2015 Ozone NAAQS
Implementation Highlights

Rebecca J. Rentz
AWMA Hot Topics
February 11, 2016
Ozone Standard History

1-hour ozone standard 125 ppb
• Promulgated in Feb. 1979
• Revoked by EPA in Jun. 2005

Houston Region in Compliance

8-hour ozone standard 85 ppb
• Promulgated in 1997
• Revocation signed on 2/13/15

Houston Region in Compliance

8-hour ozone standard 75 ppb
• Promulgated in 2008
• Implementation Rule signed on 2/13/15
• Houston Region has an ozone design value of 80 ppb

8-hour ozone standard 70 ppb
• Promulgated on Oct. 1, 2015
• Effective December 28, 2015
Implementation Highlights

2015 Implementation Timeline
- Nonattainment Designation
- Timeline for two standards

Permitting Considerations
- PSD applications before nonattainment designations
- Nonattainment ERCs after nonattainment designations

SIP Planning
- Background Ozone
- Mobile Sources
CAA Ozone Nonattainment Designations

CAA requires serious, severe or extreme nonattainment areas to be the equivalent of the “metropolitan statistical area” or “consolidated metropolitan statistical area.” CAA Section 109(d)(4)(A)(iv).

- Metropolitan Statistical Area
- CBSA designations are based on evidence that the areas within the CBSA are closely integrated economically and socially and must meet the requirement of a MSA. 63 Fed. Reg. 70526, 70555 (Dec. 21, 1998).

Consolidated Statistical Area (CSA)
- Established in 2003 by the OMB and assumes only minimal interaction (roughly 15% commuting) between a micro or metro area.
- This is far less of a connection that either the CBSA or the CBSA predecessor, the Consolidated Metropolitan Statistical Area (CMSA).

2008 Ozone NAAQS Nonattainment Designation Guidance
- Suggested using CBSAs or CSAs associated with the violating monitor as the “presumptive boundary” for evaluating ozone nonattainment areas
## 2014 Ozone Design Values by County

<table>
<thead>
<tr>
<th>CSA/CBSA</th>
<th>County</th>
<th>2014 8Hr Ozone DV (ppb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dallas-Fort Worth</td>
<td>Denton</td>
<td>81</td>
</tr>
<tr>
<td>Dallas-Fort Worth</td>
<td>Tarrant</td>
<td>80</td>
</tr>
<tr>
<td>Houston-The Woodlands</td>
<td>Brazoria</td>
<td>80</td>
</tr>
<tr>
<td>San Antonio-New Braunfels</td>
<td>Bexar</td>
<td>80</td>
</tr>
<tr>
<td>Dallas-Fort Worth</td>
<td>Collin</td>
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<td>Dallas-Fort Worth</td>
<td>Dallas</td>
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<td>Dallas-Fort Worth</td>
<td>Johnson</td>
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<td>Dallas-Fort Worth</td>
<td>Hood</td>
<td>76</td>
</tr>
<tr>
<td>Houston-The Woodlands</td>
<td>Montgomery</td>
<td>76</td>
</tr>
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<td>Houston-The Woodlands</td>
<td>Harris</td>
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<td>Dallas-Fort Worth</td>
<td>Parker</td>
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<tr>
<td>Dallas-Fort Worth</td>
<td>Rockwall</td>
<td>73</td>
</tr>
<tr>
<td>El Paso-Las Cruces</td>
<td>El Paso</td>
<td>72</td>
</tr>
<tr>
<td>Houston-The Woodlands</td>
<td>Galveston</td>
<td>72</td>
</tr>
<tr>
<td>Killeen-Temple</td>
<td>Bell</td>
<td>72</td>
</tr>
<tr>
<td>Dallas-Fort Worth</td>
<td>Ellis</td>
<td>71</td>
</tr>
<tr>
<td>Longview-Marshall</td>
<td>Gregg</td>
<td>71</td>
</tr>
<tr>
<td>Tyler-Jacksonville</td>
<td>Smith</td>
<td>71</td>
</tr>
<tr>
<td>Beaumont-Port Arthur</td>
<td>Jefferson</td>
<td>70</td>
</tr>
<tr>
<td>Dallas-Fort Worth</td>
<td>Kaufman</td>
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</tr>
<tr>
<td>Amarillo-Borger</td>
<td>Randall</td>
<td>70</td>
</tr>
<tr>
<td>Austin-Round Rock</td>
<td>Travis</td>
<td>69</td>
</tr>
<tr>
<td>Dallas-Fort Worth</td>
<td>Hunt</td>
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<tr>
<td>Longview-Marshall</td>
<td>Harrison</td>
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</tr>
<tr>
<td>Waco</td>
<td>McLennan</td>
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<tr>
<td>Dallas-Fort Worth</td>
<td>Navarro</td>
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<tr>
<td>Beaumont-Port Arthur</td>
<td>Orange</td>
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<tr>
<td>Corpus Christi-Kingsville-Alice</td>
<td>Nueces</td>
<td>66</td>
</tr>
<tr>
<td>Big Bend (No MSA)</td>
<td>Brewster</td>
<td>65</td>
</tr>
<tr>
<td>Alabama-Coushatta (No MSA)</td>
<td>Polk</td>
<td>65</td>
</tr>
<tr>
<td>Victoria-Port Lavaca</td>
<td>Victoria</td>
<td>63</td>
</tr>
<tr>
<td>Laredo</td>
<td>Webb</td>
<td>61</td>
</tr>
<tr>
<td>Brownsville-Harlingen-Raymondville</td>
<td>Cameron</td>
<td>58</td>
</tr>
<tr>
<td>McAllen-Edinburg</td>
<td>Hidalgo</td>
<td>57</td>
</tr>
</tbody>
</table>

**2014 Eight-Hour Ozone Design Values (ppb)**

- **≤ 60**
- **61 - 65**
- **66 - 70**
- **71 - 75**
- **≥ 76**

*2014 design values are calculated as of 4/1/2015. The monitors in Polk and Webb Counties do not have enough complete data under 2008 NAAQS; however, the design values at those monitors could become valid depending on the level of the new NAAQS.

**The Brewster County, Randall County, and Polk County monitors are part of the Clean Air Status and Trends Network (CASTNET) of monitors and report data directly to the EPA.*
### 2015 Ozone Design Values by CSA

<table>
<thead>
<tr>
<th>CSA/CBSA</th>
<th>2015 8Hr Ozone DV (ppb)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dallas—Fort Worth</td>
<td>83</td>
</tr>
<tr>
<td>Houston—The Woodlands</td>
<td>80</td>
</tr>
<tr>
<td>San Antonio—New Braunfels</td>
<td>78</td>
</tr>
<tr>
<td>El Paso—Las Cruces</td>
<td>71</td>
</tr>
<tr>
<td>Killeen-Temple</td>
<td>69</td>
</tr>
<tr>
<td>Austin—Round Rock</td>
<td>68</td>
</tr>
<tr>
<td>Beaumont—Port Arthur</td>
<td>68</td>
</tr>
<tr>
<td>Longview-Marshall</td>
<td>68</td>
</tr>
<tr>
<td>Tyler-Jacksonville</td>
<td>67</td>
</tr>
<tr>
<td>Waco</td>
<td>67</td>
</tr>
<tr>
<td>Amarillo-Borger</td>
<td>66</td>
</tr>
<tr>
<td>Corpus Christi—Kingsville—Alice</td>
<td>65</td>
</tr>
<tr>
<td>Brewster County (No CSA)</td>
<td>64</td>
</tr>
<tr>
<td>Polk County (No CSA)</td>
<td>64</td>
</tr>
<tr>
<td>Victoria—Port Lavaca</td>
<td>64</td>
</tr>
<tr>
<td>Laredo</td>
<td>59</td>
</tr>
<tr>
<td>Brownsville-Harlingen</td>
<td>58</td>
</tr>
<tr>
<td>McAllen-Edinburg</td>
<td>54</td>
</tr>
</tbody>
</table>

*2015 design values are calculated as of 9/29/2015 and are subject to change.*

**The Brewster County, Randall County, and Polk County monitors are part of the Clean Air Status and Trends Network (CASTNET) of monitors and report data directly to the EPA.
Smaller Nonattainment Designations may be based upon:

- Monitored Levels
- Emissions Inventory
- Growth Rates
- Population Density
- Traffic/Community Data
- Commercial Development
- Industrial Development
- Meteorological Conditions
- Pollution Transport

EPA's designation must meet the standard of "reasoned decision making," and courts have set aside past designations that are "arbitrary and capricious."

*Catawba County, North Carolina v. EPA, 571 F.3d 20 (D.C. Cir. 2009)*

42 U.S.C. § 7407(d)(4)
### Est. 2008 and 2015 O3 Timelines

<table>
<thead>
<tr>
<th>2008 Ozone Standard</th>
<th>Dates</th>
<th>2015 Ozone Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marginal Attainment Date</td>
<td>July 20, 2016</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oct. 1, 2016</td>
<td>States submit nonattainment designation recommendations.</td>
</tr>
<tr>
<td>HGB Bump-up to Moderate?</td>
<td>Jan. 20, 2017</td>
<td></td>
</tr>
<tr>
<td></td>
<td>June 1, 2017</td>
<td>EPA notifies states of nonattainment changes.</td>
</tr>
<tr>
<td></td>
<td>Oct. 1, 2017</td>
<td>Initial nonattainment designations issued by EPA.</td>
</tr>
<tr>
<td>Moderate Attainment Deadline</td>
<td>July 20, 2019</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dec. 28, 2020</td>
<td>Marginal Attainment Deadline</td>
</tr>
<tr>
<td></td>
<td>Oct. 2020 -2021</td>
<td>SIP Attainment Demonstrations due</td>
</tr>
<tr>
<td>Serious Attainment Deadline</td>
<td>July 20, 2022</td>
<td></td>
</tr>
</tbody>
</table>
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Permitting Considerations
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SIP Planning
- Background Ozone
- Mobile Sources
PSD Permitting

Ozone Assessment
- 100 tpy of NOx or VOC
- Whether the project “causes or contributes to” ozone NAAQS exceedances
- Offsets are required if the project is deemed to “causes or contributes to” ozone NAAQS exceedances

Moving Target
- Ozone Monitored level
- Anticipated guidance from EPA
- Attention to project

Demonstrations
- Ratio approach
- Qualitative “other”
- Photochemical model
- De minimis impact
New Nonattainment Area Impacts

Permitting ERC requirements apply *immediately upon* nonattainment designation effective date.

- Are current ERCs eligible?
- Are there flexibilities under Appendix S for this period?

**2015 Ozone Nonattainment Area Designations**

- Dec. 2017 (estimated)
- TCEQ Finalizes SIP Rules for 2015 Ozone NAAQS (estimated 2021)

**2015 Ozone Nonattainment Area Designations**

**TCEQ Finalizes SIP Rules for 2015 Ozone NAAQS (estimated 2021)**
Nonattainment Impacts

SIP Requirements for Ozone Nonattainment Areas

**MARGINAL** (3 Years)
- Emissions Inventory
- Emissions Statements
- Nonattainment NSR Program & Emissions Offsets
- RACT Fixups
- I/M Corrections

**MODERATE** (6 Years)
- Basic I/M
- RACT & RACM Emissions Reductions
- Attainment Demonstration
- Contingency Measures
- RFP - 15% VOC Reductions within 6 years

**SERIOUS** (9 Years)
- Enhanced Monitoring and I/M Modeled Attainment Demonstration
- 3% per year VOC Reductions After 6 Years
- RFP Milestone Contingency Measures
- Clean Fuels Program
- VMT Demonstration
- Stage II Gasoline Vapor Recovery

**SEVERE** (15-17 Years)
- VMT Growth Offset
- Major Source Fees for Failure to Attain (185 Fees)

**EXTREME** (20 Years)
- Clean Fuels and Controls for Boilers
- Traffic Controls During Congestion

**Major Source Threshold (TPY)**
- **MARGINAL**: 100
- **MODERATE**: 100
- **SERIOUS**: 50
- **SEVERE**: 25
- **EXTREME**: 10

**NSR Offset Ratios**
- **MARGINAL**: 1.1 : 1
- **MODERATE**: 1.15 : 1
- **SERIOUS**: 1.2 : 1
- **SEVERE**: 1.3 : 1
- **EXTREME**: 1.5 : 1

Nonattainment requirements compound as classification increases.
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− Mobile Sources
− Background Ozone
The Potential Costs of an Ozone Nonattainment Designation to Central Texas, September 22, 2015
(Prepared by the Capital Area Council of Governments Air Quality Program.)

- Estimated cost to reduce the design value by 1-3 ppb (68 ppb to 65 ppb).

- Estimated compliance cost at around $1 billion a year over 28 years.
# Cost of Nonattainment Designation

Table 1. Estimated economic impact of an ozone nonattainment designation on the Austin-Round Rock MSA 2018 - 2046

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of Samsung Expansion</td>
<td>($21,340,142,448)</td>
<td>($33,893,167,418)</td>
</tr>
<tr>
<td>Loss of Texas Lehigh Expansion</td>
<td>($1,811,586,399)</td>
<td>($3,700,575,961)</td>
</tr>
<tr>
<td>Decker and Sim Gideon Boiler Replacements</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Transportation Conformity-Routine Analysis</td>
<td>($2,300,000)</td>
<td>($7,000,000)</td>
</tr>
<tr>
<td>Transportation Conformity-Routine Project Delays</td>
<td>($27,407,176)</td>
<td>($41,471,216)</td>
</tr>
<tr>
<td>Transportation Conformity-Lapse-Project Delays</td>
<td>($18,298,801)</td>
<td>($93,012,795)</td>
</tr>
<tr>
<td>Transportation Conformity-Loss of Federal Funds</td>
<td>($23,746,747)</td>
<td>($74,646,101)</td>
</tr>
<tr>
<td>General Conformity-Rail Expansion Delays</td>
<td>($7,182,369)</td>
<td>($14,364,738)</td>
</tr>
<tr>
<td>General Conformity-Aviation Expansion Delays</td>
<td>($22,449,120)</td>
<td>($44,898,240)</td>
</tr>
<tr>
<td>NO\textsubscript{X} Point Source Emission Reductions</td>
<td>($141,494,537)</td>
<td>($2,047,800,546)</td>
</tr>
<tr>
<td>VOC Reductions</td>
<td>($904,917,445)</td>
<td>($1,630,209,506)</td>
</tr>
<tr>
<td><strong>TOTAL ECONOMIC IMPACT</strong></td>
<td><strong>($24,299,525,042)</strong></td>
<td><strong>($41,547,146,520)</strong></td>
</tr>
</tbody>
</table>
Mobile Source Emissions

2014 Texas Anthropogenic NO\textsubscript{x} Emissions

- Mobile Source: 52%
- Area Source: 23%
- Point Source: 25%

Source: Air Quality Division
9/30/2015
Mobile Source Emissions

2014 Texas Anthropogenic VOC Emissions

Area Source 84%
Point Source 5%
Mobile Source 11%

Source: Air Quality Division
9/30/2015
Background Ozone

United States Background ("USB"): EPA considers background $O_3$ to be any $O_3$ formed from sources or processes other than U.S. manmade emissions of nitrogen oxides (NOx), volatile organic compounds (VOC), methane ($CH_4$), and carbon monoxide (CO).

USB includes:
- International Transport
- Biogenic Isoprene emissions and chemistry
- Stratosphere-to-troposphere transport
- Lightning NOx
- Wildfires
What we know about Texas USB

TCEQ review, to date, seems to primarily focus on all transport called “Regional Background Ozone” which includes USB + other US man-made emissions.

For Texas county-specific data, EPA’s source apportionment estimates that 34%-52% of the 2017 Design Value average in counties exceeding the 70 ppb standard will be USB.

Implementation of the 2015 Primary Ozone NAAQS: Issues Associated with Background Ozone White Paper for Discussion, Table 2a (EPA 2015)

- Places Texas with eastern half of US for USB analysis
- Notes that Bell County Texas has the lowest US man-made source contribution (39%) to the predicted DV (p. 10) but Table 2a actually lists the US man-made source contribution to the predicted Bell County Design Value as 48%.

EPA states that the current 34–54% of USB contribution “suggests the preliminary conceptual model of $O_3$ attainment planning in the eastern US would be to continue to employ measures that would achieve local and regional NOx and VOC reductions, which have been successful in the east over the past decade.”

What we don’t know about TX USB

TCEQ “Future Needs” includes quantifying sources of regional background including natural precursors and sources outside of the US. *Quantifying Regional Background Ozone for the [HGB] Nonattainment Area, April 2014 (Presented at the Midwest and Central States Air Quality Workshop)*
EPA’s Background Ozone white paper cites policy tools in place to address USB:

- Exceptional Events Exclusions (CAA 319)
- Small nonattainment boundaries for sites minimally impacted by nearby sources (CAA 107(d))
- Rural Transport Areas (CAA 182(h))
- International Transport Provisions (CAA 179B)
Thank you

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