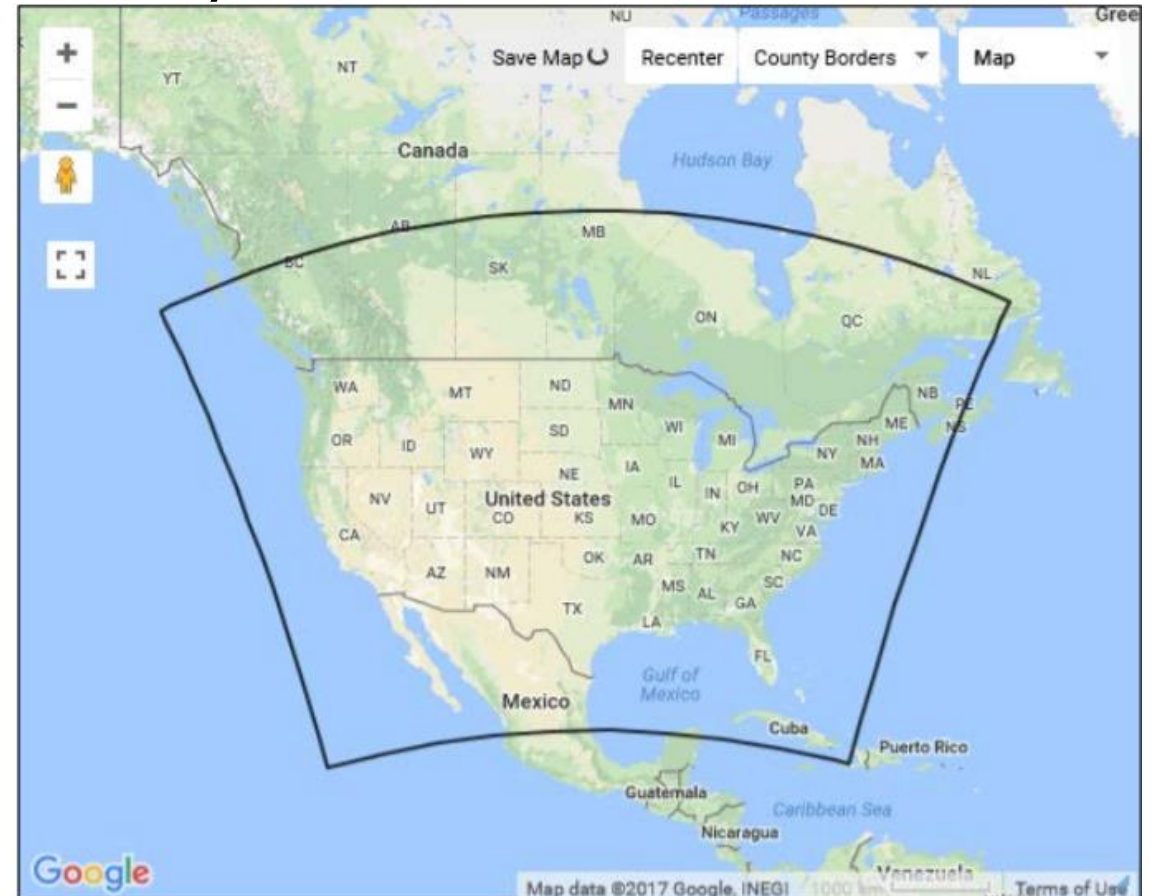
2017 Future Case



2015 O₃ Standard Transport SIP Modeling

- 12 km CONUS Grid with 29 vertical layers
- WRF v3.8.1 Meteorology
- GEOS-Chem boundary v10-01* conditions for 2012 & 2023
- CAMx v6.41
- Carbon-Bond v6 r2 with halogen chemistry (CB6r2h)

* TCEQ GEOS-Chem run



2015 O₃ Standard Transport SIP (cont.)

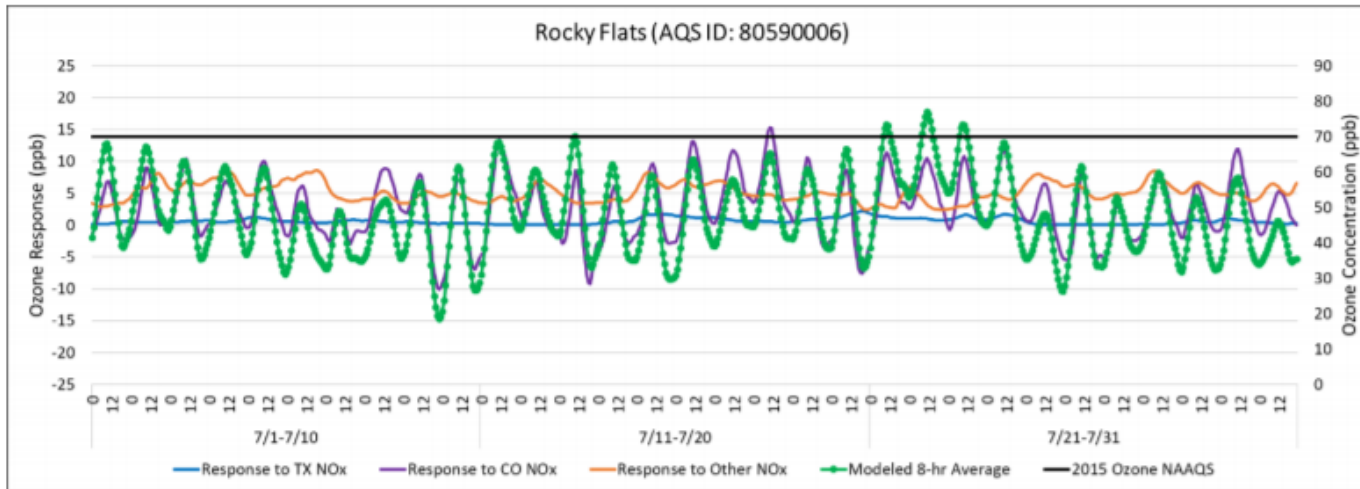


Figure 3-49: DDM Responsiveness of Ozone in July 2023 at Rocky Flats

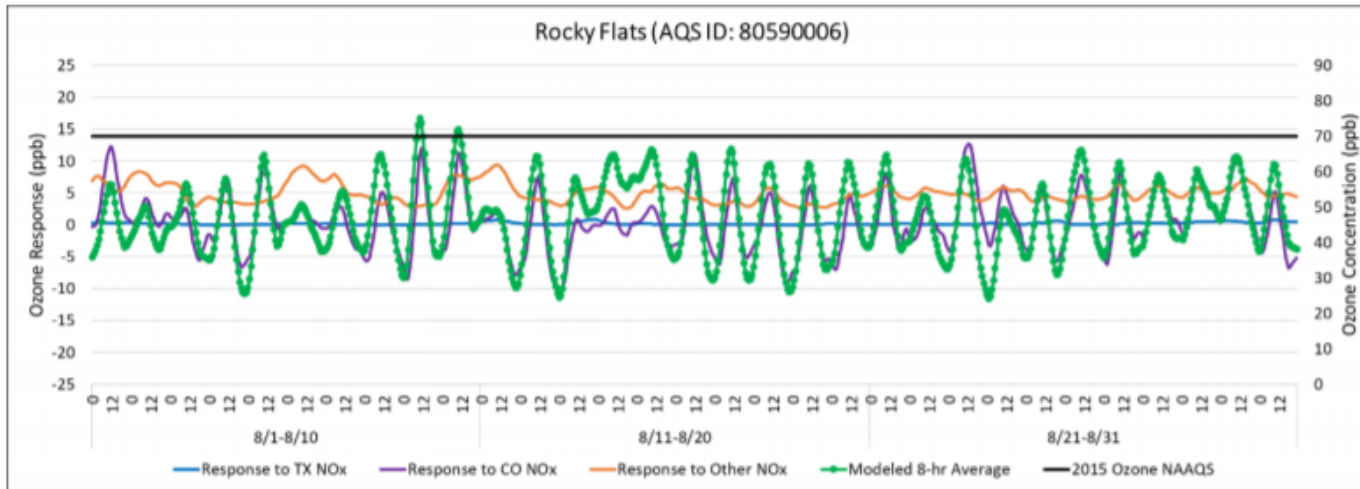


Figure 3-50: DDM Responsiveness of Ozone in August 2023 at Rocky Flats

DDM analysis shows minimal responsiveness to changes in Texas NO_x emissions. Ozone is highly responsive to Colorado and other NO_x.



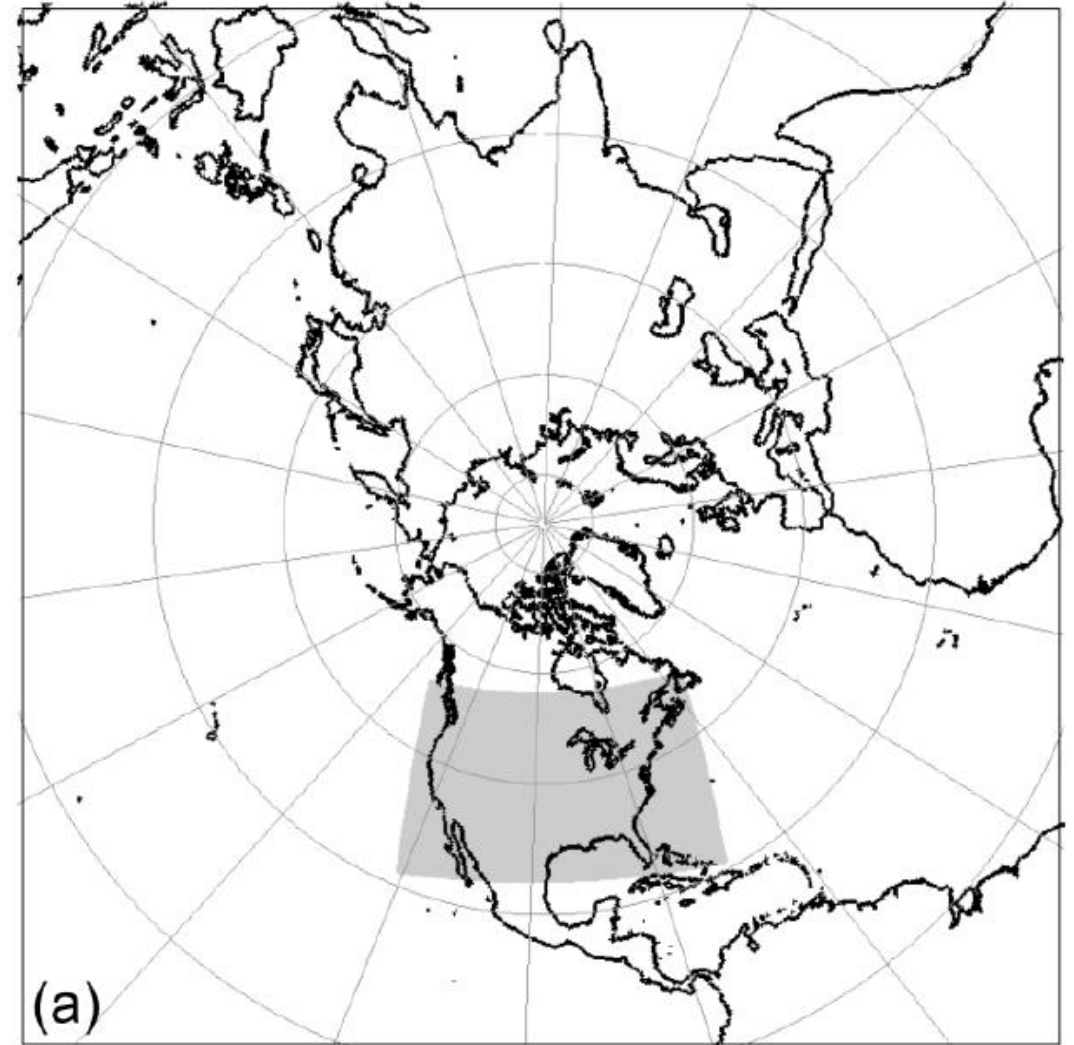
TCEQ Planned Modeling Activities

- New 2016 Modeling Platform
 - Collaborating with EPA, other states on framework, emissions updates
 - Texas refinements: Meteorology, link-based mobile emissions, support new CAMx capabilities
 - North American 36/12 km grid includes almost all Mexican and Canadian source regions, Cuba, most Caribbean and some Central American source regions
 - Add fine grids as needed
- Supports expanded assessment of international transport
- Future Modeling needs (e.g. Regional Haze)



TCEQ Planned Modeling Activities

- Hemispheric Application of CAMx (in progress)
 - Seamless integration with regional CAMx applications
 - Source Apportionment capabilities allow identification of foreign sources of transported ozone.





Contact Information

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