



Dallas-Fort Worth (DFW) Area Ozone Trends

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DFW Air Quality Technical Information Meeting
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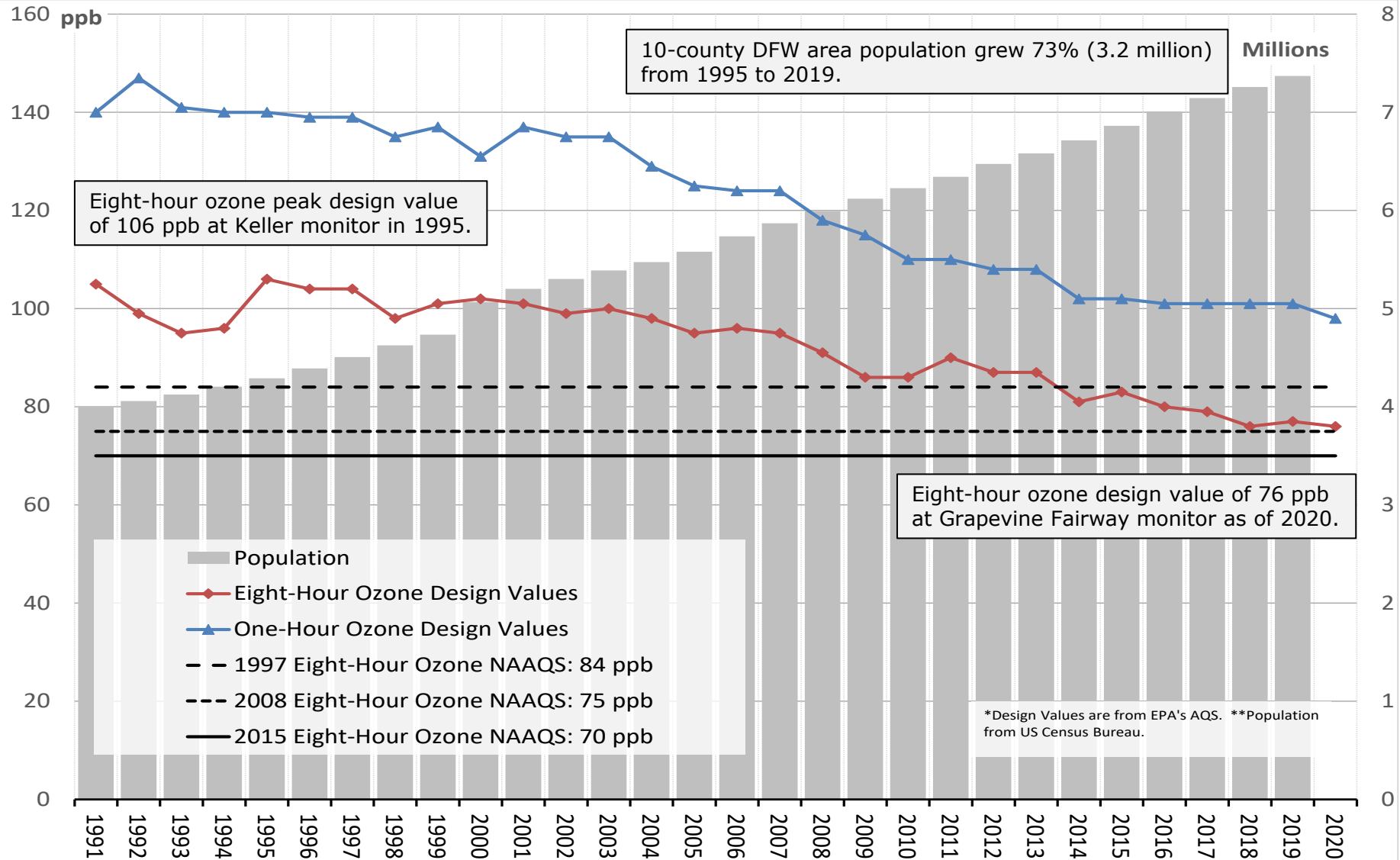


Ground-Level Ozone Formation Basics

- Not directly emitted
 - Formed when precursors, nitrogen oxides (NO_x) and volatile organic compounds (VOC), react
- Most NO_x from high-temperature combustion (e.g., engines, industrial stacks, etc.)
- Most VOC naturally emitted from vegetation
 - Urban vs. rural
- Ozone-forming potential varies across VOCs
- “ NO_x limited” -- NO_x reductions are more effective than VOC reductions.
- Meteorological conditions key
 - Sun
 - Low/slow winds

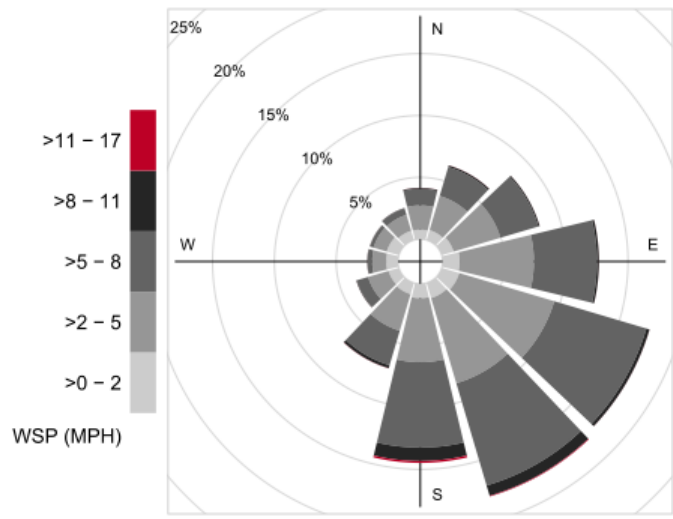
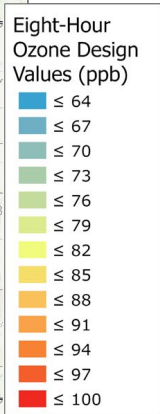
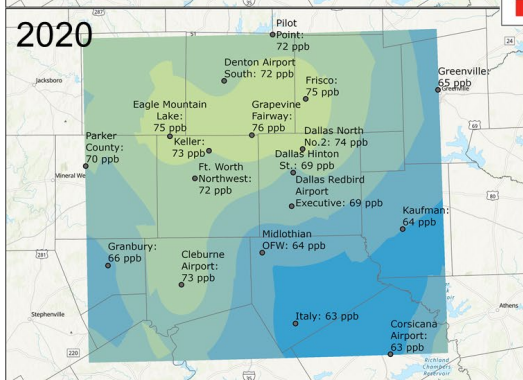
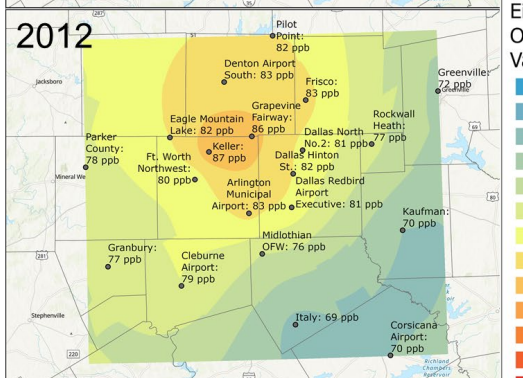
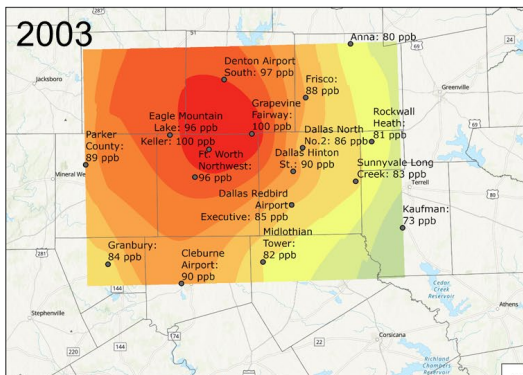


Trends in Population and Peak Ozone Design Values





Typical Wind Speeds and Direction on High Ozone Days

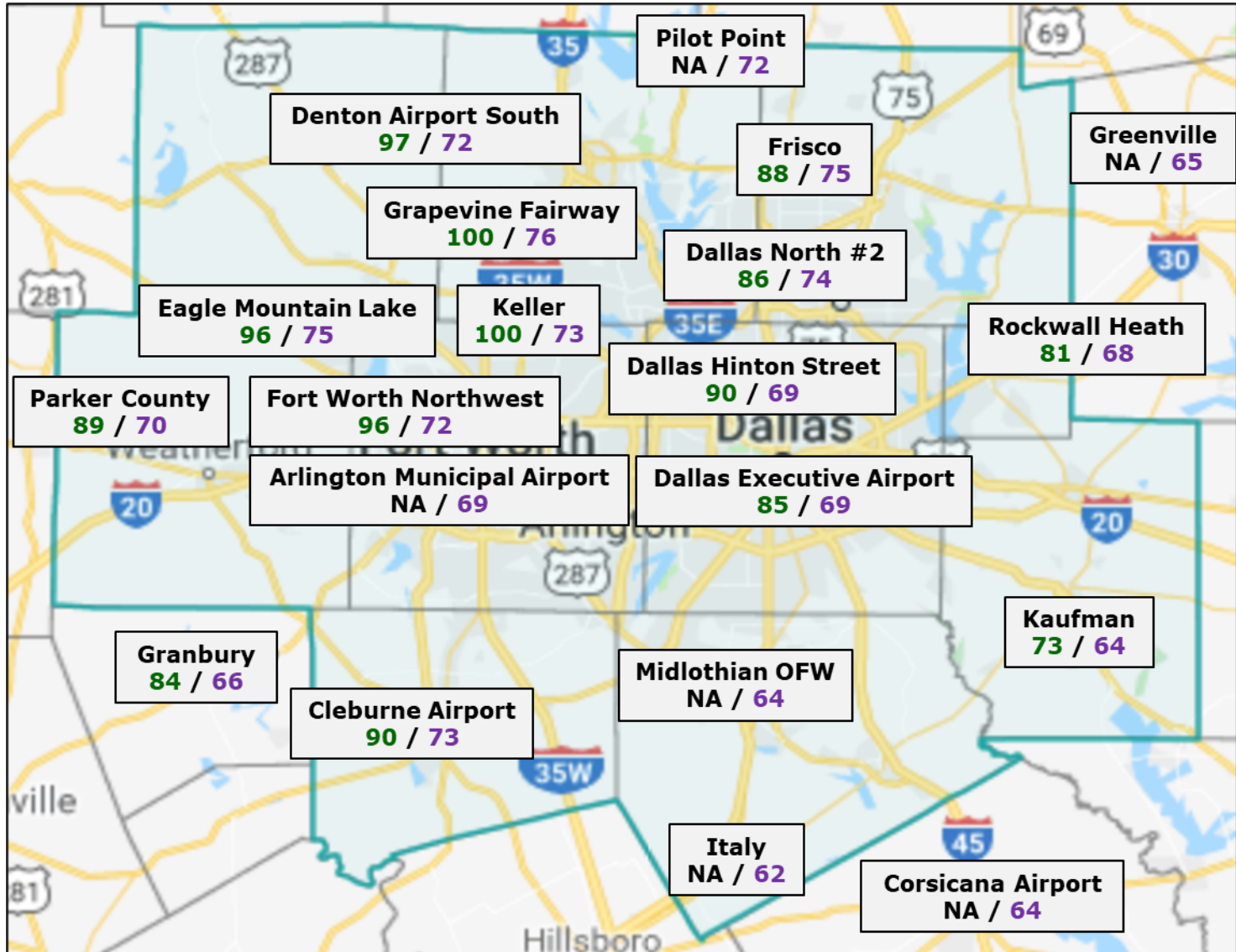


- Ozone design values are typically set in north and northwest DFW areas and follow the typical wind pattern shown above.
- The location where the design values are set generally remains the same, but the intensity has dropped over time.



Design Values Changes by Monitor from 2003 to 2020

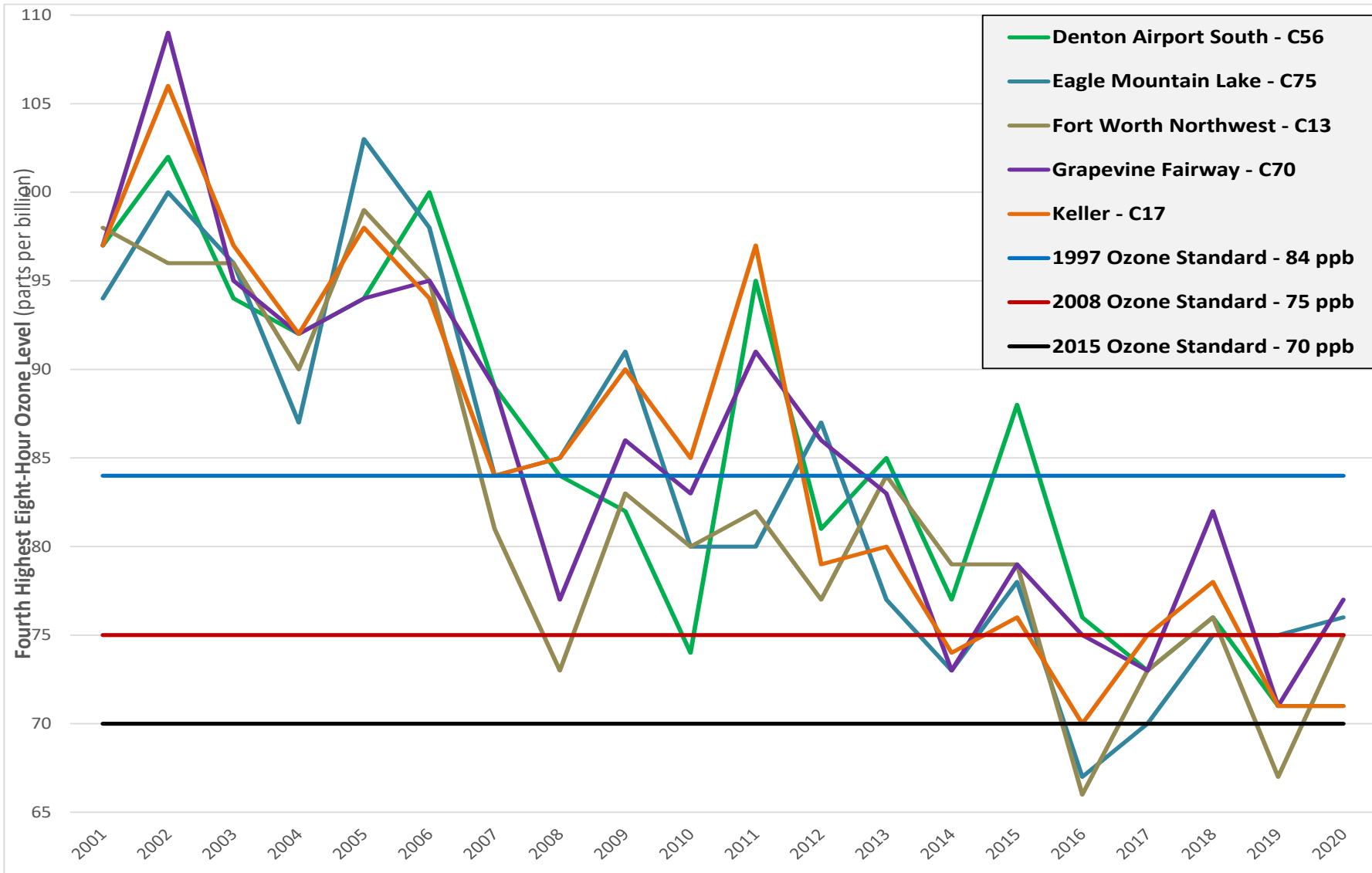
- EPA requires a minimum of four ozone monitors for DFW.
- Regulatory ozone design value (DV) per monitor in units of parts per billion (ppb).
- The DV is the average of the fourth highest eight-hour ozone concentration over a three-year period.
- On the left in green is the 2003 DV from 2001, 2002, and 2003 monitored data.
- On the right in purple is the 2020 DV from 2018, 2019, and 2020 monitored data.
- NA indicates that the monitor was not operational from 2001-2003.





Fourth Highest Eight-Hour Ozone for Five Northwest Monitors in DFW

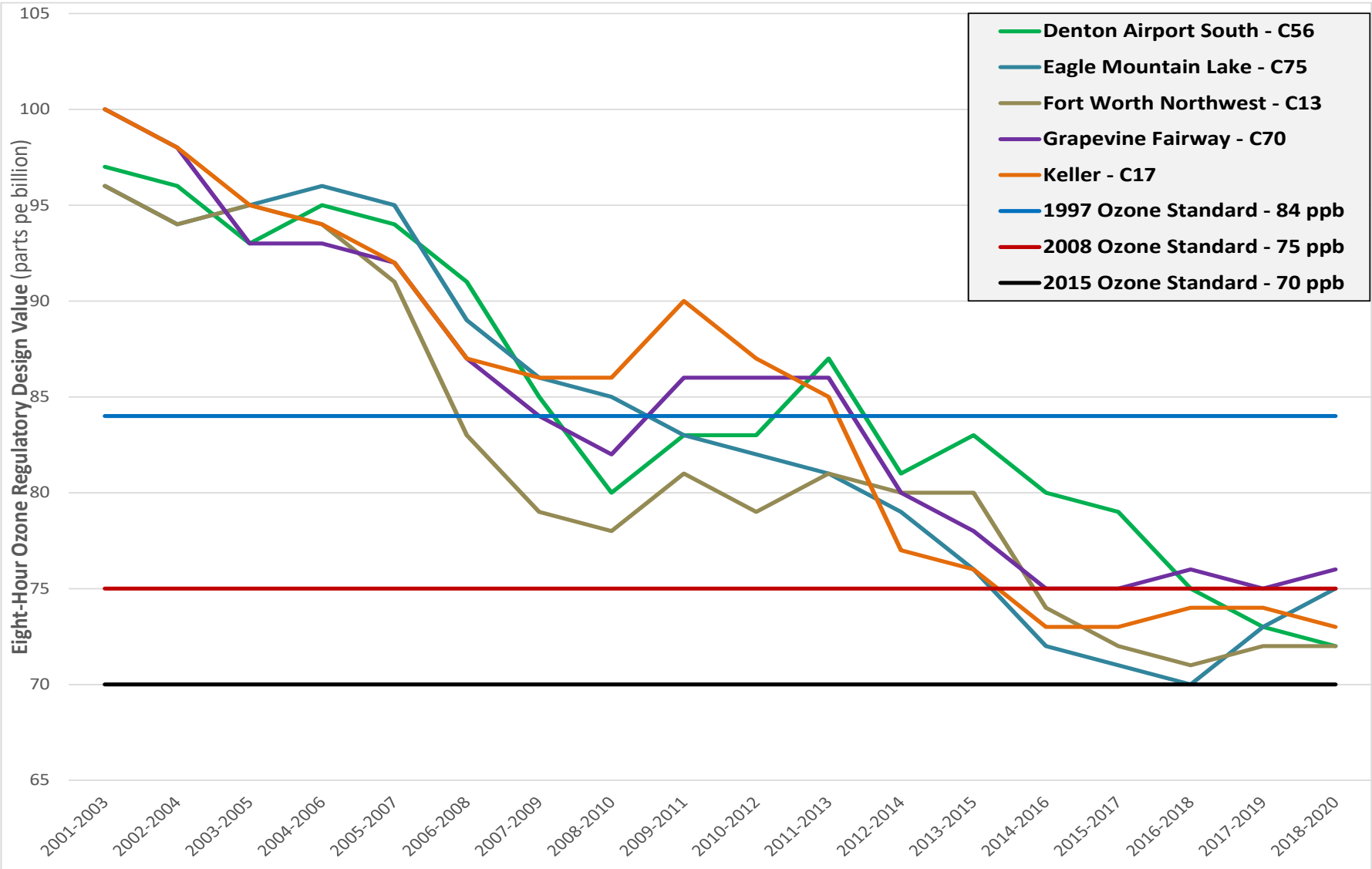
Source: TCEQ Compliance with Eight-Hour Ozone Standard, https://www.tceq.texas.gov/cqi-bin/compliance/monops/8hr_attainment.pl.





Eight-Hour Ozone Design Values for Five Northwest Monitors in DFW

Source: TCEQ Compliance with Eight-Hour Ozone Standard, https://www.tceq.texas.gov/cgi-bin/compliance/monops/8hr_attainment.pl.





Questions?



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