

# Texas Commission on Environmental Quality

INTEROFFICE MEMORANDUM

**To:** Commissioners **Date:** January 13, 2010  
**Thru:** LaDonna Castañuela, Chief Clerk  
**From:** Susana M. Hildebrand, P.E.   
Chief Engineer's Office  
**Subject:** Update of Air Quality in Texas

At the January 22, 2010, Commissioners' Work Session, an air quality update will be presented on the following topics:

Air Toxics – Effects Screening Levels, Benzene, Butadiene, and the Air Pollutant Watch List

National Ambient Air Quality Standards (NAAQS) – Ozone Design Values and Population Trends, the Particulate Matter of 2.5 microns and less (PM<sub>2.5</sub>) Design Values in Harris County and Clinton Drive, and PM<sub>2.5</sub> Efforts to Reduce Local PM<sub>2.5</sub> Emission in the Clinton Drive Area

Ongoing Activities – Texas Emission Reduction Plan and Drive a Clean Machine

Air Quality Challenges – Relating to the Toxicology Division and the Air Quality Division

Ongoing Efforts – Relating to the Toxicology Division and the Air Quality Division

Overview – An overview of ozone design values in Texas

This presentation will incorporate the attached slides.



# Update of Air Quality in Texas

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Chief Engineer's Office



# Update of Air Quality in Texas

- Air Toxics
- National Ambient Air Quality Standards (NAAQS)
- Ongoing Activities
- Air Quality Challenges
- Ongoing Efforts

# National Ambient Air Quality Standards (NAAQS)

- Ozone (1997 Standard - 0.08 parts per million)
  - Houston-Galveston-Brazoria
  - Dallas-Fort Worth
  - Beaumont-Port Arthur (redesignation request pending approval)
- Particulate Matter
  - El Paso County for PM<sub>10</sub>
- Lead
  - A portion of Collin County in the Dallas-Fort Worth Area
- Nitrogen Dioxide
  - All areas attainment
- Sulfur Dioxide
  - All areas attainment
- Carbon Monoxide
  - All areas attainment



# Air Toxics

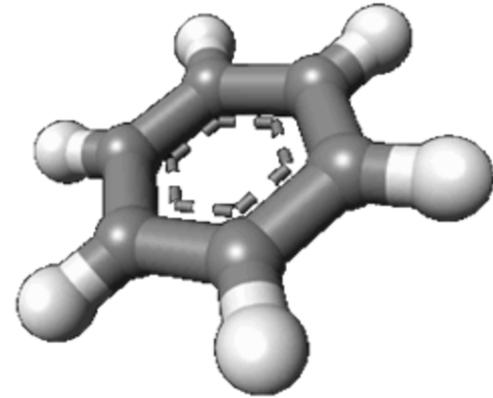
- Effects Screening Levels
- Benzene
- Butadiene
- Air Pollutant Watch List

# Effects Screening Levels

- New guidelines November 2006
  - External scientific peer review by panel of international experts
  - Two rounds of public comments
- Used in air permitting and for evaluating air monitoring data.
- Currently, 28 ESLs have been derived using the new process.

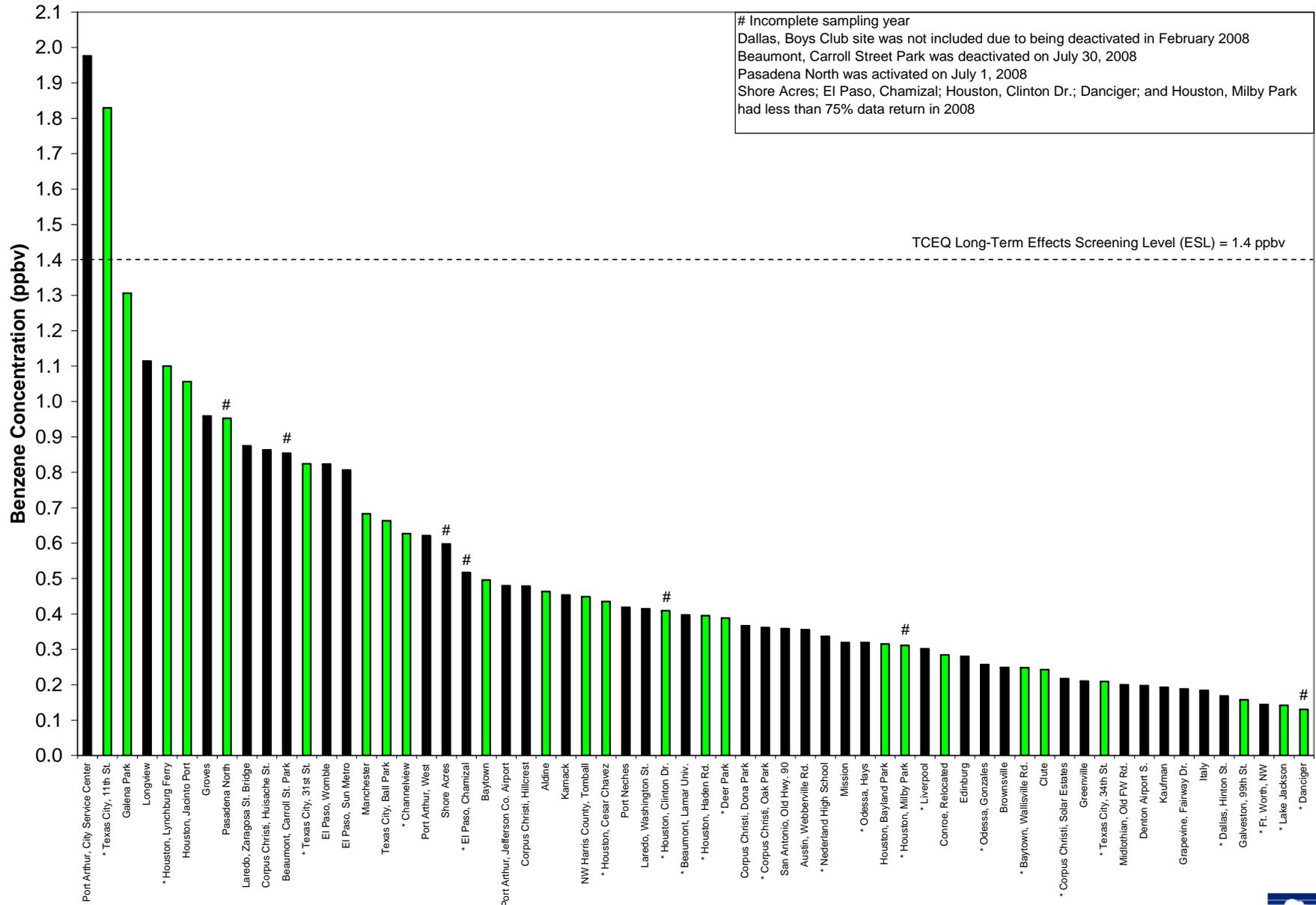
# Benzene

- Risk-driver for Texas and U.S.
- Wide variety of emission sources
- Representative of other chemicals
  
- In 2008, **no** monitors in Harris County were above the long-term ESL for benzene
  
- **All monitors** in the Houston Region showed a **decrease** in average benzene concentration from 2005-2008



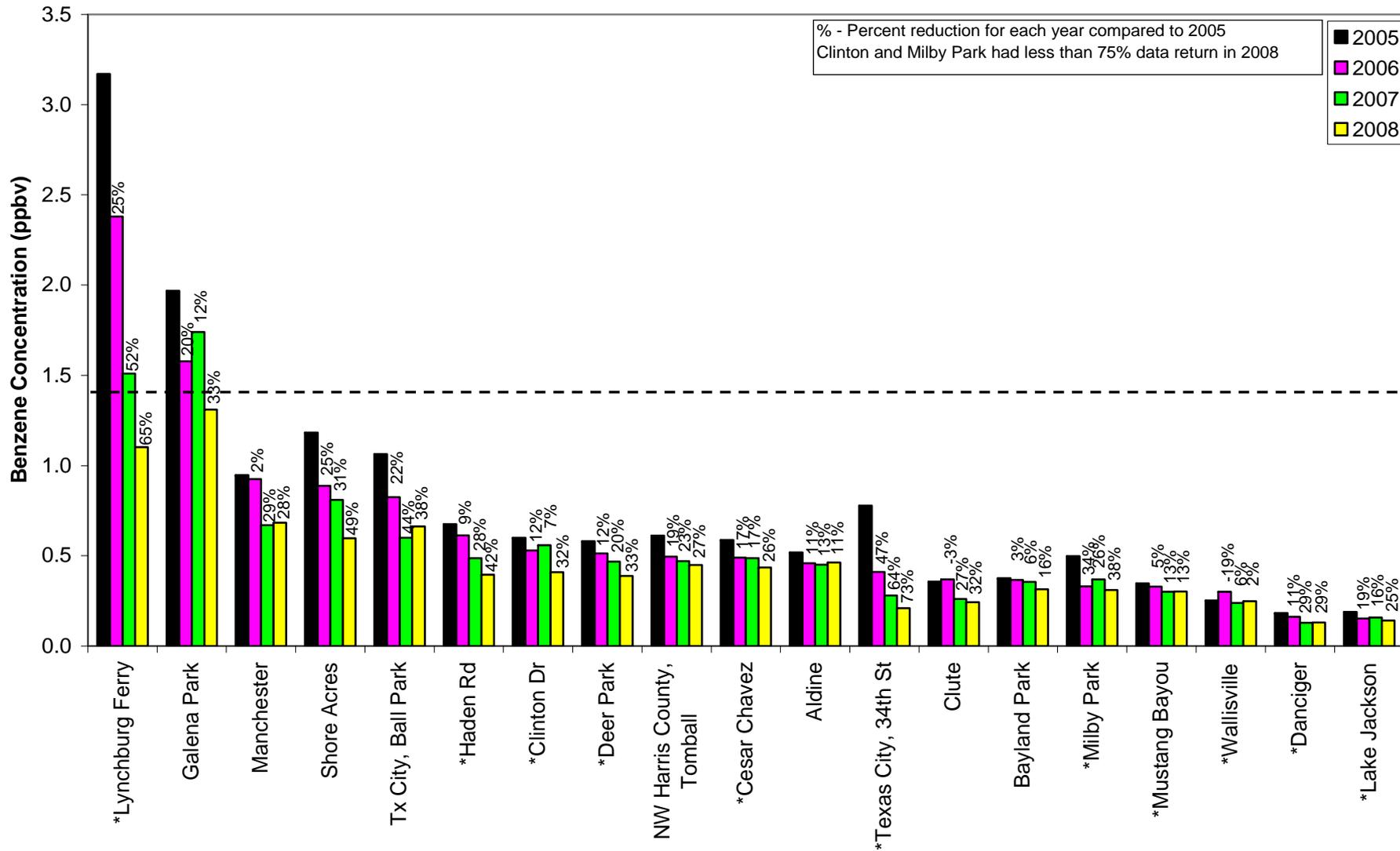
## 2008 Average Benzene Concentrations at Air Monitoring Sites in Texas

(Values shown are arithmetic means of 5329 to 7594 hourly autoGC measurements where available\*; otherwise arithmetic means of 45 to 61 canister samples.)

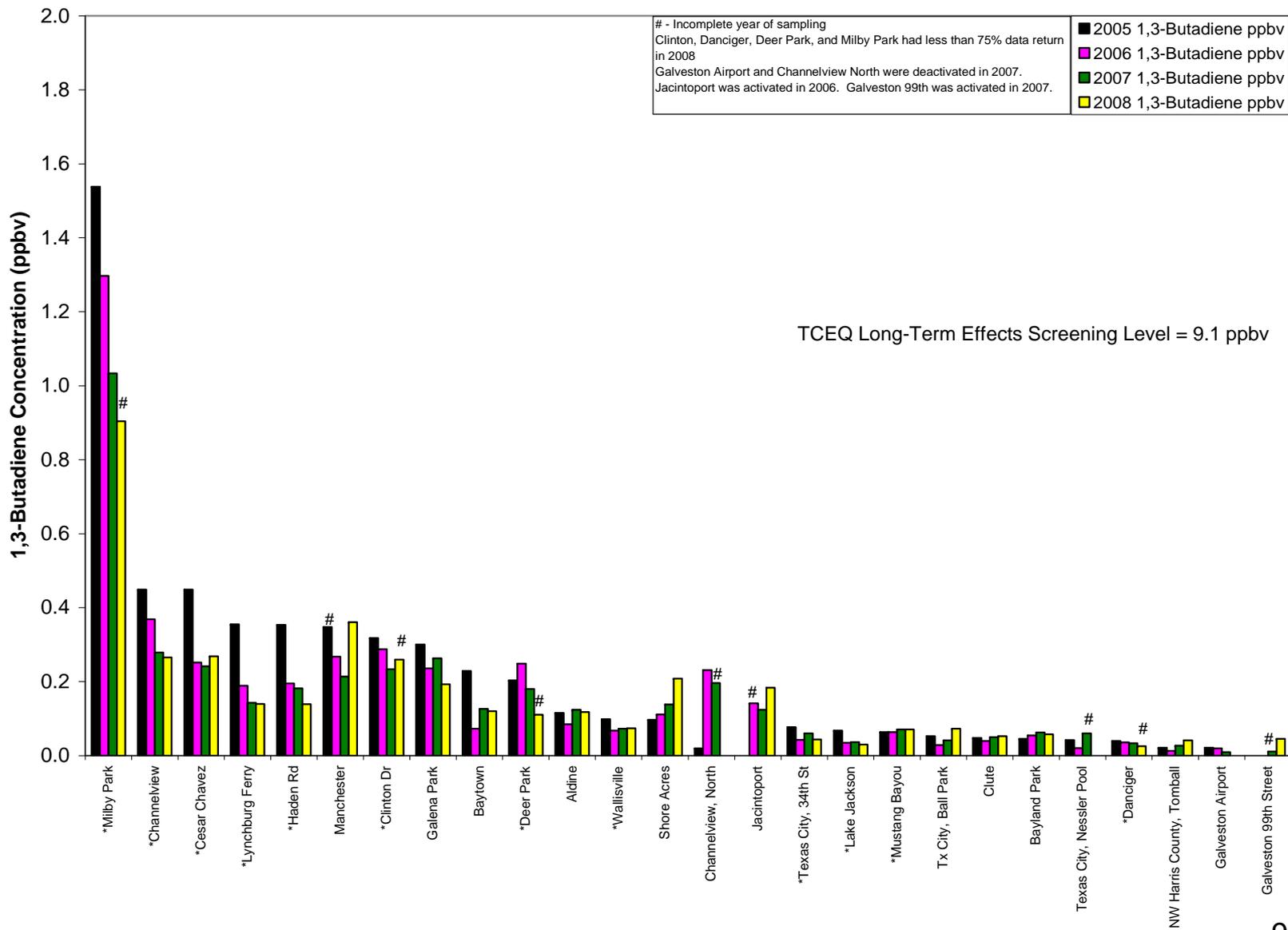


## Annual Average Benzene Levels at Selected Harris and Galveston County Sites, 2005-2008

(based on hourly autoGC data if available\*; otherwise every-sixth-day 24-hour canister data)

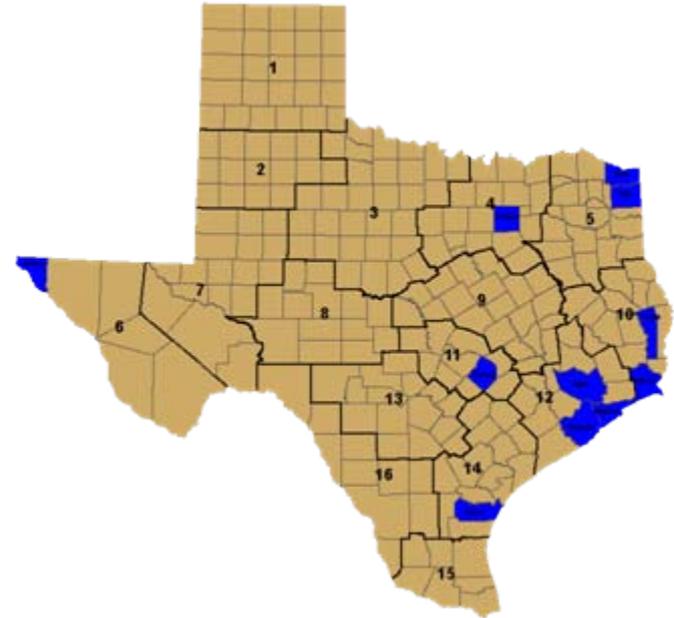


## Annual Average 1,3-Butadiene Levels at Harris and Galveston County Sites, 2005-2008 (based on hourly autoGC data if available\*; otherwise every-sixth-day 24-hour canister data)

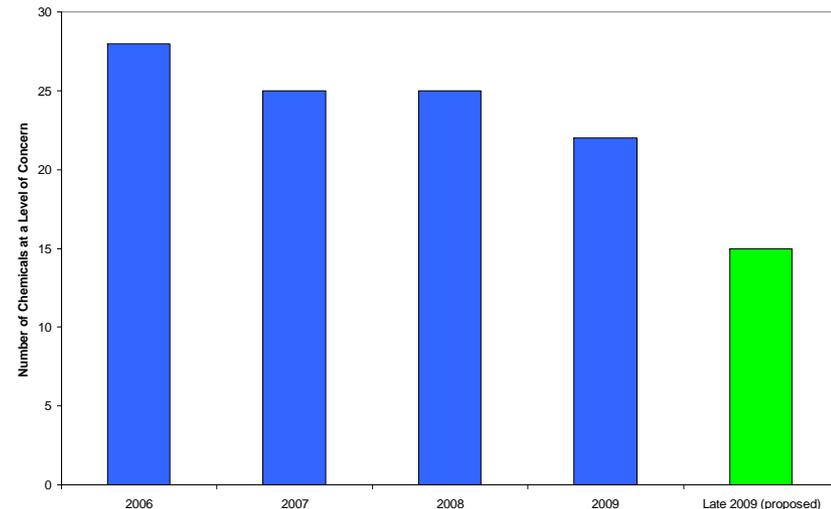


# Air Pollutant Watch List

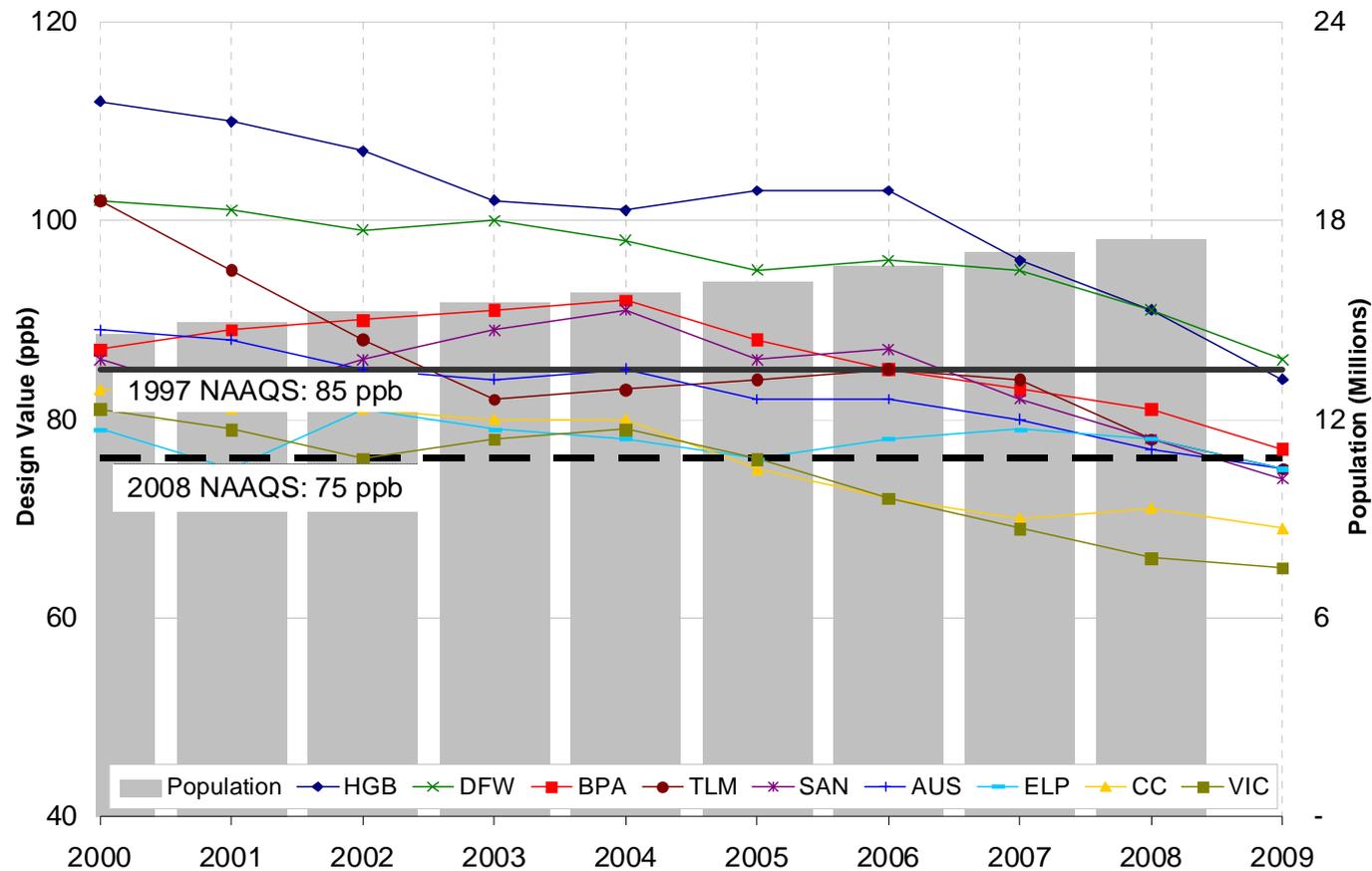
- Currently, there are 12 APWL areas in 11 counties
- Over the last 2 years, 6 pollutants have been removed
- 7 more pollutants in 5 APWL areas are proposed to be removed later this year



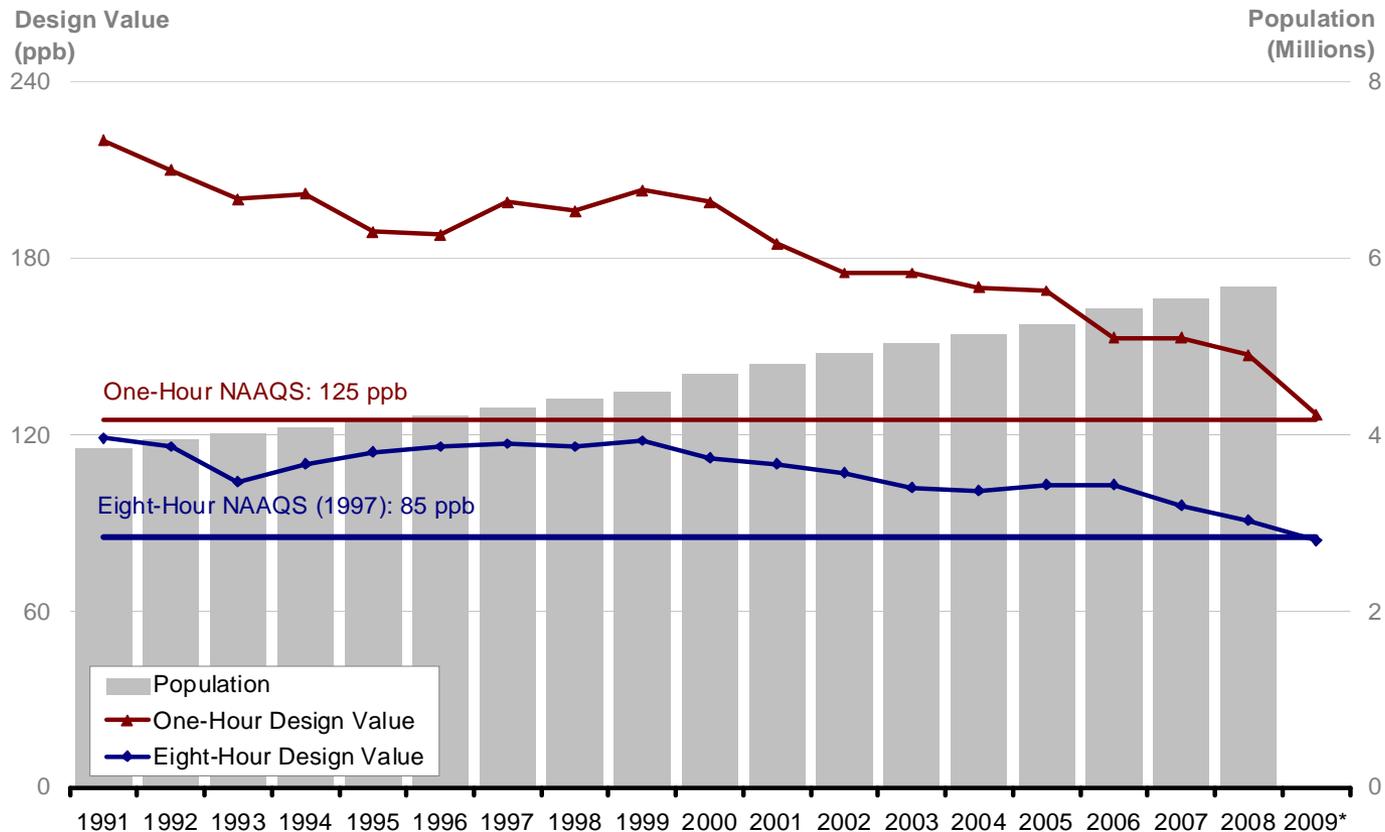
Number of Chemicals on the Air Pollutant Watch List



# Texas Eight-Hour Ozone Design Value and Population Trends 2000-2009



# HGB Ozone Design Value and Population Trends 2000-2009

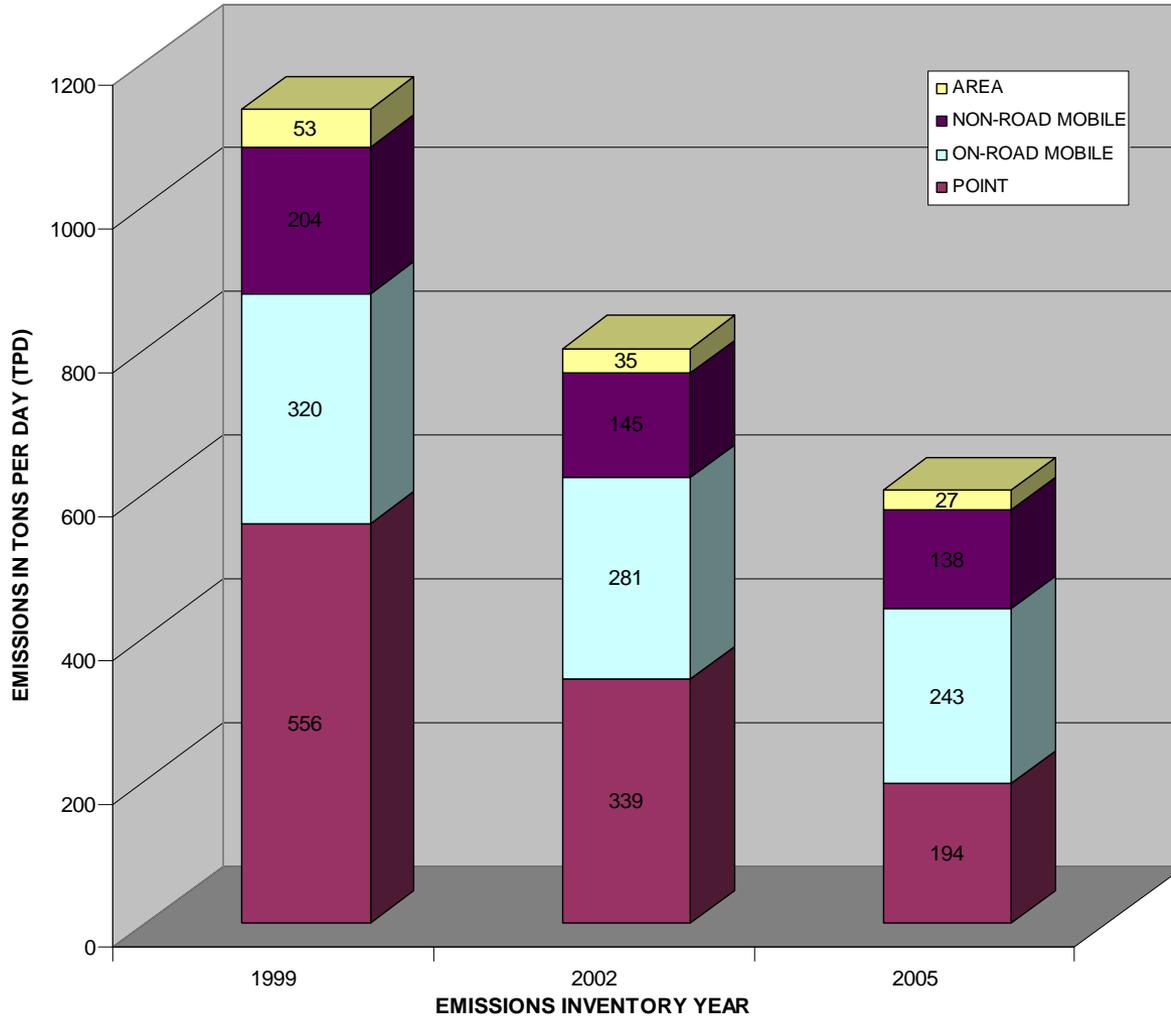


\*Source: Ozone -- EPA's AQS database.

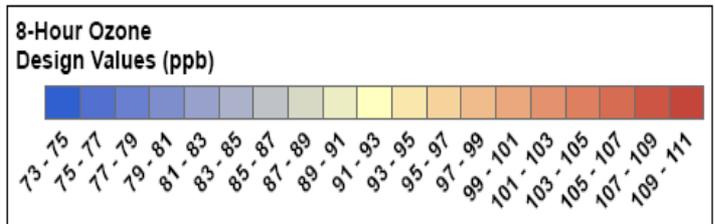
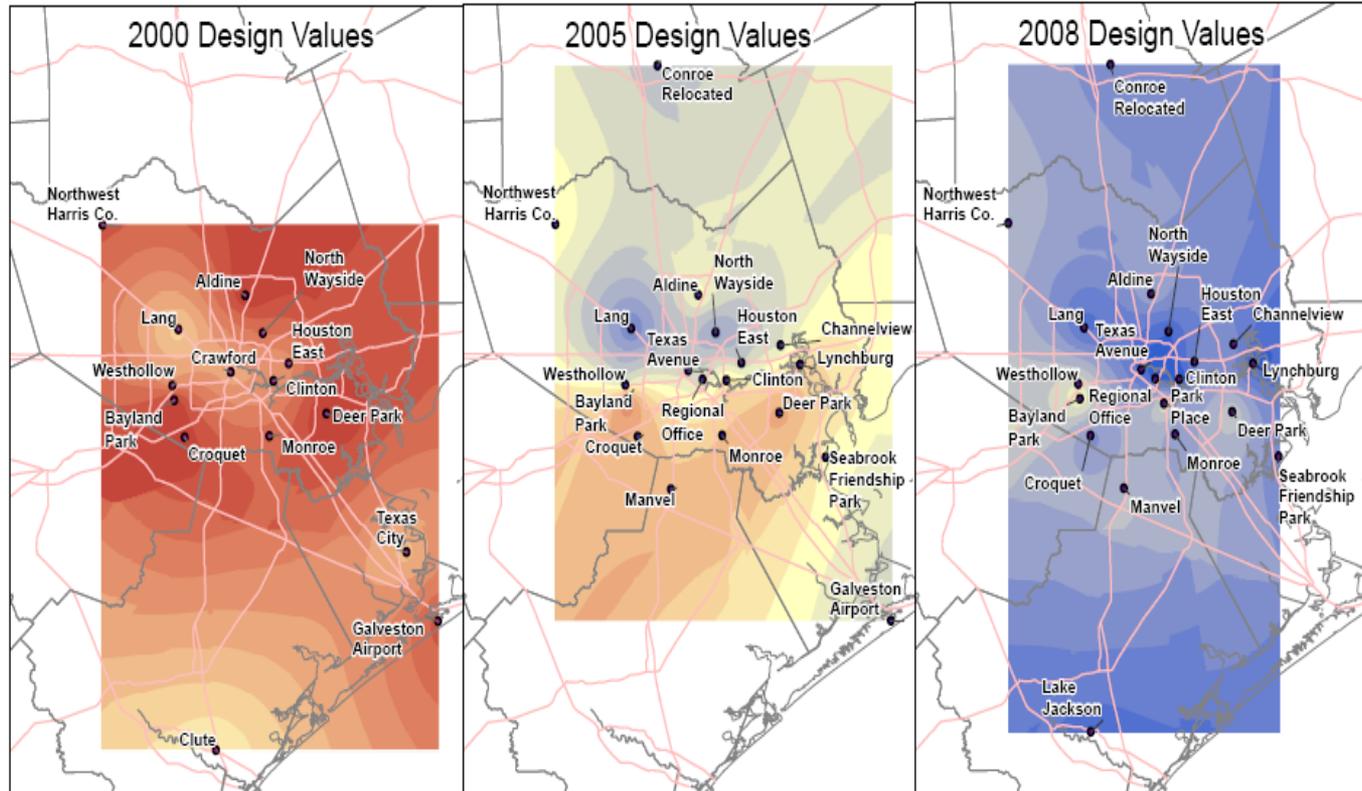
1991-2008 Population -- <http://www.census.gov/popest/archives/1990s/MA-99-03b.txt> and [http://www.census.gov/popest/counties/CO-EST2008-popchg2000\\_2008.html](http://www.census.gov/popest/counties/CO-EST2008-popchg2000_2008.html)  
 2009 Data is current as of October 6, 2009 and is subject to change. 2009 population data will not be available until June 2010.



# HGB Eight-County NO<sub>x</sub> Emissions

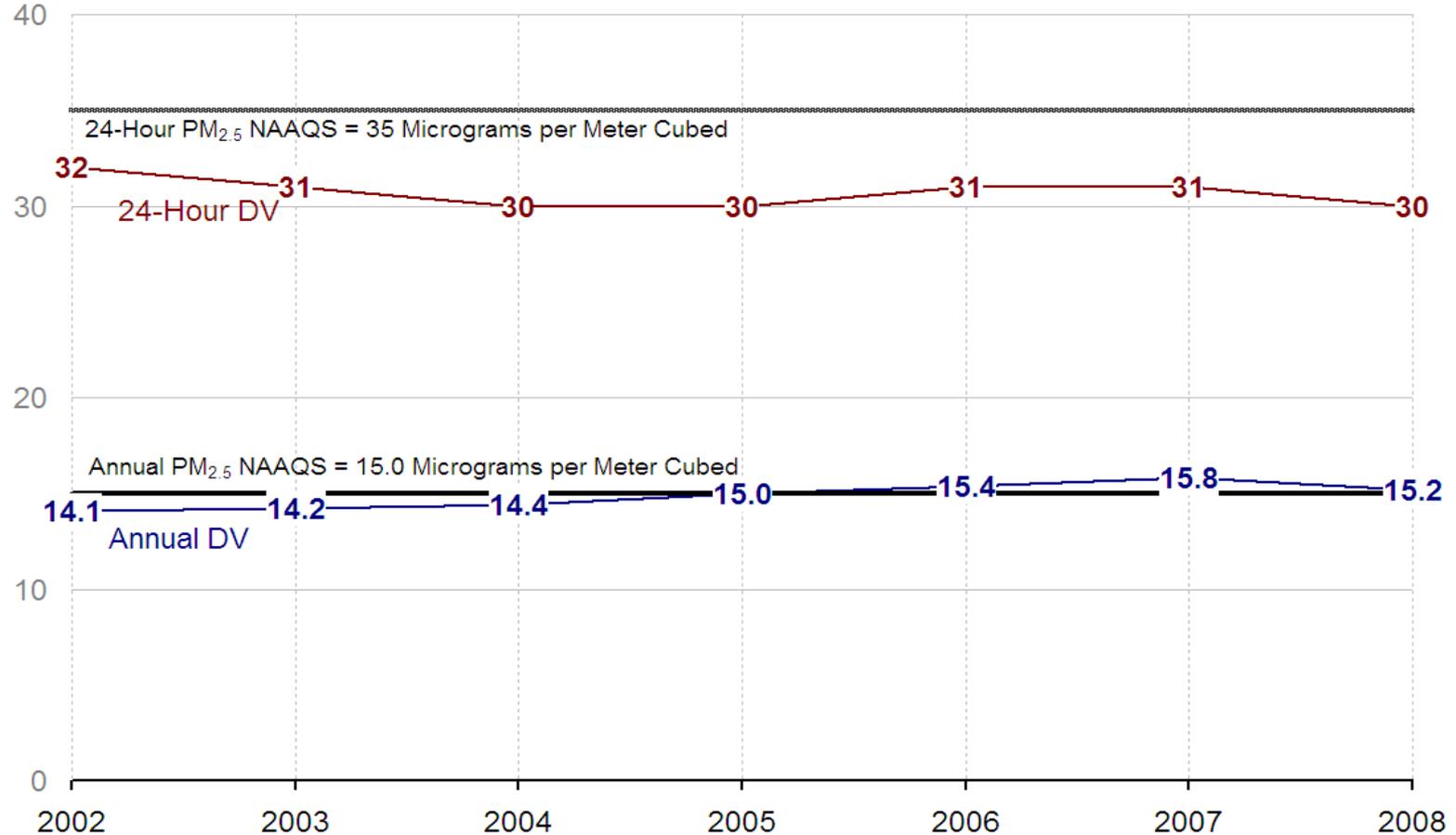


# HGB 1997 Eight-Hour Design Values for 2000, 2005, and 2008

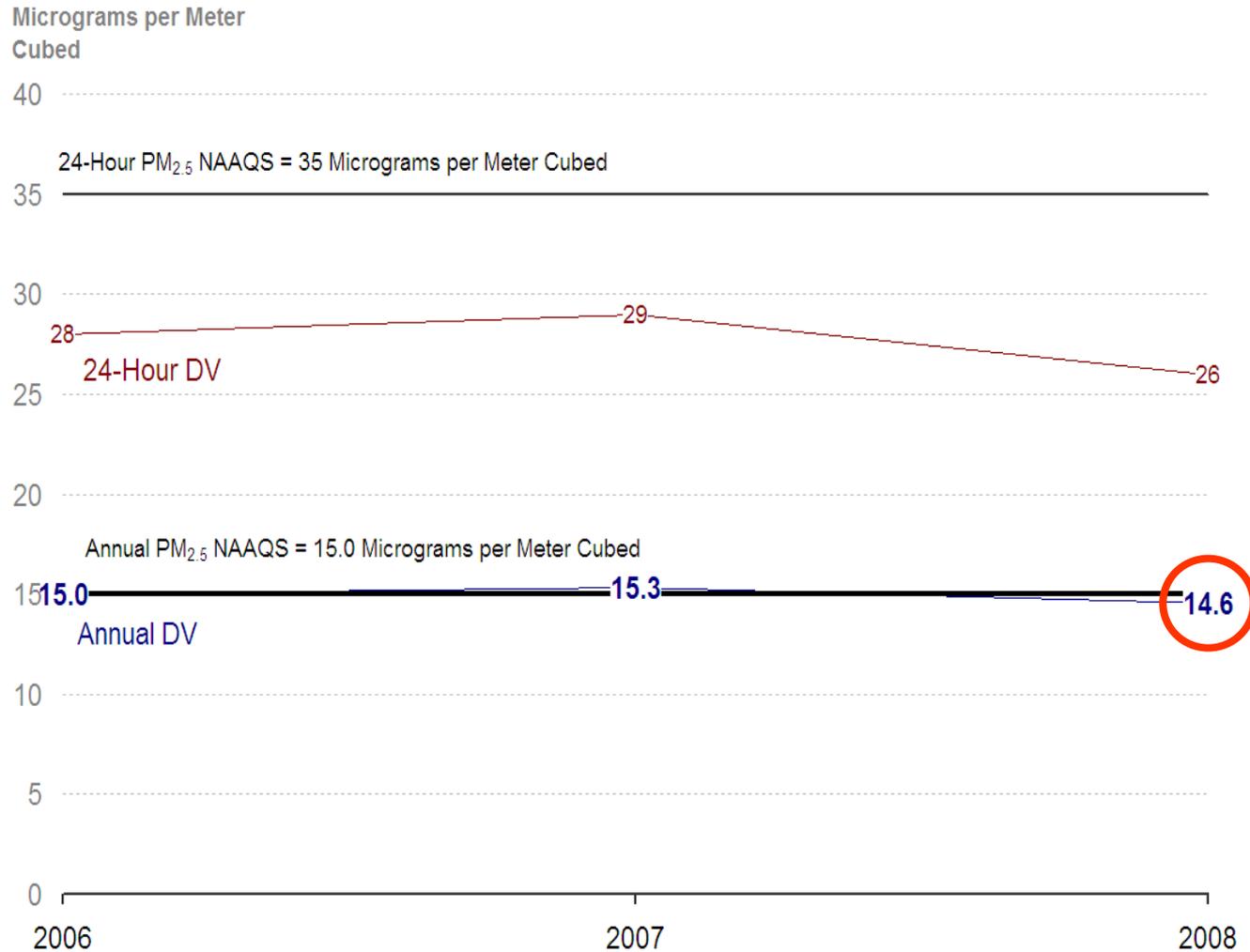


# PM<sub>2.5</sub> Design Values For Clinton Drive (Includes Exceptional Events)

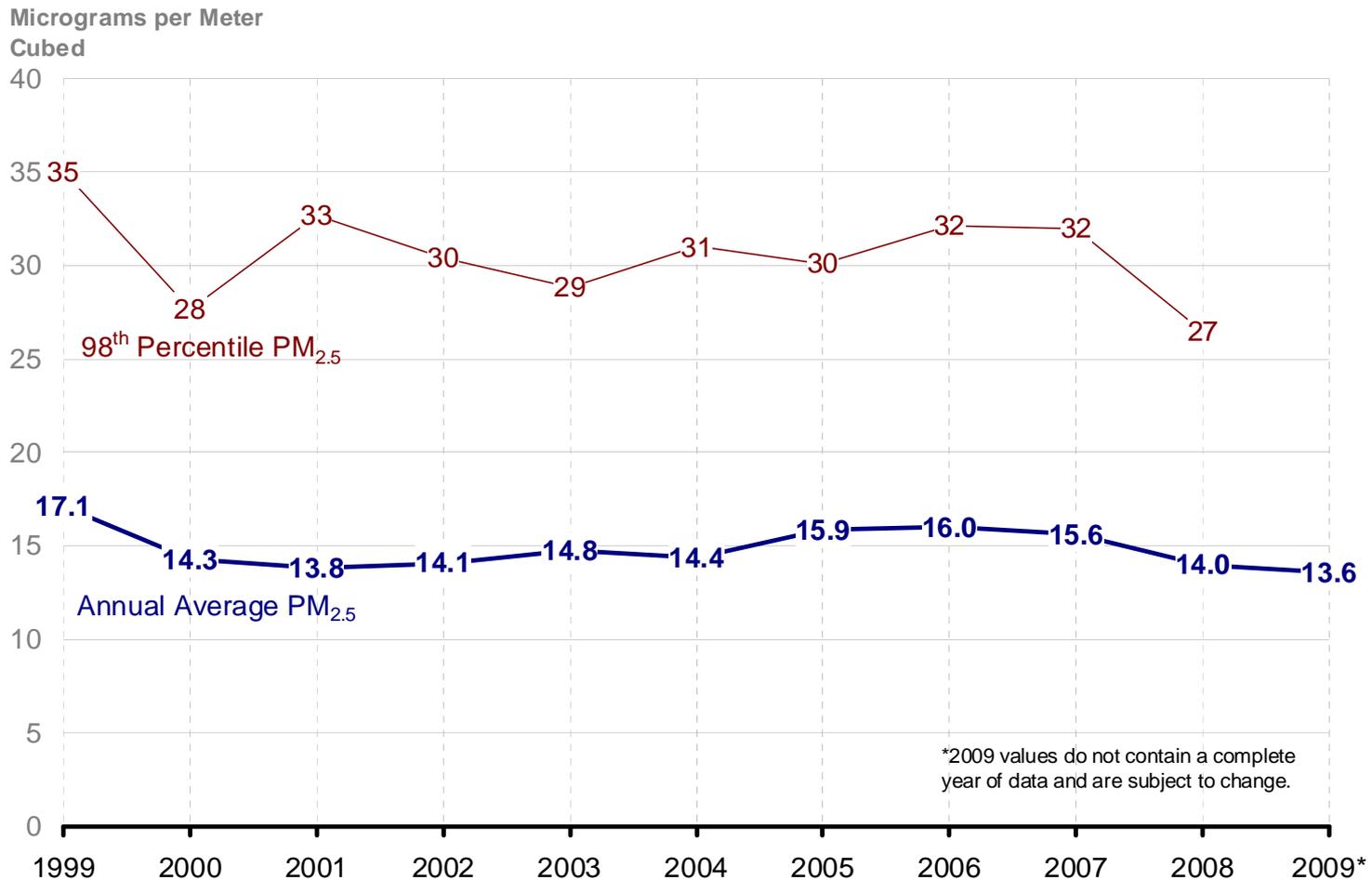
Micrograms per Meter  
Cubed



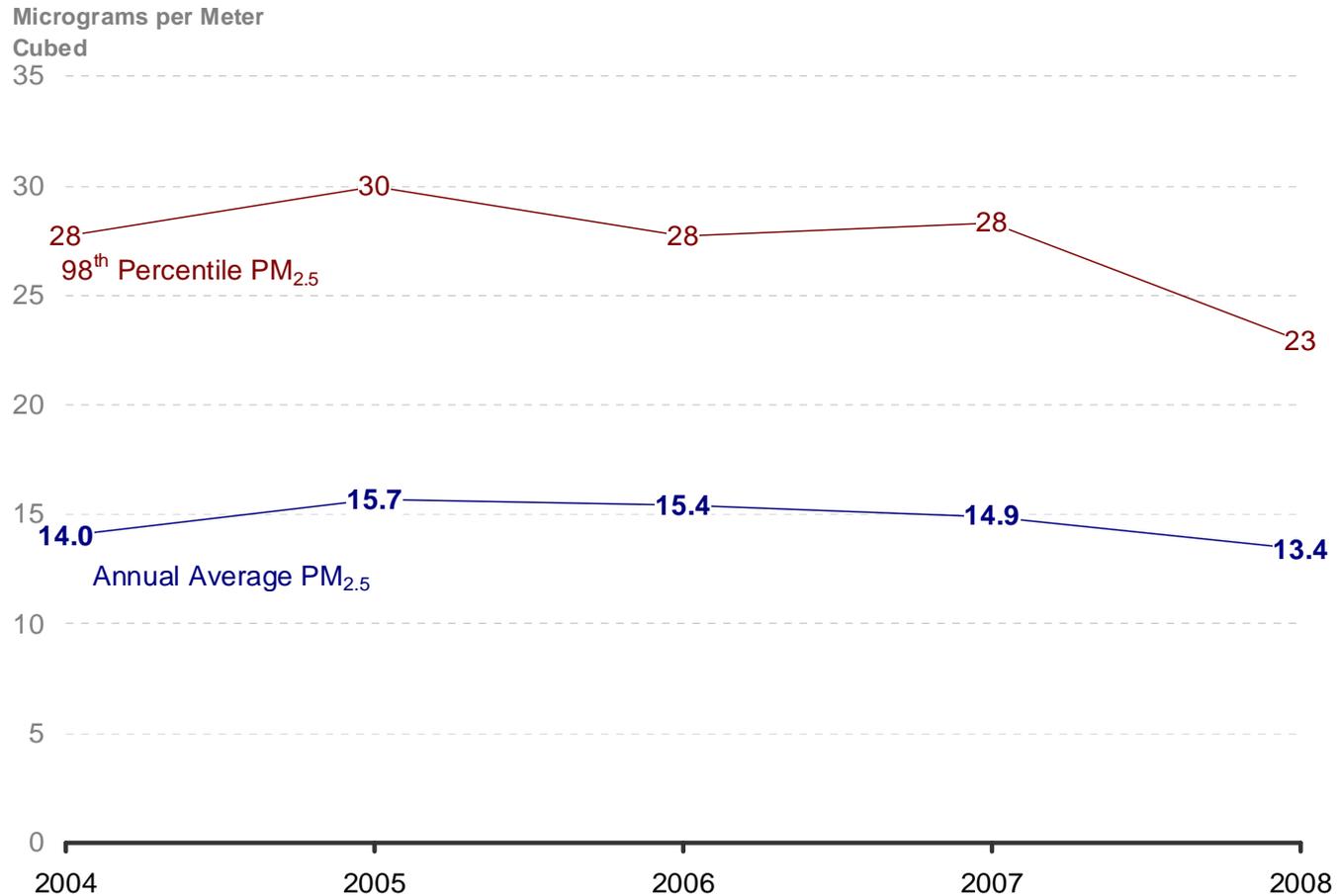
# PM<sub>2.5</sub> Design Values For Clinton Drive (Excludes Exceptional Events)



# Annual Average and 98<sup>th</sup> Percentile PM<sub>2.5</sub> at the Clinton Drive Monitor (Projects 2009 and Includes Exceptional Events)



# Annual Average and 98<sup>th</sup> Percentile PM<sub>2.5</sub> at the Clinton Drive Monitor (Excludes Exceptional Events)



# Efforts to Reduce Local PM<sub>2.5</sub> Emissions in the Clinton Drive Area (as of September 2009)

- Road Projects
- Railroad Projects
- Regulated Industry Projects



# Road Projects

- The City of Houston installed barriers to keep trucks from driving off Clinton Drive onto the dirt shoulders of the road.
- The City of Houston installed a traffic light at Clinton Drive and the Industrial Park East gate to control traffic at the intersection and completed a landscaping project along Clinton Drive.
- The TCEQ commissioners approved an SEP to pave the parking lot directly adjacent to the monitoring station.
- The Port of Houston Authority (PHA) reports widespread use of emulsified asphalt began October 1, 2007.
- Valero Asphalt paved its large work yard located across Clinton Drive to the southeast of the monitor.



# Railroad Projects

- Port Terminal Rail Association (PTRA) and Union Pacific (UP) are operating newly refurbished switcher engines on the Clinton line.
  - UP currently has 52 new gensets in the Houston area.
  - UP has 13 locomotives being funded by TERP.
- 60% of UP switcher engines operating in the area have anti-idling control.
- PTRA has stopped the steel loading activities on a dirt area to the south of the monitor.



# Regulated Industry Projects

- DuPont, a PHA tenant, has implemented new dust control best management practices at its fluorspar unloading and storage facility.
- Federal consent decrees are anticipated to result in an estimated 33,900 tpy of SO<sub>2</sub> reductions in the upper Texas Gulf Coast.
  - Valero Refining has already implemented control measures to reduce SO<sub>2</sub> emissions by 3,500 tpy.
  - The Rhodia sulfuric acid plant will decrease its SO<sub>2</sub> emissions by 8,984 tpy from 2005 actual emissions by 2012.



# Ongoing Activities

- Texas Emission Reduction Plan (TERP)
- Drive a Clean Machine



# Texas Emission Reduction Plan (TERP) Projects Awarded Through Nov. 2009

AREA	NUMBER OF PROJECTS	NUMBER OF ACTIVITES	TOTAL NO <sub>x</sub> (TONS)	GRANT AMOUNT	COST PER TON	TONS PER DAY IN 2010	TONS PER DAY IN 2011	TONS PER DAY IN 2012	TONS PER DAY IN 2013
Houston/ Galveston/ Brazoria	2,555	4,993	70,671.4682	\$323,555,899.66	\$4,578	30.2016	29.1659	27.3258	24.8733
Dallas/ Fort Worth	2,628	4,679	55,870.7056	\$261,042,156.81	\$4,672	21.2109	22.5695	21.7682	21.2155
San Antonio	572	873	7,297.9812	\$49,397,014.13	\$6,769	3.6585	3.7370	3.6688	3.3782
Austin	479	835	5,989.6338	\$42,171,255.02	\$7,041	3.1958	3.1771	2.9327	2.7182
El Paso	135	170	705.8245	\$3,174,307.08	\$4,497	0.3302	0.3021	0.2840	0.2205
Tyler/ Longview	151	292	6,650.4022	\$38,529,555.98	\$5,794	2.7767	3.5570	3.5459	3.4828
Beaumont/ Port Arthur	118	329	7,971.0967	\$39,164,483.34	\$4,913	3.2072	2.9791	2.8334	2.1550
Corpus Christi	22	84	1,079.0967	\$5,308,404.20	\$4,919	0.6616	0.5697	0.3523	0.2563
Victoria	9	13	92.5450	\$620,288.66	\$6,703	0.0553	0.0541	0.0523	0.0034
Unknown (TBD)*	5	5	2,284.3140	\$17,132,355.00	\$7,500	0.4672	1.3053	1.3053	1.3053
	<b>6674</b>	<b>12,273</b>	<b>12,273</b>	<b>\$780,095,719.87</b>	<b>\$4,918</b>	<b>70.6813</b>	<b>67.4167</b>	<b>64.0636</b>	<b>59.6085</b>

\* Includes Third-Party Grants to the Railroad Commission of Texas and the Texas General Land Office for funding not yet reported as assigned to specific areas.

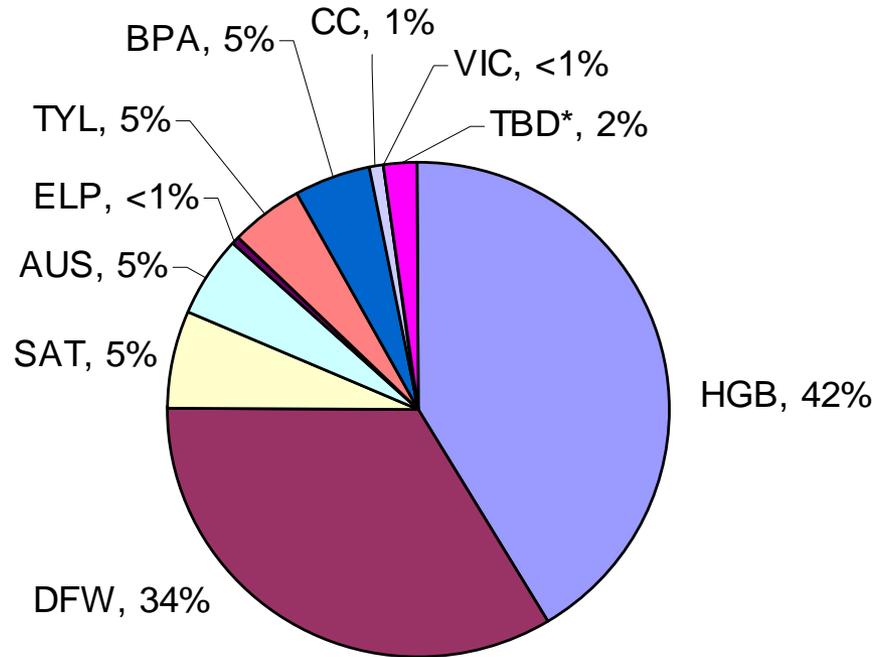


# TERP Projects Awarded Summary

- Number of Projects – 6,674
- Number of Activities – 12,273
- Total NO<sub>x</sub> Tons – 158,612.9876
- Grant Amount - \$780,096,719.87
- Cost Per Ton - \$4,918



# TERP Grant Amount by Area



AUS	Austin Area
BPA	Beaumont-Port Arthur
CC	Corpus Christi
DFW	Dallas-Fort Worth
ELP	El Paso
HGB	Houston-Galveston-Brazoria
SAT	San Antonio Area
TBD*	To Be Determined
TYL	Tyler-Longview
VIC	Victoria

\* Includes Third-Party Grants to the Railroad Commission of Texas and the Texas General Land Office for funding not yet reported as assigned to specific areas.



# Drive a Clean Machine

Area	Number of Repairs	Number of Replacements	Amount Distributed for Repair/ Replacement
Central Texas	651	1,897	\$6,037,669.23
Dallas-Fort Worth	4,899	15,410	\$48,602,402.99
Houston-Galveston-Brazoria	4,527	13,083	\$41,728,831.55
<b>Total</b>	<b>10,077</b>	<b>30,390</b>	<b>\$96,368,903.77</b>

From December 2007, implementation of Senate Bill 12, to May 2009 (end of Fiscal Year 2009 third quarter)



# Air Quality Challenges

- NAAQS revisions
- NAAQS review schedule
- Effective communication of risk
- Continual improvement of APWL process focusing on consistency, transparency, and progress.

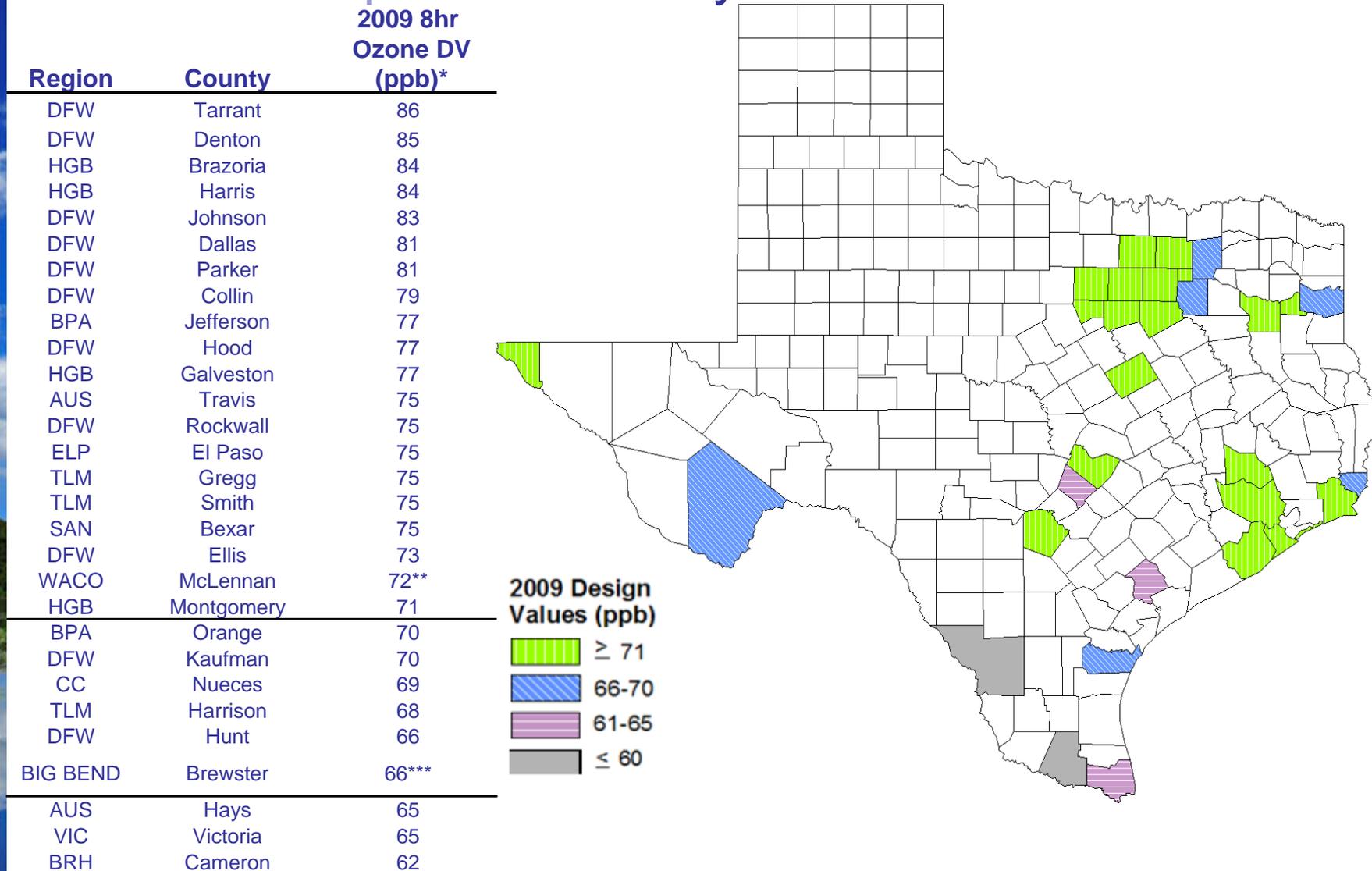


# 2010 Ozone Standard Key Dates

The EPA administrator announced there would be a review of the 2008 ozone NAAQS.	September 16, 2009
Proposal of the reconsideration to be published in the <i>Federal Register</i> .	January 7, 2010 <i>Primary: 8 –hr range of 0.060-0.070 ppm</i> <i>Secondary: range of 7-15 ppm-hrs</i>
Final reconsideration published in the <i>Federal Register</i> .	August 31, 2010
Designation recommendation due from Governor to EPA.	January 2011
Final ozone nonattainment designations by the EPA.	August 2011
State Implementation Plan (SIP) Revisions due to the EPA.	December 2013
Attainment deadlines	August 2014 – August 2031



# Comparison of Monitored Values (by County) to the Proposed Primary Ozone Standard\*

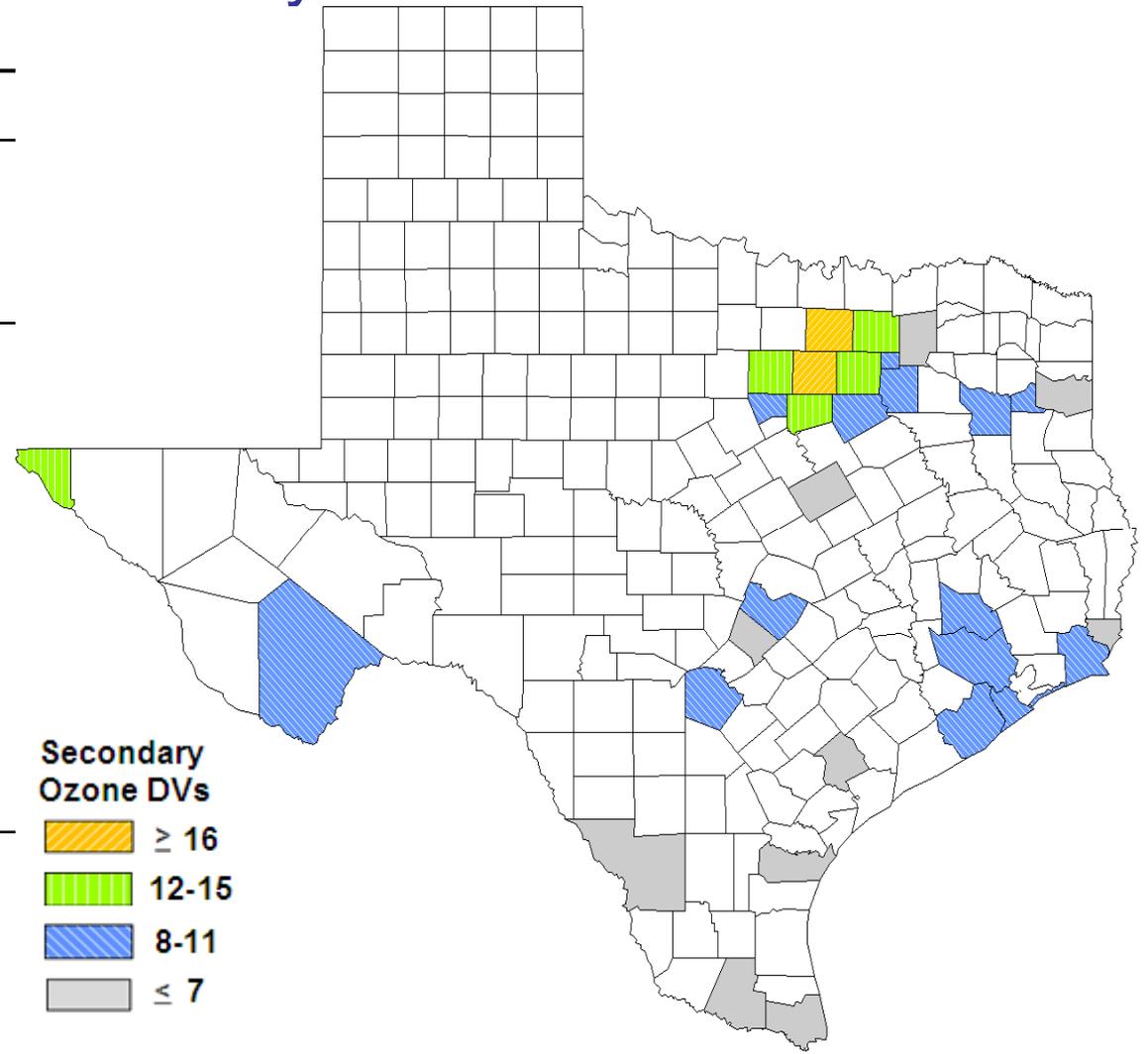


\*2009 design values based on average of 2007 to 2009 data. Design values as of January 5, 2010 and are subject to change.

\*\*Waco Mazanec C1037 monitor will not have three complete years of data until April 2010.\*\*\*Brewster County monitor is maintained by the national park service, the design value was reported in EPA AQS.

# Comparison of Monitored Values (by County) to the Proposed Secondary Ozone Standard\*

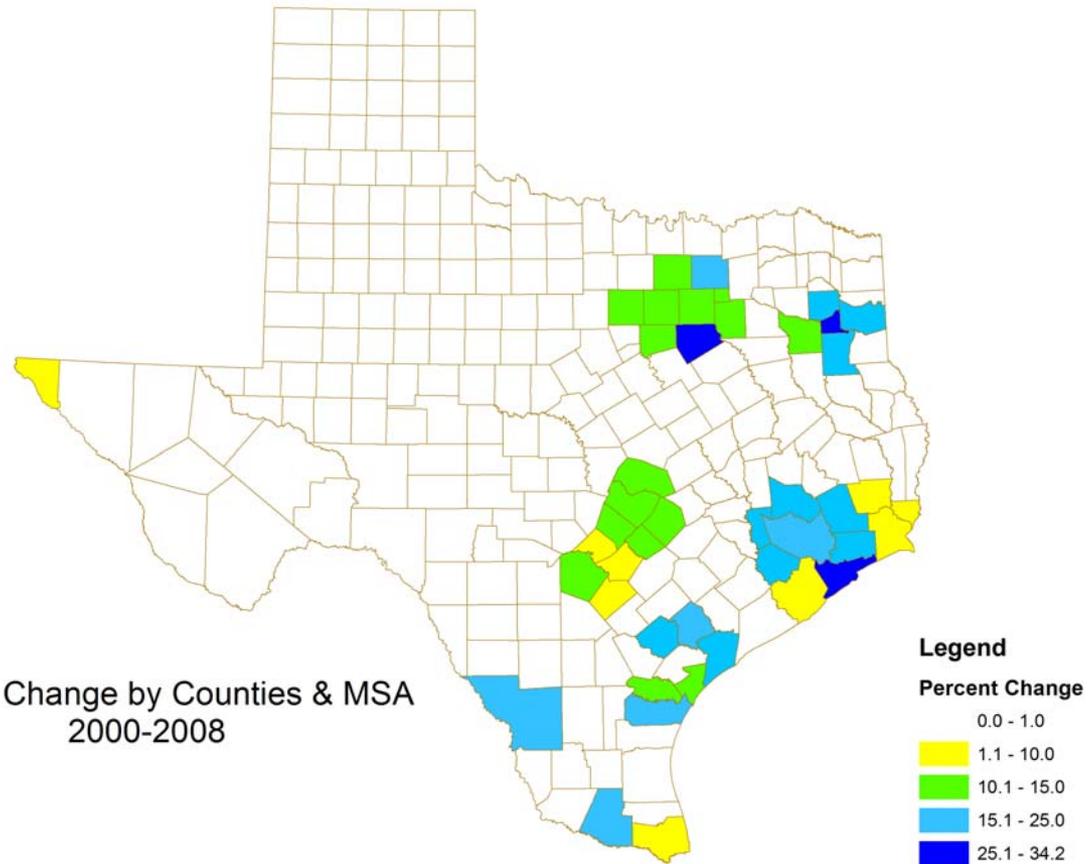
Region	County	W126 DV (ppm-hrs)
DFW	Tarrant	17
DFW	Denton	16
DFW	Colin	15
DFW	Parker	12
DFW	Johnson	12
ELP	El Paso	12
DFW	Dallas	12
HGB	Harris	11
DFW	Rockwall	10
BPA	Jefferson	10
BIG BEND	Brewster	10***
SAN	Bexar	10
AUS	Travis	9
TLM	Smith	9
DFW	Kaufman	9
DFW	Hood	9
BRH	Montgomery	8
TLM	Gregg	8
HGB	Galveston	8
DFW	Ellis	8
HGB	Brazoria	8
BPA	Orange	7
WACO	McLennan	7**
CC	Nueces	6
DFW	Hunt	6
TLM	Harrison	6
VIC	Victoria	5
AUS	Hays	5
BRH	Cameron	4
BRH	Hidalgo	3
LAR	Webb	2



\*2009 design values as of January 7, 2010 and are subject to change. \*\*Waco Mazanec C1037 monitor will not have three complete years of data until April 2010. \*\*\*Brewster County monitor is maintained by the national park service.



# Reduction of Ozone in Texas



This map was generated by the Chief Engineer's Office, Air Quality Planning Division of the Texas Commission on Environmental Quality. No claims are made to the accuracy or completeness of the data or to the suitability for a particular use. For information concerning this map, contact the Air Quality Division at (512) 239-1459.

October 20, 2009  
Raj Nadkarni (512) 239-1934

