

End of 2023 Ozone Season

Public Meetings
December 2023

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Emission Monitoring

National Ambient Air Quality Standards (Criteria Pollutants)

	<u>Attainment</u>	<u>Nonattainment</u>
Ozone		
Lead		
Carbon Monoxide		
Nitrogen Dioxide		
Particulate Matter		
Sulfur Dioxide		Partial Nonattainment In Navarro County Due to Aggregate Plant

Monitoring and Increased Regulations

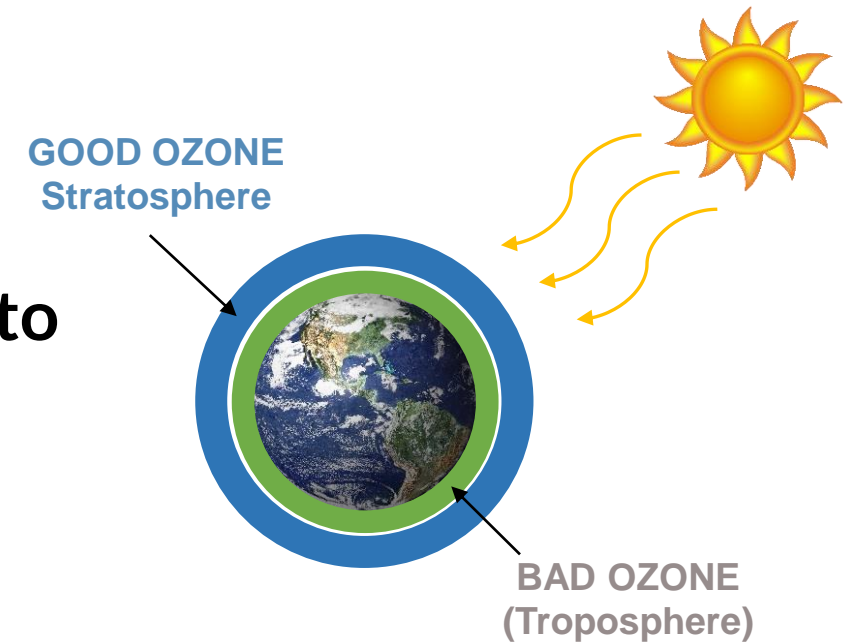
Greenhouse Gas Emissions (i.e., Carbon Dioxide)



Ozone Formation

Ozone, a gas composed of three atoms of oxygen (O_3), occurs both in the Earth's upper atmosphere and at ground level.

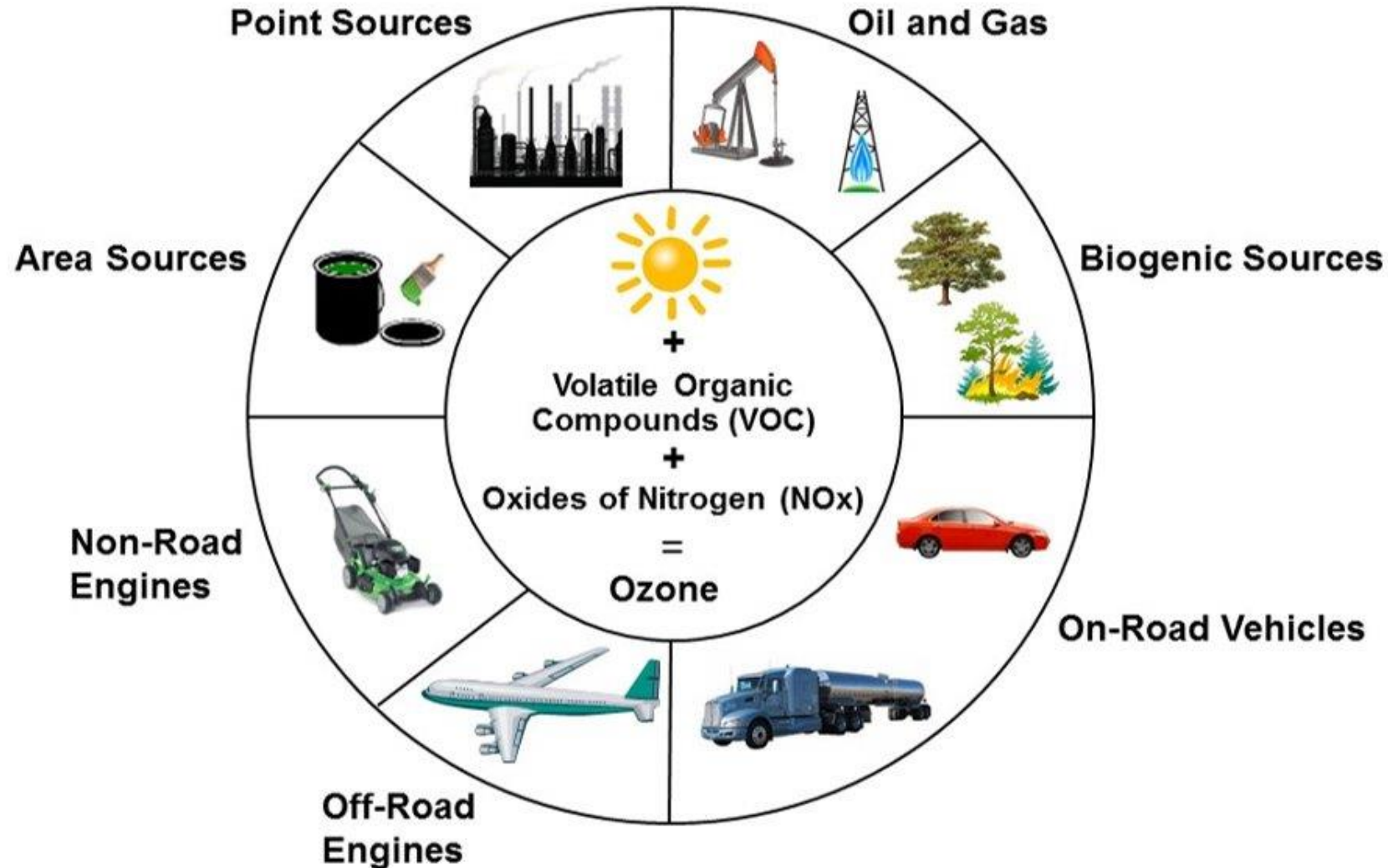
Stratospheric Ozone: forms high in the atmosphere when intense sunlight causes oxygen molecules (O_2) to break up and re-form as ozone molecules (O_3). Popularly called “good ozone”, it shields us from the harmful effects of the sun's ultraviolet rays.



Ground-level Ozone: commonly referred to as “bad ozone” forms when emission sources including, but not limited to, transportation, industrial and commercial operations, and vegetation emit oxides of nitrogen (NO_x) and/or volatile organic compounds (VOC) that react in the presence of sunlight.

Ozone Formation

Emission Source Categories



Optimum conditions for the formation of ozone include high temperatures and low winds.
Sections are not to scale and are for illustrative purposes only.

Health Effects of Ground Level Ozone

Ozone can:

Make it more difficult to breathe

Cause shortness of breath and pain

Cause coughing and sore or scratchy throat

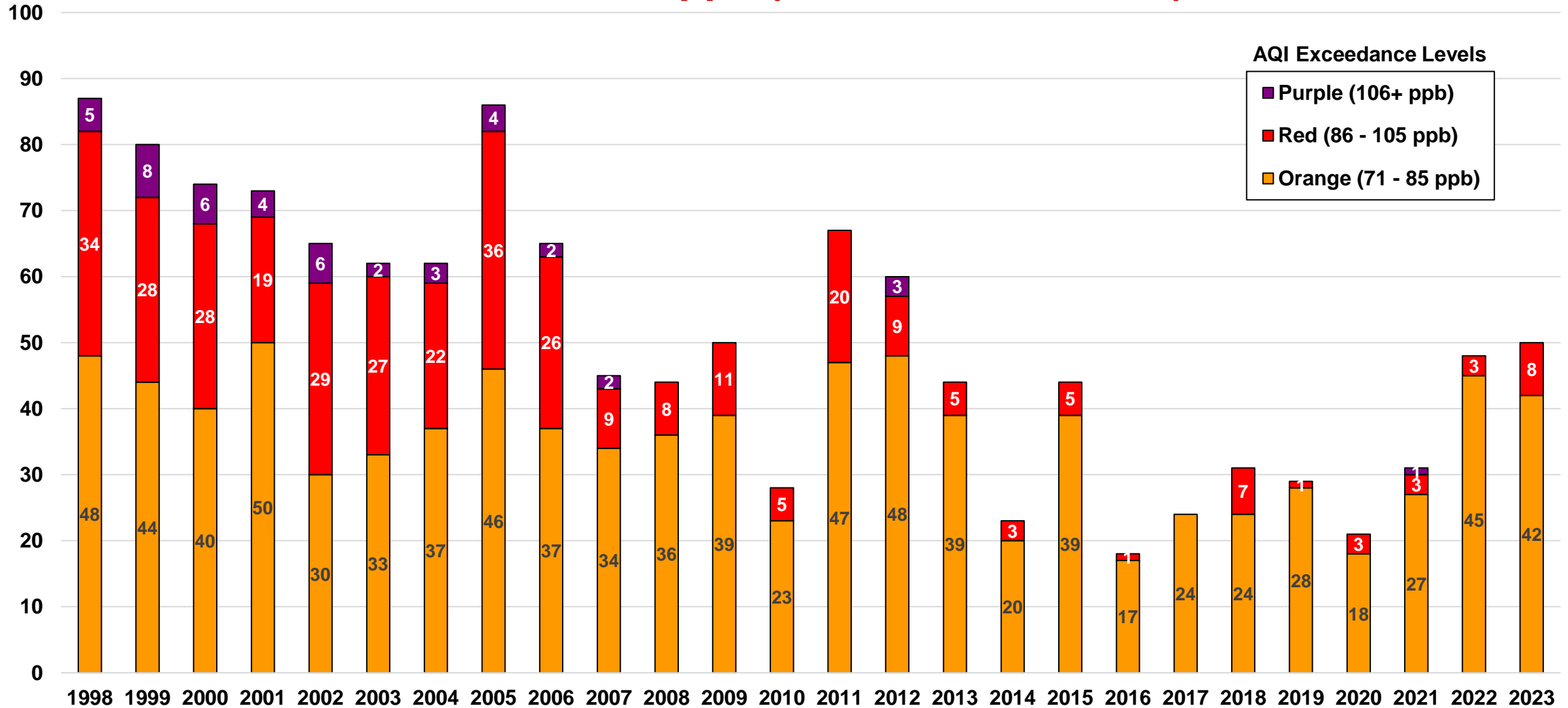
Inflame and damage airways

Aggravate lung diseases such as asthma, emphysema, and chronic bronchitis



8-Hour Ozone National Ambient Air Quality Standards - Exceedance Trends

Based on ≤ 70 ppb (2023 Ozone Season)



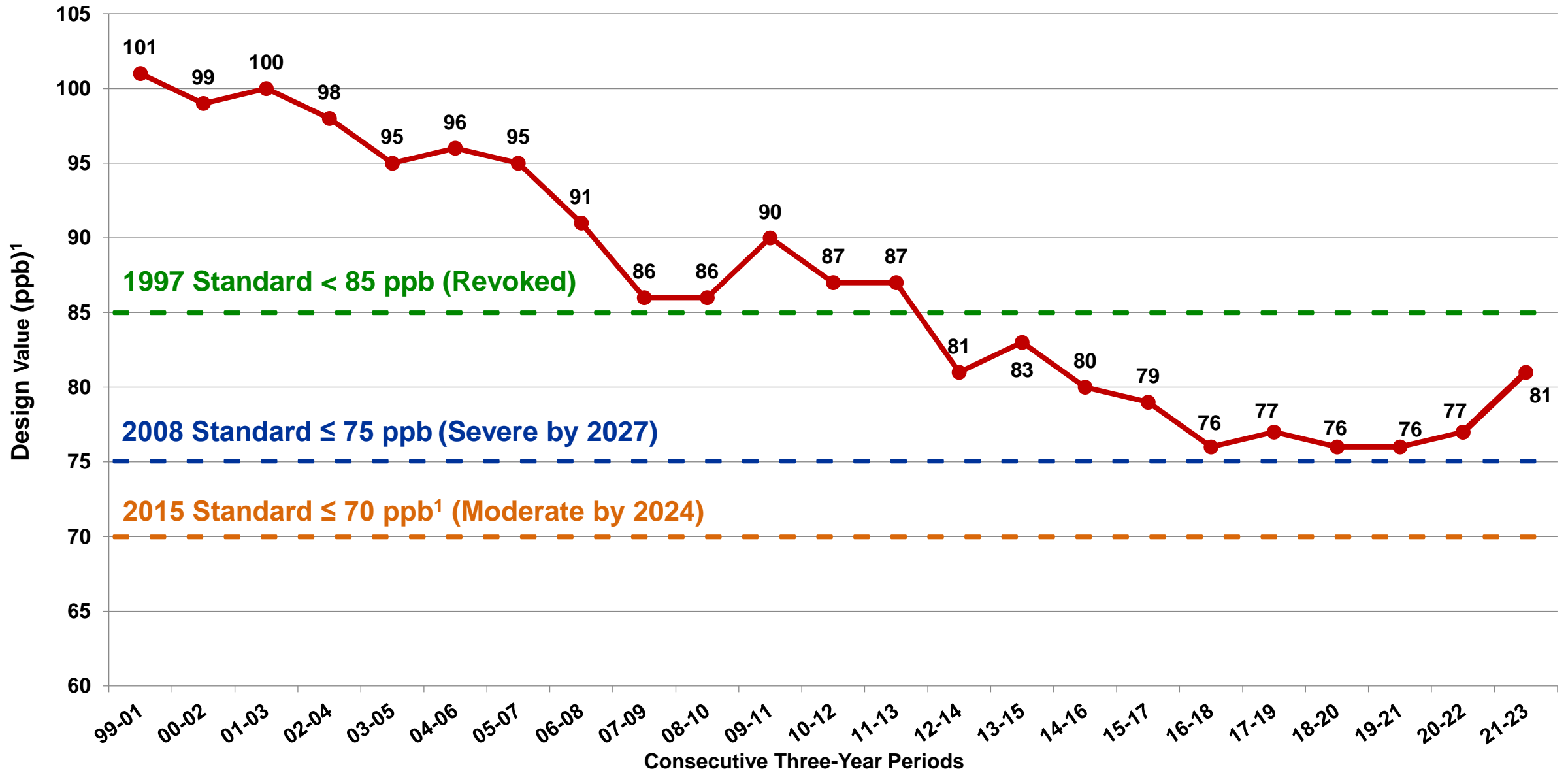
AQI Exceedance Levels

- Purple (106+ ppb)
- Red (86 - 105 ppb)
- Orange (71 - 85 ppb)

Exceedance Level indicates daily maximum eight-hour average ozone concentration.
Exceedance Levels are based on Air Quality Index (AQI) thresholds established by the EPA for the revised ozone standard of 70 ppb.

Source: TCEQ, http://www.tceq.state.tx.us/cgi-bin/compliance/monops/8hr_monthly.pl
ppb = parts per billion NAAQS = National Ambient Air Quality Standards

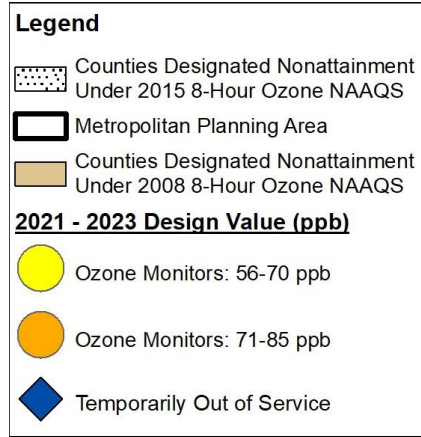
2023 Ozone Design Value Trends – Preliminary



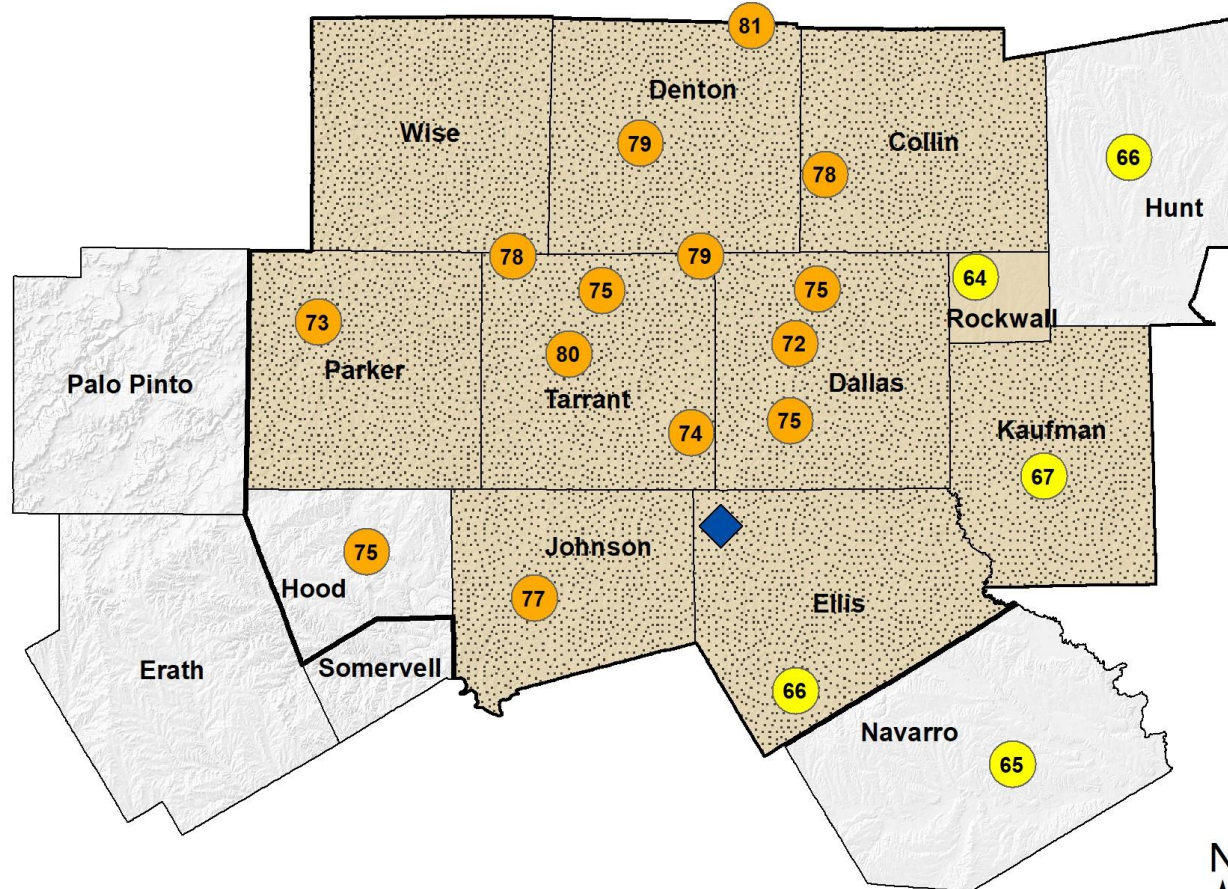
¹Attainment Goal - According to the US Environmental Protection Agency (EPA) National Ambient Air Quality Standards, attainment is reached when, at each monitor, the *Design Value* (three-year average of the annual fourth-highest daily maximum eight-hour average ozone concentration) is equal to or less than 70 parts per billion (ppb).

Monitor Locations with Associated Fourth Highest Value

2023 Ozone Season



Colors represent Air Quality Index Breakpoints



Prevailing Wind Direction During Summer Ozone Season



End of 2023 Ozone Season

Timeline and Milestones – 2015 Ozone Standard

2015 Ozone Standard (≤ 70 ppb)

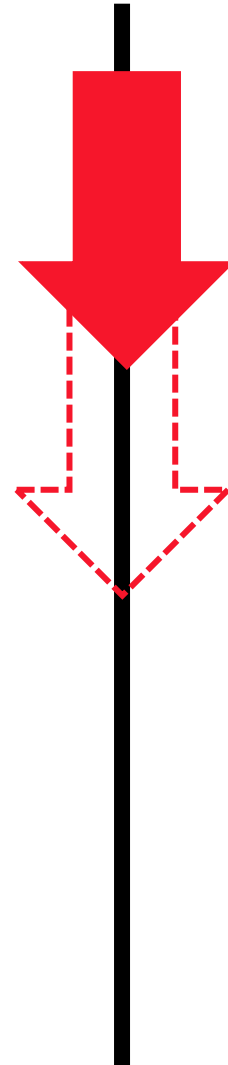
Attainment Date:
No later than **August 3, 2024**

*Attainment will be based on
2021-2023 Ozone Monitor Data*

Preliminary Ozone Season Monitor
Value = 81ppb

Governor submitted voluntary
reclassification to EPA (10-12-2023)

Texas Commission on Environmental
Quality (TCEQ) indicated assistance
need for emission reduction strategies



EPA Ozone Classifications

Attainment Date

Marginal
(3 years to attain) 2021

Moderate
(6 years to attain) 2024

Serious
(9 years to attain) 2027

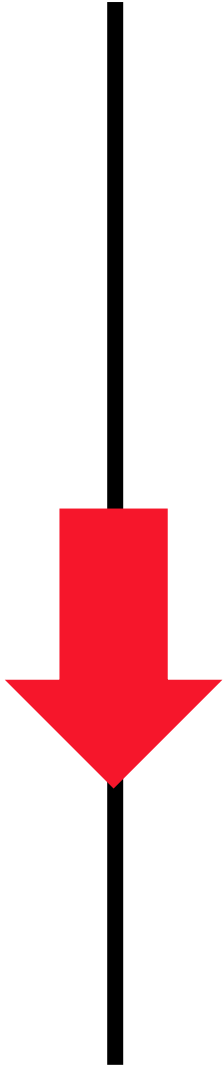
Severe
(15/17 years to attain)

Extreme
(20 years to attain)



Timeline and Milestones – 2008 Ozone Standard

<u>2008 Ozone Standard (≤ 75ppb)</u>	<u>EPA Ozone Classifications</u>	<u>Attainment Date</u>
Attainment Date: No later than July 20, 2027	Marginal (3 years to attain)	---
<i>Attainment will be based on 2024-2026 Ozone Monitor Data</i>	Moderate (6 years to attain)	2018
*Severe designation = Section 185 fees if unable to reach attainment	Serious (9 years to attain)	2021
TCEQ State Implementation Plan Hearing = January 11, 2024	Severe (15/17 years to attain)	2027
TCEQ State Implementation Plan Comments End January 16, 2024	Extreme (20 years to attain)	



Air Quality Path Forward

Ongoing Investigation of:

Diesel Tampering

Inspection Fraud

Vehicle Miles Traveled

Vehicle Idling

Low Speeds

High-Emitting Vehicles and Equipment

Fuel Use

Hard Accelerations

Cold Starts

Emissions Photochemical Modeling

State and National Transport

Weather & Meteorology Impacts

Coal Power Plants

Politics

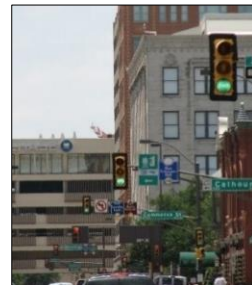
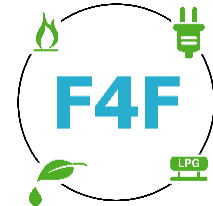
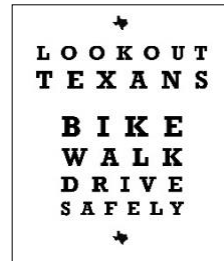
Energy Consumption



Sample of Mobile Source Air Quality Initiatives



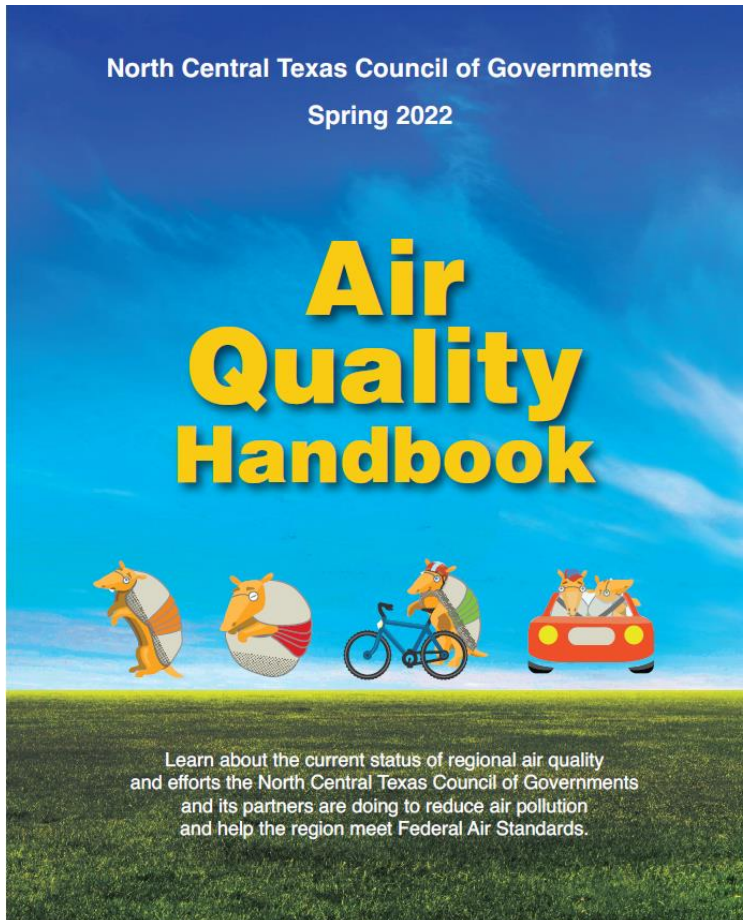
Rideshare. Record. Reward.



Air Quality Handbook

Multilingual

English



https://nctcog.org/nctcg/media/Transportation/DocsMaps/Quality/Air/AQ2022printer_Spring.pdf

Spanish



<https://www.nctcog.org/nctcg/media/Transportation/DocsMaps/Quality/Air/AQ2022SPANISH.pdf>

Vietnamese



<https://www.nctcog.org/getmedia/787b9fe9-94d9-4d76-9701-020876a06e61/AQHbkViet.pdf>

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