

# Cleveland Ozone Area Update

## October 2023

Jennifer Van Vlerah, Assistant Chief  
Division of Air Pollution Control  
Ohio EPA



**Environmental  
Protection  
Agency**

# Topics to Cover

1. Introduction to ozone and the current national ambient air quality standard (NAAQS)
2. Ozone air quality status
3. Ozone sources
4. Ozone planning efforts
5. Participating on Ohio EPA proposals to address ozone



# Ozone Background/Refresher

- Ozone is formed from “precursor” emissions of nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) in the presence of sunlight
- The ozone standard changes over time
  - Since 1997 – based on a 3-year average of annual 4th highest daily maximum 8-hour concentration (called “design value”)
  - 1997 – 80 ppb
  - 2008 – 75 ppb
  - 2015 – 70 ppb ← **current standard**
- Ozone monitoring season is March 1 to October 31





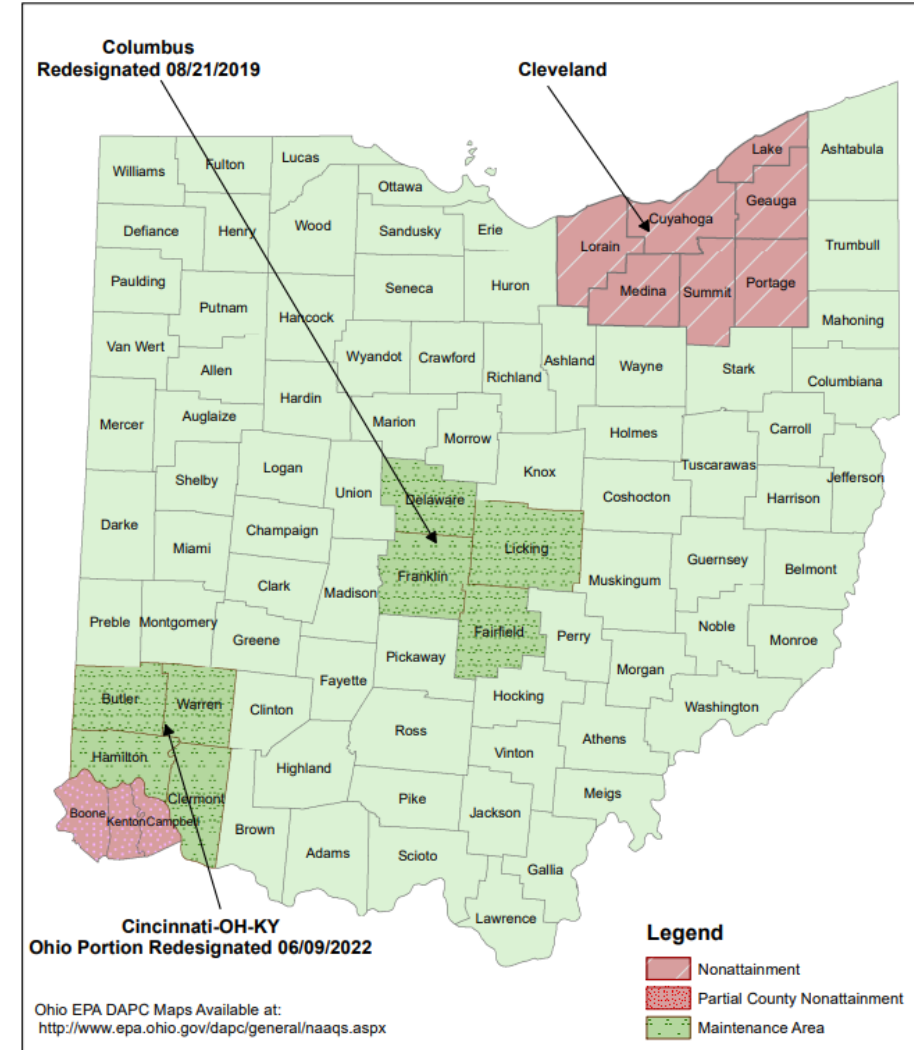
# Attainment Planning Steps

- Develop **Nonattainment Area Recommendations**
- Prepare **Infrastructure State Implementation Plans (SIPs)** - plans that demonstrate Ohio has the recourses, regulations, etc., to implement the standard (includes “transport” plans)
- Prepare **Attainment Demonstrations SIPs** – plans that demonstrate how the NAAQS will be attained and maintained throughout the state by the date specified by USEPA (“attainment date”)
- **Implement** the attainment strategy to assure attainment by the “attainment date” and **monitor air quality**
- Once air quality monitors “clean”, prepare **Redesignation Requests and Maintenance Plan SIPs** – plans that demonstrate the area has attained due to real reductions in pollution and that it will continue to attain for at least 10 years

# 2015 Ozone Standard Designation Timeline

- August 3, 2018: US EPA finalized nonattainment areas
  - Columbus, Cincinnati and Cleveland areas designated *marginal* nonattainment
  - Marginal attainment date set for August 3, 2021 (2018-2020 design values)
- August 2019 - Columbus redesignated to attainment
- June 2022 – Cincinnati redesignated to attainment
- November 2022: Cleveland “bumped up” to *moderate* nonattainment
  - Moderate attainment date set for August 3, 2024 (2021-2023 design values)

Ohio 2015 Eight-Hour Ozone (0.070 ppm)  
Nonattainment Areas  
Effective 08/03/2018



# Overview of CAA Ozone Nonattainment Area Planning & Control Requirements by Classification



		NSR Offset Ratio	Major Source Threshold
<b>EXTREME</b> (20 years to attain)	TRAFFIC CONGESTION CONTROLS (if appropriate)	1.5 : 1 Extreme	10 tpy
	CLEAN FUELS REQUIREMENT FOR BOILERS		
<b>SEVERE</b> (15/17 years to attain)	PENALTY FEE PROGRAM FOR MAJOR SOURCES	1.3 : 1 Severe	25 tpy
	VMT GROWTH DEMONSTRATION (& TCMs if needed)		
<b>SERIOUS</b> (9 years to attain)	VMT REPORTING	1.2 : 1 Serious	50 tpy
	NSR REQUIREMENTS FOR EXISTING SOURCE MOODS		
	CLEAN FUELS PROGRAM OR SUBSTITUTE MEASURE FOR LARGER POP. AREAS		
	MODELED DEMO OF ATTAINMENT		
	MILESTONE DEMONSTRATIONS and CONTINGENCY MEASURES FOR RFP		
	3% ANNUAL RFP UNTIL ATTAINMENT		
<b>MODERATE</b> (6 years to attain)	ENHANCED I/M for larger population areas	1.15 : 1 Moderate	100 tpy
	CONTINGENCY MEASURES FOR FAILURE TO ATTAIN		
	ENHANCED MONITORING PLAN		
	Stage-II-Gasoline-Vapor-Recovery		
<b>MARGINAL</b> (3 years to attain)	BASIC VEHICLE I/M for larger population areas	1.1 : 1 Marginal	100 tpy
	15% VOC ROP or 15% VOC/NOx RFP (OVER 6 YEARS)		
	VOC/NOx RACT for MAJOR/CTG SOURCES		
	ATTAINMENT DEMONSTRATION		
	NONATTAINMENT NEW SOURCE REVIEW PROGRAM		
	EMISSIONS STATEMENTS		
	BASELINE EMISSIONS INVENTORY (EI)		
	PERIODIC EMISSIONS INVENTORY UPDATES		

NOTE: Transportation and General Conformity apply in all ozone nonattainment areas.

# Cleveland Ozone Outlook (\*as of 9/6/23)

To get a 1-year extension, all monitors must be at 70 ppb or lower for the 4<sup>th</sup> high for 2023

Site Name	Site Id	County	2020 4th High	2021 4th high	2022 4th high	2023 4th high needed to violate 2015 standard	2023 4th high to date	2020-2023 DV to date
District 6	39-035-0034	Cuyahoga	74	70	73	70	71	71
GT Craig NCore	39-035-0060	Cuyahoga	66	59	61	93	65	61
Berea BOE	39-035-0064	Cuyahoga	66	69	55	79	75	69
Mayfield	39-035-5002	Cuyahoga	68	68	65	80	73	68
Notre Dame	39-055-0004	Geauga	65	67	64	82	66	65
Eastlake	39-085-0003	Lake	75	72	76	65	72	73
Painesville	39-085-0007	Lake	68	63	62	88	73	66
Sheffield	39-093-0018	Lorain	59	59	63	91	64	62
Chippewa	39-103-0004	Medina	64	65	67	81	72	68
Lake Rockwell	39-133-1001	Portage	63	67	71	75	70	69
North High	39-153-0026	Summit	62	66	69	78	71	68



Cleveland area has not met the standard and does not qualify for an extension

# “Mandatory” *Moderate* Classification Requirements

- NOx and VOC Reasonably Available Control Technology (RACT)
  - Revised OAC Chapters 3745-110 NOx RACT, 3745-21 VOC RACT
- Emissions Inspection and Maintenance (I/M) Program (i.e. E-Check) – in operation
- Additional challenges permitting new and modified sources
  - NSR offset ratio 1.15:1
  - Baseline year reset

***\*all of these have been implemented***



# “Mandatory” *Serious* Classification Requirements

- Keep all Moderate programs in place
- NOx and VOC RACT – lower thresholds for applicability from 100 TPY to 50 TPY
- Additional challenges permitting new and modified sources
  - NSR offset ratio 1.2:1
  - Baseline year reset
  - Major source permitting threshold lowered from 100 TPY to 50 TPY
    - More Title V and synthetic minor sources
  - Major modification significance levels decrease from 40 TPY to 25 TPY thresholds will be lowered
    - More changes at existing facilities will trigger major new source review

**\*Early stakeholder outreach initiated August 30, 2023**

# *Serious Bump-up Timeline*

<b>8/3/24</b>	<b>Attainment date for serious nonattainment</b>
<b>2/3/25</b>	Finding of failure to attain and bump-up (due w/in 6 months)
<b>1/1/26</b>	Attainment demonstration due
<b>1/1/26</b>	Implementation of control measures
<b>2026 ozone season</b>	Last season before serious attainment date
<b>8/3/27</b>	Serious attainment date



# Additional Ozone Reduction Measures

Additional **nonmandatory** requirements updated statewide ← **Completed**

- Consumer Products Rules
- Architectural & Industrial Maintenance Rules

**Voluntary** Ozone Reduction Initiatives With LAA/MPOs ← **In progress**

- Locomotives
  - Idle-limiting or shut-off devices (develop MOUs with railroads, encourage sources to apply for funding assistance)
- Harbor Craft
  - Rebuild/replace engines (encourage sources to apply for funding assistance)
- Heavy Duty Diesel Trucks
  - Idle reduction (encourage municipalities to adopt ordinances, work with fleet operators to develop MOUs)
- Non-road Diesel Construction Equipment
  - Idle reduction (encourage municipalities to adopt ordinances, work with major companies to develop MOUs)
- Lawn/garden, Light Commercial Equipment
  - Rebates/discounts on electric equipment
  - Programs in Cleveland, Cincinnati, Toledo and Akron. starting next year. Ohio EPA provided \$50k to each agency for rebates

# Additional Ozone Reduction Measures

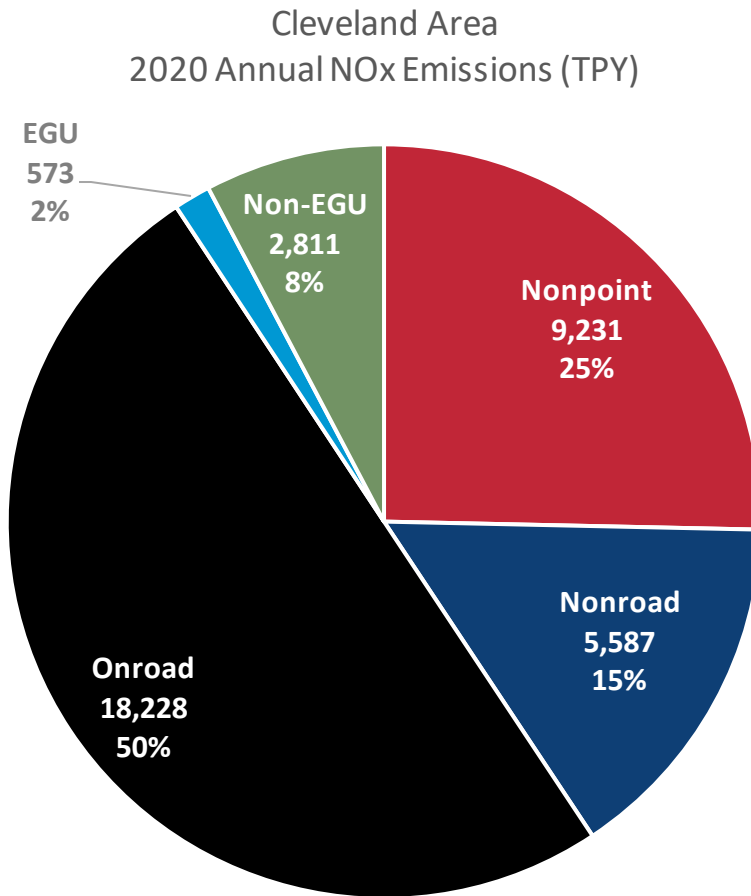
- Working with Lake Michigan Air Directors Consortium (LADCO) and other Midwest states
  - Regional studies include inventory exploration and control strategy options
  - Photochemical modeling
  - Conceptual ozone models

“The meteorological conditions that lead to exceedances of the ozone NAAQS for the Cleveland region are warm, dry, sunny days with weak synoptic winds out of the west, southwest, or south, particularly when a lake breeze blows onshore from Lake Erie.”

- Numerous federal programs



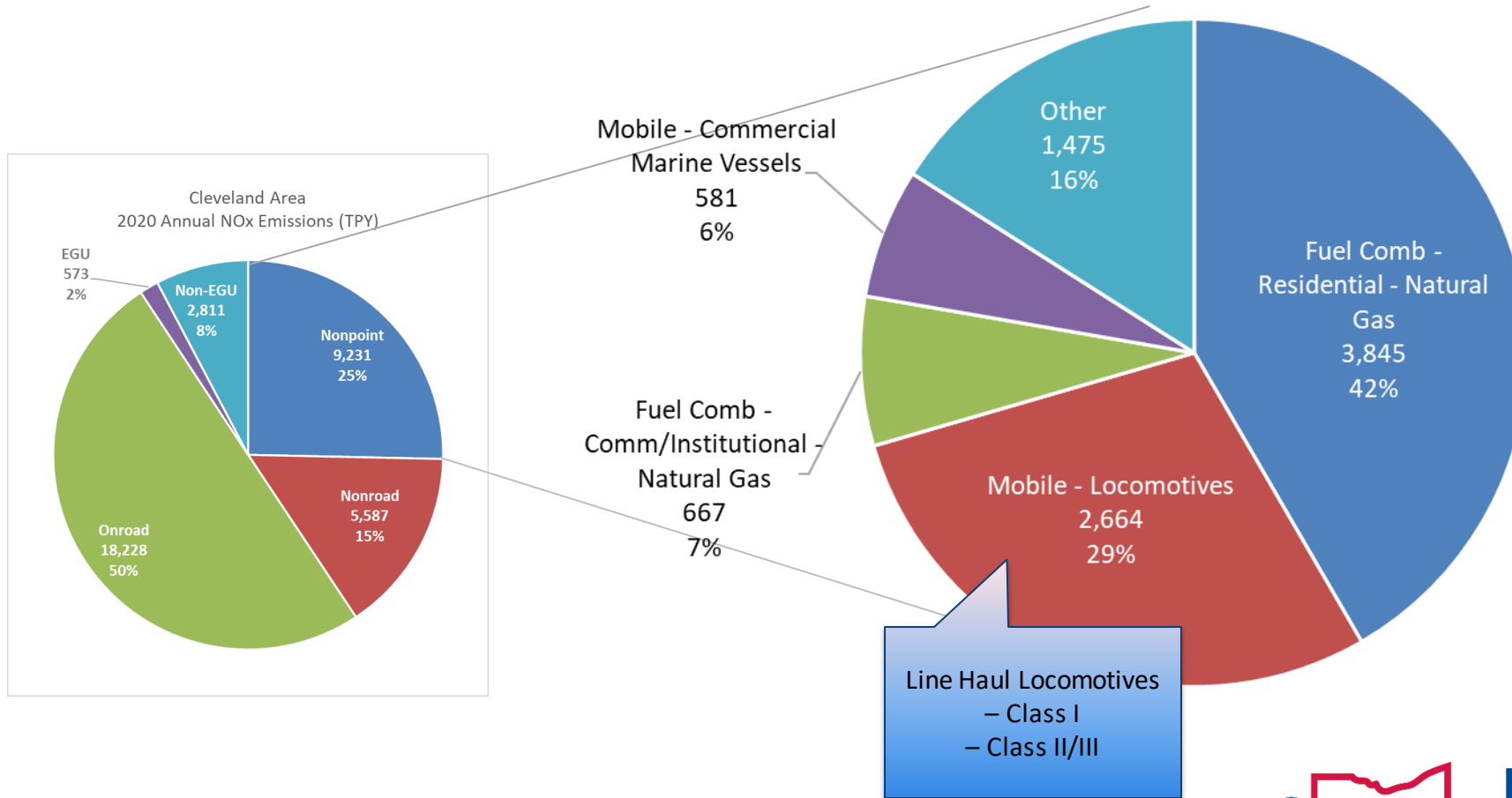
# NOx Inventory



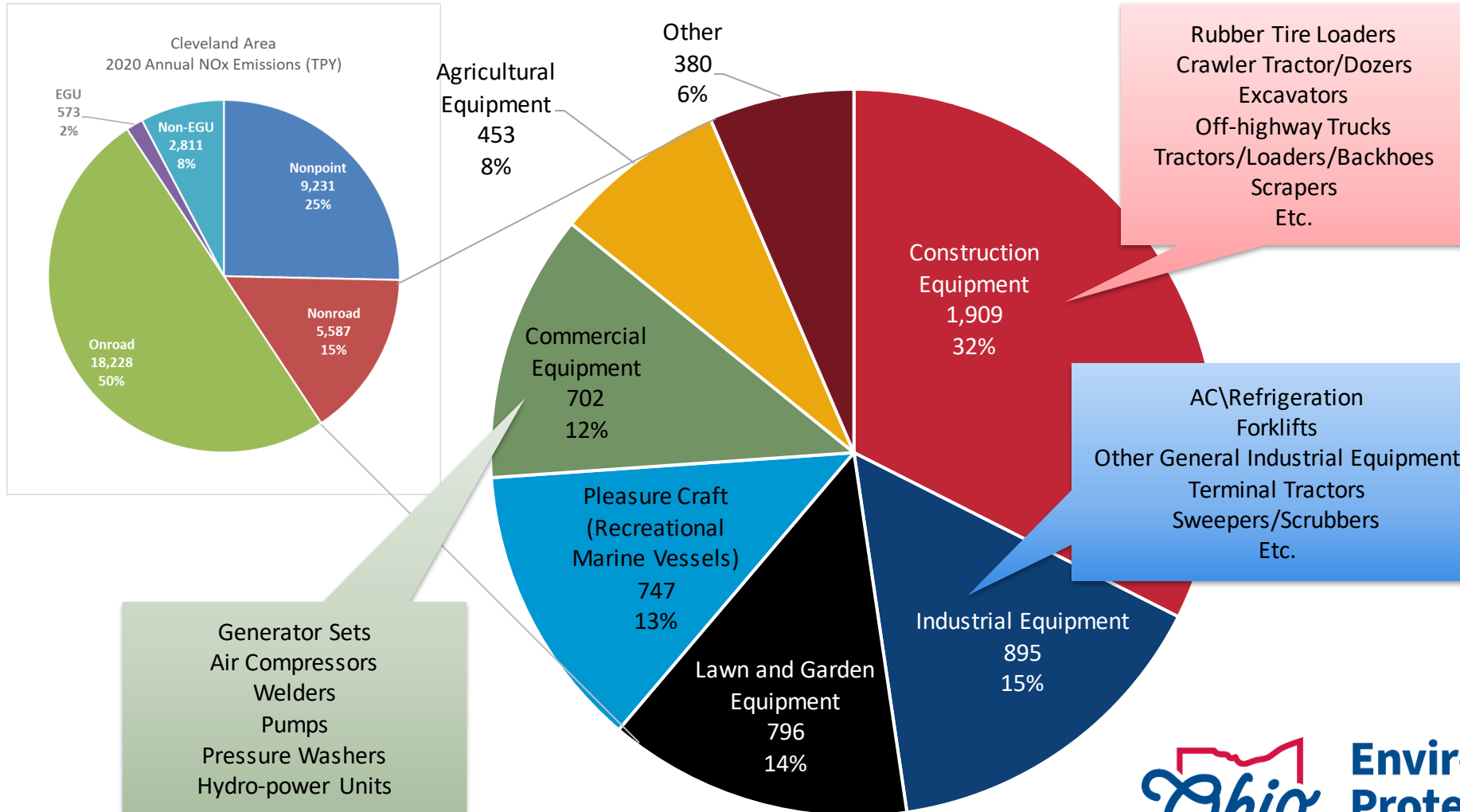
- Mobile significant
  - Onroad and nonroad
- Nonpoint significant
- Point sources less so (EGU & non-EGU)



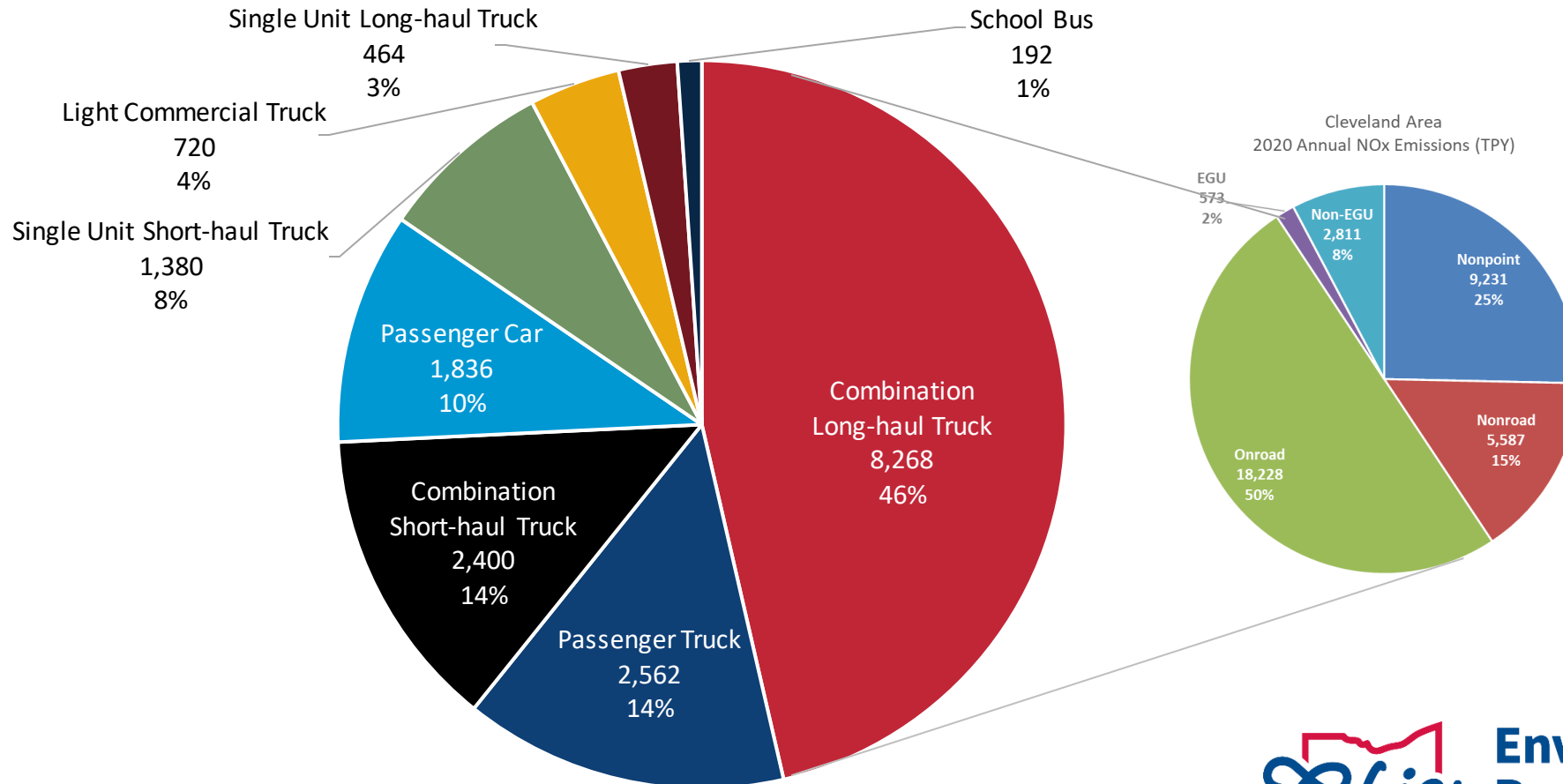
# NOx Nonpoint Inventory (TPY)



# NOx Nonroad Inventory (TPY)

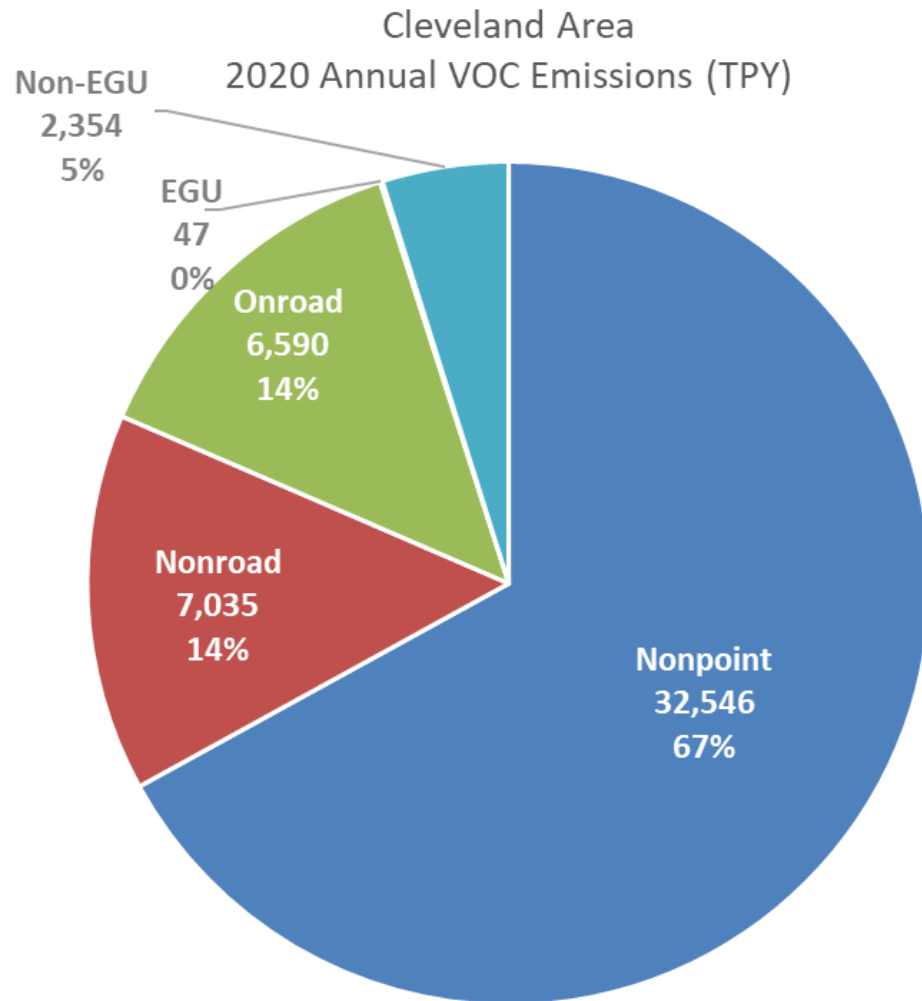


# NOx Onroad Inventory (TPY)





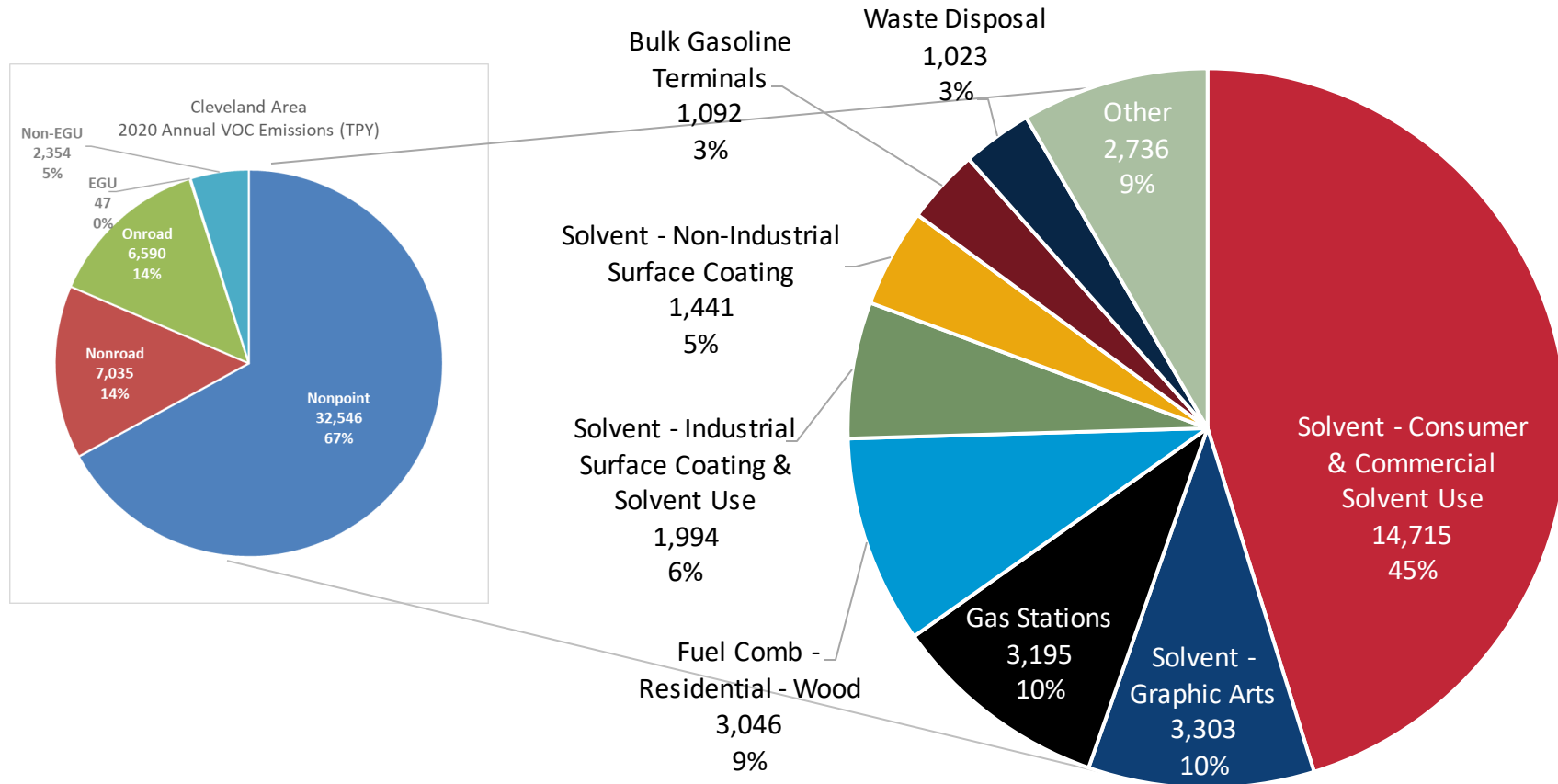
# VOC Inventory



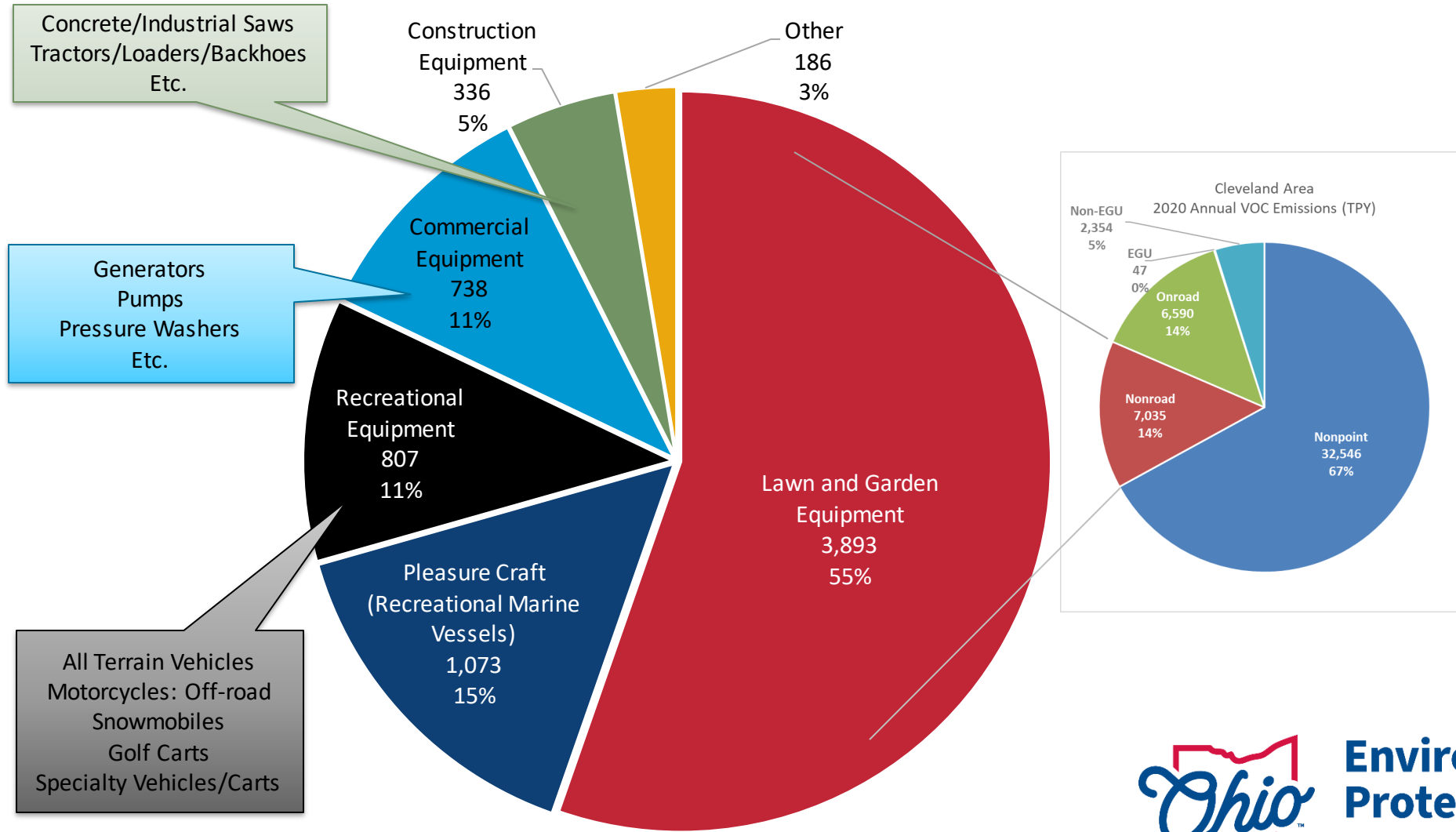
- Nonpoint is significant
- Mobile (nonroad and onroad) significant



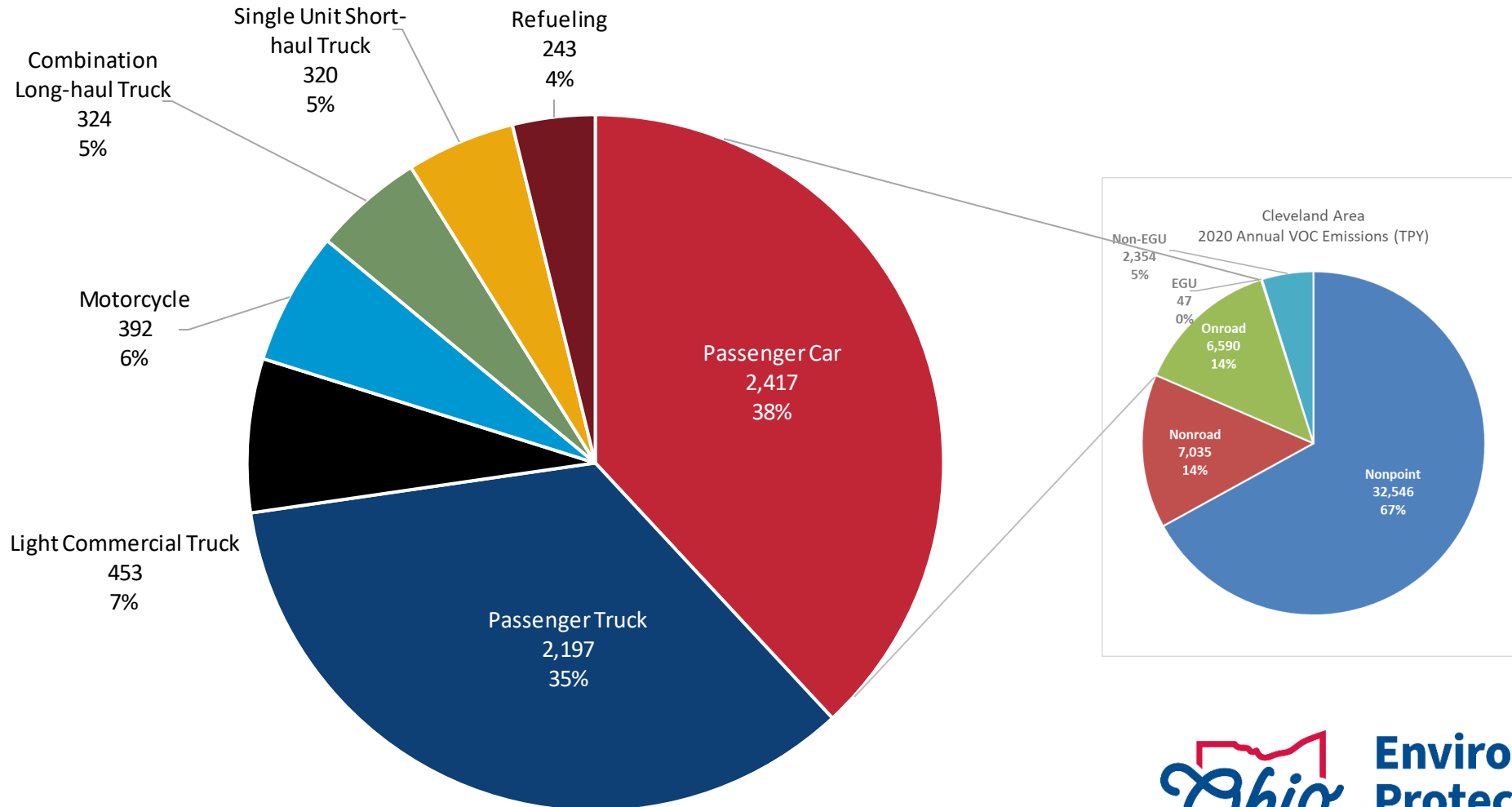
# VOC Nonpoint Inventory (TPY)



# VOC Nonroad Inventory (TPY)

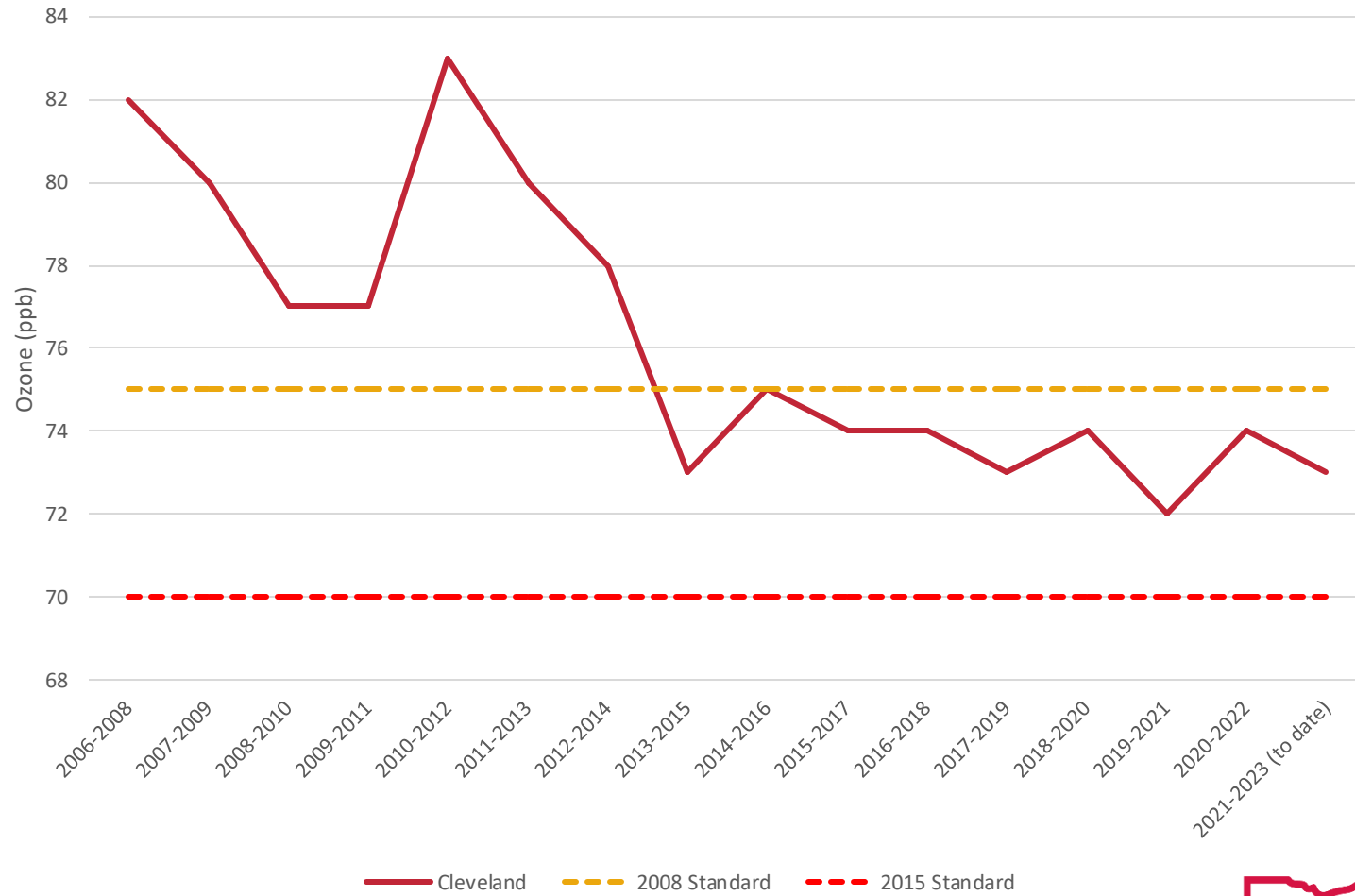


# VOC Onroad Inventory (TPY)



# Cleveland Ozone Trends

Cleveland 2015 Ozone Nonattainment Area - Ozone 3-Year Design Value Trend



# Public Participation

- Rulemaking process
  - Early Stakeholder Outreach (ESO)
    - Mandatory Requirements currently out for comment. Comment period will be extended from 10/2/23 to 10/12/23.
    - [https://epa.ohio.gov/static/Portals/27/regs/3745-110/ESO\\_CleSeriousOzoneBump-up\\_Final.pdf](https://epa.ohio.gov/static/Portals/27/regs/3745-110/ESO_CleSeriousOzoneBump-up_Final.pdf)
  - Interested Party (IP) Review ← another opportunity
  - Proposal to Joint Committee on Agency Rule Review (JCARR) ← another opportunity
  - Final
  - Effective
- Attainment planning process
  - Likely initiate in 2025 ← another opportunity



# Public Participation

- How to stay informed
  - E-mail notification lists
    - Rulemaking process
    - State Implementation Plan (SIP)
    - Subscribe to both for updates (see last slide) - <https://ohioepa.custhelp.com/>
  - Ohio EPA bump-up website
    - <https://epa.ohio.gov/divisions-and-offices/air-pollution-control/state-implementation-plans/state-implementation-plan-sip-2015-eight-hour-ozone-planning>

# Questions?

Jennifer Van Vlerah

Assistant Chief, Division of Air Pollution Control  
Ohio EPA

50 West Town St. Suite 700

Columbus, Ohio 43215

614-644-3696

[Jennifer.vanvlerah@epa.ohio.gov](mailto:Jennifer.vanvlerah@epa.ohio.gov)



# Subscribe Steps

## Subscribe for Updates

Ohio EPA has listServ/electronic mailing lists for parties interested in receiving notifications on rulemakings and State Implementation Plan (SIP) actions. To sign up for these mailing lists:

### Create a Customer Support Center Account

How to subscribe for updates and training opportunities through Ohio EPA's Customer Support Center. Ready to create your account? Click on the link below.



- Open [Ohio EPA's main webpage](http://epa.ohio.gov) at: epa.ohio.gov
- Click on the box labeled "Customer Support Center", this will take you to the search page for the [customer support center](#).
- At the top right of the page, click "Log In" " If you have never logged into the system before, or if you do not have a password, please click on "Forgot your username or password?" to receive your username and/or password.
- Once you have logged into the system, go to "Settings" and choose "Update your account settings"
- On the "Account Settings" page, expand the accordion at the bottom of the page by clicking on "Subscriptions"
- Under subscriptions, you will see an expanded list of various interested party ListServ/e-Mail lists to which you can subscribe. Click the "Subscribe" button next to list(s) you are interested in.