

# Air Quality and Reformulated Gasoline Requirements



**KENTUCKY ENERGY &  
ENVIRONMENT CABINET**

**Michael Kennedy, P.E., Director  
Division for Air Quality  
July 5, 2022**

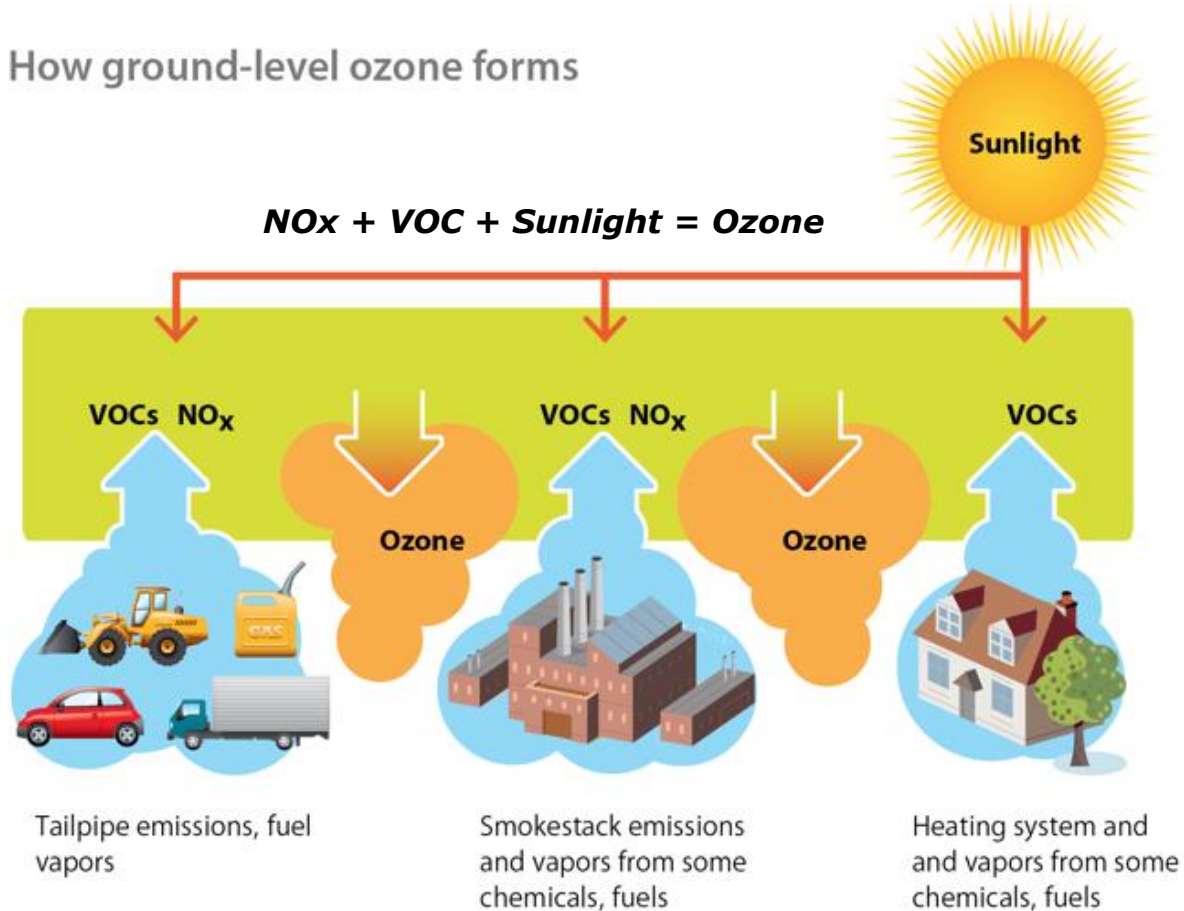
# Mission of the Division for Air Quality

**To protect human health and the environment by achieving and maintaining acceptable air quality through:**

- Operation of a comprehensive air monitoring network;
- Creating effective partnerships with air pollution sources and the public;
- Timely dissemination of accurate and useful information and data;
- Judicious use of program resources; and
- Maintenance of a reasonable and effective compliance program.

# Ground-Level Ozone

How ground-level ozone forms



# Reformulated Gasoline (RFG)

- **1990 Clean Air Act Amendments**
  - To reduce ozone levels in certain areas of the country by decreasing the Volatile Organic Compounds (VOCs) in vehicle emissions
  - Other nonattainment area designations may “opt-in”
  - Louisville and Northern Kentucky declared “Moderate”

# RFG Implementation in KY

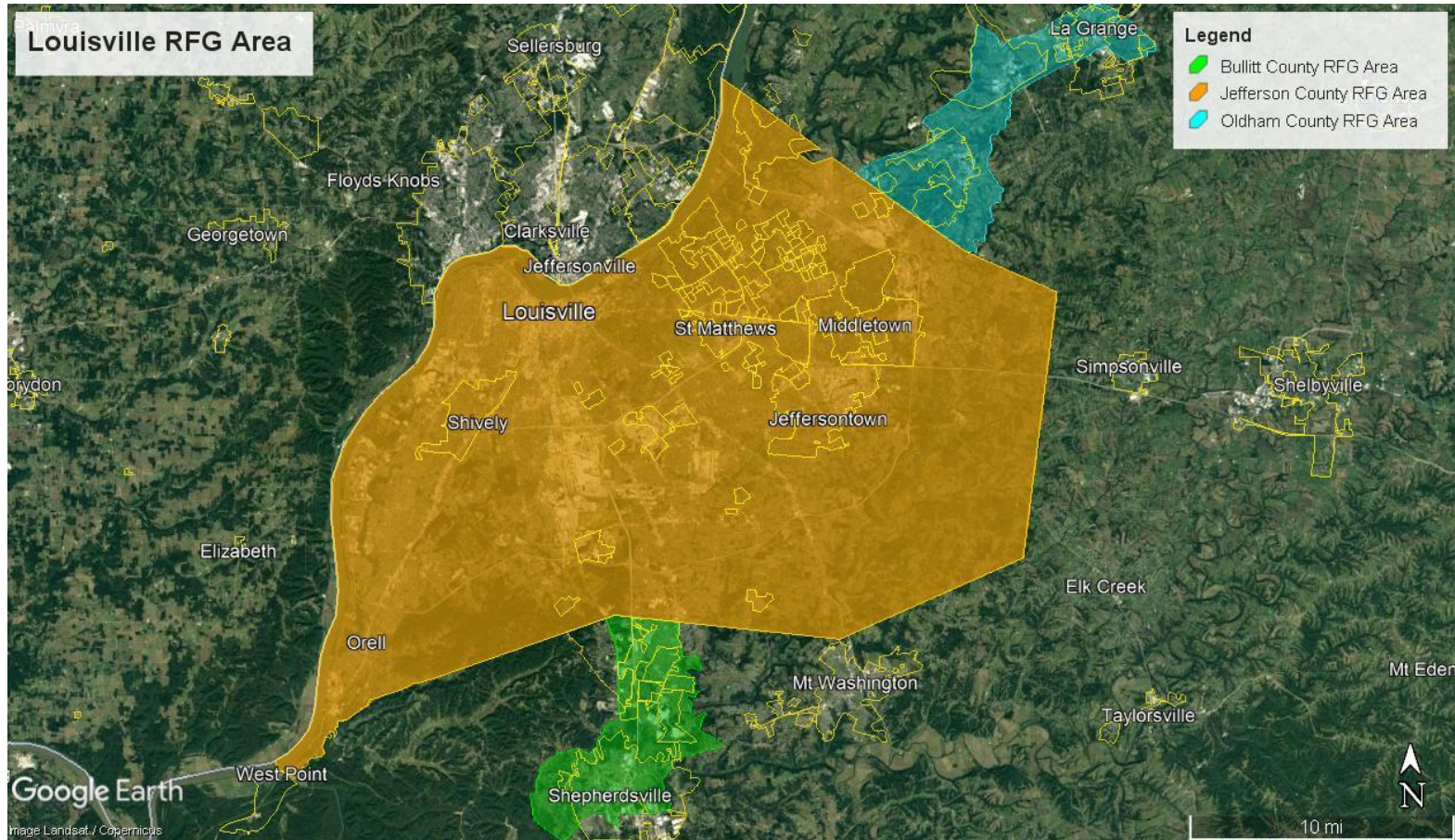
- **September 29, 1993 – Governor Jones requested to opt-in**
  - RFG served as air pollution control measure beginning January 1, 1995, for Northern Kentucky and the Louisville area
  - Initially, the RFG program reduced NOx and VOC by an estimated 17%

# Removal of RFG in Northern KY

- Multi-step process to opt-out of RFG program
  - 1) April 18, 2017, EEC submitted a petition to EPA to opt-out of the RFG program for the Northern Kentucky Area (Cincinnati, OH-KY)
  - 2) “Noninterference Demonstration” submitted to EPA for approval
  - 3) EPA approval of State Implementation Plan (SIP) revision
  - 4) EPA approval of the petition to remove the area from the federal RFG Program, effective July 1, 2018

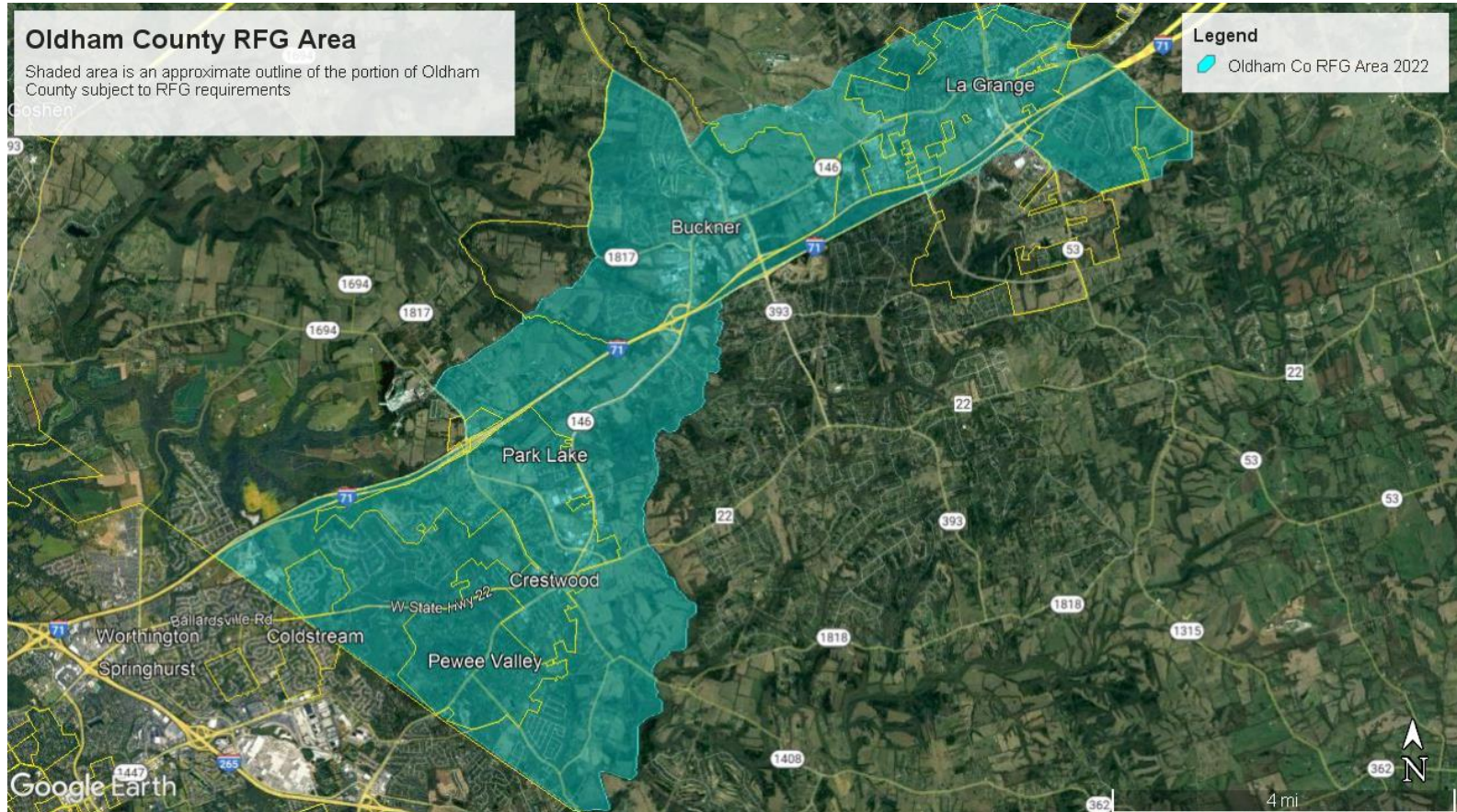


# RFG Areas in Kentucky



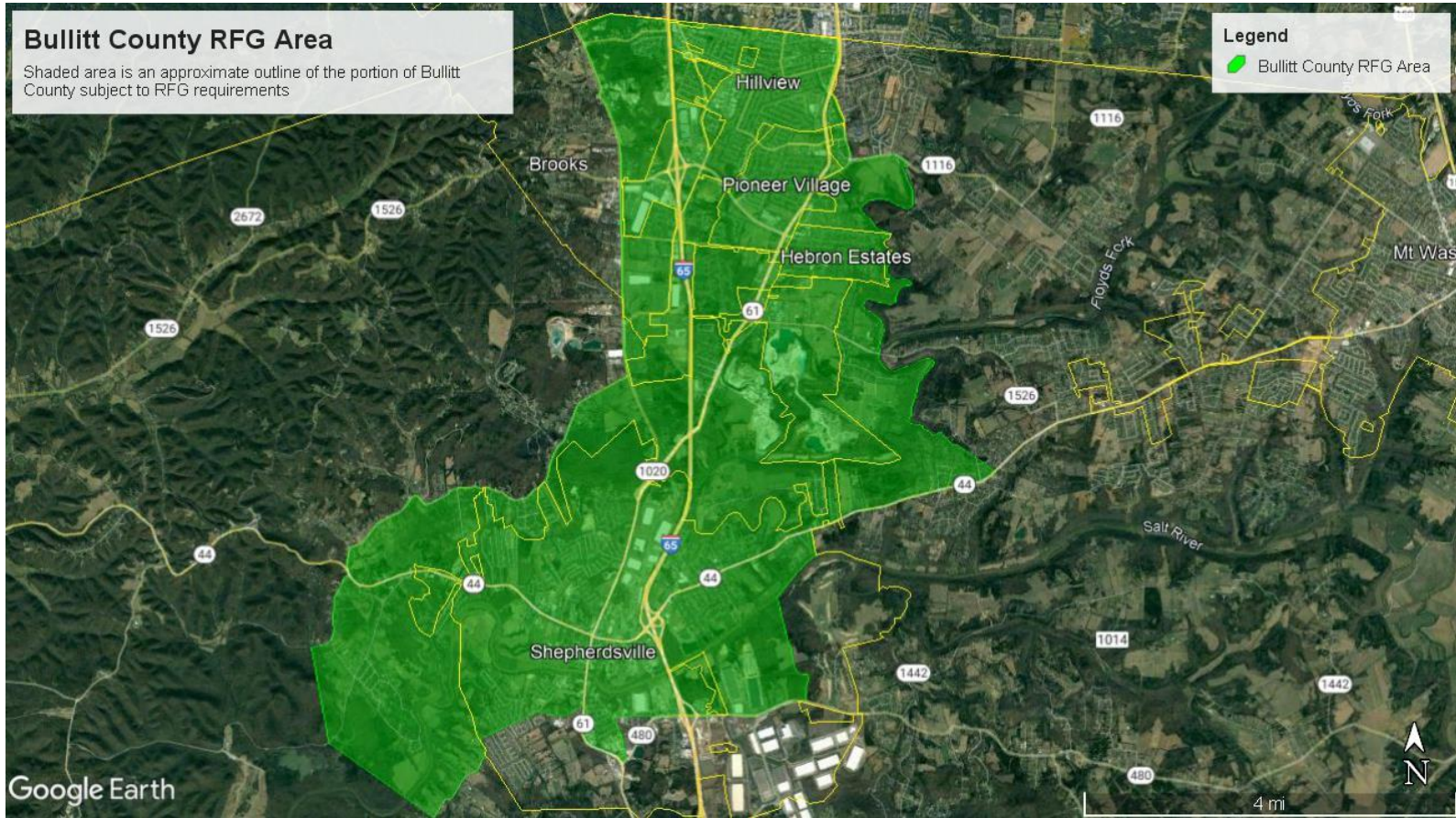


# Oldham County RFG Area



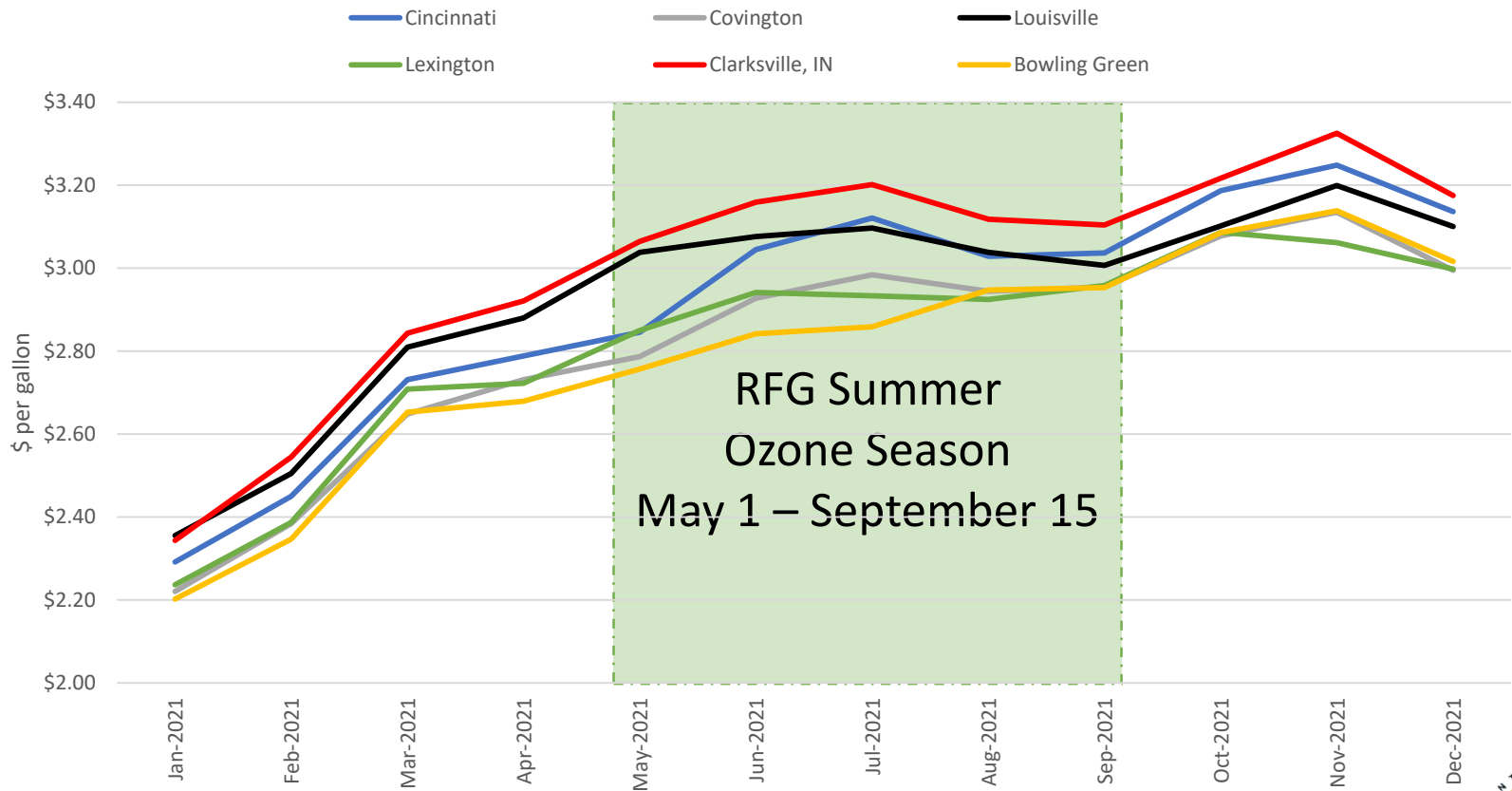


# Bullitt County RFG Area



# Annual Cost Comparison

Average Gas Prices in Kentucky (2021)

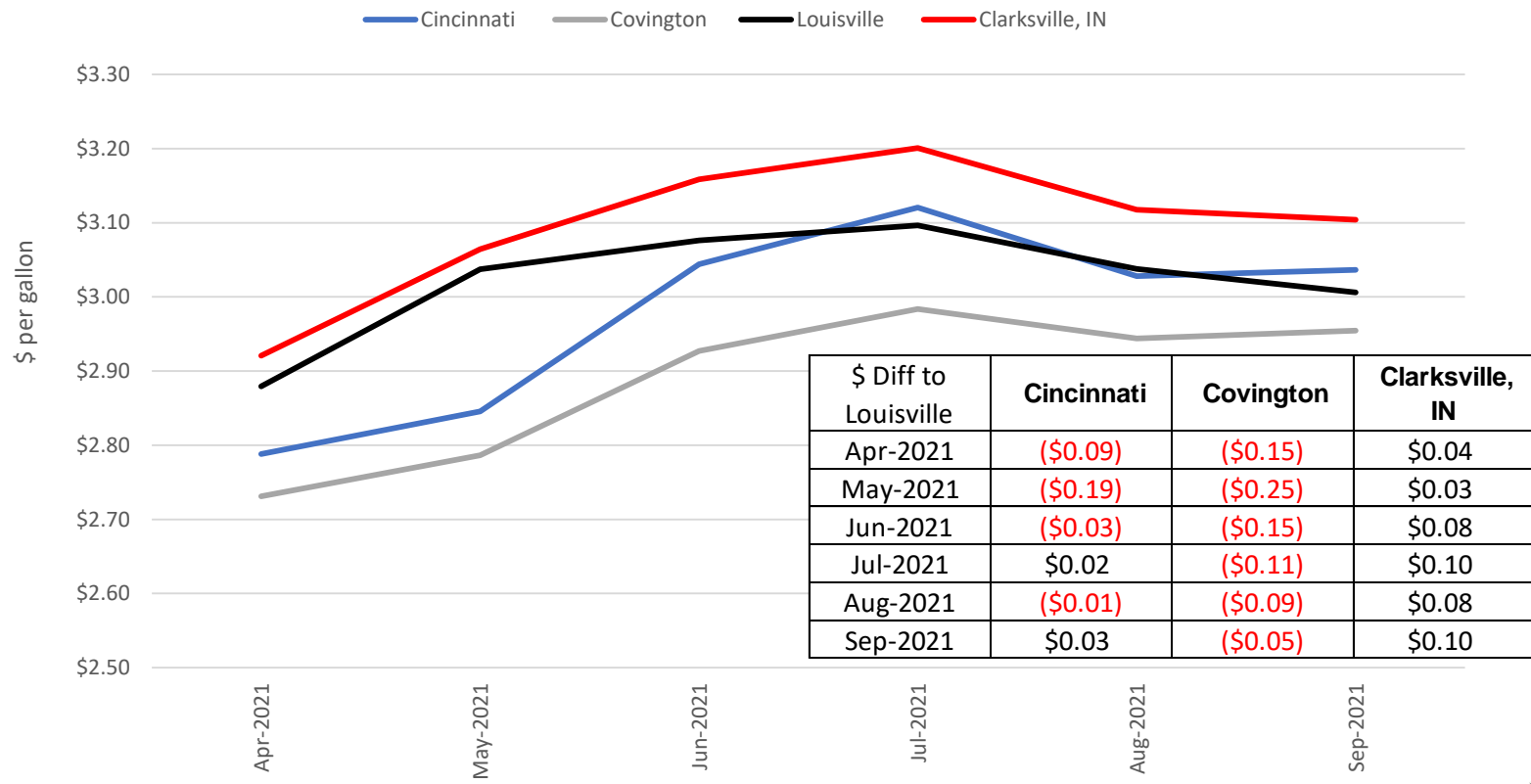


\* Data from: <https://gasprices.aaa.com>



# Ozone Season Cost Comparison

Average Ozone Season Gas Prices 2021



\$ Diff to Louisville	Cincinnati	Covington	Clarksville, IN
Apr-2021	(\$0.09)	(\$0.15)	\$0.04
May-2021	(\$0.19)	(\$0.25)	\$0.03
Jun-2021	(\$0.03)	(\$0.15)	\$0.08
Jul-2021	\$0.02	(\$0.11)	\$0.10
Aug-2021	(\$0.01)	(\$0.09)	\$0.08
Sep-2021	\$0.03	(\$0.05)	\$0.10

\* Data from: <https://gasprices.aaa.com>



# Changes Since Kentucky Opted-In

- EPA adopted Tier 2 gasoline sulfur standards (65 FR 6698, Feb. 10, 2000)
  - Reduced evaporative and exhaust emissions
- Congress enacted the Energy Policy Act of 2005
  - Removed the oxygenate requirement of RFG and mandated gasoline nationwide containing increasing volumes of renewable fuels (i.e. ethanol)
- EPA adopted Mobile Source Air Toxics (MSAT) rule
  - Applied a benzene content standard to all types of gasoline, including special blends (72 FR 8431, Feb. 26, 2007)
  - Removed the NOx performance requirements from the RFG regulations (72 FR 8498, Feb. 26, 2007)
- Vehicle emission controls have significantly improved



# Can RFG be removed?

- RFG can be removed as a control program
  - Multi-step process
    - (1) Requires a petition (request) to remove Kentucky from the RFG program
    - (2) “Non-interference Demonstration” showing that the removal of RFG will not cause the area to exceed the ozone standard
    - (3) EPA approval of the “Non-interference Demonstration”
    - (4) EPA approval of the petition request
  - From start to finish, it took 15 months for the Northern Kentucky Area opt-out to become effective.

# Can RFG be removed?

- More difficult to remove when the area is not in attainment for the ozone standard
- Yes, but reductions must come from other NO<sub>x</sub> and VOC sources in the area.

# Questions?

Michael Kennedy, P.E.

Director, Kentucky Division for Air Quality

502-782-6997

[Michael.Kennedy@ky.gov](mailto:Michael.Kennedy@ky.gov)

# Louisville Ozone Update

July 5, 2022

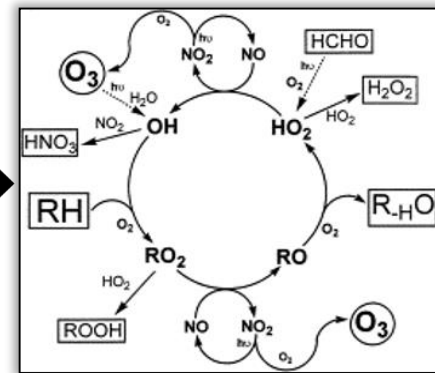
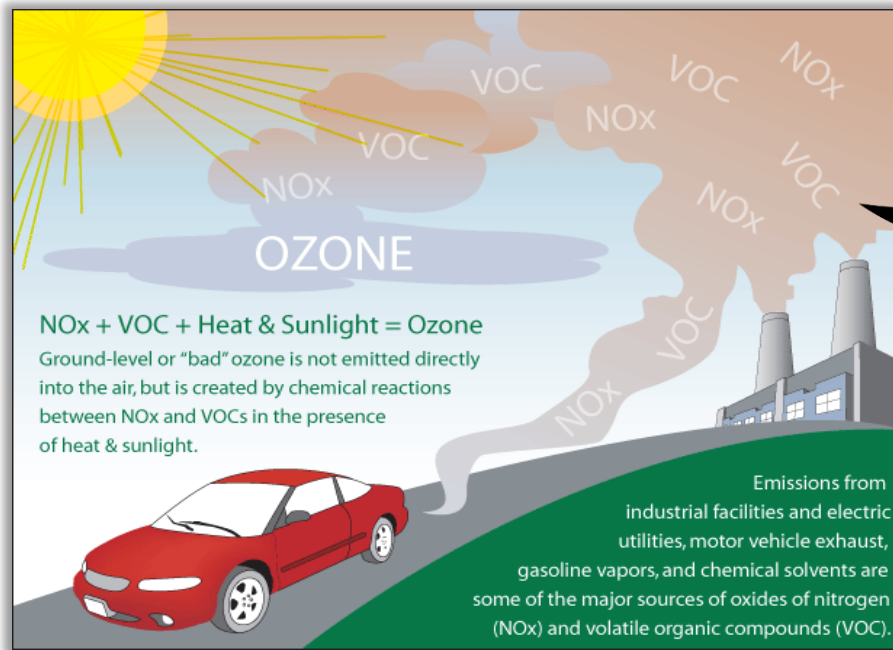
Rachael Hamilton



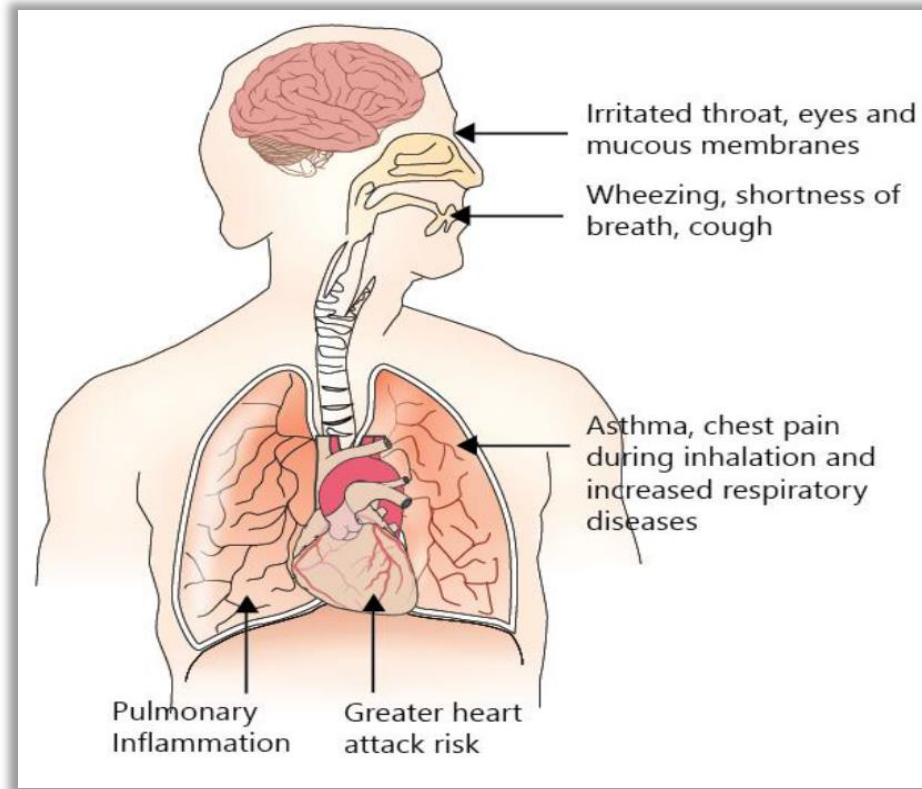


# Ozone Formation

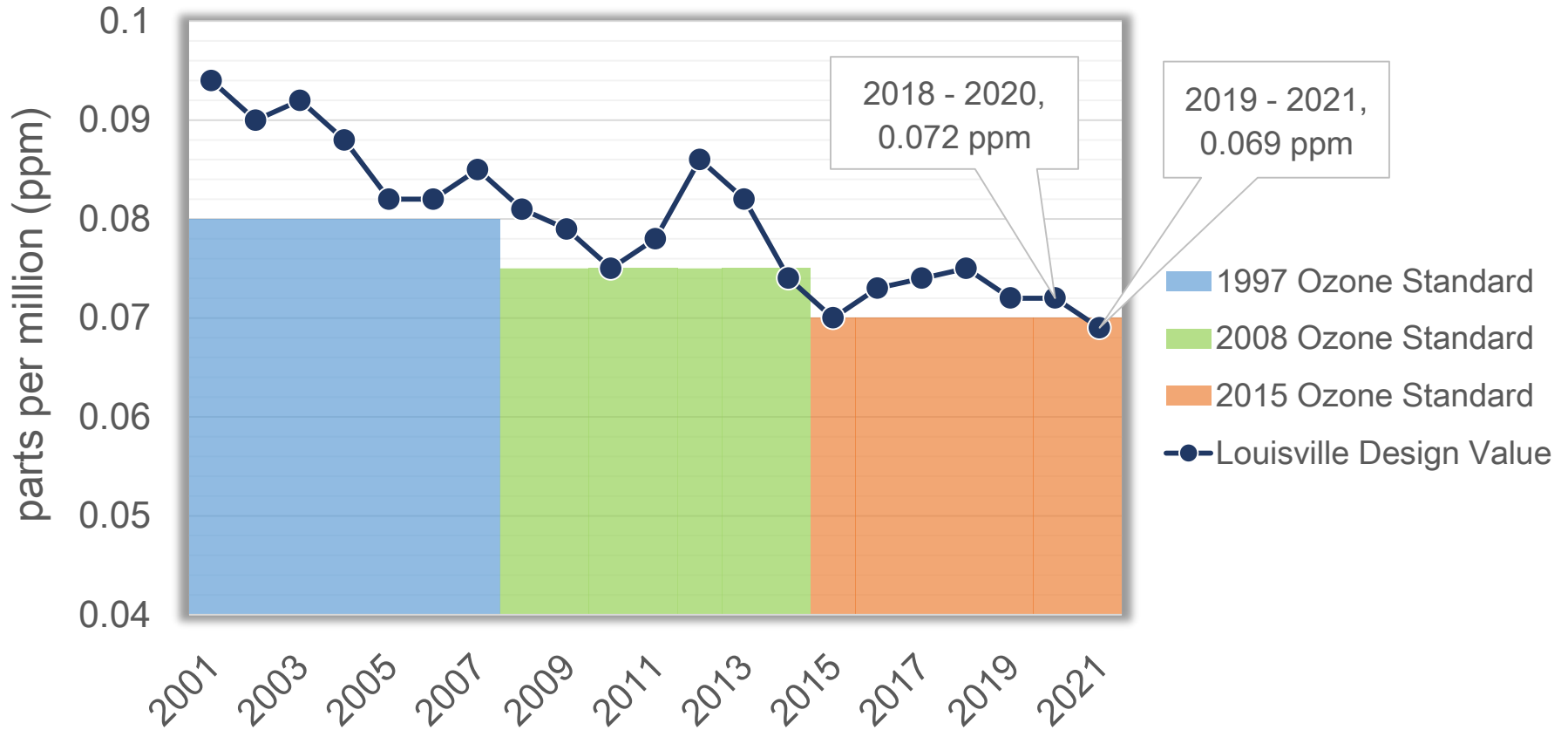
Nitrogen oxides (NO<sub>x</sub>) + Volatile Organic Compounds (VOCs) + Sunlight



# Health Effects of Ozone



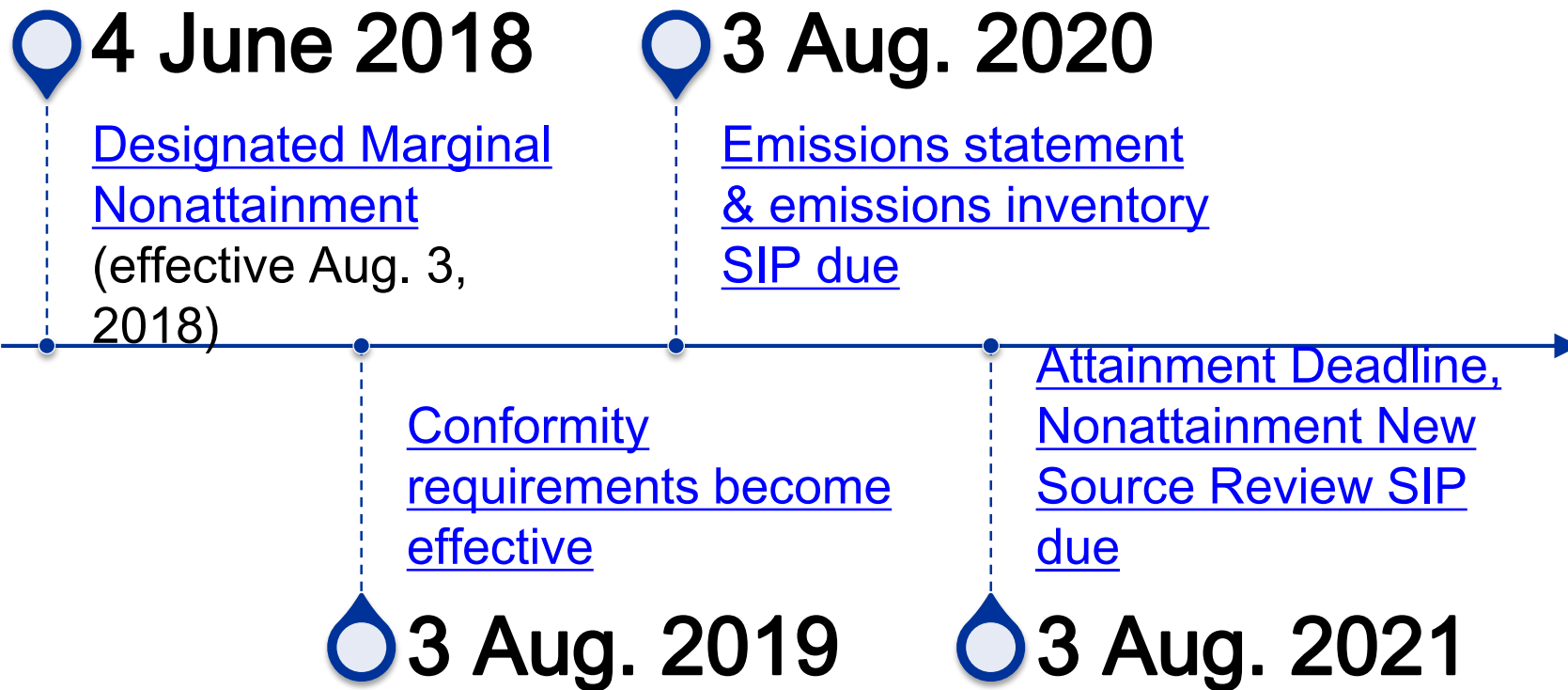
# Louisville's Ozone History



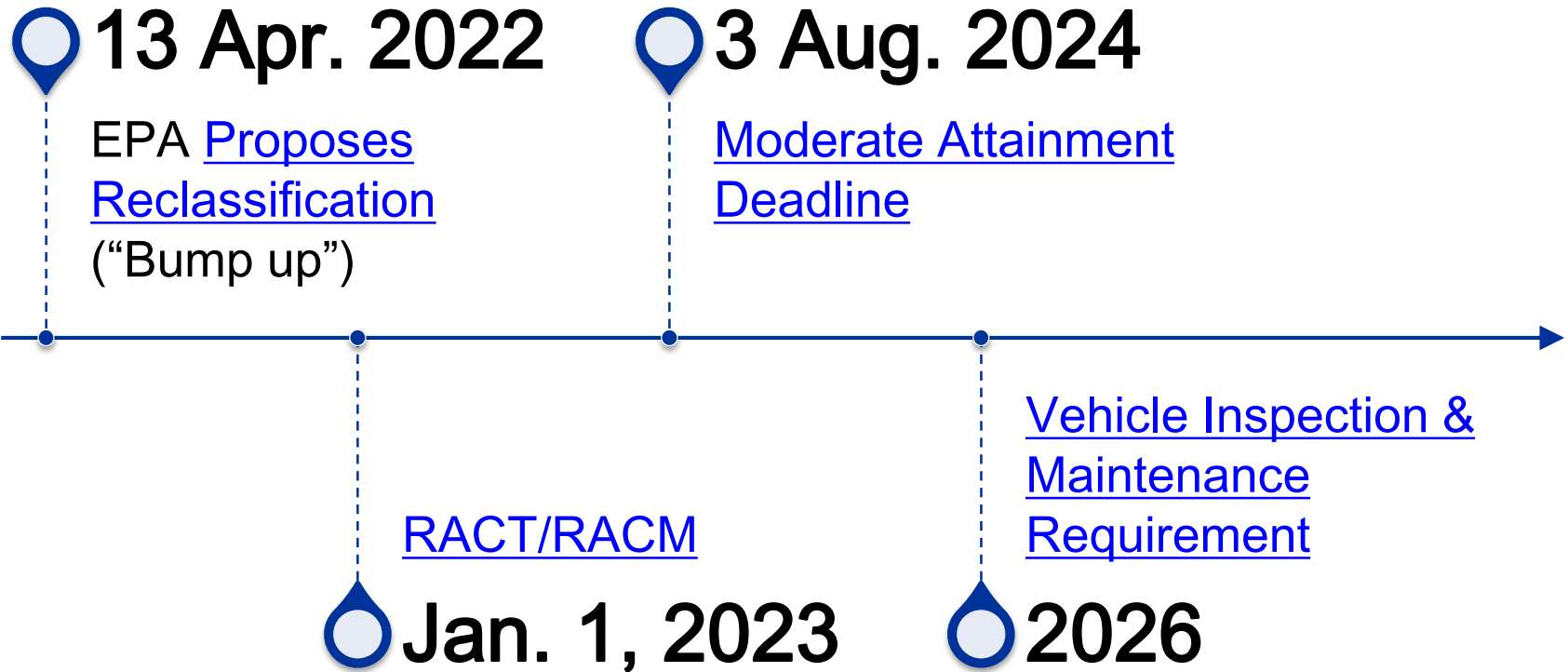
# Ozone NAAQS Redesignation Request



# 2015 Ozone Standard - Timeline



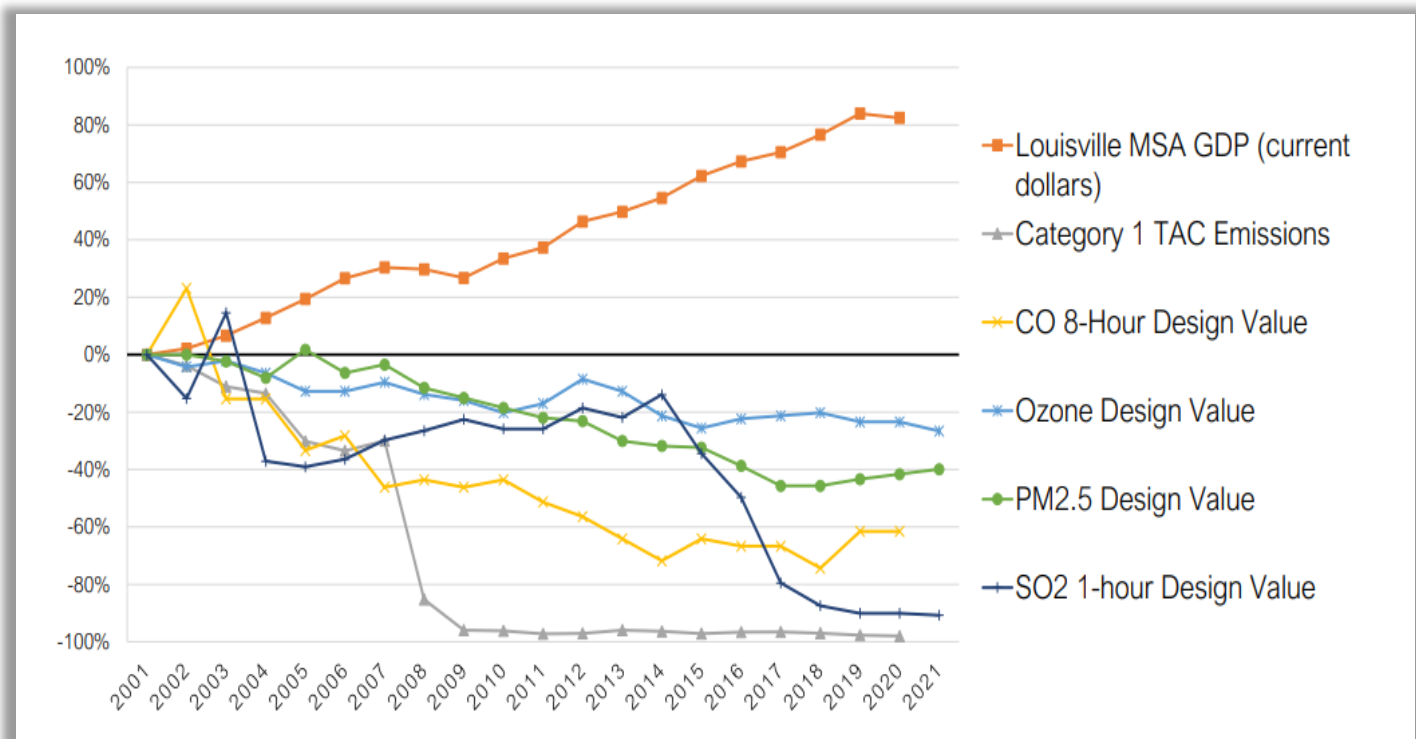
# 2015 Ozone Standard - Timeline



# Redesignation Request Process



# Questions?



Rachael Hamilton, Director  
LMAPCD  
(502) 574-5218  
Rachael.Hamilton@louisvilleky.gov